



# Maryland

## Department of the Environment

Larry Hogan, Governor  
Boyd K. Rutherford, Lt. Governor

Ben Grumbles, Secretary  
Horacio Tablada, Deputy Secretary

February 22, 2021

Baltimore Annual Conference United Methodist Church  
c/o Joshua Hansen  
Underwood and Associates  
1787 Severn Chapel Rd  
Millersville, Maryland 21108

Re: Agency Interest Number: 79859  
Tracking Number: 202060120  
Tidal Authorization Number: 20-WQC-0046

Via email: [Joshua@ecosystemrestoration.com](mailto:Joshua@ecosystemrestoration.com)  
[Nicole.M.Voelker@usace.army.mil](mailto:Nicole.M.Voelker@usace.army.mil)

Dear Baltimore Annual Conference United Methodist Church:

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 the 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.

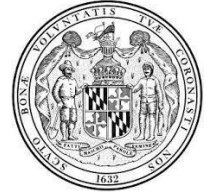
You should not begin any work until you have obtained all necessary State, local, and federal authorizations. Please contact Melissa McCanna at [melissa.mccanna@maryland.gov](mailto:melissa.mccanna@maryland.gov) or 410-537-4053 with any questions.

Sincerely,

Danielle Spendiff, Chief  
Western Region  
Tidal Wetlands Division



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



20-WQC-0046

EFFECTIVE DATE: **February 22, 2021**  
CERTIFICATION HOLDER: **Baltimore Annual Conference United Methodist Church**  
PROJECT LOCATION: **5100 Chalk Point Road**  
**West River, MD 20778**  
**West River in Anne Arundel County**

**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 WATER AND SCIENCE ADMINISTRATION (“ADMINISTRATION”) HAS DETERMINED THAT THE REGULATED ACTIVITY DESCRIBED IN THE REQUEST FOR CERTIFICATION FOR BALTIMORE ANNUAL CONFERENCE UNITED METHODIST CHURCH, WILL NOT VIOLATE MARYLAND’S WATER QUALITY STANDARDS, IF CONDUCTED IN ACCORDANCE WITH THE CONDITIONS OF THIS CERTIFICATION AND WITH ALL TERMS AND 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.

## **PROJECT DESCRIPTION**

To construct approximately 878 linear feet of shoreline by constructing approximately 1145 linear feet of sinuous gravel and cobble substrate to anchor the toe of the marsh enhancement areas, and filling and grading with approximately 1356 cubic yards of sand, cobble and gravel, and 100 cubic yards of boulder material, within a maximum of 35 feet channelward of the existing mean high water line. Plantings for marsh enhancement to consist of approximately 6988 square feet of high marsh and 6998 square feet of low marsh. Anchored or embedded logs or other large woody debris are incorporated into the design for habitat enhancement.

# GENERAL CONDITIONS

- A. This Certification does not obviate the need to obtain required authorizations or approvals from other State, federal or local agencies as required by law.

Statement of Necessity for Condition: The condition is necessary to ensure that water quality standards are met under unique circumstances for discharges which may otherwise qualify under the certified Nationwide Permits.

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 26.08.02.10G(3); COMAR 26.08.02.06; COMAR 26.17.04; COMAR 26.23; COMAR 26.24; COMAR 26.23.02.06

- B. 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.

Statement of Necessity for Condition: The 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 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 26.08.02.10E; COMAR 26.23.02.06; COMAR 26.17.04; COMAR 26.23; COMAR 26.24

- C. 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.

Statement of Necessity for Condition: 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.

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 26.23.02.06; COMAR 26.23; COMAR 26.24; COMAR 26.17.04

- D. This Certification is valid for the project identified herein and the associated U.S. Army Corps of Engineers authorization until such time that it expires or is not administratively extended.

Statement of Necessity for Condition: 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 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; 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 26.23.02.06; COMAR 26.23; COMAR 26.24

## **SPECIAL CONDITIONS**

- A. The Licensee shall not perform any construction from November 15<sup>th</sup> through March 1<sup>st</sup> of any year to protect wintering waterfowl. The proposed project site is located in a Historic Waterfowl Concentration Area.

Statement of Necessity: A time of year restriction is necessary to allow for wintering waterfowl to move from breeding areas to seasonally use suitable winter habitat. Breeding and wintering habitat are both essential to support waterfowl populations. Breeding habitat would not sustain waterfowl during winter. Disturbance during the closure period would interfere directly or indirectly with designated uses.

Citations: 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 9, Subtitle 3; Md. Ann. Code, Env. Article, Title 16; COMAR 26.08; COMAR 26.08.02.02.B.(3); 26.08.02.02.B.(1)(d); COMAR 26.08.02.03.B.(1)(b); COMAR 26.08.02.03.B.(2)(e); COMAR 26.24

- B. 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 Certificate Holder 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.

Statement of Necessity for Condition: The above conditions are required to ensure that waters continue to meet designated uses. Use of fill material exceeding limits or losses exceeding limits may result in discharges which interfere with designated uses, including the support of estuarine and marine aquatic life, and the protection of shellfish harvesting, shallow water submerged aquatic vegetation, and migratory fish spawning and nurseries in tidal wetlands. Limits to fill material and loss limits will maintain the designated use. The discharge or deposition of material within or adjacent to regulated resources may result in discharges that result in impacts to water quality and designated uses. Issuance of water quality certification does not relieve the applicant of their responsibility to comply at all times with federal and State law.

Stabilization of the site with vegetation is required to ensure that waters continue to meet designated uses. Loss of substrate fill material may result in discharges which reduce water quality and interfere with designated uses, including the support of estuarine and marine aquatic life, and the protection of shellfish harvesting, shallow water submerged aquatic vegetation, and migratory fish spawning and nurseries in tidal wetlands.

Citations: 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 9, Subtitle 3; Md. Ann. Code, Env. Article, Title 16; COMAR 26.08; COMAR 26.08.02.02.B.(3); COMAR 26.08.02.03-3.C.(2)d.(5); COMAR 26.08.02.03.A.(1)(b); COMAR 26.08.02.03.B.(1)-(5); COMAR 26.08.02.10.E.(2); COMAR 26.24

- C. 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 Certification. 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 Certification. 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.

Statement of Necessity for Condition: Stabilization of the site with vegetation is required to ensure that waters continue to meet designated uses. Loss of substrate fill material may result in discharges which reduce water quality and interfere with designated uses, including the support of estuarine and marine aquatic life, and the protection of shellfish harvesting, shallow water submerged aquatic vegetation, and migratory fish spawning and nurseries in tidal wetlands. Loss limits will maintain the designated use.

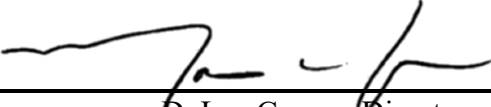
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- D. The Licensee shall submit photographs on an annual basis for the first five growing seasons to the Tidal Wetlands Division, Water and Science Administration in order to document the success of the project in terms of the extent of native marsh plant coverage. Photographs shall be taken from at least two directions, as necessary to fully depict the living shoreline.

Statement of Necessity for Condition: Stabilization of the site with vegetation is required to ensure that waters continue to meet designated uses. Loss of substrate fill material may result in discharges which reduce water quality and interfere with designated uses, including the support of estuarine and marine aquatic life, and the protection of shellfish harvesting, shallow water submerged aquatic vegetation, and migratory fish spawning and nurseries in tidal wetlands. Loss limits will maintain the designated use.

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**CERTIFICATION APPROVED**

  
\_\_\_\_\_  
D. Lee Currey, Director  
Water and Science Administration

2/25/2021  
\_\_\_\_\_  
Date

Tracking Number: 202060120  
Agency Interest Number: 79859

Effective Date: February 22, 2021

Enclosure: Executed Tidal Wetlands License No.20-0076 plans

cc: WSA Inspection & Compliance Program  
Army Corps of Engineers

20-WL-0076  
 202060120  
 25 June 2020  
 Sheet 1 of 19

PROJECT AREA



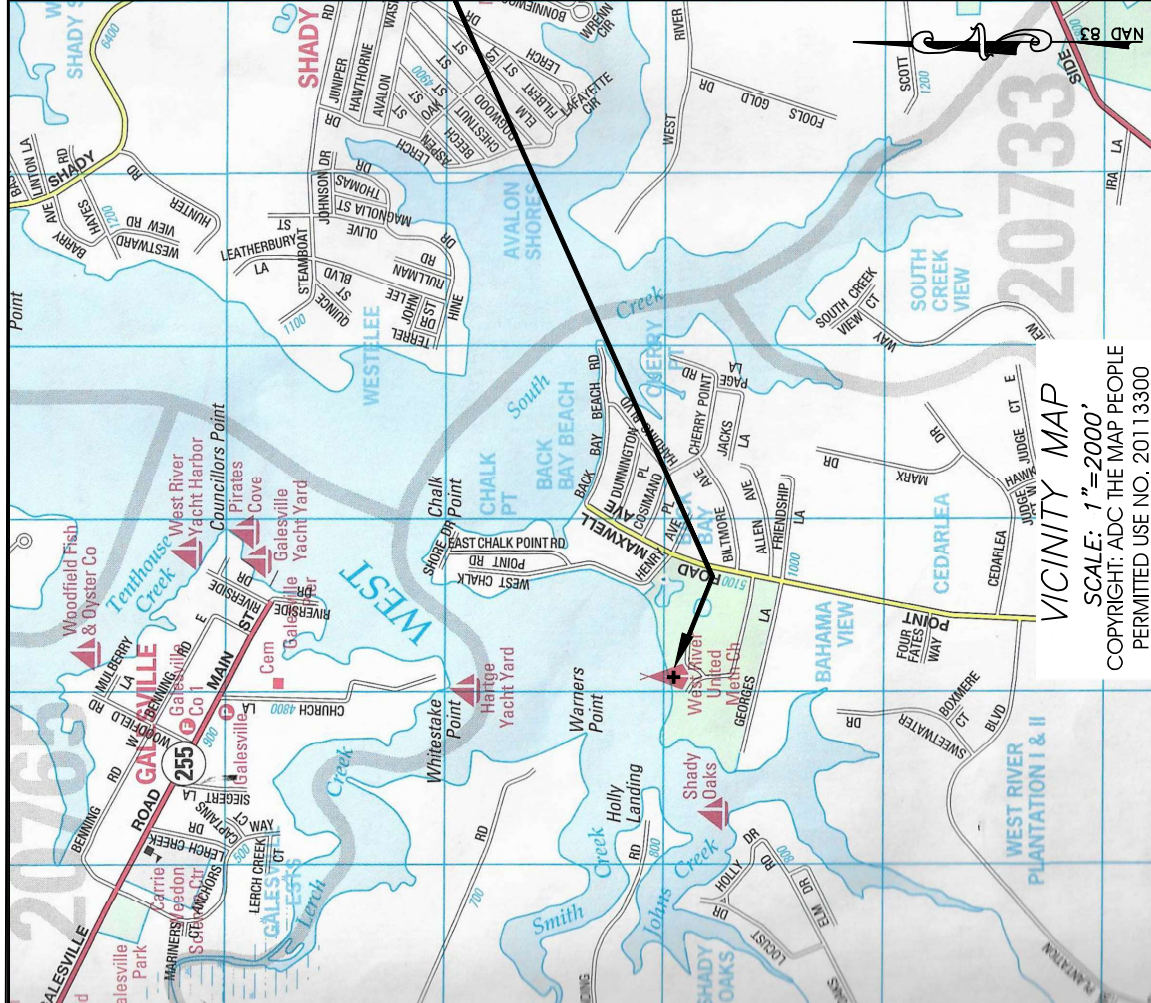
PLAN  
 SCALE: 1"=250'

