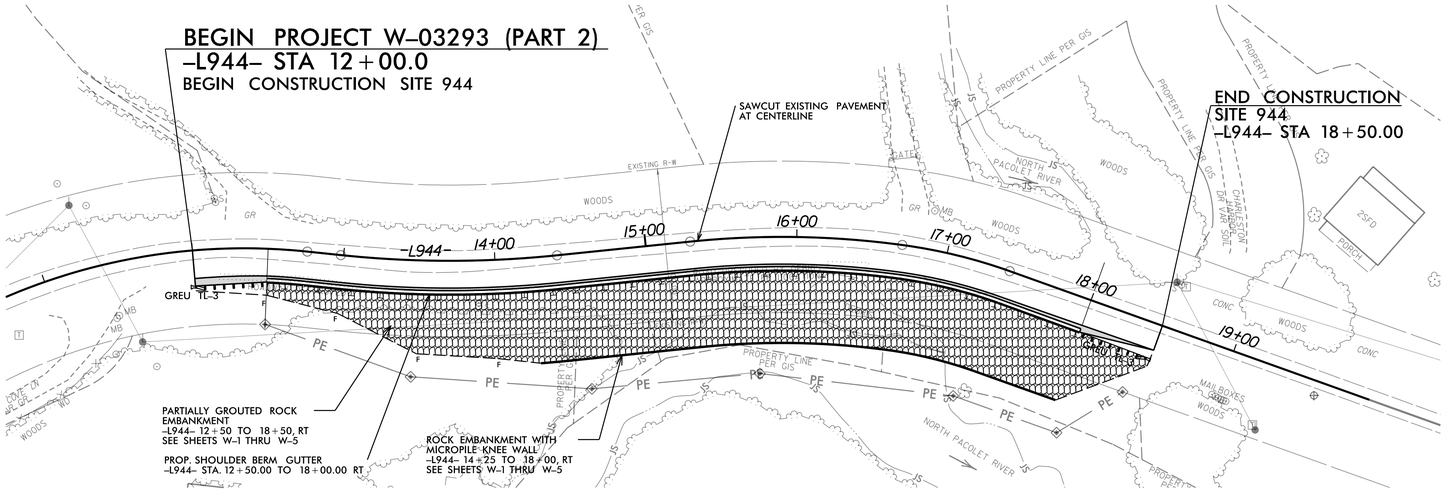
SITE 944 RETAINING WALL:



SITE 944 – PLAN

NOT TO SCALE

NC GRID
NAD 83 NA 2011

GEOTECHNICAL ENGINEER

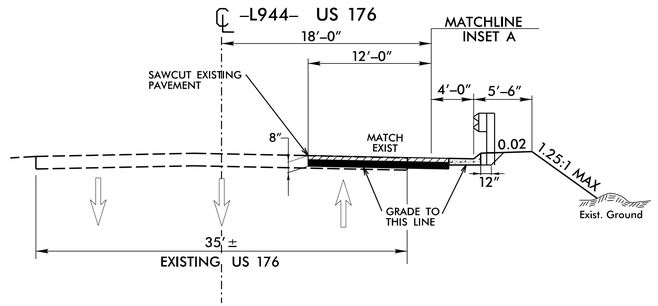
NORTH CAROLINA PROFESSIONAL SEAL 042642 ENGINEER ROBERT E. KRAL

Signed by: Robert E. Kral 12/3/2025
AAF88FF7... SIGNATURE DATE

ENGINEER

SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

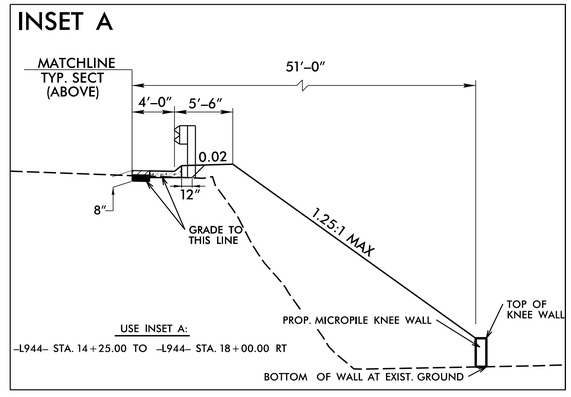


TYPICAL SECTION

–L944– STA. 12+50.00 TO –L944– STA. 18+00.00

TRANSITION BETWEEN EXISTING AND TYP. SECT. AS FOLLOWS:

–L944– STA. 12+00.00 TO –L944– STA. 12+50.00
–L944– STA. 18+00.00 TO –L944– STA. 18+50.00



ESTIMATED QUANTITIES - SITE 944

ROCK EMBANKMENTS	31,500 TON
GEOTEXTILE FOR ROCK EMBANKMENTS	6,000 SY
GROUT FOR ROCK FILL	800 CY
MICROPILE GRADE BEAM	375 LF

PARTIALLY GROUTED ROCK EMBANKMENT

BEGIN STA. -L944-	TOP OFFSET	BOT. OFFSET	INCLINATION (H:V)	END STA. -L944-	TOP OFFSET	BOT. OFFSET	INCLINATION (H:V)
12+50.00	27.5' RT	30.7' RT	2:1, OR FLATTER	14+25.00	27.5' RT	70.0' RT	1.25:1, OR FLATTER
18+00.00	27.5' RT	70.0' RT	1.25:1, OR FLATTER	18+50.00	27.5' RT	28.4' RT	2:1, OR FLATTER

PARTIALLY GROUTED ROCK EMBANKMENT WITH MICROPILE KNEE WALL

STA. -L944-	TOP OF SLOPE OFFSET	TOP OF SLOPE ELEVATION (FT)	TOP OF KNEE WALL OFFSET (FT)	TOP OF WALL ELEVATION	BOTTOM OF KNEE WALL ELEVATION (FT)	DESIGN HIGH WATER ELEVATION (FT)	MIN. GROUT ELEVATION FOR ROCK FILL (FT)
14+50.00	27.5' RT	1438.3	70 RT	1417.1	1413.1	1413.0	1415.0
15+00.00	27.5' RT	1437.6	70 RT	1406.7	1402.7	1405.3	1407.3
15+50.00	27.5' RT	1437.0	70 RT	1405.9	1401.9	1405.5	1407.5
16+00.00	27.5' RT	1436.4	70 RT	1405.2	1401.2	1405.9	1407.9
16+50.00	27.5' RT	1434.4	70 RT	1405.0	1401.0	1404.7	1406.7
17+00.00	27.5' RT	1433.8	70 RT	1404.6	1400.6	1403.5	1405.5
17+50.00	27.5' RT	1433.9	70 RT	1403.9	1399.9	1403.6	1405.6
18+00.00	27.5' RT	1433.4	70 RT	1405.4	1401.4	1420.6	1422.6

PROJECT NO.: W03293

POLK COUNTY

STATION: -L944- STA. 12+00.00 TO 18+50.00, RT

SHEET 1 OF 5

PREPARED BY: KND	DATE: 11/25
REVIEWED BY: REK	DATE: 11/25

RETAINING WALL LAYOUT AND HIGH WATER ELEVATIONS BASED ON DESIGN FILES PROVIDED BY TGS NOVEMBER 18, 2025.

Prepared in the Office of:
CAROLINAS GEOTECHNICAL GROUP
1805 SARDIS ROAD NORTH
SUITE 100
CHARLOTTE, NC 28270
(980) 339-8684

SITE 944 RETAINING WALL
ROCK EMBANKMENT &
ROCK EMBANKMENT WITH
MICROPILE KNEE WALL

REVISIONS

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

SHEET NO. W-1

GEOTECHNICAL ENGINEER

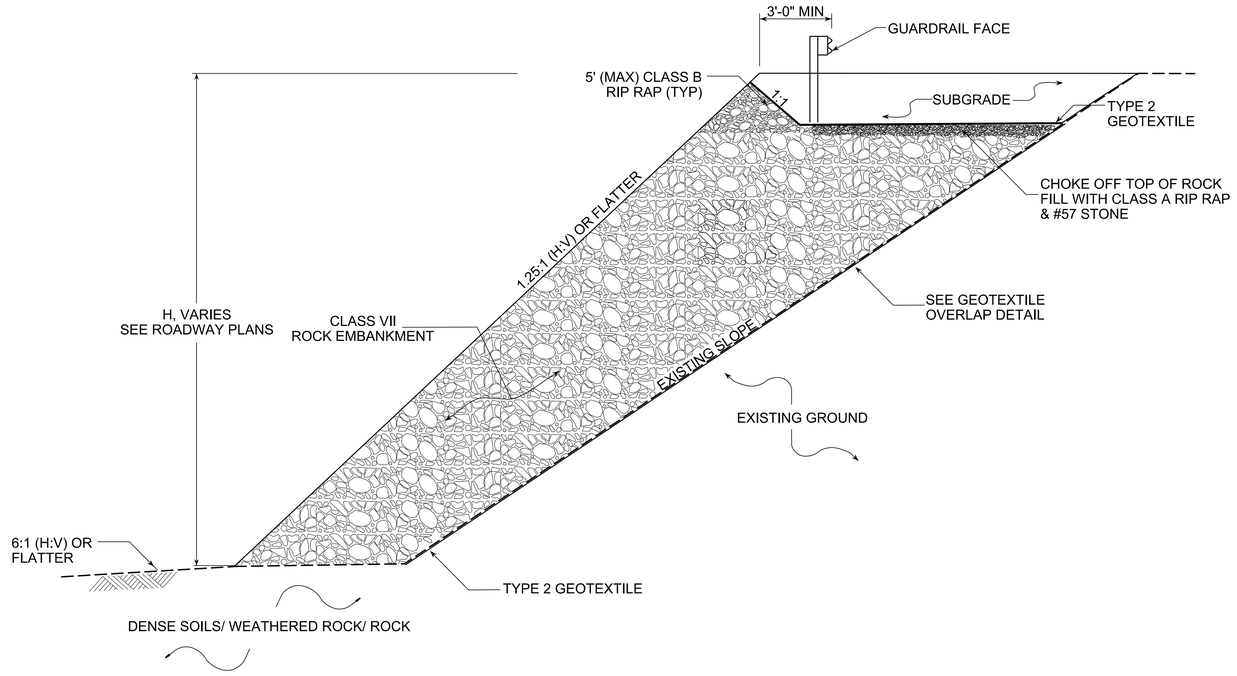
NORTH CAROLINA PROFESSIONAL SEAL 042642 ENGINEER ROBERT E. KRAL

Signed by: Robert E. Kral 12/3/2025
XAF88FF7... SIGNATURE DATE

ENGINEER

SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



PARTIALLY GROUTED ROCK EMBANKMENT DETAIL

-L944- STA. 12+00.00 TO 14+25.00, RT
-L944- STA. 18+00.00 TO 18+50.00, RT

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 PARTIALLY GROUTED ROCK EMBANKMENTS, SEE PARTIALLY GROUTED ROCK FILL AND ROCK EMBANKMENTS SPECIAL PROVISION AND ROCK FILL DETAILS ON SHEETS W-4 AND W-5.

