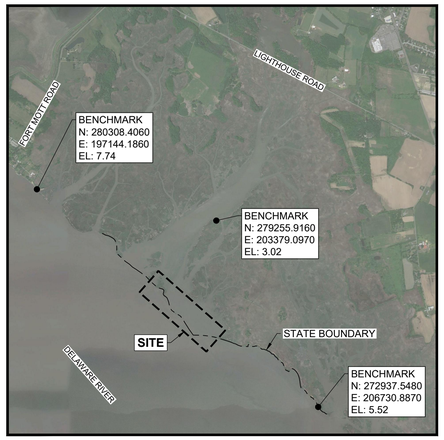
APPENDIX B

CONCEPTUAL SITE PLANS

SUPAWNA MEADOWS
NATIONAL WILDLIFE REFUGE
RESTORATION OF BRACKISH TIDAL WETLANDS
PENNSVILLE, NEW JERSEY
PERMITTING DRAWING SET



LOCATION MAP
SCALE: 1" = 2,500 FEET

VICINITY MAP
NOT TO SCALE

PREPARED FOR:

DUCKS UNLIMITED
7322 NEWMAN BLVD, BUILDING 1
DEXTER, MI 48130

PROJECT PARTNER:

U.S. FISH & WILDLIFE SERVICE
CAPE MAY NATIONAL WILDLIFE REFUGE
24 KIMBLES BEACH ROAD
CAPE MAY COURT HOUSE, NEW JERSEY 08210

SHEET LIST

DRAWING NO.	SHEET NO.	DRAWING TITLE
G-001	1	TITLE SHEET
G-002	2	GENERAL NOTES AND LEGEND
C-101	3	EXISTING CONDITIONS PLAN
C-102	4	PROPOSED CONDITIONS PLAN
C-201	5	BREAKWATER PROFILE AND SECTIONS
C-202	6	BREAKWATER PROFILE AND SECTIONS

REVISIONS

NO.	DATE	BY	DESCRIPTION

DESIGN INFORMATION

DESIGNED BY:	DRAWN BY:	CHECKED BY:	PROJECT MANAGER:
AEH	SMB	GAT	MB

SEAL

SUPAWNA MEADOWS NATIONAL WILDLIFE REFUGE
RESTORATION OF BRACKISH TIDAL WATERS
PENNSVILLE, NEW JERSEY
TITLE SHEET

DUCKS UNLIMITED

EA Engineering, Science, and Technology, Inc., PBC
301 Metro Center Blvd,
Suite 102
Warwick, RI 02886
(401) 736-3440

DATE: JANUARY 2022

PROJECT NUMBER: 6353301

G-001
SHEET: 1 OF 6

PERMITTING DRAWING SET - NOT FOR CONSTRUCTION

MAP NOTES AND REFERENCES:

1. BENCHMARKS AND CONTROL POINTS WILL BE REFERENCED TO HORIZONTAL: NEW JERSEY STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM OF 1983 (NAD83) AND VERTICAL: NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88). ALL VERTICAL ELEVATIONS SPECIFYING BREAKWATER TOP ELEVATION, MHW, AND MLW REFERENCE NAVD88.
2. EXISTING SITE FEATURES AS SHOWN ARE BASED ON SURVEY AND LIDAR DATA COLLECTED BY AXIS GEOSPATIAL, INC. ON 26 JULY 2015 AND BATHYMETRY DATA COLLECTED BY EA ENGINEERING, SCIENCE, AND TECHNOLOGY INC., PBC SEPTEMBER 2015.
3. AERIAL PHOTOGRAPHS WERE COLLECTED BY AXIS GEOSPATIAL, INC. ON 26 JULY 2015.

GENERAL CONSTRUCTION NOTES:

