PUBLIC NOTICE

US Army Corps of Engineers ®
New England District
696 Virginia Road
Concord, MA 01742-2751

Comment Period Begins: July 7, 2020
Comment Period Ends: August 7, 2020
File Number: NAE-2020-00691
In Reply Refer To: Christine Jacek
Phone: (978) 318-8026
E-mail: Christine.M.Jacek@usace.army.mil

The District Engineer has received a permit application to conduct work in waters of the United States from Rae Ann Palmer representing the Town of Truro of 24 Town Hall Road, Truro, Massachusetts. This work is proposed in Eagle Neck Creek and adjacent wetlands at Old County Road, Truro, Massachusetts. The site coordinates are: Latitude: 41.984394 Longitude: -70.067094.

The project proposes the restoration of 15.4 acres of salt marsh surrounding Eagle Neck Creek. The work involves three elements: the replacement of existing culverts under Old County Road with an 8 ft. x 8 ft. open bottom box culvert (element #1), the dredging, excavation, and stabilization of the existing, failed railroad berm (element #2), and the dredging of approximately 400 cubic yards of material from 1,200 linear feet of Eagle Creek (element #3).

Element #1 – Culvert Replacement under Old County Road

The two existing 36 inch failed culverts will be replaced with a new 8' x 8' box culvert that is open at the bottom. Alternatives for sizing the culvert were evaluated using a hydrodynamic model and the 8' x 8' option was selected as the preferred alternative. Element #1 requires dredging a total of 568 cubic yards of sediment in the vicinity of the culvert. Of this total volume, 350 cubic yards will be removed from the area downstream of the culvert, 42 cubic yards from the area underneath the existing road, and 176 cubic yards from the area upstream of the culvert. All material will be transported to an approved upland disposal site. The channel bed through the culvert will be lined with crushed stone covered by a scour protection layer composed of Class VII (D50 – 27 inch) stones. The scour protection layer will extend out approximately 25 ft. from the base of the roadway embankment on both the upstream (east) and downstream (west) sides of the culvert. The channel bed through the culvert will be constructed to an elevation of 0.0 ft. NAVD88 and the top of the culvert will be at elevation 8.0 ft. NAVD88. The sides of the roadway embankment will be covered with a stone armor slope 48-in in thickness using Class VII (D50 – 27 inch) stones. The lower 42-in of armor slope protection will be filled with gravel and the upper 6-in will be covered with top soil.

Element #2 – Stabilization of Railroad Berm Breach

Concrete debris from the collapsed railroad berm will be removed from the channel and the northern end of the railroad berm will be cut back approximately 50 ft. to minimize the potential for tidal scour. Alternatives for modifications at the railroad berm were evaluated using a hydrodynamic model. The debris consists of two (2) elongate pieces of concrete, one located in the center of the channel and the other along the northwest side of the railroad berm. The concrete will be taken offsite to an approved recycling facility. The existing channel at the railroad breach will be dredged 20 ft. wide to an elevation of -2 ft. NAVD88 to facilitate drainage of the

system. In addition, the northern railroad berm will be excavated in a tiered fashion from the edge of the dredged channel. Armored slope protection will extend from elevation -2.0 to 2.0 ft. NAVD88 at a slope of 1V:3H. From this point, a level bench area will extend north 20 ft., and a second armored slope protection will extend at a 1V:3H slope to elevation 5.0 ft. NAVD88. A bioengineered slope protection will extend up to the top of the existing railroad berm at elevation 8.5 ft. NAVD88. Approximately 100 cubic yards of sediment will be dredged to create the 20 ft. wide channel, and another 500 cubic yards will be excavated from the railroad berm (above MHW) to create the tiered slope. Larger stones from the dredging will be retained and beneficially reused onsite for slope protection, and the remaining dredged/excavated material will be beneficially reused.

Element #3 – Dredging in Eagle Neck Creek

The Eagle Neck Creek channel between the railroad berm and Old County Road will be dredged to remove sediment that is blocking natural tidal flow and to improve flow to the new culvert and upstream marsh system. Alternatives for alleviating restrictions to tidal flow in lower Eagle Neck Creek were evaluated using a numerical model. Approximately 400 cubic yards of sediment will be removed from 1,200 linear ft. of the existing tidal channel. The base of the channel will be dredged approximately 16 ft. wide with elevations ranging from -2.0 ft. NAVD88 at the railroad breach to 0.0 ft. NAVD88 near the culvert at Old County Road. All dredged material will be beneficially reused within the system to create two (2) areas for salt marsh restoration along the east side of the railroad berm. The dredged sediment will be used to fill existing depressions in the tidal flats to an elevation of 4.1 ft. NAVD88, thereby creating approximately 8,000 sq. ft. of substrata that will be planted with Spartina alterniflora.

The work is shown on the enclosed plans entitled "PROPOSED EAGLE NECK CREEK SALT MARSH RESTORATION AND CULVERT REPLACEMENT PROJECT IN: EAGLE NECK CREEK AT: TRURO, BARNSTABLE COUNTY, MASSACHUSETTS," on twenty seven (27) sheets, and dated "June 3, 2020."

AUTHORITY
Permits are required pursuant to:
__X__ Section 10 of the Rivers and Harbors Act of 1899
__X__ Section 404 of the Clean Water Act
_____ Section 103 of the Marine Protection, Research and Sanctuaries Act.

The decision whether to issue a permit will be based on an evaluation of the probable impact of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which may reasonably accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered, including the cumulative effects thereof; among those are: conservation, economics, aesthetics, general environmental concerns, wetlands, cultural value, fish and wildlife values, flood hazards, flood plain value, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food production and, in general, the needs and welfare of the people.

The U.S. Army Corps of Engineers, New England District (Corps), is soliciting comments from the public; Federal, state, and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. The Corps will consider all comments received to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects,

and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

Where the activity involves the discharge of dredged or fill material into waters of the United States or the transportation of dredged material for the purpose of disposing it in ocean waters, the evaluation of the impact of the activity in the public interest will also include application of the guidelines promulgated by the Administrator, U.S Environmental Protection Agency, under authority of Section 404(b) of the Clean Water Act, and/or Section 103 of the Marine Protection Research and Sanctuaries Act of 1972, as amended.

ESSENTIAL FISH HABITAT

The Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), requires all federal agencies to consult with the National Marine Fisheries Service on all actions, or proposed actions, permitted, funded, or undertaken by the agency, that may adversely affect Essential Fish Habitat (EFH). Essential Fish Habitat describes waters and substrate necessary for fish for spawning, breeding, feeding or growth to maturity.

This project will impact 15.4 acres of EFH. This habitat consists of tidal wetland and a tidal creek with a medium sand substrate. Loss of this habitat may adversely affect species that use these waters and substrate. However, the District Engineer has made a preliminary determination that the site-specific adverse effect will not be substantial. Further consultation with the National Marine Fisheries Service regarding EFH conservation recommendations is being conducted and will be concluded prior to the final decision.

NATIONAL HISTORIC PRESERVATION ACT

Based on his initial review, the District Engineer has determined that little likelihood exists for the proposed work to impinge upon properties with cultural or Native American significance, or listed in, or eligible for listing in, the National Register of Historic Places. Therefore, no further consideration of the requirements of Section 106 of the National Historic Preservation Act of 1966, as amended, is necessary. This determination is based upon one or more of the following:

a. The permit area has been extensively modified by previous work.
b. The permit area has been recently created.
c. The proposed activity is of limited nature and scope.
d. Review of the latest published version of the National Register shows that no presence of registered properties listed as being eligible for inclusion therein are in the permit area or general vicinity.
e. Coordination with the State Historic Preservation Officer and/or Tribal Historic Preservation Officer(s).

ENDANGERED SPECIES CONSULTATION

The Corps has reviewed the application for the potential impact on Federally-listed threatened or endangered species and their designated critical habitat pursuant to section 7 of the Endangered Species Act as amended. It is our preliminary determination that the proposed activity for which authorization is being sought is designed, situated or will be operated/used in such a manner that it is not likely to adversely affect a listed species or their

critical habitat. We are coordinating with the National Marine Fisheries Service and/or U.S. Fish and Wildlife Service on listed species under their jurisdiction and the ESA consultation will be concluded prior to the final decision.

OTHER GOVERNMENT AUTHORIZATIONS

The states of Connecticut, Maine, Massachusetts, New Hampshire and Rhode Island have approved Coastal Zone Management Programs. Where applicable, the applicant states that any proposed activity will comply with and will be conducted in a manner that is consistent with the approved Coastal Zone Management Program. By this Public Notice, we are requesting the State concurrence or objection to the applicant's consistency statement.

The following authorizations have been applied for, or have been, or will be obtained:

(X) Permit, license or assent from State.
(X) Permit from local wetland agency or conservation commission.
(X) Water Quality Certification in accordance with Section 401 of the Clean Water Act.

COMMENTS

In order to properly evaluate the proposal, we are seeking public comment. Anyone wishing to comment is encouraged to do so. Comments should be submitted in writing by the above date. If you have any questions, please contact Christine Jacek at (978) 318-8026 or Christine.M.Jacek@usace.army.mil.

Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider the application. Requests for a public hearing shall specifically state the reasons for holding a public hearing. The Corps holds public hearings for the purpose of obtaining public comments when that is the best means for understanding a wide variety of concerns from a diverse segment of the public.

The initial determinations made herein will be reviewed in light of facts submitted in response to this notice. All comments will be considered a matter of public record. Copies of letters of objection will be forwarded to the applicant who will normally be requested to contact objectors directly in an effort to reach an understanding.

THIS NOTICE IS NOT AN AUTHORIZATION TO DO ANY WORK.

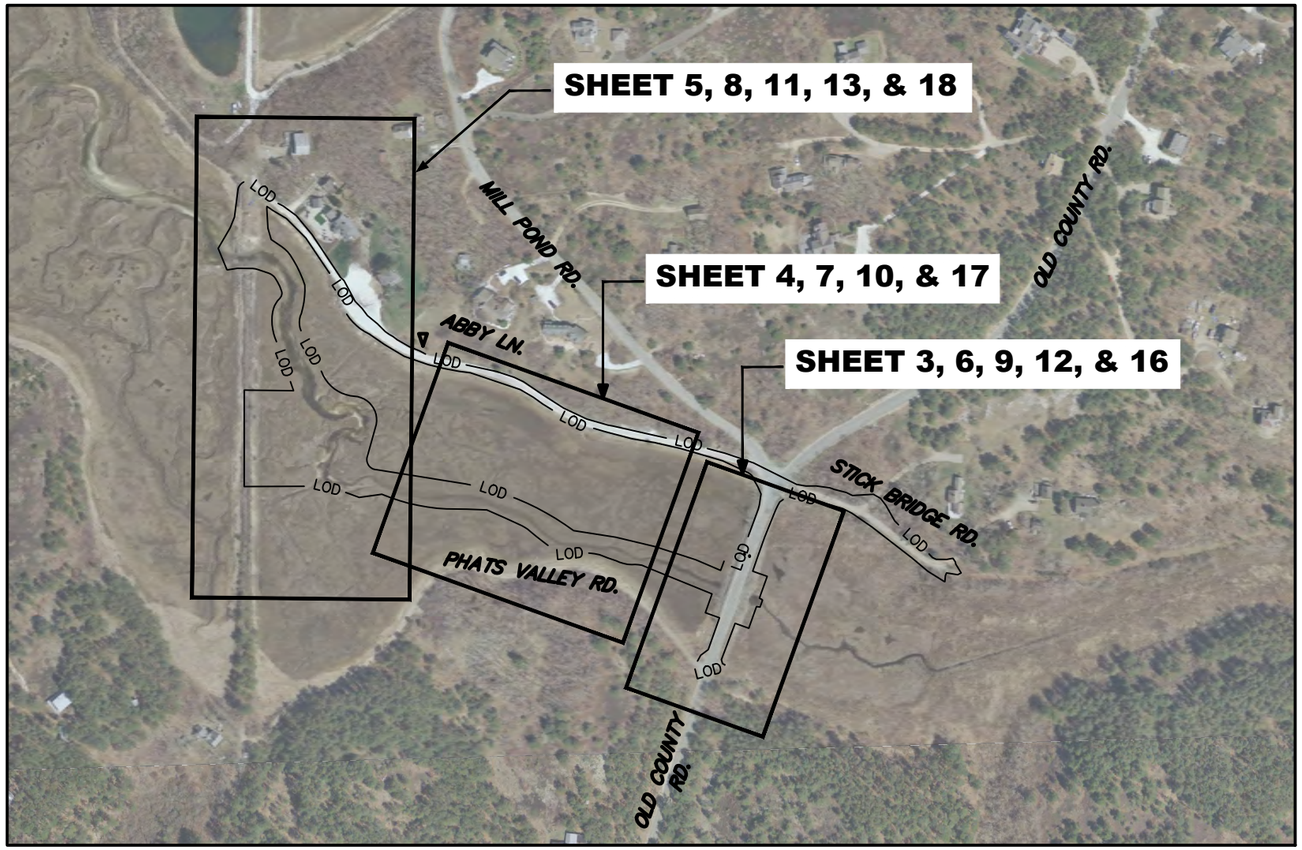
DESISTA.ROBERT.J.1229271241
Digitally signed by DESISTA.ROBERT.J.1229271241
Date: 2020.07.02 10:04:40 -04'00'

Barbara Newman
Chief, Permits and Enforcement Branch
Regulatory Division

If you would prefer not to continue receiving Public Notices by email, please contact Ms. Tina Chaisson at (978) 318-8058 or e-mail her at bettina.m.chaisson@usace.army.mil. You may also check here ( ) and return this portion of the Public Notice to: Bettina Chaisson, Regulatory Division, U.S. Army Corps of Engineers, 696 Virginia Road, Concord, MA 01742-2751.

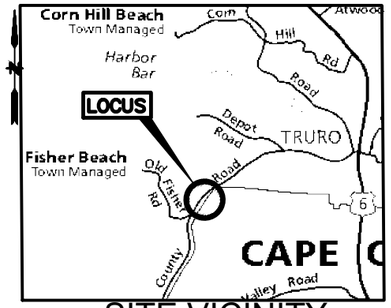
CENAE-R
FILE NO. NAE-2020-00691

NAME: _____
ADDRESS: _____
PHONE: _____



INDEX PLAN

SCALE: 1" = 200'



SITE VICINITY

SCALE: 1" = 6000'

SHEET INDEX

PURPOSE: REPLACEMENT OF EXISTING CULVERT, CHANNEL DREDGING, AND SALT MARSH RESTORATION

DATUM: HORZ: NAD83 MA MAINLAND SP(FT)
VERT: NAVD88 (FT)
MLW: −4.60' (HARBOR SIDE) / −0.20 TO 1.20' (DOWNSTREAM SIDE) / 1.30' (UPSTREAM SIDE)
MHW: 5.00' (HARBOR SIDE) / 4.80' (DOWNSTREAM SIDE) / 2.60' (UPSTREAM SIDE)
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FUSS AND O'NEILL, INC.
317 IRON HORSE WAY
PROVIDENCE, RI 20908

LOCUS & INDEX PLAN

APPLICATION BY:
WOODS HOLE GROUP, INC.
107 WATERHOUSE ROAD
BOURNE, MA 02532

PROPOSED EAGLE NECK CREEK SALT MARSH RESTORATION AND CULVERT REPLACEMENT PROJECT

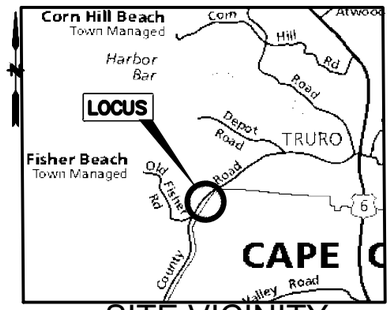
IN: EAGLE NECK CREEK
AT: TRURO, BARNSTABLE COUNTY, MASSACHUSETTS
DATE: JUNE 3, 2020

LEGEND

- PROPERTY BOUNDARY
- CAPE COD NATIONAL SEASHORE BOUNDARY
- NHESP — EDGE OF HABITAT (FROM GIS)
- MEAN HIGH WATER
- MEAN LOW WATER
- HIGH TIDE LINE
- F — 100-YEAR FLOODPLAIN BOUNDARY
- RIVERFRONT AREA
- 50 BZ — 50-FOOT BUFFER ZONE
- 100 BZ — 100-FOOT BUFFER ZONE
- Δ_2 Δ_3 — WETLAND FLAG/COASTAL WETLAND
- CONTOUR (AERIAL)
- 8 — CONTOUR – MINOR (GROUND SURVEY)
- 10 — CONTOUR – MAJOR (GROUND SURVEY)
- × 2.50 — SPOT ELEVATION (GROUND SURVEY)
- + 2.50 — SPOT ELEVATION (LIDAR)
- EOP — EDGE OF PAVEMENT
- EDGE OF GRAVEL
- CCB — CAPE COD PAVEMENT BERM
- GUARDRAIL
- OHW — OVERHEAD UTILITY

LEGEND CONTINUED

- CB R=8.3 I=5.8 S=2.3 — CATCH BASIN RIM ELEVATION= INVERT= SUMP=
- UTILITY POLE
- SIGN
- B-1 — BORING LOCATION
- EXISTING RIP-RAP SLOPE PROTECTION
- LOD — LIMIT OF DISTURBANCE
- 10 — PROPOSED CONTOUR
- TEMPORARY COFFERDAM/SHEETING
- PROPOSED GUARDRAIL
- TEMPORARY BIODEGRADABLE STRAW WATTLE BARRIER
- BORDERING VEGETATED WETLAND
- SALT MARSH
- LAND UNDER WATER BODIES & WATERWAYS
- TIDAL FLAT
- COASTAL BANK



SITE VICINITY
SCALE: 1" = 6000'

LEGEND CONTINUED

- ROADWAY SHOULDER RESTORATION (GRASSED)
- EMBANKMENT SLOPE RESTORATION
- SALT MARSH RESTORATION AREA (PLUG PLANTINGS)
- SALT MARSH ENHANCEMENT AREA
- PAVEMENT MICROMILLING AND OVERLAY
- STONE ARMOR SCOUR AND EMBANKMENT EDGE PROTECTION

PURPOSE: REPLACEMENT OF EXISTING CULVERT, CHANNEL DREDGING, AND SALT MARSH RESTORATION

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HTL: 6.04' (HARBOR SIDE) / 6.04' (DOWNSTREAM SIDE) / 2.90' (UPSTREAM SIDE)

