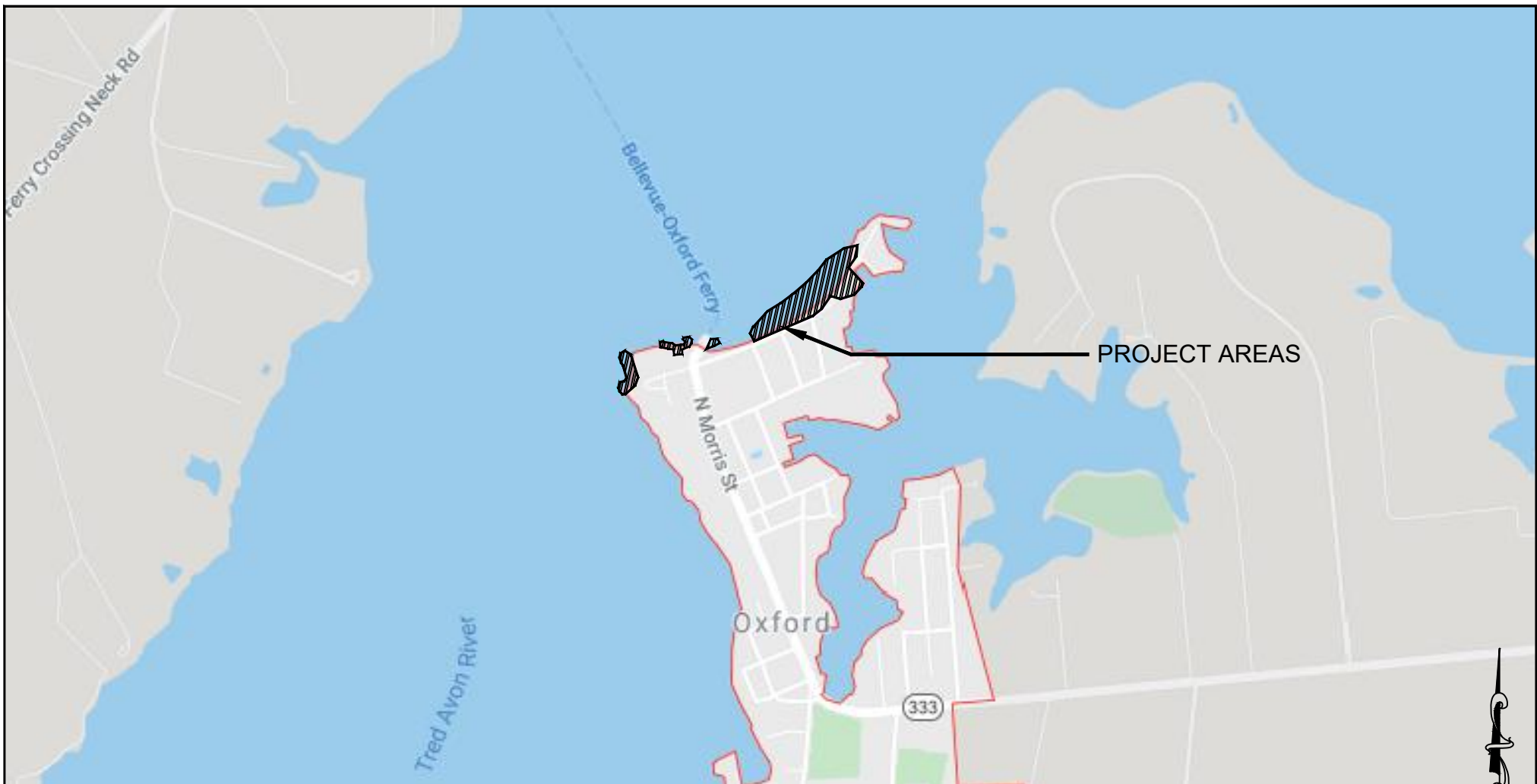




VICINITY MAP

NAD 83

Cadd File: S:\006-Projects\Oxford Coastal Resilience Shoreline Enhancement\04-CAD Drawings\04-CAD Drawings\01_COVERSHT.dwg

SHEET INDEX		SHEET 1 OF 30		January 28, 2022	
DESCRIPTION	SHEET	1753 EBLING TRAIL ♦ ANNAPOLIS, MD 21401 tel. 410-849-3211 fax. 410-849-2136		VICINITY MAP AND AERIAL PHOTO	
VICINITY MAP.....	1			OXFORD COASTAL RESILIENCE SHORELINE ENHANCEMENT COMMISSIONERS OF OXFORD MAP 0400 , GRID 000OX , PARCEL 0677 3RD ELECTION DISTRICT, TALBOT COUNTY	
PROJECT OVERVIEW WITH AERIAL.....	2				
FETCH CONDITIONS.....	3				
EXISTING CONDITIONS.....	4 - 10				
PROPOSED CONDITIONS.....	11 - 17				
PROJECT CROSS SECTIONS.....	18 - 23				
PROJECT DETAILS.....	24 - 25				
PLANTING SCHEDULE.....	26				
PROJECT DATA TABLES.....	27 - 28				
TEMPORARY CONSTRUCTION IMPACTS	29 - 30				



CRITICAL AREA
IDA ZONE



PLAN SCALE: 1"=250'

SHEET 2 OF 30

January 28, 2022

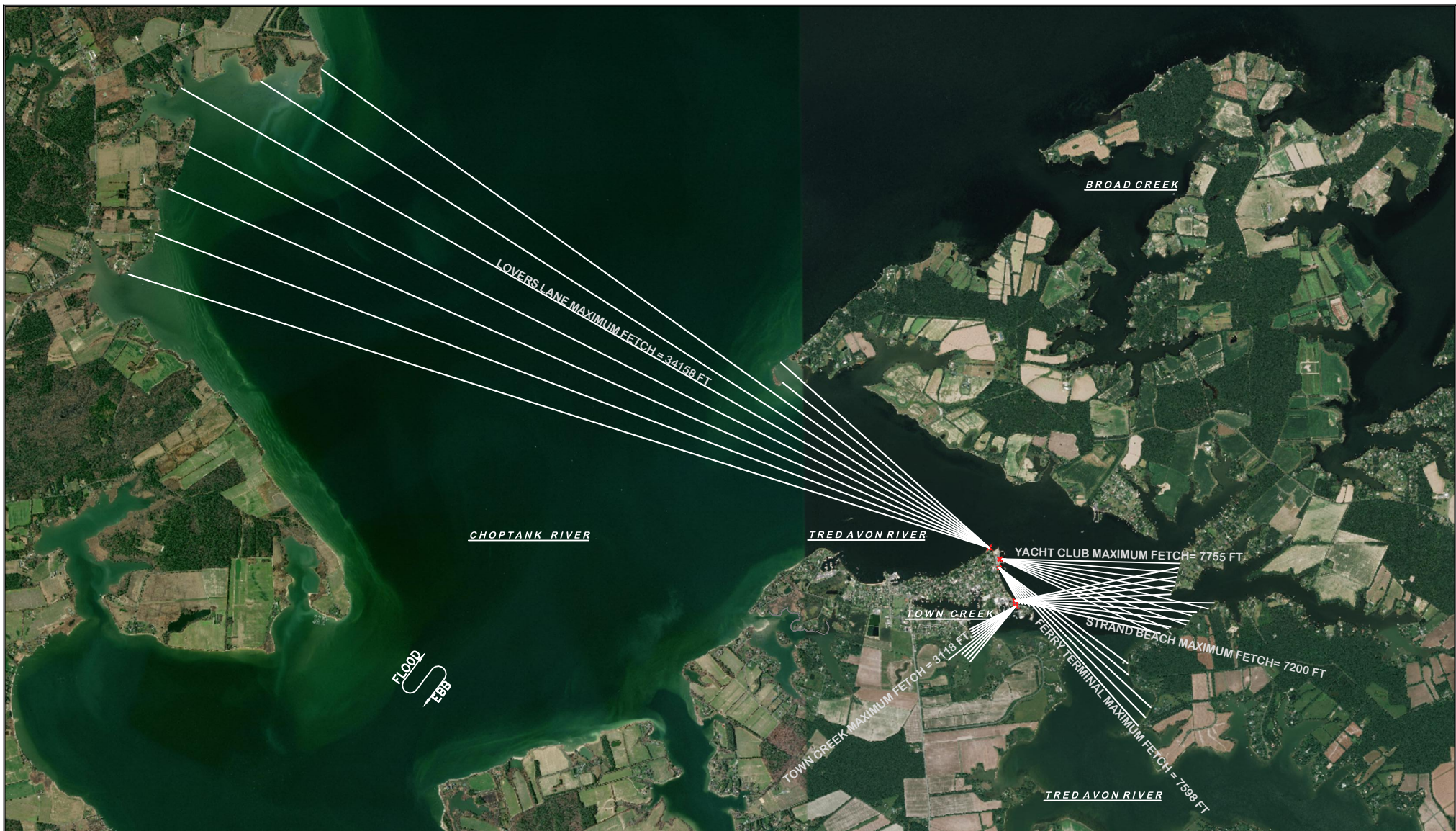


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PROJECT OVERVIEW WITH AERIAL

OXFORD COASTAL RESILIENCE SHORELINE ENHANCEMENT

COMMISSIONERS OF OXFORD
MAP 0400, GRID 000OX, PARCEL 0677
3RD ELECTION DISTRICT, TALBOT COUNTY



NOTES ON FETCH

EFFECTIVE FETCH CALCULATED AS THE AVERAGE OF 9 RADIALS SEPARATED BY 3 DEGREES CENTERED ON THE LONGEST FETCH PER USACE SHORELINE PROTECTION MANUAL.

PLAN

SCALE: 1"=5000'



SHEET 3 OF 30

January 28, 2022

UNDERWOOD & ASSOCIATES

LANDSCAPE ARCHITECTURE

ECOLOGICAL RESTORATION

A DESIGN/BUILD Co.

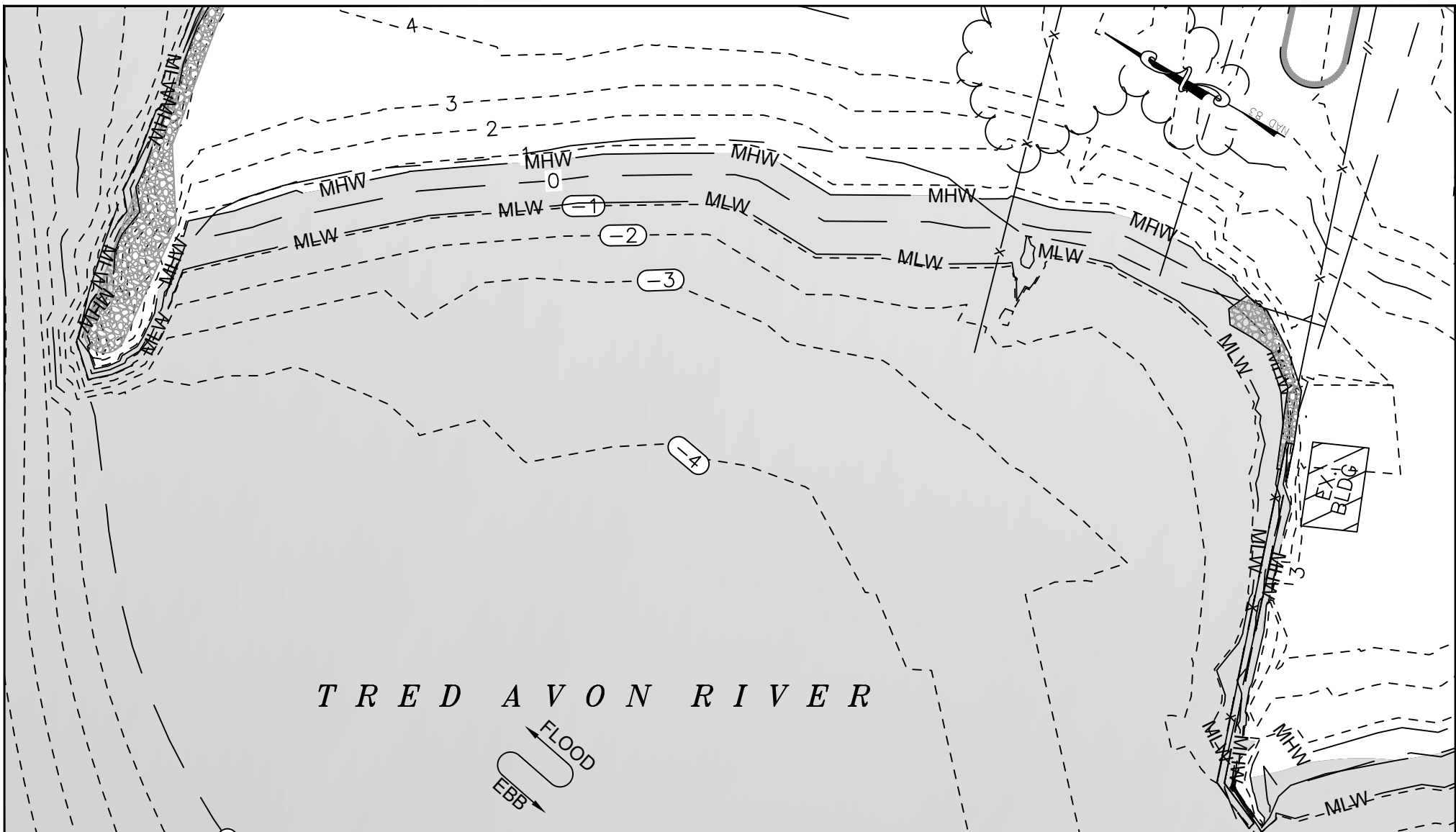


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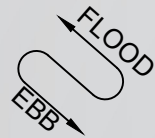
PROJECT FETCH CONDITIONS

OXFORD COASTAL RESILIENCE SHORELINE ENHANCEMENT

COMMISSIONERS OF OXFORD
MAP 0400, GRID 0000X, PARCEL 0677
3RD ELECTION DISTRICT, TALBOT COUNTY



TRED AVON RIVER



LEGEND EXISTING FEATURES

MINOR CONTOUR	---
MAJOR CONTOUR	---
MEAN HIGH WATER (COINCIDENT AT BULKHEAD)	MHW
MEAN LOW WATER	MLW
TREE CANOPY / HEDGEROW	~~~~~
PROPERTY LINE	---
FENCE	-x-
BULKHEAD	=====
REVTMENT / GROIN / SILL	

UNDERWOOD & ASSOCIATES

LANDSCAPE ARCHITECTURE ♦ ECOLOGICAL RESTORATION

A DESIGN/BUILD Co.



