



# CHARLESTON COUNTY PARKS AND RECREATION

861 RIVERLAND DRIVE, CHARLESTON, SC 29412

# COOPER RIVER PARK AND MARINA IMPROVEMENTS - DESIGN-BUILD

1010 TIDEWATER ROAD, NORTH CHARLESTON, SC 29405



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## SITE LEGEND

**EXISTING**      **PROPOSED**

BLDG. STRUCTURE

PROPERTY LINE OR RIGHT-OF-WAY

SPOT ELEVATION

TREE LINE

TREE

FLOOD ZONE AE

WETLANDS

CONTOUR

STORM DRAIN

SANITARY SEWER

WATER

UNDERGROUND POWER

CABLE

UNDERGROUND TELEPHONE

FIBER OPTICS

DITCH/SWALE

FENCE

CONCRETE

HEAVY-DUTY ASPHALT PAVEMENT

PLANTATION MIX

GRAVEL PAVEMENT

HEADER CURB

BENCHMARK

HORIZONTAL CONTROL POINT (HCP)

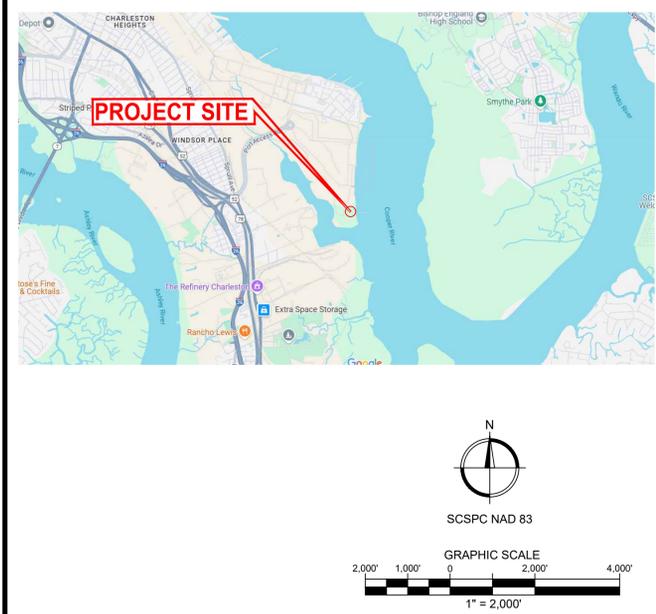
ABBREVIATIONS:

ARC      AIR RELEASE VALVE  
 BM      BENCHMARK  
 BOL      BOLLARD  
 BOT      BOTTOM  
 CB      CATCH BASIN  
 CL/CIL      CENTERLINE  
 CMP      CORRUGATED METAL PIPE  
 CO      CLEAN OUT  
 CONC      CONCRETE  
 CONST      CONSTRUCTION  
 DET      DETAIL  
 DI      DROP INLET  
 DIP      DUCTILE IRON PIPE  
 DWT      DRAWING  
 EA      DBL. WING TRAP  
 EB      EACH  
 EB      ELECTRICAL BOX  
 ELEV      ELEVATION  
 EXIST      EXISTING  
 FH      FIRE HYDRANT  
 FW      FIRE WATER  
 GEN      GENERATOR  
 GI      GRATE INLET  
 GV      GAS VALVE  
 HDPE      HIGH DENSITY POLYETHYLENE  
 ICB      IRRIGATION CONTROL VALVE  
 IE      INVERT ELEVATION  
 IPF      IRON PIPE FOUND  
 LP      LINEAR FOOT  
 LOD      LIMITS OF DISTURBANCE  
 LP      LIGHT POLE OR LOW POINT  
 MAX.      MAXIMUM  
 MH      MANHOLE  
 MIN.      MINIMUM  
 N/F      NOW AND FORMERLY  
 NF      NAIL FOUND  
 OHP      OVERHEAD POWER  
 PIN      PROPERTY ID NUMBER  
 PVC      POLYVINYL CHLORIDE  
 PW      POTABLE WATER  
 RBS      REBAR SET  
 RCP      REIN. CONC. PIPE  
 (R/F)      RESTRAINT JOINT FITTING  
 (RJP)      RESTRAINT JOINT PIPE  
 R/W      RIGHT-OF-WAY  
 SS      SANITARY SEWER  
 SWT      SGL. WING TRAP  
 TEMP      TEMPORARY  
 TYP      TYPICAL  
 UGP      UNDERGROUND POWER  
 W      WATER MAIN  
 WM      WATER METER  
 WV      WATER VALVE

## GENERAL NOTES

- ALL CONSTRUCTION SHALL CONFORM TO THE REGULATIONS AND SPECIFICATIONS OF THE CITY OF NORTH CHARLESTON, SCDES, SCDOT LATEST EDITION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (SCDOT SPECIFICATIONS), SCDOT SUPPLEMENTAL AND SUPPLEMENTAL TECHNICAL SPECIFICATIONS, SCDOT STANDARD DRAWINGS, AND APPLICABLE FIRE AND BUILDING CODES.
- CONTRACTOR SHALL OBTAIN A CLEARING AND GRADING PERMIT FROM THE CITY'S MS4 DEPARTMENT. REVIEW THE CITY'S MS4 APPROVAL LETTER FOR REQUIREMENTS.
- THE CONTRACTOR SHALL COORDINATE THE WORK WITH THE UTILITY COMPANIES AS REQUIRED TO VERIFY LOCATIONS PRIOR TO CONSTRUCTION.
- INITIAL BMPs SHALL BE IN PLACE PRIOR TO CLEARING, REGARDLESS OF PLAN REQUIREMENT. NO CLEARING OR GRADING MAY BE DONE UNTIL BMP INSTALLATION IS COMPLETE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ACQUIRING ALL LOCAL PERMITS AND LICENSES AS REQUIRED BY THE AUTHORITY HAVING JURISDICTION.
- THE ESCAPE OF SEDIMENT FOR THIS SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO LAND DISTURBANCE ACTIVITIES.
- ALL DISTURBED AREAS SHALL BE SODDED, EXCEPT AS SPECIFIED ON THE PLANTING PLANS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR DISPOSAL OF EXCESS EXCAVATED MATERIALS NOT SUITABLE OR NOT REQUIRED FOR BACKFILLING.
- ALL EXISTING SEWERS, PIPING, AND UTILITIES SHOWN ARE NOT TO BE INTERPRETED AS EXACT LOCATION, OR AS THE ONLY OBSTACLES THAT MAY OCCUR ON THE SITE. THE CONTRACTOR IS TO PROCEED WITH CAUTION AROUND ANY ANTICIPATED FEATURES. THE LOCATION OF ALL EXISTING UTILITIES SHOWN HAVE BEEN DETERMINED FROM THE BEST INFORMATION AVAILABLE AND ARE GIVEN FOR THE CONVENIENCE OF THE CONTRACTOR.
- THE CONTRACTOR SHALL CALL THE PALMETTO UTILITY PROTECTION SERVICES (PUPS) AT 811 OR 800-721-7877 PRIOR TO DIGGING AND ALSO BE AWARE OF ALL EXISTING UTILITY LINE LOCATIONS DURING CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY UTILITY COMPANIES FOR THE LOCATION OF UTILITIES NOT SHOWN ON THE PLANS.
- EXISTING IMPROVEMENTS, UTILITIES, TREES, AND PLANTS THAT ARE NOT TO BE REMOVED SHALL BE PROTECTED FROM INJURY OR DAMAGE RESULTING FROM THE CONTRACTOR'S OPERATIONS. DAMAGE TO ALL EXISTING CONDITIONS TO REMAIN SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE WITH THIS WORK BEING INCIDENTAL TO CONSTRUCTION. IF THE CONTRACTOR REMOVES ANY UNDERGROUND OBSTRUCTIONS, THE AREA IN WHICH THE UNDERGROUND OBSTRUCTION WAS LOCATED SHALL BE RESTORED TO THE ORIGINAL CONDITION OR BETTER.
- THE CONTRACTOR SHALL MOVE AND REPLACE SIGNS, POLES, SIDEWALK, CURB/GUTTER AND RELOCATE EXISTING UTILITIES ETC. AS REQUIRED WITH THIS WORK BEING INCIDENTAL TO CONSTRUCTION.
- ALL CONSTRUCTION MATERIALS SHALL BE NEW, UNLESS SPECIALLY NOTED OTHERWISE
- THE CONTRACTOR SHALL PROMPTLY INFORM THE OWNER IN WRITING OF ANY ERRORS, DISCREPANCIES, OR CONFLICTS DISCOVERED IN OR BETWEEN THE PLANS AND SPECIFICATIONS.
- COMPACT SUBGRADE TO REQUIREMENTS AS SHOWN ON THE DETAILS.
- ALL BACKFILL MATERIAL SHALL BE IN ACCORDANCE WITH SCDOT SUPPLEMENTAL TECHNICAL SPECIFICATION SC-M-714 (04/09 OR LATEST VERSION), FROM AN APPROVED SOURCE, AND SHALL BE FREE OF ROOTS, ORGANICS, AND UNSUITABLE MATERIAL. BACKFILL SHALL BE PLACED IN 6" LIFTS AND BE COMPACTED IN ACCORDANCE WITH THE DETAILS.
- NO EQUIPMENT SHALL BE DRIVEN OVER THE AREA WITHIN SIX FEET OF A TREE WHICH IS TO REMAIN UNLESS USED FOR IMMEDIATE ADJACENT CONSTRUCTION. NO SUCH TREE SHALL BE USED TO SUPPORT BUILDING MATERIALS, SCAFFOLDING, OR EQUIPMENT NOR SHALL SUCH EQUIPMENT OR TOPSOIL BE STOCKPILED WITHIN EIGHT FEET THEREOF. ALL TREE PROTECTION SHALL BE INSTALLED PRIOR TO COMMENCING WORK.
- SILT FENCE SHALL BE IN ACCORDANCE WITH SCDOT SUPPLEMENTAL TECHNICAL SPECIFICATION SC-M-815-2 (8/3/08 OR LATEST VERSION) AND BE PLACED IMMEDIATELY FOLLOWING PROJECT COMMENCEMENT.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE IMMEDIATE REMOVAL OF SUCH HAZARDS AS MUD, DEBRIS, LOOSE STONE, AND TRASH AS MAY BE WASHED OR SPILLED ONTO ADJACENT AREAS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL UTILITY RELOCATION REQUIRED.
- EXCESS MATERIAL REMAINING AFTER THE SITE HAS BEEN GRADED TO FINAL CONTOURS SHALL BE HAULED AND DISPOSED IN A LEGAL MANNER.
- THE TOWN WILL PROVIDE SPECIAL INSPECTIONS AS NECESSARY FOR THE VARIOUS WORK TASKS. THE CONTRACTOR SHALL COORDINATE THE WORK SCHEDULE TO PLAN FOR THE INSPECTIONS.
- IF THE USE OF A CONSTRUCTION TRAILER IS ANTICIPATED, THE CONTRACTOR SHALL REVIEW THE PLANS AND ENSURE THAT ITS PLACEMENT DOES NOT ENCRoACH UPON THE BUILDING SETBACKS AS INDICATED.

## LOCATION MAP



## PROJECT DATA

**OWNER:** CHARLESTON COUNTY PARKS AND RECREATION  
 861 RIVERLAND DRIVE  
 CHARLESTON, SC 29412

**OWNER CONTACT:**  
 MATTHEW C. MOLDENHAUER  
 PLANNING & DEVELOPMENT  
 P: (843) 762-8047  
 E: matt.moldenhauer@ccprc.com

**OWNER'S ENGINEER:**  
 JOHNSON, LASCHOB & ASSOCIATES, P.C.  
 HERBERT GILLIAM  
 701 EAST BAY STREET, SUITE 304  
 CHARLESTON, SC 29403  
 P: 706-724-5756  
 E: hgilliam@thejlagroup.com

**UTILITIES:**  
 ELECTRIC: DOMINION ENERGY  
 WATER: CWS  
 SEWER: NORTH CHARLESTON SEWER DISTRICTS

**PARCELS:** 400-00-00037

**PROPERTY COORDINATES:**  
 32° 49' 55.5" N, 79° 56' 17.9" W

**DISTURBED AREA:**

**TO BE DETERMINED BY CONTRACTORS MEANS AND METHODS OF CONSTRUCTION.**

**ZONING:** M-2, HEAVY INDUSTRIAL DISTRICT

**CONSTRUCTION TYPE:** OVER WATER UTILITIES/ BOARDWALKS/ SHORELINE RESTORATION

**RECEIVING WATERS:** COOPER RIVER

## CONSTRUCTION APPROVALS

DESCRIPTION	AGENCY/PERMIT NUMBER
WETLANDS	ARMY PERMIT SAC-2002-12823
CRITICAL AREA	OCRM 2002-12823

"I HAVE PLACED MY SIGNATURE AND SEAL ON THE DESIGN DOCUMENTS SUBMITTED SIGNIFYING THAT I ACCEPT RESPONSIBILITY FOR THE DESIGN OF THE SYSTEM. FURTHER, I CERTIFY TO THE BEST OF MY KNOWLEDGE AND BELIEF THAT THE DESIGN IS CONSISTENT WITH THE REQUIREMENTS OF TITLE 48, CHAPTER 14 OF THE CODE OF LAWS OF SC, 1976 AS AMENDED, PURSUANT TO REGULATION 72-300 ET SEQ. (IF APPLICABLE), AND IN ACCORDANCE WITH THE TERMS AND CONDITIONS OF SCR100000."

ENGINEER, S.C.P.E. # \_\_\_\_\_ DATE \_\_\_\_\_

CLIENT: CHARLESTON COUNTY PARKS AND RECREATION

PROJECT NAME: COOPER RIVER COUNTY PARK SITE PLAN - DESIGN-BUILD

PROJECT LOCATION: 1010 TIDEWATER RD. NORTH CHARLESTON, SC 29405



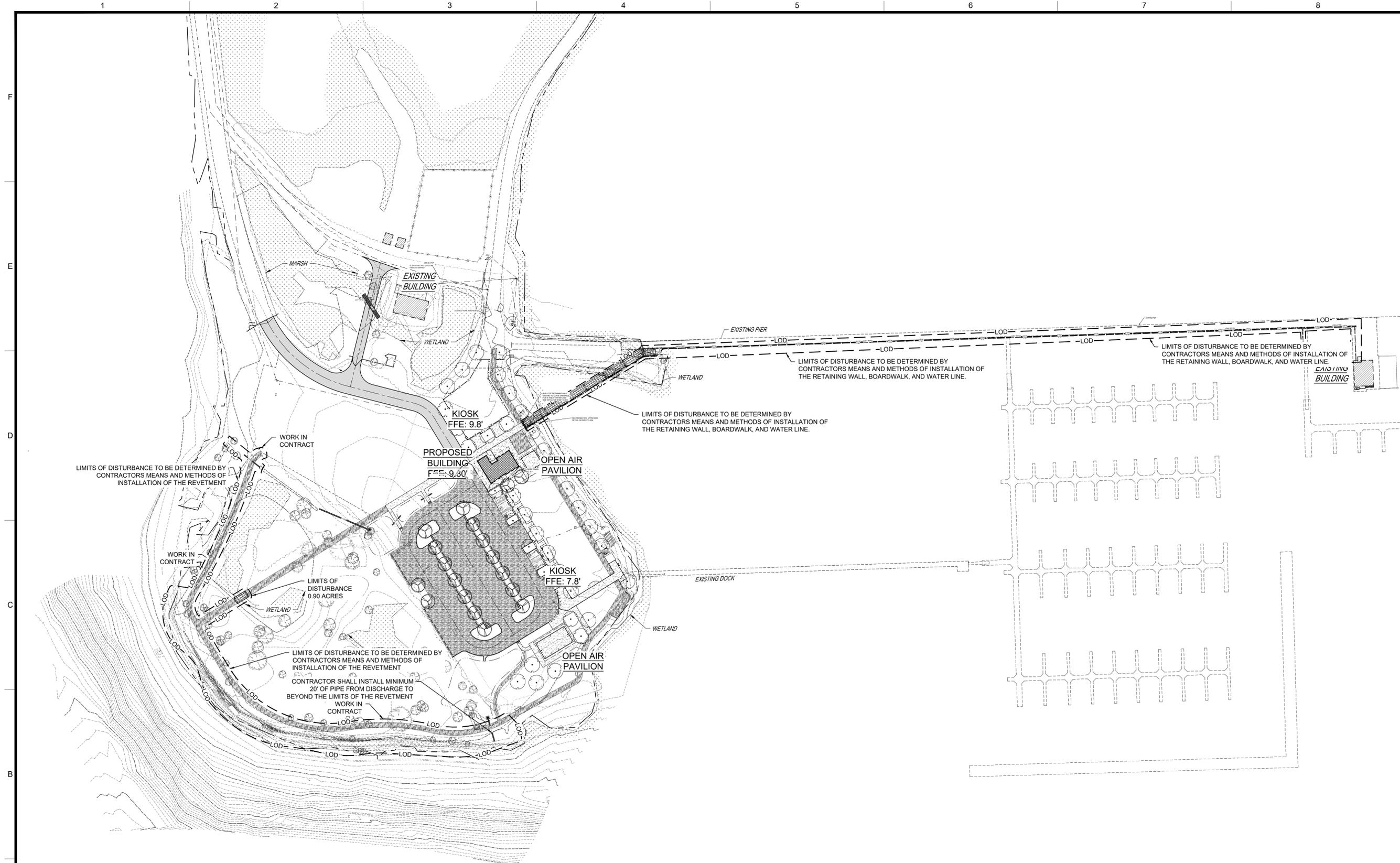
REV	DATE	BY	DESCRIPTION
0	02/09/2026	HWG	ISSUED FOR BID

PROJECT NO.	3001.2502
DRAWN BY:	MDC
CHECKED BY:	HWG
DATE:	02/09/2026
SHEET TITLE:	
<b>COVER SHEET</b>	
SCALE:	AS NOTED
DRAWING NO.	CG001
REV.	0

ISSUED FOR BID

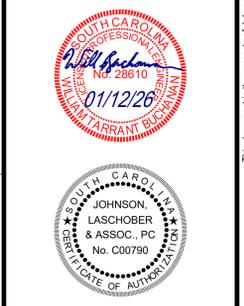


**UTILITY WARNING:**  
 THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE ENGINEER MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE ENGINEER FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE ENGINEER HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.



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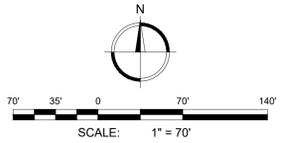
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 DRAWN BY: MDC  
 CHECKED BY: HWG  
 DATE: 02/09/2026

**OVEALL PLAN AND INDEX MAP**

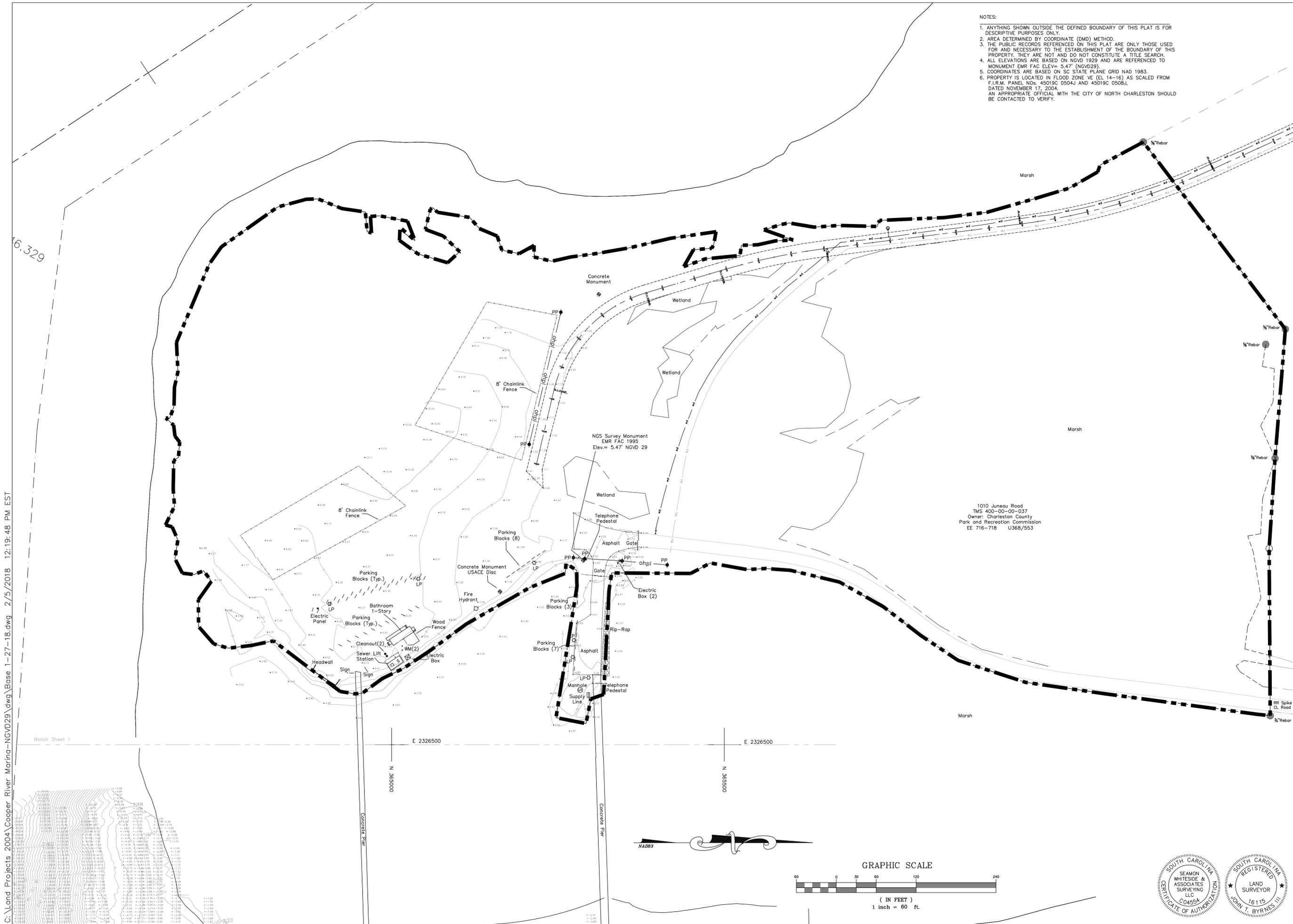
SCALE: 1" = 70'  
 DRAWING NO. **CG100** REV. 0

**UTILITY WARNING:**  
 The underground utilities shown have been located from field survey information and existing drawings. The engineer makes no guarantee that the underground utilities shown comprise all such utilities in the area, either in service or abandoned. The engineer further does not warrant that the underground utilities shown are in the exact location indicated although he does certify that they are located as accurately as possible from information available. The engineer has not physically located the underground utilities.

**1 OVEALL PLAN AND INDEX MAP**  
 CG100



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- NOTES:
1. ANYTHING SHOWN OUTSIDE THE DEFINED BOUNDARY OF THIS PLAT IS FOR DESCRIPTIVE PURPOSES ONLY.
  2. AREA DETERMINED BY COORDINATE (DMD) METHOD.
  3. THE PUBLIC RECORDS REFERENCED ON THIS PLAT ARE ONLY THOSE USED FOR AND NECESSARY TO THE ESTABLISHMENT OF THE BOUNDARY OF THIS PROPERTY. THEY ARE NOT AND DO NOT CONSTITUTE A TITLE SEARCH.
  4. ALL ELEVATIONS ARE BASED ON NGVD 1929 AND ARE REFERENCED TO MONUMENT EMR FAC ELEV = 5.47' (NGVD29).
  5. COORDINATES ARE BASED ON SC STATE PLANE GRID NAD 1983.
  6. PROPERTY IS LOCATED IN FLOOD ZONE VE (EL 14-16) AS SCALED FROM F.I.R.M. PANEL NOs. 45019C 0504J AND 45019C 0508J, DATED NOVEMBER 17, 2004. AN APPROPRIATE OFFICIAL WITH THE CITY OF NORTH CHARLESTON SHOULD BE CONTACTED TO VERIFY.

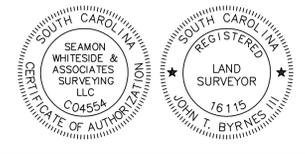
NO.	DATE	DESCRIPTION	BY

1035-B Jenkins Road  
Charleston, SC 29407  
(843) 795-9330

A HYDROGRAPHIC AND TOPOGRAPHIC SURVEY OF  
THE COOPER RIVER MARINA  
AT THE OLD NAVAL SHIPYARD  
LOCATED IN THE CITY OF NORTH CHARLESTON  
CHARLESTON COUNTY, SOUTH CAROLINA

**VF101**

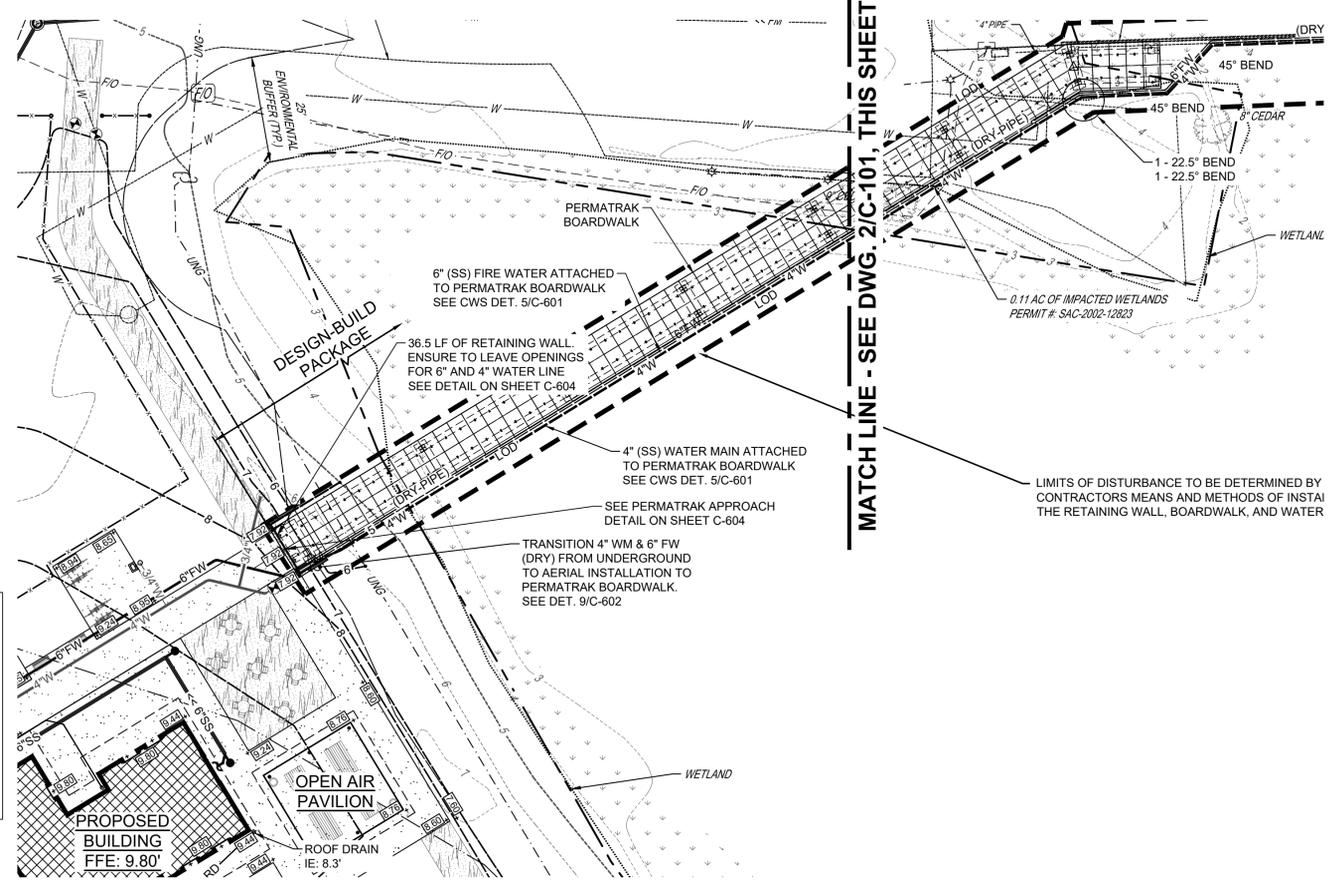
DATE: February 6, 2018
DRAWN: RKS
CHECK: JTB
CC: JSM
JOB: 17231
DWG: Base 1-27-18
SHEET: 2 OF 2



C:\Land Projects\2004\Cooper River Marina-NGVD29.dwg Base 1-27-18.dwg 2/5/2018 12:19:48 PM EST



**UTILITY WARNING:**  
 THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE ENGINEER MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE ENGINEER FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE ENGINEER HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.



