



Truro Conservation Commission

Monday January 27, 2025

Hybrid Meeting start at 4:00 PM
Truro Town Hall, 24 Town Hall Rd

PUBLIC MEETING AGENDA

This will be a hybrid meeting. Citizens can view the meeting on Channel 8 in Truro and on the Town's website on the "Truro TV Channel 8" button under "Helpful Links" on the homepage. Once the meeting has started, click on the green "Watch" button in the upper right of the page. **To provide comment during the meeting, you may call in or email.**

To call-in toll-free dial 1-646-558-8656 and enter the following Meeting ID when prompted: 833 9225 6598

You can join this Zoom meeting from your computer, tablet or smartphone at

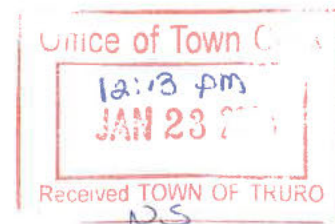
<https://us02web.zoom.us/j/83392256598>

Please note that there may be a slight delay (15-30 seconds) between the meeting and the live stream (and television broadcast). If you are watching the meeting and calling in, please lower the volume on your computer or television during public comment so that you may be heard clearly. We ask that you identify yourself when calling in; citizens may also provide public comment for this meeting by emailing the Conservation Agent at ebecbe@truro-ma.gov with your comments.

I. PUBLIC HEARINGS: The Truro Conservation Commission holds these public hearings in accordance with the provisions of MGL Ch. 131, s. 40, MA Wetlands Protection Act and the Truro Conservation Bylaw, Chapter 8:

1. **Notice of Intent: 48 Castle Road, Anne Brandt/Myers Truro LLC (SE#75-):** repair cracks in low seawall; Coastal Bank, Salt Marsh, LSCSF. (Map 50, Parcel 3) *(continued from 1/7/2025)*
2. **Notice of Intent: 5 Great Hills Lane, Kevin Wise (SE#75-1207):** coir log array, sand drift fence, & nourishment; Coastal Dune, Coastal Beach, LSCSF. (Map 53, Parcel 1) *(continued from 1/7/2025)*
3. **Notice of Intent: 29 & 31 Knowles Heights Road, David Walsh (SE#75-):** install sand drift fence & coir log array; Coastal Beach, Coastal Bank, LSCSF. (Map 35, Parcel 7 & 8) *(continued from 1/7/2025)*
4. **Notice of Intent: 33 Knowles Heights Road, Janet London (SE#75-):** install sand drift fence & coir log array; Coastal Beach, Coastal Bank, LSCSF. (Map 35, Parcel 9) *(continued from 1/7/2025)*
5. **Notice of Intent: 522 Shore Road Unit 1, Wayside One Realty Trust (SE#75-):** elevate above flood zone; Barrier Beach, Coastal Dune, LSCSF. (Map 7, Parcel 8.1) *(continued from 1/7/2025)*
6. **Notice of Intent: 544 Shore Road, Bay Beach Town Homes (SE#75-1208):** coir log array, sand drift fence, & nourishment; Barrier Beach, LSCSF, Coastal Dune. (Map 7, Parcel 5) *(continued from 1/7/2025)*
7. **Notice of Intent: 17 Avocet Road, Jennifer & Michael Freitag (SE#075-1204):** installation of sturdy sand drift fence, coir logs, and replacement of beach stairs; Coastal Beach; Land Subject to Coastal Storm Flowage (LSCSF) Coastal Bank. (Map 39, Parcel 217) *(continued from 1/7/2025)*

No scheduled site visits.



SAFE HARBOR

ENVIRONMENTAL MANAGEMENT
HABITAT RESTORATION



Date: January 15, 2025

From: Gordon Peabody, Safe Harbor Environmental

Office: 95 Commercial St. Room 211, Wellfleet, MA, 02667

Mail: P.O. Box 880, Wellfleet, MA, 02667

Contact: Phone: 508-237-3724; email gordonpeabody@gmail.com

Re: Notice of Intent 48 Castle Road, Limited Seawall Repairs

ADDITIONAL INFORMATION: DEP #; INNOVATIVE STAPLES; PROPERTY BOUNDARY

Conservation Commission
TOWN OF TRURO

JAN 13 2025

1. DEP SE#075-1212

2. STAPLES ARE INSET AT PRE ENGINEERED SPACING, TORQUE-LOCKED & COVERED

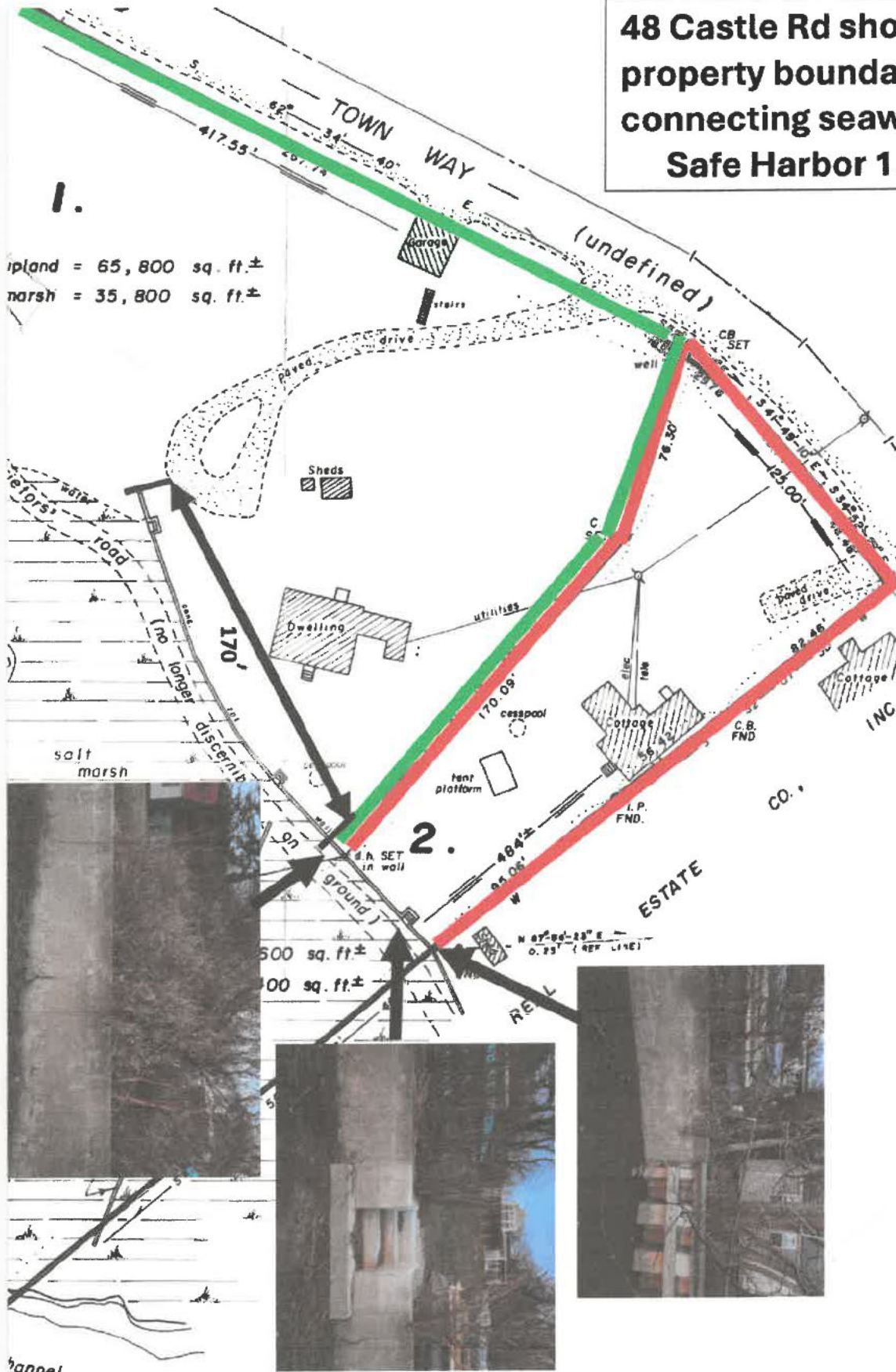
SEE IMAGES ATTACHED HERE



EPOXY COATED METAL STAPLES

**48 Castle Rd showing
property boundaries &
connecting seawall
Safe Harbor 1.16.25**

upland = 65,800 sq. ft.±
 marsh = 35,800 sq. ft.±



TOWN OF TRURO—ORDER OF CONDITIONS

48 Castle Road; Map 50, Parcel 3

DEP file # SE 75-1212

APPLICANT: Anne Brandt

THIS IS A DRAFT ORDER AND WILL BE EDITED BASED ON THE 1/27/2025 HEARING

DOCUMENTS

1. Notice of Intent application; wetlands fee transmittal form; locus map; letter of authorization and affidavit of service; project summary
2. 2010 Site Plan by Coastal Engineering Company as edited by Safe Harbor, dated 12/17/2024
3. Environmental Management Plan by Safe Harbor Environmental, dated 12/17/2024.
4. Division Plan of Land in Truro by Slade Associates, dated 1990, edited by Safe Harbor 1/15/2025 to clearly delineate property boundaries.
5. Additional Information document by Safe Harbor Environmental, dated 1/15/2025.

PROJECT DESCRIPTION

1. The site is 2.33-acres with a single-family dwelling. Pamet River lies to the south and Castle Road to the north.
2. Proposed work will be done within the Riverfront area, the Flood Zone, and buffer zone to a salt marsh and to a coastal bank.
3. The project scope includes repair to an existing seawall and addition of another layer of block to that seawall.

The Commission determined that the project could be permitted subject to the following special conditions. To the extent that the following conditions modify or differ from the plans, specifications, or other proposals submitted with the Notice of Intent, these conditions shall control.

CONDITIONS

A. Pre-construction

1. Notice of a work start date shall be given to the Commission in writing at least 48 hours prior to the commencement of work. The applicant or contractor shall provide the name and contact information of the person responsible on site for compliance with this Order.
2. Prior to the commencement of work the following activities shall be completed:
 - The Order of Conditions shall be recorded at the Barnstable County registry of deeds and a stamped copy shall be submitted to the Conservation office.
 - A sign shall be conspicuously displayed at the site showing the DEP file number assigned to this project. The sign shall be 2-3 square feet in size, separately staked and read only: MA DEP file # SE 75-1212. Lettering/numbering shall be clearly and permanently printed, and at least 2" in height.
3. A **pre-construction site visit** shall be scheduled by the applicant's representative and include the project Contractor, and the Conservation Agent. During this site visit the Order of Conditions, construction protocols, work limit, access plans and site plan details shall be reviewed. Members of the Commission, its Agent or the Department of Environmental Protection (DEP) reserve the right to enter and inspect the property at all reasonable times, until a Certificate of Compliance is issued, to evaluate compliance with this Order of Conditions, the Act, 310 CMR 10.00 and Town regulations, and may acquire any information, measurements, photographs, observations, and/or materials, or may require the submittal of any data or information deemed necessary by the Commission for that evaluation.

B. Construction & Revegetation

1. The environmental management plan submitted with the NOI cited under the **DOCUMENTS** section of this Order, is specifically incorporated into this Order.
2. All access will be from a platform hanging from the wall.
3. The site shall be inspected daily to prevent any wind-blown material from entering the resource area.

C. General Conditions

1. Prior to the commencement of work or pre-construction site meeting, the form provided at the end of this Order (part G. "Recording Information") shall be completed and stamped at the appropriate Registry of Deeds, after the expiration of the 10-day appeal period and if no request for appeal has been filed with the Department of Environmental Protection.
2. This document shall be included in all construction contracts, subcontracts, and specifications dealing with the work proposed and shall supersede any conflicting contract requirements. It is the responsibility of the Applicant, Owner, General Contractor and/or successor(s) to ensure that all Conditions of this Order of Conditions are complied with. A copy of this Order shall be available at the work site, during normal work hours, or posted, until the work is complete.
3. Work shall be halted on the site if the Commission, Conservation Agent or DEP determines that any of the work is not in compliance with this Order of Conditions. Work shall not resume until the Commission is satisfied that the work will comply and has so notified the applicant in writing.
4. **Any changes** in the work described in the Notice of Intent or in the plans and specifications submitted to the Commission shall be submitted to the Commission in writing for a determination of whether the change is significant enough to the interests of the Act to require a new Notice of Intent. **No changes shall be made or implemented in the field** prior to the Commission's determination. Should issuance of additional permits result in a change in the project, the applicant shall promptly submit such changes to the Commission for evaluation under this provision.
5. This Order shall apply to any successor in control or successor in interest of the property described in the Notice of Intent and accompanying plans. These obligations shall be expressed in covenants in all deeds to succeeding owners of portions of the property.
6. **Upon completion of this project the applicant shall submit a request to the Conservation Commission to receive a Certificate of Compliance.** The Applicant or Owner shall certify in writing that the work was completed as shown on the plans and documents referenced above. The applicant is required to submit an as-built plan from a registered professional Engineer, Land surveyor or Sanitarian certifying that the work has been conducted as shown on the plan(s) and documents referenced above and as conditioned by the Commission for the public record.



Environmental Consulting & Restoration, LLC



January 13, 2025

Town of Truro
Conservation Commission
24 Town Hall Rd.
P.O. Box 2030
Truro, MA 02666

RE: Notice of Intent, Proposed Shoreline Stabilization Project, 5 Great Hills Lane, Truro, MA

Dear Members of the Truro Conservation Commission:

In response to some questions from the Commission on January 6, 2025, please accept the attached revised plan showing a condition proposed to address the 25' setback from the property lines.

The proposed project includes the installation of a sand drift fence (also called a "serpentine fence") with a coir log array located along the landward side of the fence and nearly extends to the southerly and northerly property boundaries..

We trust that this new information can be discussed at the Special Hearing scheduled for January 27, 2025. If you have any questions or require additional information, please contact me at (617) 543-1654.

Sincerely,
Environmental Consulting & Restoration, LLC

Stan Humphries

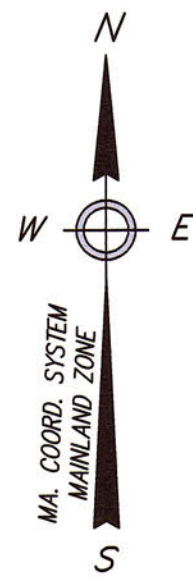
Stan Humphries
Coastal Geologist

CC: MassDEP – Southeast Regional Office, sero_noi@state.ma.us

MassWildlife Field Headquarters (NHESP), 1 Rabbit Hill Road, Westborough, MA 01581

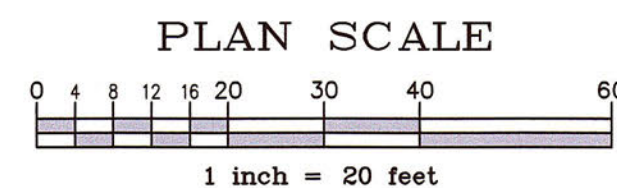
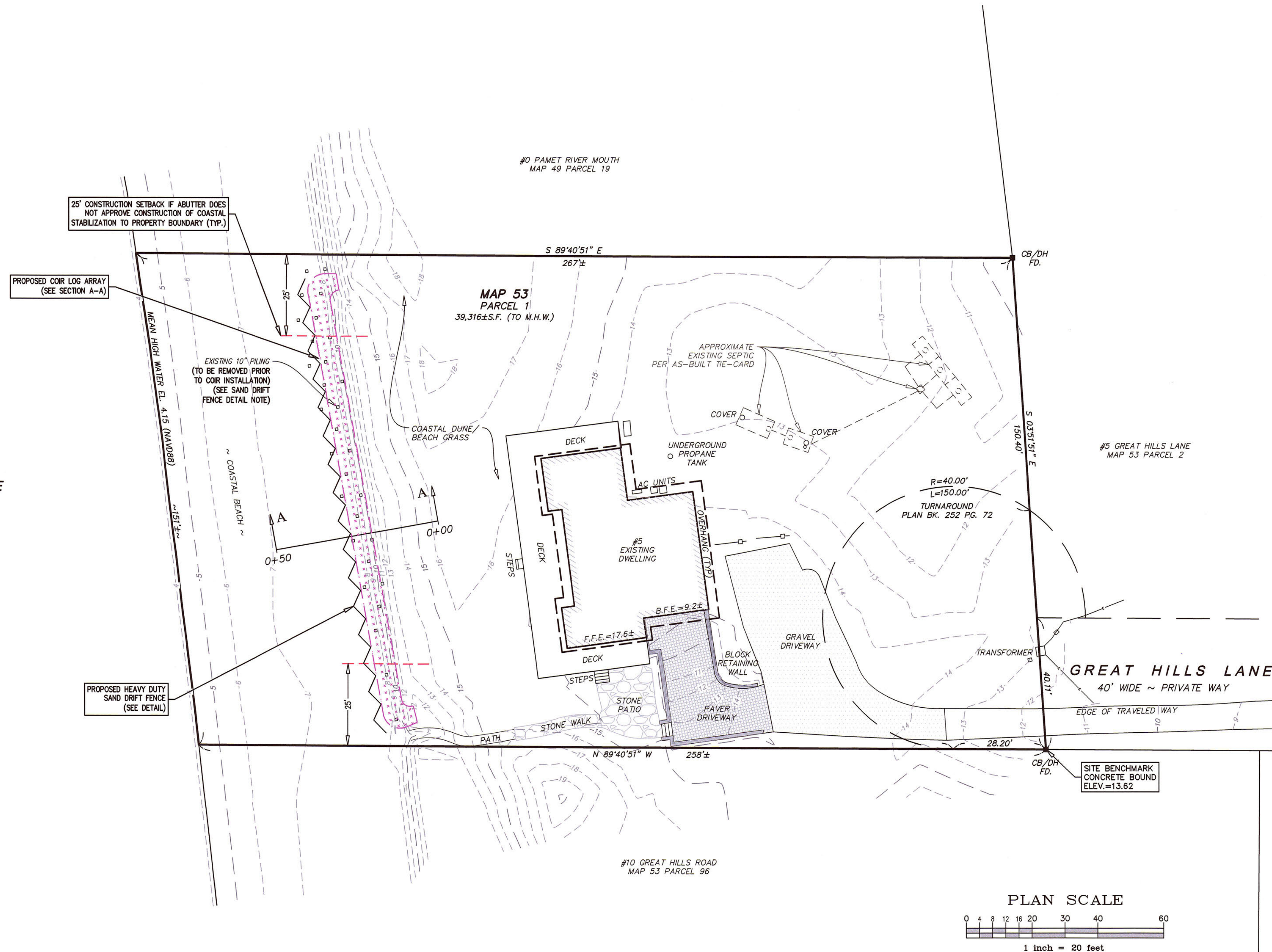
Bracken Engineering, Inc., 49 Herring Pond Road, Buzzards Bay, MA 02532

Wise Family Trust - Kevin Wise, [REDACTED]

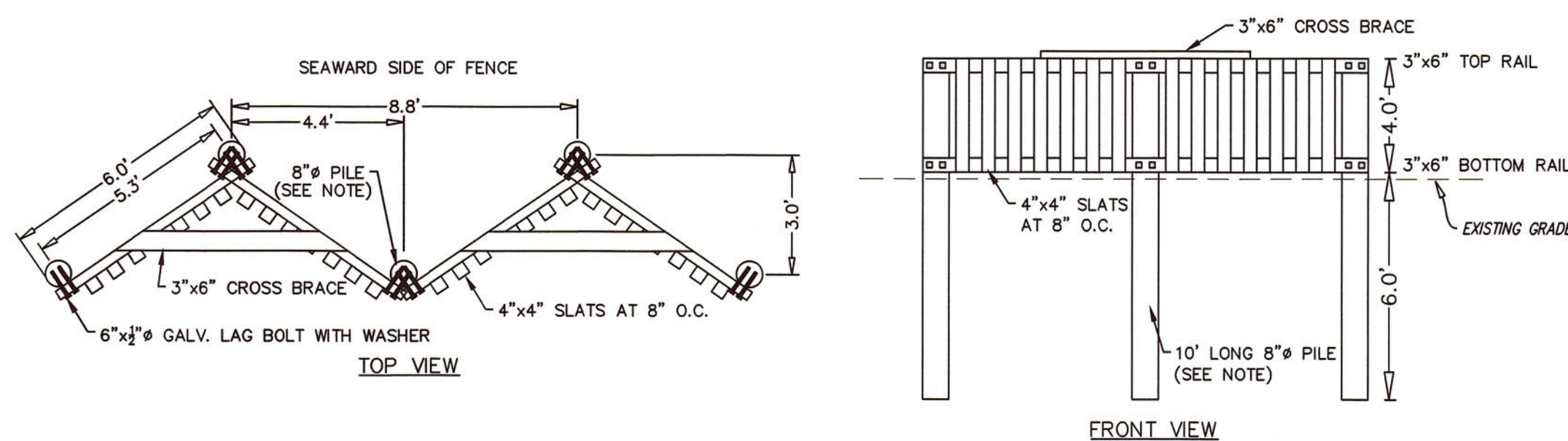


MASS COORDINATE SYSTEM
MAINLAND ZONE MERIDIAN
DETERMINED USING A
CARLSON BR7 GPS RTK UNIT
COLLECTION DATE 09/04/2024

CAPE
COD
BAY



1-14-25

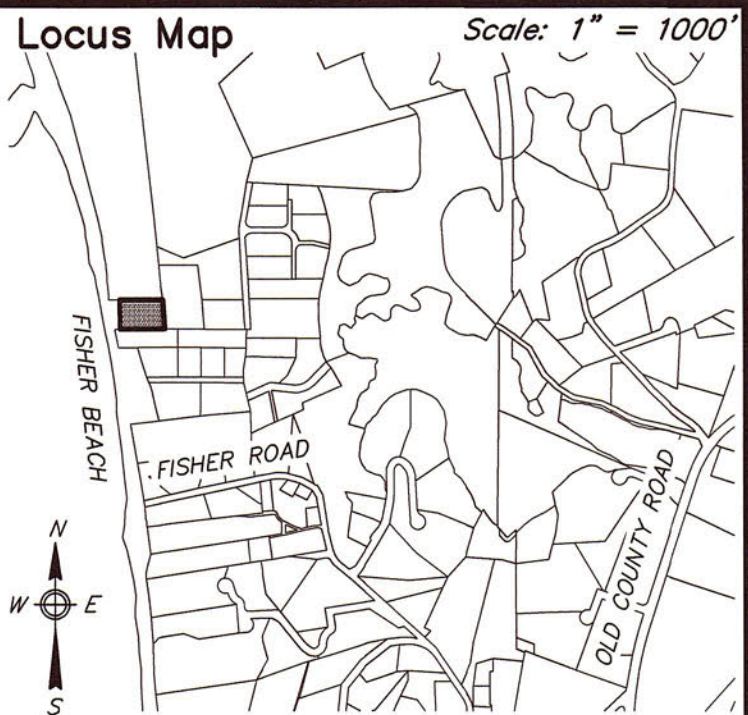
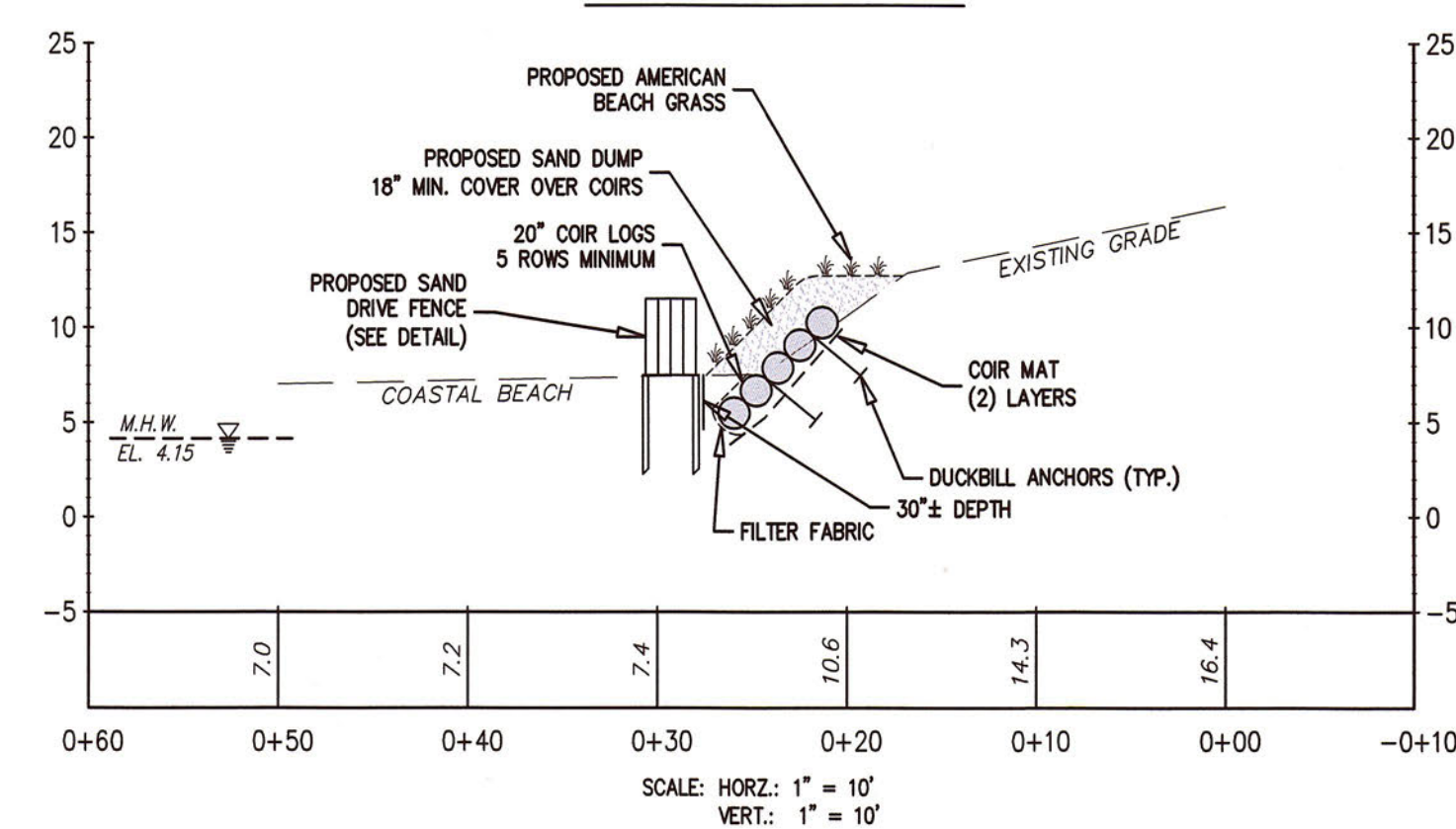


HEAVY DUTY SAND DRIFT FENCE

NOT TO SCALE

NOTE: EXISTING 10\"/>

CROSS SECTION A-A



Notes

1. LOCUS: #5 GREAT HILLS LANE MAP 53 PARCEL 1
2. OWNER: KEVIN J. WISE, Trustee
HELENE WISE, Trustee
THE WISE FAMILY TRUST
32 LAURELWOOD DRIVE
WALLINGFORD, CT 06492
3. DEED REF: Deed Bk: 29938 Pg: 106
4. PLAN REF: Plan Bk: 252 Pg: 72 (LOT A)
5. LOCUS DOES FALL WITHIN SPECIAL FLOOD HAZARD AREA "VE" (EL. 14) AS SHOWN ON FEMA FLOOD INSURANCE RATE MAP No. 25001C-0227-J, dated 07/16/2014.
6. LOCUS DOES FALL WITHIN THE NATURAL HERITAGE and ENDANGERED SPECIES PROGRAM (NHESP) AREAS OF ESTIMATED HABITATS OF RARE WILDLIFE and PRIORITY HABITATS OF RARE SPECIES.
7. THE CONTRACTOR SHALL PROVIDE ALL MATERIALS, LABOR, SUPERVISION, TOOLS, EQUIPMENT, FUEL, SANITARY FACILITIES AND INCIDENTALS NECESSARY FOR THE FURNISHING, PERFORMANCE AND COMPLETION OF WORK.
8. THE WORK ACTIVITY SHALL OCCUPY A MINIMUM AREA TO ACCOMPLISH THE INSTALLATION OF THE COASTAL STABILIZATION SYSTEM. EQUIPMENT AND MATERIALS HANDLING SHALL BE IN ACCORDANCE WITH THE WORK PROTOCOL SUBMITTED WITH THE NOTICE OF INTENT, THE RESULTING ORDER OF CONDITIONS AND AS DIRECTED BY THE TRURO CONSERVATION AUTHORITIES.
9. THE CONTRACTOR SHALL OBTAIN A COPY OF THE ORDER OF CONDITIONS ISSUED FOR THE PROJECT BY THE TRURO CONSERVATION COMMISSION PRIOR TO THE START OF ANY WORK.
10. NO DEVIATION FROM THE DESIGN PLAN SHALL BE ALLOWED WITHOUT PRIOR APPROVAL FROM THE DESIGN ENGINEER.
11. THE CONTRACTOR IS RESPONSIBLE FOR RE-ESTABLISHING ALL DISTURBED AREAS TO MATCH THE EXISTING CONDITION UPON COMPLETION OF THE COASTAL STABILIZATION UNLESS OTHERWISE INSTRUCTED.
12. CONSTRUCTION ACCESS SHALL BE AFFORDED THROUGH THE LOCUS PARCEL VIA THE EXISTING DRIVEWAY AND BEACH ACCESS PATH.

Prepared By:



49 HERRING POND ROAD
BUZZARDS BAY, MA 02532
(tel) 508.833.0070
(fax) 508.833.2282

19 OLD SOUTH ROAD
NANTUCKET, MA 02554
(tel) 508.325.0044
www.brackeneng.com

COASTAL STABILIZATION
PLAN

IN TRURO, MASSACHUSETTS

Prepared For:

WISE FAMILY TRUST
#5 GREAT HILLS LANE
MAP 53 PARCEL 1

No.	Date	Revision	Description	By
1	1/14/25	REVISE STABILIZATION EXTENTS & ABUTTER SETBACKS	JPH	
Date: NOVEMBER 11, 2024 Drawn: JPH/BEI Checked: DFB/AMG Sheet: 1 of 1				

TOWN OF TRURO—ORDER OF CONDITIONS

5 Great Hills Ln; Map 53 , Parcel 1

DEP file # SE 75-1207

APPLICANT: Kevin Wise, Wise Family Trust

THIS IS A DRAFT ORDER AND WILL BE EDITED BASED ON THE 1/27/2025 HEARING

DOCUMENTS

1. Notice of Intent application; project narrative with photos; wetland fee transmittal form; 21-day waiver; abutter notification; abutters list; USGS site locus map; FEMA map; NHESP map
2. Letter from NHESP dated 12/03/2024
3. Coastal Stabilization Plan by Bracken Engineering, dated 11/11/2024, revised **1/14/2025**.

