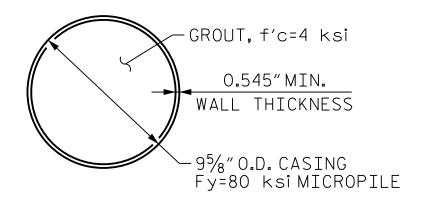
+

-ALL-THREAD W/NUT TOP OF PILE ELEVATION  $-2^{1}/_{4}$ " (GR 36) × 12" × 12" (MIN) -ALL-THREAD W/STANDARD HEX NUT TOP OF PILE 1'-0" PILE ELEVATION -EMBEDMENT  $-2^{1}/_{4}$ " (GR 36) x 12" x 12" (MIN) BOT OF FOOTING-1'-0" PILE EMBEDMENT — #6 EPOXY-COATED ALL-THREAD BAR MINIMUM 20 FT CASING Fy=75 KSI PENETRATION BELOW BOTTOM OF FOOTING. NO BOT OF FOOTING -#28 EPOXY-COATED CASING JOINTS TO BE ALL-THREAD BAR LOCATED WITHIN 10 FT Fy=75 KSI OF BOTTOM OF FOOTING -MINIMUM 20 FT CASING STEEL CASING — PENETRATION BELOW BOTTOM OF FOOTING. NO CASING JOINTS TO BE CASING-LOCATED WITHIN 10 FT OF BOTTOM OF FOOTING — ✓ GROUT MICROPILE ---MICROPILE — +28 EPOXY-COATED ALL-THREAD BAR Fy=75 KSI / TOP OF WEATHERED TOP OF WEATHERED ROCK ELEV -ESTIMATED TOP -ESTIMATED TOP OF BOND ZONE OF BOND ZONE 1'-0" MIN. CASING 1'-0" MIN. CASING PLUNGE DEPTH — PLUNGE DEPTH — -BOND ZONE LENGTH -BOND ZONE LENGTH TIP ELEVATION — TIP ELEVATION — ELEVATION ELEVATION MICROPILE TYPE 1 DETAIL MICROPILE TYPE 2 DETAIL

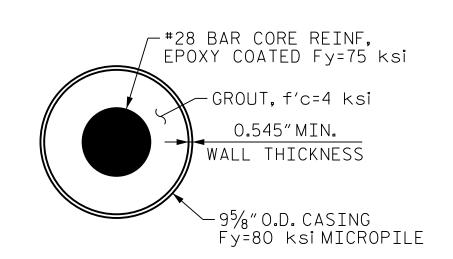
	MICROPILE DATA TABLE									
BENT NO.	BOTTOM OF FOOTING ELEVATION (FT)	NUMBER OF MICROPILES	FACTORED AXIAL RESISTANCE (KIPS)	FACTORED LATERAL RESISTANCE (KIPS)	FACTORED UPLIFT RESISTANCE (KIPS)	MIN.CASING TIP ELEV.FOR LATERAL RESISTANCE (FT)	ESTIMATED MICROPILE LENGTH (FT)	MIN. WEATHERED ROCK PENETRATION (FT)	MIN.ROCK PENETRATION (FT)	
1	872.65	40	270	6.9	N/A	852.5	60.0	20.0	10	
3	841.99	54	270	5.3	30	822.0	65.0	20.0	10	
4	842.36	54	235	3.9	35	822.0	65.0	20.0	10	
5	865.22	48	265	3.8	N/A	845.0	75.0	20.0	10	

MICROPILE NOTES:

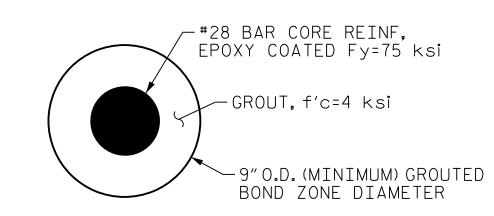
- 1. FOR MICROPILES, SEE MICROPILE PROVISION.
- 2. USE PRIME DOMESTIC REINFORCING CASINGS WITH YIELD STRENGTHS OF AT LEAST 80 KSI AND A NOMINAL WALL THICKNESS OF 0.545 IN FOR MICROPILES AT BENT NOS.1,3,4,AND 5.
- 3. REINFORCING CASING FOR MICROPILES ARE TO BE INSTALLED TO A DEPTH OF 20 FT BELOW THE BOTTOM OF FOOTING ELEVATION. MINIMUM CASING LENGTH IS REQUIRED TO RESIST A LATERAL FACTORED LOAD OF 7 KIPS PER PILE.NO CASING JOINTS WILL BE LOCATED WITHIN 10 FEET BELOW BOTTOM OF FOOTING.
- 4. MICROPILE ESTIMATED LENGTHS ARE BASED ON NCDOT GEOTECHNICAL DESIGN ASSUMPTION AND IS FOR INFORMATION PURPOSES ONLY. CONTRACTOR TO VERIFY MICROPILE LENGTHS FOR ESTIMATING PURPOSES.
- 5. A MINIMUM OF ONE VERIFICATION TEST IS REQUIRED ON A DEMONSTRATION MICROPILE INSTALLED AT THE SITE. ADDITIONAL VERIFICATION TEST AND DEMONSTRATION PILES MAYBE REQUIRED TO VERIFY ALL GEOTECHNICAL DESIGN BOND ASSUMPTIONS. PERFORM VERIFICATION TEST ON DEMONSTRATION PILE AT BENT NO. 3. LOCATION OF DEMONSTRATION PILE TO BE APPROVED BY ENGINEER.
- 6. PROOF TESTING IS REQUIRED AT EACH BENT LOCATION.
- 7. USE TYPE 2 MICROPILES FOR ALL TENSION PILES AS NOTED ON THE STRUCTURE PLANS AND ALL TEST PILES. USE TYPE 1 MICROPILES IN ALL OTHER LOCATIONS.
- 8. USE MICROPILE SUPPORTED FOUNDATIONS AT BENT NOS. 1, 3, 4, AND 5. SEE MICROPILE DATA TABLE FOR FACTORED RESISTANCE, MINIMUM CASING TIP, MINIMUM TIP ELEVATION, AND MINIMUM WEATHERED ROCK AND ROCK PENETRATION.



## SECTION A-A



## SECTION B-B



SECTION C-C

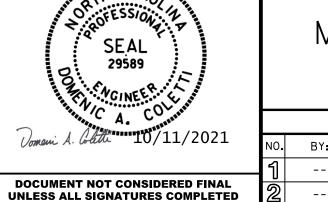
U-2579AB PROJECT NO.\_\_

> FORSYTH COUNTY

STATION: 47+63.62 -Y15FLYBD-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

SUBSTRUCTURE MICROPILE DETAILS



NGINEE COLLEGE								
A. Commit		REVISIONS						
10/11/2021	NO.	BY:	DATE:	NO.	BY:	DATE:	NO. SO5-110	
	1			3			TOTAL	

DES BY: K.OLIVER DWG BY: K. RYAN DATE : 12/19 \_ DATE : 12/19 DES CHK: N. LIU DATE : 12/19 DATE: 1/20 CHK BY: N.LIU

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