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PLAN SCALE: 1"=40'

SHEET 4 OF 30

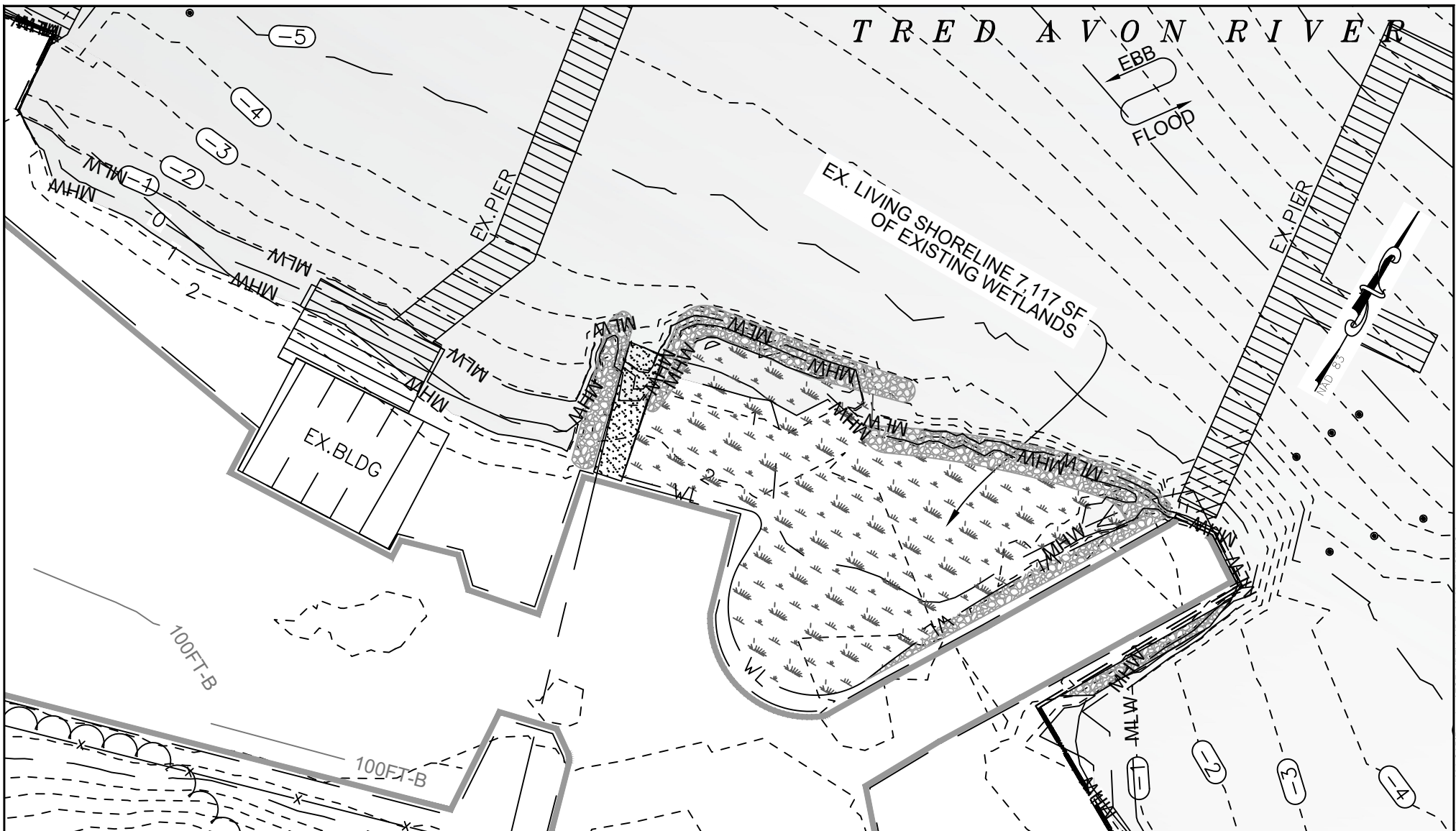
January 28, 2022

EXISTING CONDITIONS

OXFORD COASTAL RESILIENCE SHORELINE ENHANCEMENT

COMMISSIONERS OF OXFORD
MAP 0400, GRID 000OX, PARCEL 0677
3RD ELECTION DISTRICT, TALBOT COUNTY

Cadd File: S:\006-Projects\Oxford Coastal Resilience Shoreline Enhancement\04-CADD\Drawings\FOR MDEIA-MDE_03-08_EXISTING.dwg



PLAN SCALE: 1"=40'

SHEET 5 OF 30

January 28, 2022

LEGEND

EXISTING FEATURES

MINOR CONTOUR	---
MAJOR CONTOUR	---
MEAN HIGH WATER (COINCIDENT AT BULKHEAD)	MHW
MEAN LOW WATER	MLW
TREE CANOPY / HEDGEROW	~~~~~
PROPERTY LINE	---
BULKHEAD	=====
REVTMENT / GROIN / SILL	

UNDERWOOD & ASSOCIATES

LANDSCAPE ARCHITECTURE

ECOLOGICAL RESTORATION

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EXISTING CONDITIONS

OXFORD COASTAL RESILIENCE SHORELINE ENHANCEMENT

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3RD ELECTION DISTRICT, TALBOT COUNTY

Cadd File: S:\006-Projects\Oxford Coastal Resilience Shoreline Enhancement\04-CADD\Drawings\FOR MDE\A-MDE_03-09_EXISTING.dwg



PLAN

SCALE: 1"=40'

SHEET 6 OF 30

January 28, 2022

LEGEND

EXISTING FEATURES

MINOR CONTOUR	---
MAJOR CONTOUR	---
MEAN HIGH WATER (COINCIDENT AT BULKHEAD)	— MHW —
MEAN LOW WATER	— MLW —
TREE CANOPY / HEDGEROW	~~~~~
PROPERTY LINE	---
BULKHEAD	=====
REVETMENT / GROIN / SILL	=====

UNDERWOOD & ASSOCIATES

LANDSCAPE ARCHITECTURE

ECOLOGICAL RESTORATION

A DESIGN/BUILD Co.

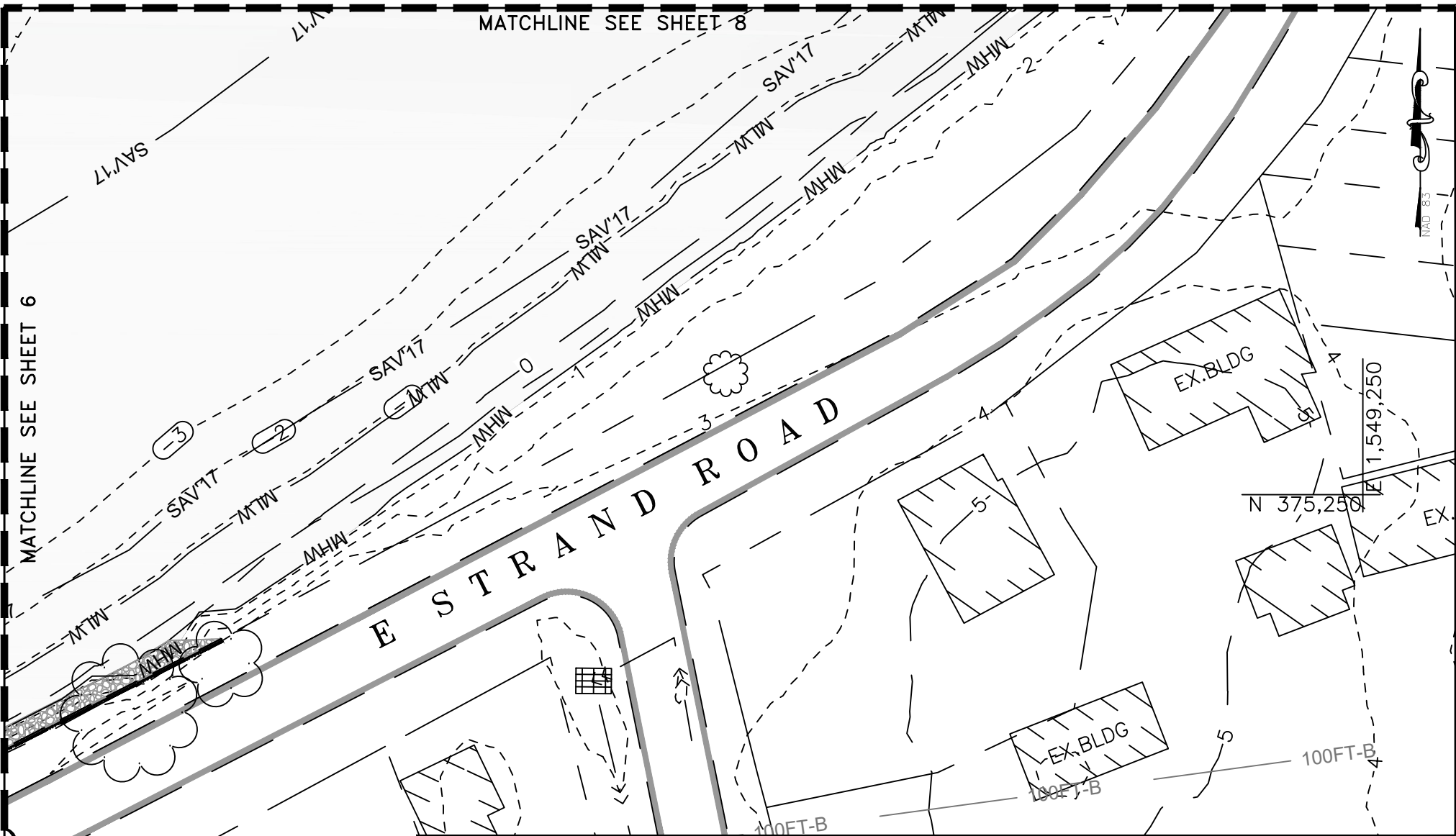
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EXISTING CONDITIONS

OXFORD COASTAL RESILIENCE SHORELINE ENHANCEMENT

COMMISSIONERS OF OXFORD
MAP 0400, GRID 0000X, PARCEL 0677
3RD ELECTION DISTRICT, TALBOT COUNTY

Cadd File: S:\006-Projects\Oxford Coastal Resilience Shoreline Enhancement\04-CADD\Drawings\03-08_EXISTING.dwg



LEGEND

EXISTING FEATURES

MINOR CONTOUR	---
MAJOR CONTOUR	---
MEAN HIGH WATER (COINCIDENT AT BULKHEAD)	— MHW —
MEAN LOW WATER	— MLW —
TREE CANOPY / HEDGEROW	~~~~~
PROPERTY LINE	---
BULKHEAD	=====
REVETMENT / GROIN / SILL	

UNDERWOOD & ASSOCIATES

LANDSCAPE ARCHITECTURE ♦ ECOLOGICAL RESTORATION

A DESIGN/BUILD Co.



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PLAN SCALE: 1"=40'

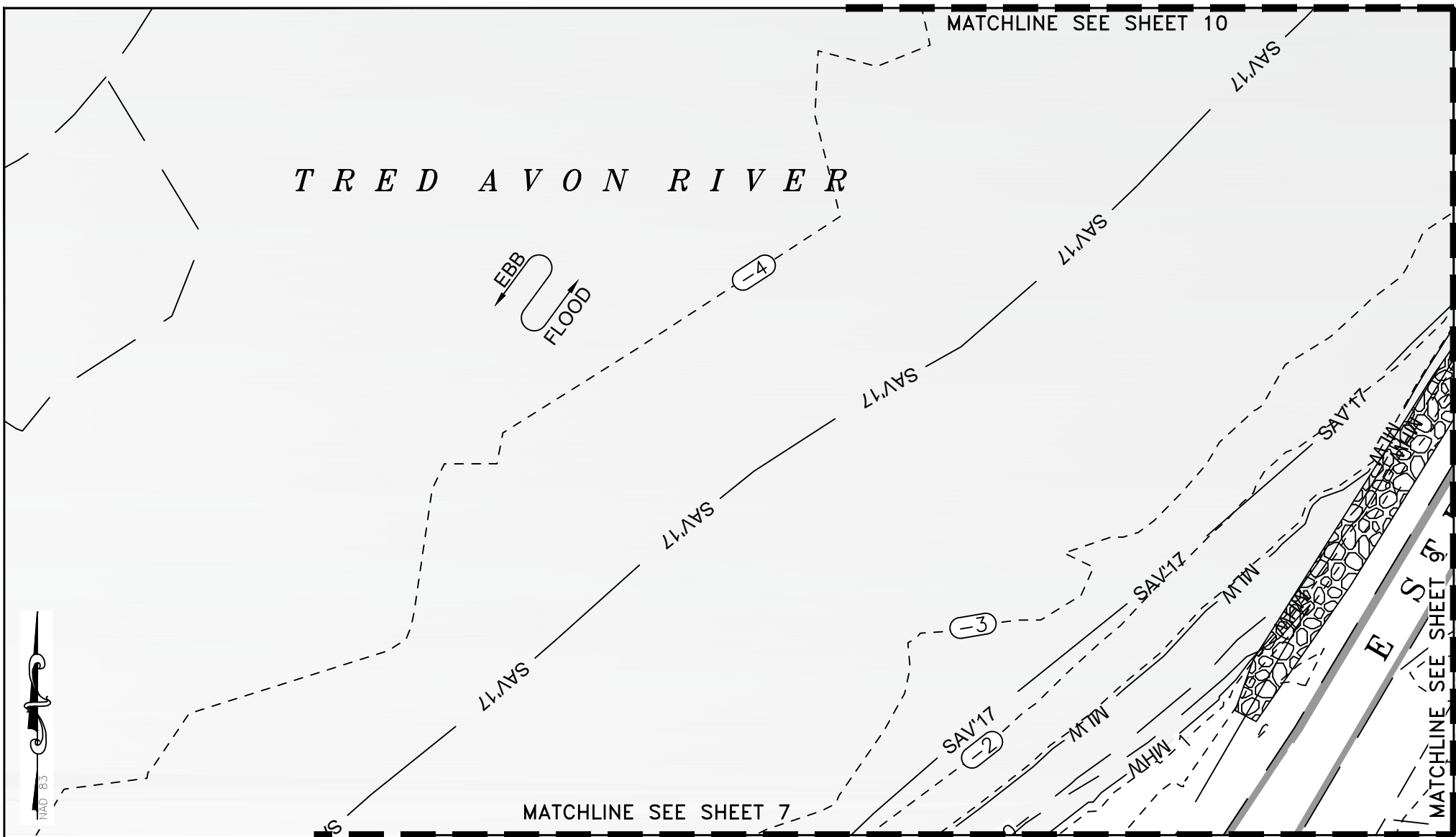
SHEET 7 OF 30

January 28, 2022

EXISTING CONDITIONS

OXFORD COASTAL RESILIENCE SHORELINE ENHANCEMENT

COMMISSIONERS OF OXFORD
MAP 0400, GRID 000OX, PARCEL 0677
3RD ELECTION DISTRICT, TALBOT COUNTY



LEGEND

EXISTING FEATURES

MINOR CONTOUR	---
MAJOR CONTOUR	---
MEAN HIGH WATER (COINCIDENT AT BULKHEAD)	— MHW —
MEAN LOW WATER	— MLW —
TREE CANOPY / HEDGEROW	~~~~~
PROPERTY LINE	---
BULKHEAD	=====
REVETMENT / GROIN / SILL	

UNDERWOOD & ASSOCIATES

LANDSCAPE ARCHITECTURE

ECOLOGICAL RESTORATION

A DESIGN/BUILD Co.