June 5<sup>th</sup>, 2020

SHEET 1 OF 19

VICINITY MAP AND AERIAL PHOTO


**WEST RIVER UNITED METHODIST CHURCH LIVING SHORELINE**  
 AI# 79859- AP # XX-XX-XXXX- TRACKING # XXXXXXXXX  
 WEST RIVER UM CNTR, 5100 CHALK POINT RD  
 WEST RIVER, MARYLAND, 20733  
 MAP 5656 , GRID C7, C8 & D7, D8, PARCEL 0243  
 7TH ELECTION DISTRICT, ANNE ARUNDEL COUNTY



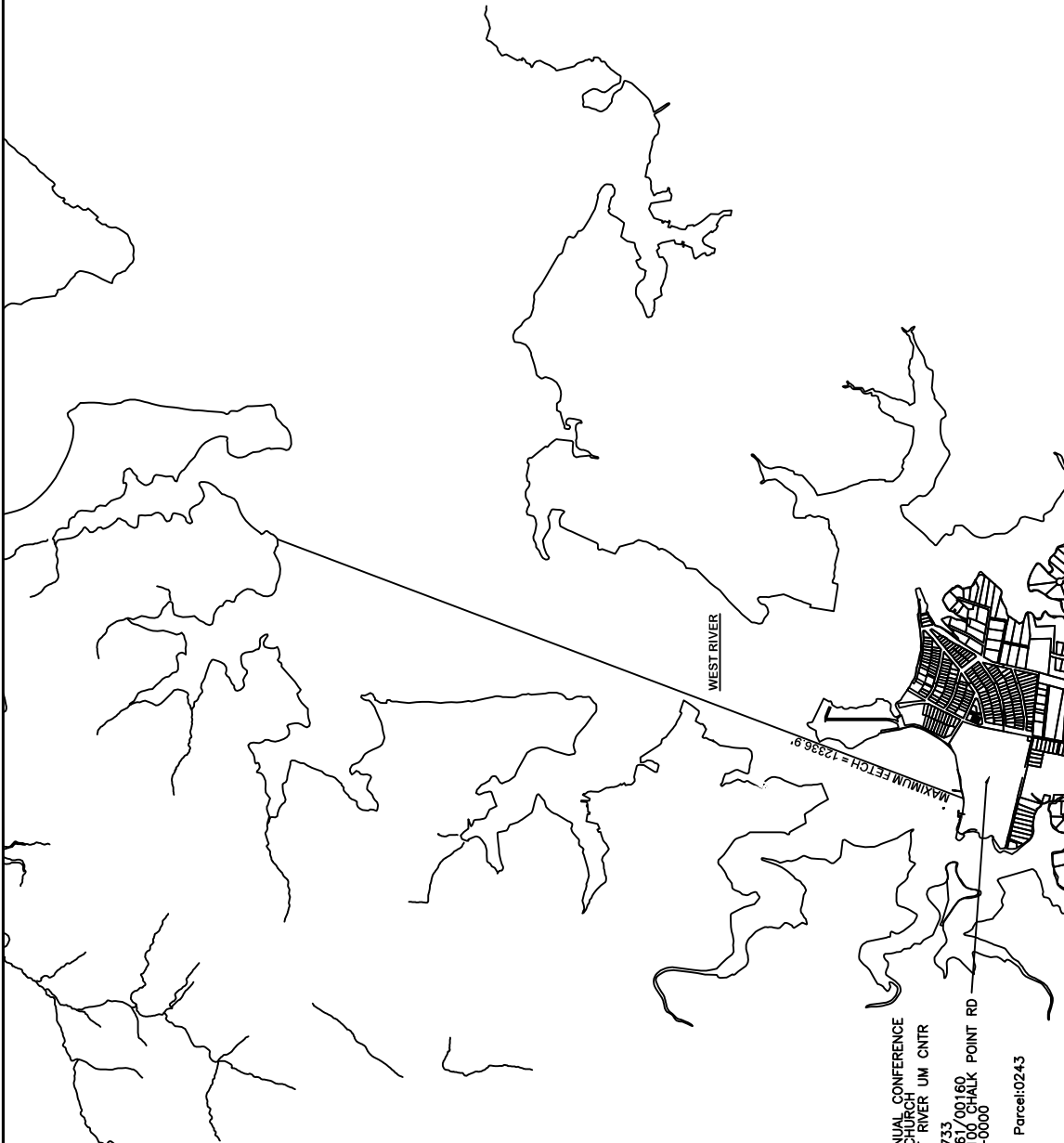
SHEET INDEX

DESCRIPTION	SHEET
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PROJECT VICINITY CONDITIONS	2
EXISTING CONDITIONS	3-4
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UNDERWOOD & ASSOCIATES

LANDSCAPE ARCHITECTURE ♦ ECOLOGICAL RESTORATION  
 A DESIGN / BUILD Co.  
  
 1753 EBLING TRAIL ♦ ANNAPOLIS, MD 21401  
 Tel. 410-849-3211 fax. 410-849-2136

20-WL-0076  
 202060120  
 25June2020  
 Sheet 2 of 19



CHURCH BALTIMORE ANNUAL CONFERENCE  
 UNITED METHODIST CHURCH  
 C/O DAN KANGER WEST RIVER UM CNTR  
 PO BOX 428 WEST RIVER UM CNTR  
 CHURCHTON MD 20733  
 Deed Reference: 01361/00160  
 Premises Address: 5100 CHALK POINT RD  
 447588 ACRES  
 WEST RIVER  
 Map: 0069 Grid: 0014 Parcel: 0243

SHEET 2 OF 19

PLAN SCALE: 1"=300'

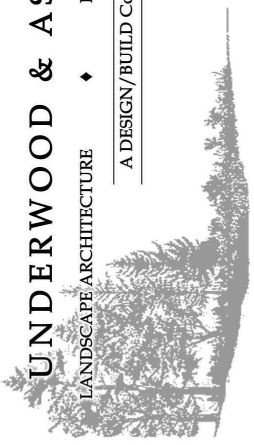
June 5<sup>th</sup>, 2020

**PROJECT VICINITY CONDITIONS**

**WEST RIVER UNITED METHODIST  
 CHURCH LIVING SHORELINE**  
 A# 79859-AP # XX-XX-XXXX- TRACKING # XXXXXXXXXX  
 WEST RIVER UM CNTR, 5100 CHALK POINT RD  
 WEST RIVER, MARYLAND, 20733  
 MAP 5656, GRID C7, C8 & D7, D8, PARCEL 0243  
 7TH ELECTION DISTRICT, ANNE ARUNDEL COUNTY

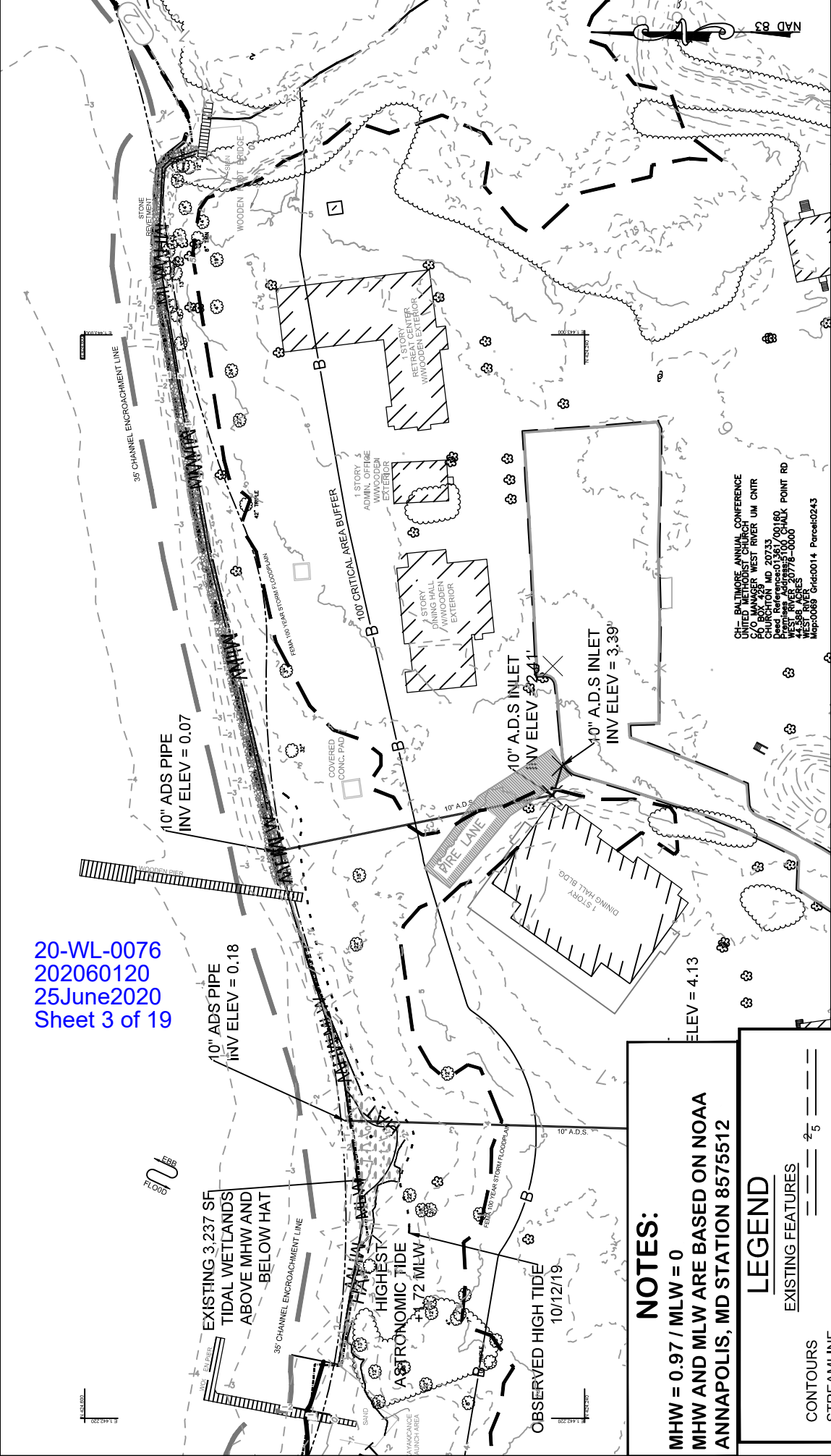
**UNDERWOOD & ASSOCIATES**

LANDSCAPE ARCHITECTURE ♦ ECOLOGICAL RESTORATION  
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202060120  
25 June 2020  
Sheet 3 of 19

**NOTES:**  
 MHW = 0.97 / MLW = 0  
 MHW AND MLW ARE BASED ON NOAA  
 ANNAPOLIS, MD STATION 8575512

**LEGEND**

EXISTING FEATURES	
CONTOURS	--- 2' --- 5'
STREAMLINE	— — — — —
FEMA 100 YEAR	— — — — —
PROPERTY LINES	— — — — —
EASEMENTS	— — — — —
ZONING	— — — — —
STORM DRAIN	— — — — —
TREE CANOPY	— — — — —
FENCE	— — — — —
25' STEEP SLOPE BUFFER	— — — — —
BUILDINGS	— — — — —
ROADS	— — — — —
DRIVEWAY	— — — — —
EXISTING WETLANDS	— — — — —
TREES	— — — — —

