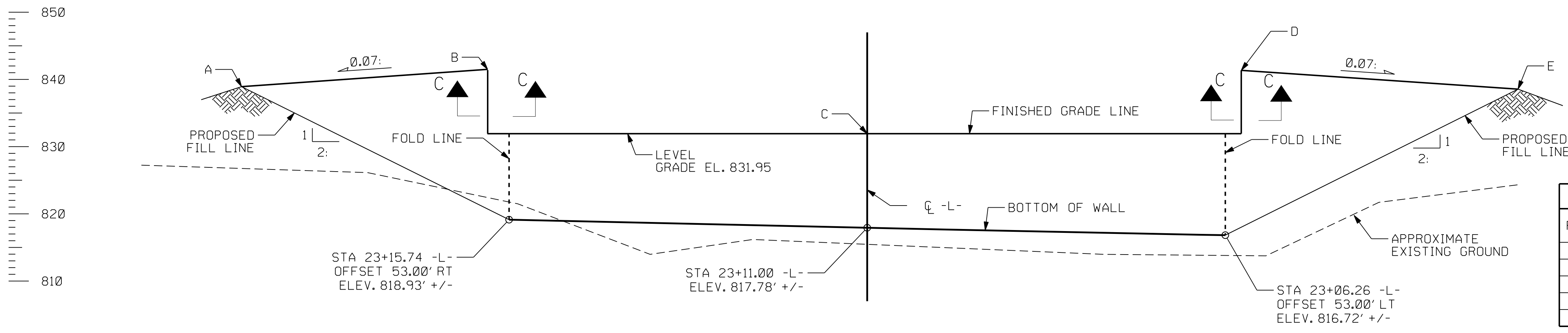


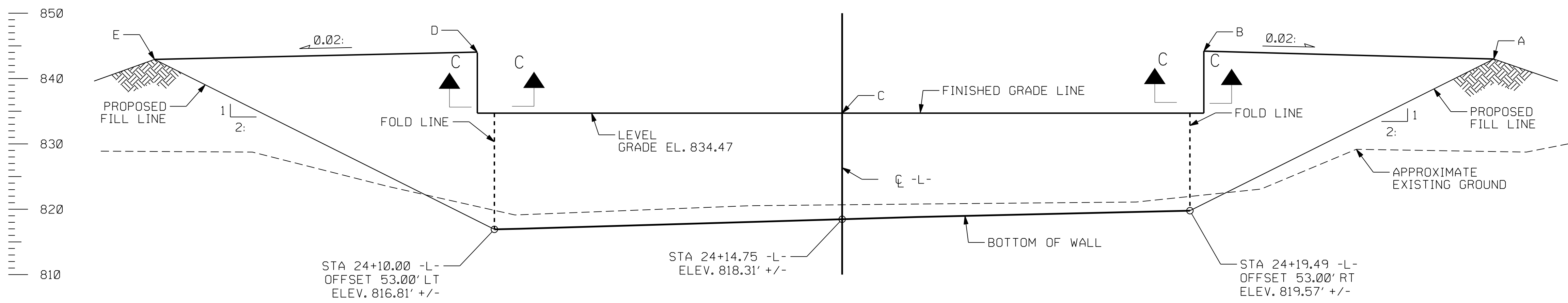
GEOTECHNICAL ENGINEER
 ENGINEER
 NORTH CAROLINA PROFESSIONAL SEAL 028669
 RICHARD S. WEBB
 Dec 16, 2021
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END BENT 1					
POINT	-L-		-Y-		GRADE ELEV.
	STATION	OFFSET	STATION	OFFSET	
A	22+75.99	53.00' RT.	17+35.96	91.36' RT.	838.92'
B	23+12.71	53.00' RT.	17+39.38	54.80' RT.	841.72'
C	23+11.00	0.00'	16+86.73	51.67' RT.	831.95'
D	23+03.23	53.00' LT.	16+33.33	54.78' RT.	841.51'
E	22+62.76	53.00' LT.	16+29.81	95.10' RT.	838.55'

FACE OF MSE WALL AT END BENT 1
 (LOOKING BACK STATION)
 (LOOKING AT EXPOSED FRONT FACE OF MSE RETAINING WALL)

END BENT 2					
POINT	-L-		-Y-		GRADE ELEV.
	STATION	OFFSET	STATION	OFFSET	
A	24+65.99	53.00' RT.	17+53.92	97.79' LT.	842.99'
B	24+22.52	53.00' RT.	17+49.75	54.51' LT.	844.26'
C	24+14.75	0.00'	16+95.98	51.67' LT.	834.47'
D	24+13.03	53.00' LT.	16+42.90	54.61' LT.	844.11'
E	24+62.00	53.00' LT.	16+47.16	103.39' LT.	842.93'



FACE OF MSE WALL AT END BENT 2
 (LOOKING AHEAD STATION)
 (LOOKING AT EXPOSED FRONT FACE OF MSE RETAINING WALL)