1 SITE PLAN SHT. 1 OF 3  
C-101

**NOTES**

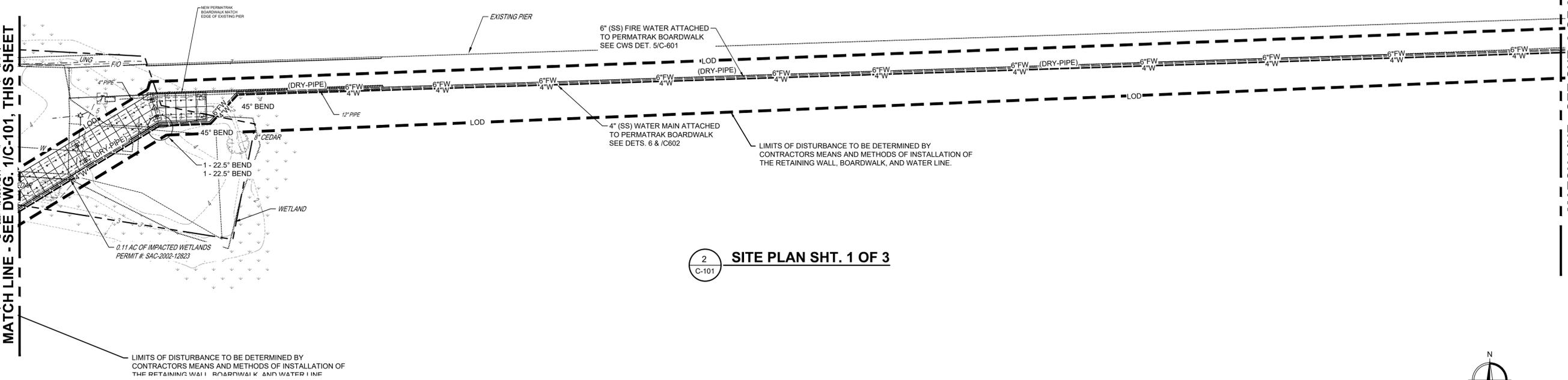
1. THE CONTRACTOR SHALL PREPARE DETAILED SHOP DRAWINGS OF THE PIPE LENGTHS WITH FITTINGS FOR APPROVAL PRIOR TO ORDERING MATERIALS.
2. THE CONTRACTOR SHALL COORDINATE PIPE SUPPORTS ASSOCIATED WITH THE PERMATRAK BOARDWALK AND EXISTING PIER.
3. THE PIPE MATERIAL SHALL BE DUCTILE IRON, STAINLESS STEEL, OR HIGH DENSITY POLYETHYLENE HDPE.

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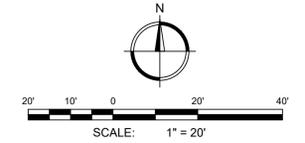
CLIENT: CHARLESTON COUNTY PARKS AND RECREATION

PROJECT NAME: COOPER RIVER COUNTY PARK SITE PLAN - DESIGN-BUILD

PROJECT LOCATION: 1010 TIDEWATER RD. NORTH CHARLESTON, SC 29405



2 SITE PLAN SHT. 1 OF 3  
C-101



REV	DATE	BY	DESCRIPTION
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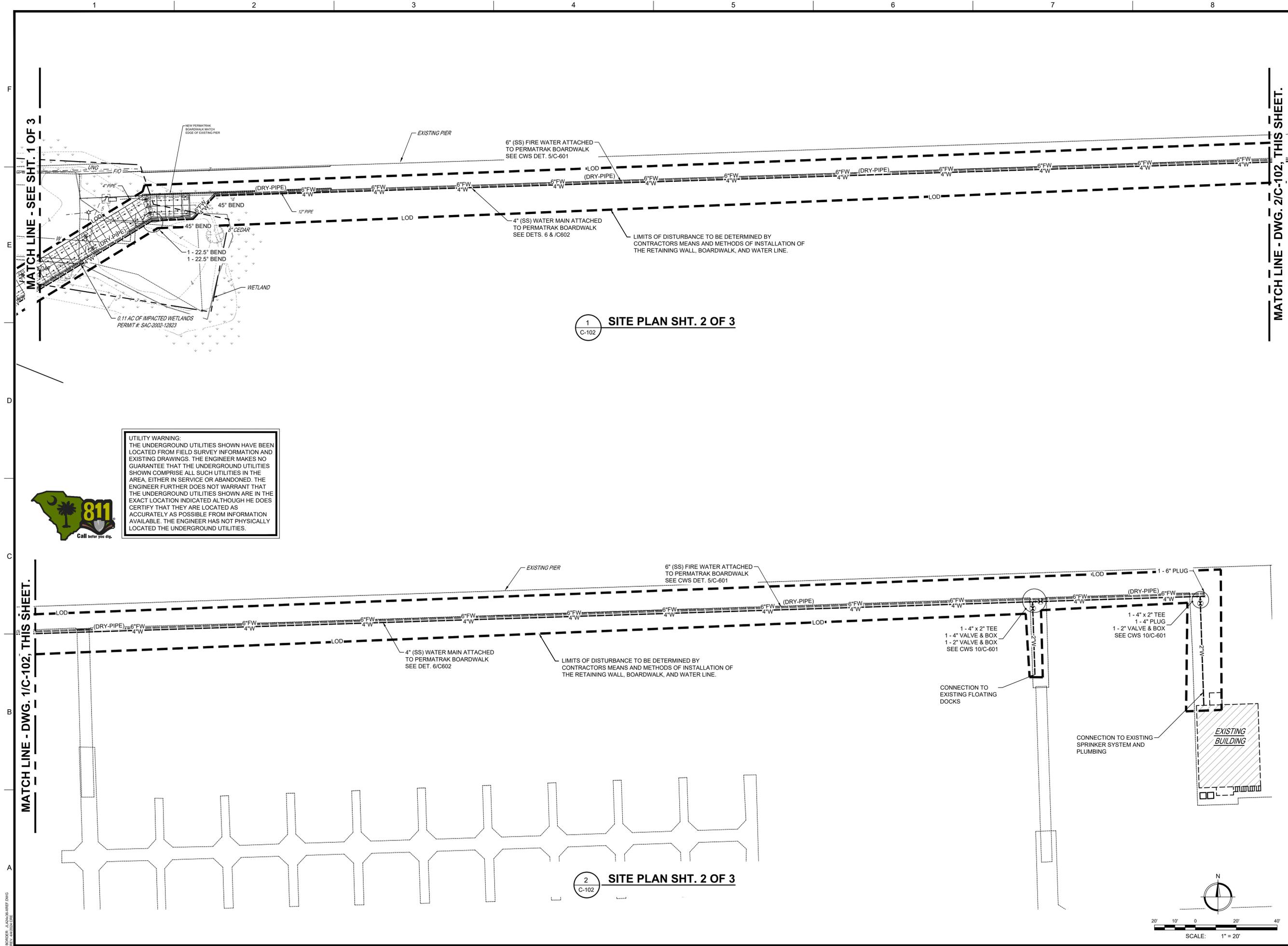
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 CHECKED BY: HWG  
 DATE: 02/09/2026

SHEET TITLE: **SITE PLAN SHT. 1 OF 3**

SCALE: 1" = 20'

DRAWING NO. **C-101** REV. **0**

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1 SITE PLAN SHT. 2 OF 3

2 SITE PLAN SHT. 2 OF 3

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REV	DATE	BY	DESCRIPTION
0	02/09/26	HWG	ISSUED FOR BID

PROJECT NO. 3001.2502  
 DRAWN BY: MDC  
 CHECKED BY: HWG  
 DATE: 02/09/2026

SHEET TITLE: **SITE PLAN SHT. 2 OF 3**

SCALE: 1" = 20'

DRAWING NO. **C-102** REV. **B**

ISSUED FOR BID

**NOTES**

1. THE CONTRACTOR IS RESPONSIBLE FOR ANY PERMITS SPECIFYING MEANS AND METHODS OF CONSTRUCTION OF THE REVETMENT.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION OF THE GRAVEL FINES PATHWAY TO THE LIMITS AND IN ACCORDANCE WITH THE DETAILS ON SHEET C-602.



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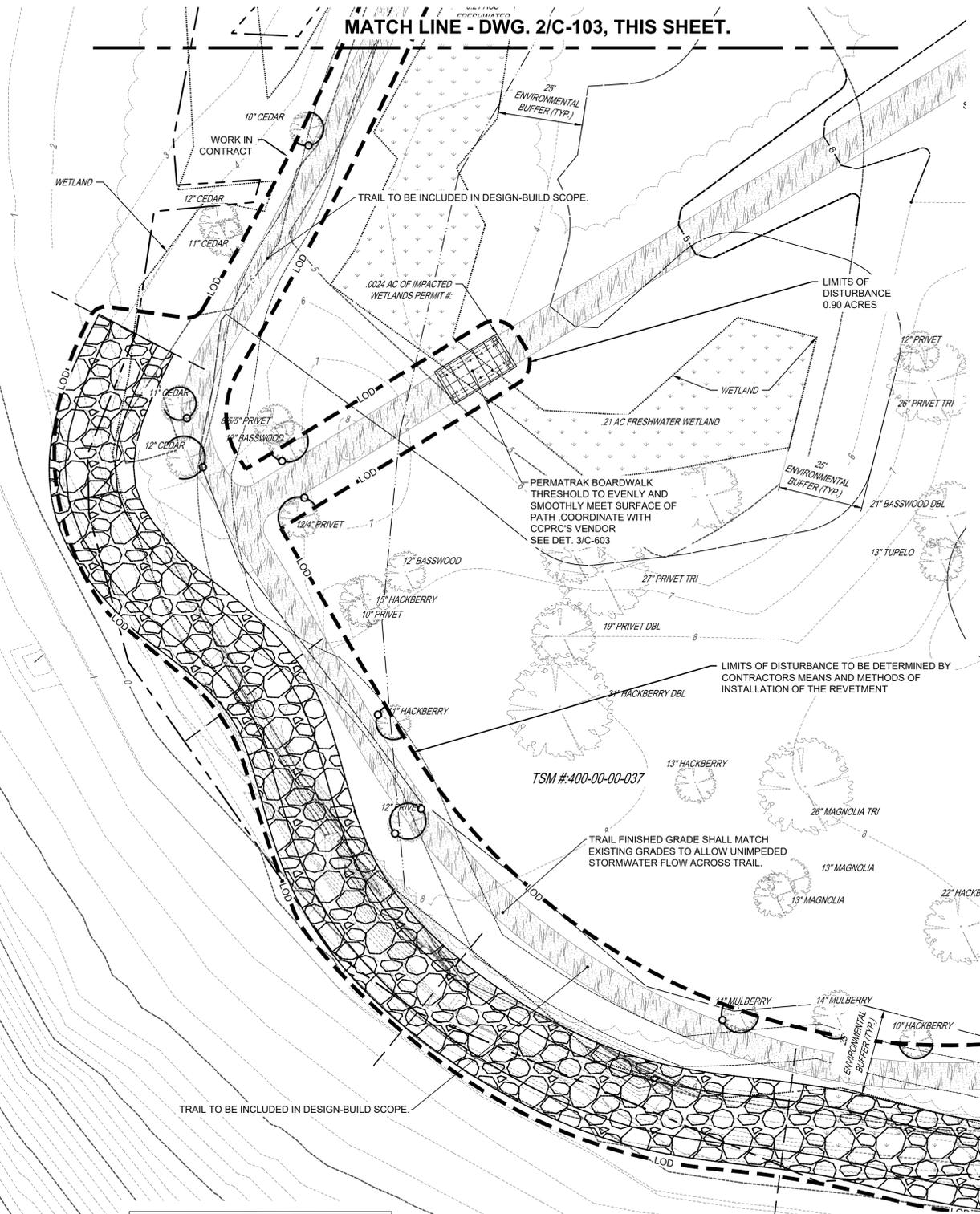
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SHEET TITLE: **SITE PLAN SHT. 3 OF 3**

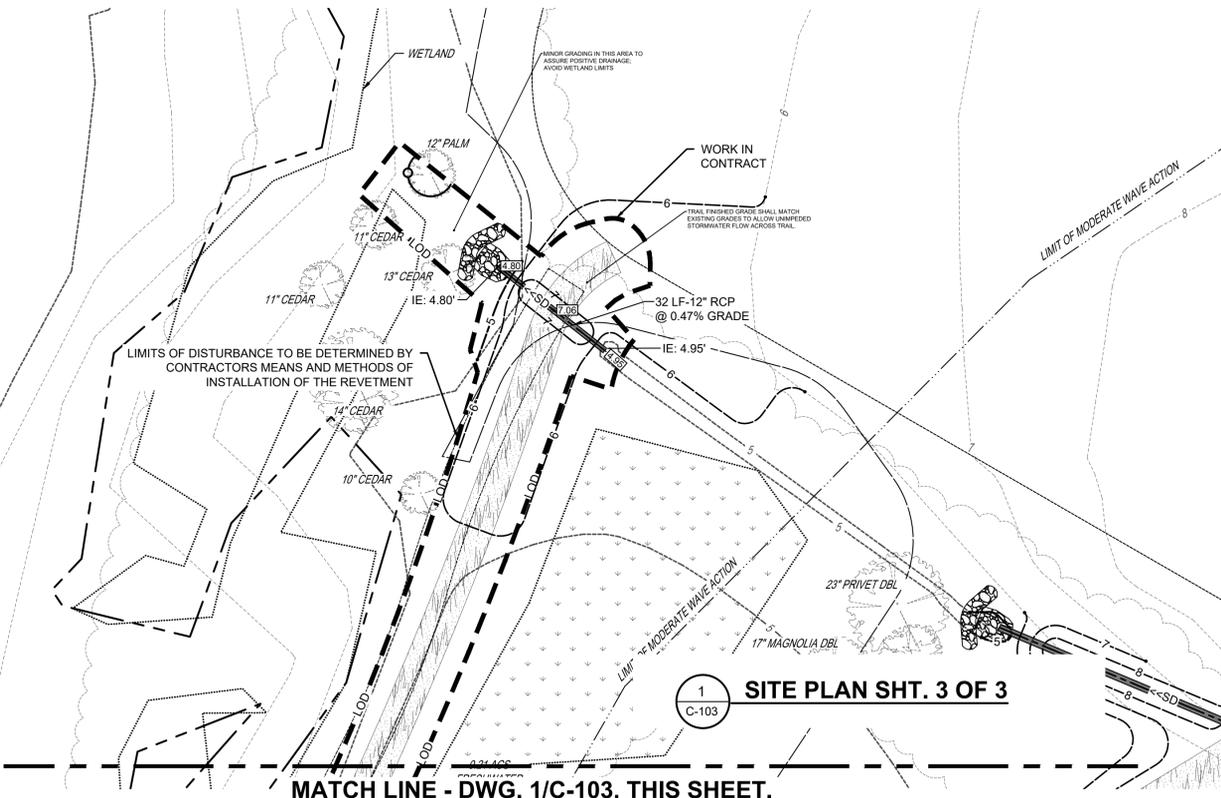
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DRAWING NO. **C-103** REV. 0

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1 SITE PLAN SHT. 3 OF 3  
C-103

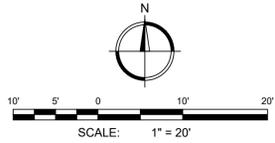
NOTE:  
SEE ATTACHED SITE PLANS PROVIDED BY APPLIED TECHNOLOGY AND MANAGEMENT DATED MARCH 22, 2024 FRO REVETMENT DESIGN.



1 SITE PLAN SHT. 3 OF 3  
C-103

NOTE:  
SEE ATTACHED SITE PLANS PROVIDED BY APPLIED TECHNOLOGY AND MANAGEMENT DATED MARCH 22, 2024 FRO REVETMENT DESIGN.

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THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE ENGINEER MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE ENGINEER FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE ENGINEER HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.





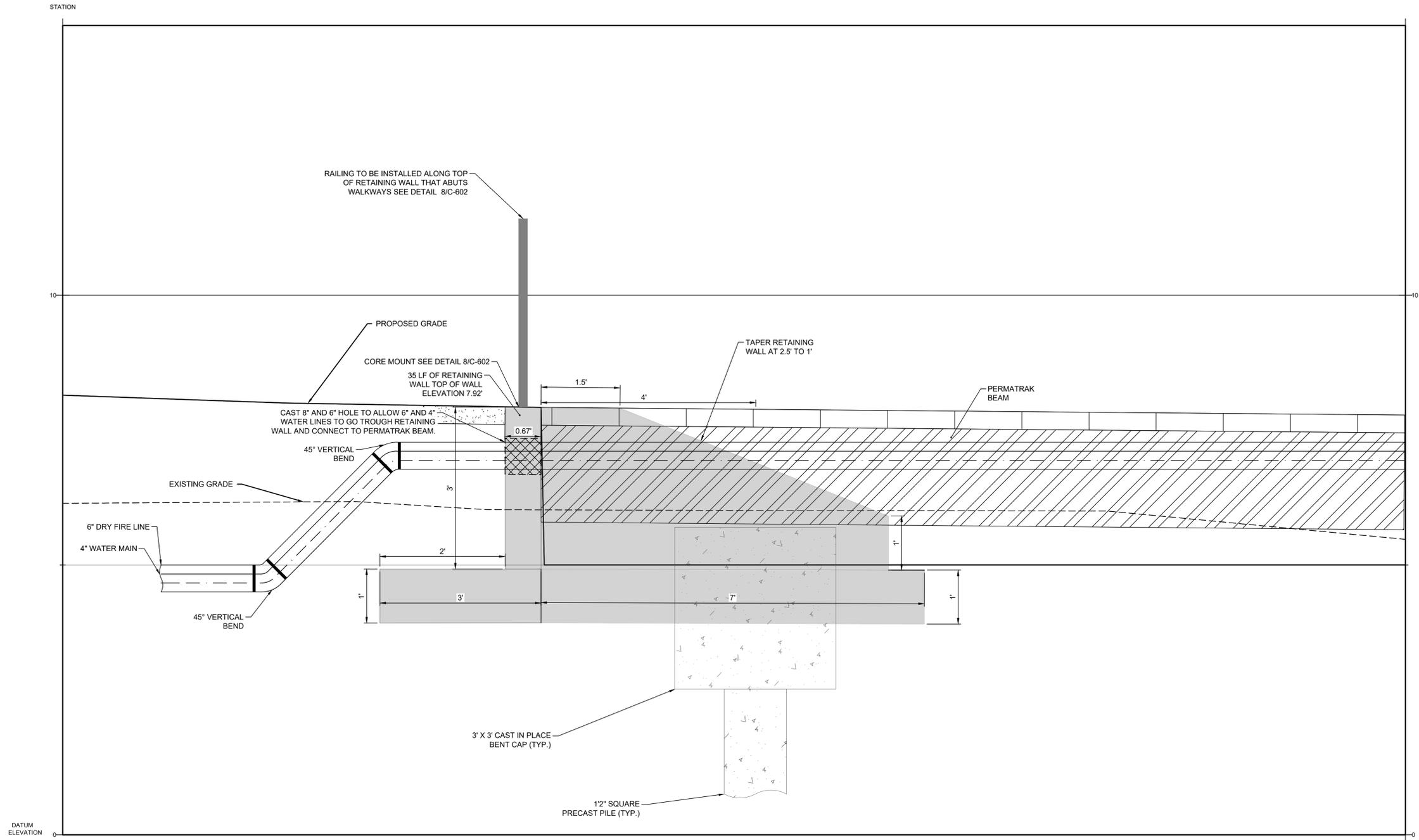
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FAX (706) 724-3935  
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CLIENT: CHARLESTON COUNTY PARKS AND RECREATION  
PROJECT NAME: COOPER RIVER COUNTY PARK SITE PLAN - DESIGN-BUILD  
PROJECT LOCATION: 1010 TIDEWATER RD, NORTH CHARLESTON, SC 29405



REV	DATE	BY	DESCRIPTION
0	02/09/26	HWG	ISSUED FOR BID

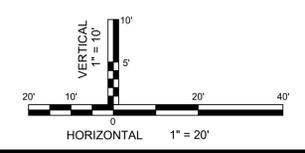
PROJECT NO.	3001.2502
DRAWN BY:	MDC
CHECKED BY:	HWG
DATE:	02/09/2026
SHEET TITLE:	
<b>PERMATRAK APPROACH ON SALTWATER PIER PROFILE</b>	
SCALE:	1" = 20'
DRAWING NO.	C-401
REV.	0



NOTES:  
SEE RETAINING WALL AND PERMATRAK APPROACH ON MAIN PIER DETAIL ON SHEET C-604

**C/L Connection to Pier PROFILE**

SCALE: HOR: 1" = 1'  
VER: 1" = 1'



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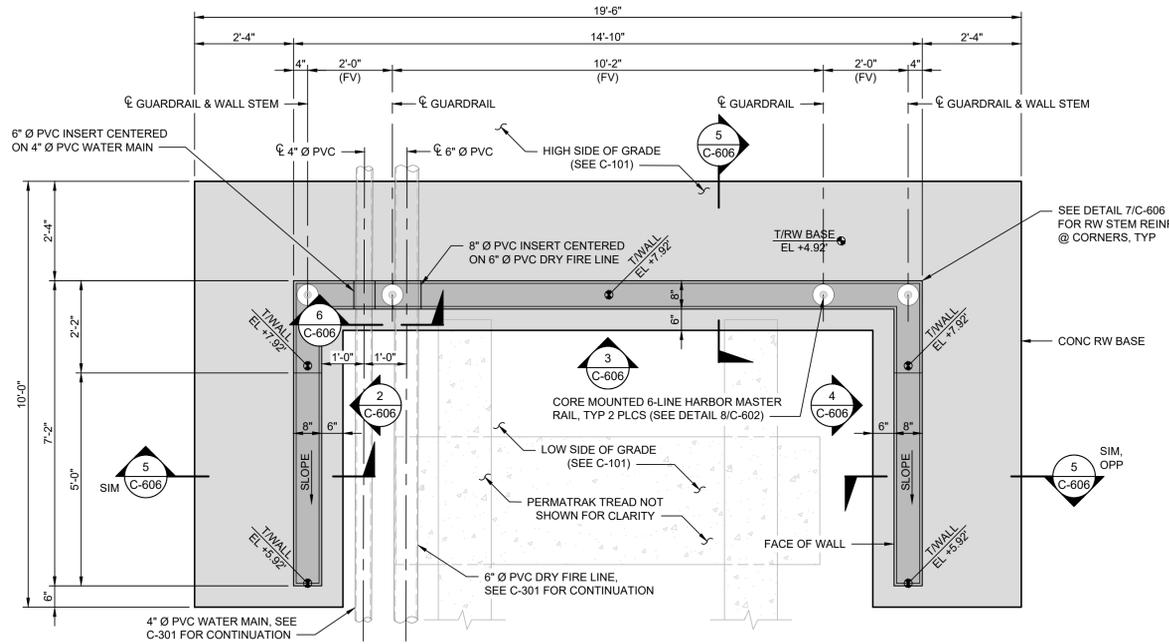
**REINFORCED CONCRETE NOTES:**

- ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH ACI 318-19 AND THE FOLLOWING:
  - CONCRETE STRENGTHS AND MIXES SHALL BE AS FOLLOWS:
 

STRENGTH (PSI)	AIR (%)	CEMENT TYPE	W/C RATIO	SLUMP	AGGREGATE (MAX.)	APPLICATION / LOCATION
2,000	**	TYPE III	-	-	-	CONDUIT ENCASEMENT AND BACKFILL BELOW FOOTINGS
3,000	**	TYPE III	0.52	4" +/- 1"	3/4"	RETAINING WALL FOOTING AND RETAINING WALL STEM

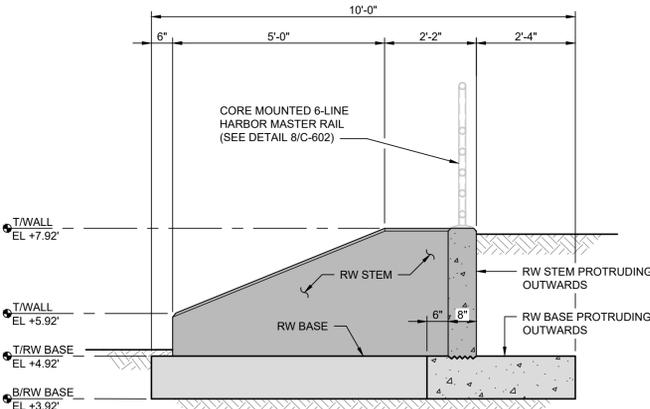
\*\* 4-6% AIR ENTRAINMENT (IF ANY);  
\*\*\* MAXIMUM AGGREGATE SIZE TO BE 3/8".
  - FLY ASH PER ASTM C618, TYPE C OR F WILL BE PERMITTED PROVIDED THE FOLLOWING LIMITS ARE MET:
    - THE QUANTITY OF CEMENT REPLACED SHALL BE NO MORE THAN 20%.
    - CEMENT SHALL BE REPLACED BY FLY ASH AT THE RATE OF 1.25 LBS. OF FLY ASH TO 1.0 LBS OF CEMENT.
  - ALL CONCRETE DELIVERED TO THE SITE SHALL HAVE A COMPUTER BATCH WEIGHT TICKET. THE BATCH TICKET SHALL SHOW WEIGHTS OF ALL MATERIALS, VOLUME OF CONCRETE AND TIME BATCHED. THE BATCH WEIGHT TICKET SHALL BE GIVEN TO A DESIGNATED OWNER'S REPRESENTATIVE ON SITE AT THE TIME OF DELIVERY FOR VERIFICATION OF MIX PROPORTIONS.
  - CONSOLIDATE ALL CONCRETE IN FORMS AND TRENCHES WITH VIBRATORS. POORLY CONSOLIDATED CONCRETE WILL BE REJECTED AND REPLACED AT CONTRACTOR'S EXPENSE.
- CONCRETE REINFORCING
  - ALL REINFORCING SHALL BE PER ASTM A-615, GRADE 60 EXCEPT AS NOTED BELOW.
  - WELDING OF REINFORCING STEEL IS NOT PERMITTED UNLESS SPECIFICALLY DETAILED IN THE DESIGN DRAWINGS. WELDED REBAR MUST BE ASTM A706 GRADE 60.
  - REINFORCING SHALL NOT BE HEATED TO BEND.
  - UNLESS NOTED OTHERWISE, BAR SPLICES SHALL HAVE A MINIMUM LAP AS NOTED IN THE TABLE BELOW:
 

REINFORCING LAP LENGTHS (ACI 25.4.2 AND 25.5 - 3000 PSI - CLASS B - CASE 1)									
BAR	#3	#4	#5	#6	#7	#8	#9	#10	
TOP BAR LENGTHS	28"	37"	47"	56"	81"	93"	105"	118"	
OTHER BAR LENGTHS	22"	29"	36"	43"	63"	72"	81"	91"	
- SUBMITTALS
  - CONCRETE MIX DESIGNS; SHOP DRAWINGS FOR CONCRETE REINFORCING, EMBEDDED ITEMS; ACCESSORIES; AND PRODUCT DATA, ETC SHALL BE PROVIDED TO THE OWNER'S REPRESENTATIVE AT LEAST 15 DAYS PRIOR TO THE START OF WORK FOR APPROVAL.
  - ALL DATA SHALL BE SUBMITTED "CONTRACTOR APPROVED".
- NOTIFICATIONS: THE CONTRACTOR SHALL NOTIFY THE OWNER.
  - WHEN EXCAVATION TO REQUIRED SUBGRADE ELEVATIONS IS REACHED.
  - 24 HOURS PRIOR TO ANY SCHEDULED CONCRETE PLACEMENT FOR INSPECTION OF FORMWORK, REINFORCING AND EMBEDDED ITEMS.