1. THE CONTRACTOR SHALL VERIFY THE PROPOSED LAYOUT OF THE WORK. THE CONTRACTOR SHALL ALSO VERIFY ALL DIMENSIONS, SITE CONDITIONS, AND MATERIAL SPECIFICATIONS AND SHALL NOTIFY USFWS AND THE ENGINEER OF ANY ERRORS, OMISSIONS, OR DISCREPANCIES BEFORE COMMENCING OR PROCEEDING WITH WORK.
2. THE CONTRACTOR WILL BE REQUIRED TO MAINTAIN THE SYSTEM OF ANY CONSTRUCTION LAYOUT BENCHMARKS AND BASELINES FOR THE DURATION OF THE PROJECT. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING THE HORIZONTAL AND VERTICAL ACCURACY DURING ALL CONSTRUCTION ACTIVITIES.
3. DEVIATIONS OR CHANGES FROM THESE PLANS WILL NOT BE ALLOWED UNLESS APPROVED BY THE PRIME CONTRACTOR, ENGINEER, AND USFWS.
4. CONTRACTOR SHALL PROTECT OTHER STRUCTURES WITHIN OR ADJACENT TO THE PROJECT AREAS WHICH ARE SCHEDULED TO REMAIN. ANY DAMAGE TO SUCH STRUCTURES SHALL BE REPAIRED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER AND USFWS.
5. CONTRACTOR SHALL PROCEED IN ACCORDANCE WITH USFWS APPROVED HEALTH AND SAFETY PLAN AND QUALITY CONTROL PLAN.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTINUOUSLY MAINTAINING THE POSITION OF THE EXCAVATING EQUIPMENT WITHIN THE PRESCRIBED CONSTRUCTION AND REMOVAL OF BREAKWATER LIMITS. CONTRACTOR SHALL CONTINUOUSLY MONITOR TIDE LEVELS AND DEPTH OF EXCAVATION TO ENSURE THAT THE PROPOSED DEPTH IS NOT EXCEEDED. THE CONTRACTOR SHALL HAVE ADEQUATE PERSONNEL ONSITE WITH THE ABILITY TO SET ACCURATE CONTROL FOR THE PLANNED EXCAVATION OPERATIONS.
7. THE MARSH RESTORATION STUDY REPORT AND ALTERNATIVE ANALYSIS FOR SUPAWNA MEADOWS NATIONAL WILDLIFE REFUGE, DATED OCTOBER 2016, SERVES AS A BASIS OF DESIGN AND IS A SOURCE OF ADDITIONAL BATHYMETRIC DATA FOR THE EXISTING BREAKWATER AND THE AREA IMMEDIATELY ADJACENT.

UTILITIES:

1. THE CONTRACTOR SHALL CONFIRM THAT NO UTILITIES EXIST WITHIN THE LIMITS OF EXCAVATION.
2. NOTIFY DIGSAFE AND/OR PUBLIC UTILITIES AT LEAST 3 BUSINESS DAYS PRIOR TO SITEWORK ACTIVITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD LOCATION/VERIFICATION AND PROTECTION OF ALL SUBSURFACE AND OVERHEAD UTILITIES.
3. NO KNOWN UNDERGROUND UTILITIES HAVE BEEN DOCUMENTED WITHIN THE LIMITS OF WORK. SHOULD UNCHARTED UTILITIES BE IDENTIFIED PRIOR TO EARTHWORK ACTIVITIES, OR ENCOUNTERED DURING EXCAVATION, CONSULT ENGINEER FOR DIRECTION.
4. PRIOR TO ANY EARTHWORK ACTIVITIES:
   A. LOCATE ALL UTILITIES WITHIN THE LIMITS OF WORK AND DETERMINE WHETHER UTILITIES ARE ACTIVE.
   B. LAYOUT WORK LIMIT STATIONS.
   C. INSTALL EROSION AND SEDIMENTATION CONTROL MEASURES.

SPILL PREVENTION AND RESPONSE PLAN:

1. CONTRACTOR SHALL FOLLOW PROCEDURES DESCRIBED IN SPILL PREVENTION AND RESPONSE PLAN PREPARED BY CONTRACTOR AND APPROVED BY USFWS.

EROSION AND SEDIMENT CONTROL MEASURES:

1. CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTATION AND MAINTENANCE OF THE APPROVED QUALITY CONTROL PLAN AND OTHER MEASURES NECESSARY TO CONTROL, FILTER OR PREVENT SEDIMENT FROM LEAVING THE CONTAINED AREA.
2. CONTRACTOR WILL INSTALL A TURBIDITY CURTAIN AROUND CURRENT WORK AREA IN ACCORDANCE WITH THE QUALITY CONTROL PLAN.

