

WOODS HOLE GROUP
 A CLS COMPANY
 107 WATERHOUSE ROAD, BOURNE, MA 02532
 TELEPHONE: (508) 540-8080 FAX: (508) 540-1001

Atlantic Ocean

Location Map Not to Scale



Revisions	Date
1.	
2.	
3.	
4.	
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6.	
7.	

Sheet 2

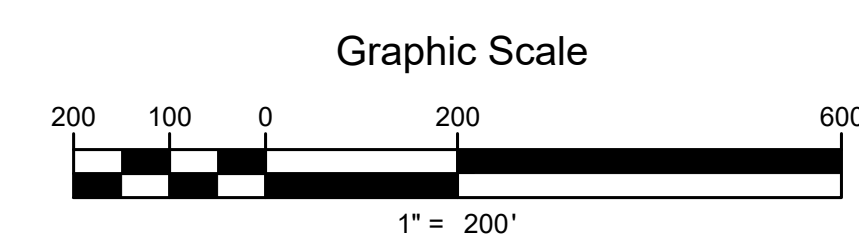
Sheet 4

Bay Ave / Gurnet Rd Beach
 Proposed Beach Nourishment Footprint

Construction Access Via
 Duxbury Beach Reservation
 (DBR) North Lot

ROCKY
 INTERTIDAL
 SHORE

CONSTRUCTION
 ACCESS VIA
 BAY AVE
 BOAT RAMP



Surveyed By:
 Woods Hole Group (WHG)
 107 Waterhouse Road
 Bourne, MA 02532
 508-540-8080

Title:
 Bay Ave/ Gurnet Road Beach Nourishment,
 Construction Access, & Staging Plan to
 Towns of Marshfield and Duxbury, MA

Project Number: 2018-0237-07
 Dwg File: 18-0231-07_11-2023.dwg
 Scale: 1" = 200'
 Date: 11/07/2023
 Approved:
 Drawn: LMP

- Legend:**
- - - - - Existing Contours (Ground Survey)
 - - - - - Proposed Nourishment Contours
 - ////// NHESP Priority Habitat of Rare Species and Estimated Habitat of Rare Wildlife mapped boundary
 - High Tide Line (HTL)
 - Mean High Water (MHW)
 - Mean Low Water (MLW)

Survey Notes:

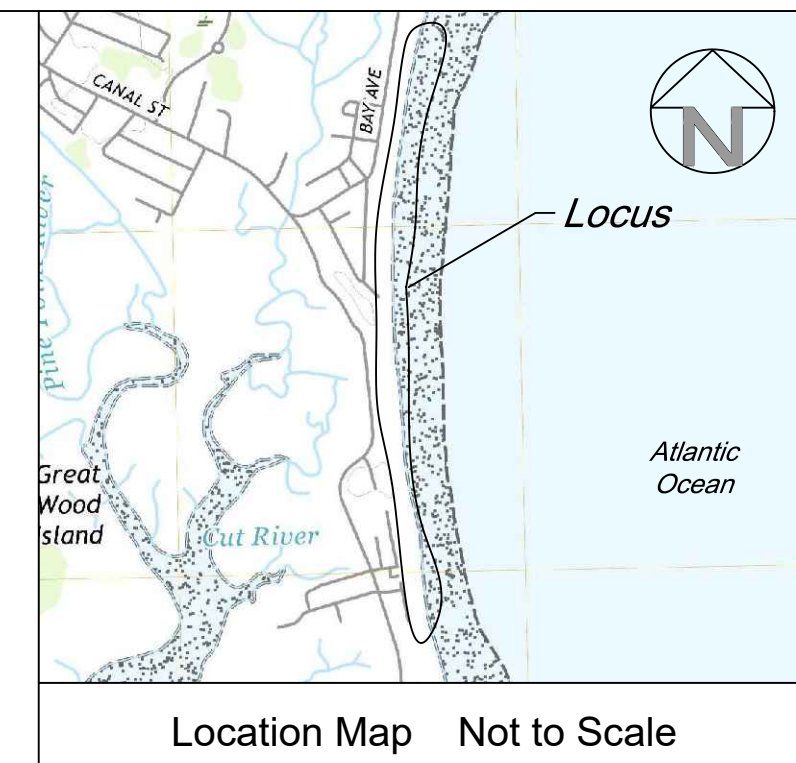
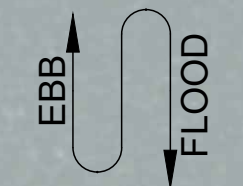
- TOPOGRAPHIC SURVEY CONDUCTED TO ESTABLISH EXISTING CONDITIONS IN 10/2023 BY THE WOODS HOLE GROUP, INC.
- GIS PARCEL LINES BASED ON MASSGIS WHICH ARE CONSIDERED APPROXIMATE AND DO NOT REPRESENT AN ACTUAL PROPERTY BOUNDARY SURVEY.