PROJECT DESCRIPTION

1. The area of the site is 29,621 sf, located on Cape Cod Bay and developed with a single-family residence built in 1973 located within the Coastal Dune.
2. Remnants of a previous sand drift fence include pilings imbedded at the edge of the dune.
3. The resource areas are Land Subject to Coastal Storm Flowage, Coastal Dune, and Coastal Beach.
4. The project includes the installation of sturdy drift fencing and a coir log array designed to protect the structure and restore the dune. Other approved activity includes sand nourishment and installation of beach plum shrubs and American beach grass as required.
5. This request was first heard on December 2, 2024. It was continued to January 6, 2025 to be staked for viewing prior to closing the public hearing. To prevent an open meeting law violation, the hearing was continued to January 27, 2025.

The Commission determined that the project could be permitted subject to the following special conditions. To the extent that the following conditions modify or differ from the plans, specifications, or other proposals submitted with the Notice of Intent, these conditions shall control.

FINDINGS

1. The Commission finds the site of the proposed project is in a Coastal Dune, and work will occur on the adjacent Coastal Beach above mean high water.
2. The areas subject to protection/regulation are Coastal Dune, Coastal Beach and their buffer zones, and Land Subject to Coastal Storm Flowage.
3. The Commission finds the Coastal Dune to exist in a dynamic coastal environment composed of windblown sand.
4. The Commission finds that the Coastal Dune is significant to storm damage prevention and flood control.
5. **The address for this project is #5 Great Hills Lane.**
6. The Applicant acknowledges that the project to support the Coastal Dune with biodegradable (coir) measures is temporary (estimated at 10 years); the goal is to protect the Coastal Dunes ability to perform the function of storm damage prevention.
7. The Applicant has agreed to conduct an engineering, legal and logistical analysis of alternatives to address the location of the house in the Coastal Dune including elevation of the structure, reduction in size, and relocation or removal of the existing house. This analysis shall include alternatives which would protect the coastal dune and ensure that the functions of storm damage prevention are preserved. The Applicant shall submit an alternatives report, and shall attend (or be represented) a meeting with the Commission to present and discuss said report prior to the issuance of a Certificate of Compliance for this project.
8. The Commission finds that the Coastal Beach resource area is significant to state listed species since it is located in Estimated Habitat of Rare Wildlife as mapped and published maps by NHESP.

9. The Commission finds that the Coastal Beach is significant to storm damage prevention, flood control and protection of wildlife habitat.
10. These Special Conditions and Additional General Conditions are being issued in accordance with the information submitted in the Notice of Intent, with accompanying attachments by ECR, LLC and dated November 2024, the Plan of Record, "Coastal Stabilization" as revised 1-14-2025, and Supplemental information including but not limited to the project narrative and site photos. In the event of any conflict between these referenced materials and this Order, this Order shall control.
11. This Order is issued pursuant to the Massachusetts Wetlands Protection Act and the Town of Truro's Conservation By-Law and Conservation regulations.
12. This Order of Conditions allows the following work: the placement and maintenance of an array of 20" diameter coir logs at the edge of the coastal dune; the construction and maintenance of a sturdy drift fence; placement and maintenance of compatible sand cover over the coir logs; placement of compatible beach/bank nourishment sands; the planting of the Coastal Bank face with American beach grass in double culms on a 12-14" matrix. The applicant has been informed through their representative that the Conservation Commission's preferred avenue for providing maintenance sand nourishment to keep the coir logs covered is to deliver that sand from the locus property.

CONDITIONS

A. Pre-construction

1. Notice of a work start date shall be given to the Commission in writing at least 48 hours prior to the commencement of work. The applicant or contractor shall provide the name and contact information of the person responsible on site for compliance with this Order.
2. Prior to the commencement of work the following activities shall be completed:
 - The Order of Conditions shall be recorded at the Barnstable County registry of Deeds and a stamped copy shall be submitted to the Conservation office.
 - A sign shall be conspicuously displayed at the site showing the DEP file number assigned to this project. The sign shall be 2-3 square feet in size, separately staked and read only: MA DEP file # SE 75-1207. Lettering/numbering shall be clearly and permanently printed, and at least 2" in height.
3. A **pre-construction site visit** shall be scheduled by the applicant's representative and include the project Contractor, and the Conservation Agent. During this site visit the Order of Conditions, construction protocols, work limit, access plans and site plan details shall be reviewed. Members of the Commission, its Agent or the Department of Environmental Protection (DEP) reserve the right to enter and inspect the property at all reasonable times, until a Certificate of Compliance is issued, to evaluate compliance with this Order of Conditions, the Act, 310 CMR 10.00 and Town regulations, and may acquire any information, measurements, photographs, observations, and/or materials, or may require the submittal of any data or information deemed necessary by the Commission for that evaluation.

B. Construction & Revegetation

1. The conditions set forth by NHESP and listed in the letter dated 12/3/2024 are specifically incorporated into this Order and shall be on-going conditions. A copy of the approval and conditions are attached to this Order.
2. Shore bird nesting season commences April 1 and ends by August 15. The approved maintenance and construction activities may not occur within this period without a previously approved protocol agreed upon by the Truro Conservation Department and NHESP.
3. Material staging shall be located as far landward as possible in an area without vegetation.
4. All fence posts removed from the beach shall be disposed of off-site.
5. Access will be from the existing driveway and sand path to the beach. Any disturbed areas will be restored and planted with American Beach grass.

6. Unless written permission is obtained from the abutters to either side, drift fencing and coir assembly must end 25' from the property line as shown on the plan of record.
7. The coir log installation shall be covered with medium-to-coarse clean sand with less than 10% clay and/or silt. This cover layer shall be maintained and a four-month window for maintenance following any storm damage may be allowed. This shall be an on-going condition.
8. Maintenance is required and shall include adding sand nourishment (with compatible material annually, and as-needed), and planting American beach grass. Jute may be used. This shall be an on-going condition.
9. Photographs of the project site shall be submitted quarterly. In addition, photographs shall also be submitted after any significant storm event that result in a substantial loss of sand. Quarterly reports can transition to (semi)-annual reports at the discretion of the Conservation Department.
10. Sand nourishment must be added to keep the coir covered and to replace the sand volume lost during storm events. Sand nourishment volumes shall be reported to the conservation office after each time it is placed. This is the responsibility of the property owner and shall also be included in the quarterly reports.
11. These conditions shall be on-going after the Certificate of Compliance has been issued and recorded.

C. General Conditions

1. Prior to the commencement of work or pre-construction site meeting, the form provided at the end of this Order (part G. "Recording Information") shall be completed and stamped at the appropriate Registry of Deeds, after the expiration of the 10-day appeal period and if no request for appeal has been filed with the Department of Environmental Protection.
2. This document shall be included in all construction contracts, subcontracts, and specifications dealing with the work proposed and shall supersede any conflicting contract requirements. It is the responsibility of the Applicant, Owner, General Contractor and/or successor(s) to ensure that all conditions of this Order of Conditions are complied with. A copy of this Order shall be available at the work site, during normal work hours, or posted, until the work is complete.
3. Work shall be halted on the site if the Commission, Conservation Agent or DEP determines that any of the work is not in compliance with this Order of Conditions. Work shall not resume until the Commission is satisfied that the work will comply and has so notified the applicant in writing.
4. Any changes in the work described in the Notice of Intent or in the plans and specifications submitted to the Commission shall be submitted to the Commission in writing for a determination of whether the change is significant enough to the interests of the Act to require a new Notice of Intent. No changes shall be made or implemented in the field prior to the Commission's determination. Should issuance of additional permits result in a change in the project, the applicant shall promptly submit such changes to the Commission for evaluation under this provision.
5. This Order shall apply to any successor in control or successor in interest of the property described in the Notice of Intent and accompanying plans. These obligations shall be expressed in covenants in all deeds to succeeding owners of portions of the property.
6. Upon completion of this project the applicant shall submit a request to the Conservation Commission to receive a Certificate of Compliance. The Applicant or Owner shall certify in writing that the work was completed as shown on the plans and documents referenced above. The applicant is required to submit an as-built plan from a registered professional Engineer, Land surveyor or Sanitarian certifying that the work has been conducted as shown on the plan(s) and documents referenced above and as conditioned by the Commission for the public record.



Environmental Consulting & Restoration, LLC



January 13, 2025

Town of Truro
Conservation Commission
24 Town Hall Rd.
P.O. Box 2030
Truro, MA 02666

RE: Notice of Intent, Proposed Shoreline Stabilization Project, 29 & 31 Knowles Heights Road, Truro, MA

Dear Members of the Truro Conservation Commission:

In response to some questions from the Commission on January 6, 2025, please accept the attached revised plan and an abutter email granting his permission to construct the project to the property line.

The proposed project includes the installation of a sand drift fence (also called a "serpentine fence") with a coir log array located along the landward side of the fence and nearly extends to the northerly property boundary. In addition, through notes on the plan, we wanted to clarify the planting of beachgrass on the bank located above the coir and fence measures.

We trust that this new information can be discussed at the Special Hearing scheduled for January 27, 2025. If you have any questions or require additional information, please contact me at (617) 543-1654.

Sincerely,
Environmental Consulting & Restoration, LLC

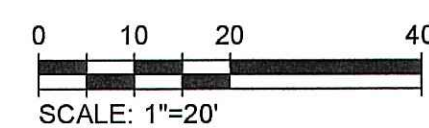
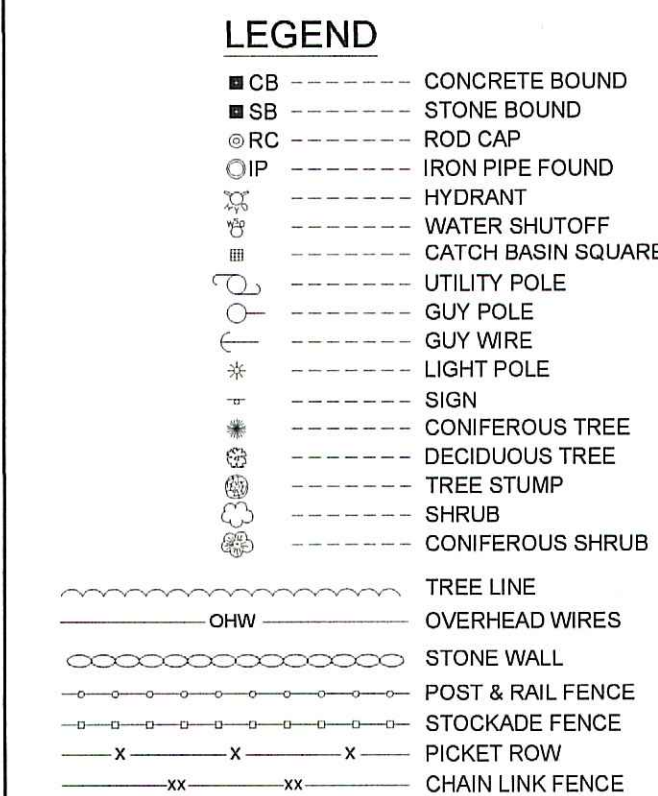
Stan Humphries

Stan Humphries
Coastal Geologist

CC: MassDEP – Southeast Regional Office, sero_noi@state.ma.us

Cape & Islands Engineering, raul@capeeng.com

David Walsh, [REDACTED]



CONTRACTOR SHALL OBTAIN A COPY OF THE ORDER OF CONDITIONS AND BECOME FAMILIAR WITH THE REQUIREMENTS FOR THIS PROJECT. A COPY OF THE ORDER SHALL BE KEPT AT THE SITED DURING CONSTRUCTION.

ALL ACCESS FOR EQUIPMENT AND MATERIAL SHALL BE DELIVERED FROM STOTTS CROSSING AND BEACH POINT AND CONTAINED WITHIN THE EXISTING ACCESS ON THE PROPERTY.

NO TREES SHALL BE REMOVED TO ACCESS THE CONSTRUCTION SITE.

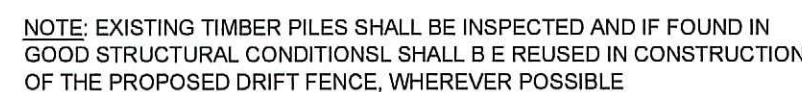
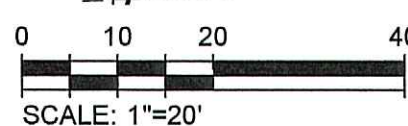
ALL CONSTRUCTION SHALL BE KEPT WITHIN THE BEACH AREA AND THE COASTAL BANK, AND ABOVE THE REACH OF MEAN HIGH WATER.

NO WORK SHALL BE PERFORMED WITHIN THE SALT MARSH, AND CONSTRUCTION ACCESS ALONG THE COASTAL BEACH SHALL KEEP A MINIMUM OF 10- FEET CLEAR FROM THE SALT MARSH.

ALL BARE GROUND AREAS WITHIN THE SHORELINE SHALL BE STABILIZED WITH EROSION CONTROL BLANKETS AND PLANTED WITH APPROPRIATE PLANT SPECIES. REFER TO WILKINSON ECOLOGICAL DESIGN DRAWINGS FOR PLANTING SPECIES.

ALL LUMBER CUTTING SHALL BE PERFORMED AT AN UPLAND LOCATION TO CONTROL SAWDUST. THE CONSTRUCTION SITE WILL BE CLEANED DAILY TO REMOVE ANY LOOSE DEBRIS.

ALL DISTURBED AREAS WITHIN THE WORK ZONE WILL BE STABILIZED TO PREVENT EROSION.



LOCATIONS ARE BASED ON AN "ON THE GROUND" INSTRUMENT SURVEY AND ELEVATIONS BASED ON THE NAVD 1988 DATUM. COORDINATE SYSTEM USED IS THE MA-MAINLAND COORDINATE SYSTEM, DATUM: NAD 83, U.S. SURVEY FEET.

ANY SOUNDINGS SHOWN, WITHIN WATER BODYS, INDICATE THE DEPTH BELOW MEAN LOW WATER (IN TIDAL WATERS) OR DEPTH BELOW ORDINARY HIGH WATER (IN NON-TIDAL WATERS).

DIMENSIONS OF EXISTING BUILDINGS AND BUILDING OFFSETS SHOWN HEREON ARE TO CORNER BOARDS OR SIDING EXTENTS AND ARE DISPLAYED IN ENGINEERING UNITS WITH A PRECISION OF ONE TENTH (0.1) OF A FOOT. LOT COVERAGE IS CALCULATED TO CORNER BOARD.

THE FINISHED FLOOR ELEVATION (FIN. FL.) SHOWN HEREON IS BASED ON AN ASSUMED 1" LOWER THAN THE SURVEYED THRESHOLD ELEVATION. AN INTERIOR INSPECTION OF BUILDINGS WAS NOT PERFORMED.

ZONING DISTRICT: RES

PROPERTY IS LOCATED WITHIN AN AREA HAVING A ZONE DESIGNATION OF VE (ELEV 14), MINIMAL HAZARD ZONE X BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), ON FLOOD INSURANCE RATE MAP NO. 25001C0136J, WITH A MAP EFFECTIVE DATE OF JULY 16, 2014.

THIS LOT IS NOT LOCATED WITHIN A DEEP APPROVED ZONE II WELLHEAD PROTECTION AREA.

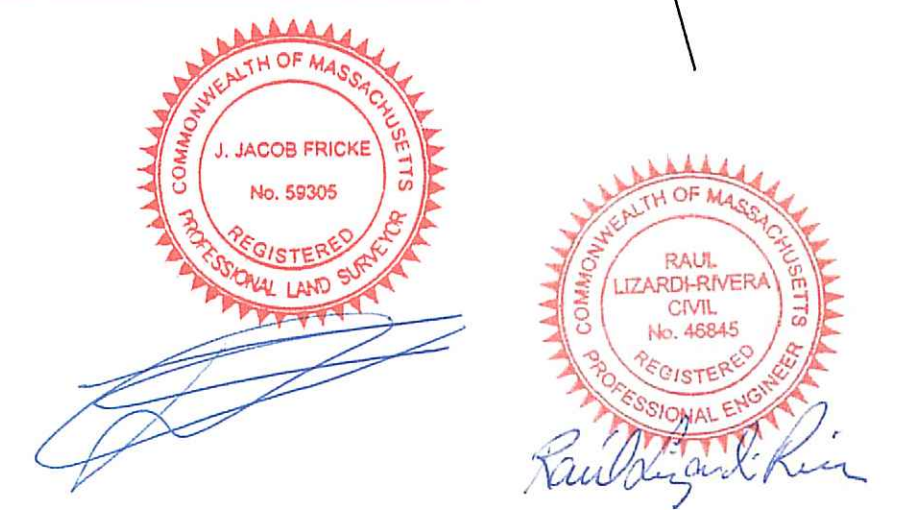
THIS LOT IS NOT MAPPED WITHIN A MESA NATURAL HERITAGE AND ENDANGERED SPECIES AREA.

WIND EXPOSURE CATEGORY: ZONE C

DEED REFERENCE: BOOK 26594 PAGE 282 AND BOOK 32324 PAGE 47

PLAN REFERENCE: BOOK 260 PAGE 5

OWNER: KNOWLES HEIGHTS REALTY TRUST
DAVID H. & JADE S. WALSH, TRUSTEES
P.O. BOX 11450
JACKSON, WY 83002



NOTICE

THIS PLAN MAY NOT BE ADDED TO, DELETED FROM, OR ALTERED IN ANY WAY BY ANYONE OTHER THAN CAPE ISLANDS ENGINEERING, INC.

UNLESS AND UNTIL SUCH TIME AS AN ORIGINAL (RED) STAMP APPEARS ON THIS PLAN NO PERSON OR PERSONAL, MUNICIPAL, OR PUBLIC OFFICIAL MAY RELY UPON THE INFORMATION CONTAINED HEREIN; AND THE PLAN REMAINS THE PROPERTY OF CAPE AND ISLANDS ENGINEERING, INC.

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DATE	DESCRIPTION	R/LR	CHK
1/13/25	EXTEND PROPOSED STABILIZATION TO PROPERTY LINE	R/LR	R/LR
PREPARED FOR:			

DAVID WALSH
P.O. BOX 129
NORTH TRURO, MA 02652

PROJECT:

29 & 31 KNOWLES HEIGHTS ROAD
TRURO, MASSACHUSETTS

SHEET NO.: 1 OF 1	DATE: DECEMBER 16, 2024
DRAWN BY: JGP & RLR	CHECKED BY: JJF & RLR

PREPARED BY:

 **CAPE & ISLANDS**
ENGINEERING

SUMMERFIELD PARK
800 FALMOUTH ROAD SUITE 301C
MASHPEE, MA 02649

508.477.7272 PHONE
508.477.9072 FAX

www.CapeEng.com

DRAWING TITLE:

PROPOSED BANK STABILIZATION

PROPOSED BANK STABILIZATION

ASSESSORS INFORMATION	MAP 035-007-000 AND MAP 035-008-000
-----------------------	-------------------------------------

KNOWLESHEIGHTS_29&31_WALSH

TOWN OF TRURO—ORDER OF CONDITIONS

29 & 31 Knowles Heights Road; Map 35, Parcel 7 & 8

DEP file # SE 75-1210

APPLICANTS: Walsh: Daja Investments LLC & Knowles Heights Realty Trust

THIS IS A DRAFT ORDER AND WILL BE EDITED BASED ON THE 1/27/2025 HEARING

DOCUMENTS

1. Notice of Intent application; wetlands fee transmittal form; locus map, FEMA map, NHESP map; notification to abutters; abutters list; project narrative with site photographs.
2. Proposed Bank Stabilization prepared by Cape & Islands Engineering Inc, dated 12/16/2024 and revised 1/13/2025.
3. Email from abutter at 25 Knowles Heights Road giving permission to extend work to within 5-10' of the property line.

PROJECT DESCRIPTION

1. The project is located on two contiguous parcels on Cape Cod Bay. 31 Knowles Heights Road is a 1.2 acre lot developed with a single family dwelling built in 1998 and a cottage built in 2005. 29 Knowles Heights Road is a 29,185 lot developed with single family dwelling built in 2023 (old cottage was removed and this is a new building). The most seaward dwellings are 40-55' from the top of the coastal bank.
2. The resource areas at the site are the Coastal Bank, Coastal Beach and Land Subject to Coastal Storm Flowage.
3. The request was first heard on 1/6/2025 and continued until 1/27/2025 to prevent an open meeting law violation.
4. The project includes installing a sturdy sand drift fence, and coir log array behind it at the toe of the Coastal Bank to be nourished with compatible sands and planted with beach grass annually and monitored.

FINDINGS

1. The Commission finds the site of the proposed shorefront protection to be on a Coastal Bank, and work will occur on the adjacent Coastal Beach above mean high water.
2. The areas subject to protection/regulation are Coastal Bank and Coastal Beach and their buffer zones, and Land Subject to Coastal Storm Flowage.
3. The Commission finds the Coastal Bank to exist in a dynamic coastal environment composed of mixed glacial till and outwash material.
4. The Commission finds that the Coastal Bank is significant to storm damage prevention and flood control and supplies sediment to down drift coastal resource areas.
5. The Commission finds the Coastal Bank composed of glacial outwash along the bay side of Truro is subject to dynamic and intense seasonal storms which can result in the high end of normal erosion rates and a significantly lower beach elevation due to wave action, overland stormwater, and wind/rain from these intense seasonal storms.
6. **The address for this project is #29 and #31 Knowles Heights Road.**
7. The Applicant acknowledges that the project of Coastal Bank stabilization and protection with biodegradable (coir) measures is only temporary (estimated at 10-15 years); the goal is to protect the Coastal Bank and its ability to perform the function of storm damage prevention, and the applicant's home atop the eroding bank.
8. The Applicant has agreed to conduct an engineering, legal and logistical analysis of alternatives to address the proximity of the house to the top of the Coastal Bank including relocation, reduction in size and removal of the existing house. This analysis may include alternatives which would protect the coastal bank and ensure that the functions of storm damage prevention and sediment supply to the beaches are preserved. The Applicant shall submit an alternatives report, and shall attend (or be

represented) a meeting with the Commission to present and discuss said report prior to the issuance of a Certificate of Compliance for this project.

9. The Applicant acknowledges and understands that their property is located on an eroding coastline, that their home is post-1978 construction, and as such revetments and other coastal engineering structures cannot be permitted.
10. The Commission finds that the Coastal Beach resource area is not significant to state listed species since it is not located in Estimated Habitat of Rare Wildlife as mapped and published maps by NHESP.
11. The Commission finds that the Coastal Beach is significant to storm damage prevention, flood control and protection of wildlife habitat.
12. These Special Conditions and Additional General Conditions are being issued in accordance with the information submitted in the Notice of Intent, with accompanying attachments by ECR, LLC and dated December 2024, the Plan of Record, "Proposed Bank Stabilization" as revised 1-13-2025, and Supplemental information including but not limited to the project narrative and site photos. In the event of any conflict between these referenced materials and this Order, this Order shall control.
13. This Order is issued pursuant to the Massachusetts Wetlands Protection Act and the Town of Truro's Conservation By-Law and Conservation regulations.
14. This Order of Conditions allows the following work: the placement and maintenance of an array of 20" diameter coir logs at the base of the coastal bank; the construction and maintenance of a sturdy drift fence; placement and maintenance of compatible sand cover over the coir logs; placement of compatible beach/bank nourishment sands; the planting of the Coastal Bank face with American beach grass in double culms on a 12-14" matrix. The applicant has been informed through their representative that the Conservation Commission's preferred avenue for providing maintenance sand nourishment to keep the coir logs covered is to deliver that sand over the Coastal Bank.

The Commission determined that the project could be permitted subject to the following special conditions:

SPECIAL CONDITIONS

Pre-construction

1. Notice of a work start date shall be given to the Commission in writing at least 48 hours prior to the commencement of work. The applicant or contractor shall provide the name and contact information of the person responsible on site for compliance with this Order.
2. Prior to the commencement of work the following activities shall be completed:
 - The Order of Conditions shall be recorded at the Barnstable County Registry of Deeds and a stamped copy shall be submitted to the Conservation office.
 - A sign shall be conspicuously displayed at the site showing the DEP file number assigned to this project. The sign shall be 2-3 square feet in size, separately staked, and read only: MA DEP file # SE 75-1210. Lettering/numbering shall be clearly and permanently printed, and at least 2" in height.
3. A **pre-construction site visit** shall be scheduled by the applicant's representative and include the project Contractor, and the Conservation Agent. During this site visit the Order of Conditions, construction protocols, work limit, access plans and site plan details shall be reviewed.
4. Members of the Commission, its Agent, or the Department of Environmental Protection (DEP) reserve the right to enter and inspect the property at all reasonable times, until a Certificate of Compliance is issued, to evaluate compliance with this Order of Conditions, the Act, 310 CMR 10.00 and Town regulations, and may acquire any information, measurements, photographs, observations, and/or materials, or may require the submittal of any data or information deemed necessary by the Commission for that evaluation.
5. The Applicant is responsible for providing notification to all abutting property owners for any proposed beach access routes for the project; in this regard, the contractor must obtain an access and staging permit from the Town with respect to utilizing any public landing.

6. The construction notes on the plan are specifically incorporated into this order.

Construction Conditions

1. Coir logs:

- a) The stabilization design uses coconut fiber (coir) logs in an array of 6 rows of logs installed along the toe of the Coastal Bank for the entire ~232 linear feet and will include a connection to the array being permitted and constructed to the south of the applicant's property under SE#075-1211. At the time of this order, no array is installed at the property to the north of this project. Unless written permission is obtained from the abutter to the north, fencing and coir assembly must end 25' from the property line as shown on the plan of record.
- b) The major component of the array is a dense 20-inch diameter coir log that is stacked in rows. No plastics or metals (other than the duckbill anchors) shall be utilized in the construction or securing of the coir logs. The logs will extend behind the existing stairs. Those stairs may be removed and replaced in-kind as necessary to install the coir array.
- c) The first 2 rows of logs shall be buried at the bank toe at the elevations shown on the plan in order to provide a stable foundation for the other coir logs. Nothing else may be placed completely within the beach. The coir logs shall be stepped against the bank to reflect the slope of the bank, and covered with compatible nourishment sand.
- e) Duck bill anchors shall be placed as noted on the current site plan. If the Duck bill anchors become uncovered and are protruding from the bank or coir logs or are loose in any way, the applicant will be required to reinstall them immediately.

2. Nourishment:

- a) Nourishment sands will be clean and free from debris and cobbles.
- b) The proposed slope of the nourished bank shall be no steeper than the angle of repose (i.e. 34°).
- c) The initial minimum coverage of all coir logs with sand shall be at least 18-inches.
- d) The applicant shall be required to perform at least annual renourishment of the bottom of the bank to at least one foot above the top of the coir logs to ensure the stability and function of the bank and adjacent beach. A minimum depth of 18-inches of cover sand shall be restored and in place prior to Thanksgiving of each year.
- e) Prior to renourishment, the applicant's representative/consultant shall determine the quantity of sand needed for the site and submit a written notice of this activity and the depth of cover and total estimated volume of sand proposed; any disagreement about the adequacy of this nourishment shall be decided by the Commission. In addition, any access needed for equipment and materials shall be approved by the Town of Truro, the Conservation Commission, and abutters.
- f) Photographs of the project site shall be submitted quarterly. In addition, photographs shall also be submitted after any significant storm event that result in a substantial loss of sand. Quarterly reports can transition to (semi)-annual reports at the discretion of the Conservation Department. These reports shall be submitted to the Conservation Department to include a one hard and one electronic copy with photos and measurements of sand coverage at 5' from the ends and every 50' along the coir logs. Monitoring locations shall be identified by GPS and by relative elevation. A minimum coverage of 12" of sand will be maintained at all times. A record of the number of times that the coir logs need to be re-covered and the amount of sand deposited in each renourishment shall be documented and submitted to the Conservation Department in an annual report by December 1 of each year. The report shall include the volume of sand placed at the site and dates for nourishment.

3. Plantings:

- Beach grass shall be planted ANNUALLY, 12-14-inches on center with double culms per plant, 9-inches deep.
- a) In the event that the plantings do not survive, they shall be replaced at the next seasonal opportunity. Failed plantings shall be replaced no later than April 15 annually.
 - b) Plantings shall be monitored in reports to include photographs and information on how much material was planted and shall be submitted to the Conservation Department by December 1 of each year.

4. Damage, Repair and Removal of Coir logs:

- a) The coir logs shall be maintained and repaired to ensure proper function and to prevent any debris from entering the resource area. If the coir logs are damaged beyond repair, they shall be promptly removed and properly disposed of.
- b) The Applicant shall be responsible for retrieving any and all materials stored, dislodged or washed off-site (excluding sand) for the life of the project.
- c) The Applicant shall notify the Conservation Agent concerning the extent of repairs and maintenance necessary prior to proceeding with any repair and maintenance.
- d) If the Commission has a basis to believe the coir logs are causing scour or erosion on abutting properties, or are adversely impacting offshore deposition processes, or otherwise creating negative or unintended consequences, it may issue an Order to Show Cause why the coir logs should not be removed. The Commission will conduct a hearing to evaluate the evidence and will issue a decision on removal.
- e) Prior to the commencement of construction, the Applicant shall establish an escrow account in the amount of \$5,000, which may be used by the Commission to remove and dispose of debris, or damaged or end-of-useful life coir logs if the applicant does not perform such work in a reasonable period of time after the Commission orders the performance of such work.

5. No construction work may cause destabilization of the Coastal Bank if the installation of anchors, application of sand from the top or bottom of the Coastal Bank or any other related work for this project cause any slumping of the bank, work must stop and be evaluated by the Commission.

6. No work on the beach, including access over the beach, shall occur between April 15th and Columbus Day. Work shall not commence prior to 8 a.m. and must end by 6:00 p.m.

7. All work shall be done in accordance with the project narrative provided in the NOI, Supplemental Information and final plans as described herein. In the event of any conflict between the materials submitted or the final plan and this Order, this Order shall control.

8. All post-construction Monitoring and Maintenance Program/Protocols shall be done in compliance with the NOI and Supplemental Information dated December 2024 except as modified by this Order.

After each significant (named) storm event, the applicant's representative will inspect the project area and prepare a field report of site conditions and possible impacts to the Coastal Bank and the coir log array.

~~b) After each significant storm event and before, during and after any repairs or renourishment, the Conservation Agent may inspect the project area at the Applicant's expense. Inspection time will be billed at the then current rate for such inspections as established by the Truro Conservation Commission. Invoices with dates of on-site inspections will be submitted to the Applicant on a quarterly basis. Payment is due within 30 days of receipt.~~ **Staff recommends deletion**

9. Prior to issuance of a Certificate of Compliance, the Applicant shall conduct an engineering, legal and logistical analysis of alternatives to address the proximity of the house to the top of the coastal bank, including relocation options and options for reduction in size and removal of the existing house. This analysis may include alternatives which would protect the Coastal Bank and ensure that its functions of storm damage prevention and sediment supply to the beaches are preserved. The alternatives report shall contain a narrative analysis, feasibility evaluation, cost estimates, permitting requirements, and conceptual layouts. The report shall be submitted to the Commission when requesting a Certificate of Compliance for the project. No Certificate of Compliance shall issue until this analysis has been filed with the Commission and is deemed by the Commission to be complete, nor until the applicant (or then current owner) and their consultant has met with the Commission to discuss this alternatives analysis.

10. Sand Nourishment shall be provided to cover the array from the top of the bank, or other approved method to keep the coir logs covered with sand.

