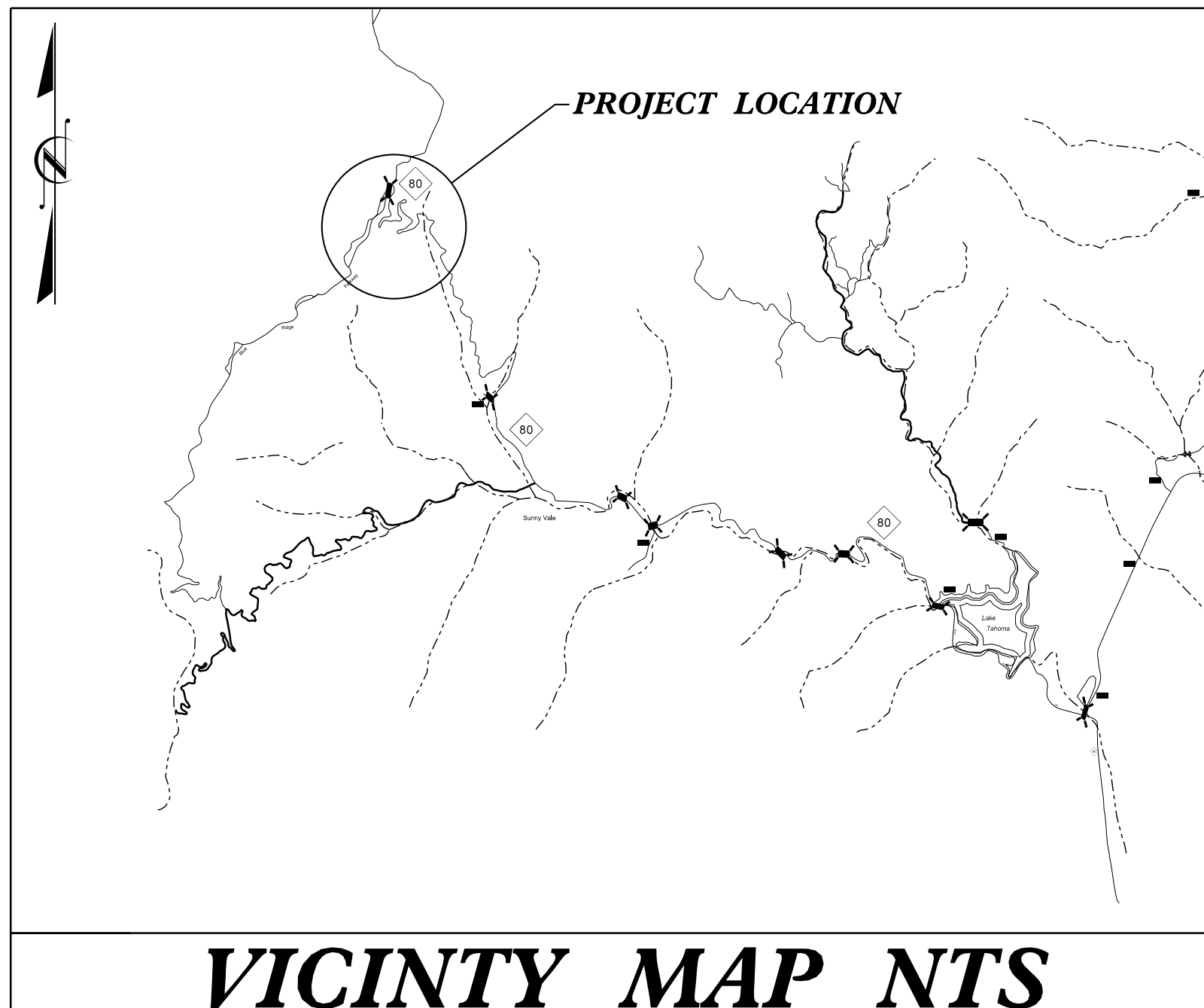


09.08/99

TIP PROJECT: 18313.1059124

CONTRACT: C205062

See Sheet 1A For Index of Sheets



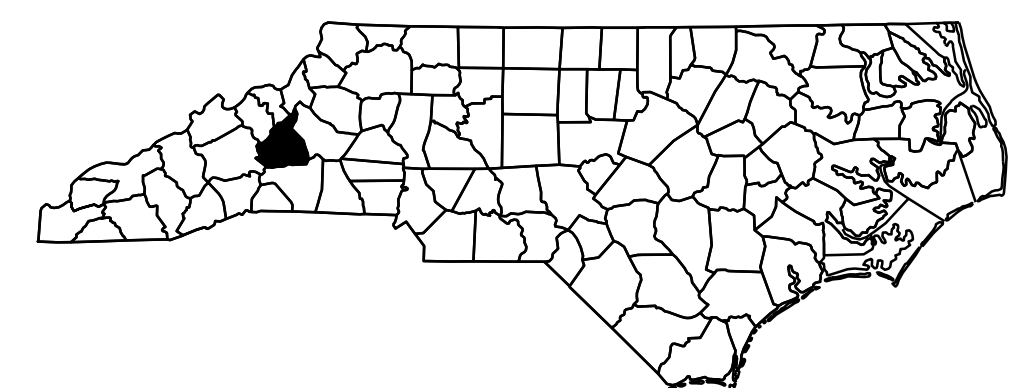
STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS

MCDOWELL COUNTY

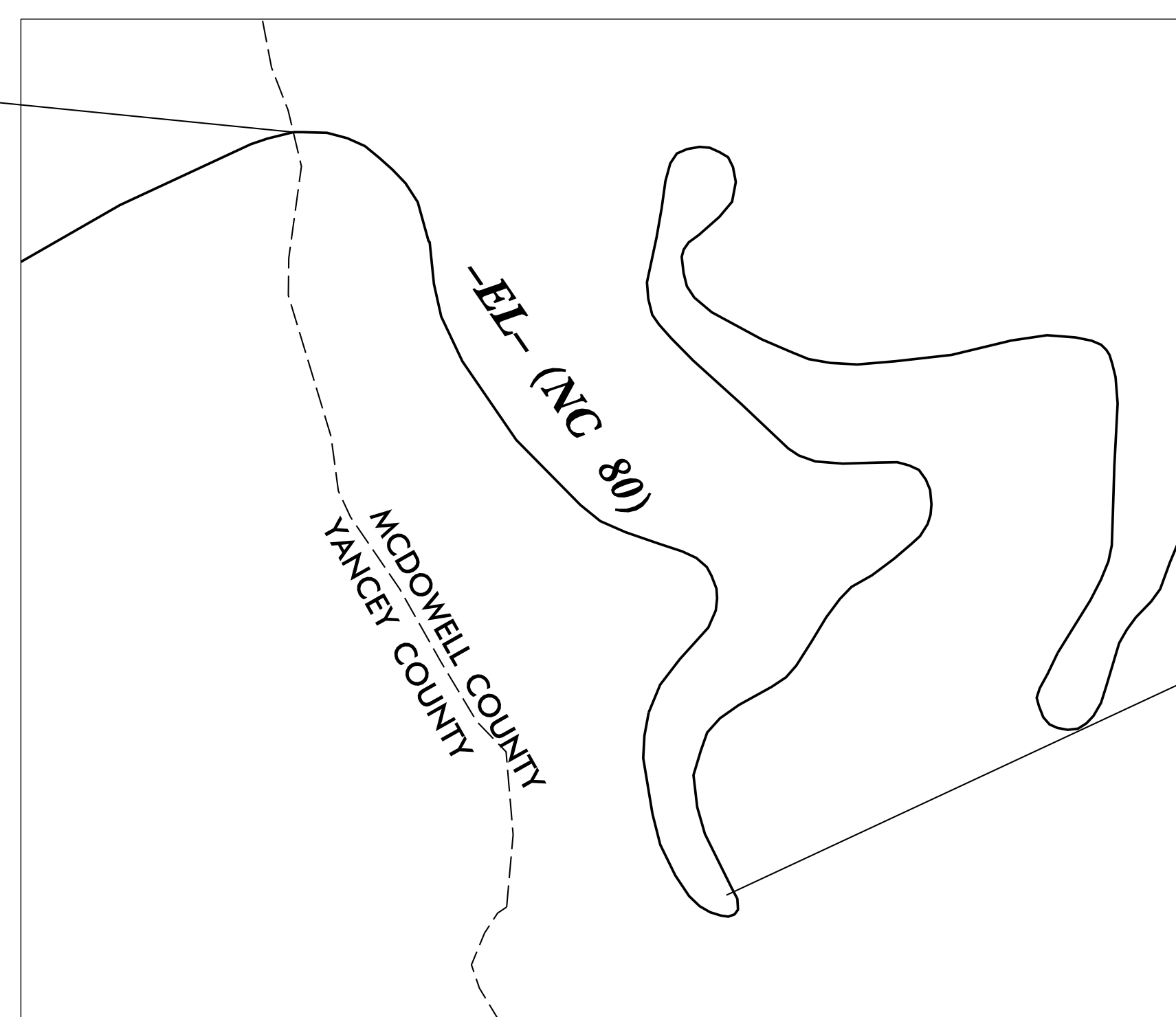
**LOCATION: NC 80 FROM YANCEY COUNTY LINE
 TO MILE POST 11.77 ON NC 80**

TYPE OF WORK: PAVING, GUARDRAIL, AND ROCK EMBANKMENTS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	18313.1059124	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
18313.1059124		CONST.	
18313.1059125		CONST.	
18313.1059126		CONST.	
18313.1059127		CONST.	