Datum Notes:

COORDINATES ARE BASED ON MASSACHUSETTS STATE PLANE NAD83, MAINLAND ZONE (2001), IN UNITS OF US SURVEY FEET. ELEVATIONS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) IN UNITS OF US SURVEY FEET. HIGH ASTRONOMICAL TIDE (HTL) ELEVATION = 6.5 ft. MEAN HIGH WATER (MHW) ELEVATION = 4.08 ft. MEAN LOW WATER (MLW) ELEVATION = -5.0 ft.

Atlantic Ocean

(TIDAL)



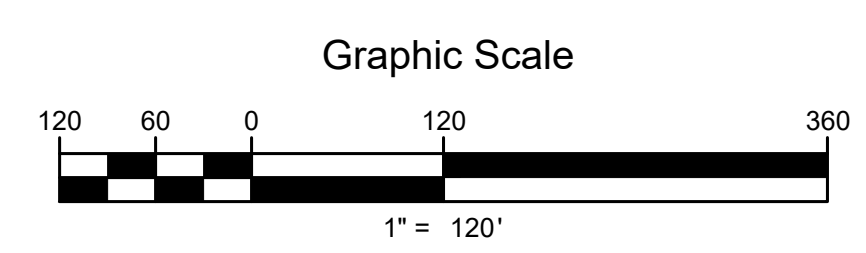
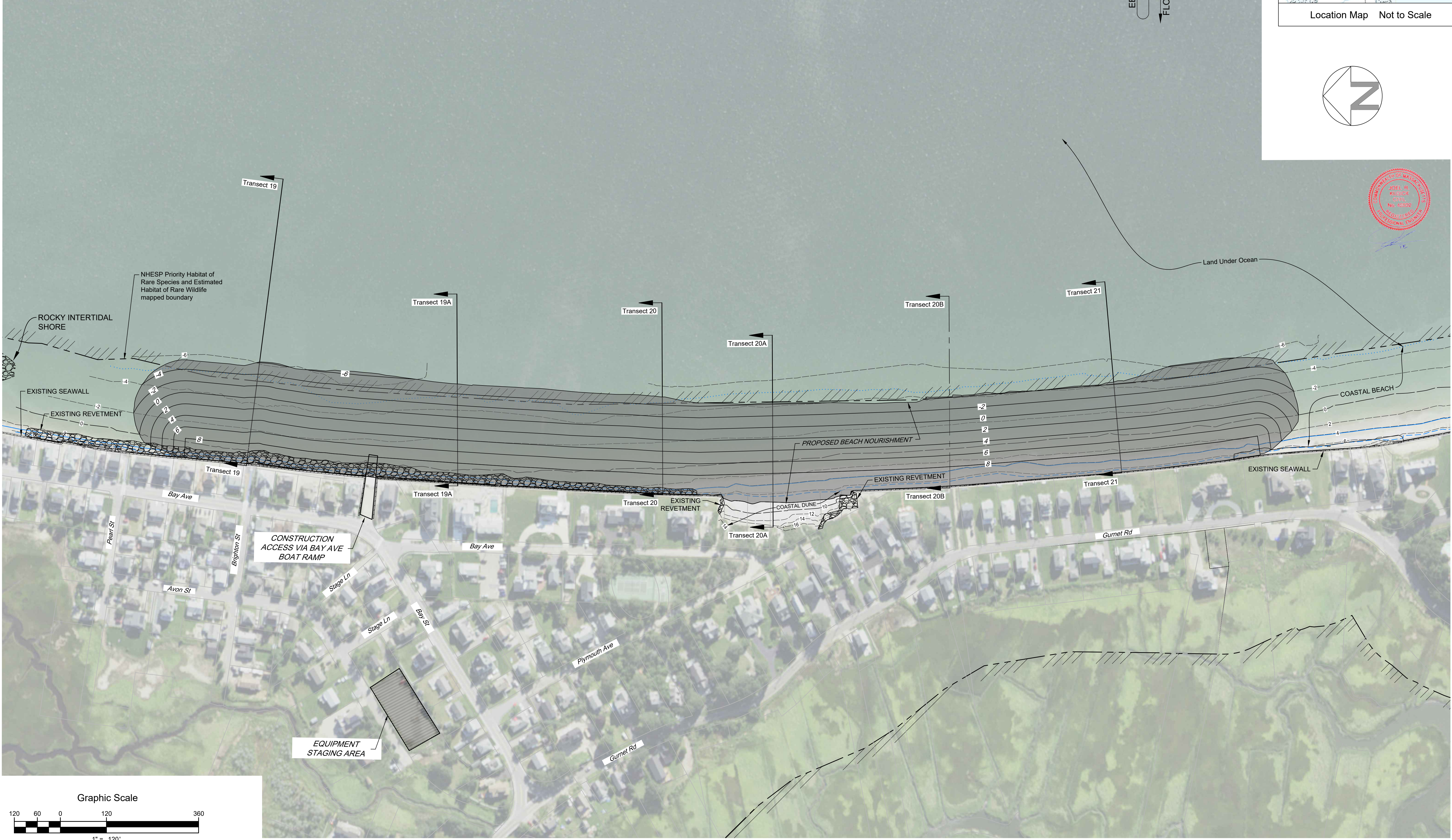
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Scale: 1" = 120'
Date: 11/07/2023
Approved:
Drawn: LMP