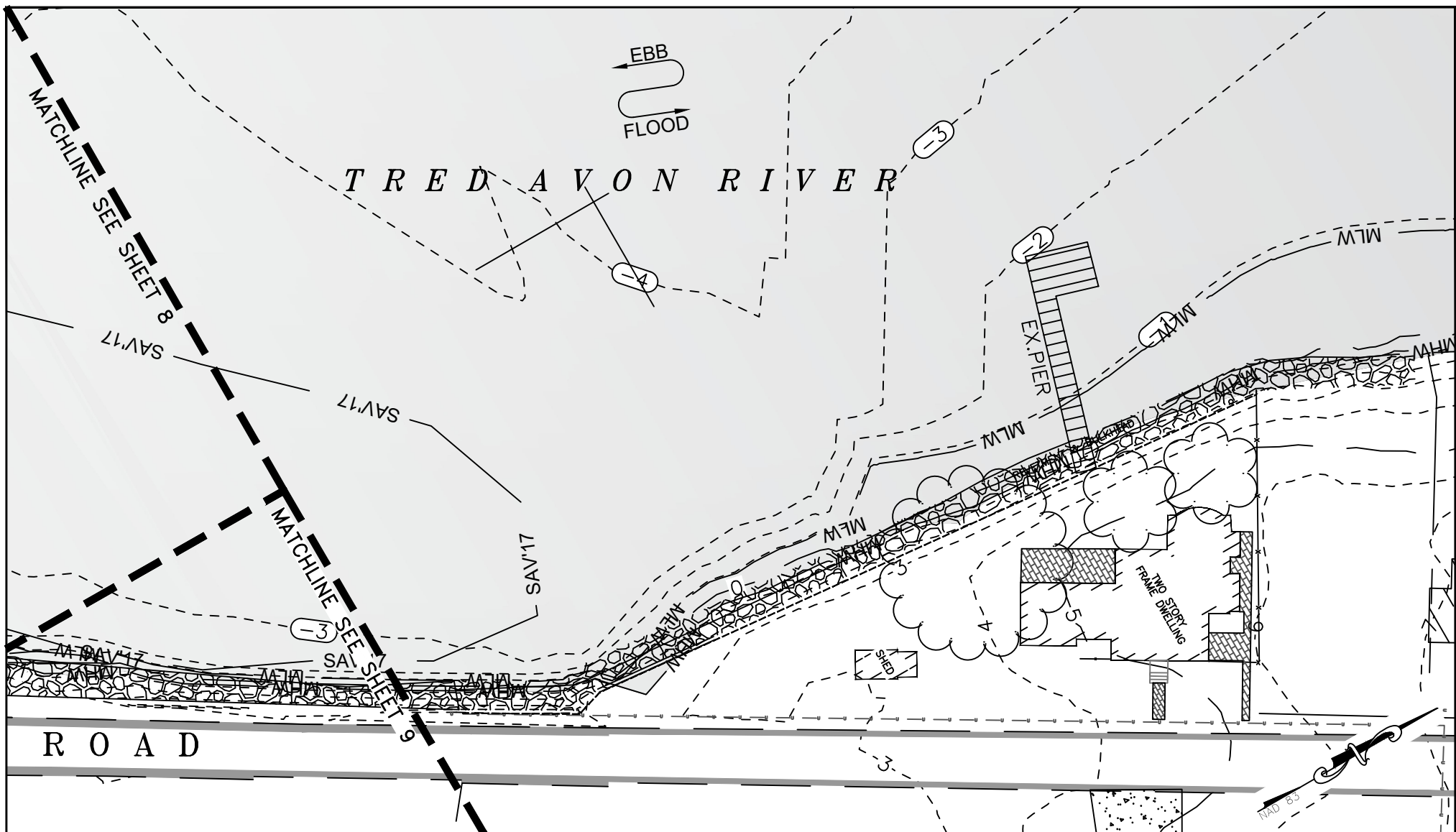
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EXISTING CONDITIONS

OXFORD COASTAL RESILIENCE SHORELINE ENHANCEMENT

COMMISSIONERS OF OXFORD
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3RD ELECTION DISTRICT, TALBOT COUNTY

Code File: S:\006-Projects\Oxford Coastal Resilience Shoreline Enhancement\DWG\0400\0677\0677-08.dwg



PLAN SCALE: 1"=40'

SHEET 10 OF 30

January 28, 2022

LEGEND

EXISTING FEATURES

MINOR CONTOUR	---
MAJOR CONTOUR	---
MEAN HIGH WATER (COINCIDENT AT BULKHEAD)	---
MEAN LOW WATER	---
TREE CANOPY / HEDGEROW	---
PROPERTY LINE	---
BULKHEAD	---
REVTMENT / GROIN / SILL	---

UNDERWOOD & ASSOCIATES

LANDSCAPE ARCHITECTURE

ECOLOGICAL RESTORATION

A DESIGN/BUILD Co.

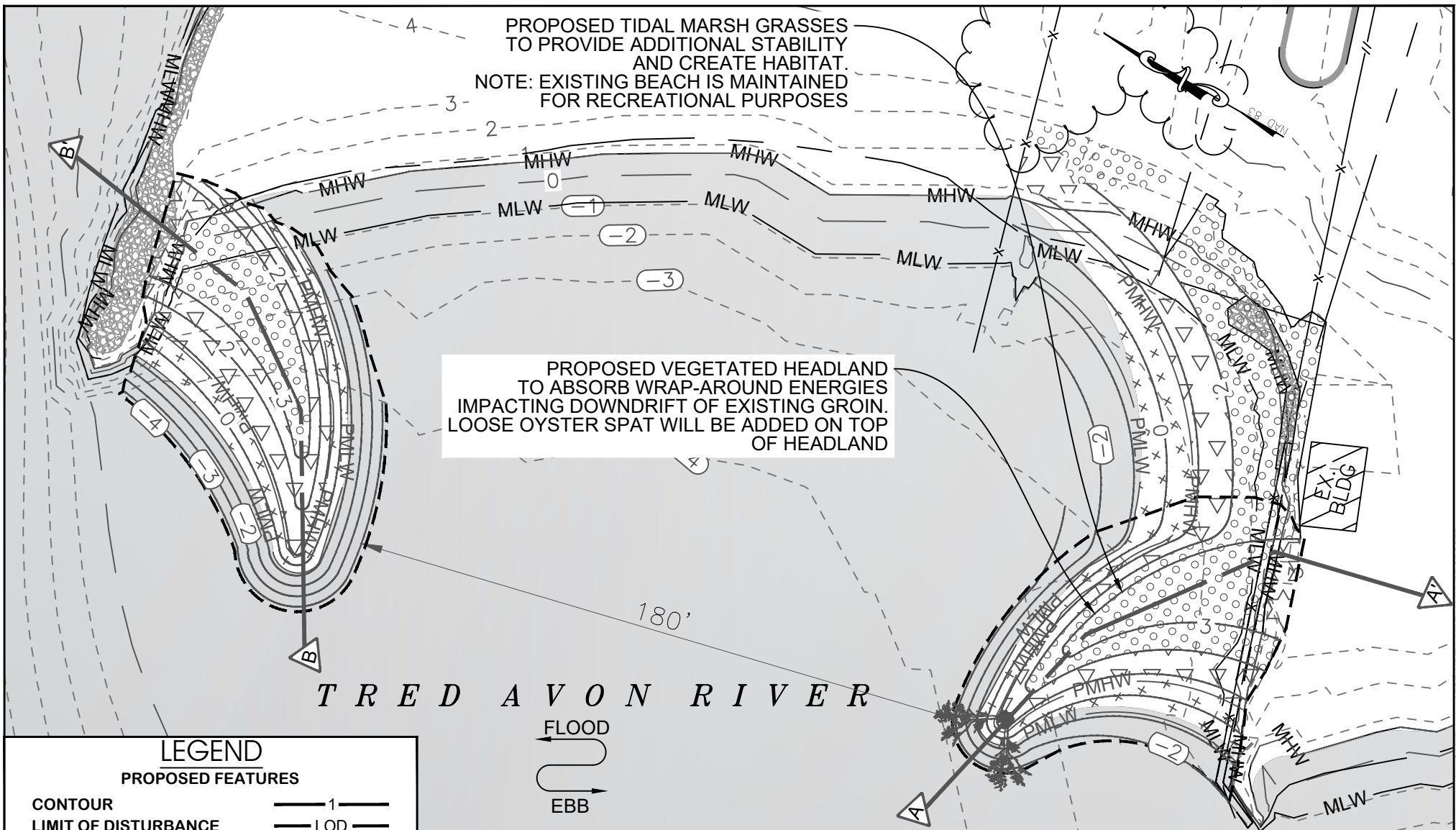


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EXISTING CONDITIONS

OXFORD COASTAL RESILIENCE SHORELINE ENHANCEMENT

COMMISSIONERS OF OXFORD
MAP 0400, GRID 000OX, PARCEL 0677
3RD ELECTION DISTRICT, TALBOT COUNTY



LEGEND

PROPOSED FEATURES

CONTOUR	1
LIMIT OF DISTURBANCE	LOD
MEAN HIGH WATER	PMHW
MEAN LOW WATER	PMLW
SPARTINA ALTERNIFLORA (LOW MARSH)	+
SPARTINA PATENS (HIGH MARSH ZONE 1)	△
HIGH MARSH ZONE 2	○
DUNE PLANTING	▽
WELL GRADED MIX	—
BOULDERS	●
COARSE WOODY MATERIAL	✶

PLAN SCALE: 1"=40'

SHEET 11 OF 30

January 28, 2022

UNDERWOOD & ASSOCIATES

LANDSCAPE ARCHITECTURE

ECOLOGICAL RESTORATION

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PROPOSED CONDITIONS

OXFORD COASTAL RESILIENCE SHORELINE ENHANCEMENT

COMMISSIONERS OF OXFORD
MAP 0400, GRID 000OX, PARCEL 0677
3RD ELECTION DISTRICT, TALBOT COUNTY

TRED AVON RIVER

PROPOSED VEGETATED HEADLAND
TO TRAP LITTORAL DRIFT AND
MAINTAIN NON-EROSIVE BEACH

WESTERN GROIN AND RAMP TO BE
REMOVED

LOOSE OYSTER SPAT TO BE ADDED
ON TOP OF HEADLAND

PROPOSED VEGETATED HEADLAND
TO ABSORB WRAP-AROUND ENERGIES
SCOURING THE AREA UPSTREAM OF
THE BULKHEAD
LOOSE OYSTER SPAT TO BE ADDED ON TOP
OF HEADLAND

PROPOSED VEGETATED HEADLAND
TO ABSORB WRAP-AROUND ENERGIES SCOURING THE
AREA UPSTREAM OF THE FERRY DOCK
LOOSE OYSTER SPAT TO BE ADDED ON TOP OF HEADLAND

LEGEND

PROPOSED FEATURES

CONTOUR	1
LIMIT OF DISTURBANCE	LOD
MEAN HIGH WATER	PMHW
MEAN LOW WATER	PMLW
SPARTINA ALTERNIFLORA (LOW MARSH)	+
SPARTINA PATENS (HIGH MARSH ZONE 1)	△
HIGH MARSH ZONE 2	○
DUNE PLANTING	▽
WELL GRADED MIX	▽
BOULDERS	●
COARSE WOODY MATERIAL	✶

PLAN SCALE: 1"=40'

