



Maryland

Department of the Environment

Wes Moore, Governor
Aruna Miller, Lt. Governor

Serena McIlwain, Secretary
Suzanne E. Dorsey, Deputy Secretary
Adam Ortiz, Deputy Secretary

January 7, 2026

Grace Creek Farm LLC and Rhone & Lisa Resch
c/o Karley Routh
Ecotone Inc.
129 Industry Ln
Forest Hill, MD 21050

Via email: krouth@ecotoneinc.com

Re: Agency Interest Number: 180119
Tracking Number: 202361731
Tidal Authorization Number: 25-WQC-0012

Dear Grace Creek Farm LLC and Rhone & Lisa Resch,

Your project did not qualify for approval under the Maryland State Programmatic General Permit (MDSPGP); therefore a separate review and issuance of the federal permit will be required by the U.S. Army Corps of Engineers. The federal permit is not attached.

Additionally, your project required a Wetlands License to be approved and issued by the Maryland Board of Public Works (BPW). The Wetlands License will be sent to you by BPW's Wetlands Administrator.

A project that does not qualify for approval under the MDSPGP requires an individual Water Quality Certification (WQC) to be issued by the Maryland Department of the Environment, which is attached. Please take a moment to read and review your WQC to ensure that you understand the limits of the authorized work and all of the general and special conditions.

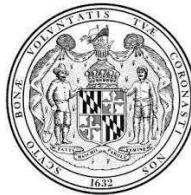
You should not begin any work until you have obtained all necessary State, local, and federal authorizations. Please contact Michaela Harrington at michaela.harrington@maryland.gov or 410-537-4182 with any questions.

Sincerely,

Jonathan Stewart, Chief
Tidal Wetlands Division



STATE OF MARYLAND
DEPARTMENT OF THE ENVIRONMENT
WATER AND SCIENCE ADMINISTRATION
WATER QUALITY CERTIFICATION



25-WQC-0012

EFFECTIVE DATE: **January 7, 2026**
CERTIFICATION HOLDER: **Grace Creek Farm LLC & Rhone & Lisa Resch**
ADDRESS: **415 Prince St, Alexandria, VA 22314**
23432 Berry Rd, Bozman, MD 21612
PROJECT LOCATION: **23472 & 23432 Berry Road**
Bozman, MD 22314

UNDER AUTHORITY OF SECTION 401 OF THE FEDERAL WATER POLLUTION CONTROL ACT AND ITS AMENDMENTS AND IN ACCORDANCE WITH § 9-313 THROUGH § 9-323, INCLUSIVE, OF THE ENVIRONMENT ARTICLE, ANNOTATED CODE OF MARYLAND, THE MARYLAND DEPARTMENT OF THE ENVIRONMENT, WATER AND SCIENCE ADMINISTRATION HAS DETERMINED THAT THE REGULATED ACTIVITIES DESCRIBED IN THE REQUEST FOR CERTIFICATION FOR THE PROPOSED Grace Creek Phase I AND AS DESCRIBED IN THE ATTACHED PLAN SHEETS DATED November 26, 2024 AND ANY SUBSEQUENT MODIFICATIONS APPROVED BY THE DEPARTMENT WILL NOT VIOLATE MARYLAND'S WATER QUALITY STANDARDS, IF CONDUCTED IN ACCORDANCE WITH THE CONDITIONS OF THIS CERTIFICATION.

THIS CERTIFICATION DOES NOT RELIEVE THE APPLICANT OF RESPONSIBILITY FOR OBTAINING ANY OTHER APPROVALS, LICENSES, OR PERMITS IN ACCORDANCE WITH FEDERAL, STATE, OR LOCAL REQUIREMENTS AND DOES NOT AUTHORIZE COMMENCEMENT OF THE PROPOSED PROJECT. A COPY OF THIS REQUIRED CERTIFICATION HAS BEEN SENT TO THE CORPS OF ENGINEERS. THE CERTIFICATION HOLDER SHALL COMPLY WITH THE CONDITIONS LISTED BELOW.

The Maryland Department of the Environment satisfied the statutory and regulatory public notice requirements by placing the WQC on Public Notice from May 15, 2025 to June 15, 2025 on Maryland Department of the Environment's Public Notice webpage and advertising in the Star Democrat on May 21, 2025.

PROJECT DESCRIPTION

Construct a 269-linear foot low profile stone, sand containment sill; and fill and grade with 1,270 cubic yards of sand along 1,191 feet of eroding shoreline and plant with marsh vegetation extending a maximum of 31 feet channelward of mean high water line. Additionally, the applicant has applied to install 245 reef balls along 735 feet of eroding shoreline a maximum of 35 feet channelward of the mean high water line, shown on pages 11-13 on the proposed plan sheets.

GENERAL CONDITIONS

1. All water quality-related performance standards and conditions required by the Department in any state issued authorization for activities in tidal wetlands, nontidal wetlands, their 100-year floodplains, nontidal wetlands buffers, or nontidal wetland expanded buffers to ensure that any discharges will not result in a failure to comply with water quality standards in COMAR 26.08.02 or any other water quality requirements of state law or regulation shall be met.
2. This Certification does not obviate the need to obtain required authorizations or approvals from other State, federal or local agencies as required by law.
3. All additional authorizations or approvals, including self-certifying General Permits issued by the Department, shall be obtained and all conditions shall be completed in compliance with such authorizations.
4. The proposed project shall be constructed in accordance with the approved final plan by the Department, or, if Department approval is not required, the plan approved by the U.S. Army Corps of Engineers, and its approved revisions.
5. All fill and construction materials not used in the project shall be removed and disposed of in a manner which will prevent their entry into waters of this State.
6. This Certification does not authorize any injury to private property, any invasion of rights, or any infringement of federal, state, or local laws or regulations.
7. The Certification Holder shall allow authorized representatives of the Department access to the site of authorized activities during normal business hours to conduct inspections and evaluations of the operations and records necessary to assure compliance with this Certification.
8. No stockpiles of any material shall be placed in Waters of the U.S. or state or private tidal wetlands.
9. Temporary construction trailers or structures, staging areas and stockpiles shall not be located within tidal wetlands, nontidal wetlands, nontidal wetlands buffers, or the 100-year floodplain unless specifically included on the Approved Plan.
10. This Certification is valid for the project identified herein and the associated U.S. Army Corps of Engineers authorization **NAB-2025-60607** (Grace Creek Farm Phase 1), until such time that it expires or is not administratively extended.

SPECIAL CONDITIONS

1. The Certificate Holder shall comply with all Critical Area requirements and obtain all necessary authorizations from local jurisdiction. This Certificate does not constitute authorization for disturbance in the 100-foot Critical Area Buffer. “Disturbance” in the Buffer means clearing, grading, construction activities, or removal of any size of tree or vegetation. Any anticipated Buffer disturbance requires prior written approval, before commencement of land disturbing activity, from local jurisdiction in the form of a Buffer Management Plan.

2. If the authorized work is not performed by the property owner or is not otherwise exempt from the licensing requirement, all work performed under this Tidal Wetlands Permit shall be conducted by a marine contractor licensed by the Marine Contractors Licensing Board (MCLB) in accordance with Title 17 of the Environment Article of Annotated Code of Maryland and COMAR 26.30. The licensed marine contractor shall be authorized for the appropriate license category to perform or solicit to perform the activities within this authorization, if applicable. A list of licensed marine contractors and their license category may be obtained by contacting the MCLB at 410-537- 3249, by e-mail at MDE.MCLB@maryland.gov, or by accessing the Maryland Department of the Environment, Environmental Boards webpage at <https://mde.maryland.gov/programs/water/WetlandsandWaterways/Pages/LicensedMarineContractors.aspx>.
3. The issuance of this Certificate is not a validation or authorization by the Department for any of the existing structures depicted on the plan sheets on the subject property that is not part of the authorized work description, nor does it relieve the Certificate Holder of the obligation to resolve any existing noncompliant structures and activities within tidal wetlands.
4. The Certificate Holder shall construct the marsh establishment area in accordance with the following conditions:
 - a. The Certificate Holder shall use clean substrate fill material, no more than 10% of which shall pass through a standard number 100 sieve.
 - b. The marsh establishment area shall be planted within one year following completion of the filling operation.
 - c. The marsh establishment project shall be maintained as a wetland, with non-nuisance species' aerial coverage of at least 85% for three consecutive years. If 85% coverage is not attained, the reasons for failure shall be determined, corrective measures shall be taken, and the area shall be replanted.
 - d. If the fill is graded hydraulically, the licensee shall use a turbidity curtain around the perimeter of the instream work.
 - e. If the existing bank is to be cleared or graded:
 - i) The Certificate Holder shall perform all work under and in accordance with an approved Soil Erosion and Sediment Control Plan from the applicable sediment and erosion control agency; and
 - ii) The Certificate Holder shall perform all work under and in accordance with the Critical Area requirements of the local jurisdiction in the form of an approved Buffer Management Plan.
5. The Certificate Holder shall accept the terms of the attached marsh maintenance plan by signing and returning the standard plan to the Water and Science Administration, Tidal Wetlands Division prior to commencement of any work authorized under this Certificate. If the Certificate Holder wishes to propose an alternative marsh maintenance plan, the alternative plan must be submitted to and approved by the Tidal Wetlands Division, Water and Science Administration, prior to commencement of any work authorized under this Certificate. Any alternative plan must provide assurances of success that are at least equivalent to those of the standard plan, in terms of the extent of native marsh plant coverage, elimination of invasive species and timeframe for plant establishment.

6. The Certificate Holder shall submit photographs on an annual basis for the first five growing seasons to the Tidal Wetlands Division, Water and Science Administration in order to document the success of the project in terms of the extent of native marsh plant coverage. Photographs shall be taken from at least two directions, as necessary to fully depict the living shoreline.
7. The Certificate Holder shall not perform any in water work from April 15th through October 15th of any year due to submerged aquatic vegetation restrictions.
8. The Certificate Holder shall not perform bank grading between December 16th through March 1st and June 1st through September 30th of any year due to the presence of oysters.

CITATIONS AND STATEMENTS OF NECESSITY

1. Statement of Necessity for General Conditions 1, 2, 3, & 4, and Special Conditions 1, & 3: These conditions are necessary to ensure that water quality standards are met, and designated uses are maintained.

Citations: Federal and state laws which authorize this condition include but are not limited to: 33 U.S.C. § 1341(a), (b), & (d); 33 U.S.C. § 1251(b); 33 U.S.C. § 1370; Md. Ann. Code, Env. Article, Title 1, Subtitles 3 and 4; Md. Ann. Code, Env. Article, Title 5, Subtitles 5 and 9; Md. Ann. Code, Env. Article, Title 9, Subtitle 3; Md. Ann. Code, Env. Article, Title 16; COMAR 26.08; COMAR 26.08.02.10G(3); COMAR 26.23.02.06; COMAR 26.17.01; COMAR 26.23; COMAR 26.24

2. Statement of Necessity for General Conditions 5, 8, & 9 and Special Conditions 4, 5, & 6: Fill or construction material within or adjacent to regulated resources may cause discharges resulting in turbidity in excess of water quality standards and interfere with designated uses of growth and propagation of fish, other aquatic life, wildlife; and other designated uses; and fail to meet general water quality criteria that waters not be polluted by substances in amounts sufficient to be unsightly or create a nuisance.

Citation: 26.08.02.03B(1)-B(2); COMAR 26.23; COMAR 26.24; COMAR 26.17.04

3. Statement of Necessity for General Condition 6: This condition is necessary to clarify the scope of this certification to ensure compliance with water quality regulations, without limiting restrictions through other requirements.

Citation: Federal and state laws which authorize this condition include but are not limited to: 33 U.S.C. § 1341(a), (b), & (d); 33 U.S.C. § 1251(b); 33 U.S.C. § 1370; Md. Ann. Code, Env. Article, Title 1, Subtitles 3 and 4; Md. Ann. Code, Env. Article, Title 5, Subtitles 5 and 9; Md. Ann. Code, Env. Article, Title 9, Subtitle 3; Md. Ann. Code, Env. Article, Title 16; COMAR 26.08, COMAR 26.08.02.10E; COMAR 26.23.02.06; COMAR 26.17.04; COMAR 26.23; COMAR 26.24

4. Statement of Necessity for General Condition 7: Conditions of certification involve precise actions to comply with water quality standards. Site inspection may be necessary to ensure that limits, methods, and other requirements are met to ensure that water quality standards are met and designated uses are maintained. These conditions are necessary to ensure that the activity was conducted, and project completed according to terms of the authorization/certification, while allowing for review of in-field modifications which may have resulted in discharges to ensure that water quality standards were met. Designated uses include support of estuarine and marine aquatic life and shellfish harvesting and for growth and propagation of fish, other aquatic life, and wildlife.

Citation: Federal and state laws that authorize this condition include but are not limited to: 33 U.S.C. § 1341(a), (b), & (d); 33 U.S.C. § 1251(b); 33 U.S.C. § 1370; Md. Ann. Code, Env. Article, Title 1, Subtitles 3 and 4; Md. Ann. Code, Env. Article, Title 5, Subtitles 5 and 9; Md. Ann. Code, Env. Article, Title 9, Subtitle 3; Md. Ann. Code, Env. Article, Title 16; COMAR 26.08; COMAR 26.08.02.03B(1)(b); COMAR 26.08.02.03B(2); COMAR 26.23.02.06; COMAR 26.23; COMAR 26.24; COMAR 26.17.04

5. Statement of Necessity for General Condition 10: This condition is necessary to qualify the period of applicability of the terms and conditions of this Certification to be protective of Maryland water quality standards.

Citations: Federal and state laws which authorize this condition include but are not limited to: 33 U.S.C. § 1341(a), (b), & (d); 33 U.S.C. § 1251(b); 33 U.S.C. § 1370; 40 C.F.R. 121, 15 C.F.R. 930, Md. Ann. Code, Env. Article, Title 1, Subtitles 3 and 4; Md. Ann. Code, Env. Article, Title 5, Subtitles 5 and 9; Md. Ann. Code, Env. Article, Title 9, Subtitle 3; Md. Ann. Code, Env. Article, Title 16; COMAR 26.08; COMAR 26.17.04; COMAR 26.23; COMAR 26.24

6. Statement of Necessity for Special Condition 2: Expertise for conducting certain activities is required to ensure that there is no violation of water quality standards nor interference with designated uses. This condition is necessary to ensure that discharges will be conducted in a manner which does not violate water quality criteria nor interfere with designated uses.

Citation: COMAR 26.08.02.02B(2)- B(4); COMAR 26.08 02.03B(2)(d) – (e); COMAR 26.08.02.03B(1)(b); 26.08.02.03B(2); COMAR 23.02.04.04

7. Statement of Necessity for Special Conditions 4, 5, & 6: Tidal wetlands provide essential habitat, water quality, food, and movement corridors for wildlife, and support of estuarine and marine aquatic life and shellfish harvesting. Successful establishment is necessary to prevent discharges which interfere with designated uses, including growth and propagation of fish, other aquatic life, and wildlife through loss of stream channel habitat and wetlands. Required establishment, re-establishment, or enhancement and loss limits will maintain the designated use.

Citations: COMAR 26.08.02.02B(3); COMAR 26.08.02.03B(3) and B(4); COMAR 26.24.

8. Statement of Necessity for Special Condition 7 & 8: A time of year restriction is necessary to maintain the designated use for support of estuarine and marine aquatic life and shellfish harvesting.

Citation: Federal and state laws which authorize this condition include but are not limited to:
COMAR: 26.08.02.02B(1)(d); 26.08.02.02B(3); COMAR 26.08.02.02-16.

CERTIFICATION APPROVED

Tammy K. Roberson for

Tammy K. Roberson for (Jan 12, 2026 10:34:42 EST)

Heather L. Nelson, Program Manager
Wetlands and Waterways Protection Program

Tracking Number: 202361731

Agency Interest Number: 180119

Effective Date: January 7, 2026

Enclosure: Plan Sheets dated November 26, 2024

cc: WSA Inspection & Compliance Program
 Army Corps of Engineers

INDEX OF SHEETS

NO.	SHEET NAME	DESCRIPTION
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2	SHEET INDEX	IN-01
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10-13	STABILIZATION PLANS	S-01 TO S-04
14-16	DETAILS	DE-01 TO DE-03
17-19	CROSS SECTIONS	XS-01 TO XS-03
20	EROSION AND SEDIMENT CONTROL GENERAL NOTES / SOC	EN-01
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28	EROSION AND SEDIMENT CONTROL DETAILS	ED-01
29-35	BUFFER MANAGEMENT / LANDSCAPE PLAN	LS-01 TO LS-07
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GRACE CREEK FARM LIVING SHORELINE

EASTERN SHORE LAND CONSERVANCY
EASTON, MARYLAND
90% DESIGN

MDE TRACKING #: 23-WL-1100

REVIEWED FOR THE TALBOT SOIL CONSERVATION AND MEETS TECHNICAL REQUIREMENTS

APPROVED:

TALBOT SOIL CONSERVATION DISTRICT DATE

NOTE: THE TALBOT SOIL CONSERVATION DISTRICT RESERVES THE RIGHT TO ADD, DELETE, MODIFY, OR OTHERWISE ALTER THE EROSION CONTROL PROVISIONS OF THIS PLAN IN THE EVENT ADDITIONAL PROTECTION BECOMES NECESSARY.

DEVELOPERS CERTIFICATION

I HEREBY CERTIFY THAT ALL THE DEVELOPMENT AND/OR CONSTRUCTION SHALL BE DONE ACCORDING TO THIS PLAN OF EROSION AND SEDIMENT CONTROL.

SIGNATURE DATE

1. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR OR SUBCONTRACTOR TO NOTIFY THE ENGINEER OF ANY DEVIATION FROM THIS PLAN. ANY CHANGE MADE IN THIS PLAN WITHOUT WRITTEN AUTHORIZATION FROM THE ENGINEER WILL PLACE RESPONSIBILITY FOR SAID CHANGE ON THE CONTRACTOR OR SUBCONTRACTOR.

2. ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT THE DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF EROSION AND SEDIMENT BEFORE BEGINNING THE PROJECT.

ENGINEER'S CERTIFICATION

I HEREBY CERTIFY THAT THIS PLAN HAS BEEN PREPARED BY ME OR UNDER MY SUPERVISION AND MEETS THE MINIMUM STANDARDS OF THE HARFORD COUNTY DEPARTMENT OF PUBLIC WORKS AND/OR UNITED STATES DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE AND/OR THE MARYLAND DEPARTMENT OF THE ENVIRONMENT, WATER MANAGEMENT ADMINISTRATION.

ENGINEER'S SIGNATURE DATE

PRINTED NAME MD PE REGISTRATION NO.

FIELD VERIFICATION

I HEREBY CERTIFY THAT I COMPLETED A FIELD VERIFICATION TO THE INFORMATION SHOWN ON THE PLANS (DATE) AND THAT THE INFORMATION SHOWN ON THE PLANS IS IN AGREEMENT WITH THE ACTUAL FIELD CONDITIONS.

ENGINEER'S SIGNATURE

PRINTED NAME MD PE REGISTRATION NO. DATE

PROPERTY OWNER INFORMATION

GRACE CREEK FARM LLC
23472 BERRY RD
BOZMAN, MD 21612-0000
DEED BOOK: 02807 PAGE: 00227
MAP: 39 GRID: 0004 PARCEL: 0050

SITE DATA

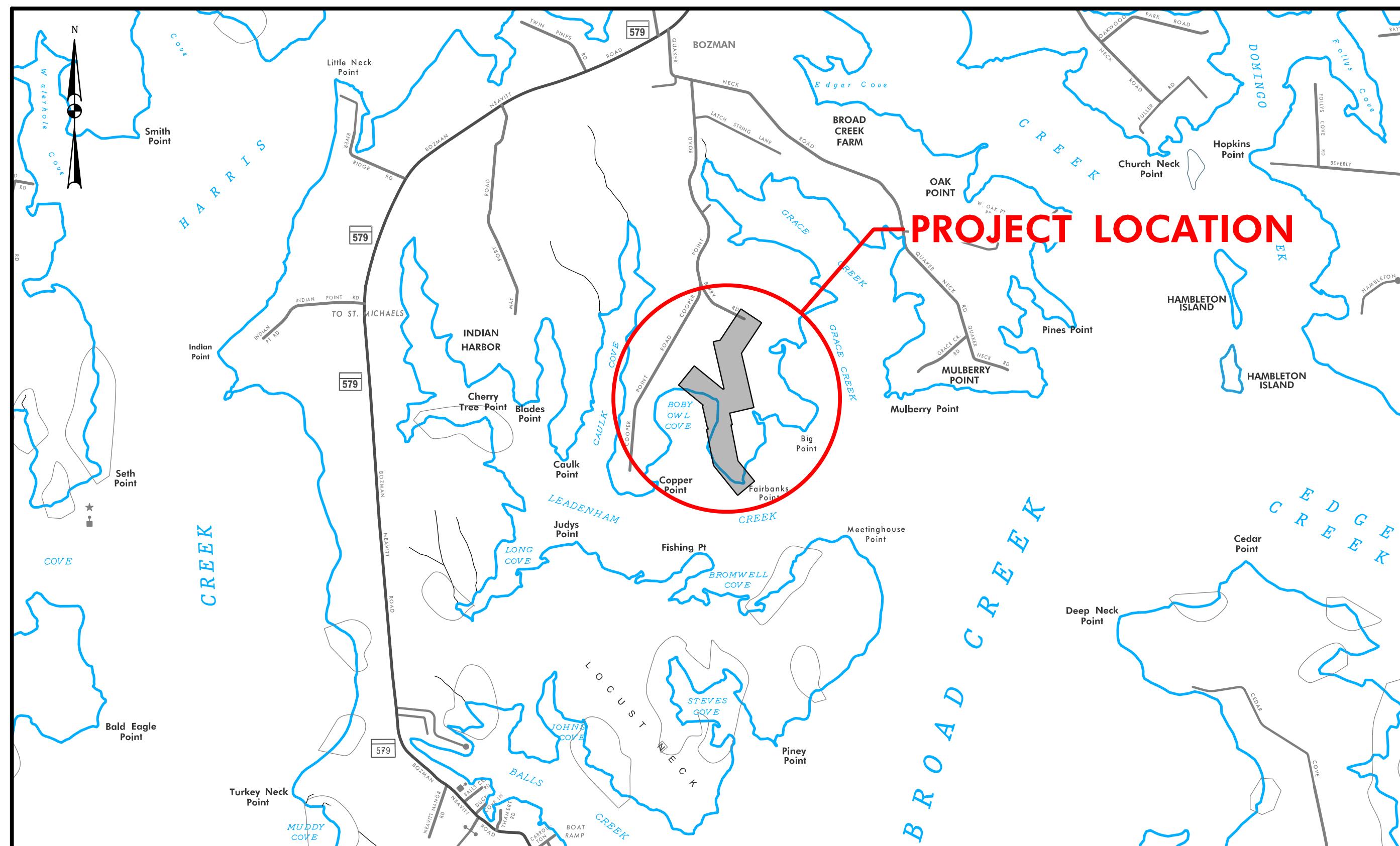
DEED BOOK: 02807 PAGE: 00227
MAP: 39 GRID: 0004 PARCEL: 0050
ELECTION DISTRICT: 2
ACCOUNT #: 0084759
EXISTING LANDUSE: AGRICULTURAL
SITE ACREAGE: ±167.47 AC.
8 DIGIT HUC: 02060005
MD 8 DIGIT BASIN: 02130403
(LOWER CHOPTANK WATERSHED)

SITE ANALYSIS

LIMIT OF DISTURBANCE: 25513 SY / 5.3 AC
NEW IMPERVIOUS AREA: NONE
TOTAL AREA TO BE STABILIZED: 5.3 AC
APPROXIMATE CUT: 212 CY
APPROXIMATE FILL: 1,517 CY
APPROXIMATE NET: 1,305 CY(FILL)

DESIGN PROFESSIONAL

ECOTONE LLC
4 North Park Dr., Ste 210
Cockeysville, MD 21030
410-420-2600
Engineering@ecotoneinc.com

CALL BEFORE YOU DIG
1-800-257-7777 OR DIAL 811

LOCATION MAP

SCALE: 1" = 2000'

PROJECT SUMMARY

TOTAL LENGTH OF SHORELINE RESTORED: 2,700 LF

FACILITY	TSS REDUCTION	TN REDUCTION	TP REDUCTION
GRACE CREEK SHORELINE	380 TONS/YR	490 LBS/YR	286 LBS/YR

*NUTRIENT REDUCTIONS CALCULATED USING FIELD DATA BASED ON THE DEFAULT RATES FOR LINEAR FOOTAGE OF SHORELINE RESTORED

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE 'AS-BUILT' PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

ENGINEER'S SIGNATURE DATE

PRINTED NAME MD PE REGISTRATION NO.

COORDINATE NOTE
PLANS ARE IN NAD 83 MARYLAND STATE PLANE FIPS 1900 COORDINATE SYSTEM.

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. _____, EXPIRATION DATE: _____

SIGNATURE DATE

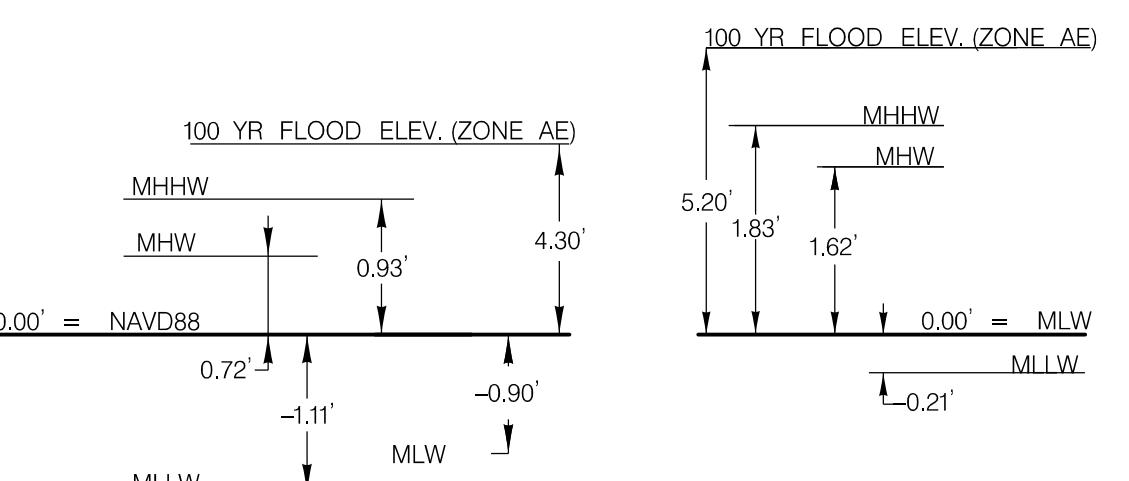
REVISIONS

S/C PLAN # XXXXX	

GENERAL NOTES

1. THIS PLAN HAS BEEN PREPARED TO PROVIDE APPROXIMATELY 2,700 LF OF TIDAL SHORELINE RESTORATION ON TWO PROPERTIES AS SHOWN ON THE INDEX SHEET OF THIS SET. THE PROPERTIES ARE LOCATED ON 23472 BERRY ROAD AND THE GRACE CREEK FARM PROPERTY IN TALBOT COUNTY, MARYLAND.
2. UTILITIES LOCATIONS SHOWN ON THE PLANS ARE BASED ON LIMITED INFORMATION AVAILABLE; HOWEVER, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE ACCURACY OF THIS INFORMATION. THE COST OF REPAIR OR REPLACEMENT OF ANY SUCH FACILITIES DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE BORNE BY THE CONTRACTOR.
3. CONTACT "MISS UTILITY" PHONE 1-800-257-7777, 48 HOURS PRIOR TO THE START OF WORK, THERE SHOULD BE NO EXCAVATION UNTIL THE LOCATIONS OF UNDERGROUND UTILITIES HAVE BEEN DETERMINED.
4. SOIL CONSERVATION: THE CONTRACTOR SHALL NOT DISTURB THE EXISTING VEGETATION OUTSIDE THE LIMITS OF DISTURBANCE. STOCKPILING AND STAGING WILL BE ALLOWED TO SUPPORT THE CONTRACTOR NEEDS TO SECURE AN ON-SITE SPOILS AREA. THEY WILL NEED TO OBTAIN THE NECESSARY PERMITS. SOIL STABILIZATION WILL CONFORM TO 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.
5. ALL MACHINERY, EQUIPMENT, AND SUPPLIES FOR THE PROJECT SHALL BE STORED IN AN UPLAND LOCATION, PREFERABLY THE STAGING AREA SHOWN ON THESE PLANS, SO AS NOT TO DISTURB ANY ENVIRONMENTALLY SENSITIVE AREAS OR AGRICULTURAL USES ON THE SITE.

23-WL-1100
202361731
180119
11/26/2024
MTH

DATUM CONVERSIONS
NOT TO SCALE

NOTE:
1. DATUM COMPARISON BASED ON NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA) VDATUM FROM SITE LOCATION (LONG: -76° 16' 03.8", LAT: 38° 44' 56.5") ALL ELEVATIONS LISTED IN THE PLAN SET ARE NAVD88.

2. THE EXISTING TOPOGRAPHY HAS BEEN RAISED BY 0.90 FT TO SET THE MLW ELEVATION TO 0 FT WITH A RESULTING MHW ELEVATION OF 1.62 FT.



Empowering people. Restoring nature.



Chesapeake Bay Program

A Watershed Partnership

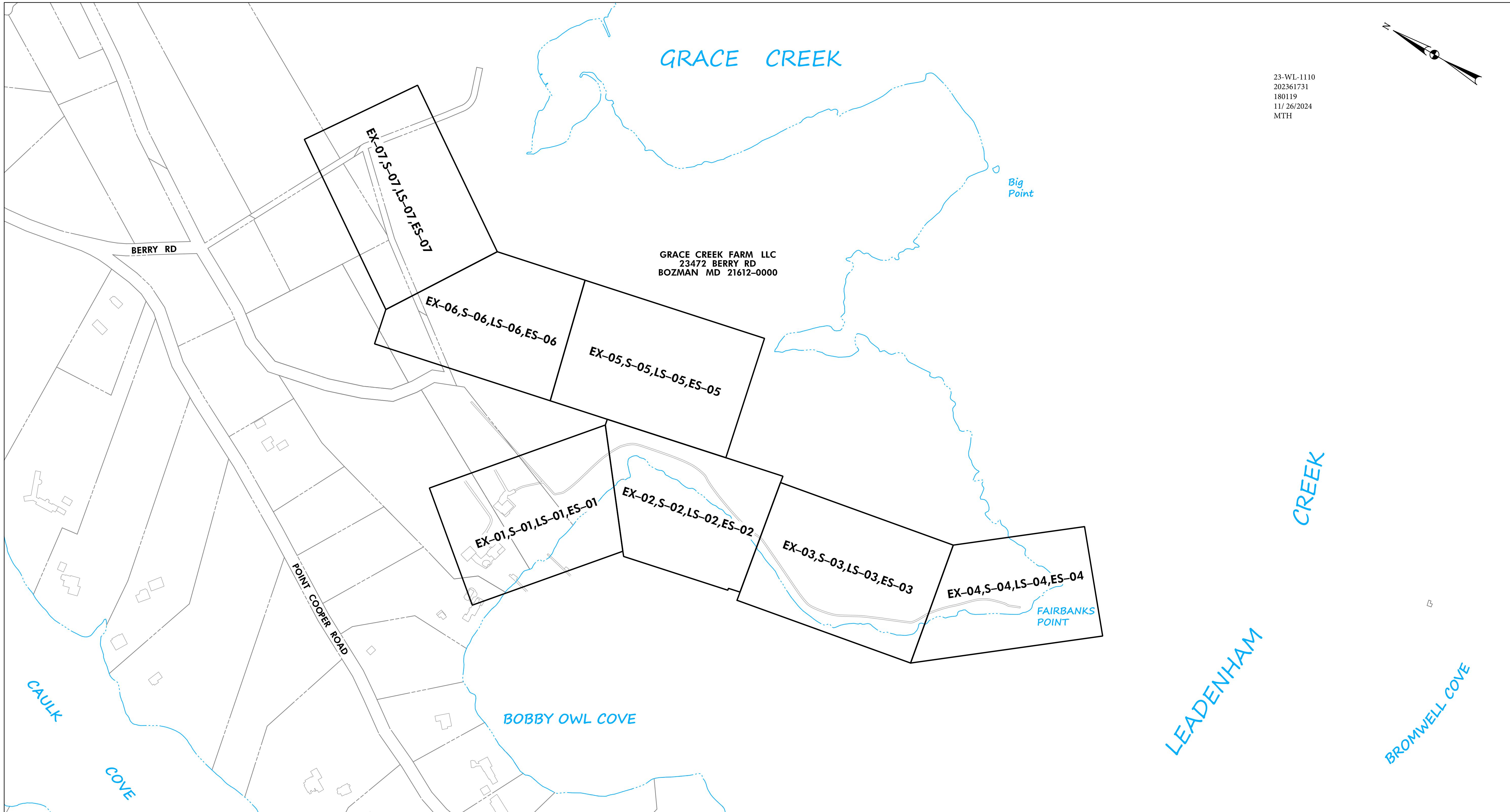


EASTERN SHORE LAND CONSERVANCY

GRACE CREEK FARM LIVING SHORELINE
TITLE SHEET

23472 BERRY RD, BOZMAN MD, TALBOT COUNTY

DRAWN BY: JB	SCALE: 1" = 2000'
DESIGNED BY: CN	DATE: NOVEMBER 2024
REVIEWED BY: MD	
DRAWING NO. GN-01 OF GN-01	SHEET NO. 01 OF 37



EASTERN SHORE LAND CONSERVANCY	
GRACE CREEK FARM LIVING SHORELINE SHEET INDEX	
23472 BERRY RD, BOZMAN MD, TALBOT COUNTY	
REVISIONS	
DRAWN BY : <u>JB</u>	SCALE : <u>1" = 200'</u>
DESIGNED BY : <u>CN</u>	DATE : <u>NOVEMBER 2024</u>
REVIEWED BY : <u>MD</u>	
DRAWING NO. IN-01 OF IN-01	SHEET NO. 02 OF 37



EXISTING FEATURES LEGEND

	PROPERTY BOUNDARY
	EX. MAJOR CONTOURS
	EX. MINOR CONTOURS
	EX. MEAN HIGH WATER ELEV. = 1.62 (MLW) 0.72 (NAVD88)
	EX. MEAN LOW WATER ELEV. = 0.00 (MLW) -0.90 (NAVD88)
	EX. HIGH TIDE LINE ELEV. = 2.94 (MLW) 2.04 (NAVD88)
	EX. MEAN HIGHER HIGH ELEV. = 1.83 (MLW) 0.93 (NAVD88)
	EX. ROADS
	EX. METAL FENCE
	EX. WOOD FENCE
	EX. TREELINE
	FEMA EX. 100 YR FLOODPLAIN
	EX. WETLAND
	EX. RIPRAP
	EX. WETLAND BUFFER (25 FT)
	STORM DRAIN
	SPECIMEN (30" OR GREATER)
	EX. TREE
	EX. CRITICAL AREA DESIGNATION
	SAV (2018-2022 COMPOSITE)

STABILIZATION LEGEND

—	LOD	—	LIMIT OF DISTURBANCE
—	LOA	—	LIMIT OF ACTIVITY
SAV Mapping Year			
2023*			Moderate
2022			Sparse
2021			Moderate
2020			Sparse
2019			Dense
2018			Dense

23-WL-1110
202361731
180119
11/26/2024
MTH

EASTERN SHORE LAND CONSERVANCY

GRACE CREEK FARM LIVING SHORELINE EXISTING CONDITIONS PLAN

23472 BERRY RD. BOZMAN MD . TALBOT COUNTY

COORDINATE NOTE
PLANS ARE IN NAD 83 MARYLAND STATE PLANE FIPS 1900 COORDINATE SYSTEM.
<u>PROFESSIONAL CERTIFICATION</u>
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

30' 0 30' 60'
SCALE: 1" = 30"

The logo for ecotone features a stylized circular emblem on the left. The circle is composed of three concentric arcs in orange, teal, and green. Inside the circle, there are several green leaf-like shapes. To the right of the logo, the word "ecotone" is written in a lowercase, sans-serif font.