PROJECT NO.: B-5353
 GUILFORD COUNTY
 STATION: _____
 SHEET 1 OF 4

PREPARED BY: R. WEBB DATE: 12-14
 REVIEWED BY: D. TEAGUE DATE: 12-14

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

MSE ABUTMENT WALLS ENVELOPES

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1			3			W2-1
2			4			

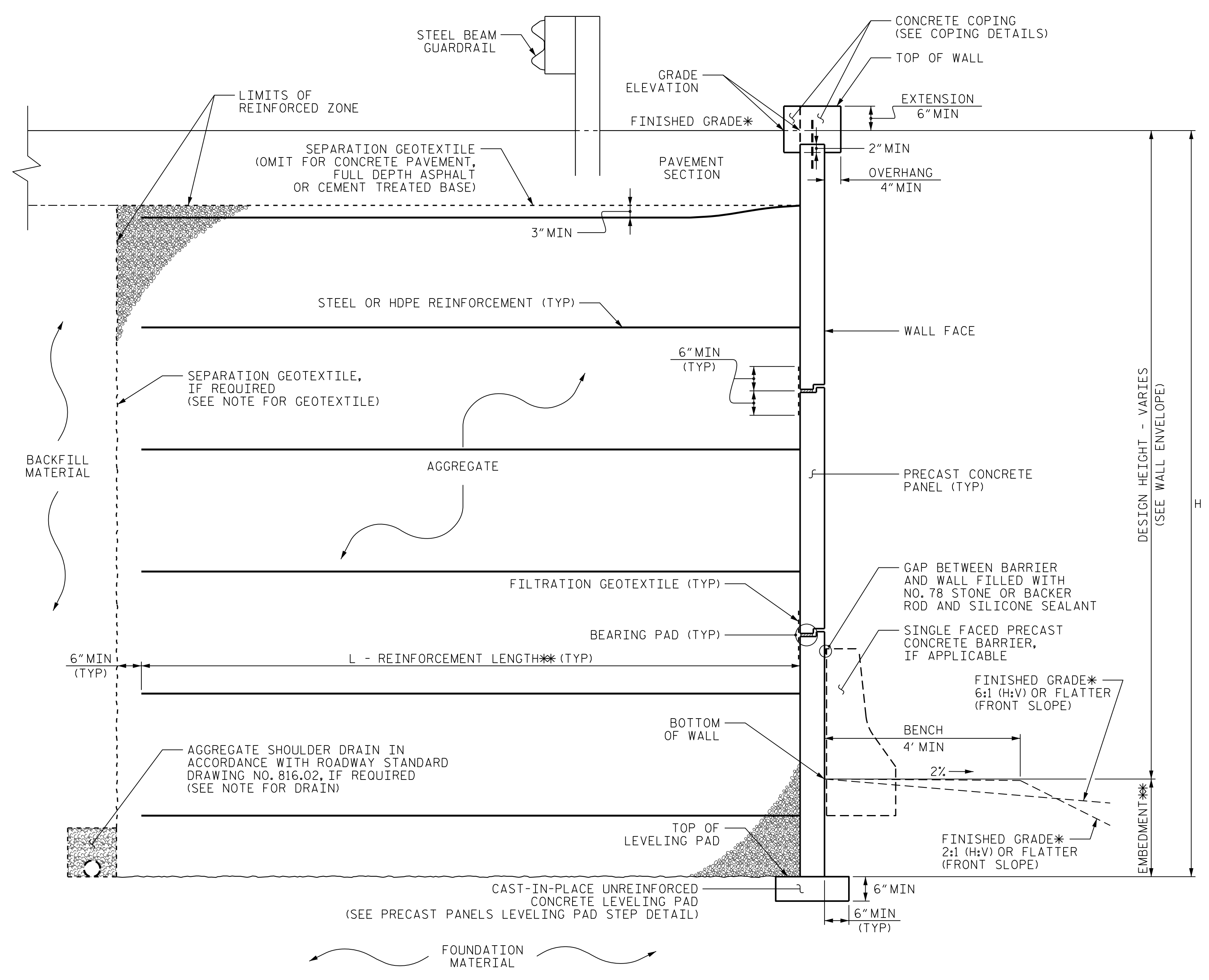
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ENGINEER