11 Special Condition Nos. 1, 2, 3, 4, 5, 8 and 10 shall be continuing conditions which survive a Certificate of Compliance, unless the Commission agrees by written order after notice to abutters to modify the conditions. Any modifications shall be based upon the monitoring reports and written recommendations by a coastal geologist.

In addition to the SPECIAL CONDITIONS # 1-11, the Commission has determined that it is necessary to include the following Additional General Conditions.

ADDITIONAL GENERAL CONDITIONS

1. This Order shall apply to any successor in control or successor in interest of the property described in the Notice of Intent and accompanying plans. These obligations shall be incorporated and referenced in covenants in all deeds to succeeding owners of all or any part of the property.
2. The form provided at the end of this Order shall be completed and stamped at the appropriate Registry of Deeds, after the expiration of the 10-business day appeal period and if no request for appeal has been filed with the Department of Environmental Protection under the Wetlands Protection Act and the DEP Wetland Protection Regulations (310 CMR 10.00), or under the local Conservation By-Law.
3. This Order shall be included in all construction contracts, subcontracts, and specifications dealing with the work proposed and shall supersede any conflicting contract requirements. It is the responsibility of the Applicant, Owner, and/or successor(s) to ensure compliance with all Conditions of this Order. A copy of this Order shall be available at the work site, or posted, during normal work hours, until the work is complete.
4. The Applicant shall give written notice to the Commission 48-hours in advance of commencement of work. Members of the Commission or its Agent, or the DEP reserve the right to enter and inspect the property at all reasonable times, until a Certificate of Compliance is issued, to evaluate compliance with this Order of Conditions, the Wetlands Protection Act, the DEP Wetland Protection Regulations, and the Bylaw, and may require any information, measurements, photographs, observations, and/or materials, or may require the submittal of any data or information deemed necessary by the Commission for that evaluation.
5. Prior to commencement of work, a series of color photos shall be taken of the bank and submitted to the Commission. In addition, a series of color photos shall be taken at the end of construction and submitted to the Commission. All photographs shall include the Assessor's Map and Parcel and date the picture was taken.
6. Prior to the commencement of work, a sign shall be displayed at the site showing the DEP file number assigned to this project. Such sign shall be separately staked.
7. Work shall be halted on the site if the Commission, Conservation Agent or DEP determines that any of the work is not in compliance with this Order. Work shall not resume until the Commission is satisfied that the work will comply with this Order and has so notified the Applicant in writing.
8. Any changes in the work described in the Notice of Intent or in the plans and specifications shall be submitted to the Commission in writing for a determination of whether the change is significant enough to the interests of the Act and the Bylaw to require a new Notice of Intent. No changes shall be made or implemented in the field prior to the Commission's determination. Should issuance of additional permits result in a change in the project, the Applicant shall promptly submit such changes to the Commission for evaluation under this provision.
9. Upon completion of this project, the Applicant or Owner shall submit a request to the Conservation Commission for issuance of a Certificate of Compliance and the report required by Special Condition No. 9. The Applicant or Owner shall certify in writing that the work was completed in substantial compliance with the plans and documents referenced above. At the request of the Commission, the Applicant or Owner may be required to submit (a) a written statement from a registered professional engineer in the Commonwealth of Massachusetts certifying that the work was completed in

substantial compliance with the plan(s) and documents referenced above and as conditioned by the Commission. The Certificate of Compliance shall specify any ongoing conditions.



Environmental Consulting & Restoration, LLC



January 13, 2025

Town of Truro
Conservation Commission
24 Town Hall Rd.
P.O. Box 2030
Truro, MA 02666

RE: Notice of Intent, Proposed Shoreline Stabilization Project, 33 Knowles Heights Road, Truro, MA

Dear Members of the Truro Conservation Commission:

In response to some questions from the Commission on January 6, 2025, please accept the attached revised plan showing a condition proposed to address the 25' setback from the property line.

The proposed project includes the installation of a sand drift fence (also called a "serpentine fence") with a coir log array located along the landward side of the fence and nearly extends to the southerly property boundary.

We trust that this new information can be discussed at the Special Hearing scheduled for January 27, 2025. If you have any questions or require additional information, please contact me at (617) 543-1654

Sincerely,
Environmental Consulting & Restoration, LLC

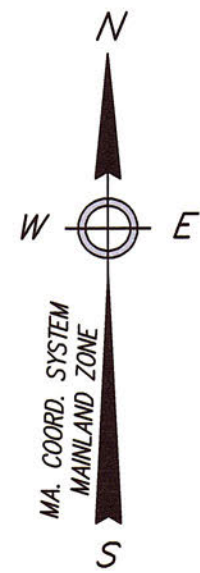
Stan Humphries

Stan Humphries
Coastal Geologist

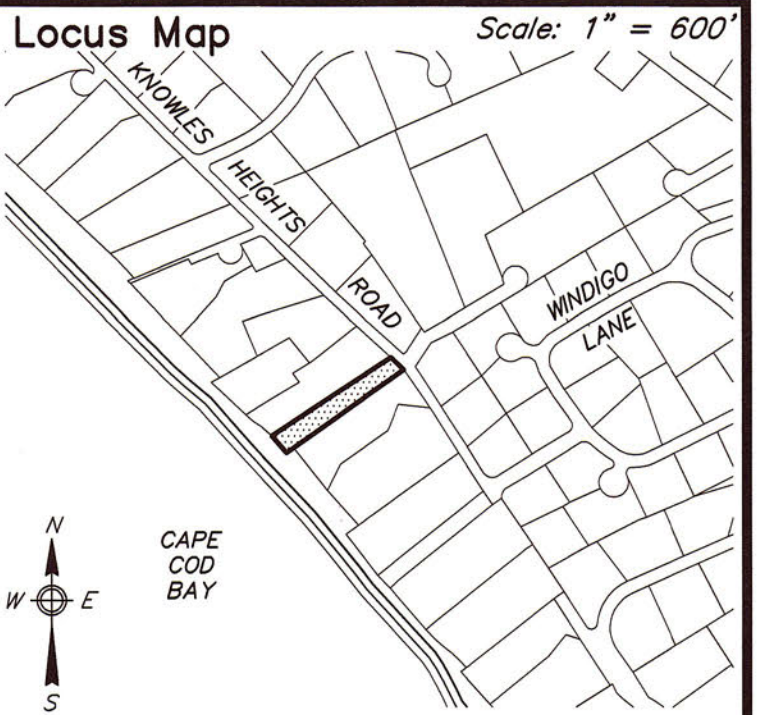
CC: MassDEP – Southeast Regional Office, sero_noi@state.ma.us

Bracken Engineering

Janet London Revocable Trusts – Janet London, [REDACTED]

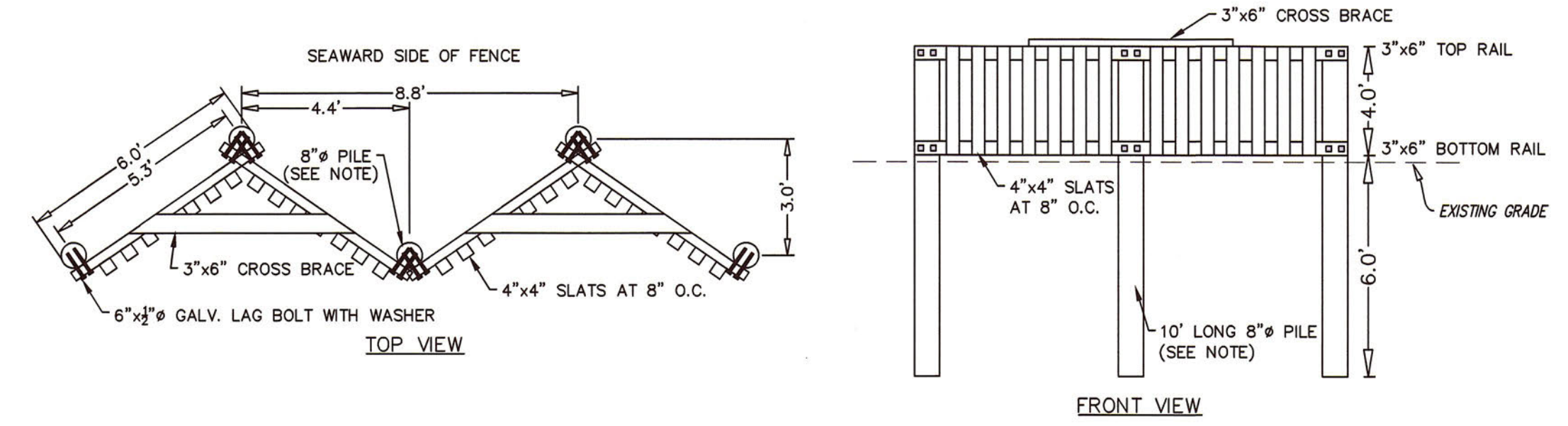
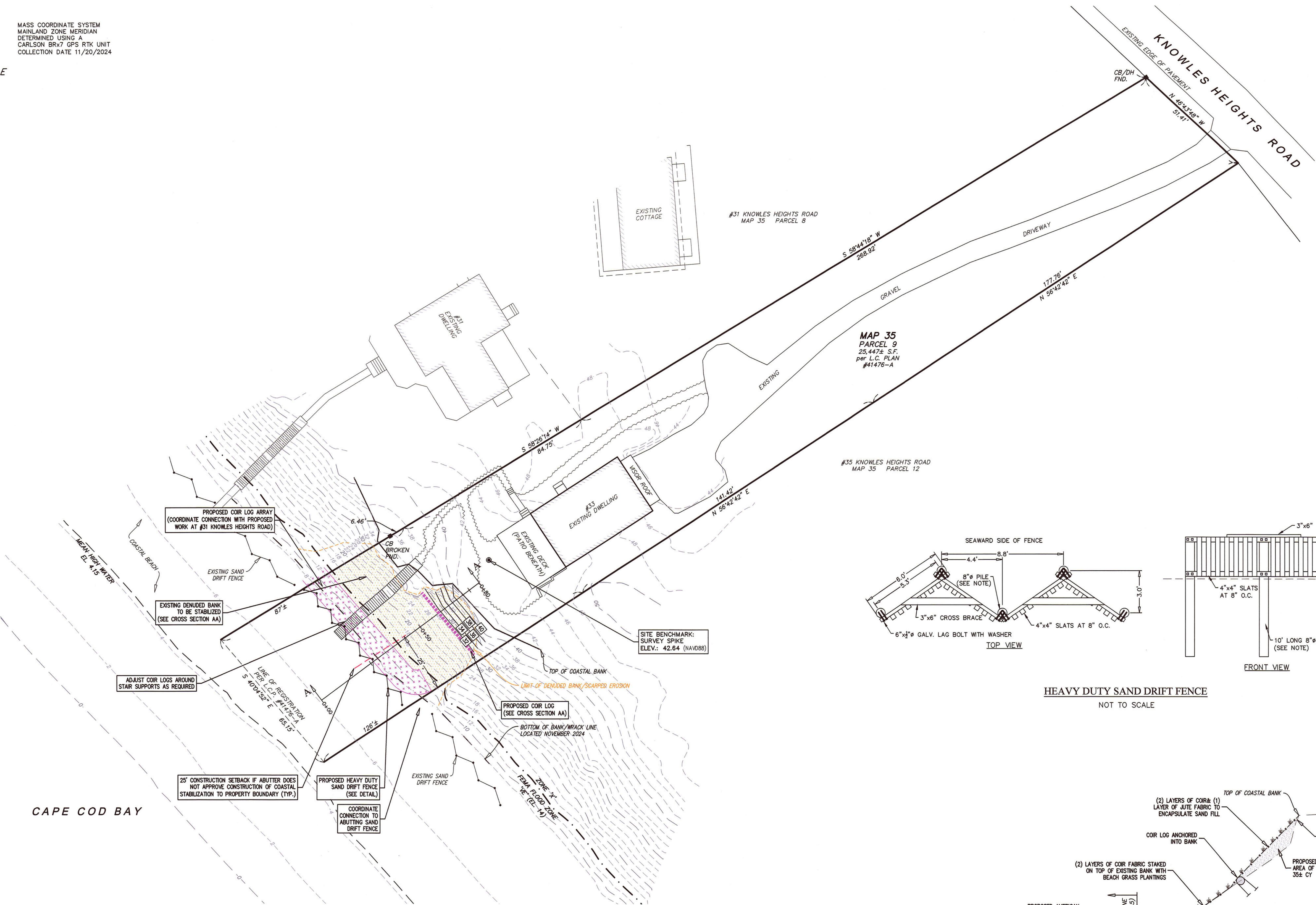


MASS COORDINATE SYSTEM
MAINLAND ZONE MERIDIAN
DETERMINED USING A
CARLSON BRX7 GPS RTK UNIT
COLLECTION DATE 11/20/2024

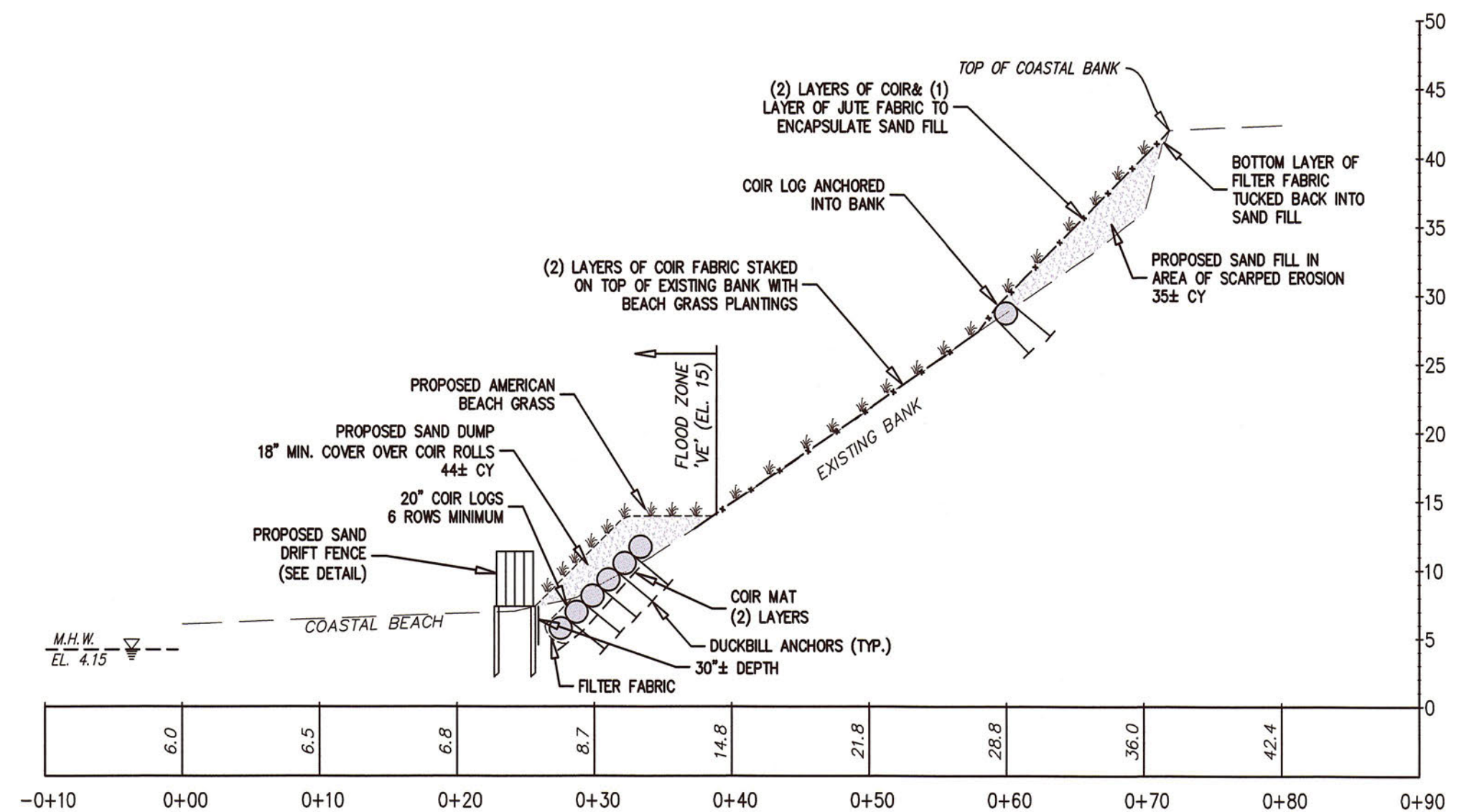


Notes

- LOCUS: #33 KNOWLES HEIGHTS ROAD
MAP 35 PARCEL 9
- OWNER: JANET LONDON, Trustee
JANET LONDON REVOCABLE TRUST
13 HART ROAD
P.O. BOX 749
NORTH TRURO, MA 02652
- DEED REF: L.C. Cert. #224683
- PLAN REF: L.C. Plan #41476-A (LOT 1)
- SEE OPEN ORDER OF CONDITIONS SE075-0950
RECORDED AT THE BARNSTABLE COUNTY REGISTRY
OF DEEDS, L.C. Doc. #1,258,585 (11/19/2014).
- SITE TOPOGRAPHY AS SHOWN ON THIS PLAN WAS
OBTAINED DURING AN AERIAL LIDAR SURVEY
PERFORMED BY THIS FIRM AND SUPPLEMENTED BY
ON THE GROUND SURVEY INFORMATION. NAVD1983
VERTICAL DATUM.
- LOCUS DOES FALL WITHIN SPECIAL FLOOD HAZARD
AREA "VE" (EL. 14) AS SHOWN ON FEMA FLOOD
INSURANCE RATE MAP No. 25001C-0136-J, dated
07/16/2014.
- LOCUS DOES NOT FALL WITHIN THE NATURAL
HERITAGE and ENDANGERED SPECIES PROGRAM
(NHESP) AREAS OF ESTIMATED HABITATS OF RARE
WILDLIFE and PRIORITY HABITATS OF RARE SPECIES.
- THE CONTRACTOR SHALL PROVIDE ALL MATERIALS,
LABOR, SUPERVISION, TOOLS, EQUIPMENT, FUEL,
SANITARY FACILITIES AND INCIDENTALS NECESSARY
FOR THE FURNISHING, PERFORMANCE AND
COMPLETION OF WORK.
- THE WORK ACTIVITY SHALL OCCUPY A MINIMUM AREA
TO ACCOMPLISH THE INSTALLATION OF THE COASTAL
STABILIZATION SYSTEM. EQUIPMENT AND MATERIALS
HANDLING SHALL BE IN ACCORDANCE WITH THE WORK
PROTOCOL SUBMITTED WITH THE NOTICE OF INTENT,
THE RESULTING ORDER OF CONDITIONS AND AS
DIRECTED BY THE TRURO CONSERVATION
AUTHORITIES.
- THE CONTRACTOR SHALL OBTAIN A COPY OF THE
ORDER OF CONDITIONS ISSUED FOR THE PROJECT BY
THE TRURO CONSERVATION COMMISSION PRIOR TO
THE START OF ANY WORK.
- NO DEVIATION FROM THE DESIGN PLAN SHALL BE
ALLOWED WITHOUT PRIOR APPROVAL FROM THE
DESIGN ENGINEER.
- THE CONTRACTOR IS RESPONSIBLE FOR
RE-ESTABLISHING ALL DISTURBED AREAS TO MATCH
THE EXISTING CONDITION UPON COMPLETION OF THE
COASTAL STABILIZATION UNLESS OTHERWISE
INSTRUCTED.
- CONSTRUCTION ACCESS SHALL BE BY STOTTS
CROSSING IN BEACH POINT.

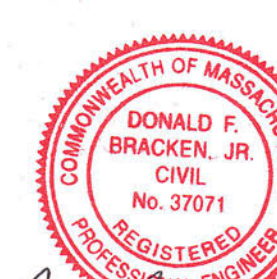


HEAVY DUTY SAND DRIFT FENCE
NOT TO SCALE



CROSS SECTION A-A

SCALE: HORIZ: 1\"/>



Donald F. Bracken, Jr.
1-14-25

Prepared By:



49 HERRING POND ROAD
BUZZARDS BAY, MA 02532
(tel) 508.833.0070
(fax) 508.833.2282

19 OLD SOUTH ROAD
NANTUCKET, MA 02554
(tel) 508.325.0044
www.brackeneng.com

COASTAL STABILIZATION PLAN

IN TRURO, MASSACHUSETTS

Prepared For:

JANET LONDON
REVOCABLE TRUST

#33 KNOWLES HEIGHTS ROAD
MAP 35 PARCEL 9

No.	Date	Revision Description	By
1	1/14/25	ADD ABUTTER SETBACK NOTE	JPH
Date: DECEMBER 16, 2024 Drawn: JPH/BEI Checked: DFB/AMG Sheet: 1 of 1			

THIS IS A DRAFT ORDER AND WILL BE EDITED BASED ON THE 1/27/2025 HEARING

DOCUMENTS

1. Notice of Intent application; wetlands fee transmittal form; locus map, FEMA map, NHESP map; notification to abutters; abutters list; 21day waiver; project narrative with site photographs.
2. **Coastal Stabilization Plan** prepared by Bracken Engineering Inc, dated 12/16/2024 and revised 1/14/2025.

PROJECT DESCRIPTION

1. The project location is west of Knowles Heights Road and bordering on Cape Cod Bay. The lot is developed with single family dwelling served by a private well and septic system and was built in 1971. The dwelling is ~15 feet landward of the top of the coastal bank.
2. The resource areas at the site are a Coastal Bank, Coastal Beach and Land Subject to Coastal Storm Flowage.
3. The request was first heard on 1/6/2025 and continued until 1/27/2025 to prevent an open meeting law violation.
4. The project includes installing a coir log array and sturdy sand drift fence at the toe of the Coastal Bank to be nourished with compatible sands and planted with beach grass annually and monitored.

FINDINGS

1. The Commission finds the site of the proposed shorefront protection to be on a Coastal Bank, and work will occur on the adjacent Coastal Beach above mean high water.
2. The areas subject to protection/regulation are Coastal Bank and Coastal Beach and their buffer zones, and Land Subject to Coastal Storm Flowage.
3. The Commission finds the Coastal Bank to exist in a dynamic coastal environment composed of mixed glacial till and outwash material.
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2. Prior to the commencement of work the following activities shall be completed:
 - The Order of Conditions shall be recorded at the Barnstable County Registry of Deeds and a stamped copy shall be submitted to the Conservation office.
 - A sign shall be conspicuously displayed at the site showing the DEP file number assigned to this project. The sign shall be 2-3 square feet in size, separately staked, and read only: MA DEP file # SE 75-1211. Lettering/numbering shall be clearly and permanently printed, and at least 2" in height.
3. A **pre-construction site visit** shall be scheduled by the applicant's representative and include the project Contractor, and the Conservation Agent. During this site visit the Order of Conditions, construction protocols, work limit, access plans and site plan details shall be reviewed.
4. Members of the Commission, its Agent, or the Department of Environmental Protection (DEP) reserve the right to enter and inspect the property at all reasonable times, until a Certificate of Compliance is issued, to evaluate compliance with this Order of Conditions, the Act, 310 CMR 10.00 and Town regulations, and may acquire any information, measurements, photographs, observations, and/or materials, or may require the submittal of any data or information deemed necessary by the Commission for that evaluation.
5. The Applicant is responsible for providing notification to all abutting property owners for any proposed beach access routes for the project; in this regard, the contractor must obtain an access and staging permit from the Town with respect to utilizing any public landing.
6. The construction notes on the plan are specifically incorporated into this order.

Construction Conditions

1. Coir logs:

a) The stabilization design uses coconut fiber (coir) logs in an array of 6 rows of logs installed along the toe of the Coastal Bank for ~70 linear feet and will include connection to the array being permitted and constructed to the north of the applicant's property under SE#075-1210. Unless written permission is obtained from the

abutter to the south, fencing and coir assembly must end 25' from the property line as shown on the plan of record.

b) The major component of the array is a dense 20-inch diameter coir log that is stacked in rows. No plastics or metals (other than the duckbill anchors) shall be utilized in the construction or securing of the coir logs. The logs will extend behind the existing stairs. Those stairs may be removed and replaced in-kind as necessary to install the coir.

c) The first 2 rows of logs shall be buried at the bank toe at the elevations shown on the plan in order to provide a stable foundation for the other coir logs. Nothing else may be placed completely within the beach. The coir logs shall be stepped against the bank to reflect the slope of the bank, and covered with compatible nourishment sand.

e) Duck bill anchors shall be placed as noted on the current site plan. If the Duck bill anchors become uncovered and are protruding from the bank or coir logs or are loose in any way, the applicant will be required to reinstall them immediately

2. Nourishment:

a) Nourishment sands will be clean and free from debris and cobbles.

b) The proposed slope of the nourished bank shall be no steeper than the angle of repose (i.e. 34°).

c) The initial minimum coverage of all coir logs with sand shall be at least 18-inches.

d) The applicant shall be required to perform at least annual renourishment of the bottom of the bank to at least one foot above the top of the coir logs to ensure the stability and function of the bank and adjacent beach. A minimum depth of 18-inches of cover sand shall be restored and in place prior to Thanksgiving of each year.

e) Prior to renourishment, the applicant's representative/consultant shall determine the quantity of sand needed for the site and submit a written notice of this activity and the depth of cover and total estimated volume of sand proposed; any disagreement about the adequacy of this nourishment shall be decided by the Commission. In addition, any access needed for equipment and materials shall be approved by the Town of Truro, the Conservation Commission, and abutters.

f) Photographs of the project site shall be submitted quarterly. In addition, photographs shall also be submitted after any significant storm event that result in a substantial loss of sand. Quarterly reports can transition to (semi)-annual reports at the discretion of the Conservation Department. These reports shall be submitted to the Conservation Department to include a one hard and one electronic copy with photos and measurements of sand coverage at 5' from the ends and every 50' along the coir logs. Monitoring locations shall be identified by GPS and by relative elevation. A minimum coverage of 12" of sand will be maintained at all times. A record of the number of times that the coir logs need to be re-covered and the amount of sand deposited in each renourishment shall be documented and submitted to the Conservation Department in an annual report by December 1 of each year. The report shall include the volume of sand placed at the site and dates for nourishment.

3. Plantings:

Beach grass shall be planted ANNUALLY, 12-14-inches on center with double culms per plant, 9-inches deep.

a) In the event that the plantings do not survive, they shall be replaced at the next seasonal opportunity. Failed plantings shall be replaced no later than April 15 annually.

b) Plantings shall be monitored in reports to include photographs and information on how much material was planted and shall be submitted to the Conservation Department by December 1 of each year.

4. Damage, Repair and Removal of Coir logs:

a) The coir logs shall be maintained and repaired to ensure proper function and to prevent any debris from entering the resource area. If the coir logs are damaged beyond repair, they shall be promptly removed and properly disposed of.

b) The Applicant shall be responsible for retrieving any and all materials stored, dislodged or washed off-site (excluding sand) for the life of the project.

- c) The Applicant shall notify the Conservation Agent concerning the extent of repairs and maintenance necessary prior to proceeding with any repair and maintenance.
- d) If the Commission has a basis to believe the coir logs are causing scour or erosion on abutting properties, or are adversely impacting offshore deposition processes, or otherwise creating negative or unintended consequences, it may issue an Order to Show Cause why the coir logs should not be removed. The Commission will conduct a hearing to evaluate the evidence and will issue a decision on removal.
- e) Prior to the commencement of construction, the Applicant shall establish an escrow account in the amount of \$5,000, which may be used by the Commission to remove and dispose of debris, or damaged or end-of-useful life coir logs if the applicant does not perform such work in a reasonable period of time after the Commission orders the performance of such work.

5. No construction work may cause destabilization of the Coastal Bank If the installation of anchors, application of sand from the top or bottom of the Coastal Bank or any other related work for this project cause any slumping of the bank, work must stop and be evaluated by the Commission.

6. No work on the beach, including access over the beach, shall occur between April 15th and Columbus Day. Work shall not commence prior to 8 a.m. and must end by 6:00 p.m.

7. All work shall be done in accordance with the project narrative provided in the NOI, Supplemental Information and final plans as described herein. In the event of any conflict between the materials submitted or the final plan and this Order, this Order shall control.

8. All post-construction Monitoring and Maintenance Program/Protocols shall be done in compliance with the NOI and Supplemental Information dated December 2024 except as modified by this Order.

After each significant (named) storm event, the applicant's representative will inspect the project -area and prepare a field report of site conditions and possible impacts to the Coastal Bank and the coir log array.

~~b) After each significant storm event and before, during and after any repairs or renourishment, the Conservation Agent may inspect the project area at the Applicant's expense. Inspection time will billed at the then current rate for such inspections as established by the Truro Conservation Commission. Invoices with dates of on-site inspections will be submitted to the Applicant on a quarterly basis. Payment is due within 30 days of receipt.~~ **Staff recommends deletion**

9. Prior to issuance of a Certificate of Compliance, the Applicant shall conduct an engineering, legal and logistical analysis of alternatives to address the proximity of the house to the top of the coastal bank, including relocation options and options for reduction in size and removal of the existing house. This analysis may include alternatives which would protect the Coastal Bank and ensure that its functions of storm damage prevention and sediment supply to the beaches are preserved. The alternatives report shall contain a narrative analysis, feasibility evaluation, cost estimates, permitting requirements, and conceptual layouts. The report shall be submitted to the Commission when requesting a Certificate of Compliance for the project. No Certificate of Compliance shall issue until this analysis has been filed with the Commission and is deemed by the Commission to be complete, nor until the applicant (or then current owner) and their consultant has met with the Commission to discuss this alternatives analysis.

10. Sand Nourishment shall be provided to cover the array from the top of the bank, or other approved method to keep the coir logs covered with sand.

11 Special Condition Nos. 1, 2, 3, 4, 5, 8 and 10 shall be continuing conditions which survive a Certificate of Compliance, unless the Commission agrees by written order after notice to abutters to modify the conditions. Any modifications shall be based upon the monitoring reports and written recommendations by a coastal geologist.

In addition to the SPECIAL CONDITIONS # 1-11, the Commission has determined that it is necessary to include the following Additional General Conditions.

