

SHORELINE & MARSH RESTORATION CONSTRUCTION DRAWINGS CHESAPEAKE BAY ENVIRONMENTAL CENTER

GENERAL NOTES

1. TOPOGRAPHY AND BATHYMETRY BASED ON A FIELD RUN SURVEY PERFORMED BY SUSTAINABLE SCIENCE, LLC (THE ENGINEER) DATED AUGUST AND SEPTEMBER OF 2020.
- 1.1. COORDINATE SYSTEM
 - 1.1.1. HORIZONTAL: NORTH AMERICAN DATUM OF 1983 (NAD83) US FOOT.
 - 1.1.2. VERTICAL: NORTH AMERICAN VERTICAL DATUM 1988 (NAV88) US FOOT.
- 1.2. VERTICAL ADJUSTMENT
 - 1.2.1. ALL TOPOGRAPHY HAS BEEN ADJUSTED TO REPRESENT AS MEAN LOW WATER (MLW) EQUAL TO THE ELEVATION RESULTED IN A VERTICAL CHANGE OF -0.084' FROM NAV88 COORDINATE SYSTEM.
2. EXISTING TOPOGRAPHY MERGED WITH PUBLICLY AVAILABLE MARYLAND LIDAR (SEE IMAP.MARYLAND.GOV).
3. IF ANY TOPOGRAPHICAL DISCREPANCIES BETWEEN THE PLANS AND FIELD SHOULD ARISE, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY FOR ASSISTANCE.
4. THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND THE LANDOWNER OR LANDOWNER'S REPRESENTATIVE AT LEAST TWO (2) WEEKS PRIOR TO ANY GRADING WITHIN THE PROJECT'S DESIGNATED LIMITS OF DISTURBANCE.
5. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR ANY DAMAGES TO EXISTING SITE FEATURES, INCLUDING BUT NOT LIMITED TO UTILITIES, OVERHEAD LINES, FENCES, PRIVATE ROADS, STRUCTURES, LANDSCAPING, AGRICULTURE, VEHICLES AND MACHINERY. REPAIRS FOR ANY DAMAGES WILL BE MADE AT THE CONTRACTOR'S EXPENSE AND REPAIRED TO THE SATISFACTION OF THE PROPERTY OWNER.
6. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IF ANY FIELD MODIFICATIONS TO THE PLANS ARE PROPOSED PRIOR TO CONSTRUCTION OF THESE MODIFICATIONS.
7. ALL CONSTRUCTION ACTIVITIES INCLUDING MOBILIZATION AND DEMOBILIZATION SHALL BE EXECUTED BY WATER ACCESS ONLY.
8. ALL EXISTING LIVE VEGETATION SHALL BE PRESERVED AND PROTECTED FROM DAMAGE DURING THE ENTIRE CONSTRUCTION PERIOD.
9. THE CONTRACTOR SHALL REVIEW AND CONFIRM THE EXISTING RELIEF AND SUBSOIL SUPPORTING QUALITIES PRIOR TO PREPARING A PROPOSAL, AND INCLUDE IN THE SUBMITTED BID ESTIMATE ANY AND ALL CHANGES THAT WOULD BE NECESSARY TO FULLY ACCOMPLISH THE SHOWN FINAL CONSTRUCTION. SHOULD ANY DISCREPANCIES BE DISCOVERED BETWEEN THE DRAWINGS AND THE EXISTING FIELD CONDITIONS, THE CONTRACTOR SHALL BRING SUCH DISCREPANCIES TO THE ATTENTION OF THE ENGINEER AT THE PRECONSTRUCTION MEETING.

PROPERTY INFORMATION

PERRYS CORNER RD
GRASONVILLE, MD 21638
TAX MAP 0065, GRID 0002, PARCEL 0012

ENGINEER INFORMATION

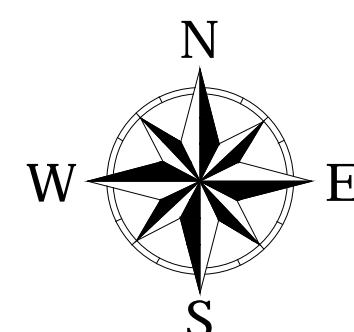
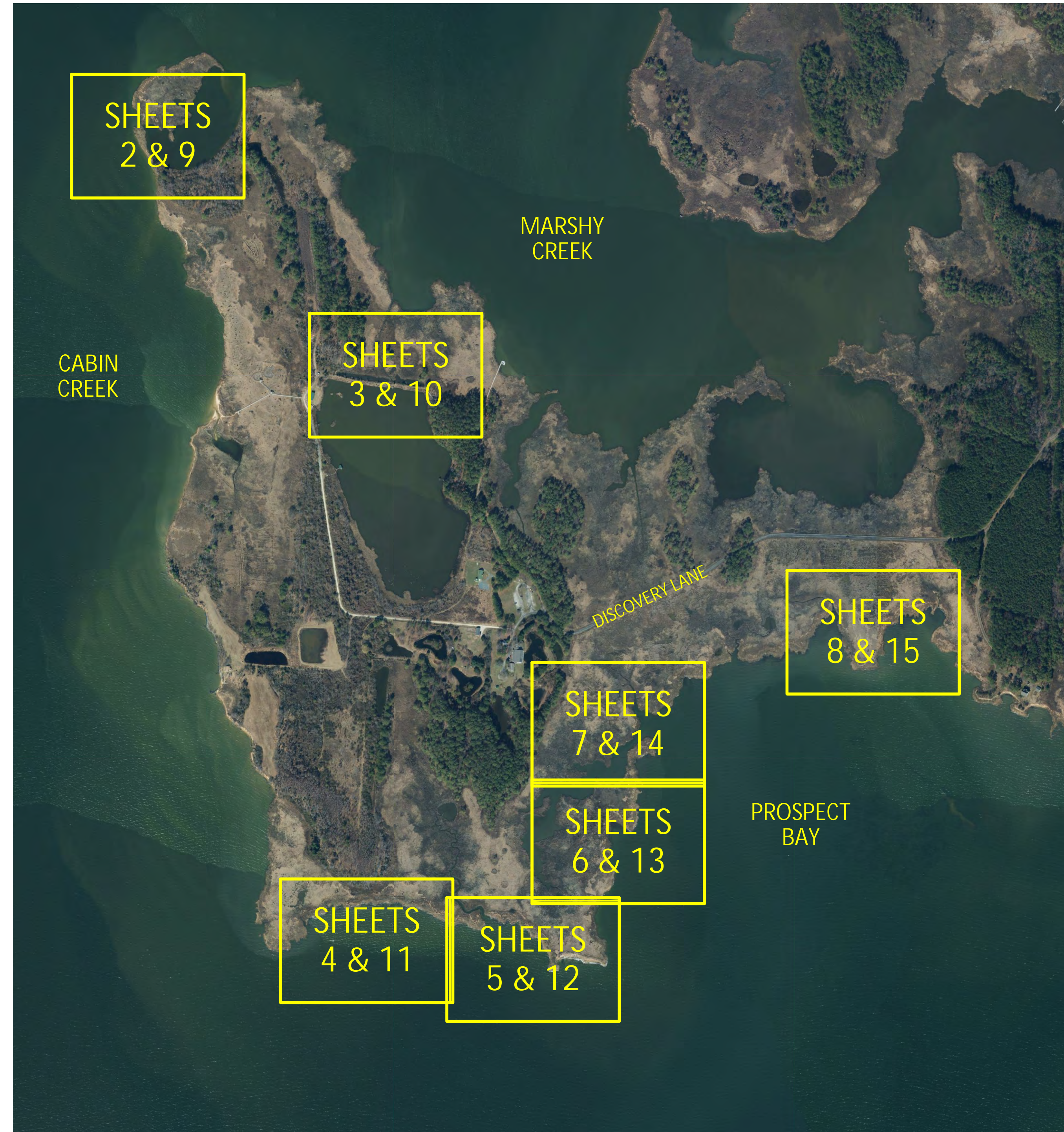
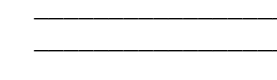
ALBERT MCCULLOUGH, PE, PWS
& SETH MCCULLOUGH, PE
SUSTAINABLE SCIENCE, LLC
410 SOUTH 2ND STREET
DENTON, MD 21629
(410) 924-4316

OWNER INFORMATION

THE WILDFOWL TRUST OF NORTH AMERICA, INC.
PO BOX 519
GRASONVILLE, MD 21638

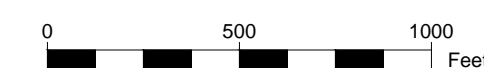
CONTRACTOR INFORMATION

TO BE DETERMINED



VICINITY MAP

SCALE: 1" = 500'



SHEET LIST TABLE	
SHEET NUMBER	SHEET TITLE
1	COVER SHEET
2	EXISTING CONDITIONS
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6	EXISTING CONDITIONS
7	EXISTING CONDITIONS
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9	PROPOSED CONDITIONS
10	PROPOSED CONDITIONS
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14	PROPOSED CONDITIONS
15	PROPOSED CONDITIONS
16	NOTES & DETAILS


RESTORATION SUMMARY	
TYPE OF PRACTICE	QUANTITY
SHORELINE STABILIZATION & RESTORATION	3,250 LF
MARSH THIN LAYERING AND DUNE CREATION	0.50 AC
MARSH CREATION	3.69 AC