18-0231-07_11-2023.DWG

Plan Notes:

Survey Notes:

1. Topographic information compiled from an on-the-ground survey conducted by Woods Hole Group in October 2023.
2. Property boundaries shown hereon were obtained from a combination of MassGIS property line database information. Such property lines are approximate only and are not to be construed as property lines obtained from an accurate boundary survey, and are subject to such changes as an accurate boundary survey may disclose.

Datum Notes:

Vertical datum: North American Vertical Datum of 1988 (NAVD88).
 MLW = -5.00
 MTL = -0.50
 MHW = 4.08
 HTL = 6.5

General Notes:

1. Performance of the work shall be in compliance with the plans and details, and any permit requirements issued by the Town of Duxbury and the Town of Marshfield, State of Massachusetts, USACE, or other regulatory agencies for the referenced project and described herein.
2. The purpose of this project is to increase coastal resilience using nature-based solutions on Bay Ave, and Gurnet Rd. Beaches in Duxbury and Marshfield, MA, as shown on the plan and details. The proposed work includes beach nourishment.
3. Prior to work on any beach the Contractor shall attend a pre-construction on-site meeting, which shall be attended by the Town of Duxbury and the Town of Marshfield Engineers, Woods Hole Group Construction Manager, and representatives from the Town Conservation Commissions. The Contractor shall present the proposed methods and means to construct the project at the on-site meeting.
4. No construction vehicles shall be stored on the coastal beach or the vegetated coastal dunes overnight.
5. During periods of high-water levels, all equipment shall be moved to the construction access areas.
6. No excessive idling of construction vehicles shall occur.
7. Refueling shall occur only on hardscaped areas.
8. The Contractor shall not vary from the plans, specification, Orders of Conditions, or instructions provided at the pre-construction meeting, without first obtaining approval from the Marshfield Town Engineer and the Woods Hole Group Construction Manager.
9. Portions of the work at Bay Ave/Gurnet Rd Beaches is located within the Priority Habitats of Rare Species and Estimated Habitats of Rare Wildlife in accordance with the Massachusetts Natural Heritage Atlas, 15th Edition.
10. All nourishment material shall be compatible with sediments on the existing beaches, and shall fall within the grain size envelope specified in Appendix C. Source materials with significant quantities of fine-grained sediment will be rejected. Particles in the cobble and gravel sized fraction shall be rounded and not angular.
11. Woods Hole Group will perform interim surveys throughout the project to document nourishment placement within the design template. A final as-built survey will be performed by Woods Hole Group upon completion of the project.
12. Woods Hole Group cannot make warranties and encourages diligent inspection and potential maintenance of all project components.
13. The proposed designs are not expected to be a long-term solution and are susceptible to damage during coastal storms and potentially significant damage during coastal storm events.