FUSS AND O'NEILL, INC.
317 IRON HORSE WAY
PROVIDENCE, RI 20908

COMMONWEALTH OF MASSACHUSETTS
DEAN E. AUDET
CIVIL
No. 45977
REGISTERED
PROFESSIONAL ENGINEER

LEGEND

APPLICATION BY:
WOODS HOLE GROUP, INC.
107 WATERHOUSE ROAD
BOURNE, MA 02532

PROPOSED EAGLE NECK CREEK SALT MARSH RESTORATION AND CULVERT REPLACEMENT PROJECT

IN: EAGLE NECK CREEK
AT: TRURO, BARNSTABLE COUNTY, MASSACHUSETTS
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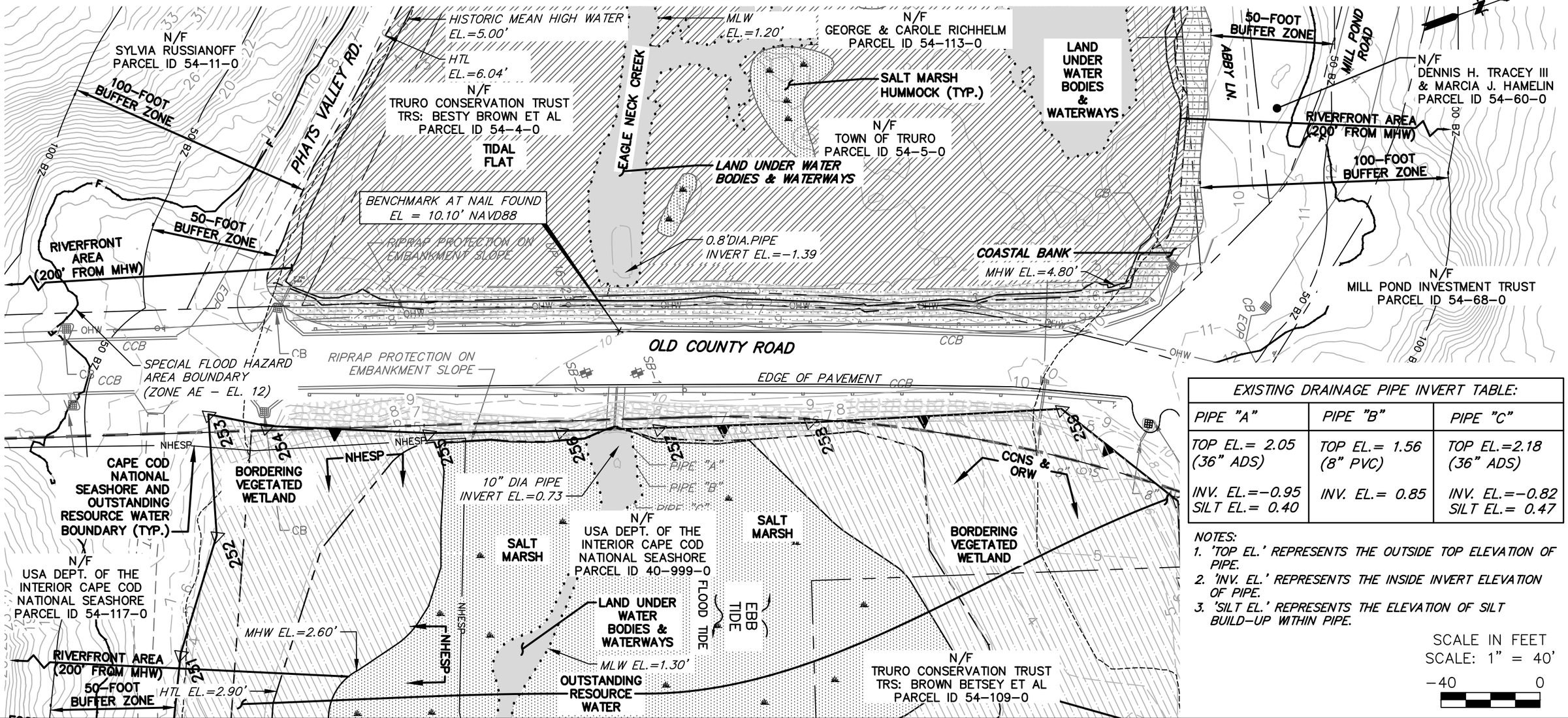
SEE SHEET 4



EXISTING DRAINAGE PIPE INVERT TABLE:		
PIPE "A"	PIPE "B"	PIPE "C"
TOP EL.= 2.05 (36" ADS)	TOP EL.= 1.56 (8" PVC)	TOP EL.=2.18 (36" ADS)
INV. EL.=-0.95 SILT EL.= 0.40	INV. EL.= 0.85	INV. EL.=-0.82 SILT EL.= 0.47

NOTES:
1. 'TOP EL.' REPRESENTS THE OUTSIDE TOP ELEVATION OF PIPE.
2. 'INV. EL.' REPRESENTS THE INSIDE INVERT ELEVATION OF PIPE.
3. 'SILT EL.' REPRESENTS THE ELEVATION OF SILT BUILD-UP WITHIN PIPE.

SCALE IN FEET
SCALE: 1" = 40'
-40 0

PURPOSE: REPLACEMENT OF EXISTING CULVERT, CHANNEL DREDGING, AND SALT MARSH RESTORATION

DATUM: HORZ: NAD83 MA MAINLAND SP(FT)
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MLW: 1.20' (DOWNSTREAM SIDE) / 1.30' (UPSTREAM SIDE)
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COMMONWEALTH OF MASSACHUSETTS
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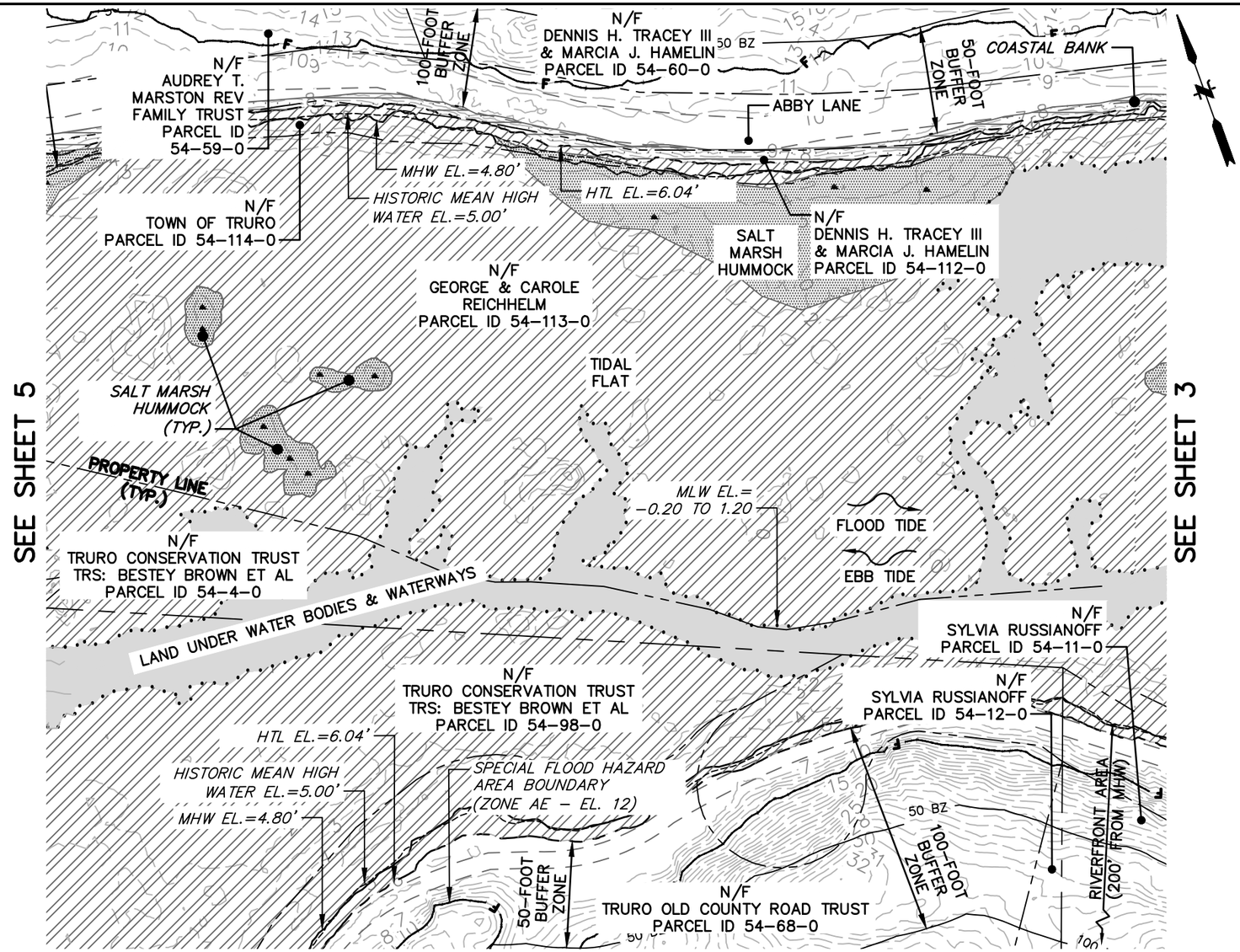
EXISTING CONDITIONS PLAN NO. 1

APPLICATION BY:
WOODS HOLE GROUP, INC.
107 WATERHOUSE ROAD
BOURNE, MA 02532

PROPOSED EAGLE NECK CREEK SALT MARSH RESTORATION AND CULVERT REPLACEMENT PROJECT

IN: EAGLE NECK CREEK
AT: TRURO, BARNSTABLE COUNTY, MASSACHUSETTS
DATE: JUNE 3, 2020



SCALE IN FEET
SCALE: 1" = 60'
-60 0

PURPOSE: REPLACEMENT OF EXISTING CULVERT, CHANNEL DREDGING, AND SALT MARSH RESTORATION

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317 IRON HORSE WAY
PROVIDENCE, RI 20908

COMMONWEALTH OF MASSACHUSETTS
DEAN E. AUDET
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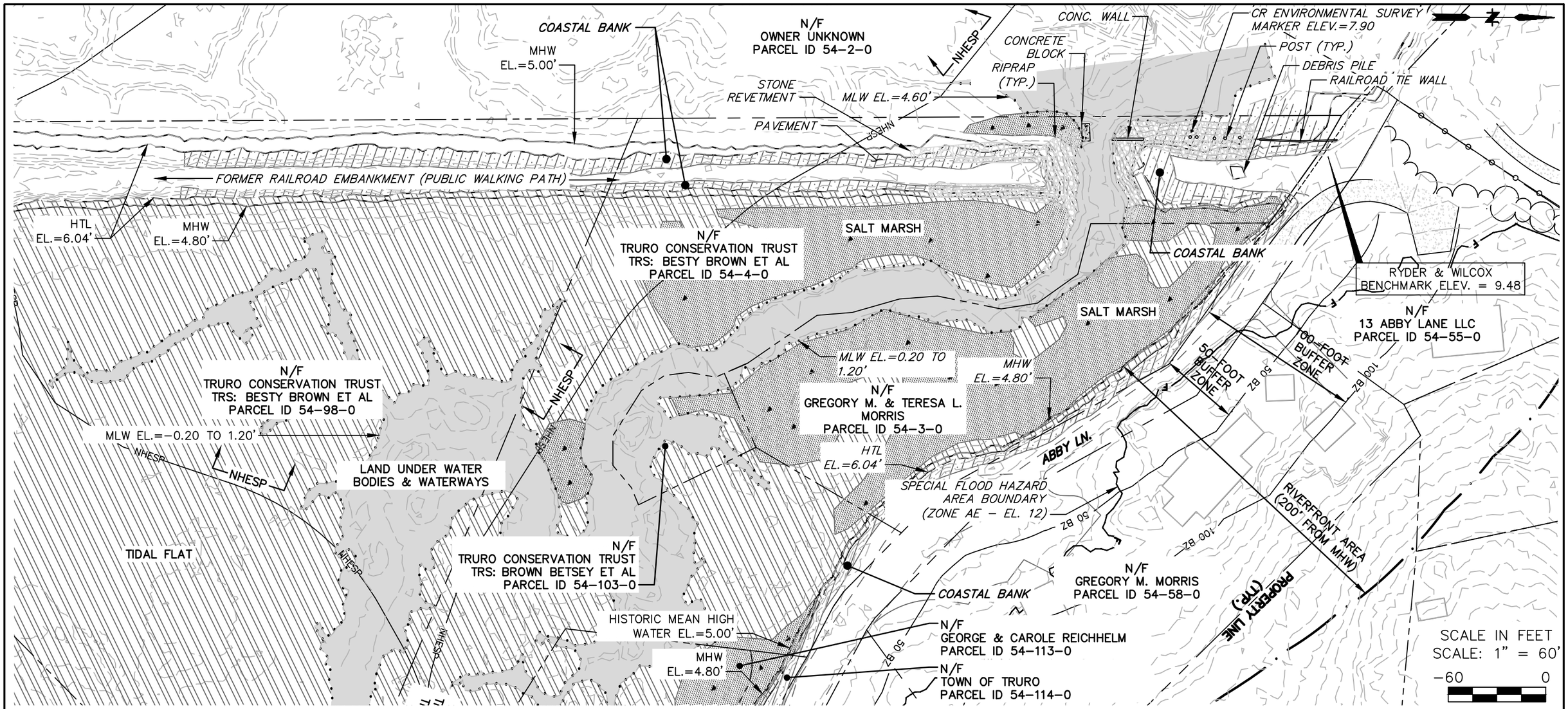
EXISTING CONDITIONS PLAN NO. 2

APPLICATION BY:
WOODS HOLE GROUP, INC.
107 WATERHOUSE ROAD
BOURNE, MA 02532

PROPOSED EAGLE NECK CREEK SALT MARSH RESTORATION AND CULVERT REPLACEMENT PROJECT

IN: EAGLE NECK CREEK
AT: TRURO, BARNSTABLE COUNTY, MASSACHUSETTS
DATE: JUNE 3, 2020

SHEET: 4 OF 27



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PURPOSE: REPLACEMENT OF EXISTING CULVERT, CHANNEL DREDGING, AND SALT MARSH RESTORATION

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HTL: 6.04' (HARBOR SIDE) / 6.04' (UPSTREAM SIDE)

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EXISTING CONDITIONS PLAN NO. 3

APPLICATION BY:
WOODS HOLE GROUP, INC.
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PROPOSED EAGLE NECK CREEK SALT MARSH RESTORATION AND CULVERT REPLACEMENT PROJECT

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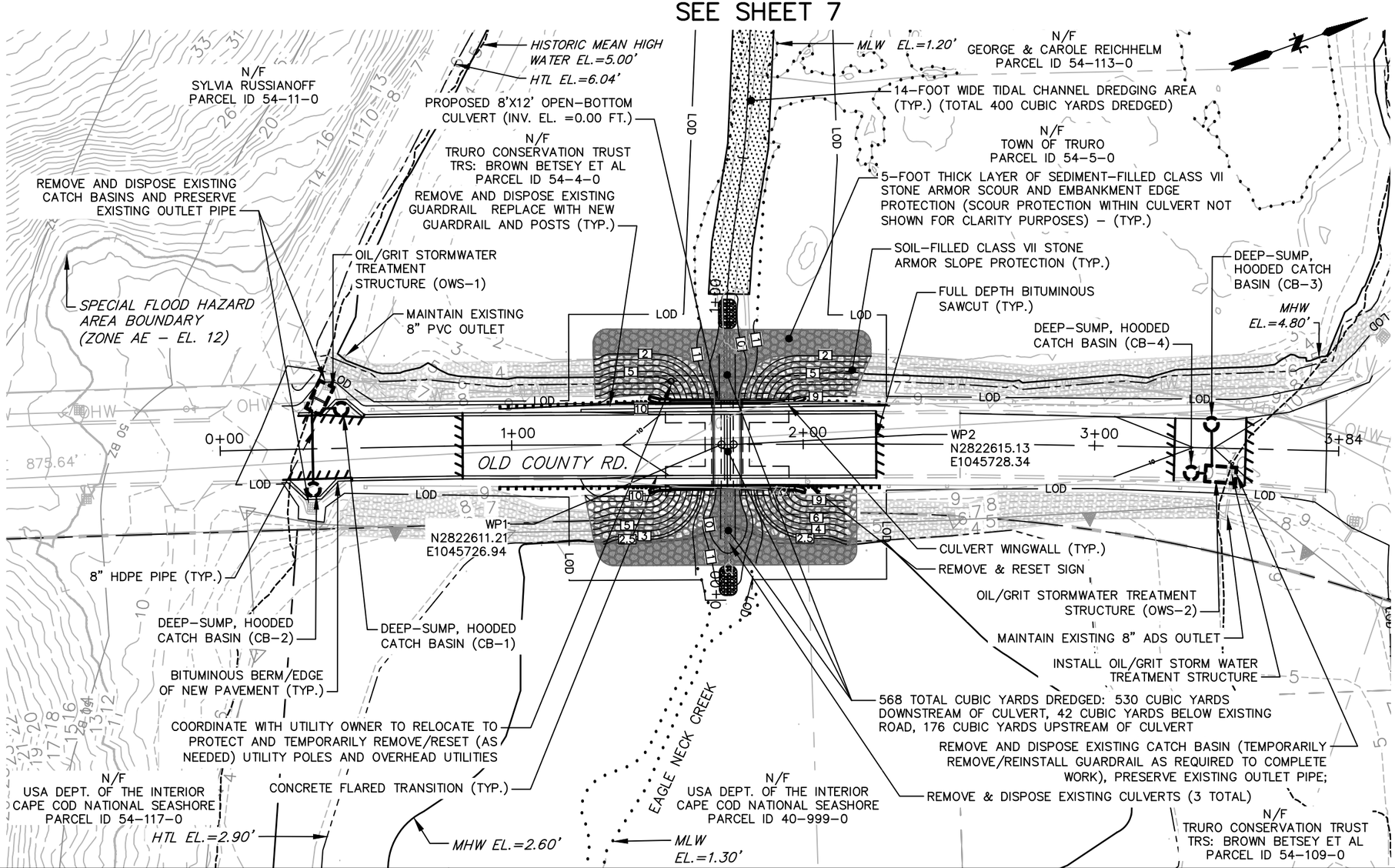

PURPOSE: REPLACEMENT OF EXISTING CULVERT, CHANNEL DREDGING, AND SALT MARSH RESTORATION

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PROPOSED CONDITIONS PLAN NO. 1