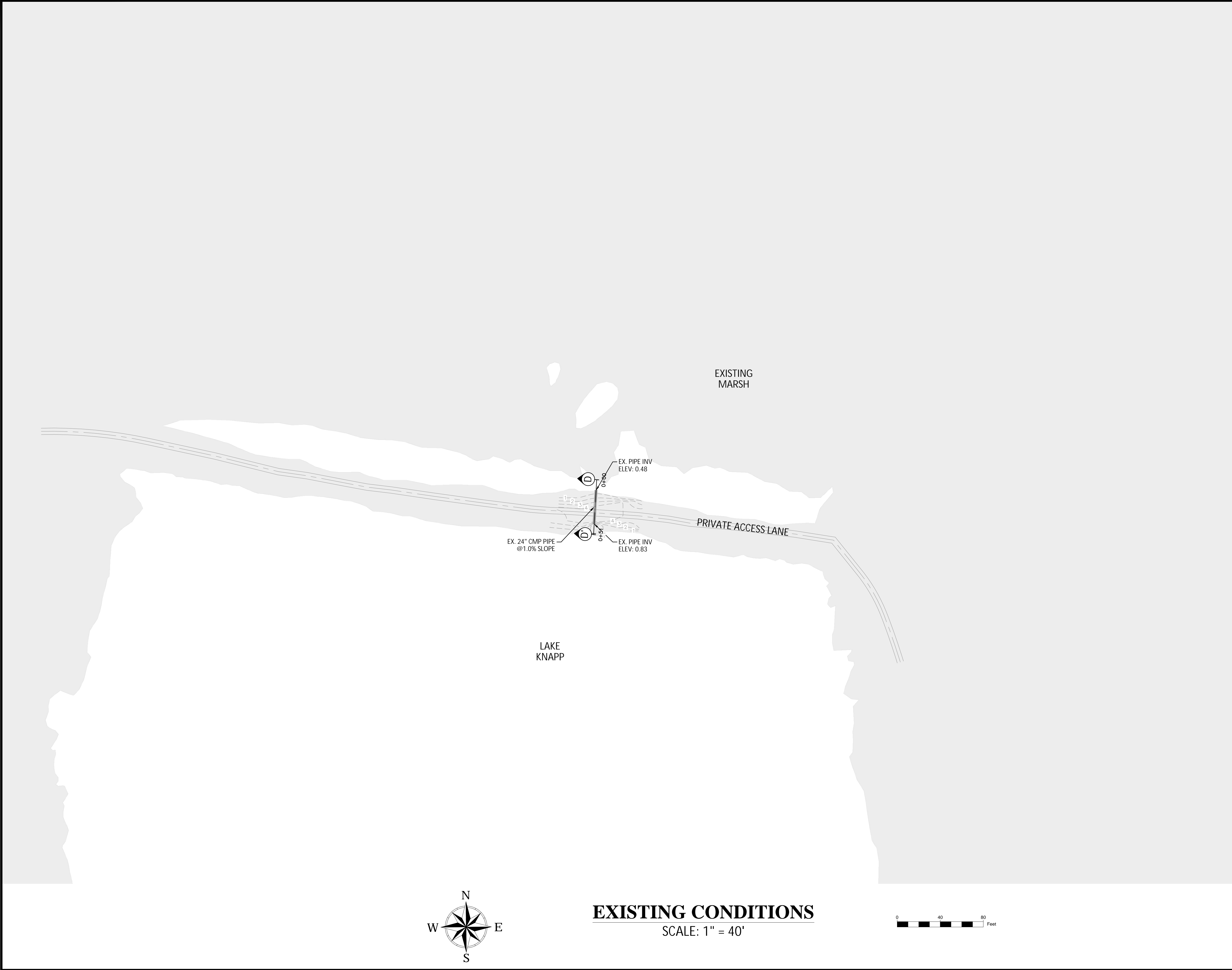
SITE ANALYSIS

1. TOTAL SITE/PROPERTY AREA: 100.00 ACRES
2. TOTAL AREA TO BE DISTURBED: 6.75 ACRES
3. TOTAL AREA TO BECOME IMPERVIOUS: 0.00 ACRES
4. ESTIMATED CUT VOLUME: 0 CUBIC YARDS
5. ESTIMATED FILL VOLUME: 4,250 CUBIC YARDS (SAND AND STONE)
6. NET EARTHWORK: 4,250 CUBIC YARDS (IMPORT OF SAND AND STONE)

SEQUENCE OF CONSTRUCTION

1. THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND THE LANDOWNER OR LANDOWNER'S REPRESENTATIVE AT LEAST TWO (2) WEEKS PRIOR TO ANY GRADING WITHIN THE PROJECT'S DESIGNATED LIMITS OF DISTURBANCE.
2. MOBILIZE CONSTRUCTION EQUIPMENT AND MATERIALS BY WATER ACCESS ONLY TO THE PROJECT SITE. EXISTING LIVE VEGETATION IS TO BE PRESERVED AND PROTECTED DURING SITE MOBILIZATION.
3. CONSTRUCT STONE STRUCTURES IN ACCORDANCE WITH PLANS AND SPECIFICATIONS. EXISTING LIVE VEGETATION IS TO BE PRESERVED AND PROTECTED DURING SITE CONSTRUCTION.
4. PLACE WASHED SAND & COBBLE MIX IN SHOWN AREAS AND GRADES IN ACCORDANCE WITH PLANS AND SPECIFICATIONS.
5. DEMOBILIZE CONSTRUCTION EQUIPMENT BY WATER ACCESS ONLY AND CLEAN PROJECT AREA. EXISTING LIVE VEGETATION IS TO BE PRESERVED AND PROTECTED DURING THE ENTIRE SITE CLEAN-UP AND DEMOBILIZATION ACTIVITIES.
6. ALLOW A MINIMUM OF THREE (3) MONTHS OF TIDAL INFLUENCE AFTER PLACEMENT OF BANKRUN GRAVEL TO ALLOW FINAL ADJUSTMENT OF THE CONSTRUCTION GRADES TO THE PHYSICAL SETTING OF THE SITE.
7. NOTIFY THE ENGINEER AND LANDOWNER AN AS-BUILT PLANTING PLAN A MINIMUM OF ONE (1) MONTH BEFORE COMMENCING PLANTING OPERATIONS (BY OTHERS).
8. PLANT AREAS (BY OTHERS), BY WATER ACCESS ONLY, IN ACCORDANCE WITH THE AS-BUILT PLANTING PLAN & PROJECT SPECIFICATIONS. EXISTING LIVE VEGETATION IS TO BE PRESERVED AND PROTECTED DURING ALL PLANTING ACTIVITIES.

<div>COVER SHEET</div> <div>CBEC CONSTRUCTION DRAWINGS</div> <div>PREPARED FOR USFWS</div> <div>QUEEN ANNE'S COUNTY</div> <div>MARYLAND</div>	<div><div><div><div>SUSTAINABLE</div><div>SCIENCE, LLC</div></div><div>ENGINEERING SERVICES 4105 KENNESAW BLVD, SUITE 200 DEALE, MARYLAND 20628 PHONE: (410) 924-4316 WWW.SUSTAINABLESCIENCE.COM</div></div></div> <div>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 _____, LICENSE NO. _____, EXPIRATION DATE: ____/____/____.</div>									
	NO.	REVISIONS		DATE	BY	DATE	4/9/2021			
						SCALE:	AS SHOWN			
						DESIGN BY:	S. MCCULLOUGH			
						DRAWN BY:	S. MCCULLOUGH			
						CHECKED BY:	F. MCCULLOUGH			
						SS PROJECT NO:	20004			
						SHEET NUMBER	1		OF 16	



EXISTING MARSH

-6.4-

EXISTING MIN CONTOUR

-6.5-

EXISTING MAJ CONTOUR

=====

MHW

=====

MEAN HIGH WATER (MHW)

=====

MLW

=====

MEAN LOW WATER (MLW)

EXISTING CULVERT

LOD

LIMIT OF DISTURBANCE

EXISTING ROADWAY

LEGEND

NO.

REVISIONS

DATE

BY

DATE

BY

DATE

BY

4/9/2021

AS SHOWN

S. MCCULLOUGH

S. MCCULLOUGH

F. MCCULLOUGH

2004

3

16

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 _____, LICENSE NO. _____, EXPIRATION DATE: _____.