Bay Ave./Gurnet Road Beach - Beach Nourishment Notes:

1. The beach nourishment project presented herein is intended to increase overall beach width, improve habitat areas, and provide enhancements for storm damage protection.
2. The length of the Bay Ave/Gurnet Road Beach beach nourishment component is approximately 3,540 ft. and the proposed footprint is approximately 17 acres.
3. Up to 160,980 yd³ beach compatible material shall be placed within the nourishment footprint.
4. A limit of project activity shall be established and shall be maintained throughout until project completion. The limit of work shall serve as a visual and physical marker for construction activities.
5. The source for the beach nourishment shall come from material trucked in from an upland source(s).

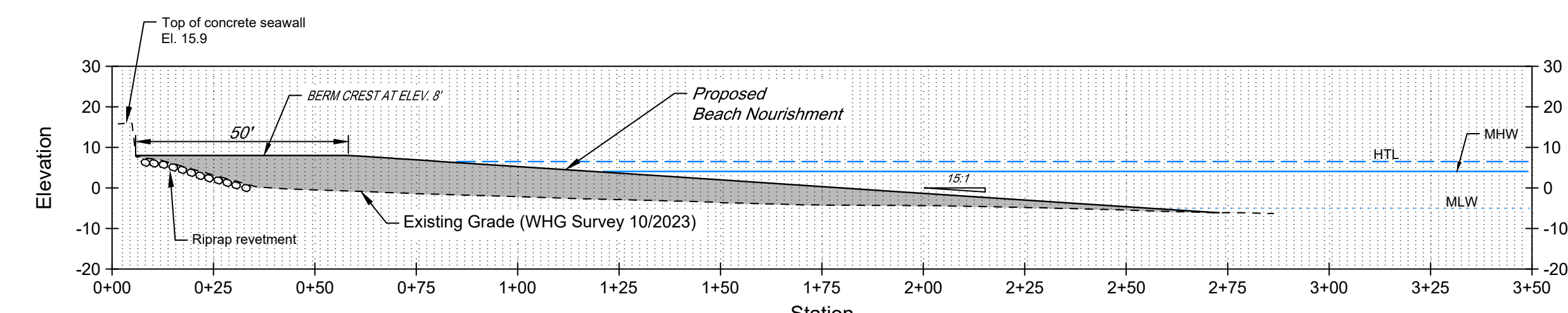
6. The nourishment material shall be clean, beach compatible sediment brought to the site by the Contractor. It is required that the Contractor have the sediment source tested by a qualified laboratory to ensure adequate beach compatibility prior to any placement of the nourishment material.
7. Construction access and staging shall be from the Bay Ave ramp in Marshfield and the Duxbury Beach Reservation North Parking Lot in Duxbury (See Sheet 4 for details).
8. After placement, the beach material shall be graded to the proposed berm widths, slopes and elevations indicated on the plans.
9. The beach engineering design specifies a berm elevation of 8 feet NAVD88 with a typical width of 50 feet as indicated on the plans.
10. Beach slopes seaward of the berm shall be constructed to 15H:1V, as indicated on the plans.
11. Areas between the provided cross-sections should be tapered as shown in the plan view. All beach elevations, slopes, heights, etc. shall be smoothly tapered between the various cross sections.
12. The Contractor shall install and maintain a gravel apron along the edge of Gurnet Rd where it joins the DBR northern parking lot as shown on Sheet 4.
13. During and following construction, the three (3) culverts under Gurnet Rd. adjacent to the DBR northern parking lot shall be maintained free of debris and sediment to ensure proper water flow.
14. The Contractor shall provide temporary sanitary facilities for workers in accordance with local, state and OSHA regulations. At the DBR northern parking lot these facilities must be removed no later than March 28, 2024.
15. The Contractor shall install and maintain a Limit of Work around the perimeter of the DBR northern parking lot as shown on Plan Sheet 4. Existing sand fencing along the eastern edge of the northern parking lot can serve as a Limit of Work. Any damage to the existing sand fencing must be repaired by the Contractor.
16. The Contractor shall be responsible for clearly delineating and maintaining the staging and beach access areas with temporary barricades as approved by the project Engineer to prevent people from entering the staging area.