SHEET 12 OF 30

January 28, 2022

UNDERWOOD & ASSOCIATES

LANDSCAPE ARCHITECTURE

ECOLOGICAL RESTORATION

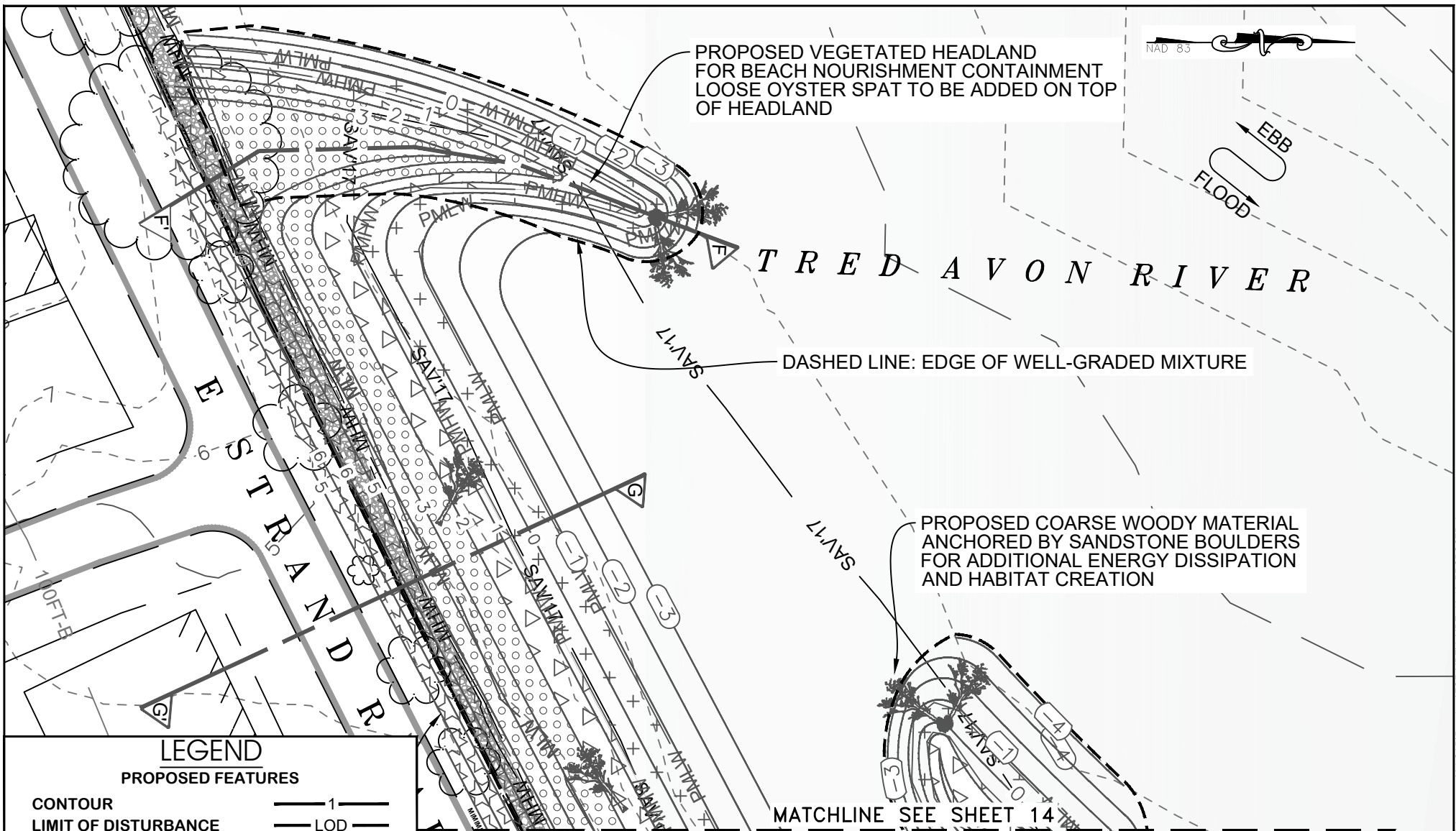
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PROPOSED CONDITIONS

OXFORD COASTAL RESILIENCE SHORELINE ENHANCEMENT

COMMISSIONERS OF OXFORD
MAP 0400, GRID 0000X, PARCEL 0677
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UNDERWOOD & ASSOCIATES
LANDSCAPE ARCHITECTURE ♦ ECOLOGICAL RESTORATION
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PROPOSED CONDITIONS

OXFORD COASTAL RESILIENCE SHORELINE ENHANCEMENT

COMMISSIONERS OF OXFORD
MAP 0400 , GRID 000OX , PARCEL 0677
3RD ELECTION DISTRICT, TALBOT COUNTY

MATCHLINE SEE SHEET 15

LONG DASHED LINE: PROPOSED UNVEGETATED BEACH STRAND FOR RECREATIONAL USE BY TOWN AND TO PROVIDE ANOTHER HABITAT TYPE

PROPOSED TIDAL MARSH TO FURTHER STABILIZE BEACH AND PROVIDE WILDLIFE HABITAT

TREE PLANTINGS ALONG ROAD 40' APART

TREE TO BE REMOVED

PROPOSED DUNE & MARSH CROSSING TO PRESERVE DUNE & MARSH PLANTINGS
4' W x 72' L WITH 5x5 RESTING AREA AT TOP
STREET SIDE 12:1 SLOPE
WATER SIDE 13:1 SLOPE

PROPOSED BEACH NOURISHMENT & DUNE CREATION.
GENTLE 8:1 BEACH SLOPE PROVIDES ENERGY DISSIPATION RATHER THAN REFLECTION.
DUNE PROTECTS INLAND INFRASTRUCTURE UP TO & 100 YEAR STORM EVENT BASED ON FEMA FIRM.

LEGEND

PROPOSED FEATURES

CONTOUR	1
LIMIT OF DISTURBANCE	LOD
MEAN HIGH WATER	PMHW
MEAN LOW WATER	PMLW
SPARTINA ALTERNIFLORA (LOW MARSH)	+
SPARTINA PATENS (HIGH MARSH ZONE 1)	△
HIGH MARSH ZONE 2	○
DUNE PLANTING	▽
WELL GRADED MIX	—
BOULDERS	●
COARSE WOODY MATERIAL	✶

PLAN SCALE: 1"=40'

SHEET 14 OF 30

January 28, 2022

UNDERWOOD & ASSOCIATES

LANDSCAPE ARCHITECTURE

ECOLOGICAL RESTORATION

A DESIGN/BUILD Co.

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PROPOSED CONDITIONS

OXFORD COASTAL RESILIENCE SHORELINE ENHANCEMENT

COMMISSIONERS OF OXFORD
MAP 0400, GRID 000OX, PARCEL 0677
3RD ELECTION DISTRICT, TALBOT COUNTY

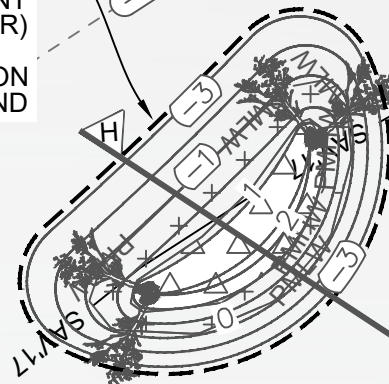
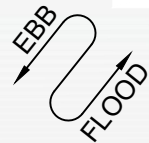
MATCHLINE SEE SHEET 17

PROPOSED DUNE & MARSH CROSSING TO
PRESERVE DUNE & MARSH PLANTINGS
4' W x 130' L WITH 5x5 RESTING AREA AT TOP
ALL SLOPES ARE 20:1 FOR HANDICAP ACCESS

T R E D A V O N R I V E R

PROPOSED LIVING BREAKWATER
TO REDUCE WAVE ENERGY SUFFICIENT
TO MAINTAIN BEACH NOURISHMENT
(VEGETATED OFFSHORE BREAKWATER)

LOOSE OYSTER SPAT TO BE ADDED ON
TOP OF HEADLAND



LEGEND

PROPOSED FEATURES

CONTOUR	1
LIMIT OF DISTURBANCE	LOD
MEAN HIGH WATER	PMHW
MEAN LOW WATER	PMLW
SPARTINA ALTERNIFLORA (LOW MARSH)	+
SPARTINA PATENS (HIGH MARSH ZONE 1)	△
HIGH MARSH ZONE 2	○
DUNE PLANTING	▽
WELL GRADED MIX	—
BOULDERS	●
COARSE WOODY MATERIAL	✶

MATCHLINE SEE SHEET 14

PLAN

SCALE: 1"=40'

SHEET 15 OF 30

January 28, 2022

UNDERWOOD & ASSOCIATES

LANDSCAPE ARCHITECTURE

ECOLOGICAL RESTORATION

A DESIGN/BUILD Co.

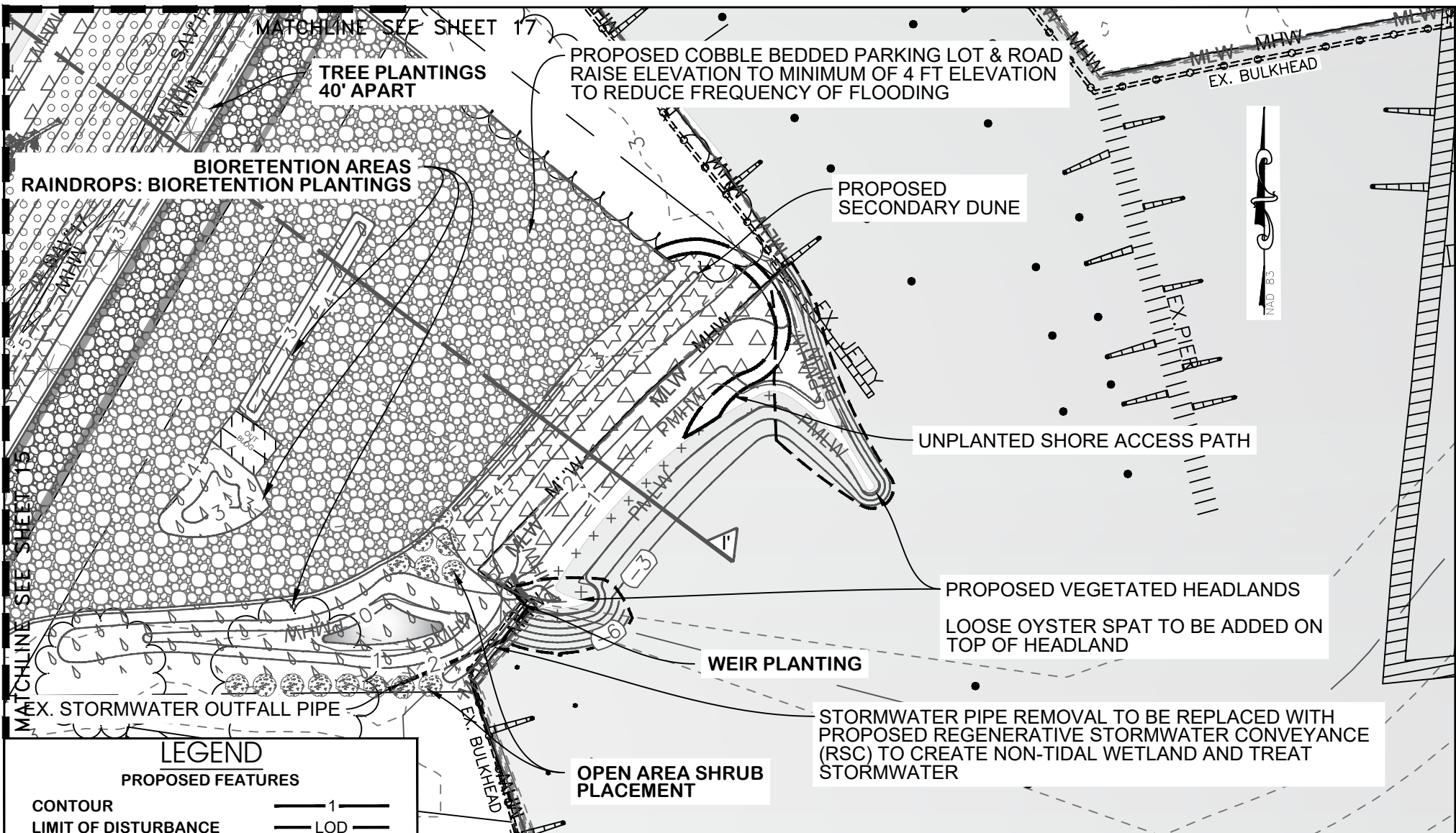


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PROPOSED CONDITIONS

OXFORD COASTAL RESILIENCE SHORELINE ENHANCEMENT

COMMISSIONERS OF OXFORD
MAP 0400, GRID 000OX, PARCEL 0677
3RD ELECTION DISTRICT, TALBOT COUNTY



LEGEND

PROPOSED FEATURES

CONTOUR	1
LIMIT OF DISTURBANCE	LOD
MEAN HIGH WATER	PMHW
MEAN LOW WATER	PMLW
SPARTINA ALTERNIFLORA (LOW MARSH)	+
SPARTINA PATENS (HIGH MARSH ZONE 1)	△
HIGH MARSH ZONE 2	○
DUNE PLANTING	▽
WELL GRADED MIX	—
BOULDERS	●
COARSE WOODY MATERIAL	✶

PLAN SCALE: 1"=40'

SHEET 16 OF 30

January 28, 2022

UNDERWOOD & ASSOCIATES

LANDSCAPE ARCHITECTURE

ECOLOGICAL RESTORATION

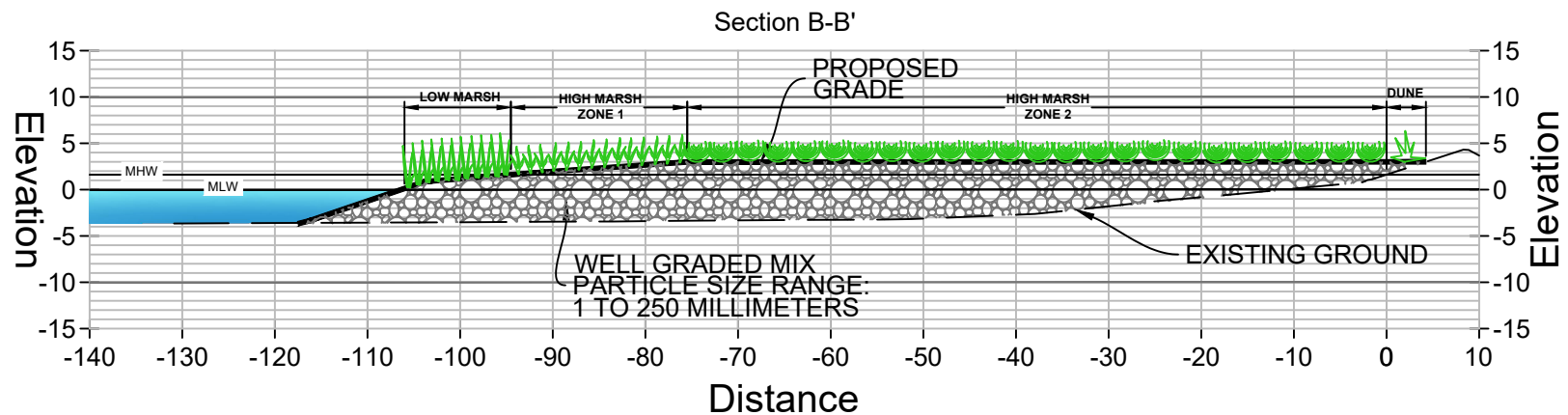
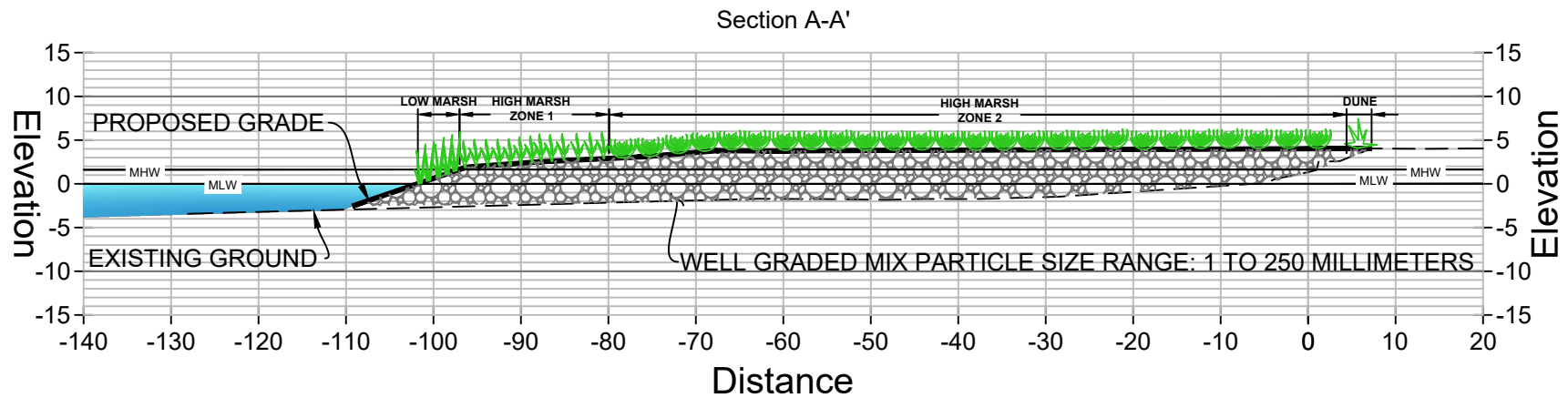
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PROPOSED CONDITIONS