PROJECT NO.: W03293
POLK COUNTY
STATION: -L944- STA. 12+00.00 TO 18+50.00, RT
SHEET 2 OF 5

PREPARED BY: KND	DATE: 10/25
REVIEWED BY: REK	DATE: 10/25

Prepared in the Office of:
CAROLINAS GEOTECHNICAL GROUP
1805 SARDIS ROAD NORTH
SUITE 100
CHARLOTTE, NC 28270
(980) 339-8684

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

SITE 944 RETAINING WALL
ROCK EMBANKMENT &
ROCK EMBANKMENT WITH
MICROPILE KNEE WALL

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

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 042642 ROBERT E. KRAL

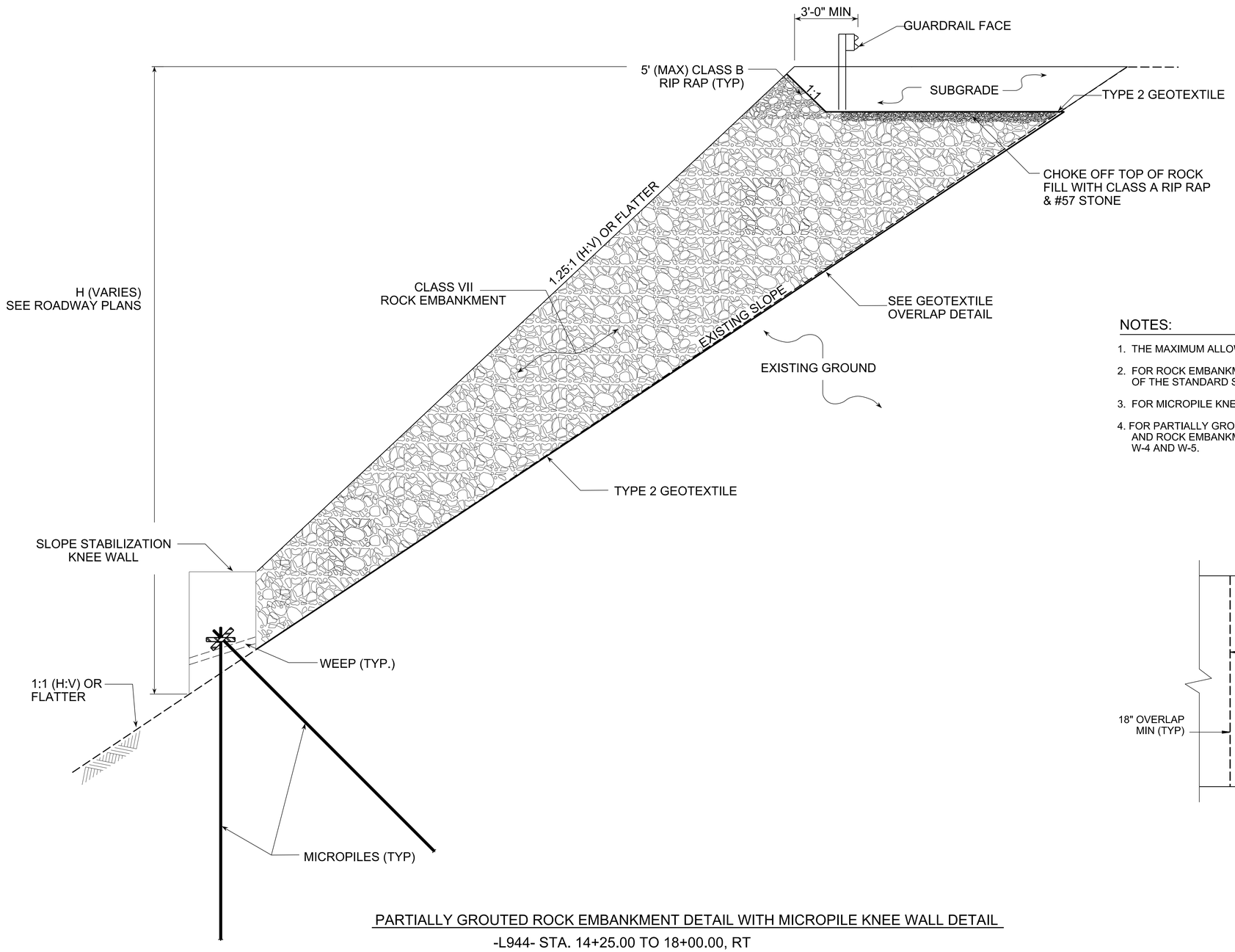
Signed by: Robert E. Kral 12/3/2025

AAF88FF73358486... SIGNATURE DATE

ENGINEER

SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

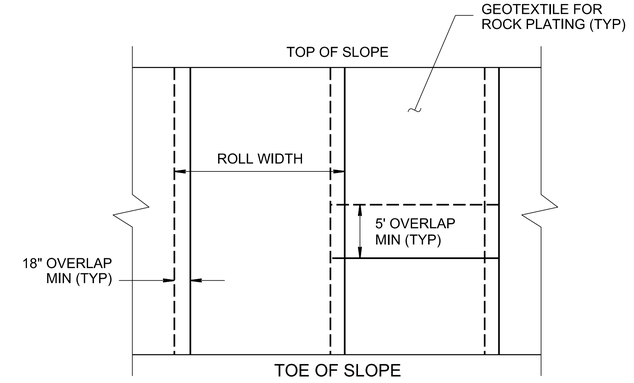


PARTIALLY GROUTED ROCK EMBANKMENT DETAIL WITH MICROPILE KNEE WALL DETAIL

-L944- STA. 14+25.00 TO 18+00.00, RT

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 MICROPILE KNEE WALL, SEE THE MICROPILE GRADE BEAM SPECIAL PROVISION.
4. FOR PARTIALLY GROUTED ROCK EMBANKMENTS, SEE PARTIALLY GROUTED ROCK FILL AND ROCK EMBANKMENTS SPECIAL PROVISION AND ROCK FILL DETAILS ON SHEETS W-4 AND W-5.



GEOTEXTILE OVERLAP DETAIL

(PLAN VIEW)

PROJECT NO.: W03293

POLK COUNTY

STATION: -L944- STA. 12+00.00 TO 18+50.00, RT

SHEET 3 OF 5

PREPARED BY: KND	DATE: 10/25
REVIEWED BY: REK	DATE: 10/25

Prepared in the Office of:

CAROLINAS GEOTECHNICAL GROUP

1805 SARDIS ROAD NORTH
SUITE 100
CHARLOTTE, NC 28270
(980) 339-8684

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

SITE 944 RETAINING WALL
ROCK EMBANKMENT &
ROCK EMBANKMENT WITH
MICROPILE KNEE WALL

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

GEOTECHNICAL ENGINEER

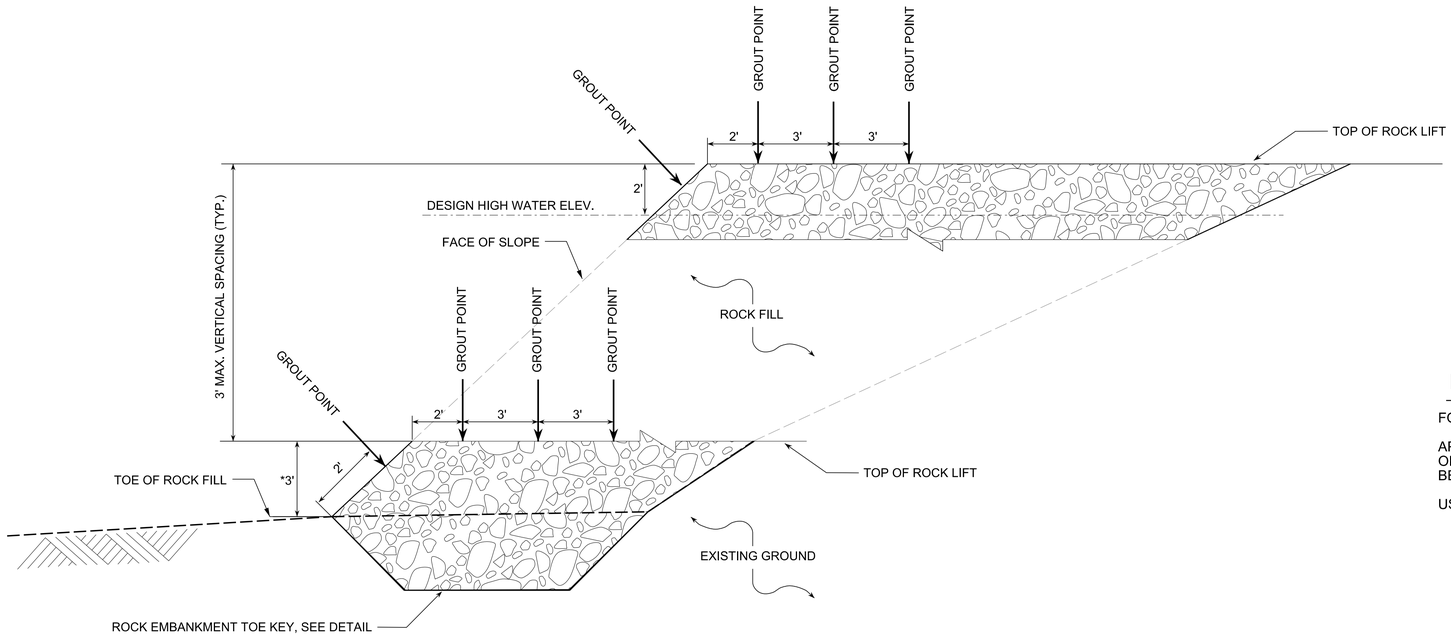
NORTH CAROLINA PROFESSIONAL SEAL 042642 ENGINEER ROBERT E. KRAL

Signed by: Robert E. Kral 12/3/2025
AAF88FF73D6NATURE DATE

ENGINEER

SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



PARTIALLY GROUTED ROCK FILL - ROCK FILL SECTION

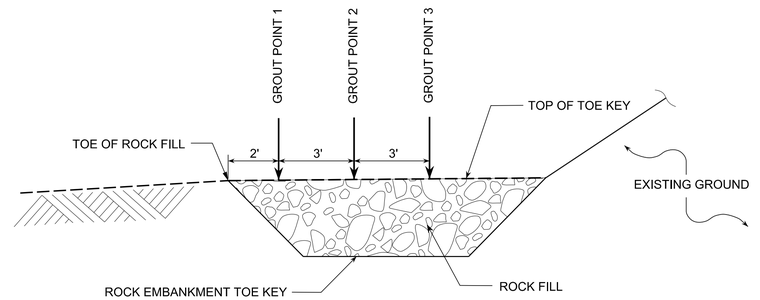
* IF NO TOE KEY, START GROUTING AT THE TOP OF THE FIRST 3-FT LIFT

NOTES:

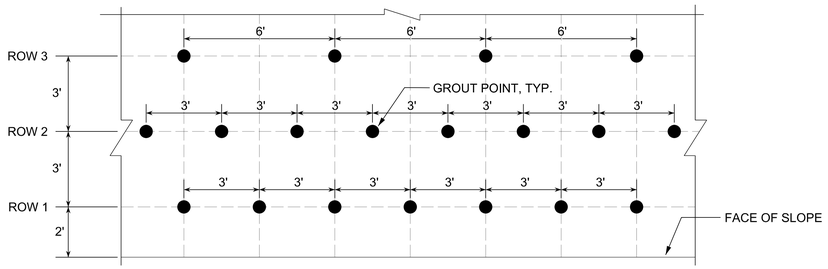
FOR PARTIALLY GROUTED ROCK FILL, SEE THE PARTIALLY GROUTED ROCK FILL SPECIAL PROVISION.

APPLY GROUT ON THE SLOPE FACE AND AT THE TOP OF EACH 3 FT LIFT OF ROCK FILL. APPLY 3 CUBIC FEET OF GROUT AT EACH GROUT POINT IN THE PATTERNS SHOWN ON PAGE 2. THE HIGHEST GROUT POINT WILL BE THE TOP OF THE ROCK EMBANKMENT.

USE PARTIALLY GROUTED ROCK FILL FROM TOE TO AT LEAST 2FT ABOVE THE 500-YR FLOOD ELEVATION.