Qualifier Note:

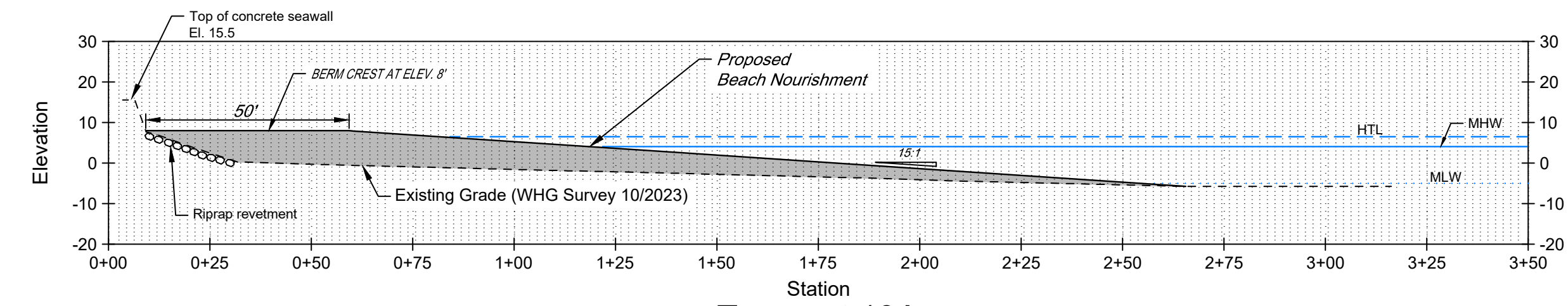
The proposed beach nourishment presented herein follows stable slopes for unconsolidated sediment and maximizes the volume of sediment within the nourishment footprint. The owners understand the proposed designs are not expected to be a long-term solution and are susceptible to damage and loss during coastal storms and high tides.

Post-Construction Site Restoration Notes:

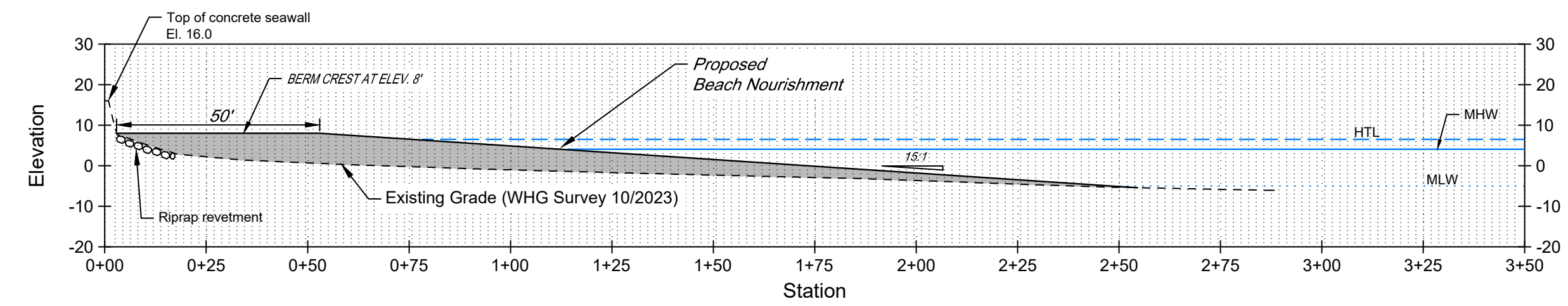
1. After construction is complete, the Contractor shall clean and restore the beach access points at the Bay Avenue ramp and the DBR northern parking lot to pre-construction conditions.
2. Restoration of the DBR property shall include sand import to restore grades to match the natural adjacent dune to the north as shown on Sheet 4. The contractor shall furnish and install new fence posts along a line 5 ft seaward of the dune crest, along the landward toe of the dune/edge of parking lot, and along both sides of the restored beach access path. The contractor shall furnish and install sand fencing as existed prior to construction. The methodology for connecting the sand fence to the posts shall be confirmed with DBR and the Woods Hole Group Construction Manager prior to the start of work. The orientation of the beach access path should follow a zig zag pattern with the seaward portion of the path facing to the southeast. The layout for the restored path should be confirmed with the Woods Hole Group Construction Manager prior to restoration.
3. The Contractor shall furnish and install Cape American Beach Grass in all disturbed areas of the dune access path. Planting shall be 2-3 culms per hole set 36 inches on center. The Contractor shall furnish and install cedar trees disturbed in the dune access path. Trees shall be replanted using 1-2 inch dbh trees, bagged in burlap. The Contractor shall confirm the number of cedar trees to be replanted prior to construction of the dune access bath.
4. The DBR northern parking lot shall be back bladed and smoothed upon completion of the project to ensure an even grade. This work must be completed by March 28, 2024.
5. The beach shall be inspected by the Town Engineers and the Woods Hole Group Construction Manager following completion of the work.