MATCHLINE - SEE SHEET SR-05

MATCHLINE - SEE SHEET EX-01

COORDINATE NOTE

PLANS ARE IN NAD 83 MARYLAND STATE PLANE FIPS 1900
COORDINATE SYSTEM.

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME
AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF
THE STATE OF MARYLAND.30' 0' 30' 60'
SCALE: 1" = 30'

EXISTING FEATURES LEGEND

PROPERTY BOUNDARY
500 EX. MAJOR CONTOURS
498 EX. MINOR CONTOURS
MHW EX. MEAN HIGH WATER ELEV. = 1.62 (MLW) 0.72 (NAVD88)
MLW EX. MEAN LOW WATER ELEV. = 0.00 (MLW) -0.90 (NAVD88)
HTL EX. HIGH TIDE LINE ELEV. = 2.94 (MLW) 2.04 (NAVD88)
MHHW EX. MEAN HIGHER HIGH ELEV. = 1.83 (MLW) 0.93 (NAVD88)
EX. ROADS
EX. METAL FENCE
EX. WOOD FENCE
EX. TREELINE
FEMA EX. 100 YR FLOODPLAIN
EX. WETLAND
EX. RIPRAP
B EX. WETLAND BUFFER (25 FT)
STORM DRAIN
SPECIMEN (30" OR GREATER)
EX. TREE
RCA EX. CRITICAL AREA DESIGNATION
SAV SAV (2018-2022 COMPOSITE)

STABILIZATION LEGEND

LOD	LIMIT OF DISTURBANCE
LOA	LIMIT OF ACTIVITY

SAV Mapping Year	Density
2023*	Moderate
2022	Sparse
2021	Moderate
2020	Sparse
2019	Dense
2018	Dense

*2023 Mapping not available for download

23-WL-1110
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11/26/2024
MTH

MATCHLINE - SEE SHEET EX-03

EASTERN SHORE LAND CONSERVANCY

GRACE CREEK FARM LIVING SHORELINE
EXISTING CONDITIONS PLAN

23472 BERRY RD, BOZMAN MD, TALBOT COUNTY

REVISIONS

DRAWN BY: JB

SCALE: 1" = 30'

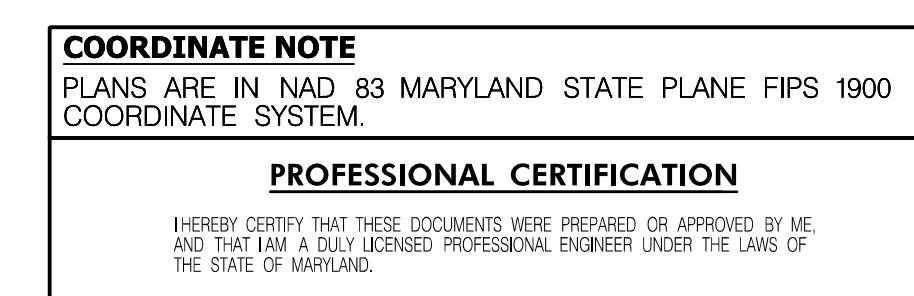
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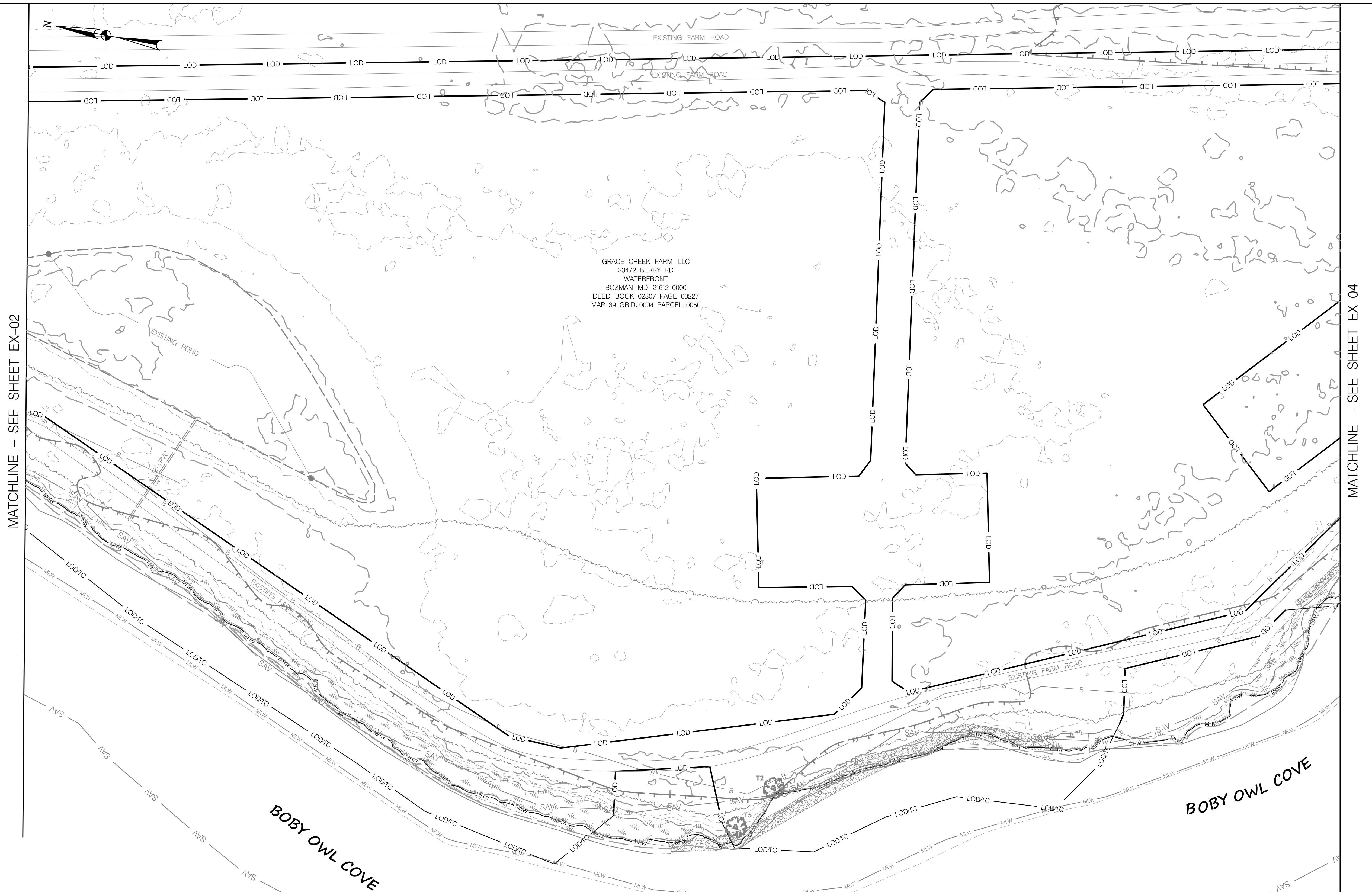
DATE: NOVEMBER 2023

REVIEWED BY: MD

DRAWING NO. EX-02 OF EX-07

SHEET NO. 04 OF 37





EXISTING FEATURES LEGEND

— — — 500 — — —	PROPERTY BOUNDARY
— — — 498 — — —	EX. MAJOR CONTOURS
— — - MHW — — -	EX. MINOR CONTOURS
— — - MLW — — -	EX. MEAN HIGH WATER ELEV. = 1.62 (MLW) 0.72 (NAVD88)
— — - HTL — — -	EX. MEAN LOW WATER ELEV. = 0.00 (MLW) -0.90 (NAVD88)
— — - MHHW — — -	EX. HIGH TIDE LINE ELEV. = 2.94 (MLW) 2.04 (NAVD88)
— — — — —	EX. MEAN HIGHER HIGH ELEV. = 1.83 (MLW) 0.93 (NAVD88)
— — — — —	EX. ROADS
— — — — —	EX. METAL FENCE
— — — — —	EX. WOOD FENCE
— — — — —	EX. TREELINE
— — — — —	FEMA EX. 100 YR FLOODPLAIN
— — — — —	EX. WETLAND
— — — — —	EX. RIPRAP
— — — B — — —	EX. WETLAND BUFFER (25 FT)
— — — — —	STORM DRAIN
 SPECIMEN (30" OR GREATER)	EX. TREE
  	EX. CRITICAL AREA DESIGNATION
 SAV	SAV (2018–2022 COMPOSITE)

STABILIZATION LEGEND

LOD	—	LIMIT OF DISTURBANCE
LOA	—	LIMIT OF ACTIVITY
SAV Mapping Year		Density
2023*		Moderate
2022		Sparse
2021		Moderate
2020		Sparse
2019		Dense
2018		Dense

23-WL-1110
202361731
180119
11/ 26/2024

EASTERN SHORE LAND CONSERVANCY

GRACE CREEK FARM LIVING SHORELINE EXISTING CONDITIONS PLAN

23472 BERRY RD, BOZMAN MD , TALBOT COUNTY

SCALE : 1" = 30'

DATE : NOVEMBER 2023

DATE: NOVEMBER 2020

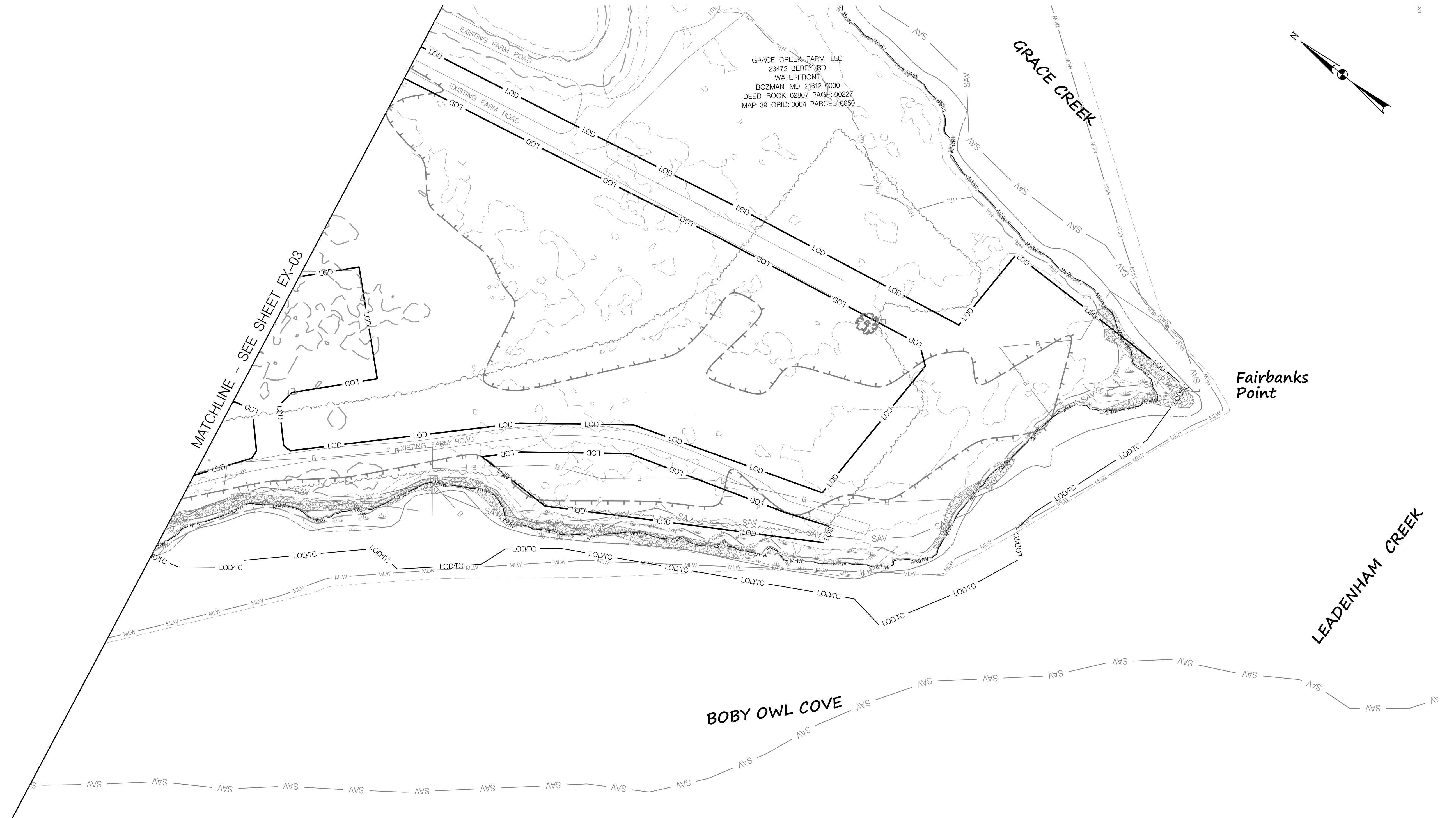
CLUEET NO. 65-65-67

SHEET NO. 05 OF 37

COORDINATE NOTE
PLANS ARE IN NAD 83 MARYLAND STATE PLANE FIPS 1900
COORDINATE SYSTEM

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME,
AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF
THE STATE OF MARYLAND.



EXISTING FEATURES LEGEND

— — — 500 — — —	PROPERTY BOUNDARY
— — — 498 — — —	EX. MAJOR CONTOURS
— — — MHW — — —	EX. MINOR CONTOURS
— — — MLW — — —	EX. MEAN HIGH WATER ELEV. = 1.62 (MLW) 0.72 (NAVD88)
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— — — — —	EX. ROADS
× — — — — — — —	EX. METAL FENCE
○ — — — — — — —	EX. WOOD FENCE
— — — — — — —	EX. TREELINE
— — — — — — —	FEMA EX. 100 YR FLOODPLAIN
— — — — — — —	EX. WETLAND
— — — — — — —	EX. RIPRAP
— — — B — — —	EX. WETLAND BUFFER (25 FT)
— — — — — — —	STORM DRAIN
 SPECIMEN (30" OR GREATER)	EX. TREE
<u>RCA</u> <u>ECAB</u> <u>RCA</u>	EX. CRITICAL AREA DESIGNATION
<u>SAV</u>	SAV (2018–2022 COMPOSITE)

STABILIZATION LEGEND



LOD	LIMIT OF DISTURBANCE
LOA	LIMIT OF ACTIVITY

SAV Mapping Year	Density
2023*	Moderate
2022	Sparse
2021	Moderate
2020	Sparse
2019	Dense
2018	Dense

*2023 Mapping not available for download

23-WL-1110
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MTL

EASTERN SHORE LAND CONSERVANCY

GRACE CREEK FARM LIVING SHORELINE EXISTING CONDITIONS PLAN

23472 BERRY RD, BOZMAN MD , TALBOT COUNTY

SCALE : 1" = 30'

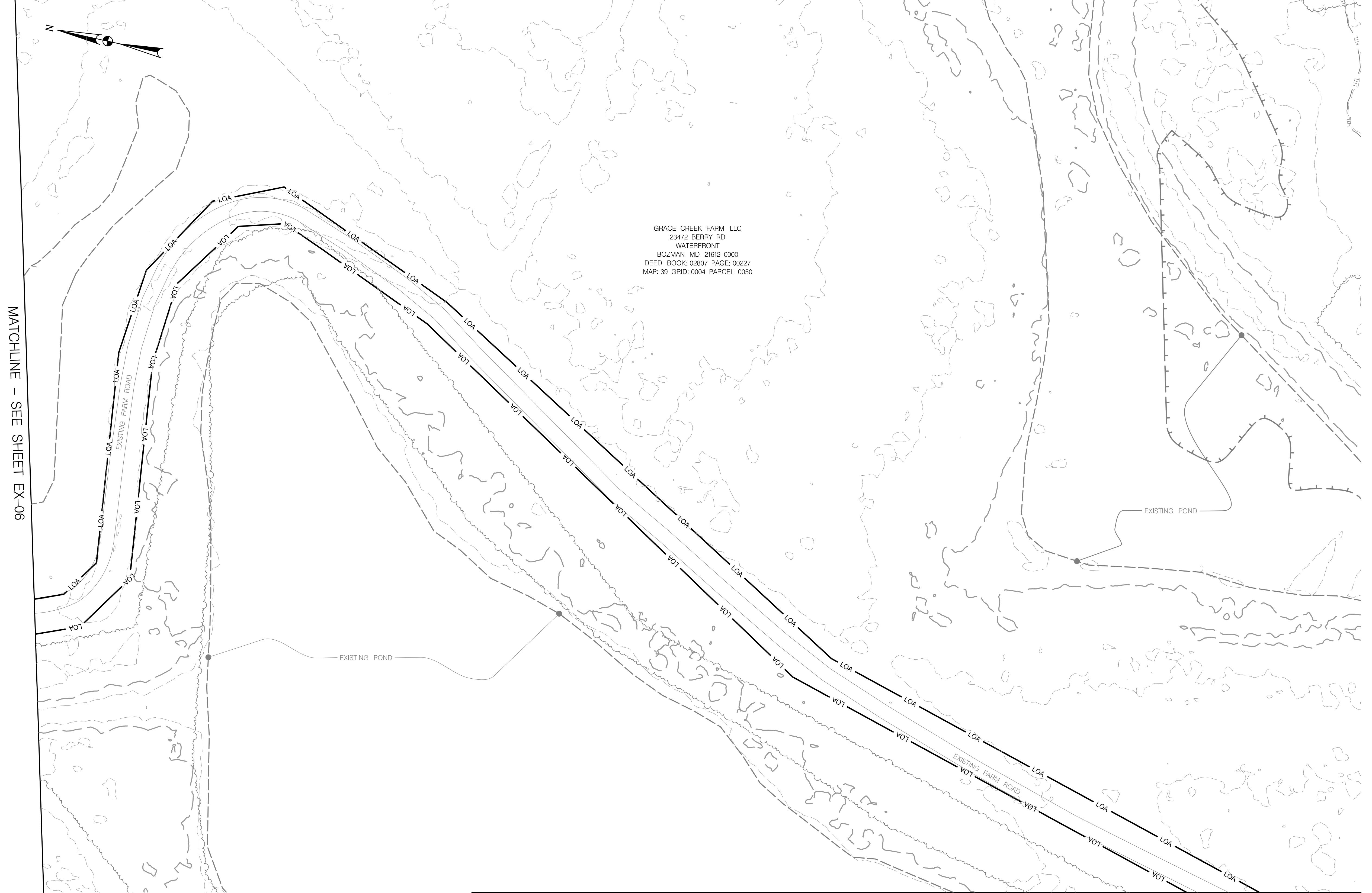
DATE: NOVEMBER 2020

SHEET NO. 06 OF 37

COORDINATE NOTE
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COORDINATE SYSTEM