OXFORD COASTAL RESILIENCE SHORELINE ENHANCEMENT

COMMISSIONERS OF OXFORD
MAP 0400, GRID 000OX, PARCEL 0677
3RD ELECTION DISTRICT, TALBOT COUNTY



LEGEND

EXISTING GRADE



PROPOSED GRADE



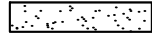
MEAN HIGH WATER (MHW)



MEAN LOW WATER (MLW)



SAND/WOOD CHIP MIX



WELL-GRADED COBBLE MIX



BOULDER OUTCROP



SPARTINA PATENS



SPARTINA ALTERNIFLORA



SCALE: 1"=20'

UNDERWOOD & ASSOCIATES

LANDSCAPE ARCHITECTURE

ECOLOGICAL RESTORATION

A DESIGN/BUILD Co.

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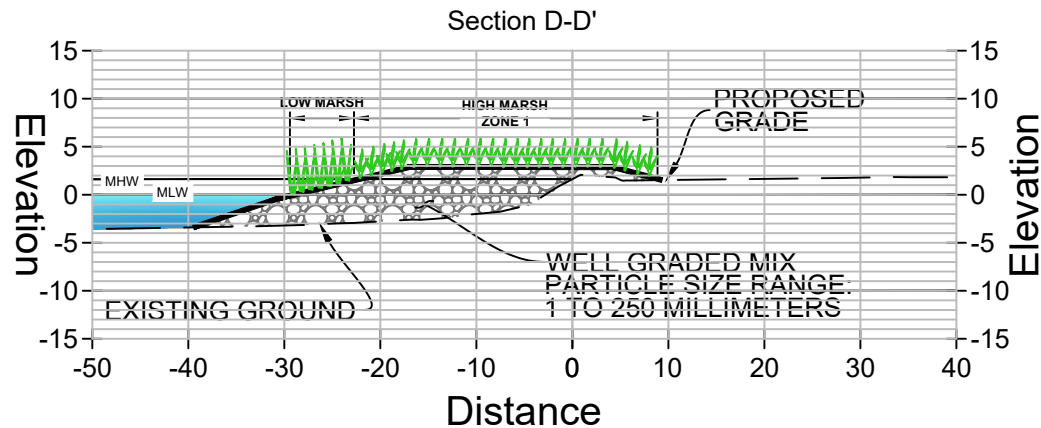
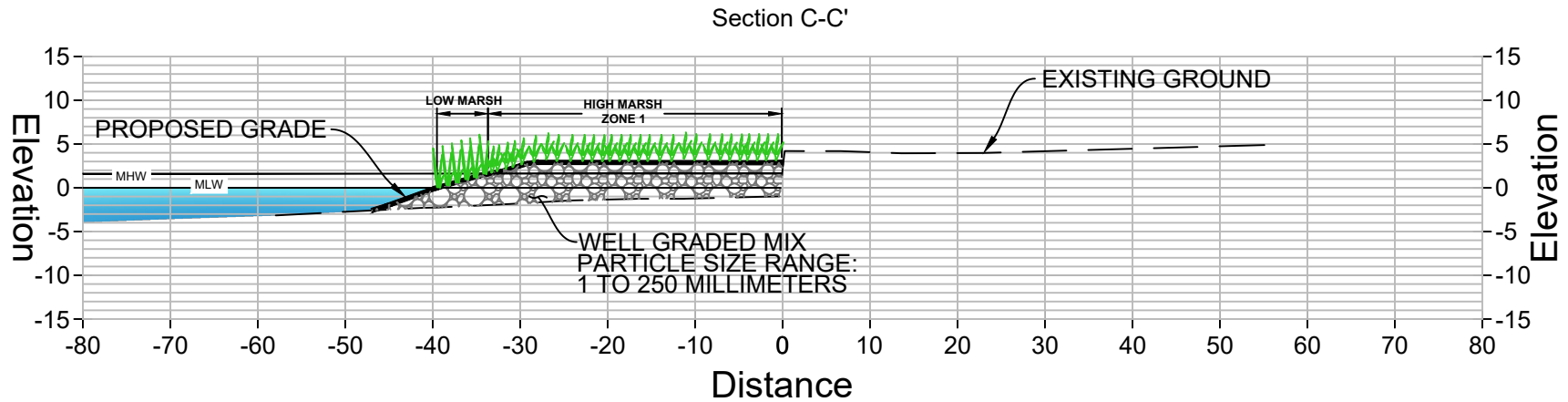
SHEET 18 OF 30

January 28, 2022

CROSS SECTION

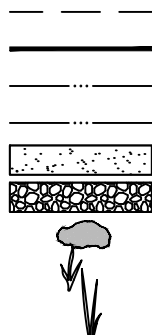
**OXFORD COASTAL
RESILIENCE SHORELINE
ENHANCEMENT**

COMMISSIONERS OF OXFORD
MAP 0400, GRID 000OX, PARCEL 0677
3RD ELECTION DISTRICT, TALBOT COUNTY



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



SCALE: 1"=20'

SHEET 19 OF 30

January 28, 2022

UNDERWOOD & ASSOCIATES

LANDSCAPE ARCHITECTURE ♦ ECOLOGICAL RESTORATION

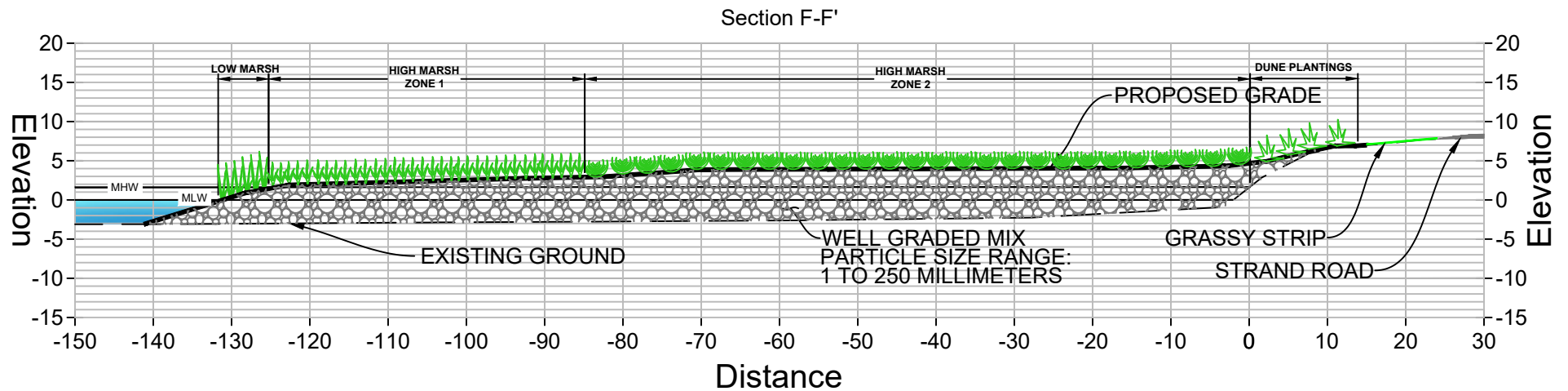
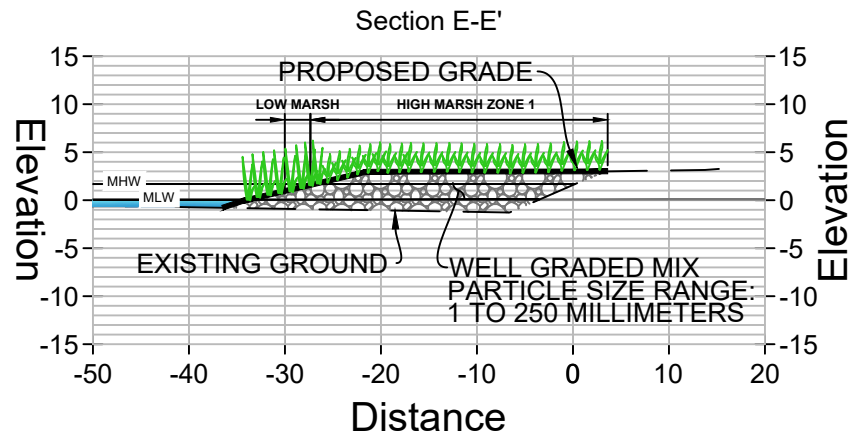
A DESIGN/BUILD Co.

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CROSS SECTION

OXFORD COASTAL RESILIENCE SHORELINE ENHANCEMENT

COMMISSIONERS OF OXFORD
 MAP 0400, GRID 000OX, PARCEL 0677
 3RD ELECTION DISTRICT, TALBOT COUNTY



LEGEND

EXISTING GRADE

PROPOSED GRADE

MEAN HIGH WATER (MHW)

MEAN LOW WATER (MLW)

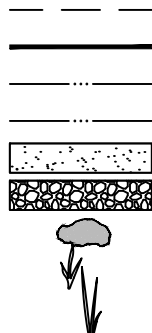
SAND/WOOD CHIP MIX

WELL-GRADED COBBLE MIX

BOULDER OUTCROP

SPARTINA PATENS

SPARTINA ALTERNIFLORA



SCALE: 1"=20'

UNDERWOOD & ASSOCIATES

LANDSCAPE ARCHITECTURE

ECOLOGICAL RESTORATION

A DESIGN/BUILD Co.



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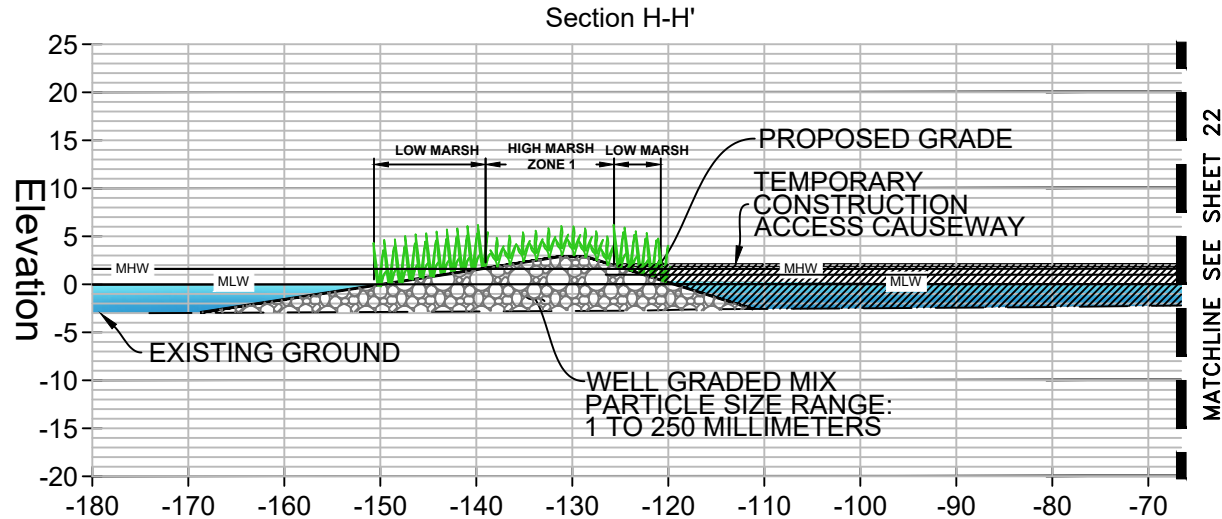
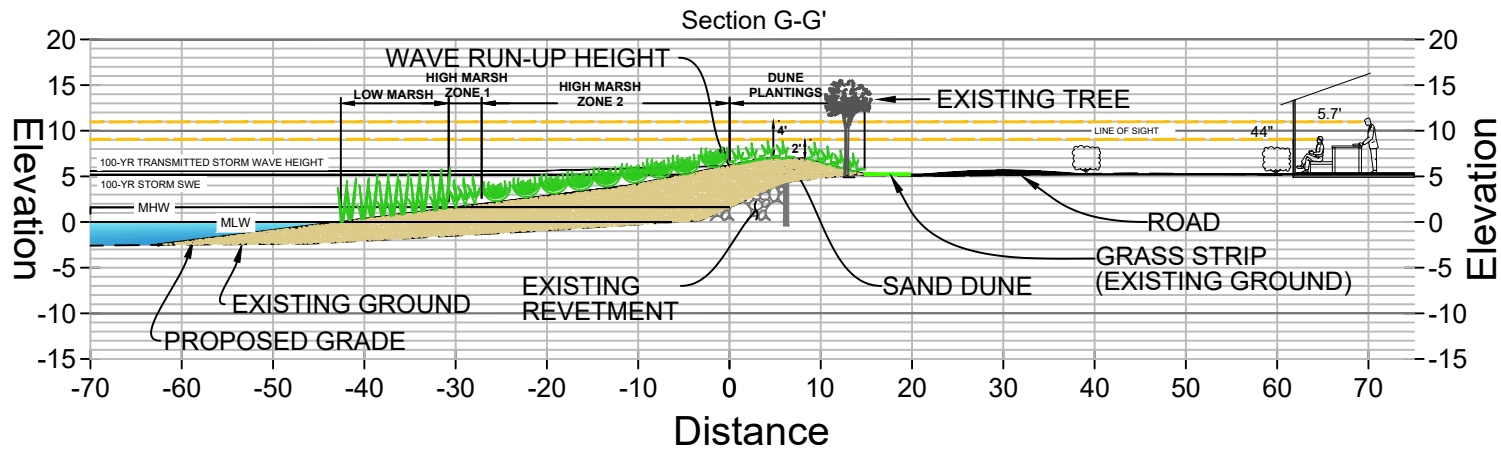
SHEET 20 OF 30

January 28, 2022

CROSS SECTION

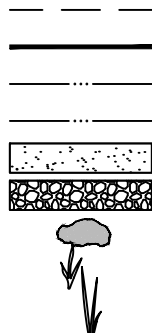
**OXFORD COASTAL
RESILIENCE SHORELINE
ENHANCEMENT**

COMMISSIONERS OF OXFORD
MAP 0400, GRID 000OX, PARCEL 0677
3RD ELECTION DISTRICT, TALBOT COUNTY



LEGEND

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



SCALE: 1"=20'

UNDERWOOD & ASSOCIATES

LANDSCAPE ARCHITECTURE ♦ ECOLOGICAL RESTORATION

A DESIGN/BUILD Co.