SEAL 028669

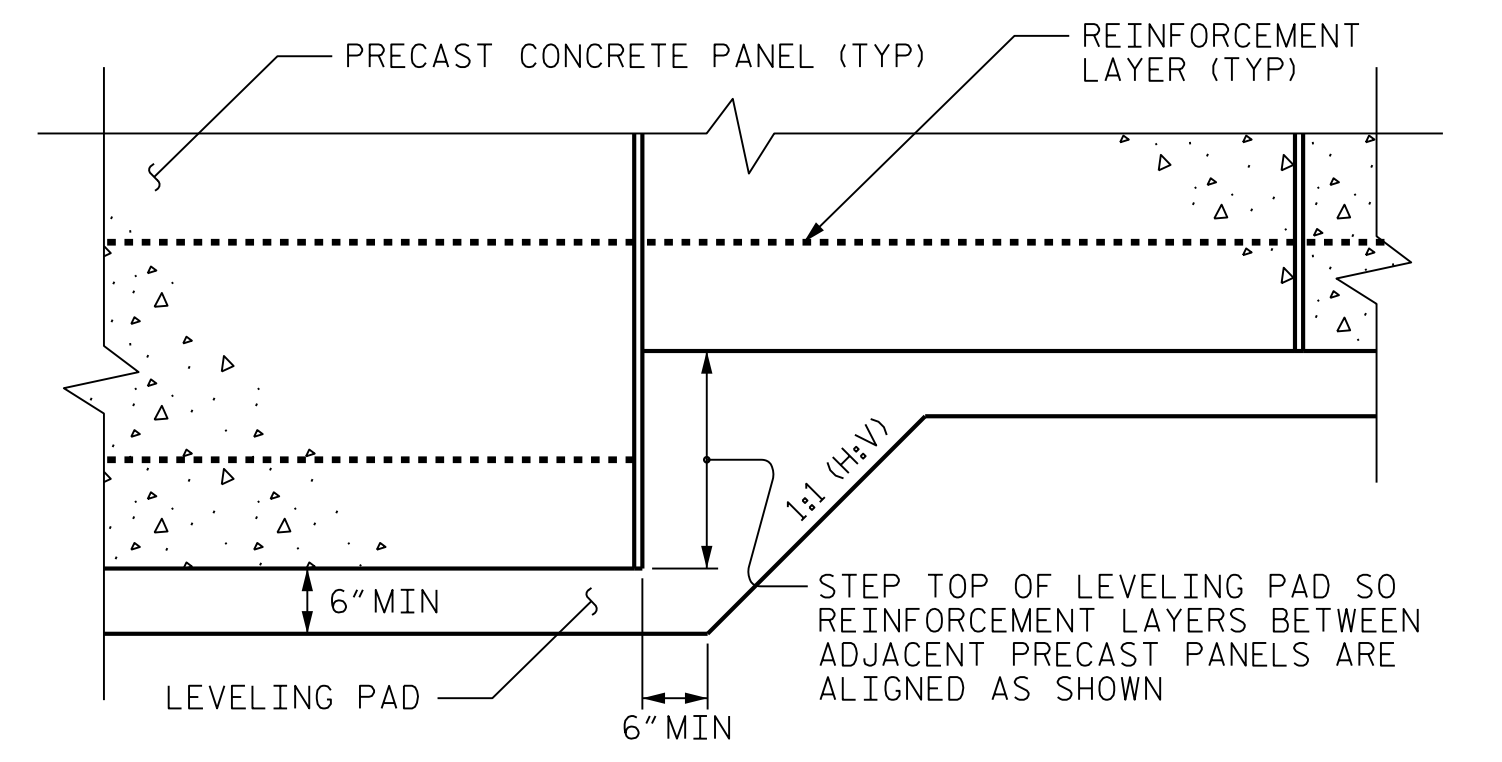
Nov 30, 2021

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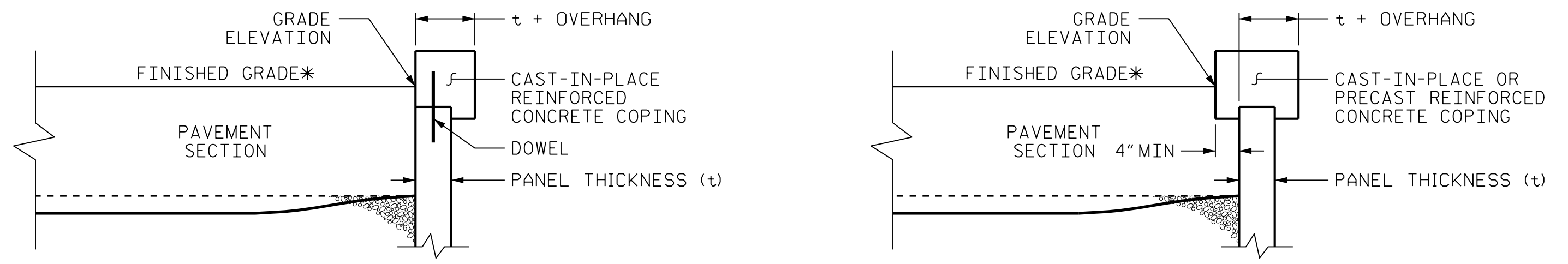


MSE WALL WITH PRECAST PANELS - TYPICAL SECTION

*SEE MSE RETAINING WALLS PROVISION AND IF APPLICABLE, MSE WALL NOTES FOR EMBEDMENT AND REINFORCEMENT LENGTH REQUIREMENTS. *SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.