APPLICATION BY:
WOODS HOLE GROUP, INC.
107 WATERHOUSE ROAD
BOURNE, MA 02532

PROPOSED EAGLE NECK CREEK SALT MARSH RESTORATION AND CULVERT REPLACEMENT PROJECT

IN: EAGLE NECK CREEK
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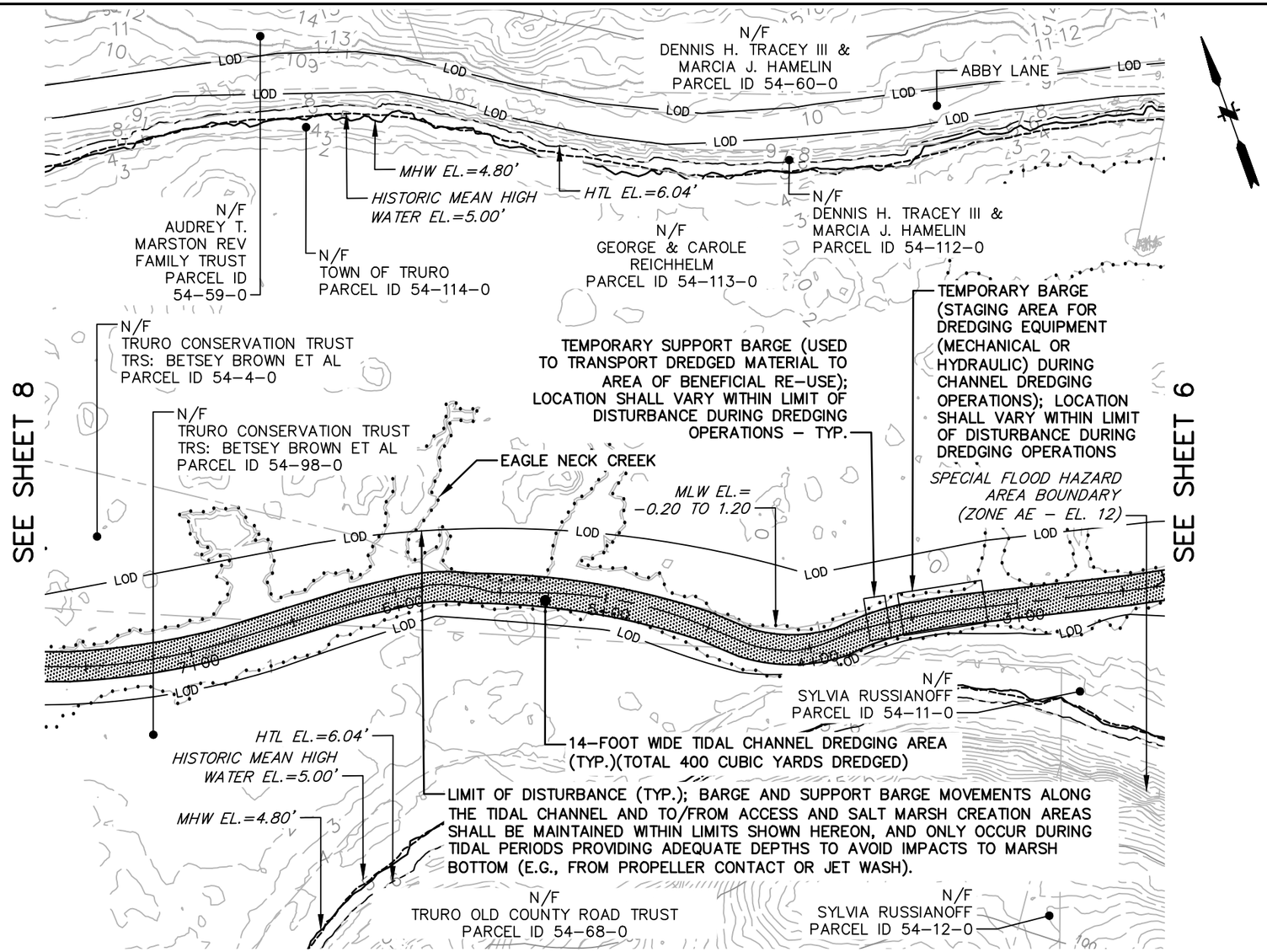
SHEET: 6 OF 27



SCALE IN FEET
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-60 0

PURPOSE: REPLACEMENT OF EXISTING CULVERT, CHANNEL DREDGING, AND SALT MARSH RESTORATION

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PROPOSED CONDITIONS PLAN NO. 2

APPLICATION BY:
WOODS HOLE GROUP, INC.
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BOURNE, MA 02532

PROPOSED EAGLE NECK CREEK SALT MARSH RESTORATION AND CULVERT REPLACEMENT PROJECT

IN: EAGLE NECK CREEK
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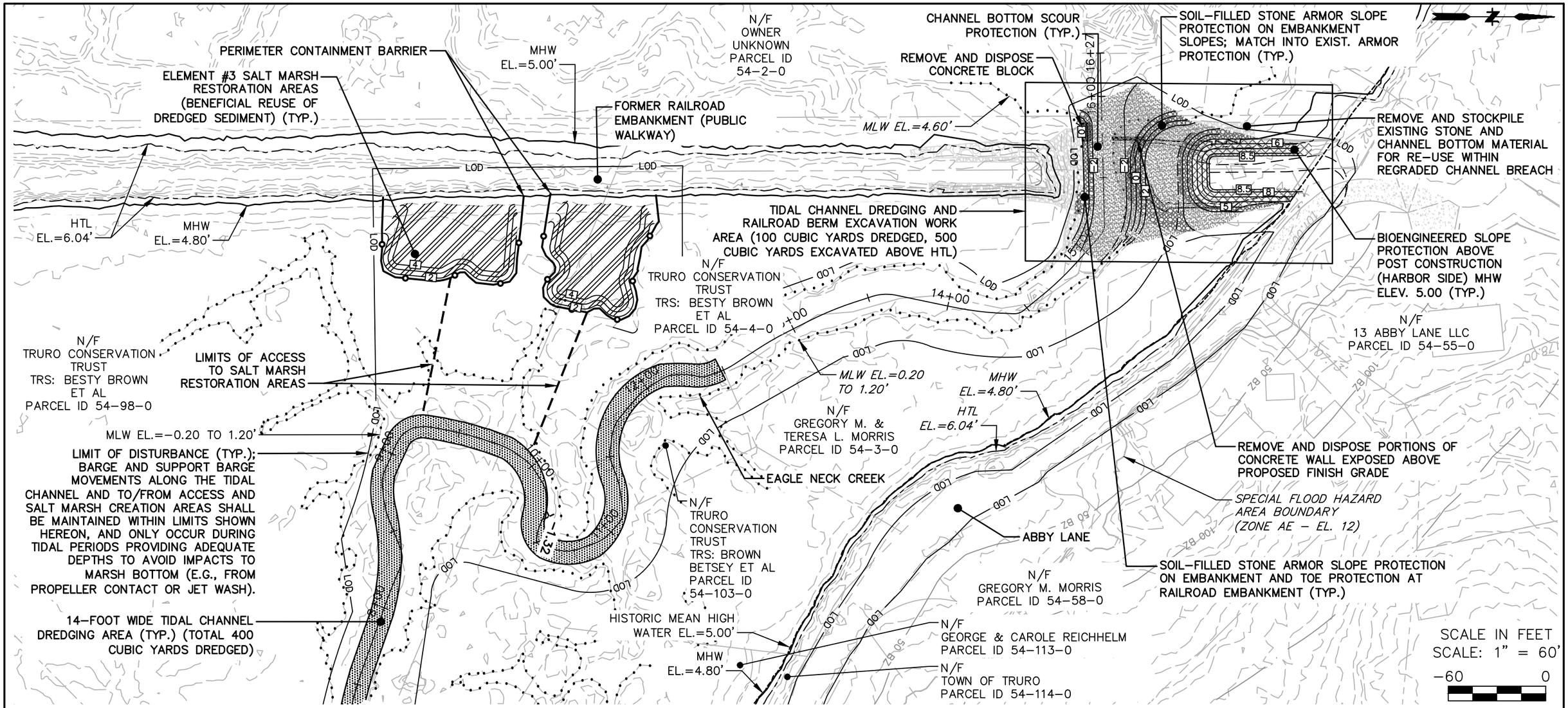
SHEET: 7 OF 27



SEE SHEET 7

PURPOSE: REPLACEMENT OF EXISTING CULVERT, CHANNEL DREDGING, AND SALT MARSH RESTORATION

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PROPOSED CONDITIONS PLAN NO. 3

APPLICATION BY:
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PROPOSED EAGLE NECK CREEK SALT MARSH RESTORATION AND CULVERT REPLACEMENT PROJECT

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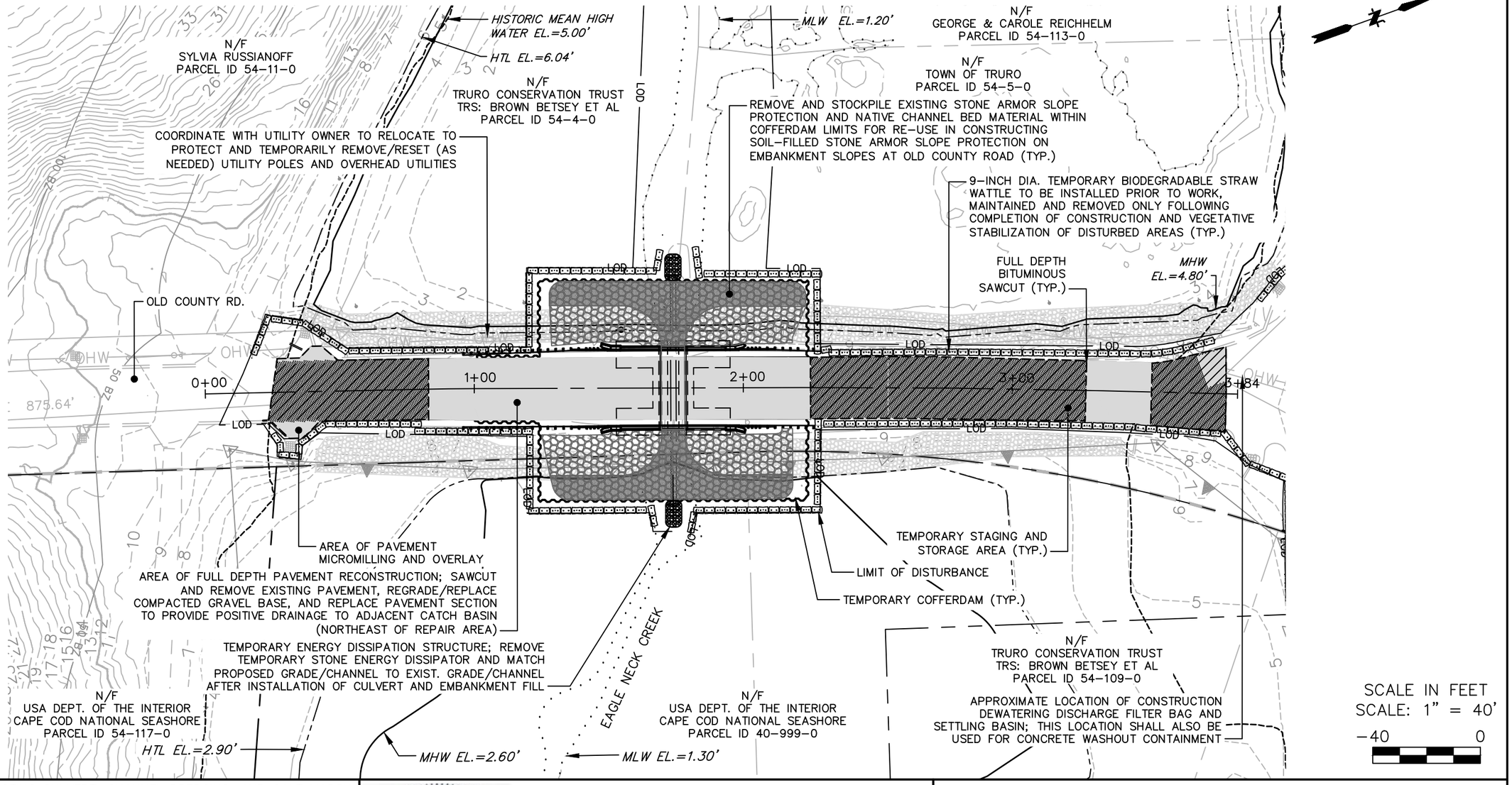
SEE SHEET 10



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COMMONWEALTH OF MASSACHUSETTS
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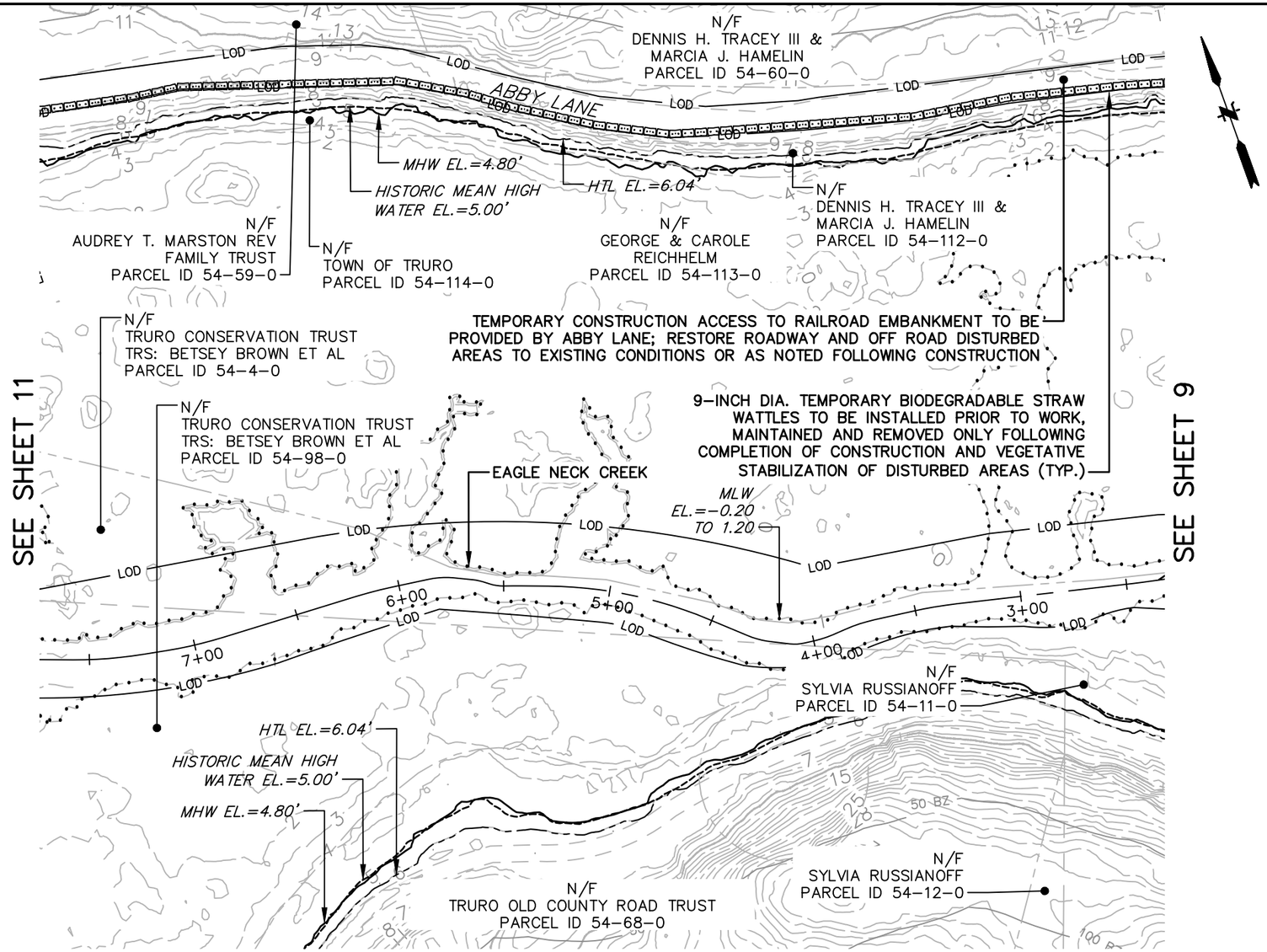
DEWATERING AND EROSION CONTROL PLAN NO. 1

APPLICATION BY:
WOODS HOLE GROUP, INC.
107 WATERHOUSE ROAD
BOURNE, MA 02532

PROPOSED EAGLE NECK CREEK SALT MARSH RESTORATION AND CULVERT REPLACEMENT PROJECT

IN: EAGLE NECK CREEK
AT: TRURO, BARNSTABLE COUNTY, MASSACHUSETTS
DATE: JUNE 3, 2020

SHEET: 9 OF 27



PURPOSE: REPLACEMENT OF EXISTING CULVERT, CHANNEL DREDGING, AND SALT MARSH RESTORATION

DATUM: HORZ: NAD83 MA MAINLAND SP(FT)
VERT: NAVD88 (FT)
MLW: -0.20' TO 1.20'
MHW: 4.80'
HTL: 6.04'
FUSS AND O'NEILL, INC.
317 IRON HORSE WAY
PROVIDENCE, RI 20908

COMMONWEALTH OF MASSACHUSETTS
DEAN E. AUDET
CIVIL
No. 45977
REGISTERED
PROFESSIONAL ENGINEER

DEWATERING AND EROSION CONTROL
PLAN NO. 2

APPLICATION BY:
WOODS HOLE GROUP, INC.
107 WATERHOUSE ROAD
BOURNE, MA 02532

PROPOSED EAGLE NECK CREEK SALT MARSH RESTORATION AND CULVERT REPLACEMENT PROJECT

IN: EAGLE NECK CREEK
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DATE: JUNE 3, 2020

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PERIMETER CONTAINMENT BARRIER

MHW
EL.=5.00'

N/F
OWNER
UNKNOWN
PARCEL ID
54-2-0

FORMER RAILROAD
EMBANKMENT (PUBLIC
WALKWAY)

TEMPORARY STAGING AND
STORAGE AREA

MLW EL.=4.60'

HTL
EL.=6.04'

MHW
EL.=4.80'

LOD

16+00

16+2

15+00

14+00

13+00

12+00

11+00

10+00

9+00

8+00

N/F
TRURO CONSERVATION
TRUST
TRS: BESTY BROWN
ET AL
PARCEL ID 54-4-0

N/F
TRURO CONSERVATION
TRUST
TRS: BESTY BROWN
ET AL
PARCEL ID 54-98-0

MLW EL.=0.20 TO 1.20'

MLW EL.=0.20
TO 1.20'

N/F
GREGORY M. &
TERESA L. MORRIS
PARCEL ID 54-3-0

MHW
EL.=4.80'

HTL
EL.=6.04'

ABBY LANE

ACCESS TO RAILROAD BERM
AND CHANNEL FOR DREDGING
OPERATIONS. RESTORE
RAILROAD BERM AND OTHER
DISTURBED AREAS TO
EXISTING CONDITIONS OR AS
SHOWN FOLLOWING
CONSTRUCTION

N/F
13 ABBY LANE LLC
PARCEL ID 54-55-0

TEMPORARY CONSTRUCTION ACCESS TO RAILROAD EMBANKMENT
TO BE PROVIDED BY ABBY LANE; RESTORE ROADWAY AND OFF
ROAD DISTURBED AREAS TO EXISTING CONDITIONS OR AS NOTED
FOLLOWING CONSTRUCTION

9-INCH DIA. TEMPORARY BIODEGRADABLE STRAW WATTLES TO
BE INSTALLED PRIOR TO WORK, MAINTAINED AND REMOVED
ONLY FOLLOWING COMPLETION OF CONSTRUCTION AND
VEGETATIVE STABILIZATION OF DISTURBED AREAS (TYP.)