ADDITIONAL GENERAL CONDITIONS

1. This Order shall apply to any successor in control or successor in interest of the property described in the Notice of Intent and accompanying plans. These obligations shall be incorporated and referenced in covenants in all deeds to succeeding owners of all or any part of the property.
2. The form provided at the end of this Order shall be completed and stamped at the appropriate Registry of Deeds, after the expiration of the 10-business day appeal period and if no request for appeal has been filed with the Department of Environmental Protection under the Wetlands Protection Act and the DEP Wetland Protection Regulations (310 CMR 10.00), or under the local Conservation By-Law.
3. This Order shall be included in all construction contracts, subcontracts, and specifications dealing with the work proposed and shall supersede any conflicting contract requirements. It is the responsibility of the Applicant, Owner, and/or successor(s) to ensure compliance with all Conditions of this Order. A copy of this Order shall be available at the work site, or posted, during normal work hours, until the work is complete.
4. The Applicant shall give written notice to the Commission 48-hours in advance of commencement of work. Members of the Commission or its Agent, or the DEP reserve the right to enter and inspect the property at all reasonable times, until a Certificate of Compliance is issued, to evaluate compliance with this Order of Conditions, the Wetlands Protection Act, the DEP Wetland Protection Regulations, and the Bylaw, and may require any information, measurements, photographs, observations, and/or materials, or may require the submittal of any data or information deemed necessary by the Commission for that evaluation.
5. Prior to commencement of work, a series of color photos shall be taken of the bank and submitted to the Commission. In addition, a series of color photos shall be taken at the end of construction and submitted to the Commission. All photographs shall include the Assessor's Map and Parcel and date the picture was taken.
6. Prior to the commencement of work, a sign shall be displayed at the site showing the DEP file number assigned to this project. Such sign shall be separately staked.
7. Work shall be halted on the site if the Commission, Conservation Agent or DEP determines that any of the work is not in compliance with this Order. Work shall not resume until the Commission is satisfied that the work will comply with this Order and has so notified the Applicant in writing.
8. Any changes in the work described in the Notice of Intent or in the plans and specifications shall be submitted to the Commission in writing for a determination of whether the change is significant enough to the interests of the Act and the Bylaw to require a new Notice of Intent. No changes shall be made or implemented in the field prior to the Commission's determination. Should issuance of additional permits result in a change in the project, the Applicant shall promptly submit such changes to the Commission for evaluation under this provision.
9. Upon completion of this project, the Applicant or Owner shall submit a request to the Conservation Commission for issuance of a Certificate of Compliance and the report required by Special Condition No. 9. The Applicant or Owner shall certify in writing that the work was completed in substantial compliance with the plans and documents referenced above. At the request of the Commission, the Applicant or Owner may be required to submit (a) a written statement from a registered professional engineer in the Commonwealth of Massachusetts certifying that the work was completed in substantial compliance with the plan(s) and documents referenced above and as conditioned by the Commission. The Certificate of Compliance shall specify any ongoing conditions.

Courtney Warren

From: Benjamin Zehnder <bzehnder@zehnderllc.com>
Sent: Thursday, January 16, 2025 4:54 PM
To: Rich Stevens
Cc: Courtney Warren; Lynne Budnick; Arozana Davis; Warren Agin; Emily Beebe; Cole Bateman
Subject: RE: 522 Shore Road

Thanks Rich:

I ran the flood elevation question by Warren Agin's engineer Cole Bateman. I have pasted in his response to Warren below.

I think that this will resolve the flood height question and the Conservation filing is correct. Please let us know if it does not.

As always...

Ben

From: Nicholas Bateman <nbateman@tighebond.com>
Sent: Thursday, January 16, 2025 7:00 AM
To: Warren Agin <[REDACTED]>
Cc: Benjamin Zehnder <bzehnder@zehnderllc.com>; Stan Humphries <stan@ecrwetlands.com>
Subject: RE: 522 Shore Road

Hi Warren,

Regarding the flood elevation, the new code requires 2' of freeboard for an AE zone, measured from the Base Flood Elevation (BFE) to the top of finished floor. The BFE is EL. 13 here, so the first floor needs to be at least EL. 15, which is what is shown in our drawings.

Here's the snip from the Code (780 CMR 10th Edition [Latest]):

ASCE 24 Tables for flood-resistant materials and dry and wet-floodproof

		Flood Design Class 1	Flood Design Class 2
Minimum Elevation of Lowest Floor (A Zone)	All A Zones not Identified as Coastal A Zones	BFE +2 ft	BFE +2 ft

Also, the 9th Edition Building Code, which requires 1' of freeboard may be used for building permits until 6/30/2025. I'm not sure when the permit will be filed, but the project should be covered either way.

This does not consider local Truro building regulations, which I am unaware of.

If you would like to pursue raising another foot for other reasons, like increased protection or more headroom beneath, that is outside of the criteria for this analysis.

I'm happy to hop on a call to discuss with regulators if that would help.

Thanks,
Cole

Nicholas (Cole) Bateman, P.E.

Project Manager I

Tighe&Bond

o. 508.255.6511 | m. 978.460.4290

88 MA-6A | Sandwich, MA 02563

w: tighebond.com | halvorsondesign.com



Benjamin E. Zehnder
Benjamin E. Zehnder, LLC
62 Route 6A, Unit B
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508.255.7766 – Office
508.246.4064 – Mobile
bzehnder@zehnderllc.com

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From: Rich Stevens <rstevens@truro-ma.gov>

Sent: Wednesday, January 15, 2025 2:16 PM

To: Benjamin Zehnder <bzehnder@zehnderllc.com>

Cc: Courtney Warren <cwarren@truro-ma.gov>; Lynne Budnick <LBudnick@truro-ma.gov>; Arozana Davis <ADavis@truro-ma.gov>; Warren Agin <[REDACTED]>; Emily Beebe <EBeeBe@truro-ma.gov>

Subject: RE: 522 Shore Road

Ben,
Good to see and speak with you as always.
You are correct regarding no zoning relief required for this project.
Regards,

Richard Stevens
Building Commissioner

From: Benjamin Zehnder <bzehnder@zehnderllc.com>
Sent: Wednesday, January 15, 2025 11:52 AM
To: Rich Stevens <rstevens@truro-ma.gov>
Cc: Courtney Warren <cwarren@truro-ma.gov>; Lynne Budnick <LBudnick@truro-ma.gov>; Arozana Davis <ADavis@truro-ma.gov>; Warren Agin [REDACTED] Emily Beebe <EBeeBe@truro-ma.gov>
Subject: 522 Shore Road

Hi Rich:

Thanks for meeting with me today. I will advise Mr. Agin to make sure that the design meets the new flood zone requirement of 3' distance from the base flood elevation to first floor elevation where the current plan shows 2'. He will need to submit a revised plan to Conservation.

Otherwise, per our conversation the project will not require zoning review as no zoning nonconformity is being intensified or created.

My regards to all,

Ben

Benjamin E. Zehnder
Benjamin E. Zehnder, LLC
62 Route 6A, Unit B
Orleans, MA 02653
508.255.7766 – Office
508.246.4064 – Mobile
bzehnder@zehnderllc.com

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From: Benjamin Zehnder
Sent: Tuesday, January 14, 2025 3:18 PM
To: Rich Stevens <rstevens@truro-ma.gov>; Emily Beebe <EBeeBe@truro-ma.gov>
Cc: Courtney Warren <cwarren@truro-ma.gov>; Lynne Budnick <LBudnick@truro-ma.gov>; Arozana Davis <ADavis@truro-ma.gov>
Subject: RE: 522 Shore Road

Hi Rich:

I will run down first thing tomorrow morning.

TOWN OF TRURO--ORDER OF CONDITIONS

522 Shore Road, Unit 1; Map 7, Parcel 8.1

DEP file # SE 75- 1209

APPLICANT: Warren Agin, Wayside One Realty Trust

THIS IS A DRAFT ORDER AND WILL BE EDITED BASED ON THE 1/27/2025 HEARING

DOCUMENTS

1. Notice of Intent application; wetlands fee transmittal sheet; 21-day waiver; notification to abutters; certified abutters list; NHESP map; FEMA map
2. Narrative from Environmental Consulting & Restoration.
3. Alternatives Analysis from Tighe & Bond dated 11/19/2024.
4. **Architectural Plans** by Ted Smith, Architect LLC dated 8/29/2024.
5. **Existing Conditions Plan** by Bracken Engineering dated 12/16/2024.

PROJECT DESCRIPTION

1. The site is located to the south of Shore Rd and is developed with a condominium unit with an associated pervious driveway. The dwelling is north of Cape Cod Bay, landward of another unit and ~65' from an existing timber bulkhead.
2. The resource areas include Land Subject to Coastal Storm Flowage, Barrier Beach, Coastal Dune, and Buffer Zone to a Coastal Beach.
3. The proposed project consists of elevating Unit 1 to comply with flood Zone AE requirements. The lowest horizontal structural floor member will be 14' NAVD. An open pile foundation will be supported by below grade poured concrete walls.
4. This project does not require zoning review as no zoning nonconformity is being intensified or created.

The Commission determined that the project could be permitted subject to the following special conditions. To the extent that the following conditions modify or differ from the plans, specifications, or other proposals submitted with the Notice of Intent, these conditions shall control.

CONDITIONS

A. Pre-construction

1. Notice of a work start date shall be given to the Commission in writing at least 48 hours prior to the commencement of work. The applicant or contractor shall provide the name and contact information of the person responsible on site for compliance with this Order.
2. Prior to the commencement of work the following activities shall be completed:
 - The Order of Conditions shall be recorded at the Barnstable County registry of deeds and a stamped copy shall be submitted to the Conservation office.
 - A sign shall be conspicuously displayed at the site showing the DEP file number assigned to this project. The sign shall be 2-3 square feet in size, separately staked and read only: MA DEP file # SE 75-1209. Lettering/numbering shall be clearly and permanently printed, and at least 2" in height.
3. A **pre-construction site visit** shall be scheduled by the applicant's representative and include the project Contractor, and the Conservation Agent. During this site visit the Order of Conditions, construction protocols, work limit, access plans, maintenance requirements and reporting and site plan details shall be reviewed. Members of the Commission, its Agent or the Department of Environmental Protection (DEP) reserve the right to enter and inspect the property at all reasonable times, until a Certificate of Compliance is issued, to evaluate compliance with this Order of Conditions, the Act, 310 CMR 10.00 and Town regulations, and may acquire any information, measurements, photographs, observations, and/or materials, or may require the submittal of any data or information deemed necessary by the Commission for that evaluation.

B. Construction & Revegetation

1. The staging area for equipment and materials shall be within the existing pervious driveway.
2. The site shall be inspected daily to prevent any wind-blown material from entering the resource area.
3. Any debris or construction material left overnight on the site and in dumpsters shall be capped/covered with a tarp to keep materials from blowing into the resource area.
4. All disturbed areas are to be restored and revegetated with American Beach Grass.

C. General Conditions

1. Prior to the commencement of work or pre-construction site meeting, the form provided at the end of this Order (part G. "Recording Information") shall be completed and stamped at the appropriate Registry of Deeds, after the expiration of the 10-day appeal period and if no request for appeal has been filed with the Department of Environmental Protection.
2. This document shall be included in all construction contracts, subcontracts, and specifications dealing with the work proposed and shall supersede any conflicting contract requirements. It is the responsibility of the Applicant, Owner, General Contractor and/or successor(s) to ensure that all Conditions of this Order of Conditions are complied with. A copy of this Order shall be available at the work site, during normal work hours, or posted, until the work is complete.
3. Work shall be halted on the site if the Commission, Conservation Agent, or DEP determines that any of the work is not in compliance with this Order of Conditions. Work shall not resume until the Commission is satisfied that the work will comply and has so notified the applicant in writing.
4. **Any changes** in the work described in the Notice of Intent or in the plans and specifications submitted to the Commission shall be submitted to the Commission in writing for a determination of whether the change is significant enough to the interests of the Act to require a new Notice of Intent. **No changes shall be made or implemented in the field** prior to the Commission's determination. Should the issuance of additional permits result in a change in the project, the applicant shall promptly submit such changes to the Commission for evaluation under this provision.
5. This Order shall apply to any successor in control or successor in interest of the property described in the Notice of Intent and accompanying plans. These obligations shall be expressed in covenants in all deeds to succeeding owners of portions of the property.
6. **Upon completion of this project the applicant shall submit a request to the Conservation Commission to receive a Certificate of Compliance.** The Applicant or Owner shall certify in writing that the work was completed as shown on the plans and documents referenced above. The Applicants representative shall submit a letter certifying that the work has been completed as shown on the plan(s) and documents referenced above and as conditioned by the Commission.

Management Plan

Bay Beach Townhomes Condominium Trust/Association

544 Shore Road, Truro, MA

Purpose: The Management Plan is intended to provide long-term protection of Coastal Resource Areas (Coastal Dune and Coastal Beach on a Barrier Beach and within Land Subject to Coastal Storm Flowage) at the Bay Beach Townhomes Condominiums, 544 Shore Road in Truro, MA, associated with the proposed conditions depicted on the *Site Plan*, prepared by Grading Consulting, LLC, dated 12/12/24.

The following reviews management goals/objectives:

- 1) The coir envelopes and logs shall be covered with 6" - 8" of compatible sand cover. Approximately ~~180-200~~70± cubic yards of initial sand nourishment have been estimated to provide cover over the coir logs.
- 2) The sand nourishment area and any unvegetated areas within the interior of the fencing, excluding the 6-foot-wide beach access easement, shall be planted with American beachgrass. Existing native vegetation outside of the coir logs shall remain undisturbed to the greatest extent feasible.

Beach grass shall be planted 6" on center with three to six culms per plant, 8" deep. Rooted beach grass may be planted between April 15 and Memorial Day. If such rooted grass is utilized, planting shall be 12" on center. Dormant or rooted beach grass may be planted between Columbus Day and April 15.
- 3) Following sand nourishment and American beachgrass planting, the landward snow fencing will be replaced in kind with 4x4 wood posts every 4-6 feet apart and angled cross-bars. The fencing shall remain undisturbed to facilitate the protection of the vegetated dune. The fencing shall extend along the sides of the six-foot wide access easement, connecting to the sand drift fencing.
- 4) A Mobi-Mat (or Conservation-approved similar) shall be installed from the building "cut through" (breezeway) within the six-foot wide access easement, providing access to the beach. Should grades become problematic for access and wooden beach stairs are necessary, the Applicant shall consult with Conservation Commission Staff regarding a filing for review and approval by, the Mobi-mat will be replaced with wooden beach stairs, pending approval of the Conservation Commission. No wooden beach stairs shall be installed until approved by the Commission.
- 5) The six-foot wide access easement shall be exclusively utilized for beach access. All beach access shall be made through the breezeway. No walking between units shall be allowed. Rope fencing and signage shall be installed to protect the dune and prevent walking through the exclusive use areas to/from the beach. If lateral access across the dune south of the building (waterside) becomes an issue, the Conservation Commission may require the installation of partial snow fencing to deter passage. Barriers shall not be installed to impede allow for emergency egress south of the building (waterside) only.

- 6) No furniture, umbrellas, decking/platforms, or storage of any materials shall be allowed on the dune, south of the building (waterside).
- 7) All small water vessels such as canoes or kayaks shall be stored on the parking lot side of the building and accessed through the breezeway and six-foot wide access easement.
- 8) The Condo Trust/Association is responsible to replenish the sand cover and maintain the coir system and fencing. All nourishment and maintenance must avoid the shorebird nesting period (April 1-August 31), unless otherwise approved in writing by NHESP.
- 9) The Mobi-Mat (Conservation-approved similar seasonal walkway) shall be removed by the end of October and safely stored within existing developed portions of the site or off-site.
- 10) The Condo Trust/Association shall take reasonable steps to ensure the protection of the dune.
- 11) Management measures are intended to be adaptive to changing shoreline conditions. Modifications to the Management Plan shall require Conservation staff review and approval.

Emily Beebe

From: [REDACTED]
Sent: Friday, January 24, 2025 1:51 PM
To: Emily Beebe
Cc: George Hailer; Kristina Engberg
Subject: Re: 544 Shore Road, Truro - Easement Violation

Hi Emily,

Please let this email serve as notification to the Truro Conservation Commission that the Easement Holder objects to the revised plan. The fencing is a man made structure and still extends into the Beach Usage Area.

One compromise shared with Attorney Hailer that was rejected is to have the fencing stay within 37 feet from the deck; and near the sideline have it extend into the Beach Usage Area at an angle tying into the neighbors fence.

After that proposal was rejected; I proposed to Attorney Hailer working on a compromise where the Easement Holder is granted accommodation that would enhance beach usage in exchange for the fencing extend into the Beach Usage Area as shown on the revised plan. To date, no reasonable accommodation has been offered.

I am out of State and may not be available for the hearing on 1/27. Please share this email with the Conservation Commission noting continuing objection unless a compromise is agreed to.

Thank you,

Rick Bashian

[REDACTED]

On Nov 29, 2024, at 1:47 PM, Rick Bashian <[REDACTED]> wrote:

Hi Emily,

I received a letter from Attorney Hailer who represents the Bay Beach Townhome Condominiums. Please share this email with the Conservation Commission for their consideration at the hearing on December 2nd.

The terms of the Easement including the Easement Path and Beach Usage Area are clearly delineated. The width of the Easement Path (access) and Beach Usage Area (right to use) were negotiated as part of the purchase of the property by the successor of the Bay Beach Townhomes Condominiums. The sales price was directly related to 535 Shore Road being granted the easement rights as part of the transaction.

A previous change to the width of the Easement Path was negotiated. An agreement was reached by the parties with a reduction in the width of the Easement Path from eight feet to six feet in exchange for an increase in the size of the Beach Usage Area from 40 feet from the deck to 37 feet from the deck.

The area and location of the Beach Usage Area is limited and specified on the Easement Plan. Of note this is a specified usage area and not simply a common right of way.

Contrary to the contention of the Bay Beach Condominium Attorney any change to the location of the Beach Path or Beach Usage Area can only be made by agreement of the parties or a determination by the Court. The relevant legal principals can only be applied to the specific facts of this case by a Court. Conclusory self serving determinations made by the Bay Beach Condominium Attorney are not relevant and can not serve as the basis for changing the explicit terms of the easement. A Court may find that with normal coastal erosion over time 535 Shore Road may not have any beach to use if the drift fencing were to be installed beyond 37 feet from the deck blocking off the Beach Usage Area.

What is clear is that the Bay Beach Condominiums is trying to change the express terms of the easement by seeking the approval of the Truro Conservation Commission to a plan that clearly violates the existing easement rights. Any determination changing the location or size of the easement must be made by a Court.

The Bay Beach Condominiums can proceed with the drift fence and coirs by respecting the easement right and installing the entire drift fence within 37 feet from the deck. The Truro Conservation Commission may find that having the Bay Beach Townhome Condominiums retaining usage areas that will not be vegetated on the "Dune" right in front of the decks while extending the fencing beyond 37 feet from the decks taking away the Easement Beach Usage Area is not in the best interest of dune preservation. Moving the dune restoration (drift fences, coirs, elevated sand & dune grass planting) closer to the building and further from regular wave action may be found to be beneficial.

The Easement holder at 535 Shore Road supports the dune preservation work as long as all the drift fencing does not extend more than 37 feet from the deck and the Easement Path remains unobstructed.

Thank you for your consideration.

Rick Bashian

535 Shore Road
[REDACTED]

On Nov 26, 2024, at 10:24 AM, Supple, Ryan <[REDACTED]>
wrote:

Good Morning Mr. Bashian,

On behalf of Attorney Hailer, attached please find correspondence regarding the above-referenced property.

Please note, this letter is also being sent to your residence via first-class mail.

Thank you,

Ryan Supple
Legal Assistant | Lawson & Weitzen, LLP
88 Black Falcon Avenue, Suite 345 | Boston, MA 02210
Phone: 617-439-4990 | Fax: 617-439-3987
Email: rsupple@lawson-weitzen.com

<image001.jpg>

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<241126 Letter to Bashian - 544 Shore Rd.pdf>

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TOWN OF TRURO—ORDER OF CONDITIONS

544 Shore Road; Map 7, Parcel 5

DEP file # SE 75-1208

APPLICANT: Bay Beach Townhomes Condominium

THIS IS A DRAFT ORDER AND WILL BE EDITED BASED ON THE 1/27/2025 HEARING

DOCUMENTS

1. Notice of Intent application; wetland fee transmittal form; Project narrative with photos; USGS Topographic map; Aerial Orthophoto Map; USGS FEMA map; NHESP map; 21-day waiver; abutter notification; abutters list; locus map
2. Letter from NHESP dated 11/27/2024
3. Management plan dated 1/7/2025
4. **Site Plan** by Grady Consulting LLC, dated 6/16/2023 and **revised 12/12/2024.**
5. **Existing Conditions Plan** by Grady Consulting LLC, dated 6/16/2023 and **revised 12/12/2024.**
6. Email from both abutting properties giving permission to extend work to property line.
7. Emails from easement holder, Rick Bashian, detailing easement specifics.
8. Letter from property owner's attorney George Hailer regarding easement rights

PROJECT DESCRIPTION

1. The site is a ~39,552 square foot lot on Cape Cod Bay. The developed area includes a multi-unit, two story building built in 1963 with a paved parking lot on the landward side.
2. The resource areas include Land Subject to Coastal Storm Flowage, Barrier Beach, Coastal Dune, and Coastal Beach.
3. The approved project includes the installation of Sturdy drift fencing and a coir log array with sand nourishment to restore the dune. Other approved activity includes installation of snow fence, jute netting, and American beach grass as required.
4. The application was first heard on December 2, 2024, and continued to January 7, 2025, and again to January 27, 2025 so that the plan could be revised to shift the installation landward in better alignment with abutting properties as well as to update the management plan.

The Commission determined that the project could be permitted subject to the following special conditions. To the extent that the following conditions modify or differ from the plans, specifications, or other proposals submitted with the Notice of Intent, these conditions shall control.

FINDINGS

1. The Commission finds the site of the proposed project is in a Coastal Dune, and work will occur on the adjacent Coastal Beach above mean high water.
2. The areas subject to protection/regulation are Coastal Dune and Coastal Beach and their buffer zones, and Land Subject to Coastal Storm Flowage.
3. The Commission finds the Coastal Dune to exist in a dynamic coastal environment composed of windblown sand.
4. The Commission finds that the Coastal Dune is significant to storm damage prevention and flood control.
5. **The address for this project is #544 Shore Road.**
6. The Applicant acknowledges that the project to support the Coastal Dune with biodegradable (coir) measures is temporary (estimated at 10 years); the goal is to protect the Coastal Dune and its ability to perform the function of storm damage prevention.
7. The Applicant has agreed to conduct an engineering, legal and logistical analysis of alternatives to address the location of the structure in the Coastal Dune including possible elevation of the structure, reduction in size, relocation or removal of the structure. This analysis may include alternatives which would protect the coastal dune and ensure that the functions of storm damage prevention are preserved. The Applicant shall submit an alternatives report, and shall attend (or be

- represented) a meeting with the Commission to present and discuss said report prior to the issuance of a Certificate of Compliance for this project.
8. The Commission finds that the Coastal Beach resource area is significant to state listed species since it is located in Estimated Habitat of Rare Wildlife as mapped and published maps by NHESP.
 9. The Commission finds that the Coastal Beach is significant to storm damage prevention, flood control and protection of wildlife habitat.
 10. These Special Conditions and Additional General Conditions are being issued in accordance with the information submitted in the Notice of Intent, with accompanying attachments by LEC and dated December 2024, the Plan of Record, "Site Plan" by Grady Consulting LLC, dated 6/16/2023 and revised 12/12/2024, and Supplemental information including but not limited to the project narrative and site photos. In the event of any conflict between these referenced materials and this Order, this Order shall control.
 11. This Order is issued pursuant to the Massachusetts Wetlands Protection Act and the Town of Truro's Conservation By-Law and Conservation regulations.
 12. This Order of Conditions allows the following work: the placement and maintenance of an array of 20" diameter coir logs on the seaward face of the existing dune; the construction and maintenance of a sturdy drift fence; placement and maintenance of compatible sand cover over the coir logs; placement of compatible beach/bank nourishment sands; the planting of the Coastal Dune with American beach grass in double culms on a 12-14" matrix.

CONDITIONS

A. Pre-construction

1. Notice of a work start date shall be given to the Commission in writing at least 48 hours prior to the commencement of work. The applicant or contractor shall provide the name and contact information of the person responsible on site for compliance with this Order.
2. Prior to the commencement of work the following activities shall be completed:
 - The Order of Conditions shall be recorded at the Barnstable County registry of deeds and a stamped copy shall be submitted to the Conservation office.
 - A sign shall be conspicuously displayed at the site showing the DEP file number assigned to this project. The sign shall be 2-3 square feet in size, separately staked and read only: MA DEP file # SE 75-1208. Lettering/numbering shall be clearly and permanently printed, and at least 2" in height.
3. A **pre-construction site visit** shall be scheduled by the applicant's representative and include the project Contractor, and the Conservation Agent. During this site visit the Order of Conditions, construction protocols, work limit, access plans and site plan details shall be reviewed. Members of the Commission, its Agent or the Department of Environmental Protection (DEP) reserve the right to enter and inspect the property at all reasonable times, until a Certificate of Compliance is issued, to evaluate compliance with this Order of Conditions, the Act, 310 CMR 10.00 and Town regulations, and may acquire any information, measurements, photographs, observations, and/or materials, or may require the submittal of any data or information deemed necessary by the Commission for that evaluation.

B. Construction & Revegetation

1. The conditions set forth by NHESP and listed in the letter dated 11/27/2024 are specifically incorporated into this Order and shall be on-going conditions.
2. Shore bird nesting season commences April 1 and ends by August 15. The approved construction and future maintenance activities may not occur within this period without a previously approved protocol agreed upon by the Truro Conservation Department and NHESP.
3. The items outlined in the Management Plan dated 1/7/2025 are specifically incorporated in this order as on-going conditions.

4. Construction access for larger equipment shall be from the existing gravel parking lot at Shoreline Condominiums. An existing fence shall be removed and then replaced following installation. Access for smaller equipment shall be through the central breezeway of the applicant's structure. Any disturbed areas shall be restored and planted with American Beach grass.
5. The coir log installation shall be covered with medium-to-coarse clean sand with less than 10% clay and/or silt. This cover layer shall be maintained and a four-month window for maintenance following any storm damage may be allowed. This shall be an on-going condition.
6. Maintenance is required and shall include adding sand nourishment (as required and at least annually) with compatible material, adding jute, and planting American beach grass. This shall be an on-going condition.
7. Photographs of the project site shall be submitted quarterly. In addition, photographs shall also be submitted after any significant storm event that result in a substantial loss of sand. Quarterly reports can transition to (semi)-annual reports at the discretion of the Conservation Department.
8. Sand nourishment must be added to keep the coir covered and to replace the sand volume lost during storm events. Sand nourishment volumes shall be reported to the conservation office after each time it is placed. This is the responsibility of the **property owner** and shall also be included in the quarterly reports.
9. Some of these conditions may be on-going after the Certificate of Compliance has been issued and recorded.

C. General Conditions

1. Prior to the commencement of work or pre-construction site meeting, the form provided at the end of this Order (part G. "Recording Information") shall be completed and stamped at the appropriate Registry of Deeds, after the expiration of the 10-day appeal period and if no request for appeal has been filed with the Department of Environmental Protection.
2. This document shall be included in all construction contracts, subcontracts, and specifications dealing with the work proposed and shall supersede any conflicting contract requirements. It is the responsibility of the Applicant, Owner, General Contractor and/or successor(s) to ensure that all Conditions of this Order of Conditions are complied with. A copy of this Order shall be available at the work site, during normal work hours, or posted, until the work is complete.
3. Work shall be halted on the site if the Commission, Conservation Agent or DEP determines that any of the work is not in compliance with this Order of Conditions. Work shall not resume until the Commission is satisfied that the work will comply and has so notified the applicant in writing.
4. **Any changes** in the work described in the Notice of Intent or in the plans and specifications submitted to the Commission shall be submitted to the Commission in writing for a determination of whether the change is significant enough to the interests of the Act to require a new Notice of Intent. **No changes shall be made or implemented in the field** prior to the Commission's determination. Should issuance of additional permits result in a change in the project, the applicant shall promptly submit such changes to the Commission for evaluation under this provision.
5. This Order shall apply to any successor in control or successor in interest of the property described in the Notice of Intent and accompanying plans. These obligations shall be expressed in covenants in all deeds to succeeding owners of portions of the property.
6. **Upon completion of this project the applicant shall submit a request to the Conservation Commission to receive a Certificate of Compliance.** The Applicant or Owner shall certify in writing that the work was completed as shown on the plans and documents referenced above. The applicant is required to submit an as-built plan from a registered professional Engineer, Land surveyor or Sanitarian certifying that the work has been conducted as shown on the plan(s) and documents referenced above and as conditioned by the Commission for the public record.

LYNCH, DESIMONE & NYLEN, LLP

ATTORNEYS AT LAW

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SHANNON MICHAUD

OF COUNSEL

—

JAMES W. MURPHY

WAYNE H. SCOTT

January 17, 2025

Via Email & By Hand

Carol Girard-Irwin, Chair
Truro Conservation Commission
24 Town Hall Road
P.O. Box 2030
Truro, MA 02666

**Re: Michael and Jennifer Freitag/Dunkery Beacon, LLC
17 Avocet Road, Truro, MA 02652; SE 075-1204**

Dear Chair Girard-Irwin and Members of the Truro Conservation Commission,

This office represents Michael and Jennifer Freitag with respect to their Notice of Intent (NOI) to replace an existing fiber roll array, drift fencing, and elevated staircase, and add a small rinse station (the “Project”) at their property at 17 Avocet Road, Truro, MA (the “Property”) and we are pleased to present the attached revised plans and narrative in support of the above Notice of Intent for the above project.

We have had the opportunity to review the NOI, the revised plans submitted by Crawford Land Management in December and January, the Revised Project Narrative and Timeline dated January 16, 2025, and observed the hearing of the Commission on Monday, January 6, 2025. We are writing today to present the additional information and to state the Project meets the performance standards under the Wetlands Protection Act and under the Truro Wetlands Bylaw (the Bylaw) so that the Commission can issue an Order of Conditions allowing the Freitags to proceed as we enter the storm season.

First, since the last filing of December 8, 2024 and in response to the Commission’s questions and neighbors’ comments we hereby present revised plans and a revised Narrative that includes the following:

1. Revision on Project Narrative & Timeline by Crawford Land Management, including:

- a. The revised description of the proposed fiber roll array (on page 6) has been updated to reflect the decreased number of fiber rolls and height of array as a whole, as well as to ensure the 25' property line setbacks for the top two and bottom two rows are met in accordance with the Bylaw.
 - b. The description of the proposed sturdy drift fence (on page 6) has been updated to reflect the size of opening and length of the two sections of fencing.
 - c. The description of the proposed beach grass planting (on page 6) has been updated to show grass planted 12" on center, and 3 culms per hole.
2. Changes on Performance Standards Narrative by Crawford Land Management, including:
 - a. References to the length and placement of fence sections (on pages 11-13 & 15) are updated in accordance with the Bylaw.
 - b. References to American Beachgrass planting (on page 16) have been updated.
3. Changes on Plan (reflected in revision notations) including:
 - a. The southern portion of the sturdy drift fence has been moved closer to the coastal bank to match the northern portion of the drift fencing.
 - b. The planting description and counts are updated to show beach grass planted 12" on center, and 3 culms per hole.

Second, a neighbor questioned whether the coir array was in need of repair. That is not an issue. Pictures showing the degraded coir logs have been provided to the Commission. In addition, as noted in the narrative, the peer reviewer, Bryan McCormack found the signs of failure and risk of "rapid degradation of the installation during a storm event." He also pointed to the damaged drift fencing. There is no question that work is necessary at this time.

Third, with the reduction of the proposal to the 2-5-2 coir log alignment, the 25' setback from the property lines on both sides and the height below elevation 15, the Project meets the Bylaw design parameters. The middle rows will be connected to the rows on the adjacent properties and the top and bottom rows will be set back 25 feet from the adjoining property limits.