ACCESS AND HOURS OF OPERATION:

1. BARGES WILL BE MOBILIZED AND LOADED WITH STONE MATERIALS FROM VESSELS LAUNCHED AT OFF SITE STAGING AREAS.
2. WORK HOURS WILL BE TIDALLY DEPENDENT. A TYPICAL WORK DAY MIGHT INCLUDE TRANSPORTING MATERIAL TO THE WORK SITE FROM THE STAGING SITE AT SLACK LOW TIDE, ARRIVE AT MID TIDE. WORK THROUGH HIGH TIDE AND LEAVE THE PROJECT SITE AT THE MID TIDE TO RETURN TO THE STAGING AREA. BARGES ON SITE WILL BE STATIONED NEAR THE WORK AREA IN ANCHORAGES APPROVED BY USCG, AND IN WATER DEPTHS SUFFICIENT TO PREVENT BARGE GROUNDING DURING PERIODS OF LOW TIDE. HOURS OF WORK WILL VARY AS APPROPRIATE TO MATCH DAILY TIDE CYCLES DURING DAYLIGHT HOURS.
3. CONTRACTOR WILL FOLLOW ALL US COAST GUARD REGULATIONS CONCERNING BARGES AND BOATS, AND BE SENSITIVE TO NON-PROJECT RELATED VESSELS DURING WORK.

MATERIAL EXCAVATION REQUIREMENTS:

1. STONE EXCAVATED FROM THE BREAKWATER STRUCTURE WILL BE REUSED IN THE BREAKWATER STRUCTURE. IF NOT DEEMED SUITABLE FOR USE IN THE BREAKWATER STRUCTURE, MATERIAL WILL BE PLACED ON THE NORTH SIDE OF THE EXISTING BREAKWATER FROM STATIONS 6+14 TO 7+45.

MATERIAL PLACEMENT REQUIREMENTS:

1. ANCHORING AND SPUDDING TO BE ACCOMPLISHED IN A MANNER AS TO NOT DISTURB EXISTING BREAKWATER.
2. STONE WILL BE PLACED MECHANICALLY OR BY A METHOD THAT LIMITS WASTE OR LOSS DURING PLACEMENT AS PRACTICAL.
3. MINIMIZE EXCESS TURBIDITY DURING PLACEMENT.
4. THE TOP OF THE FINISHED BREAKWATER STRUCTURE WILL BE AN AVERAGE ELEVATION OF ±4 INCHES FROM THE PROPOSED ELEVATION.
5. THE PROPOSED QUANTITY OF STONE TO BE FURNISHED AND PLACED IS 4,080 CUBIC YARDS.

MATERIAL REQUIREMENTS:

1. STONE SHALL BE HARD AND ANGULAR, FREE FROM LAMINATIONS, WEAK CLEAVAGES OR UNDESIRABLE WEATHERING AND OF SUCH CHARACTER THAT IT WILL NOT DISINTEGRATE FROM THE ACTION OF AIR, WATER, OR HANDLING.
2. STONE DENSITY = 160 LB/CF. STONE SIZE SHALL MEET THE FOLLOWING SIZE AND GRADATION: 100 PERCENT PASSING 24 INCHES WITH 15-50 PERCENT PASSING 12 INCHES WITH NO MORE THAN 15 PERCENT PASSING THE 6 INCH.
3. SUBMITTALS FOR APPROVAL OF STONE PRIOR TO DELIVERY TO THE SITE WILL INCLUDE:
   A. STONE CLASSIFICATION CERTIFICATION BY SUPPLIER
   B. STONE UNIT WEIGHT CERTIFICATION
   C. STONE SIZE CONFORMANCE FOR MATERIALS DELIVERED TO THE PROJECT SITE

MOBILIZATION AND SEQUENCE OF WORK:

THE CONTRACTOR SHALL FOLLOW THE SEQUENCING PLAN DESCRIBED BELOW WHILE CONSTRUCTING BREAKWATER. CHANGES ARE PERMITTED WITH THE WRITTEN APPROVAL OF THE ENGINEER.

