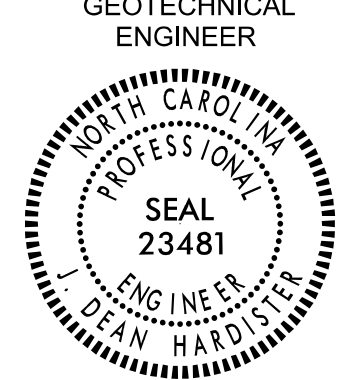
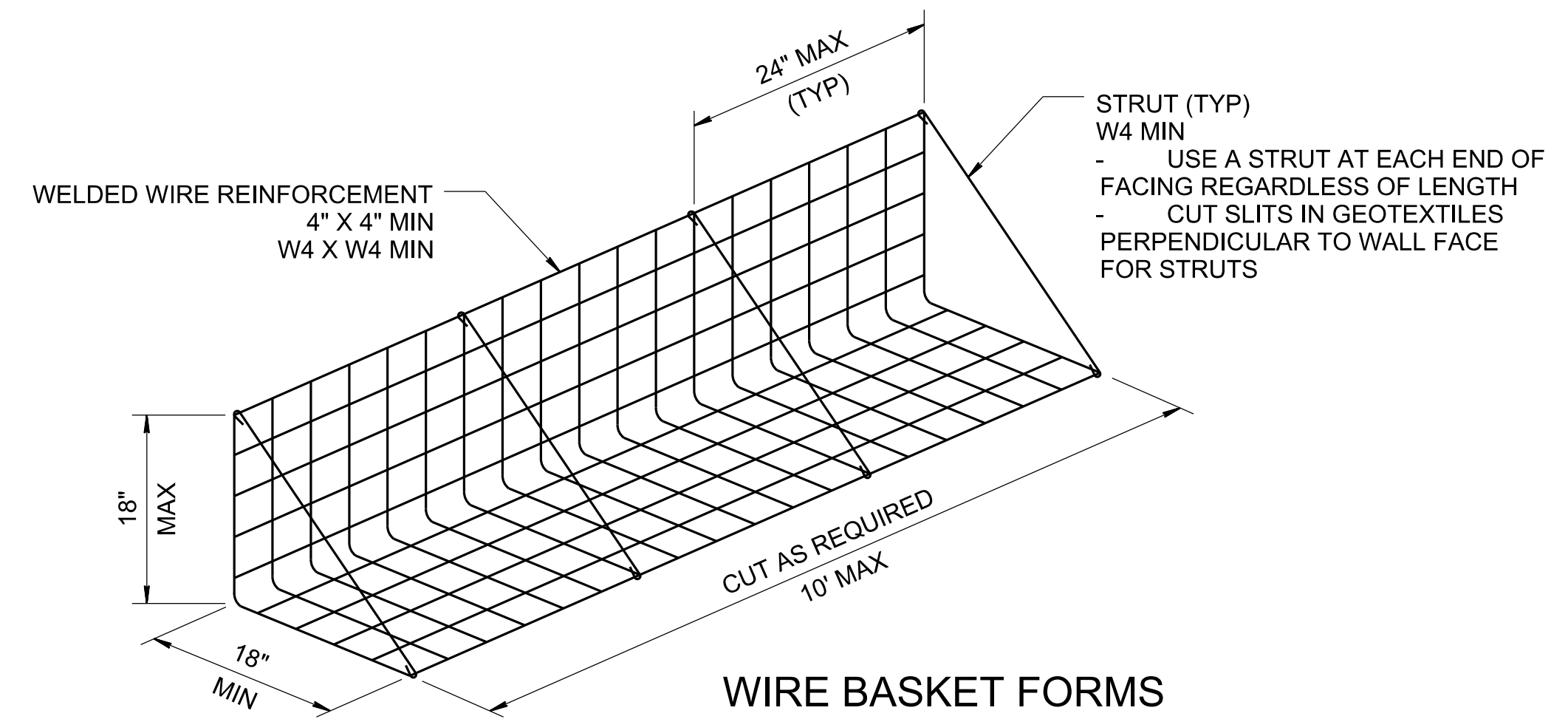
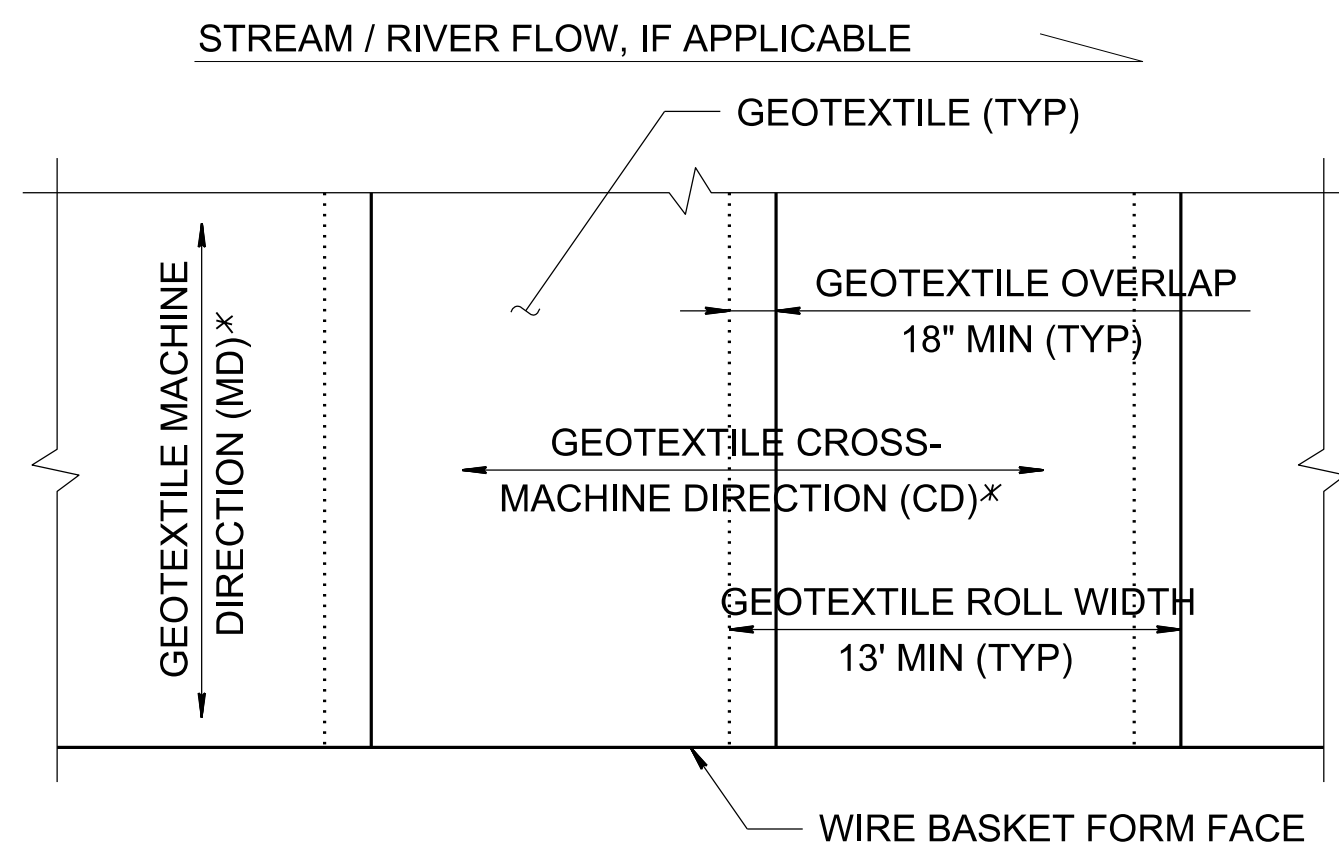
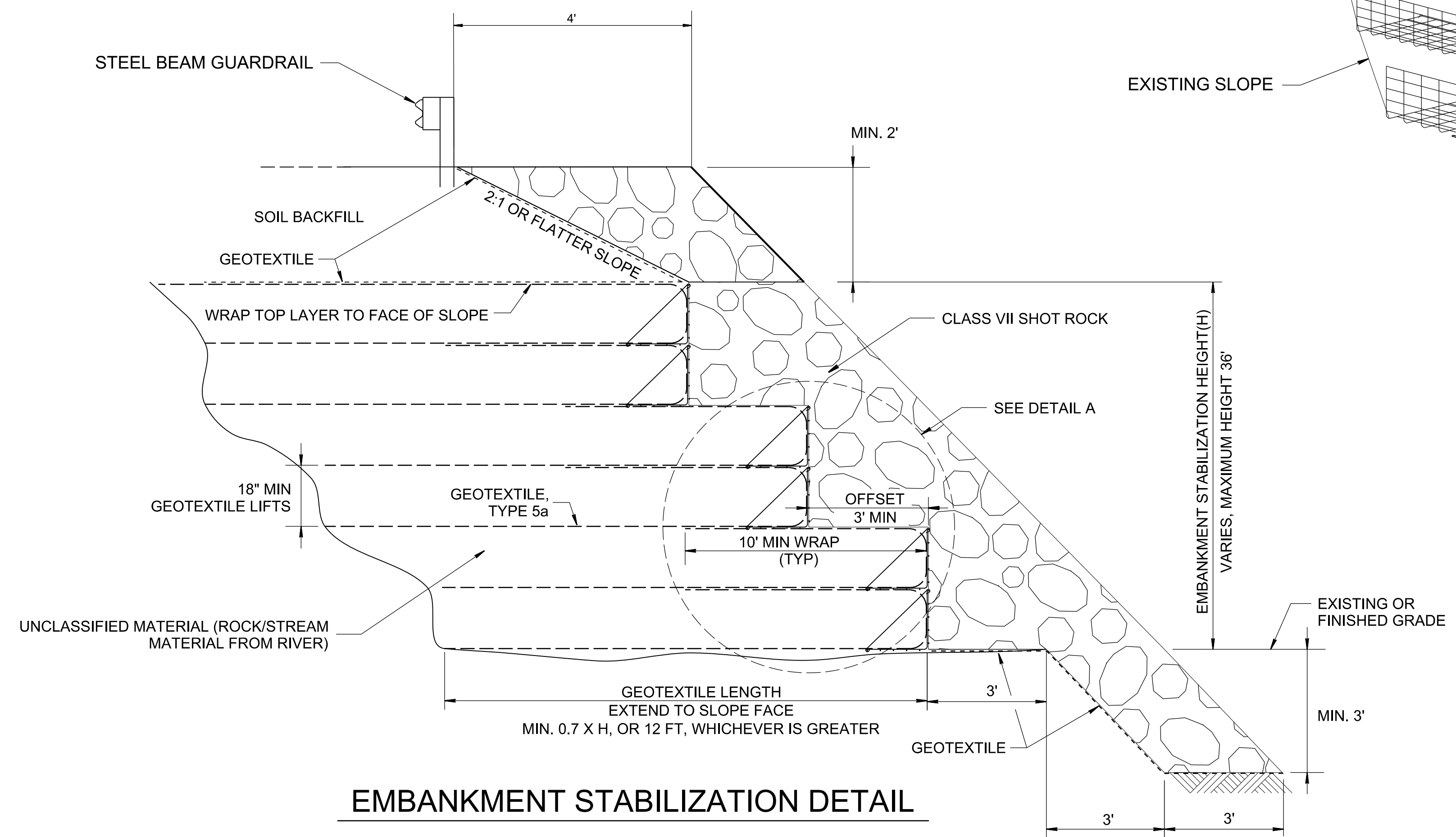


