

### SUMMARY OF PILE INFORMATION/ INSTALLATION

(BLANK ENTRIES INDICATE ITEM IS NOT APPLICABLE TO STRUCTURE)

END BENT/ BENT NO. PILE (S) #-# (e.g., BENT 1, PILES 1-5')	FACTORED RESISTANCE PER PILE TONS	PILE CUT-OFF (TOP OF PILE) ELEVATION FT	ESTIMATED PILE LENGTH PER PILE FT	SCOUR CRITICAL ELEVATION FT	DRIVEN PILES			PREDRILLING FOR PILES*			DRILLED-IN PILES		
					MIN. PILE TIP (TIP NO HIGHER THAN) ELEV FT	REQUIRED DRIVING RESISTANCE (RDR)** PER PILE TONS	TOTAL PILE REDRIVES QUANTITY EACH	PREDRILLING LENGTH PER PILE LIN FT	PREDRILLING ELEVATION (ELEV NOT TO PREDRILL BELOW) FT	MAXIMUM PREDRILLING DIA INCHES	PILE EXCAVATION (BOTTOM OF HOLE) ELEV FT	PILE EXC NOT IN SOIL PER PILE LIN FT	PILE EXC IN SOIL PER PILE LIN FT
END BENT NO. 1, PILES 1-6	145	662.58	45			245							
END BENT NO. 1, PILES 7-12	145	662.58	40			245							
END BENT NO. 2, PILES 1-12	125	661.13	25			210							

\*PREDRILLING FOR PILES IS REQUIRED FOR END BENTS/ BENTS WITH A PREDRILLING LENGTH AND AT THE CONTRACTOR'S OPTION FOR END BENTS/ BENTS WITH PREDRILLING INFORMATION BUT NO PREDRILLING LENGTH.

\*\* RDR =  $\frac{\text{FACTORED RESISTANCE} + \text{FACTORED DOWNDRAG LOAD} + \text{FACTORED DEAD LOAD}}{\text{DYNAMIC RESISTANCE FACTOR}} + \text{NOMINAL DOWNDRAG RESISTANCE} + \frac{\text{NOMINAL SCOUR RESISTANCE}}{\text{SCOUR RESISTANCE FACTOR}}$

### PILE DESIGN INFORMATION

(BLANK ENTRIES INDICATE ITEM IS NOT APPLICABLE TO STRUCTURE)

END BENT/ BENT NO. PILE (S) #-# (e.g., BENT 1, PILES 1-5')	FACTORED AXIAL LOAD PER PILE TONS	FACTORED DOWNDRAG LOAD PER PILE TONS	FACTORED DEAD LOAD* PER PILE TONS	DYNAMIC RESISTANCE FACTOR	NOMINAL DOWNDRAG RESISTANCE PER PILE TONS	NOMINAL SCOUR RESISTANCE PER PILE TONS	SCOUR RESISTANCE FACTOR (DEFAULT=1.00)
END BENT 1, PILES 1-12	145			0.60			
END BENT 2, PILES 1-12	125			0.60			

\*FACTORED DEAD LOAD IS FACTORED WEIGHT OF PILE ABOVE THE GROUND LINE.

### SUMMARY OF DRILLED PIER INFORMATION/ INSTALLATION

(BLANK ENTRIES INDICATE ITEM IS NOT APPLICABLE TO STRUCTURE)