1. MOBILIZATION OF BARGES AND EQUIPMENT, AND TRANSFER OF STONE ONTO BARGES FOR TRANSPORT WILL OCCUR AT OFF SITE STAGING AREAS. BARGES WILL BE LIGHT LOADED TO LIMIT DRAFT TO ~4' OR LESS.
2. WORK WILL PROCEED FROM NORTH (STA. -0+20) TO SOUTH (STA. 25+11). RANGE AND ELEVATION MARKERS WILL BE INSTALLED FOR CONTROL OF STONE PLACEMENT IN ACCORDANCE WITH THE PLAN SHEETS C-102 THROUGH C-202. TURBIDITY CURTAIN WILL BE PLACED AROUND THE AREA OF EXCAVATION AND AREA OF UNSUITABLE SOIL PLACEMENT.
3. IN ADDITION TO THE USE OF LAYOUT MARKERS, A RECORD OF THE QUANTITY OF STONE PLACED IN EACH SECTOR WILL BE MAINTAINED TO INSURE THE PROPER DISTRIBUTION OF MATERIAL ON THE PROJECT.
4. EACH WORKDAY, DURING A PERIOD OF FLOOD TIDE, THE EQUIPMENT WILL BE MOVED INTO WORKING POSITION, AS CONDITIONS ALLOW. BEFORE ANY STONE PLACEMENT OR EXCAVATION BEGINS, ANY REQUIRED TURBIDITY CURTAIN WILL BE DEPLOYED AND/OR REPAIRED.
5. CONSTRUCTION PERSONNEL WILL BE PRESENT ON THE BREAKWATER WHILE STONE IS BEING PLACED TO SPOT STONE PLACEMENT VIA A CLAM BUCKET OR GRAPPLE, AND TO VISUALLY INSPECT CONSTRUCTION QUALITY.
6. WORK WILL BE LIMITED BY THE AVAILABLE FLOATATION. WATER DEPTH AND TIDAL CONDITIONS WILL BE MONITORED AND, WHEN CONDITIONS WARRANT, THE OPERATION WILL BE STOPPED AND THE BARGES WILL BE MOVED OUT INTO SAFER WATER DEPTHS.

PERMITTING REQUIREMENTS:

1. THIS PROJECT IS SUBJECT TO THE CONDITIONS OF THE FOLLOWING PERMITS:

   FEDERAL CONSISTENCY DETERMINATION
   NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION, DIVISION OF LAND USE REGULATION
   UPLAND WATERFRONT DEVELOPMENT PERMIT, COASTAL GENERAL PERMIT 24, SECTION 401 WATER QUALITY CERTIFICATE
   NJDEP FILE NO. XXXX

   DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL
   WETLANDS AND SUBAQUEOUS LANDS PERMIT
   DNREC FILE NO. XXXX

   UNITED STATES ARMY CORPS OF ENGINEERS
   DEPARTMENT OF ARMY PERMIT
   NATIONWIDE PERMIT XXXX

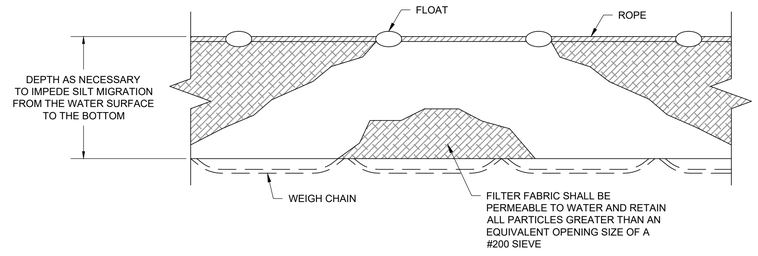
2. CONSTRUCTION MAY NOT PROCEED UNTIL THE ABOVE PERMITS ARE RECEIVED AND CONDITIONS HAVE BEEN REVIEWED AND ACCEPTED BY THE ENGINEER, AND USFWS.
3. A COPY OF ALL PERMITS WILL BE AVAILABLE ON SITE.

ABBREVIATIONS

AC	ACRES
APPRX	APPROXIMATELY
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
BLDG	BUILDING
CATV	CABLE TELEVISION
CMP	CORRUGATED METAL PIPE
COMM	COMMUNICATIONS
CONC	CONCRETE
DA	DRAINAGE AREA
DIA	DIAMETER
DOT	DEPARTMENT OF TRANSPORTATION
EL/ELEV	ELEVATION
ECP	ENVIRONMENTAL CONCEPT PLAN
EPA	U.S. ENVIRONMENTAL PROTECTION AGENCY
ESC	SOIL EROSION AND SEDIMENT CONTROL
ESD	ENVIRONMENTAL SITE DESIGN
EX/EXIST	EXISTING
FEMA	FEDERAL EMERGENCY MANAGEMENT AGENCY
FT	FEET
FT BGS	FEET BELOW GROUND SURFACE
GPS	GLOBAL POSITIONING SERVICE
INV	INVERT
MHW	MEAN HIGH WATER
MLW	MEAN LOW WATER
MSL	MEAN SEA LEVEL
NA	NOT APPLICABLE
NAD 83	NORTH AMERICAN DATUM OF 1983
NAVD 88	NORTH AMERICAN VERTICAL DATUM OF 1988
NGS	NATIONAL GEODETIC SURVEY
NO.	NUMBER
NRCS	NATIONAL RESOURCE CONSERVATION SERVICE
OVHD/OH	OVERHEAD
PR	PROPOSED
RCP	REINFORCED CONCRETE PIPE
RTK	REAL-TIME KINEMATIC
SCH	SCHEDULE
SD	STORM DRAIN
SS	SANITARY SEWER
SQ FT	SQUARE FEET
SWM	STORMWATER MANAGEMENT
SWPPP	STORMWATER POLLUTION PREVENTION PLAN
TYP	TYPICAL
UGND/UG	UNDERGROUND
U.S.	UNITED STATES
USACE	U.S. ARMY CORPS OF ENGINEERS
USDA	U.S. DEPARTMENT OF AGRICULTURE
USGS	U.S. GEOLOGICAL SURVEY
W/	WITH
WSEL	WATER SURFACE ELEVATION