Fourth, the Project Narrative and Timeline revised through January 16, 2025 provides a comprehensive updated analysis of how the Project meets the performance standards for each of the on-site wetland resource areas. Of note, the Applicant conducted an alternatives analysis consistent with the regulations to determine if an alternative existed to meet the project purpose with less impact to wetland resource area and the environment. In evaluating coir logs as erosion

January 17, 2025

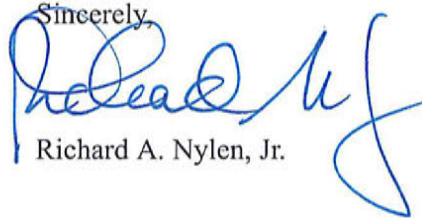
3 | Page

control measures, the Bylaw demonstrates that the Commission and its predecessors have spent much time analyzing how coir logs can be used for erosion control and respect adjacent properties and the littoral process. The Commission has approved the installation of two tiers of coir logs below grade in past orders of condition.

Fifth, the proposed sturdy drift fence will meet the Bylaw and standard elevations at 3 feet above the beach and one foot below the existing beach elevation. It is designed to be set back 25 feet from each of the neighboring properties. If adjoining sturdy drift fences are proposed on neighboring properties we will work with the neighbors to ensure alignment for the most efficient means of sediment capture.

The Project has been designed to meet the performance standards of the Act and the Bylaw and we look forward to working with the Commission toward approval.

Thank you.

Sincerely,

Richard A. Nylen, Jr.

RAN/kad
Enclosure

cc: Michael & Jennifer Freitag
Crawford Land Management

Project Narrative & Timeline

PREPARED FOR

17 Avocet Road
Truro, MA

DATE

January 16th, 2024



88 Route 6A, Suite 2B
Sandwich MA

508.477.1346
info@crawfordlm.com

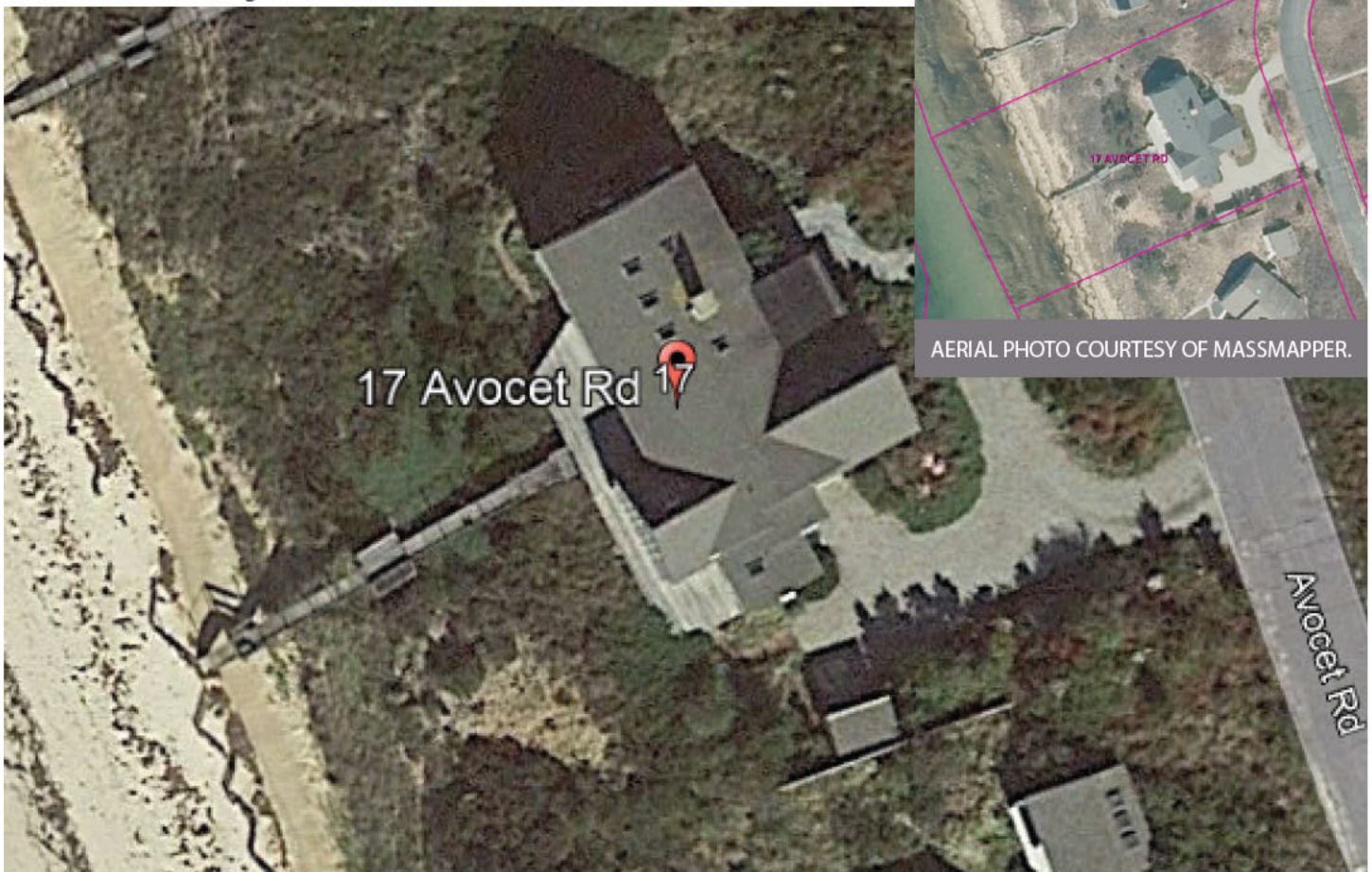
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PROJECT INTRODUCTION

This project is located at 17 Avocet Road in Truro abutting Cape Cod Bay to the west. Resource areas on the property include Coastal Beach, Coastal Bank, and Land Subject to Coastal Storm Flowage (Flood Zone VE at elevation 15). The site is not located within Estimated or Priority Habitat as designated by NHESP and is not located within an Area of Critical Environmental Concern. This project seeks to replace an existing fiber roll array, drift fencing, and elevated staircase, as well as place supplemental nourishment, install a rinse station, and add supplemental plantings to a sparsely vegetated area on the coastal bank.

EXISTING CONDITIONS

Behind the existing dwelling and attached deck, there is a coastal bank which quickly drops off, extending from approximate elevation 50 down to elevation 7, increasing in steepness toward the bottom of the bank. Flood Zone VE falls at elevation 15 on the coastal bank, and below the bank there is a wide coastal beach with mean high water falling at elevation 4.15. A fiber roll array, consisting of four rows connected to the neighboring properties - each of which has one additional, unconnected row above these four - was installed at the bottom of the coastal bank a number of years ago (CLM was not involved in the design or installation of the previous fiber roll array). At the current time, virtually all of the fiber rolls remain continuously exposed, and the fiber rolls exhibit signs of degradation, shifting and slumping. The array is no longer functioning as intended. In his recent report to the Truro Conservation Commission, Bryan McCormack of the Cape Cod Cooperative Extension noted that this coir array "is beginning to show signs of failure" and that there is a risk of "rapid degradation of the installation during a storm event." (*Coastal Processes and Hazards Specialist Report, December 4, 2024.*) Drift fencing was also previously installed at the subject property, but that fencing was not maintained and at this time many of the panels are either severely damaged or have disappeared from the site. There is also an existing elevated staircase down the bank which was damaged during a storm and is no longer safe to traverse.



AERIAL PHOTO COURTESY OF GOOGLE EARTH.



CONDITION OF EXISTING FIBER ROLL ARRAY, DRIFT FENCING, AND STAIRCASE AS SEEN FROM THE COASTAL BEACH.



CONDITION OF EXISTING FIBER ROLL ARRAY, DRIFT FENCING, AND STAIRCASE AS SEEN FROM THE COASTAL BEACH.



CONDITION OF EXISTING FIBER ROLL ARRAY; MANY ROLLS ARE DETERIORATING OR SHIFTING.



CONDITION OF EXISTING DRIFT FENCING; MANY PANELS ARE DAMAGED OR HAVE DISAPPEARED FROM THE SITE.



CONDITION OF EXISTING STAIRCASE, WHICH HAS BEEN DAMAGED AND IS NO LONGER SAFE TO TRAVERSE.

PROPOSED PROJECT ACTIVITIES

This project seeks to replace an existing fiber roll array, drift fencing, and elevated staircase, as well as place supplemental nourishment, install a rinse station, and add supplemental plantings to a sparsely vegetated area on the coastal bank.

Five rows of the proposed fiber roll array would extend along the full length of the property and connect to the arrays on the neighboring properties. The connection will be made at the same elevation as the existing rows, top elevation at 11.4 +/- and bottom elevation at 5.7 +/-, respectively. Two rows will be installed above these connecting rows to provide protection against wave overtopping and potential storm damage up to elevation 14 (This is below the 100-year-storm level at elevation 15). These top two rows will end a minimum of 25' from the property lines on both sides to maintain a buffer between them and the arrays on the neighboring properties. Two rows will be installed below the five connecting rows to extend the array below mean water to provide protection to the toe of the bank in the event that the beach eventually drops down to the mean high water line. These two rows will be buried to a total depth of approximately 30" +/- below the existing bottom row, with approximately 15" of depth per row. These two rows will be set back a minimum 25' from the property lines on both sides.

High-density, 20" diameter fiber rolls made of biodegradable coir would be anchored into underlying sediment every 30" along the array using duckbill anchors and cable. The array would be wrapped with one layer of 20-gram burlap followed by one layer of 900-gram coir matting to help slow UV degradation if exposed. The array would also be nourished with compatible sediment to restore the natural shoreline profile and protect the rolls from UV exposure.

The fiber roll array would be fronted by sturdy sand drift fencing. This type of fence is more robust than traditional sand drift fencing, greatly lessening the probability of breaking in high-energy storms. The fence is arranged in a zig-zag configuration that maximizes the probability of capturing and retaining wind-blown sediment. Though the fencing is more robust than traditional sand drift fencing, the sturdy drift fencing still retains 50% open space of the panels. The fence would be constructed with a 3' +/- gap in the middle, so that there is no continuous stretch of fence greater than 50' long. The sturdy drift fence will be installed at a bottom elevation 1' +/- below the existing beach and a top elevation of 3' +/- above the existing beach elevation, which was 5 +/- at the time of survey. It will be set back 25' from the neighboring properties, which currently do not have viable drift fences. The sturdy drift fence's durability, as well as its ability to capture and retain sediment, will benefit the project. This type of fencing is a common occurrence along Cape Cod Bay.

More information regarding the elevated staircase to be rebuilt can be found on the Site Plan provided by Merrill Engineers.

Access for the proposed work would ideally be from Cold Storage Beach, and any necessary permits or permissions to use the Town landing will be procured prior to use. If access from Cold Storage Beach cannot be attained, secondary access would be from the existing driveway to the south of the dwelling and over the top of the coastal bank. A limit of work has been identified on the plan, although a more specific access route will need to be determined by the contractor based on specific equipment needs, actual conditions on site, the verified location of the septic system components, etc. Any areas disturbed within the limit of work during construction activities will be restored, and a specific maintenance access path for future maintenance activities will be approved by the Conservation Agent.

Additionally, there is a sparsely vegetated area on the coastal bank which the property owners would like to plant with supplemental plantings. The area is approximately 515 square feet, and is proposed to be planted with American beach grass (*Ammophila breviligulata*) culms at 12" on center (3 culms per hole), as well as bearberry (*Arctostaphylos uva-ursi*) and northern bayberry (*Morella pensylvanica*).

Lastly, the property owners would like to install a small rinse station on the more landward side of their existing dwelling, as depicted on the plan. This rinse station is proposed in an area that is not currently naturalized, and is rather a loosely planted landscape bed.

PROJECT ACTIVITY TIMELINE

INITIAL INSTALLATION (WINTER/EARLY SPRING 2025)

- Complete all initial implementation work (replacement of existing fiber roll array, sturdy drift fencing, and elevated staircase) prior to storm season, if possible, given availability of materials, contractor schedule, etc. Per Town regulations, construction/implementation work shall occur between Columbus Day and April 15.
- Establish a limit of work prior to beginning any work. No work is to occur below Mean High Water (el. 4.15). Work will need to occur primarily from the upland side of the installation.
- See the Shoreline Stabilization Plan for more information on construction and equipment access and construction of the sturdy drift fencing.

NOURISHMENT (WINTER/EARLY SPRING 2025)

- Sieve samples are to be collected from the area proposed for nourishment and compared with the sediment to be used for nourishment activities to confirm compatibility. Existing sieve analysis sample sites are to be representative of the average conditions.
- Sediment for nourishment is to be approved by the Agent prior to placement.
- Per Town regulations, nourishment is to be placed between Columbus Day and April 15.

PLANTING (WINTER/EARLY SPRING 2025)

- Install American beach grass culms in the areas specified on the plan at 12" on center with 3 culms per hole.
- Planting of American beach grass must occur between November 1 and April 1.

MAINTENANCE (2025-2027 & ONGOING)

- Monitor project area and perform assessments after a significant weather event to determine how the installation is performing and if any changes or additions to the installation are necessary.
- Nourish the installation annually with compatible sediment as necessary to maintain design profiles as shown on the plan. Nourishment needs may vary from year to year for volume and frequency.
- Any areas of the installation or components that are damaged, degraded, or exposed will either be repaired/replaced or the exposed portions will be removed.

MONITORING REPORTS (2025-2027)

- Annual monitoring reports will be submitted to the Commission each year for three years once the installation is complete.

Additional Resources

PREPARED FOR

17 Avocet Road
Truro, MA

DATE

September 17th, 2024



88 Route 6A, Suite 2B
Sandwich MA

508.477.1346
info@crawfordlm.com

WWW.CRAWFORDLM.COM

FIBER ROLL ARRAY EXAMPLE PHOTOS



SLOPE IS PREPARED



THE BOTTOM ROLL IS INSTALLED UNDER EXISTING GRADE TO PROVIDE A STRONG BASE AND PREVENT SLUMPING



ROLLS ARE STACKED VERTICALLY ALONG THE FACE OF THE BANK TO RESTORE A DESIRABLE SLOPE



ARRAY IS BLANKETED AND ANCHORED IN PLACE



ROLLS MAY NEED TO BE COVERED WITH SEDIMENT ANNUALLY TO KEEP THEM COVERED



ROLLS CAN BE PLANTED INTO TO GET VEGETATION & ROOT SYSTEMS ESTABLISHED

STURDY SAND DRIFT FENCE EXAMPLE PHOTOS



PANELS ARE ASSEMBLED AND LAID OUT



PANELS ARE ARRANGED IN A ZIG-ZAG FORMATION TO HELP CAPTURE WIND-BLOWN SEDIMENT



OVER TIME, THE FENCE ACCUMULATES WIND-BLOWN SEDIMENT



AFTER MAJOR STORMS, THE FENCE MAY NEED TO BE COVERED WITH NOURISHMENT

Performance Standards Narrative

PREPARED FOR

17 Avocet Road
Truro, MA 02642

DATE

January 16th, 2024



CRAWFORD
LAND MANAGEMENT

88 Route 6A, Suite 2B
Sandwich MA

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310 CMR 10.00: The Wetlands Protection Act

10.27: Coastal Beaches

(3) Any project on a coastal beach, except any project permitted under 310 CMR 10.30(3)(a), shall not have an adverse effect by increasing erosion, decreasing the volume or changing the form of any such coastal beach or an adjacent or downdrift coastal beach.

This project is intended to reduce erosion and increase the resilience of the coastal beach by restoring the coastal bank landform. 100% biodegradable coir fiber rolls will stabilize the landform to reduce erosion, and supplemental annual nourishment will help preserve the elevation. Additionally, sturdy sand drift fence will trap wind-blown sediment to help reduce the severity of erosion during storms. The existing profile of the coastal bank landform will not be altered. Rather, coir fiber rolls would be anchored into the existing form of the coastal bank.

(4) Any groin, jetty, solid pier, or other such solid fill structure which will interfere with littoral drift, in addition to complying with 310 CMR 10.27(3), shall be constructed as follows:

N/A. No solid fill structure is proposed.

(5) Notwithstanding 310 CMR 10.27(3), beach nourishment with clean sediment of a grain size compatible with that on the existing beach may be permitted.

Nourishment is proposed using clean sediment with a grain size compatible with that on the existing beach.

(7) Notwithstanding the provisions of 310 CMR 10.27(3) through (6), no project may be permitted which will have any adverse effect on specified habitat sites or rare vertebrate or invertebrate species, as identified by procedures established under 310 CMR 10.37.

No specified habitat sites of rare vertebrate or invertebrate species is identified on site.

10.30: Coastal Banks

(3) No new bulkhead, revetment, seawall, groin or other coastal engineering structure shall be permitted on such a coastal bank except that such a coastal engineering structure shall be permitted when required to prevent storm damage to buildings constructed prior to the effective date of 310 CMR 10.21 through 10.37 or constructed pursuant to a Notice of Intent filed prior to the effective date of 310 CMR 10.21 through 10.37 (August 10, 1978), including reconstructions of such buildings subsequent to the effective date of 310 CMR 10.21 through 10.37, provided that the following requirements are met:

N/A. No coastal engineering structure is proposed.

(4) Any project on a coastal bank or within 100 feet landward of the top of a coastal bank, other than a structure permitted by 310 CMR 10.30(3), shall not have an adverse effect due to wave action on the movement of sediment from the coastal bank to coastal beaches or land subject to tidal action.

The coastal bank will be fronted by biodegradable coir fiber rolls in order to preserve and protect the shoreline. However, these features will be covered with sacrificial nourishment, which will be able to move to coastal beaches and land subject to tidal action. Sediment supply will not be diminished as a result of proposed work.

(5) The Order of Conditions and the Certificate of Compliance for any new building within 100 feet landward of the top of a coastal bank permitted by the issuing authority under M.G.L. c. 131, § 40 shall contain the specific condition: 310 CMR 10.30(3), promulgated under M.G.L. c. 131, § 40, requires that no coastal engineering structure, such as a bulkhead, revetment, or seawall shall be permitted on an eroding bank at any time in the future to protect the project allowed by this Order of Conditions.

N/A. No new building or coastal engineering structure is proposed.

(6) Any project on such a coastal bank or within 100 feet landward of the top of such coastal bank shall have no adverse effects on the stability of the coastal bank.

The stability of the bank will ultimately be improved by proposed work. Coir fiber rolls will help protect and/or stabilize the coastal bank, which is increasingly at risk of eroding and scouring.

(7) Bulkheads, revetments, seawalls, groins or other coastal engineering structures may be permitted on such a coastal bank except when such bank is significant to storm damage prevention or flood control because it supplies sediment to coastal beaches, coastal dunes, and barrier beaches.

N/A. No coastal engineering structure is proposed.

(8) Notwithstanding the provisions of 310 CMR 10.30(3) through (7), no project may be permitted which will have any adverse effect on specified habitat sites of rare vertebrate or invertebrate species, as identified by procedures established under 310 CMR 10.37.

No specified habitat sites of rare vertebrate or invertebrate species is identified on site.

10.57: Land Subject to Flooding

(4) General Performance Standards

(a) Bordering Land Subject to Flooding

1. Compensatory storage shall be provided for all flood storage volume that will be lost as the result of a proposed project within Bordering Land Subject to Flooding, when in the judgment of the issuing authority said loss will cause an increase or will contribute incrementally to an increase in the horizontal extent and level of flood waters during peak flows. Compensatory storage shall mean a volume not previously used for flood storage and shall be incrementally equal to the theoretical volume of flood water at each elevation, up to and including the 100-year flood elevation, which would be displaced by the proposed project. Such compensatory volume shall have an unrestricted hydraulic connection to the same waterway or water body. Further, with respect to waterways, such compensatory volume shall be provided within the same reach of the river, stream or creek.

Proposed work will not cause a loss of any flood storage volume. The existing profile of the coastal bank landform will not be altered. Rather, coir fiber rolls would be anchored into the existing form of the coastal bank to better absorb and buffer wave energy and protect the bank from future scour and slumping.

2. Work within Bordering Land Subject to Flooding, including that work required to provide the above-specified compensatory storage, shall not restrict flows so as to cause an increase in flood stage or velocity.

Proposed work will not restrict flows or cause an increase in flood stage or velocity. The existing profile of the coastal bank landform will not be altered. Rather, coir fiber rolls would be anchored into the existing form of the coastal bank to better absorb and buffer wave energy and protect the bank from future scour and slumping.

3. Work in those portions of bordering land subject to flooding found to be significant to the protection of wildlife habitat shall not impair its capacity to provide important wildlife habitat functions. Except for work which would adversely affect vernal pool habitat, a project or projects on a single lot, for which Notice(s) of Intent is filed on or after November 1, 1987, that (cumulatively) alter(s) up to 10% or 5,000 square feet (whichever is less) of land in this resource area found to be significant to the protection of wildlife habitat, shall not be deemed to impair its capacity to provide important wildlife habitat functions. Additional alterations beyond the above threshold, or altering vernal pool habitat, may be permitted if they will have no adverse effects on wildlife habitat, as determined by procedures contained in 310 CMR 10.60.

Proposed work will ultimately have a positive effect on habitat by protecting the shoreline from further erosion and preserving the area and quality of existing wildlife habitat. Impacts of proposed work will be temporary, and no work will be completed during critical nesting periods.

(c) Protection of Rare Wildlife Species

Notwithstanding the provisions of 310 CMR 10.57(4)(a) or (b), no project may be permitted which will have any adverse effect on specified wildlife habitat sites of rare vertebrate or invertebrate species, as identified by procedures established under 310 CMR 10.59.

No specified habitat sites of rare vertebrate or invertebrate species is identified on site.

Truro Conservation Regulations

2.01: Buffer Zone (including the 50-foot vegetated buffer strip):

d. General Performance Standards

1. Where the presumption set forth above is not overcome, any proposed work in the Buffer Zone shall not adversely impact or otherwise impair any portion of said area.

Proposed work will not adversely impact or impair any portion of the buffer zone. Impacts will be temporary and will ultimately result in a more stable and resilient coastal bank/beach which are able to serve as a vertical buffer to wave energy, provide sediment, and support sustainable habitat for wildlife.

2. Where the Buffer Zone overlays other resource areas subject to protection under the Bylaw, the applicable performance standards for each resource area shall be independently and collectively applied and the project appropriately conditioned to protect all stated interests.

All pertinent performance standards have been addressed and met.

3. The Commission may issue an Order of Conditions permitting work in the Buffer Zone provided that the applicant has submitted a written alternatives analysis that examines all practicable alternatives to the project which would further minimize impacts to the Buffer Zone and demonstrates that all impacts can be properly mitigated. The alternatives analysis shall be submitted to the Commission in writing.

An alternatives analysis is included at the end of this document.

4. Where no practicable alternatives are available or capable of being done which would otherwise avoid or minimize adverse impacts to the Buffer Zone, the following standards shall apply:

No Significant Adverse Impact: Within the 100-foot Buffer Zone, the Commission may allow the total alteration of up to 5000 square feet subject to the following:

i. total alteration of the land area within the Buffer Zone shall be calculated in square feet to describe what is currently altered or developed, and what is proposed. Total alteration shall include disturbed areas such as (but not limited to) building footprint, driveways, pathways, yard areas and lawns.

The area of alteration within the 100-foot buffer zone includes any areas within the limit of work. The limit of work may be smaller if access can be attained from Cold Storage Beach. The majority of work within this area would only be temporarily altered for construction access, but would be restored after installation of the stairs/fiber roll array.

ii. The alteration calculations shall describe the amount and types of alterations between 0-50-feet, and 50-100-feet of the buffer. Any area where vegetation is to be removed or where soils will be disturbed shall be included in this calculation.

iii. The area within the limit of work will reflect the limit of the altered area and shall be shown clearly and accurately on all plans submitted to the Conservation Commission at the time of filing.

The proposed limit of work is clearly marked on the plans.

iv. At a minimum, a 50-foot-wide area of undisturbed vegetation (the vegetated buffer strip) shall be provided between the wetland resource area and the work.

A vegetated buffer will be restored as much as feasible; much of the existing dwelling and site features are already located within 50 feet of the coastal bank. The area within the limit of work will be restored to its pre-existing condition; a small maintenance access path may need to be maintained if access isn't feasible from Cold Storage Beach, but this access path can be vegetated with native herbaceous perennials that can be traversed over and re-vegetated if/when necessary.

v. If there is no 50-foot-wide area of undisturbed vegetation within the Buffer Zone, the existing vegetative cover shall be preserved and/or extended beyond 50-feet in some areas by re-vegetating with native plants to the maximum amount feasible in order to approximate a 50-foot-wide corridor of native vegetation.

There is no 50-foot wide area of undisturbed vegetation currently; however, the limit of work will be restored to its pre-existing condition, except for a small maintenance access path, if necessary. Additionally, an approximately 515 square ft area on the bank which is sparsely vegetated will be planted with supplemental grasses and shrubs.

vi. On previously developed or disturbed sites, all work proposed within the buffer zone shall result in an improvement of the existing conditions and an enhanced capacity of the resource area(s) and Buffer Zone to protect the public interests and values protected under the Bylaw.

Work proposed within the buffer zone will ultimately result in an improvement of the resource areas. Work will ultimately result in a more stable and resilient coastal bank/beach which are able to serve as a vertical buffer to wave energy, provide sediment, and support sustainable habitat for wildlife.

vii. The Conservation Commission may require, as mitigation for new alteration within the Buffer Zone: re-vegetation and restoration of areas previously altered or disturbed within the buffer zone; rerouting existing roof runoff through gutters and roof drains which direct roof drainage into drywells or leaching pits; and may require drainage improvements and/or other mitigating measures.

The area within the limit of work will be restored to its pre-existing condition; a small maintenance access path may need to be maintained if access isn't feasible from Cold Storage Beach, but this access path can be vegetated with native herbaceous perennials that can be traversed over and re-vegetated if/when necessary. Additionally, an approximately 515 square ft area on the bank which is sparsely vegetated will be planted with supplemental grasses and shrubs.

5. Expansion of existing structures within the Buffer Zone may be allowed provided that:

i. No new structure or addition to an existing structure shall be located closer to a wetland resource area than existing conditions.

A small rinse station is proposed landward of the existing dwelling in an area that is currently not naturalized.

ii. The area of the proposed disturbance and all previously disturbed areas shall not, cumulatively, exceed the 5,000-square foot threshold for allowable disturbance within the Buffer Zone.

6. Projects which include substantial demolition (i.e. removal of more than one exterior wall) and subsequent reconstruction of a dwelling shall be considered a new building and shall site as much of the project as possible outside of the Buffer Zone. Projects for expansion of existing homes greater than 25% of the existing size, as measured in square footage of the foundation or cubic footage of the structure, shall be considered a new building and shall site as much of the project as possible outside of the Buffer Zone.

N/A. The project does not propose any substantial demolition.

7. All new construction projects within the Buffer Zone shall address how stormwater drainage will be managed. The project must ensure that runoff from built and developed areas will drain directly into the soil on the subject site and will not runoff onto neighboring properties or streets. Methods to address drainage shall include but are not limited to vegetated swales, rainwater gardens, catchbasins, use of gutters and roof drains, drip lines with crushed stone; and pervious and dry-laid stone.

No new construction will affect stormwater drainage. The only new construction is a small rinse station, which is proposed in an area which is not currently naturalized. There will be no additional runoff.

8. Driveways within the Buffer Zone shall be constructed with pervious materials such as crushed stone. Permeable pavers with a void space of less than 30% are not considered compliant with this requirement.

N/A. No new driveway is proposed.

9. Cutting, pruning, lifting the canopy, limbing or other destruction of above ground vegetation shall be limited. View clearing or vista pruning will not be permitted without a specific view corridor identified.

No alteration of above ground vegetation is proposed for the purposes of obtaining a view.

i. When pruning is permitted, it shall be for the removal of dead, diseased, obstructing and weak branches as well as thinning of branches to lessen wind resistance. Shrubs must retain their natural shape and features such as fruits and flowers by selecting the optimum height and pruning different branches in alternate years.

No alteration of above ground vegetation is proposed for the purposes of obtaining a view.

ii. When vista cutting is the only viable option in a heavily vegetated lot, the Commission may allow the removal of no more than 20% of the tree canopy.

No alteration of above ground vegetation is proposed for the purposes of obtaining a view.

iii. All trees proposed for removal must be clearly flagged on site and shown on a site plan.

No trees are proposed to be removed for the purposes of obtaining a view. If site access from Cold Storage Beach is not obtainable and secondary access from the property must be utilized, any trees within the approved Limit of Work that are absolutely necessary to be removed for access will be flagged for the Conservation Agent's review on-site and if replacements are necessary, carried out at the direction of the Conservation Agent.

iv. When vista pruning, and cutting is proposed, specific windows of view (containing top, sides, and bottom and not devoid of one species) shall be identified and shown on a site plan. Filtered vistas are encouraged and can be accomplished through pruning and lifting.

No alteration of above ground vegetation is proposed for the purposes of obtaining a view.

v. Topping is not permitted.

No alteration of above ground vegetation is proposed for the purposes of obtaining a view.

vi. Clear cutting and cutting from property line to property line is prohibited. Violations may be assessed using a count of trees cut.

No alteration of above ground vegetation is proposed for the purposes of obtaining a view.

vii. When lifting is proposed, the health of the tree must be considered as well as the impact to wildlife. In no instance, shall more than 1/3 of the above ground trunk be pruned.

No alteration of above ground vegetation is proposed for the purposes of obtaining a view.

viii. Dead and diseased trees may be removed if they endanger a structure or live vegetation.

No dead or diseased trees are proposed to be removed.

ix. The Commission shall require the replacement planting of native shrubs and trees in areas proposed for tree removal. A 3:1 replacement of shrubs for mature trees (6" dbh or greater) and a 2:1 replacement for sapling trees (less than 6" dbh) is desired.

Noted.

11. Within the 50-foot vegetated buffer strip, the Commission may issue an Order of Conditions allowing the following activities:

i. Pruning to reduce a hazard, to improve tree or plant structure, to provide a reasonable vista, or to improve the health of trees and shrubs.

No pruning is proposed.

ii. Selective Cutting of vegetation.

No selective cutting of vegetation is proposed other than what is necessary to complete the project. After construction, all disturbed areas will be re-vegetated.

iii. Removal of invasive species.

Removal of invasive species is not proposed for restoration purposes, but invasive species removed within the limit of work will be replaced with native vegetation post-construction.

iv. Planting of native vegetation.

Native grasses and shrubs are proposed to supplement a sparsely vegetated area on the coastal bank. Native grasses and shrubs will also be used to revegetate areas disturbed within the construction limit of work.

v. Habitat management activities designed to enhance the values protected by the Bylaw;

Supplementing a sparsely vegetated area on the coastal bank with native grasses and shrubs will enhance the wildlife habitat on the bank.

vi. Construction and maintenance of unpaved pedestrian access paths not more than 4-feet in width;

The only unpaved pedestrian access path necessary would be established within the proposed limit of work to perform monitoring and maintenance activities for the project components if access from Cold Storage Beach is not obtainable.

vii. Maintenance of existing structures, utilities, storm water management structures;

N/A. No such work is proposed.

viii. Construction and maintenance of water dependent structures and uses; Construction of new utility lines where the proposed route is the best environmental alternative;

N/A. No such work is proposed.

ix. Septic system maintenance and, if a system has failed, repair/replacement meeting state/local standards where the disturbance to the buffer zone is avoided and/or minimized to the maximum extent practicable;

N/A. No such work is proposed.

x. Construction, maintenance, repair/replacement of drinking water wells;

N/A. No such work is proposed.

xi. Maintenance, repair and drainage improvements on existing roadways and driveways.