END BENT/ BENT NO. PILE (S) #-# (e.g., BENT 1, PILES 1-5')	FACTORED RESISTANCE PER PIER TONS	MIN. PIER TIP (TIP NO HIGHER THAN) ELEV FT	REQUIRED TIP RESISTANCE PER PIER TSF	SCOUR CRITICAL ELEVATION FT	MIN. DRILLED PIER PENETRATION INTO ROCK PER PIER LIN FT	DRILLED PIER LENGTH* PER PIER LIN FT	DRILLED PIER LENGTH NOT IN SOIL* PER PIER LIN FT	DRILLED PIER LENGTH IN SOIL* PER PIER LIN FT	PERMANENT STEEL CASING REQUIRED? YES OR MAYBE	PERMANENT STEEL CASING TIP ELEVATION (ELEV NOT TO EXTEND CASING BELOW) FT	PERMANENT STEEL CASING LENGTH** PER PIER LIN FT
BENT NO. 1, PIERS 1-2	750	606.0	35	622	9.4		16.6	13.7	YES	625.0	11.0
BENT NO. 1, PIERS 3-4	750	612.0	55	622	7.4		11.7	12.7	YES	625.0	11.0
BENT NO. 2, PIERS 1-4	675	629.0	40	635	8.6		8.7	9.3	YES	637.6	9.4
TOTAL QTY.							91.4	90.0			81.6

\*DRILLED PIER LENGTH, DRILLED PIER LENGTH NOT IN SOIL AND DRILLED PIER LENGTH IN SOIL REPRESENT ESTIMATED DRILLED PIER QUANTITIES AND ARE MEASURED AND PAID FOR AS EITHER "48 IN. DIA. DRILLED PIERS" OR "48 IN. DIA. DRILLED PIERS NOT IN SOIL" AND "48 IN. DIA. DRILLED PIERS IN SOIL" IN ACCORDANCE WITH ARTICLE 411-7 OF THE NCDOT STANDARD SPECIFICATIONS.

\*\* PERMANENT STEEL CASING LENGTH EQUALS THE DIFFERENCE BETWEEN THE GROUND LINE OR TOP OF DRILLED PIER ELEVATION, WHICHEVER IS HIGHER, AND THE PERMANENT CASING TIP ELEVATION AND IS MEASURED AND PAID FOR AS "PERMANENT STEEL CASING FOR 48 IN. DIA. DRILLED PIER" IN ACCORDANCE WITH ARTICLE 411-7 OF THE NCDOT STANDARD SPECIFICATIONS.

#### NOTES:

- THE PILE AND DRILLED PIER FOUNDATION TABLES ARE BASED ON THE BRIDGE SUBSTRUCTURE DESIGN AND FOUNDATION RECOMMENDATIONS SEALED BY A NORTH CAROLINA PROFESSIONAL ENGINEER (STEPHEN CROCKETT #048207) ON 02-23-2023.
- TOTAL PILE DRIVING EQUIPMENT SETUP QUANTITY (NOT SHOWN IN PILE FOUNDATION TABLES) EQUALS THE NUMBER OF DRIVEN PILES, I.E., THE NUMBER OF PILES WITH A REQUIRED DRIVING RESISTANCE.
- THE ENGINEER WILL DETERMINE THE NEED FOR PDA TESTING, PERMANENT STEEL CASING, SPT'S, CSL TESTING, SID INSPECTIONS AND PITS WHEN THESE ITEMS MAY BE REQUIRED.

#### FOUNDATION NOTES:

- FOR DRILLED PIERS, SEE SECTION 411 OF THE STANDARD SPECIFICATIONS.
- SEE ROADWAY PLANS AND SECTION 235 OF THE STANDARD SPECIFICATIONS FOR THE SETTLEMENT GAUGES AT END BENT NO. 1.
- OBSERVE A 3 MONTH WAITING PERIOD AFTER CONSTRUCTING THE EMBANKMENT TO WITHIN 2 FT OF FINISHED GRADE BEFORE BEGINNING END BENT CONSTRUCTION AT END BENT NO. 1. FOR BRIDGE WAITING PERIODS, SEE ROADWAY PLANS AND SECTION 235 OF THE STANDARD SPECIFICATIONS.
- OBSERVE A 1 MONTH WAITING PERIOD AFTER CONSTRUCTING THE EMBANKMENT TO WITHIN 2 FT OF FINISHED GRADE BEFORE BEGINNING END BENT CONSTRUCTION AT END BENT NO. 2. FOR BRIDGE WAITING PERIODS, SEE ROADWAY PLANS AND SECTION 235 OF THE STANDARD SPECIFICATIONS.
- FOR PILES, SEE PILES PROVISION AND SECTION 450 OF THE STANDARD SPECIFICATIONS.
- THE SCOUR CRITICAL ELEVATION FOR BENT NO. 1 IS ELEVATION 628.0 AND BENT NO. 2 IS ELEVATION 637.6. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