LEGEND

DESCRIPTION	EXISTING	PROPOSED
STATE BOUNDARY LINE		
SITE CONTROL POINT	△ #	△ #
SITE WATER LEVEL MARKER		
SITE SPOT ELEVATION	+ EL	+ EL
SITE CONTOUR	#	#
PLAN NORTH ARROW		
PLAN NUMBER CALLOUT		#
PLAN KEYNOTE CALLOUT		X
PLAN REVISION CALLOUT		#
PLAN SECTION CUT VIEW BEGIN		X
PLAN SECTION CUT VIEW END		X'
ESC LIMIT OF DISTURBANCE	LOD	LOD
ESC SILT FENCE	SF	SF
ESC TURBIDITY CURTAIN	TC	
HORIZONTAL ALIGNMENT OF BREAKWATER	5+00	
HORIZONTAL LIMIT OF BREAKWATER		



TURBIDITY CURTAIN
NOT TO SCALE

NOTE:

THE TOP OF THE TURBIDITY CURTAIN SHALL BE WITHIN 6 INCHES FROM THE WATER SURFACE AND THE BOTTOM OF SILT CURTAIN SHALL BE MAINTAINED TO PREVENT CONTACT WITH SEDIMENT AND CAUSE RE-SUSPENSION.

REVISIONS

NO.	DATE	BY	DESCRIPTION

DESIGN INFORMATION
DESIGNED BY: AEH
DRAWN BY: SMB
CHECKED BY: GAT
PROJECT MANAGER: MB

SEAL

SUPAWNA MEADOWS NATIONAL WILDLIFE REFUGE
RESTORATION OF BRACKISH TIDAL WATERS
PENNSVILLE, NEW JERSEY
GENERAL NOTES AND LEGEND

DUCKS UNLIMITED

EA Engineering, Science, and Technology, Inc., PBC
301 Metro Center Blvd,
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Warwick, RI 02886
(401) 736-3440

DATE: JANUARY 2022

PROJECT NUMBER: 6353301

G-002

SHEET: 2 OF 6

PERMITTING DRAWING SET - NOT FOR CONSTRUCTION

N

0 40 80 160
GRAPHIC SCALE IN FEET

REVISIONS

NO.	DATE	BY	DESCRIPTION

DESIGN INFORMATION

DESIGNED BY:	AEH
DRAWN BY:	SMB
CHECKED BY:	GAT
PROJECT MANAGER:	MB

SEAL

SUPAWNA MEADOWS NATIONAL WILDLIFE REFUGE
RESTORATION OF BRACKISH TIDAL WATERS

PENNSVILLE, NEW JERSEY

EXISTING CONDITIONS PLAN

DUCKS UNLIMITED

EA Engineering, Science, and Technology, Inc., PBC
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DATE: JANUARY 2022