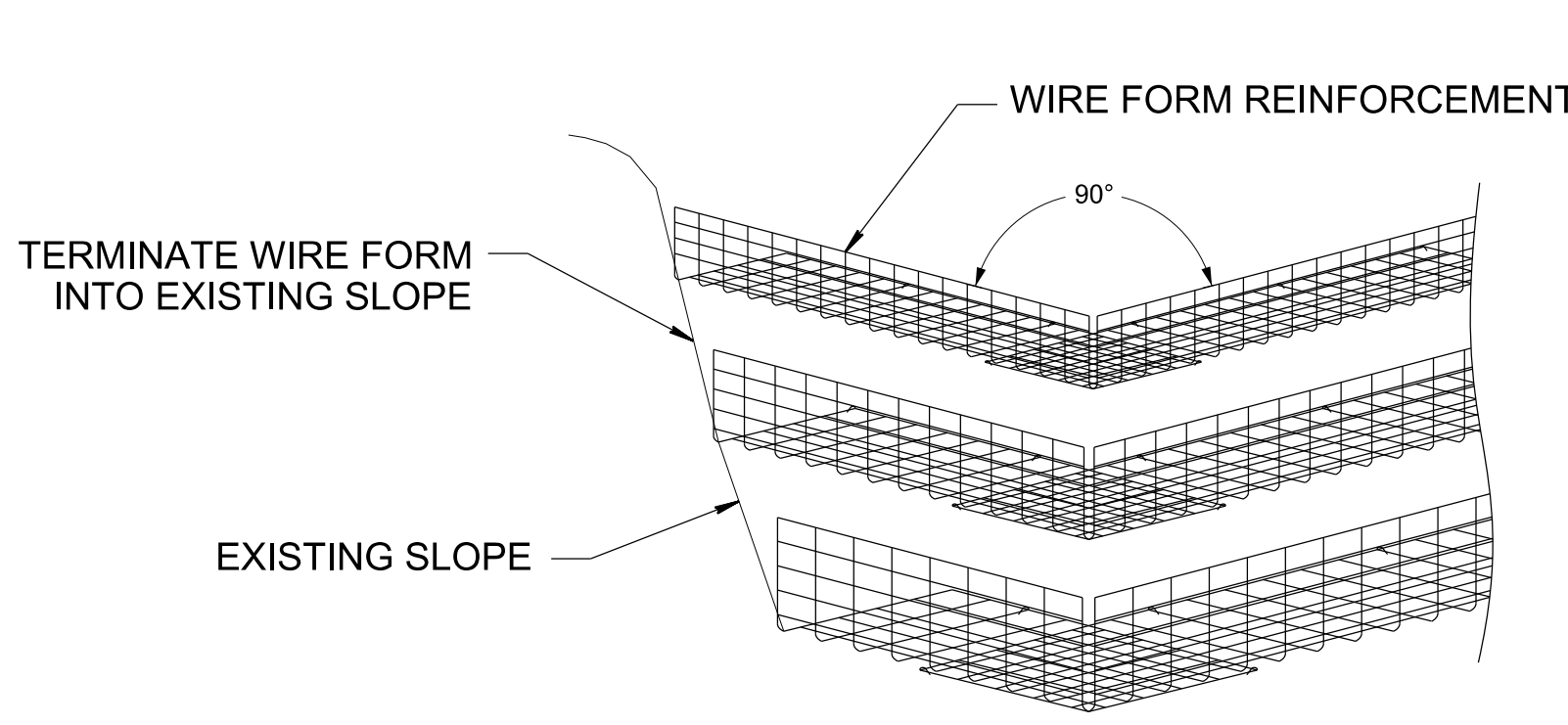
GEOTECHNICAL ENGINEER  SEAL 23481 DEAN HARDISTER ENGINEER	ENGINEER _____ DATE _____
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



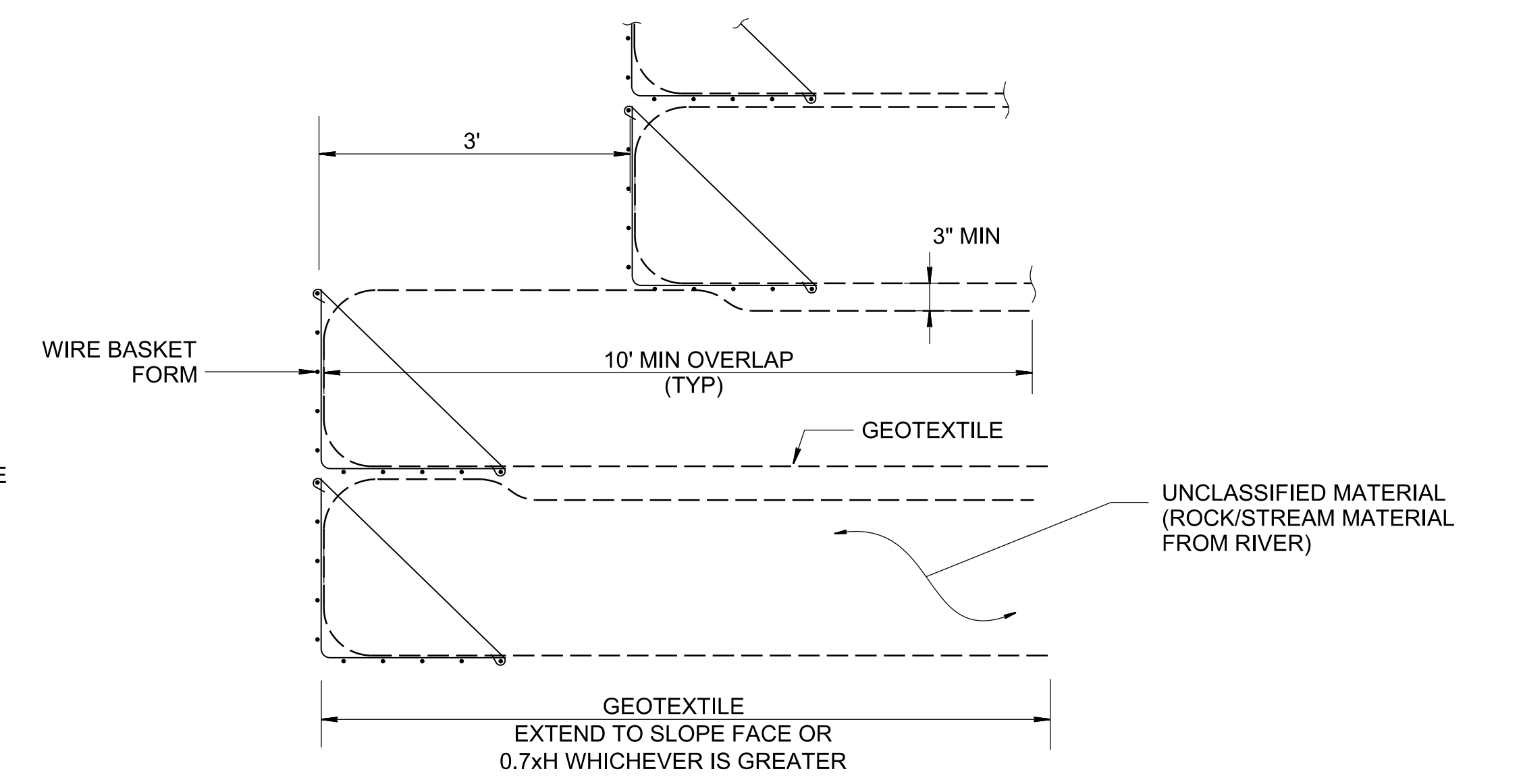
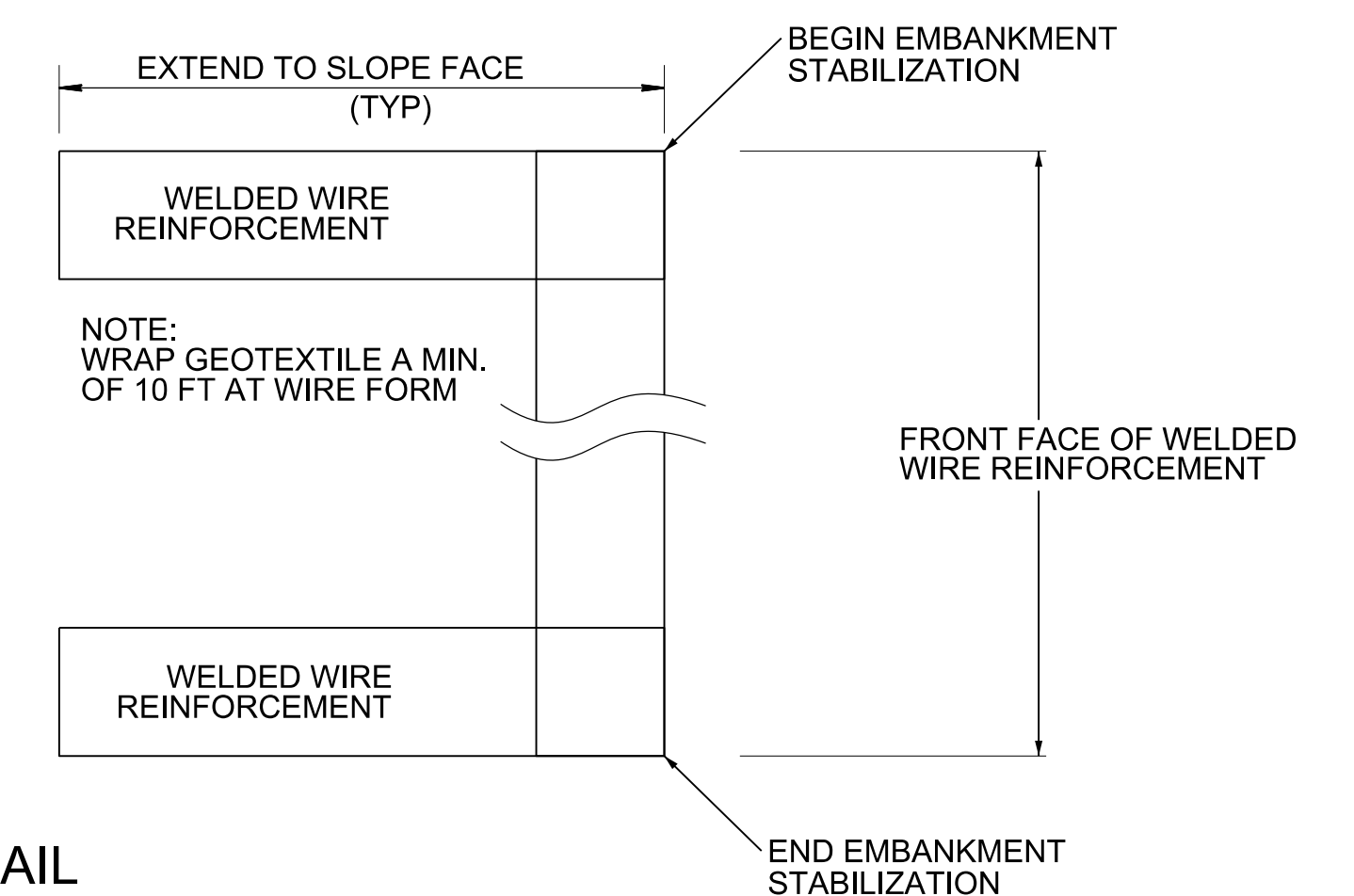
GEOTEXTILE PLACEMENT
 (100% COVERAGE MIN FOR GEOTEXTILE REINFORCEMENT)