PRECAST PANELS LEVELING PAD STEP DETAIL



COPING DETAILS

AT THE CONTRACTOR'S OPTION, CONNECT COPING TO PANELS WITH DOWELS OR EXTEND COPING DOWN BACK OF PANELS. *SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.

PROJECT NO.: B-5353
 GUILFORD COUNTY
 STATION: _____
 SHEET 2 OF 4

PREPARED BY: R. WEBB DATE: 11-20
 REVIEWED BY: D. TEAGUE DATE: 11-20

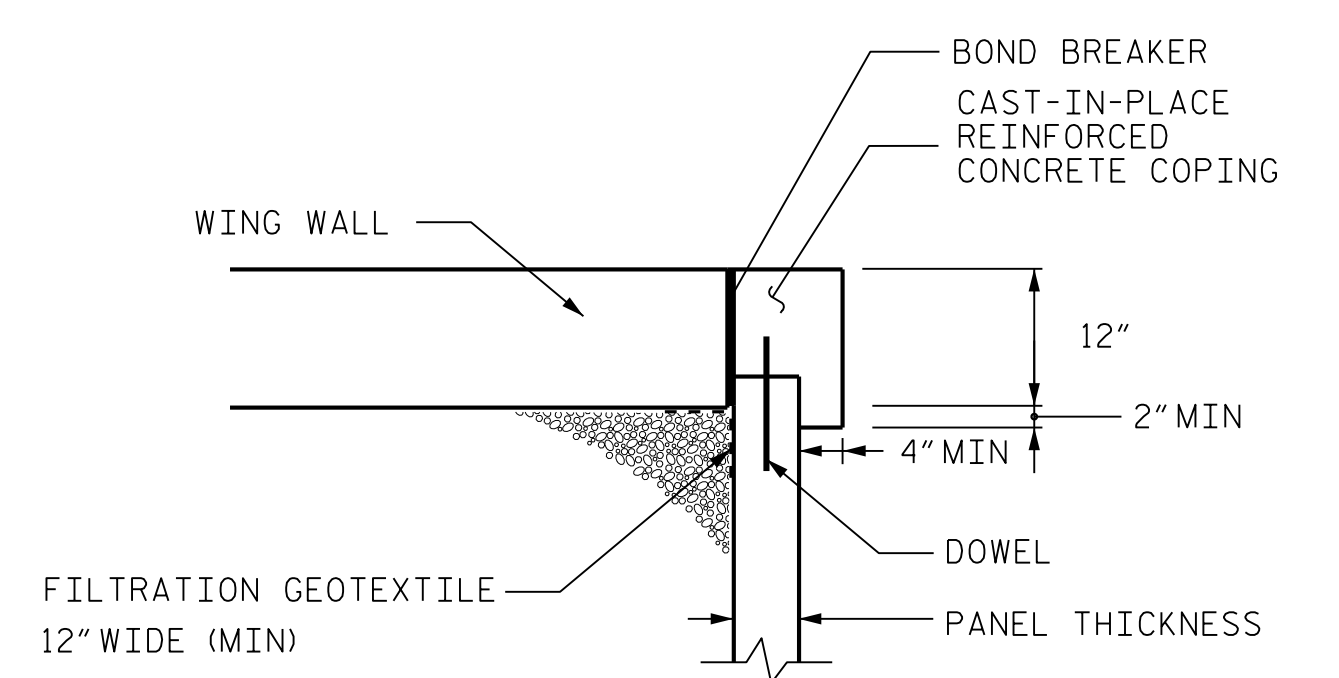
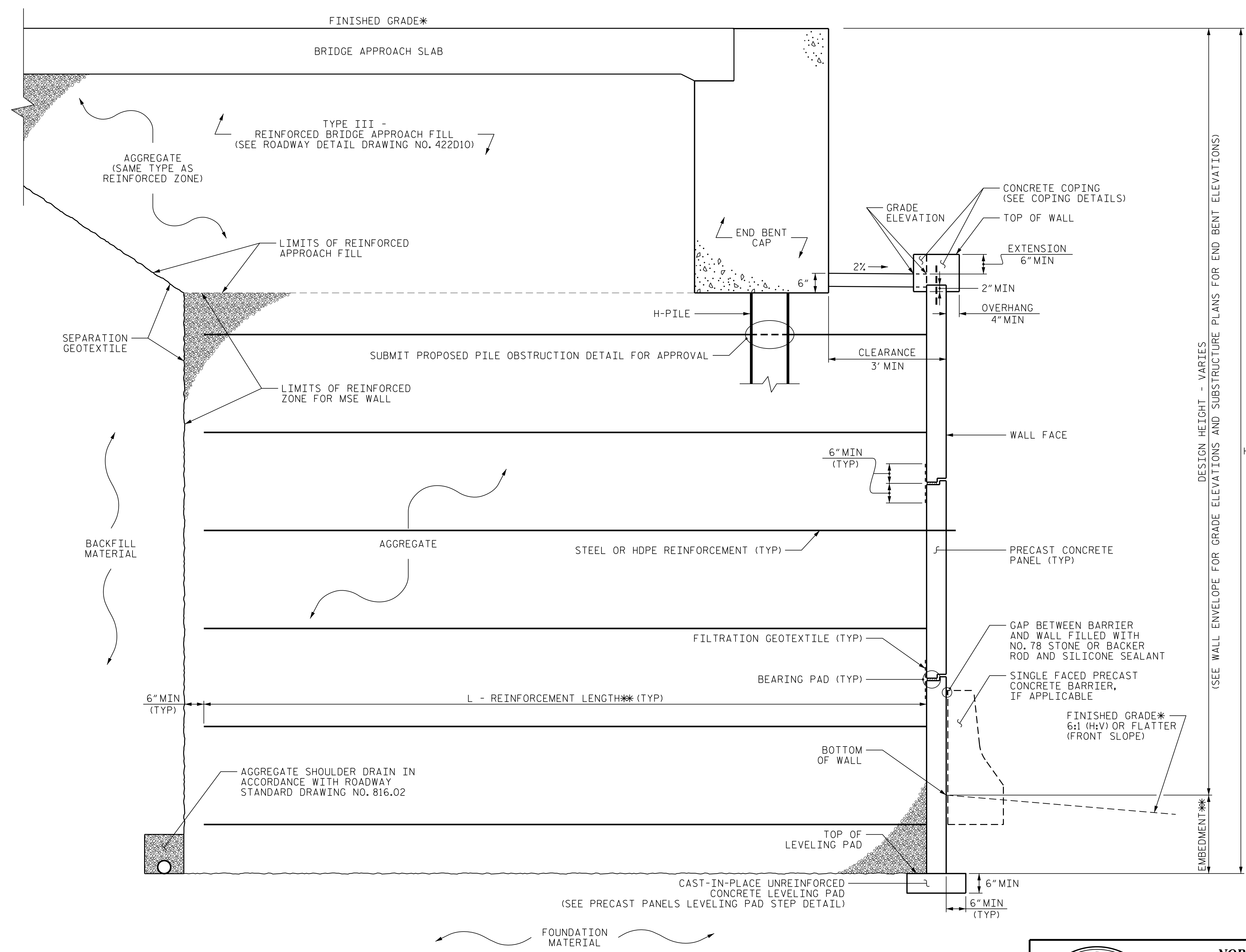
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