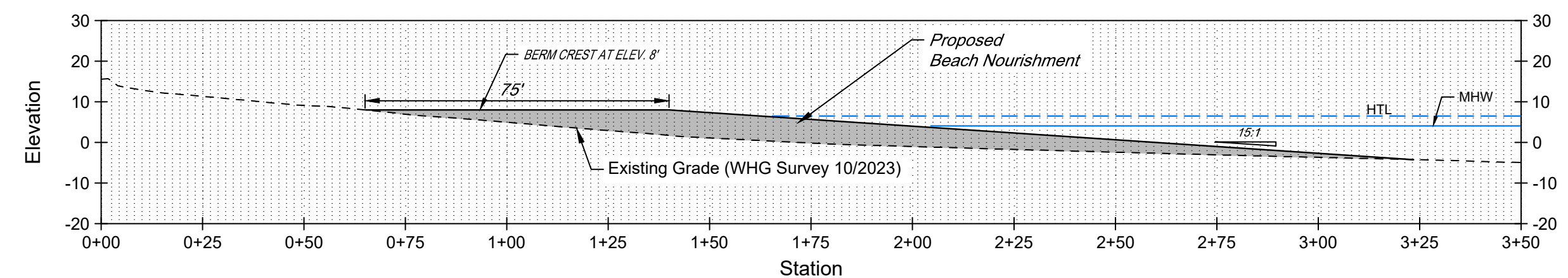
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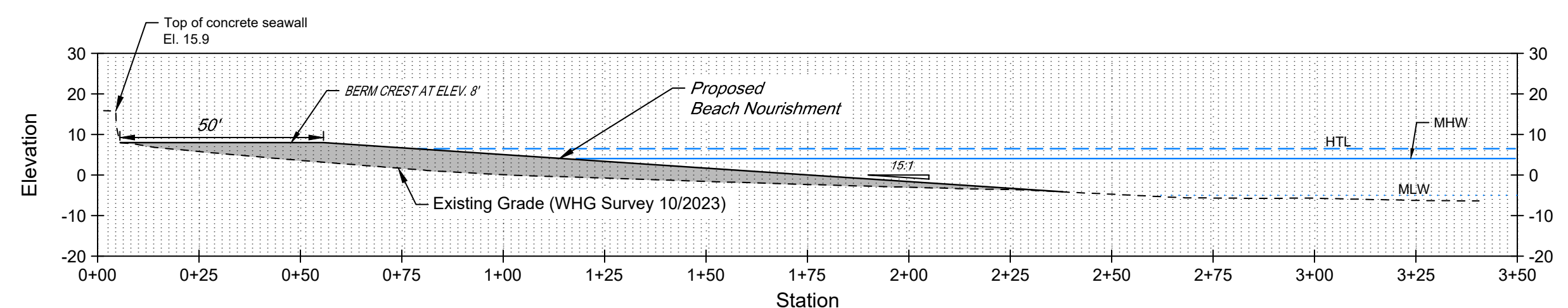
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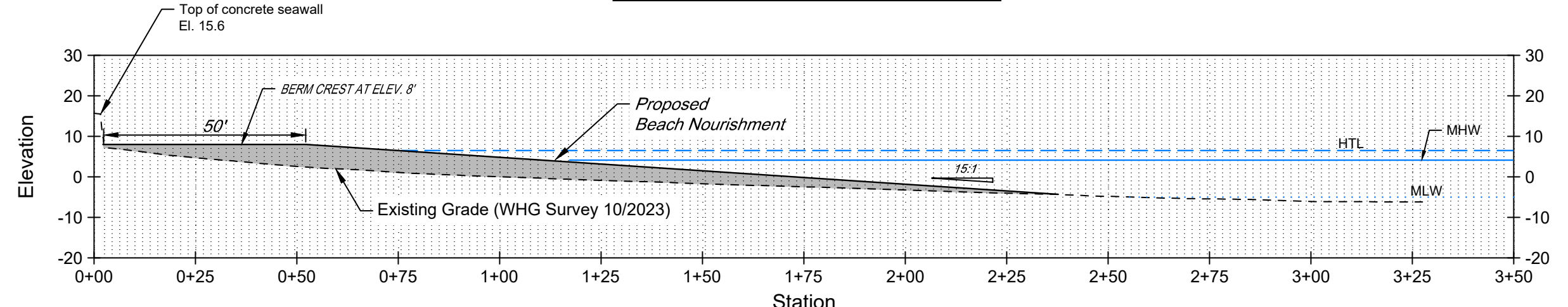
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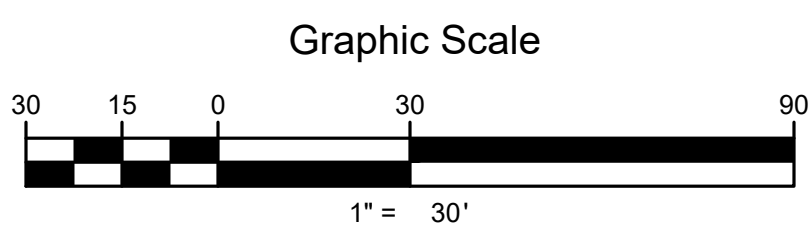
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Transect 20B
 Horiz./ Vert. Scale: 1"=30'