EMBANKMENT STABILIZATION DETAIL



TERMINATION DETAIL



DETAIL A

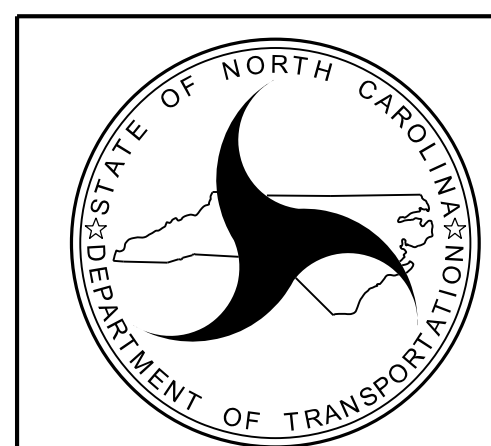
NOTES:

1. USE WIRE BASKET FORMS AND TYPE 5a GEOTEXTILE FOR CONSTRUCTION.
2. BACKFILL WITH SUITABLE BORROW. MAY ALSO BACKFILL WITH ON-SITE SOILS CONSISTING OF ROCK/SAND FROM STREAM BED WITH MAXIMUM AGGREGATE SIZE OF 6 INCHES.
3. WRAP GEOTEXTILE BACK 10 FEET AT EACH WIRE FORM FACE.
4. MAXIMUM STABILIZATION HEIGHT OF 36 FEET

CONTRACT NO.: C205017

PREPARED BY: DH	DATE: 10/24
REVIEWED BY: _	DATE: _

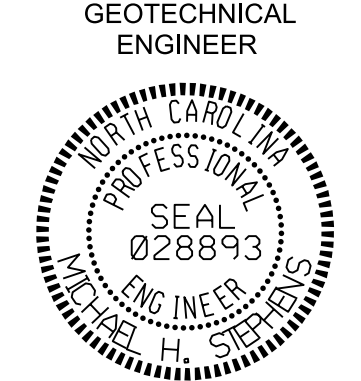
DO NOT USE THESE DETAILS UNLESS DIRECTED BY THE ENGINEER

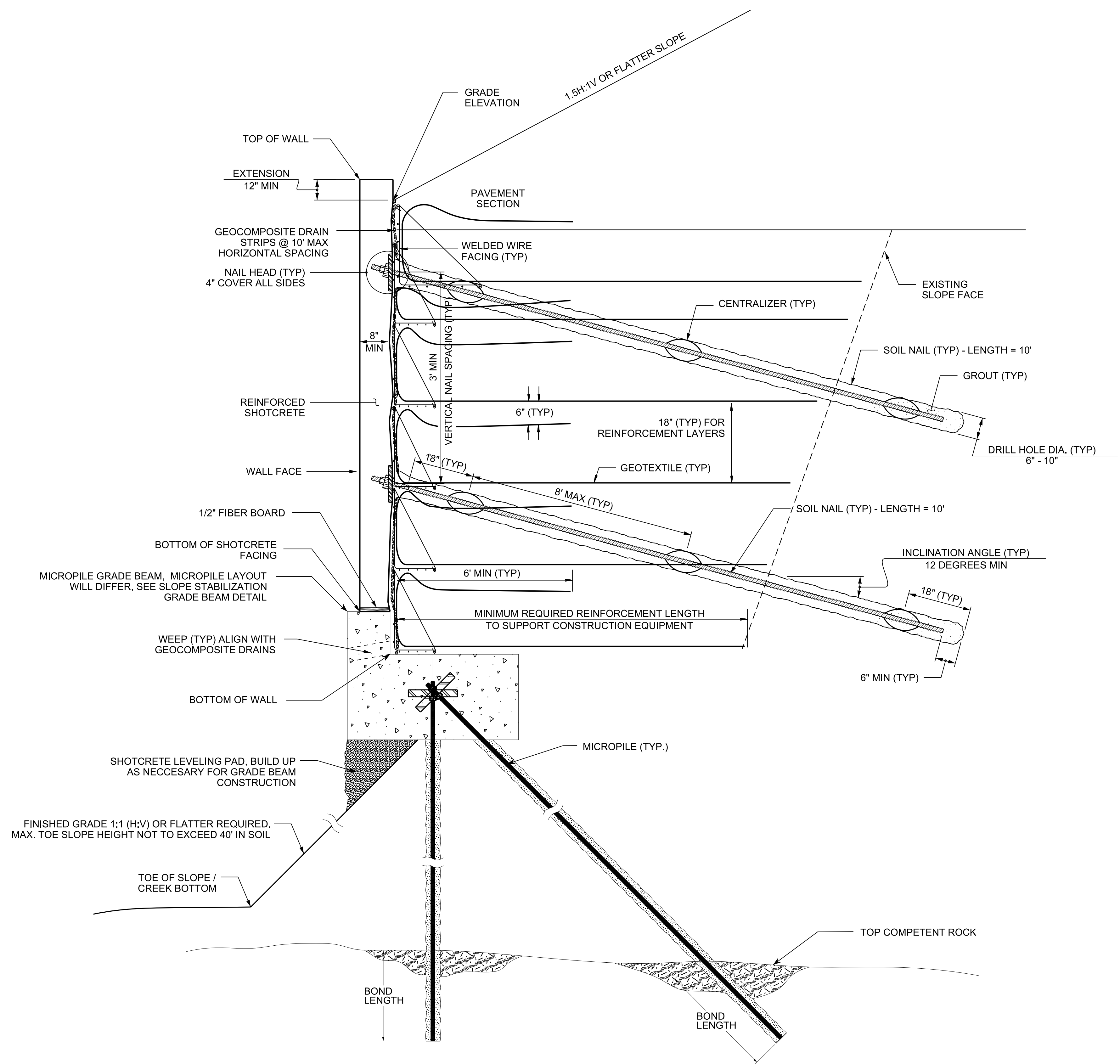


NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

HURRICANE HELENE EMERGENCY REPAIRS
WIRE FORM EMBANKMENT

REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1	-	-	3	-	-
2	-	-	4	-	-

GEOTECHNICAL ENGINEER  Signed by: <i>H. Stephens</i> 12/20/2024 C44782092314CC SIGNATURE DATE	ENGINEER SIGNATURE DATE
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

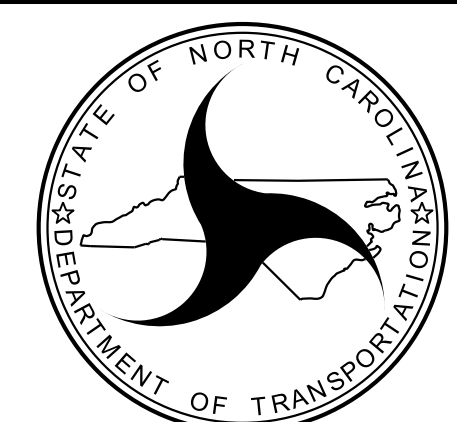


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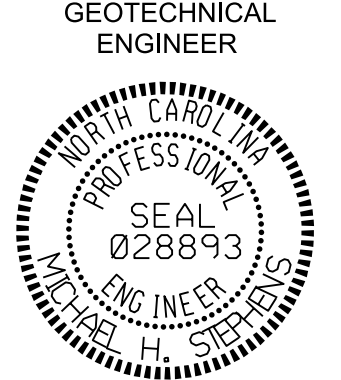
- FOR SOIL NAIL WALL, SEE SOIL NAIL WALL PROVISION.
- FOR MICROPILE GRADE BEAM, SEE SLOPE STABILIZATION GRADE BEAM PLANS AND MICROPILE PROVISION.
- FOR MICROPILES, SEE MICROPILE PROVISION.
- ESTIMATED SOIL NAIL AVERAGE LENGTH = 15'
- ESTIMATED MICROPILE AVERAGE LENGTH = 10'
- MINIMUM MICROPILE ROCK BOND LENGTH = 5'
- MINIMUM SOIL NAIL ROCK BOND LENGTH = 5'
- MINIMUM OVERALL SOIL NAIL AND MICROPILE LENGTH = 10'