PROJECT NUMBER: 6353301

C-101

SHEET: 3 OF 6

PERMITTING DRAWING SET - NOT FOR CONSTRUCTION

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REVISIONS

NO.	DATE	BY	DESCRIPTION

DESIGN INFORMATION

DESIGNED BY: AEH
DRAWN BY: SMB
CHECKED BY: GAT
PROJECT MANAGER: MB

SEAL

SUPAWNA MEADOWS NATIONAL WILDLIFE REFUGE
RESTORATION OF BRACKISH TIDAL WATERS

PENNSVILLE, NEW JERSEY

PROPOSED CONDITIONS PLAN

DUCKS UNLIMITED

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(401) 736-3440

DATE: JANUARY 2022

PROJECT NUMBER: 6353301

C-102

SHEET: 4 OF 6

PERMITTING DRAWING SET - NOT FOR CONSTRUCTION

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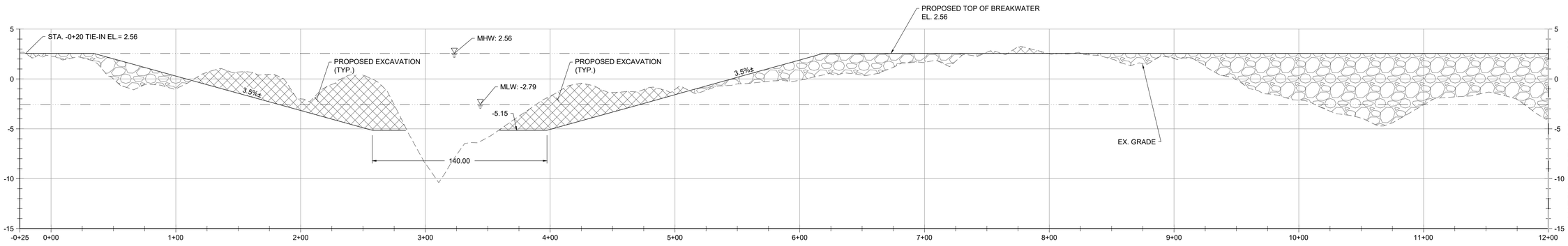

BREAKWATER PROFILE - STA. -0+25 TO 12+00
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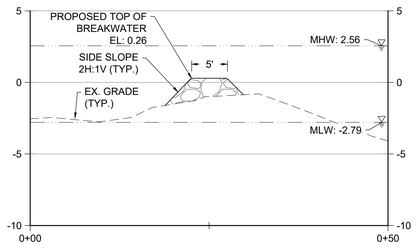
VERTICAL SCALE: 1" = 5'



BREAKWATER SECTION - A-A' (STA. 1+00)
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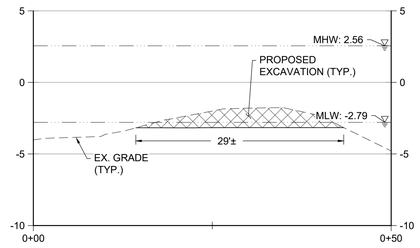
VERTICAL SCALE: 1" = 5'



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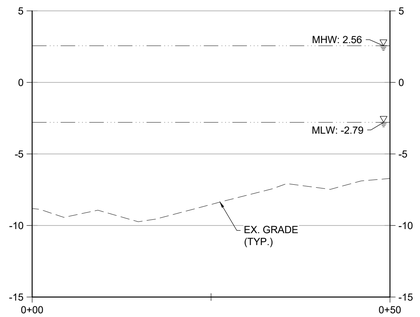

BREAKWATER SECTION - C-C' (STA. 3+00)
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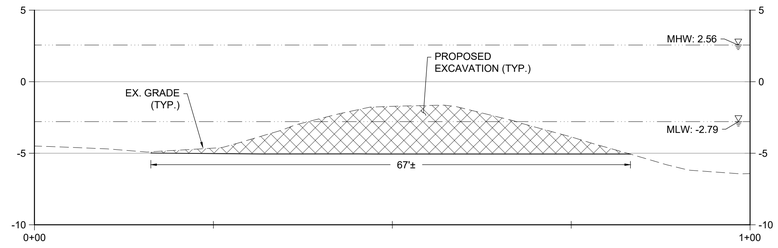

BREAKWATER SECTION - D-D' (STA. 4+00)
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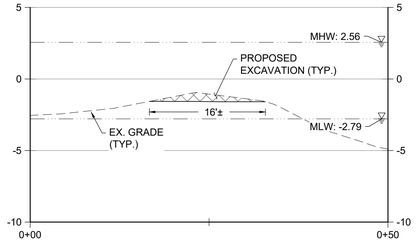

BREAKWATER SECTION - E-E' (STA. 5+00)
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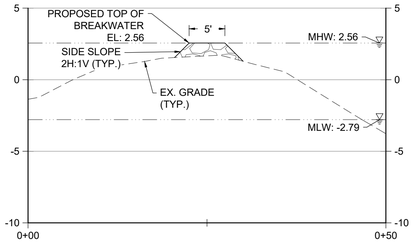
VERTICAL SCALE: 1" = 5'