Transect 21
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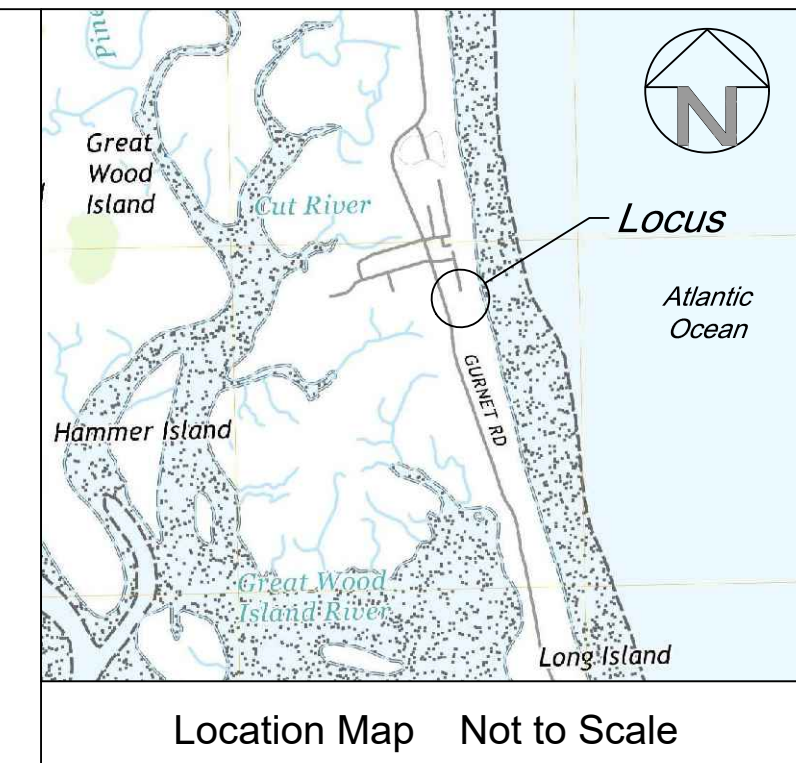
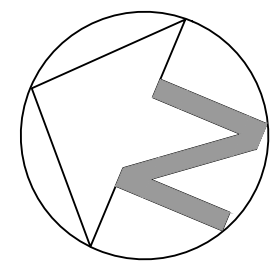