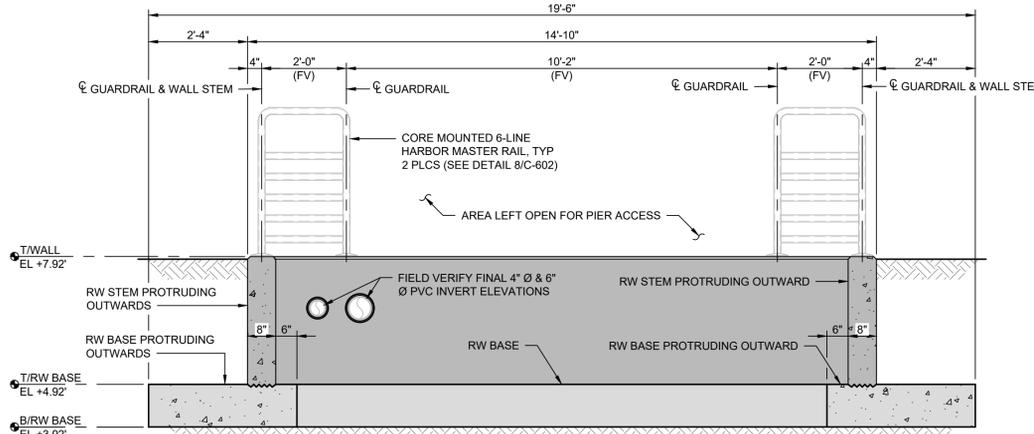


**1 RETAINING WALL PLAN**  
SCALE: 1/2" = 1'-0"

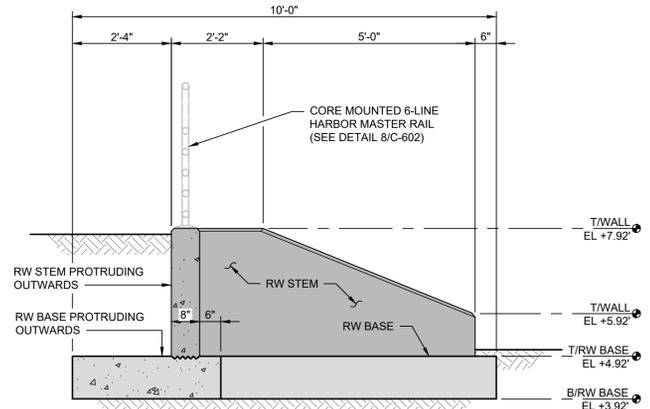
- LEGEND:**
- CONCRETE RETAINING WALL STEM
  - CONCRETE RETAINING WALL BASE
  - PERMATRAK CONCRETE BOARDWALK
  - ELEVATION MARKER



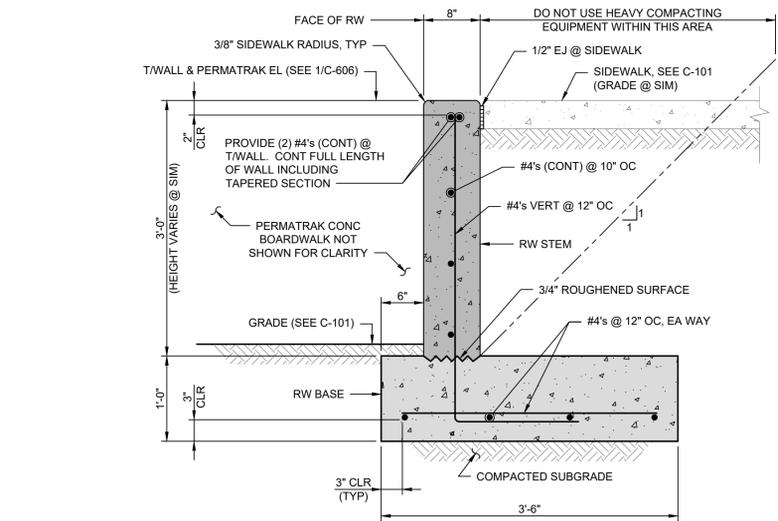
**2 ELEVATION**  
SCALE: 1/2" = 1'-0"



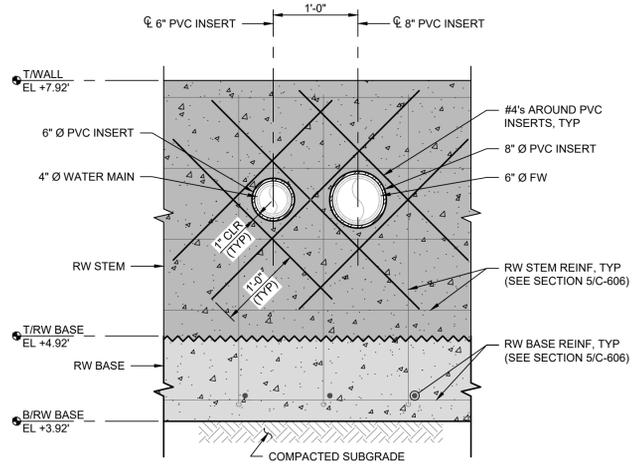
**3 ELEVATION**  
SCALE: 1/2" = 1'-0"



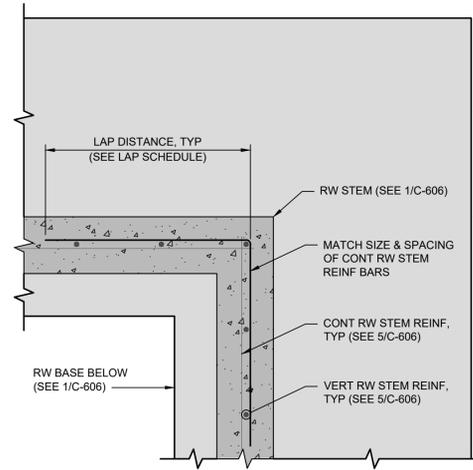
**4 ELEVATION**  
SCALE: 1/2" = 1'-0"



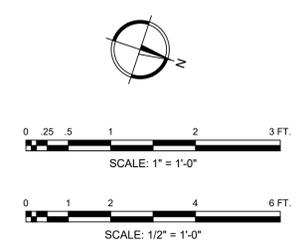
**5 SECTION**  
SCALE: 1" = 1'-0"



**6 SECTION**  
SCALE: 1" = 1'-0"



**7 DETAIL**  
SCALE: 1" = 1'-0"



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PROJECT LOCATION: 1010 TIDEWATER RD, NORTH CHARLESTON, SC 29405

Professional Engineer Seal for William Johnson, License No. 28610, State of South Carolina, dated 01/12/26.

REV	DATE	HWG	ISSUED FOR BID	DESCRIPTION
0	02/09/26			

PROJECT NO. 3001.2502  
DRAWN BY: JBJr  
CHECKED BY: CWW  
DATE: 02/09/2026  
SHEET TITLE:

**RETAINING WALL NOTES AND DETAILS**

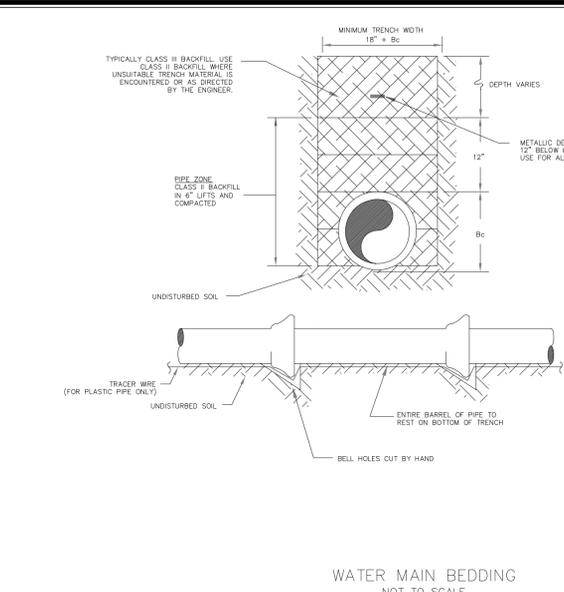
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DRAWING NO. **C-402** REV. 0

ISSUED FOR BID

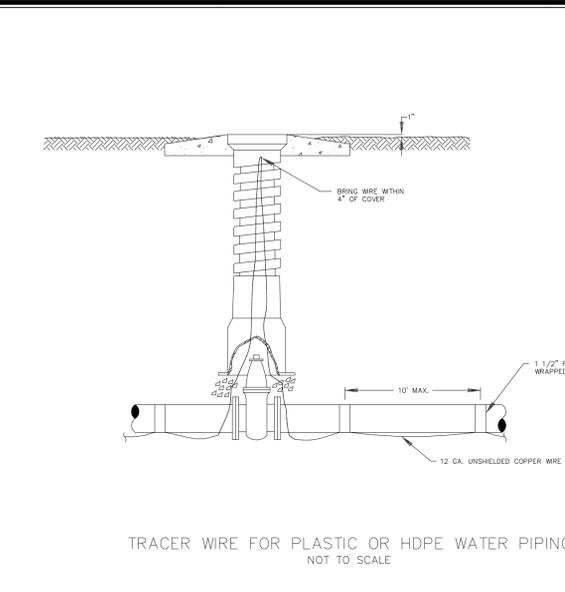
**NOTES FOR WATER SYSTEM:**

1. WATER INSTALLATION SHALL BE IN ACCORDANCE WITH "TEN STATES STANDARDS", S.C.D.H.E.C. REGULATIONS, AND CHARLESTON WATER SYSTEM'S "MINIMUM STANDARDS FOR THE DESIGN & CONSTRUCTION OF WATER AND SANITARY SEWER SYSTEMS" AS FOUND AT [WWW.CHARLESTONWATER.COM](http://WWW.CHARLESTONWATER.COM). BACKFLOW PREVENTION REQUIREMENTS CAN ALSO BE FOUND AT [WWW.CHARLESTONWATER.COM](http://WWW.CHARLESTONWATER.COM).
2. CONTRACTOR SHALL BE RESPONSIBLE FOR MAKING ALL TAPS. TAPS REQUIRING A SLEEVE SHALL BE NO CLOSER TO A JOINT THAN 4 FEET.
3. THRUST BLOCKING SHALL BE USED ONLY ON WET TAPS. CONTRACTOR SHALL NOTIFY CWS INSPECTOR A MINIMUM OF 72 HOURS (THREE FULL WORKING DAYS) PRIOR TO MAKING ANY WET TAP.
4. ROUGH GRADING SHALL BE DONE PRIOR TO INSTALLATION OF WATER MAINS.
5. CONTRACTOR SHALL MAINTAIN BETWEEN 36" - 48" COVER OVER TOP OF PIPE.
6. ALL COMPONENTS OF THE PIPING SYSTEM SHALL BE NEW DUCTILE IRON AND ENCLOSED WITH LINEAR LOW-DENSITY 8 MILS BLUE POLYETHYLENE ENCASUREMENT.
7. ALL VALVES AND HYDRANTS SHALL OPEN CLOCKWISE, EXCEPT ON THE FORMER NAVAL BASE, WHERE THE VALVES SHALL OPEN COUNTERCLOCKWISE.
8. MEGALUG, FORD SERIES 1400, OR SIGMA ONE-LOK RETAINER GLANDS SHALL BE USED FOR ALL FITTINGS, VALVES, AND HYDRANTS.
9. RESTRAINED LENGTHS SHALL BE IN MULTIPLES OF A FULL LENGTH OF PIPE.
10. USE 45° OR FLATTER BENDS WHEN GOING UNDER ROP AND DO NOT INSTALL VALVES, HYDRANTS, OR SERVICES ON DEEP PIPE SECTIONS.
11. WHERE POSSIBLE, HORIZONTAL WATERLINES SHALL BE DEFLECTED IN LIEU OF USING BENDS. DEFLECTIONS SHALL NOT EXCEED 75% OF MANUFACTURER'S SPECIFICATIONS.
12. WHERE WATER AND SANITARY SEWER LINES CROSS WITHIN 18", THE LINE LAID LAST SHALL HAVE A FULL LENGTH OF PIPE INSTALLED WITH ITS MIDPOINT VERTICALLY IN LINE WITH THE OTHER LINE. THE CROSSING SHALL BE AT NOT LESS THAN A 45° ANGLE.
13. ALL MATERIAL SHALL CONFORM TO CWS SPECIFICATIONS AS TO MANUFACTURER, TYPE, AND DESIGN.
14. DEVELOPER'S ENGINEER SHALL INSPECT PROJECT WEEKLY TO PROVIDE WRITTEN WEEKLY UPDATES TO CWS INSPECTOR AND TO CERTIFY THE CORRECTNESS OF THE WATER PORTION OF CONTRACTOR'S RECORD DRAWINGS.
15. CONTRACTOR INSTALLING THE WATER SYSTEM SHALL BE ON CWS'S "APPROVED CONTRACTORS LIST".
16. COORDINATE INSPECTION OF THE BACKFLOW DEVICES WITH CWS CROSS CONNECTION DEPARTMENT BY CALLING (843) 727-6981. WATER SERVICE SHALL NOT BE TURNED ON UNTIL ALL BACKFLOW DEVICES HAVE PASSED INSPECTION.
17. DEVELOPER SHALL TAKE NECESSARY MEASURES TO PROTECT CWS WATER SYSTEM DURING THE TIME BETWEEN THE COMMISSIONING INSPECTION AND THE 2-YEAR MAINTENANCE BOND INSPECTION.
18. CHARLESTON WATER SYSTEM RESERVES THE RIGHT NOT TO INSTALL WATER METERS IF METER BOXES ARE NOT LOCATED AND ON GRADE IN COMPLIANCE WITH ITS MINIMUM STANDARDS.
19. ALL METER VAULTS AND ASSOCIATED PIPING 3" AND LARGER SHALL BE INSTALLED BY CWS UNLESS APPROVED IN WRITING BY THE CWS WATER DISTRIBUTION ENGINEER.

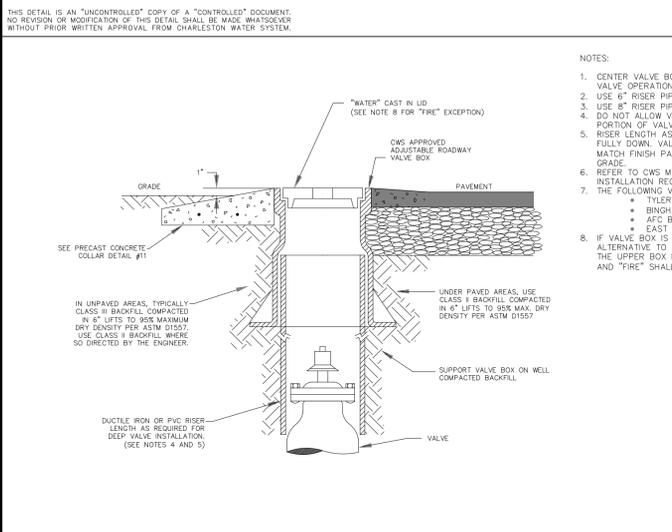
**Charleston Water System**  
 DOCUMENT NO: EC-4.3.2-CD-W DETAIL NO: 37  
 REVISION DATE: NOV 1, 2015



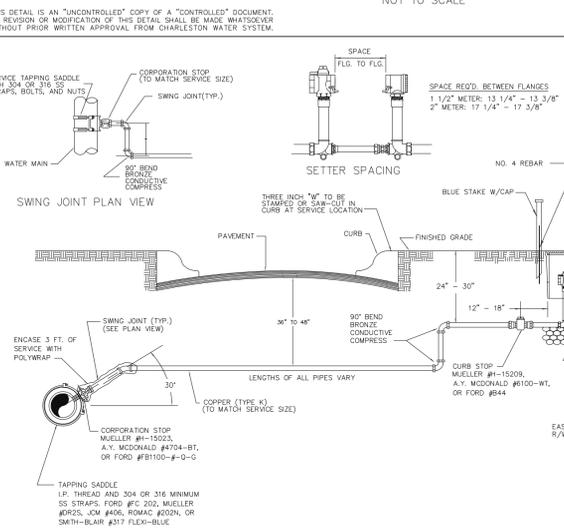
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 REVISION DATE: NOV 1, 2015



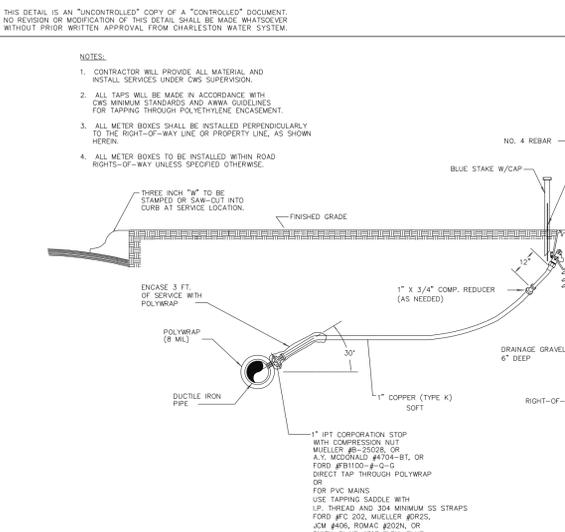
**Charleston Water System**  
 DOCUMENT NO: EC-4.3.2-CD-W DETAIL NO: 12  
 REVISION DATE: NOV 1, 2015



**Charleston Water System**  
 DOCUMENT NO: EC-4.3.2-CD-W DETAIL NO: 10  
 REVISION DATE: JAN 1, 2016



**Charleston Water System**  
 DOCUMENT NO: EC-4.3.2-CD-W DETAIL NO: 21  
 REVISION DATE: NOV 1, 2015



**Charleston Water System**  
 DOCUMENT NO: EC-4.3.2-CD-W DETAIL NO: 19  
 REVISION DATE: JAN 1, 2016

THIS DETAIL IS AN "UNCONTROLLED" COPY OF A "CONTROLLED" DOCUMENT. NO REVISION OR MODIFICATION OF THIS DETAIL SHALL BE MADE WHATSOEVER WITHOUT PRIOR WRITTEN APPROVAL FROM CHARLESTON WATER SYSTEM.

NOTES:  
 1. THE FOLLOWING CONDITIONS WERE USED TO CALCULATE THE RESTRAINED LENGTHS SHOWN IN THE TABLE:  
 • LAYING CONDITION IS TYPE 3  
 • SOIL DESIGNATED AS SAND-SILT  
 • DEPTH IS 3 FT.  
 • DESIGN PRESSURE (TEST) IS 150 P.S.I.  
 • SAFETY FACTOR IS 1.5  
 • PIPE IS POLYETHYLENE ENCASED  
 FOR THE TEE BRANCH AND REDUCER, LENGTHS ARE BASED ON BRANCHING AND REDUCING FROM THE NEXT LARGER SIZE IN THE TABLE. TEE BRANCH LENGTH BASED ON RUN LENGTH TO FIRST JOINT OF 10 FT. DEVIATIONS FROM THESE CONDITIONS MUST BE BASED ON THE ABOVE PARAMETERS.  
 2. REFER TO CWS MINIMUM STANDARDS FOR APPROVED RESTRAINING METHODS.  
 3. THE FOLLOWING RESTRAINING GLANDS AND GASKETS ARE APPROVED PRODUCTS:  
 FOR DUCTILE IRON PIPE:  
 • AMERICAN CAST IRON PIPE - FAST GRIP, FLEX-RING, FIELD FLEX-RING, OR LOCK-RING  
 • US PIPE - TR FLEX OR FIELD LOK 350 GASKETS  
 • GRIFIN PIPE - SNAP-LOK RESTRAINED JOINT, OR TALON RJ GASKET  
 • EBAA - MEGALUG RESTRAINT GLAND  
 • FORD - SERIES 1400 RESTRAINT GLAND  
 • SIGMA - ONE-LOK SERIES SLD RESTRAINT GLAND  
 • MOWANE - SURE STOP 350 RESTRAINT GASKET FOR PVC PIPE  
 • EBAA MEGALUG SERIES 2000PV  
 • FORD SERIES 1500 WILL BE USED ON EXISTING PVC PIPE

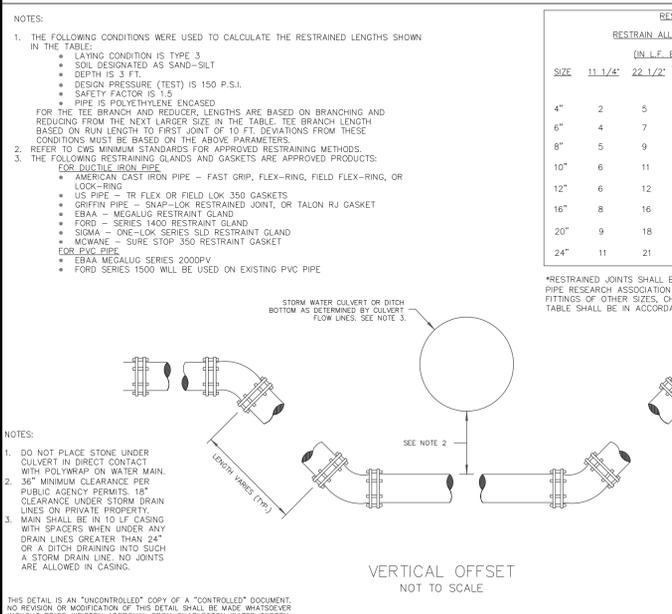
SIZE	RESTRAIN ALL JOINTS WITHIN THESE LENGTHS (IN L.F. EACH SIDE OF THE FITTING)					
	11 1/4"	22 1/2"	45"	90"	TEE BRANCH END	REDUCER END
4"	2	5	10	24	38	61
6"	4	7	14	33	64	85
8"	5	9	18	44	91	111
10"	6	11	22	52	113	132
12"	6	12	25	60	133	155
16"	8	16	32	76	177	198
20"	9	18	38	91	218	238
24"	11	21	43	104	255	277

NOTES:  
 1. THE FOLLOWING CONDITIONS WERE USED TO CALCULATE THE RESTRAINED LENGTHS SHOWN IN THE TABLE:  
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 • US PIPE - TR FLEX OR FIELD LOK 350 GASKETS  
 • GRIFIN PIPE - SNAP-LOK RESTRAINED JOINT, OR TALON RJ GASKET  
 • EBAA - MEGALUG RESTRAINT GLAND  
 • FORD - SERIES 1400 RESTRAINT GLAND  
 • SIGMA - ONE-LOK SERIES SLD RESTRAINT GLAND  
 • MOWANE - SURE STOP 350 RESTRAINT GASKET FOR PVC PIPE  
 • EBAA MEGALUG SERIES 2000PV  
 • FORD SERIES 1500 WILL BE USED ON EXISTING PVC PIPE

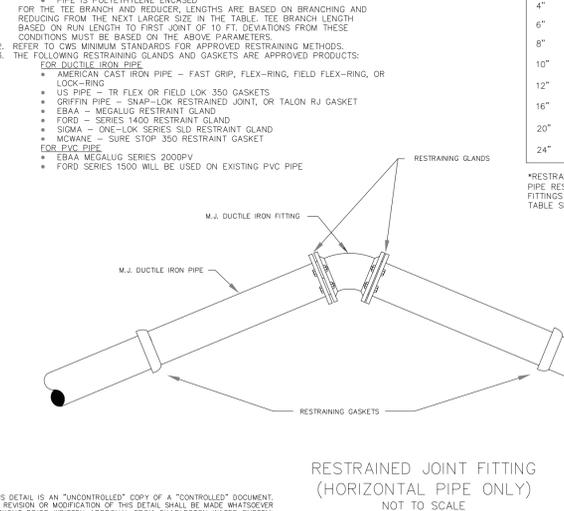
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10"	6	11	22	52	113	132
12"	6	12	25	60	133	155
16"	8	16	32	76	177	198
20"	9	18	38	91	218	238
24"	11	21	43	104	255	277

NOTES:  
 1. TAPPING SADDLES ARE NOT ALLOWED FOR MAIN-ON-MAIN TAPS.  
 2. REFER TO THE CWS MINIMUM STANDARDS FOR APPROVED INSTALLATION REQUIREMENTS.  
 3. THE FOLLOWING TAPPING SLEEVES ARE APPROVED PRODUCTS:  
 • 4" THROUGH 24" - MUELLER H-IES OR AMERICAN FLOW CONTROL SERIES 2800.  
 • 30" THROUGH 36" - AMERICAN FLOW CONTROL SERIES 2800 OR JCM 414 FABRICATED MECHANICAL JOINT WITH FUSION BONDED EPOXY COATING.  
 4. BOLTS AND NUTS FOR TAPPING SLEEVES SHALL BE AS STATED IN SECTION B OF THE MINIMUM STANDARDS.  
 5. USE THRUST BLOCKING ONLY FOR WET TAPS UNLESS OTHERWISE APPROVED BY CWS.  
 6. DEPTH FROM GROUND SURFACE TO TOP OF BLOCKING SHALL BE GREATER THAN HEIGHT OF BLOCKING.  
 7. THE END OF THE TAPPING SLEEVE SHALL BE NO CLOSER THAN 4 FEET TO A JOINT.

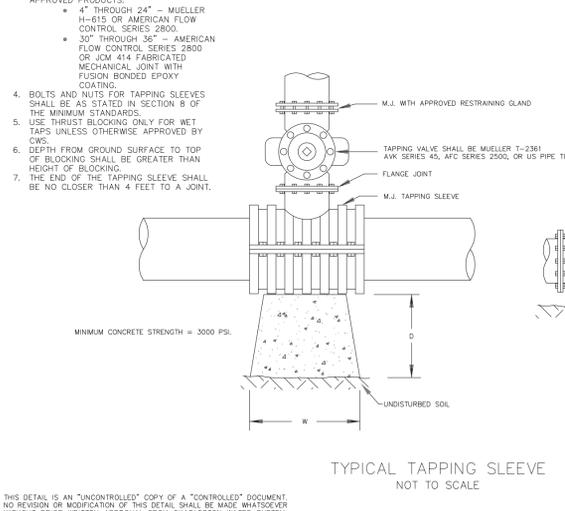
TAP	DIMENSIONS IN FEET		
	W	H	D
4" & 6"	2.0	1.4	1.0
8"	3.5	2.0	1.4
10"	4.0	2.5	1.8
12"	5.0	3.0	2.5



**Charleston Water System**  
 DOCUMENT NO: EC-4.3.2-CD-W DETAIL NO: 6  
 REVISION DATE: JAN 1, 2016



**Charleston Water System**  
 DOCUMENT NO: EC-4.3.2-CD-W DETAIL NO: 4  
 REVISION DATE: JAN 1, 2016



**Charleston Water System**  
 DOCUMENT NO: EC-4.3.2-CD-W DETAIL NO: 8  
 REVISION DATE: JAN 1, 2016

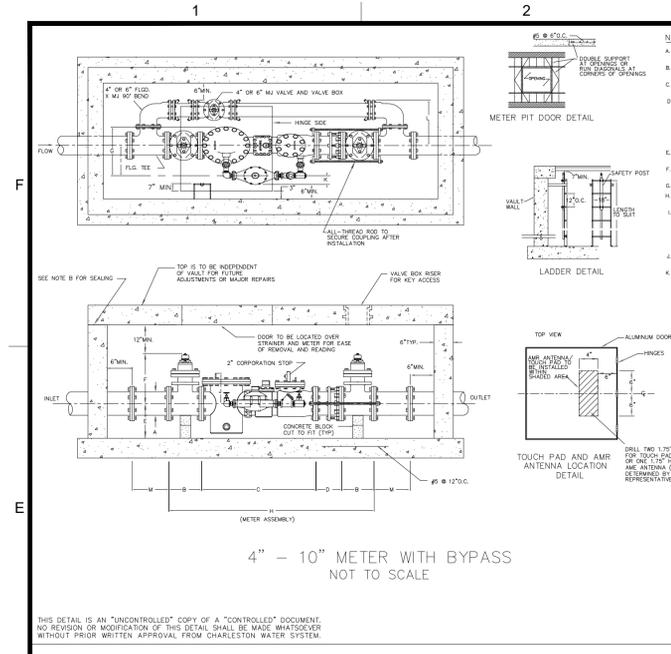
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CHARLESTON COUNTY  
 PARKS AND RECREATION  
 PROJECT NAME:  
**COOPER RIVER COUNTY PARK**  
**SITE PLAN - DESIGN-BUILD**  
 CLIENT:  
 PROJECT LOCATION:  
 1010 TIDEWATER RD. NORTH CHARLESTON, SC 29405

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 With Seal No. 28810  
 01/12/26  
 License LARRANT ELM  
**JOHNSON, LASCHOB & ASSOC., PC**  
 No. 00790  
 LICENSED PROFESSIONAL ENGINEER  
 STATE OF SOUTH CAROLINA

NO.	DATE	BY	DESCRIPTION
0	02/09/26	HWG	ISSUED FOR BID
1			
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PROJECT NO. 3001.2502  
 DRAWN BY: MDC  
 CHECKED BY: HWG  
 DATE: 02/09/2026  
 SHEET TITLE:  
**MISCELLANEOUS DETAILS**  
**SHT. 1 OF 3**  
 SCALE: AS NOTED  
 DRAWING NO. **C-601** REV. 0