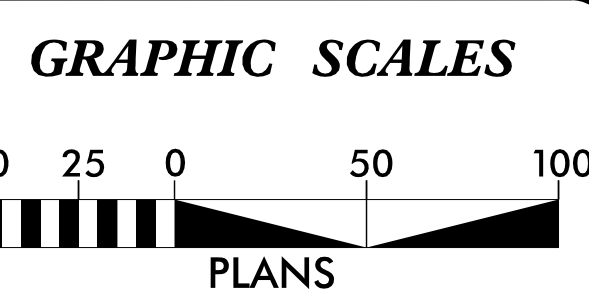


**BEGIN PROJECT
 -EL- MILE POST 12.11**



**END PROJECT
 -EL- MILE POST 11.77**

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED



Prepared In the Office of:
DIVISION OF HIGHWAYS
 55 ORANAGE ST. ASHEVILLE, NC 28801

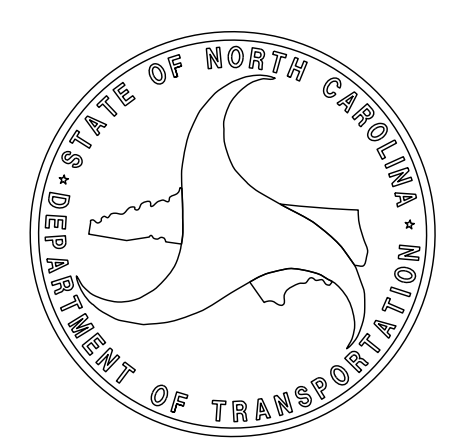
2024 STANDARD SPECIFICATIONS	
RIGHT OF WAY DATE:	PROJECT ENGINEER
LETTING DATE: FEBRUARY 18, 2025	PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

 SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

 SIGNATURE: P.E.

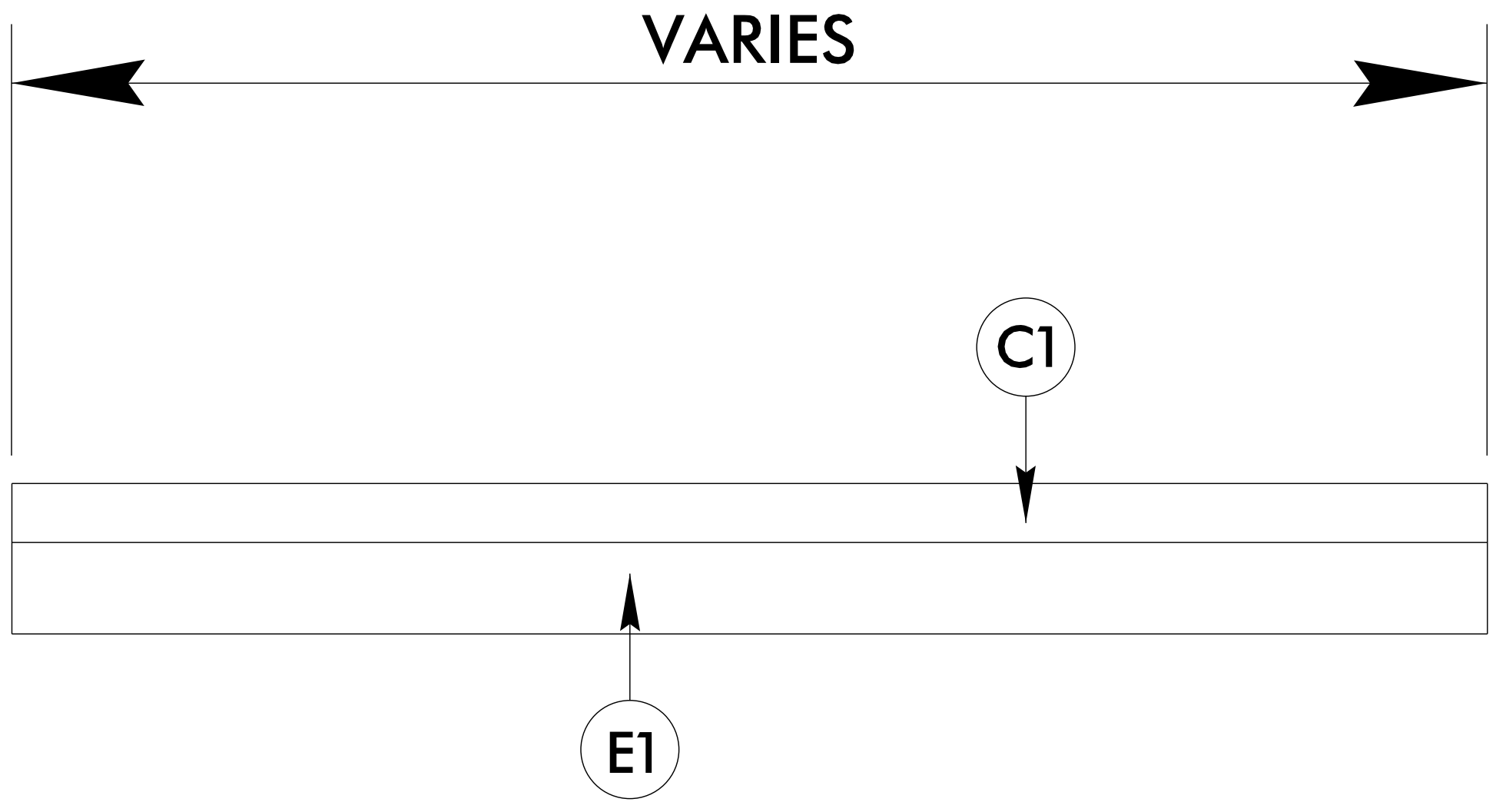


27-JAN-2025 11:04
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 \$\$\$SERNAME\$\$\$

6/2/99

PROJECT REFERENCE NO. 18313.1059124	SHEET NO. 2A-1
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

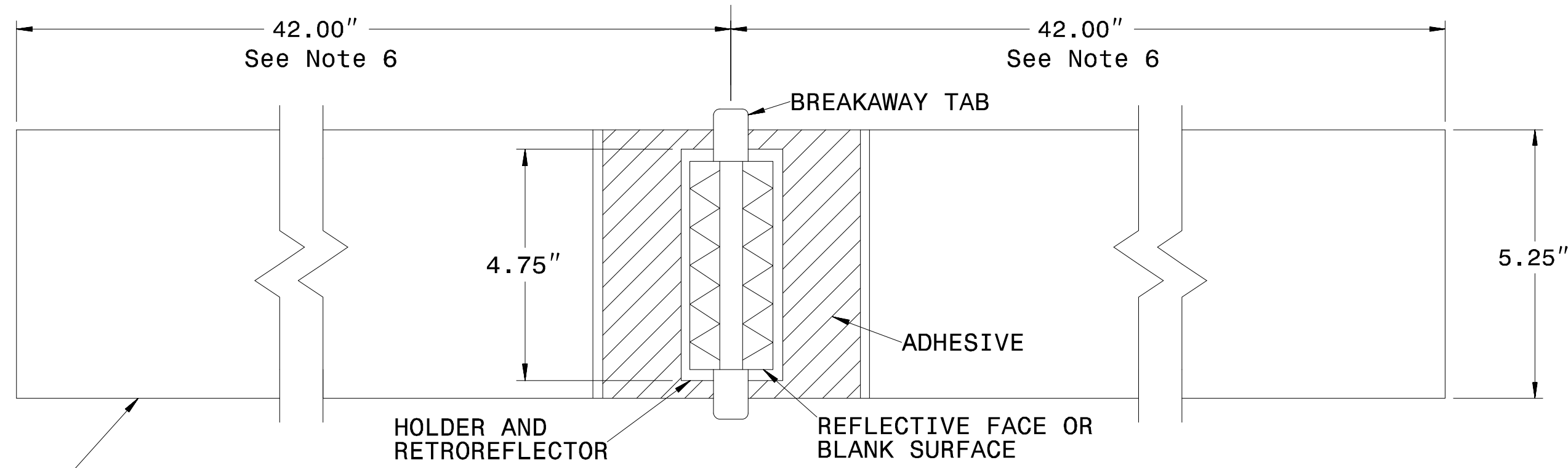
**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**



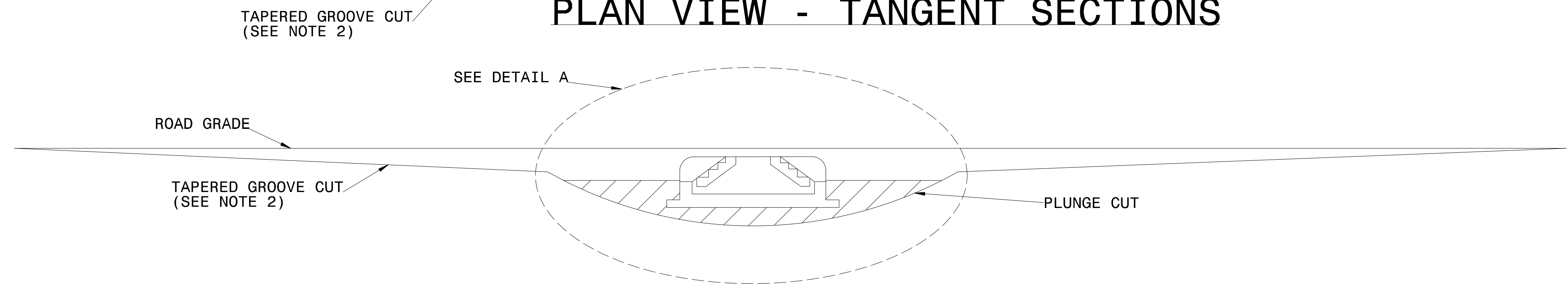
TYPICAL SECTION NO. 1

ITEM NO.	DESCRIPTION
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 336 LBS. PER SQ. YARD
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.