N/A. No such work is proposed.

12. The following activities are prohibited within the 50-foot vegetated buffer strip:

i. New and/or expanded lawn and garden areas; underground irrigation;

N/A. No such work is proposed.

ii. New structures including but not limited to homes, buildings, swimming pools, sheds and decks; and

No new structure is proposed; only maintenance/replacement of existing, failing structure is proposed (stairs).

iii. Expansion of existing structures including but not limited to homes, buildings, sheds and decks.

Replacement of existing, failing structure (stairs) is proposed. A small rinse station adjoining the existing building/patio area is proposed (26sf +/-). Over 500 square feet of bare area is proposed for planting on the Coastal Bank and within the 0-50' buffer.

2.02 Additional Requirements for Activities located in Resource Areas

a. The following activities are prohibited within Wetland Resource Areas:

1. New and/or expanded lawn and garden areas; underground irrigation

N/A. No such work is proposed.

2. New structures including but not limited to homes, buildings, swimming pools, docks and piers, sheds and decks; and

No new structure is proposed; only maintenance/replacement of existing, failing structure (stairs) is proposed.

3. Expansion of existing structures including but not limited to homes, buildings, sheds and decks.

No expansion of existing structure is proposed within the resource areas; only maintenance/replacement of existing, failing structure (stairs) is proposed.

b. Within resource areas, the Commission may issue an Order of Conditions allowing the following activities:

1. Pruning to reduce a hazard, to improve tree or plant structure, to provide a reasonable vista, or to improve the health of trees and shrubs.

No pruning is proposed.

2. Selective Cutting of vegetation.

No selective cutting of vegetation is proposed other than what may be necessary within the limit of work to construct the project. If construction access from Cold Storage Beach is obtained, less disturbance is required. All areas within the limit of work that may be disturbed will be re-vegetated upon completion of the work.

3. Elevated stairways over a Coastal Bank and Inland Bank.

The existing elevated stairway is damaged and unsafe, and is proposed to be replaced in the same general location as before.

4. Removal of invasive species.

Removal of invasive species is not proposed for restoration purposes, but invasive species removed within the limit of work will be replaced with native vegetation post-construction.

5. Planting of native vegetation.

Native grasses and shrubs are proposed to supplement a sparsely vegetated area on the coastal bank. Native grasses and shrubs will also be used to re-vegetate areas disturbed within the construction limit of work.

6. Habitat management activities designed to enhance the values protected by the Truro Conservation Bylaw;

Supplementing a sparsely vegetated area on the coastal bank with native grasses and shrubs will enhance the wildlife habitat on the bank and add more square footage of naturalized area to the bank and buffer zone.

7. Septic system maintenance and, if a system has failed, repair/replacement meeting state/local standards where the disturbance to the resource area is avoided and/or minimized to the maximum extent practicable;

N/A. No such work is proposed.

8. Construction, maintenance, repair/replacement of drinking water wells.

N/A. No such work is proposed.

2.04: Coastal Bank

d. Performance Standards:

3. When a Coastal Bank is determined to be significant to storm damage prevention or flood control because it supplies sediment to coastal beaches, coastal dunes or barrier beaches the following performance standards shall apply:

i. A well vegetated bank provides significant resistance to storm damage; therefore, the Commission requires extensive planting of the coastal bank as part of any erosion control project, including re-planting as on-going maintenance in all projects.

The fiber roll array and any supplemental sediment for nourishment will be planted with American beach grass to vegetate the coastal bank; planting of American beach grass may need to be completed annually if lost due to storm action.

ii. In the case of an "erosion control" project permitted under these regulations, these standards must be met by a showing, by substantial evidence, that a sufficient quantity of beach nourishment and "sacrificial" sand will be provided as part of the project to ensure that the movement of sediment and sediment supply will not be adversely affected by the project.

Approximately 160 cubic yards of beach nourishment is proposed to help cover the fiber roll installation and restore a natural beach profile, based on the existing conditions at the time of survey. Sieve samples will be analyzed to ensure compatibility between sediment to be placed on site and that which is existing.

iii. Projects shall fully comply with the "sample order of conditions for coir tube projects" in order to be permitted on the bay side of Truro as set forth.

iv. In no event shall an engineered structure or "coir tube" project be permitted as an erosion control project on the Ocean side of Truro.

Coir fiber rolls are proposed to stabilize the toe of the coastal bank. There is an existing fiber roll array which is proposed to be replaced with a new array that is designed and maintained for better long-term sustainability than the previous array. If no action was taken, the bank would likely continue to scour and slump, having negative consequences for flood protection and wildlife habitat value.

v. In all "coir tube" projects, only one row of drift or serpentine fencing may be installed or utilized at the property. Layered Drift fencing shall only be permitted under special circumstances and in limited areas and shall be sought by application for a waiver.

One row of sturdy drift fencing is proposed to front the coir fiber roll array. Maximum length of fence sections is 50' to allow for wildlife movement.

vi. Serpentine Fencing with Coir Tube Project: A single installation of Serpentine fencing may be incorporated in a coir tube project. No additional serpentine fencing shall be permitted except on clear and convincing proof of extraordinary circumstances.

One row of sturdy drift fencing is proposed to front the coir fiber roll array. Maximum length of fence sections is 50' to allow for wildlife movement.

vii. Hardened fencing, seawalls, revetments, bulkheads and other "coastal engineering structures" shall not be allowed, except as specifically provided in 310 C.M.R. 10.30 (3) to protect structures constructed prior to 1978. In addition to the requirements on such projects imposed by 310 C.M.R. 10.30(3), no such project shall be permitted on the Bay Side of Truro unless a "coir tube" project has been previously approved and installed and has failed, where such failure is not solely attributed to failure to maintain sand cover and vegetation.

No "coastal engineering structures" are proposed. Drift fence and coir fiber rolls were previously approved. Rolls are still present along with the original drift fence pilings.

viii. Maintenance or repair of existing bulkheads and revetments shall only be by prior approval of the Truro Conservation Commission and may include the requirement for sand nourishment to the beach as required.

N/A.

ix. A model order of conditions is attached to these regulations and incorporated herein. No waivers from these required orders shall be allowed except upon clear and convincing scientific proof that the proposed waiver will improve the ability of the coastal bank to provide storm damage protection, prevent flooding and contribute sediment to the littoral system.

Noted.

x. Escrow agreement: Every erosion control project shall include a requirement that the property owner establish an escrow account with the Town of Truro in accordance with the requirements of the Model Escrow Agreement attached to these regulations and incorporated herein. This agreement allows the Conservation Commission to remove any project as to which the owner fails to perform ongoing maintenance as required by the Commission.

Noted.

xi. No variance or waiver of this requirement shall be granted by the Commission. Remaining escrow funds, if any, may be returned to the property owner when the erosion control project is removed.

Noted.

2.05: Land Subject to Coastal Storm Flowage

c. Performance Standards

1. In addition to the interests and values set forth above in Sections 2.05(a) and (b), the following standards shall also be applied to work within LSCSF:

Any activity subject to jurisdiction, and proposed on LSCSF shall not:

i. Reduce the ability of the resource to absorb and contain flood waters;

Proposed work will not reduce the ability of the resource to absorb and contain flood waters. The existing profile of the coastal bank landform will not be altered. Rather, coir fiber rolls would be anchored into the existing form of the coastal bank to better absorb and buffer wave energy and protect the bank from future scour and slumping.

- ii. Reduce the ability of the resource to buffer more inland areas from flooding and wave damage;

Proposed work will not reduce the ability of the resource to buffer more inland areas from flooding and wave action. The existing profile of the coastal bank landform will not be altered. Rather, coir fiber rolls would be anchored into the existing form of the coastal bank to better absorb and buffer wave energy and protect the bank from future scour and slumping.

- iii. Displace or divert flood waters to other areas;

Proposed work will not displace or divert flood waters. The existing profile of the coastal bank landform will not be altered. Rather, coir fiber rolls would be anchored into the existing form of the coastal bank to better absorb and buffer wave energy and protect the bank from future scour and slumping.

- iv. Cause or create the likelihood of damage by debris to other structures on land within the flood plain (collateral damage); built structures such as stairs or walkways shall be seasonally removable,

Proposed work will not create the likelihood of damage by debris. The bottom portion of the elevated stairway will be removable. If not replaced, the existing elevated stairway, which is already damaged, would have a greater likelihood of creating debris.

- v. Cause ground or surface pollution triggered by coastal storm flowage; and

Proposed work will not cause pollution triggered by coastal storm flowage.

- vi. Reduce the ability of the resource to serve as a wildlife habitat and migration corridor through activities such as, but not limited to the removal of vegetative cover and/or installation of fencing and other similar structures.

Disturbance of vegetative cover will be temporary to facilitate installation of the proposed project elements, and areas within the limit of work will be restored following construction. The access path will be vegetated with native grasses, and a sparsely vegetated area on the coastal bank will be supplemented with native grasses and shrubs. Maximum length of fence sections is 50' to allow for wildlife movement on the occasion that it is exposed for short periods of time.

- vii. Any activity proposed in the floodplain may require mitigation to enhance or restore natural functions of the floodplain.

7.04 SPECIAL CONDITIONS

1. Special Conditions for particular projects:

a. Section 30(3) of the Wetlands Regulations promulgated under G.L. 131 §40 requires that no coastal engineering structure such as a bulkhead, revetment, or seawall, shall be permitted on an eroding coastal bank at any time in the future to protect the structures permitted under this Order of Conditions. The Applicant acknowledges the risk of building near an eroding coastal bank and is prepared to move, remove, or relocate the structures

if necessary.

N/A. No coastal engineering structure is proposed.

b. All beach stairs repaired or constructed pursuant to this Order shall have batter boards of Conservation Commission approved dimensions, placed parallel to the contour at all support posts to prevent erosion and all support posts shall be mounted on helical anchors.

Refer to the Beach Access Stairs plans provided by Inghouse, PC for more details on the design/construction of the reconstructed elevated staircase.

c. New or replacement of the bottom section of the stairs shall be removable.

The bottom section of the stairs is removable.

d. The use of Chromated Copper Arsenate (CCA) treated wood is prohibited. Alkaline Copper Quaternary (ACQ) or equivalent treated wood shall be used.

Refer to the Beach Access Stairs plans provided by Inghouse, PC for more details on the design/construction of the reconstructed elevated staircase.

e. If a temporary walkway is used, it must be removed seasonally from Columbus Day to Memorial Day.

The majority of the elevated staircase will be permanent, though the bottom section of the stairs will be removable.

f. All construction materials, earth stockpiles, landscaping materials, slurry pits, waste products, refuse, debris, stumps, slash, or excavate may only be stockpiled or collected in areas as shown and labeled on the approved plan(s), or if no such areas are shown must be placed or stored outside all resource areas and associated buffer zones under cover and surrounded by a double staked row of straw bales to prevent contact with rain water.

All construction materials will be confined within the approved limit of work. A silt fence or other appropriate siltation barrier will be installed and approved by the Agent at the on-site meeting prior to any work beginning.

g. All building or construction debris shall be deposited into a suitable dumpster or be removed off site on a daily basis. The dumpster shall be located outside the 100-foot buffer zone or within work-limit area as approved by the Commission.

All debris will be properly disposed of off-site. A construction dumpster will be staged in the driveway area included in the limit of work, if necessary.

h. Work shall comply with the Truro Conservation Commission Regulations - Biomimicry Sand Collection System*, Sand and Drift Fence Guidelines.

i. No work shall commence until the Massachusetts Natural Heritage and Endangered Species Program has reviewed this project located within estimated and/or priority habitat. A Request for an Amendment to the Order of Conditions shall be submitted to the Commission if any conditions or special requirements are imposed by the NHESP.

N/A. Project is not within estimated or priority habitat.

j. No in-ground irrigation system shall be installed or re-installed on the premises.

No in-ground irrigation is proposed. Only a temporary, above-ground irrigation system may be used, if feasible based on availability of a water source, to help establish supplemental plantings.

k. Pesticides, herbicides, fungicides, and fertilizers shall not be used within 100 feet of the wetlands, within the riverfront area, and within bordering land subject to flooding. Pesticides, herbicides, fungicides and fertilizers may be used subject to the review and approval of the Conservation Commission. This shall be noted in the Certificate of Compliance and shall be an ongoing condition.

l. Swimming pool must be pumped and drained by a truck.

N/A. No pool is proposed.

m. Water accumulating on the pool cover shall be drained into the pool and excess water in the pool shall be pumped into a container truck and removed from the premises.

N/A. No pool is proposed.

n. Dumping Prohibited: There shall be no dumping of leaves, grass clippings, brush, or other debris into the wetland or stream/body of water.

Any landscape debris will be disposed of properly off-site.

7.05 Biomimicry, Serpentine fence, nourishment and planting of beach grass

9. Construction Specifications and Protocol for Drift or Serpentine Fencing

a) Placement. In general, the edge of the drift fencing closest to the water shall be placed well above the mean high tide line and no more than six (6) feet from the toe of the bank. Plans submitted should delineate all resource areas and the location of all pilings.

Traditional sand drift fencing is not proposed; sturdy drift fencing is proposed, which is more robust and will help hold nourishment in place and naturally accumulate wind-blown sediment. Sturdy drift fencing is proposed well above the mean high-water line. There will be a minimum 4 foot clearance between the leading edge of the bottom fiber rolls and the back side of the sturdy drift fence to facilitate maintenance.

b) Materials.

i. Timber pilings used to anchor sections of fencing shall preferably be 6-8" in diameter and shall not be longer than 10'.

Traditional sand drift fencing is not proposed; sturdy drift fencing is proposed, which is more robust and will help hold nourishment in place and naturally accumulate wind-blown sediment. The existing timber pilings will be re-used and/or re-set to use, if feasible. If not, they will be disposed of and replaced in kind with green oak pilings.

ii. Slats shall be no more than 2"x3" and front braces and fence spans shall be no larger than 2x4 lumber, fence sections shall be 6' to 10' long, having a 50-50 ratio of open space to slats. Each fence span shall contain at least one "missing" slat, leaving a gap of at least 7.5" in the fencing (to permit movement of birds and other animals).

Traditional sand drift fencing is not proposed; sturdy drift fencing is proposed, which is more robust and will help hold nourishment in place and naturally accumulate wind-blown sediment. Slats and gaps are both proposed to be 3.5" wide, maintaining a 50-50 ratio of open space to slats. Fence panels will be 8' long. Maximum length of fence sections is 50' to allow for wildlife movement. Sturdy drift fencing will be constructed with through-bolt member connections. With this connection and upgraded timber components, the longevity of the drift fence

will be increased, reducing the overall maintenance of the fencing and future disturbance to repair or replace.

c) Construction:

i. All wooden materials to be used in any fencing shall be branded or permanently identified by a method approved by the Commission with the assessor's map and parcel # for the property where the fence is to be installed. Each fence shall be constructed so that the identifying information is on the landward side of the fence. Format for marking the wooden materials shall be map # hyphen parcel # (i.e. 23-1).

Fence materials will be permanently identified with the assessor's map and parcel number for the property. The method for identifying materials will be approved by the Conservation Agent prior to work beginning.

ii. Fence sections shall be assembled off site and brought to the beach location where the fence is to be erected;

All fence sections will be assembled off site.

iii. All pilings shall be individually dug with small excavator, at six feet deep; fence sections shall be bolted to pilings with slats on the water side; fence sections may be secured on the landward end by installation of a bracing member across the landward side. Fence sections shall not be trenched into the beach.

Pilings will be individually dug with a small excavator. Refer to plan for more details.

11. Deposition and Mitigation: Every fencing project except for biomimicry shall include beach nourishment. Every Notice of Intent shall specify the amount of sand to be deposited at the site and shall identify the source from which the nourishment material will be obtained. The nourishment material must be clean sand free of debris or waste and should be of a compatible grain size to the native beach material at the site. (Note: if sand which is of smaller grain size than the native material is used, the lighter sand will wash away sooner.)

Beach nourishment is proposed from approximate elevation 10 to approximate elevation 5 to cover much of the sturdy drift fencing and restore a more natural profile. Approximately 160 cubic yards of nourishment is proposed, a portion of which may need to be replenished annually following storm events. Sieve samples will be analyzed to ensure compatibility between sediment to be placed on site and that which is existing. Nourishment requirements may vary from year to year but the design profile shown on the plan is the desired profile after nourishment, regardless of the annual quantity.

12. Vegetation: Every fencing project shall include planting of American Beach grass between November 1 and April 1 following completion of the installation or repair of the fencing. Planting holes should be dug at least 6 inches deep, randomly spaced 10-12 inches apart. Three culms (roots) are placed in each hole and covered with sand. It is recommended to plant in the greatest density in the landward section and decrease the spacing of plants in the seaward direction. The best results have been found with two applications, one in late spring within 30 days of planting, but before April 1, and another application in late summer or early fall.

Planting of American beach grass is proposed in the area for beach nourishment. American beach grass will be planted 12" on center, and will be planted after annual

nourishment is placed but before April 1.

13. General Regulations applicable to all fencing projects.

a) All projects shall specify dates for commencement and completion. All projects may only begin after Columbus Day and must be completed prior to Memorial Day, provided however that the project area is clear of nesting shorebirds as confirmed by the conservation agent or her designee.

All fence work will be done after Columbus Day and before Memorial Day.

b) All construction equipment shall only access the site from the beach, and only travel along the beach below the mean high tide line. Absent a showing by clear and convincing evidence that access to the coastal bank across the applicant's property is impossible, no sand shall be trucked or transported to the site down the beach. All sand shall be brought to the site from the top of the bank at the applicant's property.

Primary access for construction will be from Cold Storage Beach. If access for construction is not possible from Cold Storage Beach because permission is not able to be obtained from the town or all abutters, access would need to be from the driveway over the coastal bank. In this scenario, all sand will be brought to the site from the top of the bank.

c) Any substantial beach restoration requiring the hauling of materials other than sand from town landings across public and private beaches will be conducted exclusively from Columbus Day to April 15th. Substantial projects are those requiring over two days to haul materials.

All construction work will be done after Columbus Day and before April 15th if hauling materials requires more than two days.

d) Beach construction and restoration work shall not be performed on weekends or holidays, nor before 8:00 a.m. or after 6:00 p.m. on weekdays.

No work will be performed on weekends or holidays, nor before 8 am or after 6 pm.

e) Properties between the public access point for the project and the project locus shall be considered abutters and shall be notified of any substantial beach restoration projects in the same manner and at the same time as other abutters.

Abutters between the public access point and the project locus will be notified as part of the necessary staging/access permit(s).

f) Construction debris shall be removed at the end of each day and the access route shall be left backbladed to a normal grade.

Any debris will be disposed of properly off-site.

g) Application for Construction or Maintenance of a Sand or Drift fence shall constitute agreement by the property owner to reimburse the Town for the cost of clearing away any debris generated from the property owner's fence.

Noted.

h) Where fencing becomes ineffective due to storm damage, erosion or other cause, it

must either be promptly repaired or removed at the property owner's expense.

Fencing will be repaired as necessary following major storm events.

i) Where fencing does not exist on an adjacent property, the fencing erected for the applicant shall be no closer than 25 feet to the abutter's property line; where fencing exists on adjacent properties, new fencing shall be aligned with existing fencing.

The sturdy drift fencing will be set back 25 feet from the neighboring properties, which currently do not have viable drift fences. Applicants will install additional sturdy drift fence to meet up and align with any adjoining sturdy drift fences that may be installed on neighboring properties in the future.

j) Owners of lots which have less than 100 feet of beach frontage may be approved for fencing construction and/or restoration projects which do not comply with these general regulations, by special permit from the Commission.

k) It is the responsibility of the project proponent to obtain consent to traverse private property as may be required by property owners.

All necessary permissions will be obtained for access purposes.

ALTERNATIVES ANALYSIS

3. The Commission may issue an Order of Conditions permitting work in the Buffer Zone provided that the applicant has submitted a written alternatives analysis that examines all practicable alternatives to the project which would further minimize impacts to the Buffer Zone and demonstrates that all impacts can be properly mitigated. The alternatives analysis shall be submitted to the Commission in writing.

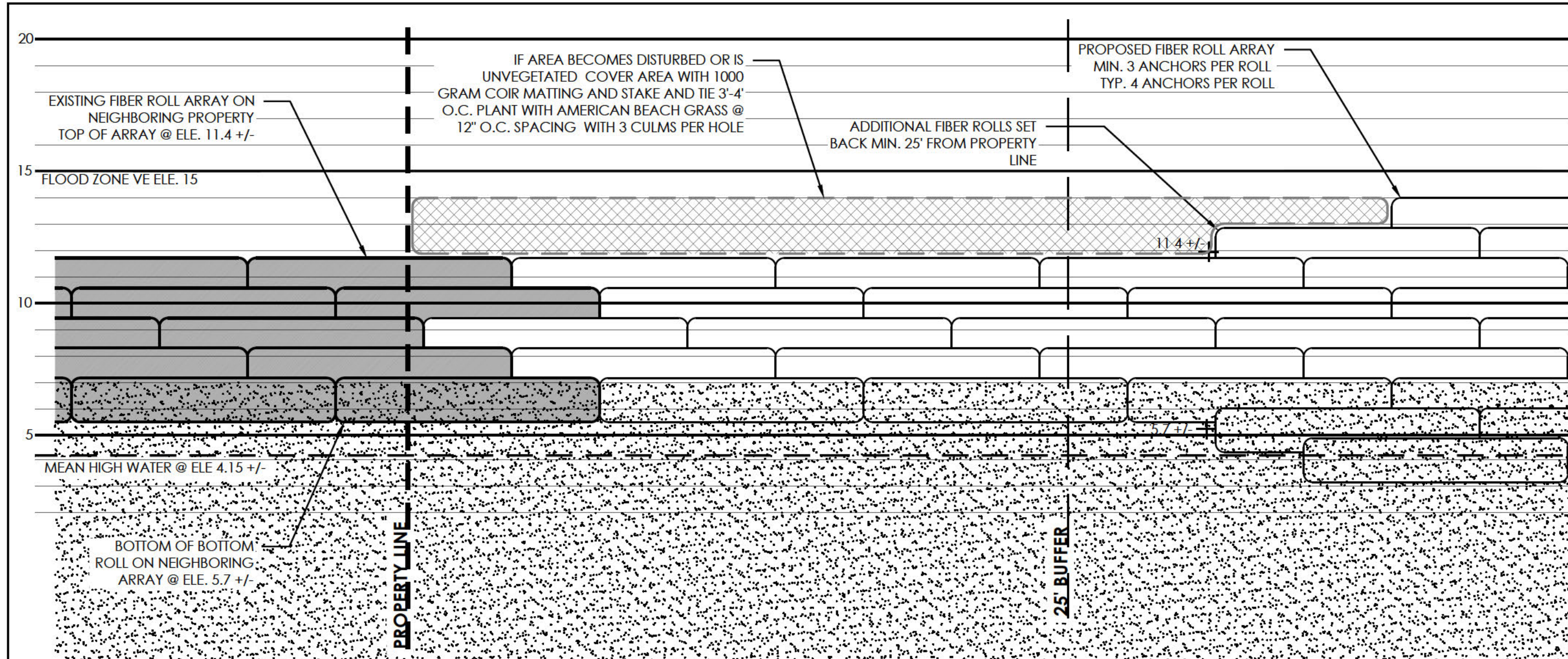
i. Activities within the Buffer Zone shall avoid, minimize and mitigate adverse impacts. The purpose of evaluating project alternatives is to locate activities so that impacts to the buffer and resource areas are avoided to the extent practicable. As much of a project as feasible shall be sited outside the buffer zone. If locating a project entirely outside the Buffer Zone is not practicable, the alternatives shall be evaluated in order to locate the project as far as possible from present Areas Subject to Protection and thereby minimize impacts to the Buffer Zone.

ii. An alternative shall be considered practicable if it is available and capable of being done. Practicable alternatives may include realignment, reconfiguration or re-sizing of project components to minimize impacts to the Buffer Zone. Projects involving demolition of an existing structure and reconstruction of a new dwelling shall be subject to an alternative analysis.

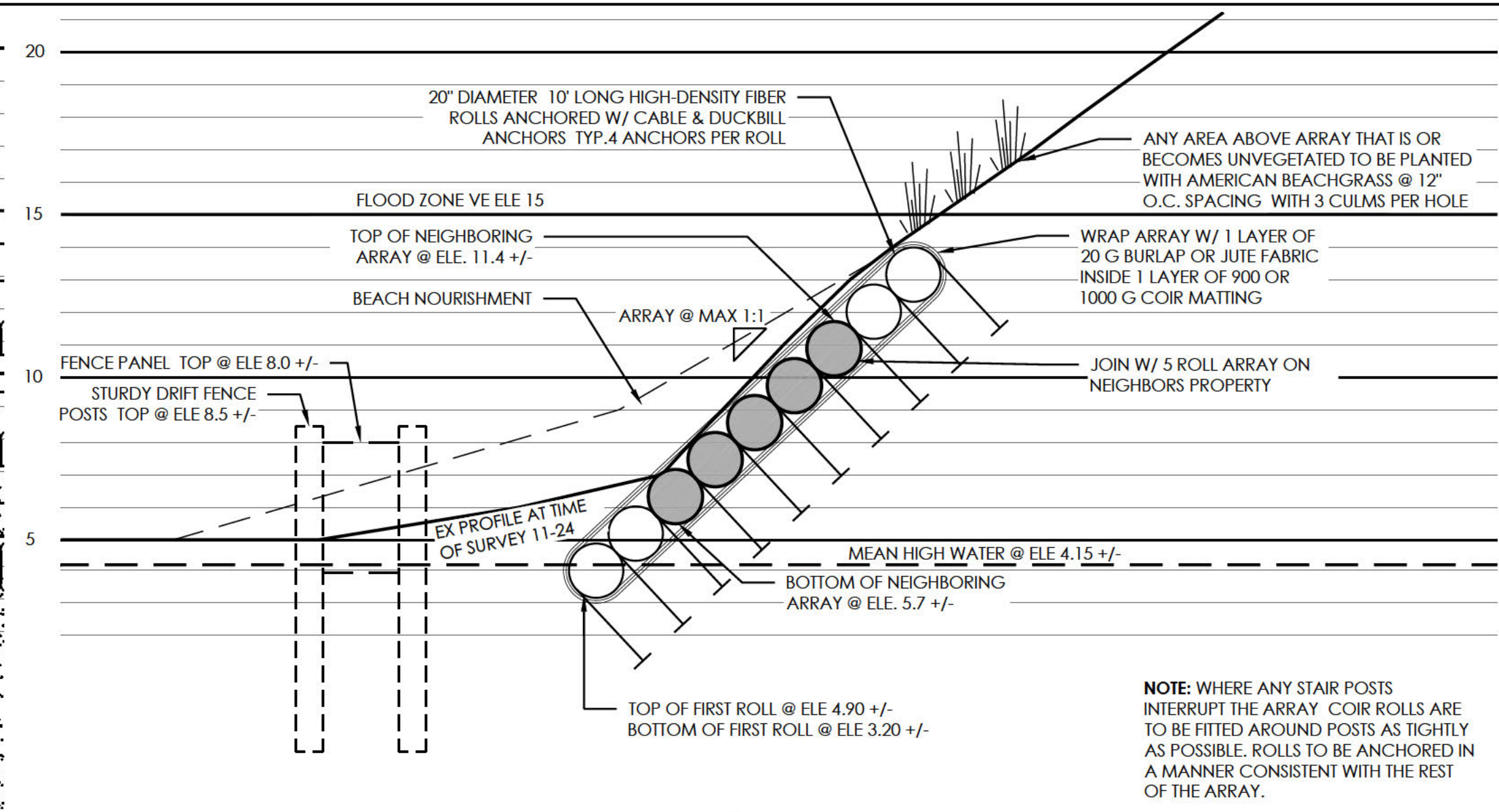
The four main components of this project (stair access over a Coastal Bank, drift fencing, coir fiber roll installation, and beach nourishment) have all been previously approved for this property. This proposal includes upgrades or re-building of these components due to age, lapse in maintenance by previous owner/s, and to proactively combat sea-level rise and provide greater coastal resiliency than previously approved. It is not possible to propose the project activities outside the buffer zone as the project itself is within the Resource Areas and Buffer Zones. If permissions to construct the project from Cold Storage Beach are able to be obtained, the disturbance to complete the project will be greatly minimized. This component of the project is out of the control of the Applicant/Property Owner, which is why secondary/alternative access is provided within the documents from the property itself. This is undesirable and only intended as a last resort if permissions to utilize Cold Storage Beach are not feasible due

to no fault of the Owner/Applicant. The project already proposes to utilize the existing pilings to construct sturdy drift fencing, if it is feasible to do so. The upgraded proposal to sturdy drift fencing is intended to reduce overall maintenance by increasing the life span of the fencing. The proposed fence also appears to be an improvement over what was previously proposed (based on existing piling locations) as the currently proposed fence design accommodates for passage of wildlife. The proposed coir array is intended to proactively adapt to sea level rise and combat increasing frequency of storms by extending the array to elevation 14. The number of cables used to anchor the rolls in place also appears to be increased from the previous installation. Beach nourishment activities were previously approved and are proposed to continue to maintain the profile elevation shown on the plan.