N/F
TRURO
CONSERVATION
TRUST
TRS: BROWN
BETSEY ET AL
PARCEL ID
54-103-0

N/F
GREGORY M. MORRIS
PARCEL ID 54-58-0

HISTORIC MEAN HIGH
WATER EL.=5.00'

MHW
EL.=4.80'

EAGLE NECK CREEK

N/F
GEORGE & CAROLE REICHHELM
PARCEL ID 54-113-0

N/F
TOWN OF TRURO
PARCEL ID 54-114-0

SCALE IN FEET
SCALE: 1" = 60'
-60 0

SEE SHEET 10

PURPOSE: REPLACEMENT OF EXISTING CULVERT, CHANNEL DREDGING, AND SALT MARSH RESTORATION

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FUSS AND O'NEILL, INC.
317 IRON HORSE WAY
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COMMONWEALTH OF MASSACHUSETTS
DEAN E. AUDET
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PROFESSIONAL ENGINEER

DEWATERING AND EROSION CONTROL PLAN NO. 3

APPLICATION BY:
WOODS HOLE GROUP, INC.
107 WATERHOUSE ROAD
BOURNE, MA 02532

PROPOSED EAGLE NECK CREEK SALT MARSH RESTORATION AND CULVERT REPLACEMENT PROJECT

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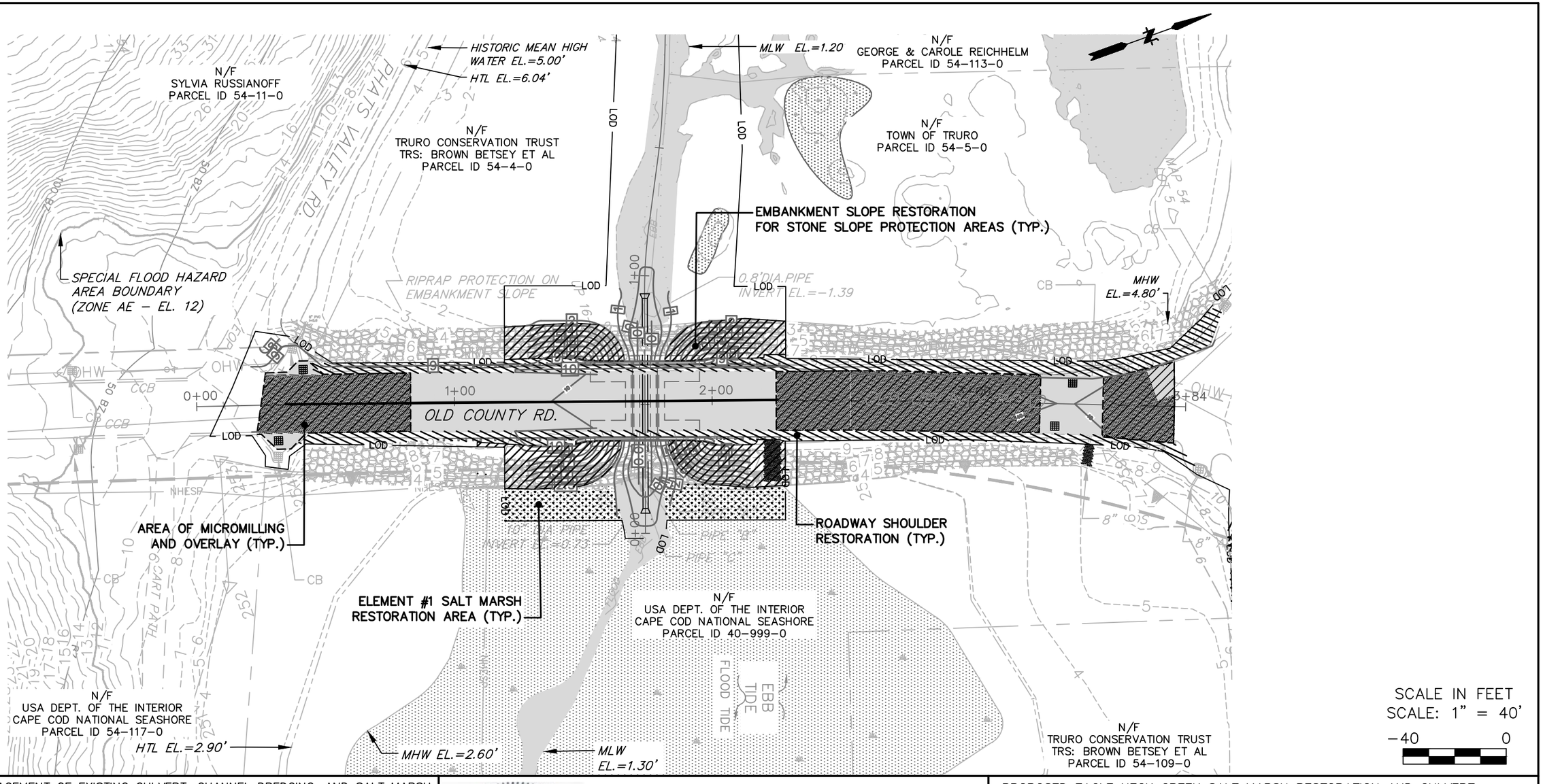

PURPOSE: REPLACEMENT OF EXISTING CULVERT, CHANNEL DREDGING, AND SALT MARSH RESTORATION

DATUM: HORZ: NAD83 MA MAINLAND SP(FT)
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FUSS AND O'NEILL, INC.
317 IRON HORSE WAY
PROVIDENCE, RI 20908

COMMONWEALTH OF MASSACHUSETTS
DEAN E. AUDET
CIVIL
No. 45977
REGISTERED
PROFESSIONAL ENGINEER

SITE RESTORATION PLAN NO. 1

APPLICATION BY:
WOODS HOLE GROUP, INC.
107 WATERHOUSE ROAD
BOURNE, MA 02532

PROPOSED EAGLE NECK CREEK SALT MARSH RESTORATION AND CULVERT REPLACEMENT PROJECT

IN: EAGLE NECK CREEK
AT: TRURO, BARNSTABLE COUNTY, MASSACHUSETTS
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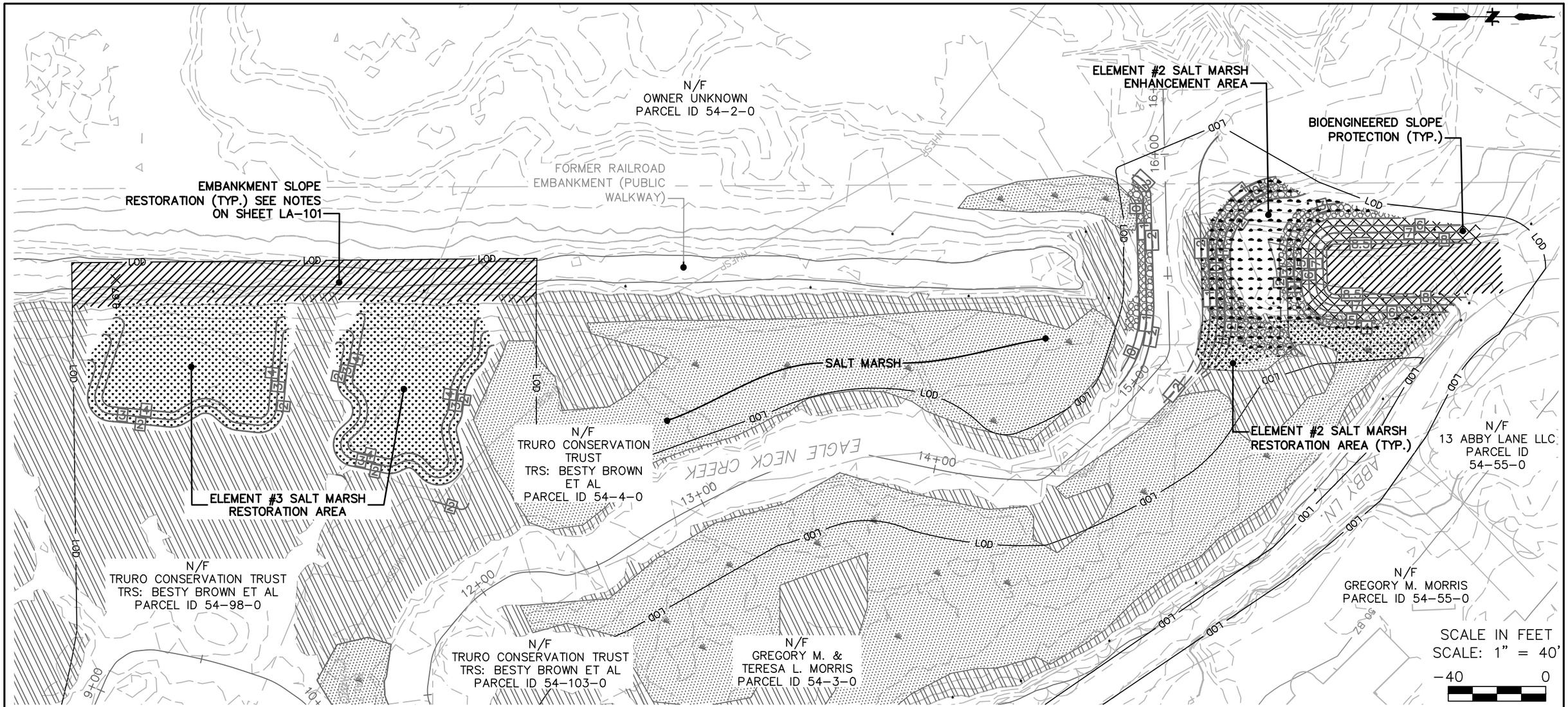
SHEET: 12 OF 27



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FUSS AND O'NEILL, INC.
317 IRON HORSE WAY
PROVIDENCE, RI 20908

COMMONWEALTH OF MASSACHUSETTS
DEAN E. AUDET
CIVIL
No. 45977
REGISTERED
PROFESSIONAL ENGINEER

SITE RESTORATION PLAN NO. 2

APPLICATION BY:
WOODS HOLE GROUP, INC.
107 WATERHOUSE ROAD
BOURNE, MA 02532

PROPOSED EAGLE NECK CREEK SALT MARSH RESTORATION AND CULVERT REPLACEMENT PROJECT

IN: EAGLE NECK CREEK
AT: TRURO, BARNSTABLE COUNTY, MASSACHUSETTS
DATE: JUNE 3, 2020

SHEET: 13 OF 27

RESTORATION NOTES

1. DISTURBED ROADWAY SHOULDER AREAS AND/OR AREAS UPGRADIENT OF COASTAL BANK AREAS THAT WILL NOT BE COVERED BY PAVEMENT AND STRUCTURES SHALL RECEIVE TOPSOIL PRIOR TO SEEDING. NOT ALL POTENTIALLY DISTURBED AREAS REQUIRING RESTORATION ARE SHOWN HEREON.
2. ALL SEED MIXES SHALL BE FREE OF INVASIVE NON–NATIVE PLANT SPECIES.
3. DISTURBED MARSH AREAS TO BE VEGETATED WITH PLUG PLANTINGS SHALL BE GRADED TO ORIGINAL CONDITIONS PRIOR TO PLANTING. PLANTING SHALL BE CONDUCTED DURING LOW TIDE CONDITIONS.
4. ALL EMBANKMENT SLOPES TO BE RESTORED SHALL BE TEMPORARILY STABILIZED WITH BIODEGRADABLE EROSION CONTROL BLANKETING (NO PLASTIC COMPONENTS, JUTE MESH OR EQUIVALENT).

RESTORATION REQUIREMENTS

ROADWAY SHOULDER RESTORATION (ALL SHEETS)

MIXTURE: NEW ENGLAND EROSION CONTROL/RESTORATION MIX

APPLICATION RATE: 35 LBS/ACRE

BOTANICAL NAME	COMMON NAME	IND.
FESTUCA RUBRA	CREEPING RED FESCUE	FACU
ELYMUS CANADENSIS	CANADA WILD RYE	FACU+
LOLIUM MULTIFLORUM	ANNUAL RYEGRASS	NI
LOLIUM PERENNE	PERRENIAL RYEGRASS	NI
BOUTELOUA GRACILIS	BLUE GRAMA	NI
SCHIZACHYRIUM SCOPARIUM	LITTLE BLUESTEM	FACU
SORGHASTRUM NUTANS	INDIAN GRASS	UPL
AGROSTIS SCABRA	ROUGH BENTGRASS/TICKLEGRASS	FAC
AGROSTIS PERENNANS	UPLAND BENTGRASS	FACU

ELEMENTS #1 & #2 SALT MARSH RESTORATION AND ENHANCEMENT AREAS (ALL SHEETS)

PLANTING TYPE: SALTMARSH CORDGRASS (SPARTINA ALTERNIFLORA)

PLANTING SPACING: 12" O.C.

TOTAL PLANTINGS: 1,200

EMBANKMENT SLOPE RESTORATION (ALL SHEETS)

SEED MIXTURE AND APPLICATION RATE TO MATCH ROADWAY REQUIREMENTS FOR ROADWAY SHOULDER RESTORATION.

PLANTING TYPE: SWITCHGRASS (PANICUM VIRGATUM)

PLANTING SPACING: 12" O.C.

TOTAL PLANTINGS: 4,960

PURPOSE: REPLACEMENT OF EXISTING CULVERT, CHANNEL DREDGING, AND SALT MARSH RESTORATION

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FUSS AND O'NEILL, INC.
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PROVIDENCE, RI 20908

COMMONWEALTH OF MASSACHUSETTS
DEAN E. AUDET
CIVIL
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SITE RESTORATION PLAN NO. 3

APPLICATION BY:
WOODS HOLE GROUP, INC.
107 WATERHOUSE ROAD
BOURNE, MA 02532

PROPOSED EAGLE NECK CREEK SALT MARSH RESTORATION AND CULVERT REPLACEMENT PROJECT

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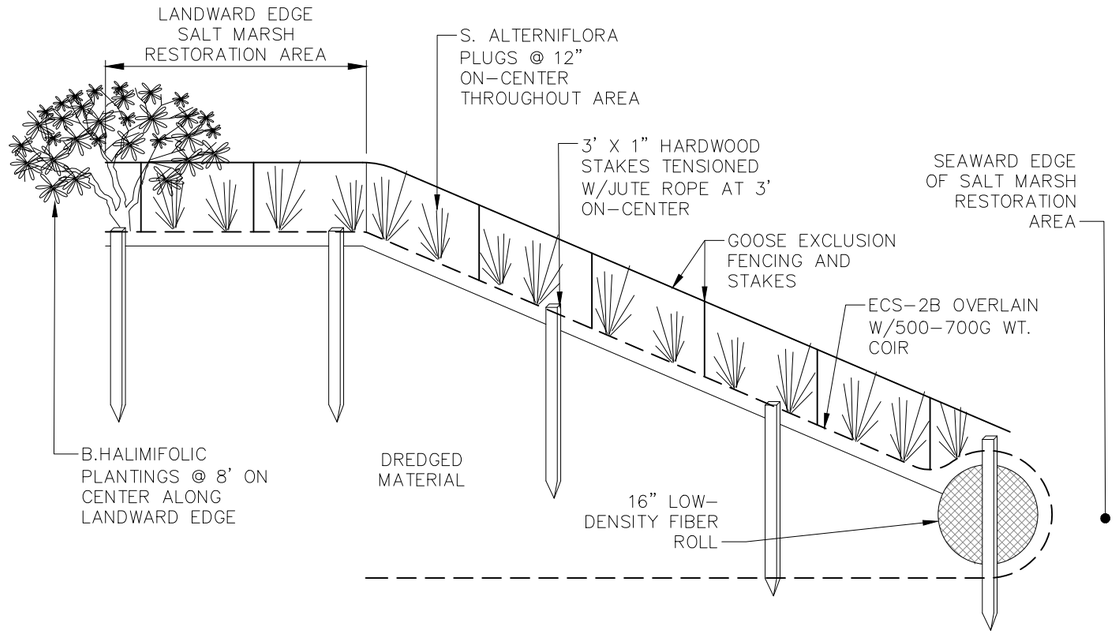

ELEMENT #3 SALT MARSH RESTORATION AREA STABILIZATION AND REVEGETATION NOTES:

1. PRIOR TO CONSTRUCTION, SALT MARSH RESTORATION AREAS TO BE CLEARED OF ALL DEAD AND INVASIVE VEGETATION AND DEBRIS.

2. STAKE TERMINAL END OF 500-700G WEIGHT COIR MATTING APPROXIMATELY 10 LINEAR FEET LANDWARD OF THE PROPOSED SEAWARD EDGE OF THE SALT MARSH RESTORATION AREAS. UNROLL 500-700G WEIGHT COIR MATTING, EXTENDING APPROXIMATELY 10 LINEAR FEET BEYOND THE SEAWARD EDGE OF THE SALT MARSH RESTORATION AREAS. TEMPORARILY ANCHOR AND STORE REMAINDER OF BLANKET IN THIS LOCATION. REPEAT AROUND ENTIRE PERIMETER OF SALT MARSH RESTORATION AREAS ALLOWING 4-6" OVERLAP, CREATING A SHINGLED EFFECT BETWEEN ADJACENT BLANKETS.

3. STAKE TERMINAL END OF ECS-2B 100% BIODEGRADABLE EROSION CONTROL BLANKET ON TOP OF 500-700G WEIGHT COIR MATTING APPROXIMATELY 10 LINEAR FEET LANDWARD OF THE PROPOSED SEAWARD EDGE OF THE SALT MARSH RESTORATION AREAS. UNROLL ECS-2B 100% BIODEGRADABLE EROSION CONTROL BLANKET, EXTENDING APPROXIMATELY 10 LINEAR FEET BEYOND THE SEAWARD EDGE OF THE OF SALT MARSH RESTORATION AREAS. TEMPORARILY ANCHOR AND STORE REMAINDER OF BLANKET IN THIS LOCATION. REPEAT AROUND ENTIRE PERIMETER OF SALT MARSH RESTORATION AREAS ALLOWING 4-6" OVERLAP, CREATING A SHINGLED EFFECT BETWEEN ADJACENT BLANKETS.

4. INSTALL 16" LOW-DENSITY COIR FIBER ROLLS END-TO-END AROUND THE PERIMETER OF THE PROPOSED SALT MARSH RESTORATION AREAS TO RETAIN DREDGED MATERIAL. ANCHOR ROLLS WITH 3' X 1" HARDWOOD STAKES AT 3' ON-CENTER.

5. IMPORT DREDGED MATERIAL AND ESTABLISHED FINISHED GRADES OF 4.1' NAVD88. DO NOT ALLOW IMPORTED DREDGED MATERIAL TO SPILL OVER THE TOP OF THE 16" FIBER ROLL PERIMETER.

6. WRAP SEAWARD END OF ECS-2B 100% BIODEGRADABLE EROSION CONTROL BLANKET OVER THE FIBER ROLL AND DREDGED MATERIAL, EXTENDING TO LANDWARD EDGE OF SALT MARSH RESTORATION AREAS. USE ADDITIONAL ROLLS AS NEEDED TO BLANKET ALL CONTAINED MATERIALS. ANCHOR ECS-2B WITH 12" WOOD ECO-STAKES AT 18" ON-CENTER.