BREAKWATER SECTION - F-F' (STA. 7+00)
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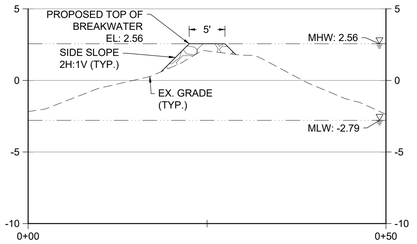
VERTICAL SCALE: 1" = 5'



BREAKWATER SECTION - G-G' (STA. 9+00)
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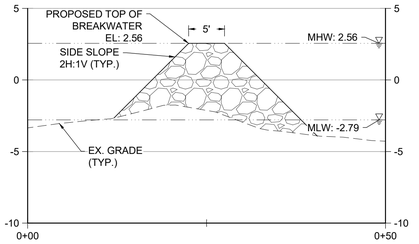
VERTICAL SCALE: 1" = 5'



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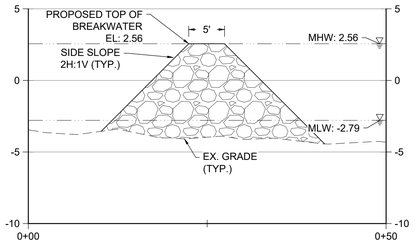
VERTICAL SCALE: 1" = 5'



BREAKWATER SECTION - I-I' (STA. 12+00)
HORIZONTAL SCALE: 1" = 10'
VERTICAL SCALE: 1" = 5'

NOTES

1. WATER LEVELS OBTAINED FROM REEDY POINT, DELAWARE NOAA STATION ID: 8551910.

0 20 40 80
GRAPHIC SCALE IN FEET

0 5 10 20
GRAPHIC SCALE IN FEET

REVISIONS

NO.	DATE	BY	DESCRIPTION

DESIGN INFORMATION
DESIGNED BY: AEH
DRAWN BY: SMB
CHECKED BY: GAT
PROJECT MANAGER: MB

SEAL

SUPAWNA MEADOWS NATIONAL WILDLIFE REFUGE
RESTORATION OF BRACKISH TIDAL WATERS

PENNSVILLE, NEW JERSEY

BREAKWATER PROFILE AND SECTIONS

DUCKS UNLIMITED

EA Engineering, Science, and Technology, Inc., PBC
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(401) 736-3440

DATE: JANUARY 2022

PROJECT NUMBER: 6353301

C-201

SHEET: 5 OF 6

PERMITTING DRAWING SET - NOT FOR CONSTRUCTION

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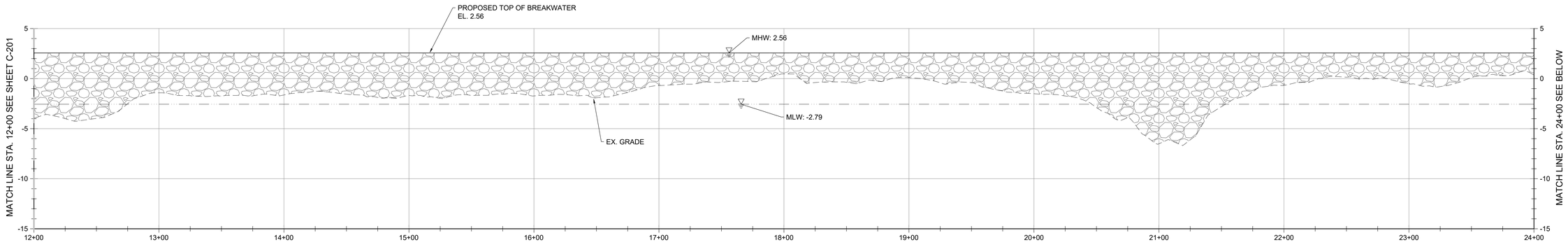
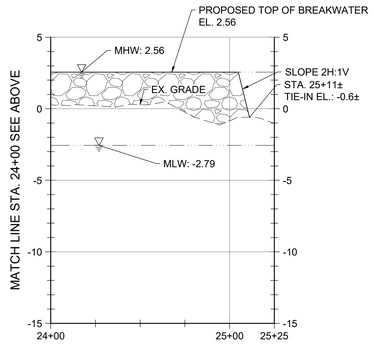


BREAKWATER PROFILE - STA. 12+00 TO 24+00
HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: 1" = 5'