PARTIALLY GROUTED ROCK FILL - TOE KEY DETAIL



PARTIALLY GROUTED ROCK FILL - PLAN VIEW GROUT POINTS

VIEW FROM FRONT TOP

PARTIALLY GROUTED ROCK FILL DETAILS

PROJECT NO.: W03293

POLK COUNTY

STATION: -L944- STA. 12+00.00 TO 18+50.00, RT

SHEET 4 OF 5

PREPARED BY: KND	DATE: 10/25
REVIEWED BY: REK	DATE: 10/25

Prepared in the Office of:

CAROLINAS GEOTECHNICAL GROUP
1805 SARDIS ROAD NORTH
SUITE 100
CHARLOTTE, NC 28270
(980) 339-8684

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

SITE 944 RETAINING WALL
ROCK EMBANKMENT &
ROCK EMBANKMENT WITH
MICROPILE KNEE WALL

REVISIONS

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

SHEET NO. W-4

GEOTECHNICAL ENGINEER

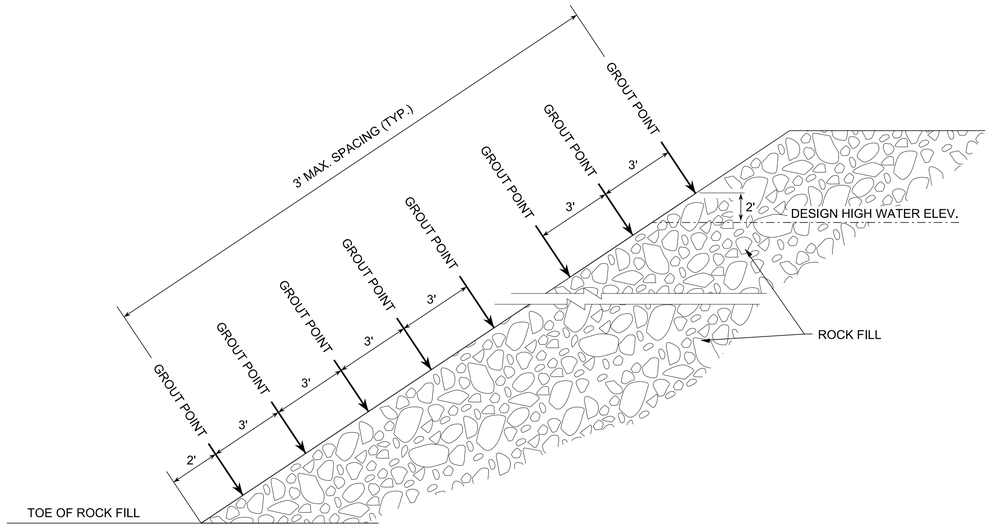
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 042642 ROBERT E. KRAL

Signed by: Robert E. Kral 12/3/2025
AAF88FF73D6B4A... SIGNATURE DATE

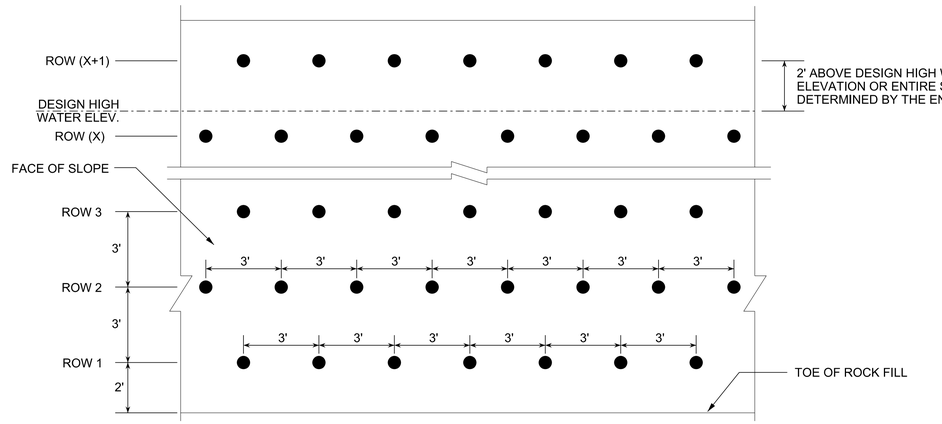
ENGINEER

SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



PARTIALLY GROUTED ROCK FILL - SLOPE FACE DETAIL



PARTIALLY GROUTED ROCK FILL - SLOPE FACE GROUT POINTS

VIEW FROM FRONT SLOPE FACE

PARTIALLY GROUTED ROCK FILL DETAILS

PROJECT NO.: W03293

POLK COUNTY

STATION: -L944- STA. 12+00.00 TO 18+50.00, RT

SHEET 5 OF 5

PREPARED BY: KND	DATE: 10/25
REVIEWED BY: REK	DATE: 10/25

Prepared in the Office of:

CAROLINAS GEOTECHNICAL GROUP

1805 SARDIS ROAD NORTH
SUITE 100
CHARLOTTE, NC 28270
(980) 339-8684

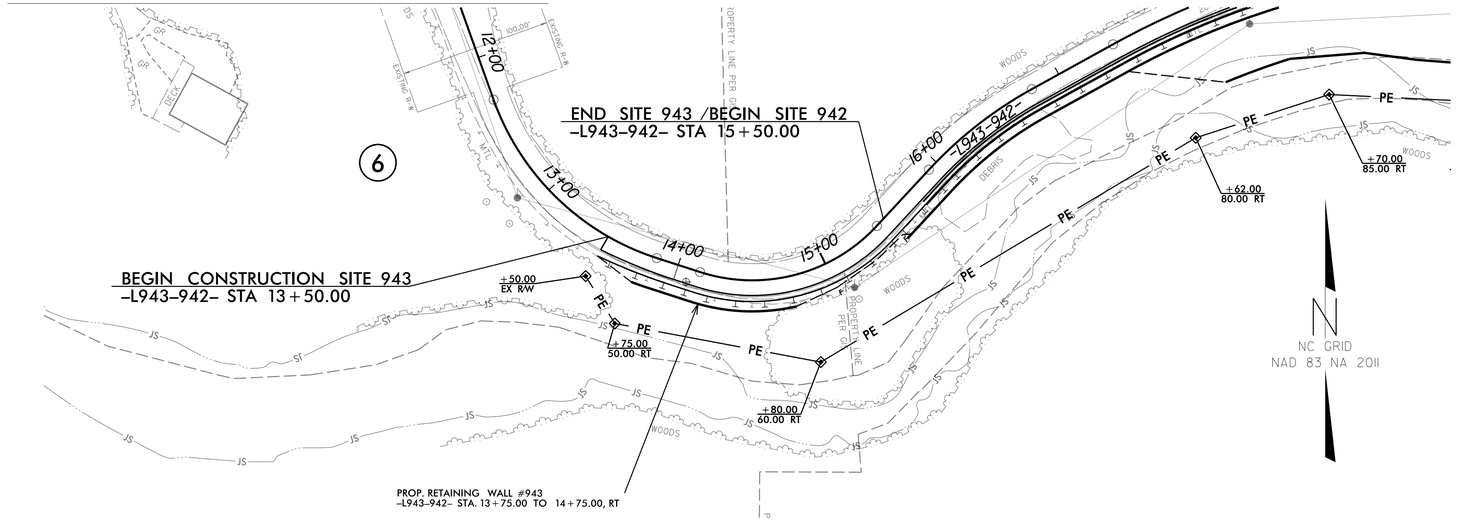
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

SITE 944 RETAINING WALL
ROCK EMBANKMENT &
ROCK EMBANKMENT WITH
MICROPILE KNEE WALL

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1			3			W-5
2			4			

SITE 943 RETAINING WALL:

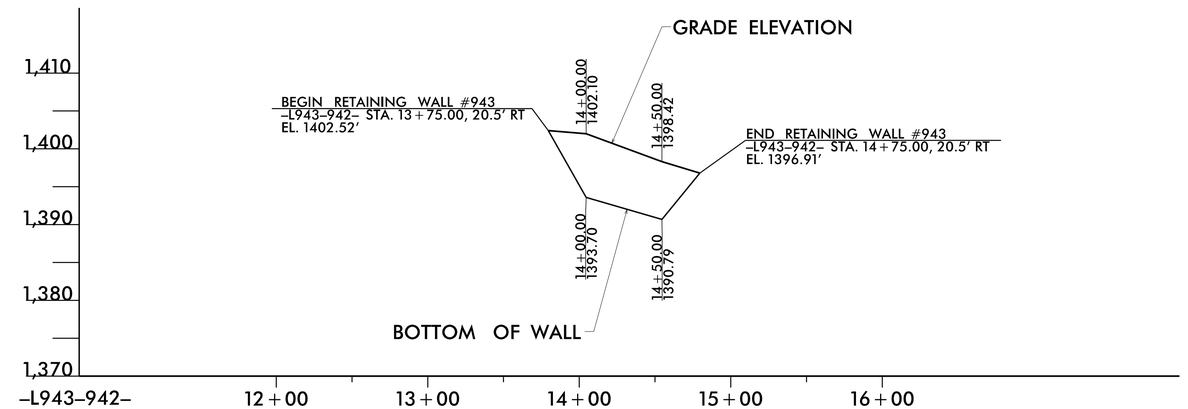


SITE 943 – PLAN

NOT TO SCALE

SITE 943 RETAINING WALL			
STA. -L943-942-	GRADE ELEVATION (FT)	BOTTOM OF WALL ELEVATION (FT)	WALL DESIGN HEIGHT "H" (FT)
13+75.00	1,402.52	1,402.52	0.00
14+00.00	1,402.10	1,393.70	8.40
14+50.00	1,398.42	1,390.79	7.63
14+75.00	1,396.91	1,396.91	0.00

ESTIMATED SITE 943 WALL QUANTITIES	
SOIL NAIL RETAINING WALL	610 SF
MICROPILE GRADE BEAM	200 LF



RETAINING WALL #943 – ENVELOPE

NOT TO SCALE
(LOOKING AT FACE OF WALL)

THE WALL ENVELOPE DOES NOT ACCURATELY DEPICT THE ACTUAL WALL FACE OF WALL #943 AT THE FOLLOWING LOCATIONS:
–L943–942– STA. 13+75.00 TO 13+85.15, RT
AND –L943–942– STA. 14+15.15 TO 14+75.00, RT

PREPARED BY: KND	DATE: 10/25
REVIEWED BY: REK	DATE: 10/25

RETAINING WALL ENVELOPE AND WALL LAYOUT PROVIDED BY TGS JULY 29, 2025.

GEOTECHNICAL ENGINEER

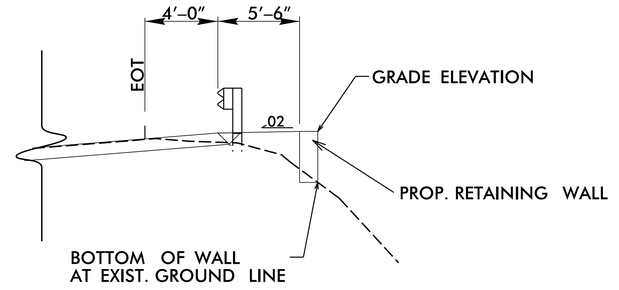
NORTH CAROLINA PROFESSIONAL SEAL 042642 ENGINEER ROBERT E. KRAL

Signed by: Robert E. Kral AAF88FF7... SIGNATURE 12/3/2025 DATE

ENGINEER

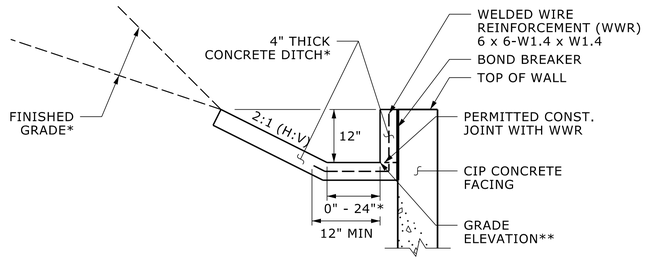
SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



SECTION THROUGH RETAINING WALL

–L943–942– STA. 13+50.00, RT TO STA. 15+50.00, RT



CONCRETE DITCH BEHIND WALL WITH CONCRETE FACING

*SEE ROADWAY PLANS FOR CONCRETE DITCH AND FINISHED GRADE DETAILS.
**SEE WALL ENVELOPE FOR GRADE ELEVATIONS.