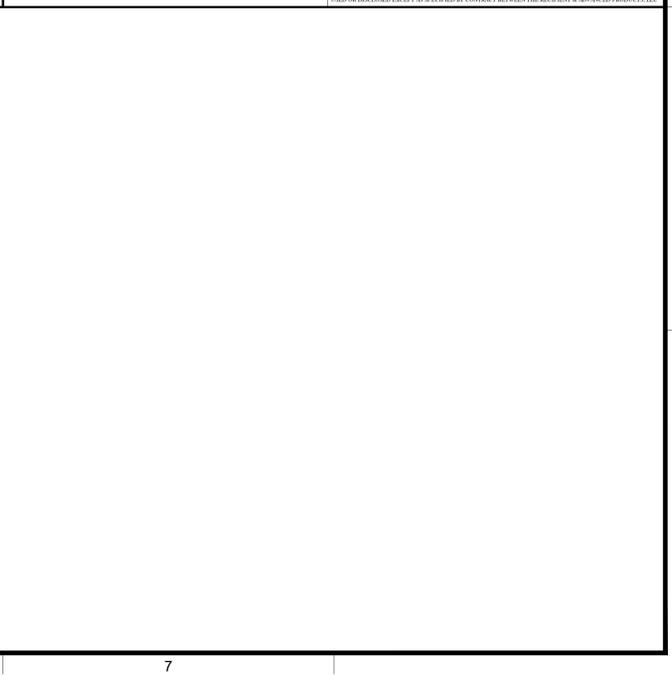
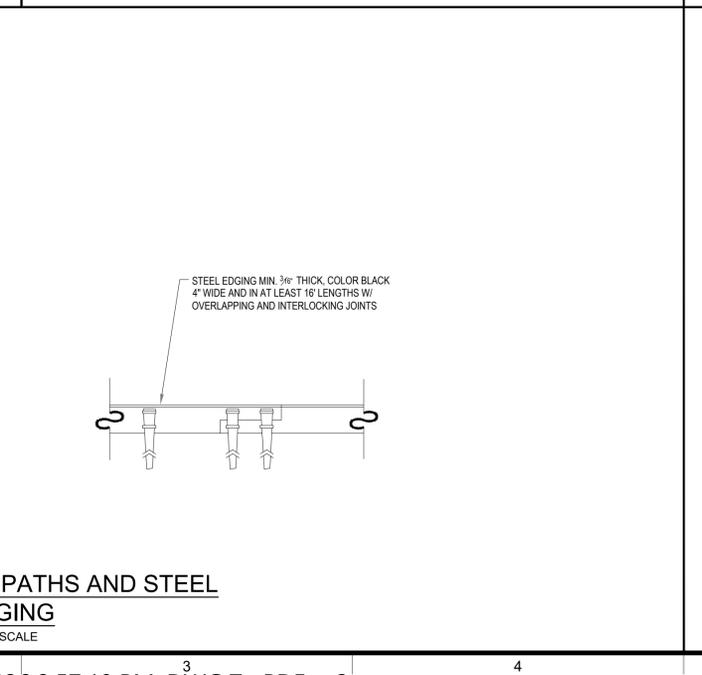
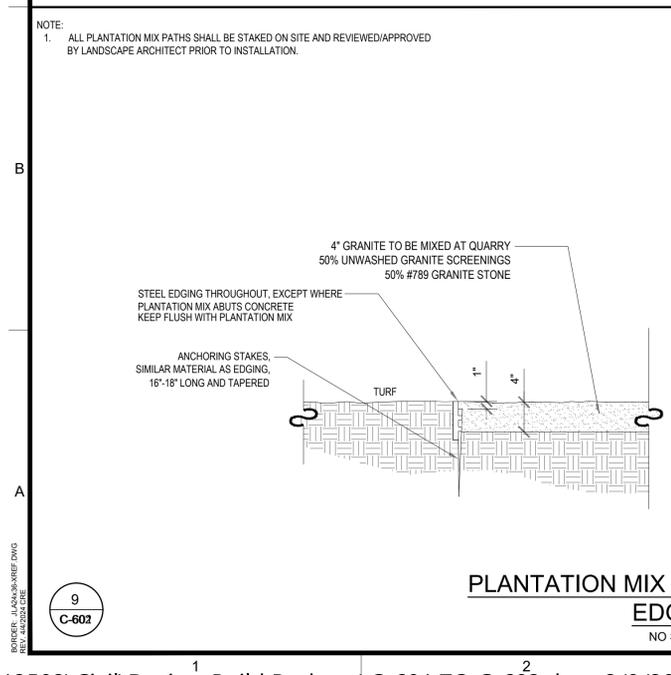
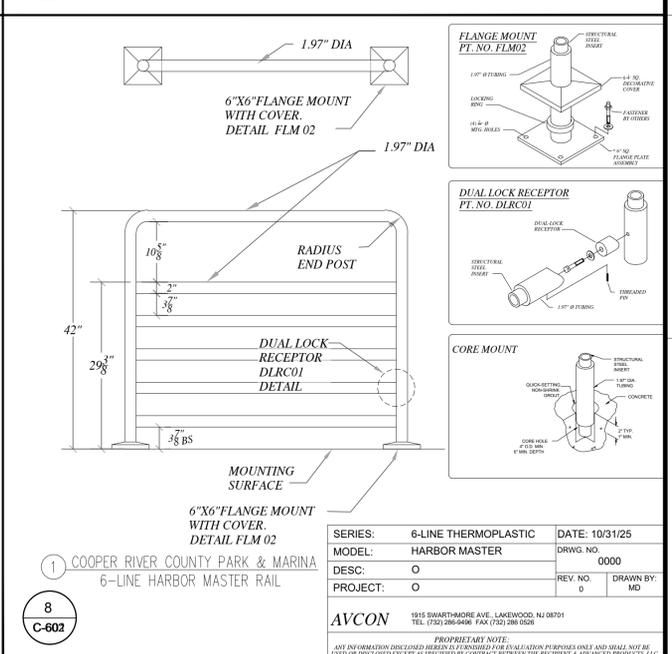
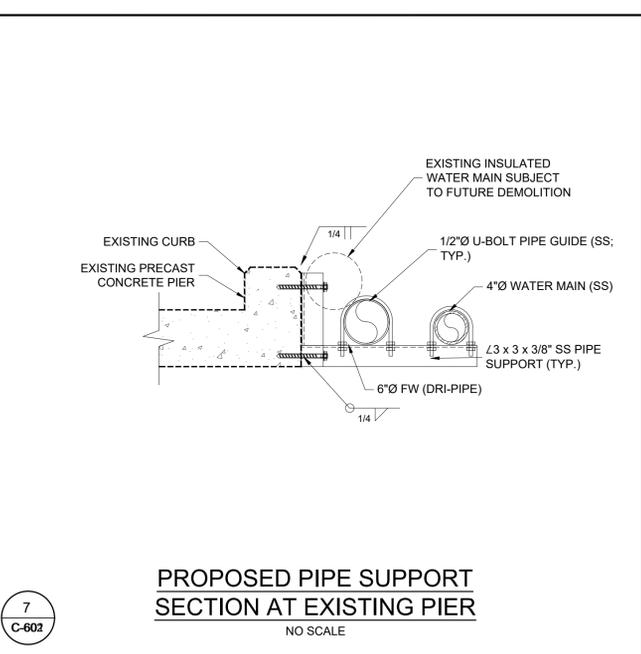
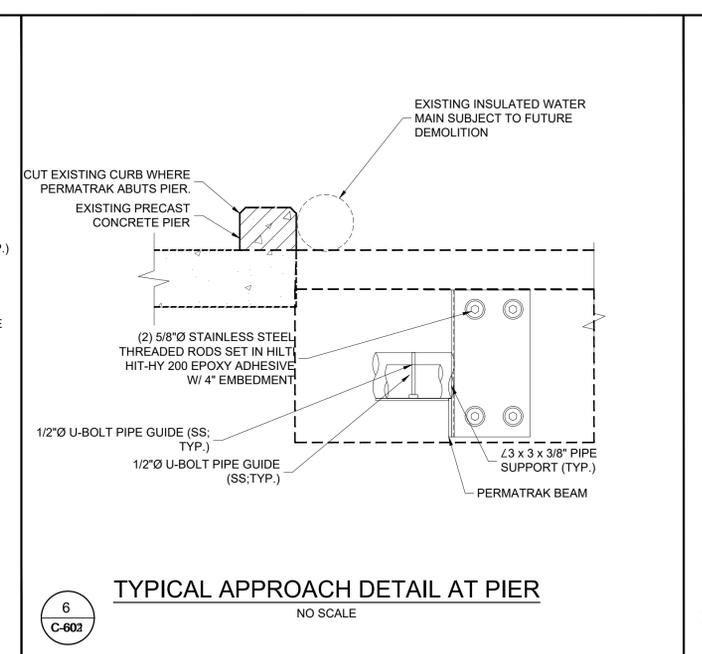
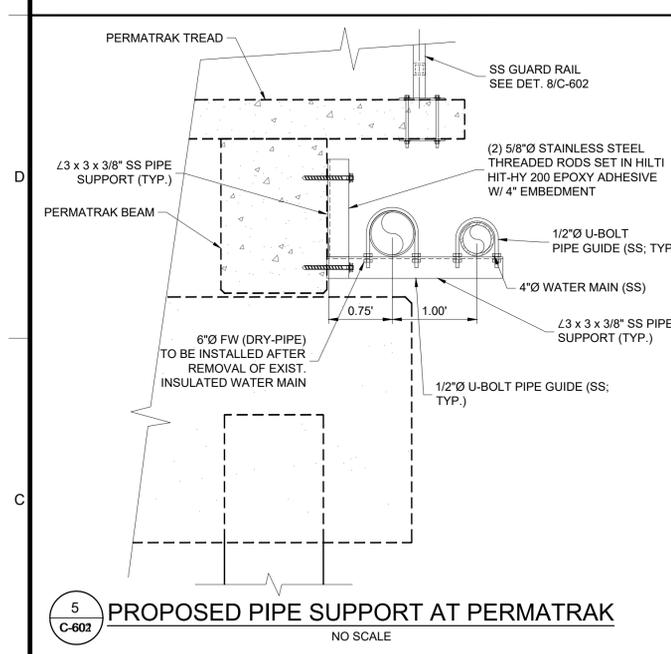
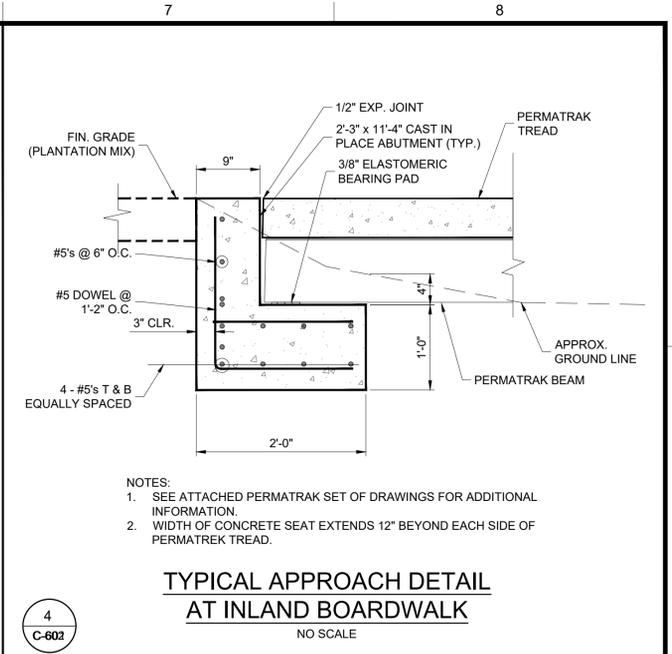
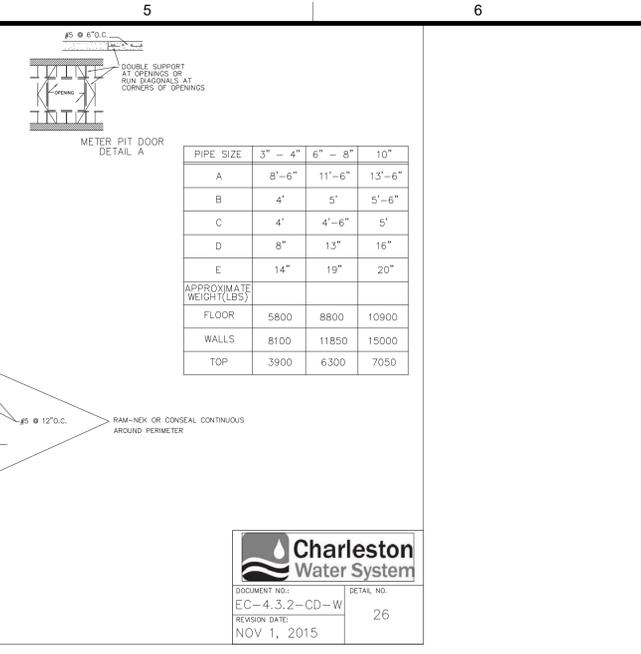
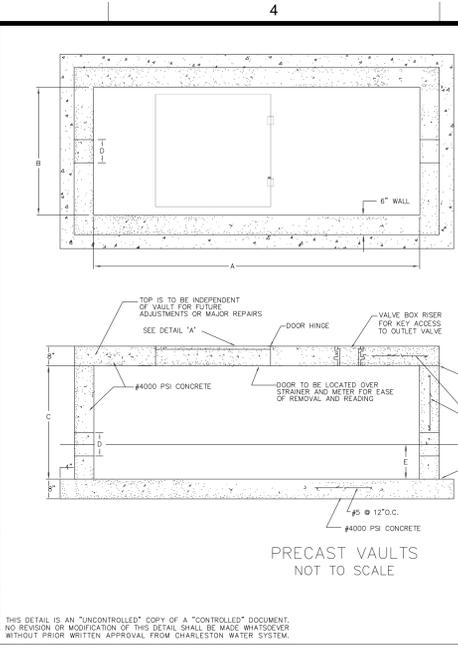
**NOTES:**

- THE WALL SHALL BE CONSTRUCTED WITH 4000 PSI NONWEATHERED CONCRETE. USE OF BLOCK MUST BE APPROVED IN WRITING BY CWS BEFORE CONSTRUCTION.
- WALLS SHALL BE 3" SINGLE PLY OR 4" DOUBLE PLY. BETWEEN WALLS AND BOTTOM AND WALLS AND LO CONTINUOUS AROUND PERIMETER.
- IN NON-WHITE AREA USE ALUMINUM OR WHITE COLORED DOOR. IN WHITE AREA USE ANODIZED OR PAINTED ALUMINUM DOOR.
- DOORS ARE TO BE LOCATED SO METER CAN BE READ AND STRAINER CAN BE LIFTED. STRAINER 2\"/>

DIMENSION	4"	6"	8"	10"
A	4.87"	8.87"	9.07"	11.10"
B	9"	10.5"	11.5"	13"
C	33"	45"	53"	68"
D	14"	14"	14"	14"
E	13"	14"	14"	16"
F	16.5"	20.125"	23.375"	28.125"
G	19"	25.5"	29.5"	31.75"
H	42"	71"	81"	100"
I	12"	16"	17"	18"
J	13.625"	14.625"	13.625"	13.625"
K	2.25"	3.5"	4.75"	4.5"
L	13.6"	21.7"	23.7"	24.7"
M	15"	16"	18"	20"

**Charleston Water System**

DOCUMENT NO.: EC-4.3.2-CD-W DETAIL NO.: 25  
 REVISION DATE: NOV 1, 2015



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CHARLESTON COUNTY  
 PARKS AND RECREATION  
**COOPER RIVER COUNTY PARK  
 SITE PLAN - DESIGN-BUILD**  
 PROJECT LOCATION:  
 1010 TIDEWATER RD. NORTH CHARLESTON, SC 29405

Professional Engineer Seal for William H. Johnson, License No. 28810, dated 01/12/26.

Professional Engineer Seal for Johnson, Laschner & Associates, P.C., License No. C00790, dated 01/12/26.

REV	DATE	BY	DESCRIPTION
0	02/09/26	HWG	ISSUED FOR BID

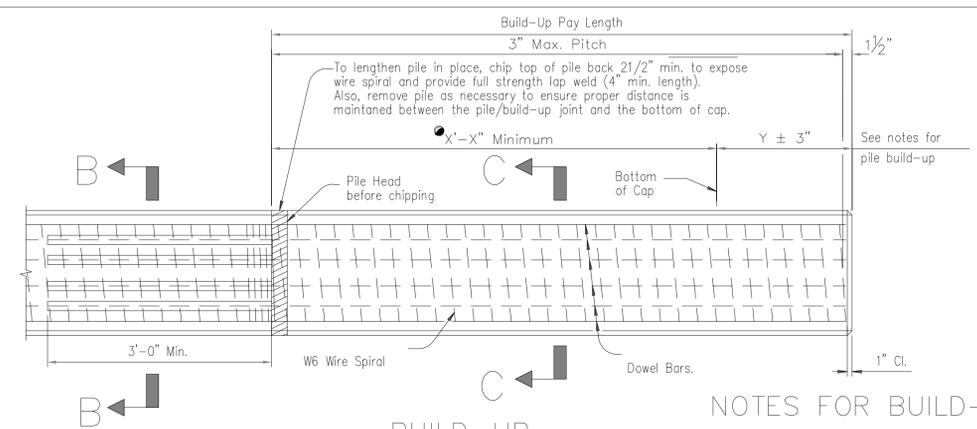
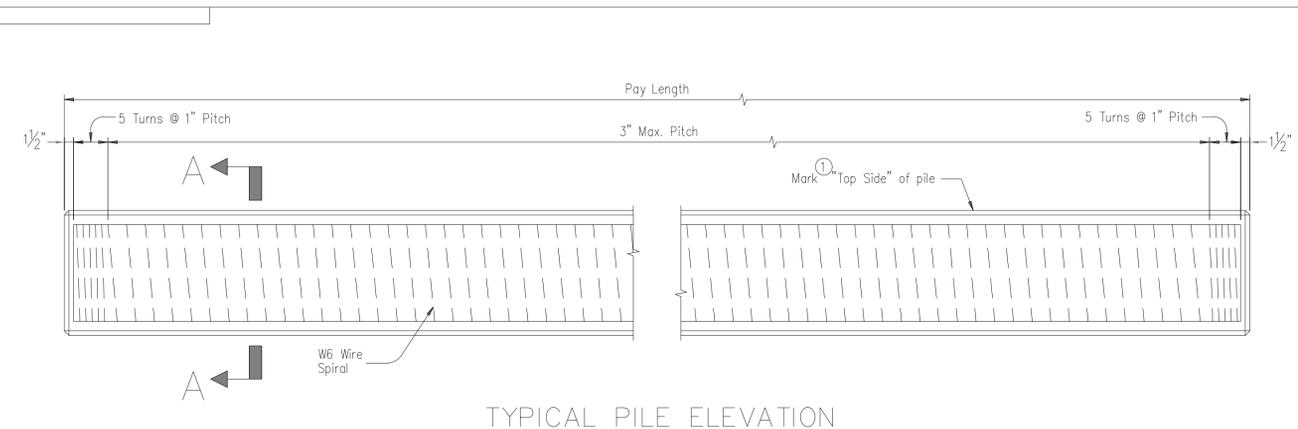
PROJECT NO.: 3001.2502  
 DRAWN BY: MDC  
 CHECKED BY: HWG  
 DATE: 02/09/2026  
 SHEET TITLE:  
**MISCELLANEOUS  
 DETAILS  
 SHT. 2 OF 3**

SCALE: AS NOTED  
 DRAWING NO.: **C-602** REV: 0

Design Piles using strands in the table below.

STRAND DATA	
TENSILING LOAD	TENSILING LOAD
38.9 kips	43.9 kips
31.0 kips	33.8 kips
0.153	0.167
9/16"	0.6"
1/2"	0.217
1/2"	0.217

BRIDGE PLANS ID	SHEET NO.
XXXXXX-BXX	XX



**NOTES FOR BUILD-UP**

Chip back top of piles and field drill holes as shown. Grout dowel bars in the holes using an approved non-shrink grout with  $f_c = 5$ ksi. Terminate dowel bars 1" clear from the top of pile. Submit dowel bar lengths to the RCE for approval. Include all costs associated with preparation of the pile for build-up in the unit price bid for Pile Build-up Preparation. Build up all piles that have an embedment length less than the minimum shown in the plans. Use the build-up details shown on this sheet. The option is available to cast build-ups with bent caps provided rebar and wire spiral are continued a distance equal to "Y" into the cap and the cap is cast with Class 5000 concrete. Pay for cap concrete as Class 4000 concrete regardless of the actual class used. Include an embedment length of "Y" in the pile build-up length measured for payment. Pay for the pile build-up, including all costs for dowel bars, wire spirals, and build-up concrete, as an additional length of prestressed concrete piling equal to the build-up pay length shown in the build-up detail.

**GENERAL NOTES**

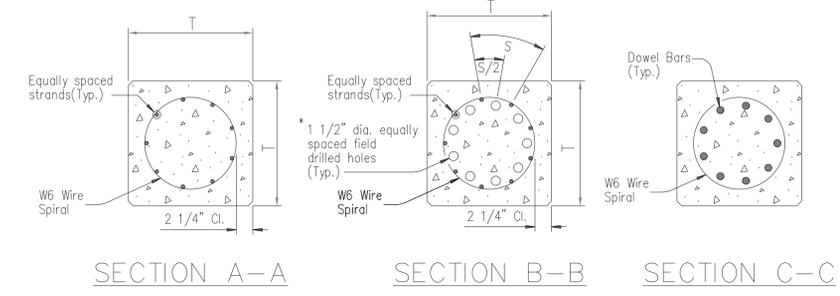
Splice wire spiral using full strength lap welds.  
 Submit dowel bar lengths to the RCE for approval.  
 Chamfer all exposed edges 3/4" unless noted otherwise.  
 All dimensions relative to reinforcing steel are to centers of bars (except as noted).  
 Release alternate strands simultaneously at opposite ends without shock.  
 Tie wire spiral to cables and reinforcing bars as required to maintain pitch of the spiral. Mark piles at pick-up points to indicate proper points for attaching handling lines. Anchor the piles into the bent caps using the details shown on this sheet. Include all costs for this work in the unit price bid for prestressed concrete piling.

**MATERIALS**

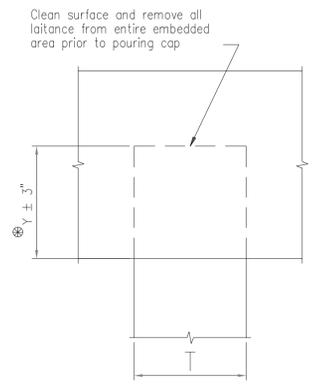
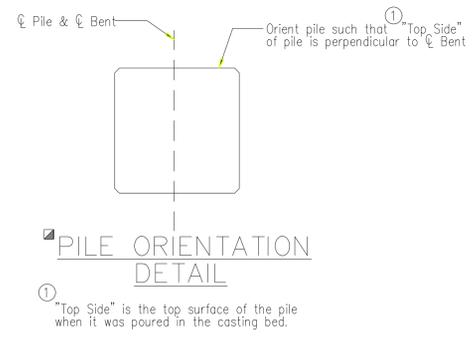
Prestressing Strand - Grade 270, Low Relaxation AASHTO M 203  
 Wire Spiral - AASHTO M 32, M 225  
 Reinforcing Steel - Grade 60 AASHTO M 31, Type W  
 Concrete - Class 5000 Standard Spec. Sect. 701

DESIGN DATA	
Low Relaxation Strands	
Tensile Strength (fpu) = 270 ksi	
Initial Prestress (0.75 fpu) = 202.5 ksi	
Class 5000 Concrete	
$f'_c = 5$ ksi	
$f'_{ci} = 3.5$ ksi	

PILE DATA							
PILE SIZE	PILE EMBEDMENT	STRANDS	STRESS (ksi)	DOWEL BARS	MAXIMUM L		
					1 PICK-UP POINT	2 PICK-UP POINTS	3 PICK-UP POINTS
18"	23"	9 - 1/2"	0.725	9 # 25	61'	87'	124'

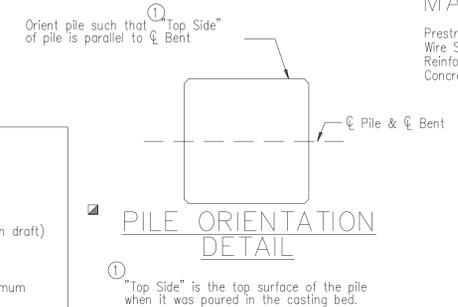


\* Field drill dowel holes. Locate dowel holes to provide 1/2" cl. to wire spiral.



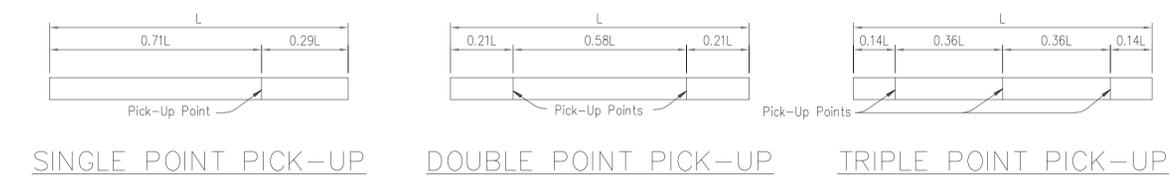
**PILE ANCHORAGE DETAILS**

\* If this dimension is less than  $Y = 3"$ , build up the pile as detailed above.



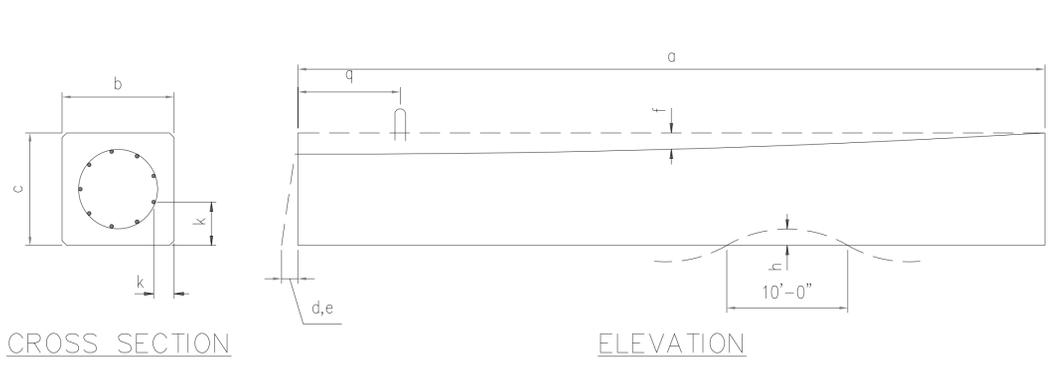
**PILE ORIENTATION DETAIL**

\* "Top Side" is the top surface of the pile when it was poured in the casting bed.



**TOLERANCES**

- a. Length -----  $\pm 1"$
- b. Width or Diameter -----  $\pm 3/8"$ ,  $+ 1/2"$  (including form draft)
- c. Depth -----  $\pm 3/8"$
- d. Variation from Specified Plan End  
 Squareness or Skew -----  $\pm 1/4"$  per 12",  $\pm 1/2"$  maximum
- e. Variation from Specified Elevation  
 End Squareness or Skew -----  $\pm 1/4"$  per 12",  $\pm 1/2"$  maximum
- f. Sweep (Variation from straight line parallel to centerline of member)  
 (considered to be a form tolerance) -----  $\pm 1/8"$  per 10'
- h. Local Smoothness of Any Surface -----  $1/4"$  in 10'
- k. Location of Strand -----  $\pm 1/4"$
- q. Location of Handling Device -----  $\pm 6"$
- Longitudinal Spacing of Stirrups or Spiral Reinforcement -----  $\pm 3/4"$



**CROSS SECTION**

**ELEVATION**

REV.	PCW	HL	10-20
REV.	AASHTO	M31	
REV.	JXY	SAN	3-14
			New Border
REVIEWED			
QUAN.			
DR.	SRM	GFD	12-07
DES.	GFD	SAN	12-07
BY	CHK	DATE	

SOUTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

**PRESTRESSED  
CONCRETE PILES**

ROUTE  
XXXXXX

DRAWING NO. 704-01

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CLIENT: CHARLESTON COUNTY PARKS AND RECREATION  
 PROJECT NAME: COOPER RIVER COUNTY PARK SITE PLAN - DESIGN-BUILD  
 PROJECT LOCATION: 1010 TIDEWATER RD. NORTH CHARLESTON, SC 29405

Professional Engineer Seal: JOHN LASCHOB, No. 28610, State of South Carolina, License No. 000790, Date of Expiration: 01/12/26.

REV.	DATE	BY	DESCRIPTION
0	02/09/26	HWG	ISSUED FOR BID

PROJECT NO. 3001.2502  
 DRAWN BY: MDC  
 CHECKED BY: HWG  
 DATE: 02/09/2026  
 SHEET TITLE: MISCELLANEOUS DETAILS SHT. 3 OF 3

SCALE: AS NOTED  
 DRAWING NO. C-603  
 REV. 0

# COOPER RIVER COUNTY PARK & MARINA

## GENERAL NOTES

### GENERAL

- THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH THE PROJECT ARCHITECTS PLAN LAYOUT AND GUIDELINES. SUITABILITY FOR ACCESS AND INTENDED USAGE SHALL BE THE RESPONSIBILITY OF THE ARCHITECT.
- VEHICULAR ACCESS LARGER THAN THE DESIGN LIVE LOAD SHALL BE LIMITED BY PERMANENT PHYSICAL MEANS.
- PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL VERIFY ALL ELEVATIONS THROUGH THE PROJECT ARCHITECT. PRIOR TO CONSTRUCTION, ALL FOUNDATION LOCATIONS SHALL BE STAKED BY THE SURVEYOR PER THE APPROVED DRAWINGS MARKED 'FOR CONSTRUCTION'.
- ONLY PERMATRAK NORTH AMERICA MAY PROVIDE THE PRECAST STRUCTURE SHOWN ON THESE PLANS.
- INSTALLER SHALL NOT CUT OR MODIFY ANY PERMATRAK COMPONENTS WITHOUT PERMATRAK'S APPROVAL.
- THE INSTALLER IS RESPONSIBLE FOR THE APPROPRIATE MEANS AND METHODS FOR THIS PROJECT, INCLUDING ENSURING PROPER CONSTRUCTIBILITY OF ALL COMPONENTS SHOWN ON THESE PLANS. NO EQUIPMENT MAY BE OPERATED ON THE STRUCTURE, UNLESS NOTED OTHERWISE IN THE DESIGN DATA ON THIS SHEET.
- A MATERIAL CHANGE TO THE BOARDWALK SYSTEM IS NOT ALLOWED AND NOT CONSIDERED AN EQUAL.
- PRIOR TO CONSTRUCTION, ALL EXISTING UTILITIES, BUILDING LOCATIONS, EXISTING FOUNDATIONS AND TREE ROOTS (AS APPLICABLE) SHALL BE LOCATED TO VERIFY NO CONFLICTS EXIST WITH THE STRUCTURES SHOWN ON THESE PLANS.