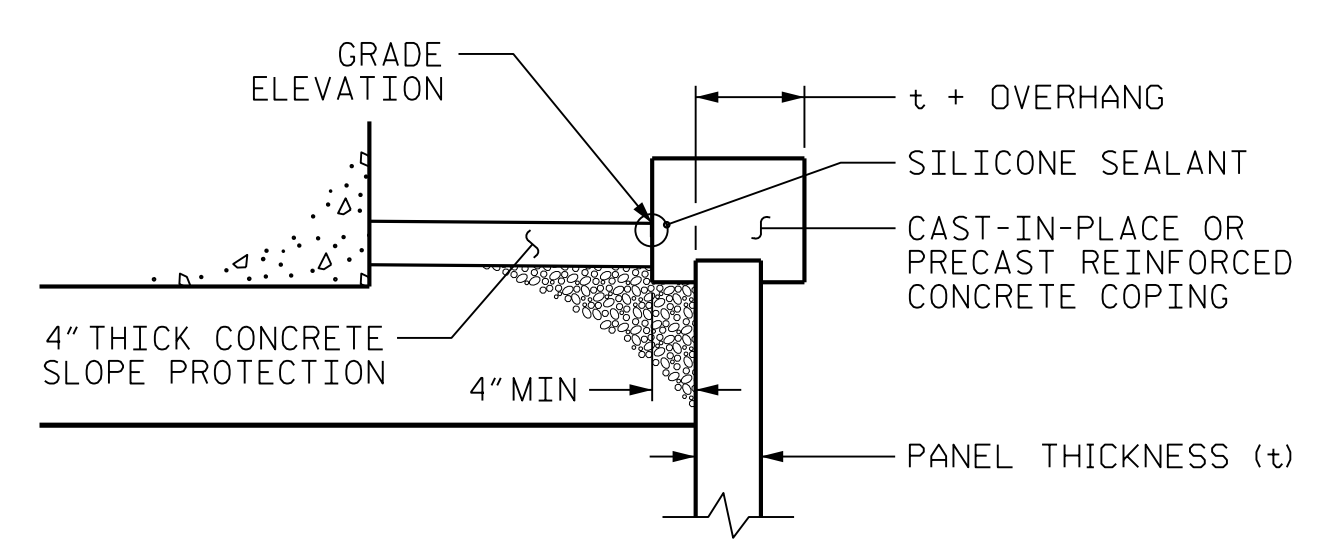
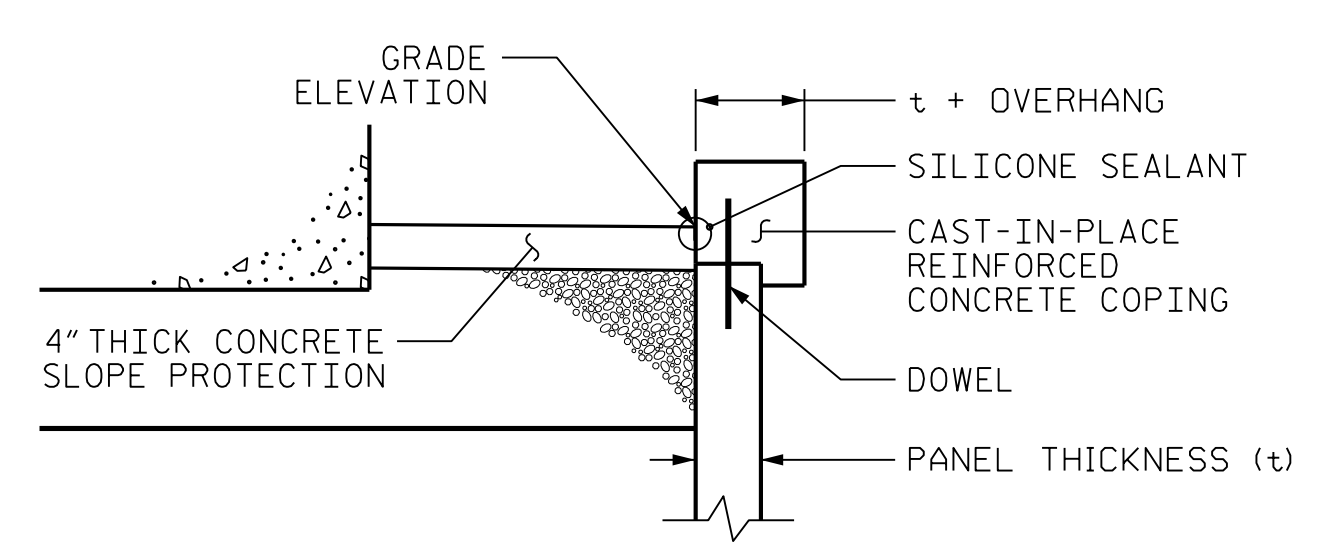
MSE ABUTMENT WALLS TYPICAL SECTION