7. WRAP SEAWARD END OF 500-700G WEIGHT COIR MATTING OVER FIBER ROLL AND DREDGED MATERIAL, EXTENDING TO LANDWARD EDGE OF SALT MARSH RESTORATION AREAS. ANCHOR 500-700G WEIGHT COIR BLANKET WITH 3' X 1" HARDWOOD STAKES AT 3' ON-CENTER, TIED WITH JUTE ROPE AND DRIVEN TO TENSION BLANKET TO SUBSTRATE.

8. INSTALL S. ALTERNIFLORA PLUG PLANTINGS THROUGH EROSION CONTROL BLANKETS AND LOW-DENSITY FIBER ROLLS AT 12" ON-CENTER THROUGHOUT ENTIRE SALT MARSH RESTORATION AREAS.

9. INSTALL HIGHTIDE BUSH (B. HALIMIFOLIA) POTTED PLANTINGS AT 8' ON-CENTER ALONG LANDWARD EDGE OF SALT MARSH RESTORATION AREAS.

10. INSTALL GOOSE EXCLUSION FENCING OVER ENTIRE SALT MARSH RESTORATION AREAS.

ELEMENT #3 SALT MARSH RESTORATION AREA CROSS SECTION

SCALE: N.T.S.

PURPOSE: REPLACEMENT OF EXISTING CULVERT, CHANNEL DREDGING, AND SALT MARSH RESTORATION

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FUSS AND O'NEILL, INC.
317 IRON HORSE WAY
PROVIDENCE, RI 20908

COMMONWEALTH OF MASSACHUSETTS
DEAN E. AUDET
CIVIL
No. 45977
REGISTERED PROFESSIONAL ENGINEER

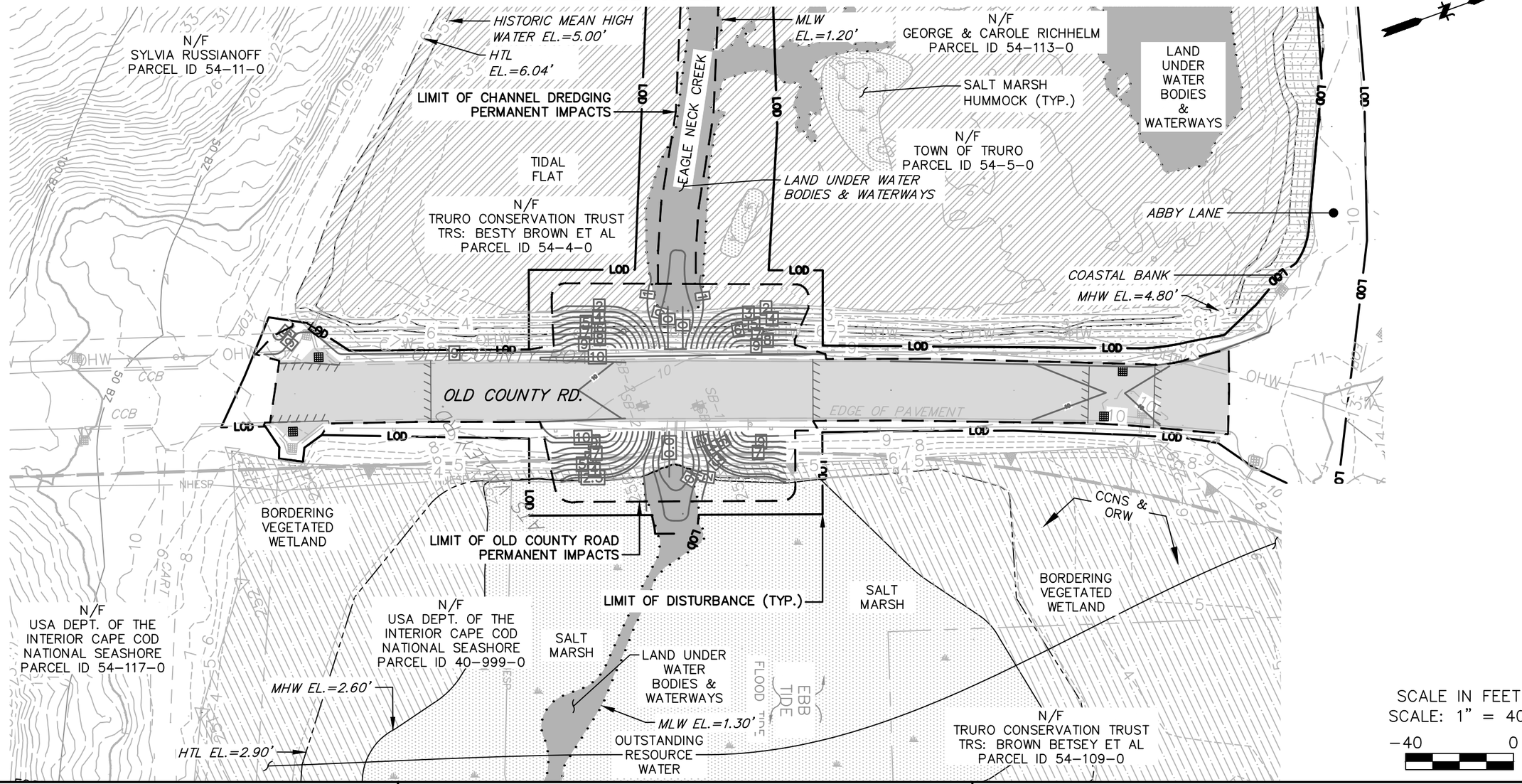
SITE RESTORATION PLAN NO. 4

APPLICATION BY:
WOODS HOLE GROUP, INC.
107 WATERHOUSE ROAD
BOURNE, MA 02532

PROPOSED EAGLE NECK CREEK SALT MARSH RESTORATION AND CULVERT REPLACEMENT PROJECT

IN: EAGLE NECK CREEK
AT: TRURO, BARNSTABLE COUNTY, MASSACHUSETTS
DATE: JUNE 3, 2020

SEE SHEET 17



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COMMONWEALTH OF MASSACHUSETTS
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WETLAND IMPACT PLAN NO. 1

APPLICATION BY:
WOODS HOLE GROUP, INC.
107 WATERHOUSE ROAD
BOURNE, MA 02532

PROPOSED EAGLE NECK CREEK SALT MARSH RESTORATION AND CULVERT REPLACEMENT PROJECT

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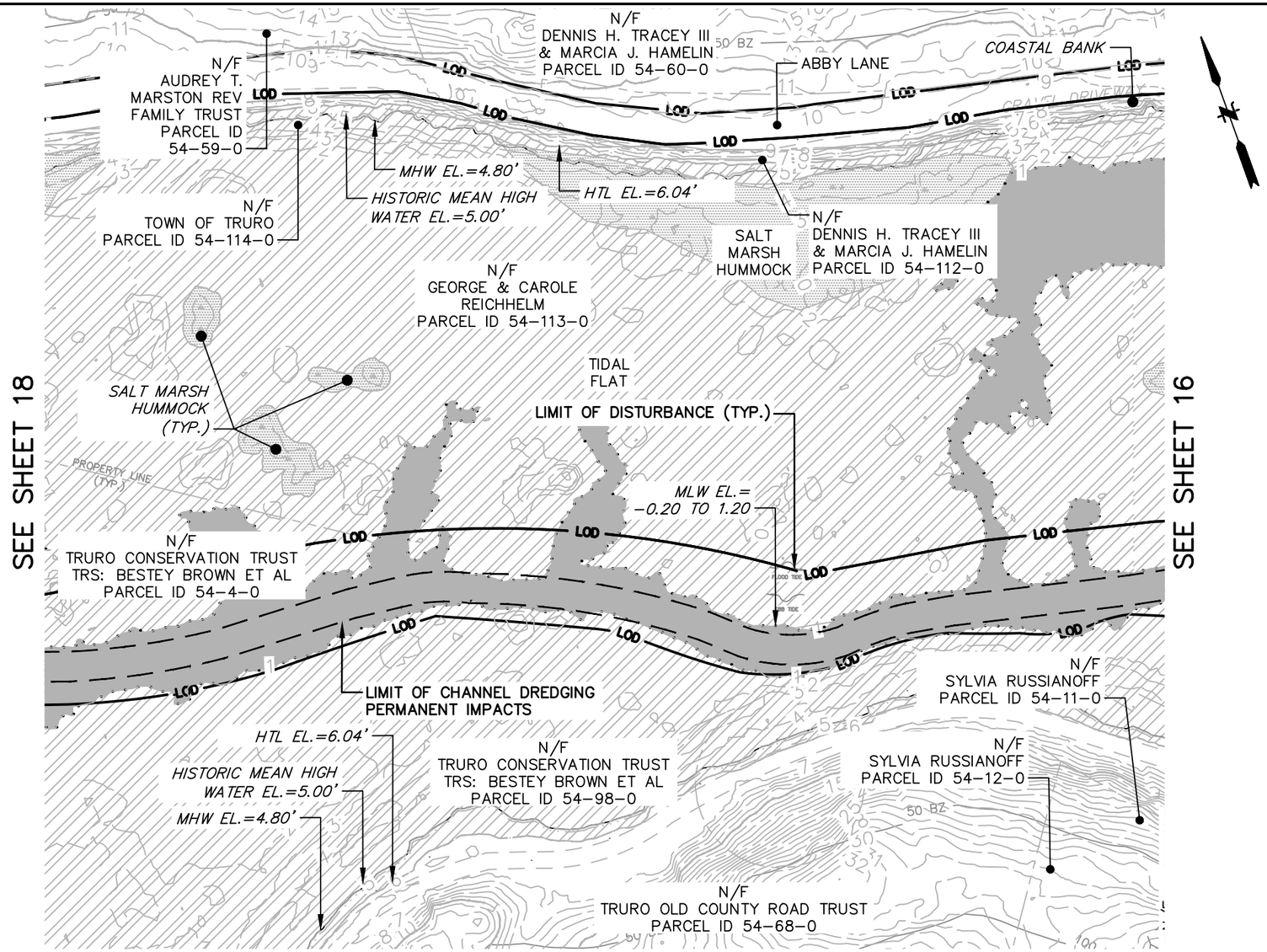

SCALE IN FEET
SCALE: 1" = 60'
–60 0

PURPOSE: REPLACEMENT OF EXISTING CULVERT, CHANNEL DREDGING, AND SALT MARSH RESTORATION

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WETLAND IMPACT PLAN NO. 2

APPLICATION BY:
WOODS HOLE GROUP, INC.
107 WATERHOUSE ROAD
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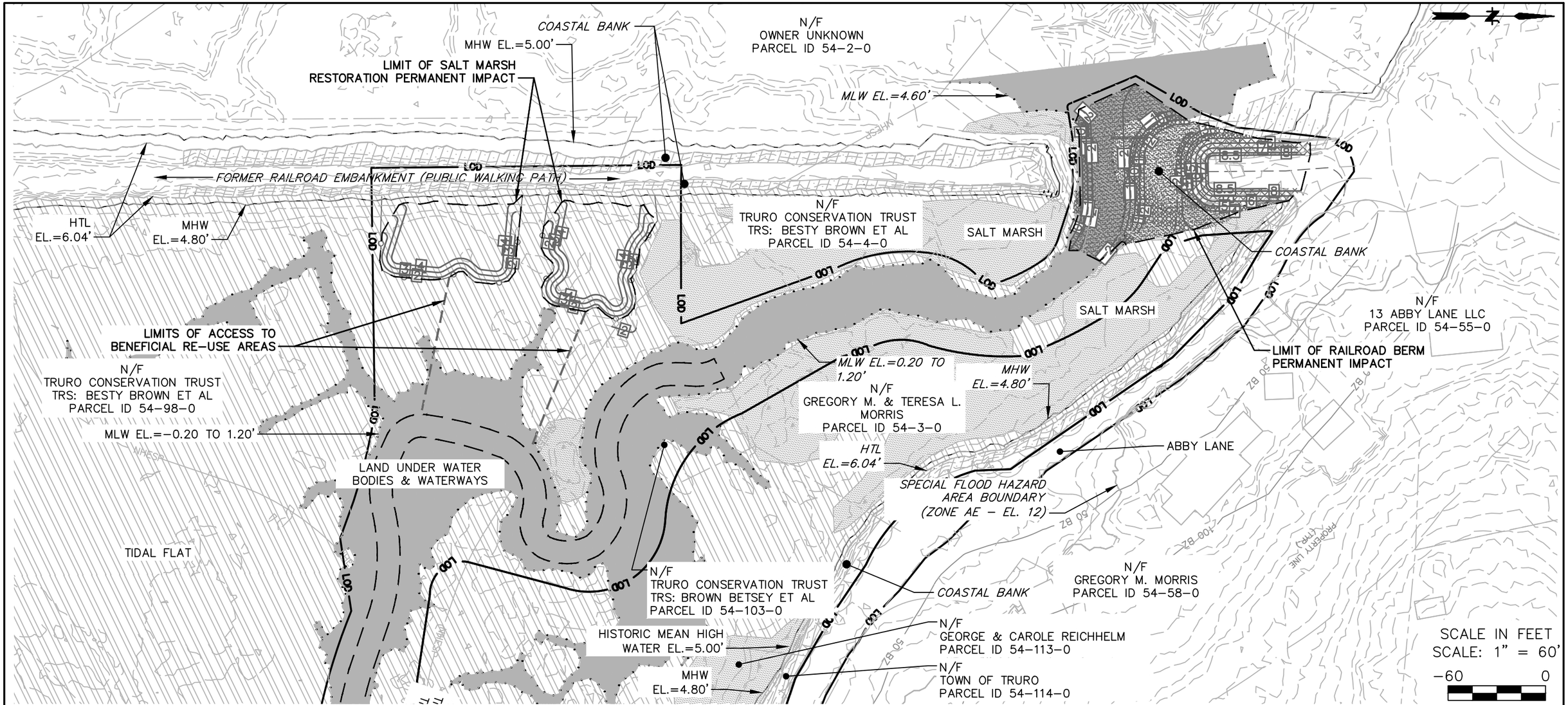

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WETLAND IMPACT PLAN NO. 3

APPLICATION BY:
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SHEET: 18 OF 27

DIRECT PROJECT IMPACT AREAS WITHIN LIMIT OF DISTURBANCE (LOD)					
WETLAND RESOURCE AREA	**EXISTING TOTAL RESOURCE AREA (SQ. FT.)**	**TEMPORARY IMPACT AREA (SQ. FT.)**	**PERMANENT IMPACT AREA (SQ. FT.)**	**FUTURE AREA (SQ. FT.)**	**CHANGE (SQ. FT.)**
LAND UNDER WATER BODIES AND WATERWAYS (EXCLUDING AREA BENEATH ROAD)	48,593	29,432	19,161	49,811	1,218
SALT MARSH	10,628	8,965	1,663	20,272	9,644
TIDAL FLAT	40,911	31,136	9,775	32,083	-8,828
BODERING VEGETATED WETLANDS (EXCLUDING SALT MARSH)	472	98	374	462	-10
LAND SUBJECT TO COASTAL STORM FLOWAGE	166,134	105,956	60,178	166,134	0
RIVERFRONT AREAS (200 FT FROM MHW)	39,658	25,539	14,119	39,658	0
COASTAL BANK (LINEAR FEET OF IMPACT)	1,084	634	450	998	-86
50-FOOT BUFFER ZONE	51,699	27,966	23,733	51,312	-387
100-FOOT BUFFER ZONE	52,874	28,043	24,831	52,487	-387
RARE WILDLIFE HABITAT	35,504	25,177	10,327	35,504	0
OUTSTANDING RESOURCE WATERS (CCNS PROPERTY ONLY)	14,929	1,066	13,863	14,929	0

INDIRECT PROJECT BENEFITS AREAS (UPSTREAM OF OLD COUNTY ROAD)			
WETLAND RESOURCE AREA	**EXISTING AREA (ACRES)**	**FUTURE AREA (ACRES)**	**CHANGE (ACRES)**
SALT MARSH	1.55	15.37	13.82
BORDERING VEGETATED WETLANDS	13.81	0.80	-13.01
LAND UNDER WATER BODIES AND WATERWAYS	1.13	1.13	0.00

NOTES:

1. TEMPORARY IMPACT AREA INCLUDES ALL AREAS WITHIN THE LIMIT OF DISTURBANCE THAT WILL REMAIN AT ORIGINAL (PRE–CONSTRUCTION) ELEVATIONS FOLLOWING CONSTRUCTION.
2. PERMANENT IMPACT AREA INCLUDES ALL AREAS WITHIN THE LIMIT OF DISTURBANCE WHERE SURFACE ELEVATIONS AND STRUCTURES WILL BE ALTERED BY CONSTRUCTION.
3. CURRENT TOTAL RESOURCE AREA INCLUDES ALL EXISTING RESOURCE AREAS WITHIN THE LIMIT OF DISTURBANCE.
4. FOR THE PURPOSES OF THE ABOVE TABLE, AREA OF BENEFICIAL RE–USE FROM DREDGING OPERATIONS IS CONSIDERED A PERMANENT IMPACT.
5. PERMANENT AND TEMPORARY IMPACTS TO LAND SUBJECT TO COASTAL STORM FLOWAGE ARE ANY AREAS WITHIN THE LIMIT OF DISTURBANCE AND LIMIT OF PERMANENT IMPACTS LINES.
6. INDIRECT IMPACTS OCCUR UPSTREAM OF THE OLD COUNTY ROAD EMBANKMENT. THE INDIRECT IMPACTS ARE DUE TO THE INCREASE TIDAL EXCHANGE TO THE AREA LOCATED UPSTREAM OF OLD COUNTY ROAD.