PROJECT NO.: W03293

POLK COUNTY

RETAINING WALL: -L943-942- STA. 13+75.00 TO 14+75.00, RT

SHEET 1 OF 2

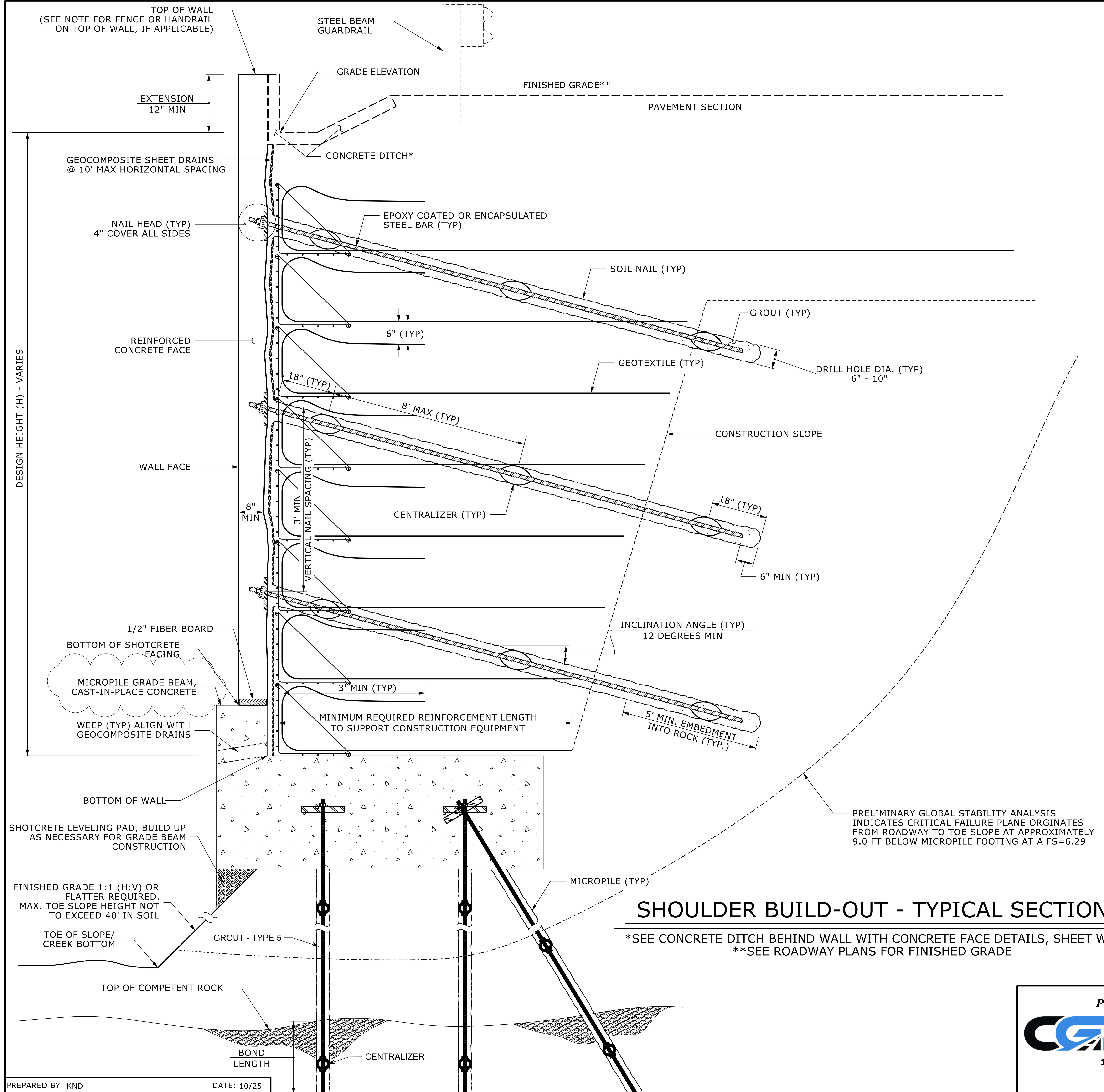
Prepared in the Office of:

CAROLINAS GEOTECHNICAL GROUP

1805 SARDIS ROAD NORTH
SUITE 100
CHARLOTTE, NC 28270
(980) 339-8684

SITE 943 RETAINING WALL
SOIL NAIL SHOULDER BUILD-OUT

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	W-6
1			3			
2			4			



SHOULDER BUILD-OUT - TYPICAL SECTION

*SEE CONCRETE DITCH BEHIND WALL WITH CONCRETE FACE DETAILS, SHEET W-1
**SEE ROADWAY PLANS FOR FINISHED GRADE

NOTES:

FOR SOIL NAIL SHOULDER BUILD-OUT, SEE SOIL NAIL RETAINING WALLS SPECIAL PROVISION.

FOR MICROPILE GRADE BEAM, SEE MICROPILE GRADE BEAM SPECIAL PROVISION.

FOR MICROPILES, SEE MICROPILE GRADE BEAM SPECIAL PROVISION.

DESIGN MICROPILE GRADE BEAM FOR A MINIMUM OF 5 FEET OF GROUND LOSS BELOW GRADE BEAM.

MICROPILE CASING MAY BE REQUIRED.

ESTABLISH THE BACK OF SOIL NAIL WALL FACE AT A 3.5' OR GREATER OFFSET FROM THE BACK OF THE EXISTING OR PROPOSED GUARDRAIL POST.

EXTEND THE TOP TWO LAYERS OF GEOTEXTILE TO CENTERLINE OF ROAD.

FOR SOIL NAIL RETAINING WALLS, SEE SOIL NAIL RETAINING WALLS SPECIAL PROVISION.

FOR STEEL BEAM GUARDRAIL, SEE ROADWAY PLANS AND SECTION 862 OF THE STANDARD SPECIFICATIONS.

BEFORE BEGINNING SOIL NAIL WALL DESIGN FOR SITE 943 RETAINING WALL, SURVEY WALL LOCATION AND SUBMIT A REVISED WALL PROFILE VIEW (WALL ENVELOPE) FOR REVIEW. DO NOT START WALL DESIGN OR CONSTRUCTION UNTIL THE REVISED WALL ENVELOPE IS ACCEPTED.

DESIGN SITE 943 RETAINING WALL FOR THE FOLLOWING:
1) DESIGN HEIGHT (H) = WALL HEIGHT + WALL EMBEDMENT
2) DESIGN LIFE = 75 YEARS
3) MINIMUM WALL EMBEDMENT DEPTH = 1 FT
4) ASSUMED BORROW MATERIAL PARAMETERS, SEE SECTION 1018 OF THE STANDARD SPECIFICATIONS
   UNIT WEIGHT, γ = 120 PCF
   FRICTION ANGLE, φ = 30 DEGREES
   COHESION, c = 0 PSF
5) IN-SITU ASSUMED MATERIAL PARAMETERS RESIDUAL SOIL:
   UNIT WEIGHT, γ = 120 PCF
   FRICTION ANGLE, φ = 30 DEGREES
   COHESION, c = 0 PSF
6) IN-SITU ASSUMED MATERIAL PARAMETERS WEATHERED ROCK:
   UNIT WEIGHT, γ = 134 PCF
   FRICTION ANGLE, φ = 32 DEGREES
   COHESION, c = 500 PSF
7) IN-SITU ASSUMED MATERIAL PARAMETERS CRYSTALLINE ROCK:
   UNIT WEIGHT, γ = 170 PCF
   FRICTION ANGLE, φ = 34 DEGREES
   COHESION, c = 1,000 PSF

EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, FENCE OR HANDRAIL POSTS, PAVEMENTS, PIPES, INLETS OR UTILITIES MAY INTERFERE WITH SOIL NAILS FOR SITE 943 RETAINING WALL.

"TEMPORARY SHORING" MAY BE REQUIRED FOR SITE 943 RETAINING WALL IN ACCORDANCE WITH THE TEMPORARY SHORING PROVISION. SEE ROADWAY OR TRAFFIC CONTROL PLANS.

GEOTECHNICAL ENGINEER	ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 042642 ENGINEER ROBERT E. KRAL; Signed by: Robert E. Kral; 03/13/2026; SIGNATURE DATE	SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT NO.: W03293

POLK COUNTY

RETAINING WALL: -L943-942- STA. 13+75.00 TO 14+75.00, RT

SHEET 2 OF 2

Prepared in the Office of:

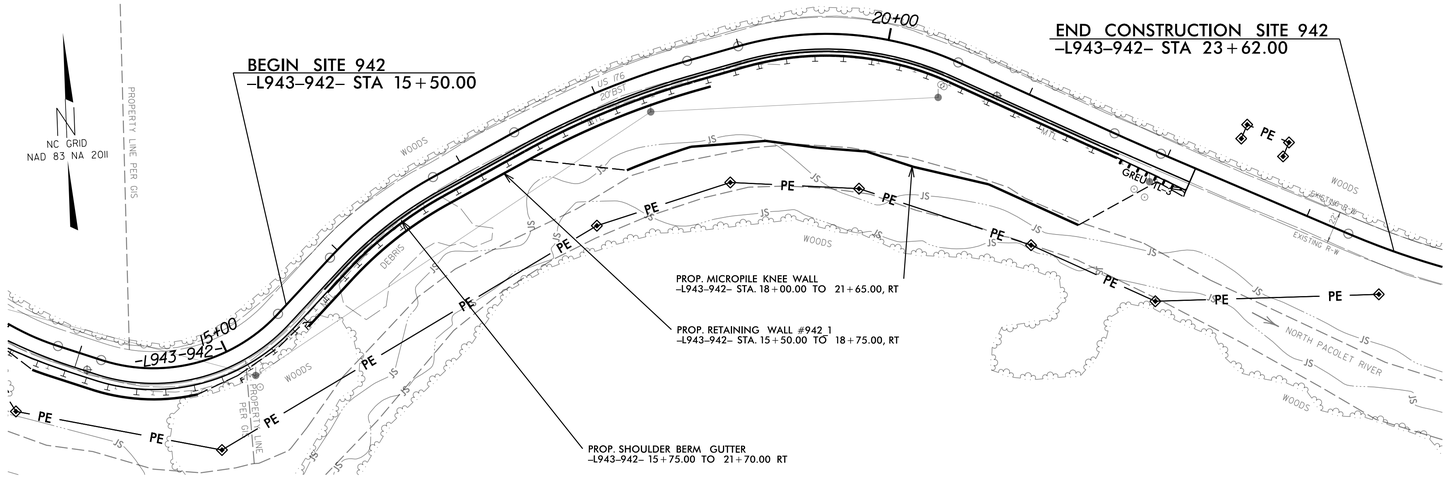
CAROLINAS GEOTECHNICAL GROUP
1805 SARDIS ROAD NORTH
SUITE 100
CHARLOTTE, NC 28270
(980) 339-8684