### DESIGN DATA

- BOARDWALK SHALL BE DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS AND THE LRFD GUIDE SPECIFICATION FOR THE DESIGN OF PEDESTRIAN BRIDGES.
- DESIGN LIVE LOAD: PEDESTRIAN LOADING - 90 PSF UNIFORM  
VEHICULAR LOADING - H-5 (10,000 LB DESIGN VEHICLE)
- A HYDRAULIC ANALYSIS, INCLUDING SCOUR EVALUATION, HAS NOT BEEN PERFORMED BY PERMATRAK. THIS SCOPE IS THE RESPONSIBILITY OF THE DESIGN CONSULTANT.
- ALL GEOTECHNICAL RECOMMENDATIONS CONTAINED IN THE REPORT OF SUBSURFACE INVESTIGATION SHALL BE FOLLOWED. REPORT "GEOTECHNICAL ENGINEERING REPORT" WAS DATED APRIL 9, 2020 AND PRODUCED BY TERRACON.
  - PER EMAIL CORRESPONDENCE WITH WILL BOLTS, P.E. AT TERRACON ON SEPTEMBER 24, 2024, AN ALLOWABLE END BEARING CAPACITY OF 1,500 PSF WAS USED FOR THE DESIGN OF THE CAST-IN-PLACE ABUTMENTS FOR THE BOARDWALK STRUCTURE.
- THE RAILING SUPPLIER IS RESPONSIBLE FOR THE ENGINEERING OF THE DETAILED RAILING IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
- 14" SQUARE PILES SHALL BE PDA TESTED PER THE GEOTECHNICAL REPORT REFERENCED ABOVE. APPROXIMATE EMBEDMENT IS ESTIMATED TO BE 55'-0".

### MATERIAL

- FASTENERS, BOLTS AND HARDWARE SHALL BE GALVANIZED, FIBER REINFORCED POLYMER (FRP) OR GRADE 316 STAINLESS STEEL.
- ALL REINFORCING SHALL BE UNCOATED CONFORMING TO ASTM A615.
- CAST-IN-PLACE CONCRETE SHALL HAVE A 28-DAY CONCRETE COMPRESSIVE STRENGTH OF 4000 PSI.

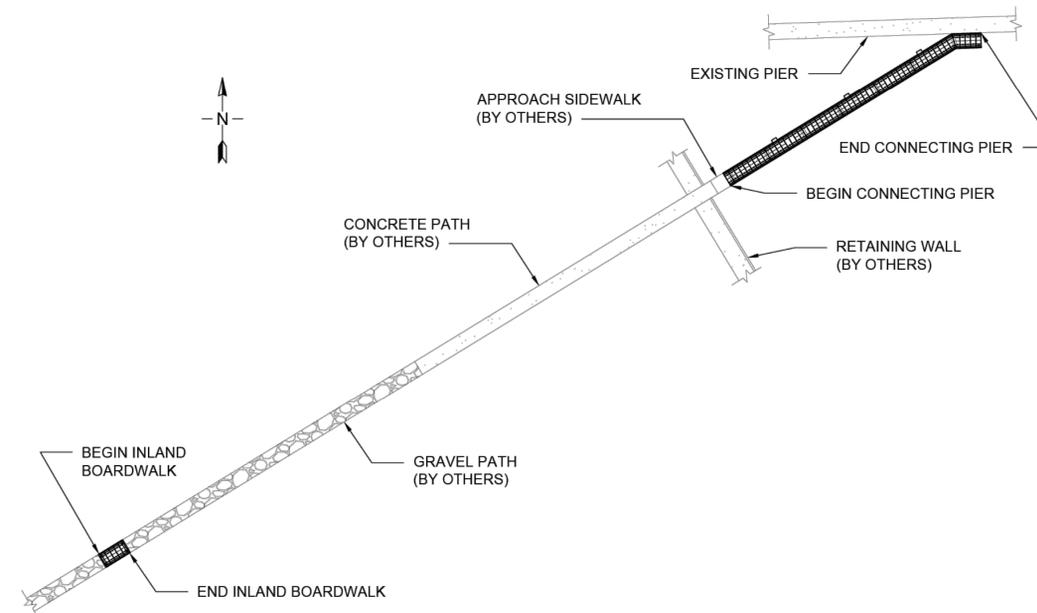
## QUALITY ASSURANCE SPECIFICATIONS

- ACCEPTABILITY CRITERIA FOR TREADS AND CURBS (IF APPLICABLE): THE FINISHED VISIBLE (IN THE FINAL INSTALLED POSITION) SURFACE SHALL HAVE NO OBVIOUS IMPERFECTIONS OTHER THAN MINIMAL COLOR OR TEXTURE VARIATIONS FROM THE APPROVED SAMPLES OR EVIDENCE OF REPAIRS WHEN VIEWED IN GOOD TYPICAL DAYLIGHT ILLUMINATION WITH THE UNAIDED NAKED EYE AT A 20 FT. VIEWING DISTANCE. APPEARANCE OF THE SURFACE SHALL NOT BE EVALUATED WHEN LIGHT IS ILLUMINATING THE SURFACE FROM AN EXTREME ANGLE AS IT TENDS TO ACCENTUATE THE MINOR SURFACE IRREGULARITIES. THE FOLLOWING IS A LIST OF FINISH DEFECTS THAT SHALL BE PROPERLY REPAIRED, IF OBVIOUS WHEN VIEWED AT A 20 FT. DISTANCE. PATCHING (BY A TRAINED SKILLED CONCRETE REPAIR PERSON) IS AN ACCEPTABLE REPAIR METHOD.
  - RAGGED OR IRREGULAR SURFACES.
  - EXCESSIVE AIR VOIDS (COMMONLY CALLED BUG HOLES) LARGER THAN 1/4 IN. EVIDENT ON THE TOP SURFACE OF THE TREAD OR CURBS (IF APPLICABLE).
  - ADJACENT FLAT AND RETURN SURFACES WITH GREATER TEXTURE AND/OR COLOR DIFFERENCES THAN THE APPROVED SAMPLES OR MOCKUPS.
  - CASTING AND/OR AGGREGATE SEGREGATION LINES EVIDENT FROM DIFFERENT CONCRETE PLACEMENT LIFTS AND CONSOLIDATION.
  - VISIBLE MOLD JOINTS OR IRREGULAR SURFACES.
  - RUST STAINS ON EXPOSED SURFACES.
  - UNITS WITH EXCESSIVE VARIATION IN TEXTURE AND/OR COLOR FROM THE APPROVED SAMPLES, WITHIN THE UNIT OR COMPARED WITH ADJACENT UNITS.
  - BLOCKING STAINS EVIDENT ON EXPOSED SURFACES.
  - AREAS OF BACKUP CONCRETE BLEEDING THROUGH THE FACING CONCRETE.
  - FOREIGN MATERIAL EMBEDDED IN THE SURFACE.
  - VISIBLE REPAIRS AT A 20 FT. VIEWING DISTANCE.
  - REINFORCEMENT SHADOW LINES.
  - CRACKS VISIBLE AT A 20 FT. VIEWING DISTANCE.

## PROJECT COMPONENTS

SUPPLIED BY PERMATRAK
PRECAST CONCRETE TREADS
PRECAST CONCRETE BEAMS
RUBBER SPACER PADS (BETWEEN TREADS)
RUBBER LEVELING PADS (BETWEEN TREAD AND BEAM)
ELASTOMERIC BEARING PADS (BETWEEN BEAM AND FOUNDATION)
SHIMS (LEVELING FOR PRECAST COMPONENTS)
1" Ø THREADED BARS WITH NUTS AND WASHERS (BEAM TO C.I.P. BENT CONNECTION)
CLIP ANGLE KITS (TREAD TO BEAM CONNECTION)
SIMPSON STRONG-TIE SET-3G (EPOXY ANCHORING SYSTEM)
PATCHING MATERIAL
WEIGHT LIMIT SIGN
PRECAST CONCRETE CURBS
3/4" Ø COILED RODS WITH NUTS AND OVERSIZED WASHERS (CURB TO TREAD CONNECTION)
SIKAFLEX-11 FC EXPANSIVE FILLER MATERIAL (CURB TO TREAD CONNECTION)

SUPPLIED BY CONTRACTOR
CAST-IN-PLACE CONCRETE
EXPANSION JOINT MATERIAL
RAILING AND CONNECTION HARDWARE
NON-SHRINK GROUT
ELASTIC FILLER MATERIAL
1'-2" SQUARE PRECAST PRE-STRESSED PILES



**PERMATRAK LOCATION PLAN**  
NOT TO SCALE

Patented Product: U.S. Patent #8,302,362, #8,522,505, #9,096,975, #D940,912, #D925,068 & Other Patents Pending

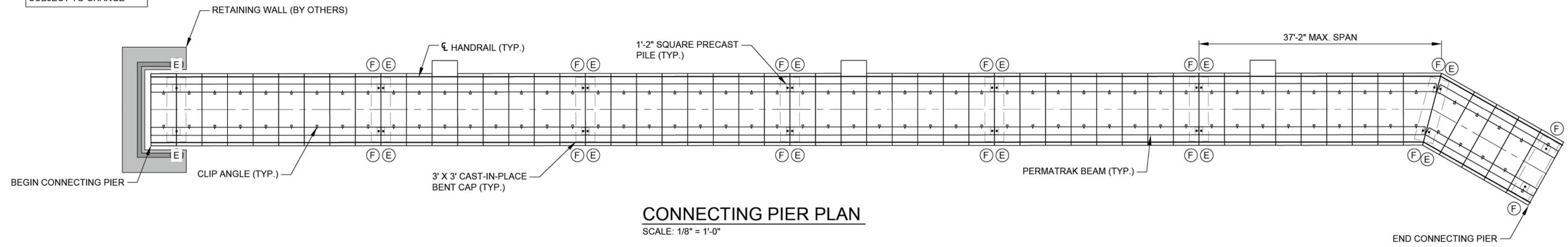
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	5				DATE: 01/29/2026						
	4				DESIGNED BY: JMP						
	3				DRAWN BY: JMP						
	2				CHECKED BY: KAS						
	1				SHEET NO. <b>PT01</b>						
NO.	DATE	DESCRIPTION	BY:								

**APPROXIMATE NUMBER OF COMPONENTS REQUIRED\***

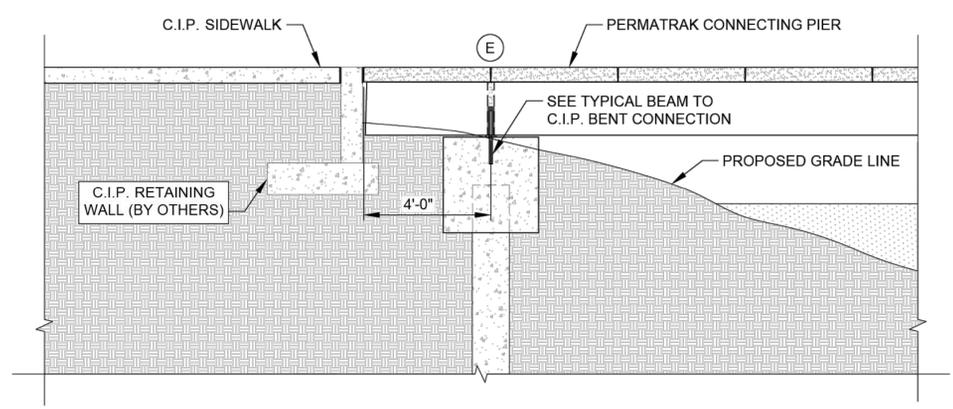
STRUCTURE	BOARDWALK WIDTH	APPROXIMATE LENGTH FT. (ALONG CENTERLINE)	STRUCTURE AREA	# OF 1'-2" SQUARE PCPS PILES	# OF BEAMS	RAILING LF	# OF CAST-IN-PLACE BENT CAPS	# OF 2' X 11'-3" C.I.P. FOOTINGS	# OF CLIP ANGLES
CONNECTING PIER	11.25 FT. ±	221 FT. ±	2,487 SQ. FT. ±	16	14	442 FT. ±	8	0	110
INLAND BOARDWALK	11.25 FT. ±	20 FT. ±	225 SQ. FT. ±	0	2	40 FT. ±	0	2	10
<b>TOTAL</b>		<b>241 FT. ±</b>	<b>2,712 SQ. FT. ±</b>	<b>16</b>	<b>16</b>	<b>482 FT. ±</b>	<b>8</b>	<b>2</b>	<b>140</b>



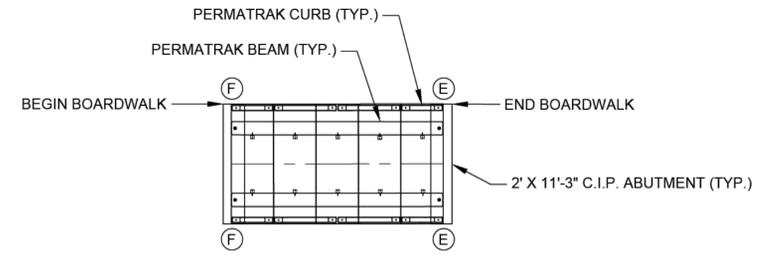
\*QUANTITIES SHOWN IN TABLE ARE APPROXIMATE AND SUBJECT TO CHANGE



**CONNECTING PIER PLAN**  
SCALE: 1/8" = 1'-0"



**C.I.P. SIDEWALK TO CONNECTING PIER**  
SCALE: 3/8" = 1'-0"



**INLAND BOARDWALK PLAN**  
SCALE: 1/8" = 1'-0"

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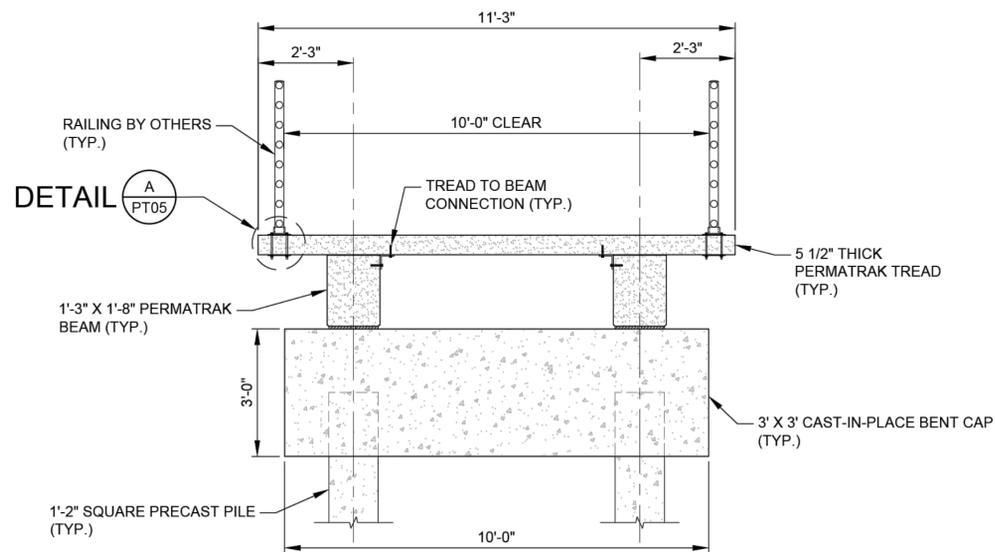
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- OFFICE LOCATIONS**
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  - SOUTH CAROLINA
  - FLORIDA
  - OHIO
  - GEORGIA
  - TEXAS

Patented Product: U.S. Patent #8,302,362, #8,522,505, #9,096,975, #D940,912, #D925,068 & Other Patents Pending

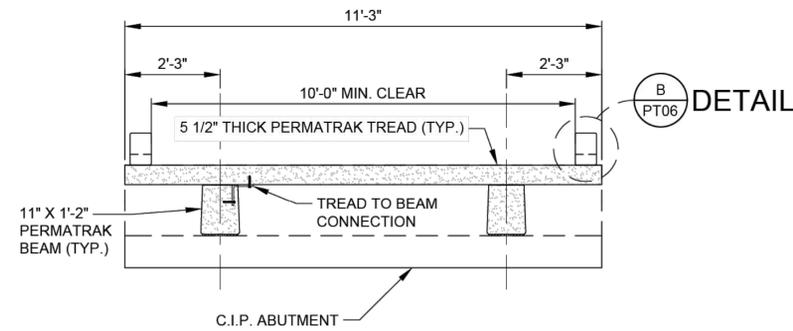
PROJECT TITLE:  
**COOPER RIVER COUNTY PARK & MARINA**  
CHARLESTON, SC

JOB NUMBER: 2024-2219
DATE: 01/29/2026
DESIGNED BY: JMP
DRAWN BY: JMP
CHECKED BY: KAS
SHEET NO. <b>PT02</b>



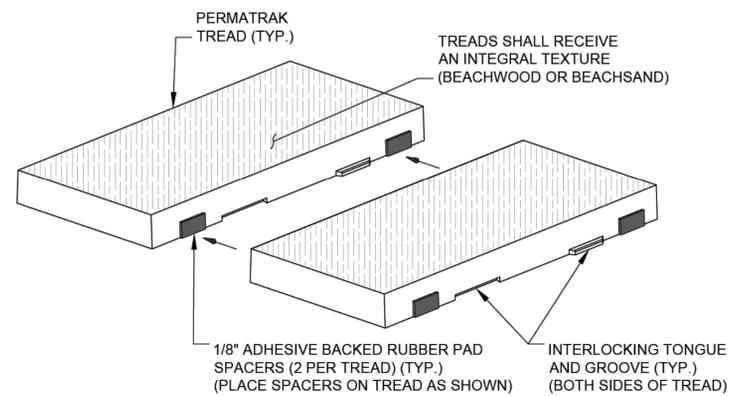
**TYPICAL SECTION (CONNECTING PIER)**

SCALE: 1/2" = 1'-0"



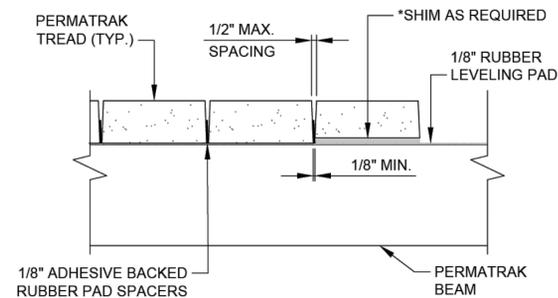
**TYPICAL SECTION (INLAND BOARDWALK)**

SCALE: 1/2" = 1'-0"



**TYPICAL TREAD RUBBER SPACING DETAIL**

SCALE: N.T.S.



**TYPICAL SHIM (UNDER TREAD) & TREAD SPACING DETAIL**

SCALE: N.T.S.

Patented Product: U.S. Patent #8,302,362, #8,522,505, #9,096,975, #D940,912, #D925,068 & Other Patents Pending

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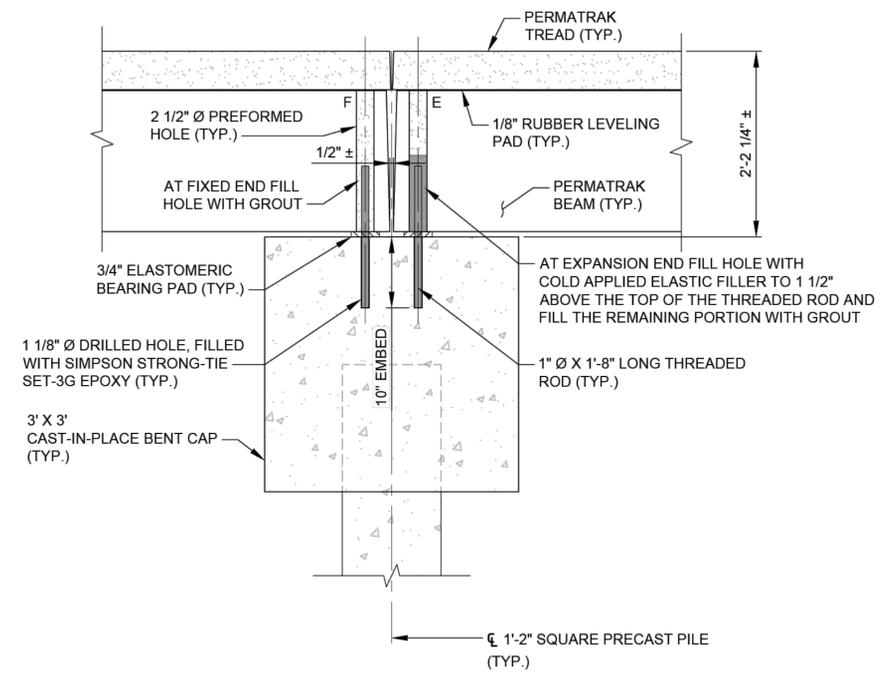
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  - GEORGIA
  - TEXAS

PROJECT TITLE:  
**COOPER RIVER COUNTY PARK & MARINA**  
CHARLESTON, SC

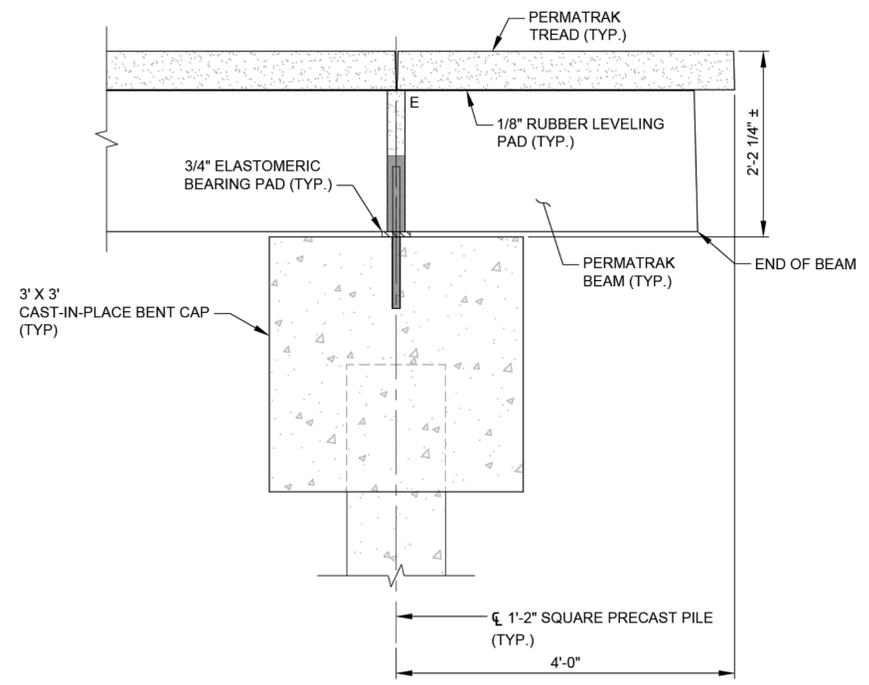
JOB NUMBER: 2024-2219
DATE: 01/29/2026
DESIGNED BY: JMP
DRAWN BY: JMP
CHECKED BY: KAS
SHEET NO. <b>PT03</b>

NOTE: RAILING NOT SHOWN FOR CLARITY.

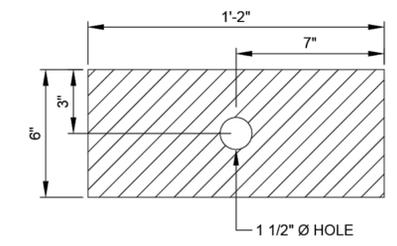


**TYPICAL PIER CONNECTION DETAIL - CONNECTING PIER**  
SCALE: 1" = 1'-0"

NOTE: RAILING NOT SHOWN FOR CLARITY.



**BEGINNING OF PIER CONNECTION DETAIL - CONNECTING PIER**  
SCALE: 1" = 1'-0"



**ELASTOMERIC PAD PLAN**  
SCALE: 3" = 1'-0"

Patented Product: U.S. Patent #8,302,362, #8,522,505, #9,096,975, #D940,912, #D925,068 & Other Patents Pending

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NO.	DATE	DESCRIPTION	BY:

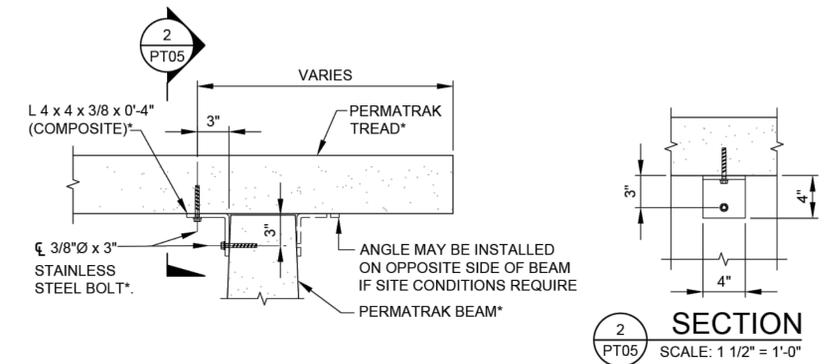
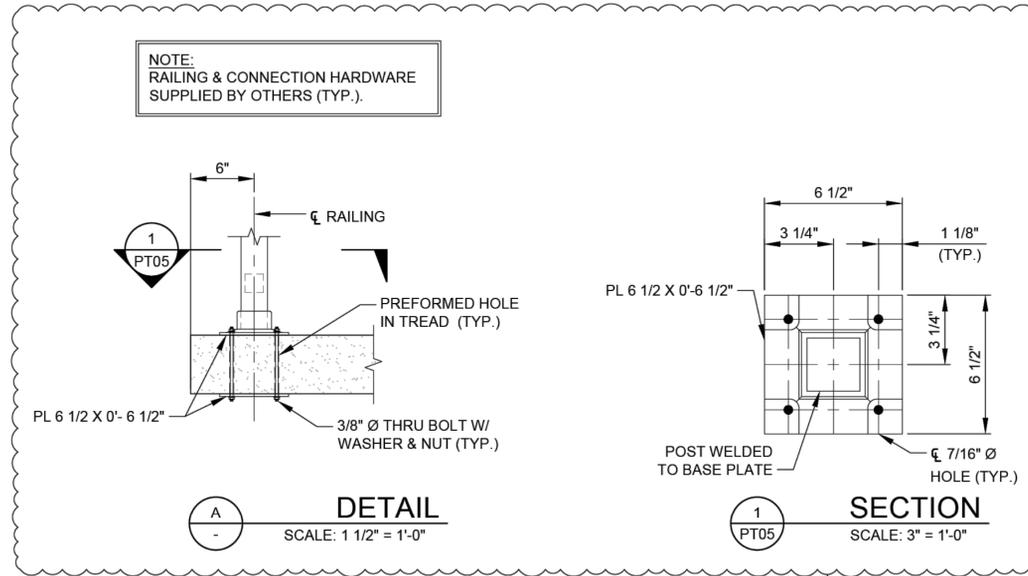
PREPARED FOR:  
**CCPRC**

**FOR BIDDING PURPOSES  
NOT FOR CONSTRUCTION**

- OFFICE LOCATIONS
- NORTH CAROLINA
  - SOUTH CAROLINA
  - FLORIDA
  - OHIO
  - GEORGIA
  - TEXAS

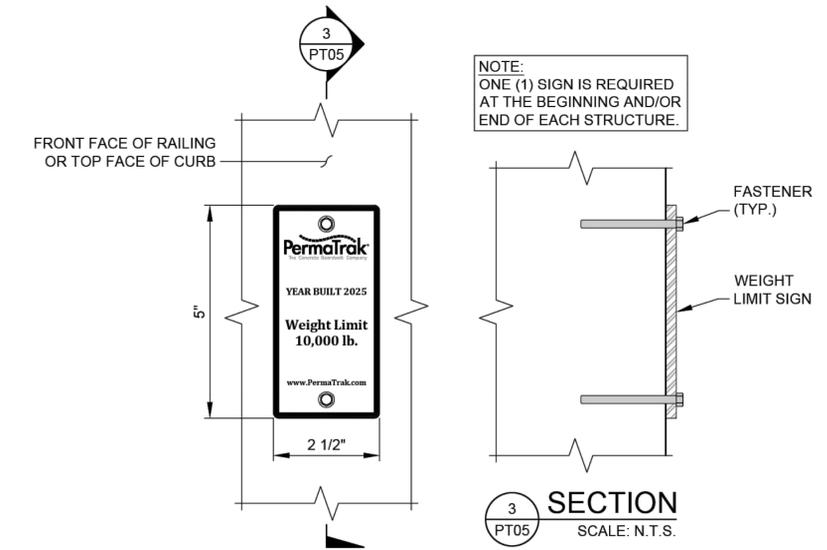
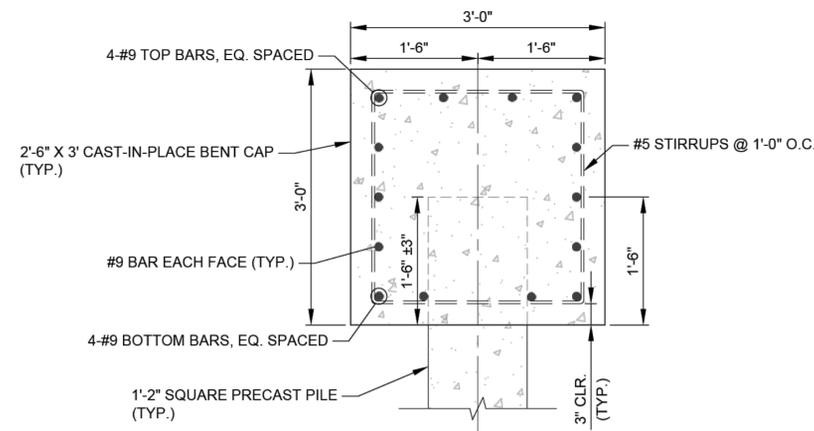
PROJECT TITLE:  
**COOPER RIVER COUNTY PARK & MARINA**  
CHARLESTON, SC

JOB NUMBER: 2024-2219
DATE: 01/29/2026
DESIGNED BY: JMP
DRAWN BY: JMP
CHECKED BY: KAS
SHEET NO. <b>PT04</b>



- NOTES:
1. ALL HOLES IN PRECAST SHALL BE DRILLED BY CONTRACTOR.
  2. DRILLED HOLES IN PRECAST SHALL BE 3/8"Ø AND INSTALLED PER MANUFACTURER INSTALLATION REQUIREMENTS.
  3. \* INDICATES SUPPLIED BY PERMATRAK.
  4. TWO (2) CLIP ANGLES ARE REQUIRED PER TREAD.