LEGEND

- LIMIT OF PERMANENT IMPACT
- COASTAL BANK LENGTH IMPACT AREA
- MEAN LOW WATER (MLW)
- MEAN HIGH WATER (MHW)
- HIGH TIDE LINE (HTL)

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COMMONWEALTH OF MASSACHUSETTS
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WETLAND IMPACT PLAN NO. 4

APPLICATION BY:
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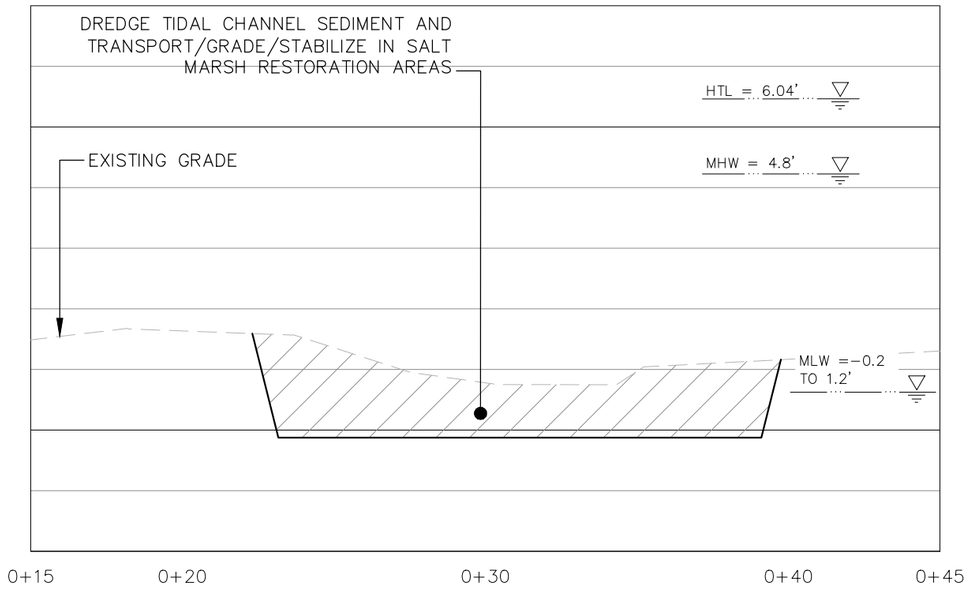
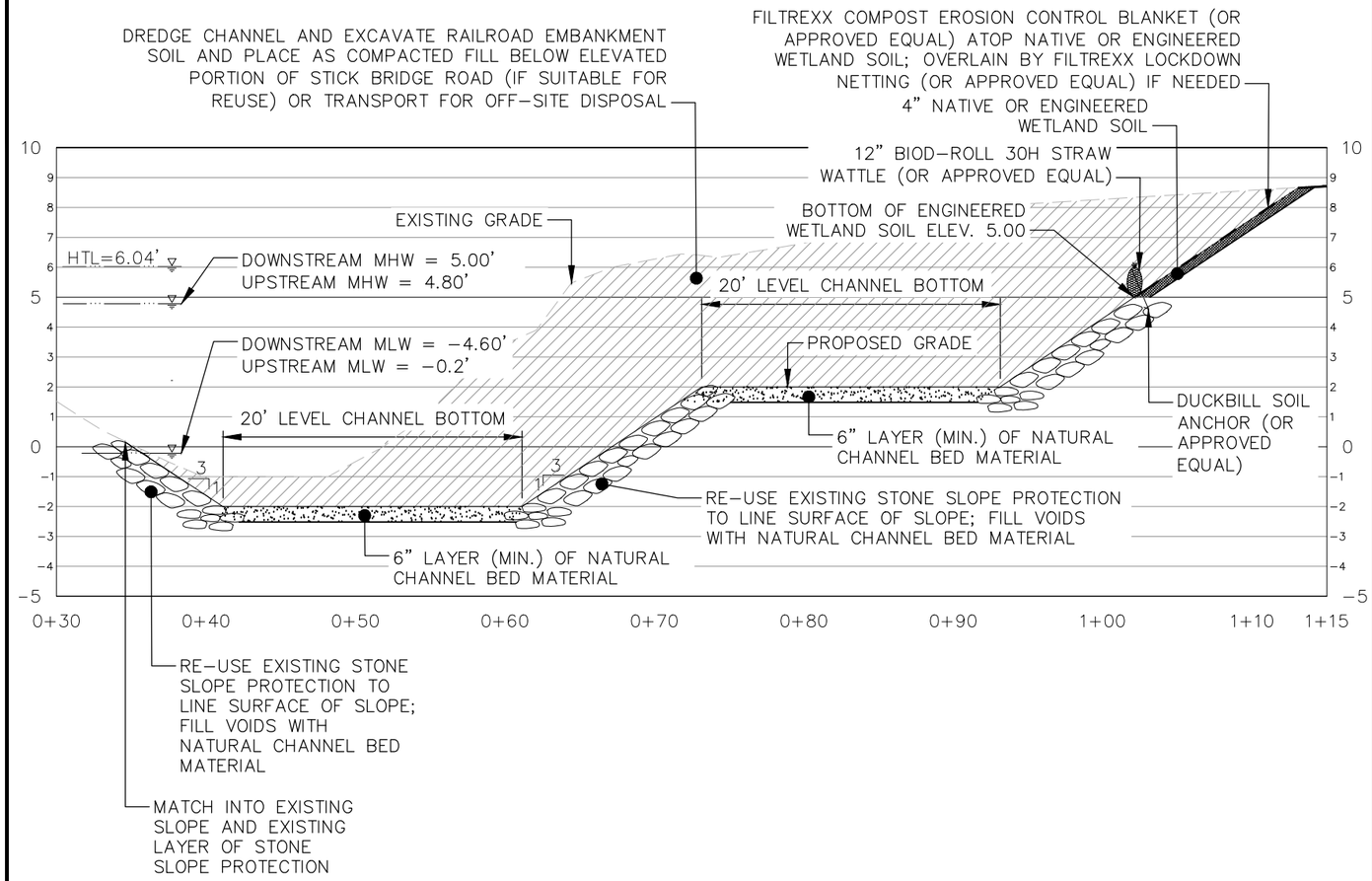


TYPICAL TIDAL CHANNEL DREDGE SECTION

SCALE: H: 1" = 5'
V: 1" = 1'



RAILROAD BERM BREACH SECTION

SCALE: H: 1" = 10'
V: 1" = 2'

PURPOSE: REPLACEMENT OF EXISTING CULVERT, CHANNEL DREDGING, AND SALT MARSH RESTORATION

DATUM: HORZ: NAD83 MA MAINLAND SP(FT)
VERT: NAVD88 (FT)
MLW: -4.60' (HARBOR SIDE) / -0.20' TO 1.20' (UPSTREAM SIDE)
MHW: 5.00' (HARBOR SIDE) / 4.80' (UPSTREAM SIDE)
HTL: 6.04' (HARBOR SIDE) / 6.04' (UPSTREAM SIDE)
FUSS AND O'NEILL, INC.
317 IRON HORSE WAY
PROVIDENCE, RI 20908

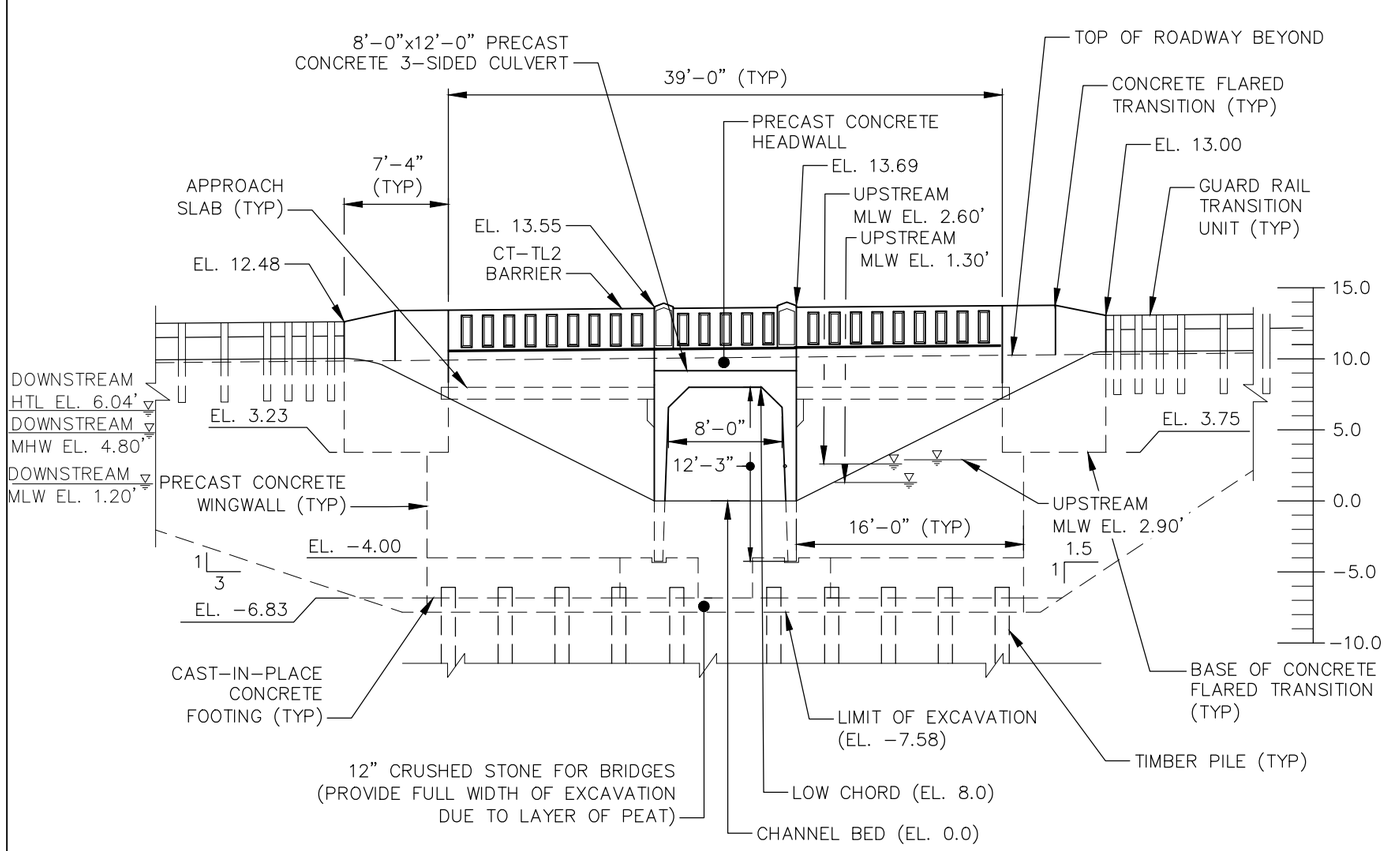
DETAIL PLAN NO. 1

APPLICATION BY:
WOODS HOLE GROUP, INC.
107 WATERHOUSE ROAD
BOURNE, MA 02532

PROPOSED EAGLE NECK CREEK SALT MARSH RESTORATION AND CULVERT REPLACEMENT PROJECT

IN: EAGLE NECK CREEK
AT: TRURO, BARNSTABLE COUNTY, MASSACHUSETTS
DATE: JUNE 3, 2020

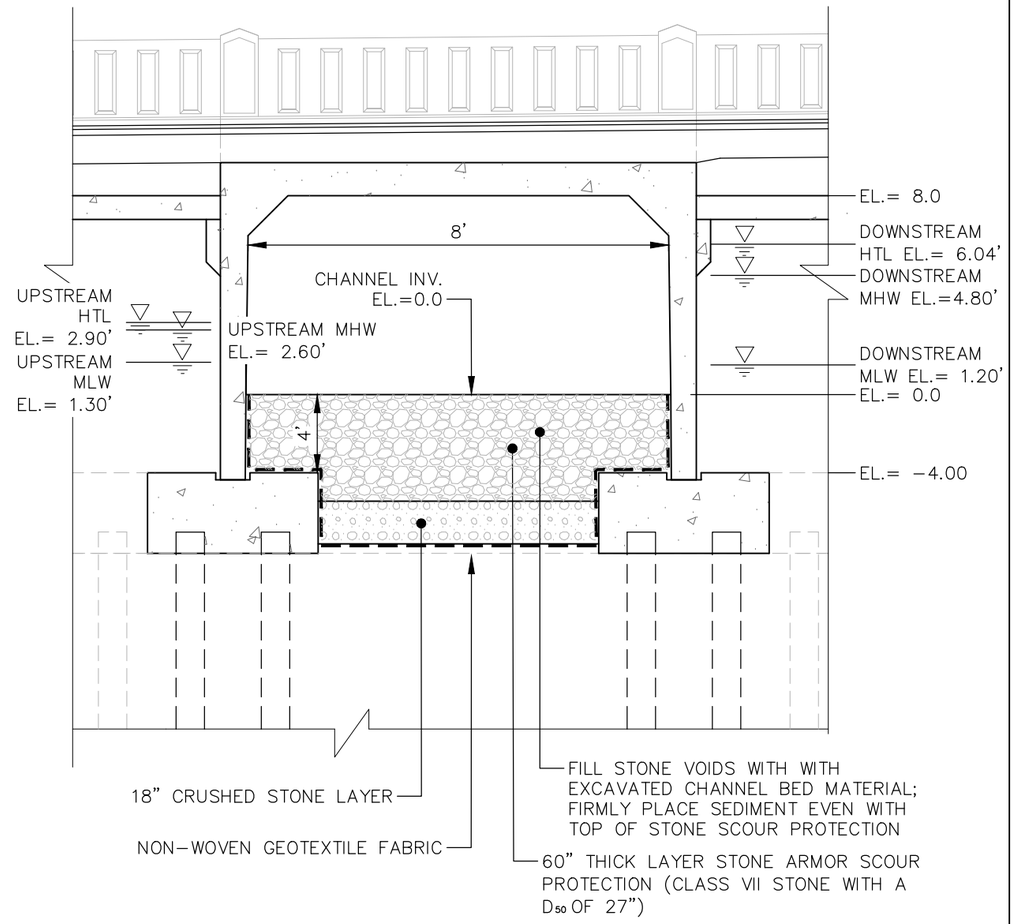
SHEET: 20 OF 27



NOTE:
PROVIDE 3H:1V CUT ON SOUTH APPROACH FOR EQUIPMENT ACCESS.

CULVERT EAST ELEVATION

SCALE: 3/32"= 1'–0"



SEDIMENT–FILLED STONE ARMOR CHANNEL SCOUR PROTECTION

SCALE: N.T.S.

PURPOSE: REPLACEMENT OF EXISTING CULVERT, CHANNEL DREDGING, AND SALT MARSH RESTORATION

DATUM: HORZ: NAD83 MA MAINLAND SP(FT)
VERT: NAVD88 (FT)
MLW: 1.20' (DOWNSTREAM SIDE) / 1.30' (UPSTREAM SIDE)
MHW: 4.80' (DOWNSTREAM SIDE) / 2.60' (UPSTREAM SIDE)
HTL: 6.04' (DOWNSTREAM SIDE) / 2.90' (UPSTREAM SIDE)

FUSS AND O'NEILL, INC.
317 IRON HORSE WAY
PROVIDENCE, RI 20908

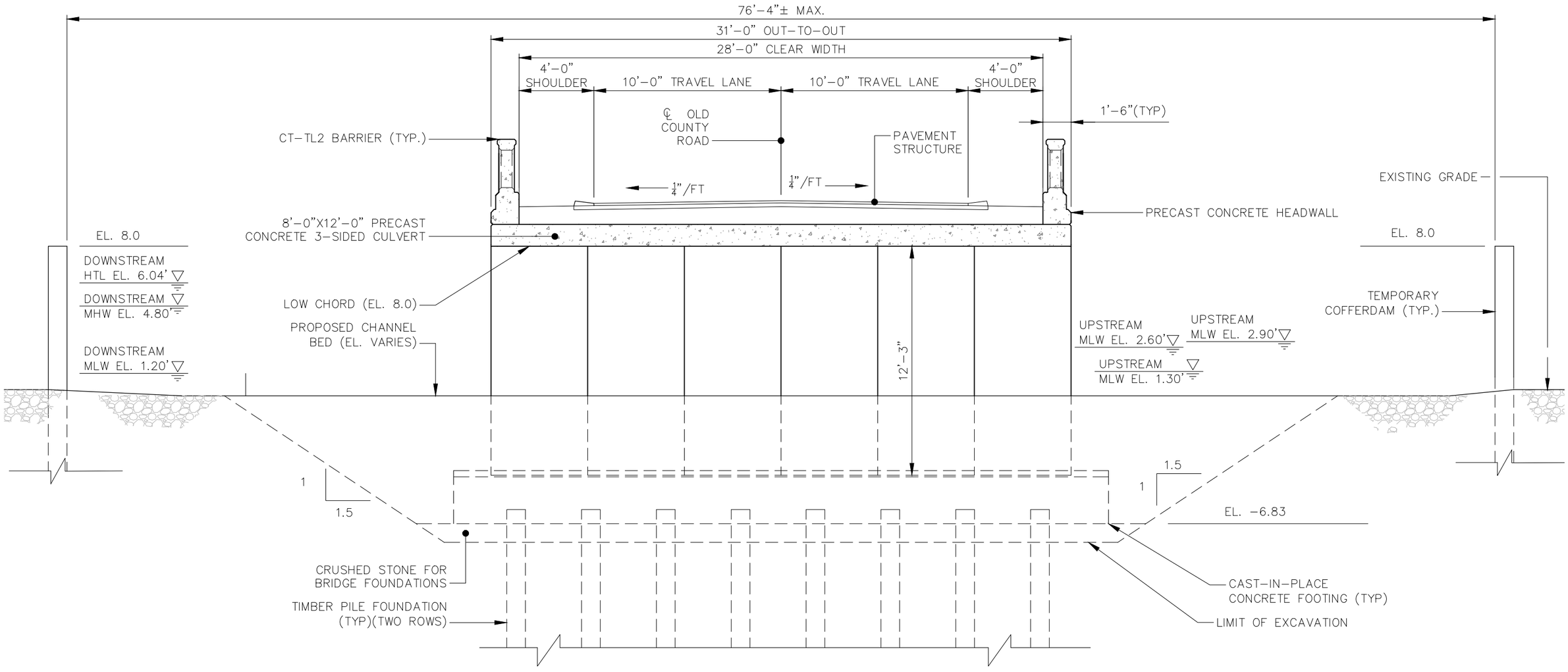
COMMONWEALTH OF MASSACHUSETTS
DEAN E. AUDET
CIVIL
No. 45977
REGISTERED PROFESSIONAL ENGINEER

DETAIL PLAN NO. 2

APPLICATION BY:
WOODS HOLE GROUP, INC.
107 WATERHOUSE ROAD
BOURNE, MA 02532

PROPOSED EAGLE NECK CREEK SALT MARSH RESTORATION AND CULVERT REPLACEMENT PROJECT

IN: EAGLE NECK CREEK
AT: TRURO, BARNSTABLE COUNTY, MASSACHUSETTS
DATE: JUNE 3, 2020



CULVERT TRANSVERSE SECTION

SCALE: 3/32" = 1'-0"

PURPOSE: REPLACEMENT OF EXISTING CULVERT, CHANNEL DREDGING, AND SALT MARSH RESTORATION

DATUM: HORZ: NAD83 MA MAINLAND SP(FT)
VERT: NAVD88 (FT)
MLW: 1.20' (DOWNSTREAM SIDE) / 1.30' (UPSTREAM SIDE)
MHW: 4.80' (DOWNSTREAM SIDE) / 2.60' (UPSTREAM SIDE)
HTL: 6.04' (DOWNSTREAM SIDE) / 2.90' (UPSTREAM SIDE)
FUSS AND O'NEILL, INC.
317 IRON HORSE WAY
PROVIDENCE, RI 20908