SITE 943 RETAINING WALL
SOIL NAIL SHOULDER BUILD-OUT

REVISIONS							SHEET NO.
NO.	BY	DATE	NO.	BY	DATE		W-7
1	KND	03/26	3				
2			4				

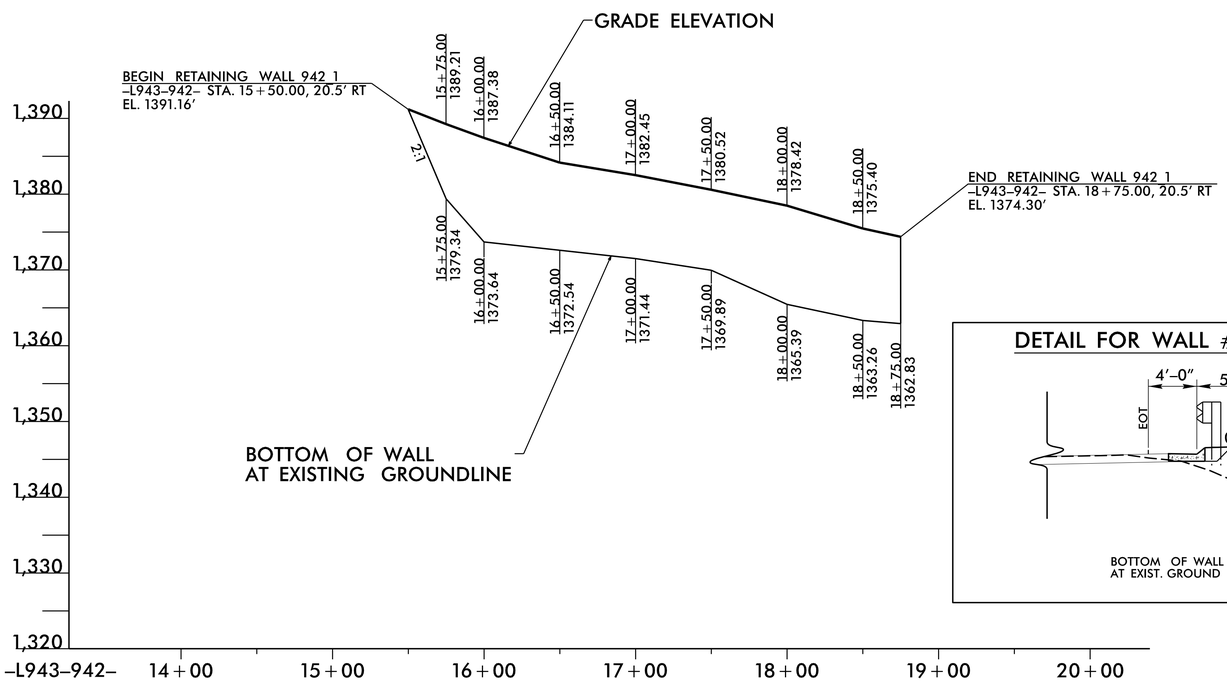
PREPARED BY: KND	DATE: 10/25
REVIEWED BY: REK	DATE: 10/25

SITE 942 RETAINING WALL:



SITE 942 – PLAN

NOT TO SCALE

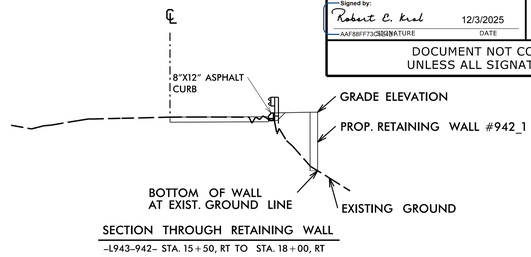


RETAINING WALL #942_1 – ENVELOPE

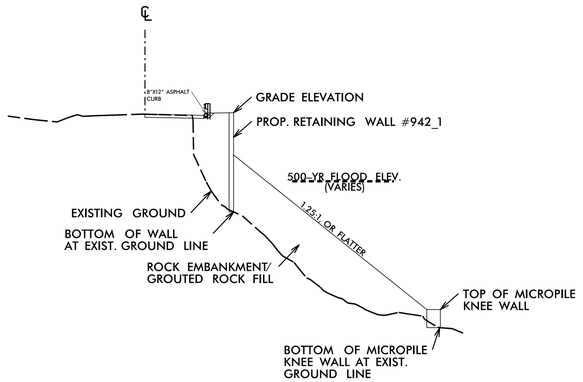
NOT TO SCALE
(LOOKING AT FACE OF WALL)

THE WALL ENVELOPE DOES NOT ACCURATELY DEPICT THE ACTUAL WALL FACE OF WALL #942_1 AT THE FOLLOWING LOCATIONS:
–L943–942– STA. 15+93.02 TO 16+79.71, RT
AND –L943–942– STA. 17+40.92 TO 18+64.72, RT

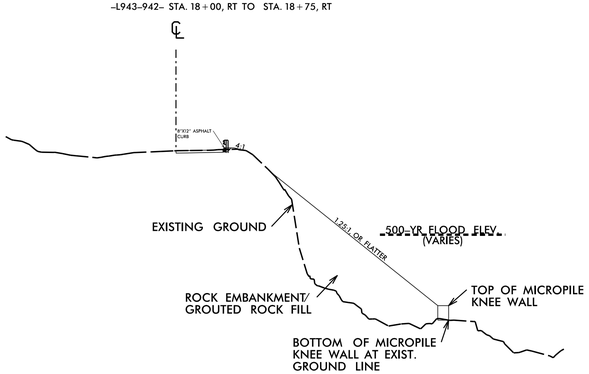
DETAIL FOR WALL #942_1



SECTION THROUGH RETAINING WALL
–L943–942– STA. 15+50, RT TO STA. 18+00, RT



SECTION THROUGH RETAINING WALL
–L943–942– STA. 18+00, RT TO STA. 18+75, RT



SECTION THROUGH RETAINING WALL
–L943–942– STA. 18+75, RT TO STA. 21+65, RT

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 042642 ROBERT E. KRAL

Signed by: Robert E. Kral 12/3/2025
AAF88FF73C5B4BA... SIGNATURE DATE

ENGINEER

SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT NO.: W03293

POLK COUNTY

STATION: -L943-942- STA. 15+50.00 TO 23+62.00, RT

SHEET 1 OF 4

PREPARED BY: KND	DATE: 10/25
REVIEWED BY: REK	DATE: 10/25

RETAINING WALL ENVELOPE AND DESIGN LAYOUT PROVIDED BY TGS JULY 30, 2025.

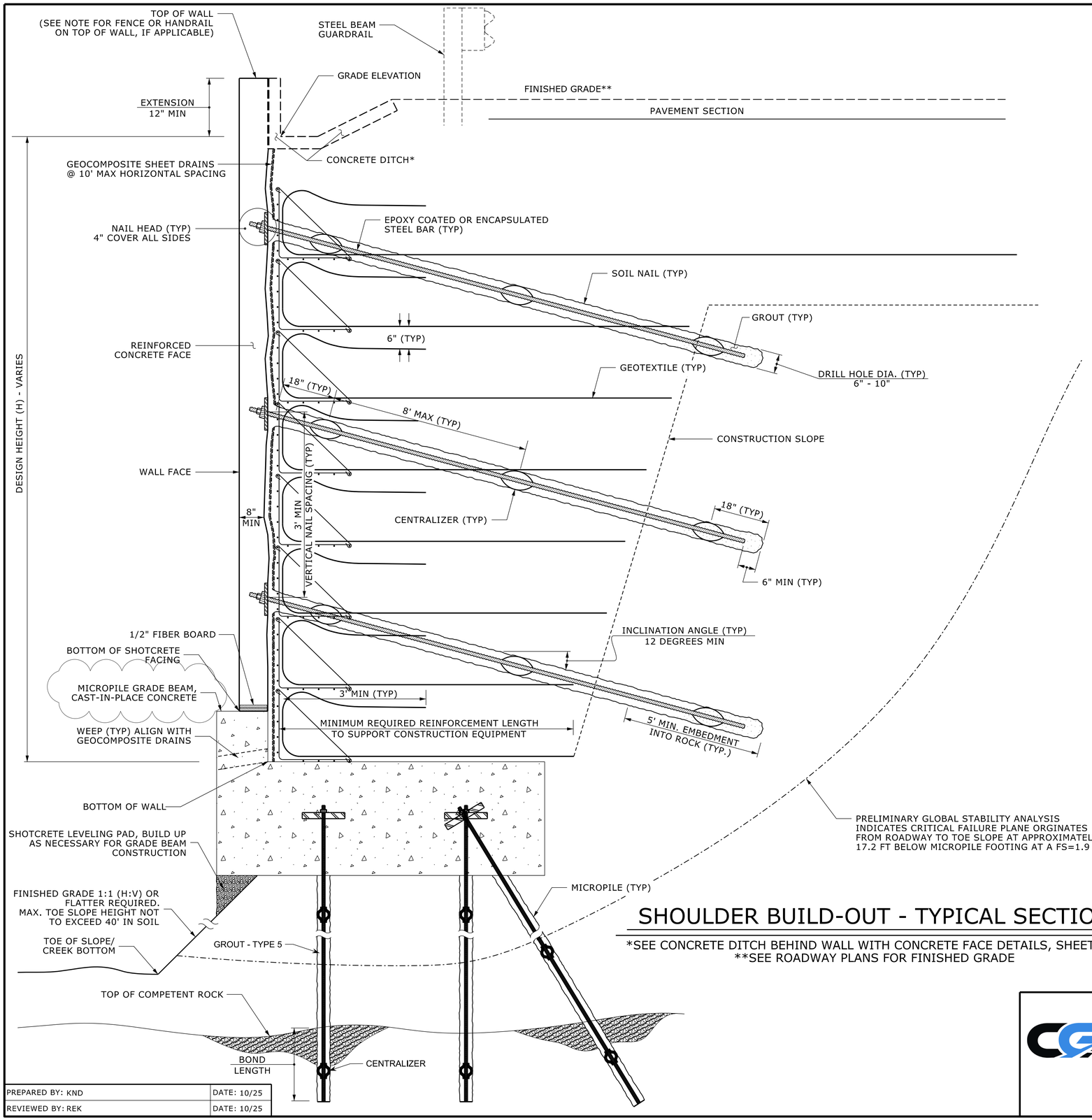
Prepared in the Office of:
CAROLINAS GEOTECHNICAL GROUP
1805 SARDIS ROAD NORTH
SUITE 100
CHARLOTTE, NC 28270
(980) 339-8684

SITE 942 RETAINING WALL SHOULDER BUILD-OUT & ROCK EMBANKMENT WITH MICROPILE KNEE WALL

REVISIONS

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

SHEET NO. W-8



SHOULDER BUILD-OUT - TYPICAL SECTION

*SEE CONCRETE DITCH BEHIND WALL WITH CONCRETE FACE DETAILS, SHEET W-6
**SEE ROADWAY PLANS FOR FINISHED GRADE

PREPARED BY: KND	DATE: 10/25
REVIEWED BY: REK	DATE: 10/25

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 042642 ENGINEER ROBERT E. KRAL

Signed by: Robert E. Kral 03/13/2026
AAF88FF7... SIGNATURE DATE

ENGINEER

SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NOTES:

FOR SOIL NAIL SHOULDER BUILD-OUT, SEE SOIL NAIL RETAINING WALLS SPECIAL PROVISION.

FOR MICROPILE GRADE BEAM, SEE MICROPILE GRADE BEAM SPECIAL PROVISION.

FOR MICROPILES, SEE MICROPILE GRADE BEAM SPECIAL PROVISION.

DESIGN MICROPILE GRADE BEAM FOR A MINIMUM OF 5 FEET OF GROUND LOSS BELOW GRADE BEAM.

MICROPILE CASING MAY BE REQUIRED.

ESTABLISH THE BACK OF SOIL NAIL WALL FACE AT A 3.5' OR GREATER OFFSET FROM THE BACK OF THE EXISTING OR PROPOSED GUARDRAIL POST.

EXTEND THE TOP TWO LAYERS OF GEOTEXTILE TO CENTERLINE OF ROAD.

FOR SOIL NAIL RETAINING WALLS, SEE SOIL NAIL RETAINING WALLS SPECIAL PROVISION.

DESIGN SOIL NAIL RETAINING WALL AND MICROPILE GRADE BEAM FOR INTERNAL, EXTERNAL, AND GLOBAL STABILITY.

FOR STEEL BEAM GUARDRAIL, SEE ROADWAY PLANS AND SECTION 862 OF THE STANDARD SPECIFICATIONS.

BEFORE BEGINNING SOIL NAIL WALL DESIGN FOR SITE 942 RETAINING WALL, SURVEY WALL LOCATION AND SUBMIT A REVISED WALL PROFILE VIEW (WALL ENVELOPE) FOR REVIEW. DO NOT START WALL DESIGN OR CONSTRUCTION UNTIL THE REVISED WALL ENVELOPE IS ACCEPTED.