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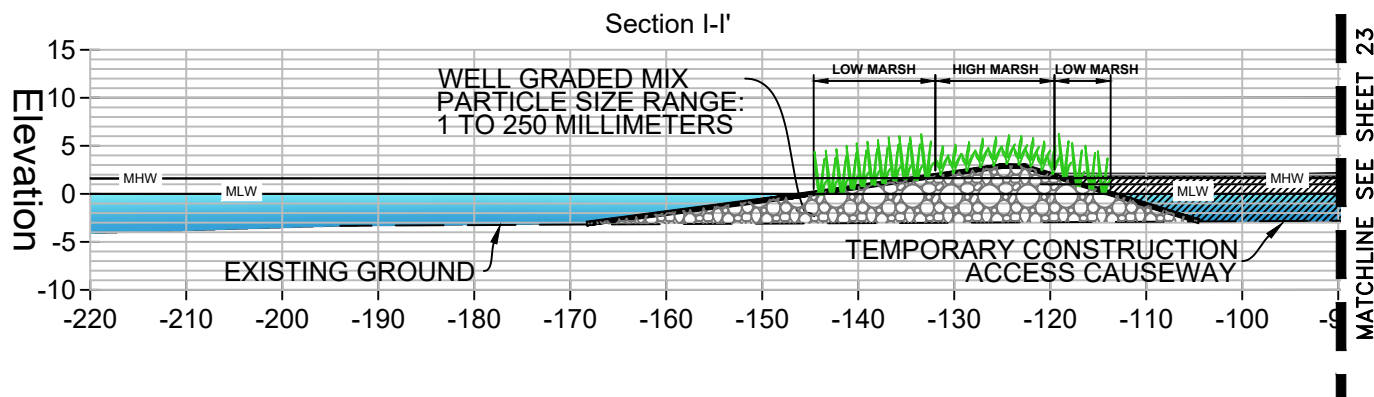
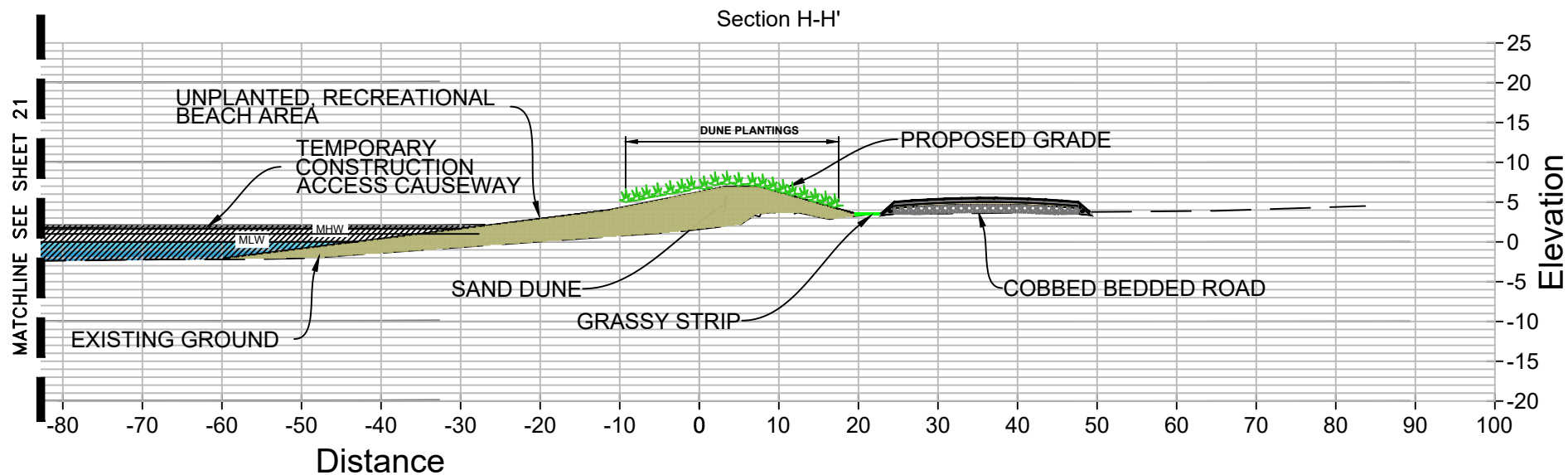
SHEET 21 OF 30

January 28, 2022

CROSS SECTION

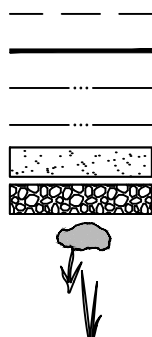
OXFORD COASTAL RESILIENCE SHORELINE ENHANCEMENT

COMMISSIONERS OF OXFORD
 MAP 0400, GRID 000OX, PARCEL 0677
 3RD ELECTION DISTRICT, TALBOT COUNTY



LEGEND

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



SCALE: 1"=20'

SHEET 22 OF 30

January 28, 2022

UNDERWOOD & ASSOCIATES

LANDSCAPE ARCHITECTURE

ECOLOGICAL RESTORATION

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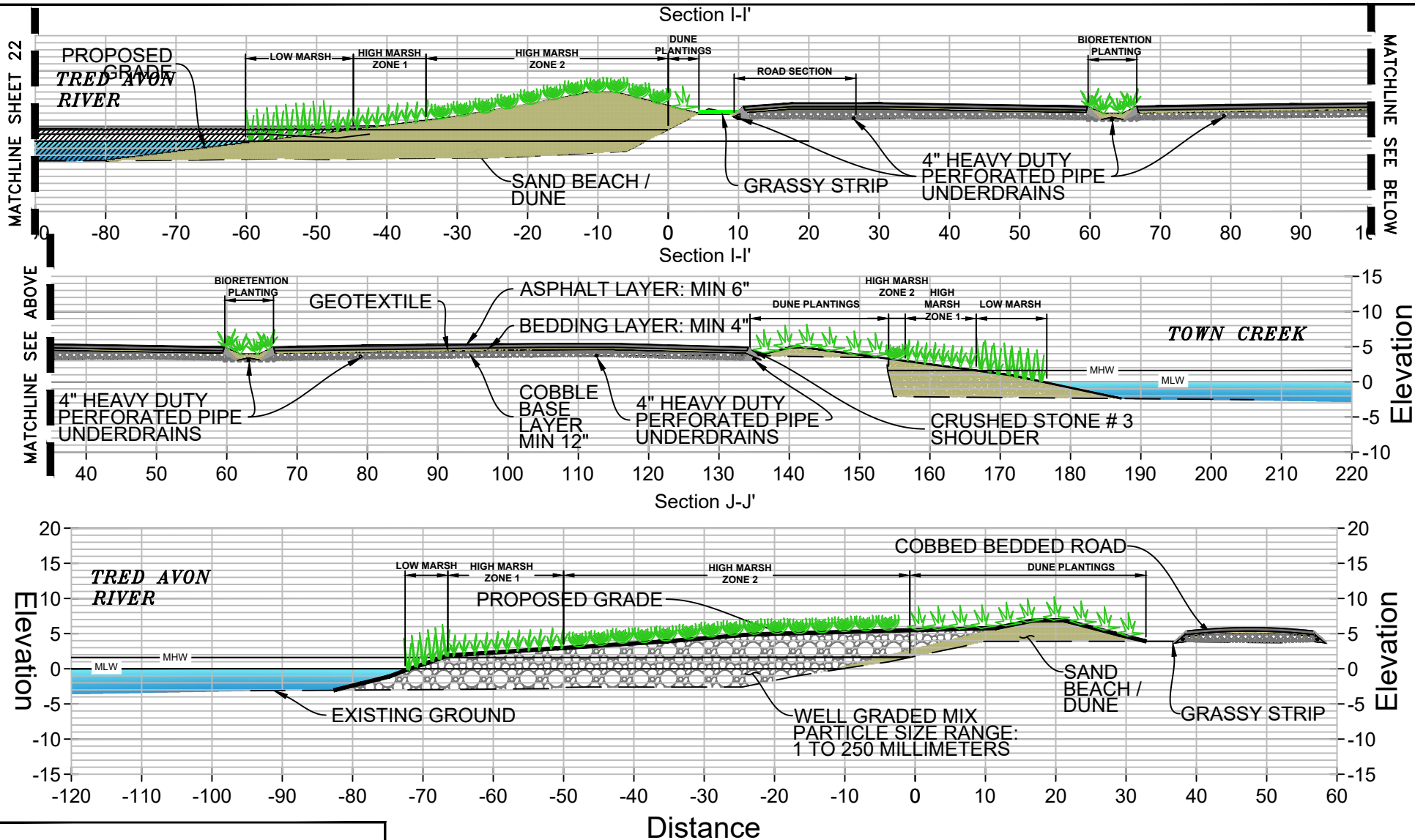


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CROSS SECTION

OXFORD COASTAL RESILIENCE SHORELINE ENHANCEMENT

COMMISSIONERS OF OXFORD
 MAP 0400, GRID 000OX, PARCEL 0677
 3RD ELECTION DISTRICT, TALBOT COUNTY



LEGEND

EXISTING GRADE

PROPOSED GRADE

MEAN HIGH WATER (MHW)

MEAN LOW WATER (MLW)

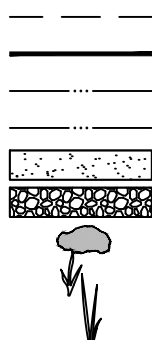
SAND/WOOD CHIP MIX

WELL-GRADED COBBLE MIX

BOULDER OUTCROP

SPARTINA PATENS

SPARTINA ALTERNIFLORA



SCALE: 1"=20'