SUSTAINABLE

SCIENCE, LLC

ENGINEERING SERVICES

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DENTON, MARYLAND 21629

PHONE: (410) 924-4316

WWW.SUSTAINABLESCIENCE.COM

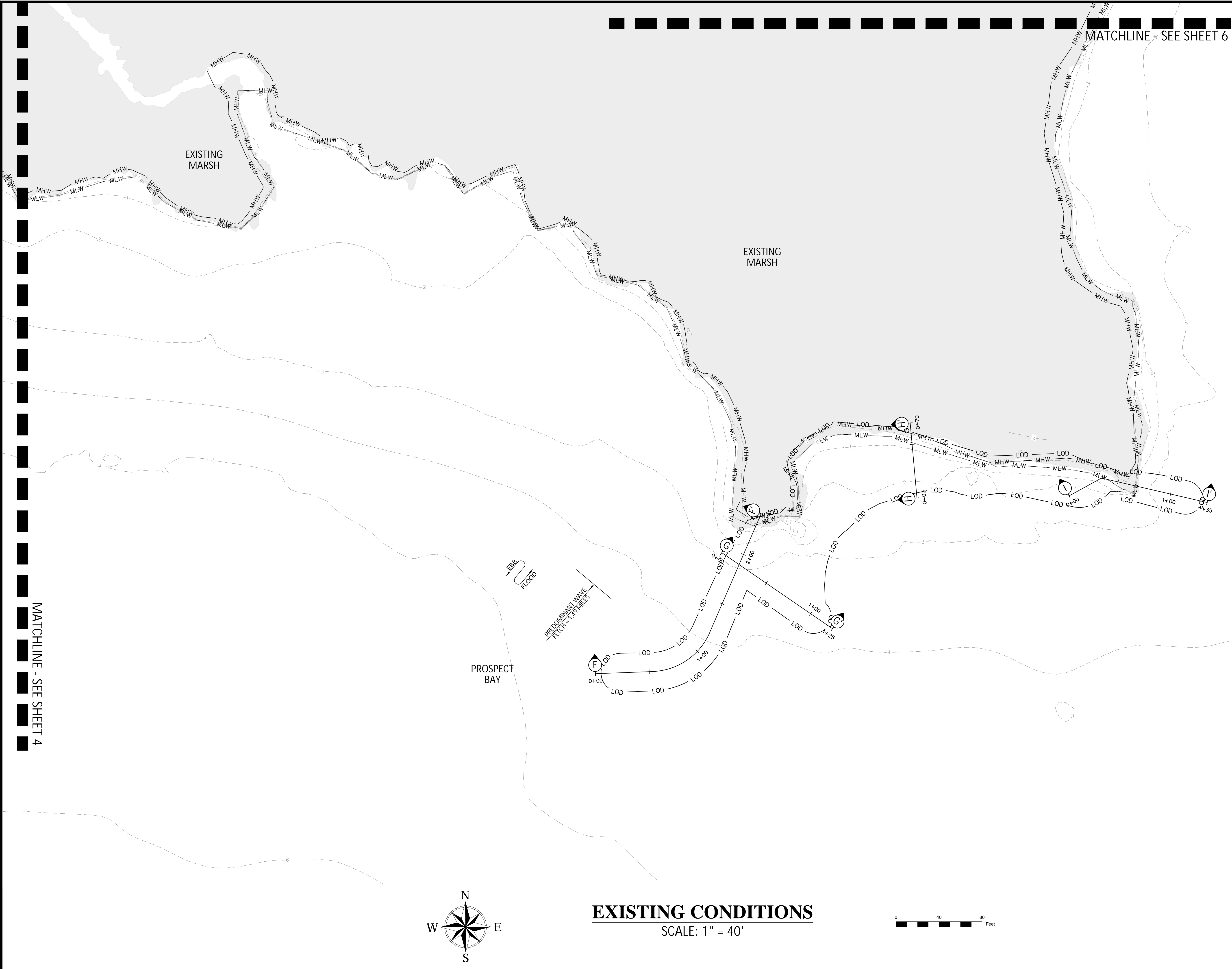
EXISTING CONDITIONS

CBEC CONSTRUCTION DRAWINGS

PREPARED FOR USFWS

QUEEN ANNE'S COUNTY

MARYLAND

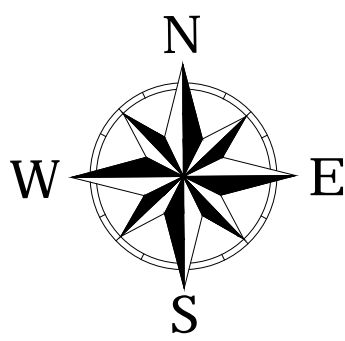
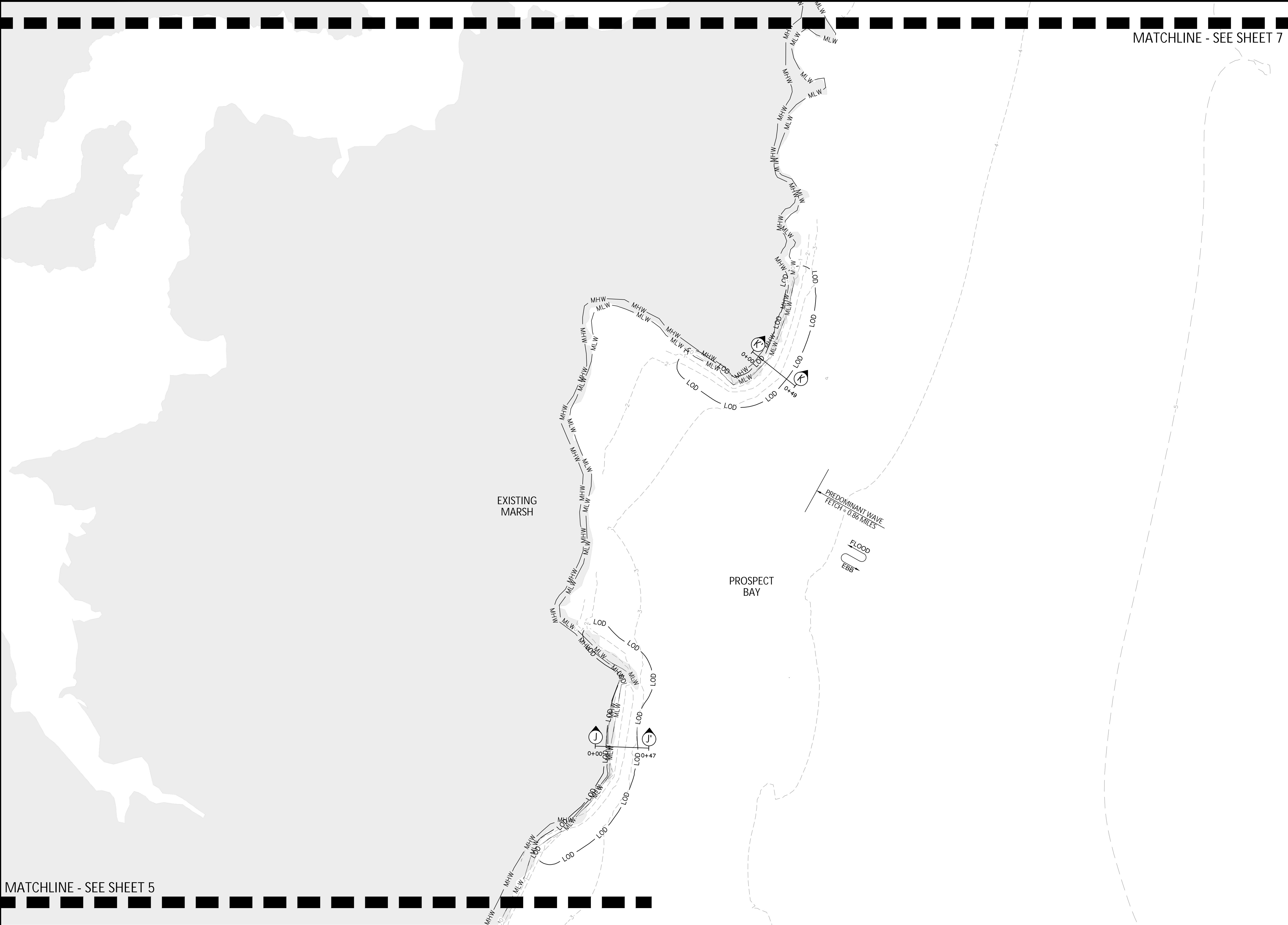


LEGEND

	EXISTING MARSH
	EXISTING MIN CONTOUR
	EXISTING MAJ CONTOUR
	MEAN HIGH WATER (MHW)
	MEAN LOW WATER (MLW)
	EXISTING CULVERT
	LIMIT OF DISTURBANCE
	EXISTING ROADWAY

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<p>EXISTING CONDITIONS</p> <p>CBEC CONSTRUCTION DRAWINGS</p> <p>PREPARED FOR USFWS</p>							
							DRAWN BY:
							CHECKED BY:
							SS PROJECT NO:
<p>QUEEN ANNE'S COUNTY</p>		<p>MARYLAND</p>		<p>SHEET NUMBER</p>		<p>5 OF 16</p>	

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 ENGINEERING SERVICES
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 DENTON, MARYLAND 21629
 PHONE: (410) 924-4316
 WWW.SUSTAINABLESCIENCE.COM



EXISTING CONDITIONS
SCALE: 1" = 40'



LEGEND

- EXISTING MARSH
- EXISTING MIN CONTOUR
- EXISTING MAJ CONTOUR
- MEAN HIGH WATER (MHW)
- MEAN LOW WATER (MLW)
- EXISTING CULVERT
- LIMIT OF DISTURBANCE
- EXISTING ROADWAY

DATE: 4/9/2021		SCALE: AS SHOWN		DESIGN BY: S. MCCULLOUGH		DRAWN BY: S. MCCULLOUGH		CHECKED BY: F. MCCULLOUGH		SS PROJECT NO: 20004		SHEET NUMBER: 6 OF 16	
NO.		REVISIONS		DATE		BY		DATE		BY		NO.	
<p>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. EXPIRATION DATE: _____</p>													
<p>SUSTAINABLE SCIENCE, LLC ENGINEERING SERVICES 410 S. SECOND STREET DENTON, MARYLAND 21629 PHONE: (410) 924-4316 WWW.SUSTAINABLESCIENCE.COM</p>													
<p>EXISTING CONDITIONS CBEC CONSTRUCTION DRAWINGS PREPARED FOR USFWS</p>												MARYLAND	
QUEEN ANNE'S COUNTY													



LEGEND

-64-

-65-

MHW

MLW

LOD

EXISTING MARSH

EXISTING MIN CONTOUR

EXISTING MAJ CONTOUR

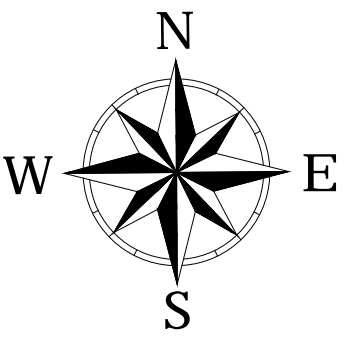
MEAN HIGH WATER (MHW)

MEAN LOW WATER (MLW)

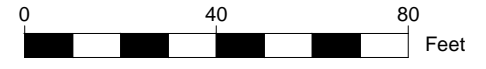
EXISTING CULVERT

LIMIT OF DISTURBANCE

EXISTING ROADWAY



EXISTING CONDITIONS
SCALE: 1" = 40'