DESIGN SITE 942 RETAINING WALL FOR THE FOLLOWING:
1) DESIGN HEIGHT (H) = WALL HEIGHT + WALL EMBEDMENT
2) DESIGN LIFE = 75 YEARS
3) MINIMUM WALL EMBEDMENT DEPTH = 1 FT
4) ROCK EMBANKMENT PARAMETERS:
   UNIT WEIGHT, γ = 135 PCF
   FRICTION ANGLE, φ = 42 DEGREES
   COHESION, c = 0 PSF
5) ASSUMED BORROW MATERIAL PARAMETERS, SEE SECTION 1018 OF THE STANDARD SPECIFICATIONS
   UNIT WEIGHT, γ = 120 PCF
   FRICTION ANGLE, φ = 30 DEGREES
   COHESION, c = 0 PSF
6) IN-SITU ASSUMED MATERIAL PARAMETERS RESIDUAL SOIL:
   UNIT WEIGHT, γ = 120 PCF
   FRICTION ANGLE, φ = 30 DEGREES
   COHESION, c = 0 PSF
7) IN-SITU ASSUMED MATERIAL PARAMETERS CRYSTALLINE ROCK:
   UNIT WEIGHT, γ = 170 PCF
   FRICTION ANGLE, φ = 34 DEGREES
   COHESION, c = 1,000 PSF

EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, FENCE OR HANDRAIL POSTS, PAVEMENTS, PIPES, INLETS OR UTILITIES MAY INTERFERE WITH SOIL NAILS FOR SITE 942 RETAINING WALL.

"TEMPORARY SHORING" MAY BE REQUIRED FOR SITE 942 RETAINING WALL IN ACCORDANCE WITH THE TEMPORARY SHORING PROVISION. SEE ROADWAY OR TRAFFIC CONTROL PLANS.

PROJECT NO.: W03293

POLK COUNTY

STATION: -L943-942- STA. 15+50.00 TO 23+62.00, RT

SHEET 2 OF 4

Prepared in the Office of:

CAROLINAS GEOTECHNICAL GROUP

1805 SARDIS ROAD NORTH
SUITE 100
CHARLOTTE, NC 28270
(980) 339-8684

SITE 942 RETAINING WALL
SHOULDER BUILD-OUT &
ROCK EMBANKMENT WITH
MICROPILE KNEE WALL

REVISIONS

NO.	BY	DATE	NO.	BY	DATE
1	KND	03/26	3		
2			4		

SHEET NO. W-9

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 042642 ENGINEER ROBERT E. KRAL

Signed by: Robert E. Kral 12/3/2025

SIGNATURE DATE

ENGINEER

SIGNATURE DATE

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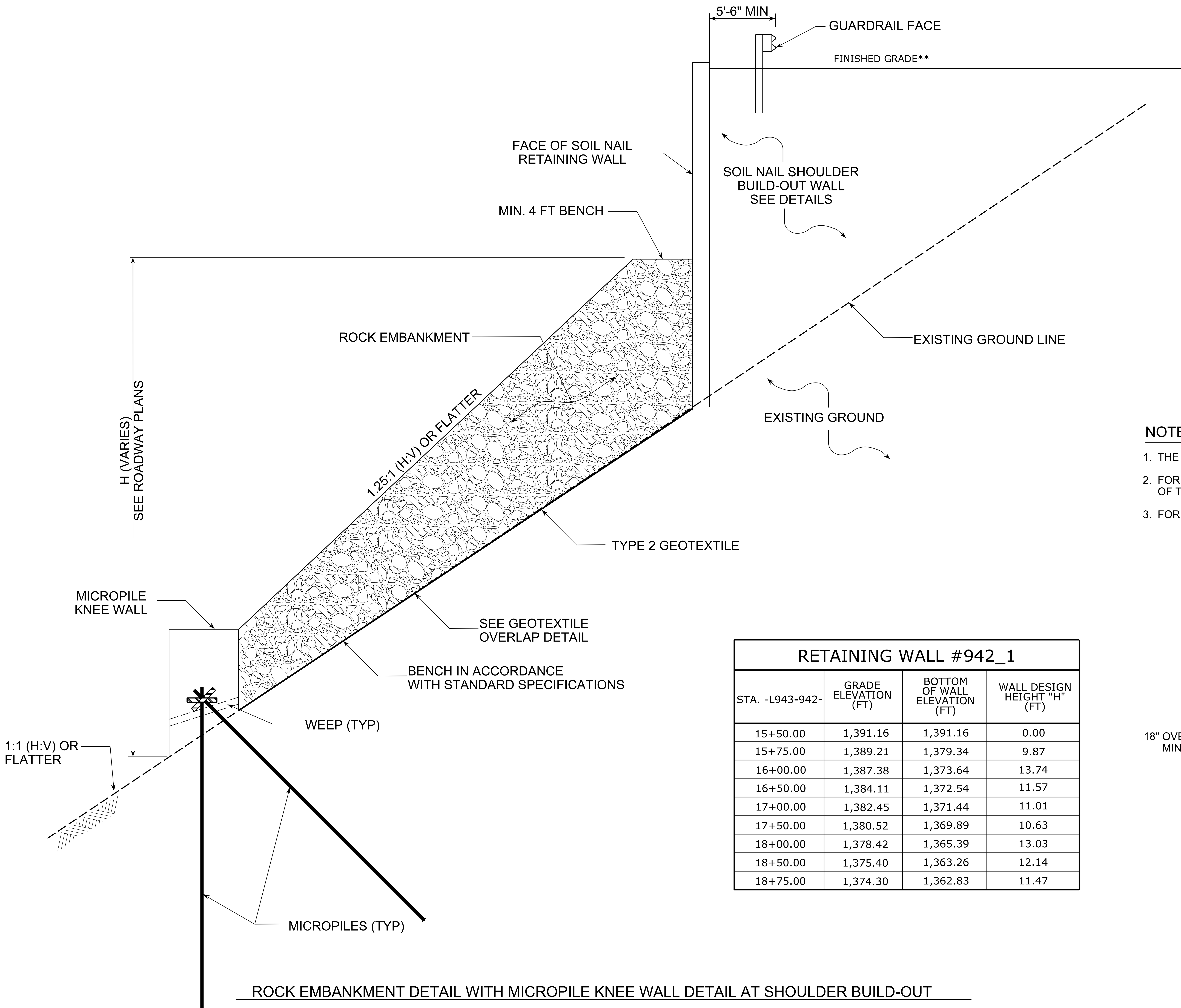
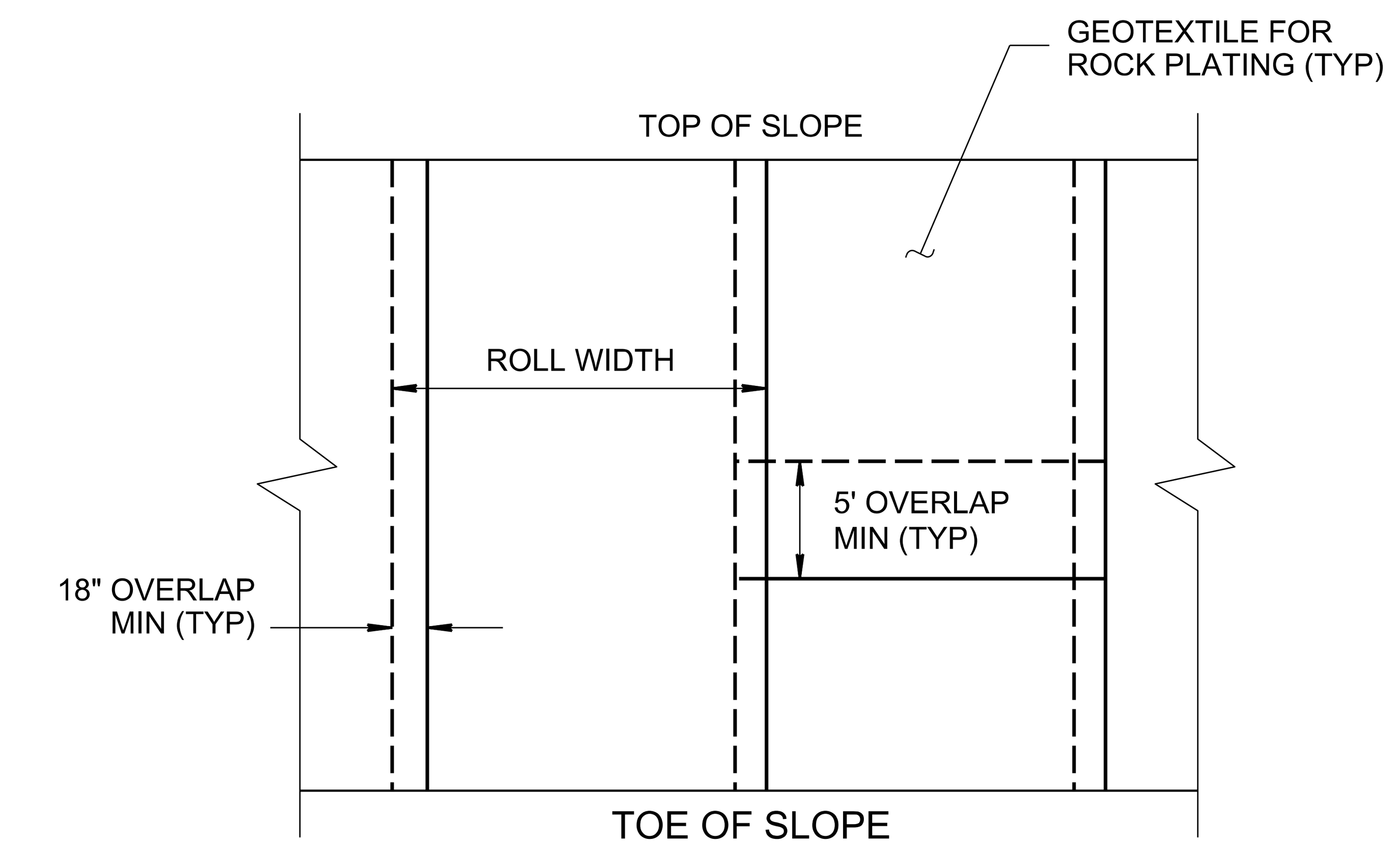


ROCK EMBANKMENT DETAIL WITH MICROPILE KNEE WALL DETAIL AT SHOULDER BUILD-OUT

-L943-942- STA. 18+00.00 TO 18+75.00, RT

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 MICROPILE KNEE WALL, SEE THE MICROPILE GRADE BEAM SPECIAL PROVISION.