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1			3			W2-2
2			4			

GEOTECHNICAL ENGINEER
 ENGINEER
 NORTH CAROLINA PROFESSIONAL SEAL 028669
 RICHARD S. WEBB
 DocuSigned by: Scott Webb
 Nov 30, 2021
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VERTICAL COPING SECTION C-C



COPING DETAILS

AT THE CONTRACTOR'S OPTION, CONNECT COPING TO PANELS WITH DOWELS OR EXTEND COPING DOWN BACK OF PANELS.

MSE ABUTMENT WALL WITH PRECAST PANELS - TYPICAL SECTION

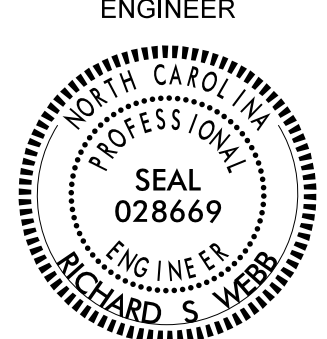
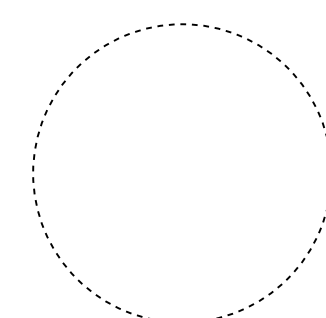
*SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.
 **SEE MSE RETAINING WALLS PROVISION AND IF APPLICABLE, MSE WALL NOTES FOR EMBEDMENT AND REINFORCEMENT LENGTH REQUIREMENTS.