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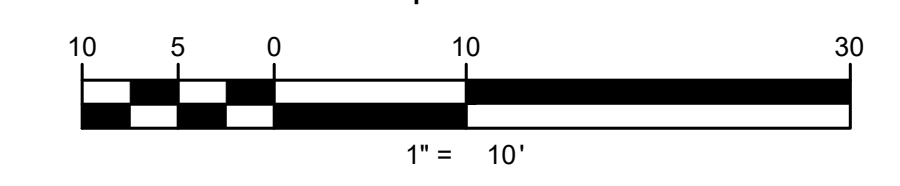
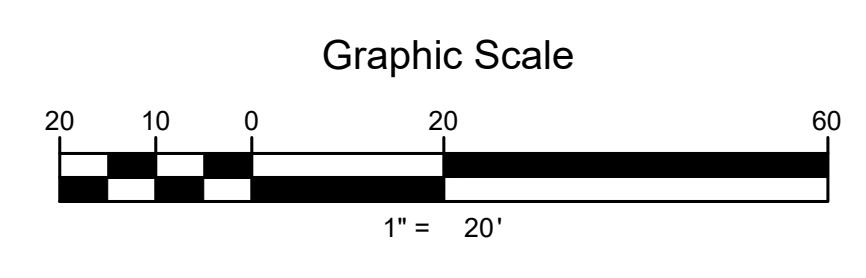
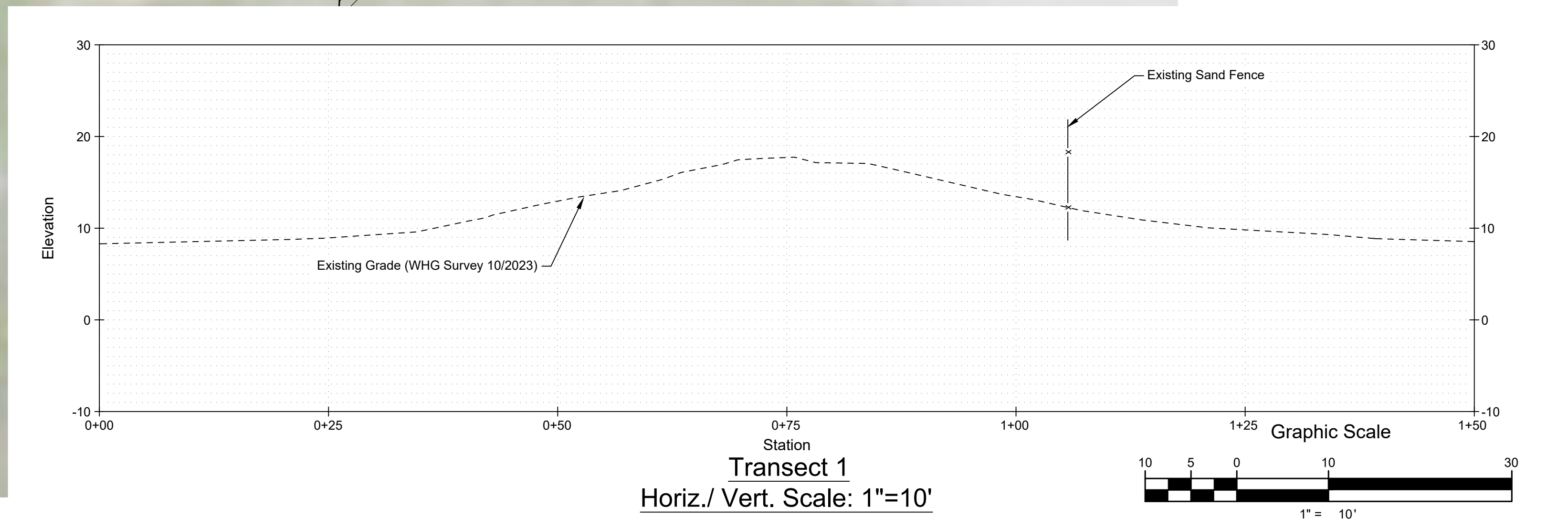
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- Legend:**
- - - - - Existing Contours (Ground Survey)
 - x 1.5 Existing Spot Elevation (Ground Survey)
 - - - - - Toe of Coastal Dune
 - x x x Sand Fence
 - ~ ~ ~ Edge of Vegetation
 - LOW — Limit of Work
 - /// NHESP Priority Habitat of Rare Species and Estimated Habitat of Rare Wildlife mapped boundary
 - - - - - Proposed Stacked Silt Fence



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Page 4 of 4