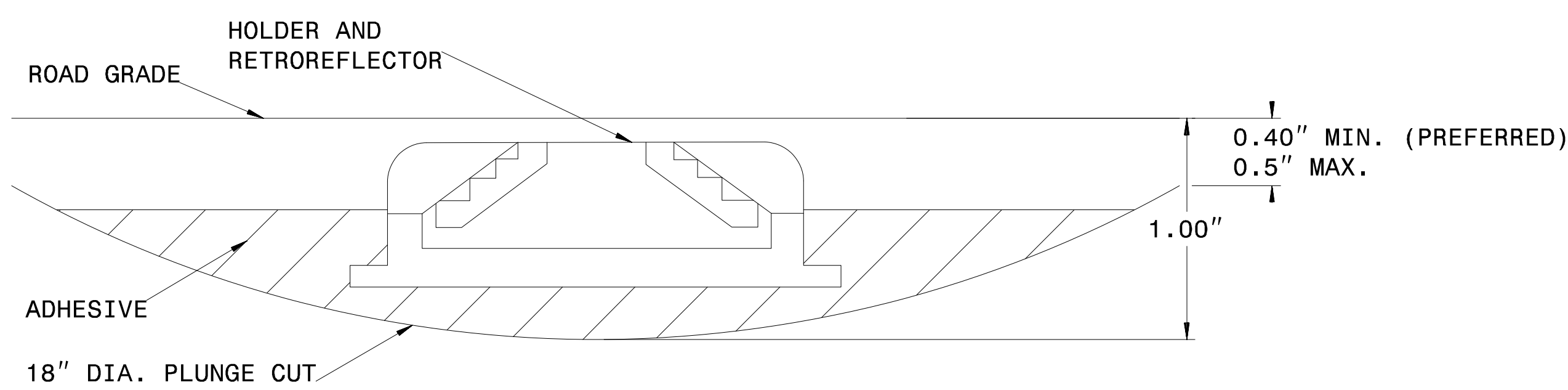
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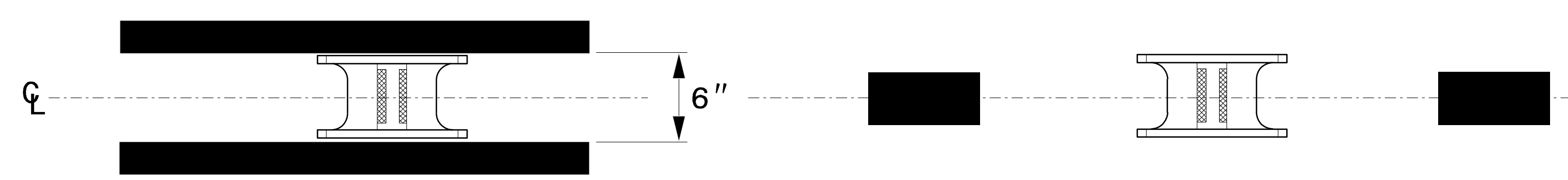
PLAN VIEW - TANGENT SECTIONS



PROFILE VIEW



DETAIL A



MARKER SPACING

NOTES:

1. ALL GROOVE EDGES SHALL BE AT LEAST 2 INCHES FROM ANY SEAM OR PAVEMENT JOINT
2. GROOVE CUTS MAY BE TAPERED OR BEVELED. TAPERED CUTS SHALL START AT ROAD LEVEL ON EACH END AND TAPER AT A FIXED RATE AS SHOWN ON THE PROFILE VIEW. BEVELED GROOVE CUTS SHALL BE 0.5" MAXIMUM DEPTH (0.4" PREFERRED), AND SHALL BE 0.4" MINIMUM DEPTH AT BOTH ENDS OF THE PLUNGE CUT.
3. GROOVE AND PLUNGE CUT SHALL BE CLEAN AND DRY PRIOR TO PLACEMENT OF ADHESIVE.
4. THE EPOXY ADHESIVE SHALL BE THOROUGHLY MIXED UNTIL IT IS UNIFORM IN COLOR, AND APPLIED IN COLOR, AND APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
5. MARKER SHALL BE INSTALLED AS PER MANUFACTURER'S INSTALLATION INSTRUCTIONS WITH THE BREAKWAY TABS RESTING ON THE PAVEMENT SURFACE. THE EPOXY SHALL BE FILLED TO THE LEVEL OF THE TOP OF THE MARKER HOLDER. EPOXY SHALL NOT TOUCH THE RETROREFLECTOR.
6. TOTAL GROOVE LENGTH MAY BE SHORTENED TO 54" ON SHARP CURVES IF APPROVED BY THE ENGINEER. GROOVES SHALL NOT OVERLAP WITH LOOP DETECTOR WIRES.