MATCHLINE - SEE SHEET 6

EXISTING CONDITIONS


CBEC CONSTRUCTION DRAWINGS

PREPARED FOR USFWS

QUEEN ANNE'S COUNTY

MARYLAND

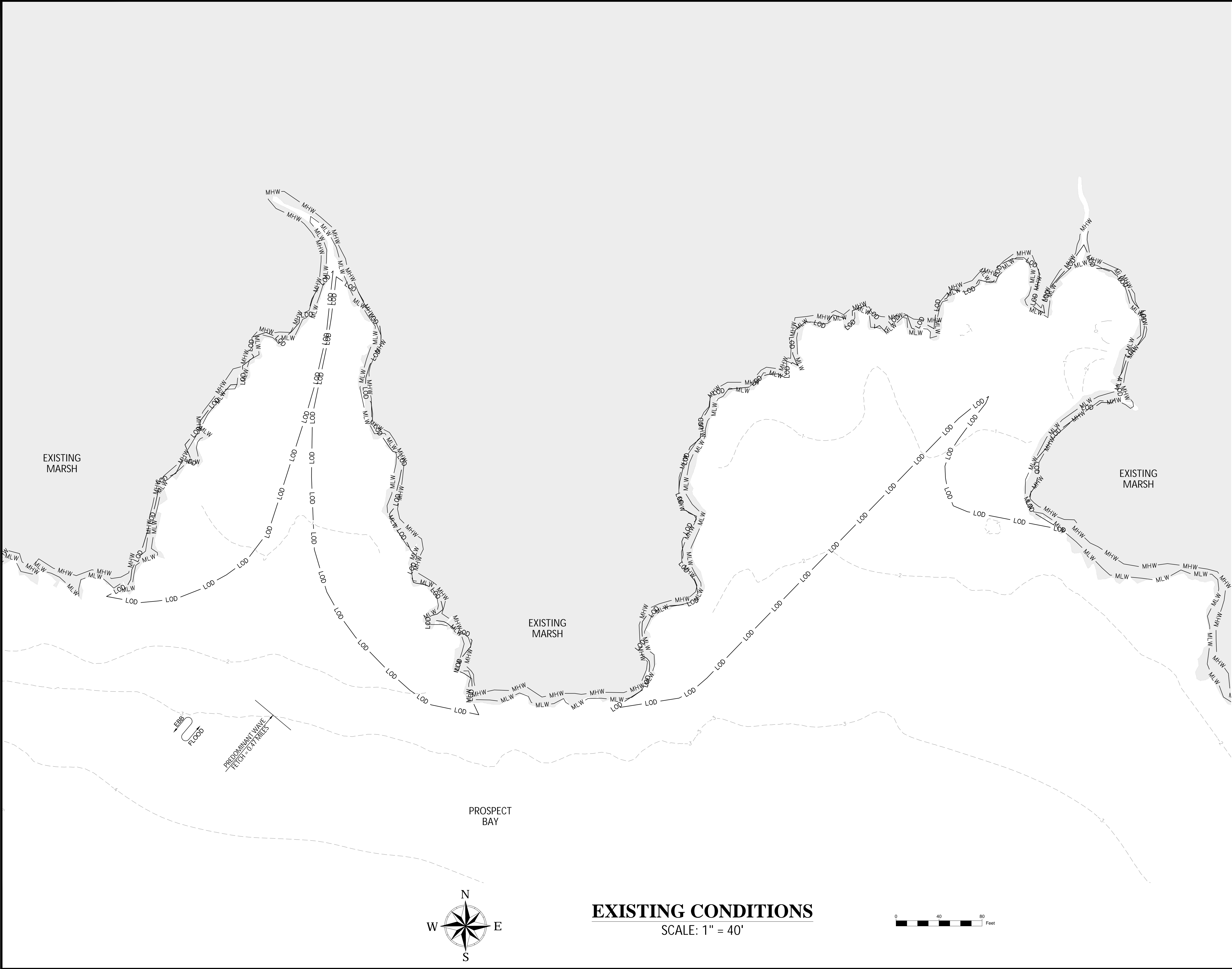
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					CHECKED BY:	F. MCCULLOUGH
					SS PROJECT NO:	20004
					SHEET NUMBER	7 OF 16



LEGEND

	EXISTING MARSH
	EXISTING MIN CONTOUR
	EXISTING MAJ CONTOUR
	MEAN HIGH WATER (MHW)
	MEAN LOW WATER (MLW)
	EXISTING CULVERT
	LIMIT OF DISTURBANCE
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NO.	REVISIONS	DATE	BY	DATE	SCALE	DATE
					AS SHOWN	4/9/2021
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					DRAWN BY:	S. MCCULLOUGH
					CHECKED BY:	F. MCCULLOUGH
					SS PROJECT NO:	20004
					SHEET NUMBER	8 OF 16

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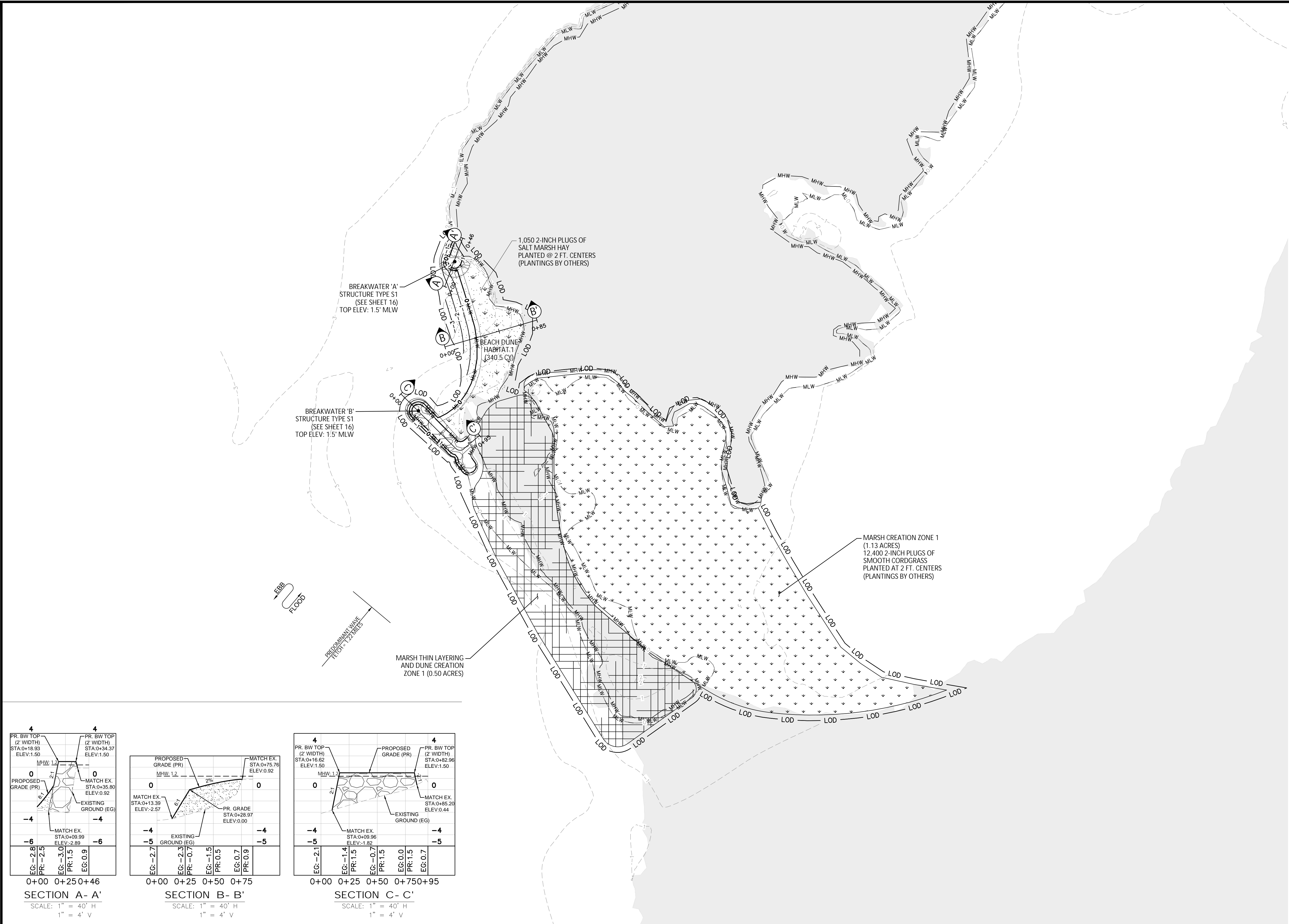
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EXISTING CONDITIONS