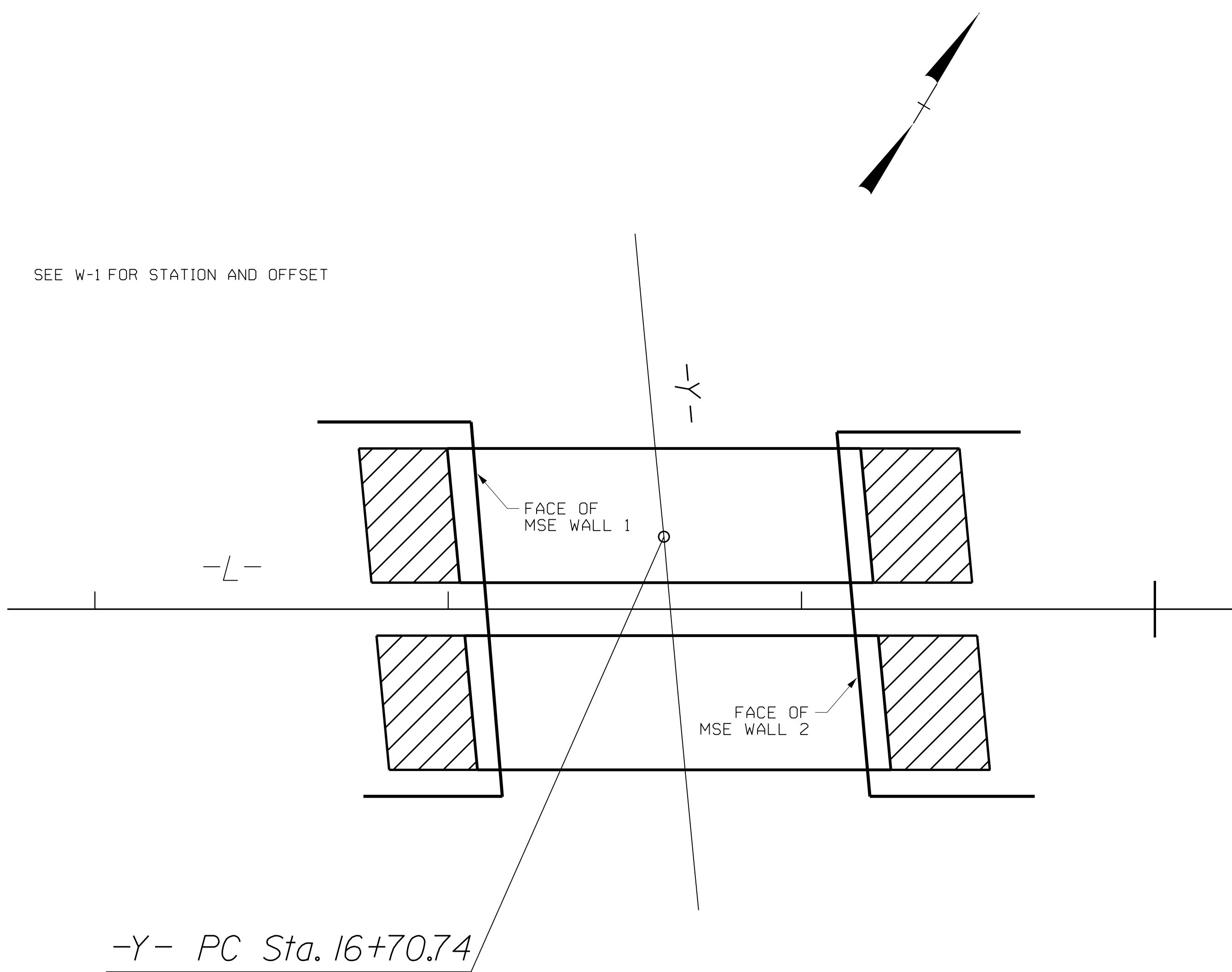
PREPARED BY: R. WEBB	DATE: 11-20
REVIEWED BY: D. TEAGUE	DATE: 11-20

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS
 GEOTECHNICAL ENGINEERING UNIT

PROJECT NO.: B-5353
 GUILFORD COUNTY
 STATION: _____
 SHEET 3 OF 4

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1	-	-	3	-	-	W2-3
2	-	-	4	-	-	

GEOTECHNICAL ENGINEER  Dec 16, 2021 DATE	ENGINEER  SIGNATURE DATE
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PLAN

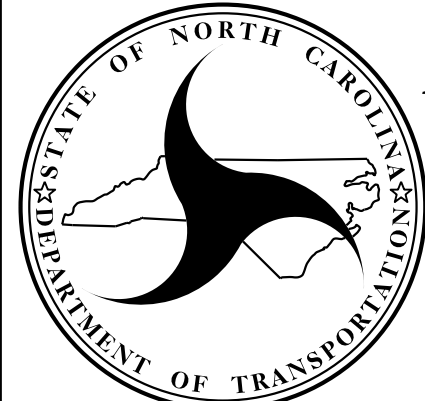
NOTES:

1. FOR MSE ABUTMENT WALLS, SEE MECHANICALLY STABILIZED EARTH ABUTMENT WALLS PROVISION.
2. FOR TYPE III REINFORCED BRIDGE APPROACH FILL, SEE BRIDGE APPROACH FILLS PROVISION AND ROADWAY DETAIL DRAWING NO. 422D10.
3. FOR SINGLE FACED PRECAST CONCRETE BARRIER, SEE ROADWAY PLANS AND SECTION 857 OF THE STANDARD SPECIFICATIONS.
4. AT THE CONTRACTOR'S OPTION, USE FINE AGGREGATE IN THE REINFORCED ZONE OF RETAINING WALL NO. 1 & 2.
5. A SEPARATION GEOTEXTILE IS REQUIRED AT THE BACK OF THE REINFORCED ZONE FOR MSE ABUTMENT WALLS.
6. A DRAIN IS REQUIRED FOR MSE ABUTMENT WALLS.
7. BEFORE BEGINNING WALL DESIGN FOR MSE ABUTMENT WALLS, VERIFY WALL LOCATION INCLUDING LOCATION OF BRIDGE WINGWALLS. IF NECESSARY, SUBMIT A REVISED WALL PLAN AND PROFILE VIEW (WALL ENVELOPE) FOR REVIEW. DO NOT START WALL DESIGN OR CONSTRUCTION UNTIL THE REVISED WALL ENVELOPE IS ACCEPTED.
8. DESIGN MSE ABUTMENT WALLS FOR THE FOLLOWING:
 - 1) H = DESIGN HEIGHT + EMBEDMENT
 - 2) DESIGN LIFE = 100 YEARS
 - 3) MAXIMUM FACTORED VERTICAL PRESSURE ON FOUNDATION MATERIAL = 6500 PSF
 - 4) MINIMUM REINFORCEMENT LENGTH (L) = 0.7 H
 - 5) DESIGN PARAMETERS:
9. DESIGN MSE ABUTMENT WALLS FOR A LIVE LOAD (TRAFFIC) SURCHARGE.
10. EXISTING OR FUTURE OBSTRUCTIONS SUCH AS GUARDRAIL, FENCE OR HANDRAIL POSTS, PAVEMENTS, PIPES, INLETS OR UTILITIES MAY INTERFERE WITH REINFORCEMENT FOR MSE ABUTMENT WALLS.
11. FOUNDATION FOR END BENT NO. 1, LOCATED AT STATION -L- 23+11, AND END BENT NO. 2, LOCATED AT STATION -L- 24+24.75, WILL INTERFERE WITH REINFORCEMENT FOR RETAINING WALLS NO. 1 & 2. SEE FOUNDATION LAYOUT SHEET FOR FOUNDATION LOCATIONS.
12. DESIGN RETAINING WALL NO. 1 AND 2 FOR A LATERAL LOAD FROM FOUNDATIONS LOCATED BEHIND THE MSE WALL APPLIED AS A FACTORED UNIFORM PRESSURE OF 320 PSF TO THE BACK OF PANELS OVER TOP TEN FEET OF WALL. THIS LATERAL LOAD DOES NOT AFFECT PULLOUT.
13. DO NOT PLACE LEVELING PAD CONCRETE, AGGREGATE OR REINFORCEMENT FOR MSE ABUTMENT WALLS UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.
14. AT THE CONTRACTOR'S OPTION, "TEMPORARY SHORING FOR WALL CONSTRUCTION" MAY BE USED TO CONSTRUCT MSE ABUTMENT WALLS. SEE MSE ABUTMENT WALLS PROVISION FOR TEMPORARY SHORING FOR WALL CONSTRUCTION.
15. FOR CONCRETE DITCHES, SEE SECTION 850 OF THE STANDARD SPECIFICATIONS PROVISION.
16. COORDINATE WITH BRIDGE CONTRACTOR TO CONSTRUCT VERTICAL COPING FOR MSE ABUTMENT WALLS.
17. AN ASHLAR STONE ARCHITECTURAL FINISH WITH COLOR FS 36559 IS REQUIRED FOR PRECAST CONCRETE PANELS FOR RETAINING WALL NO. 1 & 2.

MATERIAL TYPE	UNIT WEIGHT (g) LB/CF	FRICTION ANGLE (f) DEGREES	COHESION (c) LB/SF
COARSE AGGREGATE	110	38	0
FINE AGGREGATE	120	34	0
RETAINED SOIL	120	30	0
FOUNDATION SOIL	120	30	0

ESTIMATED MSE WALL QUANTITIES (SQUARE FEET)	
MSE ABUTMENT WALL NO. 1	2900 SF
MSE ABUTMENT WALL NO. 2	3500 SF
TOTAL	6400 SF

PREPARED BY: R. WEBB	DATE: 11-20
REVIEWED BY: D. TEAGUE	DATE: 11-20



NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
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GEOTECHNICAL
ENGINEERING UNIT

PROJECT NO.: B-5353
 GUILFORD COUNTY
 STATION: _____
 SHEET 4 OF 4

REVISIONS						SHEET NO. W2-4
NO.	BY	DATE	NO.	BY	DATE	
1			3			
2			4			

MSE ABUTMENT WALLS
PLAN AND NOTES