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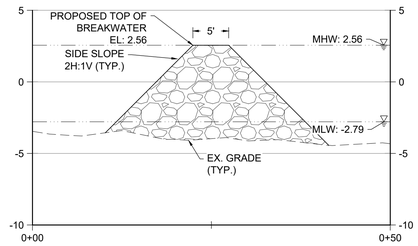
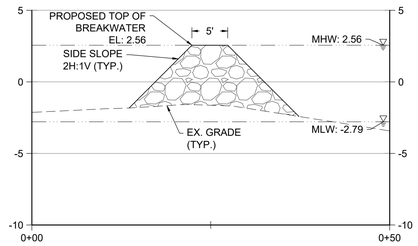
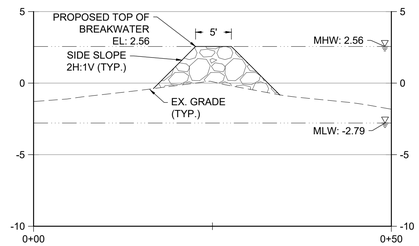


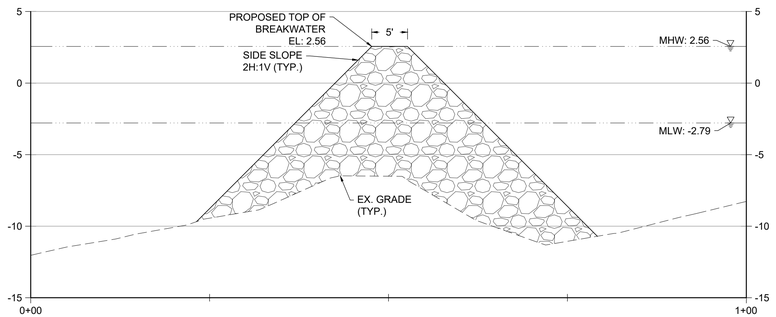
BREAKWATER SECTION - I-I' (STA. 12+00)
HORIZONTAL SCALE: 1" = 10'
VERTICAL SCALE: 1" = 5'



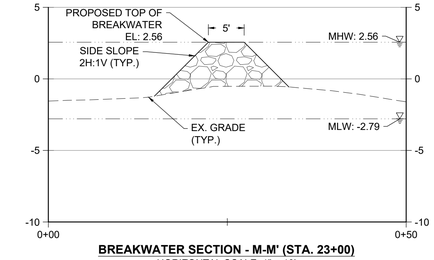
BREAKWATER SECTION - J-J' (STA. 14+00)
HORIZONTAL SCALE: 1" = 10'
VERTICAL SCALE: 1" = 5'



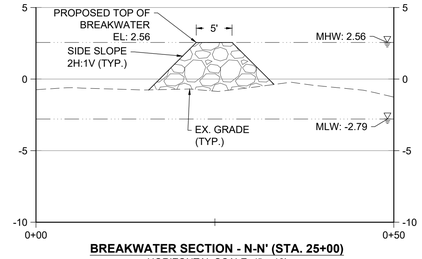
BREAKWATER SECTION - K-K' (STA. 19+00)
HORIZONTAL SCALE: 1" = 10'
VERTICAL SCALE: 1" = 5'



BREAKWATER SECTION - L-L' (STA. 21+00)
HORIZONTAL SCALE: 1" = 10'
VERTICAL SCALE: 1" = 5'



BREAKWATER SECTION - M-M' (STA. 23+00)
HORIZONTAL SCALE: 1" = 10'
VERTICAL SCALE: 1" = 5'



BREAKWATER SECTION - N-N' (STA. 25+00)
HORIZONTAL SCALE: 1" = 10'
VERTICAL SCALE: 1" = 5'

NOTES

1. WATER LEVELS OBTAINED FROM REEDY POINT, DELAWARE NOAA STATION ID: 8551910.

GRAPHIC SCALE IN FEET
0 20 40 80

GRAPHIC SCALE IN FEET
0 5 10 20

REVISIONS

NO.	DATE	BY	DESCRIPTION

DESIGN INFORMATION
DESIGNED BY: AEH
DRAWN BY: SMB
CHECKED BY: GAT
PROJECT MANAGER: MB

SEAL

SUPAWNA MEADOWS NATIONAL WILDLIFE REFUGE
RESTORATION OF BRACKISH TIDAL WATERS

PENNSVILLE, NEW JERSEY

BREAKWATER PROFILE AND SECTIONS

DUCKS UNLIMITED

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Warwick, RI 02886
(401) 736-3440

DATE: JANUARY 2022

PROJECT NUMBER: 6353301

C-202

SHEET: 6 OF 6

PERMITTING DRAWING SET - NOT FOR CONSTRUCTION