SCALE: 1"=100'  
**PLAN**  
 SHEET 3 OF 19  
 June 5<sup>th</sup>, 2020

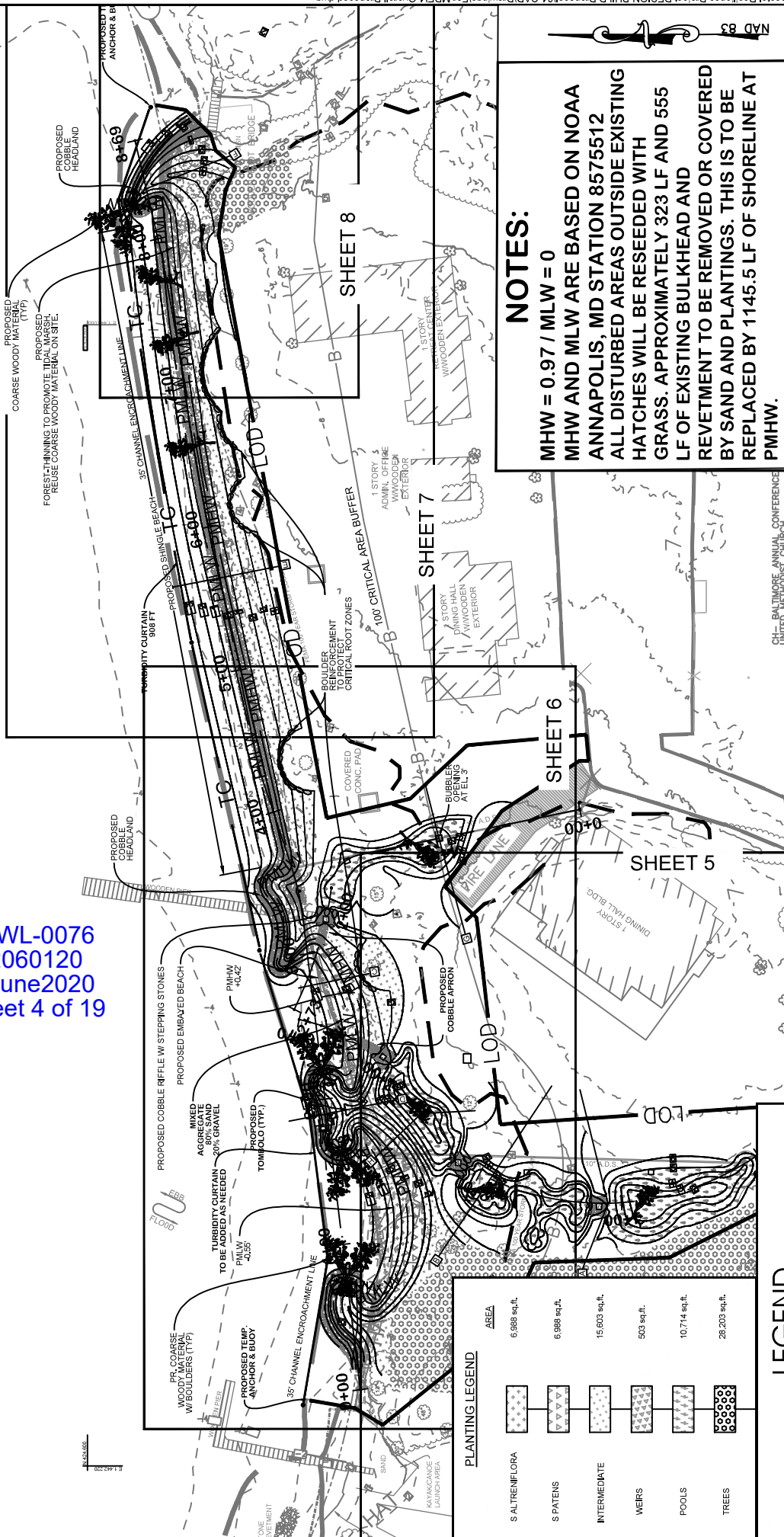
**UNDERWOOD & ASSOCIATES**  
 LANDSCAPE ARCHITECTURE ♦ ECOLOGICAL RESTORATION  
 A DESIGN/BUILD Co.

**EXISTING CONDITIONS**  
 WEST RIVER UNITED METHODIST  
 CHURCH LIVING SHORELINE

AH# 79859- AP.# XX-XX-XXXX- TRACKING # XXXXXXXXXX  
 WEST RIVER UM CNTR, 5100 CHALK POINT RD  
 WEST RIVER, MARYLAND, 20733  
 MAP 5656 , GRID C7, C8 & D7, D8; PARCEL 0243  
 7TH ELECTION DISTRICT, ANNE ARUNDEL COUNTY

1753 EBLING TRAIL ♦ ANNAPOLIS, MD 21401  
 tel. 410-849-3211 fax. 410-849-2136

20-WL-0076  
202060120  
25 June 2020  
Sheet 4 of 19



**NOTES:**  
 MHW = 0.97 / MLW = 0  
 MHW AND MLW ARE BASED ON NOAA ANNAPOLIS, MD STATION 8575512  
 ALL DISTURBED AREAS OUTSIDE EXISTING HATCHES WILL BE RESEEDED WITH GRASS. APPROXIMATELY 323 LF AND 555 LF OF EXISTING BULKHEAD AND REVETMENT TO BE REMOVED OR COVERED BY SAND AND PLANTINGS. THIS IS TO BE REPLACED BY 1145.5 LF OF SHORELINE AT PMHW.

PLAN SCALE: 1"=100'  
 SHEET 4 OF 19  
 June 5<sup>th</sup>, 2020

**UNDERWOOD & ASSOCIATES**  
 LANDSCAPE ARCHITECTURE ♦ ECOLOGICAL RESTORATION  
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**OVERALL PROPOSED CONDITIONS**  
**WEST RIVER UNITED METHODIST CHURCH LIVING SHORELINE**  
 A# 79859-AP # XX-XX-XXXX- TRACKING # XXXXXXXXX  
 WEST RIVER UM CNTR, 5100 CHALK POINT RD  
 WEST RIVER, MARYLAND, 20733  
 MAP 5656, GRID C7, C8 & D7, D8, PARCEL 0243  
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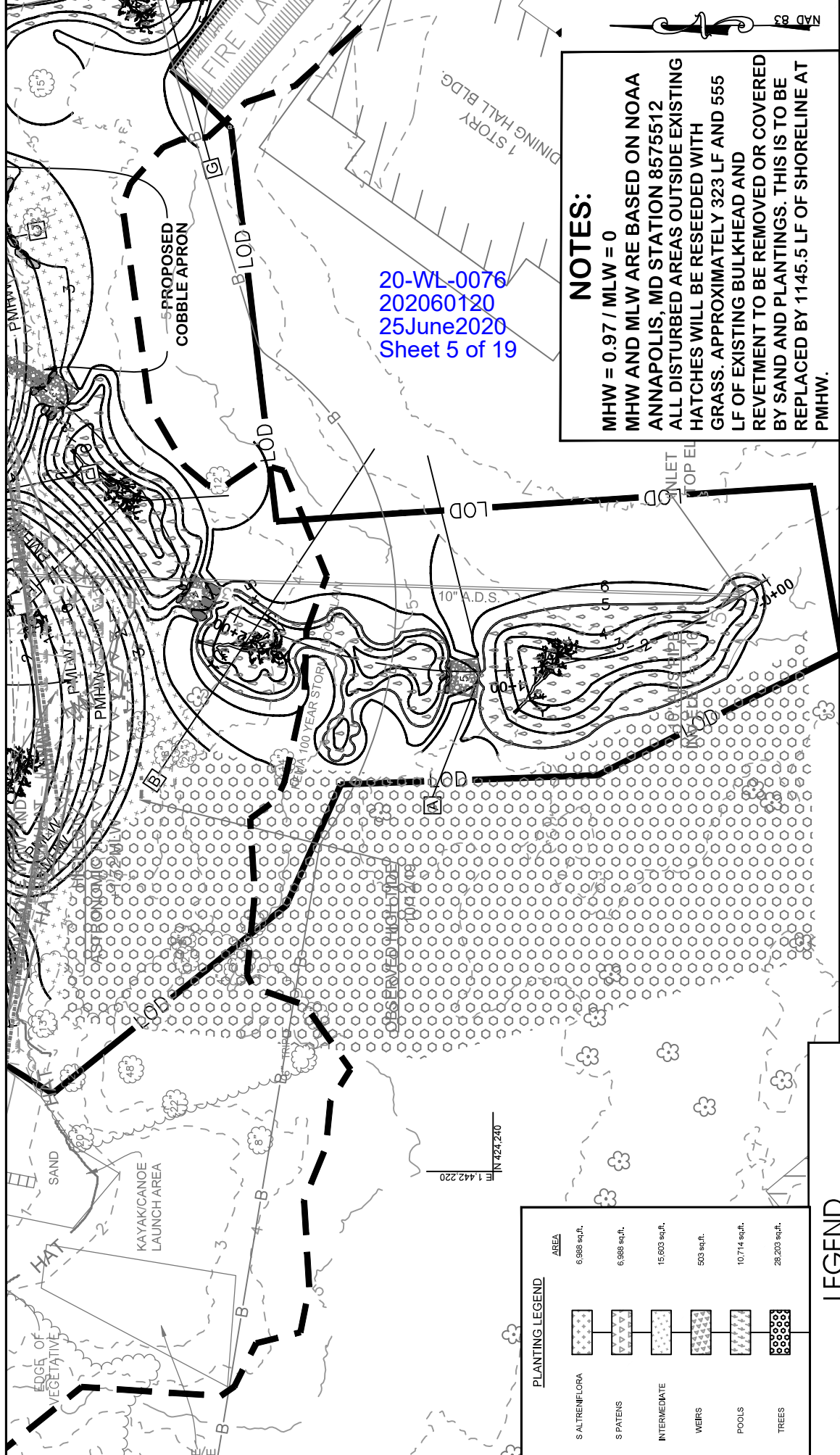
**PLANTING LEGEND**

PLANTING	AREA
SALT TRENFLORA	6,988 sq.ft.
S PATENS	6,988 sq.ft.
INTERMEDIATE	15,603 sq.ft.
WERS	503 sq.ft.
POOLS	10,714 sq.ft.
TREES	29,203 sq.ft.

**LEGEND**

**PROPOSED FEATURES**

- 1 — CONTOUR
- B — 100 ft BUFFER LINE
- MHW — MEAN HIGH WATER
- MLW — MEAN LOW WATER
- SUBMERGED COBBLE TOE
- WELL GRADED MIX
- BOULDERS
- COARSE WOODY DEBRIS



20-WL-0076  
 202060120  
 25 June 2020  
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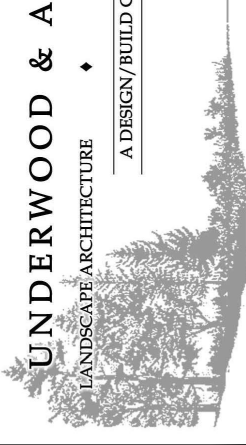
**NOTES:**

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PLAN SCALE: 1"=50' SHEET 5 OF 19 June 5<sup>th</sup>, 2020

**UNDERWOOD & ASSOCIATES**

LANDSCAPE ARCHITECTURE ♦ ECOLOGICAL RESTORATION  
 A DESIGN/BUILD Co.