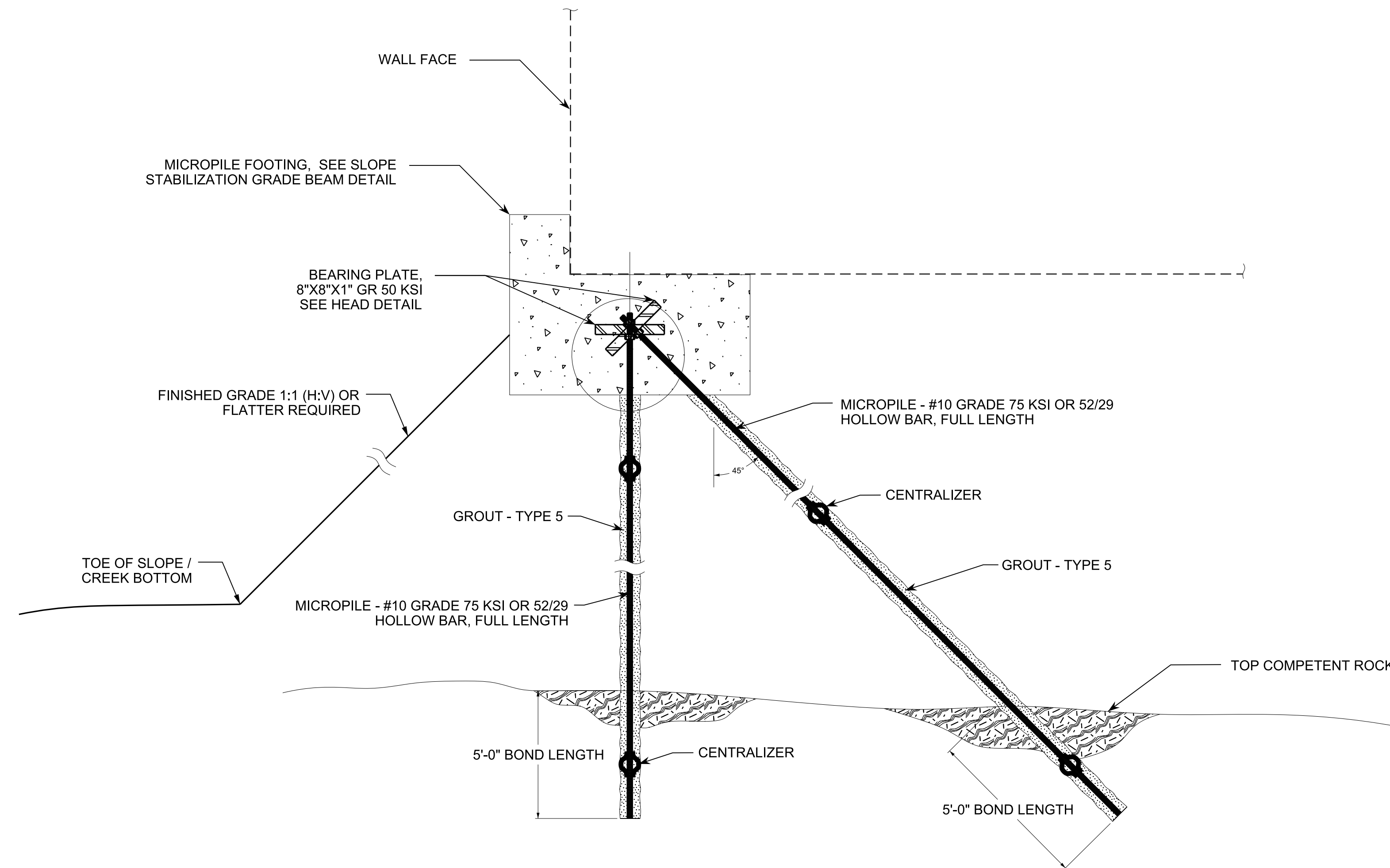
CONTRACT NO.: C205017

DO NOT USE THESE DETAILS UNLESS DIRECTED BY THE ENGINEER

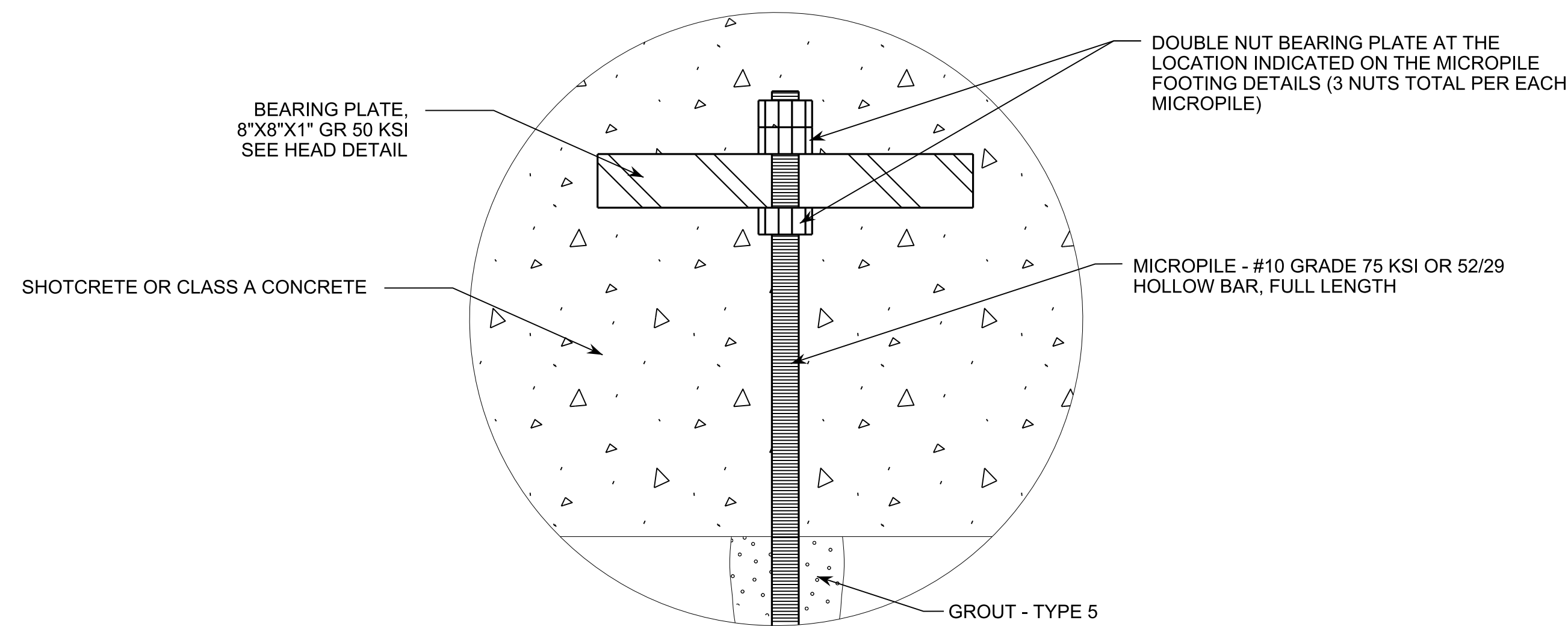
	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS		HURRICANE HELENE EMERGENCY REPAIRS SOIL NAIL RETAINING WALL WITH SHOTCRETE FACING			
	GEOTECHNICAL ENGINEERING UNIT		REVISIONS			
	NO.	BY	DATE	NO.	BY	DATE
	1			3		
	2			4		

PREPARED BY:	DATE:
REVIEWED BY:	DATE:

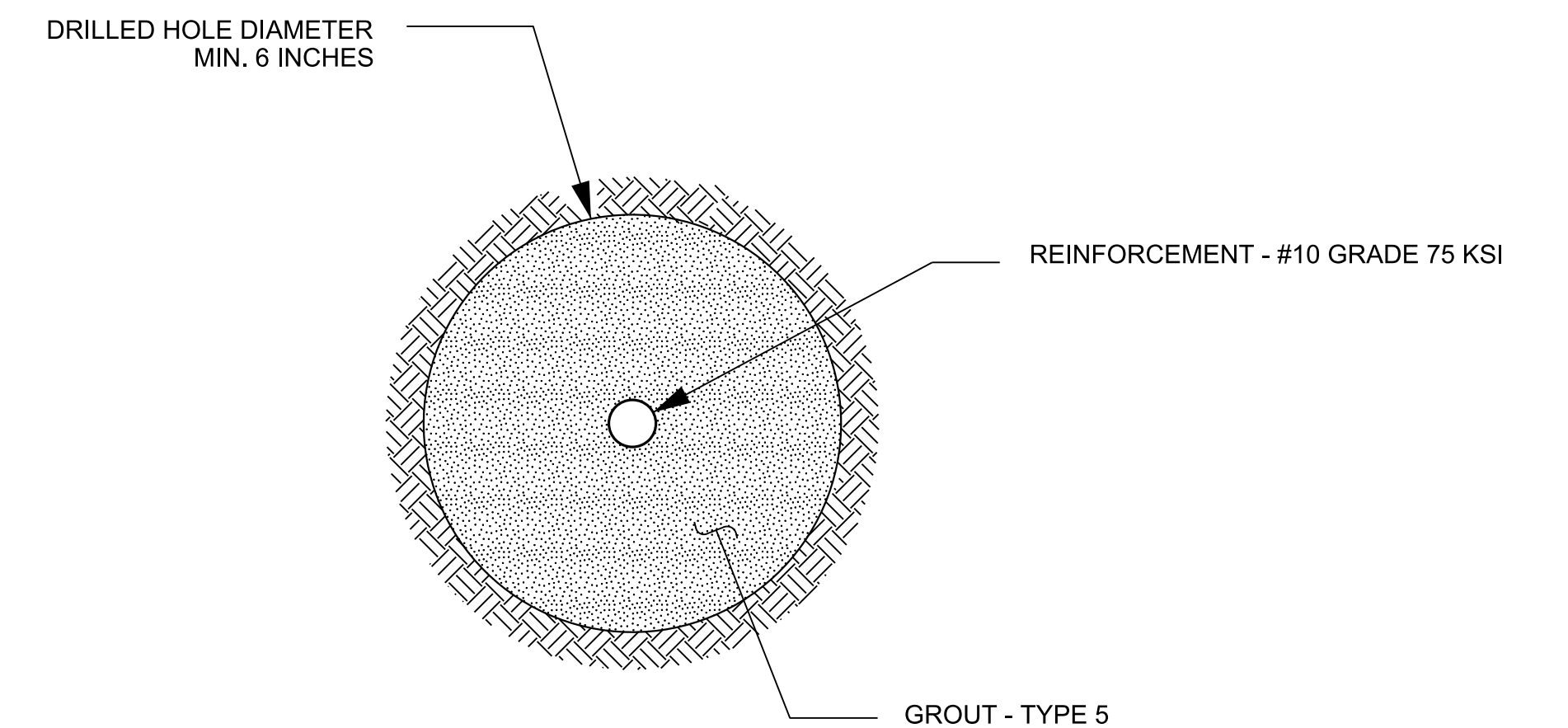
GEOTECHNICAL ENGINEER  Signed by: <i>H. Stevenson</i> 12/20/2024 DATE: _____ SIGNATURE: _____	ENGINEER DATE: _____ SIGNATURE: _____
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