PROFESSIONAL CERTIFICATION

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EXISTING FEATURES LEGEND	
-----	PROPERTY BOUNDARY
— 500 —	EX. MAJOR CONTOURS
— 498 —	EX. MINOR CONTOURS
— MHW —	EX. MEAN HIGH WATER ELEV. = 1.62 (MLW) 0.72 (NAVD88)
— MLW —	EX. MEAN LOW WATER ELEV. = 0.00 (MLW) -0.90 (NAVD88)
— HTL —	EX. HIGH TIDE LINE ELEV. = 2.94 (MLW) 2.04 (NAVD88)
— MHHW —	EX. MEAN HIGHER HIGH ELEV. = 1.83 (MLW) 0.93 (NAVD88)
—	EX. ROADS
X-X-X-X	EX. METAL FENCE
○○○○○	EX. WOOD FENCE
~~~~~	EX. TREELINE
	FEMA EX. 100 YR FLOODPLAIN
	EX. WETLAND
	EX. RIPRAP
— B —	EX. WETLAND BUFFER (25 FT)
=====	STORM DRAIN
	SPECIMEN (30" OR GREATER)
	EX. TREE
RCA	EX. CRITICAL AREA DESIGNATION
ECAB	RCA
SAV	SAV (2018-2022 COMPOSITE)

#### STABILIZATION LEGEND

— LOD —	LIMIT OF DISTURBANCE
— LOA —	LIMIT OF ACTIVITY

SAV Mapping Year	Density
2023*	Moderate
2022	Sparse
2021	Moderate
2020	Sparse
2019	Dense
2018	Dense

*2023 Mapping not available for download

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11/26/2024  
MTH

#### EASTERN SHORE LAND CONSERVANCY

#### GRACE CREEK FARM LIVING SHORELINE EXISTING CONDITIONS PLAN

23472 BERRY RD, BOZMAN MD, TALBOT COUNTY

REVISIONS	DRAWN BY: <u>JB</u>	SCALE: 1" = 30'
	DESIGNED BY: <u>DN</u>	DATE: NOVEMBER 2023
	REVIEWED BY: <u>MD</u>	
	DRAWING NO. EX-05 OF EX-07	SHEET NO. 07 OF 37

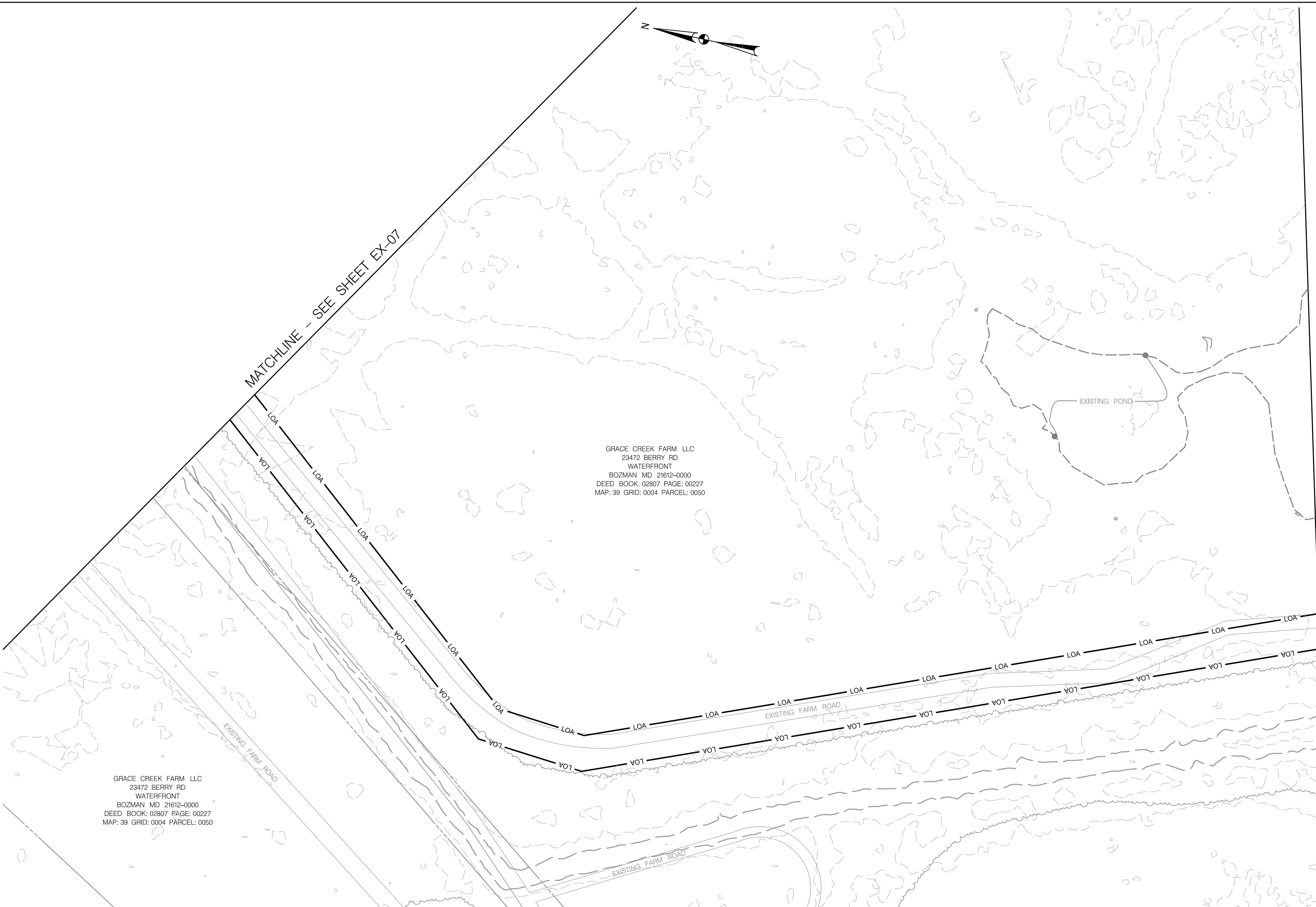
#### COORDINATE NOTE

PLANS ARE IN NAD 83 MARYLAND STATE PLANE FIPS 1900 COORDINATE SYSTEM.

#### PROFESSIONAL CERTIFICATION

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30' 0' 30' 60'  
SCALE: 1" = 30'



COORDINATE NOTE	
PLANS ARE IN NAD 83 MARYLAND STATE PLANE FIPS 1900 COORDINATE SYSTEM.	
PROFESSIONAL CERTIFICATION	
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**EXISTING FEATURES LEGEND**

	PROPERTY BOUNDARY
	EX. MAJOR CONTOURS
	EX. MINOR CONTOURS
	EX. MEAN HIGH WATER ELEV. = 1.62 (MLW) 0.72 (NAVD88)
	EX. MEAN LOW WATER ELEV. = 0.00 (MLW) -0.90 (NAVD88)
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	EX. METAL FENCE
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	EX. WETLAND
	EX. RIPRAP
	EX. WETLAND BUFFER (25 FT)
	STORM DRAIN
	SPECIMEN (30" OR GREATER)
	EX. TREE
	RCA
	ECAB
	RCA
	EX. CRITICAL AREA DESIGNATION
	SAV (2018-2022 COMPOSITE)

**STABILIZATION LEGEND**

	LIMIT OF DISTURBANCE
	LIMIT OF ACTIVITY

SAV Mapping Year	Density
2023*	Moderate
2022	Sparse
2021	Moderate
2020	Sparse
2019	Dense
2018	Dense

*2023 Mapping not available for download

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11/ 26/2024  
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**EASTERN SHORE LAND CONSERVANCY**
**GRACE CREEK FARM LIVING SHORELINE  
EXISTING CONDITIONS PLAN**

23472 BERRY RD, BOZMAN MD , TALBOT COUNTY

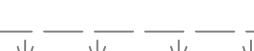
REVISIONS

DRAWN BY : <u>JB</u>	SCALE : 1" = 30'
DESIGNED BY : <u>DN</u>	DATE : NOVEMBER 2023
REVIEWED BY : <u>MD</u>	
DRAWING NO. EX-06 OF EX-07	SHEET NO. 08 OF 37

COORDINATE NOTE	
PLANS ARE IN NAD 83 MARYLAND STATE PLANE FIPS 1900 COORDINATE SYSTEM.	
PROFESSIONAL CERTIFICATION	
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## **EXISTING FEATURES LEGEND**

— — — — —	PROPERTY BOUNDARY
— — — 500 — — —	EX. MAJOR CONTOURS
— — — 498 — — —	EX. MINOR CONTOURS
— — - MHW — — -	EX. MEAN HIGH WATER ELEV. = 1.62 (MLW) 0.72 (NAVD88)
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— — — — —	EX. ROADS
X — — — — — X — — — — — X	EX. METAL FENCE
○ — — — — — ○ — — — — — ○	EX. WOOD FENCE
	EX. TREELINE
	FEMA EX. 100 YR FLOODPLAIN
	EX. WETLAND
	EX. RIPRAP
— — — B — — — — —	EX. WETLAND BUFFER (25 FT)
— = — = — = — = — =	STORM DRAIN
	SPECIMEN (30" OR GREATER)
	EX. TREE
<u>RCA</u> — — — — —	EX. CRITICAL AREA DESIGNATION
<u>ECAB</u> — — — — —	SAV (2018–2022 COMPOSITE)
<u>SAV</u> — — — — —	

## STABILIZATION LEGEND

LOD	—	LIMIT OF DISTURBANCE
LOA	—	LIMIT OF ACTIVITY
<b>SAV Mapping Year</b>	<b>Density</b>	
2023*	Moderate	
2022	Sparse	
2021	Moderate	
2020	Sparse	
2019	Dense	
2018	Dense	

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EASTERN SHORE LAND CONSERVANCY

# GRACE CREEK FARM LIVING SHORELINE EXISTING CONDITIONS PLAN

**23472 BERRY RD, BOZMAN MD , TALBOT COUNTY**

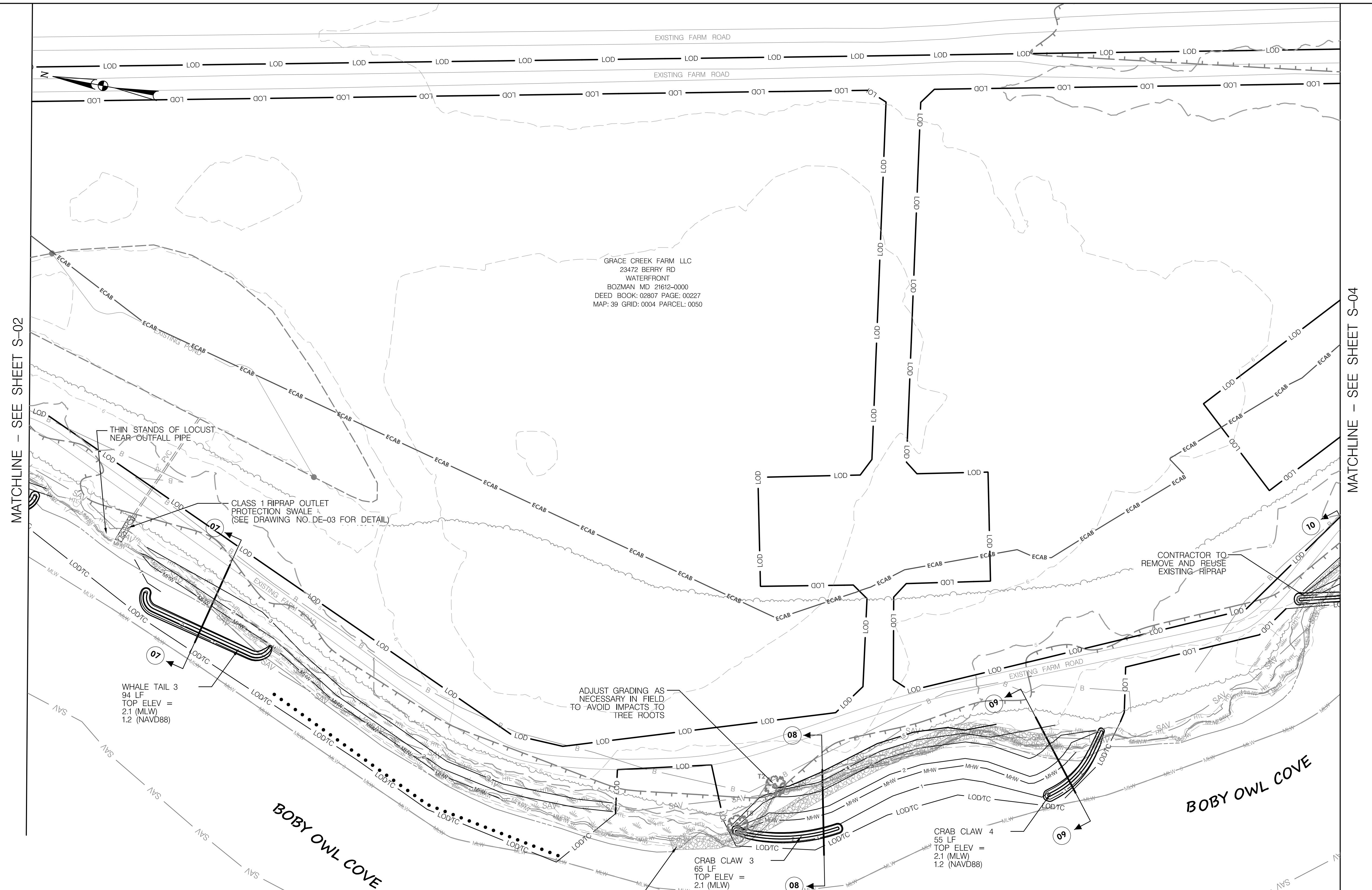
<b>COORDINATE NOTE</b> PLANS ARE IN NAD 83 MARYLAND STATE PLANE FIPS 1900 COORDINATE SYSTEM.		DRAWN BY : <u>JB</u>		SCALE : <u>1" = 30'</u>
<b>PROFESSIONAL CERTIFICATION</b>  I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.		DESIGNED BY : <u>CN</u>		DATE : <u>NOVEMBER 2023</u>
		REVIEWED BY : <u>MD</u>		
		DRAWING NO.	EX-07 OF EX-07	SHEET NO.
				09 OF 37



A horizontal line representing a 60' span. It is marked with vertical lines at 30', 0, 30', and 60'. The segments between the markers are labeled 30', 0, 30', and 60' respectively. The segments before and after the markers are white, while the segments between the markers are black.



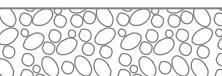
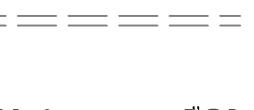




## **STABILIZATION LEGEND**

— LOD —	LIMIT OF DISTURBANCE
— LOD/TC —	LIMIT OF DISTURBANCE / TURBIDITY CURTAIN
— LOA —	LIMIT OF ACCESS
— 480 —	PROPOSED MAJOR CONTOURS
— 479 —	PROPOSED MINOR CONTOURS
— MHW —	PROPOSED MEAN HIGH WATER
	RIPRAP
	PROPOSED STRUCTURE
● ● ● ● ● ● ●	REEF BALL

## **EXISTING FEATURES LEGEND**

— — — 500 — — —	PROPERTY BOUNDARY
— — — 498 — — —	EX. MAJOR CONTOURS
— — - MHW — — -	EX. MINOR CONTOURS
— — - MLW — — -	EX. MEAN HIGH WATER ELEV. = 1.62 (MLW) 0.72 (NAVD88)
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— — — — —	EX. ROADS
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— — — — —	EX. WOOD FENCE
	EX. TREELINE
	FEMA EX. 100 YR FLOODPLAIN
	EX. WETLAND
	EX. RIPRAP
— — — B — — —	EX. WETLAND BUFFER (25 FT)
— — — — —	STORM DRAIN
	RS SPECIMEN ECAB (30°C OR GREATER)
	EX. TREE EX. CRITICAL AREA DESIGNATION
— — — SAV — — —	SAV (2018–2022 COMPOSITE)

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EASTERN SHORE LAND CONSERVANCY

# GRACE CREEK FARM LIVING SHORELINE STABILIZATION PLAN

23472 BERRY RD, BOZMAN MD , TALBOT COUNTY

CALE : 1" = 30'

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For more information, contact the Office of the Vice President for Research and Economic Development at 319-335-1111 or [research@uiowa.edu](mailto:research@uiowa.edu).

SHEET NO. 12 OF 37

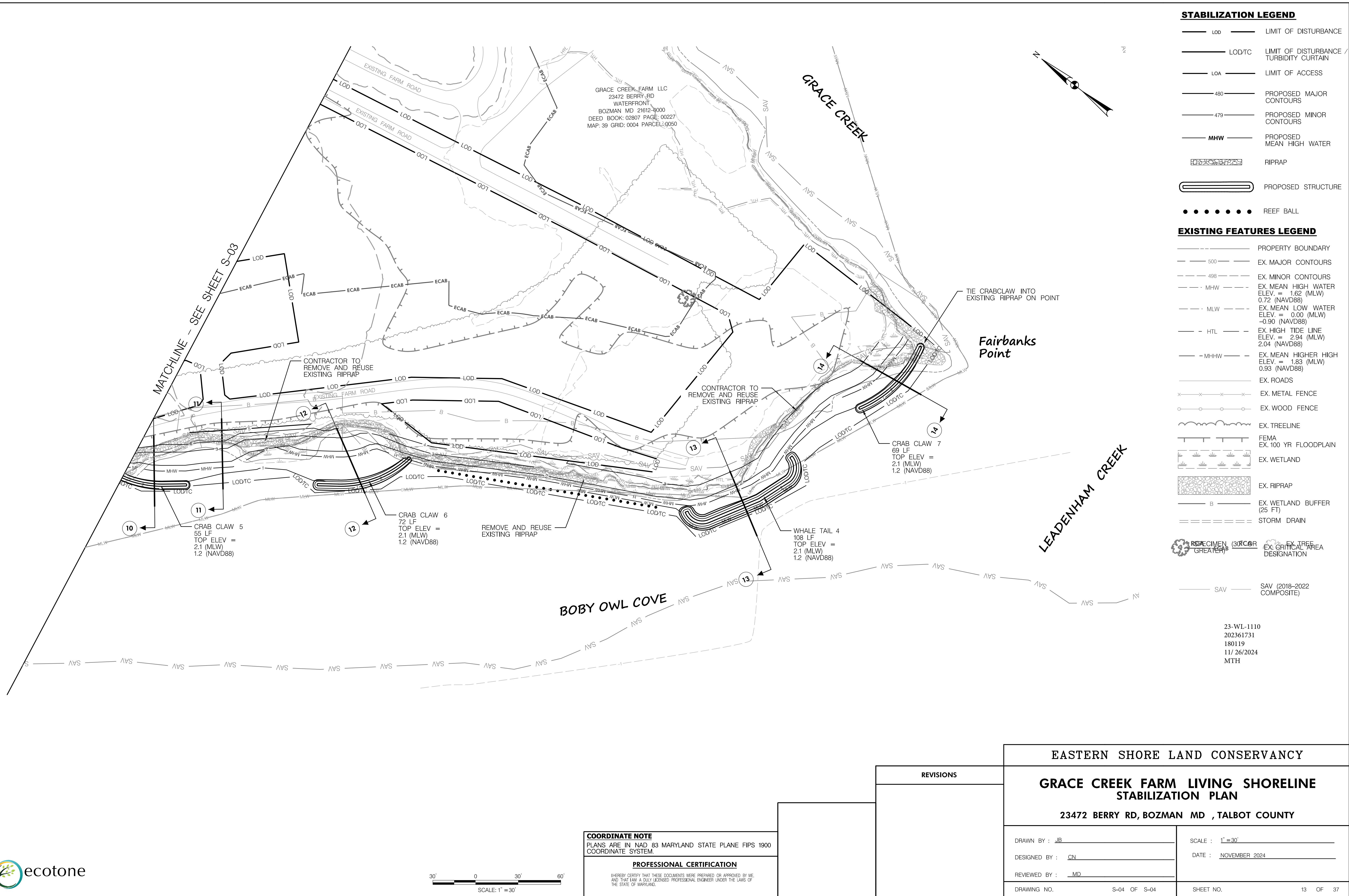
**COORDINATE NOTE**  
PLANS ARE IN NAD 83 MARYLAND STATE PLANE FIPS 1900  
COORDINATE SYSTEM

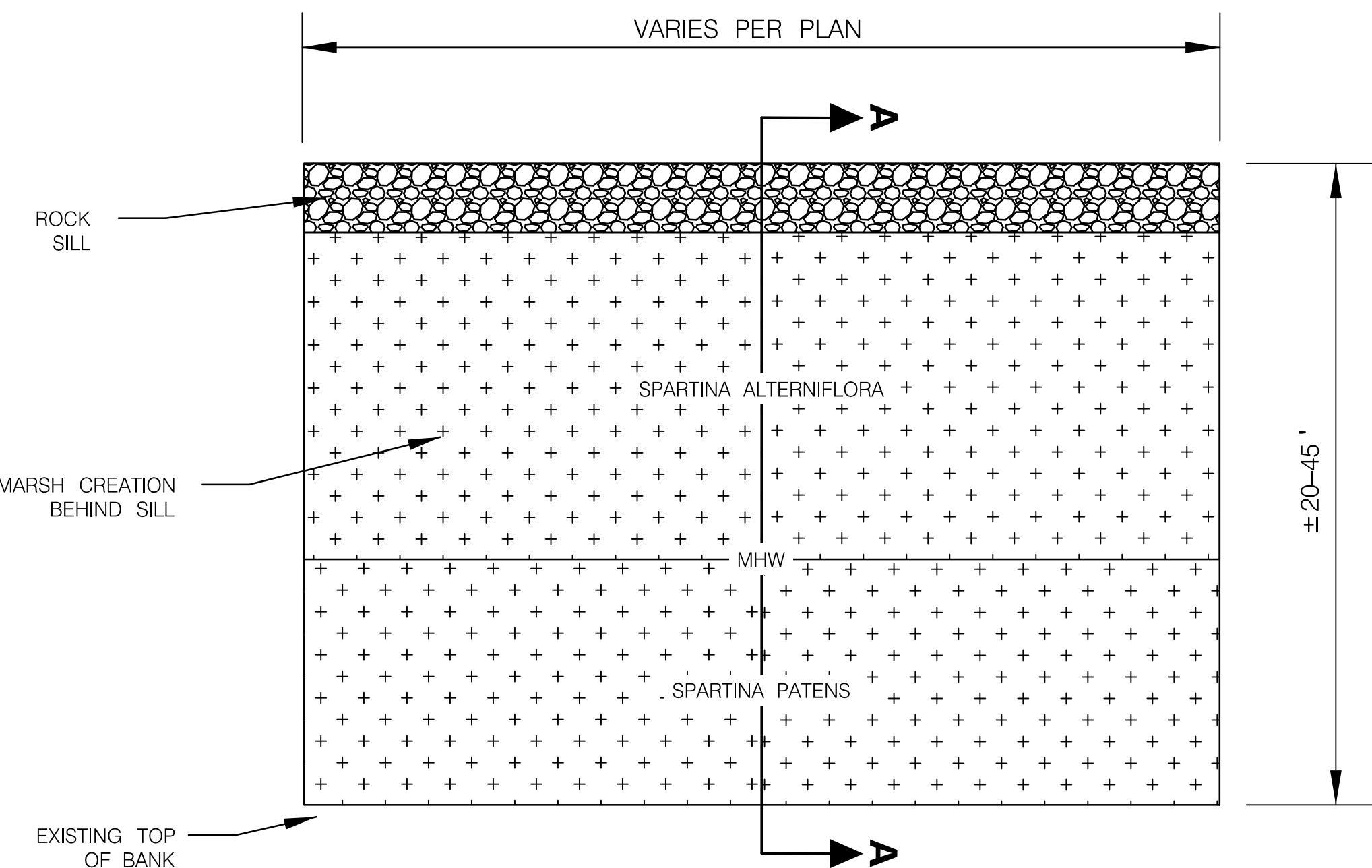
#### PROFESSIONAL CERTIFICATION

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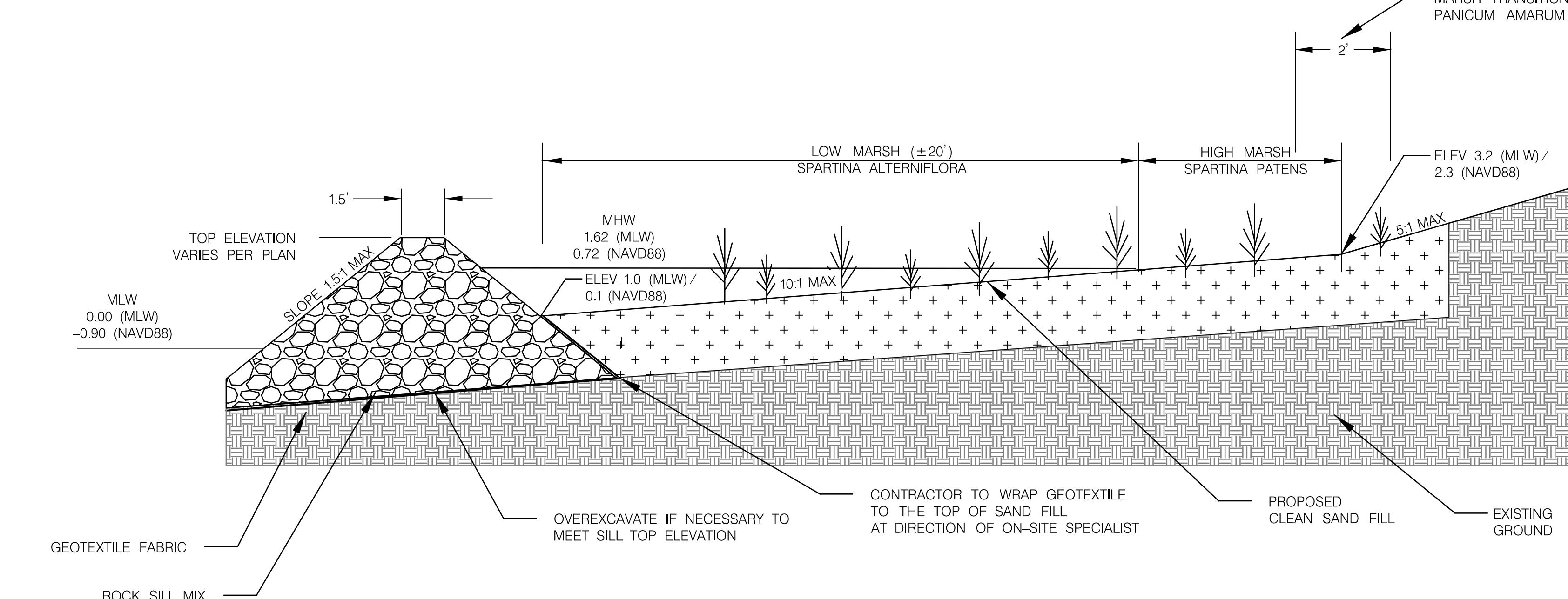
A horizontal scale bar with markings at 30', 0, 30', and 60'. The first 30' is marked with a double tick. The 0 is at the center. The second 30' is marked with a double tick. The 60' is at the end. Below the bar, the text 'SCALE: 1" = 20'



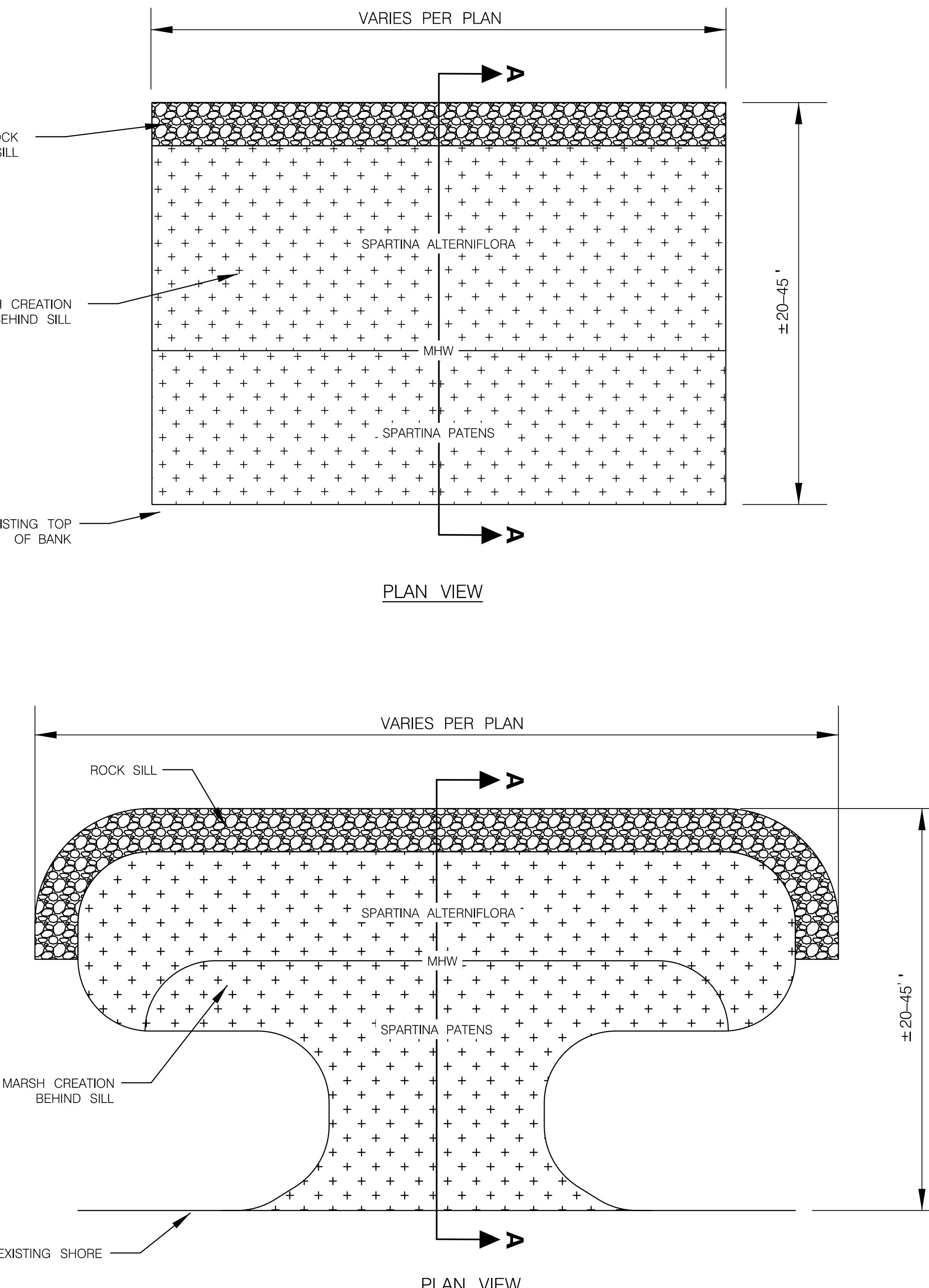




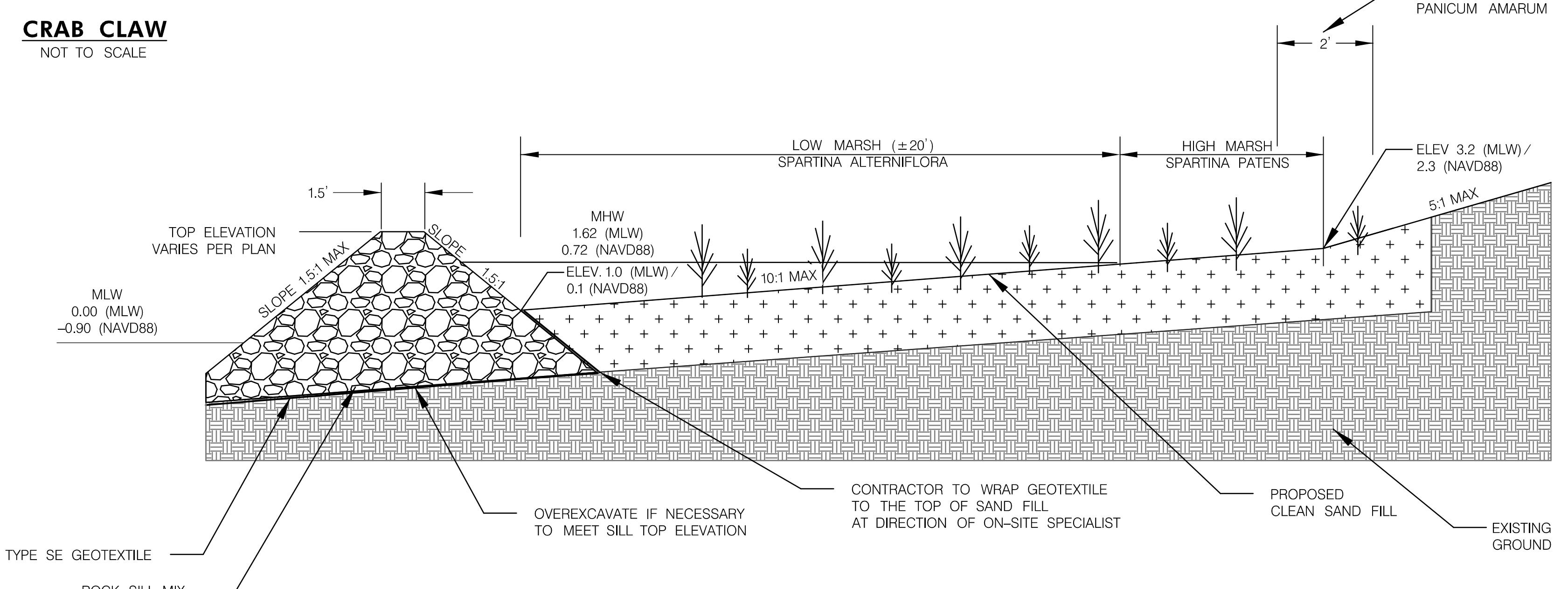
PLAN VIEW



SECTION VIEW A-A



PLAN VIEW



SECTION VIEW A-A

23-WI-1110  
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MTH

Rock Sill Mix		
MD SHA Riprap Class	% of Mix	D50 (in)
Class 0	25%	5.5
Class 1	35%	9.5
Class 2	40%	16

Rock Structure Table					
Structure	Length (ft)	Base Width (ft)	Top Width (ft)	Top Elevation (MLW) (ft)	Top Elevation (NAVD88) (ft)
Crab Claw 1	69	6	1.5	2.1	1.2
Rock Sill 1	52	6.5	1.5	2.1	1.2
Rock Sill 2	54	6.5	1.5	2.1	1.2
Whale Tail 1	94	8	1.5	2.6	1.7
Crab Claw 2	83	5.5	1.5	2.1	1.2
Whale Tail 2	94	6	1.5	2.1	1.2
Whale Tail 3	94	6	1.5	2.1	1.2
Crab Claw 3	65	6	1.5	2.1	1.2
Crab Claw 4	55	6	1.5	2.1	1.2
Crab Claw 5	55	5.5	1.5	2.1	1.2
Crab Claw 6	72	7	1.5	2.1	1.2
Whale Tail 4	108	10	1.5	2.1	1.2
Crab Claw 7	69	6	1.5	2.1	1.2

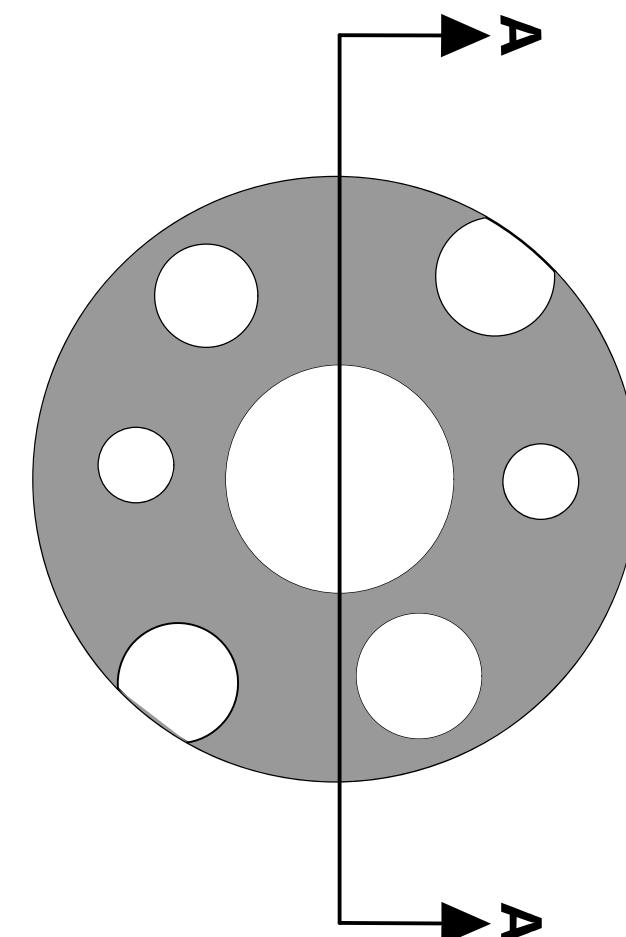
WHALETAIL SILL  
NOT TO SCALE

COORDINATE NOTE  
PLANS ARE IN NAD 83 MARYLAND STATE PLANE FIPS 1900  
COORDINATE SYSTEM.

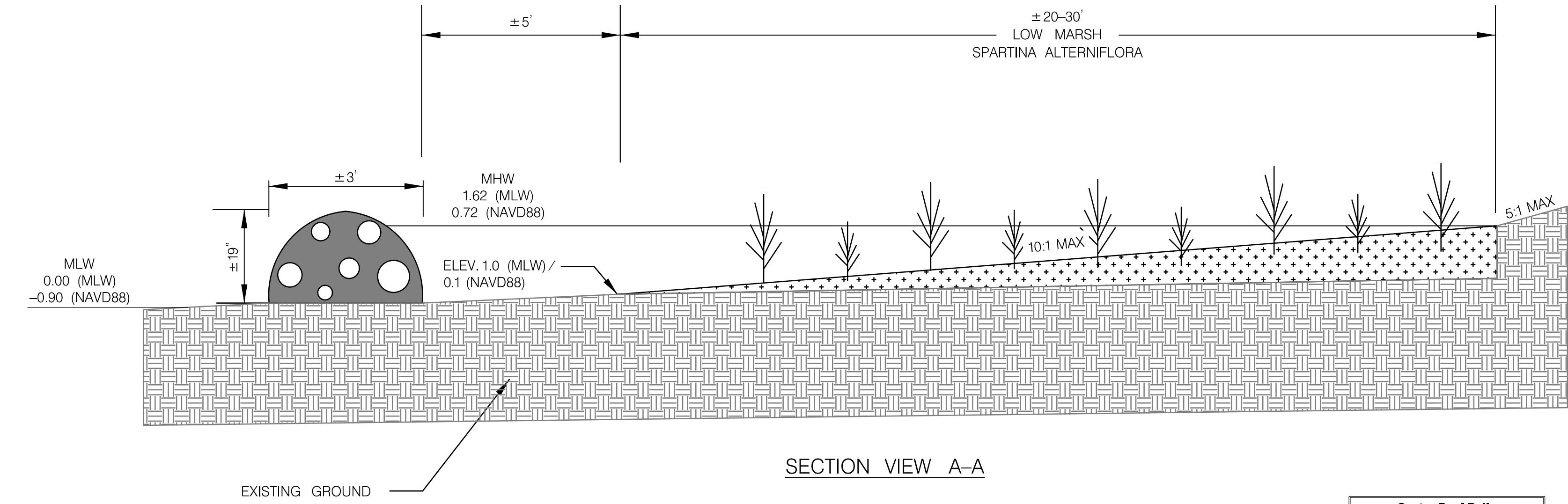
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THE STATE OF MARYLAND.

REVISIONS

DRAWN BY : <u>JB</u>	SCALE : NOT TO SCALE
DESIGNED BY : <u>CN</u>	DATE : NOVEMBER 2024
REVIEWED BY : <u>MD</u>	
DRAWING NO. DE-01 OF DE-03	SHEET NO.

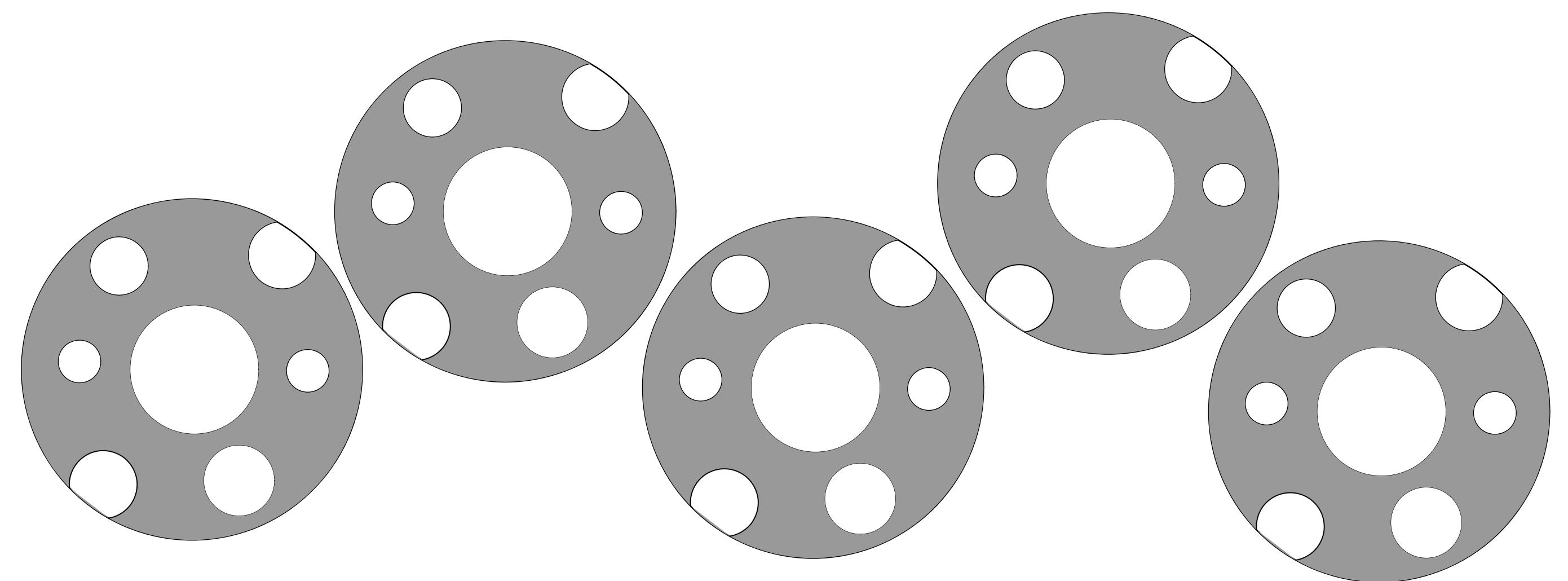


PLAN VIEW



SECTION VIEW A-A

23-WL-1110  
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TYPICAL REEF BALL CONFIGURATION

**REEF BALL**  
NOT TO SCALE

**COORDINATE NOTE**  
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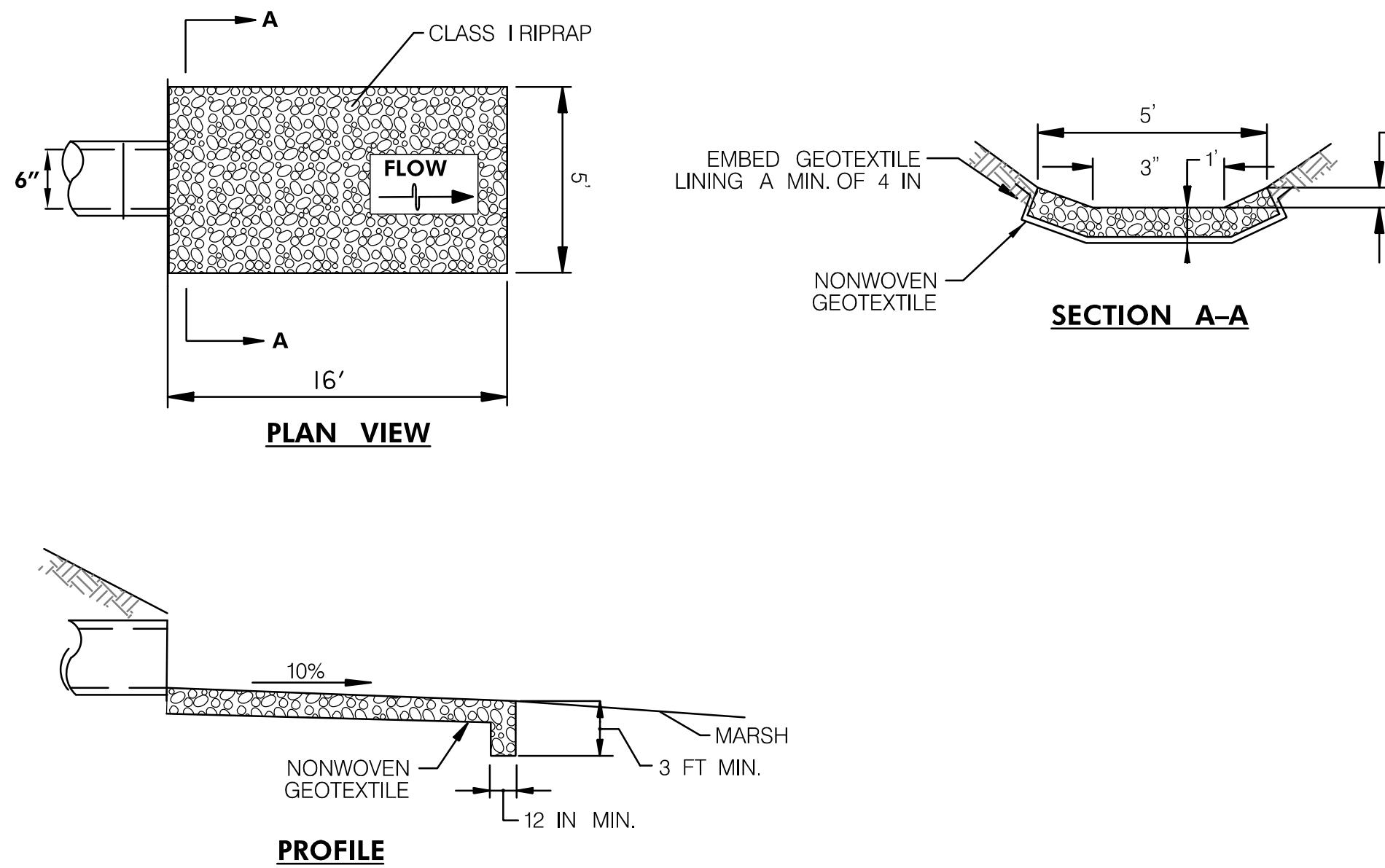
EASTERN SHORE LAND CONSERVANCY

GRACE CREEK FARM LIVING SHORELINE  
STABILIZATION DETAILS

23472 BERRY RD, BOZMAN MD , TALBOT COUNTY

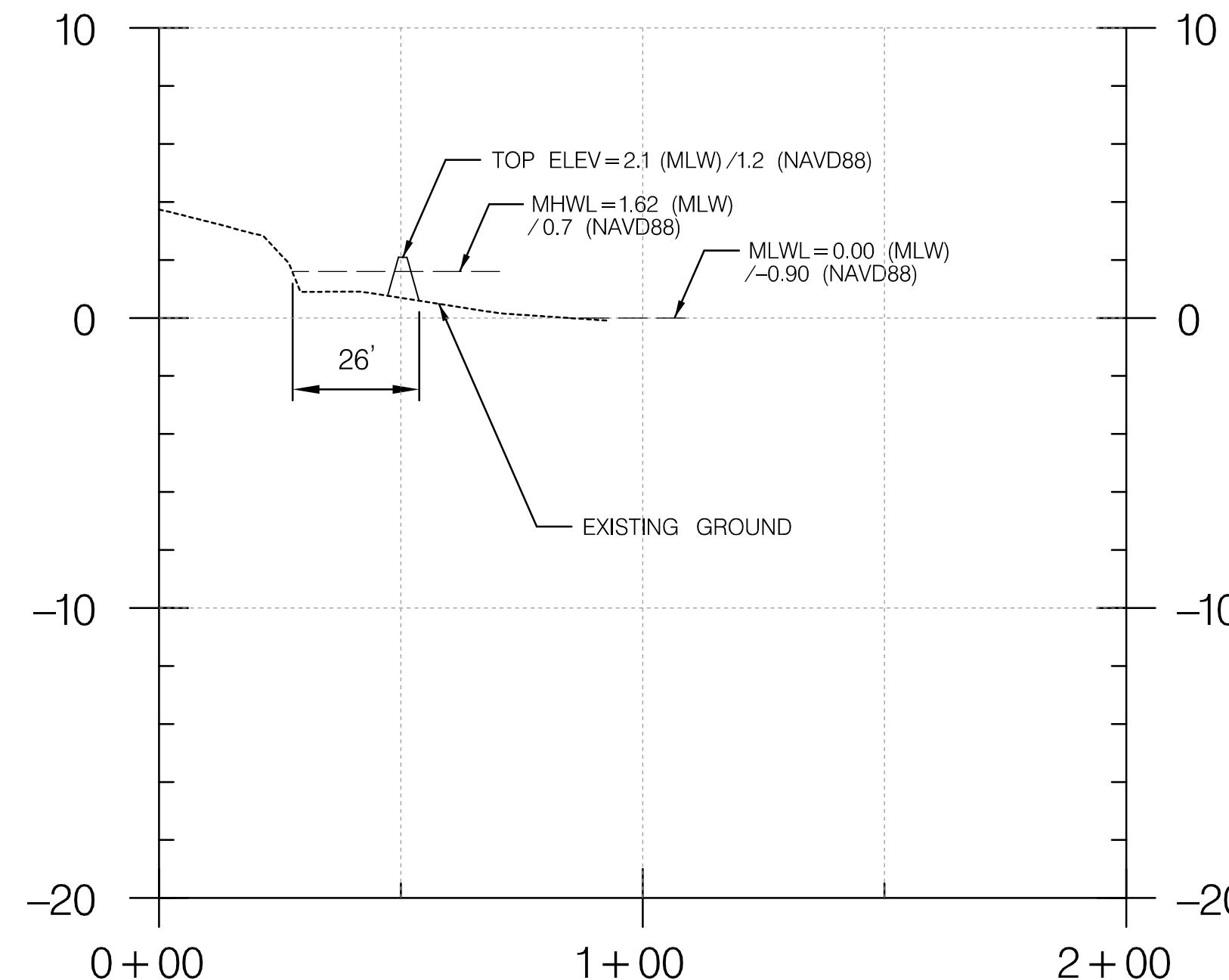
REVISIONS

DRAWN BY : <u>JB</u>	SCALE : <u>NOT TO SCALE</u>
DESIGNED BY : <u>ON</u>	DATE : <u>NOVEMBER 2024</u>
REVIEWED BY : <u>MD</u>	
DRAWING NO. DE-02 OF DE-03	SHEET NO. 15 OF 37

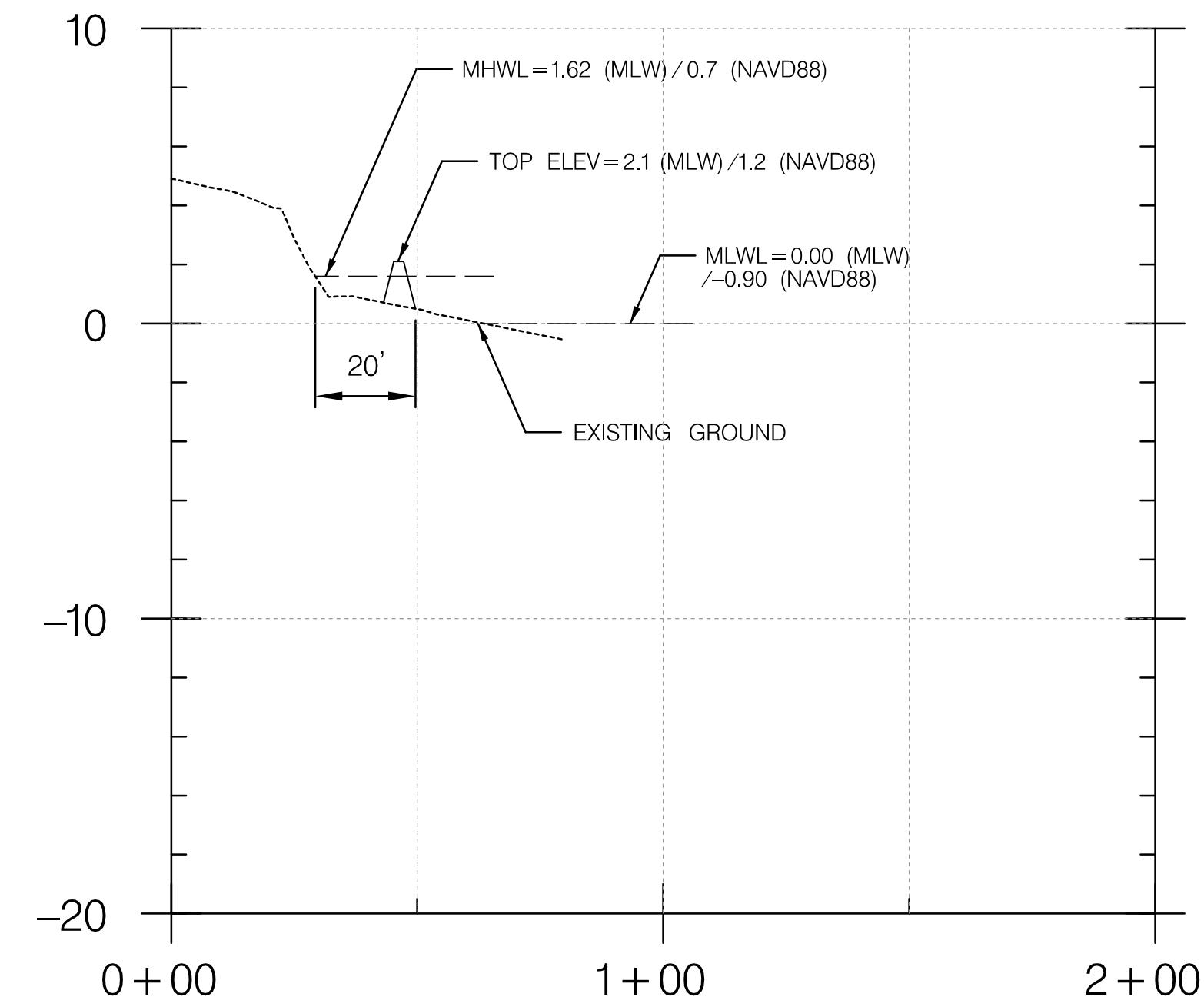

**CONSTRUCTION SPECIFICATIONS**

1. RIPRAP AND STONE MUST CONFORM TO THE SPECIFIED CLASS.
2. USE NONWOVEN GEOTEXTILE AND PROTECT FROM PUNCTURING, CUTTING, OR TEARING. REPAIR ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE BY PLACING ANOTHER PIECE OF GEOTEXTILE OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE. PROVIDE A MINIMUM OF ONE FOOT OVERLAP FOR ALL REPAIRS AND FOR JOINING TWO PIECES OF GEOTEXTILE TOGETHER.
3. PREPARE THE SUBGRADE FOR GEOTEXTILE AND RIPRAP TO THE REQUIRED LINES AND GRADES. COMPACT ANY FILL REQUIRED IN THE SUBGRADE TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
4. EXTEND GEOTEXTILE AT LEAST 6 INCHES BEYOND EDGES OF RIPRAP AND EMBED AT LEAST 4 INCHES AT SIDES OF THE RIPRAP.
5. CONSTRUCT RIPRAP OUTLET TO FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. PLACE STONE FOR RIPRAP OUTLET IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. PLACE RIPRAP IN A MANNER TO PREVENT DAMAGE TO THE STONE FILTER BLANKET OR GEOTEXTILE. HAND PLACE TO THE EXTENT NECESSARY.
6. WHERE NO ENDWALL IS USED EXTEND THE STONE UNDER THE OUTLET BY A MINIMUM OF 18 INCHES.

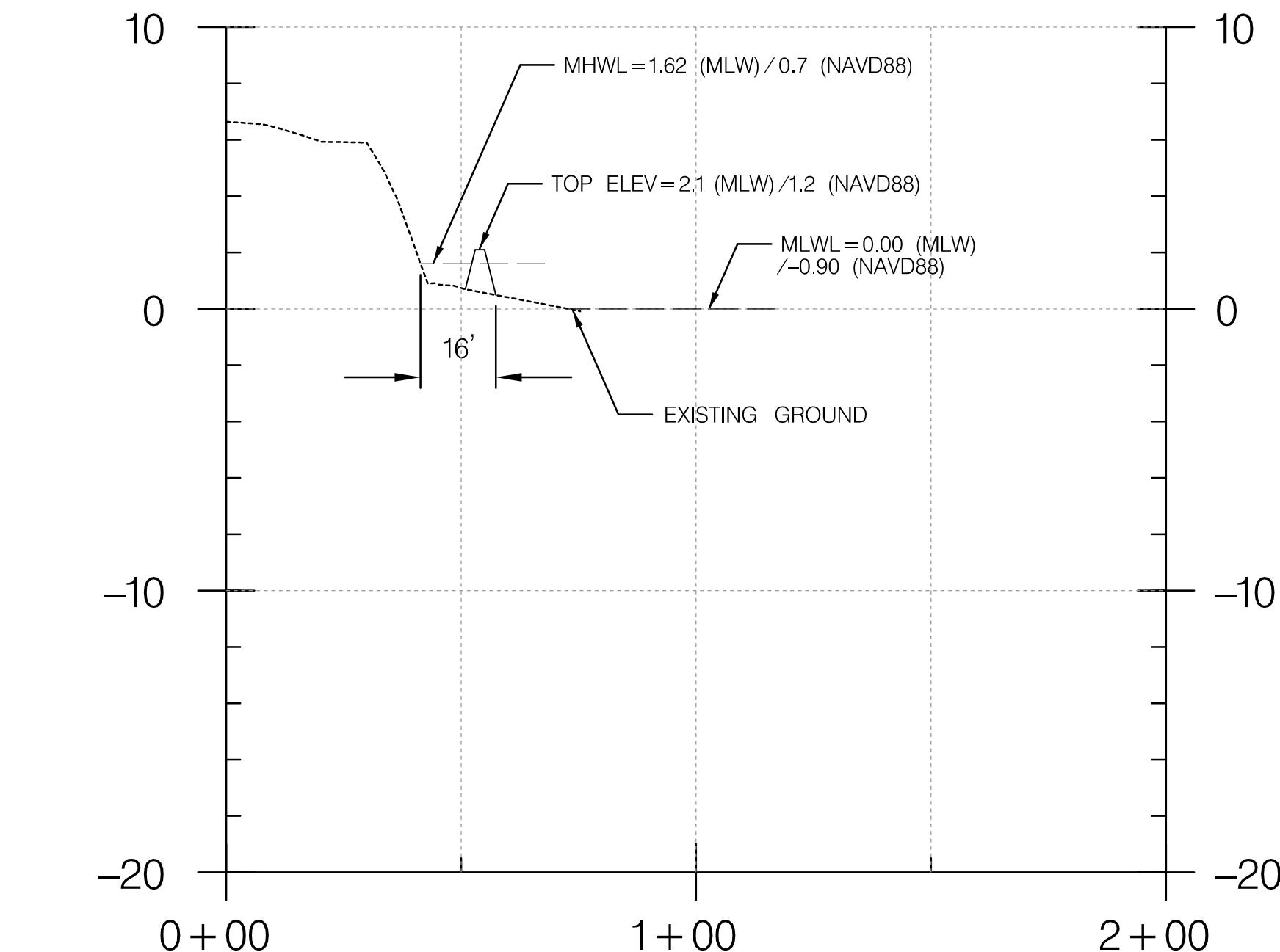
**CLASS I RIPRAP OUTLET PROTECTION SWALE**  
NOT TO SCALE



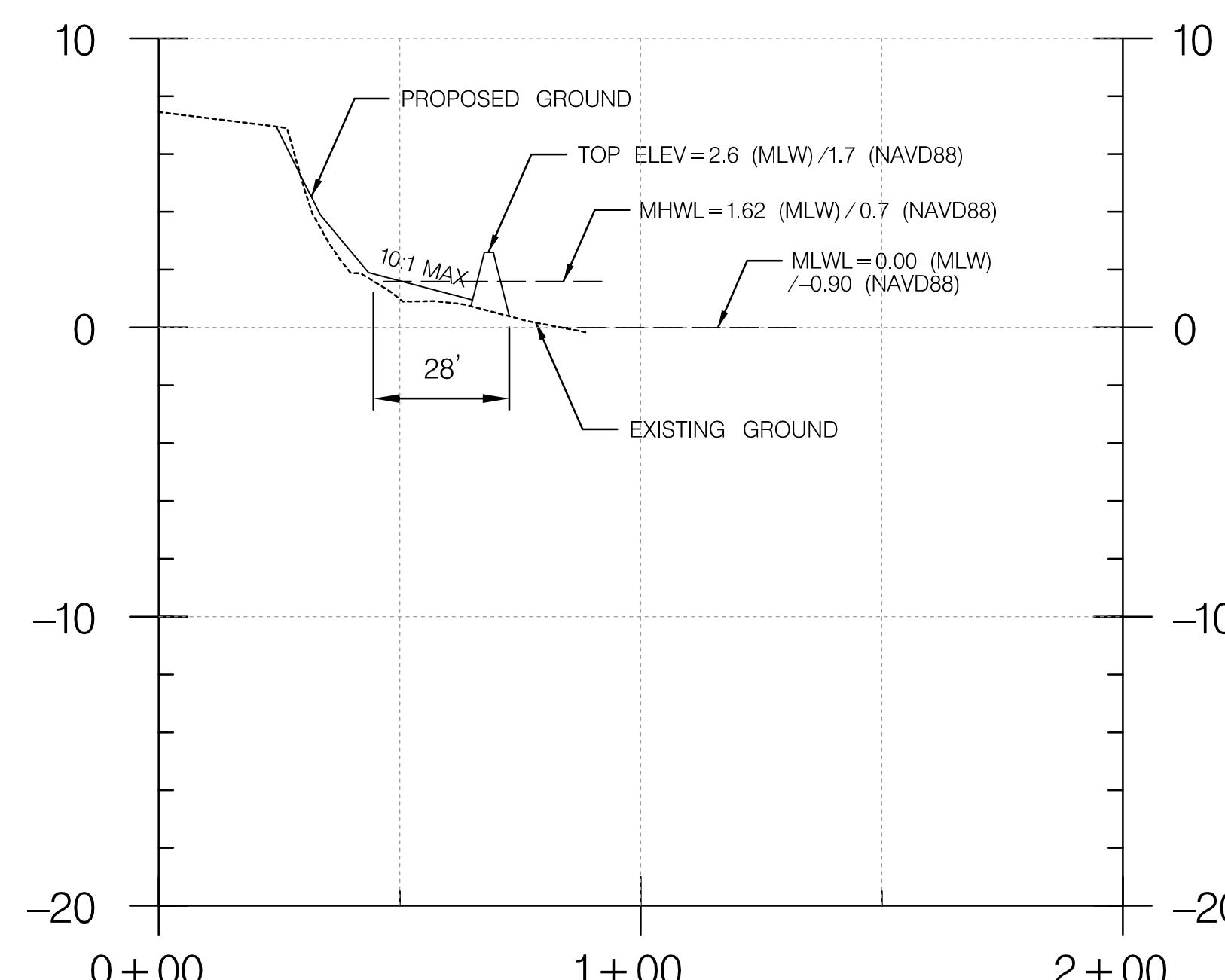
CROSS SECTION - 01



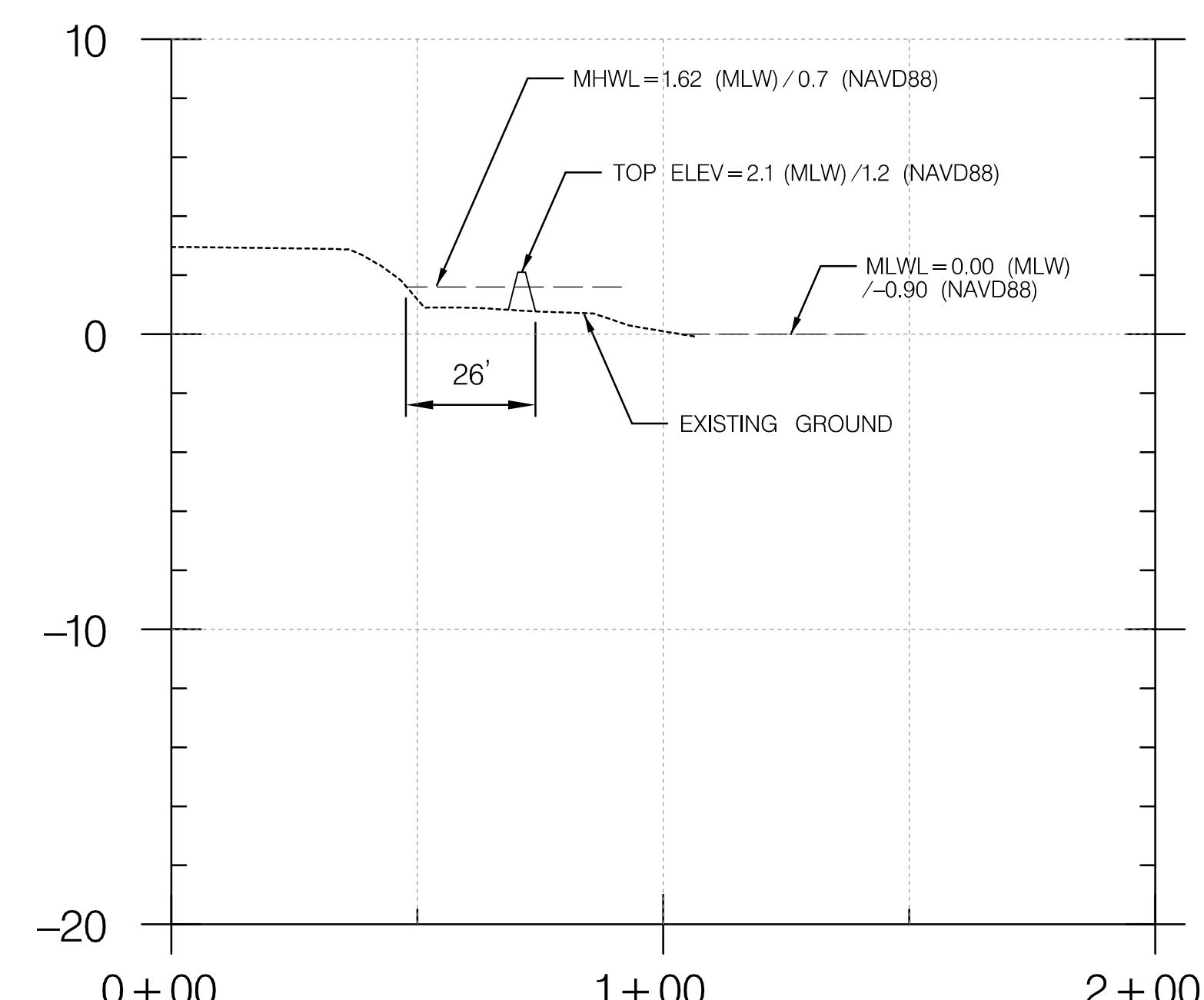
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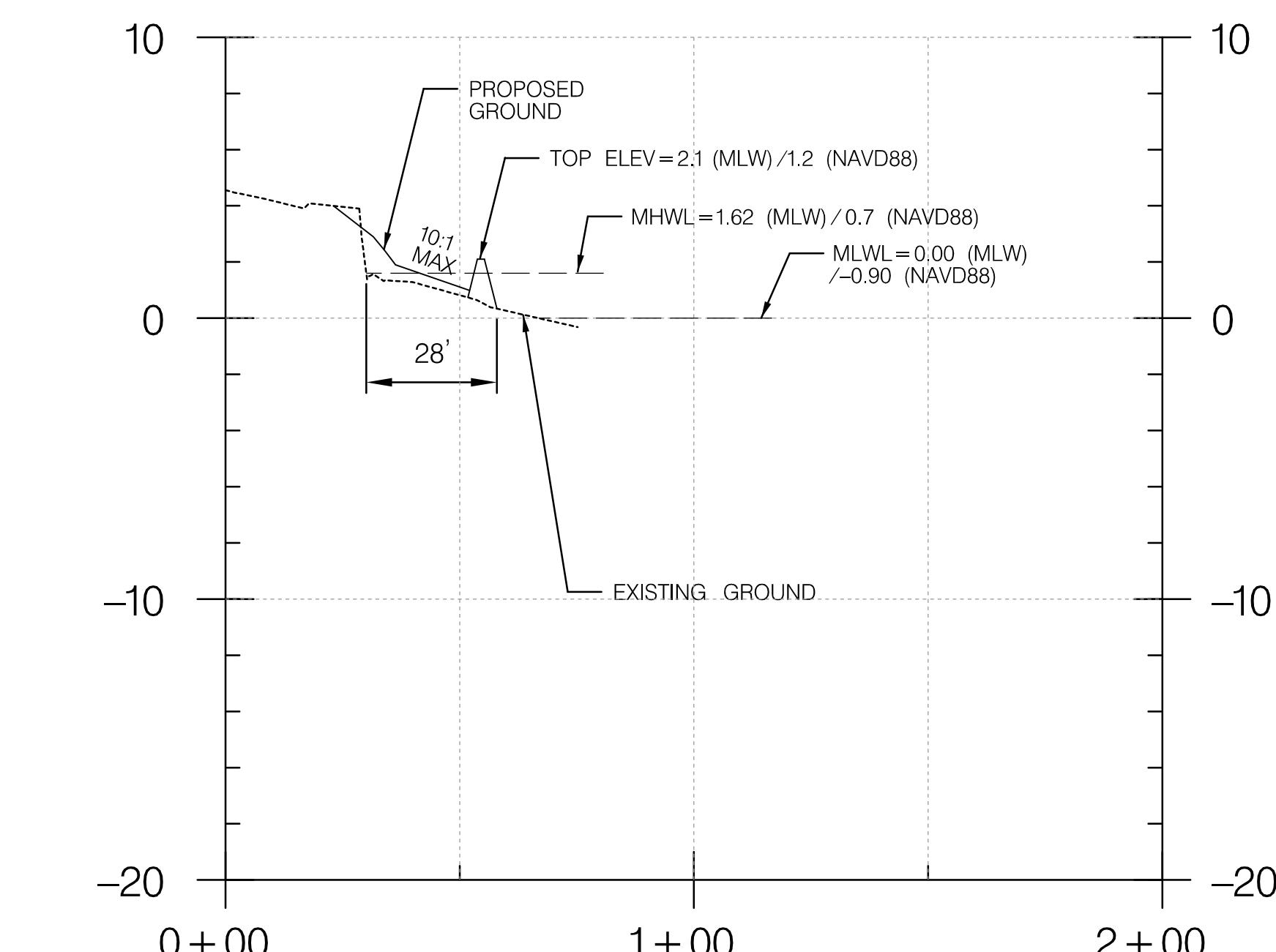