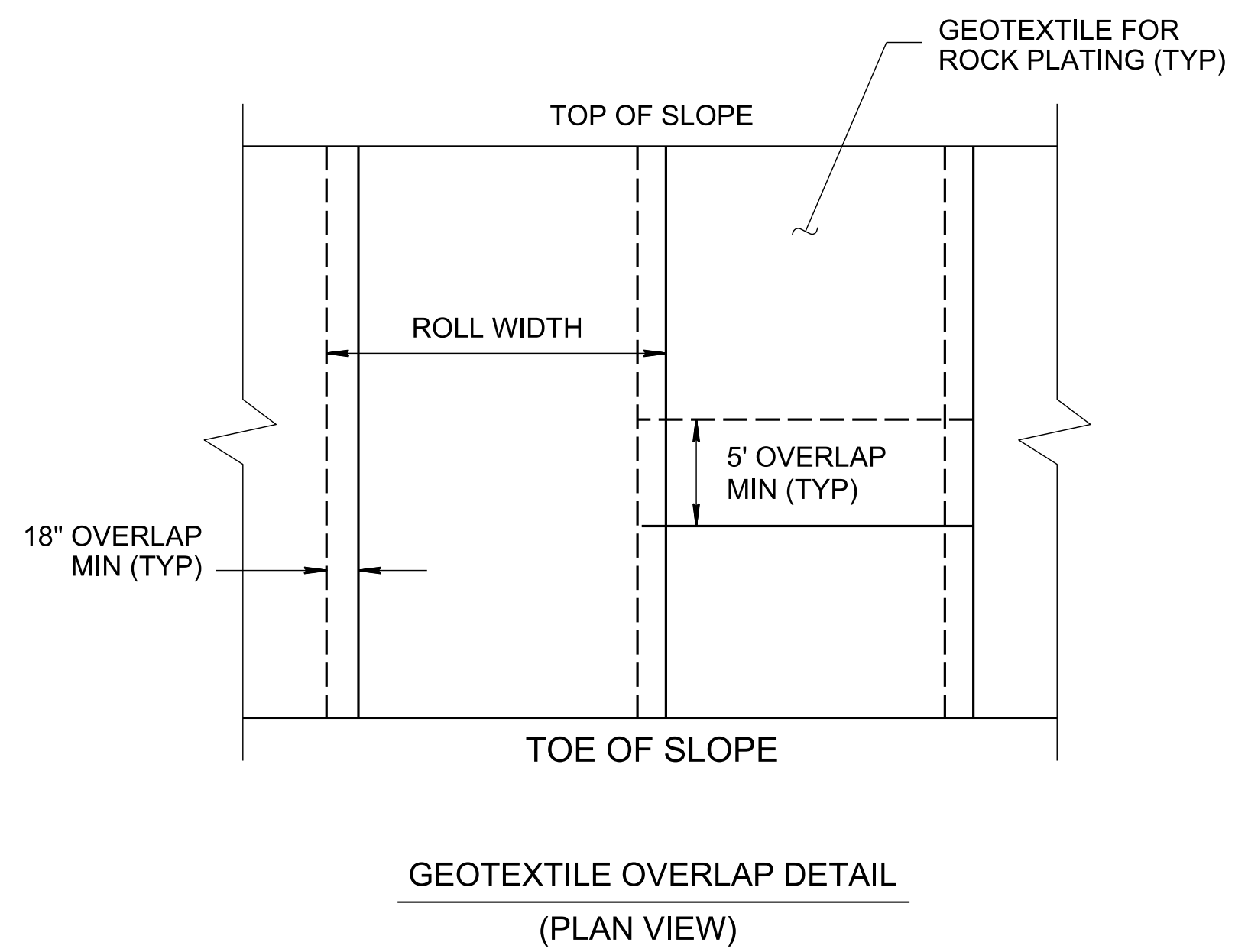
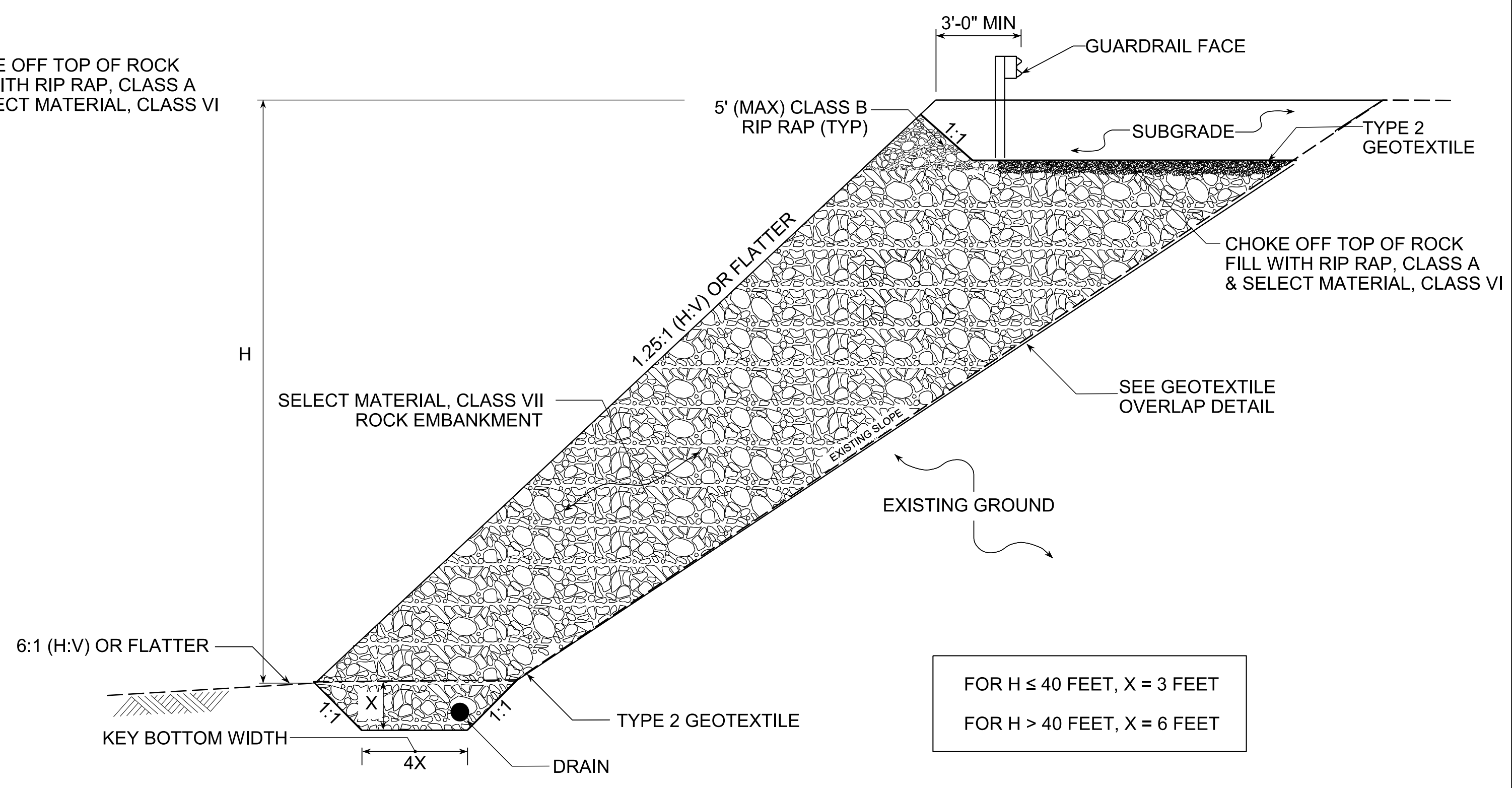
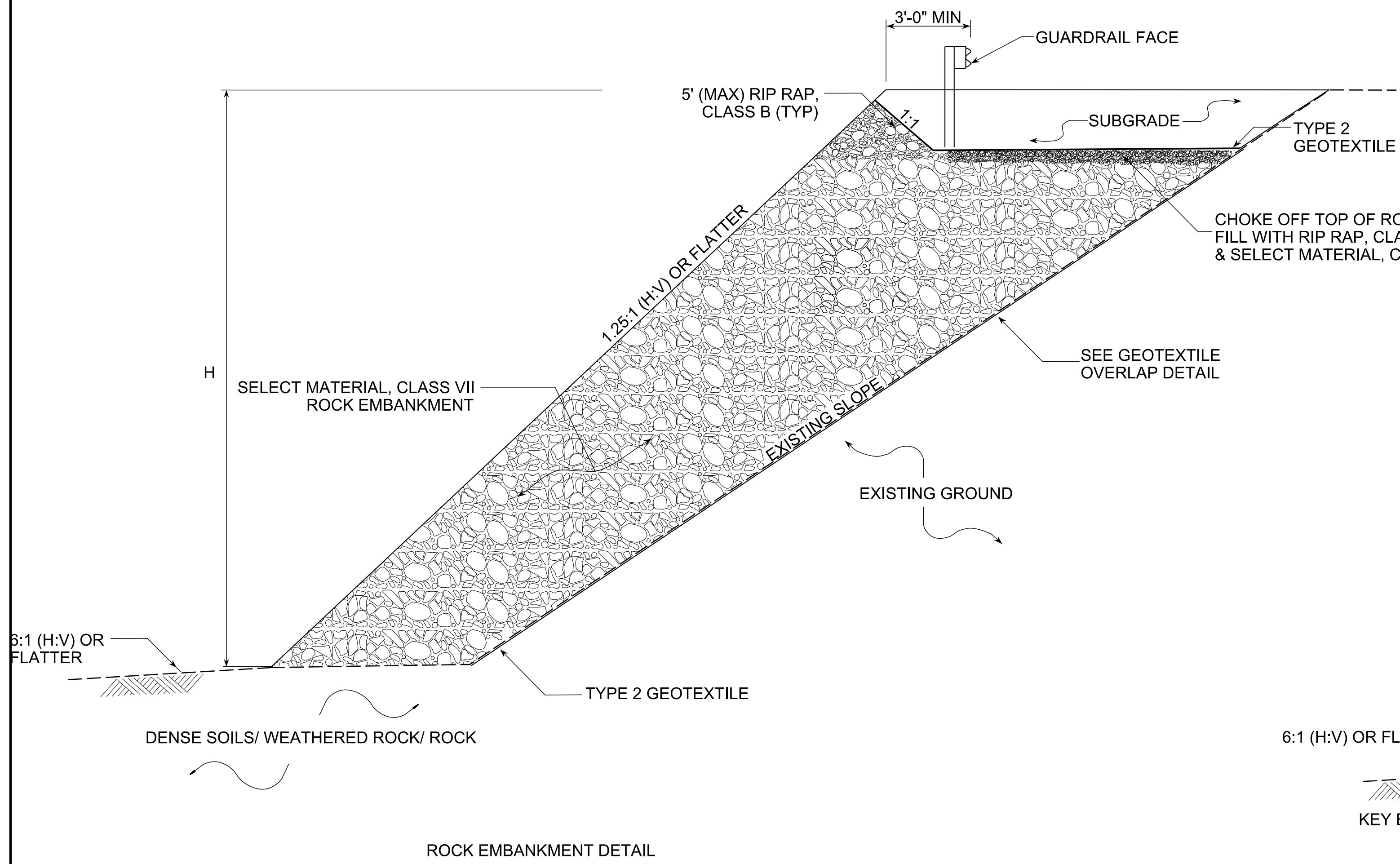


Signed by:
Matthew V. Springer, PE
BC000688884403

CONTRACTS STANDARDS AND DEVELOPMENT UNIT
Office 919-707-8950 FAX 919-250-4119

DETAIL OF INLAID CRADLE MARKER

ORIGINAL BY: rgwatson	DATE: 02-06-2024
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC.:	

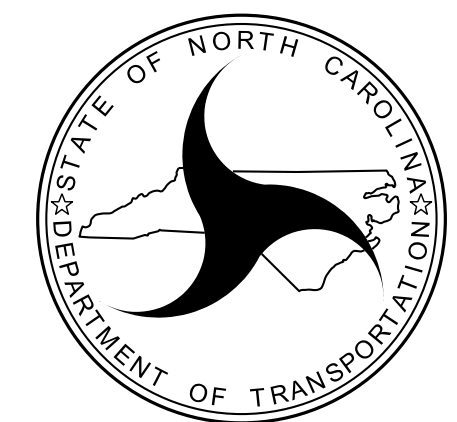


- NOTES:**
1. THE MAXIMUM ALLOWABLE HEIGHT FOR THE ROCK EMBANKMENT DETAIL IS 80'.
 2. FOR ROCK EMBANKMENT, BENCH EXISTING SLOPE IN ACCORDANCE WITH SECTION 235 OF THE STANDARD SPECIFICATIONS, WHERE POSSIBLE.