GEOTEXTILE OVERLAP DETAIL

(PLAN VIEW)

RETAINING WALL #942_1

STA. -L943-942-	GRADE ELEVATION (FT)	BOTTOM OF WALL ELEVATION (FT)	WALL DESIGN HEIGHT "H" (FT)
15+50.00	1,391.16	1,391.16	0.00
15+75.00	1,389.21	1,379.34	9.87
16+00.00	1,387.38	1,373.64	13.74
16+50.00	1,384.11	1,372.54	11.57
17+00.00	1,382.45	1,371.44	11.01
17+50.00	1,380.52	1,369.89	10.63
18+00.00	1,378.42	1,365.39	13.03
18+50.00	1,375.40	1,363.26	12.14
18+75.00	1,374.30	1,362.83	11.47

PROJECT NO.: W03293

POLK COUNTY

STATION: -L943-942- STA. 15+50.00 TO 23+62.00, RT

SHEET 3 OF 4

Prepared in the Office of:

CAROLINAS GEOTECHNICAL GROUP

1805 SARDIS ROAD NORTH
SUITE 100
CHARLOTTE, NC 28270
(980) 339-8684

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

SITE 942 RETAINING WALL SHOULDER BUILD-OUT & ROCK EMBANKMENT WITH MICROPILE KNEE WALL

REVISIONS

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

SHEET NO. W-10

PREPARED BY: KND	DATE: 10/25
REVIEWED BY: REK	DATE: 10/25

GEOTECHNICAL ENGINEER	ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 042642 ENGINEER ROBERT E. KRAL Signed by: Robert E. Kral 12/3/2025 SIGNATURE DATE	SIGNATURE DATE

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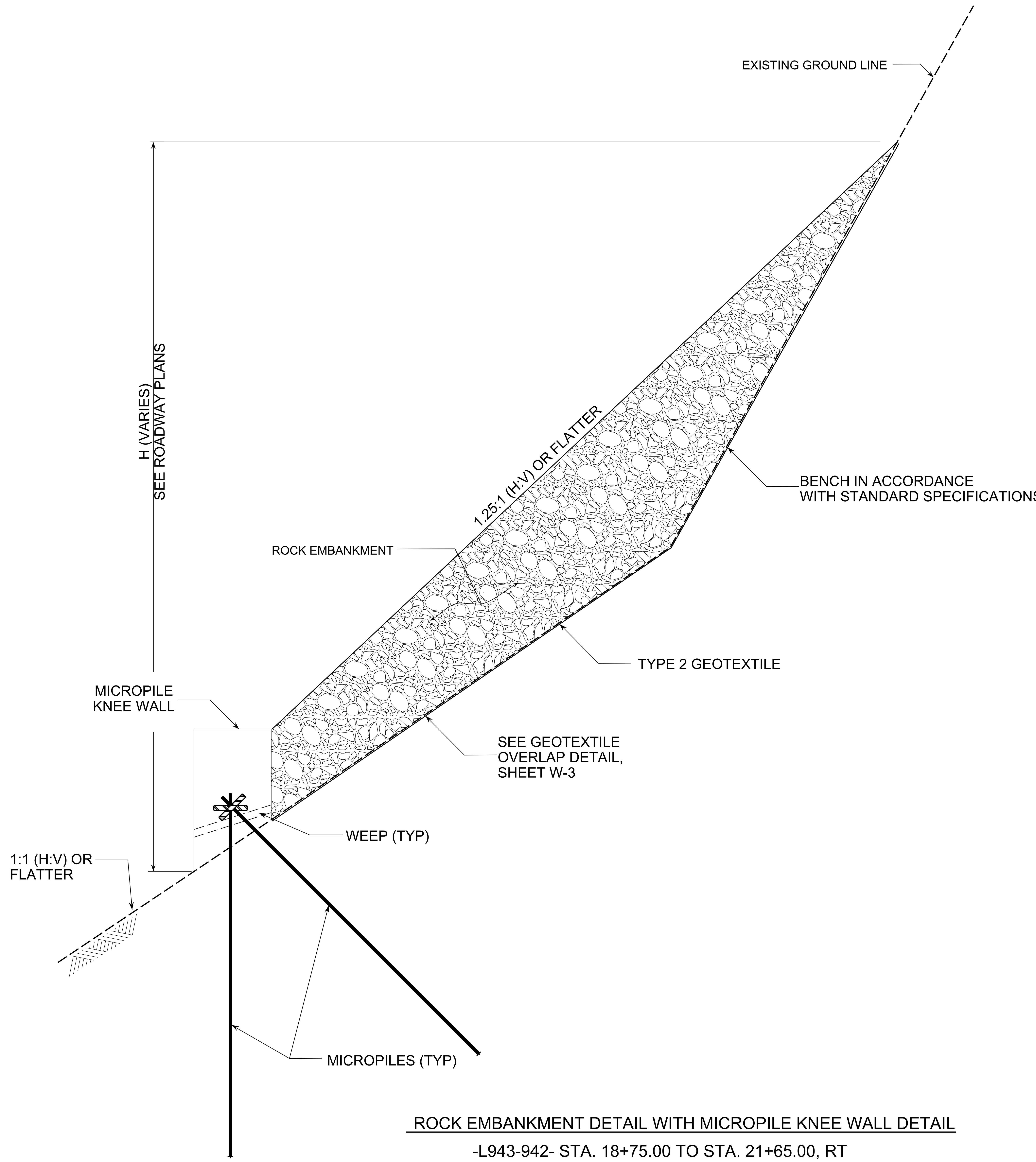


ROCK EMBANKMENT DETAIL WITH MICROPILE KNEE WALL DETAIL

-L943-942- STA. 18+75.00 TO STA. 21+65.00, RT

ESTIMATED QUANTITIES - SITE 942

SOIL NAIL RETAINING WALL	3,680 SF
MICROPILE GRADE BEAM	325 LF
ROCK EMBANKMENTS	16,800 TON
GEOTEXTILE FOR ROCK EMBANKMENTS	3,850 SY
MICROPILE GRADE BEAM	365 LF
GROUT FOR ROCK FILL	750 CY

ROCK EMBANKMENT WITH MICROPILE KNEE WALL

STA. -L943-942-	TOP OF SLOPE OFFSET (FT)	TOP OF KNEE WALL OFFSET (FT)	TOP OF WALL ELEVATION (FT)	BOTTOM OF KNEE WALL ELEVATION (FT)	500-YR FLOOD ELEVATION (FT)	MIN. ROCK FILL ELEVATION (FT)
18+00.00	20.5' RT	55.0' RT	1342.1	1338.1	1364.3	1366.3
18+50.00	20.5' RT	55.0' RT	1341.6	1337.6	1361.4	1363.4
19+00.00	19.5' RT	65.0' RT	1341.0	1337.0	1360.3	1362.3
19+50.00	19.5' RT	75.0' RT	1340.3	1336.3	1354.3	1356.3
20+00.00	19.5' RT	75.0' RT	1338.6	1334.6	1343.5	1345.5
20+50.00	19.5' RT	75.0' RT	1341.1	1337.1	1348.6	1350.6
21+00.00	19.5' RT	65.0' RT	1329.8	1325.8	1342.0	1344.0
21+50.00	19.5' RT	65.0' RT	1325.4	1321.4	1344.0	1346.0

PROJECT NO.: W03293

POLK COUNTY

STATION: -L943-942- STA. 15+50.00 TO 23+62.00, RT

SHEET 4 OF 4

Prepared in the Office of:

CAROLINAS GEOTECHNICAL GROUP
1805 SARDIS ROAD NORTH
SUITE 100
CHARLOTTE, NC 28270
(980) 339-8684

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

SITE 942 RETAINING WALL SHOULDER BUILD-OUT & ROCK EMBANKMENT WITH MICROPILE KNEE WALL

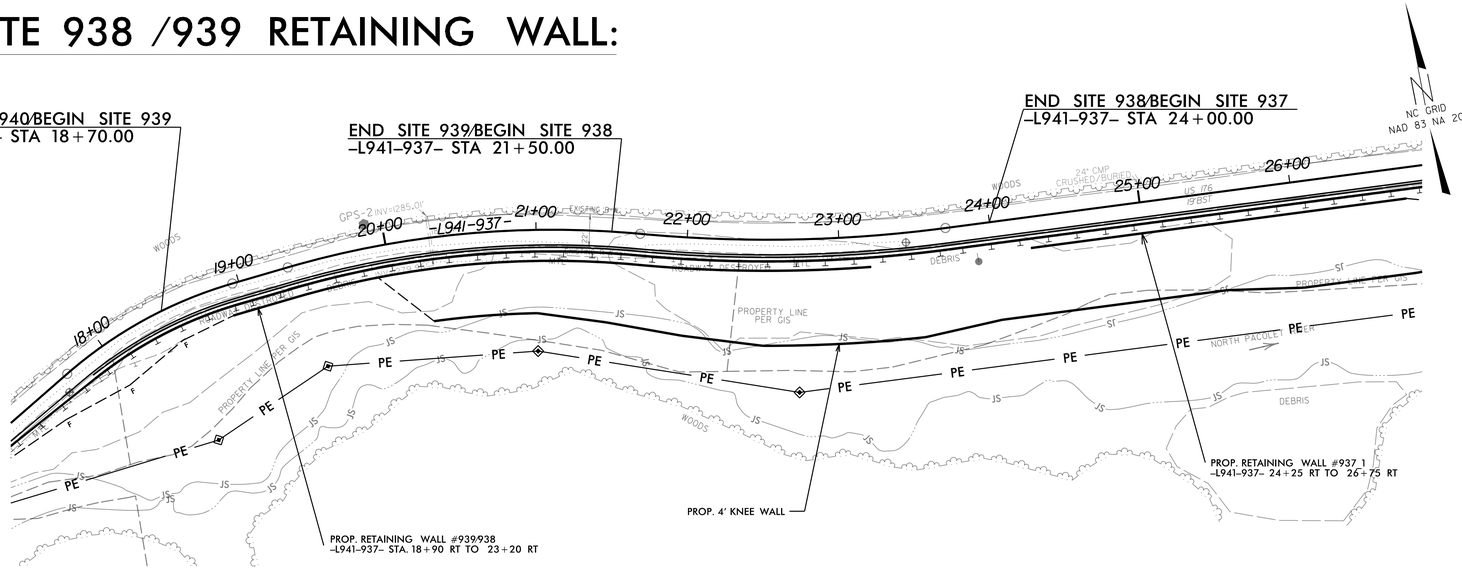
REVISIONS

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

SHEET NO. W-11

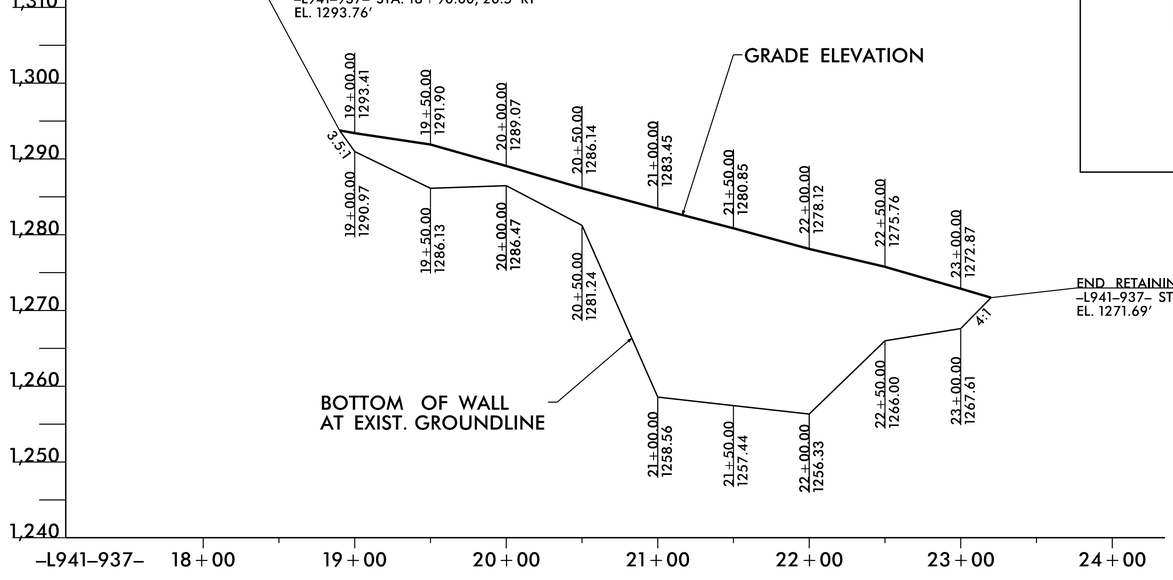
PREPARED BY: KND	DATE: 10/25
REVIEWED BY: REK	DATE: 10/25

SITE 938 /939 RETAINING WALL:



SITE 938 /939 – PLAN

NOT TO SCALE



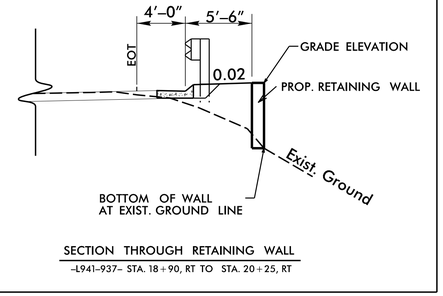
SITE 939:
BEGIN RETAINING WALL TO –L941–937– STA. 21+50.00