CROSS SECTION - 03



CROSS SECTION - 04



CROSS SECTION - 05



CROSS SECTION - 06

23-WL-1110  
202361731  
180119  
11/ 26/2024  
MTH

30' 0' 30' 60'  
HORIZONTAL SCALE: 1" = 30'  
5' 0' 5' 10'  
VERTICAL SCALE: 1" = 5'

## EASTERN SHORE LAND CONSERVANCY

GRACE CREEK FARM LIVING SHORELINE  
CROSS SECTIONS

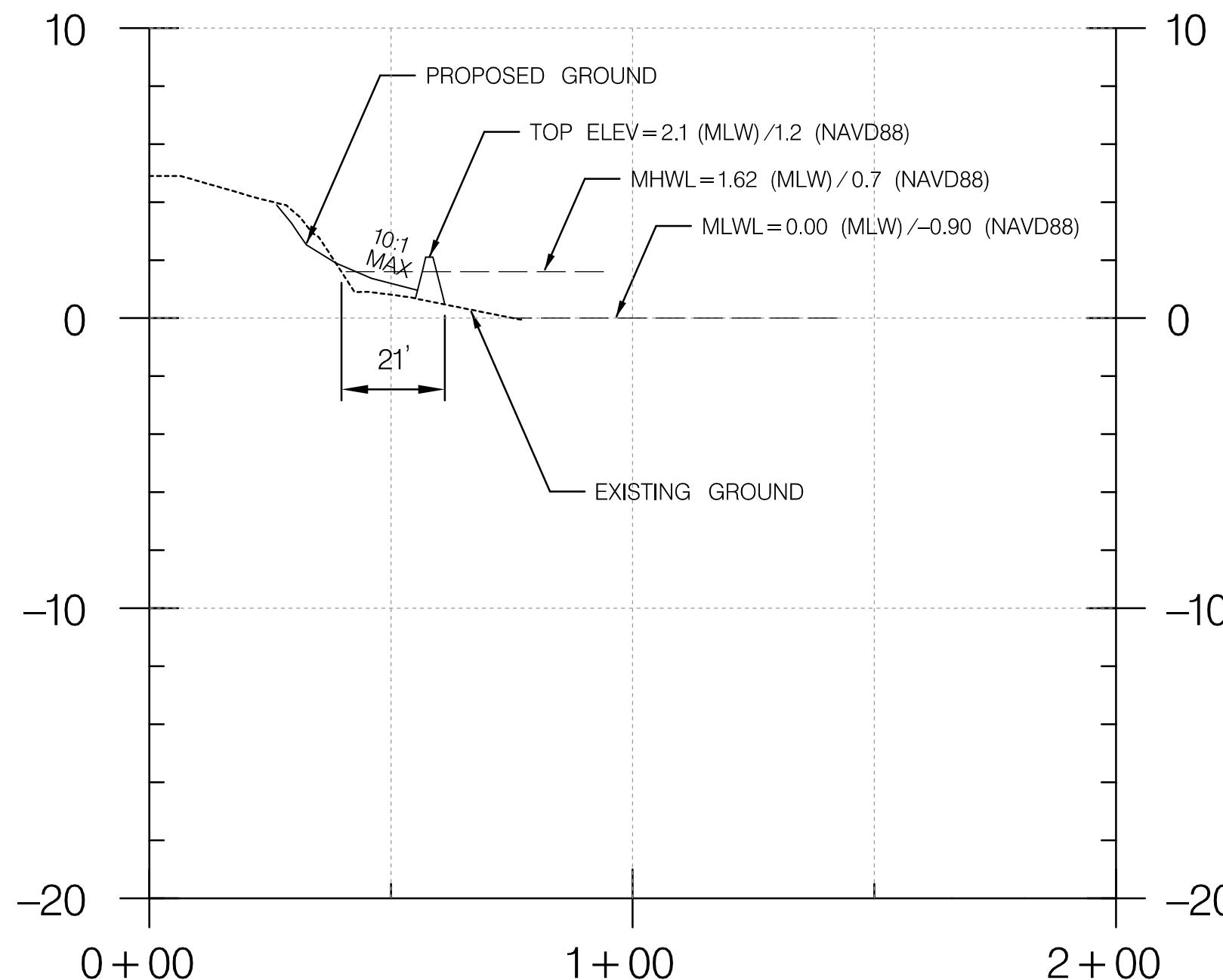
23472 BERRY RD, BOZMAN MD, TALBOT COUNTY

REVISIONS	DRAWN BY : <u>JB</u>	SCALE : HORIZONTAL SCALE: 1" = 30'
	DESIGNED BY : <u>CN</u>	VERTICAL SCALE: 1" = 5'
	REVIEWED BY : <u>MD</u>	DATE : NOVEMBER 2024
	DRAWING NO. XS-01 OF XS-03	SHEET NO.

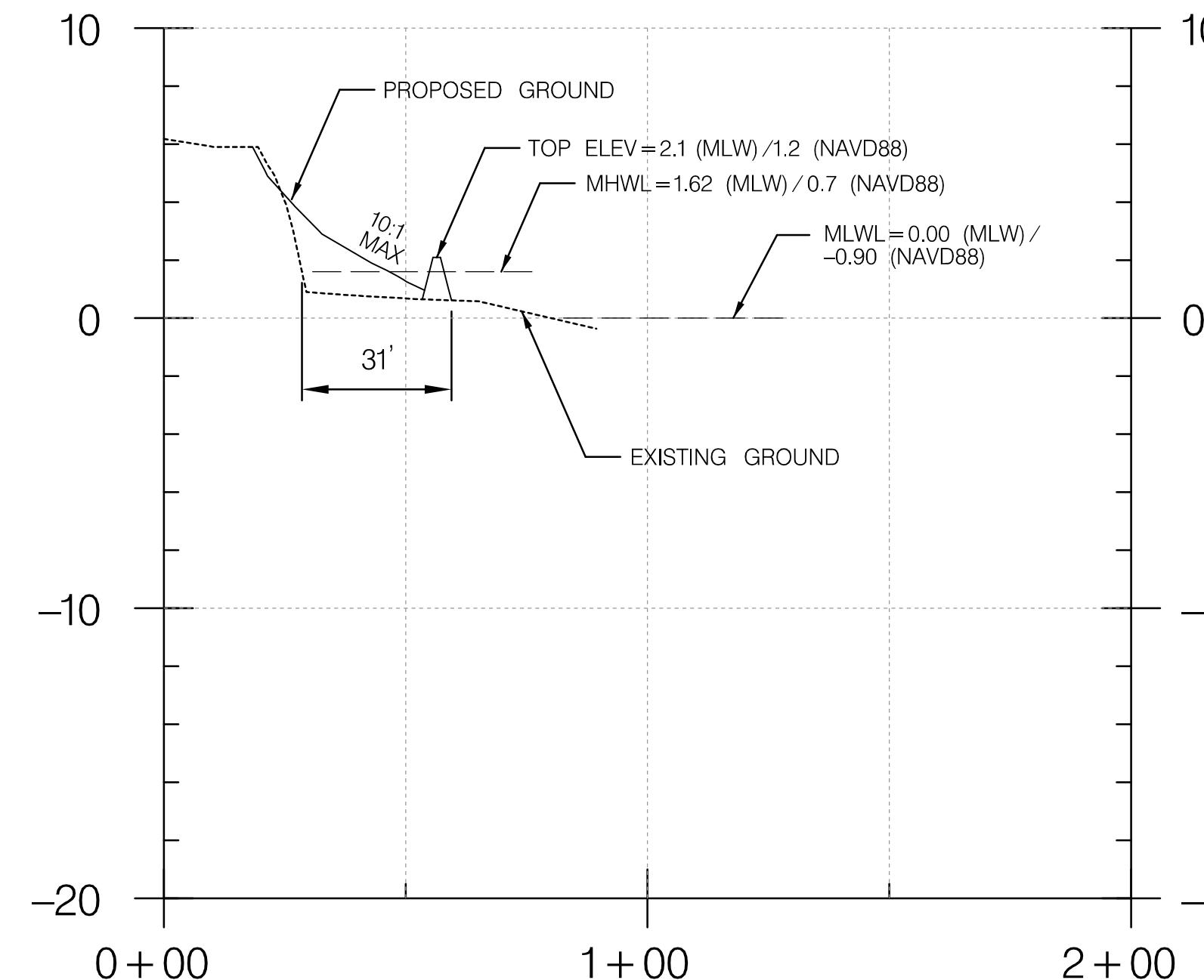
COORDINATE NOTE  
PLANS ARE IN NAD 83 MARYLAND STATE PLANE FIPS 1900  
COORDINATE SYSTEM.

## PROFESSIONAL CERTIFICATION

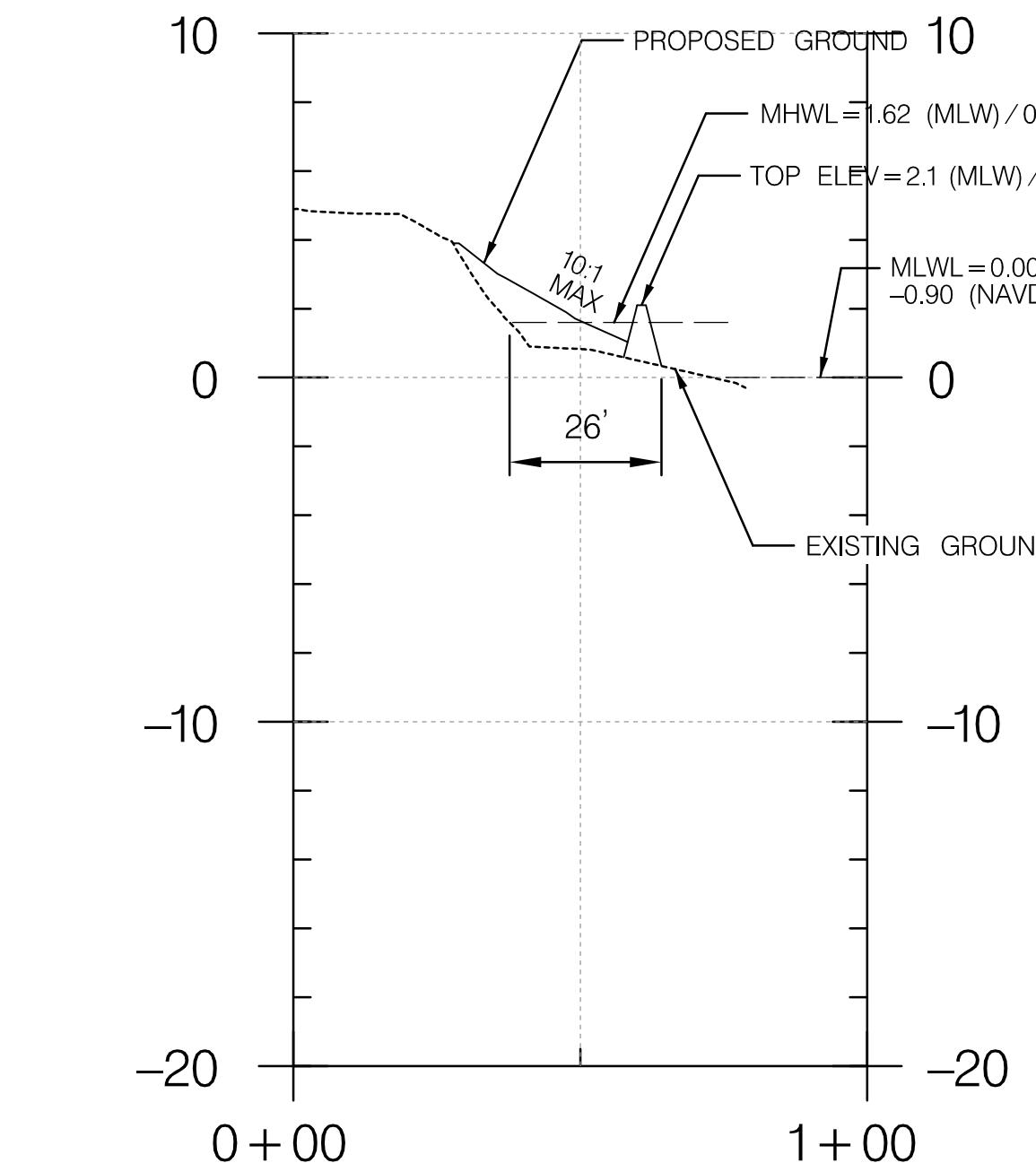
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME  
AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF  
THE STATE OF MARYLAND.



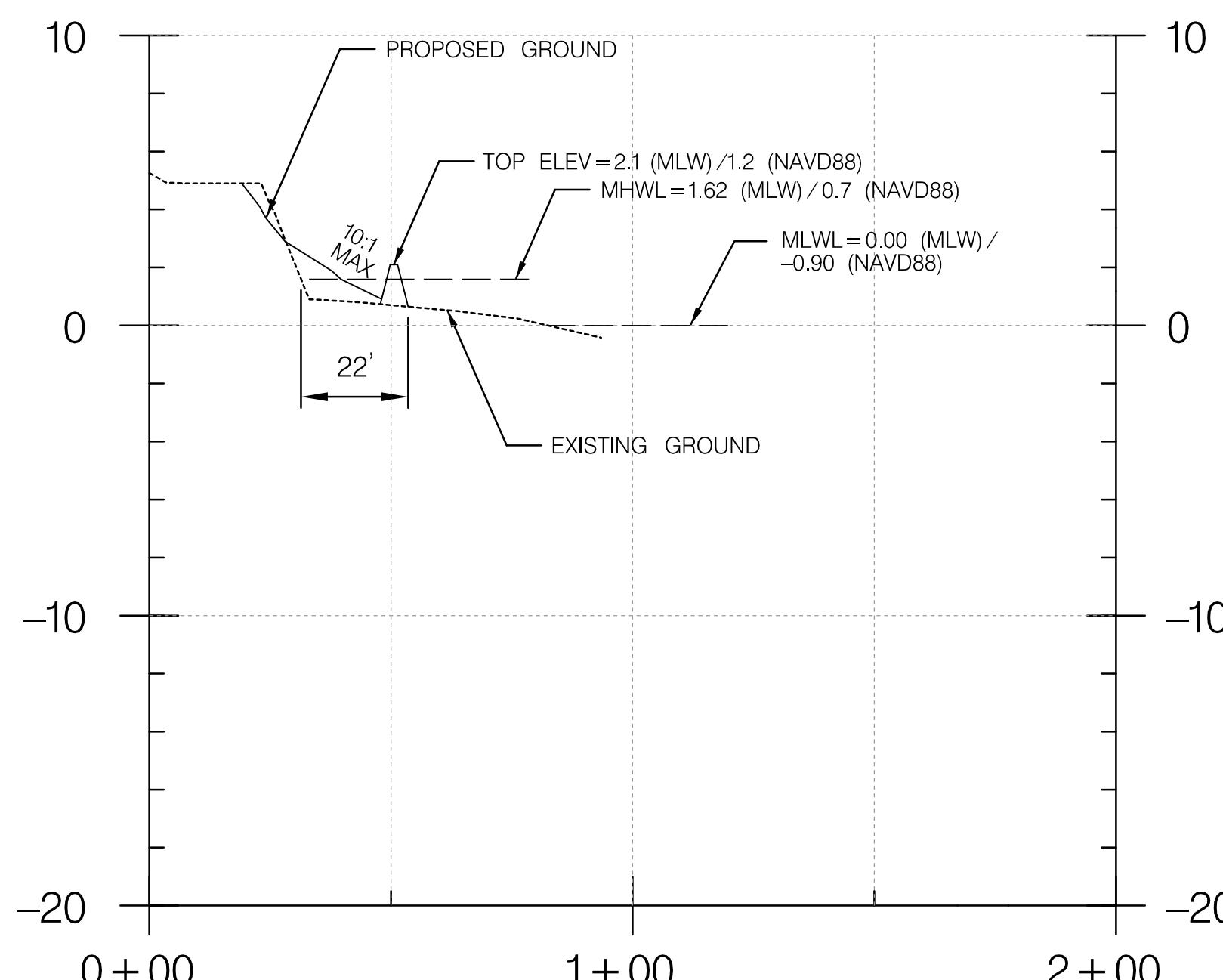
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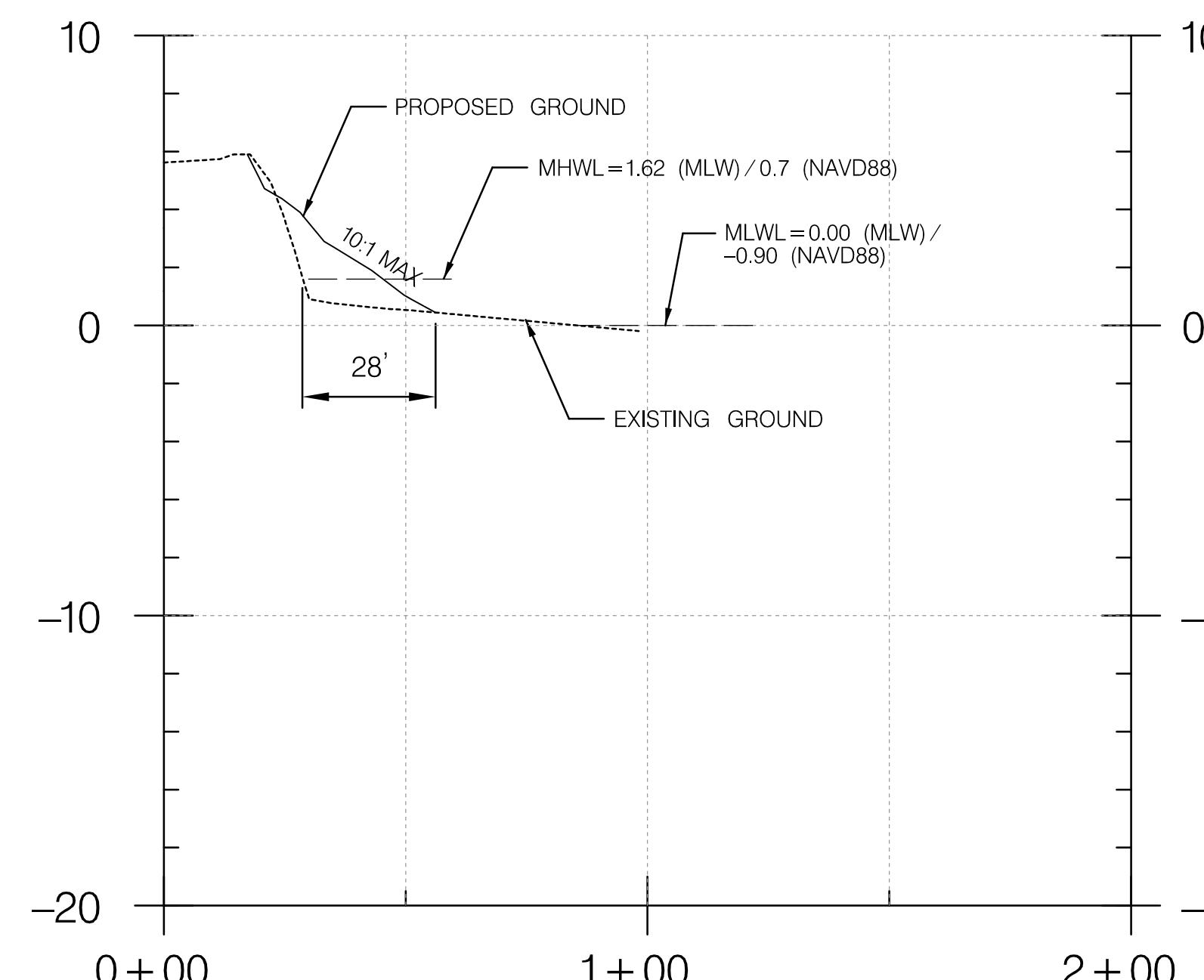
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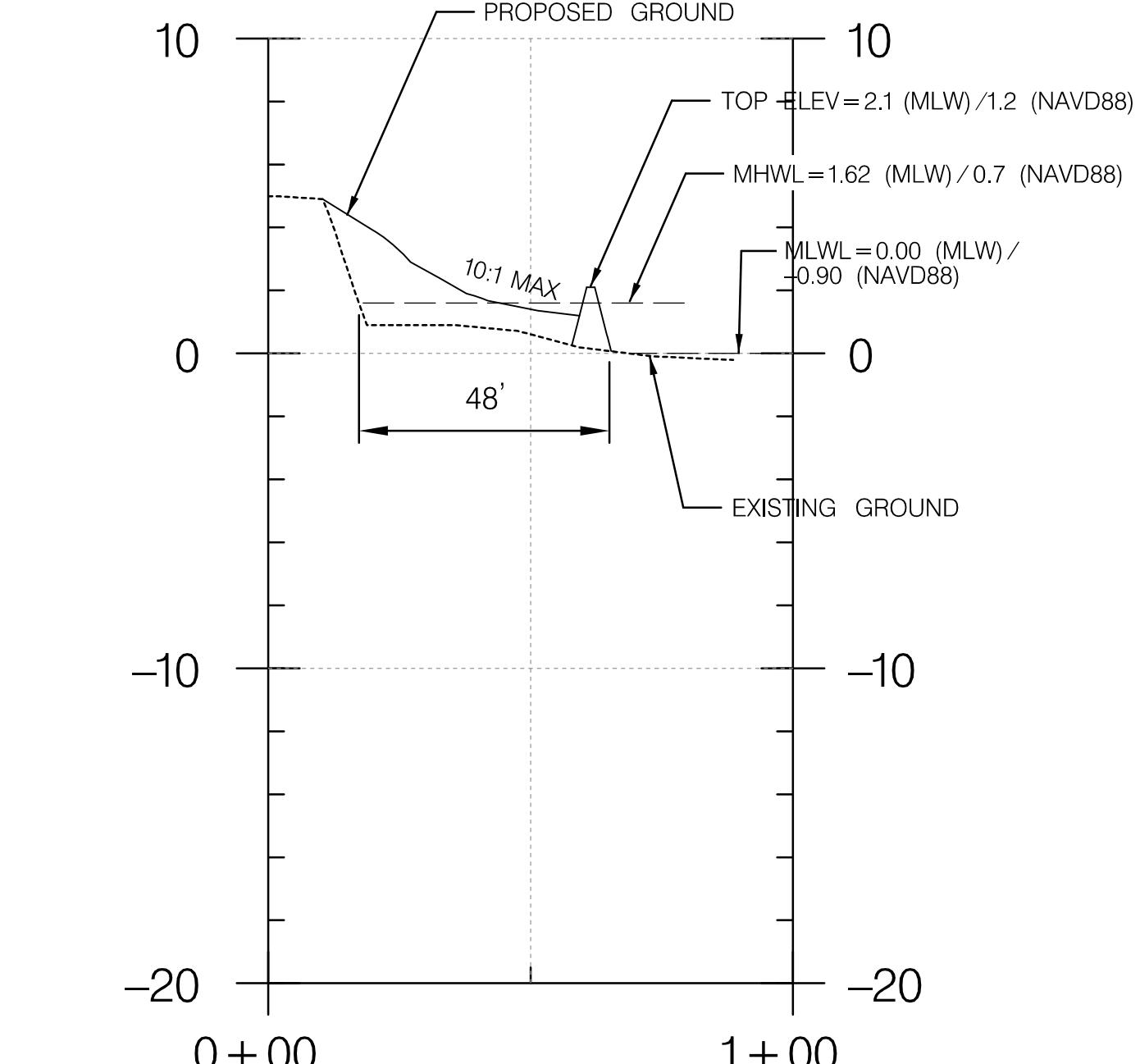
CROSS SECTION - 09



CROSS SECTION - 10



CROSS SECTION - 11



CROSS SECTION - 12

23-WL-1110  
202361731  
180119  
11/26/2024  
MTH

30' 0 30' 60'  
HORIZONTAL SCALE: 1" = 30'  
5' 0 5' 10'  
VERTICAL SCALE: 1" = 5'

## EASTERN SHORE LAND CONSERVANCY

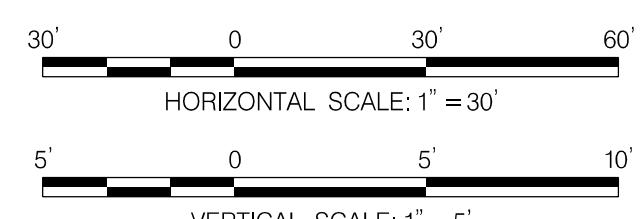
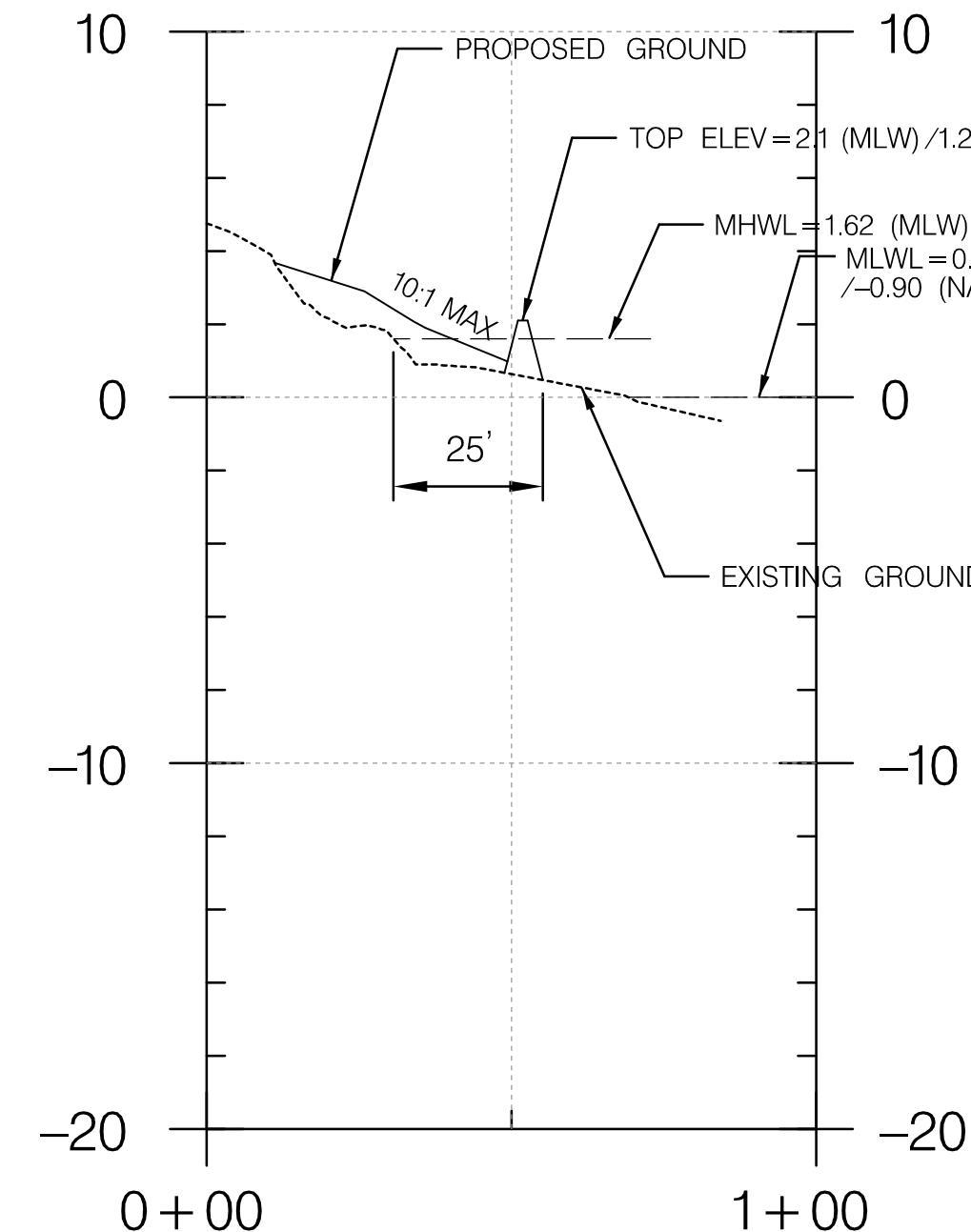
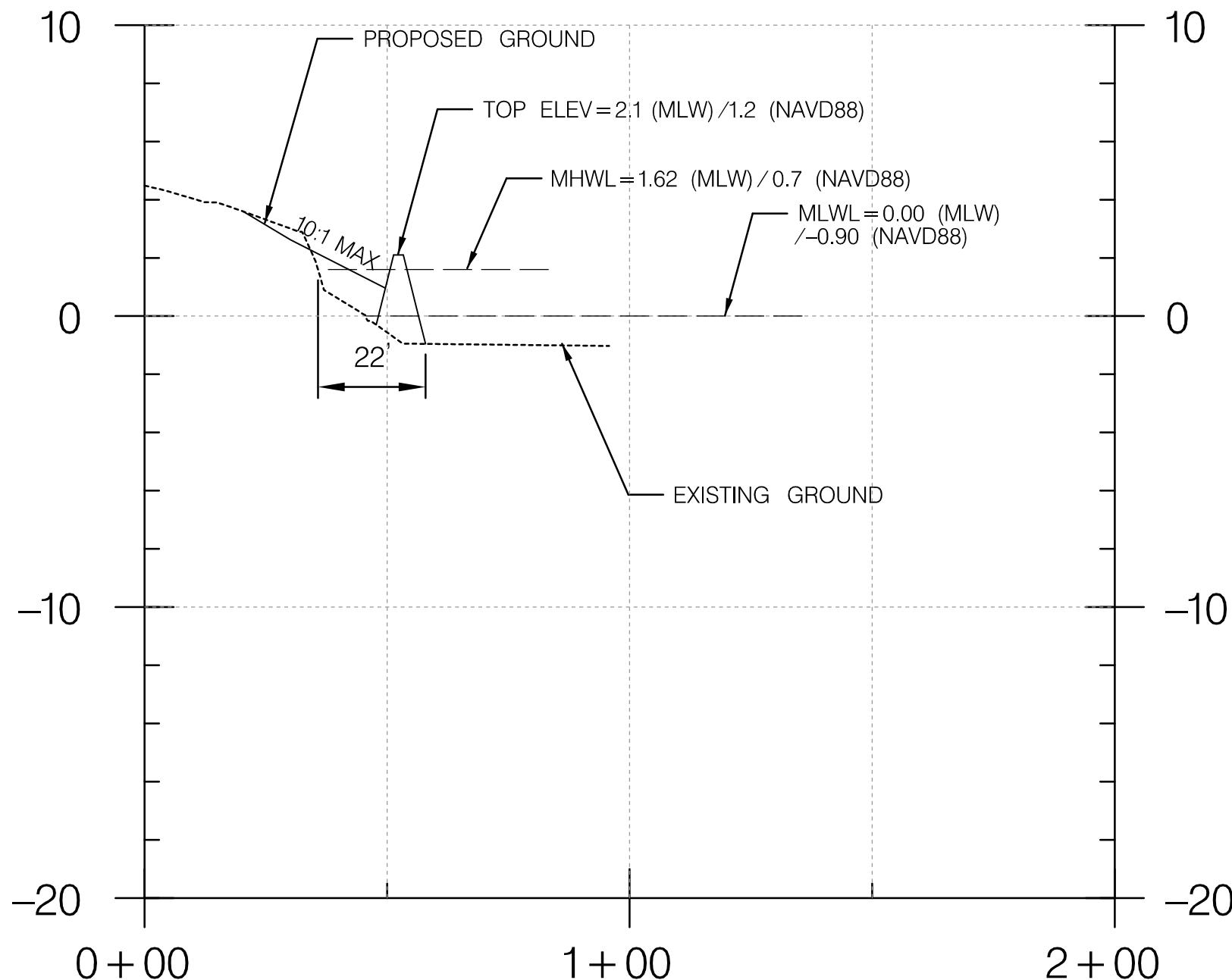
GRACE CREEK FARM LIVING SHORELINE  
CROSS SECTIONS

23472 BERRY RD, BOZMAN MD, TALBOT COUNTY

## REVISIONS

DRAWN BY: <u>JB</u>	SCALE: HORIZONTAL SCALE: 1" = 30'
DESIGNED BY: <u>CN</u>	VERTICAL SCALE: 1" = 5'
REVIEWED BY: <u>MD</u>	DATE: NOVEMBER 2024
DRAWING NO. XS-02 OF XS-03	SHEET NO. 18 OF 37

COORDINATE NOTE  
PLANS ARE IN NAD 83 MARYLAND STATE PLANE FIPS 1900  
COORDINATE SYSTEM.  
PROFESSIONAL CERTIFICATION  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME  
AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF  
THE STATE OF MARYLAND.



### EASTERN SHORE LAND CONSERVANCY

### GRACE CREEK FARM LIVING SHORELINE CROSS SECTIONS

23472 BERRY RD, BOZMAN MD, TALBOT COUNTY

#### REVISIONS

DRAWN BY : <u>JB</u>	SCALE : HORIZONTAL SCALE: 1'' = 30'
DESIGNED BY : <u>CN</u>	VERTICAL SCALE: 1'' = 5'
REVIEWED BY : <u>MD</u>	DATE : NOVEMBER 2024
DRAWING NO. XS-03 OF XS-03	SHEET NO. 19 OF 37

<b>COORDINATE NOTE</b> PLANS ARE IN NAD 83 MARYLAND STATE PLANE FIPS 1900 COORDINATE SYSTEM.
<b>PROFESSIONAL CERTIFICATION</b> I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

**SHORELINE SEQUENCE OF CONSTRUCTION**

- Schedule treatment of phragmites before construction mobilization begins.
- Contact the Maryland Department of Environment (MDE) at (410) 901-4020 two weeks prior to start of construction to schedule a pre-construction meeting to review plans and become familiar with all permits.
- Miss Utility must be contacted at least 72 hours prior to beginning work.
- All necessary approvals and permits must be obtained prior to the start of construction.
- To protect SAV, in-stream work shall not be conducted during the period April 15 through October 15, inclusive, during any year.
- To protect oyster populations including NOB 11-9, no bank grading shall be conducted during the periods from December 16 through March 1 and June 1 through September 30, inclusive, during any year.
- Clear and grub only for and install temporary sediment control measures.
- Install stabilized construction entrances and all sediment control devices.
- Notify the Talbot County sediment control inspector upon completion of said installation.
- With the approval of the Talbot County inspector, clear and grub for shoreline work.
- Haul in stone/fill material as required and place at stockpile areas as shown on the plan.
- Begin shoreline work. Perform excavation and site grading as required and shown on plan. Only disturb as much area as can be stabilized at the end of each work day. The turbidity curtain shall be installed around the work area prior to any disturbances and removed at the end of each work day. Remove any accumulated sediment at the end of each working day and prior to removal of turbidity curtain.
- Place filter cloth then class 3 stone base (filter cloth should wrap to the top of the sand fill elevation on the landward side of the structure), then place class 1 and 2 (pre mix prior to placing), and then top with class 0.
- Maintain all sediment control measures throughout construction.
- Once shoreline restoration is complete, fine grade, topsoil, seed, and mulch per the plan.
- Stabilize any remaining work areas. Once the site is fully stabilized, and through coordination and approval of the MDE inspector, remove sediment control measures.
- Install plant material during appropriate planting dates.

**TEMPORARY STOCKPILE NOTE**

If necessary, a temporary stockpile shall be provided within the limits of disturbance. The stockpile shall be located such that any runoff will drain to an existing sediment control device (i.e., filter sock). The stockpile may not protrude upon nor alter drainage divides to the sediment control device at any time.

**MAINTENANCE NOTE**

Contractor shall inspect and maintain all sediment control measures and devices after every storm event. Maintenance shall include, but not be limited to the removal of all accumulated sediment. Geotextile fabric shall be replaced as needed to ensure proper function.

**DURING CONSTRUCTION STABILIZATION NOTE**

Following the initial disturbance permanent or temporary stabilization shall be completed within 3 calendar days on all perimeter controls and slopes greater than 3 to 1 and 7 days on all other disturbed areas on the site.

**GENERAL NOTES**

- This plan has been prepared to provide approximately 2,700 linear feet of shoreline restoration at 23432 Berry Rd and 32472 Berry Rd in Talbot County, Maryland.
- Field survey were obtained from Ecotone, Inc. in May 2023 and depict field run 1-ft topo merged with 2-ft County GIS topo.
- Ecotone, LLC., The Contractor, shall notify the landowner's representative at least two (2) weeks prior to start of grading operations within the project areas.
- The Contractor is responsible for the location of all underground utilities prior to the start of construction. Any damages to utilities as a result of grading or other activities will be the sole responsibility of the Contractor and shall be repaired at the Contractors expense.
- Access to the restoration area shall be from Berry Rd as indicated hereon.
- The Contractor will be responsible for any damage to private property, including but not limited to fences and private roads resulting from the execution of this contract. Repairs for any such damage will be made at the Contractors expense to the satisfaction of the private property owner.
- All machinery, equipment and supplies for the project shall be stored in an upland location, preferably the staging area shown on this plan, so as not to disturb any environmentally sensitive areas or agricultural uses on the site.

**BEST MANAGEMENT PRACTICES FOR WORKING IN NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, AND 100-YEAR FLOODPLAINS**

- No excess fill, construction material, or debris shall be stockpiled or stored in nontidal wetlands, nontidal wetland buffers, waterways, or the 100-year floodplain.
  - Place materials in a location and manner which does not adversely impact surface or subsurface water flow into or out of nontidal wetlands, nontidal wetland buffers, waterways, or the 100-year floodplain.
  - Do not use the excavated material as backfill if it contains waste metal products, unsightly debris, toxic material, or any other deleterious substance. If additional backfill is required, use clean material free of waste metal products, unsightly debris, toxic material, or any other deleterious substance.
  - Place heavy equipment on mats or suitably operate the equipment to prevent damage to nontidal wetlands, nontidal wetland buffers, waterways, or the 100-year floodplain.
  - Repair and maintain any serviceable structure or fill so there is no permanent loss of nontidal wetlands, nontidal wetland buffers, or waterways, or permanent modification of the 100-year floodplain in excess of that lost under the originally authorized structure or fill.
  - Rectify any nontidal wetlands, wetland buffers, or 100-year floodplain temporarily impacted by any construction.
  - All stabilization in the nontidal wetland and nontidal wetland buffer shall consist of the following species: Annual Ryegrass (*Lolium multiflorum*), Millet (*Setaria italica*), Barley (*Hordeum sp.*), Oats (*Uniola sp.*), and/or Rye (*Secale cereale*). These species will allow for the stabilization of the site while also allowing for the voluntary revegetation of natural wetland species. Other non-persistent vegetation may be acceptable, but must be approved by the Nontidal Wetlands and Waterways Division, Kentucky 31 fescue shall not be utilized in wetland or buffer areas. The area should be seeded and mulched to reduce erosion after construction activities have been completed.
  - After installation has been completed, make post-construction grades and elevations the same as the original grades and elevations in temporarily impacted areas.
- To protect aquatic species, in-stream work is prohibited as determined by the classification of the stream: NA - Tidal Waters
- Stormwater runoff from impervious surfaces shall be controlled to prevent the washing of debris into the waterway.
  - Culverts shall be constructed and any riprap placed so as not to obstruct the movement of aquatic species, unless the purpose of the activity is to impound water.
  - A dewatering pump will be utilized in conjunction with a dirt bag to remove standing water in the project area during construction. The dirt bag will be placed on a vegetated area a sufficient distance from subject reach so that any sediment leaving the dirt bag has time/distance to settle out before reaching the waterway.