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SHEET 23 OF 30

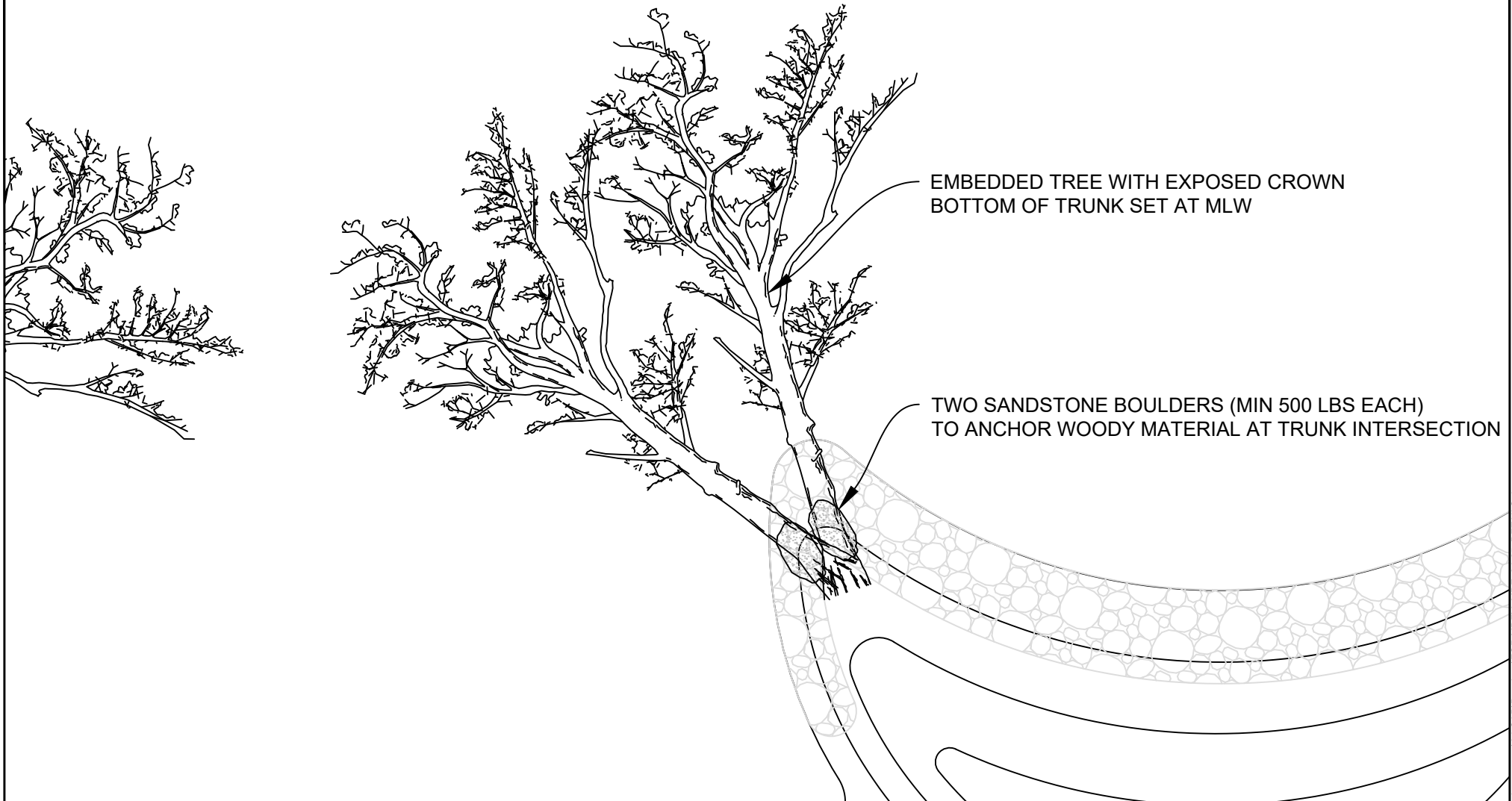
January 28, 2022

CROSS SECTION

OXFORD COASTAL RESILIENCE SHORELINE ENHANCEMENT

COMMISSIONERS OF OXFORD
MAP 0400, GRID 000OX, PARCEL 0677
3RD ELECTION DISTRICT, TALBOT COUNTY

WOODY MATERIAL ANCHORING (TYP.) - PLAN VIEW



SHEET 24 OF 30

January 28, 2022

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LANDSCAPE ARCHITECTURE



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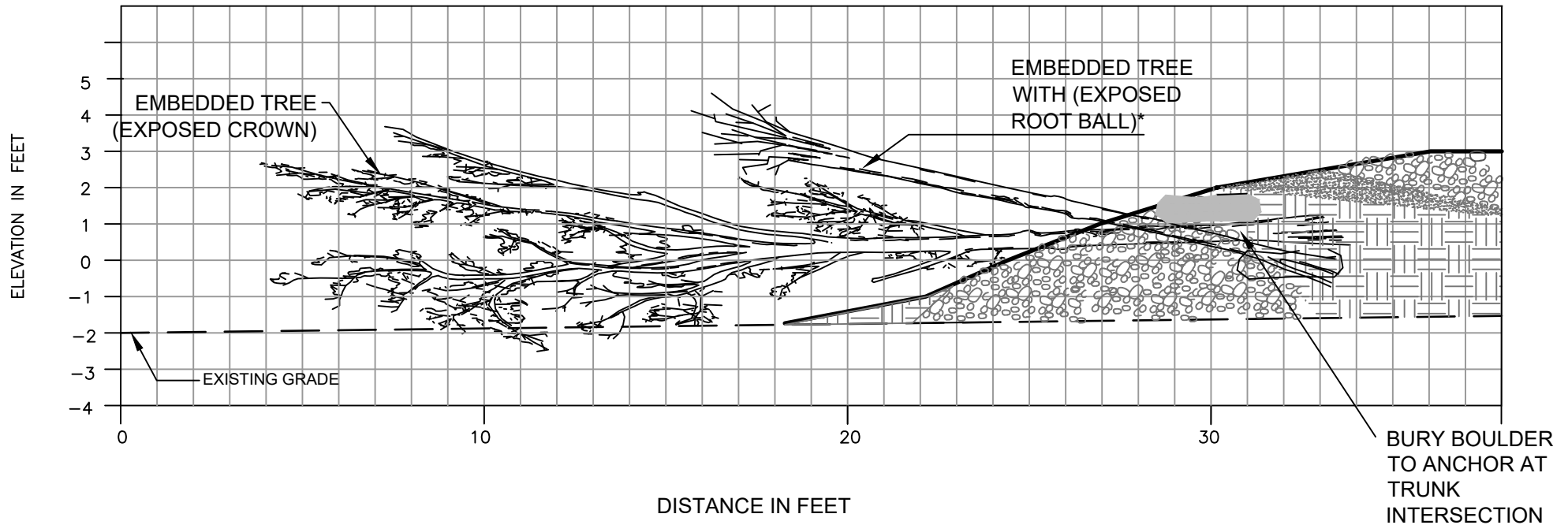
PROJECT DETAILS

OXFORD COASTAL RESILIENCE SHORELINE ENHANCEMENT

COMMISSIONERS OF OXFORD
MAP 0400 , GRID 000OX , PARCEL 0677
3RD ELECTION DISTRICT, TALBOT COUNTY

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WOODY MATERIAL ANCHORING (TYP.) - PROFILE VIEW



*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.

 UNDERWOOD & ASSOCIATES LANDSCAPE ARCHITECTURE ♦ ECOLOGICAL RESTORATION A DESIGN/BUILD Co. 1753 EBLING TRAIL ♦ ANNAPOLIS, MD 21401 tel. 410-849-3211 fax. 410-849-2136	SHEET 25 OF 30 January 28, 2022	
	PROJECT DETAILS	
	OXFORD COASTAL RESILIENCE SHORELINE ENHANCEMENT COMMISSIONERS OF OXFORD MAP 0400 , GRID 000OX , PARCEL 0677 3RD ELECTION DISTRICT, TALBOT COUNTY	

OXFORD COASTAL RESILIENCE PROJECTS - PLANTING SCHEDULE

Planting Zone		Symbol	Total Area (Ft²)	Common Name	Scientific Name	Type	Wetland Indicator Status	Size	Distribution	Avg Spacing (ft)	Quantity	% of Total Planting Req	Credit Area (SF per plant)	Total Credit Area (SF)	Description
Lowmarsh Cordgrass*			15,189	Lowmarsh Cordgrass	<i>Spartina alterniflora</i>	SAV	OBL	Gal	Random	5	608	-	0	0	Between PMLW and PMHW.
Highmarsh Zone 1*			16,804	Highmarsh Cordgrass	<i>Spartina patens</i>	SAV	FACW+	Gal	Random	5	673	-	0	0	Between PMHW to proposed elevation 2 ft
Highmarsh Zone 2			24,329	Broomsedge	<i>Andropogon virginicus</i>	Herbaceous	FAC	Qt	Random	5	33	-	0	0	Between elevation 2 ft to the existing MHW boundary
				Seaside goldenrod	<i>Solidago sempervirens</i>	Herbaceous	FACW	Qt	Random	5	33	-	0	0	
				Wax myrtle***	<i>Morella cerifera</i>	Shrub	FAC	2-3'	Random	8	23	-	0	0	
Bioretention**	Highest Zone		1,459	Switchgrass	<i>Panicum virgatum</i>	Herbaceous	FAC	Qt	Random	5	33	-	0	0	Within and near the RSC-type bioretention pool. The highest zone is the area including 5' around the bioretention pool edge. The middle zone is between the top of pool and MHW elevation. The lowest zone is below MHW elevation
				White Turtlehead	<i>Chelone Glabra</i>	Herbaceous	-	Qt	Random	5	20	-	0	0	
				Winterberry	<i>Ilex Verticillata</i>	Shrub	-	2-3'	Random	8	8	-	0	0	
	Middle Zone		2,317	American Holly	<i>Ilex Opaca</i>	Tree	-	6'	Random	12	4	-	0	0	
				Frosted Hawthorn	<i>Crataegus Pruinosa</i>	Tree	-	6'	Random	12	6	-	0	0	
				New England Aster	<i>Aster Novae Angliae</i>	Herbaceous	-	Qt	Random	5	31	-	0	0	
	Lowest Zone		437	Boneset	<i>Eupatorium Perfoliatum</i>	Herbaceous	-	Qt	Random	5	31	-	0	0	
				Marsh Marigold	<i>Caltha Palustris</i>	Herbaceous	-	Qt	Random	5	5	-	0	0	
				Common Hackberry	<i>Celtis Occidentalis</i>	Tree	-	6'	Random	12	1	-	0	0	
				Buttonbush	<i>Cephalanthus Occidentalis</i>	Shrub	-	1-2'	Random	8	2	-	0	0	
				Blue Flag	<i>Iris Versicolor</i>	Herbaceous	-	Qt	Random	5	5	-	0	0	
				Atlantic White Cedar	<i>Chamaecyparis thyoides</i>	Tree	-	8'	Line	40	5	17%	200	1000	
Trees			600 LF	Bay Cedar	<i>Suriana Maritima</i>	Tree	-	8'	Line	40	5	17%	200	1000	Linearly planted alongside road near disturbed canopy.
Black Gum	<i>Nyssa sylvatica</i>			Tree	-	8'	Line	40	5	17%	200	1000			
Weir			43	Bladder Sedge	<i>Carex intumescens</i>	Herbaceous	-	Qt	Random	2	3	-	0	0	Within the footprint of constructed riffle weirs above limits of baseflow, between cobbles
				Broomsedge	<i>Andropogon virginicus</i>	Herbaceous	-	Qt	Random	2	3	-	0	0	
				Bushy Bluestem	<i>Andropogon glomeratus</i>	Herbaceous	-	Qt	Random	2	3	-	0	0	
				Fringed Sedge	<i>Carex crinita</i>	Herbaceous	-	Qt	Random	2	3	-	0	0	
				Tussock Sedge	<i>Carex stricta</i>	Herbaceous	-	Qt	Random	2	3	-	0	0	
Dune			17,780	Evening primrose	<i>Oenothera humifusa</i>	Herbaceous	FACU	Qt	Random	5	33	1%	2	66	Replanting the upland dune zones that are outside intermittently flooded areas.
				Beach plum***	<i>Prunus maritima</i>	Shrub	UPL	2-3'	Random	8	23	19%	50	1150	
				Bitter panicgrass	<i>Panicum amarum</i>	Herbaceous	FACU-	Qt	Random	5	33	1%	2	66	
				American beachgrass	<i>Ammophila breviligulata</i>	Herbaceous	FACU	Qt	Random	5	33	1%	2	66	
				Early Low Blueberry	<i>Vaccinium Pallidum</i>	Shrub	N/A	1-2'	Random	8	23	19%	50	1150	
				Creeping Juniper	<i>Juniperus Horizontalis</i>	Shrub	FACU	1-2'	Random	8	23	19%	50	1150	
				Prickly pear	<i>Opuntia humifosa</i>	Herbaceous	N/A	Qt	Random	5	33	1%	2	66	
Open Areas			4,413	Annual Rye	-	Grass	-	Seed (lbs)	N/A	5 lbs/1,000 sqft	22	-	-	-	Replanting of disturbed upland open fields
				Wild Hydrangea	<i>Hydrangea Arborescens</i>	Shrub	-	1-2'	Placed	8	7	6%	50	350	
				Witch Hazel	<i>Hamamelis Virginiana</i>	Shrub	-	1-2'	Placed	8	7	6%	50	350	
				Chewings Red Fescue	-	Grass	-	Seed (lbs)	N/A	5 lbs/1,000 sqft	22	-	-	-	
Critical Area Mitigation Calculations				Total Area of Disturbed Canopy (SF)	Total Area of Dune Crossings (SF)	Canopy Mitigation Ratio		Crossings Mitigation Ratio	Total Mitigation Credit Required (SF)			Total Credit Area (SF)		Percent Mitigation (%)	
				3,626	1,180	1:1		2:1	5,986			7,414		124%	

* - All lowmarsh and highmarsh zone 1 plantings will be solely counted towards MDE mitigation requirements, and not towards the overall critical area mitigation.

** - The bioretention plantings will solely count towards MDE's stormwater BMP specifications, and not towards the overall critical area mitigation.

*** - These shrub species reach heights above 3 ft when mature. Only plant these shrubs where homeowner-to-water visibility is not a concern.

	SHEET 26 OF 30 January 28, 2022
	PLANTING SCHEDULE OXFORD COASTAL RESILIENCE SHORELINE ENHANCEMENT COMMISSIONERS OF OXFORD MAP 0400 , GRID 000OX , PARCEL 0677 3RD ELECTION DISTRICT, TALBOT COUNTY

OXFORD COASTAL RESILIENCE PROJECTS - PROJECT DATA TABLES

COMBINED PROJECT OUTCOME TABLE

Feature	Existing	Proposed	Difference
High Marsh Zone 2 (SF)	0	24,325	+24,325
<i>Spartina Patens</i> - High Marsh Zone 1 (SF)	0	16,804	+16,804
<i>Spartina Alterniflora</i> - Low Marsh (SF)	0	15,189	+15,189
Total Tidal Wetlands (SF)	0	56,318	+56,318
Dune Area (SF)	0	17,780	+17,780
Bulkhead (LF)	171	0	-171
Revetment (LF)	857	0	-857
Shoreline at MHW (LF)	1,654	2,575	+921

NOTES:

*PERMANENT IMPACTS ARE AREAS WHERE PROPOSED SAND, GRAVEL, COBBLE, OR BOULDER FILL OVERLAPS MAPPED SAV BEDS.

**TEMPORARY IMPACTS ARE AREAS WHERE CONSTRUCTION ACCESS AND SEDIMENT AND EROSION CONTROL FEATURES OVERLAP MAPPED SAV BEDS.

IMPACTS ARE LIMITED TO THE STRAND BEACH LIVING SHORELINE AND LIVING BREAKWATERS PROJECT. NO OTHER PROJECT AREAS HAVE SAV MAPPED BY VIMS IN THE PAST 5 YEARS OF RECORD WITHIN THE PROJECT EXTENTS OR GENERAL VICINITY.