**TREAD TO BEAM CONNECTION**  
SCALE: N.T.S.



NOTE:  
ONE (1) SIGN IS REQUIRED  
AT THE BEGINNING AND/OR  
END OF EACH STRUCTURE.

SAMPLE CONNECTIONS FOR REFERENCE

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NO.	DATE	DESCRIPTION	BY:

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NOT FOR CONSTRUCTION



OFFICE LOCATIONS:

- NORTH CAROLINA
- SOUTH CAROLINA
- FLORIDA
- OHIO
- GEORGIA
- TEXAS

Patented Product: U.S. Patent #8,302,362, #8,522,505, #9,096,975, #D940,912, #D925,068 & Other Patents Pending

PROJECT TITLE:

COOPER RIVER COUNTY PARK &  
MARINA  
CHARLESTON, SC

JOB NUMBER: 2024-2219

DATE: 01/29/2026

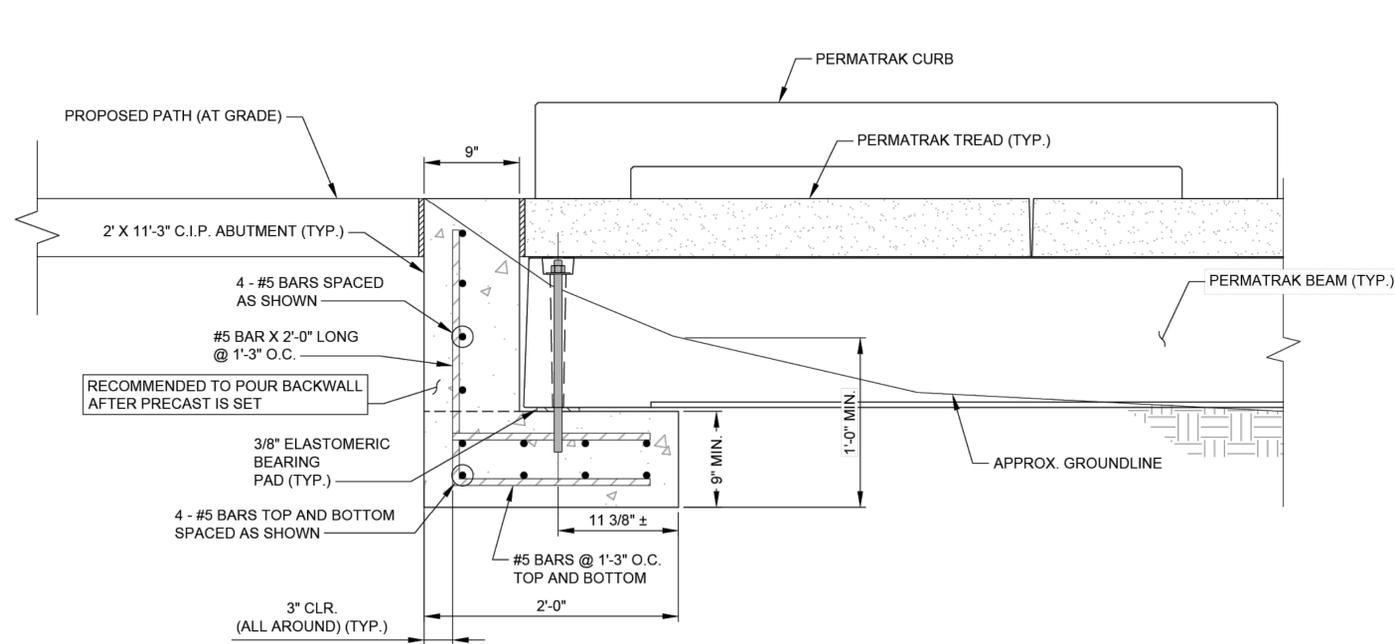
DESIGNED BY: JMP

DRAWN BY: JMP

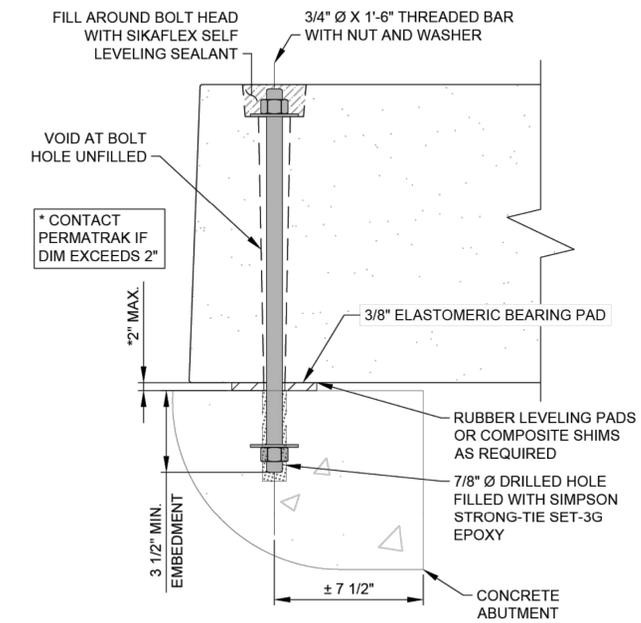
CHECKED BY: KAS

SHEET NO.

PT05

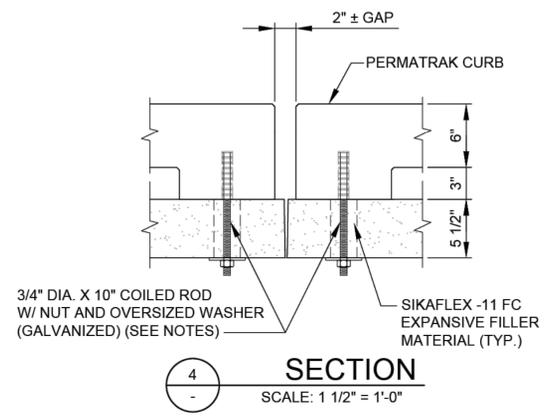
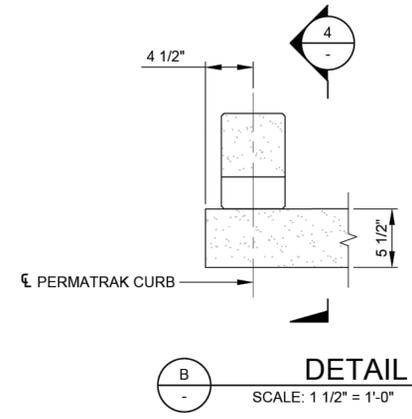


**TYPICAL APPROACH DETAIL AT INLAND BOARDWALK**  
SCALE: 1 1/2" = 1'-0"



**TYPICAL BEAM TO CONCRETE FOUNDATION/CAP CONNECTION DETAIL**  
SCALE: NOT TO SCALE

- NOTES:**
1. 2" DIAMETER PREFORMED HOLES SUPPLIED BY PERMATRAK.
  2. CONNECTION HARDWARE SUPPLIED BY PERMATRAK.
  3. FILL OVERSIZED DOWEL HOLES WITH SIKAFLEX-11 FC OR APPROVED EQUAL.
  4. AFTER TIGHTENING NUT, DEFORM THREADS ON ROD TO PREVENT LOOSENING.
  5. THREADED ROD SHALL BE GALVANIZED AND HAVE COARSE COILED THREADS TO FIT A MEADOW BURKE CX-28 COIL WINGNUT INSERT.



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NO.	DATE	DESCRIPTION	BY:

PREPARED FOR:  
**CCPRC**

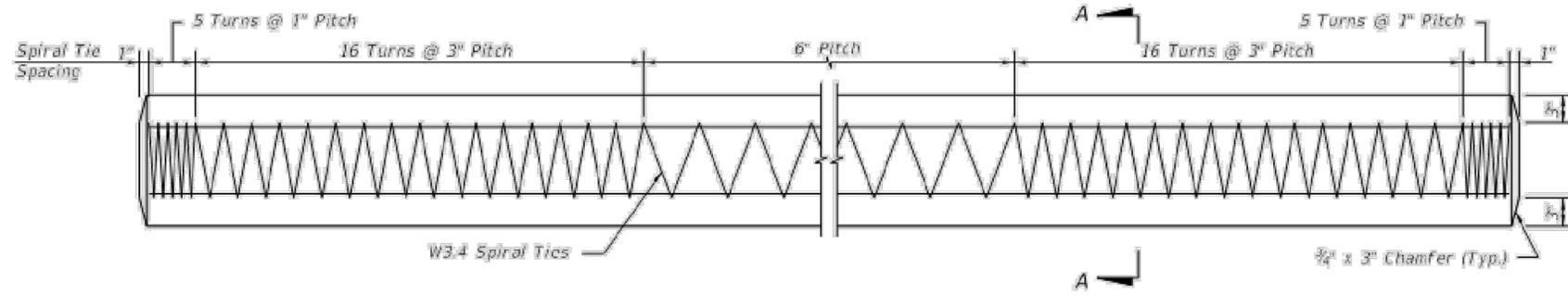
**FOR BIDDING PURPOSES  
NOT FOR CONSTRUCTION**

- OFFICE LOCATIONS**
- NORTH CAROLINA
  - SOUTH CAROLINA
  - FLORIDA
  - OHIO
  - GEORGIA
  - TEXAS

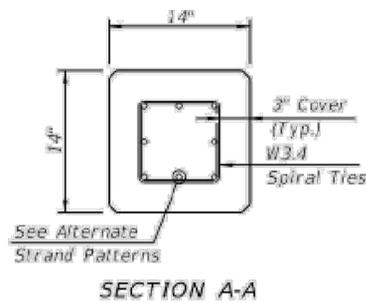
Patented Product: U.S. Patent #8,302,362, #8,522,505, #9,096,975, #D940,912, #D925,068 & Other Patents Pending

PROJECT TITLE:  
**COOPER RIVER COUNTY PARK & MARINA**  
CHARLESTON, SC

JOB NUMBER: 2024-2219
DATE: 01/29/2026
DESIGNED BY: JMP
DRAWN BY: JMP
CHECKED BY: KAS
SHEET NO: <b>PT06</b>

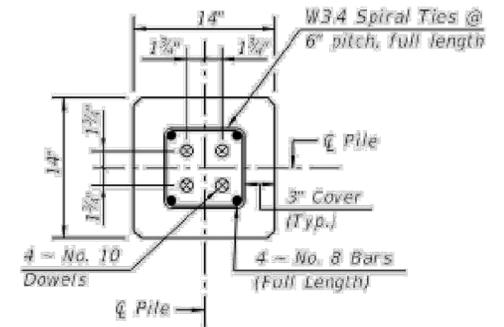


ELEVATION

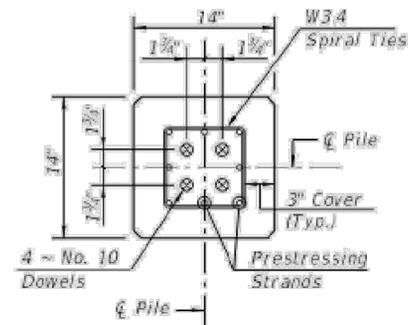


**ALTERNATE STRAND PATTERNS**

- 8 - 0.6" Ø, Grade 270 LRS, at 33 kips
- 8 - 1/2" Ø (Special), Grade 270 LRS, at 31 kips
- 8 - 1/2" Ø, Grade 270 LRS, at 31 kips
- 12 - 7/16" Ø, Grade 270 LRS, at 21 kips
- 16 - 3/8" Ø, Grade 270 LRS, at 16 kips



**SECTION D-D**  
(See Non-Drivable Unforescen Reinforced Precast Splice Detail)



**SECTION E-E**  
(See Drivable Unforescen Prestressed Precast Splice Detail)

**PILE SPLICE REINFORCEMENT DETAILS**

**NOTES:**

1. Work this Index with Index 455-001 - Typical Details and Notes for Square Prestressed Concrete Piles and Index 455-002 - Square Prestressed Concrete Pile Splices.
2. Any of the given Alternate Strand Patterns may be utilized. The strands shall be located as follows:  
Place one strand at each corner and place the remaining strands equally spaced between the corner strands. The total strand pattern shall be concentric with the nominal concrete section of the pile.

10/13/2022 8:43:59 AM

LAST REVISION	REVISION	DESCRIPTION:	<b>FY 2023-24 STANDARD PLANS</b>	<b>14" SQUARE PRESTRESSED CONCRETE PILE</b>	INDEX	SHEET
01/01/12					455-014	1 of 1

**ELEVATED PRECAST CONCRETE BOARDWALK**

**PROJECT SPECIFICATIONS V4.1 UPDATED SEPTEMBER 2023**

**PRECAST CONCRETE BOARDWALK SYSTEM**

**PART 1-GENERAL**

**1.1 SUMMARY**

A. These specifications are for a precast concrete boardwalk and shall be regarded as minimum standards for this project. These specifications are based upon products designed and supplied by:

PermaTrak North America LLC  
 Ph: (706) 550-8460  
 Ph: 877-332-7862  
 www.permatrak.com  
 Contact: Ms. Carrie Parada  
 cparada@permatrak.com

This item shall also include the design, specification, and construction of a railing and foundation system that is attached to the proposed boardwalk system.

1.2 MINIMUM STANDARDS: The selected boardwalk shall have the following minimum characteristics:

- A. The precast system shall be designed as a modular flexible system allowing a prescribed settlement at pier locations. Joints shall be designed for such movement to occur without damage to the structural integrity of the system.
- B. Boardwalk system (beams, treads, and curbs if applicable) must be reinforced precast concrete. A material change, including cast-in-place concrete, is not considered an equal to the design shown on the bid documents.
- C. Walking surface (treads) shall be made of reinforced precast concrete, and supported by reinforced precast concrete beams. Where applicable, edges of treads will receive precast concrete curbs.
- D. Walking surface (finish) of top surface of treads shall have a formliner finish with one of PermaTrak's standard textures. Texture must be integral with the concrete and shall not be an applied post pour wearing surface.
- E. Precast concrete treads shall be structural load bearing elements and shall interlock with one another via a "tongue and groove" connection.
- F. All precast shall consist of integrally colored concrete in a color selected by the owner from one of PermaTrak's "standard colors". All color pigment shall meet ASTM C979 Standard Specification for Pigments for Integrally Colored Concrete.
- G. DESIGN LOADS: See PT01 for pedestrian and vehicular design live loads.
- H. Treads shall maintain a "boardwalk appearance", specifically meaning each tread shall have a width: length ratio ranging from a minimum of 3:1 to a maximum of 14:1. Width is defined as the tread dimension perpendicular to the normal direction of travel. Length is defined as the tread dimension measured in the direction of travel.
- I. Tread width shall be as noted on the contract drawings. Alignment should follow the horizontal and vertical alignment shown on the contract plans.
- J. Connectors for curbs (if applicable) to treads shall not be visible to boardwalk users while viewed from the top of the walkway.
- K. All tread-to-beam connectors shall be non-corrosive, and hidden from view. Metallic tread-to-beam connectors are not acceptable for this project.
- L. Boardwalk supplier shall provide a field representative on site for a minimum of 2 days. Field representative shall be knowledgeable in the installation of precast concrete boardwalks.

**1.3 QUALITY ASSURANCE**

- A. The contractor performing the installation of the pile foundations shall have installed piles of size and length similar to those shown on the plans for a minimum of three (3) years prior to the bid date for this project. The contractor shall submit a list containing at least three (3) projects completed in the last three (3) years on which the contractor has installed piles of a size and length similar to those shown on the plans. The list of projects shall contain names and phone numbers of owner's representatives who can verify the Contractor's participation on those projects.
- B. Manufacturer Qualifications: Not less than 10 years experience in the actual production of precast products as described below.
  - 1. Components shall be factory fabricated and engineered by single entity. This entity shall be registered to do business in the State of the project location.
  - 2. Boardwalk supplier (Precaster) for the boardwalk shall have in-house color mixing facilities for color pigmentation.
  - 3. Boardwalk supplier (Precaster) shall have either a minimum experience of 5 years or 50 boardwalk projects in design, production, and field consultation.
  - 4. Boardwalk supplier (Precaster) must be certified by PCI or NPCA.
  - 5. Precast components must be manufactured with the use of hot rolled steel skin in reinforced steel forms. Temporary (i.e., Timber) and/or single use forms are unacceptable unless approved in writing by the Boardwalk Engineer.
- C. Acceptability Criteria for Treads and Curbs (if applicable): The finished visible (in the final installed position) surface shall have no obvious imperfections other than minimal color or texture variations from the approved samples or evidence of repairs when viewed in good typical daylight illumination with the unaided naked eye at a 20 ft. viewing distance. Appearance of the surface shall not be evaluated when light is illuminating the surface from an extreme angle as it tends to accentuate the minor surface irregularities. The following is a list of finish defects that shall be properly repaired, if obvious when viewed at a 20 ft. distance. Patching (by a trained skilled concrete repair person) is an acceptable repair method.
  - 1. Ragged or irregular surfaces.
  - 2. Excessive air voids (commonly called bug holes) larger than ¼ in. evident on the top surface of the tread or curbs (if applicable).
  - 3. Adjacent flat and return surfaces with greater texture and/or color differences than the approved samples or mockups.
  - 4. Casting and/or aggregate segregation lines evident from different concrete placement lifts and consolidation.
  - 5. Visible mold joints or irregular surfaces.
  - 6. Rust stains on exposed surfaces.
  - 7. Units with excessive variation in texture and/or color from the approved samples, within the unit or compared with adjacent units.
  - 8. Blocking stains evident on exposed surfaces.
  - 9. Areas of backup concrete bleeding through the facing concrete.
  - 10. Foreign material embedded in the surface.
  - 11. Visible repairs at a 20 ft. viewing distance.
  - 12. Reinforcement shadow lines.
  - 13. Cracks visible at a 20 ft. viewings distance.
- D. Installer Qualifications: Firm with 3 years experience in installation of systems similar in complexity to those required for this Project.
- E. Mock-Up: Provide, if required by Architect/ Engineer, a mock-up for evaluation of the boardwalk showing the surface preparation techniques and application workmanship.
  - 1. Finish areas designated by Architect / Engineer.
  - 2. Do not proceed with remaining work until mock-up is accepted by Architect / Engineer.
  - 3. Refinish mock-up area as required to produce acceptable work.

**1.4 DESIGN**

- A. For applications requiring minimum disturbance due to tree roots or other existing objects specified by the Owner to be avoided during construction, the Boardwalk Manufacturer requires the Contractor or Engineer/Architect to provide a survey of the proposed boardwalk location identifying items of interest including tree roots that cannot be disturbed per the Owner.
- B. The designer of the boardwalk, foundation and railing system shall be a qualified registered Professional Engineer licensed in the State of the project location and having a minimum of 20 years of experience in the design of concrete structures, foundation and railing systems.
- C. The foundation design shown on the boardwalk drawings are based recommendations found in the geotechnical report entitled referenced on PT01 (if applicable).

A. DESIGN CRITERIA: The design of the boardwalk and railing system shall comply with the following guidelines:

- 1. AASHTO LRFD Guide Specifications for The Design of Pedestrian Bridges, 2<sup>nd</sup> Edition with 2015 Interim Revisions.
- 2. Latest Version of AASHTO LRFD Bridge Design Specifications for Highway Bridges.
- 3. Latest Version of American Concrete Institute - Building Code and Commentary.
- 4. In addition to the dead loads of the system, the structure shall be designed for the live loads defined in Section 1.2 G above.

1.5 SUBMISSIONS: Prior to the start of fabrication or construction, the Contractor shall submit to the Engineer a design package, which shall include, but is not limited to, the following:

A. FOR APPROVAL SUBMISSIONS: Prior to the start of fabrication or construction, the Contractor shall submit to the Engineer a design package, which shall include but not limited to the following:

- 1. DETAILED PLANS:
  - a. PLAN VIEW: Full plan view of the boardwalk, foundation and railing system drawn to scale. The plan view must reflect the proposed horizontal alignment as shown on the design plans.
  - b. PARTIAL ELEVATION VIEW (IF REQUESTED): Full elevation view of the boardwalk, railing and foundation system drawn to scale which reflect the actual vertical alignment. Elevation views shall indicate the elevation at the top and bottom of the boardwalk and foundation system components.
  - c. DETAILS: Details of all boardwalk and railing system components and their connections such as the length, size and where changes occur; connections; etc.
  - d. CODE REFERENCE: Design parameters used along with AASHTO references.
- 2. CONSTRUCTION SPECIFICATIONS:
  - a. Construction methods specific to the boardwalk vendor chosen. Submittal requirements such as certification, quality and acceptance/rejection criteria shall be included. Details on connection of boardwalk units and foundation system such that assurance of uniform load transfer shall be checked.

B. FINAL SUBMISSION: Once a boardwalk, foundation and railing system design has been reviewed and accepted by the Owner, the Contractor shall submit the final plans. The designer of the boardwalk, foundation and railing system is responsible for the review of any drawings prepared for fabrication. One set of all approved shop drawings shall be submitted to the Engineer's permanent records.

C. SUBMITTALS: Product Data: Submit Manufacturer's technical product data for railing components and accessories. Manufacturer to supply submittal drawings for approval to include the following:

- 1. Section-thru details.
- 2. Mounting methods.
- 3. Typical Elevations.
- 4. Key plan layout.

D. SHOP DRAWINGS: Shop drawings shall:

- 1. Be stamped by a licensed Professional Engineer in the State of the project location.
- 2. Show actual field conditions and true elevation and location supplied after field verification.
- 3. Clearly detail reinforcement in beams, treads and curbs including clear dimension from concrete edge, size and amount of rebar.
- 4. Clearly state concrete compressive strength, steel type and strength, and a listing of all component weights including lifting locations.

**1.6 DELIVERY, STORAGE, AND HANDLING**

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Field Measurements: Where handrails and railings are indicated to fit to other construction, check actual dimensions of other construction by accurate field measurements before fabrication; show recorded measurements on final shop drawings:
  - 1. Where field measurements cannot be made without delaying the railing fabrication and delivery, obtain guaranteed dimensions in writing by the Contractor and proceed with fabrication of products so as not to delay fabrication, delivery and installation.

C. Coordinate fabrication and delivery schedule of handrails with construction progress and sequence to avoid delay of railing installation.

- 1. Air entrained composed of Portland cement, fine and course aggregates, admixtures and water. The air-entraining feature may be obtained by the use of either an air entraining Portland cement or an air entraining admixture. The entrained air-content shall be not less than four percent or more than seven percent.

**1.7 WARRANTY:**

A. Contractor will be responsible for installation defects associated with the boardwalk and abutment components, foundation system, and railings for a period of 12 calendar months from the date of final acceptance by the Owner.

B. Boardwalk manufacturer shall warranty all precast concrete components against defects in material and workmanship for a period of 10 years.

C. Railing manufacturer shall warranty the railing against defects in materials and workmanship for a period of 12 months.

**1.8 MEASUREMENT AND PAYMENT**

A. Precast concrete boardwalk, railings, and foundations shall be paid for at the contract lump sum price as listed in the bid proposal for "Precast Concrete Boardwalk". This price shall include all materials, equipment, labor and work necessary for and incidental to the design, construction, delivery, unloading, assembly, and placement of the boardwalk and foundation as shown in the contract plans including all railings on the superstructure.

**PART 2-MATERIALS & TESTING**

2.1 PRECAST CONCRETE: shall conform to the following:

- A. The minimum compressive strength of the concrete shall be 4000 psi measured at 28 days.
- B. All precast concrete shall contain structural steel reinforcement as designed by the Engineer of record.
- C. All precast concrete components shall be air entrained composed of Portland cement, fine and course aggregates, admixtures and water. The air-entraining feature may be obtained by the use of either an air entraining Portland cement or an air entraining admixture. The entrained air-content shall be not less than four percent or more than seven percent.
- D. All reinforcing steel shall be standard uncoated steel conforming to ASTM A615

**PART 3 - EXECUTION**

**1.1 PRECAST CONCRETE BOARDWALK**

A. Installation of the precast concrete boardwalk system and railings, if applicable, shall be performed in accordance to the approved plans and manufacturers installation instructions. Boardwalk manufacturer shall provide a field representative to review installation instructions with the Contractor and Engineer and to certify that the installation has been performed according to the approved drawings and manufacturer's instructions.

Patented Product: U.S. Patent #8,302,362, #8,522,505, #9,096,975, #D940,912, #D925,068 & Other Patents Pending

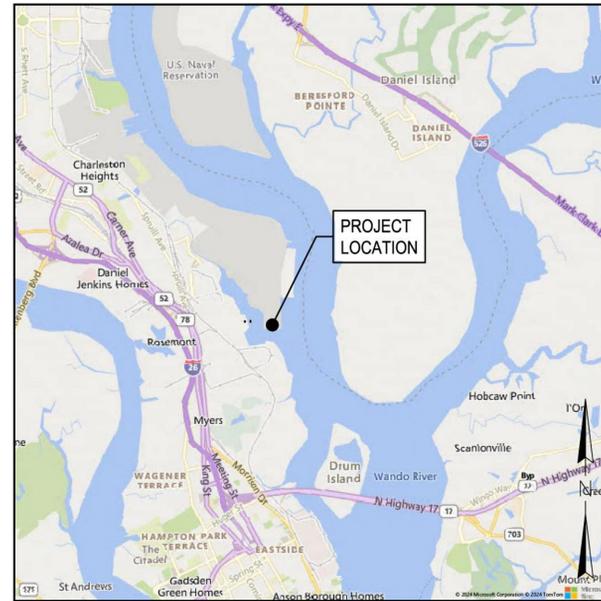
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	5				<b>CCPRC</b>		NORTH CAROLINA		DATE: 01/29/2026
	4				<b>FOR BIDDING PURPOSES                  NOT FOR CONSTRUCTION</b>		SOUTH CAROLINA		DESIGNED BY: JMP
	3						FLORIDA		DRAWN BY: JMP
	2						OHIO		CHECKED BY: KAS
	1						GEORGIA		SHEET NO.
NO.	DATE	DESCRIPTION	BY:			TEXAS	<b>SPECS</b>		

**SHORELINE PROTECTION PLANS  
FOR**

**COOPER RIVER COUNTY PARK  
& MARINA IMPROVEMENTS**

**NORTH CHARLESTON, SC**

PROJECT INFORMATION	
COORDINATES:	LAT: 32.619026 LONG: -80.129990
PROPOSED USE:	RECREATIONAL PARK & MARINA
HORIZONTAL DATUM:	NAD83 SOUTH CAROLINA STATE PLANE, INTERNATIONAL FT. (SC83IF)
VERTICAL DATUM:	NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)



**LOCATION MAP  
SCALE: 1" = 5000'**



**SITE MAP  
SCALE: 1" = 100'**

SHEET INDEX	
SHEET #	SHEET TITLE
GENERAL	
G-0	TITLE SHEET
G-1.0	EXISTING CONDITIONS
G-2.0	OVERALL SITE PLAN
SHORELINE PROTECTION PLANS	
SP-1.0	SHORELINE PROTECTION PLAN
SP-2.0	SHORELINE PROTECTION CROSS SECTIONS
SP-3.0	SHORELINE PROTECTION CROSS SECTIONS
SP-4.0	SHORELINE PROTECTION CROSS SECTIONS
SP-5.0	SHORELINE PROTECTION TYPICAL DETAIL

**PREPARED BY:  
APPLIED TECHNOLOGY AND  
MANAGEMENT**



**FOR BIDDING PURPOSES ONLY  
NOT FOR CONSTRUCTION**



REV. No.	DATE	REMARKS

DESIGNED	DRAWN	CHECKED
JJD	MK/FRAM	JJD
SUBMISSION		
ISSUED FOR BID	DATE	JOB NO.
19 JAN 2026	19 JAN 2026	23-4284
SCALE		NA

**COOPER RIVER COUNTY PARK  
& MARINA IMPROVEMENTS**

NORTH CHARLESTON, SC  
CHARLESTON COUNTY PARKS AND RECREATION COMMISSION

**TITLE SHEET**

Applied Technology & Management

941 HOUSTON NORTHGUT BLVD.  
MT PLEASANT SC, SC 29464  
(803) 344-1040  
CERTIFICATE OF AUTHORIZATION # 00773

DRAWING NUMBER  
**G-0**

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**LINE LEGEND**

- ohpl — ohpl — OVERHEAD WIRES
- uwp — uwp — UNDERGROUND POWER
- UFO — UNDERGROUND FIBER OPTICS
- W — UNDERGROUND WATERLINE
- FM — FM — UNDERGROUND SANITARY FORCE MAIN
- SS — UNDERGROUND SANITARY SEWER
- CL — FRESHWATER WETLANDS
- CL — CRITICAL LINE
- CL — APPROXIMATE KING TIDE LINE
- CL — CRITICAL LINE BUFFER

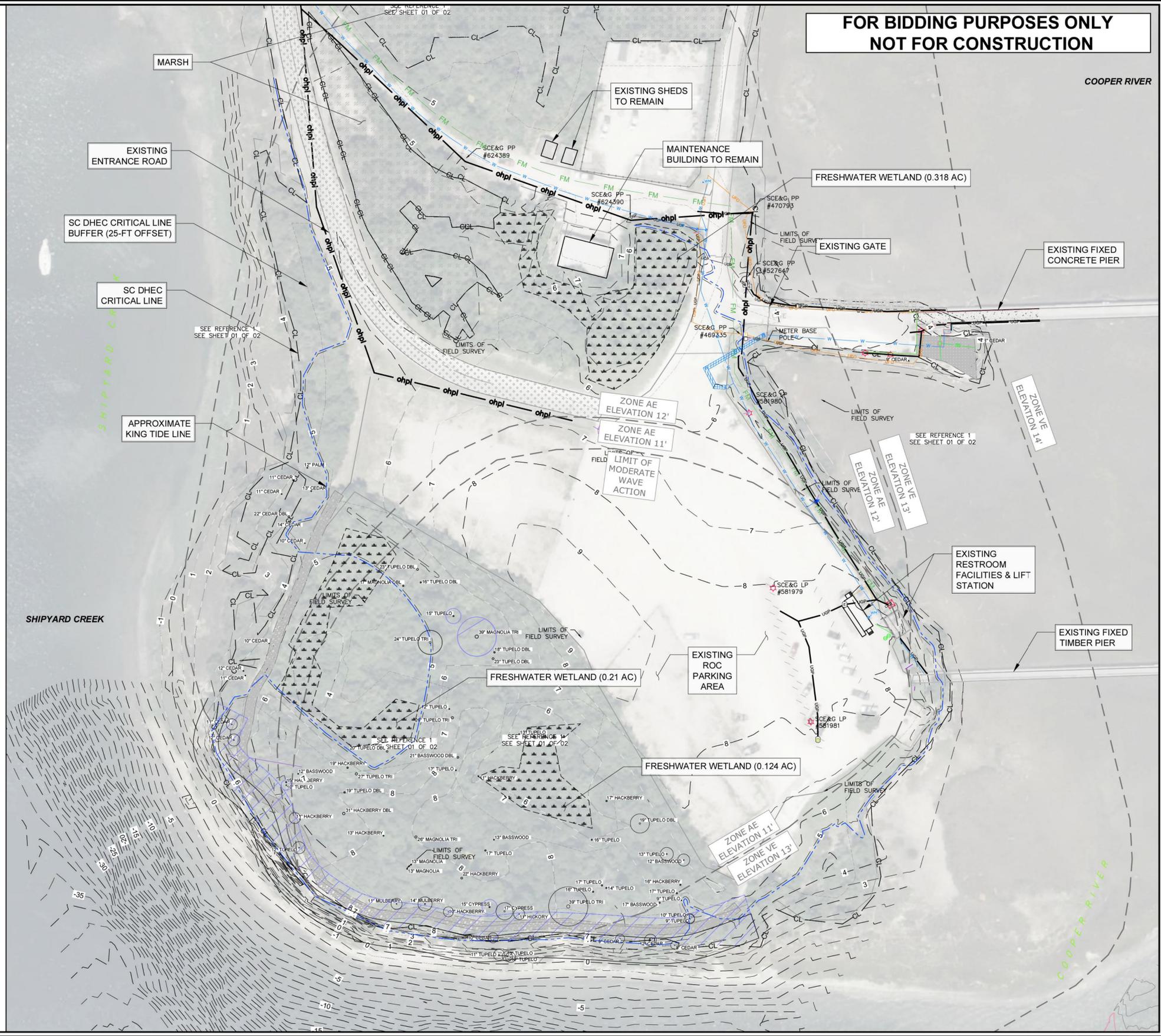
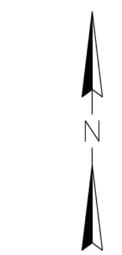
**SYMBOL LEGEND**

- ⊥ GUY ANCHOR
- ⊙ LIGHT POLE
- ⊙ POWER/SERVICE POLE
- ⊙ ELECTRIC BOX
- ⊙ ELECTRIC PANEL
- ⊙ SANITARY SEWER CLEAN-OUT
- ⊙ TELECOMMUNICATIONS BOX
- ⊙ FIBER OPTIC BOX
- ⊙ FIRE HYDRANT
- ⊙ WATER VALVE
- ⊙ WM WATER METER

- NOTES:**
- EXISTING CONDITIONS ARE BASED ON:
    - SWA SURVEY DATED 2/16/2018
    - SWA SURVEY DATED 10/22/2018
    - FORESIGHT SURVEYING DATED 2/28/2020
    - FORESIGHT SURVEYING DATED 10/5/2021
  - OCRM CRITICAL LINE SETBACK IS 25-FT.
  - ALL ELEVATIONS ARE IN FEET, REFERENCED TO NAVD88.
  - KING TIDE LINE IS APPROXIMATE BASED ON ATM DESKTOP ANALYSIS. APPROXIMATE KING TIDE ELEVATION IS 4.78' (NAVD88).
  - UNDERGROUND UTILITY LOCATIONS MAY BE APPROXIMATE AND SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO INITIATING CONSTRUCTION.

TIDAL DATA - NOAA STATION 8665192, WANDO RIVER ENTRANCE, HOBCAW POINT, SC.

Highest Astronomical Tide	HAT	-	-
Mean Higher High Water	MHHW	5.9	2.7
Mean High Water	MHW	5.6	2.4
North American Vertical Datum, 1988	NAVD88	3.2	0.0
Mean Sea Level	MSL	3.0	-0.2
Mean Low Water	MLW	0.2	-3.0
Mean Lower Low Water	MLLW	0.0	-3.2
Lowest Astronomical Tide	LAT	-	-



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NOT FOR CONSTRUCTION**



REV. No.	DATE	REVISIONS

DESIGNED	CHECKED	DRAWN	DATE
JJD	JJD	JJD	19-JUN-2025

**PROJECT:**  
**COOPER RIVER COUNTY PARK & MARINA IMPROVEMENTS**  
 NORTH CHARLESTON, SC  
 CHARLESTON COUNTY PARKS AND RECREATION COMMISSION

**SHEET:**  
**EXISTING CONDITIONS**

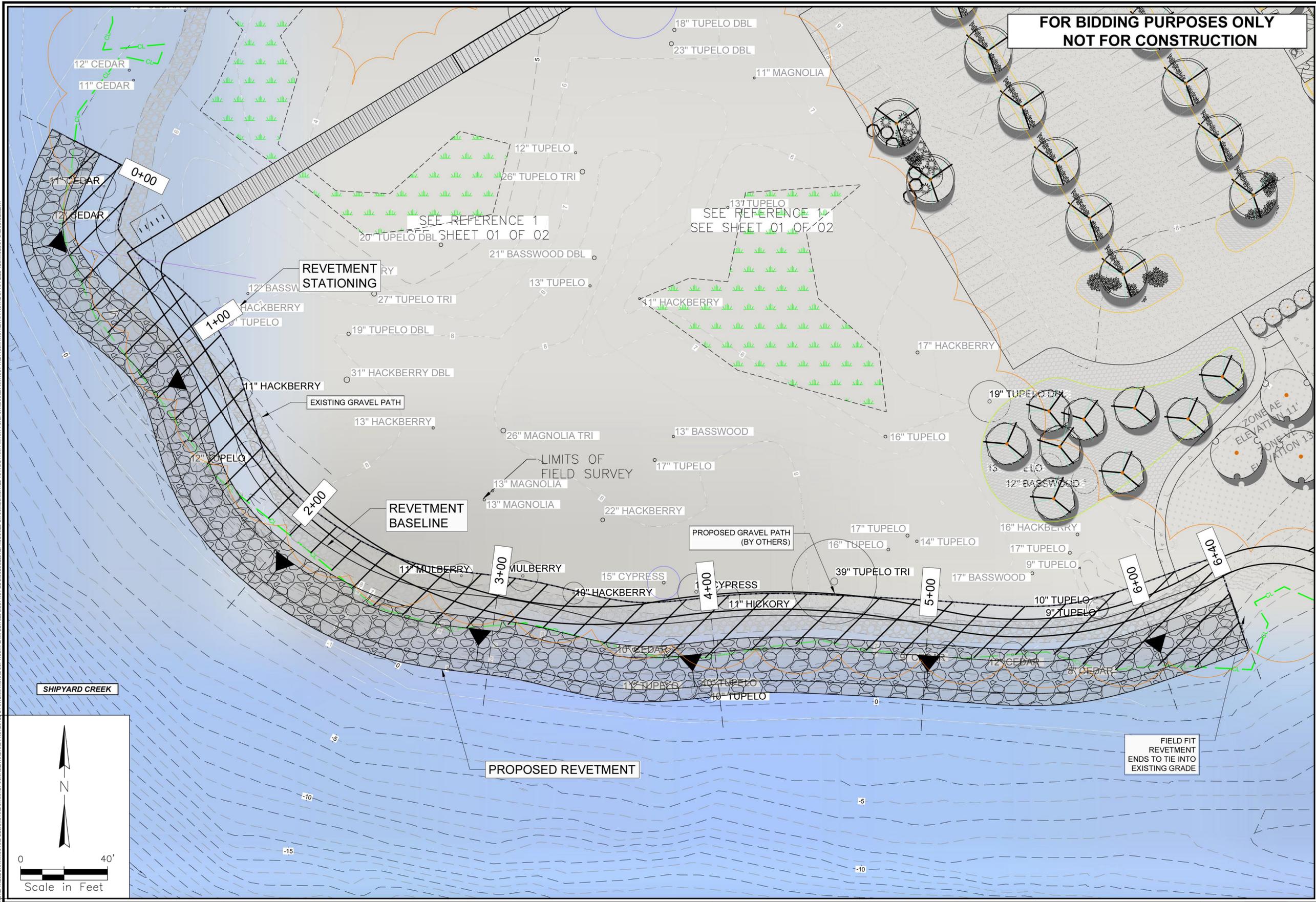
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 CERTIFICATE OF AUTHORIZATION # 00773

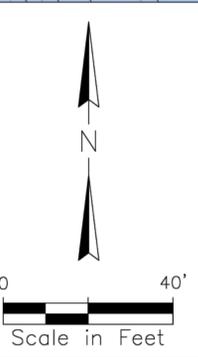
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**G-1.0**



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REV. No.	DATE	REMARKS

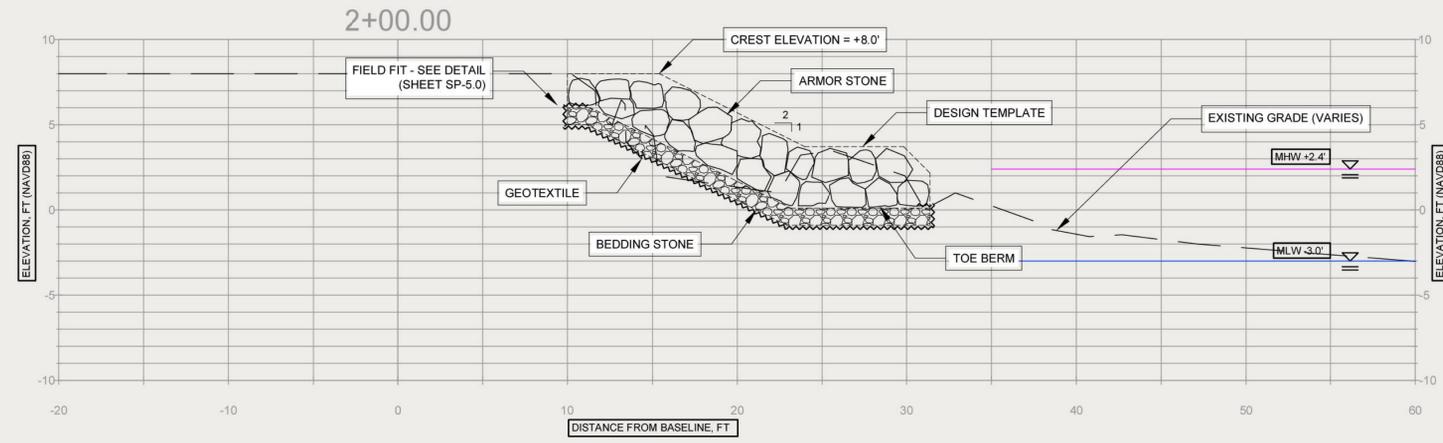
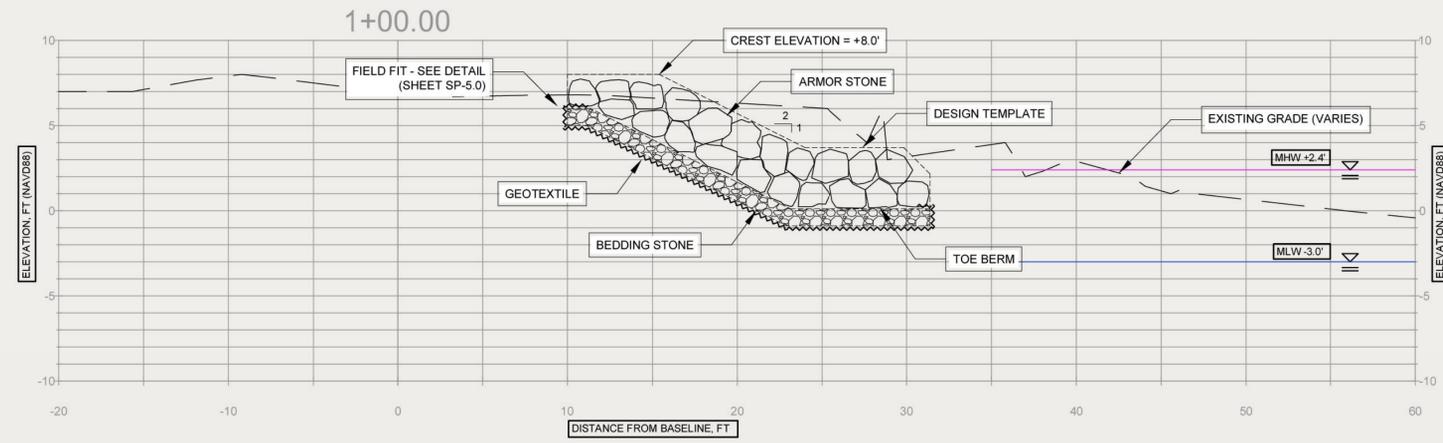
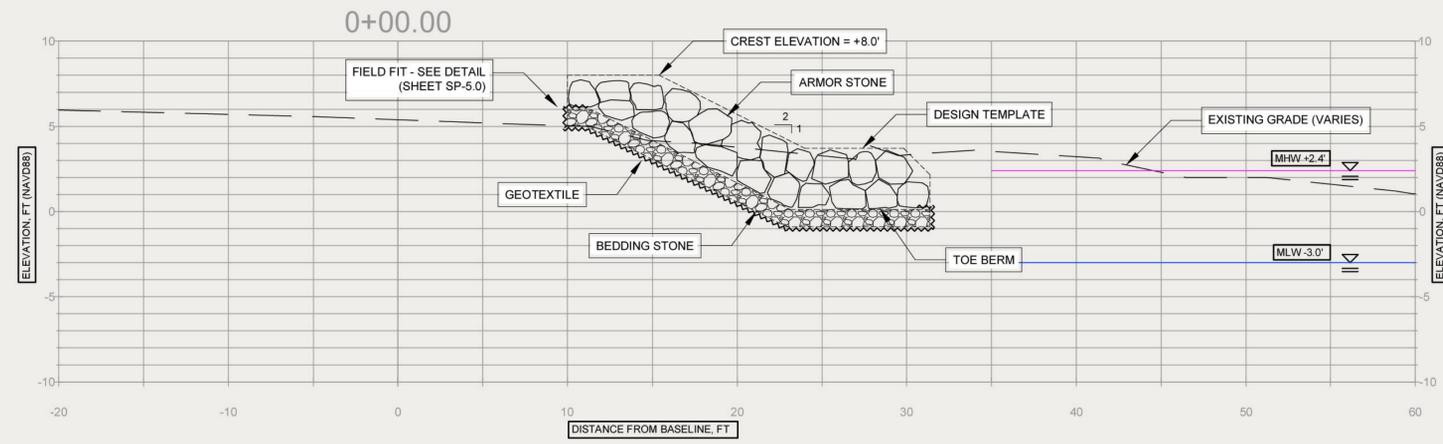
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JDD	MK/FRAM	JDD
SUBMISSION ISSUED FOR BID		
DATE: 19 JUN 2025		
JOB NO: 25-4084		
SCALE: N/A		

**PROJECT:** COOPER RIVER COUNTY PARK & MARINA IMPROVEMENTS  
 NORTH CHARLESTON, SC  
 CHARLESTON COUNTY PARKS AND RECREATION COMMISSION  
**SHEET:** SHORELINE PROTECTION PLAN

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**DRAWING NUMBER**  
**SP-1.0**

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REV. No.	DATE	REMARKS

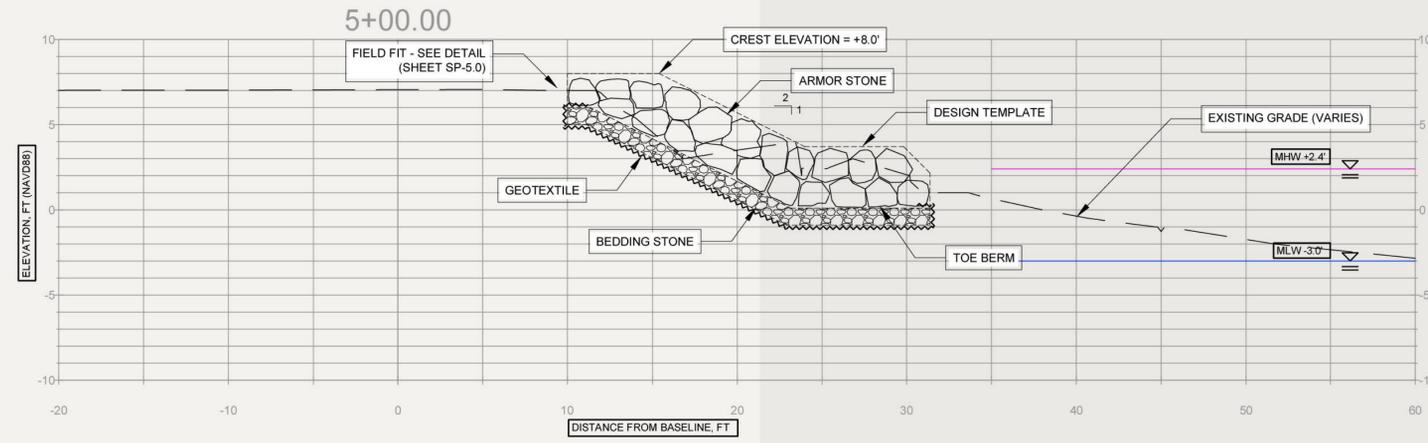
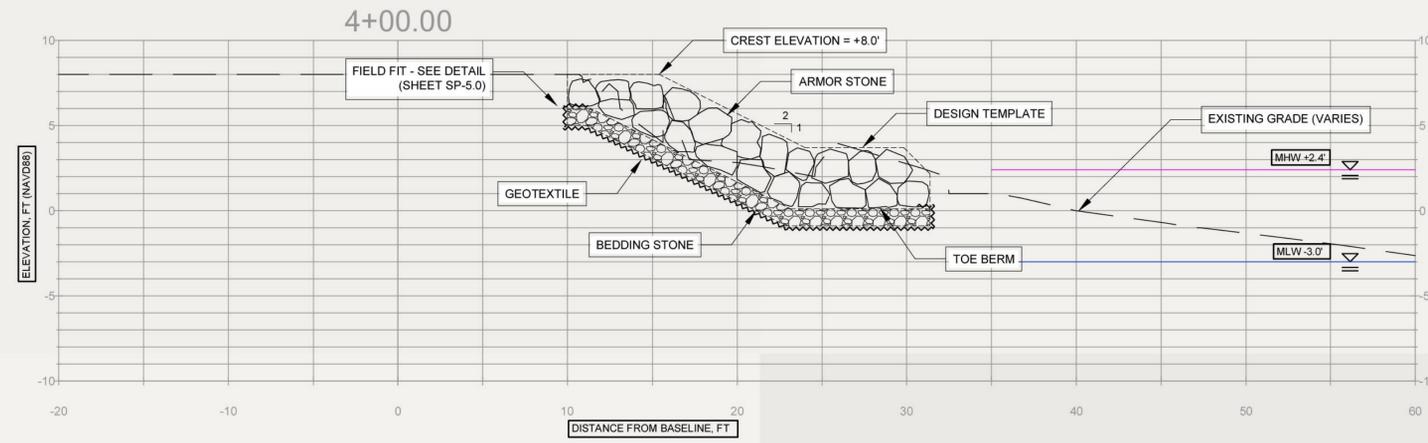
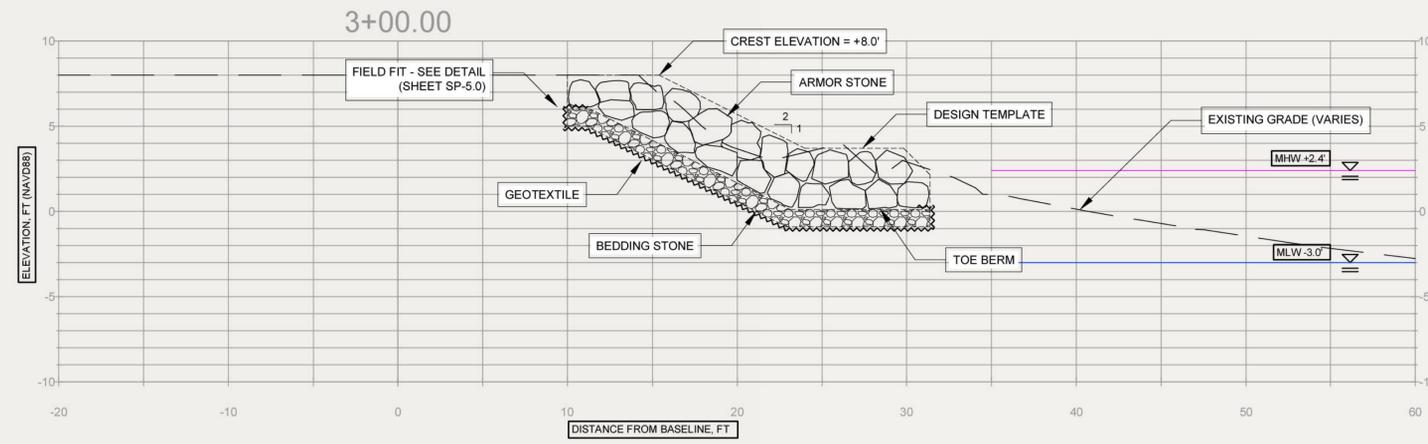
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JJD	MK/FRM	JJD
SUBMISSION		
ISSUED FOR BID		
DATE:	19 JAN 2026	
JOB NO:	23-4804	
SCALE:	1"=10'	

**PROJECT:**  
**COOPER RIVER COUNTY PARK  
& MARINA IMPROVEMENTS**  
 NORTH CHARLESTON, SC  
 CHARLESTON COUNTY PARKS AND RECREATION COMMISSION  
**SHEET:**  
**SHORELINE PROTECTION CROSS  
SECTIONS**

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**SP-2.0**

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REV. No.	DATE	REMARKS

DESIGNED	DRAWN	CHECKED
JJD	MK/FRM	JJD
SUBMISSION ISSUED FOR BID		
DATE: 19 JUN 2026		
JOB NO. 23-4284	SCALE: N/A	

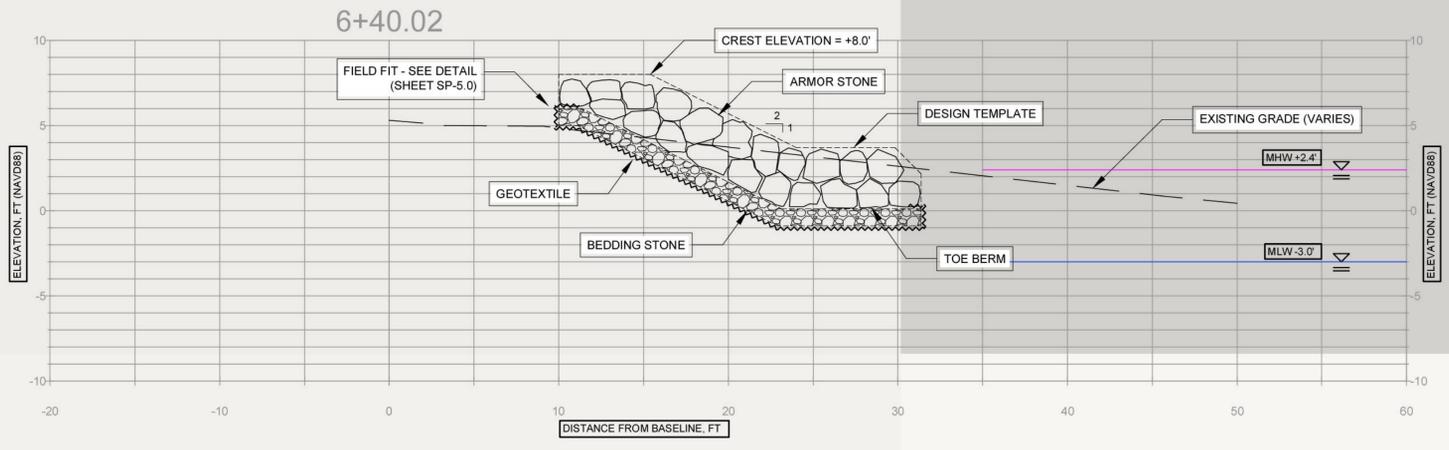
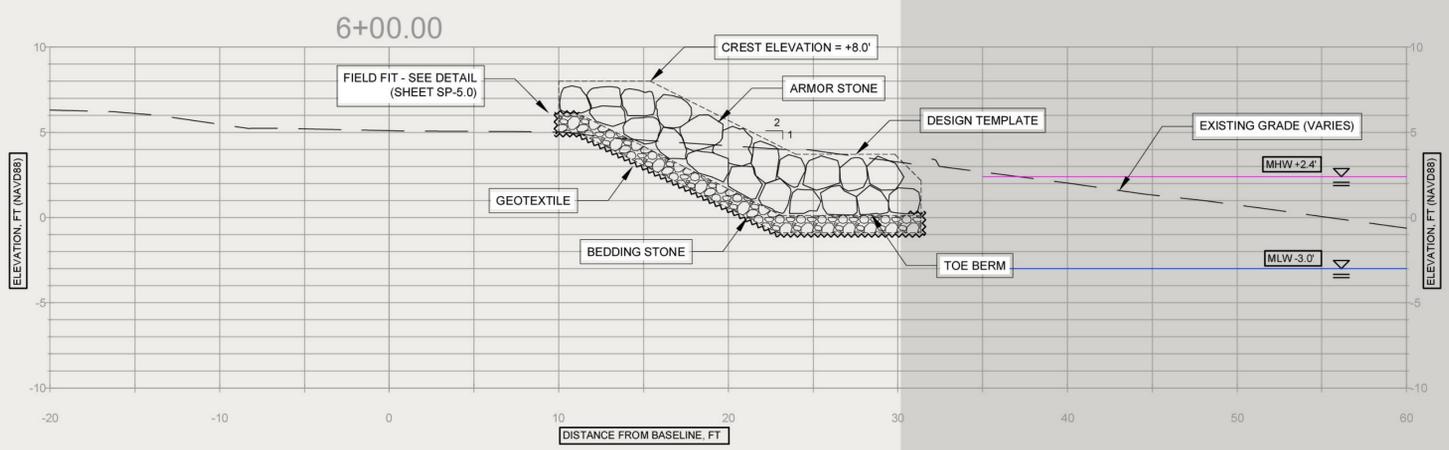
**PROJECT:** COOPER RIVER COUNTY PARK & MARINA IMPROVEMENTS  
 NORTH CHARLESTON, SC  
 CHARLESTON COUNTY PARKS AND RECREATION COMMISSION  
**SHEET:** SHORELINE PROTECTION CROSS SECTIONS

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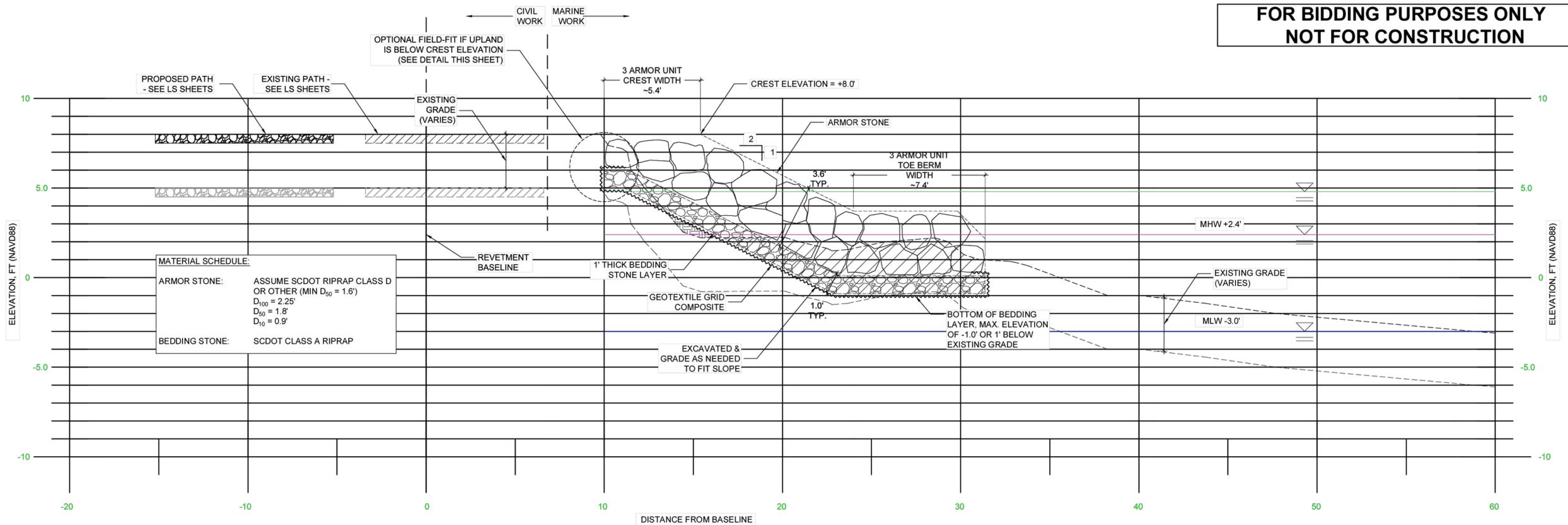
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JJD	MK/FRM	JJD
SUBMISSION		
ISSUED FOR BID		
DATE:	19 JAN 2026	
JOB NO.	23-4204	
SCALE:	1"=10'	

**PROJECT:** COOPER RIVER COUNTY PARK & MARINA IMPROVEMENTS  
 NORTH CHARLESTON, SC  
 CHARLESTON COUNTY PARKS AND RECREATION COMMISSION  
**SHEET:** SHORELINE PROTECTION CROSS SECTIONS

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**DRAWING NUMBER**  
**SP-4.0**

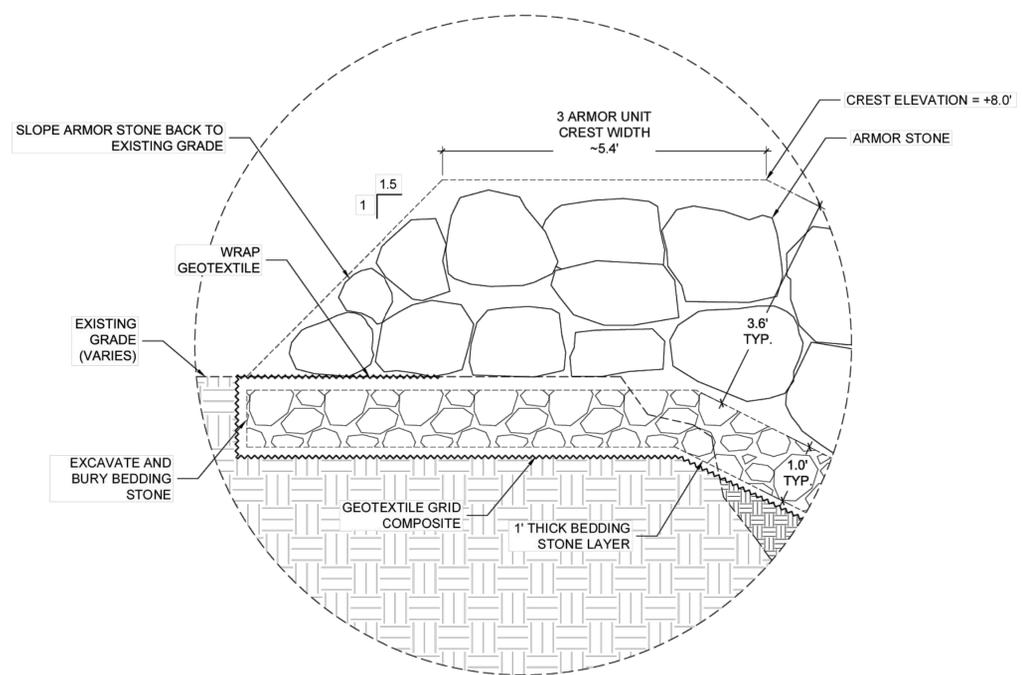
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**TYPICAL REVETMENT SECTION**

SCALE: 1" = 3'

DT-RVMT



**REVETMENT CREST FIELD FIT**

SCALE: NTS

DT-RVMT CST

- REVETMENT NOTES:**
1. REVETMENT ARMOR STONE SHALL BE A MINIMUM OF TWO UNITS THICK AND BE PLACED TO MAXIMIZE CONTACT BETWEEN ADJACENT STONES.
  2. SMALLER STONES SHALL BE UTILIZED FOR CHINKING TO ACHIEVE UNIFORM INSTALLATION CONFORMITY TO LINES AND GRADES.
  3. ROCK SIZE SHOWN IS BASED ON A MINIMUM DRY UNIT WEIGHT OF 165 PCF.
  4. EXISTING GRADE SHOWN AT TIME OF SURVEY.
  5. GEOTEXTILE SHALL HAVE A MINIMUM OVERLAP OF TWO FEET AND BE SECURED AT TOE.
  6. TO FACILITATE CONSTRUCTION OF REVETMENT, COFFERDAMS AND DEWATERING MAY BE COMPLETED AT THE CONTRACTORS DISCRETION, REFER TO TECHNICAL SPECIFICATIONS FOR ADDITIONAL INFORMATION.
  7. TEMPORARY EXCAVATION OF SAND FOR CONSTRUCTION OF PROPOSED WORK SHALL BE STOCKPILED AND REGRADED INTO EXISTING BEACH PROFILE AFTER REVETMENT COMPLETION. NO SAND SHALL BE PLACED LANDWARD OF THE REVETMENT. ANY CONG. RUBBLE, UNSUITABLE ROCK, GEOTEXTILE, OR OTHER DEBRIS, SHALL BE REMOVED FROM THE SITE AND DISPOSED.
  8. TEMPORARILY EXCAVATED SAND MAY BE USED TO FILL AREAS REQUIRED FOR REVETMENT INSTALLATION.
  9. CONTRACTOR SHALL CONDUCT FILLING, GRADING, AND COMPACTION PER GEOTECHNICAL REPORT.
  10. CONTRACTOR SHALL SUBMIT SHOP DRAWING OF PROPOSED GEOTEXTILE DETAIL AT TOP AND TOE OF REVETMENT.
  11. REMOVE ALL VEGETATION, TREES, EXISTING CONCRETE, RIP-RAP AND OTHER DEBRIS WITHIN REVETMENT CONSTRUCTION LIMITS TO DESIGN GRADE PRIOR TO INSTALLATION OF GEOTEXTILE AND REVETMENT. DISPOSE OF ALL REMOVED MATERIALS IN A LEGAL OFFSITE LOCATION UNLESS OTHERWISE DIRECTED BY THE OWNERS REPRESENTATIVE.



REV. No.	DATE	REMARKS

DESIGNED	DRAWN	CHECKED
JJD	MK/FRAM	JJD
SUBMISSION		
ISSUED FOR BID		
DATE:	19 JAN 2026	
JOB NO:	23-4804	
SCALE:	NA	

**PROJECT:** COOPER RIVER COUNTY PARK & MARINA IMPROVEMENTS  
 NORTH CHARLESTON, SC  
 CHARLESTON COUNTY PARKS AND RECREATION COMMISSION

**SHEET:** SHORELINE PROTECTION TYPICAL  
 DETAIL

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**DRAWING NUMBER**  
**SP-5.0**

<p style="text-align: center;">COOPER RIVER COUNTY PARK REVETMENT March 22, 2024</p> <p style="text-align: center;">SECTION 01000 GENERAL PROJECT REQUIREMENTS</p> <p>PART 1 – GENERAL</p> <p>1.1 GENERAL</p> <p>A. All work shall be conducted under the observation of the Owner's Representative, designated by the Owner in the Agreement. The Owner's Representative may direct the Engineer to conduct site visits and coordination with Contractor from time to time as construction proceeds, and the Engineer shall have same access privileges as the Owner's Representative. The Owner's Representative shall have free access to any and all parts of the Work at any time. Contractor shall furnish Owner's Representative with such information as may be necessary to keep him fully informed regarding progress and manner of work and character of materials. Presence of the Owner's Representative or Engineer on site shall not relieve Contractor from any obligation to fulfill this Contract.</p> <p>B. The Contractor shall be required to conduct the Work in such manner as to obstruct traffic and public access, outside the immediate limits of work, as little as possible.</p> <p>C. If any conflicts occur between these GENERAL PROJECT REQUIREMENTS and the General or Supplemental Conditions of the Construction Contract, the General and Supplemental Conditions of the Construction Contract shall take precedence.</p> <p>1.2 OBSERVATION AND COMMUNICATION</p> <p>A. The Contractor shall have available, at the request of the Owner's Representative, the use of equipment and personnel as may be necessary in checking and inspecting the Work.</p> <p>B. Should the Contractor refuse, neglect, or delay compliance with these requirements, the specific facilities may be furnished and maintained by the Owner and the cost thereof will be deducted from any amounts due or to become due to the Contractor.</p> <p>C. Communication among the Contractor's field foremen and superintendents shall be continuous through the use of hand held two-way radios, cellular phones, etc. In the event of any significant problems, the Contractor shall notify the Owner's Representative and develop recommended actions.</p> <p>D. The Contractor shall maintain a construction office within the general vicinity of the project work area for the duration of the project. This office shall be open and attended at least during normal daytime working hours. Temporary power and water shall be the responsibility of the Contractor.</p> <p>E. If during construction, the Contractor observes items that may have historical or archaeological value, such observations shall be reported immediately to the Owner's Representative so that the appropriate authorities may be notified. A determination will be made as to their significance and what, if any, special disposition of the finds. The Contractor shall cease all activities that may result in the destruction of these resources and shall prevent employees from trespassing on, removing, or otherwise damaging such resources.</p> <p>GENERAL PROJECT REQUIREMENTS 01000-1</p>	<p style="text-align: center;">COOPER RIVER COUNTY PARK REVETMENT March 22, 2024</p> <p>1.3 CONTRACTOR'S SURVEY AND LAYOUT OF WORK</p> <p>A. The Contractor shall complete the layout of the work from the monuments, control data, and elevations established by the Owner. The Contractor shall use the reference points established by the Owner as the basis for the horizontal and vertical control systems.</p> <p>B. The Contractor shall furnish, at his own expense, such stakes, templates, platforms, equipment, tools and material, and all labor as may be required in laying out any part of the work from the benchmarks, control data, and elevations established by the Owner. It shall be the responsibility of the Contractor to protect and maintain all permanent and temporary benchmarks, stakes and other markers established by the Owner and Contractor throughout the construction of the project unless authorized to remove them by the Owner's Representative. If the benchmarks or temporary markers are destroyed or damaged by the Contractor prior to their authorized removal, at the discretion of the Owner's Representative the benchmarks or temporary markers shall be replaced, and the cost deducted from any amounts due or to become due to the Contractor.</p> <p>C. The Contractor shall be responsible for all measurements that may be required for the execution of the work, subject to modifications that the Owner's Representative may require to meet changes in conditions at the work site. All temporary markers and stakes placed by the Contractor must be removed upon completion of the project.</p> <p>1.4 CONTRACTOR'S INDEPENDENT SURVEYOR</p> <p>A. The Contractor shall contract directly with a South Carolina licensed and independent Professional Surveyor. The independent surveyor shall perform all setting out, surveys used to substantiate quantities for payment/acceptance, and as-built surveys. It will be the Contractor's responsibility to coordinate and provide all pre- and post-construction surveys, as well as progress surveys required to conduct the Work and required for pay application and final acceptance. The Owner's Representative should be notified a minimum of 48 hours prior to the desired time of survey.</p> <p>1. Minimum Standards: All surveys shall be performed according to the Standards of Practice Manual for Surveying in South Carolina for the applicable type of survey being conducted, unless otherwise indicated in the Technical Specifications and Drawings. Survey datums and units shall be as indicated on the Drawings.</p> <p>2. If Contractor's pre-construction surveys indicate significant changes to existing, pre-construction elevations relative to those indicated on the Bid Drawings, Owner reserves the right to adjust the template lines and grades to ensure the project quantities and costs are within contracted amounts. Pre-construction surveys shall not be taken more than 30 days prior to placement of rock materials at the project site.</p> <p>3. All setting out, progress, payment, and as-built survey data collected by the Contractor shall be provided to the Owner and Engineer in digital ASCII XYZ format and as AutoCAD files, at a minimum. AutoCAD files and hard copy requirements shall be provided according to the requirements of the Owner.</p> <p>B. The Owner reserves the right to conduct any supplemental surveys to verify/confirm Contractor's surveys.</p> <p>GENERAL PROJECT REQUIREMENTS 01000-2</p>	<p style="text-align: center;">COOPER RIVER COUNTY PARK REVETMENT March 22, 2024</p> <p>1.5 DRAWINGS AND DOCUMENTS</p> <p>A. A minimum of one (1) complete set of Drawings and Documents (with permits) shall be kept in the Contractor's field office at all times during project construction.</p> <p>B. The Contractor shall maintain a separate set of full-size Drawings, marked up in red, to indicate current, as-built conditions. These drawings shall be maintained at or near the site in a current condition at all times until completion of the work. These drawings shall be available for review by the Owner's Representative at all times. All variations from the Drawings, for whatever reason, including those occasioned by modifications, optional materials, and the required coordination between trades, shall be indicated. These variations shall be shown in the same general detail utilized in the Drawings. The marked-up drawings may be utilized for preparation of the as-built drawings, but may not be substituted for the as-built drawings.</p> <p>1.6 AS-BUILT DRAWINGS</p> <p>A. At the completion of the Work, the Contractor shall submit to the Owner's Representative, a set of as-built drawings and all supporting survey data used to compile the as-built drawings. The Contractor shall also provide any CAD files created in preparation of the as-built drawings. This information must be submitted to the Owner's Representative within fourteen (14) calendar days of the completion of the Work.</p> <p>B. The Contractor shall sign the as-built drawings in the following manner: "I CERTIFY THAT THESE DRAWINGS INDICATE CONSTRUCTION AS ACTUALLY PERFORMED AND ARE AN ACCURATE REPRESENTATION OF THE SPECIFIED WORK." The Owner reserves the right to withhold final payment until acceptable as-built drawings have been submitted.</p> <p>C. As-built drawings shall include all as-built requirements of the project State and Federal regulatory permits.</p> <p>1.7 SUBMITTALS</p> <p>A. Refer to the Technical Specifications and Drawings for submittal items.</p> <p>B. Unless noted otherwise, submittals shall be made to the Owner's Representative designated in the Agreement. The Owner's Representative will distribute necessary technical submittal items to the Engineer for review and action. The Owner's Representative or Engineer may request submittals in addition to those specified when deemed necessary to adequately describe the work covered in the respective sections.</p> <p>C. Make submittals with the format and quantity as agreed with the Owner's Representative prior to Construction. Owner's Representative's review actions notations will appear on all submittals by Contractor when returned by Owner's Representative. Possible review status designations by the Owner's Representative are defined as follows:</p> <p>1. NO EXCEPTION TAKEN - signifies that content of the submittal conforms to the design concept, complies generally with the intent of the Contract Documents, and is approved for incorporation in the Work. Contractor is authorized to proceed with fabrication or procurement of the items and with related work covered in the submittal.</p> <p>2. FURNISH AS CORRECTED - signifies content of the submittal conforms to the design concept, complies generally with the intent of the Contract Documents, and is approved for incorporation in the Work in accordance with Owner's Representative's notations, provided that the Contractor takes no exception to the notations. Contractor is to</p> <p>GENERAL PROJECT REQUIREMENTS 01000-3</p>	<p style="text-align: center;">COOPER RIVER COUNTY PARK REVETMENT March 22, 2024</p> <p>1.9 SEVERE STORM AND HURRICANE PLAN</p> <p>A. The Contractor shall maintain full-time monitoring of the local and regional weather broadcasts, and avail themselves of such other local commercial weather forecasting services as may be available. These information broadcasts shall be the Contractor's primary source in the decision process to implement action under the approved storm plan.</p> <p>B. The Contractor shall notify the Owner at the time of any decision to move equipment in preparation for potential storms. The Contractor shall include the following information in the hurricane and storm procedures:</p> <p>1. Weather Conditions for Suspending Operations: The Contractor shall provide a list of the equipment scheduled for use on this project and specify the conditions (e.g. wind speed, wave height, etc.) under which operations will be suspended and equipment will be secured.</p> <p>2. Prioritized Methods for Storm Preparations: The Contractor shall provide a prioritized list of actions to be taken in the event of a severe storm and assign personnel to each action. The Contractor shall specify how each piece of equipment will be secured in place, including the details of all equipment necessary.</p> <p>3. Personnel Evacuation: The Contractor shall provide a plan for evacuation of personnel including their responsibilities prior to evacuation, methods of transportation, alternate accommodation, etc.</p> <p>C. The Contractor shall submit a Hurricane and Severe Storm Plan within ten (10) calendar days after the Notice of Award and prior to the pre-construction conference. This plan shall include but not be limited to the following:</p> <p>1. Types of storms possible (winter storm, tropical storm, hurricane, and tornado).</p> <p>2. Time intervals before storms strike the project area when action will be taken and details of the actions to be taken. The plan should be specific as to what weather/wave conditions will require work shutdown, removal of any equipment, etc.</p> <p>3. List of the equipment to be used on the job and its ability to handle adverse weather and wave conditions.</p> <p>4. Methods of securing equipment not moved; i.e. earthmoving equipment, etc.</p> <p>1.10 SAFETY, ACCIDENT PREVENTION AND FIRST AID PLAN</p> <p>A. The Contractor is responsible for maintaining a safe work environment and is responsible for all health and safety measures. The plan should be referred to the USACE EM 385-1-1 (2014) US Army Corps of Engineers Safety and Health Requirements Manual and applicable OSHA standards.</p> <p>B. The Contractor shall submit an Accident Prevention and First Aid Plan to the Owner's Representative 15 days prior to commencement of construction.</p> <p>GENERAL PROJECT REQUIREMENTS 01000-5</p>
<p style="text-align: center;">COOPER RIVER COUNTY PARK REVETMENT March 22, 2024</p> <p>proceed with fabrication or procurement of the items and with related work in accordance with Owner's Representative's notations.</p> <p>3. REVISE AND RESUBMIT - signifies that content of the submittal appears to conform with the design concept and comply with the intent of the Contract Documents, but information is either insufficient in detail or contains discrepancies which prevent Owner's Representative from completing his review. Contractor is to resubmit revised information responsive to Owner's Representative's annotations on the returned submittal or written in the letter of transmittal. No work shall proceed for this item until resubmittal is accepted.</p> <p>4. REJECTED - signifies submittal is incomplete or does not conform to the design concept or comply with the intent of the Contract Documents. No work shall proceed for this item until resubmittal is accepted. Contractor shall resubmit rejected compliance submittals that are responsive to the Contract Documents.</p> <p>5. REVIEW NOT REQUIRED - signifies submittals which are not required by the Contract and considered for supplementary information only. Owner's Representative may review such submittals for general content, but not for substance. A copy will be included in the project file for information only.</p> <p>D. Submittals must be included in the Contractor's CPM activity analysis. Contractor must allow ample time for the review process of a submittal (a minimum of 7 business days) and lead time to procure materials for incorporation into the work. Within 15 days after Notice To Proceed, the Contractor shall develop a Submittal Register for acceptance by the Owner's Representative. The Contractor shall carefully control his procurement operations to ensure that each individual submittal is made on or before the scheduled submittal date shown on the approved Submittal Register.</p> <p>E. The Contractor shall submit all items listed on the Submittal Register. The Owner's Representative may request submittals in addition to those listed on the Submittal Register.</p> <p>F. The Contractor shall complete "contractor schedule date" column and return two (2) completed copies of the Submittal Register to the Owner's Representative for acceptance within 15 calendar days after Notice To Proceed for acceptance. The accepted Submittal Register will become the scheduling document and will be used to control submittals throughout the life of the contract. The submittal register and the progress schedules shall be coordinated.</p> <p>1.8 CLIMATIC CONDITIONS</p> <p>A. The project area is subject to tropical storms and hurricanes from June through November, and to windy and rainy weather, including severe electrical storms and other sudden and locally severe meteorological occurrences that approach hurricane conditions, during any time of the year. The Contractor shall maintain full-time monitoring of the marine weather broadcasts and other local commercial weather forecasting services that may be available. It shall be the Contractor's responsibility to obtain information concerning rain, wind, water level, and wave conditions that could influence his construction operations prior to making a bid.</p> <p>B. Water levels in the project area are primarily affected by tidal fluctuations of the Atlantic Ocean. The project area is also subject to storm surges and wave and wind setup due to hurricanes, tropical storms, and extratropical storms. Local estimated tidal ranges and datums for the project site and vicinity are shown on the Drawings.</p> <p>C. Waves at the site may be locally generated wind waves and may come from various directions and impact the work area. It is also likely for vessel wake waves to impact the site as well, primarily during higher tides.</p> <p>GENERAL PROJECT REQUIREMENTS 01000-4</p>	<p style="text-align: center;">COOPER RIVER COUNTY PARK REVETMENT March 22, 2024</p> <p>1.11 EMERGENCY RESPONSE PLAN</p> <p>A. The Contractor shall submit an Emergency Response Plan to the Owner's Representative 15 days prior to commencement of construction. The plan must include at a minimum:</p> <p>1. A site description and evaluation</p> <p>2. Assessment and risk analysis</p> <p>3. Emergency equipment available</p> <p>4. Medical equipment and personnel available</p> <p>5. Clean up procedures</p> <p>1.12 PRE-CONSTRUCTION MEETING</p> <p>A. Prior to commencement of construction, Contractor shall attend a pre-construction meeting and meet with representatives of regulatory agencies, the Owner, and Engineer. Contractor's designated superintendent shall be present at the pre-construction meeting. Prior to the Pre-Construction meeting, Contractor shall submit for the Owner's and Engineer's approval, an Operations Plan which shall describe the following in detail, including as a minimum, the Contractor's proposed Construction Quality Control Plan and Schedule, plus the following:</p> <p>1. Order of Work,</p> <p>2. Anticipated schedule, including identification of specific areas to be used for equipment access, mobilization, temporary staging of material and equipment storage, transport routes for equipment, etc.</p> <p>3. Any pertinent information and testing data for construction materials and sources.</p> <p>4. Method to be used by the Contractor to demonstrate chain of custody of rock from the quarry to construction.</p> <p>5. Number and qualifications of personnel to be used.</p> <p>6. Specific methods to be used in establishing horizontal and vertical control for staking out the Work.</p> <p>7. Specific detailed description of the construction procedure to be followed, including but not limited to; clearing and grubbing, embankment preparation plan, method of delivery of materials including rock and geotextiles from source to project site, placement of temporary structures or materials to be used during construction, and specific procedures to be used for installation and monitoring of placed materials.</p> <p>8. Identification of vehicles and process to be followed, including temporary staging of debris and materials to be removed and transported off site.</p> <p>9. Description of all transport routes and areas to be used during construction.</p> <p>10. Description of proposed access point improvements and protections in accordance with permit requirements and requirements of the Specifications. Description of specific measures for protection of underground and overhead utilities at access points.</p> <p>GENERAL PROJECT REQUIREMENTS 01000-6</p>	<p style="text-align: center;">COOPER RIVER COUNTY PARK REVETMENT March 22, 2024</p> <p>11. Description of a public safety plan describing methods to be used by contractor to maintain a safe work area and keep the public out of the Work Area, such as erection of fencing and having a spotter ahead of any heavy equipment work and traversing the site outside the immediate Work area, such as when mobilizing and demobilizing.</p> <p>12. Subcontractors and vendors to be used with the name and phone number of the relevant Points of Contact. This includes any third party monitoring requirements of the Contractor.</p> <p>13. A form to be used for Daily Report of Construction Operations which will also serve as documentation of quality control. The Daily Report of Construction Operations form shall, at a minimum, provide for the reporting of the following information:</p> <p>a. General: This form shall include the progress of work completed since the previous report including the location of work, the number of personnel on the job, equipment at the site, specific quantity of materials delivered to the site and materials incorporated in the Work completed during the reporting period, weather and sea conditions, the extent of and reason for any delays, and any instructions received from the Owner or Engineer as well as any official with state or federal agencies.</p> <p>b. Truck Tickets: All daily report forms shall be accompanied by receipts and legible tickets verifying quantity and/or weight as appropriate for materials delivered. Contractor shall provide Engineer with these receipts and tickets along with copies of field notes and drawings from any site surveys. Contractor shall provide a cumulative total for all stone and other materials.</p> <p>c. Hours of operation including start times, stop times, and description of the reason for stoppage;</p> <p>d. The beginning and ending position stationing of the work;</p> <p>e. An estimate of the tons of rock placed during the reporting period;</p> <p>f. An estimate of the unit quantities of all other materials placed during the reporting period;</p> <p>g. All equipment and materials on the job site including, trucks, excavators, and number of personnel on the job site;</p> <p>h. Weather and sea conditions;</p> <p>i. Confirmation of daily clearance from endangered species monitors (if applicable);</p> <p>j. Any materials or equipment delivered to the site;</p> <p>k. The results of monitoring when required in the Regulatory Permits;</p> <p>l. Visits from staff of regulatory agencies, Owner, or Engineer; and</p> <p>m. Any instructions received from regulatory agencies, Owner or Engineer.</p> <p>B. The Daily Quality Control Report shall be submitted by 12:00 noon on the day following the day for which the activity is being reported. Progress and/or final payment to the Contractor may be withheld until all of the required Contractor's Daily Report of Construction Operations have been submitted to the Owner. The preferred method of submittal is by e-mail. Owner reserves</p> <p>GENERAL PROJECT REQUIREMENTS 01000-7</p>	<p style="text-align: center;">COOPER RIVER COUNTY PARK REVETMENT March 22, 2024</p> <p>the right to suspend construction if the Contractor's Daily Report of Construction Operations is incomplete or overdue.</p> <p style="text-align: center;">END OF SECTION</p> <p>GENERAL PROJECT REQUIREMENTS 01000-8</p>