**EROSION AND SEDIMENT CONTROL STANDARDS & SPECIFICATIONS FOR VEGETATIVE STABILIZATION**

- Contractor shall install soil erosion and sediment control devices prior to any grading. Following initial disturbance or re-disturbance, permanent or temporary stabilization shall be completed within three (3) calendar days as to the surface of all perimeter controls, dikes, swales, ditches, perimeter slopes greater than three (3) horizontal to one (1) vertical (3:1) and seven (7) days as to all other disturbed or graded areas on the project site not under active grading.
- All temporary erosion and sediment control devices are to be provided as indicated on this plan, with location adjustments to be made in the field as necessary, and to be maintained at the end of each working day until project completion. The minimum area practical shall be disturbed for the minimal amount of time possible.
- Clearing and grubbing shall include all trees, brush, debris, root mat and organic materials to be removed.
- Temporary seeding shall be accomplished between April 15 through April 30th, and August 15th through November 30th. During other times, temporary mulching shall be provided.
- Temporary seeding shall conform to the following applications: 436 lbs. per acre of 10-20-20; 4,000 lbs. per acre of ground limestone, to be incorporated into the soil by disk or other suitable means. Annual ryegrass shall be applied at a rate of 50 lbs. per acre using suitable equipment. Mulching shall be accomplished immediately after seeding.

Seed Mixture (For Hardiness Zone 7a) (From Table B.1)				Fertilizer Rate (10-20-20)	Lime Rate
Species	App. Rate (lbs. / ac.)	Seeding Dates	Seeding Depths		
ANNUAL RYEGRASS	50#	8/15 - 11/30	1/2"		
BARLEY	96#	2/15 - 4/30; 8/15 - 11/30	1"		
CLOVER	72#	2/15 - 4/30; 8/15 - 11/30	1"		
WHEAT	120#	2/15 - 4/30; 8/15 - 11/30	1"		
CEREAL RYE	112#	2/15 - 4/30; 8/15 - 12/15	1"		
FOXTAIL MILLET	38#	5/1 - 8/14	1/2"		
PEARL MILLET	20#	5/1 - 8/14	1/2"		

- Mulching shall be un-chopped, un-rotted, small grain straw applied at a rate of 2-2½ tons per acre. Anchor mulch with a mulch anchoring tool on the Contour. Wood cellulose fiber may be used for anchoring straw at a rate of 750 lbs. per acre mixed with water at a maximum of 50 lbs. of wood cellulose fiber per 100 gals. of water, or with a synthetic liquid binder according to manufacturer recommendations. Wood cellulose fiber used as mulch must be applied at a net dry weight of 1,500 lbs. per acre. Mix wood cellulose fiber with water to attain a mixture with a maximum of 50 lbs. of wood cellulose fiber per 100 gals. of water.
- Permanent seeding shall be accomplished between February 15 through April 30th, or August 15th through October 31st. Permanent seeding at other than specified times will be allowed only upon written approval. Permanent seeding shall conform to the following applications: Permanent seeding for sites having disturbed over five (5) acres shall use fertilizer rates recommended by a soil testing agency and the recommendations provided in the Permanent Seeding Summary Table. Permanent seeding for conditions other than listed above shall be performed at the rates and dates as provided in the Permanent Seeding Summary Table below. Fertilizer and lime amendments shall be incorporated into the top 3"-5" of the soil by disk or other suitable means. Mulching shall be accomplished as discussed in Item #6 of these specifications.

Seed Mixture (For Hardiness Zone 7a) (From Table B.3)				Fertilizer Rate (10-20-20)	Lime Rate		
No.	Species	App. Rate (lbs. / ac.)	Seeding Dates	Seeding Depths	N	P205	K20
7	CREEPING RED FESCUE KENTUCKY BLUEGRASS	60# 15#	2/15-4/30 8/15-10/31	1/4"-1/2"			
8	TALL FESCUE	100#	2/15-4/30 8/15-10/31	1/4"-3/4"			
9	TALL FESCUE KENTUCKY BLUEGRASS PERENNIAL RYEGRASS	60# 40# 20#	2/15-4/30 8/15-10/31	3/4"-1 1/2"	45 lbs. / ac. 1 lb. / 1000 sf	90 lbs. / ac. 2 lbs. / 1000 sf	90 lbs. / ac. 2 lbs. / 1000 sf

- Any spoil or borrow will be placed at a site approved by the Talbot Soil Conservation District.
- All areas remaining or intended to remain disturbed for longer than seven (7) days shall be stabilized in accordance with the USDA, Natural Resources Conservation Service Standards and Specifications for Soil Erosion and Sediment Control in developing areas for critical area stabilization.
- It will be the responsibility of the Contractor or Subcontractor to notify the Engineer of any deviation from this plan. Any change made in this plan without written authorization from the Engineer will place responsibility of said change on the Contractor or Subcontractor.

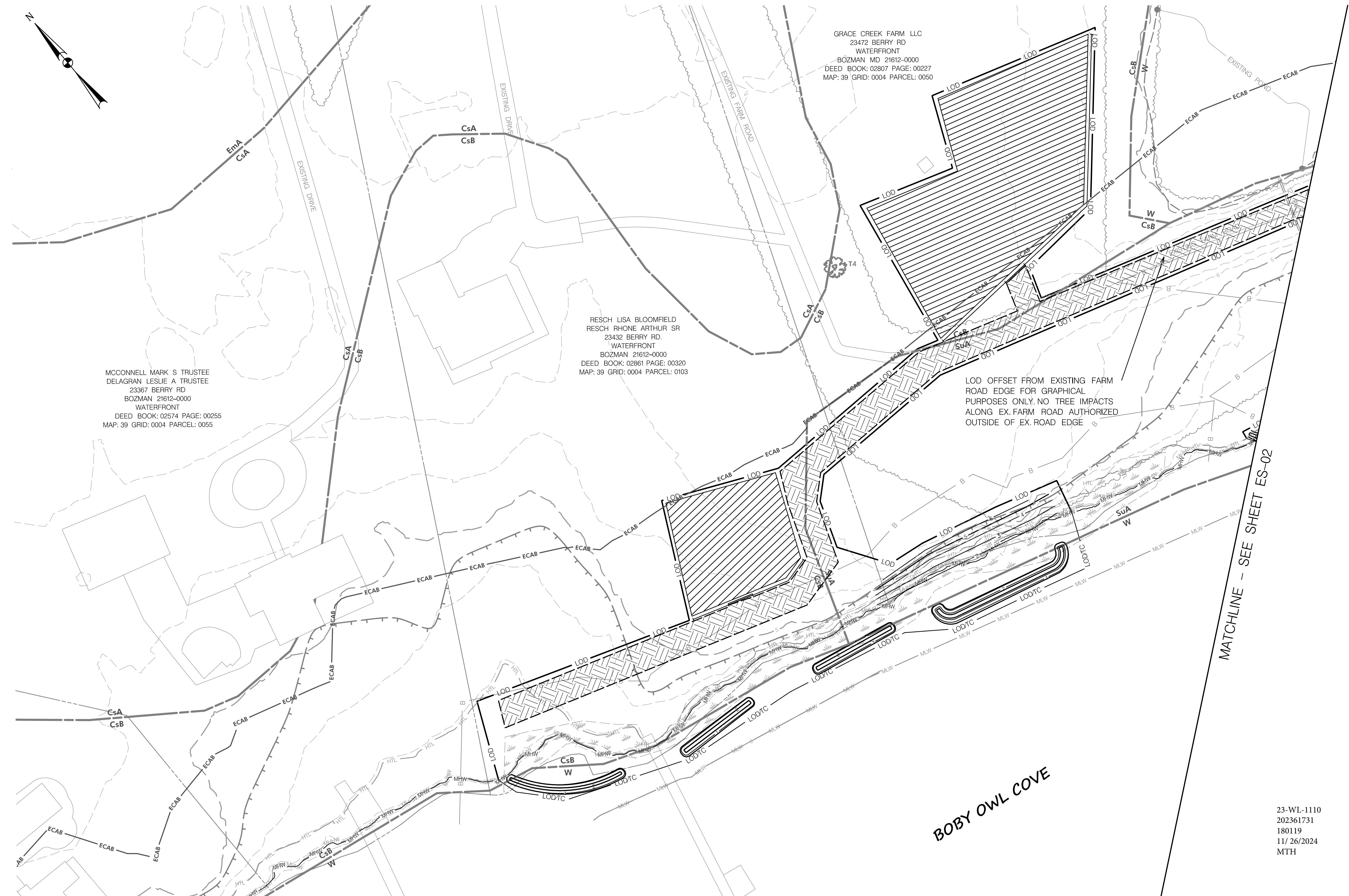
The following items have been addressed to meet the requirements of the GENERAL PERMIT FOR STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITY (NPDES NUMBER MDR10, STATE DISCHARGE PERMIT NUMBER 09GP).

- Utilization of environmental site design
- Maintenance of limits of disturbance to protect natural areas
- Control of construction equipment and vehicles
- Evaluation and appropriate limitation of site clearing
- Evaluation and designation of site area for phasing or sequencing
- Identification of soils at high risk for erosion and advanced stabilization techniques to be used
- Identification of steep slopes and designation of limitations on clearing them
- Evaluation and designation of stabilization requirements and time limits and protection measures for discharges to the Chesapeake Bay, impaired waters or waters with an established Total Maximum Daily Load (TMDL).

**EASTERN SHORE LAND CONSERVANCY**

<b>GRACE CREEK FARM LIVING SHORELINE EROSION AND SEDIMENT CONTROL GENERAL NOTES /SOC</b>
<b>23472 BERRY RD, BOZMAN MD , TALBOT COUNTY</b>
DRAWN BY : <u>JB</u>
DESIGNED BY : <u>CN</u>
REVIEWED BY : <u>MD</u>
DRAWING NO. EN-01 OF EN-01
SCALE : <u>NA</u>
DATE : <u>NOVEMBER 2024</u>
SHEET NO. <u>1</u>

<b>COORDINATE NOTE</b> PLANS ARE IN NAD 83 MARYLAND STATE PLANE FIPS 1900 COORDINATE SYSTEM.
<b>PROFESSIONAL CERTIFICATION</b> I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.



## SOILS LEGEND

<b><u>SYMBOL</u></b>	<b><u>SOIL DESCRIPTION</u></b>
CsA	Crosiadore silt loam, 0-2 % slopes
CsB	Crosiadore silt loam, 2-5 % slopes
EmA	Elkton silt loam, 0-2 % slopes
SuA	Sunken mucky silt loam, 0-2 %slopes, occasionally flooded, tidal
W	Water

### COORDINATE NOTATION

**COORDINATE NOTE**  
PLANS ARE IN NAD 83 MARYLAND STATE PLANE FIPS 1900  
COORDINATE SYSTEM

#### PROFESSIONAL CERTIFICATION

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EASTERN SHORE LAND CONSERVANCY

# GRACE CREEK FARM LIVING SHORELINE EROSION AND SEDIMENT CONTROL PLAN

23472 BERRY RD. BOZMAN MD - TALBOT COUNTY

SCALE : 1" = 30'

DATE : NOVEMBER 2024

DRAWN BY : JB

DESIGNED BY : CN

## MATCHLINE - SEE SHEET SR-05

LOD OFFSET FROM EXISTING FARM  
ROAD EDGE FOR GRAPHICAL  
PURPOSES ONLY. NO TREE IMPACTS  
ALONG EX. FARM ROAD AUTHORIZED  
OUTSIDE OF EX. ROAD EDGE

N

ECAB

EXISTING POND

LOD OFFSET FROM EXISTING FARM  
ROAD EDGE FOR GRAPHICAL  
PURPOSES ONLY. NO TREE IMPACTS  
ALONG EX. FARM ROAD AUTHORIZED  
OUTSIDE OF EX. ROAD EDGE

W

ECAB

C6B

ECAB

LOA

EXISTING FARM ROAD

VOL

LOD

ECAB

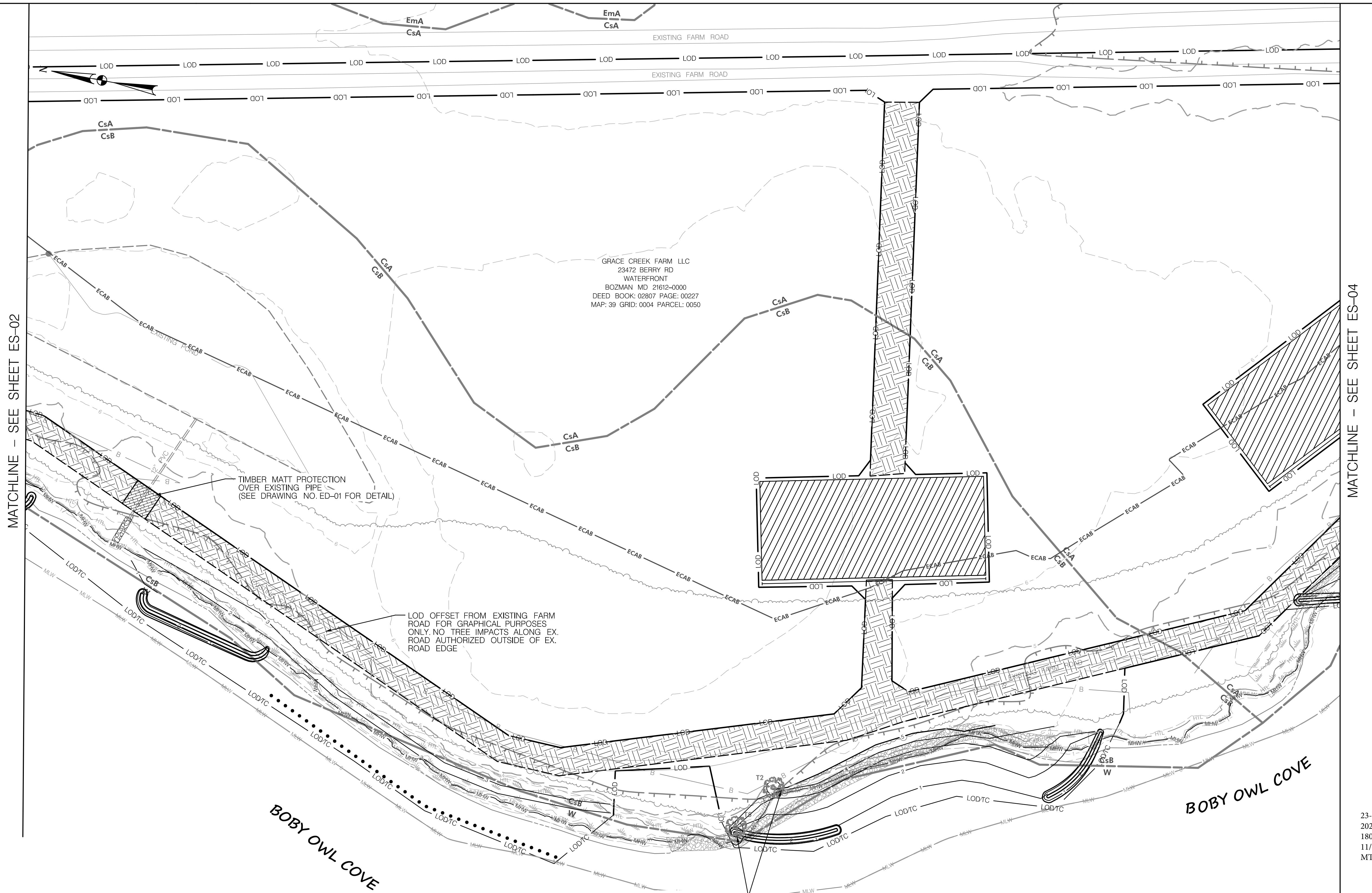
ECAB

ECAB

LOD

ECAB

LOD



## **SOILS LEGEND**

<b><u>SYMBOL</u></b>	<b><u>SOIL DESCRIPTION</u></b>
CsA	Crosiadore silt loam, 0-2 % slopes
CsB	Crosiadore silt loam, 2-5 % slopes
EmA	Elkton silt loam, 0-2 % slopes
W	Water

**COORDINATE NOTE**  
PLANS ARE IN NAD 83 MARYLAND STATE PLANE FIPS 1900

PROFESSIONAL CERTIFICATION

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EASTERN SHORE LAND CONSERVANCY

# GRACE CREEK FARM LIVING SHORELINE EROSION AND SEDIMENT CONTROL PLAN

23472 BERRY RD. BOZMAN MD - TALBOT COUNTY

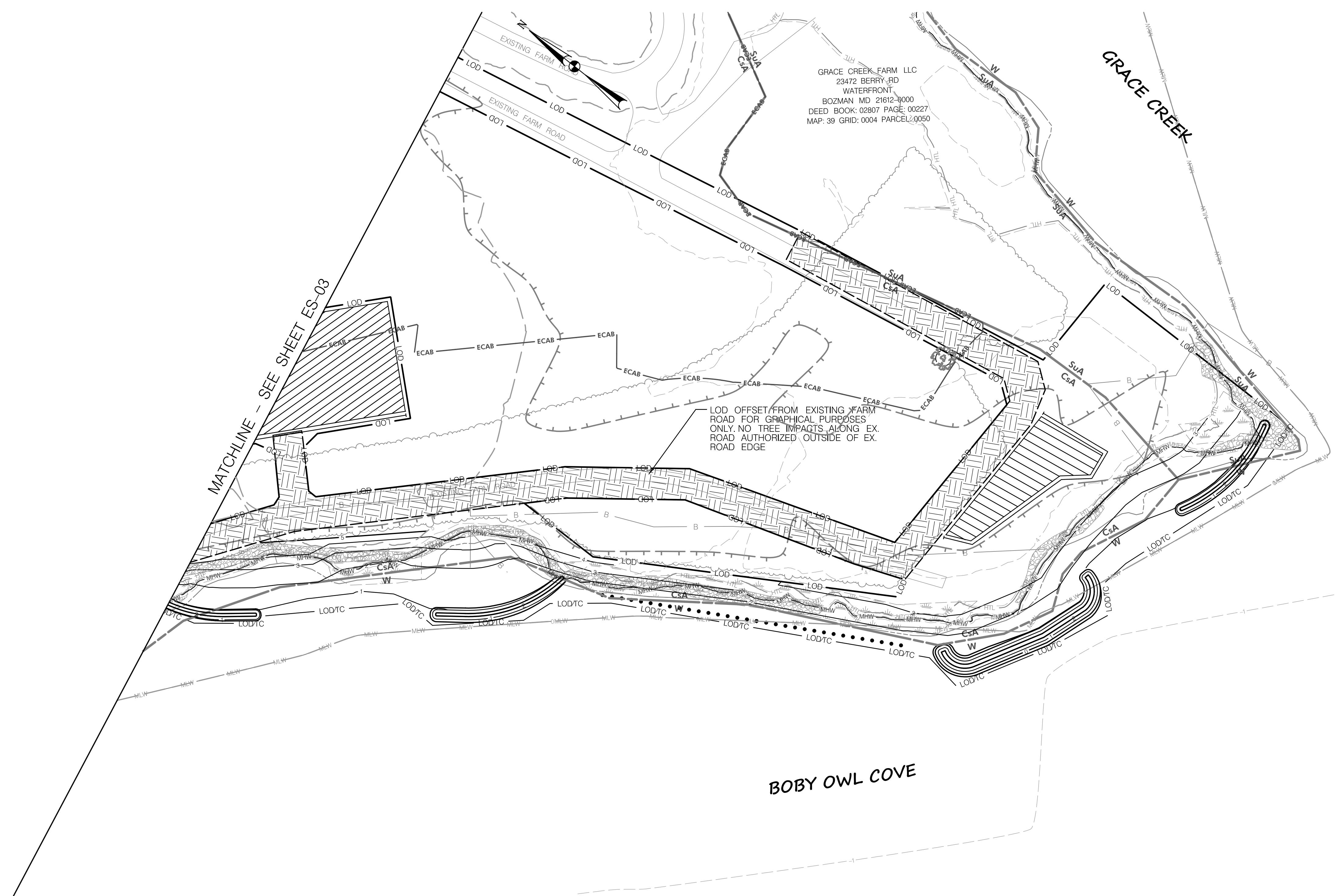
DRAWN BY : JB

DESIGNED BY : CN

REVIEWED BY : MD

SCALE : 1" = 30'

DATE : NOVEMBER 2024

**SOILS LEGEND****SYMBOL      SOIL DESCRIPTION**

CsA Croisiadore silt loam, 0-2 % slopes

SuA Sunken mucky silt loam, 0-2 % slopes, occasionally flooded, tidal

W Water

30' 0 30' 60'  
SCALE: 1" = 30'

**COORDINATE NOTE**  
PLANS ARE IN NAD 83 MARYLAND STATE PLANE FIPS 1900  
COORDINATE SYSTEM.  
**PROFESSIONAL CERTIFICATION**  
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THE STATE OF MARYLAND.

**EROSION AND SEDIMENT CONTROL**

- LOD/TC TURBIDITY CURTAIN
- TPF TREE PROTECTION FENCE
- MBM MOUNTABLE BERM
- FL FILTER LOG
- TAR TEMPORARY ACCESS ROAD
- TMA TIMBER MAT ACCESS ROAD
- SSA STAGING STOCKPILE AREA
- SCE STABILIZED CONSTRUCTION ENTRANCE

**EXISTING FEATURES LEGEND**

- PROPERTY BOUNDARY
- 500 EX. MAJOR CONTOURS
- 498 EX. MINOR CONTOURS
- MHW EX. MEAN HIGH WATER ELEV. = 1.62 (MLW) 0.72 (NAVD88)
- MLW EX. MEAN LOW WATER ELEV. = 0.00 (MLW) -0.90 (NAVD88)
- HTL EX. HIGH TIDE LINE ELEV. = 2.94 (MLW) 2.04 (NAVD88)
- MHHW EX. MEAN HIGHER HIGH ELEV. = 1.83 (MLW) 0.93 (NAVD88)
- EX. ROADS
- EX. METAL FENCE
- EX. WOOD FENCE
- EX. TREELINE
- FEMA EX. 100 YR FLOODPLAIN
- EX. WETLAND
- EX. RIPRAP
- B EX. WETLAND BUFFER (25 FT)
- STORM DRAIN
- SPECIMEN (30" OR GREATER) EX. TREE
- RCA ECAB RCA EX. CRITICAL AREA DESIGNATION
- SAV SAV (2018-2022 COMPOSITE)

**STABILIZATION LEGEND**

- LOD LIMIT OF DISTURBANCE
- LOA LIMIT OF ACCESS
- 480 PROPOSED MAJOR CONTOURS
- 479 PROPOSED MINOR CONTOURS
- MHW PROPOSED MEAN HIGH WATER
- MLW PROPOSED MEAN LOW WATER
- RIPRAP
- PROPOSED STRUCTURE
- REEF BALL

**EASTERN SHORE LAND CONSERVANCY****GRACE CREEK FARM LIVING SHORELINE  
EROSION AND SEDIMENT CONTROL PLAN**

23472 BERRY RD, BOZMAN MD, TALBOT COUNTY

DRAWN BY: <u>JB</u>	SCALE: 1" = 30'
DESIGNED BY: <u>DN</u>	DATE: NOVEMBER 2024
REVIEWED BY: <u>MD</u>	
DRAWING NO. ES-04 OF ES-07	SHEET NO. 24 OF 37

**SOILS LEGEND**

SYMBOL	SOIL DESCRIPTION
CsB	Crosiadore silt loam, 0-2 % slopes
EmA	Elkton silt loam, 0-2 % slopes
SuA	Sunken mucky silt loam, 0-2 % slopes, occasionally flooded, tidal
W	Water

REVISIONS

**EASTERN SHORE LAND CONSERVANCY****GRACE CREEK FARM LIVING SHORELINE  
EROSION AND SEDIMENT CONTROL PLAN**

23472 BERRY RD, BOZMAN MD, TALBOT COUNTY

DRAWN BY : <u>JB</u>	SCALE : 1" = 30'
DESIGNED BY : <u>CN</u>	DATE : NOVEMBER 2024
REVIEWED BY : <u>MD</u>	
DRAWING NO. ES-05 OF ES-07	SHEET NO. 25 OF 37

**SOILS LEGEND**

SYMBOL	SOIL DESCRIPTION
CsA	Crosiadore silt loam, 0-2 % slopes
CsB	Crosiadore silt loam, 2-5 % slopes