MICROPILE DETAIL



MICROPILE HEAD DETAIL



MICROPILE SECTION

NOTES:

GENERAL NOTES:

1. THE MICROPILES HAVE BEEN DESIGNED IN GENERAL ACCORDANCE WITH AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS. THE MICROPILE FOUNDATIONS HAVE BEEN DESIGNED TO SUPPORT A LOAD OF 60 KIPS IN COMPRESSION AND TENSION.
2. LAYOUT OF THE PILES SHALL BE BY THE GENERAL CONTRACTOR. MICROPILE LAYOUT IS BASED ON PILE LOCATION AT THE BOTTOM OF THE MICROPILE CAP. GENERAL CONTRACTOR SHALL LAY OUT PILES BASED ON DRILLING ELEVATION SUCH THAT THE MICROPILE LOCATION WILL BE AT THE PLANNED LOCATION AT THE BOTTOM OF THE PILE CAP.

MATERIAL SPECIFICATIONS:

1. FOR MICROPILE USE TYPE 5 GROUT. SEE SECTION 1003 OF THE STANDARD SPECIFICATIONS.
2. PROVIDE STEEL PLATES THAT MEET ASTM A572 GRADE 50 KSI.
3. ALL THREAD MICROPILE REINFORCEMENT SHALL BE MINIMUM GRADE 75 KSI.
4. MICROPILE NUTS WILL BE MANUFACTURED BY THE BAR MANUFACTURER AND COMPATIBLE WITH THE BAR TYPE SPECIFIED.
5. CENTRALIZERS- PLASTIC, STAINLESS STEEL, OR OTHER NON-DELETERIOUS MATERIAL WHICH WILL MAINTAIN SHAPE AND LOCATION TO KEEP REINFORCEMENT BAR IN CENTRAL PORTION OF THE DRILL HOLE.

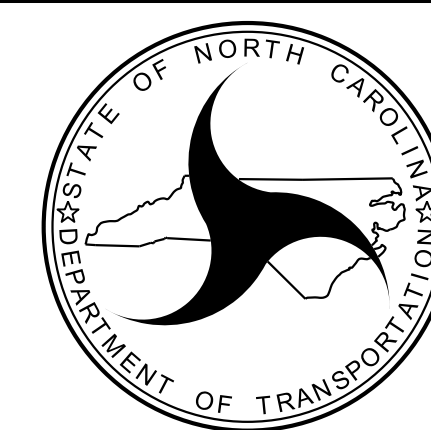
TYPICAL MICROPILE CONSTRUCTION SEQUENCE:

1. WHERE POSSIBLE LEVEL AREA OF MICROPILE FOOTING PRIOR TO DRILLING.
2. IF REQUIRED, INSTALL AND TEST PILES IN ACCORDANCE AASHTO GUIDELINES AS DIRECTED BY THE ENGINEER.
3. ROTARY FLUSH TEMPORARY CASING TO TOP OF ROCK USING AIR OR WATER AS FLUSHING MEDIUM. CARE SHALL BE TAKEN SO MINIMAL LOSS OF MATERIALS OUTSIDE THE THE TEMPORARY CASING OCCURS.
4. USE ROTARY PERCUSSIVE DRILLING TO DRILL ROCK SOCKET TO REQUIRED DEPTH. MINIMUM BOND LENGTH IS 5 FEET INTO COMPETENT ROCK, WITH A MINUMU OVERALL LENGTH OF AT LEAST 15 FT.
5. PLACE GROUT FOR MICROPILES BY TREMIE METHOD FROM BOTTOM OF THE HOLE.
6. FOR SOLID BAR MICROPILES, INSTALL CENTER CORE REINFORCEMENT STEEL (STEEL MAY BE PLACED PRIOR TO OR IMMEDIATELY AFTER GROUTING).
7. CUT TOPS OF PILES TO FINAL ELEVATION AND INSTALL PLATES. FOR MICROPILES AND MICROPILE FOOTING, SEE MICROPILE SLOPE STABILIZATION PROVISION.

CONTRACT NO.: C205017

PREPARED BY:	DATE:
REVIEWED BY:	DATE:

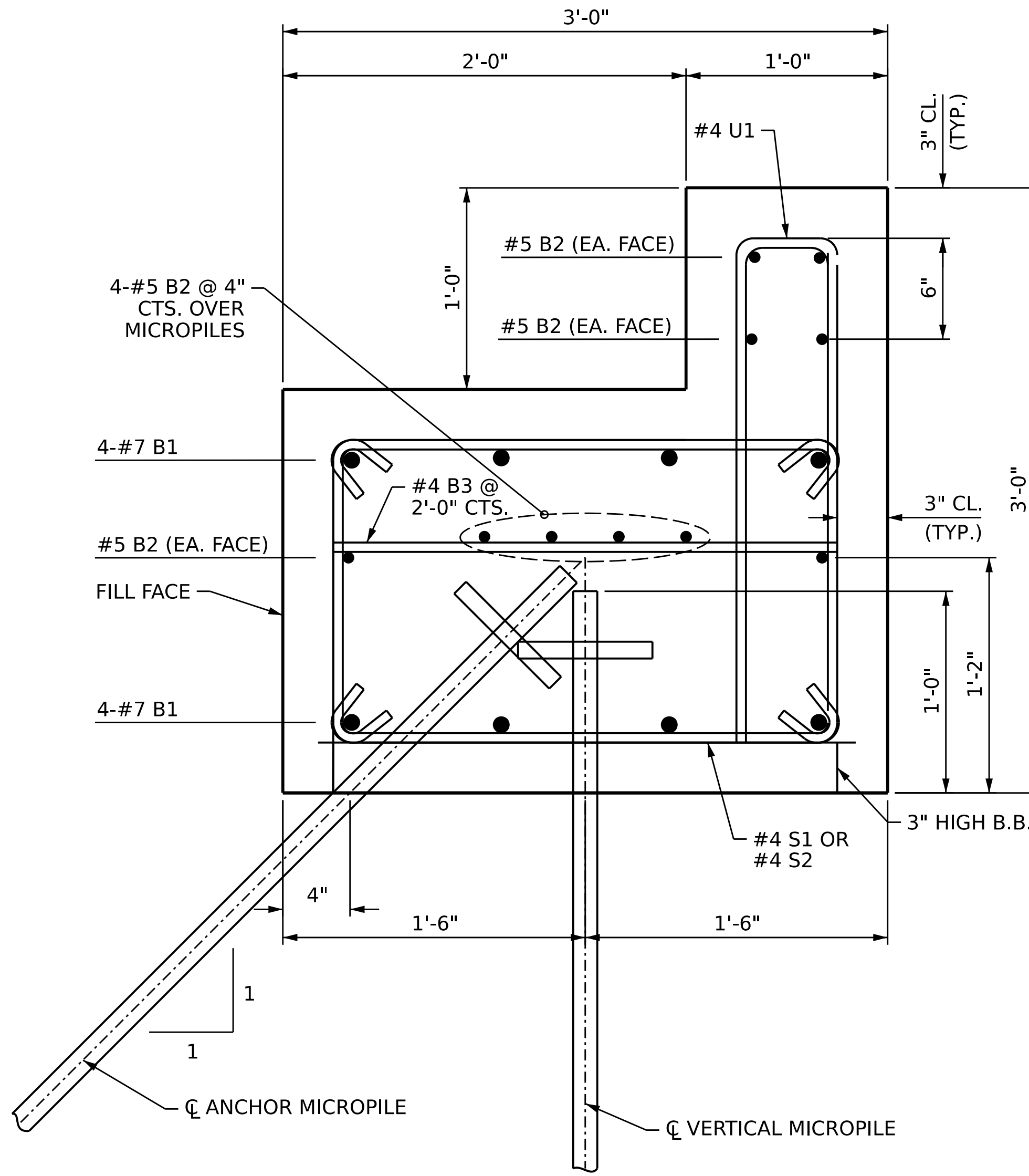
DO NOT USE THESE DETAILS UNLESS DIRECTED BY THE ENGINEER



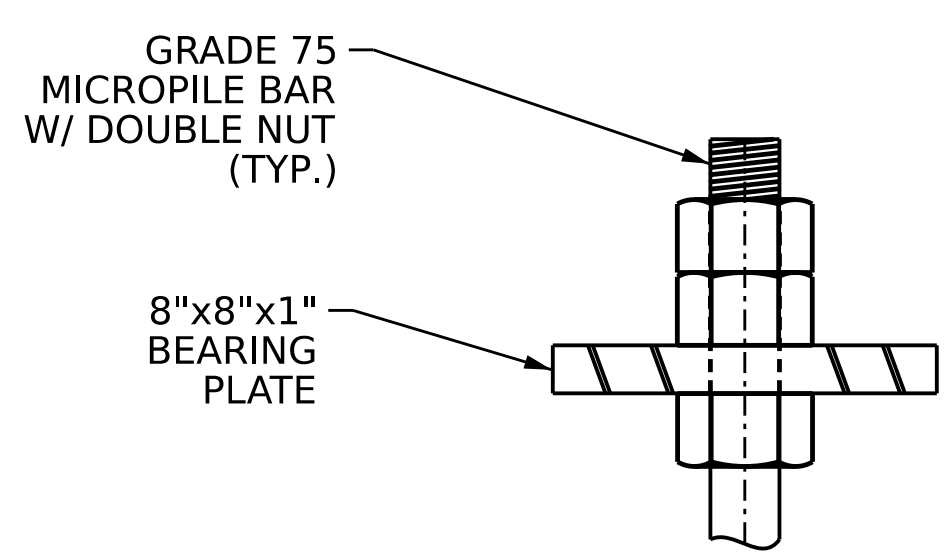
NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL
ENGINEERING UNIT