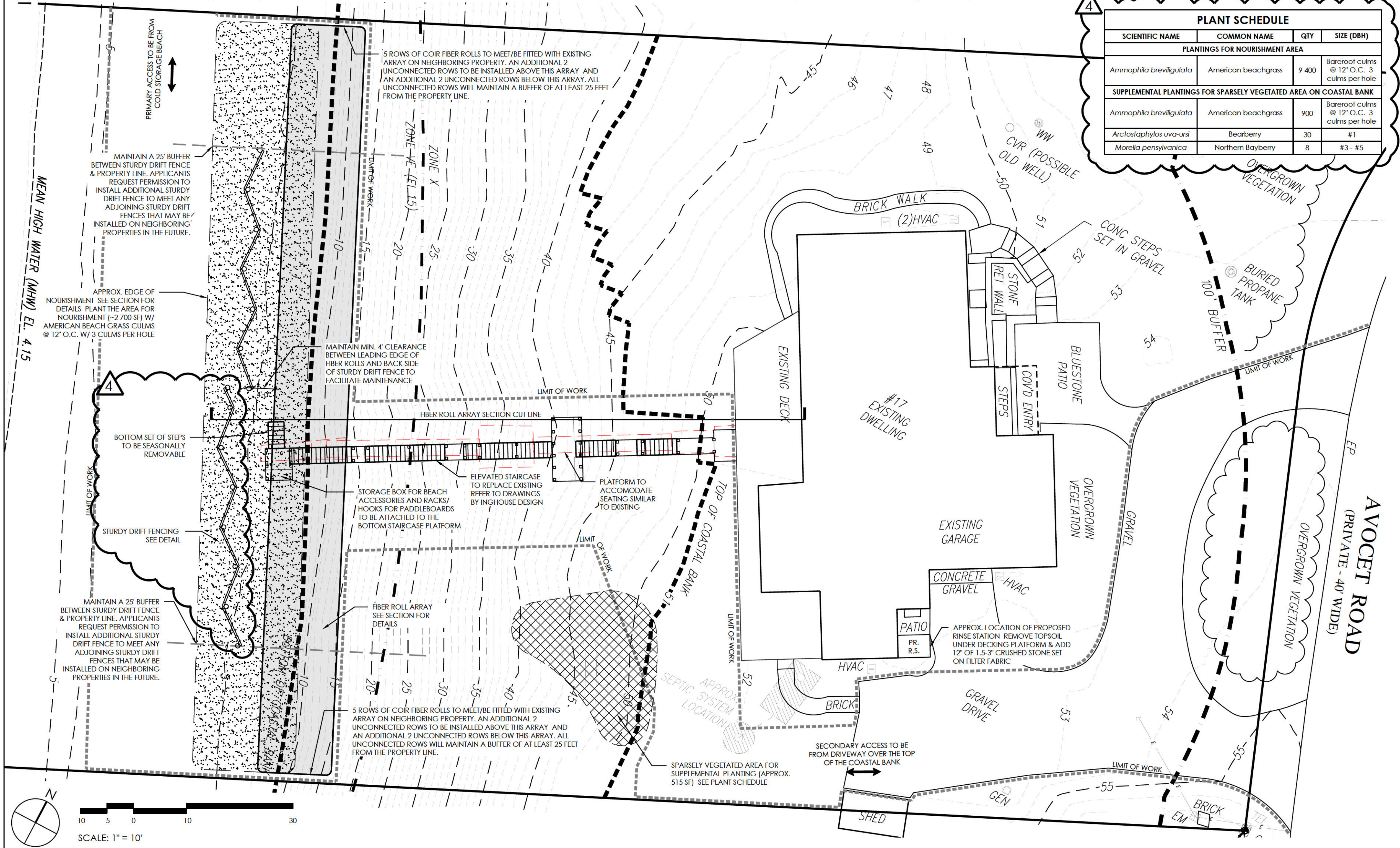
If the beach access stairs are not re-built, they will continue to break apart and cause storm debris. As is, they are un-safe for use and not to building code. If the fiber roll array is not re-built it poses greater risk of failure which could affect neighboring properties as they too are utilizing a fiber roll system for toe stabilization. Drift fence was previously approved and installed, but not maintained. This project proposes to re-build an upgraded drift fence. If the drift fence were repaired or reconstructed as originally installed, it is anticipated that it would need replacement much more quickly than the sturdy drift fence proposed, based on no evidence of the fence remaining between the pilings.



FIBER ROLL ARRAY PROPERTY LINE ELEVATION (1/4" = 1'-0")



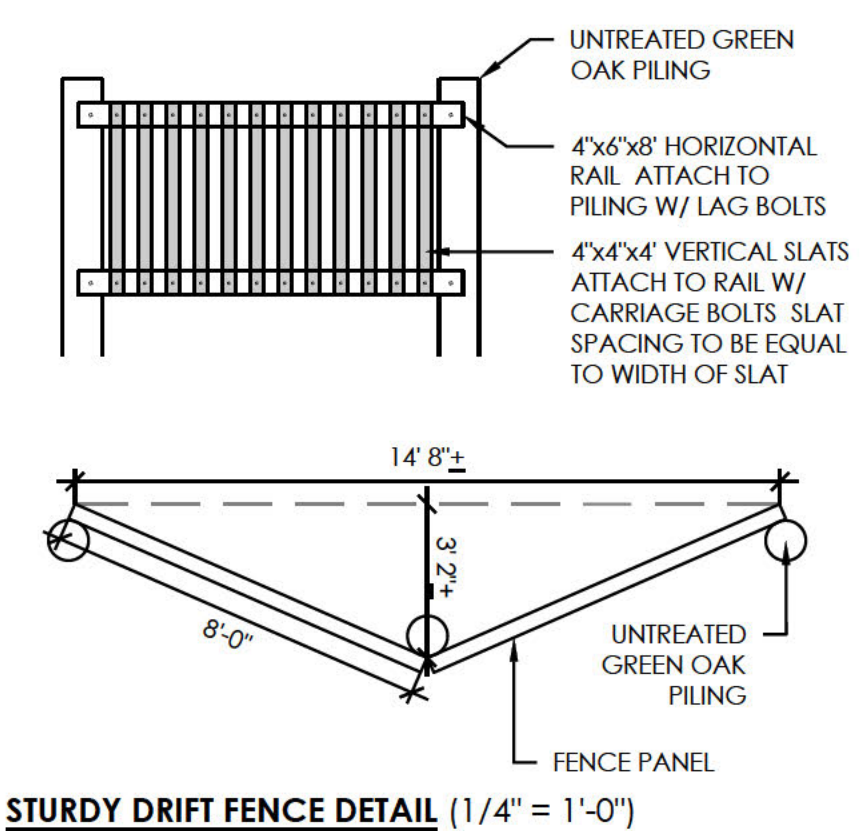
FIBER ROLL ARRAY SECTION (1/4" = 1'-0")



PLAN NOTES

- ### CONSTRUCTION & MAINTENANCE ACCESS:
- Primary access for construction and nourishment/ maintenance activities will be from Cold Storage Beach. All required permits/permissions to use a Town landing will be procured accordingly prior to use.
 - Alternate access will be from the existing driveway around the south side of the house and deck over the top of the coastal bank.
 - Any areas temporarily disturbed for access during construction of the stairs or fiber roll array will be revegetated. A revegetation plan will be approved by the Agent(s) once construction is complete, as the exact area of disturbance within the limit of work will be determined by the contractor at the time of construction.
 - A maintenance access path may need to be established for future nourishment and maintenance of the fiber roll array if access from Cold Storage Beach is not possible; this access path will be vegetated with native herbaceous material but will remain free of woody vegetation.
- ### STURDY DRIFT FENCE:
- Fence pilings will be untreated green oak lumber.
 - Fence panels will maintain a 50-50 ratio of open space to slats.
 - Fence materials will be permanently identified with the assessor's map and parcel number the property.
 - Fence sections will be assembled off-site. All pilings will be individually dug with a small excavator or installed with a vibratory post driver.
 - Sections of fencing will be kept to a maximum of 50' long to allow for movement of wildlife.
- ### NOURISHMENT:
- Sieve samples are to be collected from the area proposed for nourishment and compared with the sediment to be used for nourishment activities to confirm compatibility. Existing sieve analysis sample sites are to be representative of the average conditions.
 - Sediment for nourishment is to be approved by the Agent prior to placement.
 - Nourishment is to be placed in the spring each year as necessary to maintain the beach elevation.
- ### ONGOING MAINTENANCE:
- Monitor project area and perform assessments after a significant weather event to determine how the installation is performing and if any changes, additions, or maintenance to the installation are necessary.
 - Nourish the installation with compatible sediment as necessary to maintain design profiles as shown on the plan. Nourishment needs may vary from year to year for volume and frequency.
 - Any areas of the installation or components that are damaged, degraded, or exposed will either be repaired/replaced or the exposed/damaged portions will be removed.
- ### ANNUAL MONITORING REPORTS:
- Annual monitoring reports will be submitted to the Commission each year for three years once the installation is complete to monitor beach elevations, plant establishment, and integrity of the fence and fiber roll materials.
- ### TIMING REQUIREMENTS:
- Construction/installation work will be completed after Columbus Day and prior to April 15, unless the project area is clear of nesting birds as confirmed by the Agent or another designee.
- ### CONTRACTOR QUALIFICATIONS:
- All machine work will be completed by an insured operator with the appropriate hoisting and hydraulics licenses.
 - Contractor should be able to provide a proven track record of successful stabilization projects in New England.

PLANT SCHEDULE			
SCIENTIFIC NAME	COMMON NAME	QTY	SIZE (DBH)
PLANTINGS FOR NOURISHMENT AREA			
<i>Ammophila brevifragula</i>	American beachgrass	9,400	Bareroot culms @ 12" O.C. 3 culms per hole
SUPPLEMENTAL PLANTINGS FOR SPARSELY VEGETATED AREA ON COASTAL BANK			
<i>Ammophila brevifragula</i>	American beachgrass	900	Bareroot culms @ 12" O.C. 3 culms per hole
<i>Arctostaphylos uva-ursi</i>	Bearberry	30	#1
<i>Morella pensylvanica</i>	Northern Bayberry	8	#3 - #5



STURDY DRIFT FENCE DETAIL (1/4" = 1'-0")

CRAWFORD
LAND MANAGEMENT
88 Route 6A, Suite 2B | Sandwich, MA 02563
www.crawfordm.com | 508.477.1346

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NO.	DATE	REVISION	BY:
4	1-14-25	UPDATED FENCE & PLANT #	DILLON LANCE
3	12-17-24	UPDATED DESIGN	DILLON LANCE
2	10-25-24	PROPERTY LINE ELEVATION	DILLON LANCE
1	9-27-24	UPDATED DESIGN/NOTES	DILLON LANCE

SURVEYOR/ENGINEER:

Merrill Engineers and
Land Surveyors
(781) 887-3224
STRUCTURAL ENGINEER
INGHOUSE, P.C.
18 Steeple Street,
Mashpee, MA 02649
508.221.2980
www.inghouse.net
NOT FOR CONSTRUCTION (ISSUED FOR PERMITTING/APPROVAL)
CLM WILL NOT PROVIDE OVERSIGHT OR CERTIFICATION FOR ANY WORK COMPLETED BY OTHERS. NOR DOES CLM TAKE ANY RESPONSIBILITY FOR WORK COMPLETED BY OTHERS.

FREITAG RESIDENCE
17 AVOCET ROAD
TRURO, MA 02642

SCALE: 1" = 10'

DATE: 09/17/24

SHORELINE STABILIZATION PLAN

1 of 1

- GENERAL NOTES
1.

ALL STRUCTURAL WORK SHALL BE COORDINATED WITH THE CIVIL SITE PLAN BY MERRILL , INCLUDING THE FOLLOWING GOVERNING STANDARDS:

A.

THE MASSACHUSETTS STATE BUILDING CODE 9TH EDITION FOR ONE- AND TWO-FAMILY DWELLINGS, BASED ON IBC2015 AND MA AMENDMENTS, AND ALL OTHER AGENCIES HAVING JURISDICTION.

B.

THE NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION (NDS), (EDITION REFERENCED IN STATE BUILDING CODE).

2.

THE CONTRACTOR SHALL PROVIDE TEMPORARY SHORING AND BRACING AND MAKE SAFE ALL FRAMING MEMBERS AND ADJACENT PROPERTY AS PROJECT CONDITIONS REQUIRE.

3.

ALL CONSTRUCTION IS TO CONFORM TO THE MASSACHUSETTS STATE BUILDING CODE AND ALL APPLICABLE PRODUCT AND DESIGN STANDARDS. ABSENCE OF SPECIFIC ITEMS FROM THESE DRAWINGS DOES NOT INFER THAT THE CONTRACTOR IS RELIEVED FROM THE STATUTORY CODE REQUIREMENTS.

4.

ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL CONFORM TO THE APPROVED RULES AND STANDARDS FOR MATERIALS, TESTS, AND REQUIREMENTS OF ACCEPTED ENGINEERING PRACTICE AS LISTED THE MASSACHUSETTS BUILDING CODE.

5.

THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO COMMENCING WORK. ANY DISCREPANCY BETWEEN WHAT IS SHOWN ON THE DRAWING AND ACTUAL FIELD CONDITIONS SHALL BE REPORTED BACK TO THE ENGINEER IN WRITING BEFORE PROCEEDING WITH ANY WORK.

6.

FOUNDATIONS, FIRST FLOOR AND ROOF FRAMING HAVE BEEN DESIGNED FOR THE FOLLOWING LIVE LOADS:

A.

GRAVITY LOADS:

a.

GROUND SNOW: pg=25 PSF

b.

EXTERIOR LANDINGS/STAIRS = 50 PSF

A.

WIND LOAD [=CONTROLLING LATERAL FORCE] (PER MA STATE BUILDING CODE AND ASCE 7-10):

a.

WIND SPEED: Vult=140 mph / Vasd=108 MPH;

b.

EXPOSURE "D"

THE STAIRS ARE PARTIALLY LOCATED IN A FEMA VE-LLS FLOOD HAZARD ZONE.

1.

NOTIFY THE ENGINEER OF ANY ARCHITECTURAL MODIFICATION OR DIMENSION CHANGES THAT MAY AFFECT THE STRUCTURAL DESIGN.
- WOOD FRAMING NOTES

1.

ALL FRAMING LUMBER SHALL CONFORM TO THE LATEST EDITION OF THE AFPA "NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION" (NDS), AND SUPPLEMENT "DESIGN VALUES FOR WOOD CONSTRUCTION", LATEST EDITION. MAXIMUM MOISTURE CONTENT SHALL BE 19%.

2.

PRESSURE TREATED WOOD MEMBERS USED FOR PLACEMENT AGAINST CONCRETE OR MASONRY (SILLS, PLATES, ETC.) SHALL BE PRESSURE TREATED WITH ACQ PRESERVATIVE, OR APPROVED EQUAL, TO MINIMUM RETENTION OF 0.6 PCF IN ACCORDANCE WITH AWPA C3.

3.

ALL EXPOSED WOOD MEMBERS USED FOR STRUCTURAL FRAMING, DECKING, STAIRS, RAILS, BRACING, ETC. SHALL BE PRESSURE TREATED WITH ACQ PRESERVATIVE, OR APPROVED EQUAL, TO MINIMUM DETENTION OF 0.6 PCF IN ACCORDANCE WITH AWPA C3.

4.

ALL CONNECTORS, CONNECTIONS, FASTENERS, ETC. USED TO SECURE ACQ PRESSUE TREATED LUMBER SHALL BE TRIPLE ZINC COATED HOT DIPPED GALVANIZED OR STAINLESS STEEL.

5.

THE FRAMING LUMBER SHALL BE OF THE FOLLOWING MINIMUM GRADE AND SPECIES FOR THE SPECIFIED USE. ALL LUMBER SHALL BE GRADE STAMPED BY A RECOGNIZED GRADING AGENCY AND SHALL BE KILN DRY. ALL WOOD WALL FRAMING (STUDS, SILLS, PLATES, BRIDGING, BLOCKING ETC. SHALL BE 2x6 SPF#2 OR VERSA-STUD 1.7 2650 AS MANUFACTURED BY BOISE CASCADE. VERSA-COLUMNS SHALL HAVE A MINIMUM ALLOWABLE FIBER BENDING STRESS Fb=2,750 PSI, AND MINIMUM AXIAL COMPRESSIVE STRENGTH Fc=3,000 PSI; AND MINIMUM MODULUS OF ELASTICITY (E)=1,800,000 PSI. SIZE OF STUDS AND COLUMNS PER PLAN SPECIFICATIONS.

6.

LUMBER WHICH IS SPLIT, CRACKED, NOTCHED OR OTHERWISE ALTERED OR DAMAGED SHALL BE IMMEDIATELY REJECTED AND NOT ALLOWED FOR USE, UNLESS OTHERWISE APPROVED IN WRITING BY THE STRUCTURAL ENGINEER.

7.

THE FRAMING LUMBER SHALL BE OF THE FOLLOWING MINIMUM GRADE AND SPECIES FOR THE SPECIFIED USE. ALL LUMBER SHALL BE GRADE STAMPED BY A RECOGNIZED GRADING AGENCY AND SHALL BE SURFACE DRY:

DIMENSIONAL LUMBER (FOR NON-EXPOSED MEMBERS):

FLOOR JOISTS & BEAMS: 1-JOIST AND LVL PER SPECIFIED MANUFACTURER MODEL AND/OR STRENGTH

TYPICAL FRAME WALL STUDS: #2 SPRUCE PINE FIR: FC = 1150 PSI, E = 1.46E PSI

TIMBERS AND POSTS: PER PLAN SPECIFICATION FOR SIZE AND STRENGTH

8.

EXPOSED WOOD FRAMING SHALL BE SOUTHERN PINE, GRADE NO. 2 OR BETTER AND PRESSURE TREATED.

9.

ALL LAMINATED VENER LUMBER (LVL) TO HAVE A MINIMUM ALLOWABLE BENDING STRESS (Fb) OF 2,600 PSI. THE MINIMUM ALLOWABLE COMPRESSION STRESS (Fc) PERPENDICULAR TO THE GRAIN SHALL BE 750 PSI. THE MINIMUM ALLOWABLE MODULUS OF ELASTICITY (E) SHALL BE 1,900,000 PSI. INSTALL LVLS IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. **REFER TO FRAMING PLANS FOR HIGHER STIFFNESS LVL MEMBERS, IF NOTED AS "LVL (2.0E)", PROVIDE LVL WITH ALLOWABLE BENDING STRESS (Fb) OF 2,600 PSI, AND MODULUS OF ELASTICITY (E) OF 2,000,000 PSI.**

10.

DETAILS OF WOOD FRAMING SUCH AS NAILING, BLOCKING, BRIDGING, FIRESTOPPING, ETC. SHALL CONFORM TO THE LATEST EDITION OF THE NATIONAL DESIGN SPECIFICATION (AFPA), THE TIMBER CONSTRUCTION MANUAL (AITC).

11.

ALL ENGINEERED LUMBER PRODUCTS SHALL BE AS MANUFACTURED BY WEYERHAEUSER, BOISE CASCADE, LOUISIANA PACIFIC CORPORATION OR APPROVED EQUAL.

12.

WHERE DIMENSIONAL FRAMING LUMBER IS FLUSH FRAMED TO ENGINEERED LUMBER OR STEEL GIRDERS, SET THESE GIRDERS 1/4" CLEAR BELOW THE TOP OF FRAMING LUMBER TO ALLOW FOR SHRINKAGE.

13.

FOLLOW MANUFACTURERS' SPECIFICATIONS FOR ERECTION, INSTALLATION, AND PLACEMENT OF ENGINEERED LUMBER PRODUCTS. PENETRATIONS THROUGH ENGINEERED LUMBER PRODUCTS IS EXPRESSLY NOT PERMITTED WITHOUT PRIOR WRITTEN APPROVAL BY THE ENGINEER.

14.

USE DOUBLE TRIMMERS AND HEADERS AT ALL FLOOR OPENINGS WHERE BEAMS ARE NOT DESIGNATED.

15.

LAP ALL PLATES AND SILLS AT CORNERS AND AT ALL INTERSECTIONS OF PARTITIONS.

16.

STAGGER LAP ALL PLATES AND SILLS AT CORNERS AND AT ALL INTERSECTIONS OF PARTITIONS.

17.

UNLESS OTHERWISE NOTED, PROVIDE THE MINIMUM HEADER SIZES OVER ALL OPENINGS AS FOLLOWS:

INTERIOR WALLS - (2) 2X10 EXTERIOR WALLS - (3) 2X10

18.

UNLESS OTHERWISE NOTED, AT THE ENDS OF ALL BEAMS, HEADERS, AND GIRDERS PROVIDE A BUILT UP OR SOLID POST WHOSE WIDTH IS AT LEAST EQUAL TO THE WIDTH OF THE MEMBER IT IS SUPPORTING AND WHOSE DEPTH IS 4" AT THE INTERIOR WALLS AND 6" AT THE EXTERIOR WALLS.

19.

USE 3/4" THICK TONGUE AND GROOVE "EXTERIOR GRADE" PLYWOOD FLOOR SHEATHING, 5/8" THICK "EXTERIOR GRADE" PLYWOOD ROOF SHEATHING, AND 1/2" "EXTERIOR GRADE" PLYWOOD AT ALL WALLS, UNLESS OTHERWISE SHOWN ON PLANS. ALL JOINTS SHALL BE BLOCKED WITH LUMBER OR OTHER APPROVED SUPPORTS. ALL PLYWOOD SHALL BE APA RATED AND CLEARLY STAMPED.

20.

PROVIDE SOLID BLOCKING BETWEEN ALL FLOOR JOISTS AND DOUBLE ALL JOISTS UNDER EACH PARTITION. EACH END OF EACH JOIST SHALL BE FULL DEPTH BLOCKED AT THE SUPPORT LOCATION. PROVIDE JOIST BRIDGING AT MID-SPAN AND QUARTER POINTS, OR AS SHOWN ON DRAWINGS. BRIDGING PLACEMENT SHALL NOT EXCEED 8 FT. O.C. SPACING.

21.

USE FULLY NAILED METAL CONNECTORS (USP, SIMPSON, OR EQUAL), JOIST, OR BEAM HANGERS WHEN JOISTS OR BEAMS FRAME INTO OTHER JOISTS OR BEAMS. PROVIDE METAL POST CAPS AND BASES FOR ALL POSTS. REFER TO FRAMING PLAN FOR CONNECTOR TYPES.

22.

ALL NEW PLYWOOD FLOOR SHEATHING SHALL BE GLUED TO SUPPORTING WOOD FRAMING MEMBERS USING AMERICAN PLYWOOD ASSOCIATION (A.P.A.) GLUED FLOOR SYSTEM. WOOD GLUE TO BE CONTECH, INC., PL400 SUBFLOOR CONSTRUCTION ADHESIVE, OR APPROVED EQUAL.

23.

CROSS WALLS AND TIE BEAMS ARE TO PROVIDE THE LATERAL RESTRAINT FOR THE BUILDINGS AND SHOULD BE SECURELY ATTACHED AT EACH END AND/OR TO THE EXTERIOR WALLS.

24.

ALL SILLS AND TOP WALL PLATES SHALL BE DOUBLED 2X6'S WITH EACH CORNER STAGGER-LAPPED. SILLS AGAINST CONCRETE SHALL BE PRESSURE-TREATED.

25.

BUILT-UP BEAMS (3 PIECES MAXIMUM) USING CONVENTIONAL FRAMING LUMBER SHALL BE FULLY SPIKED TOGETHER WITH 2 ROWS OF 10d ANNULAR RING NAILS AND LVL'S WITH 3 ROWS OF 16d ANNULAR RING NAILS EACH SIDE AT 12" O.C., OR AS OTHERWISE NOTED ON THE DRAWINGS, OR AS RECOMMENDED BY THE MANUFACTURER. NAILS USED FOR BUILT-UP PIECES SHALL BE ANNULAR RING NAILS.

26.

ALL NAILS, FASTENERS, AND CONNECTORS EXPOSED TO THE WEATHER SHALL BE HOT-DIP GALVANIZED. ALL CONNECTORS AND FASTENERS WHICH ARE USED WITH PRESSURE TREATED WOOD SHALL BE AISI 304 OR 316 STAINLESS STEEL.

27.

ALL ROOF RAFTERS SHALL BE ATTACHED TO TOP WALL PLATES WITH SIMPSON H-1, H-10, (OR DRAWING DESIGNATED) TIES, FULLY FASTENED WITH MANUFACTURER'S NAILS.

28.

PLYWOOD FLOOR, ROOF AND WALL SHEATHING SHALL BE ATTACHED TO EACH SUPPORTING FRAME MEMBER. MIN. FASTENERS SHALL BE 8d COMMON SIZE, ANNULAR RING NAILS WITH A MINIMUM 1-5/8" PENETRATION INTO EACH FRAME MEMBER (STUD, JOIST, RAFTER, BEAM ETC.). PANEL PERIMETER FASTENING SHALL BE 4" OR 6" ON CENTER STAGGERED (REFER TO SHEAR WALL TYPE OR ROOF OR FLOOR DIAPHRAGM NAILING NOTES ON PLANS), AND SHEAR WALL PANEL FIELD FASTENING SHALL BE 8" OR 12" ON CENTER (OR AS OTHERWISE SHOWN ON DRAWINGS). JOINTS IN ALL SHEATHING SHALL BE STAGGERED, EACH DIRECTION.

29.

ALL WOOD PRODUCTS SHALL BE STORED IN A DRY LOCATION. ENGINEERED LUMBER PRODUCTS WHICH ARE NOT KEPT DRY WILL BE IMMEDIATELY REJECTED AND REQUIRED TO BE REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST.

30.

IN NO CASE SHALL JOISTS, RAFTERS, BEAMS, POSTS, STUDS OR ANY OTHER FRAMING MEMBER BE CUT, NOTCHED, DRILLED, OR OTHERWISE MODIFIED WITHOUT THE WRITTEN APPROVAL OF THE STRUCTURAL ENGINEER OR SPECIFIED ON THE DESIGN DRAWINGS.
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| # | | | | | | | | | |
- PROJECT TITLE:

Beach Access Stairs

PROJECT LOCATION: 17 Avocet Road, Truro, MA

SHEET TITLE:

STRUCTURAL NOTES
- SCALE: AS NOTED

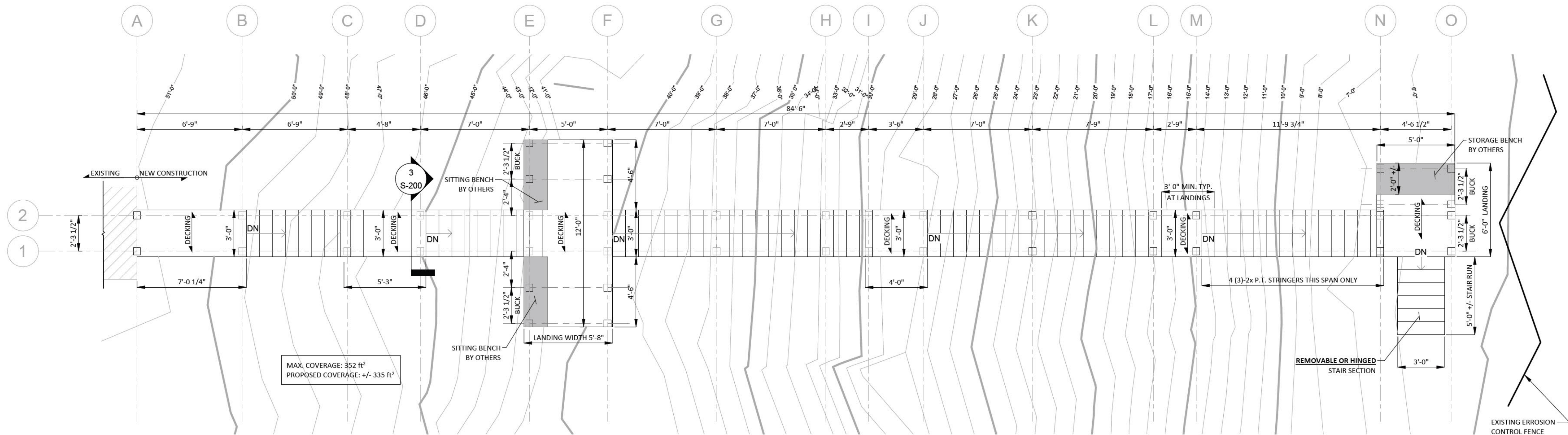
DATE: 10/25/2024

DESIGNED BY: LJ

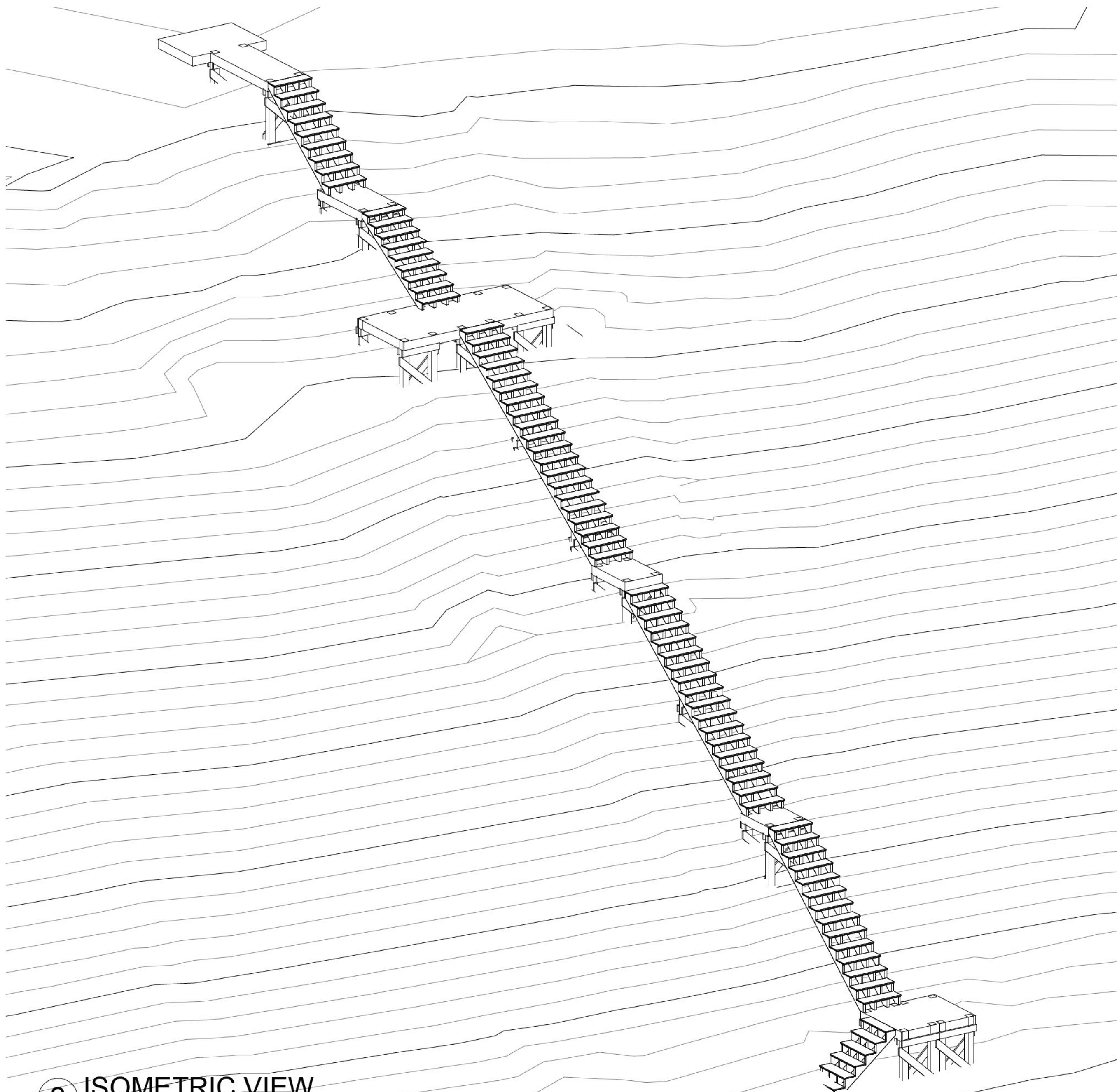
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PROJECT #: ING24067
- S-100