EmA	Elkton silt loam, 0-2 % slopes

**EROSION AND SEDIMENT CONTROL**

LOD/TC	TURBIDITY CURTAIN
TPF	TREE PROTECTION FENCE
MBM	MOUNTABLE BERM
FL	FILTER LOG
TAR	TEMPORARY ACCESS ROAD
TMA	TIMBER MAT ACCESS ROAD
SSA	STAGING STOCKPILE AREA
SCE	STABILIZED CONSTRUCTION ENTRANCE

**EXISTING FEATURES LEGEND**

PROPERTY BOUNDARY
500 EX. MAJOR CONTOURS
498 EX. MINOR CONTOURS
MHW EX. MEAN HIGH WATER ELEV. = 1.62 (MLW) 0.72 (NAVD88)
MLW EX. MEAN LOW WATER ELEV. = 0.00 (MLW) -0.90 (NAVD88)
HTL EX. HIGH TIDE LINE ELEV. = 2.94 (MLW) 2.04 (NAVD88)
MHHW EX. MEAN HIGHER HIGH ELEV. = 1.83 (MLW) 0.93 (NAVD88)
EX. ROADS
EX. METAL FENCE
EX. WOOD FENCE
EX. TREELINE
FEMA EX. 100 YR FLOODPLAIN
EX. WETLAND
EX. RIPRAP
B EX. WETLAND BUFFER (25 FT)
STORM DRAIN
SPECIMEN (30" OR GREATER)
EX. TREE

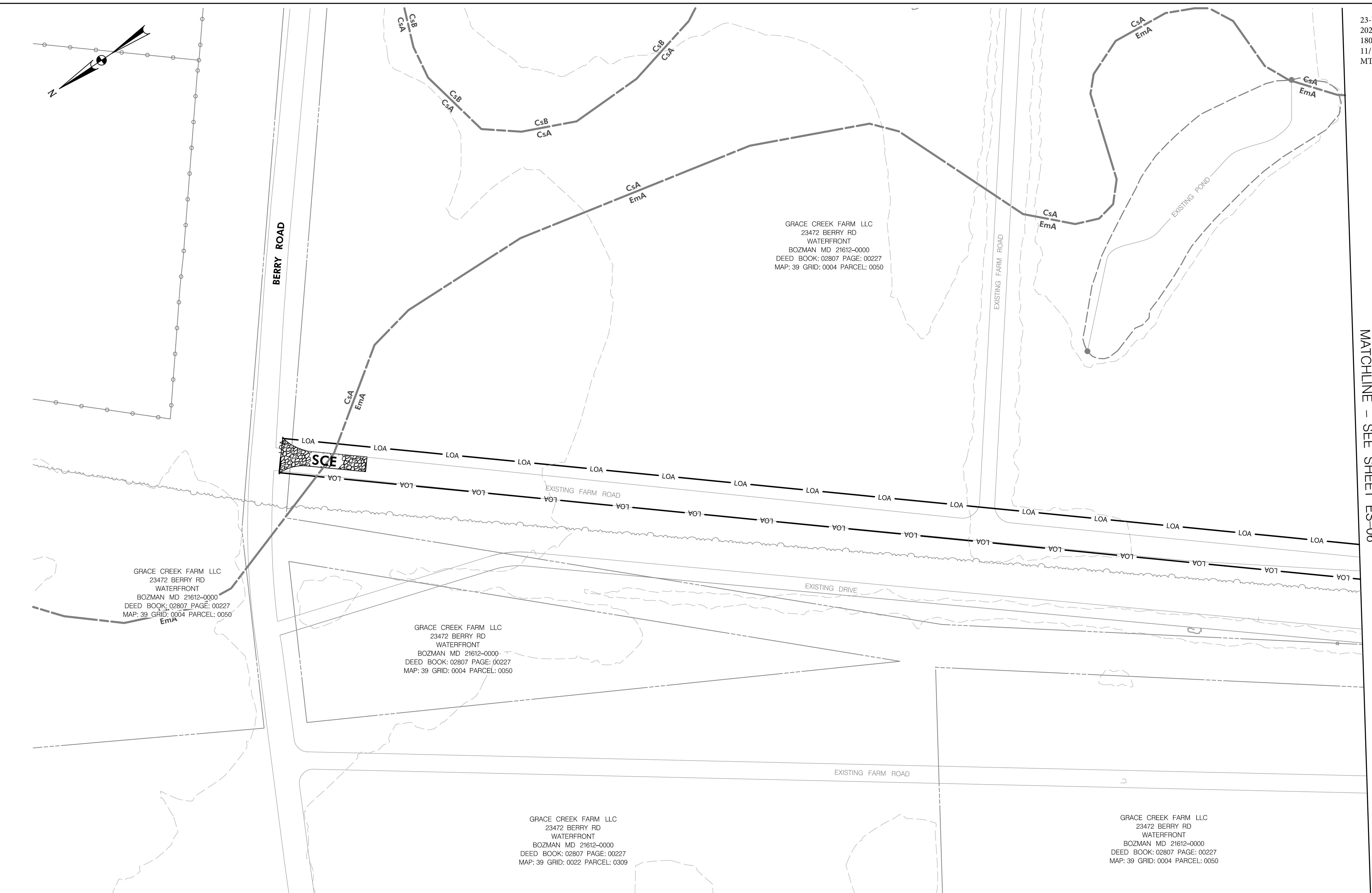
**STABILIZATION LEGEND**

LOD	LIMIT OF DISTURBANCE
LOA	LIMIT OF ACCESS
480	PROPOSED MAJOR CONTOURS
479	PROPOSED MINOR CONTOURS
MHW	PROPOSED MEAN HIGH WATER
MLW	PROPOSED MEAN LOW WATER
RIPRAP	RIPRAP
PROPOSED STRUCTURE	PROPOSED STRUCTURE
REEF BALL	REEF BALL

**EASTERN SHORE LAND CONSERVANCY****GRACE CREEK FARM LIVING SHORELINE  
EROSION AND SEDIMENT CONTROL PLAN**

23472 BERRY RD, BOZMAN MD, TALBOT COUNTY

DRAWN BY: <u>JB</u>	SCALE: 1" = 30'
DESIGNED BY: <u>ON</u>	DATE: NOVEMBER 2024
REVIEWED BY: <u>MD</u>	
DRAWING NO. ES-06 OF ES-07	SHEET NO. 26 OF 37



## SOILS LEGEND

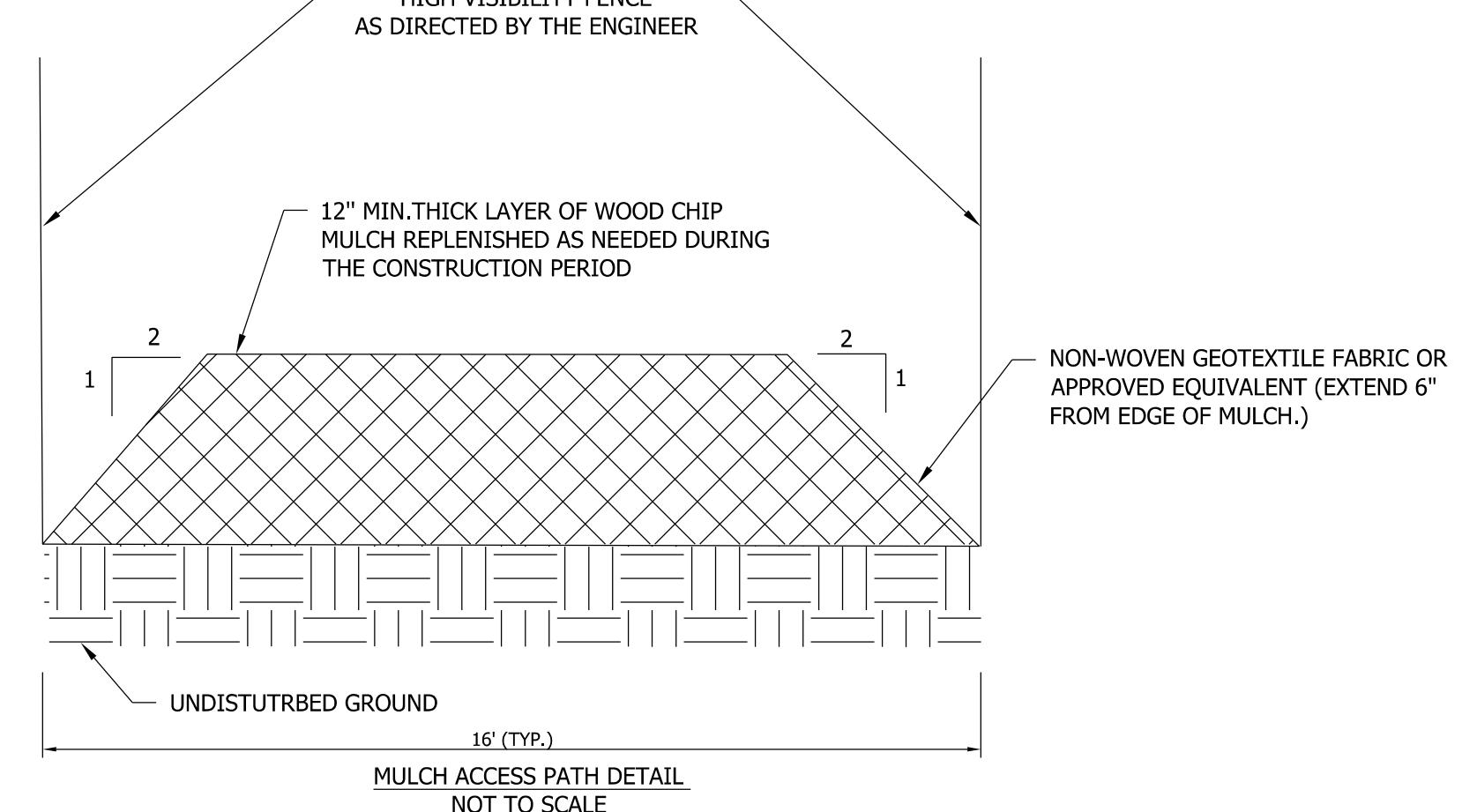
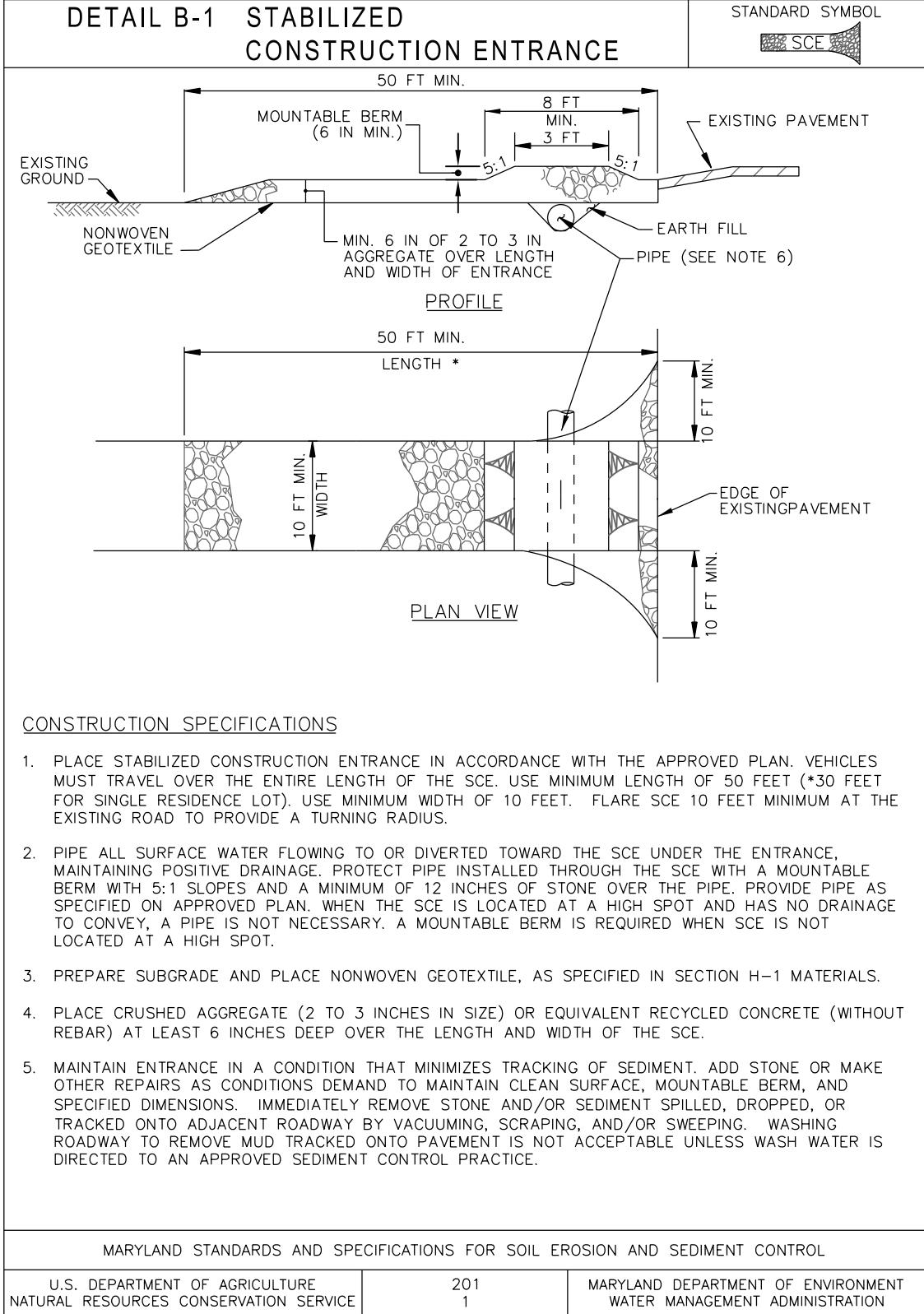
SYMBOL	SOIL DESCRIPTION
CsA	Crosiadore silt loam, 0-2 % slopes
CsB	Crosiadore silt loam, 2-5 % slopes
EmA	Elkton silt loam, 0-2 % slopes

## EASTERN SHORE LAND CONSERVANCY

GRACE CREEK FARM LIVING SHORELINE  
EROSION AND SEDIMENT CONTROL PLAN

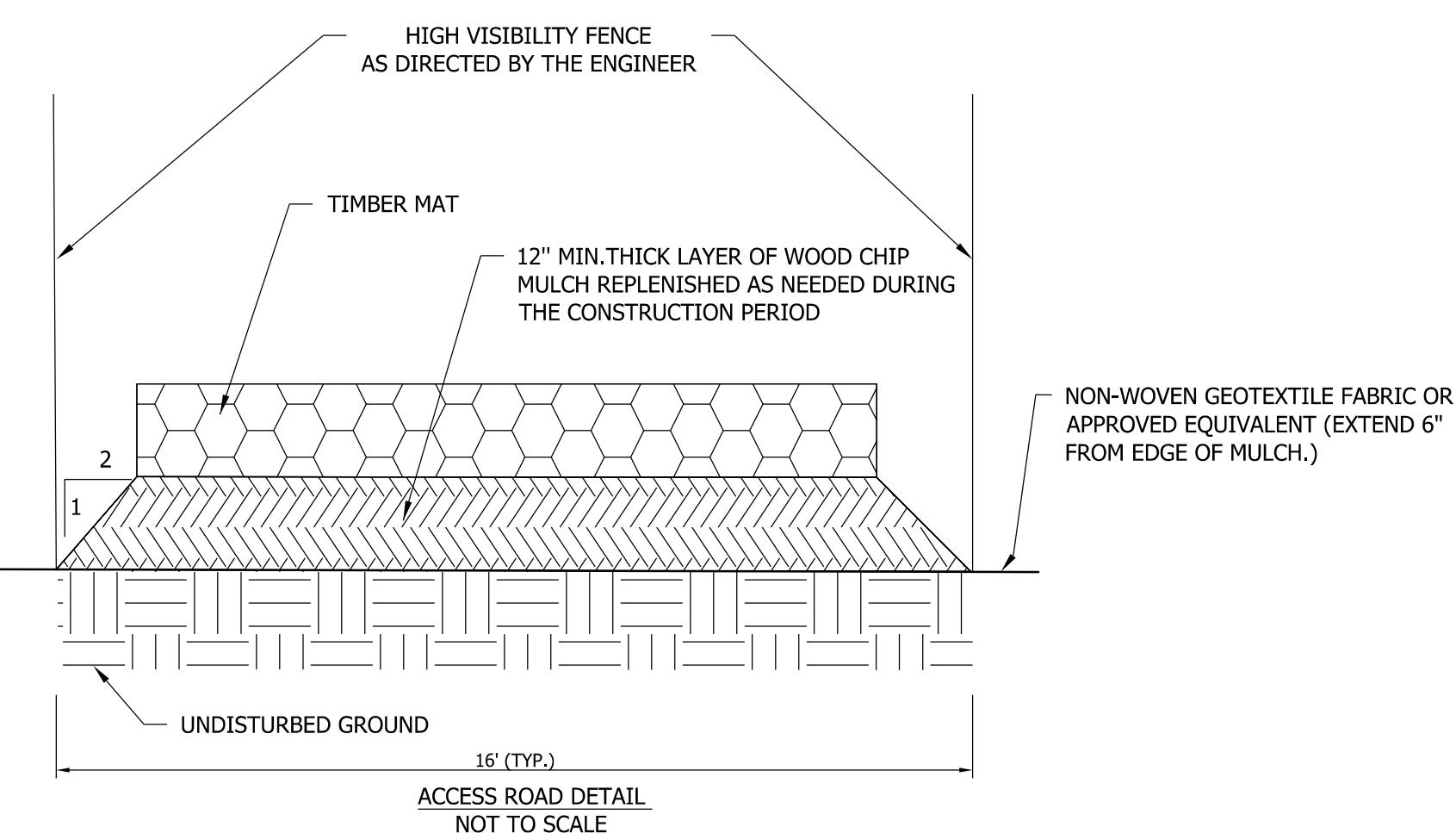
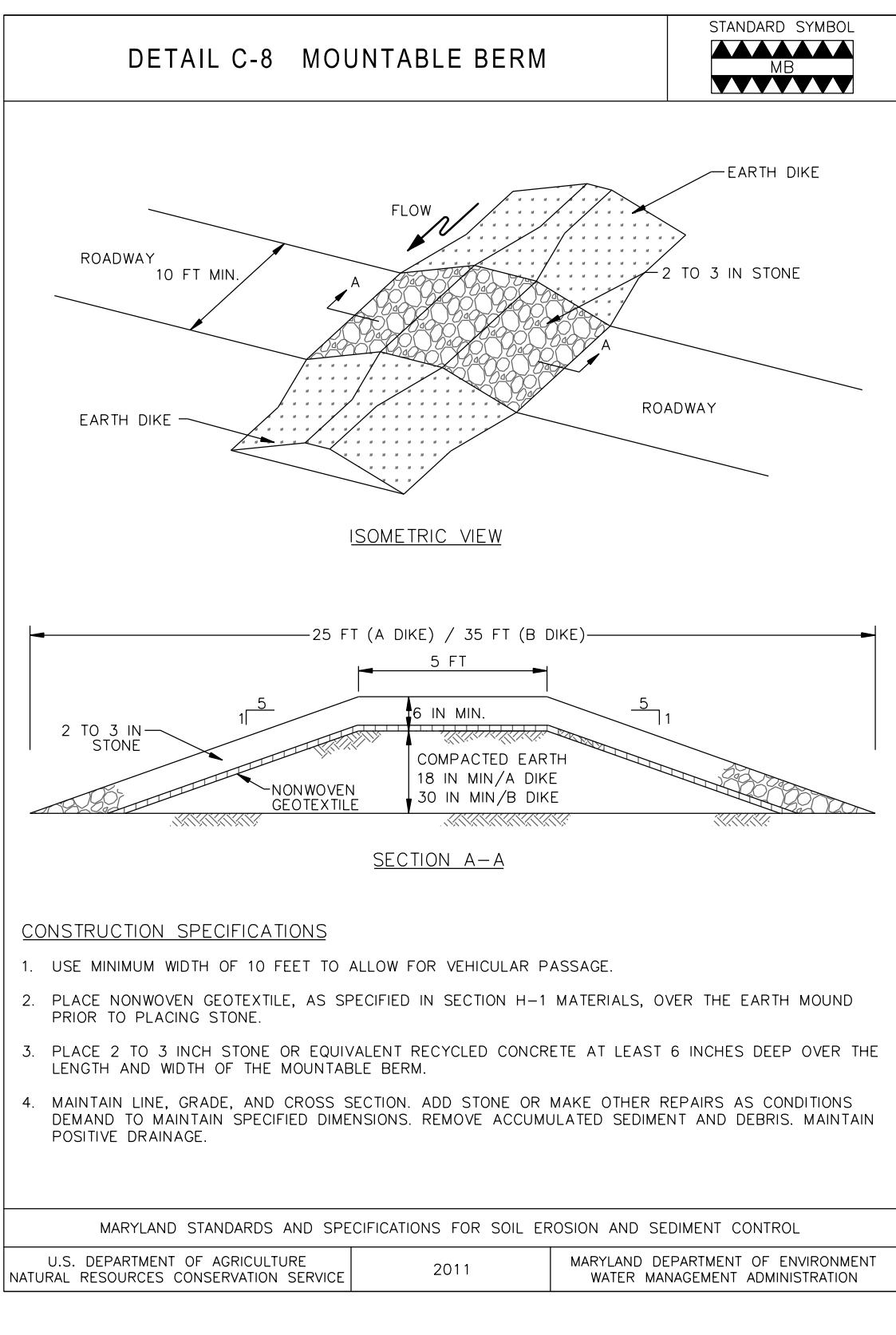
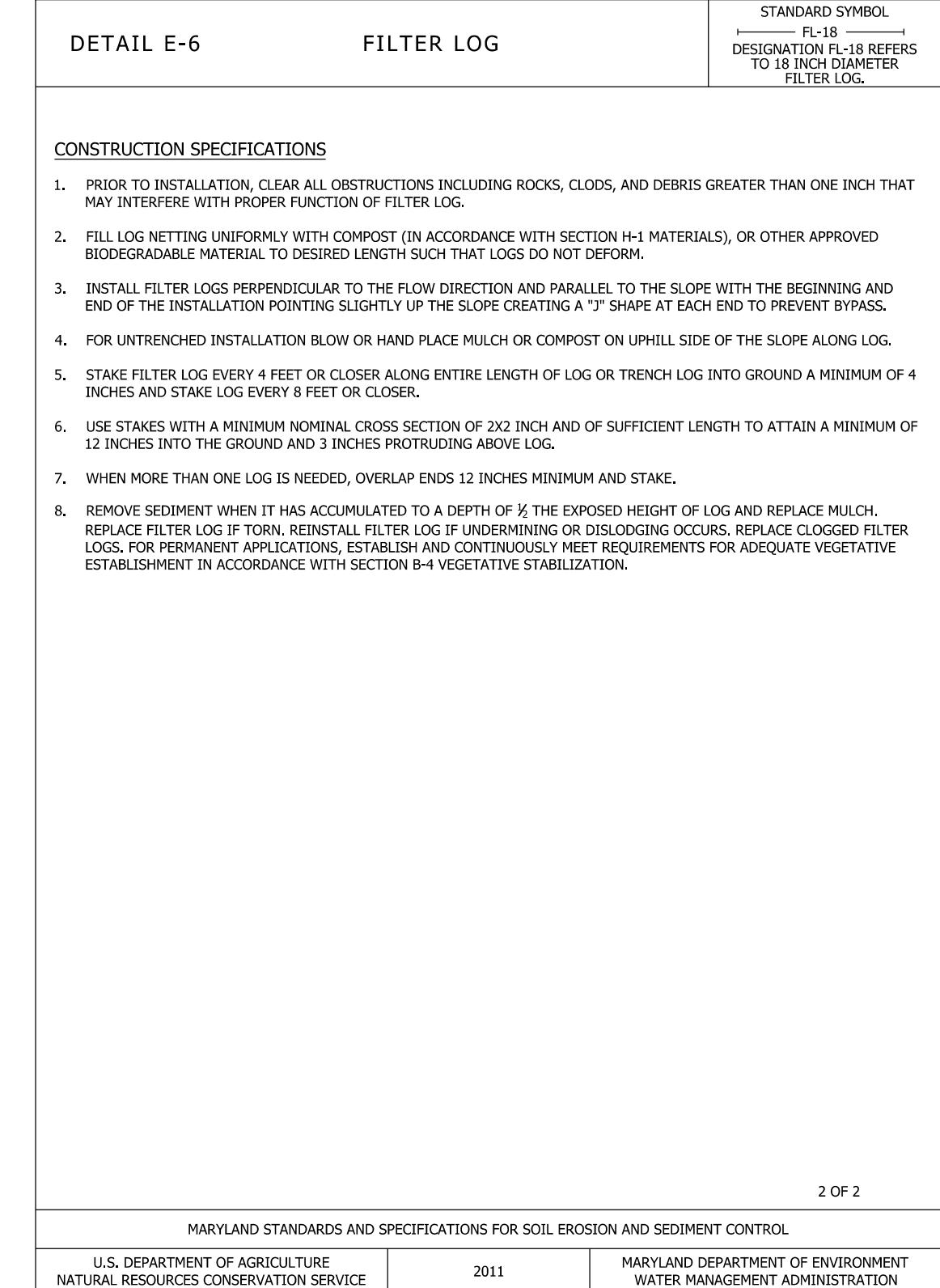
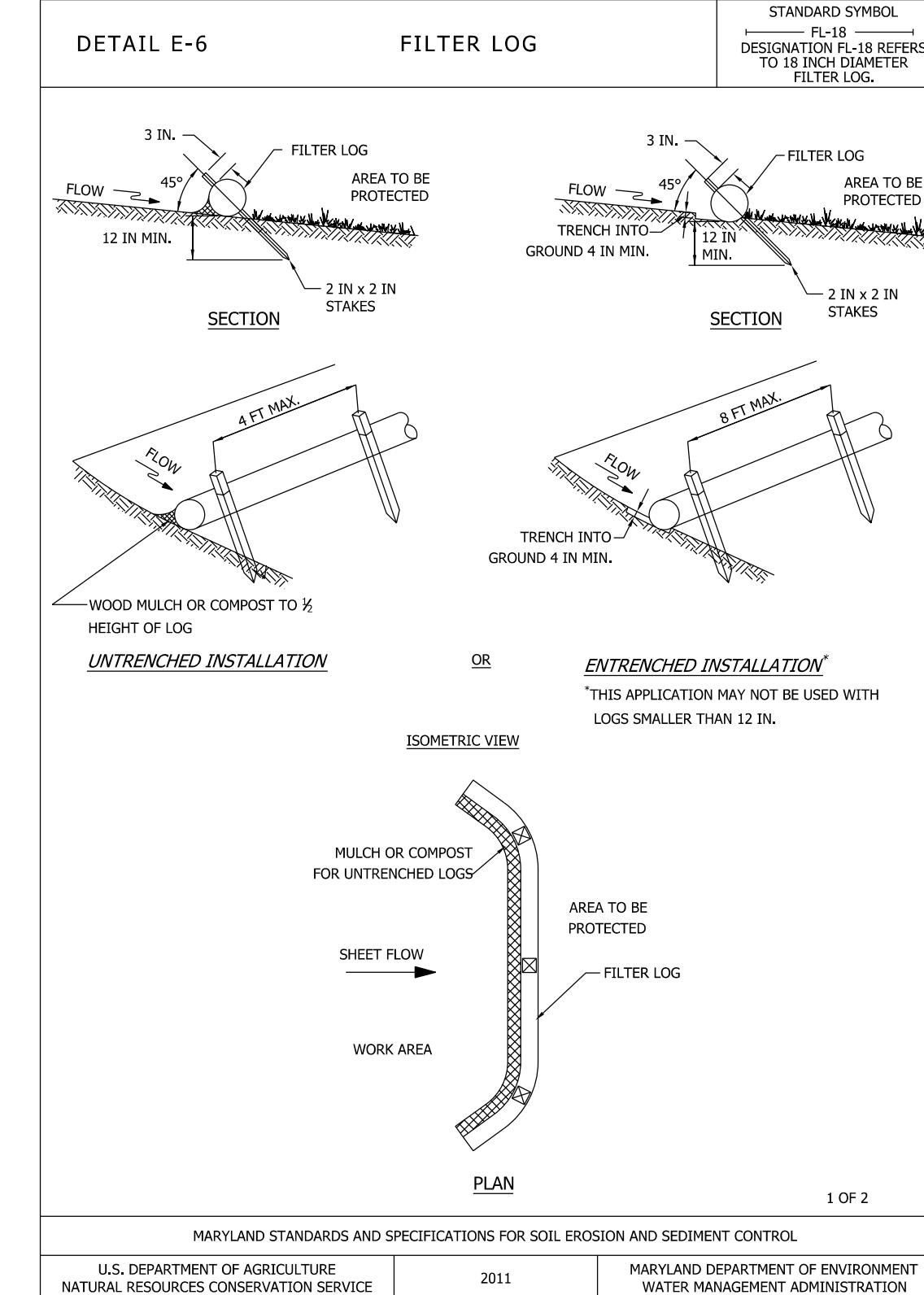
23472 BERRY RD, BOZMAN MD, TALBOT COUNTY

DRAWN BY: <u>JB</u>	SCALE: 1" = 30'
DESIGNED BY: <u>DN</u>	DATE: NOVEMBER 2024
REVIEWED BY: <u>MD</u>	
DRAWING NO. ES-07 OF ES-07	SHEET NO. 27 OF 37



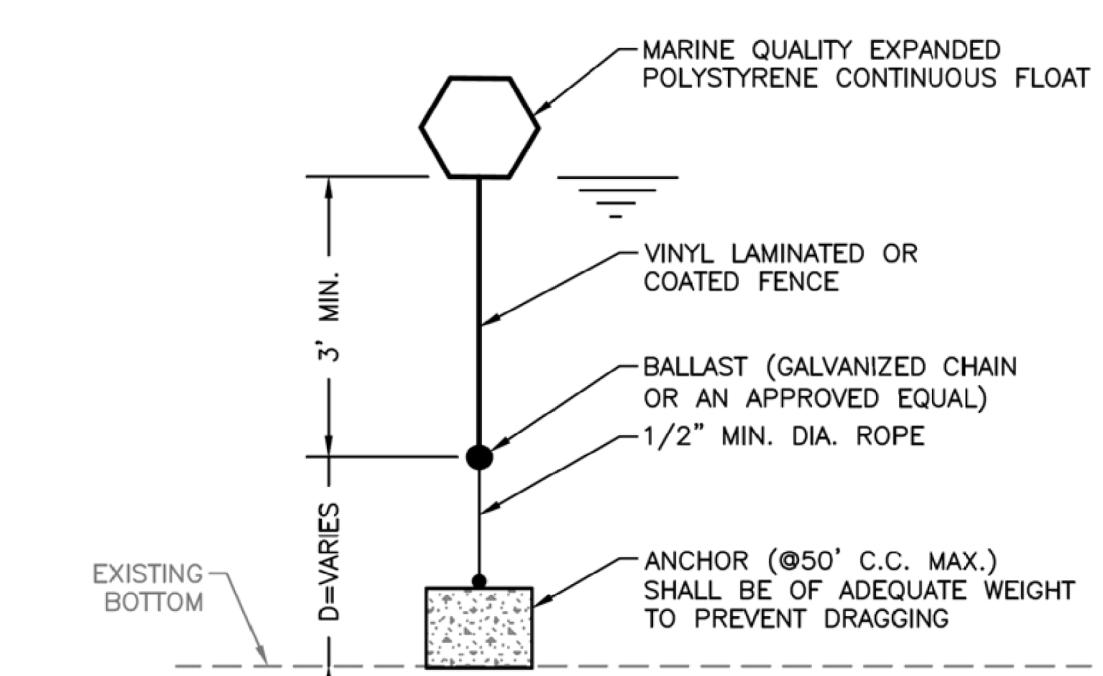
**MULCH ACCESS PATH DETAIL NOTES:**

- ACCESS ROUTES TO BE VERIFIED BY ENGINEER AT PRE-CONSTRUCTION MEETING. MINOR ADJUSTMENTS TO THE ALIGNMENT THAT MINIMIZES TREE DISTURBANCE ARE ENCOURAGED AND REQUIRE REVIEW AND APPROVAL BY ENGINEER AND THE SEDIMENT CONTROL INSPECTOR.
- AS FIELD CONDITIONS WARRANT, ADDITIONAL WOOD CHIP MULCH (EXCEEDING THE MINIMUM 12") MAY BE REQUIRED AT THE DISCRETION OF THE SEDIMENT CONTROL INSPECTOR TO AVOID RUTTING OF THE SOIL SURFACE.
- SWAMP MATS ARE REQUIRED WHEN CROSSING WETLANDS.
- CONTRACTOR SHALL MAINTAIN MULCH MAT THROUGHOUT CONSTRUCTION PERIOD. UPON COMPLETION OF THE PROJECT, MULCH CAN REMAIN IN PLACE, BEING SPREAD THROUGHOUT THE SITE AT A MAXIMUM DEPTH OF 2". THE CONTRACTOR MUST ENSURE THAT THIS PROCESS IS DONE THROUGHOUT THE GRADING PROCESS, IN A MANNER WHICH ENSURES PROPOSED GRADES ARE MET AND MAINTAINED, WITHOUT DISTURBANCE TO FINAL SEEDING AND PLANTING OF THE SITE.
- SCARIFICATION OF COMPACTED MULCH TO OCCUR UPON REMOVAL OF ACCESS PATH, AT DIRECTION OF THE ENGINEER. IF SOILS ARE EXPOSED AND RUTTED BELOW MULCH MATTING, CONTRACTOR TO ADDRESS ACCORDINGLY TO RESTORE NATURAL CONDITIONS. STABILIZE ALL EXPOSED SOIL WITH APPROPRIATE PERMANENT SEED MIX, AS DEFINED IN THE LANDSCAPE PLANS. SOIL STABILIZATION MATTING MAY BE REQUIRED AT THE DISCRETION OF THE SEDIMENT CONTROL INSPECTOR TO STABILIZE SLOPED AREAS.
- THE ACCESS PATH IS DESIGNED TO PREVENT COMPACTION OF EXISTING SOILS USING LOW PRESSURE EQUIPMENT WHICH EXERTS NO MORE THAN 12 PSI. IF THE CONTRACTOR INTENDS TO USE ANY EQUIPMENT WITH HIGHER LOADS, ADDITIONAL PROTECTION MEASURES MUST BE PROVIDED, AT NO ADDITIONAL COST TO THE COUNTY, AND THOSE MEASURES MUST BE APPROVED BY THE ENGINEER PRIOR TO IMPLEMENTATION.



**TIMBER MAT ACCESS PATH DETAIL NOTES:**

- TIMBER MAT ACCESS PATH IS REQUIRED WHEN CROSSING WETLANDS AND WETLAND BUFFERS.
- MATS SHALL BE PLACED END TO END TO FORM A CONTINUOUS SPAN FOR THE ENTIRE LENGTH OF THE AREA TO BE PROTECTED.
- MATS SHALL BE INSPECTED FREQUENTLY AND MAINTAINED OR REPLACED AS NECESSARY TO ENSURE THEIR PROPER FUNCTION.
- INDIVIDUAL MATS SHALL BE SECURELY CONSTRUCTED WITH INDIVIDUAL COMPONENT LAYERS BOLTED, CABLED OR OTHERWISE SECURELY FASTENED.
- TIMBER MATS SHALL EITHER BE NEW OR POWER WASHED PRIOR TO ARRIVING ON SITE IF PREVIOUSLY USED.

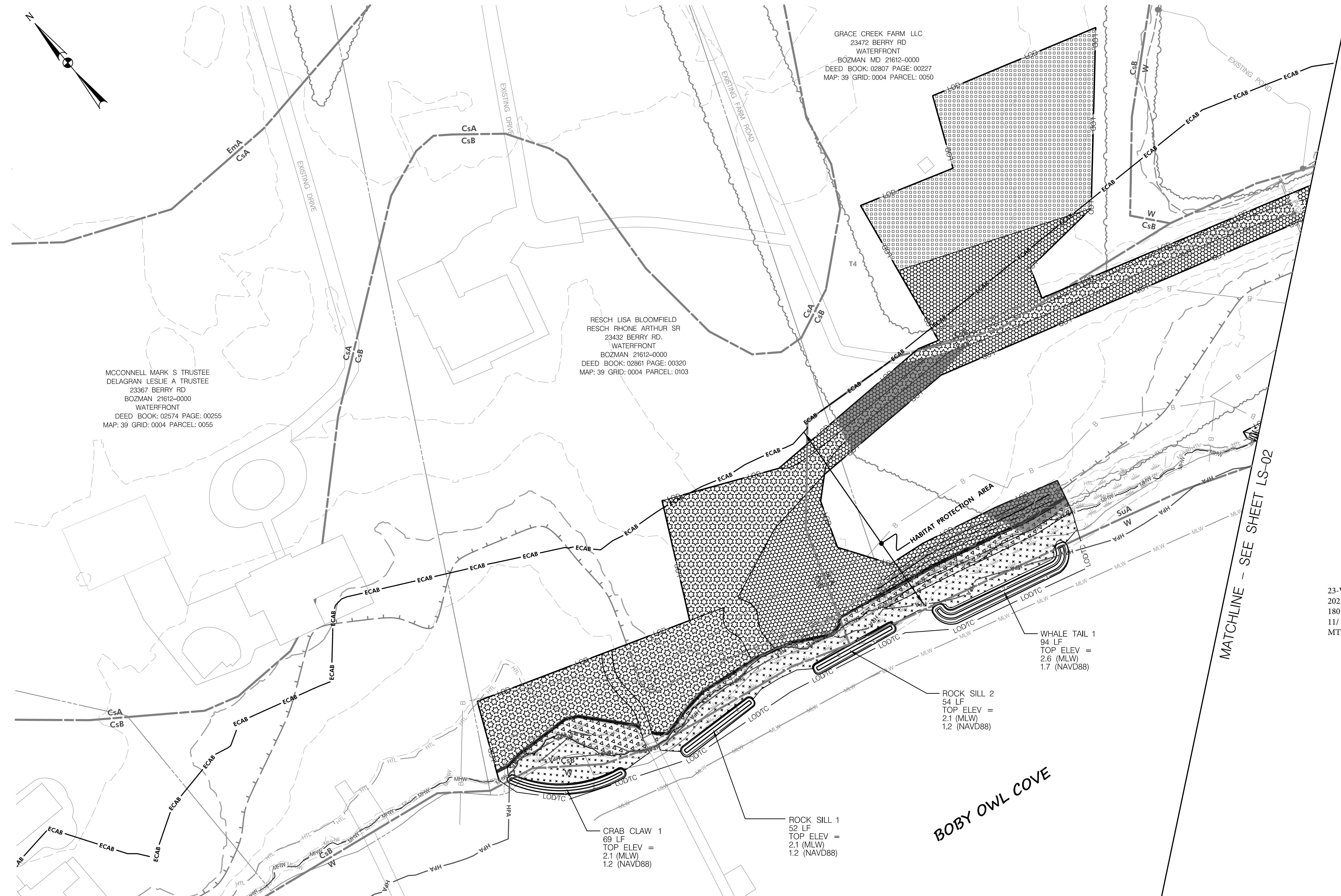


23-WL-1110  
202361731  
180119  
11/26/2024  
MTH

<b>COORDINATE NOTE</b> PLANS ARE IN NAD 83 MARYLAND STATE PLANE FIPS 1900 COORDINATE SYSTEM.
<b>PROFESSIONAL CERTIFICATION</b> I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

<b>REVISIONS</b>
DRAWN BY: <u>JB</u>
DESIGNED BY: <u>ON</u>
REVIEWED BY: <u>MD</u>
DRAWING NO. ED-01 OF ED-01
SHEET NO. SHEET NO.

<b>EASTERN SHORE LAND CONSERVANCY</b>
<b>GRACE CREEK FARM LIVING SHORELINE EROSION AND SEDIMENT CONTROL DETAILS</b>
<b>23472 BERRY RD, BOZMAN MD , TALBOT COUNTY</b>
SCALE : NOT TO SCALE
DATE : NOVEMBER 2024



## **SOILS LEGEND**

<b><u>SYMBOL</u></b>	<b><u>SOIL DESCRIPTION</u></b>
CsA	Crosiadore silt loam, 0-2 % slopes
CsB	Crosiadore silt loam, 2-5 % slopes
EmA	Elkton silt loam, 0-2 % slopes
SuA	Sunken mucky silt loam, 0-2 %slopes, occasionally flooded, tidal
W	Water

SCALE: 1" = 30'

### COORDINATE NOTATION

**COORDINATE NOTE**  
PLANS ARE IN NAD 83 MARYLAND STATE PLANE FIPS 1900  
COORDINATE SYSTEM

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#### PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME,  
AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF  
THE STATE OF MARYLAND.

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EASTERN SHORE LAND CONSERVANCY

# GRACE CREEK FARM LIVING SHORELINE BUFFER MANAGEMENT / LANDSCAPE PLAN

23472 BERRY RD, BOZMAN MD , TALBOT COUNTY

SCALE :  $1'' = 30'$

DATE : NOVEMBER 2024

DRAWN BY : JB SCALE : 1" = 30'

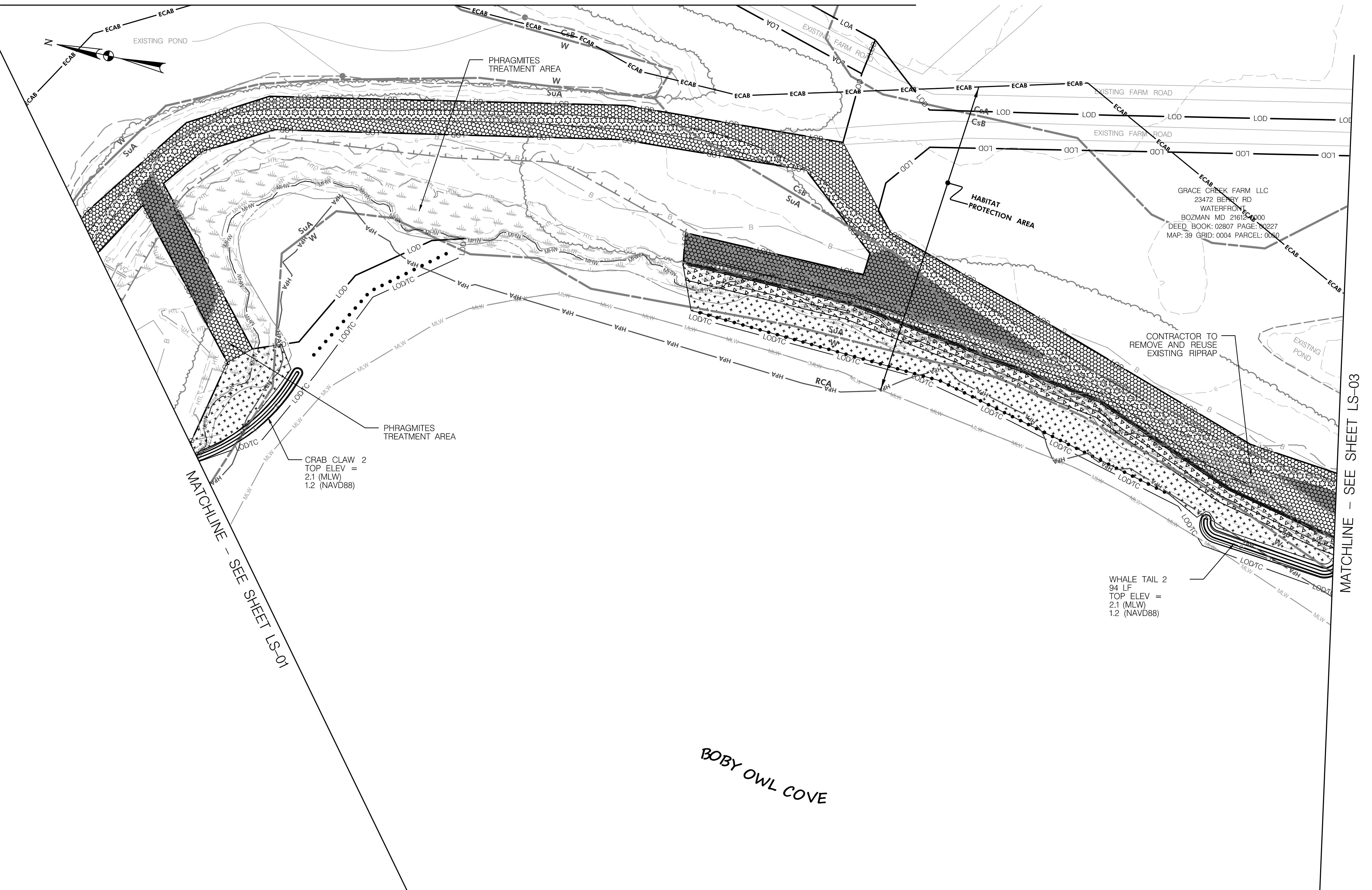
DESIGNED BY : SF DATE : NOVEMBER 2024

REVIEWED BY : KR

DRAWING NO. LS-01 OF LS-07 SHEET NO. 29 OF 37

 ecotone

## MATCHLINE - SEE SHEET BM-05



## SOILS LEGEND

## SYMBOL SOIL DESCRIPTION

CsA Croisiadore silt loam, 0-2 % slopes

CsB Croisiadore silt loam, 2-5 % slopes

SuA Sunken mucky silt loam, 0-2 % slopes, occasionally flooded, tidal

W Water

## EXISTING FEATURES LEGEND

23-WL-1110 202361731 180119 11/26/2024 MTH	PROPERTY BOUNDARY
500	EX. MAJOR CONTOURS
498	EX. MINOR CONTOURS
W	EX. MEAN HIGH WATER ELEV. = 1.62 (MLW) 0.72 (NAVD88)
LOA	EX. MEAN LOW WATER ELEV. = 0.00 (MLW) -0.90 (NAVD88)
LOD	EX. HIGH TIDE LINE ELEV. = 2.94 (MLW) 2.04 (NAVD88)
LODTC	EX. MEAN HIGH HIGH ELEV. = 1.83 (MLW) 0.93 (NAVD88)
LODC	EX. ROADS
LOD	EX. METAL FENCE
LOD	EX. WOOD FENCE
LOD	EX. TREELINE
LOD	FEMA EX. 100 YR FLOODPLAIN
LOD	EX. WETLAND
LOD	EX. RIPRAP
LOD	EX. WETLAND BUFFER (25 FT)
LOD	STORM DRAIN
LOD	SPECIMEN (30" OR GREATER)
LOD	EX. TREE
LOD	RCA
LOD	ECAB
LOD	RCA
LOD	EX. CRITICAL AREA DESIGNATION
LOD	SAV (2018-2022 COMPOSITE)
LOD	TREE CANOPY IMPACT

## PLANTING ZONES

HIGH MARSH	.17 AC.	
LOW MARSH	.02 AC.	
MARSH TRANSITION	.43 AC.	
REFORESTATION PLANTING	.11 AC.	
TURFGRASS ESTABLISHMENT SEEDING	.00 AC.	
UPLAND MEADOW SEEDING		

## STABILIZATION LEGEND

LOD	LIMIT OF DISTURBANCE
LOA	LIMIT OF ACCESS
480	PROPOSED MAJOR CONTOURS
479	PROPOSED MINOR CONTOURS
MHW	PROPOSED MEAN HIGH WATER
	RIPRAP
	PROPOSED STRUCTURE
• • • • •	REEF BALL

## EASTERN SHORE LAND CONSERVANCY

## GRACE CREEK FARM LIVING SHORELINE BUFFER MANAGEMENT / LANDSCAPE PLAN

23472 BERRY RD, BOZMAN MD, TALBOT COUNTY

## Revisions

DRAWN BY : <u>JB</u>	SCALE : 1" = 30'
DESIGNED BY : <u>SF</u>	DATE : NOVEMBER 2024
REVIEWED BY : <u>KR</u>	
DRAWING NO. LS-02 OF LS-07	SHEET NO. 30 OF 37

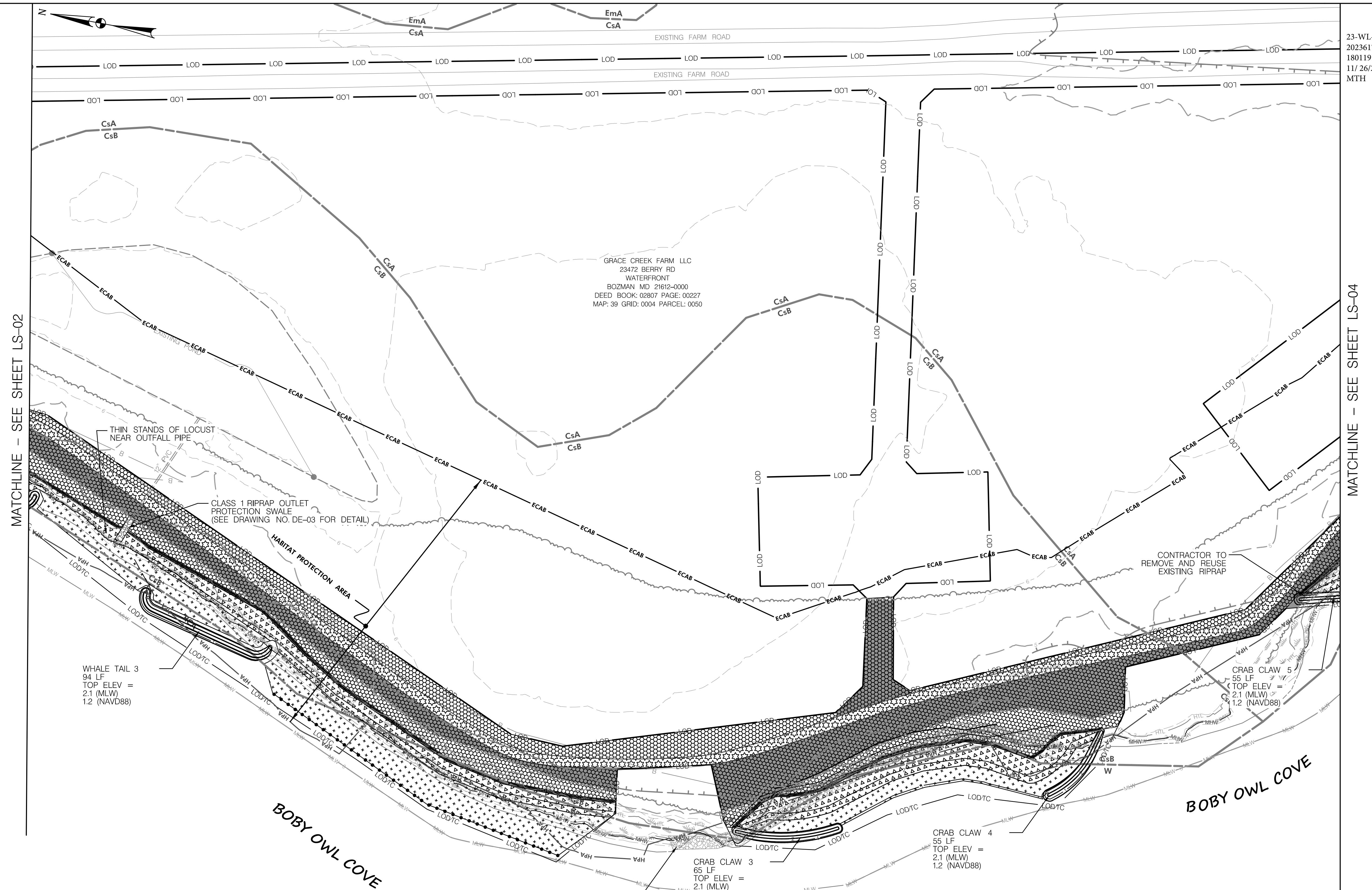
## COORDINATE NOTE

PLANS ARE IN NAD 83 MARYLAND STATE PLANE FIPS 1900 COORDINATE SYSTEM.

## PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

30' 0 30' 60'  
SCALE: 1" = 30'



## SOILS LEGEND

## **SYMBOL**      **SOIL DESCRIPTION**

<b>CsA</b>	Crosiadore silt loam, 0-2 % slopes
<b>CsB</b>	Crosiadore silt loam, 2-5 % slopes
<b>EmA</b>	Elkton silt loam, 0-2 % slopes
<b>W</b>	Water

30' 0 30' 60'

SCALE 1" = 30'

**COORDINATE NOTE**

PLANS ARE IN NAD 83 MARYLAND STATE PLANE FIPS 1900  
COORDINATE SYSTEM

#### PROFESSIONAL CERTIFICATION

---

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME,  
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THE STATE OF MARYLAND.

EASTERN SHORE LAND CONSERVANCY

# GRACE CREEK FARM LIVING SHORELINE BUFFER MANAGEMENT / LANDSCAPE PLAN

23472 BERRY RD. BOZMAN MD - TALBOT COUNTY

SCALE : 1" = 30'

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DRAWN BY : JB

DESIGNED BY : SE

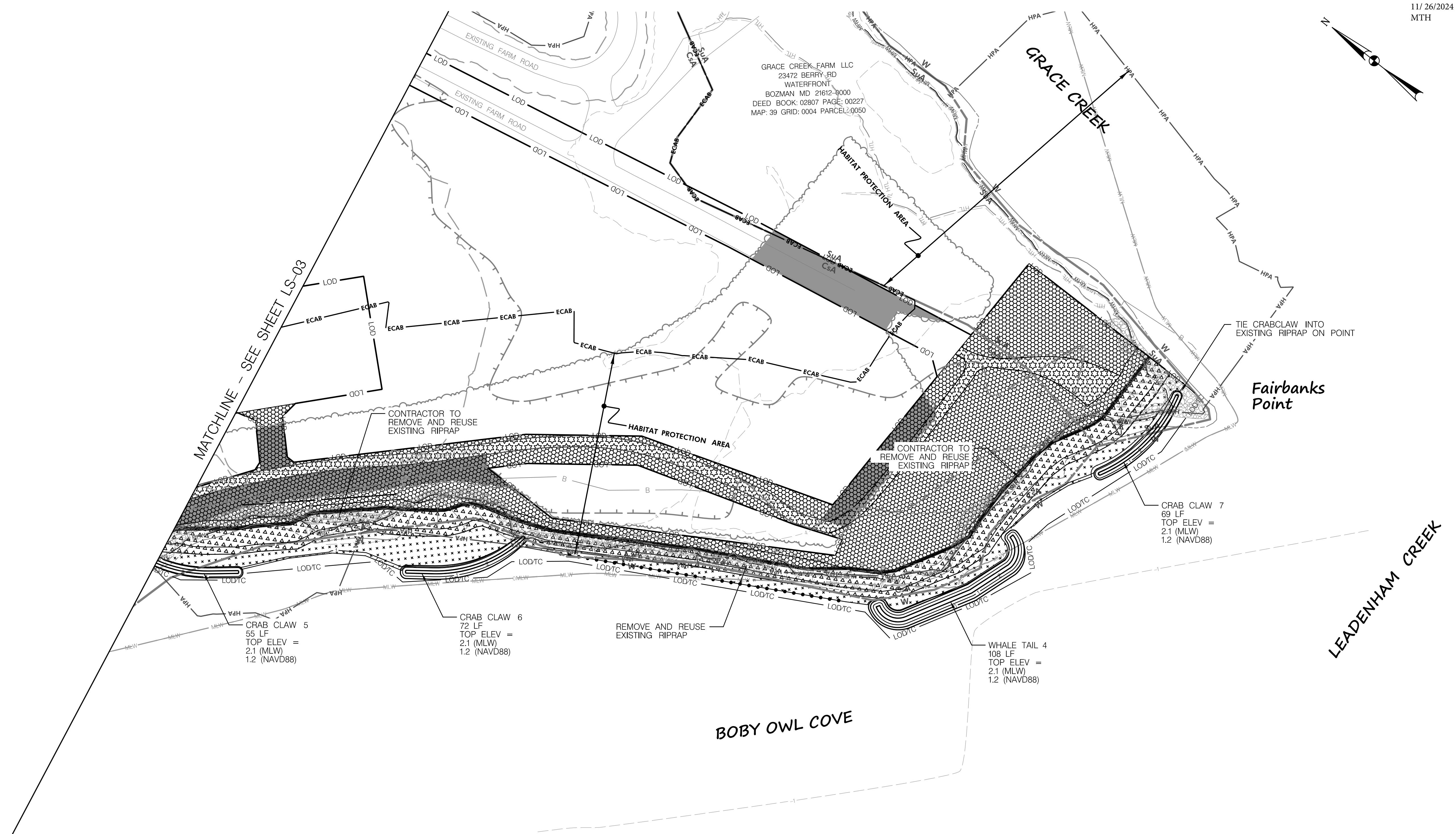
DESIGNED BY : SI

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DRAWING NO. LS-03 QE LS-07

SHEET NO. 21 OF 37

 ecotone

**EXISTING FEATURES LEGEND**

23-WL-1110 202361731 180119 11/ 26/2024 MTH	PROPERTY BOUNDARY
500	EX. MAJOR CONTOURS
498	EX. MINOR CONTOURS
MLW	EX. MEAN HIGH WATER ELEV. = 1.62 (MLW) 0.72 (NAVD88)
MLW	EX. MEAN LOW WATER ELEV. = 0.00 (MLW) -0.90 (NAVD88)
HTL	EX. HIGH TIDE LINE ELEV. = 2.94 (MLW) 2.04 (NAVD88)
MHHW	EX. MEAN HIGHER HIGH ELEV. = 1.83 (MLW) 0.93 (NAVD88)
	EX. ROADS
	EX. METAL FENCE
	EX. WOOD FENCE
	EX. TREELINE
	FEMA EX. 100 YR FLOODPLAIN
	EX. WETLAND
	EX. RIPRAP
B	EX. WETLAND BUFFER (25 FT)
STORM DRAIN	
	SPECIMEN (30" OR GREATER)
	EX. TREE
RCA	EX. CRITICAL AREA DESIGNATION
ECAB	SAV (2018-2022 COMPOSITE)
	TREE CANOPY IMPACT

**PLANTING ZONES**

HIGH MARSH	.10 AC.
LOW MARSH	.03 AC.
MARSH TRANSITION	.46 AC.
REFORESTATION PLANTING	.09 AC.
TURFGRASS ESTABLISHMENT SEEDING	.00 AC.
UPLAND MEADOW SEEDING	

**STABILIZATION LEGEND**

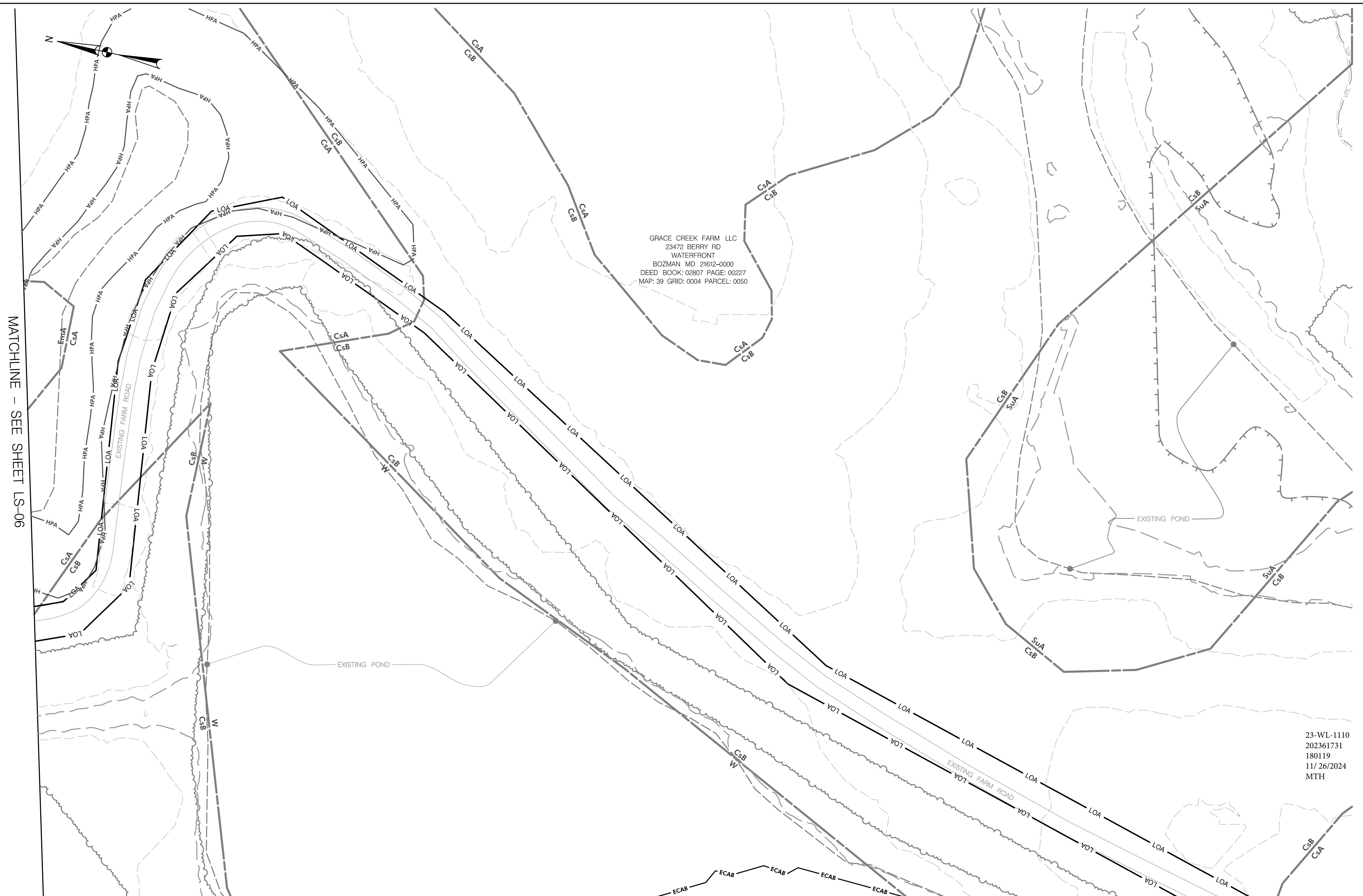
LOD	LIMIT OF DISTURBANCE
LOA	LIMIT OF ACCESS
480	PROPOSED MAJOR CONTOURS
479	PROPOSED MINOR CONTOURS
MHW	PROPOSED MEAN HIGH WATER
	RIPRAP
	PROPOSED STRUCTURE
• • • • •	REEF BALL

**SOILS LEGEND****SYMBOL** **SOIL DESCRIPTION**

CsA	Crosiadore silt loam, 0-2 % slopes
SuA	Sunken mucky silt loam, 0-2 % slopes, occasionally flooded, tidal
W	Water

**Revisions**

DRAWN BY : <u>JB</u>	SCALE : 1" = 30'
DESIGNED BY : <u>SF</u>	DATE : NOVEMBER 2024
REVIEWED BY : <u>KR</u>	
DRAWING NO. LS-04 OF LS-07	SHEET NO. 32 OF 37