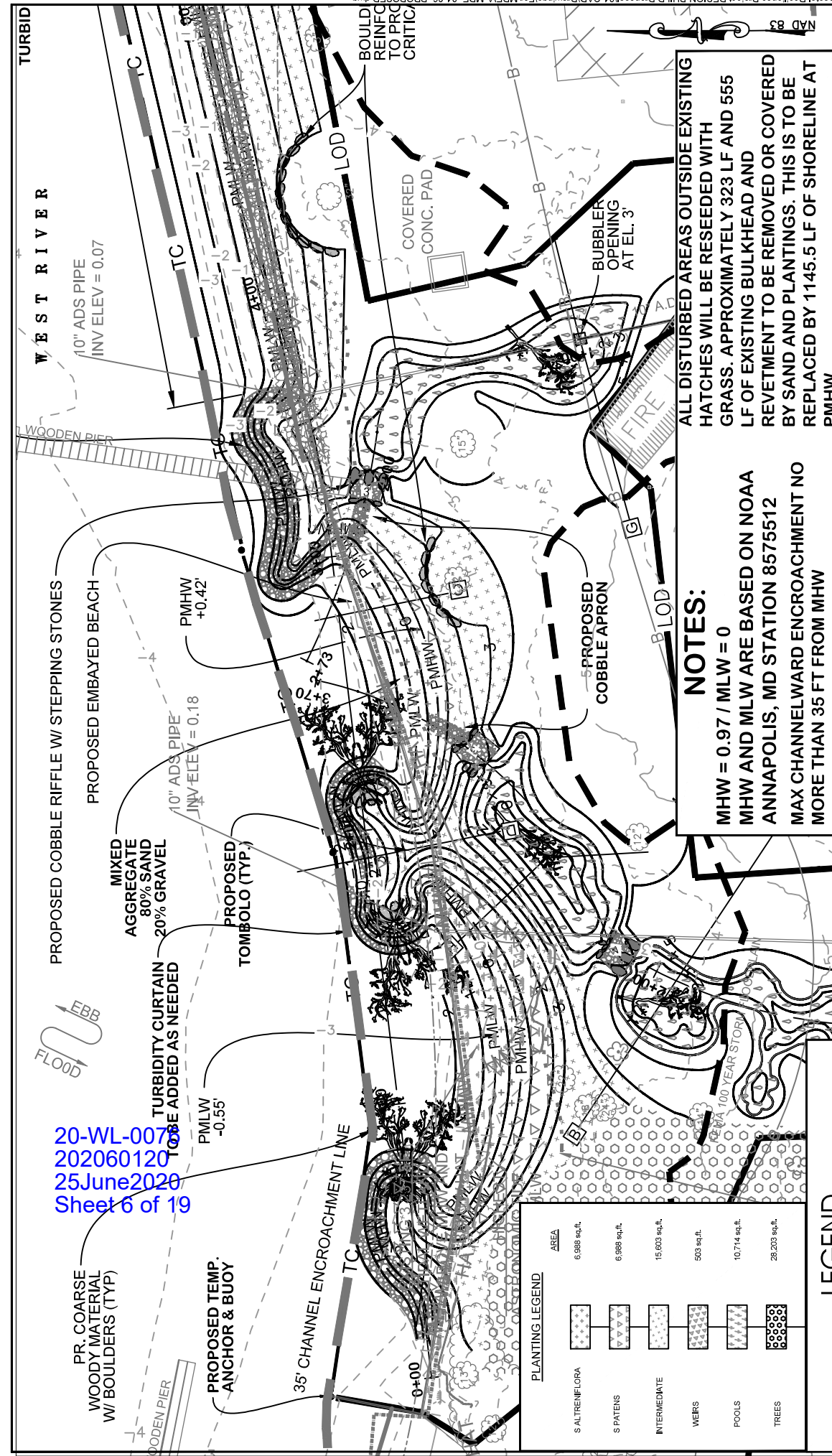
1753 EBLING TRAIL ♦ ANNAPOLIS, MD 21401  
 Tel. 410-849-3211 fax. 410-849-2136

**LEGEND**

PROPOSED FEATURES

- CONTOUR — 1 —
- 100 ft BUFFER LINE — B —
- MEAN HIGH WATER — MHW —
- MEAN LOW WATER — MLW —
- SUBMERGED COBBLE TOE
- WELL GRADED MIX
- BOULDERS
- COARSE WOODY DEBRIS

PLANTING LEGEND	AREA
	6,908 sq.ft.
	6,908 sq.ft.
	15,603 sq.ft.
	503 sq.ft.
	10,714 sq.ft.
	28,203 sq.ft.



20-WL-0070  
 202060120  
 25June2020  
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**PLANTING LEGEND**

PLANTING	AREA
S ALTRENFLORA	6,988 sq.ft.
S PATENS	6,988 sq.ft.
INTERMEDIATE	15,603 sq.ft.
WEIRS	503 sq.ft.
POOLS	10,714 sq.ft.
TREES	28,203 sq.ft.

**LEGEND**

**PROPOSED FEATURES**

- CONTOUR
- 100 ft BUFFER LINE
- MEAN HIGH WATER
- MEAN LOW WATER
- SUBMERGED COBBLE TOE
- WELL GRADED MIX
- BOULDERS
- COARSE WOODY DEBRIS

**NOTES:**

MHW = 0.97 / MLW = 0  
 MHW AND MLW ARE BASED ON NOAA ANNAPOLIS, MD STATION 8575512  
 MAX CHANNELWARD ENCROACHMENT NO MORE THAN 35 FT FROM MHW

ALL DISTURBED AREAS OUTSIDE EXISTING HATCHES WILL BE RESEED WITH GRASS. APPROXIMATELY 323 LF AND 555 LF OF EXISTING BULKHEAD AND RETEMENT TO BE REMOVED OR COVERED BY SAND AND PLANTINGS. THIS IS TO BE REPLACED BY 1145.5 LF OF SHORELINE AT PMHW.

PLAN SCALE: 1"=50'  
 SHEET 6 OF 19  
 June 5<sup>th</sup>, 2020

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**PROPOSED CONDITIONS**

**WEST RIVER UNITED METHODIST CHURCH LIVING SHORELINE**

AI# 79859-AP # XX-XX-XXXX- TRACKING # XXXXXXXXX  
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 MAP 5656, GRID C7, C8 & D7, D8, PARCEL 0243  
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WEST RIVER

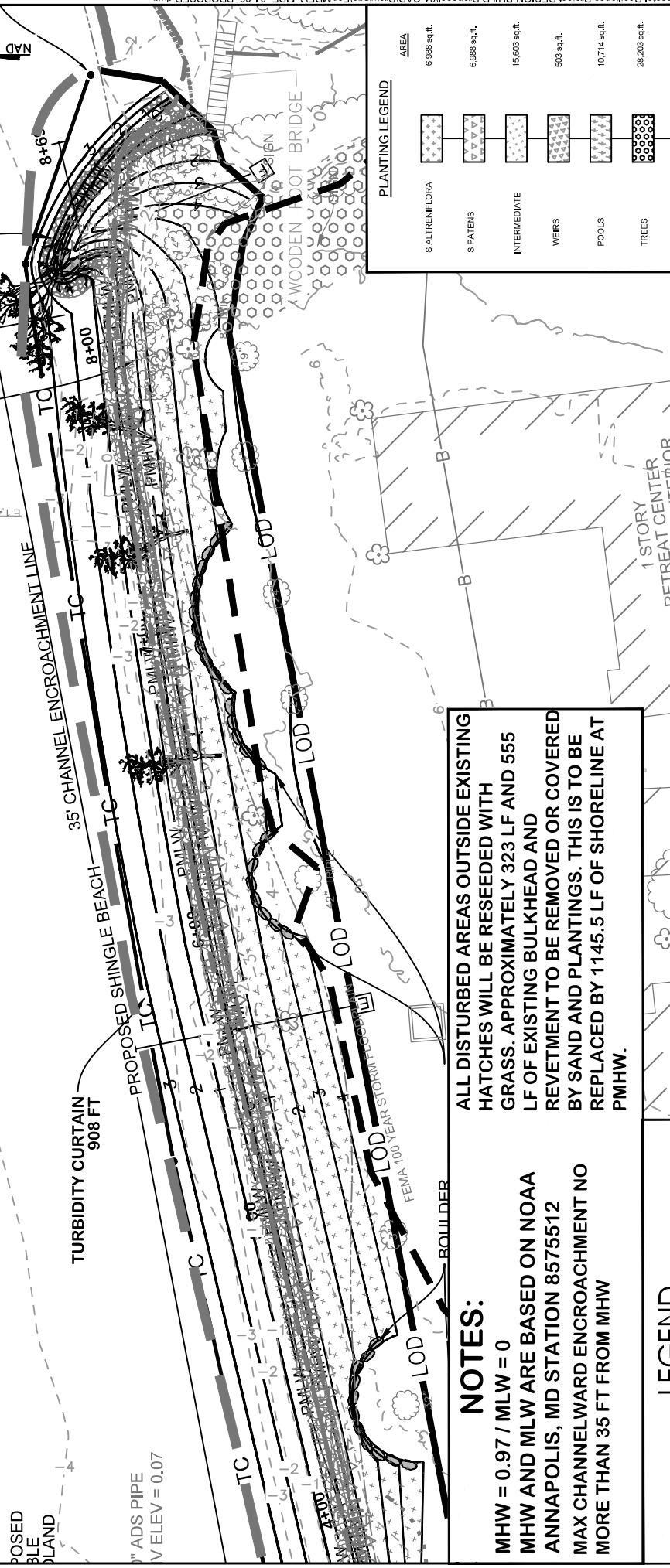
PROPOSED COARSE WOODY MATERIAL (TYP)

FOREST-THINNING TO PROMOTE TIDAL MARSH. REUSE COARSE WOODY MATERIAL ON SITE.

PROPOSED COBBLE HEADLAND

20-WL-0076  
202060120  
25 June 2020  
Sheet 7 of 19

FLOOD EBB



PLANTING LEGEND

PLANTING	AREA
S ALTRENIFFLORA	6,988 sq.ft.
S PATENS	6,988 sq.ft.
INTERMEDIATE	15,003 sq.ft.
WEIRS	503 sq.ft.
POOLS	10,714 sq.ft.
TREES	28,203 sq.ft.

**NOTES:**  
MHW = 0.97 / MLW = 0  
MHW AND MLW ARE BASED ON NOAA ANNAPOLIS, MD STATION 8575512  
MAX CHANNELWARD ENCROACHMENT NO MORE THAN 35 FT FROM MHW

ALL DISTURBED AREAS OUTSIDE EXISTING HATCHES WILL BE RESEEDED WITH GRASS. APPROXIMATELY 323 LF AND 555 LF OF EXISTING BULKHEAD AND REVETMENT TO BE REMOVED OR COVERED BY SAND AND PLANTINGS. THIS IS TO BE REPLACED BY 1145.5 LF OF SHORELINE AT PMHW.

**LEGEND**

PROPOSED FEATURES

CONTOUR	1
100 ft BUFFER LINE	B
MEAN HIGH WATER	MHW
MEAN LOW WATER	MLW
SUBMERGED COBBLE TOE	[Symbol]
WELL GRADED MIX	[Symbol]
BOULDERS	[Symbol]
COARSE WOODY DEBRIS	[Symbol]

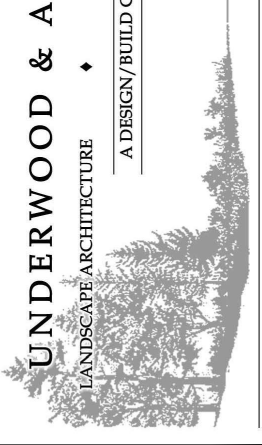
PLAN SCALE: 1"=50'