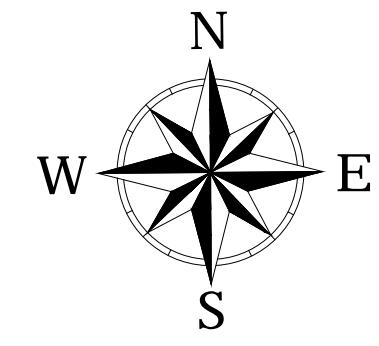
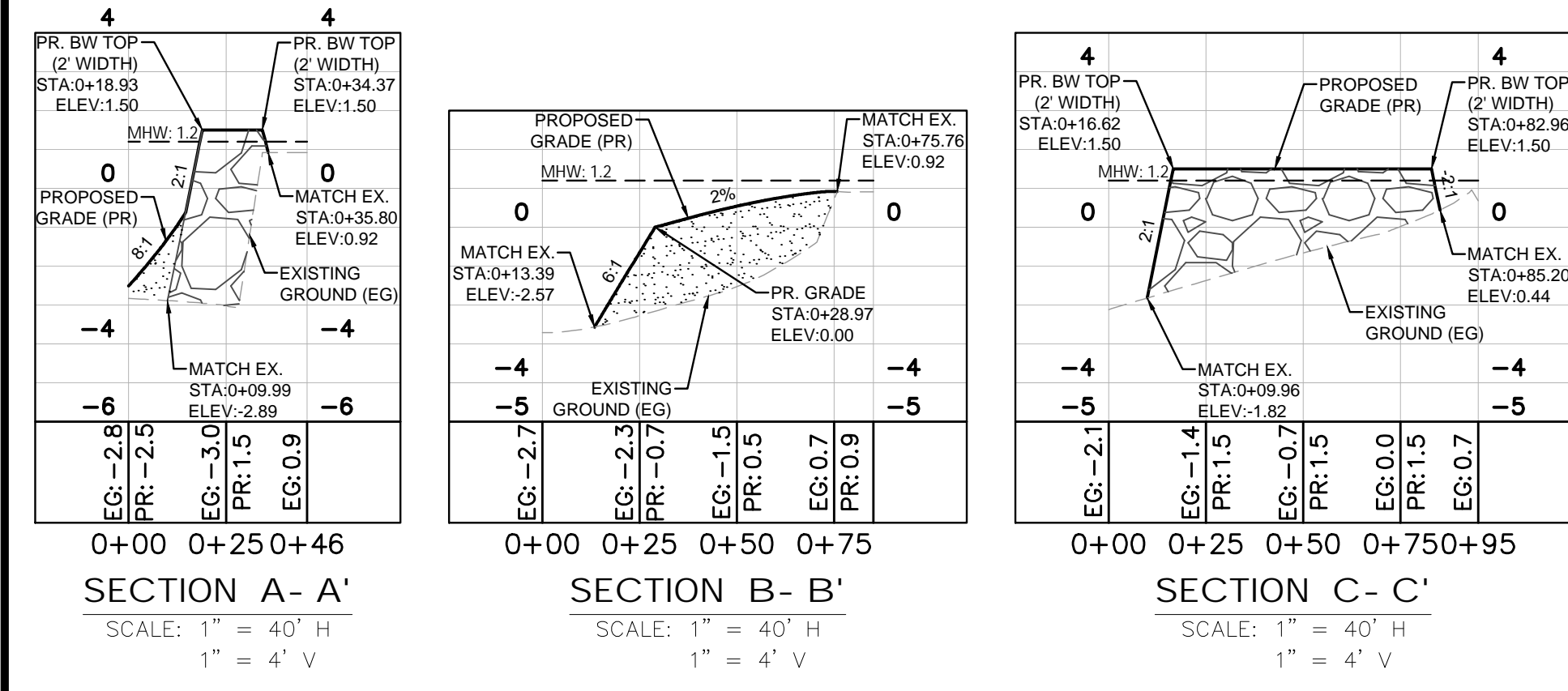
CBEC CONSTRUCTION DRAWINGS

PREPARED FOR USFWS

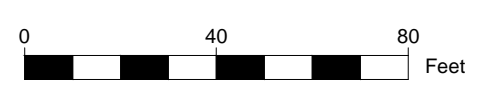
QUEEN ANNE'S COUNTY MARYLAND



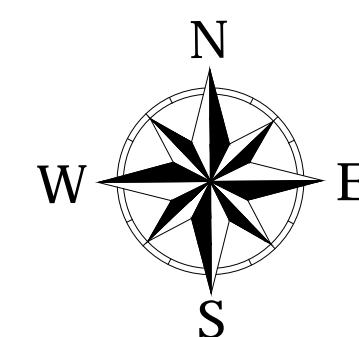
- LEGEND**
- EXISTING MARSH
 - EXISTING MIN CONTOUR
 - EXISTING MAJ CONTOUR
 - MEAN HIGH WATER (MHW)
 - MEAN LOW WATER (MLW)
 - EXISTING CULVERT
 - LIMIT OF DISTURBANCE
 - EXISTING ROADWAY
 - PROPOSED MIN CONTOUR
 - PROPOSED MAJ CONTOUR
 - PROPOSED BREAKWATER
 - PROPOSED BEACH
 - PROPOSED THIN LAYERING MARSH CREATION
 - PROPOSED THIN LAYERING MARSH AND DUNE CREATION



PROPOSED CONDITIONS
SCALE: 1" = 40'



DATE: 4/9/2021		SCALE: AS SHOWN		DESIGN BY: S. MCCULLOUGH		DRAWN BY: S. MCCULLOUGH		CHECKED BY: F. MCCULLOUGH		SS PROJECT NO: 20004		SHEET NUMBER: 9 OF 16	
BY:		DATE:		REVISIONS:		NO.		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. EXPIRATION DATE:		SUSTAINABLE SCIENCE, LLC ENGINEERING SERVICES 410 S. SECOND STREET DENTON, MARYLAND 21629 PHONE: (410) 924-4316 WWW.SUSTAINABLESCIENCE.COM		PROPOSED CONDITIONS CBEC CONSTRUCTION DRAWINGS PREPARED FOR USFWS QUEEN ANNE'S COUNTY MARYLAND	



SCALE: 1" = 40'



Legend for map symbols:

- 64- : EXISTING MIN CONTOUR
- 65- : EXISTING MAJ CONTOUR
- : MEAN HIGH WATER (MHW)
- : MEAN LOW WATER (MLW)
- : EXISTING CULVERT
- : LIMIT OF DISTURBANCE
- : EXISTING ROADWAY
- : PROPOSED MIN CONTOUR
- : PROPOSED MAJ CONTOUR
- : PROPOSED BREAKWATER
- : PROPOSED BEACH
- : PROPOSED THIN LAYERING MARSH CREATION
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NO.	REVISIONS	DATE	BY	SCALE:	4/9/2021
				AS SHOWN	
				DESIGN BY:	S. MCCULLOUGH
				DRAWN BY:	S. MCCULLOUGH
				CHECKED BY:	F. MCCULLOUGH
				SS PROJECT NO:	20004
				SHEET NUMBER	10 OF 16

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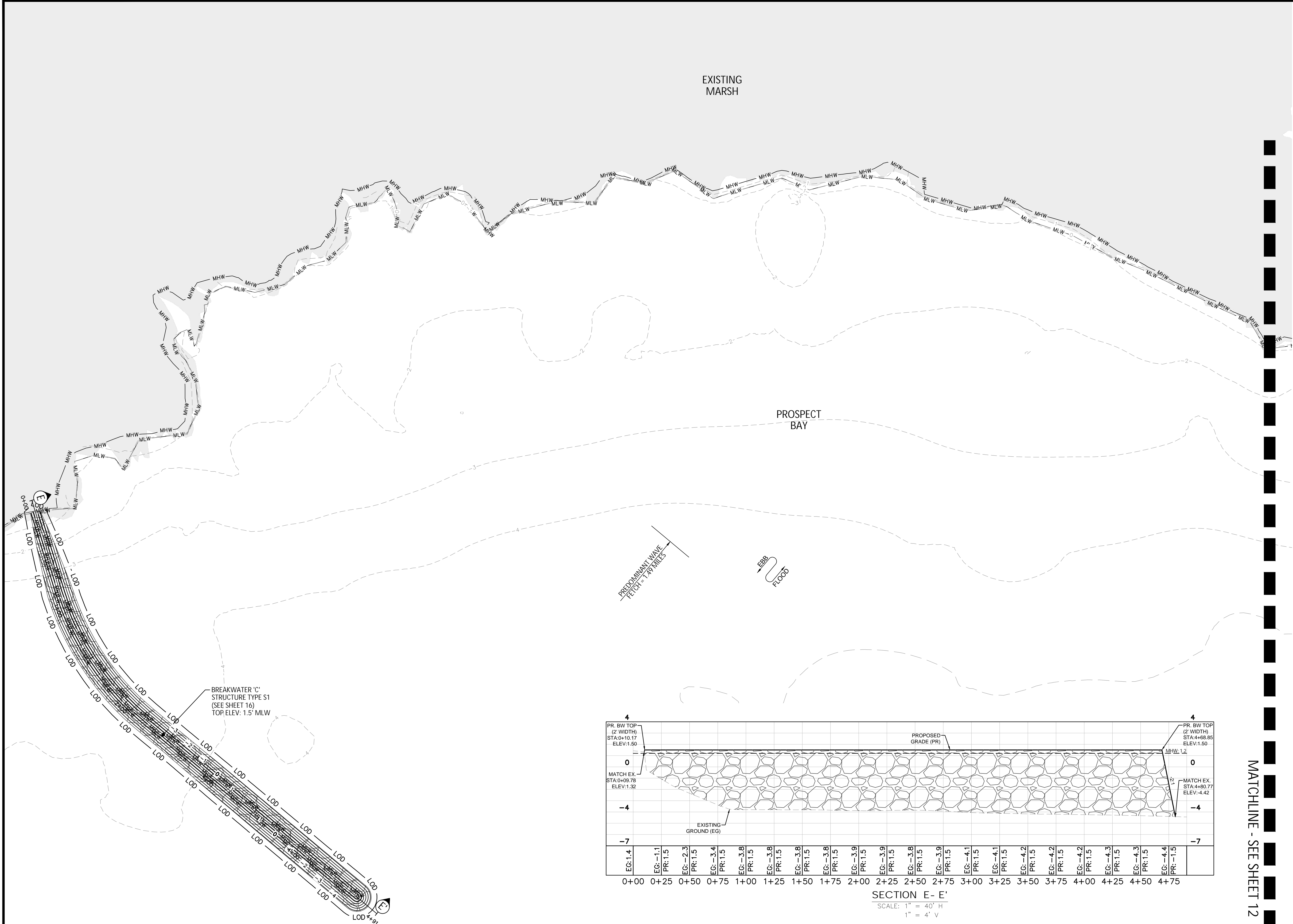
PROPOSED CONDITIONS