30' 0 30' 60'  
SCALE: 1" = 30'

<b>COORDINATE NOTE</b> PLANS ARE IN NAD 83 MARYLAND STATE PLANE FIPS 1900 COORDINATE SYSTEM.	<b>PROFESSIONAL CERTIFICATION</b> HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
-------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Revisions	
DRAWN BY : <u>JB</u>	SCALE : 1" = 30'
DESIGNED BY : <u>SF</u>	DATE : NOVEMBER 2024
REVIEWED BY : <u>KR</u>	
DRAWING NO. LS-05 OF LS-07	SHEET NO. 33 OF 37





**GOALS AND OBJECTIVES**

The goals and objectives of this Buffer Management Plan (BMP) are to comply with the Shoreline Development Buffer (Buffer) requirements for the Grace Creek Living Shoreline Project as established by the COMAR Title 27 Critical Area Commission for the Chesapeake and Atlantic Coastal Bays and Talbot County Department Planning and Zoning. The Grace Creek Property is located partially within the Resource Conservation District (RCA) of the Chesapeake Bay Critical Area (CBA) and the limit of disturbance (LOD) for the proposed project is located partially within the Buffer, which has been expanded per COMAR 27.01.09.01(7).

Impacts to the Buffer are necessary and unavoidable due to the nature of the project, which shall result in a net increase in aquatic function and service. Temporarily disturbed areas shall be restored to pre-construction conditions while permanent impacts to the Buffer and tree canopy removal shall be mitigated on site.

The Buffer impacts total 26,609 square feet (SF) 0.61 acres (AC) of permanent impacts and 54,096 SF/0.24 AC of tree canopy for a combined total of 80,705 SF/1.85 AC of Impact. This necessitates 1:1 replacement for a total mitigation requirement of 1.85 AC. A new lot establishment requirements do not apply as the project is neither a new subdivision or a new lot; conversion from one land use to another land use on a lot or a parcel; or development on a lot or a parcel created before January 1, 2010.

**PROPERTY OWNER INFORMATION**

GEORGE WILSON  
GRACE CREEK FARM LLC  
23472 BERRY RD  
BOZMAN MD 21612-0000  
DEED BOOK: 02807 PAGE: 00227  
MAP: 39 GRID: 0004 PARCEL: 0050

**SITE DATA**

DEED BOOK: 02807 PAGE: 00227  
MAP: 39 GRID: 0004 PARCEL: 0050  
ELECTION DISTRICT: 2  
ACCOUNT #: 084759  
EXISTING LANDUSE: AGRICULTURAL  
SITE AREA: 167.47 AC.  
8 DIGIT HUC: 02000005  
MD 8 DIGIT BASIN: 02130403  
(LOWER CHOPTANK WATERSHED)

**PROPERTY OWNER INFORMATION**

RESCH, LISA BLOOMFIELD  
RESCH, PHOME, ARTHUR SR  
23432 BERRY RD  
BOZMAN 21612-0000  
DEED BOOK: 02861 PAGE: 00320  
MAP: 39 GRID: 0004 PARCEL: 0103  
MD: 8 DIGIT BASIN: 02130403  
(LOWER CHOPTANK WATERSHED)

**LONG TERM PROTECTION PLANSURETY NOTES**

1. The contractor shall post a surety such as a cash bond or irrevocable letter of credit to the county in order to ensure that the plantings are completed. The cost of the security will be determined prior to issuance of a grading permit. 2. At the end of the 2-year monitoring period for planted landscape stock, all the plants are required to survive per COMAR 27.01.09.01(2)(i). Any landscape stock plant or plants that did not survive shall be replaced.

**INSPECTION AGREEMENT**

I, George Wilson, the owner of Grace Creek, LLC, located at 23472 Berry Road, do hereby grant permission to the approving authority to inspect the plantings following the installation and on the anniversary of the initial inspection at the address provided below. The property may be accessed from 23472 Berry Road and the owner should be contacted two (2) weeks in advance.

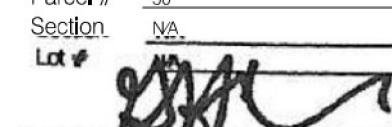
Street Address: 23472 Berry Rd, Bozman, MD 21612 Talbot County

Tax Map: 39

Parcel #: 103

Section: NA

Lot #: NA

Owner: 

10/27/23  
Date

**INSPECTION AGREEMENT**

I, Lisa Resch and Rhone Resch, the owners of 23432 Berry Road, do hereby grant permission to the approving authority to inspect the plantings following the installation and on the anniversary of the initial inspection at the address provided below. The property may be accessed from 23432 Berry Road and the owner should be contacted two (2) weeks in advance.

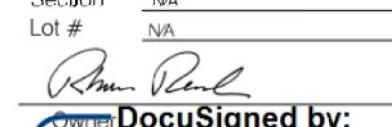
Street Address: 23432 Berry Rd, Bozman, MD 21612 Talbot County

Tax Map: 39

Parcel #: 103

Section: NA

Lot #: NA

Owner: 

11/30/23  
Date

**INVASIVE SPECIES CONTROL**

Control of invasive species found in the project mitigation area must be accomplished. Initial control of the Phragmites should be accomplished by cutting back the stems of existing plants and treating regrowth with herbicide approved for use in and around wetlands. Areas should be planted with the specified material in the marsh planting list to reduce open soil conditions that are susceptible to invasive species colonization. The woody species detailed in the invasive species inventory should be removed and treated with the "cut and paint" method with an herbicide approved for use in riparian areas. This treatment may be applied year-round unless the ground is frozen.

Treatment of the remaining herbaceous species detailed in the invasive species inventory should be treated with a foliar spray herbicide that is approved for use in riparian areas. This treatment may be applied to vegetation in spring to early fall, when the vegetation has leafed out.

INVASIVE SPECIES INVENTORY		
Stratum	Scientific Name	Common Name
Woody Species	<i>Pyrus calleryana</i>	Bradford Pear
	<i>Elaeagnus umbellata</i>	Autumn Olive
	<i>Hedera helix</i>	English Ivy
	<i>Lonicera japonica</i>	Japanese Honeysuckle
	<i>Vinca Minor</i>	Common Periwinkle
Herbaceous Species	<i>Lespedeza cuneata</i>	Chinese Bushclover
	<i>Phragmites australis</i>	Phragmites

**PLANTING SPECIFICATIONS****GENERAL**

1. The Contractor shall notify Ecotone, LLC, and the landowner's representative at least two (2) weeks prior to start of planting within the project area so that planting zones may be marked in the field and the landowner can make any necessary preparations related to the agricultural activities on the areas surrounding the project. 2. The Contractor is responsible for the location of underground utilities prior to the start of construction. Any damages to utilities as a result of planting or other activities will be the sole responsibility of the Contractor and shall be repaired at the Contractor's expense.

**STANDARDS**

1. Planting material will conform to the current issue of the "American Standards for Nursery Stock", published by the American Association of Nurserymen. 2. The root system of container-grown plant material shall be white, well-developed, and well-anchored throughout the growing media, with the roots extending to the inside face of the container, and the container size must conform to the size specified. Plants not meeting these criteria will be rejected. 3. Foliage of non-dormant plants shall appear healthy, with no leaf spots, damage, discoloration, or wilting, and no evidence of insects on the plant. Plants not meeting these criteria will be rejected.

**STORAGE AND DELIVERY**

1. Seed shall be delivered in containers having labels reporting the origin, purity, and germination percentage of the seed, and the date of germination testing of the seed. 2. All container-grown plants shall be clearly and correctly labeled to allow confirmation of species and quantities. At least 25% of each species in every shipment shall have legible labels securely attached prior to delivery to the site. 3. All plants delivered to the project site must have thoroughly moist soil/root masses. Dry or light weight plant material is rejected. 4. All rejected material shall be immediately removed from the project site. 5. All plants delivered to the project site shall be stored in a cool, shaded location, and watered regularly so that roots are kept moist until time of planting.

**PLANTING PROCEDURES**

1. Planting shall be performed in accordance with the current edition of the Landscape Contractors Association Landscape Specification Guidelines and as specified below. 2. Planting shall be uniformly distributed in the planting area, using the plant spacing specified in the plant schedule as a guide. 3. Planting shall occur between March 1 to May 15 or September 15 to December 31, whichever is closer to the completion of construction. 4. Install material in accordance with the "Tree and Shrub Planting Detail". 5. Water each plant thoroughly after backfilling until the backfilled soils is saturated. 6. All woody material must be planted erect. Plants leaning greater than 10 degrees from perpendicular must be straightened or replanted by the Contractor.

**MAINTENANCE PLAN**

Inspections for survival shall be performed annually, and plants replaced as needed in the next appropriate planting season. The goals for the end of the second year, the survival requirements can be met. If the county determines that survival is not adequate, the monitoring period may be extended, and additional inspections may be required at the discretion.

**BUFFER MANAGEMENT AND PROTECTION STANDARDS**

1. The Buffer shall be flagged in the field during construction. 2. Removal of natural vegetation within the 100-foot buffer and expanded buffer is prohibited. Cutting and clearing of natural vegetation within the buffer and expanded buffer shall be shown on this buffer management plan as submitted and, or as subsequently amended, subject to approval by the county planning and zoning office. Additional information can be obtained by contacting the planning and zoning office. 3. Disturbance of the Buffer as detailed on this plan has been approved by Talbot County Planning and Zoning. Existing and planned vegetation within the buffer shall be maintained and survival of planted stock will be described in this plan. 4. New lawn areas shall not be created within the buffer and expanded buffer unless specifically addressed in this buffer management plan.

**MITIGATION CALCULATION**

MITIGATION CALCULATION	
Permanent Buffer Disturbance:	17,747 SF/0.41 AC
Canopy Clearing Mitigation:	22,840 SF/0.52 AC
Total (1:1 Mitigation):	40,587 SF/0.93 AC

**BUFFER EXPANSION CALCULATIONS**

The study area contains soils that are classified as highly erodible and/or hydric, as detailed below. For highly erodible soils or hydric soils that are contiguous with the Buffer with a slope of 5% or greater, the Buffer has been expanded to the lesser of the landward edge or 300 feet. As such, the Buffer was expanded to include the landward edge of SuA adjacent to the pond and the landward edge of SuA at Fairbanks Point.

SOIL LIST			
Soil Type	Description	Hydric Rating	K-Factor
<b>CsA</b>	Crosiadiore silt loam, to 2 percent slopes	Predominantly non-hydric	0.49
<b>CsB</b>	Crosiadiore silt loam, 2 to 5 percent slopes	Predominantly non-hydric	0.49
<b>EmA</b>	Elkton silt loam, 0 to 2 percent slopes	Predominantly Hydric	-
<b>Ho</b>	Honga peat, very frequently flooded, tidal	Hydric	-
<b>SuA</b>	Sunken mucky silt loam, 0 to 2 percent slopes, occasionally flooded, tidal	Predominantly Hydric	-
<b>W</b>	Water	-	-

**B-4-2 STANDARDS AND SPECIFICATIONS****FOR  
SOIL PREPARATION, TOP SOILING, AND SOIL AMENDMENTS****A. Soil Preparation**

1. Temporary Stabilization  
a. Seeded preparation consists of loosening soil to a depth of 3 to 5 inches by means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened, it must not be rolled or dragged smooth but left in the roughened condition. Slopes 3:1 or flatter are to be tracked with ridges running parallel to the contour of the slope.  
b. Apply fertilizer and lime as prescribed on the plans.  
c. Incorporate lime and fertilizer into the top 3 to 5 inches of soil by disking or other suitable means.

**2. Permanent Stabilization**

a. A soil test is required for any earth disturbance of 5 acres or more. The minimum soil conditions required for permanent vegetative establishment are:  
i. Soil pH between 6.0 and 7.0.  
ii. Soluble salts less than 500 parts per million (ppm).  
iii. Soil contains less than 40 percent clay but enough fine grained material (greater than 30 percent silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception: If lovegrass will be planted, then a sandy soil (less than 30 percent silt plus clay) would be acceptable.  
iv. Soil contains 1.5 percent minimum organic matter by weight.  
v. Soil contains sufficient pore space to permit adequate root penetration.  
b. Application of amendments or topsoil is required if on-site soils do not meet the above conditions.  
c. Graded areas must be maintained in a true and even grade as specified on the approved plan, then scarified or otherwise loosened to a depth of 3 to 5 inches.  
d. Apply soil amendments as specified on the approved plan or as indicated by the results of a soil test.

**3. Topsoiling**

1. Topsoil is placed over prepared subsoil prior to establishment of permanent vegetation. The purpose is to provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.

2. Topsoil salvaged from an existing site may be used provided it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soiltype can be found in the representative soil profile section in the Soil Survey published by USDA-NRCS.

**4. Topsoiling**

a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.  
b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.  
c. The original soil to be vegetated contains material toxic to plant growth.  
d. The soil is so acidic that treatment with limestone is not feasible.  
e. Areas having slopes steeper than 2:1 require special consideration and design.

**5. Topsoil Specifications:**

Soil to be used as topsoil must meet the following criteria:  
a. Topsoil must be a loam, sandy loam, clay loam, silt loam, sandy clay loam, or loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Topsoil must not be a mixture of contrasting textured subsoils and must contain less than 5 percent by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1" inches in diameter.  
b. Topsoil must be free of noxious plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nut sedge, poison ivy, thistle, or others as specified.

c. Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.

**6. Topsoil Application**

a. Erosion and sediment control practices must be maintained when applying topsoil.

b. Uniformly distribute topsoil in a 5 to 8 inch layer and lightly compact to a minimum thickness of 4 inches. Spreading is to be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations must be corrected in order to prevent the formation of depressions or water pockets.

c. Topsoil must not be placed if the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seeded preparation.

**C. Soil Amendments (Fertilizer and Lime Specifications)**

1. Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas of 5 acres or more. Soil analysis may be performed by a recognized private or commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analyses.

2. Fertilizers must be uniform in composition, free flowing and suitable for accurate application by appropriate equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers must all be delivered to the site fully labeled

3. Lime materials must be ground limestone (hydrated or burnt lime may be substituted except when hydroseeding) which contains at least 50 percent total oxides (calcium oxide plus magnesium oxide). Limestone must be ground to such fineness that at least 50 percent will pass through a #100 mesh sieve and 98 to 100 percent will pass through a #20 mesh sieve.

4. Lime and fertilizer are to be evenly distributed and incorporated into the top 3 to 5 inches of soil by disking or other suitable means.

5. Where the subsoil is either highly acidic or composed of heavy clays, spread ground limestone at the rate of 4 to 8 tons/acre (200-40

**PLANTING TABLES**

REFORESTATION PLANTING: LANDSCAPE STOCK (1.68 AC)								
	Quantity	Scientific Name	Common Name	Size	Condition	Spacing	Stems/Acre	Indicator
CANOPY TREES	102	<i>Acer rubrum</i>	Red Maple	Container	10x10'	435	FAC	
	102	<i>Pinus taeda</i>	Loblolly Pine	Container	10x10'	435	FAC	
	102	<i>Liquidambar styraciflua</i>	Sweet Gum	Container	10x10'	435	FAC	
	102	<i>Quercus alba</i>	White Oak	Container	10x10'	435	FACU	
	102	<i>Quercus palustris</i>	Pin Oak	Container	10x10'	435	FACW	
Total	513							
LARGE SHRUBS	73	<i>Lindera benzoin</i>	Spicebush	3 feet high	Container	10x10'	435	FACU
	73	<i>Viburnum dentatum</i>	Arrowwood Viburnum		Container	10x10'	435	FAC
	73	<i>Viburnum prunifolium</i>	Blackhaw Viburnum		Container	10x10'	435	FACU
Total	219							

Landscape Stock may satisfy 50% or more of the mitigation requirements for areas of one acre or more Per COMAR 27.01.09.01-02(j). 100% of landscape stock is required to survive at the end of the two-year monitoring period per COMAR 27.01.09.01-02(l).

Marsh Planting (1.13 AC)						
	Scientific Name	Common Name	Size	Spacing	Quantity	Area (AC)
	<i>Sporobolus alterniflorus</i>	Smooth Cordgrass	Plug	2' OC	6,134	0.56
	<i>Spartina patens</i>	Saltmarsh Hay	Plug	2' OC	5,152	0.47
	<i>Panicum amarum</i>	Coastal Panicgrass	Plug	2' OC	1,005	0.09

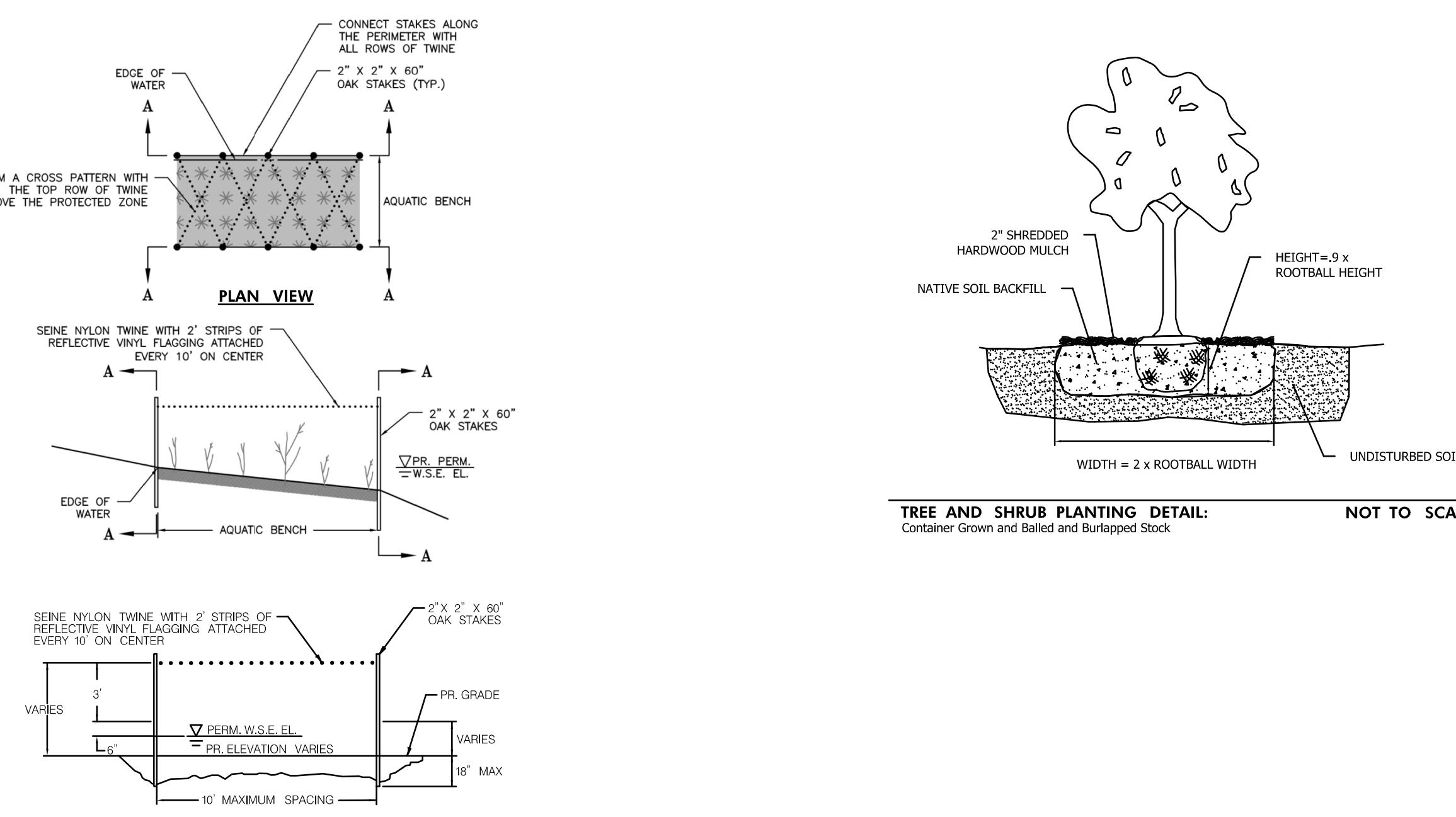
**SEEDING TABLES**

Reforestation Seeding: Maryland Coastal Plain Riparian Seed Mix (Ernst Mix ERNMX-732) (1.68 AC / 33.6 LBS)						
%	Species	Application Rate (lb.ac)	Seeding Depths	Fertilizer Rate (10-10-20)	Lime Rate	
39.7	Indiangrass ( <i>Sorghastrum nutans</i> )					
20	Virginia Wildrye ( <i>Elymus virginicus</i> )					
18	Switchgrass ( <i>Panicum virgatum</i> )					
10	Redtop Panicgrass ( <i>Panicum rigidulum</i> )					
3	Partridge Pea ( <i>Chamaecrista fasciata</i> )					
2	Blackeyed Susan ( <i>Rudbeckia hirta</i> )					
2	Oxeye Sunflower ( <i>Helianthus helianthoides</i> )					
1	Swamp Milkweed ( <i>Asclepias incarnata</i> )					
0.9	New York Ironweed ( <i>Vernonia noveboracensis</i> )					
0.8	Boneset ( <i>Eupatorium perfoliatum</i> )					
0.8	Common Sneezeweed ( <i>Helenium autumnale</i> )					
0.8	Wrinkleleaf Goldenrod ( <i>Solidago rugosa</i> )					

* For a cover crop on well drained sites, use one of the following: grain oats (30 lbs/acre; 1 Jan to 30 Apr), brown top millet (10 lbs/acre; 1 May to 31 Aug), or grain rye (30 lbs/acre; 1 Sep to 31 Dec). For sites that are moist use grain rye (30 lbs/acre; 1 Sep to 30 Apr).

Turfgrass Establishment Seeding (ERNMX-136) (0.62 AC / 6.2 LBS)						
%	Species	Application Rate (lb.ac)	Seeding Depths	Fertilizer Rate (10-10-20)	Lime Rate	
34	Tall Fescue, 'Eton' ( <i>Festuca arundinacea</i> , 'Eton')			K - 45 lbs/ac		
33	Tall Fescue, 'FoxHound' ( <i>Festuca arundinacea</i> , 'FoxHound')	10	0.25-0.5"	P205 - 90 lbs/ac	2 tons per acre	
33	Tall Fescue, 'Turismo' ( <i>Festuca arundinacea</i> , 'Turismo')			K2O - 90 lbs/ac		

Upland Meadow Seed (ERNMX-172) (0.24 AC / 3.6 LBS)						
%	Species	Application Rate (lb.ac)	Seeding Depths	Fertilizer Rate (10-10-20)	Lime Rate	
48	Little Bluestem ( <i>Schizachyrium scoparium</i> )					
28.6	Virginia Wildrye ( <i>Elymus virginicus</i> )					
4.3	Blackeyed Susan ( <i>Rudbeckia hirta</i> )					
2.9	Butterfly Milkweed ( <i>Asclepias tuberosa</i> )					
2.1	Partridge Pea ( <i>Chamaecrista fasciata</i> )					
2.1	Purple Lovegrass ( <i>Eragrostis spectabilis</i> )					
2.1	Slender Lespedeza ( <i>Lespedeza virginica</i> )					
2.1	Wild Senna ( <i>Senna hebecarpa</i> )					
1.8	Tall White Beardtongue ( <i>Penstemon digitalis</i> )					
1.1	New England Aster ( <i>Aster novae-angliae</i> )					
1.1	Heath Aster ( <i>Aster pilosus</i> )					
0.7	Sensitive Pea ( <i>Chamaecrista nictitans</i> )					
0.6	Wild Bergamot ( <i>Monarda fistulosa</i> )					
0.6	Narrowleaf Mountainmint ( <i>Pycnanthemum tenuifolium</i> )					
0.5	White Goldenrod ( <i>Solidago bicolor</i> )					
0.5	Gray Goldenrod ( <i>Solidago nemoralis</i> )					
0.4	Appalachian Beardtongue ( <i>Penstemon laevigatus</i> )					
0.3	Hoary Mountainmint ( <i>Pycnanthemum incanum</i> )					
0.2	Hairy Beardtongue ( <i>Penstemon hirsutus</i> )					

**PLANTING DETAILS**

TREE AND SHRUB PLANTING DETAIL: Container Grown and Baled and Burred Stock  
NOT TO SCALE

**EASTERN SHORE LAND CONSERVANCY**

**GRACE CREEK FARM LIVING SHORELINE BUFFER MANAGEMENT / LANDSCAPE TABLES / DETAILS**

23472 BERRY RD, BOZMAN MD, TALBOT COUNTY

DRAWN BY: <u>JB</u>	SCALE: <u>N/A</u>
DESIGNED BY: <u>ON</u>	DATE: <u>NOVEMBER 2024</u>
REVIEWED BY: <u>MD</u>	
DRAWING NO. <u>LT-01</u>	SHEET NO. <u>LT-01</u>

**PROFESSIONAL CERTIFICATION**

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.