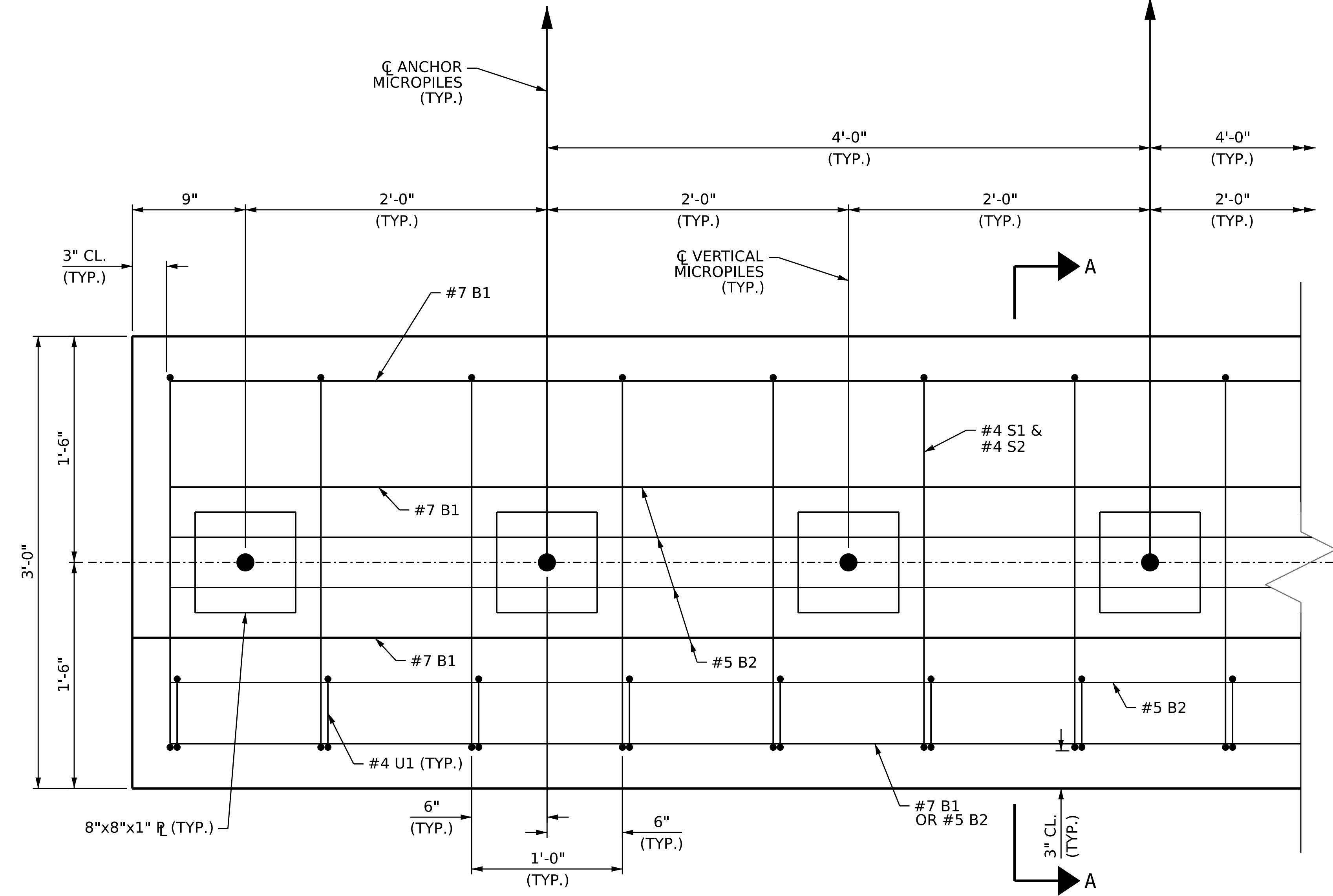
HURRICANE HELENE EMERGENCY REPAIRS					
MICROPILES					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		



SECTION A-A



MICROPILE DETAIL



PLAN

BAR TYPES			
	1	HK.	5 1/2"
	2	HK.	5 1/2"
	3		2'-6"

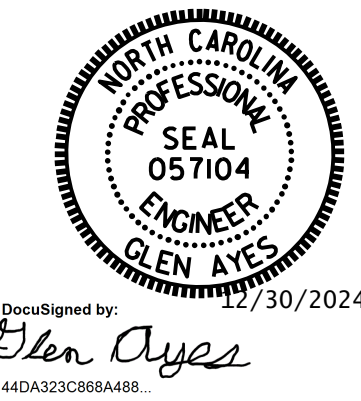
ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL			
BAR	SIZE	TYPE	LENGTH
B1	#7	STR.	-
B2	#5	STR.	-
B3	#4	STR.	2'-6"
S1	#4	1	6'-5"
S2	#4	2	3'-5"
U1	#4	3	5'-6"
REINFORCING STEEL =			45 LBS./LIN.FT.
CLASS A CONCRETE =			0.3 CU.YD./LIN.FT.

NOTES

- DESIGN ASSUMPTIONS:
- ANCHOR/VERTICAL MICROPILE LOAD OF 55 KIPS.
 - VERTICAL LOAD OF 4.6 KIPS/SQFT.
 - LATERAL LOAD OF 4.9 KIPS/SQFT.
- INVERT ALTERNATE STIRRUPS AS SHOWN.
- STIRRUPS MAY BE SHIFTED SLIGHTLY AS NECESSARY TO CLEAR MICROPILES.
- FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE MCP DETAILS.
- BEARING PLATES SHALL BE GRADE 50 STEEL.

CONTRACT NO.: c205017



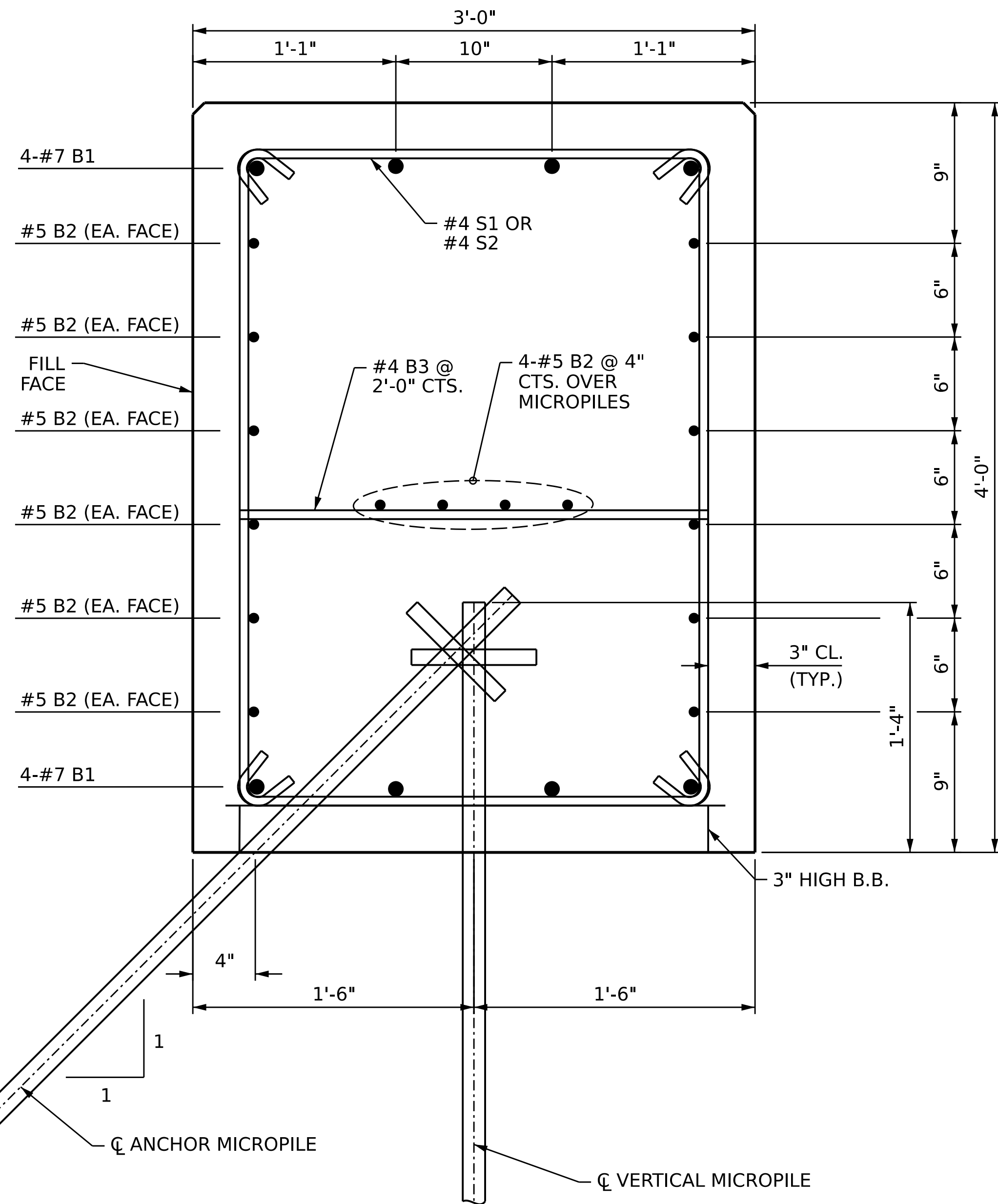
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SLOPE STABILIZATION
2'-0" X 3'-0"
GRADE BEAM