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June 5<sup>th</sup>, 2020

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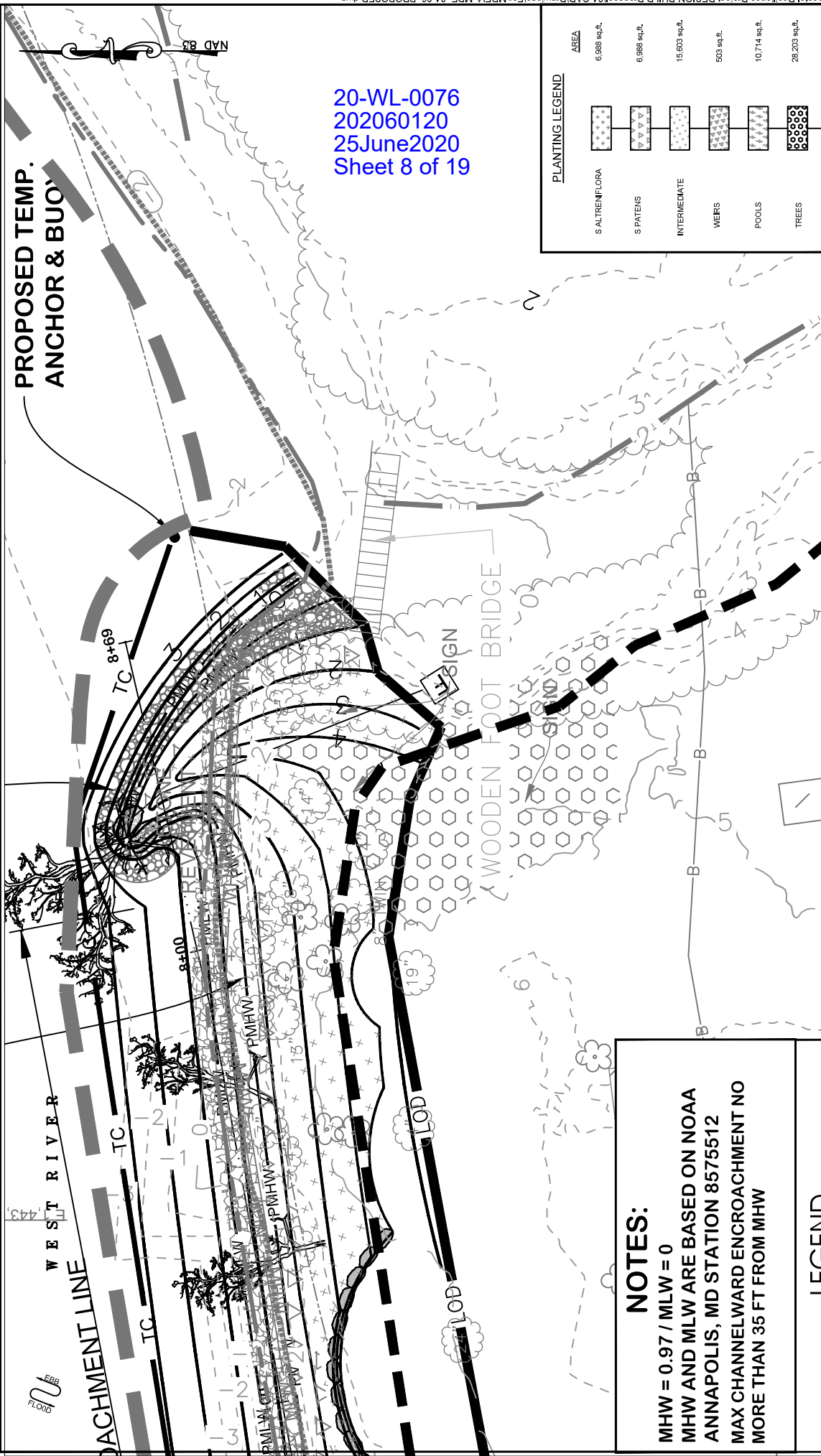


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**PROPOSED CONDITIONS**

WEST RIVER UNITED METHODIST CHURCH LIVING SHORELINE

AI# 79859-AP # XX-XX-XXXX- TRACKING # XXXXXXXXX  
WEST RIVER UM CNTR, 5100 CHALK POINT RD  
WEST RIVER, MARYLAND, 20733  
MAP 5656, GRID C7, C8 & D7, D8, PARCEL 0243  
7TH ELECTION DISTRICT, ANNE ARUNDEL COUNTY



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PLANTING LEGEND	AREA
	6,988 sq.ft.
	6,988 sq.ft.
	15,803 sq.ft.
	503 sq.ft.
	10,714 sq.ft.
	28,203 sq.ft.

June 5<sup>th</sup>, 2020

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PLAN SCALE: 1"=30'

**PROPOSED CONDITIONS**  
**WEST RIVER UNITED METHODIST CHURCH LIVING SHORELINE**  
 A# 79859-AP # XX-XX-XXXX- TRACKING # XXXXXXXXX  
 WEST RIVER UM CNTR, 5100 CHALK POINT RD  
 WEST RIVER, MARYLAND, 20733  
 MAP 5656 , GRID C7, C8 & D7, D8, PARCEL 0243  
 7TH ELECTION DISTRICT, ANNE ARUNDEL COUNTY

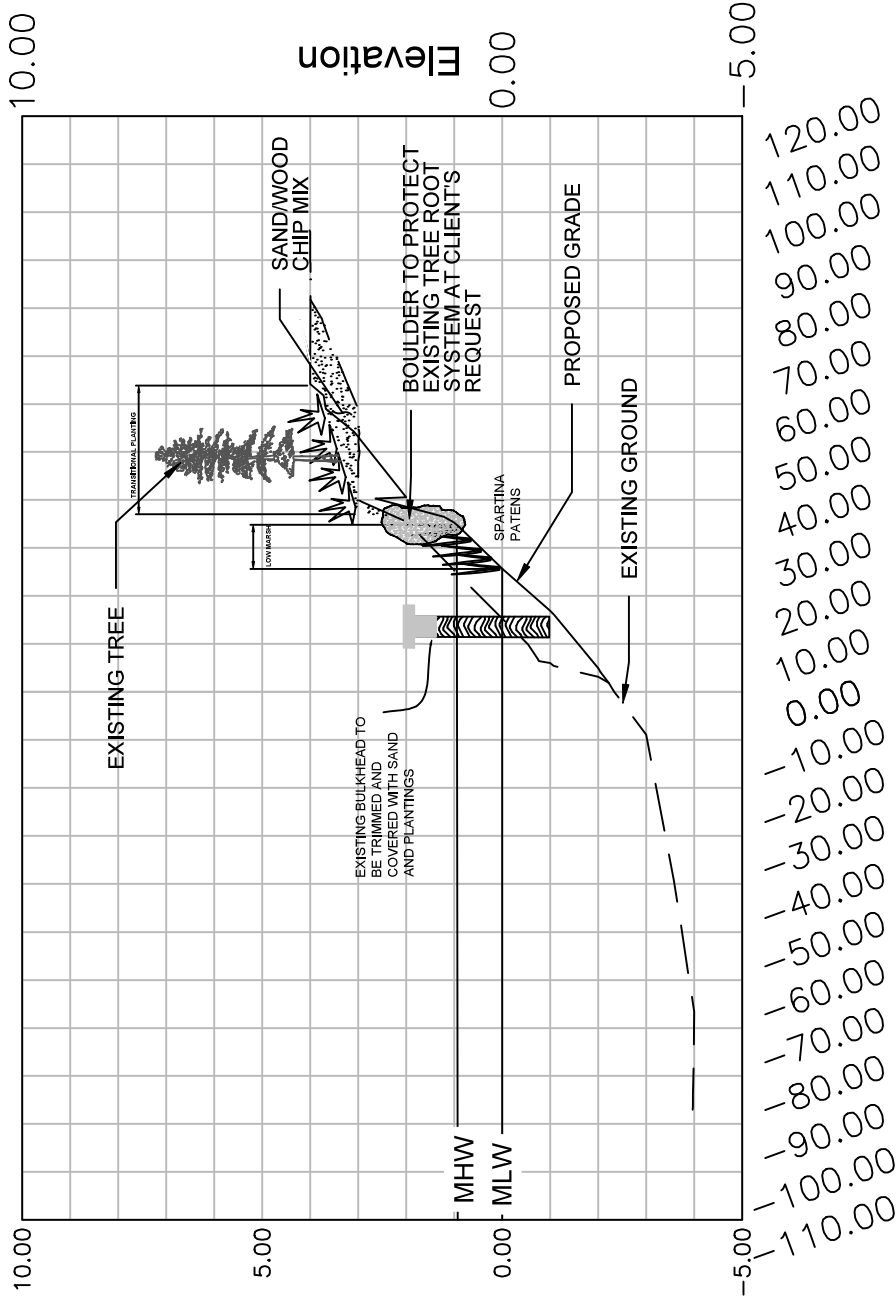
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**NOTES:**  
 MHW = 0.97 / MLW = 0  
 MHW AND MLW ARE BASED ON NOAA ANNAPOLIS, MD STATION 8575512  
 MAX CHANNELWARD ENCROACHMENT NO MORE THAN 35 FT FROM MHW

LEGEND	
PROPOSED FEATURES	
CONTOUR	
100 ft BUFFER LINE	
MEAN HIGH WATER	
MEAN LOW WATER	
SUBMERGED COBBLE TOE	
WELL GRADED MIX	
BOULDERS	
COARSE WOODY DEBRIS	

2+61.49

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**NOTE:**  
BOULDER OUTCROPS NOT TO SCALE.  
BOULDER REPRESENTATION ONLY.  
EXISTING ERODING CLIFF WILL NOT BE  
EXCAVATED, ONLY REINFORCED.

LEGEND

- EXISTING GRADE
- PROPOSED GRADE
- MEAN HIGH WATER (MHW)
- MEAN LOW WATER (MLW)
- SAND/WOOD CHIP MIX
- SUBMERGED COBBLE
- BOULDER OUTCROP
- SPARTINA PATENS
- SPARTINA ALTERNIFLORA

C: EASTERN EMBAYMENT AND TREE  
ROOT PROTECTION CROSS-SECTION

CROSS SECTIONS SCALE: HORI. 1"=40', VERT. 1"=4'

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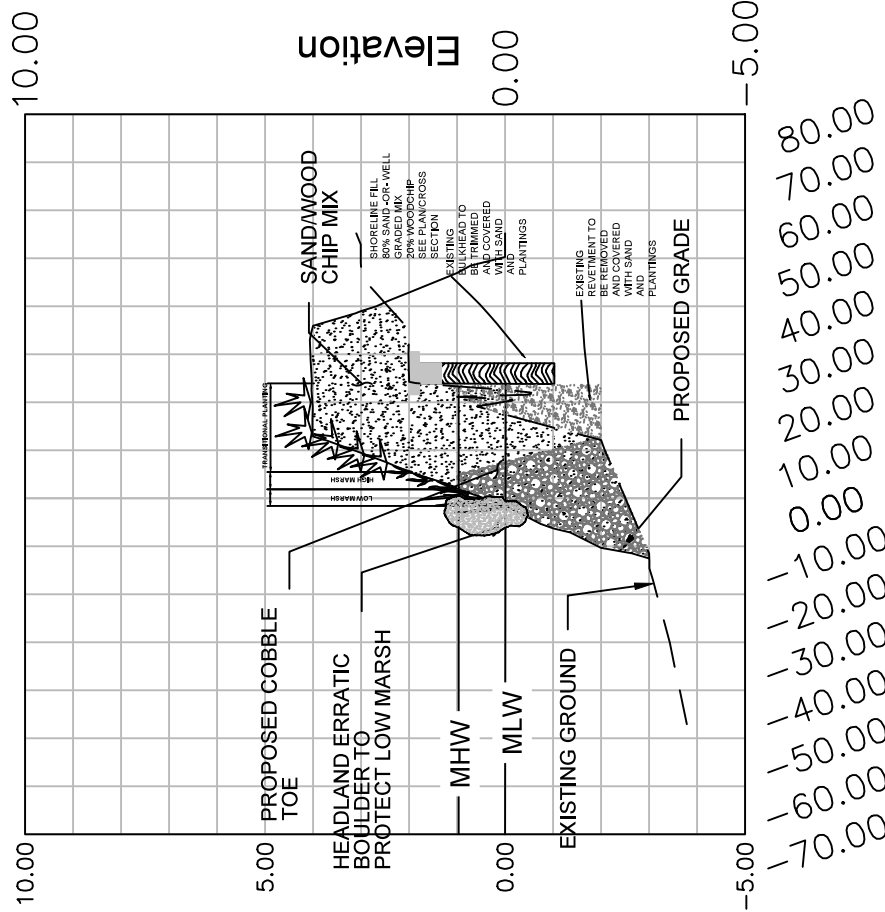
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**PROJECT CROSS SECTION**  
**WEST RIVER UNITED METHODIST  
CHURCH LIVING SHORELINE**  
A# 79859- AP.# XX-XX-XXXX- TRACKING # XXXXXXXXXX  
WEST RIVER UM CNTR, 5100 CHALK POINT RD  
WEST RIVER, MARYLAND, 20733  
MAP 5656 , GRID C7, C8 & D7, D8, PARCEL 0243  
7TH ELECTION DISTRICT, ANNE ARUNDEL COUNTY

1+91.32



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D: EASTERN SEGMENTED BREAKWATER AND TOMBOLO CROSS SECTION

**NOTE:**  
BOULDER OUTCROPS NOT TO SCALE.  
BOULDER REPRESENTATION ONLY.  
EXISTING ERODING CLIFF WILL NOT BE EXCAVATED, ONLY REINFORCED.