COMMONWEALTH OF MASSACHUSETTS
DEAN E. AUDET
CIVIL
No. 45977
REGISTERED PROFESSIONAL ENGINEER

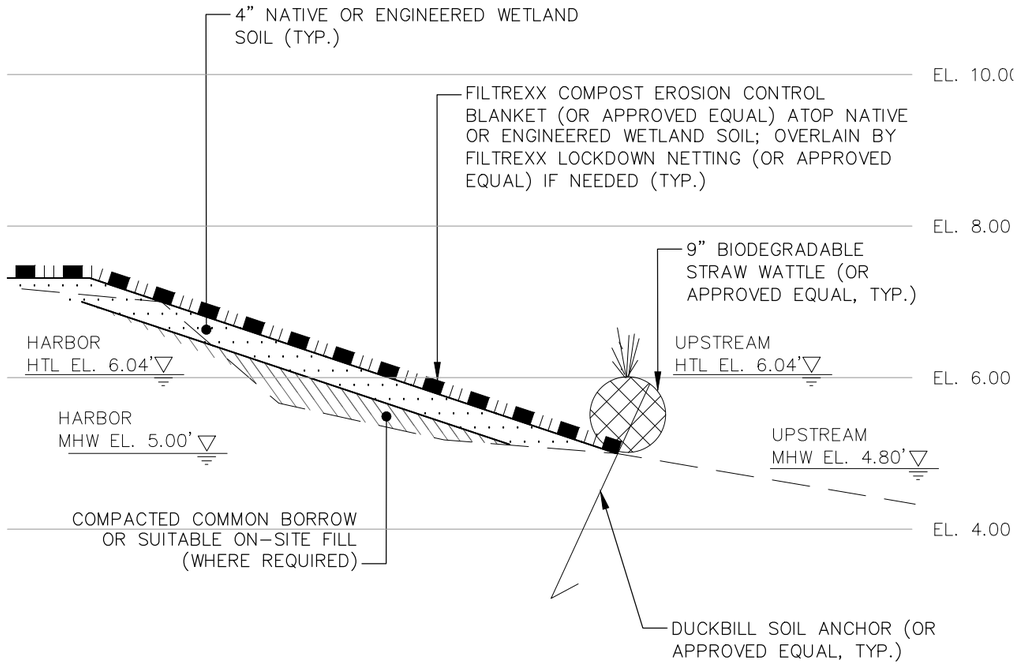
DETAIL PLAN NO. 3

APPLICATION BY:
WOODS HOLE GROUP, INC.
107 WATERHOUSE ROAD
BOURNE, MA 02532

PROPOSED EAGLE NECK CREEK SALT MARSH RESTORATION AND CULVERT REPLACEMENT PROJECT

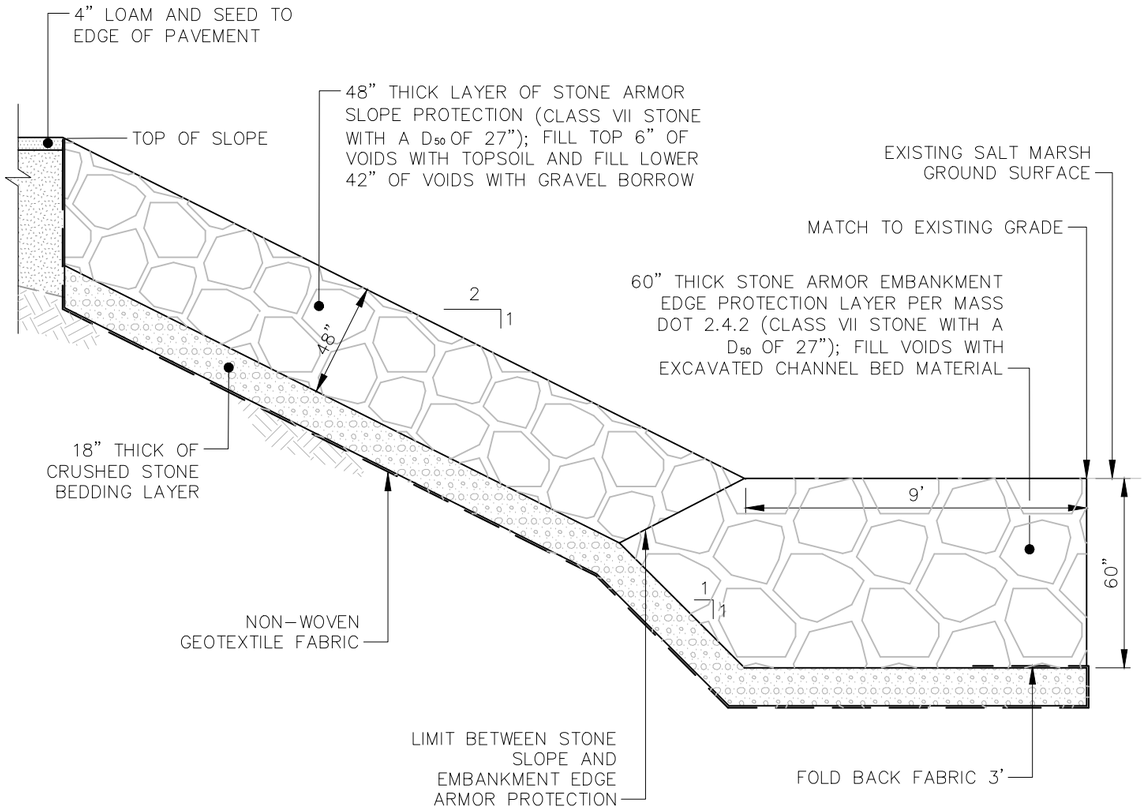
IN: EAGLE NECK CREEK
AT: TRURO, BARNSTABLE COUNTY, MASSACHUSETTS
DATE: JUNE 3, 2020

SHEET: 22 OF 27



TYPICAL RAILROAD BERM BIOENGINEERED SLOPE PROTECTION WITH EROSION CONTROL BLANKET

SCALE: N.T.S.

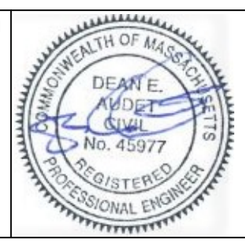


SOIL-FILLED STONE SLOPE AND EMBANKMENT EDGE PROTECTION AT OLD COUNTY ROAD

SCALE: N.T.S.

PURPOSE: REPLACEMENT OF EXISTING CULVERT, CHANNEL DREDGING, AND SALT MARSH RESTORATION

DATUM: HORZ: NAD83 MA MAINLAND SP(FT)
VERT: NAVD88 (FT)
MLW: -4.60' (HARBOR SIDE) / -0.20' TO 1.20' (UPSTREAM SIDE)
MHW: 5.00' (HARBOR SIDE) / 4.80' (UPSTREAM SIDE)
HTL: 6.04' (HARBOR SIDE) / 6.04' (UPSTREAM SIDE)
FUSS AND O'NEILL, INC.
317 IRON HORSE WAY
PROVIDENCE, RI 20908



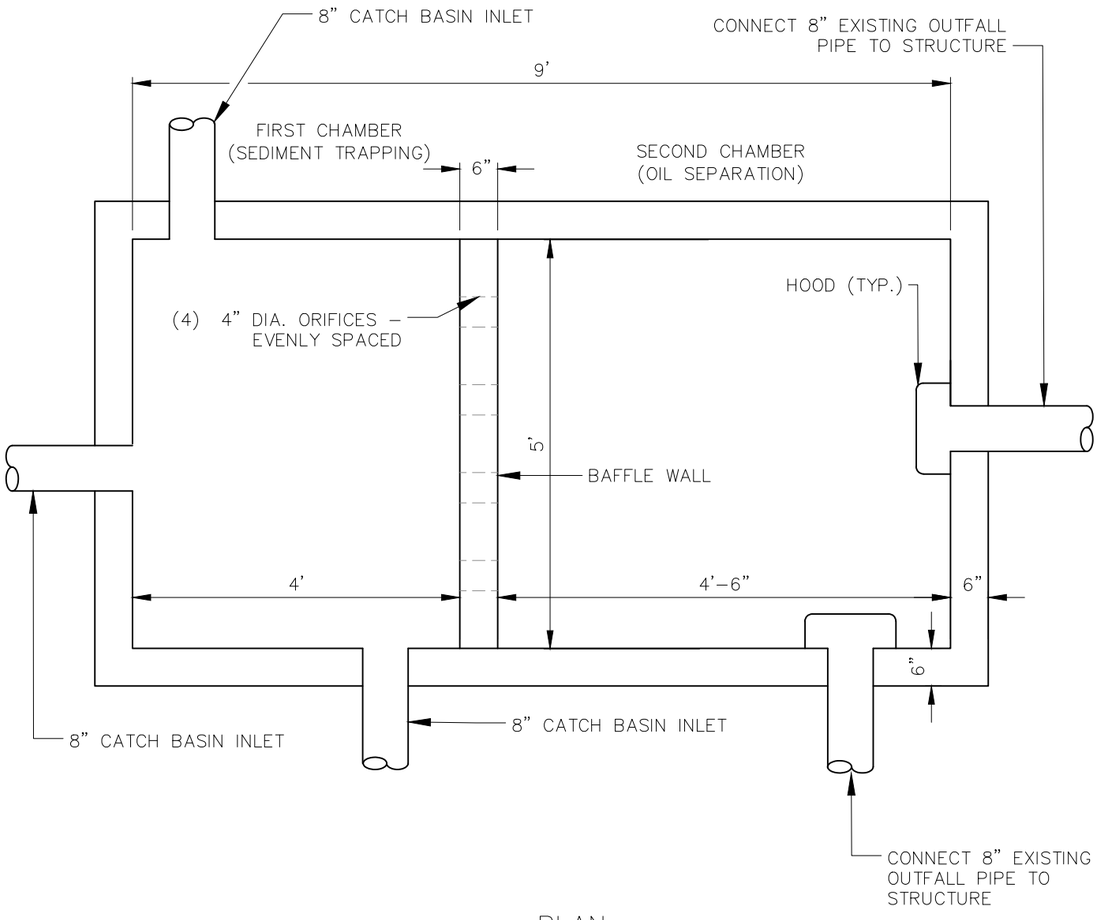
DETAIL PLAN NO. 4

APPLICATION BY:
WOODS HOLE GROUP, INC.
107 WATERHOUSE ROAD
BOURNE, MA 02532

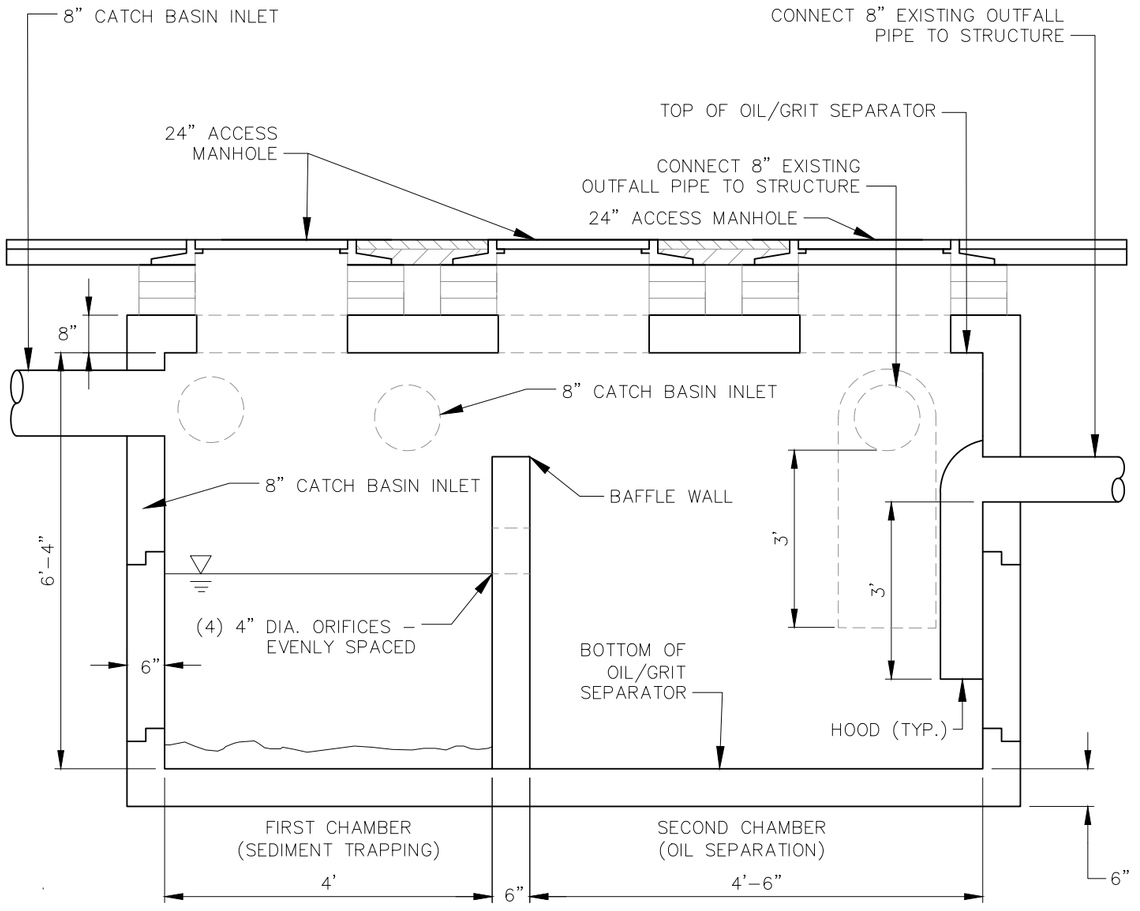
PROPOSED EAGLE NECK CREEK SALT MARSH RESTORATION AND CULVERT REPLACEMENT PROJECT

IN: EAGLE NECK CREEK
AT: TRURO, BARNSTABLE COUNTY, MASSACHUSETTS
DATE: JUNE 3, 2020

SHEET: 23 OF 27



PLAN



SECTION

TYPICAL OIL/GRIT STORMWATER TREATMENT STRUCTURE

SCALE: N.T.S.

PURPOSE: REPLACEMENT OF EXISTING CULVERT, CHANNEL DREDGING, AND SALT MARSH RESTORATION

DATUM: HORZ: NAD83 MA MAINLAND SP(FT)
VERT: NAVD88 (FT)
MLW: 1.20' (DOWNSTREAM SIDE) / 1.30' (UPSTREAM SIDE)
MHW: 4.80' (DOWNSTREAM SIDE) / 2.60' (UPSTREAM SIDE)
HTL: 6.04' (DOWNSTREAM SIDE) / 2.90' (UPSTREAM SIDE)

FUSS AND O'NEILL, INC.
317 IRON HORSE WAY
PROVIDENCE, RI 20908

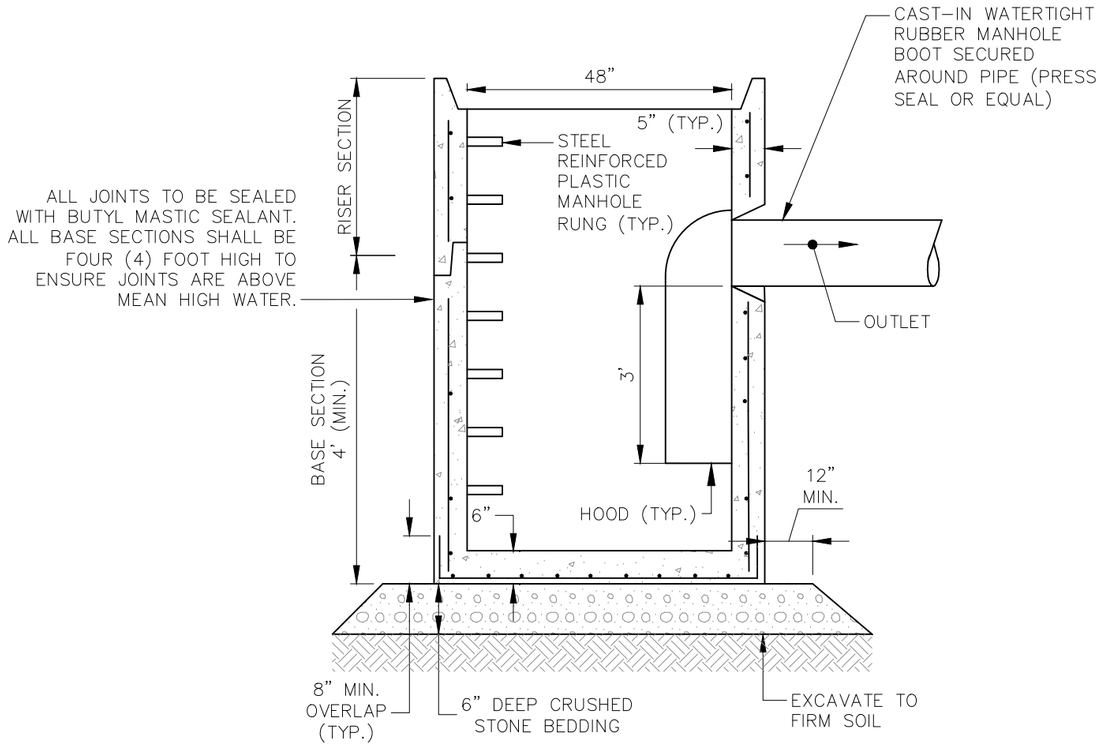
COMMONWEALTH OF MASSACHUSETTS
DEAN E. AUDET
CIVIL
No. 45977
REGISTERED PROFESSIONAL ENGINEER

DETAIL PLAN NO. 5

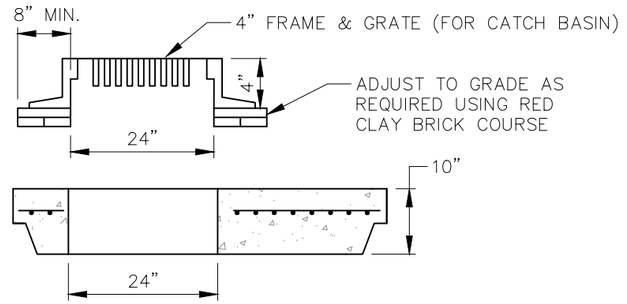
APPLICATION BY:
WOODS HOLE GROUP, INC.
107 WATERHOUSE ROAD
BOURNE, MA 02532

PROPOSED EAGLE NECK CREEK SALT MARSH RESTORATION AND CULVERT REPLACEMENT PROJECT

IN: EAGLE NECK CREEK
AT: TRURO, BARNSTABLE COUNTY, MASSACHUSETTS
DATE: JUNE 3, 2020



SECTION



TOP SLAB

NOTES:

1. CATCH BASIN DESIGN SHALL CONFORM TO ASTM C-478 FOR PRECAST REINFORCED CONCRETE MANHOLE SECTIONS.
2. OIL/GRIT SEPARATOR DESIGN SHALL CONFORM TO SECTION M4.02.14 OF THE STANDARD SPECIFICATIONS.
3. ALL STRUCTURES SHALL BE DESIGNED AND FABRICATED FOR AASHO HS20-44 VEHICLE LOADING.
4. CONCRETE SHALL BE 5,000 PSI COMPRESSIVE STRENGTH MARINE GRADE TYPE ii MODIFIED PORTLAND CEMENT CONFORMING TO ASTM C-150.
5. STEEL REINFORCEMENT FOR CATCH BASIN BASE SECTION BOTTOM SHALL BE A MINIMUM OF 0.12 SQ.IN./LIN.FT. (BOTH WAYS). LONGITUDINAL (VERTICAL STANDING). REINFORCEMENT SHALL CONFORM TO ASTM A-615-79 GRADE 60 1" MIN. COVER.
6. CATCH BASIN FRAMES & GRATES TO BE EJ MODEL NO. 0MA554000002 AND EJ MODEL NO. 0MA552000019, RESPECTIVELY, OR APPROVED EQUAL. FRAME HEIGHT SHALL BE 4-INCHES (MAXIMUM) AND SHALL BE 4-FLANGE.
7. OIL/GRIT SEPARATOR FRAMES AND GRATES SHALL BE EJ MODEL 0MA124000023 AND EJ MODEL 0MA124000027, RESPECTIVELY. OR APPROVED EQUAL.
8. ALL PIPE CONNECTIONS SHALL BE CAST-IN BOOT BUTYL RUBBER SEALS CONFORMING TO ASTM C923-18 FOR WATERTIGHT, RESILIENT CONNECTORS.
9. ALL PRECAST SECTION JOINTS SHALL BE SEALED WITH BUTYL MASTIC SEALANT.
10. STRUCTURES SHALL BE INSTALLED ON 6" DEEP LAYER OF ¾" CRUSHED STONE BEDDING.
11. RUNGS SHALL CONFORM TO ASTM C478, OSHA STD 1-1.9 OF CFR 1910.27. RUNGS SHALL BE INSTALLED AT CASTING PLANT.

TYPICAL DEEP-SUMP PRECAST CATCH BASIN

SCALE: N.T.S.

PURPOSE: REPLACEMENT OF EXISTING CULVERT, CHANNEL DREDGING, AND SALT MARSH RESTORATION

DATUM: HORZ: NAD83 MA MAINLAND SP(FT)
VERT: NAVD88 (FT)
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MHW: 4.80' (DOWNSTREAM SIDE) / 2.60' (UPSTREAM SIDE)
HTL: 6.04' (DOWNSTREAM SIDE) / 2.90' (UPSTREAM SIDE)

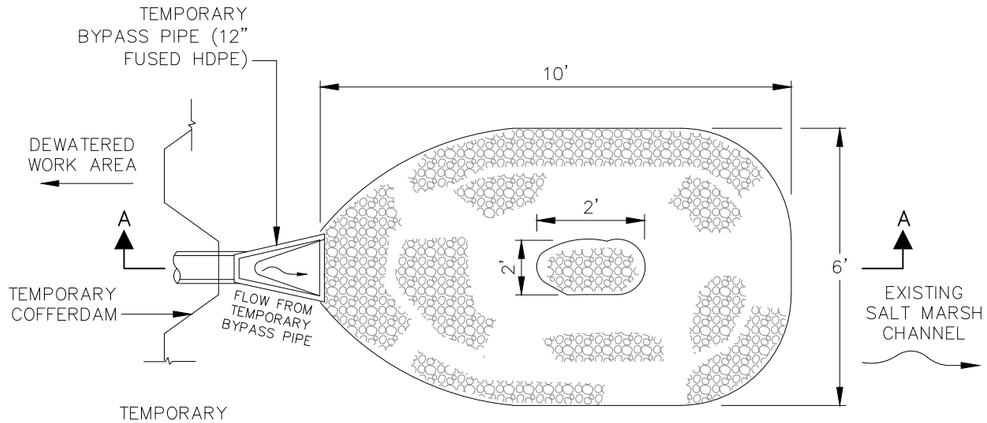
FUSS AND O'NEILL, INC.
317 IRON HORSE WAY
PROVIDENCE, RI 20908

DETAIL PLAN NO. 6

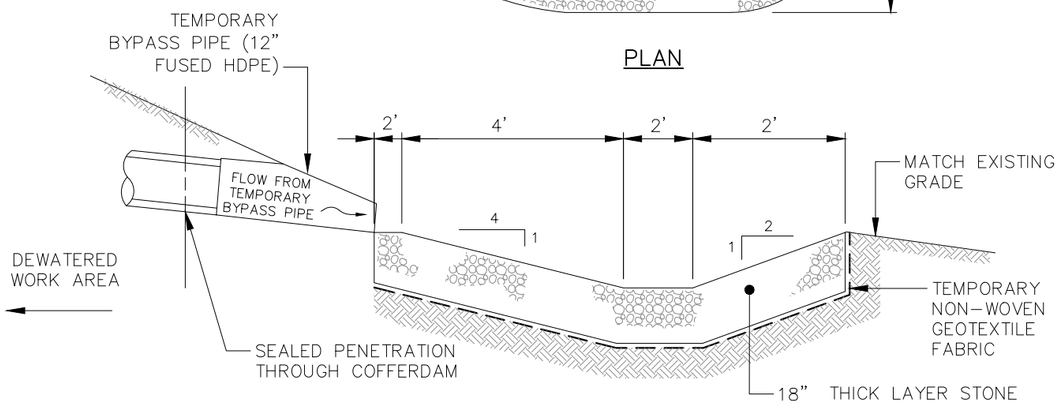
APPLICATION BY:
WOODS HOLE GROUP, INC.
107 WATERHOUSE ROAD
BOURNE, MA 02532

PROPOSED EAGLE NECK CREEK SALT MARSH RESTORATION AND CULVERT REPLACEMENT PROJECT

IN: EAGLE NECK CREEK
AT: TRURO, BARNSTABLE COUNTY, MASSACHUSETTS
DATE: JUNE 3, 2020



PLAN

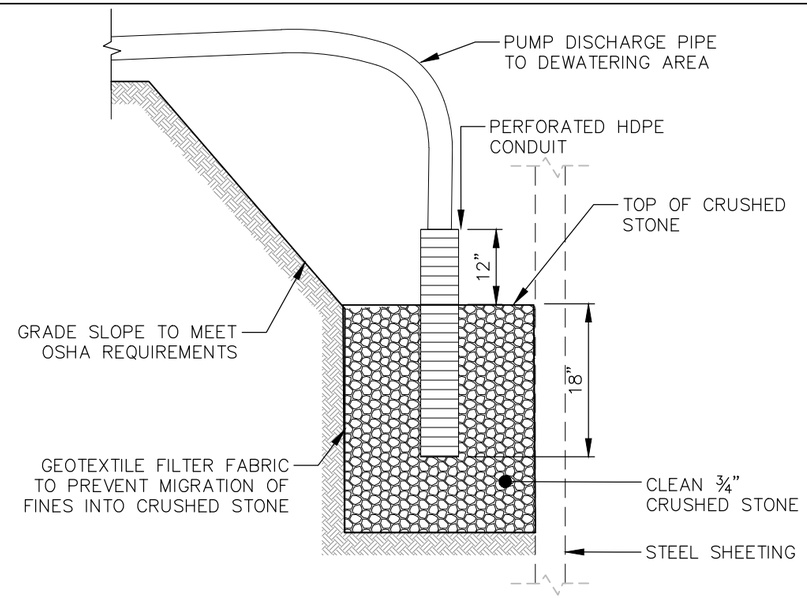


NOTE:
REMOVE ALL MATERIALS AND RESTORE DISTURBED AREAS FOLLOWING CONSTRUCTION

SECTION A–A

ENERGY DISSIPATION STRUCTURE AT INLET AND OUTLET OF TEMPORARY BYPASS PIPE

SCALE: N.T.S.



NOTES:

1. OVERALL SUMP PIT DIMENSIONS SHALL BE COMPATIBLE WITH ANTICIPATED SEEPAGE RATES AND PUMP SIZE TO BE USED. THE BOTTOM OF THE SUMP SHALL BE EXTENDED TWO FEET BELOW PROPOSED CONSTRUCTION.
2. THE STANDPIPE DIAMETER AND NUMBER OF PERFORATIONS SHALL BE COMPATIBLE WITH THE PUMP SIZE BEING USED.
3. PERFORATIONS IN THE STANDPIPE SHALL BE EITHER CIRCULAR OR SLOTS. PERFORATION SIZE SHALL NOT EXCEED ½" IN DIAMETER.
4. CRUSHED STONE (M2.01.01) SHALL EXTEND 12" BELOW THE BOTTOM OF THE STANDPIPE AND CONFORM TO ¾" (M2.01.4) STONE.
5. IF EXCESSIVE MOVEMENT OF FINE SOIL PARTICLES FROM THE SURROUNDING EXISTING SOILS IS ANTICIPATED, A PROPERLY DESIGNED GEOTEXTILE SHALL BE PLACED BETWEEN THE EXISTING SOILS AND THE CRUSHED STONE.
6. THE STANDPIPE SHALL EXTEND A MINIMUM OF 12" ABOVE THE SURROUNDING GROUND.

DEWATERING PUMP INTAKE PROTECTION

SCALE: N.T.S.

PURPOSE: REPLACEMENT OF EXISTING CULVERT, CHANNEL DREDGING, AND SALT MARSH RESTORATION

DATUM: HORZ: NAD83 MA MAINLAND SP(FT)
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MLW: 1.20' (DOWNSTREAM SIDE) / 1.30' (UPSTREAM SIDE)
MHW: 4.80' (DOWNSTREAM SIDE) / 2.60' (UPSTREAM SIDE)
HTL: 6.04' (DOWNSTREAM SIDE) / 2.90' (UPSTREAM SIDE)
FUSS AND O'NEILL, INC.
317 IRON HORSE WAY
PROVIDENCE, RI 20908

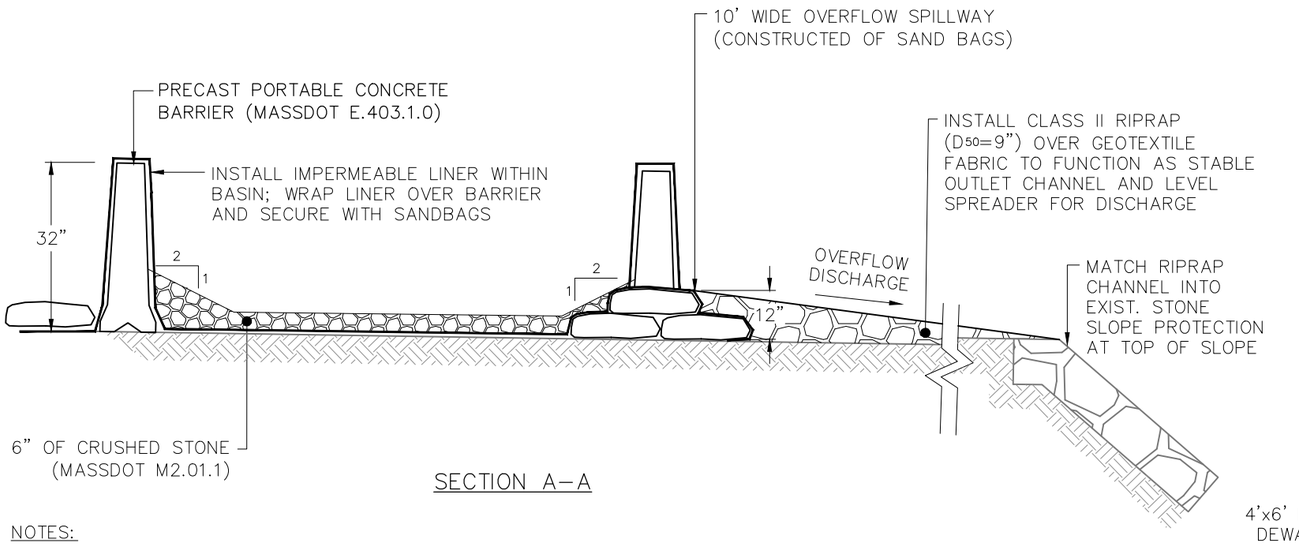
DETAIL PLAN NO. 7

APPLICATION BY:
WOODS HOLE GROUP, INC.
107 WATERHOUSE ROAD
BOURNE, MA 02532

PROPOSED EAGLE NECK CREEK SALT MARSH RESTORATION AND CULVERT REPLACEMENT PROJECT

IN: EAGLE NECK CREEK
AT: TRURO, BARNSTABLE COUNTY, MASSACHUSETTS
DATE: JUNE 3, 2020

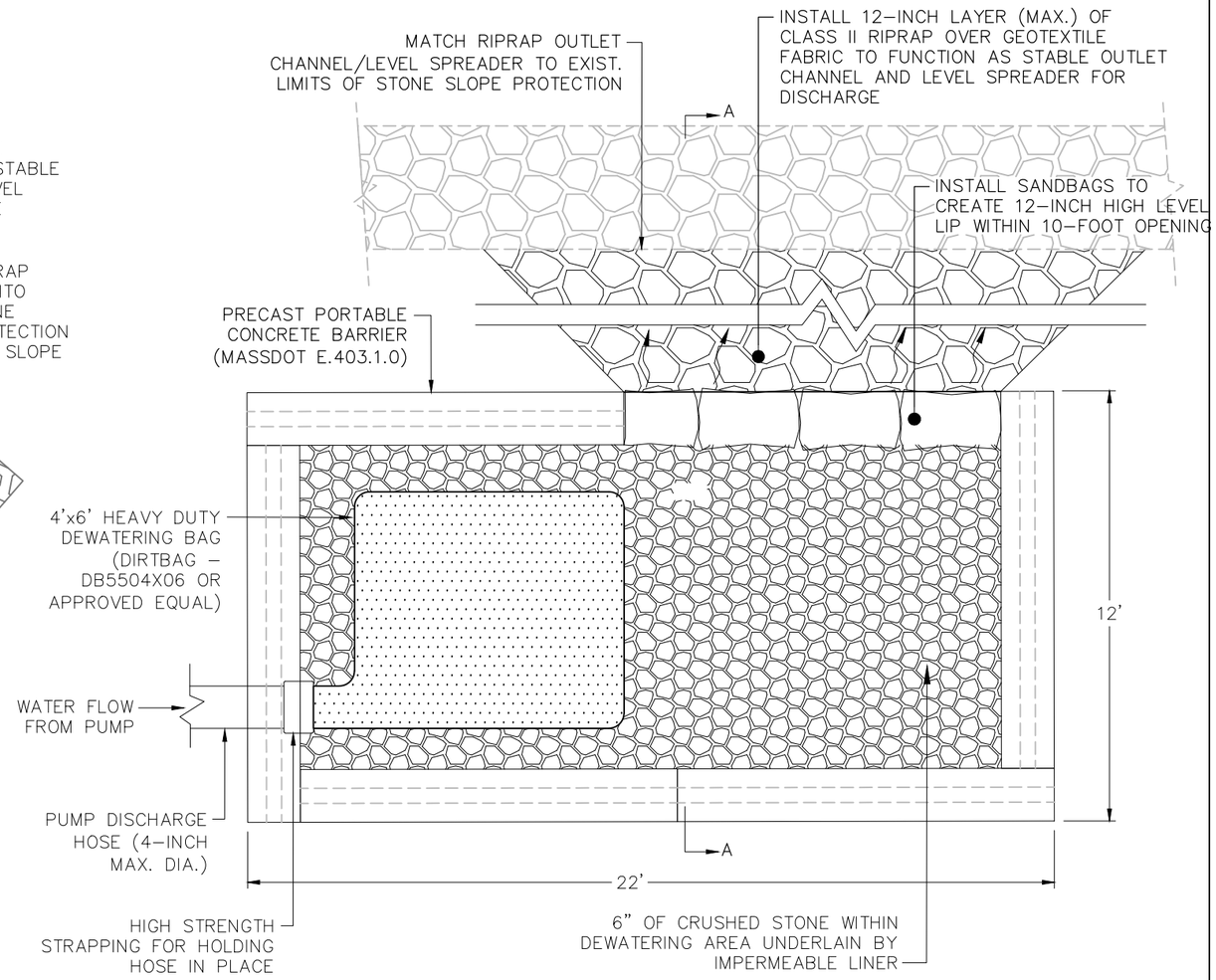
SHEET: 26 OF 27



SECTION A–A

NOTES:

1. THE DEWATERING BAG, DIRTBAG DB 55 OR APPROVED EQUAL, SHALL BE HEAVY DUTY AND CONSIST OF A NONWOVEN BAG SEWN WITH A DOUBLE NEEDLE MATCHING USING A HIGH STRENGTH THREAD.
2. EACH DEWATERING BAG SHALL HAVE A FILL SPOUT LARGE ENOUGH TO ACCOMMODATE A 4–INCH DISCHARGE HOSE. THE BAG SHALL BE PROVIDED WITH STRAPS TO SECURE THE HOSE AND PREVENT PUMPED WATER FROM ESCAPING WITHOUT BEING FILTERED.
3. MAINTAIN DEWATERING BAG(S) AS NECESSARY TO EFFICIENTLY FILTER SEDIMENT OR PASS WATER AT A REASONABLE RATE. USE OF EXCESSIVE FLOW RATES OR OVERFILLING DIRTBAG OF THE HOSE ATTACHMENT STRAPS WITH SEDIMENT WILL CAUSE RUPTURES OF THE BAGS OR FAILURE.
4. DISPOSE OF DEWATERING BAG AND CONTENTS AT OFF–SITE DISPOSAL FACILITY IN ACCORDANCE WITH LOCAL, STATE, AND/OR FEDERAL REGULATIONS.
5. INSTALL DEWATERING BAG AND CRUSHED STONE BEDDING WITH A SLOPE SO INCOMING WATER FLOWS DOWNHILL THROUGH THE BAG WITHOUT CREATING MORE EROSION. STRAP THE NECK OF DEWATERING BAG TIGHTLY TO THE DISCHARGE HOSE.
6. GEOTEXTILE FILTER FABRIC SHALL CONSIST OF A NONWOVEN GEOTEXTILE FABRIC CONFORMING TO TYPE III FABRIC IN ACCORDANCE WITH TABLE III, SECTION M.9.50.0 OF THE MASSDOT STANDARD SPECIFICATIONS.
7. THE IMPERMEABLE LINER SHALL CONSIST OF A 30–MIL THICK PVC LINER.



PLAN

CONSTRUCTION DEWATERING DISCHARGE FILTER BAG AND SETTLING BASIN

SCALE: N.T.S.

PURPOSE: REPLACEMENT OF EXISTING CULVERT, CHANNEL DREDGING, AND SALT MARSH RESTORATION

DATUM: HORZ: NAD83 MA MAINLAND SP(FT)
VERT: NAVD88 (FT)
MLW: 1.20' (DOWNSTREAM SIDE) / 1.30' (UPSTREAM SIDE)
MHW: 4.80' (DOWNSTREAM SIDE) / 2.60' (UPSTREAM SIDE)
HTL: 6.04' (DOWNSTREAM SIDE) / 2.90' (UPSTREAM SIDE)

FUSS AND O'NEILL, INC.
317 IRON HORSE WAY
PROVIDENCE, RI 20908

DETAIL PLAN NO. 8

APPLICATION BY:
WOODS HOLE GROUP, INC.
107 WATERHOUSE ROAD
BOURNE, MA 02532

PROPOSED EAGLE NECK CREEK SALT MARSH RESTORATION AND CULVERT REPLACEMENT PROJECT

IN: EAGLE NECK CREEK
AT: TRURO, BARNSTABLE COUNTY, MASSACHUSETTS
DATE: JUNE 3, 2020

SHEET: 27 OF 27