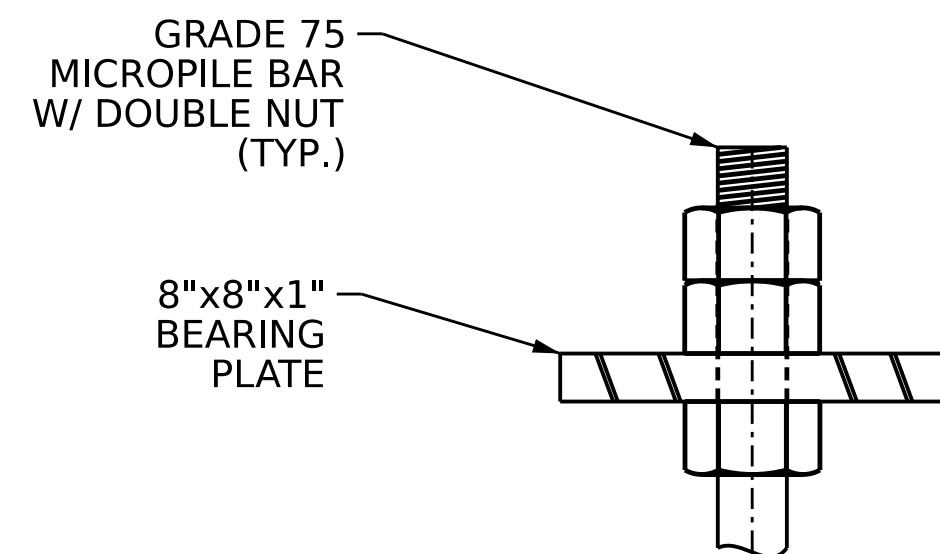
DRAWN BY : NAP DATE : 11/24
CHECKED BY : G. AYES DATE : 11/24
DESIGN ENGINEER OF RECORD : G. AYES DATE : 11/24

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	26-11
1			3			TOTAL SHEETS
2			4			

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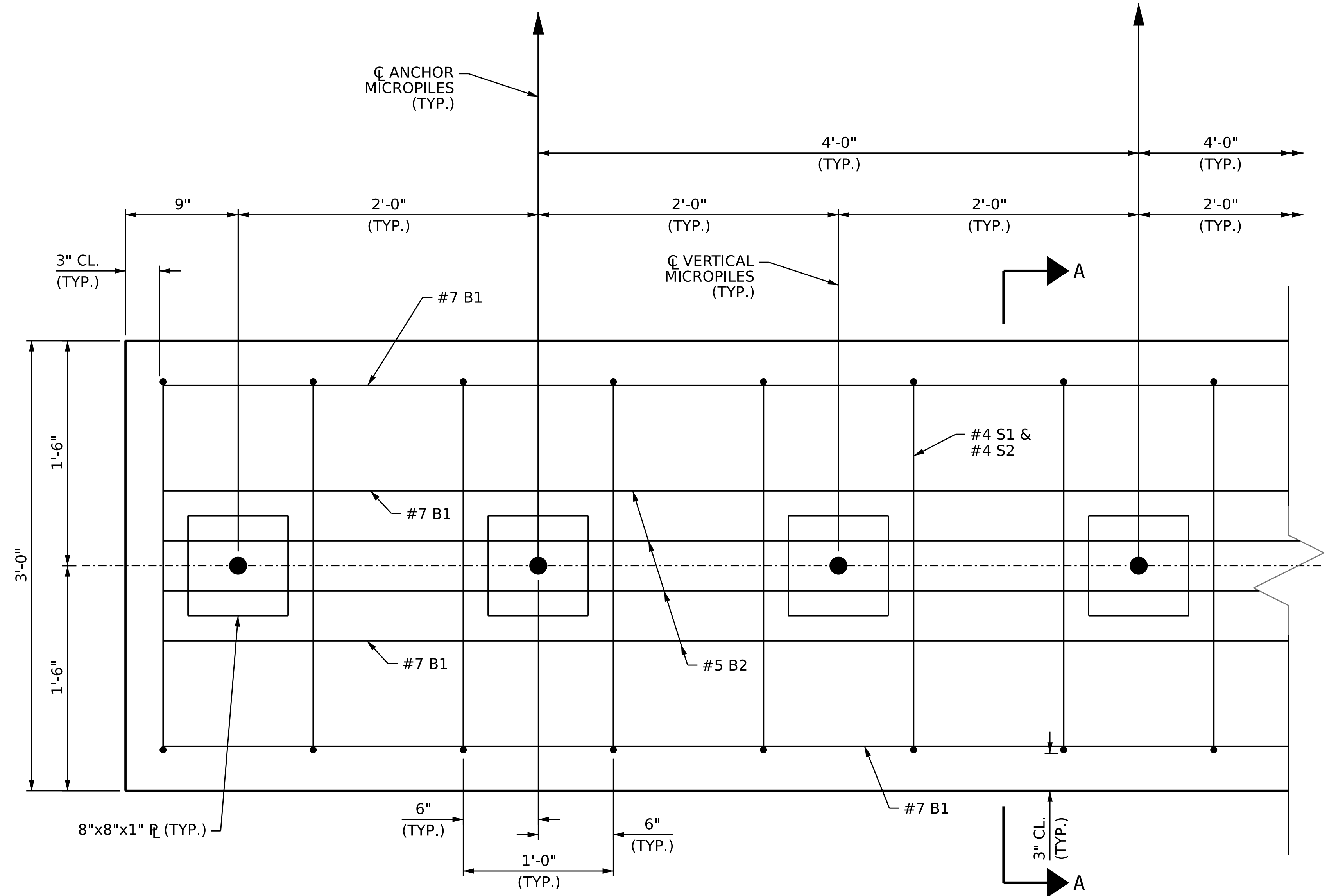


SECTION A-A



MICROPILE DETAIL

BAR TYPES			
	1		
	2		
ALL BAR DIMENSIONS ARE OUT TO OUT			
BILL OF MATERIAL			
BAR	SIZE	TYPE	LENGTH
B1	#7	STR.	-
B2	#5	STR.	-
B3	#4	STR.	2'-6"
-	-	-	-
S1	#4	1	10'-5"
S2	#4	2	3'-5"
REINFORCING STEEL =		53 LBS./LIN.FT.	
CLASS A CONCRETE =		0.4 CU.YD./LIN.FT.	



PLAN

NOTES

DESIGN ASSUMPTIONS:

- ANCHOR/VERTICAL MICROPILE LOAD OF 55 KIPS.
- VERTICAL LOAD OF 4.6 KIPS/SQFT.
- LATERAL LOAD OF 4.9 KIPS/SQFT.

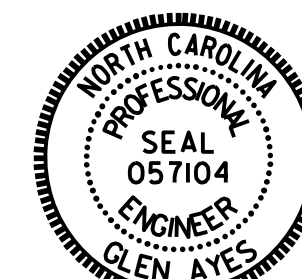
INVERT ALTERNATE STIRRUPS AS SHOWN.

STIRRUPS MAY BE SHIFTED SLIGHTLY AS NECESSARY TO CLEAR MICROPILES.

FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE MCP DETAILS.

BEARING PLATES SHALL BE GRADE 50 STEEL.

CONTRACT NO.: c205017



DocuSigned by:
Glen Ayes
12/30/2024

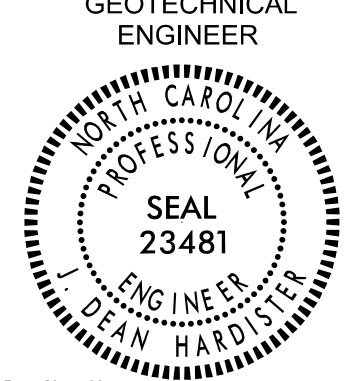
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

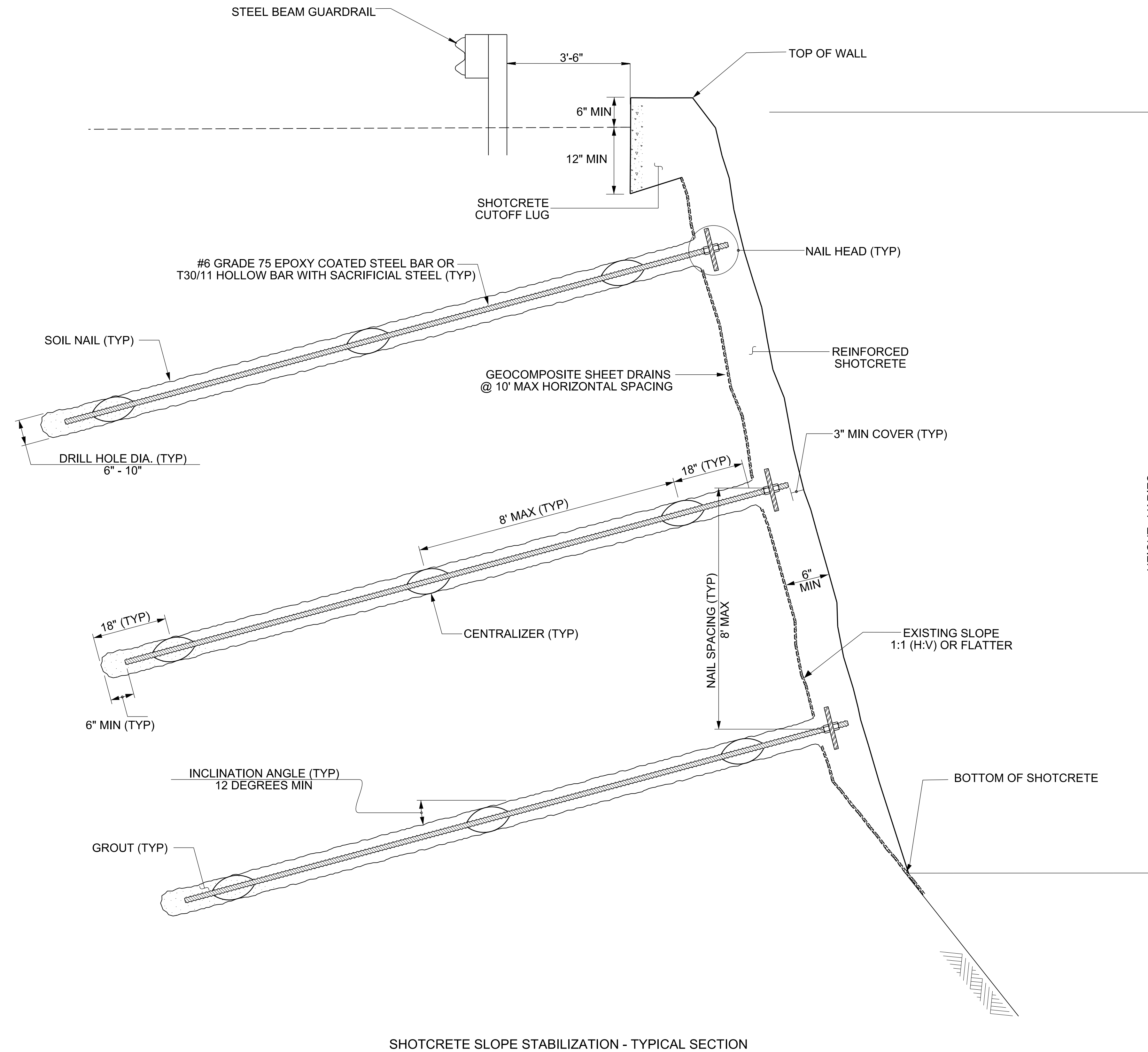
**SLOPE STABILIZATION
KNEE WALL**

DRAWN BY : NAP DATE : 11/24
CHECKED BY : G. AYES DATE : 11/24
DESIGN ENGINEER OF RECORD : G. AYES DATE : 11/24

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REVISIONS						SHEET NO. 26-10 TOTAL SHEETS
NO.	BY:	DATE:	NO.	BY:	DATE:	
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2			4			