LEGEND

- EXISTING GRADE
- PROPOSED GRADE
- MEAN HIGH WATER (MHW)
- MEAN LOW WATER (MLW)
- SAND/WOOD CHIP MIX
- SUBMERGED COBBLE
- BOULDER OUTCROP
- SPARTINA PATENS
- SPARTINA ALTERNIFLORA

CROSS SECTIONS SCALE: HORI. 1"=40', VERT. 1"=4'

SHEET 10 OF 19

June 5<sup>th</sup>, 2020

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**PROJECT CROSS SECTION**  
**WEST RIVER UNITED METHODIST CHURCH LIVING SHORELINE**

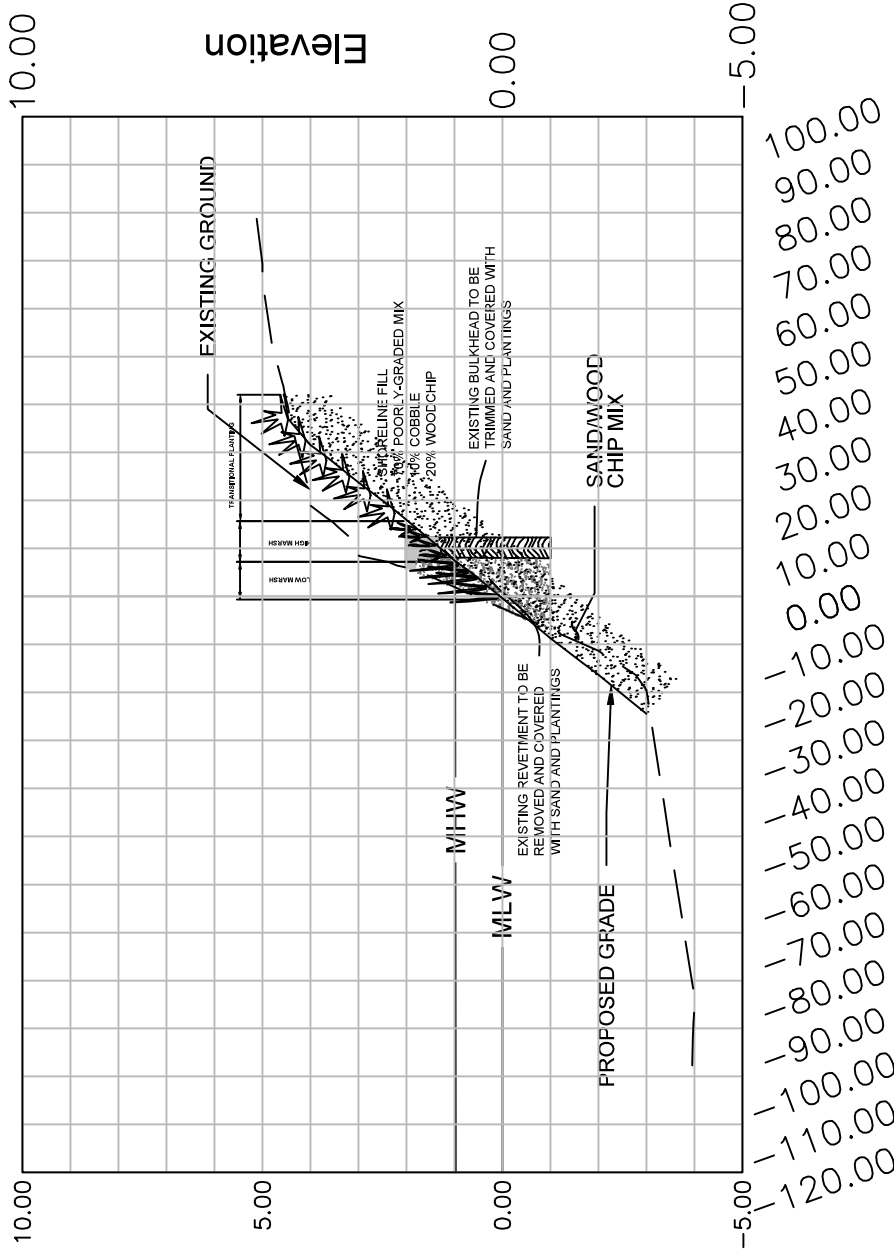
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WEST RIVER UM CNTR, 5100 CHALK POINT RD  
WEST RIVER, MARYLAND, 20733  
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5+65.35

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E: SHINGLE BEACH CROSS SECTION

LEGEND

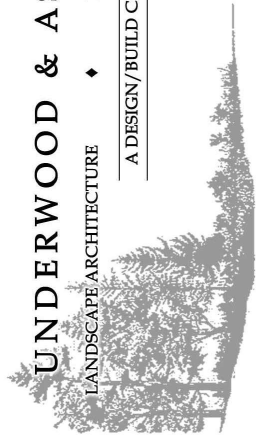
- EXISTING GRADE
- PROPOSED GRADE
- MEAN HIGH WATER (MIHW)
- MEAN LOW WATER (MLW)
- SAND/WOOD CHIP MIX
- SUBMERGED COBBLE
- BOULDER OUTCROP
- SPARTINA PATENS
- SPARTINA ALTERNIFLORA

CROSS SECTIONS SCALE: HORI. 1"=40', VERT. 1"=4'

SHEET 11 OF 19

June 5<sup>th</sup>, 2020

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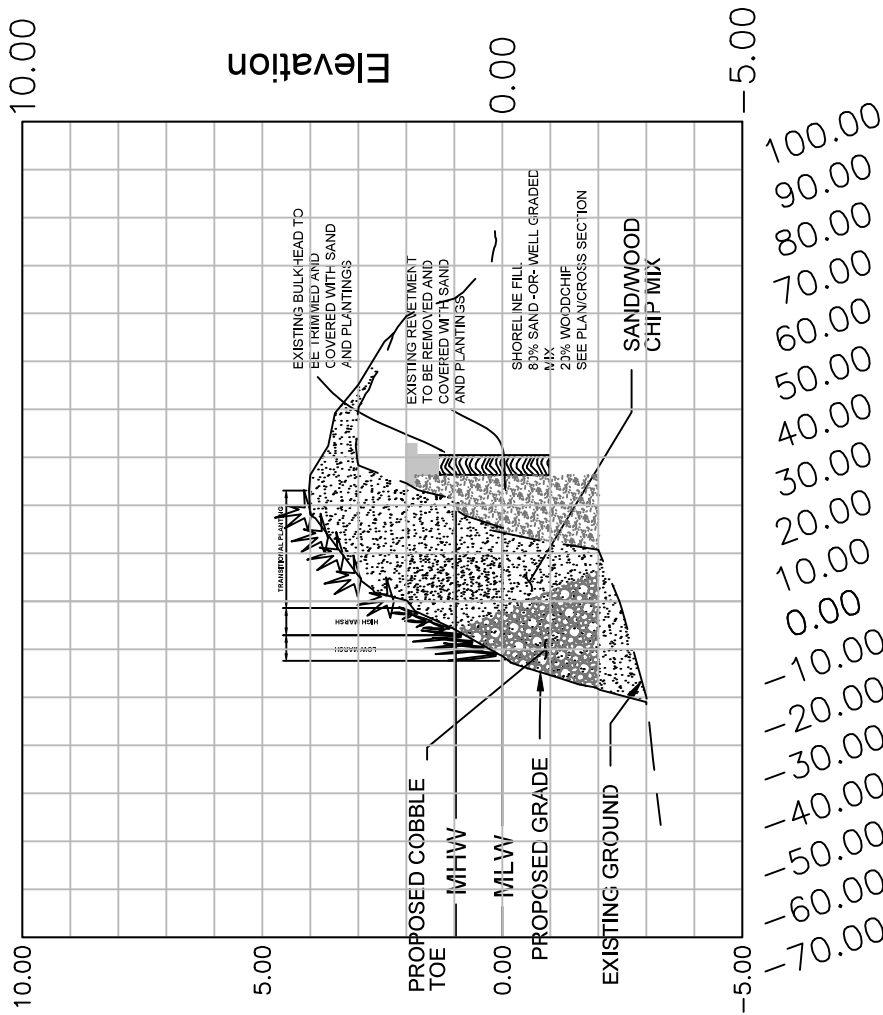


**PROJECT CROSS SECTION**

**WEST RIVER UNITED METHODIST CHURCH LIVING SHORELINE**

AI# 79859- AP.# XX-XX-XXXX- TRACKING # XXXXXXXXXX  
WEST RIVER UM CNTR, 5100 CHALK POINT RD  
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8+35.92



F: TERMINAL SPIT CROSS SECTION

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<p><b>CROSS SECTIONS</b>    SCALE: HORI. 1"=40', VERT. 1"=4'</p>	<p>SHEET 12 OF 19    June 5<sup>th</sup>, 2020</p>
<p align="center"><b>PROJECT CROSS SECTION</b></p>	
<p align="center"><b>WEST RIVER UNITED METHODIST CHURCH LIVING SHORELINE</b></p> <p align="center">             A/#! 79859- AP.# XX-XX-XXXX- TRACKING # XXXXXXXXXX              WEST RIVER UM CNTR, 5100 CHALK POINT RD              WEST RIVER, MARYLAND, 20733              MAP 5656 , GRID C7, C8 &amp; D7, D8; PARCEL 0243              7TH ELECTION DISTRICT, ANNE ARUNDEL COUNTY           </p>	

**LEGEND**

---	EXISTING GRADE
—	PROPOSED GRADE
—	MEAN HIGH WATER (MHW)
—	MEAN LOW WATER (MLW)
[Pattern]	SAND/WOOD CHIP MIX
[Pattern]	SUBMERGED COBBLE
[Pattern]	BOULDER OUTCROP
[Symbol]	SPARTINA PATENS
[Symbol]	SPARTINA ALTERNIFLORA

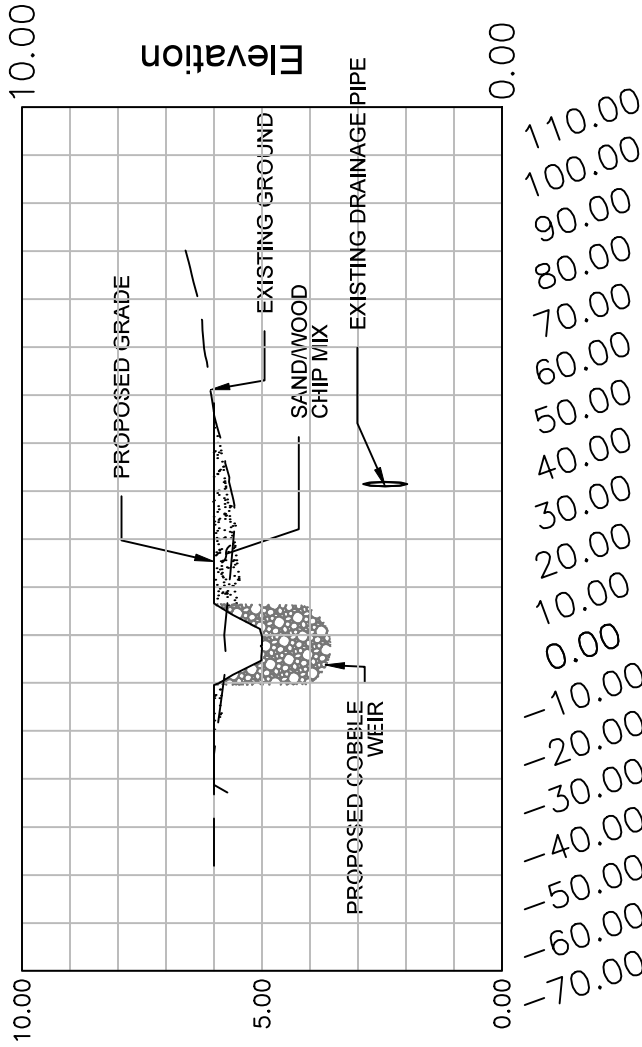
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1+09.36