CBEC CONSTRUCTION DRAWINGS
PREPARED FOR LISTING

PREPARED FOR USFWS

QUEEN ANNE'S COUNTY

MARYLAND



LEGEND

[Symbol]	EXISTING MARSH
[Symbol]	EXISTING MIN CONTOUR
[Symbol]	EXISTING MAJ CONTOUR
[Symbol]	MEAN HIGH WATER (MHW)
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DATE:	4/9/2021	SCALE:	AS SHOWN
DESIGN BY:	S. MCCULLOUGH	CHECKED BY:	S. MCCULLOUGH
DRAWN BY:	S. MCCULLOUGH	SS PROJECT NO:	20004
SHEET	11	OF	16

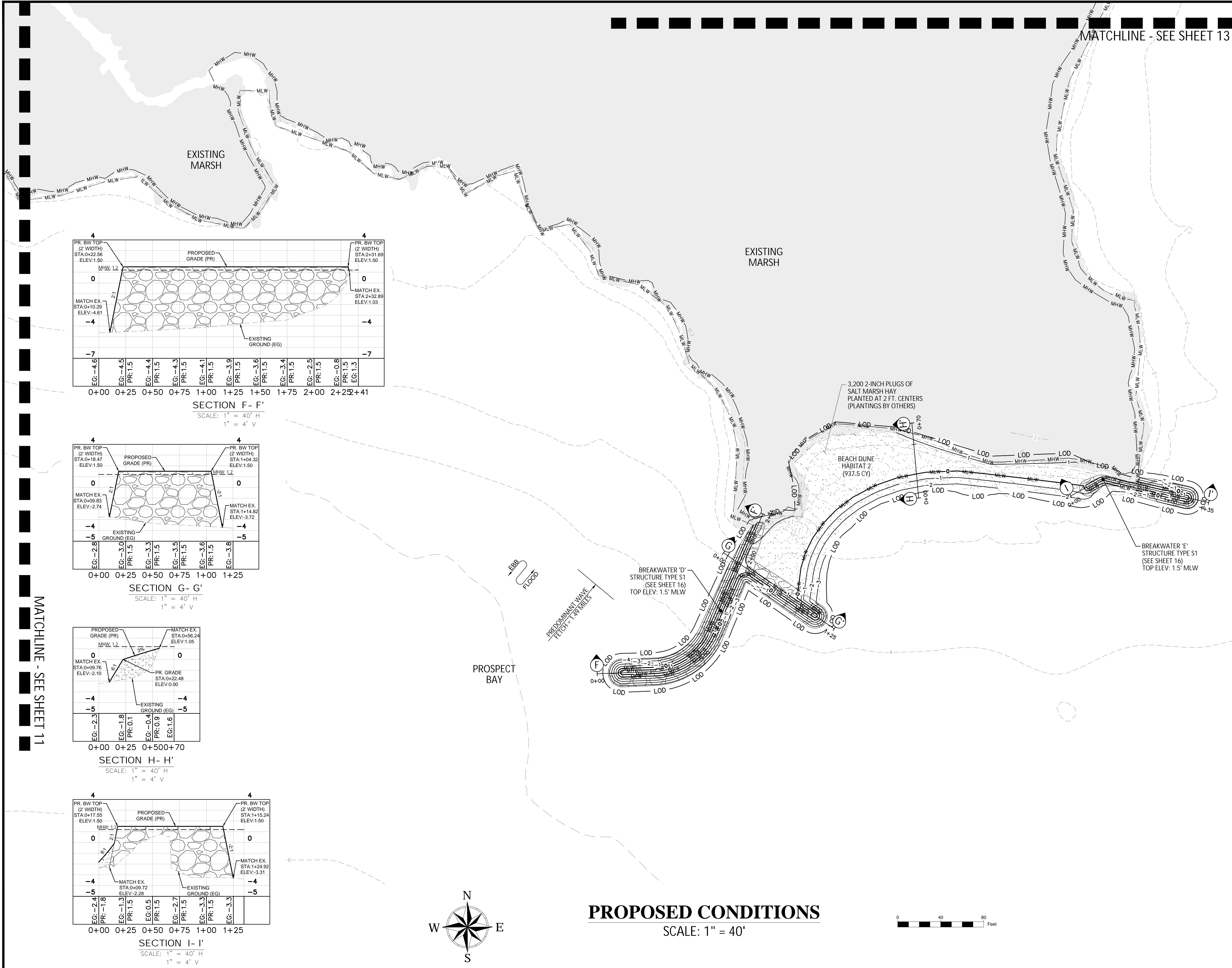
NO.	REVISIONS	DATE	BY

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WWW.SUSTAINABLESCIENCE.COM

PROPOSED CONDITIONS
CBEC CONSTRUCTION DRAWINGS
PREPARED FOR USFWS

QUEEN ANNE'S COUNTY MARYLAND



LEGEND			
	EXISTING MARSH		
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	PROPOSED THIN LAYERING MARSH CREATION		
	PROPOSED THIN LAYERING MARSH AND DUNE CREATION		

NO.	REVISIONS	DATE	BY	DATE		SHEET	
				4/9/2021	AS SHOWN	12	16
				DATE:	SCALE:		
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				CHECKED BY:	F. MCCULLOUGH		
				SS PROJECT NO:	20004		

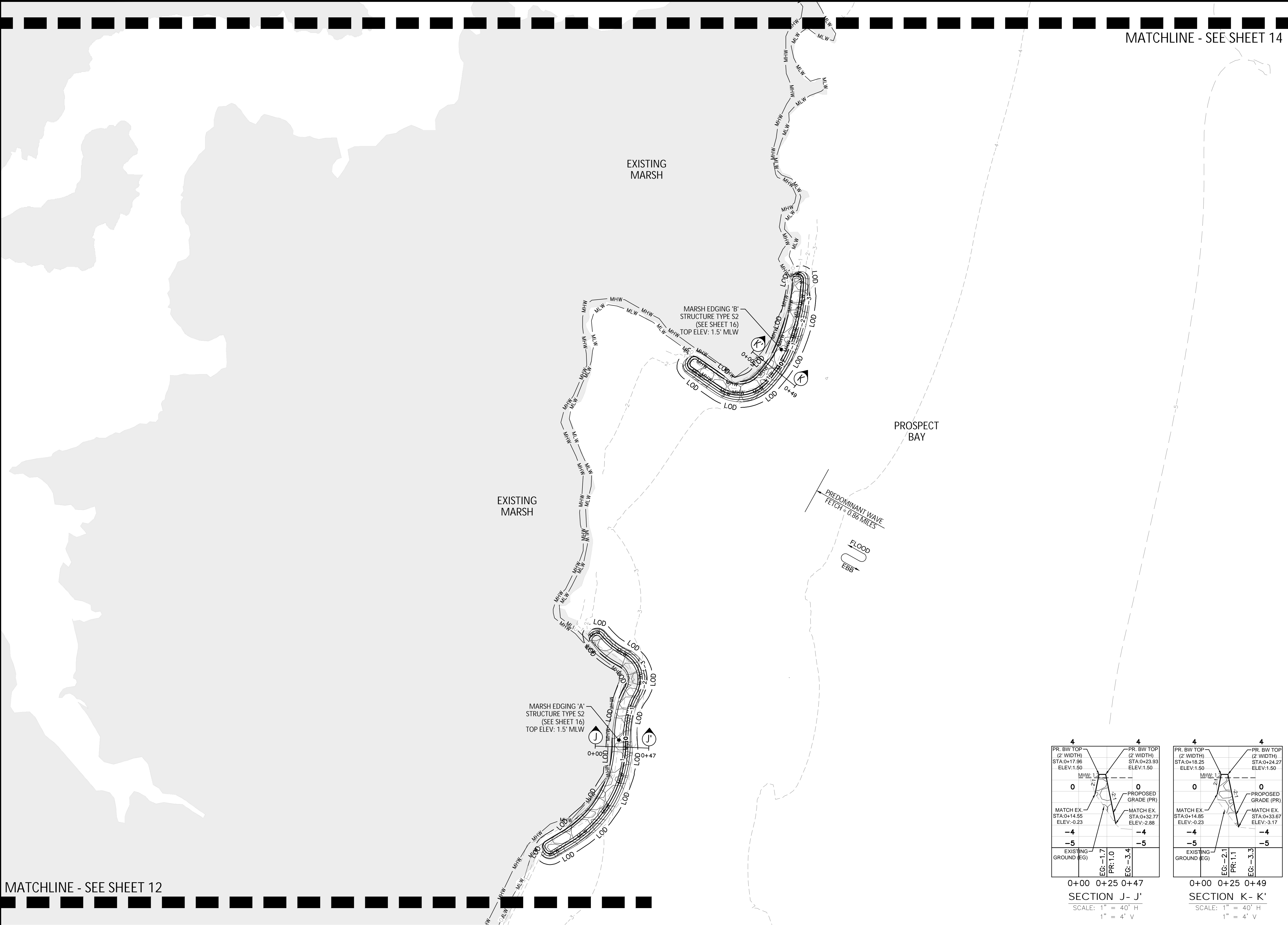
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PROPOSED CONDITIONS
CBEC CONSTRUCTION DRAWINGS
PREPARED FOR USFWS