PAGE 1 OF 3
- PERMIT SET



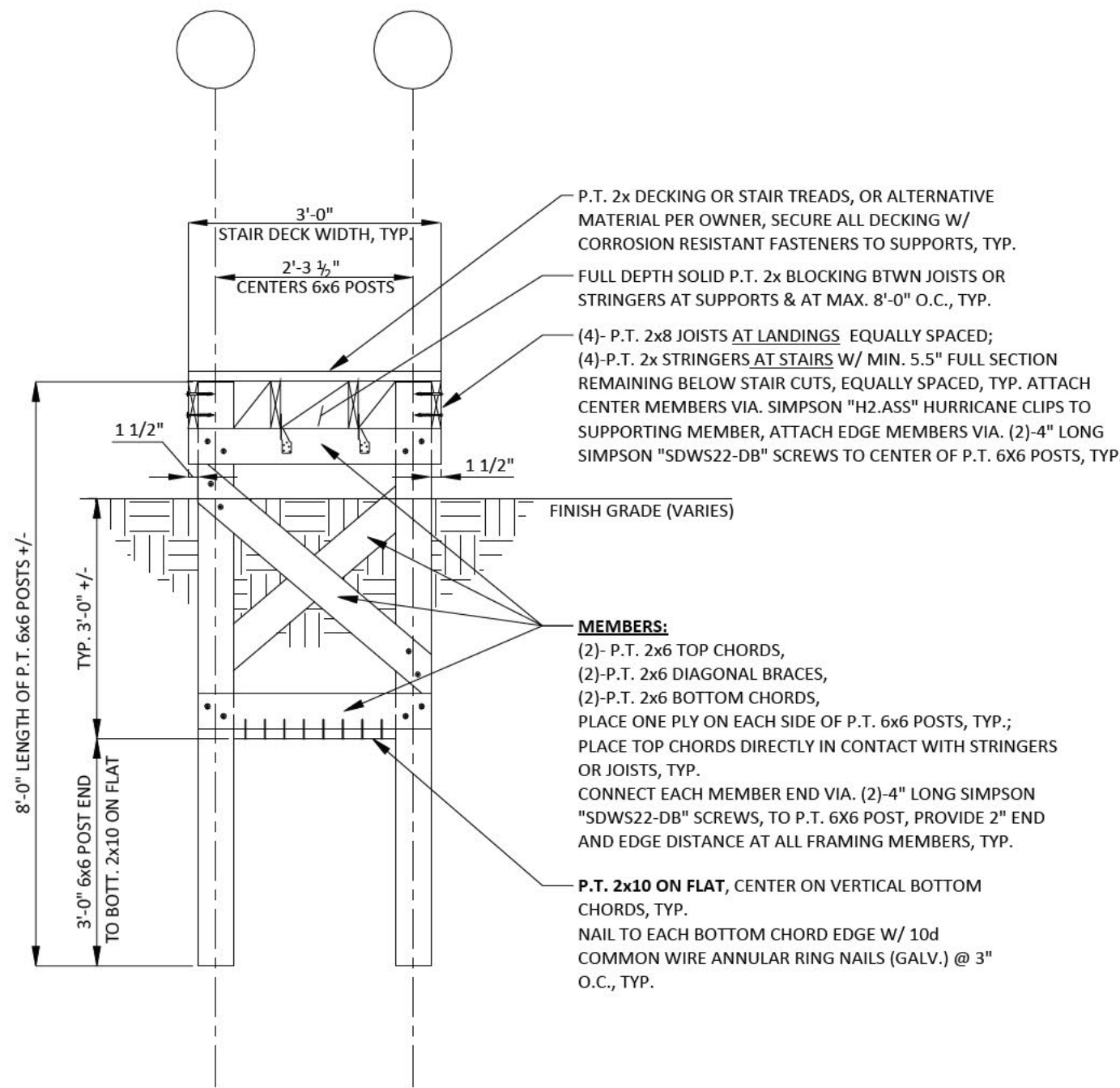
1 STAIR FRAMING PLAN
SCALE: 1/4" = 1'-0"



2 ISOMETRIC VIEW
SCALE:

COASTAL BANK STAIR REGULATIONS:

- A STAIRWAY OR BOARDWALK MAY BE PERMITTED OVER A COASTAL BANK PROVIDED THAT IT HAS NO ADVERSE IMPACT ON THE FORM AND FUNCTION OF THE COASTAL BANK AND THE FOLLOWING CRITERIA ARE MET:
1. WITH THE EXCEPTION OF THE PILINGS, ALL OTHER PARTS OF THE STAIRWAY OR BOARDWALK SHALL BE ELEVATED 24 INCHES ABOVE THE SURFACE OF THE GROUND.
 2. ALL STAIRWAYS SHALL FOLLOW THE CONTOURS OF THE LAND AS CLOSELY AS POSSIBLE.
 3. STAIRWAYS SHALL INCORPORATE OPEN RISERS.
 4. DECKING PLANKS SHALL BE SPACED A MINIMUM OF 1/2 INCH APART.
 5. THE STAIRWAY STRUCTURE SHALL BE NO MORE THAT 4 FEET IN OVERALL WIDTH, INCLUDING BUT NOT LIMITED TO THE SUPPORTING POSTS AND HAND RAILS.
 6. THE PRESERVATIVE TREATMENT FOR ANY WOOD TOUCHING THE SURFACE OF THE GROUND SHALL BE NON-TOXIC. USE OF CCA AND CREOSOTE TREATED LUMBER IS PROHIBITED.
 7. THE COMMISSION MAY ALLOW A RESTING LANDING ON A STAIRWAY THAT SHALL SEAT NO MORE THAN TWO INDIVIDUALS IN SOME INSTANCES DUE TO THE HEIGHT, STEEPNESS OR OTHER FACTORS OF THE BANK.
 8. ALL STAIRWAYS SHALL BE MAINTAINED IN GOOD CONDITION. STAIRWAYS THAT FAIL OR COLLAPSE SHALL BE REMOVED OR REPAIRED IMMEDIATELY.
 9. ALL STAIR DESIGNS SHALL BE REMOVABLE WHEN LOCATED IN THE FLOOD PLAIN.
 10. ALL STAIR DESIGNS SHOULD USE BATTEN BOARDS ON THE UPSLOPE SIDE OF THE SUPPORT POSTS TO REDUCE EROSION.



3 TYP. FRAMING BUCK DETAILS
SCALE: 1/2" = 1'-0"

Revision	
Date	
#	

Beach Access Stairs

PROJECT LOCATION: 17 Avocet Road, Truro, MA

STAIR FRAMING PLAN

PROJECT TITLE:

SHEET TITLE:

SCALE: AS NOTED

DATE: 10/25/2024

DESIGNED BY: LJ

DRAWN BY: SM

PROJECT #: ING24067

S-200

PERMIT SET

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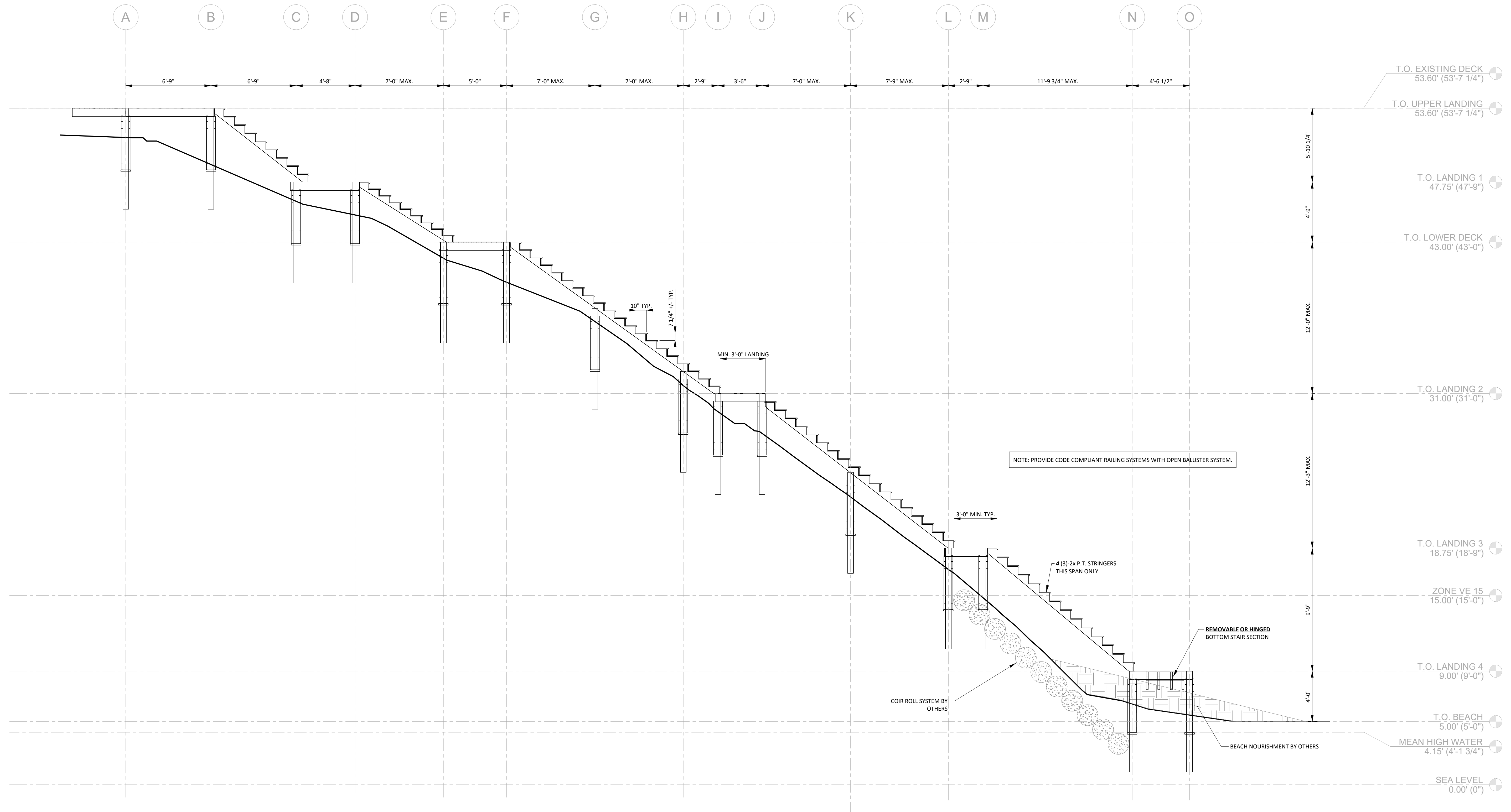
PROJECT LOCATION: 1/ Avocet Road, Truro, MA

STAIR SECTION

PROJECT TITLE:

SCALE:	AS NOTED
DATE:	10/25/2024
DESIGNED BY:	LJ
DRAWN BY:	SM
PROJECT #:	ING24067

PAGE 3 OF 3



1 TYPICAL STAIR SECTION
SCALE: 1/4" = 1'-0"

PERMIT SET

S-201

Project review notes: Notice of Intent Shore 17 Avocet Road
Applicant: Michael and Jennifer Freitag; Map 39, parcel 217;
DEP SE #75-1204

Date: 1/24/2025

Prepared by: Emily Beebe, Truro Conservation Agent



TOWN OF TRURO
HEALTH & CONSERVATION DEPARTMENT
24 Town Hall Road, Truro 02666
508-349-7004

The proposed project includes complete replacement of existing beach stairs, installation of a coir fiber log array and a sturdy drift fence, plantings to stabilize the Coastal Bank and installation of a rinse station at the dwelling. The original proposal filed in September has changed substantially since it was first before the Commission in October.

- In October the Commission reviewed a proposal for an 11-coir roll array, a sturdy drift fence proposed under a 3:1 slope above the existing beach, the replacement of the stair, plantings and rinse station.
- Review of the stairs was completed at the November meeting.
- Discussion on the size and arrangement of the proposed coir array and sturdy fence continued across several public hearings.
- The present proposal has been reduced to a 9-coir roll array that will "knit" into the existing 5 rolls present at both sides of the applicant's property. There would be an additional 2-coir logs above and 2-coir logs below the new array at 17 Avocet Road, and they would be setback 25' from the property lines, to minimize endscour.
- The sturdy fence now proposed would be 3 ft above the elevation of the beach, also setback 25' from the property lines to minimize impacts to abutters.

In large part, discussion has centered on the content and context of the proposal.

- Comments/questions from the Commissioners and abutters have addressed the context of this proposal, which is that an existing, contiguous coir array located at the toe of the bank has protected 7 properties within the Shearwater community since 2011.
- The coir array across the 7 contiguous properties has 5 rows - 4 on the bank, and 1 that is buried at the toe. This array was installed in 2020.
- The array was installed at all properties at the same time and is annually nourished and planted at the same time, as a "system".
- The applicant's representatives were asked why they saw need for more-than-full replacement of the coir, and not simply maintenance, and the response was that the coir log system had failed at 17 Avocet Road.
- The report by Coastal resources specialist Bryan McCormack describes the array at 17 Avocet as "*beginning to show signs of failure*", with "*minor slumping, degradation of the jute netting and some severed anchor cables*".
- What has been unclear in the hearing process was illuminated during a discussion with the property owners and their representatives on January 7, 2025. It is important to understand that the "contiguous array" over the 7 properties on Heron, Avocet and Cormorant Roads that

directly abut each other are protected with a 5-coir roll array, but 17 Cormorant is protected by a 4-coir roll array.

- In 2020, during installation the previous owners of 17 Avocet Road opted not to add the bottom roll. Additionally, the cables securing some of the rolls appear to have been cut. This is evident in photos submitted by Crawford Land Management in their October 29th supplemental material. These 2 factors differentiate the 17 Avocet array from its abutters. It appears that this property currently has less protection than its neighbors, and this may have accelerated erosion at the toe, on this site.

What remains unclear is why the proposal includes a substantially larger array at 17 Avocet Road than what is in place in the neighborhood-scale project, when it is evident that parcel by parcel differences in these erosion control projects can have unexpected consequences.

Bryan McCormack writes about endscour in his report (page 8): *“Impacts from erosion control such as this typically include increased refraction of wave energy. This refraction of wave energy can cause increased erosion at the ends of the installation.”*

The inevitability of endscour impact is specifically why the Truro Conservation regulations require a setback from property lines for erosion control projects.

The current proposal does comply with the setback requirement. However, it is important to note that because the proposed array is different than the existing contiguous array, it is likely we can expect endscour at the proposed top and bottom of the new installation, where 5-rolls transition to 2 additional rolls above them, and where 2 additional rolls are below them.

Endscour at the proposed top of the array has been anticipated by the designer, as shown on the fiber roll array section in the upper LEFT corner of the “shoreline stabilization” plan revised date 12-17-2024. Endscour would be addressed on the locus property by addition of coir matting and plantings that extend to the property line. It is presumed that end scour would commence at the point where the matting ends, on the abutting properties.

The proposal for a larger coir array at this property could present adverse impacts to abutting properties due to the break of continuity in the array profile. Presumably, the original design of 1 large system of protection was approved to avoid/minimize impacts at the ends, as well as creating less overall impact during installation and maintenance. In fact, treating the continuous shoreline as a “system,” instead of individual properties, is an approach that maximizes the economies of scale, and the opportunities for building resilience, and reduces overall impacts from construction and maintenance.

Lastly, the sturdy fence “concept” is new to Truro. A couple have been approved on Beach Point within the context of Coastal Dunes. We do not yet have experience with the sturdy fence design within the context of a Coastal Bank.



Bryan McCormack on-site, Nov 4, 2024

Recommended Findings:

- The Commission finds that the Coastal Beach is significant to storm damage prevention and flood control.
- The Commission finds that the requirement to add sand nourishment to cover the array with clean sediment of compatible grain size will provide temporary mitigation.
- The Commission finds that there is a disparity between the size of the present coir array at 17Avocet Road and the array on the abutting properties.
- The Commission finds that disparities of design within a contiguous neighborhood array results in adverse impacts.
- The Commission finds that overall impacts of construction and maintenance can be minimized over time with shared design concepts and maintenance schedules.

TOWN OF TRURO—ORDER OF CONDITIONS

17 Avocet Road; Map 39, Parcel 217

DEP file # SE 75-1204

APPLICANT: Jennifer & Michael Freitag

THIS IS A DRAFT ORDER AND WILL BE EDITED BASED ON THE 1/27/2025 HEARING

DOCUMENTS

1. Notice of Intent application; wetlands fee transmittal form; locus map; notification to abutters; abutters list; "project narrative and timeline" and "performance standards narrative", both dated 9-17-2024; revised January 16, 2025
2. DEP notice of file number
3. Site Plan prepared by Merrill Engineers; "existing conditions" dated 8/20/2024.
4. Site Plan prepared by Merrill Engineers; "proposed bank stabilization and staircase" dated 9/9/2024, rev. 9/25/2024.
5. Shoreline stabilization plan prepared by Merrill Engineers, dated 9/17/2024, rev. 9/27/2024.
6. Beach Access Stairs prepared by INGHOUSE, PC, (3 pages: "structural notes, "stair framing", "stair section") dated 9/13/2024, rev. 9/25/2024
7. Coir Fiber Roll installation photos, Date stamped 11-22-2024
8. Letter, re: Notice of Intent Application, (submitted with revised plans) prepared by Crawford Land Management, dated October 28, 2024
9. Letter, re: Notice of Intent Application, (submitted with supplemental photos) prepared by Crawford Land Management, dated October 29, 2024
10. Letter, re: Notice of Intent Application, (submitted with revised plans) prepared by Crawford Land Management, dated December 18, 2024
11. Letter, re: Notice of Intent Application, (submitted with OCs for 2 and 4 Heron Lane) prepared by Crawford Land Management, dated December 30, 2024
12. Letter, re: 17 Avocet Road SE 75-1204, prepared by Richard A Nylen, Jr., dated January 17, 2025.
13. Coastal Processes and Hazards Specialists Report; prepared by Bryan McCormack, dated December 4, 2024.

PROJECT DESCRIPTION

1. The site is a 33,750 sf residential parcel, developed with a single-family dwelling constructed in 1980 that is served by a private well and septic system.
2. The resource areas at the site are the Coastal Bank, Coastal Beach and Land Subject to Coastal Storm Flowage.
3. The request was first heard on 10/7/2024 and continued to 11/4, 12/2 and 1/3/2025 so that the applicant could clarify how access for construction/maintenance would be made.
4. The proposal included a coir log array installed at the toe of the Coastal Bank, installation of a sturdy drift fence, stabilization plantings and installation of a rinse station at the dwelling.
5. The Commission determined that the coir log assembly could be installed to join arrays at 15 & 19 Avocet Road, and would not be a detriment to the resource area if the project was installed and maintained in compliance with Conditions.

FINDINGS

1. The Commission finds the site of the proposed shorefront protection to be on a Coastal Bank, and work will occur on the adjacent Coastal Beach above mean high water.
2. The areas subject to protection/regulation are Coastal Bank and Coastal Beach, their buffer zones, and Land Subject to Coastal Storm Flowage.

Commented [EB1]: Update highlighted area as needed, based on hearing 1/27

3. The Commission finds the Coastal Bank to exist in a dynamic coastal environment composed of mixed glacial till and outwash material.
4. The Commission finds that the Coastal Bank is significant to storm damage prevention and flood control and supplies sediment to down drift coastal resource areas.
5. The Commission finds the Coastal Bank composed of glacial outwash along the bay side of Truro is subject to dynamic and intense seasonal storms which can result in the high end of normal erosion rates and a significantly lower beach elevation due to wave action, overland stormwater, and wind/rain from these intense seasonal storms.
6. **The address for this project is #17 Avocet Road.**
7. The Applicant acknowledges that the project of Coastal Bank stabilization and protection with biodegradable (coir) measures is only temporary (estimated at approx. 10 years); the goal is to protect: the Coastal Bank and its ability to perform the function of storm damage prevention, and the applicant's home atop the eroding bank.
8. The Applicant has agreed to conduct an engineering, legal and logistical analysis of alternatives to address the proximity of the house to the top of the Coastal Bank including relocation, reduction in size and removal of the existing house. This analysis may include alternatives which would protect the coastal bank and ensure that the functions of storm damage prevention and sediment supply to the beaches are preserved. The Applicant shall submit a report discussing alternatives and shall attend (or be represented) a meeting with the Commission to present and discuss said report prior to the issuance of a Certificate of Compliance for this project.
9. The Applicant acknowledges and understands that their property is located on an eroding coastline, that their home is post-1978 construction, and as such revetments and other coastal engineering structures cannot be permitted.
10. The Commission finds that the Coastal Beach resource area is not significant to state listed species since it is not located in Estimated Habitat of Rare Wildlife as mapped and published maps by NHESP.
11. The Commission finds that the Coastal Beach is significant to storm damage prevention, flood control and protection of wildlife habitat.
12. These Special Conditions and Additional General Conditions are being issued in accordance with the information submitted in the Notice of Intent, with accompanying attachments by Crawford Land management, as noted herein.
13. This Order is issued pursuant to the Massachusetts Wetlands Protection Act and the Town of Truro's Conservation By-Law and Conservation regulations.
14. Based on these findings this Order of Conditions allows the following work:

The Commission determined that the project could be permitted subject to the following special conditions:

SPECIAL CONDITIONS

Pre-construction

1. Notice of a work start date shall be given to the Commission in writing at least 48 hours prior to the commencement of work. The applicant or contractor shall provide the name and contact information of the person responsible on site for compliance with this Order.
2. **Prior to the commencement of work the following activities shall be completed:**
 - The Order of Conditions shall be recorded at the Barnstable County registry of deeds and a stamped copy shall be submitted to the Conservation office.
 - A sign shall be conspicuously displayed at the site showing the DEP file number assigned to this project. The sign shall be 2-3 square feet in size, separately staked, and read only: MA DEP file # SE 75-1204. Lettering/numbering shall be clearly and permanently printed, and at least 2" in height.

3. A **pre-construction site visit** shall be scheduled by the applicant's representative and include the project Contractor, and the Conservation Agent. During this site visit the Order of Conditions, construction protocols, work limit, access plans and site plan details shall be reviewed.
4. Members of the Commission, its Agent or the Department of Environmental Protection (DEP) reserve the right to enter and inspect the property at all reasonable times, until a Certificate of Compliance is issued, to evaluate compliance with this Order of Conditions, the Act, 310 CMR 10.00 and Town regulations, and may acquire any information, measurements, photographs, observations, and/or materials, or may require the submittal of any data or information deemed necessary by the Commission for that evaluation.
5. The Applicant is responsible for providing notification to all abutting property owners for any proposed beach access routes for the project; in this regard, the contractor must obtain an access and staging permit from the Town with respect to utilizing any public landing.
6. The construction notes on the plan are specifically incorporated into this order.

Construction Conditions

1. Coir logs:

- a) The stabilization design uses coconut fiber (coir) logs in an array of 5-rows of logs installed along the toe of the Coastal Bank for the entire 145 linear feet and will include connections to the existing arrays to the north and south of the applicant's property.
- b) The major component of the array is a dense 20-inch diameter coir log that is stacked in rows on a 1.5 to 1 slope. No plastics or metals (other than the duckbill anchors) shall be utilized in the construction or securing of the coir logs. The logs will extend behind the existing stair.
- c) The first row of logs shall be buried at the bank toe and edge of the beach at the elevations shown on the plan in order to provide a stable foundation for the other coir logs. Nothing else may be placed completely within the beach. The coir logs shall be stepped against the bank to reflect the slope of the bank.
- e) Duck bill anchors shall be placed as noted on the current site plan. If the Duck bill anchors become uncovered and are protruding from the bank or coir logs, the applicant will be required to reinstall them immediately.

Commented [EB2]: Update highlighted as needed based on 1/27 hearing

2. Nourishment:

- a) Nourishment sands will be clean and free from debris and cobbles.
- b) The proposed slope of the nourished bank shall be no steeper than the angle of repose (i.e. 34°).
- c) The initial minimum coverage of all coir logs with sand shall be at least 18-inches.
- d) The applicant shall be required to perform annual renourishment of the bottom of the bank to at least one foot above the top of the coir logs to ensure the stability and function of the bank and adjacent beach. A minimum depth of 18-inches of cover sand shall be restored and in place prior to Thanksgiving of each year.
- e) Prior to any beach re-nourishment practices, the applicant's representative/consultant shall determine the quantity of sand needed for the site and submit a written notice of this activity and the depth of cover and total estimated volume of sand proposed; any disagreement about the adequacy of this nourishment shall be decided by the Commission. In addition, any access needed for equipment and materials shall be approved by the Commission and appropriate parties.
- f) **Bi-monthly monitoring** reports shall be submitted to the Conservation Department to include a file copy with photos and measurements of sand coverage at 5' from the ends and every 50' along the coir logs. One hard copy along with an electronic copy shall also be sent to the Conservation Department. Monitoring locations shall be identified by GPS and by relative elevation. A minimum coverage of 12" of sand will be maintained at all times. A record of the number of times that the coir logs need to be re-covered and the amount of sand deposited in each renourishment shall be documented and submitted to the Conservation Department in an annual report by December 1 of each year. The report shall include the volume of sand placed at the site and dates for nourishment.

Commented [EB3]: Annual reports are proposed by the applicant.

Quarterly reports are recommended by staff.

3. Plantings:

Beach grass shall be planted ANNUALLY, 12-14-inches on center with double culms per plant, 9-inches deep.

- a) In the event that the plantings do not survive, they shall be replaced at the next seasonal opportunity. Failed plantings shall be replaced no later than April 15 annually.
- b) Plantings shall be monitored in reports to include photographs and information on how much material was planted and shall be submitted to the Conservation Department by December 1 of each year.

4. Damage, Repair and Removal of Coir logs:

- a) The coir logs shall be maintained and repaired to ensure proper function and to prevent any debris. If the coir logs are damaged beyond repair, they shall be promptly removed and properly disposed of.
- b) The Applicant shall be responsible for retrieving any and all materials stored, dislodged or washed off-site (excluding sand) for the life of the project.
- c) The Applicant shall notify the Conservation Agent concerning the extent of repairs and maintenance necessary prior to proceeding with any repair and maintenance.
- d) If the Commission has a basis to believe the coir logs are causing scour or erosion on abutting properties, or are adversely impacting offshore deposition processes, or otherwise creating negative or unintended consequences, it may issue an Order to Show Cause why the coir logs should not be removed. The Commission will conduct a hearing to evaluate the evidence and will issue a decision on removal.
- e) Prior to the commencement of construction, the Applicant shall establish an escrow account in the amount of \$5,000, which may be used by the Commission to remove and dispose of debris, or damaged or end-of-useful life coir logs if the applicant does not perform such work in a reasonable period of time after the Commission orders the performance of such work.

5. No construction work may cause destabilization of the Coastal Bank if the installation of anchors, application of sand from the top or bottom of the Coastal Bank or any other related work for this project cause any slumping of the bank, work must stop and be evaluated by the Commission.

6. No work on the beach, including access over the beach, shall occur between April 15th and Columbus Day. Work shall not commence prior to 8 a.m. and must end by 6:00 p.m.

7. All work shall be done in accordance with the project narrative provided in the NOI, Supplemental Information and final plans as described herein. In the event of any conflict between the materials submitted or the final plan and this Order, this Order shall control.

8. All post-construction Monitoring and Maintenance Program/Protocols shall be done in compliance with the NOI and Supplemental Information, except as modified by this Order.

After each significant (named) storm event, the applicant's representative will inspect the project area and prepare a field report of site conditions and possible impacts to the Coastal Bank and the coir log array.

9. Prior to issuance of a Certificate of Compliance, the Applicant shall conduct an engineering, legal and logistical analysis of alternatives to address the proximity of the house to the top of the coastal bank, including relocation options and options for reduction in size and removal of the existing house. This analysis may include alternatives which would protect the Coastal Bank and ensure that its functions of storm damage prevention and sediment supply to the beaches are preserved. The alternatives report shall contain a narrative analysis, feasibility evaluation, cost estimates, permitting requirements, and conceptual layouts. The report shall be submitted to the Commission when requesting a Certificate of Compliance for the project. No Certificate of Compliance shall issue until this analysis has been filed with the Commission and is deemed by the Commission to be complete, nor until the applicant (or then current owner) and their consultant has met with the Commission to discuss this alternatives analysis.

10. Sand Nourishment shall be provided to cover the array from the top of the bank, or other approved method to keep the coir logs covered with sand.

11 Special Condition Nos. 1, 2, 3, 4, 5, 8 and 10 shall be continuing conditions which survive a Certificate of Compliance, unless the Commission agrees by written order after notice to abutters to modify the conditions. Any modifications shall be based upon the monitoring reports and written recommendations by a coastal geologist.

In addition to the SPECIAL CONDITIONS # 1-11, the Commission has determined that it is necessary to include the following Additional General Conditions.

ADDITIONAL GENERAL CONDITIONS

1. This Order shall apply to any successor in control or successor in interest of the property described in the Notice of Intent and accompanying plans. These obligations shall be incorporated and referenced in covenants in all deeds to succeeding owners of all or any part of the property.
2. The form provided at the end of this Order shall be completed and stamped at the appropriate Registry of Deeds, after the expiration of the 10-business day appeal period and if no request for appeal has been filed with the Department of Environmental Protection under the Wetlands Protection Act and the DEP Wetland Protection Regulations (310 CMR 10.00), or under the local Conservation By-Law.
3. This Order shall be included in all construction contracts, subcontracts, and specifications dealing with the work proposed and shall supersede any conflicting contract requirements. It is the responsibility of the Applicant, Owner, and/or successor(s) to ensure compliance with all Conditions of this Order. A copy of this Order shall be available at the work site, or posted, during normal work hours, until the work is complete.
4. The Applicant shall give written notice to the Commission 48-hours in advance of commencement of work. Members of the Commission or its Agent, or the DEP reserve the right to enter and inspect the property at all reasonable times, until a Certificate of Compliance is issued, to evaluate compliance with this Order of Conditions, the Wetlands Protection Act, the DEP Wetland Protection Regulations, and the Bylaw, and may require any information, measurements, photographs, observations, and/or materials, or may require the submittal of any data or information deemed necessary by the Commission for that evaluation.
5. Prior to commencement of work, a series of color photos shall be taken of the bank and submitted to the Commission. In addition, a series of color photos shall be taken at the end of construction and submitted to the Commission. All photographs shall include the Assessor's Map and Parcel and date the picture was taken.
6. Prior to the commencement of work, a sign shall be displayed at the site showing the DEP file number assigned to this project. Such sign shall be separately staked.
7. Work shall be halted on the site if the Commission, Conservation Agent or DEP determines that any of the work is not in compliance with this Order. Work shall not resume until the Commission is satisfied that the work will comply with this Order and has so notified the Applicant in writing.
8. Any changes in the work described in the Notice of Intent or in the plans and specifications shall be submitted to the Commission in writing for a determination of whether the change is significant enough to the interests of the Act and the Bylaw to require a new Notice of Intent. No changes shall be made or implemented in the field prior to the Commission's determination. Should issuance of additional permits result in a change in the project, the Applicant shall promptly submit such changes to the Commission for evaluation under this provision.
9. Upon completion of this project, the Applicant or Owner shall submit a request to the Conservation Commission for issuance of a Certificate of Compliance and the report required by Special Condition No. 9. The Applicant or Owner shall certify in writing that the work was completed in substantial compliance with the plans and documents referenced above. At the request of the Commission, the Applicant or Owner may be required to submit (a) a written statement from a registered professional engineer in the Commonwealth of Massachusetts certifying that the work was completed in substantial compliance with the plan(s) and documents referenced above and as conditioned by the Commission. The Certificate of Compliance shall specify any ongoing conditions.