### SUMMARY OF PDA/ PILE ORDER LENGTHS

(BLANK ENTRIES INDICATE ITEM IS NOT APPLICABLE TO STRUCTURE)

PILE DRIVING ANALYZER (PDA)				PILE ORDER LENGTHS	
END BENT/ BENT NO.	PDA TESTING REQUIRED? YES OR MAYBE	PDA TEST PILE LENGTH FT	TOTAL PDA TESTING QUANTITY EACH	END BENT/ BENT NO(S)	PILE ORDER LENGTH BASIS* EST OR PDA

\*EST-PILE ORDER LENGTHS FROM ESTIMATED PILE LENGTHS; PDA=PILE ORDER LENGTHS BASED ON PDA TESTING. FOR GROUPS OF END BENTS/BENTS WITH PILE ORDER LENGTHS BASED ON PDA TESTING, THE FIRST END BENT/ BENT NO. LISTED FOR EACH GROUP IS THE REPRESENTATIVE END BENT/ BENT WITH THE PDA.

### SUMMARY OF PILE ACCESSORIES

(BLANK ENTRIES INDICATE ITEM IS NOT APPLICABLE TO STRUCTURE)

END BENT/ BENT NO. PILE (S) #-# (e.g., BENT 1, PILES 1-5')	PIPE PILE PLATES REQUIRED YES OR MAYBE	STEEL PILE POINTS			STEEL PILE TIPS REQUIRED? YES
		PIPE PILE CUTTING SHOES REQUIRED? YES	PIPE PILE CONICAL POINTS REQUIRED? YES	H-PILE POINTS REQUIRED? YES	
END BENT 1, PILES 1-6				YES	
TOTAL QTY.				6	

### SUMMARY OF DRILLED PIER TESTING

(BLANK ENTRIES INDICATE ITEM IS NOT APPLICABLE TO STRUCTURE)

END BENT/ BENT NO. PILE (S) #-# (e.g., BENT 1, PILES 1-5')	STANDARD PENETRATION TEST (SPT) REQUIRED? YES OR MAYBE	CROSSHOLE SONIC LOGGING (CSL) REQUIRED?* YES OR MAYBE	TOTAL CSL TUBE LENGTH (FOR ALL TUBES) PER PIER LIN FT	SHAFT INSPECTION DEVICE (SID) REQUIRED? YES OR MAYBE	PILE INTEGRITY TEST (PIT) REQUIRED? MAYBE
BENT 1, PIERS 1-2		MAYBE	127.2	MAYBE	
BENT 1, PIERS 3-4		MAYBE	103.6	MAYBE	
BENT 2, PIERS 1-4		MAYBE	78.0	MAYBE	
TOTAL QTY.		1	773.6		

\*CSL TUBES ARE REQUIRED IF CSL TESTING IS OR MAY BE REQUIRED. THE NUMBER OF CSL TUBES PER DRILLED PIER IS EQUAL TO ONE TUBE PER FOOT OF DESIGN PIER DIAMETER WITH AT LEAST 4 TUBES PER PIER. THE LENGTH OF EACH CSL TUBE IS EQUAL TO THE DRILLED PIER LENGTH PLUS 1.5 FT.

5/9/2023 2:04:37 PM jhagenbush

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DRAWN BY : J.E.HAGENBUSH DATE : 05/17/22  
CHECKED BY : S. S. POOLE DATE : 12/10/22  
DESIGN ENGINEER OF RECORD : S.S. POOLE DATE : 05/09/23



PROJECT NO. R-2707D  
CLEVELAND COUNTY  
STATION: 849+00.00 -L-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH SUBSTRUCTURE PILE AND DRILLED PIER FOUNDATION TABLES (LEFT LANE)					
REVISIONS					SHEET NO. S5-03
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS					56

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED