

**NOTES**

FOR PILES, SEE SECTION 450 OF STANDARD SPECIFICATIONS.

PILES AT END BENT NO.1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 90 TONS PER PILE. DRIVE VERTICAL PILES TO A REQUIRED DRIVING RESISTANCE OF 150 TONS PER PILE.

PILES AT END BENT NO.2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 90 TONS PER PILE. DRIVE PILES AT BENT NO. 2 TO A REQUIRED DRIVING RESISTANCE OF 220 TONS PER PILE. THIS REQUIRED DRIVING RESISTANCE INCLUDES ADDITIONAL RESISTANCE FOR DOWDRAG.

IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY OF 43,420 FT-LBS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT END BENT NOS.1 AND 2. THIS ESTIMATED ENERGY DOES NOT RELEASE THE CONTRACTOR FROM PROVIDING DRIVING EQUIPMENT IN ACCORDANCE WITH THE PILES PROVISION.

STEEL H-PILE POINTS ARE REQUIRED FOR STEEL H-PILES AT END BENT NO.1 AND END BENT NO.2. FOR STEEL PILE POINTS, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

OBSERVE A 1 MONTH WAITING PERIOD AFTER CONSTRUCTING THE EMBANKMENT TO THE BOTTOM OF CAP ELEVATION BEFORE BEGINNING END BENT CONSTRUCTION AT END BENT NO.1.

FOR DRILLED PIERS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.

DRILLED PIERS AT BENT NOS. 1, 2, 3 & 4 ARE DESIGNED FOR A FACTORED RESISTANCES OF 679, 721, 702, & 655 TONS PER PIER, RESPECTIVELY.

DRILLED PIERS AT BENT NOS.1, 2, 3 & 4 ARE DESIGNED FOR A FACTORED RESISTANCES OF 679, 721, 702, & 655 TONS PER PIER, RESPECTIVELY.

DRILLED PIERS AT BENT NOS.1 THROUGH 4 ARE DESIGNED FOR SIDE RESISTANCE ONLY.

INSTALL DRILLED PIERS AT BENT NO.1 TO A TIP ELEVATION NO HIGHER THAN 635.9 FT AND A PENETRATION OF AT LEAST 12.0 FT INTO COMPETENT ROCK, AS DEFINED BY ARTICLE 411-1 OF THE STANDARD SPECIFICATIONS.

PERMANENT STEEL CASINGS MAY BE REQUIRED FOR DRILLED PIERS AT BENT NO.1. IF REQUIRED, DO NOT EXTEND PERMANENT CASING BELOW ELEVATION 647.9 FT WITHOUT PRIOR APPROVAL FROM THE ENGINEER. THE ENGINEER WILL DETERMINE THE NEED FOR PERMANENT CASINGS.

IF REQUIRED, INSTALL PERMANENT STEEL CASING AT BENT NO.1 BY VIBRATING, SCREWING OR DRIVING PERMANENT CASINGS BEFORE EXCAVATING OR DISTURBING ANY MATERIAL BELOW ELEVATION 660.2 FT.

INSTALL DRILLED PIERS AT BENT NO.2 TO A TIP ELEVATION NO HIGHER THAN 635.9 FT AND A PENETRATION OF AT LEAST 12.0 FT INTO COMPETENT ROCK, AS DEFINED BY ARTICLE 411-1 OF THE STANDARD SPECIFICATIONS.

PERMANENT STEEL CASINGS MAY BE REQUIRED FOR DRILLED PIERS AT BENT NO.2. IF REQUIRED, DO NOT EXTEND PERMANENT CASING BELOW ELEVATION 649.6 FT WITHOUT PRIOR APPROVAL FROM THE ENGINEER. THE ENGINEER WILL DETERMINE THE NEED FOR PERMANENT CASINGS.

IF REQUIRED, INSTALL PERMANENT STEEL CASING AT BENT NO.2 BY VIBRATING, SCREWING OR DRIVING PERMANENT CASINGS BEFORE EXCAVATING OR DISTURBING ANY MATERIAL BELOW ELEVATION 657.4 FT.

INSTALL DRILLED PIERS AT BENT NO.3 TO A TIP ELEVATION NO HIGHER THAN 640.3 FT AND A PENETRATION OF AT LEAST 12.0 FT INTO COMPETENT ROCK, AS DEFINED BY ARTICLE 411-1 OF THE STANDARD SPECIFICATIONS.

INSTALL DRILLED PIERS AT BENT NO.4 TO A TIP ELEVATION NO HIGHER THAN 637.2 FT AND A PENETRATION OF AT LEAST 12.0 FT INTO COMPETENT ROCK, AS DEFINED BY ARTICLE 411-1 OF THE STANDARD SPECIFICATIONS.

THE SCOUR CRITICAL ELEVATION FOR BENT NO.1 IS ELEVATION 660.2 FT AND FOR BENT NO.2 IS ELEVATION 657.4 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

CSL TUBES ARE REQUIRED AND CSL TESTING MAY BE REQUIRED FOR DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR CSL TESTING. FOR CSL TESTING, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENT 2 ARE TO BE SLEEVED IN MSE REINFORCED BACKFILL ZONE. SEE MSE RETAINING WALL PLANS. NO SEPARATE PAYMENT WILL BE MADE FOR PIPE SLEEVES AND ARE CONSIDERED INCIDENTAL TO OTHER CONTRACT UNITS.

LOOSE SAND TO FILL VOID BETWEEN PILE AND PILE SLEEVE SHALL NOT BE ADDED UNTIL THE MSE WALL FILL IS TO GRADE FOR END BENT CONSTRUCTION.

WHEN DRIVING PILES AT END BENT NO.1 AND END BENT NO.2, FUEL SETTING ADJUSTMENT WILL BE REQUIRED TO AVOID OVERSTRESSING THE PILES AT THE END OF DRIVING.

PILES AT END BENT NO.2 WILL REQUIRE PILE SLEEVES TO REDUCE DOWDRAG LOADS.

PROJECT NO. W-5516

ROWAN COUNTY

STATION: 61+79.40 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**GENERAL DRAWING**

FOR BRIDGE ON SR 1221 OVER  
I-85 AND COLD WATER CREEK  
BETWEEN SR 1238 AND SR 1337

REVISIONS

NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO.

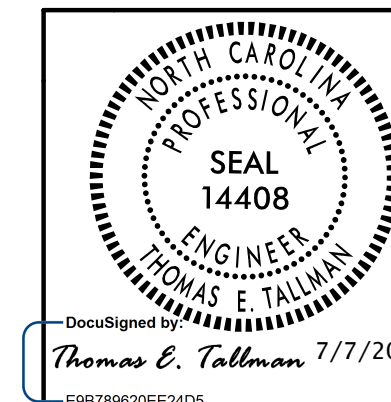
S-2

TOTAL SHEETS

41



5121 Kingdom Way, Suite 100 Raleigh, NC 27607  
NC License No. P-09298



DocuSigned by:  
Thomas E. Tallman 7/7/2015  
E-6876820EE242D5

5/28/2015 10:53 AM C:\Users\pca\Documents\Projects\5516 - W-5516 - sd - f1.dgn PCA Engineering

DRAWN BY : D. H. CARTER DATE : MAY 2015  
CHECKED BY : M. T. NEIHEISEL DATE : MAY 2015  
DESIGN ENGINEER OF RECORD : T. E. TALLMAN DATE : MAY 2015