CONTRACT NO.: C205062

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

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

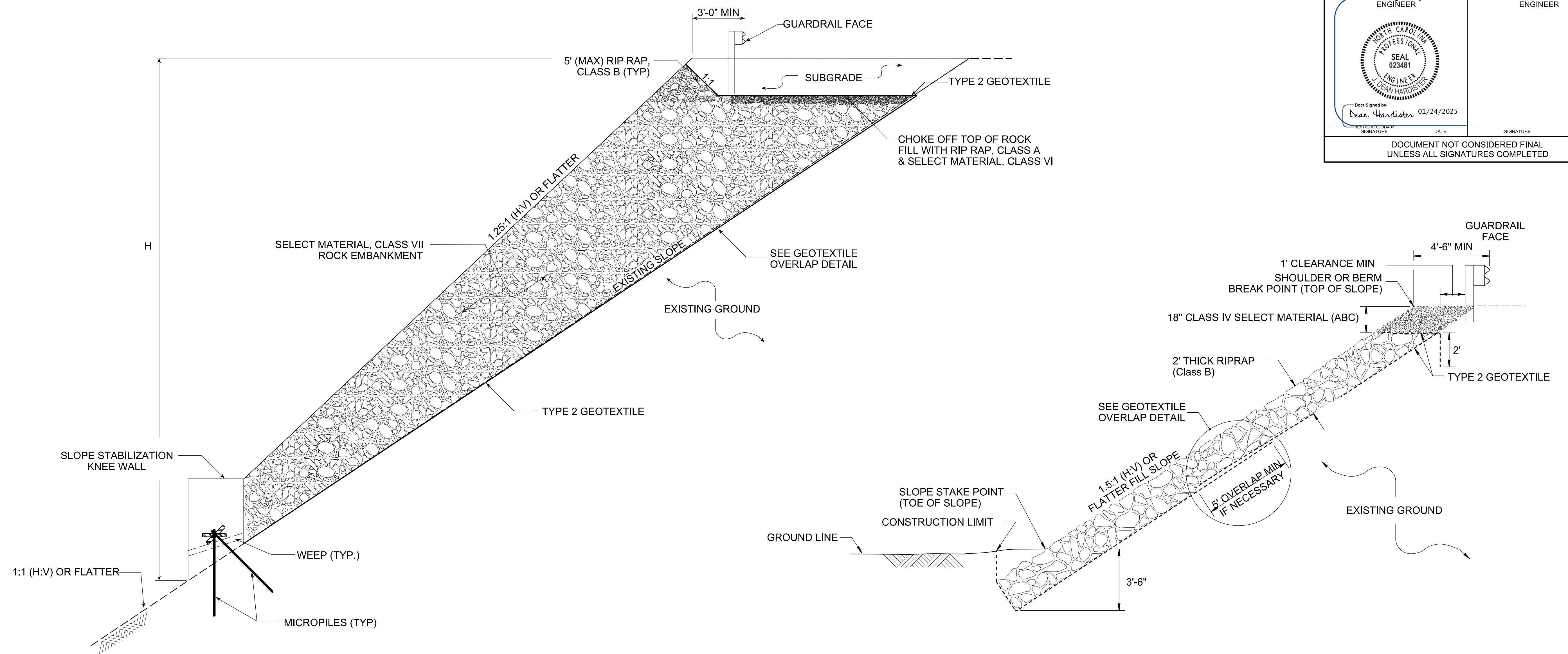
GEOTECHNICAL ENGINEER

ENGINEER

DocuSigned by: *Dean Hardister* 01/24/2025

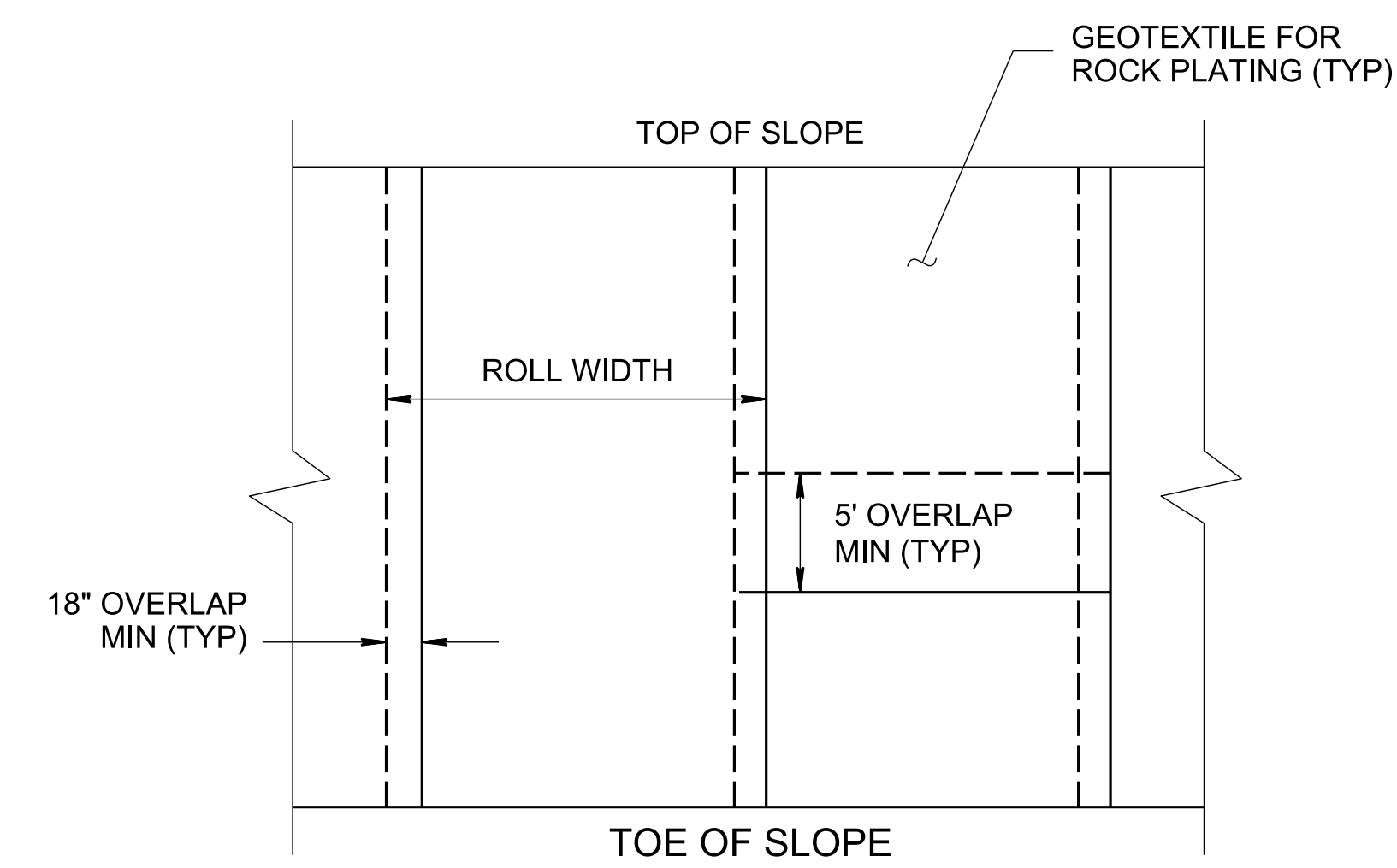
SIGNATURE DATE SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



ROCK EMBANKMENT DETAIL WITH MICROPILE KNEEWALL DETAIL

ROCK PLATING DETAIL



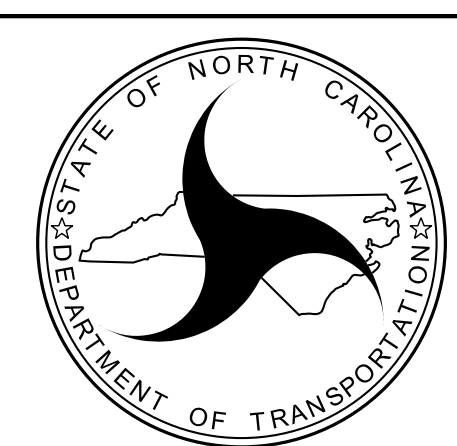
GEOTEXTILE OVERLAP DETAIL (PLAN VIEW)

NOTES:

1. THE MAXIMUM ALLOWABLE HEIGHT FOR THE ROCK EMBANKMENT DETAIL IS 80'.
2. FOR ROCK EMBANKMENT, BENCH EXISTING SLOPE IN ACCORDANCE WITH SECTION 235 OF THE STANDARD SPECIFICATIONS, WHERE POSSIBLE.
3. FOR ROCK PLATING, SEE SECTION 275 OF THE STANDARD SPECIFICATIONS.
4. FOR MICROPILE KNEE WALL, SEE MICROPILE AND KNEE WALL DETAILS AND PROVISIONS.
5. ESTIMATED MICROPILE AVERAGE LENGTH FOR KNEE WALL = 15'
6. MINIMUM MICROPILE ROCK BOND LENGTH = 5'