MHW = 0.72 / MLW = -0.9 (NAVD88)

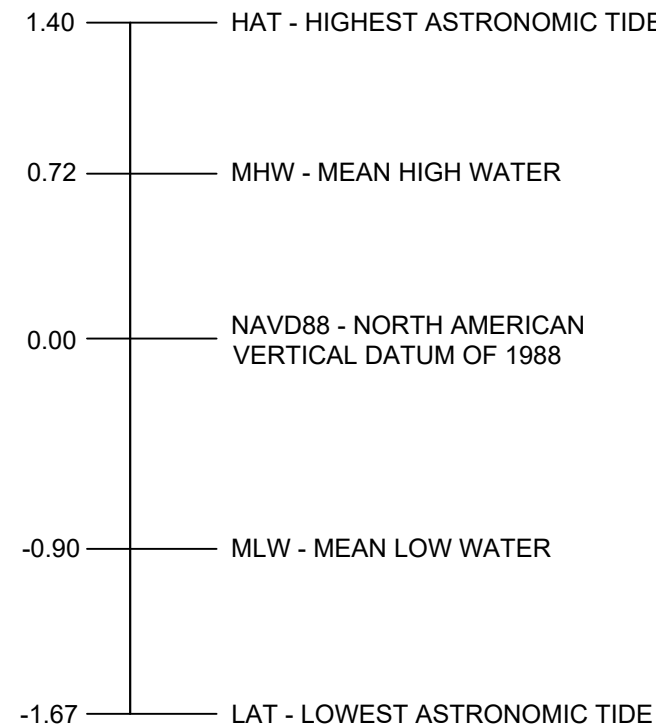
MHW AND MLW ARE BASED ON NOAA CAMBRIDGE, MD STATION 8571892

ONLY ONE TREE IS PROPOSED FOR REMOVAL IN THIS PROJECT. IT IS RECOGNIZED THAT FILL ACTIVITIES MAY ADVERSELY IMPACT EXISTING TREES. TO COVER THE WORST CASE SCENARIO, THE CRITICAL AREA MITIGATION REQUIRED ASSUMES THE LOSS OF ALL TREES ON SITE

DATUM TRANSFORMATIONS

ELEVATIONS ON THESE PLANS ARE REFERENCED TO NAVD88 TO BE IN AGREEMENT WITH THE CONSTRUCTION PLANS. TO CONVERT TO THE MLW DATUM, ADD 0.90 FT TO ALL ELEVATIONS.

DATA IN FT FROM NOAA GAUGE 8571892, CAMBRIDGE



SHEET 27 OF 30

January 28, 2022

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PROJECT DATA TABLES

OXFORD COASTAL RESILIENCE SHORELINE ENHANCEMENT

COMMISSIONERS OF OXFORD
MAP 0400, GRID 000OX, PARCEL 0677
3RD ELECTION DISTRICT, TALBOT COUNTY

OXFORD COASTAL RESILIENCE PROJECTS - PROJECT DATA TABLES

Project Section	Section Component	Avg Length (ft)	Avg Width (ft)	Total Impact to Tidal Waters (SF)	Impact to Inter-tidal (SF)	Impact to Unvegetated Sub-tidal / Open Water (SF)	Impact to Tidal Marsh (SF)	Permanent Impact to 2017 SAV (SF)	Avg Crest Height above MHW (MHW Datum) (ft)	Sand Volume in WOTUS (CY)	Stone Volume in WOTUS (CY)	Tidal Marsh Created by Project (SF)
Strand Beach Living Shoreline & Living Breakwaters	Living Breakwater (East)	94	59	4,489	0	4,489	0	0	2.9	54	285	1,609
	Living Breakwater (Middle)	89	50	3,582	0	1,940	0	1,642	2.9	59	310	1,609
	Living Breakwater (West)	86	49	3,966	0	1,943	0	2,023	2.9	59	311	1,580
	Living Headland (East)	76	35	2,383	370	2,013	0	0	4.9	56	294	1,874
	Living Headland (West)	145	37	6,105	117	4,544	0	1,444	4.9	131	689	4,053
	Living Shoreline Beach and Marsh	949	77	51,810	10,201	15,020	0	26,589	6.9	6,113	0	26,949
	Temporary Causeways to Breakwaters	83	36	4,012	0	717	0	3,295	1.9	743	0	0
	Section Totals	-	-	76,347	10,688	30,666	0	34,993	-	7,216	1,889	37,675
Town Creek Living Shoreline	Living Headland (East)	70	23	1,199	0	1,199	0	0	1.9	18	93	596
	Living Headland (West)	28	23	519	0	519	0	0	1.9	4	20	233
	Living Shoreline Beach and Marsh	130	52	3,037	352	2,685	0	0	4.9	439	0	2,912
	Section Totals	-	-	4,756	352	4,404	0	0	-	461	113	3,740
Tred Avon Yacht Club Living Shoreline	Living Headland (East)	39	41	1,355	183	1,172	0	0	2.9	17	91	887
	Living Headland (West)	46	35	1,321	42	1,279	0	0	2.9	18	95	875
	Section Totals	-	-	2,675	225	2,450	0	0	-	35	186	1,762
Oxford-Bellevue Ferry Headland	Living Headland [Section Totals]	56	42	1,116	74	1,042	0	0	2.9	14	71	882
Lover's Lane Headland	North Living Headland	120	68	5,879	494	5,385	0	0	3.9	99	521	3,949
	South Living Headland	96	56	5,247	533	4,715	0	0	3.9	93	489	4,002
	Living Shoreline Beach and Marsh	107	57	5,337	1,667	3,670	0	0	2.9	395	0	4,307
	Section Totals	-	-	16,464	2,693	13,770	0	0	-	587	1,010	12,259

SHEET 28 OF 30

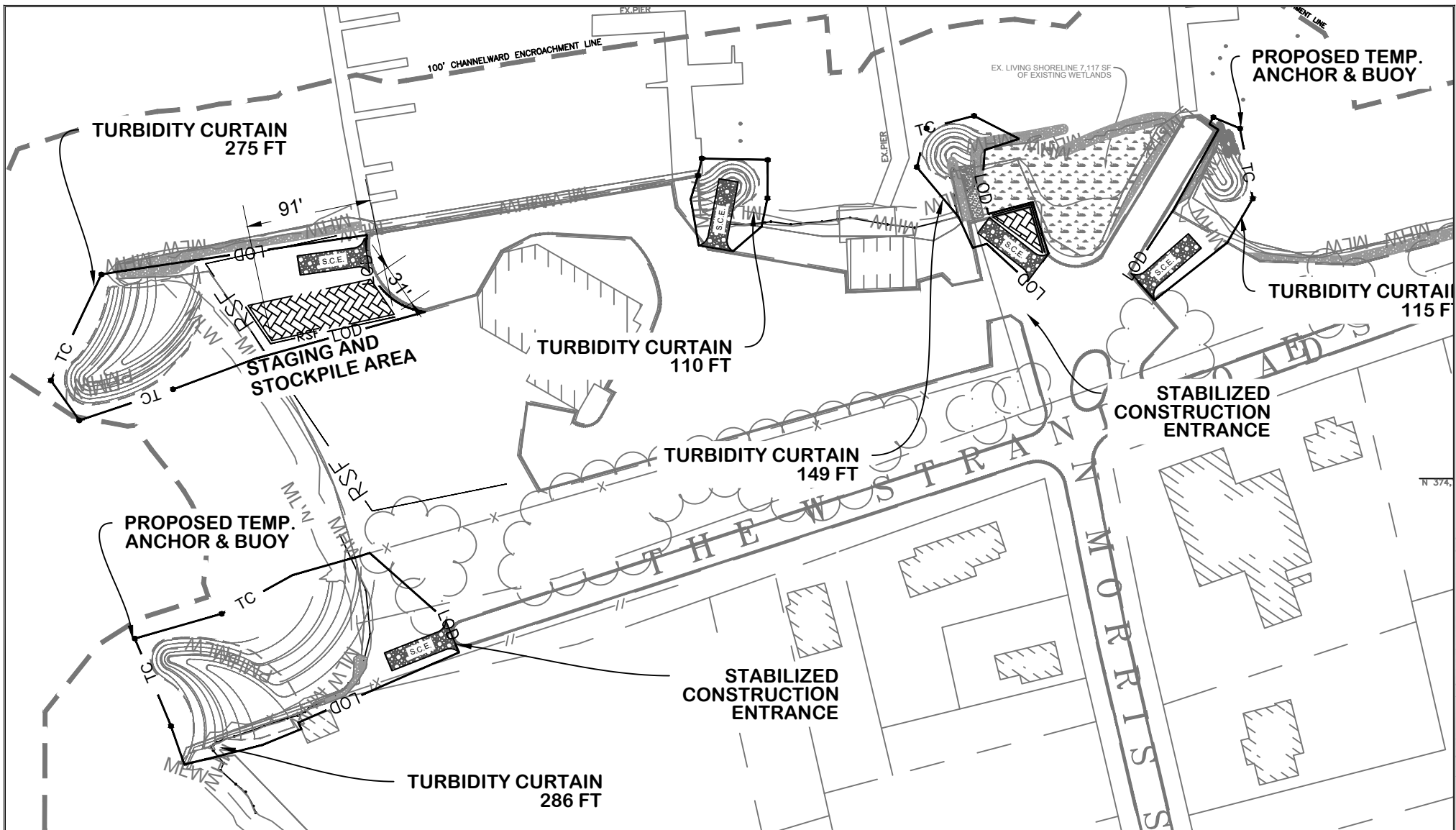
January 28, 2022



PROJECT DATA TABLES

OXFORD COASTAL RESILIENCE SHORELINE ENHANCEMENT

COMMISSIONERS OF OXFORD
MAP 0400 , GRID 000OX , PARCEL 0677
3RD ELECTION DISTRICT, TALBOT COUNTY



LEGEND

REINFORCED SILT FENCE	— RSF —
LIMIT OF DISTURBANCE	— LOD —
PROPOSED STABILIZED CONSTRUCTION ACCESS	
STAGING AND STOCKPILE AREA	
STABILIZED CONSTRUCTION ENTRANCE	
TURBIDITY CURTAIN	— TC —



PLAN

SCALE: 1"=100'

UNDERWOOD & ASSOCIATES

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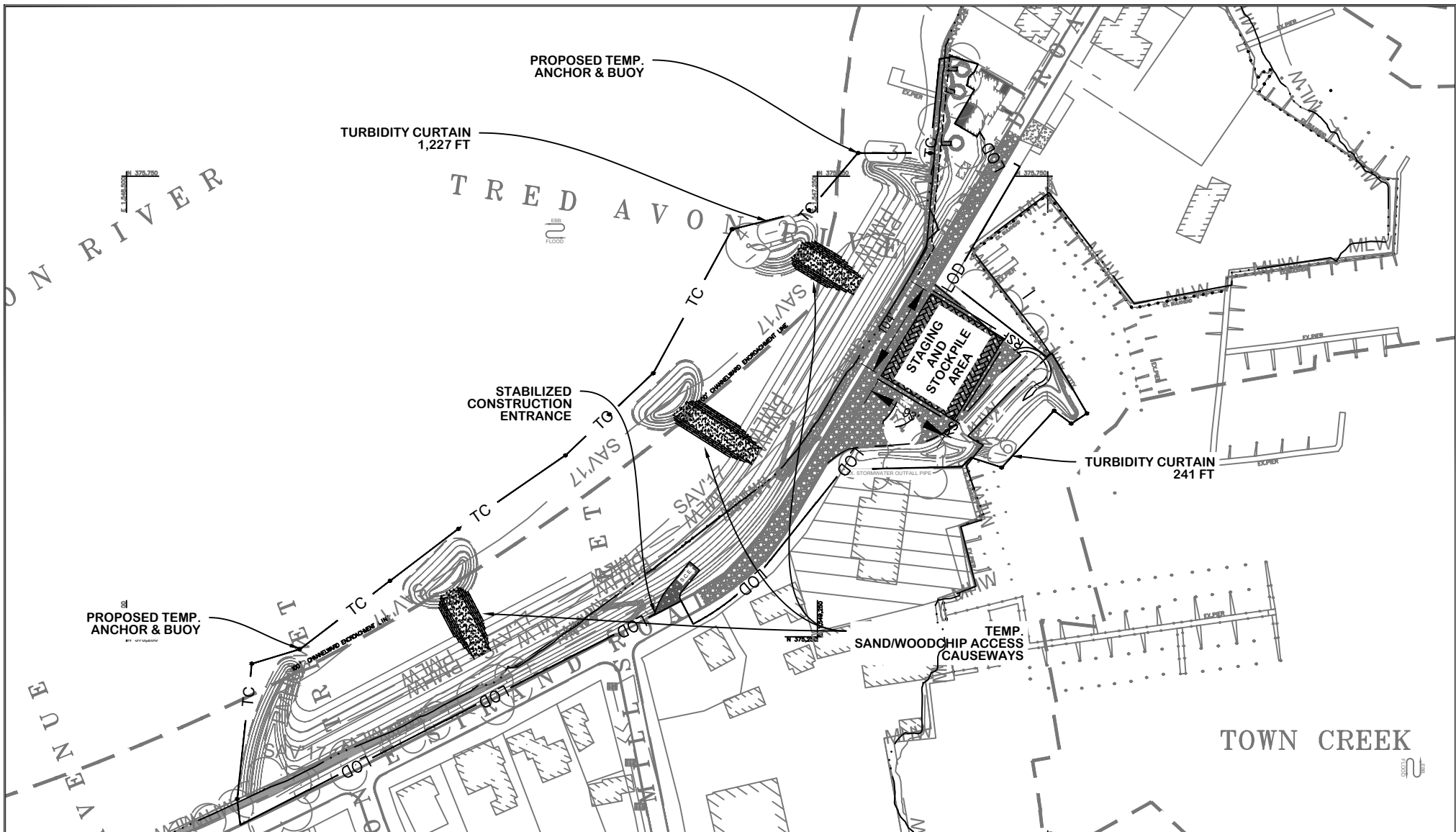
SHEET 29 OF 30

January 28, 2022

SEDIMENT & EROSION CONTROL

OXFORD COASTAL RESILIENCE SHORELINE ENHANCEMENT

COMMISSIONERS OF OXFORD
MAP 0400, GRID 000OX, PARCEL 0677
3RD ELECTION DISTRICT, TALBOT COUNTY



LEGEND

REINFORCED SILT FENCE	— RSF —
LIMIT OF DISTURBANCE	— LOD —
PROPOSED STABILIZED CONSTRUCTION ACCESS	
STAGING AND STOCKPILE AREA	
STABILIZED CONSTRUCTION ENTRANCE	
TURBIDITY CURTAIN	— TC —



PLAN

SCALE: 1"=150'

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SHEET 30 OF 30

January 28, 2022

SEDIMENT & EROSION CONTROL

OXFORD COASTAL RESILIENCE SHORELINE ENHANCEMENT

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MAP 0400 , GRID 0000X , PARCEL 0677
3RD ELECTION DISTRICT, TALBOT COUNTY