QUEEN ANNE'S COUNTY

MARYLAND



LEGEND

[Symbol]	EXISTING MARSH
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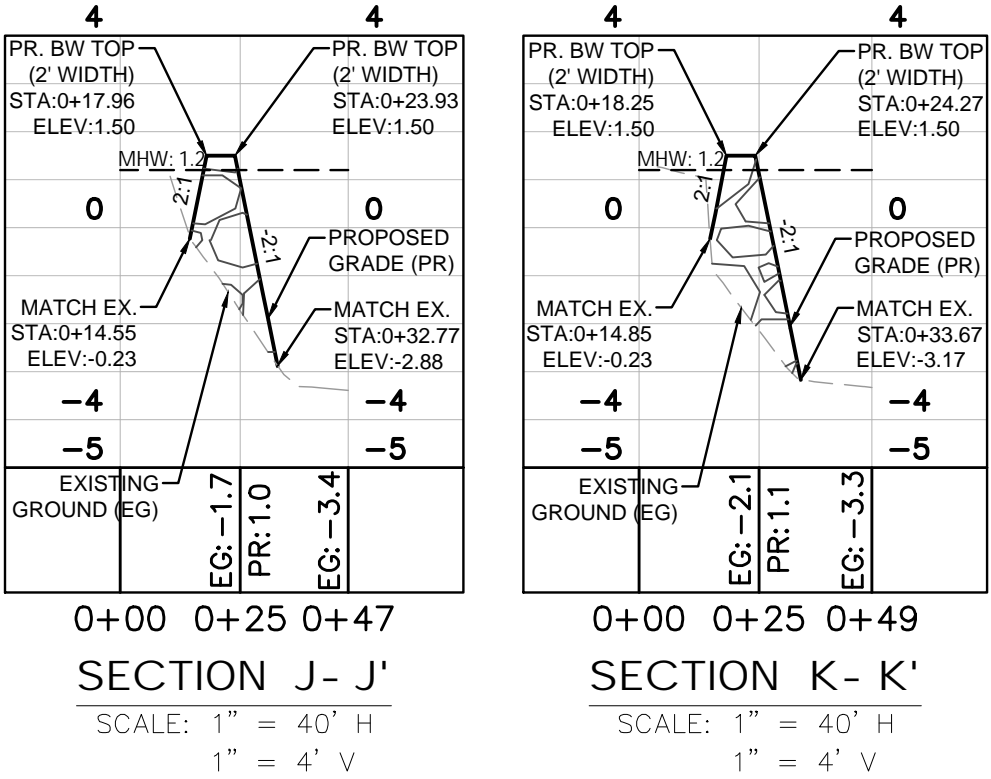
DATE:	4/9/2021	NO.	
SCALE:	AS SHOWN	BY:	
DESIGN BY:	S. MCCULLOUGH	DATE:	
DRAWN BY:	S. MCCULLOUGH	REVISIONS	
CHECKED BY:	F. MCCULLOUGH		
SS PROJECT NO:	20004		
SHEET	13	OF	16
NUMBER			

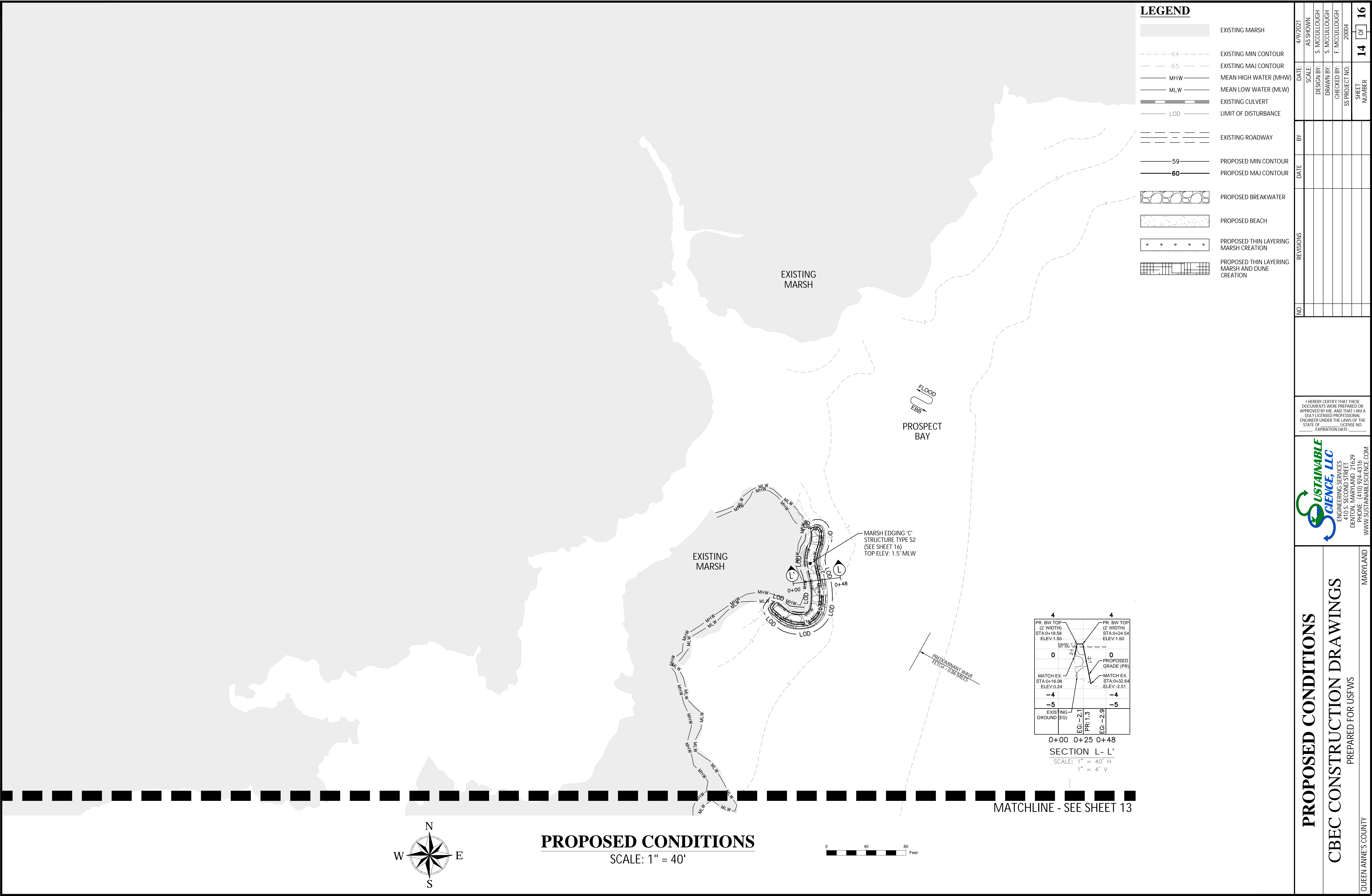
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CBEC CONSTRUCTION DRAWINGS
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QUEEN ANNE'S COUNTY MARYLAND





LEGEND

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PROPOSED CONDITIONS

CBEC CONSTRUCTION DRAWINGS

QUEEN ANNE'S COUNTY

MARYLAND

DATE: 4/9/2021

SCALE: AS SHOWN

DESIGN BY: S. MCCULLOUGH

DRAWN BY: S. MCCULLOUGH

CHECKED BY: F. MCCULLOUGH

SS PROJECT NO: 20004

SHEET NUMBER: 14 OF 16

NO.

BY

DATE

REVISIONS

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. EXPIRATION DATE: _____

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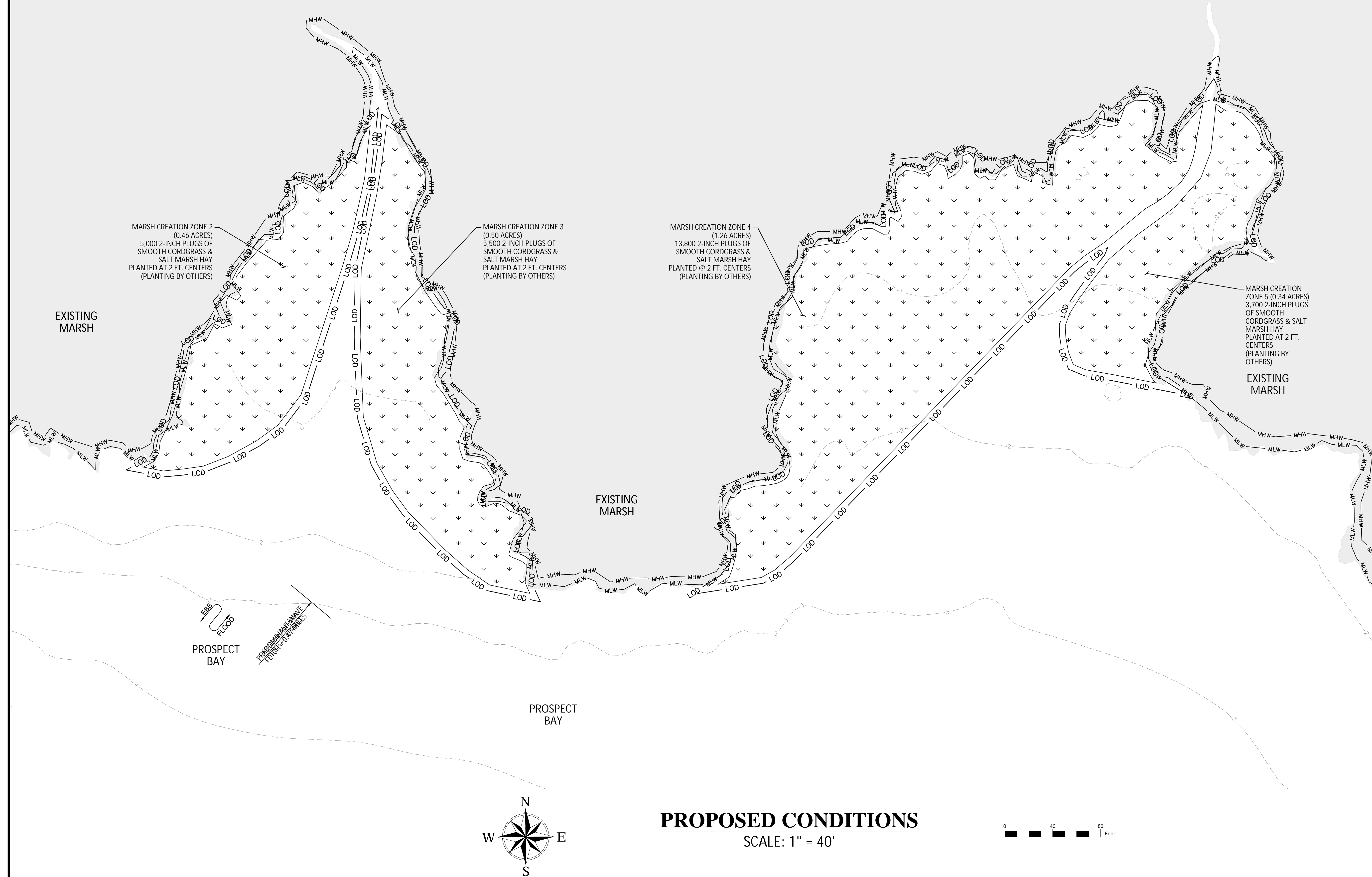
ENGINEERING SERVICES