DO NOT USE THESE DETAILS UNLESS DIRECTED BY THE ENGINEER

CONTRACT NO.: C205062



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

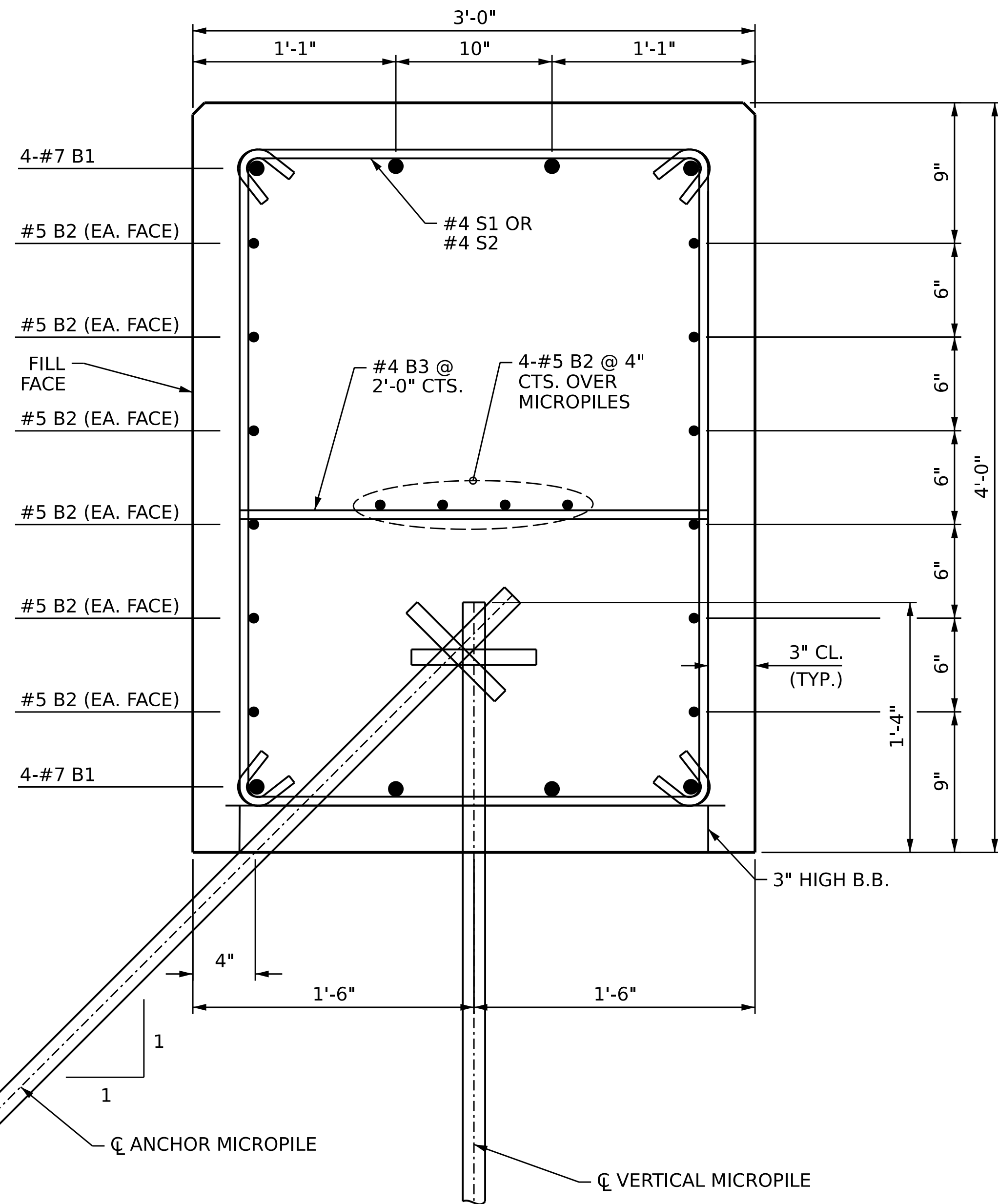
HURRICANE HELENE EMERGENCY REPAIRS

ROCK EMBANKMENT

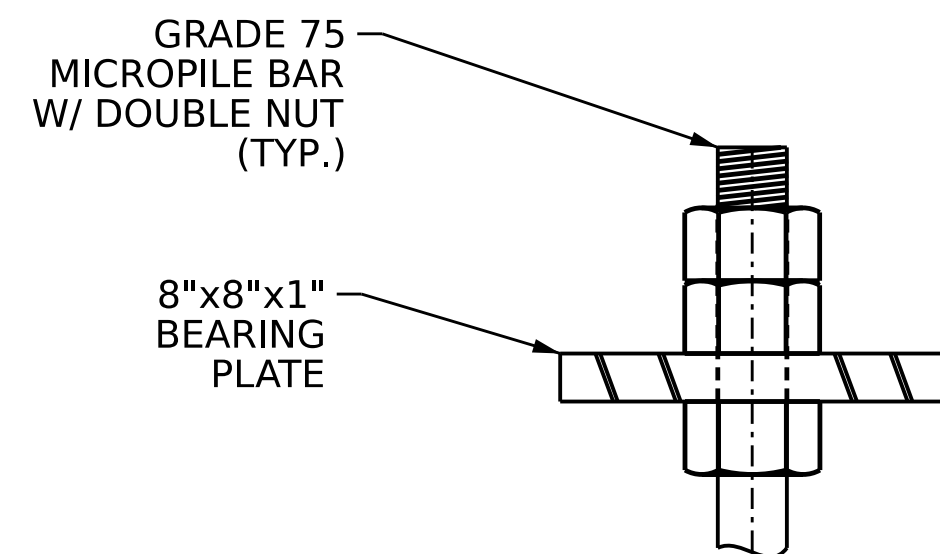
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

SHEET NO. 2G-2

PREPARED BY:	DATE:
REVIEWED BY:	DATE:



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.	

NOTES

DESIGN ASSUMPTIONS:

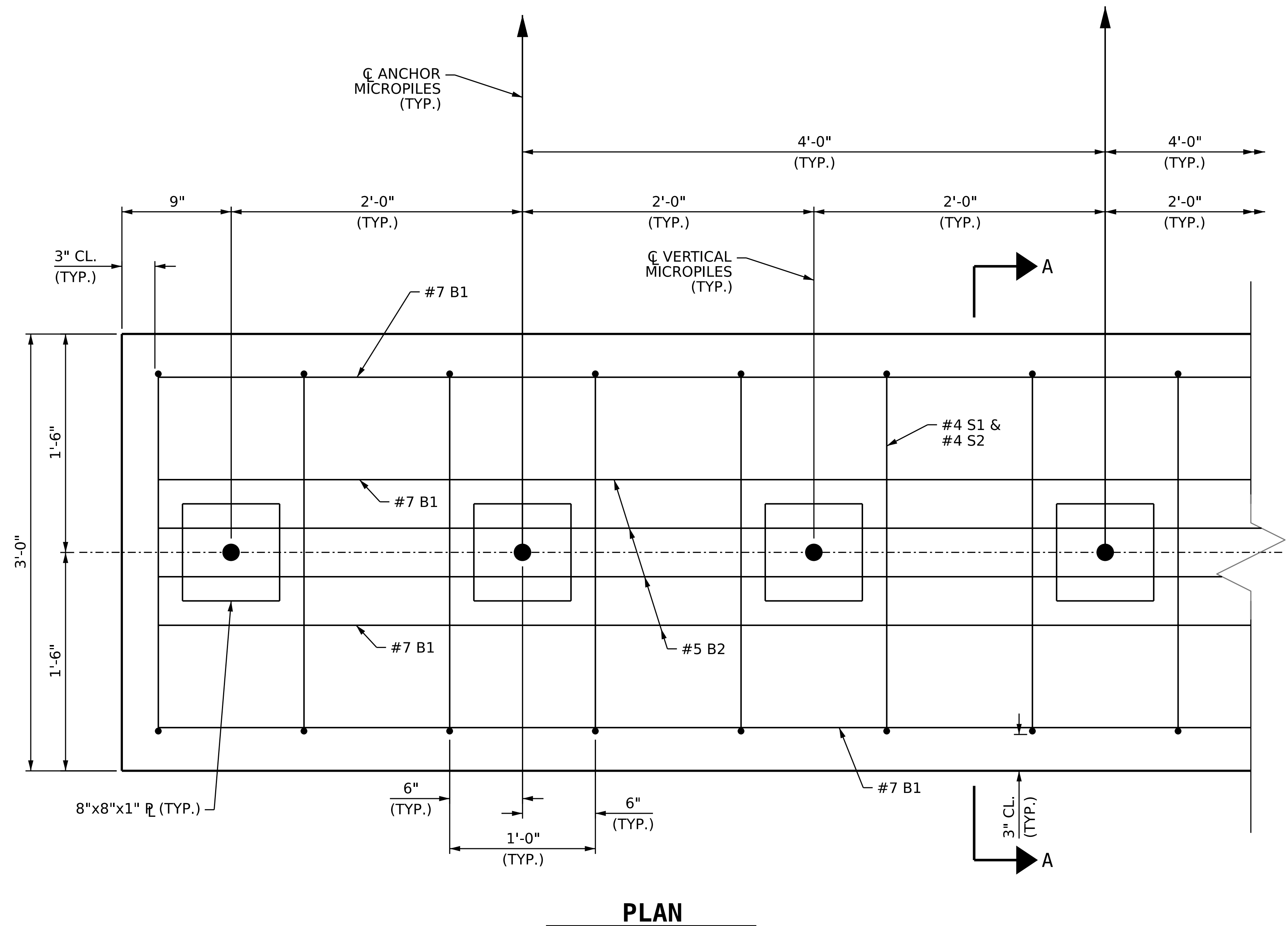
- ANCHOR/VERTICAL MICROPILE LOAD OF 55 KIPS.
- VERTICAL LOAD OF 4.6 KIPS/SQFT.
- LATERAL LOAD OF 4.9 KIPS/SQFT.

INVERT ALTERNATE STIRRUPS AS SHOWN.

STIRRUPS MAY BE SHIFTED SLIGHTLY AS NECESSARY TO CLEAR MICROPILES.

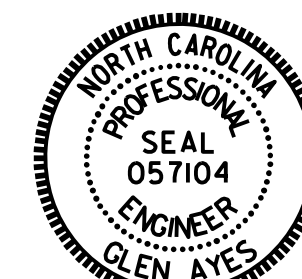
FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE MCP DETAILS.

BEARING PLATES SHALL BE GRADE 50 STEEL.