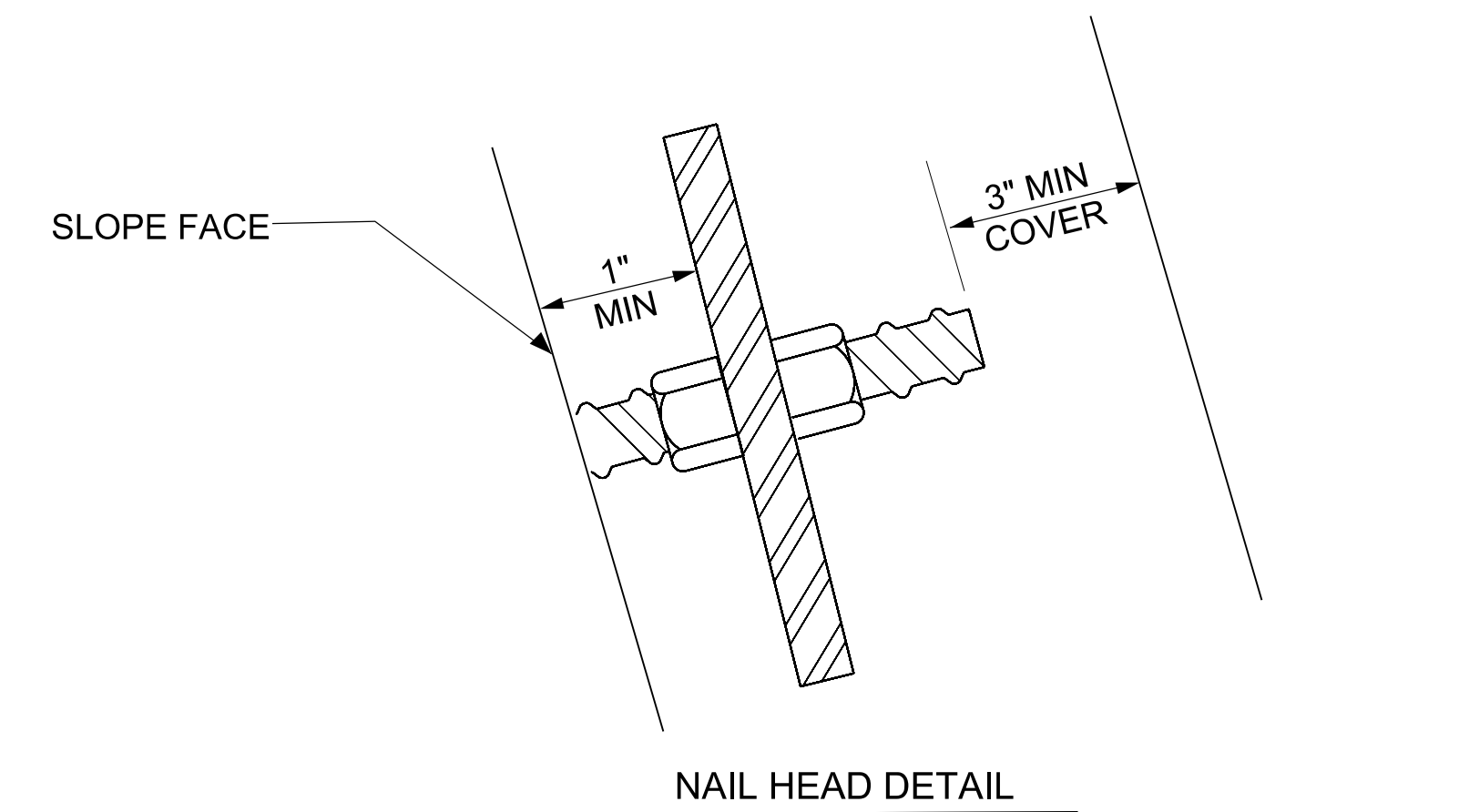
GEOTECHNICAL ENGINEER  SEAL 23481 DEAN HARDISTER ENGINEER		ENGINEER
DocuSigned by: Dean Hardister SIGNATURE	11/13/2024 DATE	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		



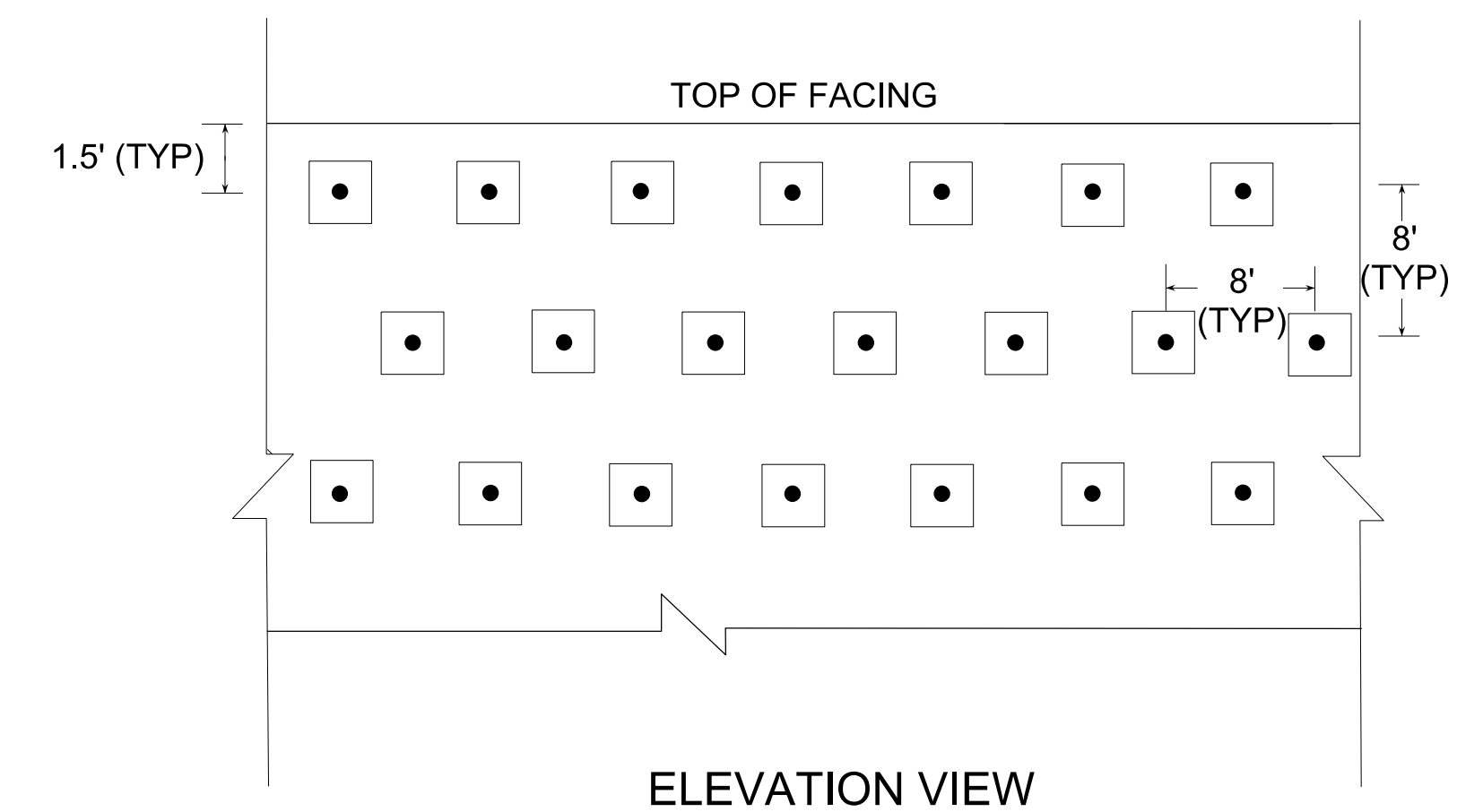
SHOTCRETE SLOPE STABILIZATION - TYPICAL SECTION

NOTES:

- 1) FOR SHOTCRETE SLOPE STABILIZATION, SEE PROVISION.
- 2) SOIL NAIL AVERAGE LENGTH = 15 FEET.
- 3) SOIL NAIL SHALL BE #6 GRADE 75 EPOXY COATED STEEL BAR OR T30/11 HOLLOW BAR.
- 4) DESIGN FACING FOR MAXIMUM T_o OF 15 KIPS.
- 5) FOR TESTING, REQUIRED PROOF TEST LOAD = BONDED LENGTH (FT) x 2.4 KIPS/FT x 0.75.
- 6) IF GUARDRAIL IS CLOSER THAN SHOWN, CONTACT THE ENGINEER.



NAIL HEAD DETAIL

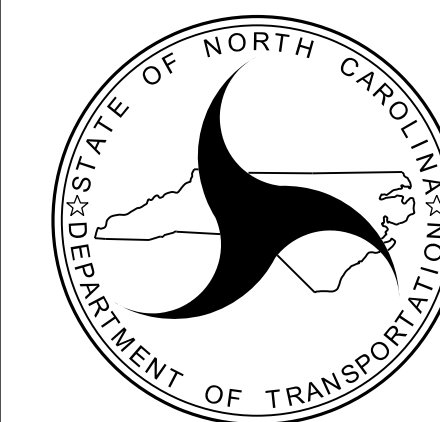


ELEVATION VIEW

CONTRACT NO.: C205017

PREPARED BY: DP	DATE: 10/24
REVIEWED BY: _	DATE: _

DO NOT USE THESE DETAILS UNLESS DIRECTED BY THE ENGINEER



NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL
ENGINEERING UNIT

HURRICANE HELENE EMERGENCY REPAIRS
SHOTCRETE SLOPE STABILIZATION

REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1	-	-	3	-	-
2	-	-	4	-	-