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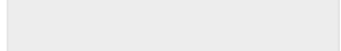






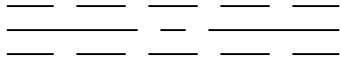



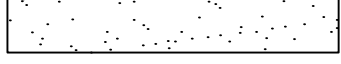
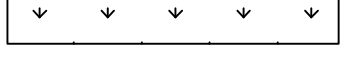

DENTON, MARYLAND 21629

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LEGEND

	EXISTING MARSH
	EXISTING MIN CONTOUR
	EXISTING MAJ CONTOUR
	MEAN HIGH WATER (MHW)
	MEAN LOW WATER (MLW)
	EXISTING CULVERT
	LIMIT OF DISTURBANCE
	EXISTING ROADWAY
	PROPOSED MIN CONTOUR
	PROPOSED MAJ CONTOUR
	PROPOSED BREAKWATER
	PROPOSED BEACH
	PROPOSED THIN LAYERING MARSH CREATION
	PROPOSED THIN LAYERING MARSH AND DUNE CREATION

NO.	REVISIONS	DATE	BY	DATE:	4/9/2021
				SCALE:	AS SHOWN
				DESIGN BY:	S. MCCULLOUGH
				DRAWN BY:	S. MCCULLOUGH
				CHECKED BY:	F. MCCULLOUGH
				SS PROJECT NO:	20004
				SHEET NUMBER	15 OF 16

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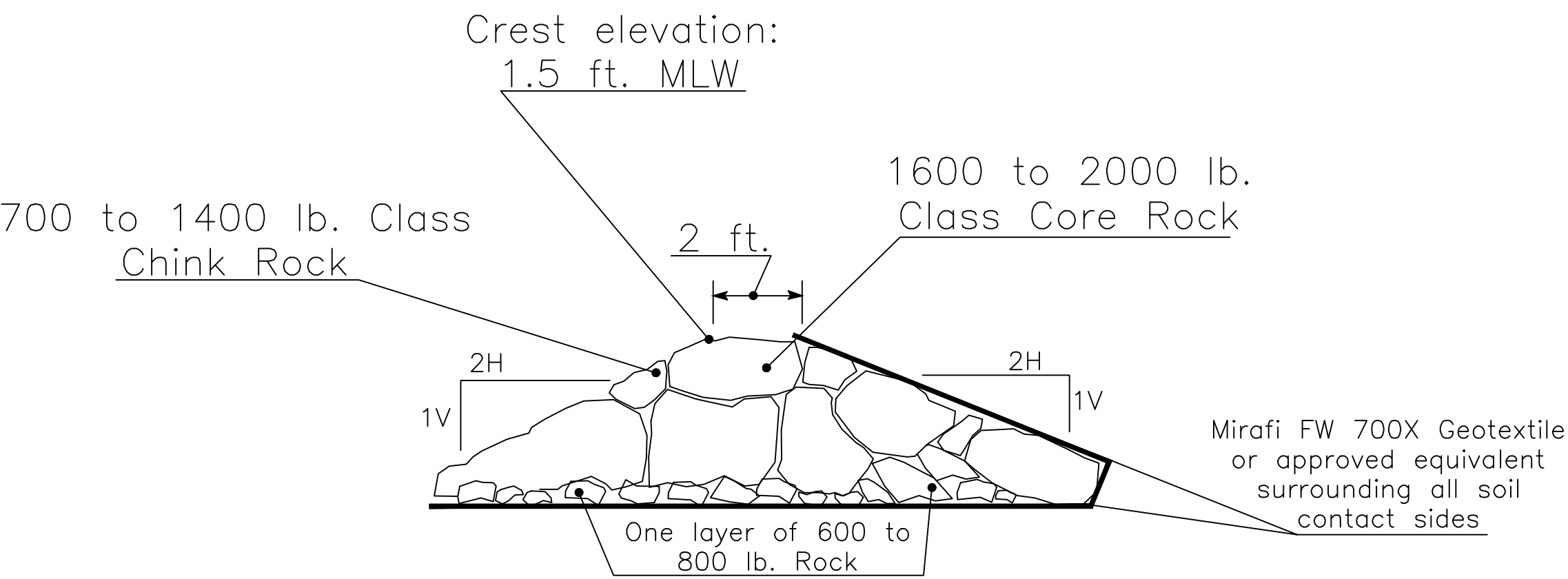
PROPOSED CONDITIONS

CBEC CONSTRUCTION DRAWINGS
PREPARED FOR LISTING

PREPARED FOR USFWS

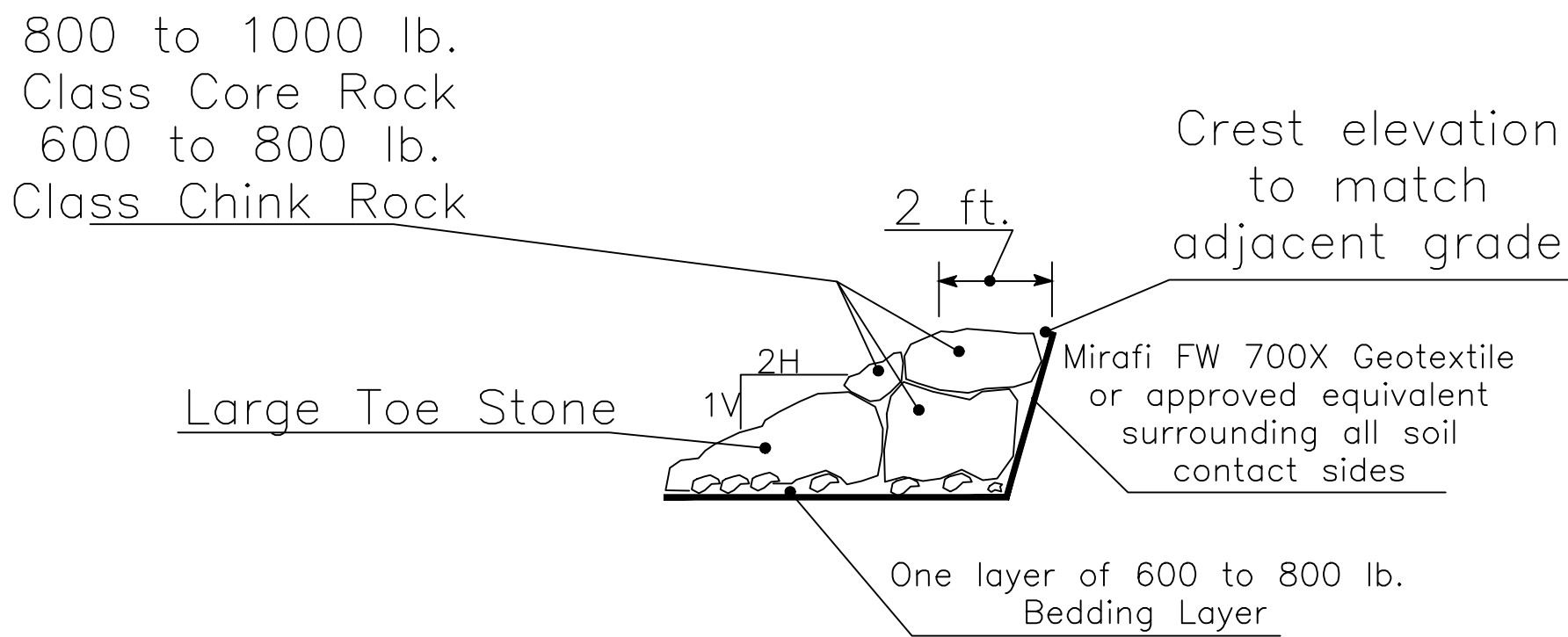
QUEEN ANNE'S COUNTY

MARYLAND



STRUCTURE TYPE S1

Not to Scale



STRUCTURE TYPE S2

Not to Scale

NO.		REVISIONS	DATE	BY	DATE	4/9/2021
					SCALE:	AS SHOWN
					DESIGN BY:	S. MCCULLOUGH
					DRAWN BY:	S. MCCULLOUGH
					CHECKED BY:	F. MCCULLOUGH
					SS PROJECT NO:	20004
					SHEET NUMBER	16 OF 16

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NOTES & DETAILS

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