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A: WEIR 5 CROSS SECTION

LEGEND

- EXISTING GRADE
- PROPOSED GRADE
- MEAN HIGH WATER (MHW)
- MEAN LOW WATER (MLW)
- SAND/WOOD CHIP MIX
- SUBMERGED COBBLE
- BOULDER OUTCROP
- SPARTINA PATENS
- SPARTINA ALTERNIFLORA

CROSS SECTIONS SCALE: HORI. 1"=40', VERT. 1"=4'

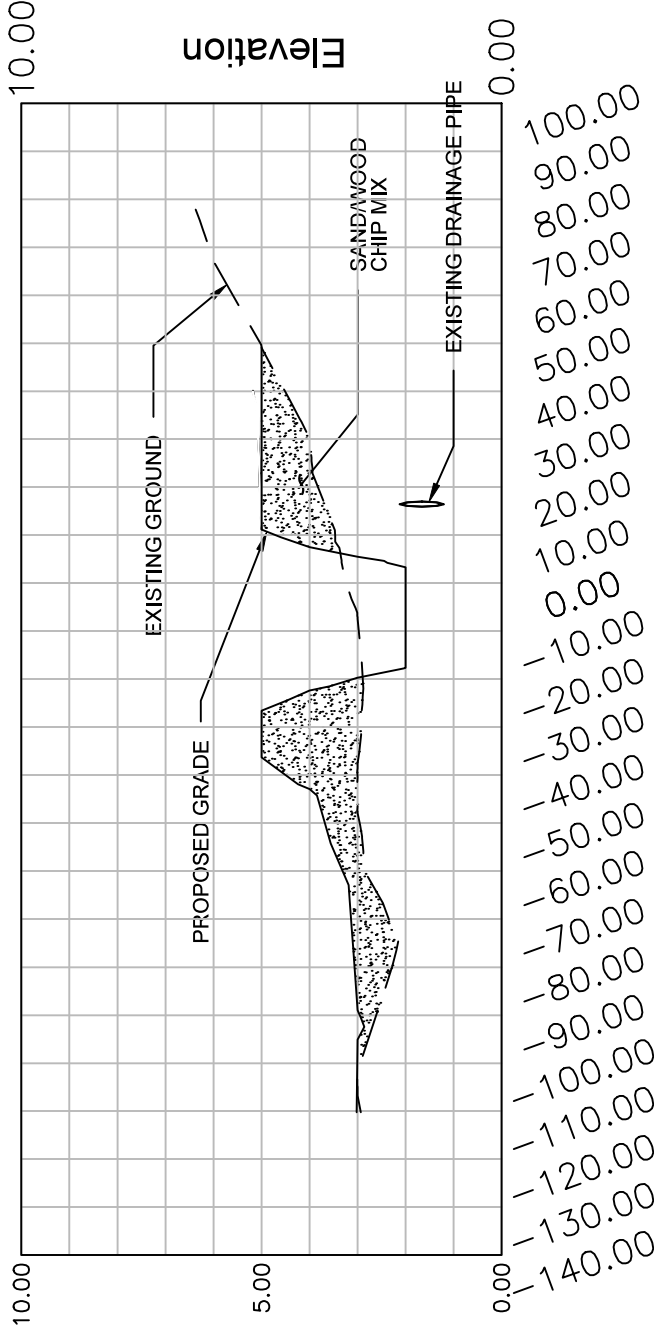
June 5<sup>th</sup>, 2020

**PROJECT CROSS SECTION**  
**WEST RIVER UNITED METHODIST CHURCH LIVING SHORELINE**  
 A/# 79859- AP.# XX-XX-XXXX- TRACKING # XXXXXXXXXX  
 WEST RIVER UM CNTR, 5100 CHALK POINT RD  
 WEST RIVER, MARYLAND, 20733  
 MAP 5656 , GRID C7, C8 & D7, D8; PARCEL 0243  
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1+96.44



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B: POOL 4 CROSS SECTION

LEGEND

- EXISTING GRADE
- PROPOSED GRADE
- MEAN HIGH WATER (MHW)
- MEAN LOW WATER (MLW)
- SAND/WOOD CHIP MIX
- SUBMERGED COBBLE
- BOULDER OUTCROP
- SPARTINA PATENS
- SPARTINA ALTERNIFLORA

**CROSS SECTIONS** SCALE: HORI. 1"=40', VERT. 1"=4'

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June 5<sup>th</sup>, 2020

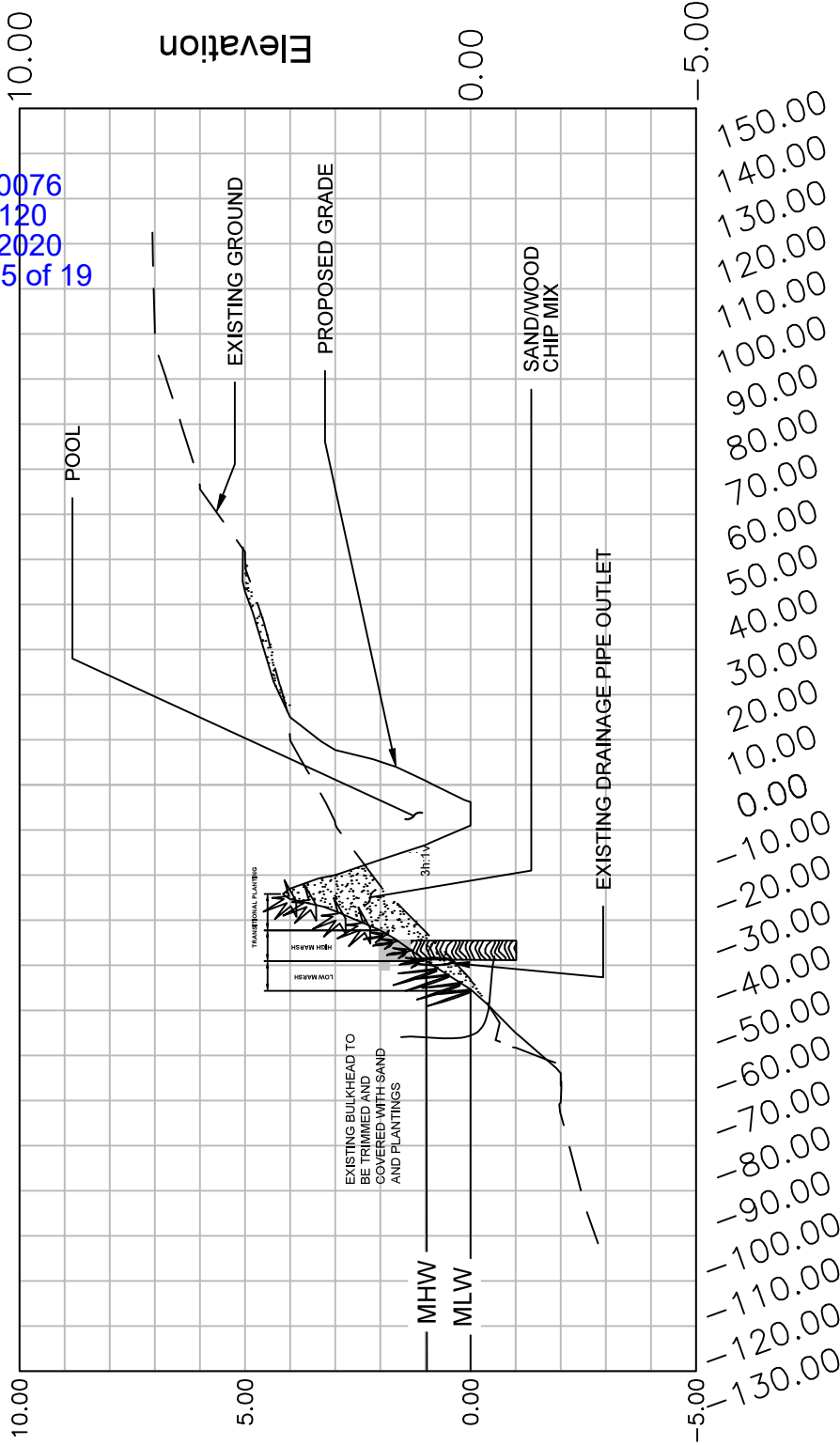
**PROJECT CROSS SECTION**

**WEST RIVER UNITED METHODIST  
CHURCH LIVING SHORELINE**

AI# 79859- AP.# XX-XX-XXXX- TRACKING # XXXXXXXXXX  
WEST RIVER UM CNTR, 5100 CHALK POINT RD  
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7TH ELECTION DISTRICT, ANNE ARUNDEL COUNTY

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2+45.39



H: POOL 3 AND WESTERN EMBAYED BEACH CROSS SECTION

LEGEND

- EXISTING GRADE
- PROPOSED GRADE
- MEAN HIGH WATER (MHW)
- MEAN LOW WATER (MLW)
- SAND/WOOD CHIP MIX
- SUBMERGED COBBLE
- BOULDER OUTCROP
- SPARTINA PATENS
- SPARTINA ALTERNIFLORA

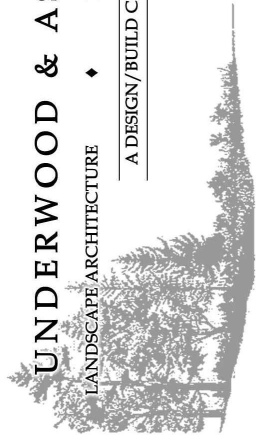
CROSS SECTIONS SCALE: HORI. 1"=40', VERT. 1"=4'

SHEET 15 OF 19

June 5<sup>th</sup>, 2020

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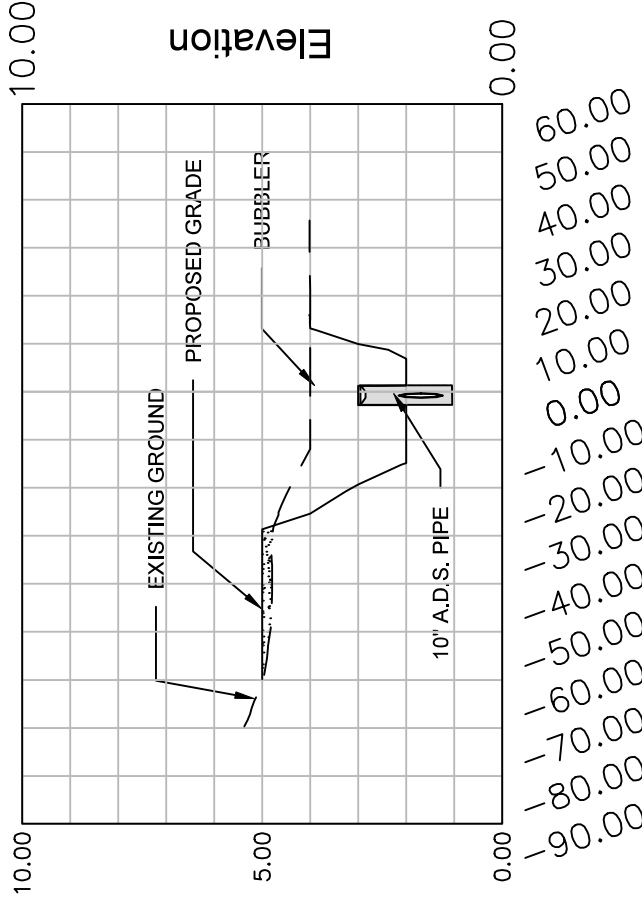
**PROJECT CROSS SECTION**

**WEST RIVER UNITED METHODIST  
 CHURCH LIVING SHORELINE**

Alt# 79859- AP.# XX-XX-XXXX- TRACKING # XXXXXXXXXX  
 WEST RIVER UM CNTR, 5100 CHALK POINT RD  
 WEST RIVER, MARYLAND, 20733  
 MAP 5656 , GRID C7, C8 & D7, D8; PARCEL 0243  
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0+98.38



G: POOL 3 AND BUBBLER CROSS SECTION

**NOTE:**  
 PROPOSED STORM DRAIN DIFFUSER  
 EXISTING PVC PIPES TO BE CUT AND  
 REMOVED.  
 SLOTTED HDPE TO RUN BEHIND  
 BOULDER OUTCROP  
 AND UNDERNEATH IMPORTED  
 MATERIAL.  
 SLOTTED HDPE TO BE INSTALLED  
 LEVEL ALONG THE  
 SHORELINE, BEDDED IN GRAVEL,  
 SET AT MLW, AND  
 CAPPED AT EACH END SUCH THAT  
 STORMWATER  
 INFILTRATES ALONG ENTIRE LENGTH  
 OF PIPE.