PLAN

CONTRACT NO.: C205062



01/22/2025
Glen Ayes
44DA323C68A488

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

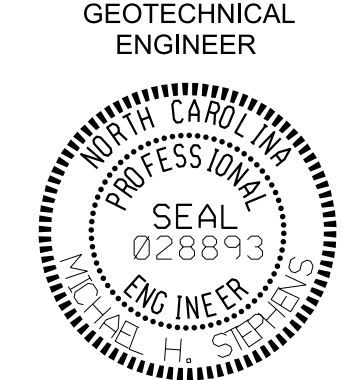
**SLOPE STABILIZATION
KNEE WALL**

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

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

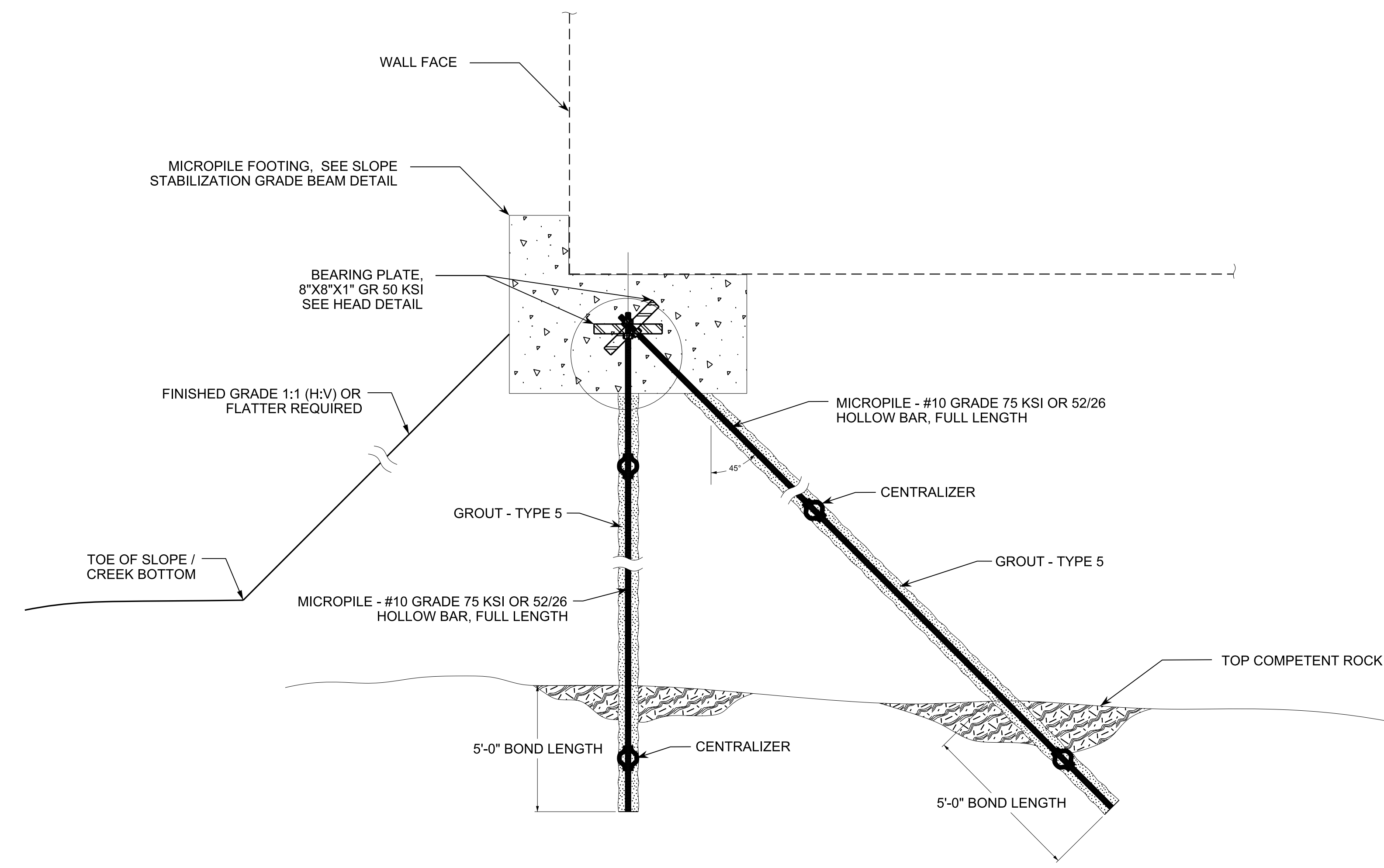
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CHECKED BY : G. AYES DATE : 11/24
DESIGN ENGINEER OF RECORD : G. AYES DATE : 11/24

ENGINEER

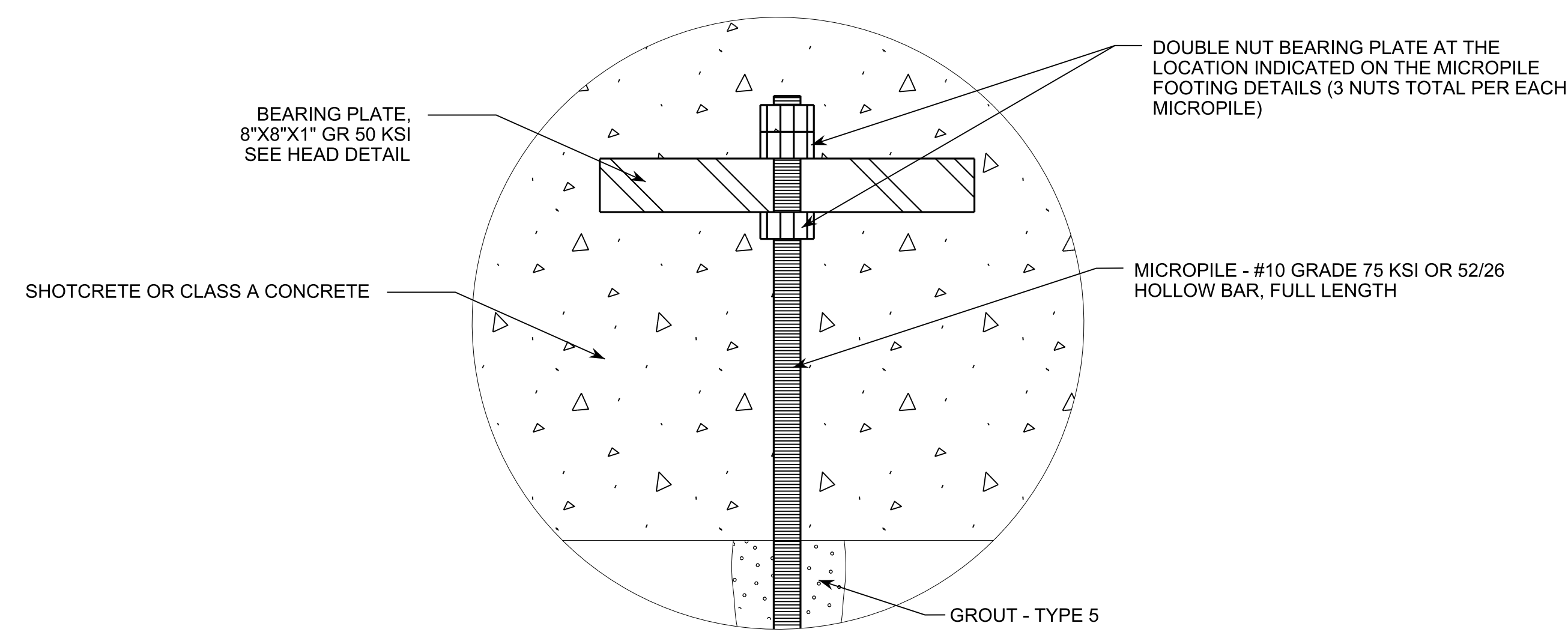


Signed by: *H. Stein* 01/22/2025
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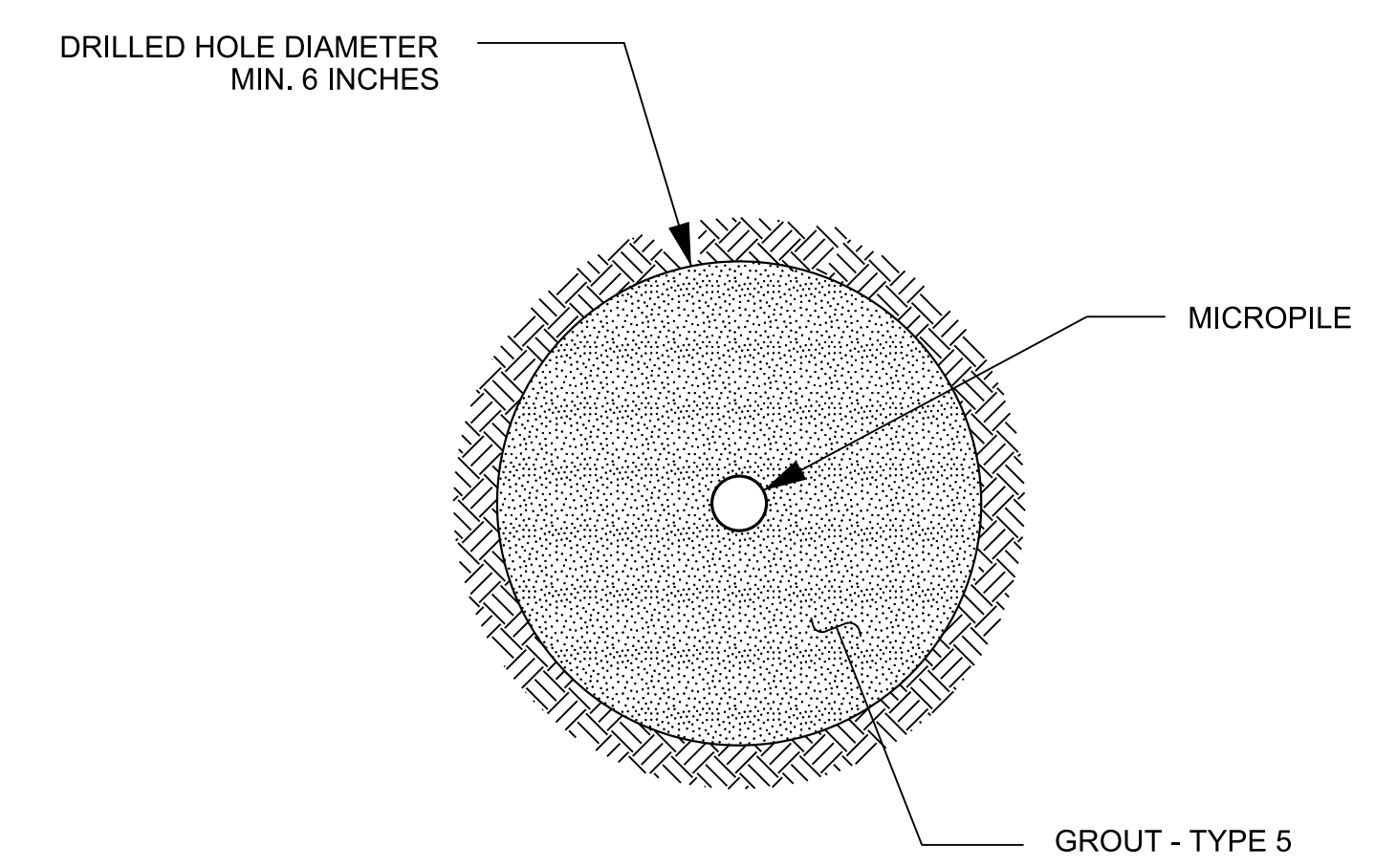
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



MICROPILE DETAIL



MICROPILE HEAD DETAIL



MICROPILE SECTION

NOTES:

GENERAL NOTES:

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.

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:

FOR MICROPILE USE TYPE 5 GROUT, SEE SECTION 1003 OF THE STANDARD SPECIFICATIONS.

PROVIDE STEEL PLATES THAT MEET ASTM A572 GRADE 50 KSI.

ALL THREAD MICROPILE REINFORCEMENT SHALL BE MINIMUM GRADE 75 KSI.

MICROPILE NUTS WILL BE MANUFACTURED BY THE BAR MANUFACTURER AND COMPATIBLE WITH THE BAR TYPE SPECIFIED.

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:

WHERE POSSIBLE LEVEL AREA OF MICROPILE FOOTING PRIOR TO DRILLING.

IF REQUIRED, INSTALL AND TEST PILES IN ACCORDANCE AASHTO GUIDELINES AS DIRECTED BY THE ENGINEER.

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.

USE ROTARY PERCUSSIVE DRILLING TO DRILL ROCK SOCKET TO REQUIRED DEPTH. MINIMUM BOND LENGTH IS 5 FEET INTO COMPETENT ROCK, WITH A MINIMUM OVERALL LENGTH OF AT LEAST 10 FT.

PLACE GROUT FOR MICROPILES BY TREMIE METHOD FROM BOTTOM OF THE HOLE.

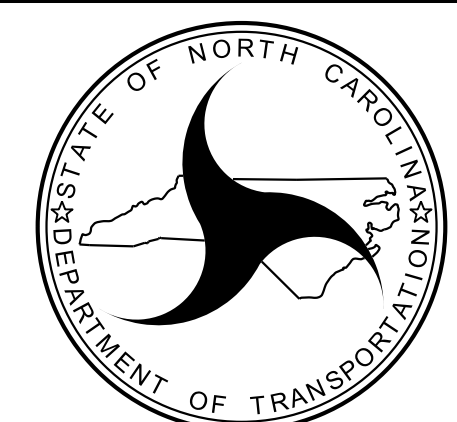
FOR SOLID BAR MICROPILES, INSTALL CENTER CORE REINFORCEMENT STEEL (STEEL MAY BE PLACED PRIOR TO OR IMMEDIATELY AFTER GROUTING).

CUT TOPS OF PILES TO FINAL ELEVATION AND INSTALL PLATES. FOR MICROPILES AND MICROPILE FOOTING, SEE MICROPILE SLOPE STABILIZATION PROVISION.

CONTRACT NO.: C205062

PREPARED BY: MS	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**

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

SHEET NO. 2G-4

PROJECT NO.	SHEET NO.
18313.10592124, ETC.	3B-1

SUMMARY OF QUANTITIES

SITE NO	WBS	MILEPOST	SHOULDER LT/RT	613800000-E	002200000-E	031400000-E		024100000-E	109970000-E	111200000-E	149100000-E	152300000-E	157500000-E	204400000-E	207700000-E	303000000-E	328700000-N	336000000-E	342000000-E	364200000-E	364900000-E
				VEGETATIVE DEBRIS REMOVAL AND DISPOSAL CY	UNCLASSIFIED EXCAVATION CY	SELECT MATERIAL, CLASS ***** (CLASS VI) TON	SELECT MATERIAL, CLASS ***** (CLASS VII) TON	GEOTEXTILE FOR ROCK EMBANKMENTS (TYPE 2) SY	CLASS IV SUBGRADE STABILIZATION TON	GEOTEXTILE FOR SUBGRADE STABILIZATION SY	ASPHALT CONC BASE COURSE, TYPE B25.0C TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5C TON	ASPHALT BINDER FOR PLANT MIX TON	6" PERFORATED SUBDRAIN PIPE LF	6" OUTLET PIPE LF	STEEL BEAM GUARDRAIL LF	GUARDRAIL END UNITS, TYPE TL-3 EA	REMOVE EXISTING GUARDRAIL LF	STEEL BEAM GUARDRAIL, 2'-1" HEIGHT TRANSITION LF	RIP RAP, CLASS A TON	RIP RAP, CLASS B TON
NC 80 Site 45	18313.1059124	11.77	LT/RT	250	100	50	150,000	10,000	50	60	50	30	5	215	25	250	2	250		50	100
NC 80 Site 46	18313.1059125	11.80	LT/RT	50	350																
NC 80 Site 47	18313.1059126	11.86	LT/RT	20	50	30	3500	1000	50	60	30	20	2	90	15	100	2	250	150	30	75
NC 80 Site 48	18313.1059127	12.11	LT/RT	20	100	40	7500	2800	110	100	75	50	3	290	35	350	2			40	75
GRAND TOTAL				340	600	120	161,000	13,800	210	220	155	100	10	595	75	700	6	500	150	120.0	250.0

NOTES: QUANTITIES ARE ESTIMATED AND MAY CHANGE ACCORDING TO ACTUAL FIELD CONDITIONS.
THE ENGINEER SHALL FIELD MARK ALL SITE LOCATIONS AND LIMITS PRIOR TO BEGINNING CONSTRUCTION AT EACH LOCATION.

PROJECT NO.	SHEET NO.
18313.1059124, ETC.	3B-2

SUMMARY OF QUANTITIES

SITE NO	WBS	MILEPOST	SHOULDER LT/RT	440000000-E	440500000-E	441000000-E	444500000-E	481000000-E		496000000-N	600000000-E	601200000-E	602900000-E	603600000-E	608400000-E	611700000-N	825200000-E	883400000-N		883900000-E	885300000-E
				WORK ZONE SIGNS (STATIONARY)	WORK ZONE SIGNS (PORTABLE)	WORK ZONE SIGNS (BARRICADE MOUNTED)	BARRICADES (TYPE III)	PAINT PAVEMENT MARKING LINES (4", WHITE)	PAINT PAVEMENT MARKING LINES (4", YELLOW)	INLAID CRADLE MARKERS	TEMPORARY SILT FENCE	SEDIMENT CONTROL STONE	SAFETY FENCE	MATTING FOR EROSION CONTROL	SEEDING & MULCHING	RESPONSE FOR EROSION CONTROL	REINFORCING STEEL (RETAINING WALL)	MICROPILE, AVERAGE LENGTH	MICROPILE PROOF TESTS	MICROPILE, ADDITIONAL LENGTH OVER AVERAGE	SHOTCRETE
				SF	SF	SF	SF	LF	LF	EA	LF	TON	LF	SY	ACRE	EA	LB	EA	EA	LF	CY
NC 80 Site 45	18313.1059124	11.77	LT/RT	88	88	35	96	1000	1000	7	250	50	50		0.25	1					
NC 80 Site 46	18313.1059125	11.80	LT/RT								100		50		0.13	1					
NC 80 Site 47	18313.1059126	11.86	LT/RT					500	500	3	200	25	50	200	0.25	1					
NC 80 Site 48	18313.1059127	12.11	LT/RT	88	88	35	96	500	500	5	200	25	50	200	0.25	1	15,900	155	7	50	135
GRAND TOTAL				176	176	70	192	2,000	2,000	15	750	100	200	400	0.88	4	15,900	155	7	50	135

NOTES: QUANTITIES ARE ESTIMATED AND MAY CHANGE ACCORDING TO ACTUAL FIELD CONDITIONS.
THE ENGINEER SHALL FIELD MARK ALL SITE LOCATIONS AND LIMITS PRIOR TO BEGINNING CONSTRUCTION AT EACH LOCATION.