LEGEND

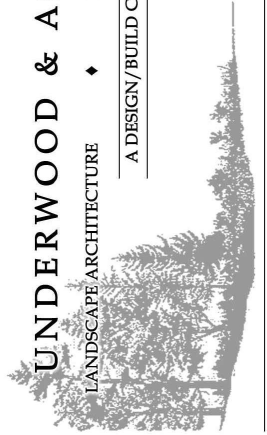
- EXISTING GRADE
- PROPOSED GRADE
- MEAN HIGH WATER (MHW)
- MEAN LOW WATER (MLW)
- SAND/WOOD CHIP MIX
- SUBMERGED COBBLE
- BOULDER OUTCROP
- SPARTINA PATENS
- SPARTINA ALTERNIFLORA

**CROSS SECTIONS** SCALE: HORI. 1"=40', VERT. 1"=4'

June 5<sup>th</sup>, 2020

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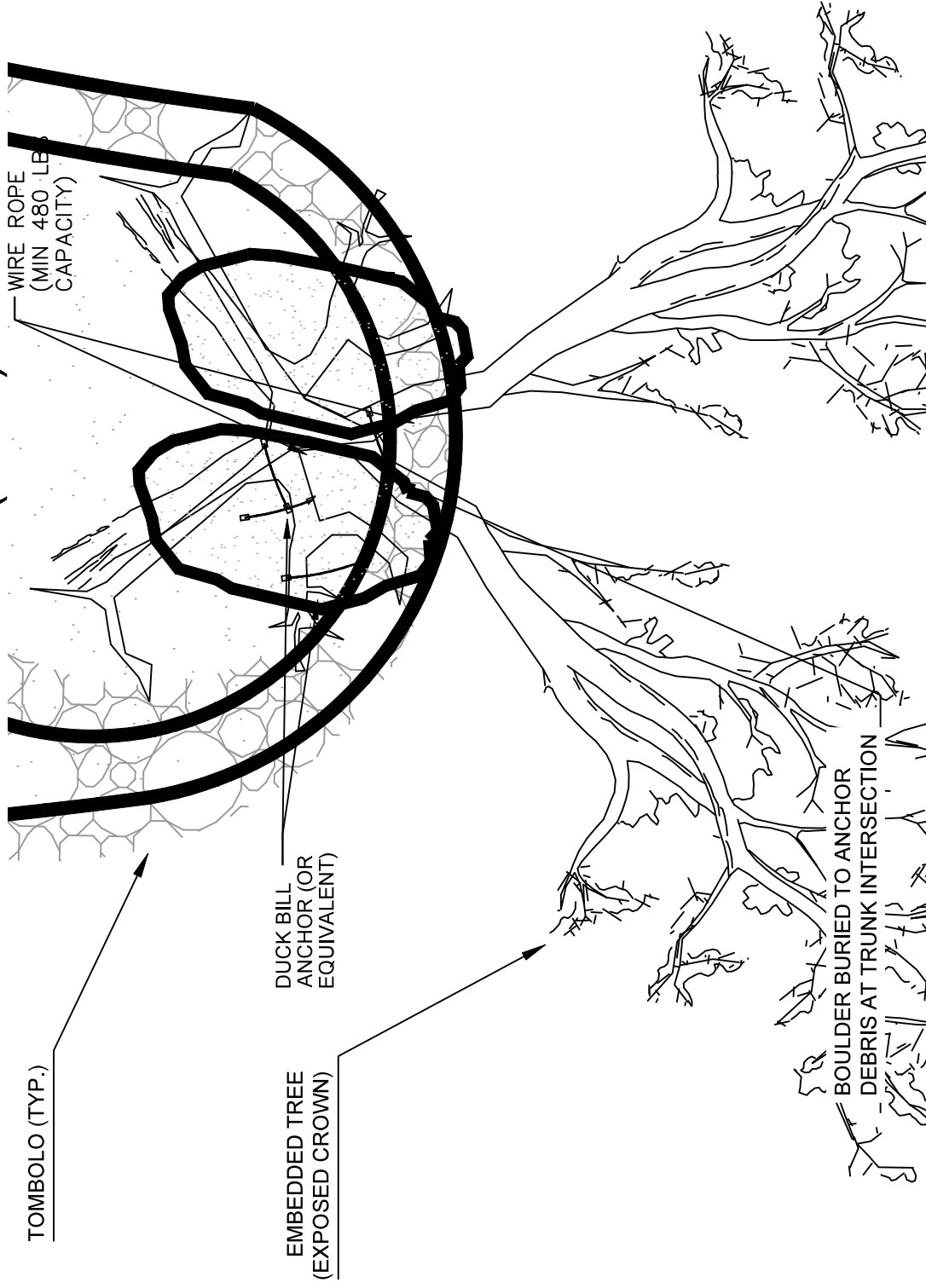
**PROJECT CROSS SECTION**

**WEST RIVER UNITED METHODIST  
 CHURCH LIVING SHORELINE**

AI# 79859- AP.# XX-XX-XXXX- TRACKING # XXXXXXXXXXXX  
 WEST RIVER UM CNTR, 5100 CHALK POINT RD  
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# WOODY DEBRIS ANCHORING (TYP.) - PLAN VIEW

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June 5<sup>th</sup>, 2020

## PROJECT DETAILS

**WEST RIVER UNITED METHODIST  
 CHURCH LIVING SHORELINE**

AI# 79859- AP # XX-XX-XXXX- TRACKING # XXXXXXXXX  
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 WEST RIVER, MARYLAND, 20733  
 MAP 5656, GRID C7, C8 & D7, D8, PARCEL 0243  
 7TH ELECTION DISTRICT, ANNE ARUNDEL COUNTY

## UNDERWOOD & ASSOCIATES

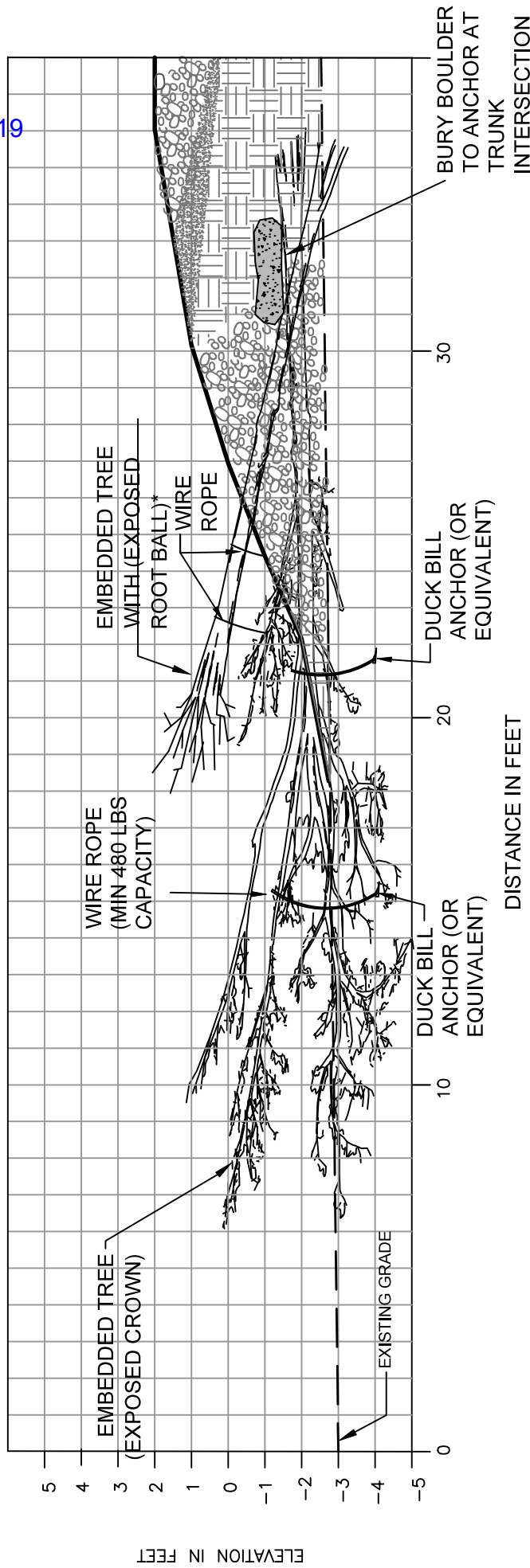
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# WOODY DEBRIS ANCHORING (TYP.) - PROFILE VIEW

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\*NOTE: THE EMBEDDED TREE WITH EXPOSED ROOT BALL IS SET AT THE EXISTING GRADE. THIS DETAIL SHOWS THE ROOT BALL SLIGHTLY ELEVATED IN ORDER TO DISPLAY BOTH TREES. SEE PLAN VIEW FOR ALIGNMENT.

SHEET 18 OF 19

June 5<sup>th</sup>, 2020

## PROJECT DETAILS

**WEST RIVER UNITED METHODIST CHURCH LIVING SHORELINE**  
 AI# 79859- AP # XX-XX-XXXX- TRACKING # XXXXXXXXX  
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# WEST RIVER UNITED METHODIST CHURCH LIVING SHORELINE - PROJECT DATA TABLES

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## West River United Methodist Church Living Shoreline and SPSC - Project Data

Feature	Existing	Proposed	Difference
Spartina Patens - High Marsh (SF)	0	6988	+6988
Spartina Alterniflora - Low Marsh (SF)	0	6988	+6988
<b>Total Tidal Wetlands (SF)</b>	<b>3,237</b>	<b>13976</b>	<b>+10739</b>
Transitional Planting (SF)	0	15,603	+15603
Bulkhead (LF)	323	0	-323
Revetment (LF)	555	0	-555
Shoreline at MHW (LF)	0	1145.5	+1146
<b>Channelward Area of Impact (SF)</b>	<b>29,853</b>		
Channelward Area Cut (CY)	63.1	Channelward Area Fill (CY)	803.6
<b>WQv Required</b>	<b>Difference</b>		
0.16 acre-feet	+0.52		

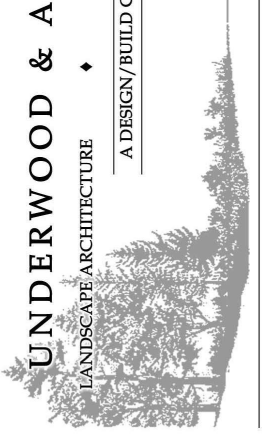
Tidal Disturbance	
Total Limit of Disturbance (LOD)	108,753 SF
LOD above existing MHW	78,900 SF
LOD below existing MHW	29,853 SF
Material Volumes	
Total Fill	1456 CY
Sand	396 CY
Gravel	552 CY
Cobble	408 CY
Boulders	100 CY
Coarse Woody Material	15 Trees

**Notes on SAV impacts:**  
No SAV was documented within the impacted area from 2013 to 2019 according to the Virginia Institute of Marine Science SAV interactive map viewer.

SHEET 19 OF 19 June 5<sup>th</sup>, 2020

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## PROJECT DATA TABLES

**WEST RIVER UNITED METHODIST CHURCH LIVING SHORELINE**

AI# 79859- AP.# XX-XX-XXXX- TRACKING # XXXXXXXXXX  
WEST RIVER UM CNTR, 5100 CHALK POINT RD  
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