SITE 938:
–L941–937– STA. 21+50.00 TO END RETAINING WALL

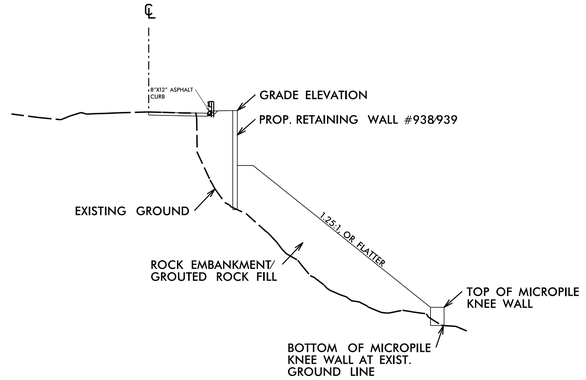
RETAINING WALL #938 /939 – ENVELOPE

NOT TO SCALE
(LOOKING AT FACE OF WALL)

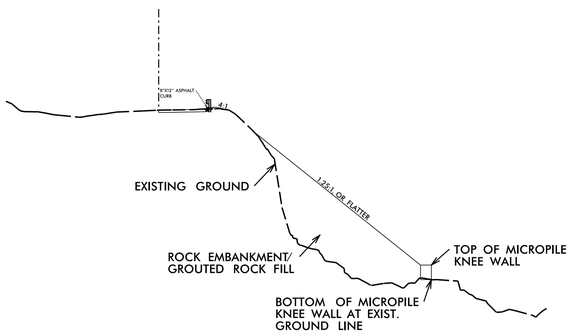
DETAIL FOR RETAINING WALL #939/938



SECTION THROUGH RETAINING WALL
–L941–937– STA. 18+90, RT TO STA. 20+25, RT



SECTION THROUGH RETAINING WALL
–L941–937– STA. 20+25, RT TO STA. 23+20, RT



TYPICAL SECTION
–L941–937– STA. 23+20, RT TO 23+50, RT

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 042642 ENGINEER ROBERT E. KOAL

Signed by: Robert E. Koal 12/3/2025
AAF88FF73C5B4BA... SIGNATURE DATE

ENGINEER

SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT NO.: W03293

POLK COUNTY

STATION: -L941-937- STA. 18+70.00 TO 23+50.00, RT

SHEET 1 OF 4

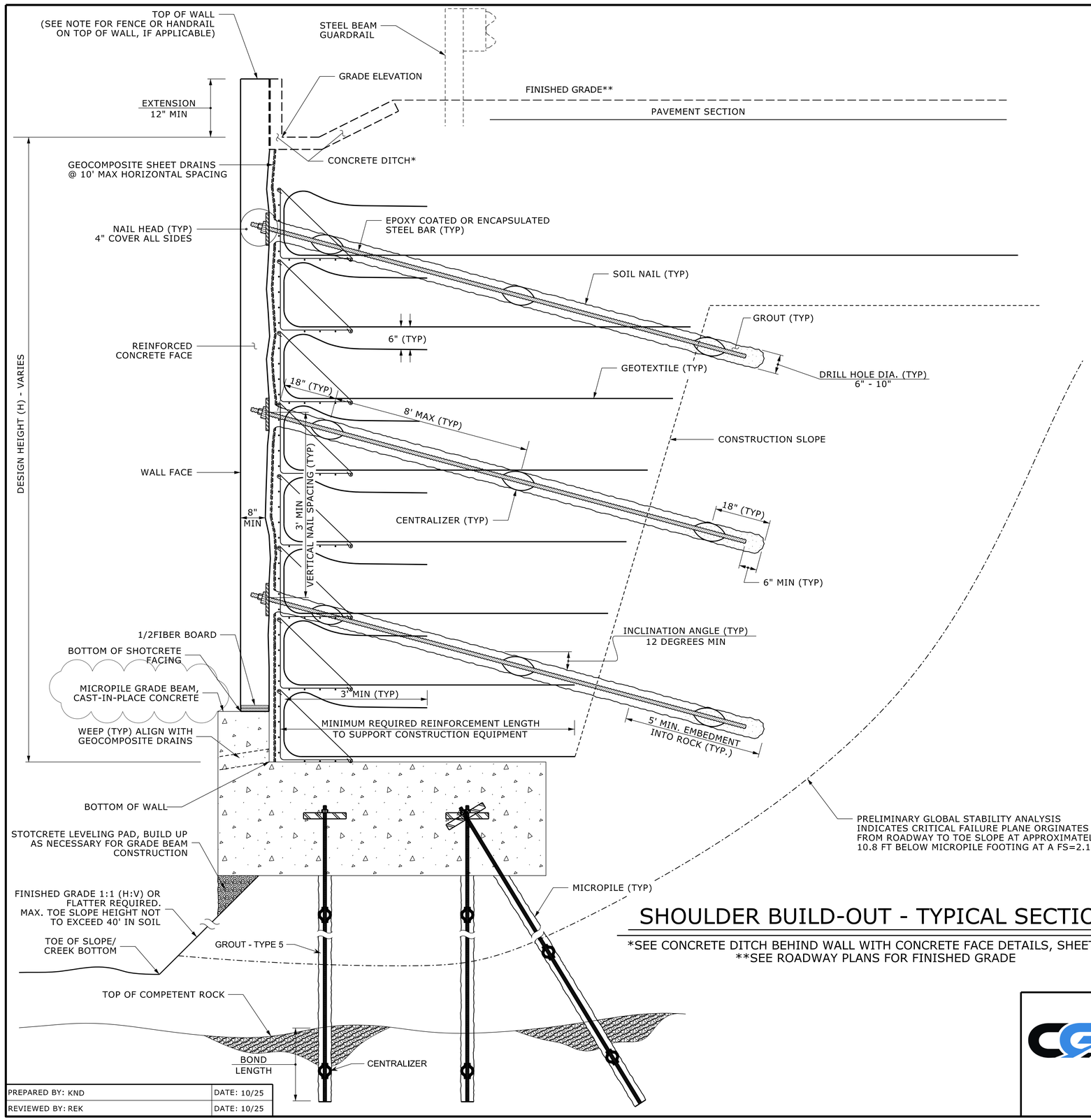
PREPARED BY: KND	DATE: 10/25
REVIEWED BY: REK	DATE: 10/25

RETAINING WALL ENVELOPES AND DESIGN LAYOUT PROVIDED BY TGS JULY 30, 2025.

Prepared in the Office of:
CAROLINAS GEOTECHNICAL GROUP
1805 SARDIS ROAD NORTH
SUITE 100
CHARLOTTE, NC 28270
(980) 339-8684

RETAINING WALL #938/939
SHOULDER BUILD-OUT &
ROCK EMBANKMENT WITH
MICROPILE KNEE WALL

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	W-12
1			3			
2			4			



SHOULDER BUILD-OUT - TYPICAL SECTION

*SEE CONCRETE DITCH BEHIND WALL WITH CONCRETE FACE DETAILS, SHEET W-6
**SEE ROADWAY PLANS FOR FINISHED GRADE

PREPARED BY: KND	DATE: 10/25
REVIEWED BY: REK	DATE: 10/25

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 042642 ENGINEER ROBERT E. KRAL

Signed by: Robert E. Kral 03/13/2026
AAF88FF7... SIGNATURE DATE

ENGINEER

SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NOTES:

FOR SOIL NAIL SHOULDER BUILD-OUT, SEE SOIL NAIL RETAINING WALLS SPECIAL PROVISION.

FOR MICROPILE GRADE BEAM, SEE MICROPILE GRADE BEAM SPECIAL PROVISION.

FOR MICROPILES, SEE MICROPILE GRADE BEAM SPECIAL PROVISION.

DESIGN MICROPILE GRADE BEAM FOR A MINIMUM OF 5 FEET OF GROUND LOSS BELOW GRADE BEAM.

MICROPILE CASING MAY BE REQUIRED.

ESTABLISH THE BACK OF SOIL NAIL WALL FACE AT A 3.5' OR GREATER OFFSET FROM THE BACK OF THE EXISTING OR PROPOSED GUARDRAIL POST.

EXTEND THE TOP TWO LAYERS OF GEOTEXTILE TO CENTERLINE OF ROAD.

FOR SOIL NAIL RETAINING WALLS, SEE SOIL NAIL RETAINING WALLS SPECIAL PROVISION.

DESIGN SOIL NAIL RETAINING WALL AND MICROPILE GRADE BEAM FOR INTERNAL, EXTERNAL, AND GLOBAL STABILITY.

FOR STEEL BEAM GUARDRAIL, SEE ROADWAY PLANS AND SECTION 862 OF THE STANDARD SPECIFICATIONS.

BEFORE BEGINNING SOIL NAIL WALL DESIGN FOR RETAINING WALL #938/939, SURVEY WALL LOCATION AND SUBMIT A REVISED WALL PROFILE VIEW (WALL ENVELOPE) FOR REVIEW. DO NOT START WALL DESIGN OR CONSTRUCTION UNTIL THE REVISED WALL ENVELOPE IS ACCEPTED.

DESIGN RETAINING WALL #938/939 FOR THE FOLLOWING:
1) DESIGN HEIGHT (H) = WALL HEIGHT + WALL EMBEDMENT
2) DESIGN LIFE = 75 YEARS
3) MINIMUM WALL EMBEDMENT DEPTH = 1 FT
4) ROCK EMBANKMENT PARAMETERS:
   UNIT WEIGHT, γ = 135 PCF
   FRICTION ANGLE, φ = 42 DEGREES
   COHESION, c = 0 PSF
5) ASSUMED BORROW MATERIAL PARAMETERS, SEE SECTION 1018 OF THE STANDARD SPECIFICATIONS
   UNIT WEIGHT, γ = 120 PCF
   FRICTION ANGLE, φ = 30 DEGREES
   COHESION, c = 0 PSF
6) IN-SITU ASSUMED MATERIAL PARAMETERS RESIDUAL SOIL:
   UNIT WEIGHT, γ = 120 PCF
   FRICTION ANGLE, φ = 30 DEGREES
   COHESION, c = 0 PSF
7) IN-SITU ASSUMED MATERIAL PARAMETERS CRYSTALLINE ROCK:
   UNIT WEIGHT, γ = 170 PCF
   FRICTION ANGLE, φ = 34 DEGREES
   COHESION, c = 1,000 PSF

EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, FENCE OR HANDRAIL POSTS, PAVEMENTS, PIPES, INLETS OR UTILITIES MAY INTERFERE WITH SOIL NAILS FOR RETAINING WALL #938/939.

"TEMPORARY SHORING" MAY BE REQUIRED FOR RETAINING WALL #938/939 IN ACCORDANCE WITH THE TEMPORARY SHORING PROVISION. SEE ROADWAY OR TRAFFIC CONTROL PLANS.

PROJECT NO.: W03293

POLK COUNTY

STATION: -L941-937- STA. 18+70.00 TO 23+50.00, RT

SHEET 2 OF 4

Prepared in the Office of:
CAROLINAS GEOTECHNICAL GROUP
1805 SARDIS ROAD NORTH
SUITE 100
CHARLOTTE, NC 28270
(980) 339-8684

RETAINING WALL #938/939
SHOULDER BUILD-OUT &
ROCK EMBANKMENT WITH
MICROPILE KNEE WALL

REVISIONS

NO.	BY	DATE	NO.	BY	DATE
1	KND	03/26	3		
2			4		

SHEET NO. W-13

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 042642 ENGINEER ROBERT E. KRAL

Signed by: Robert E. Kral AAF88FF73C5B4NATURE 12/3/2025 DATE

ENGINEER

SIGNATURE DATE

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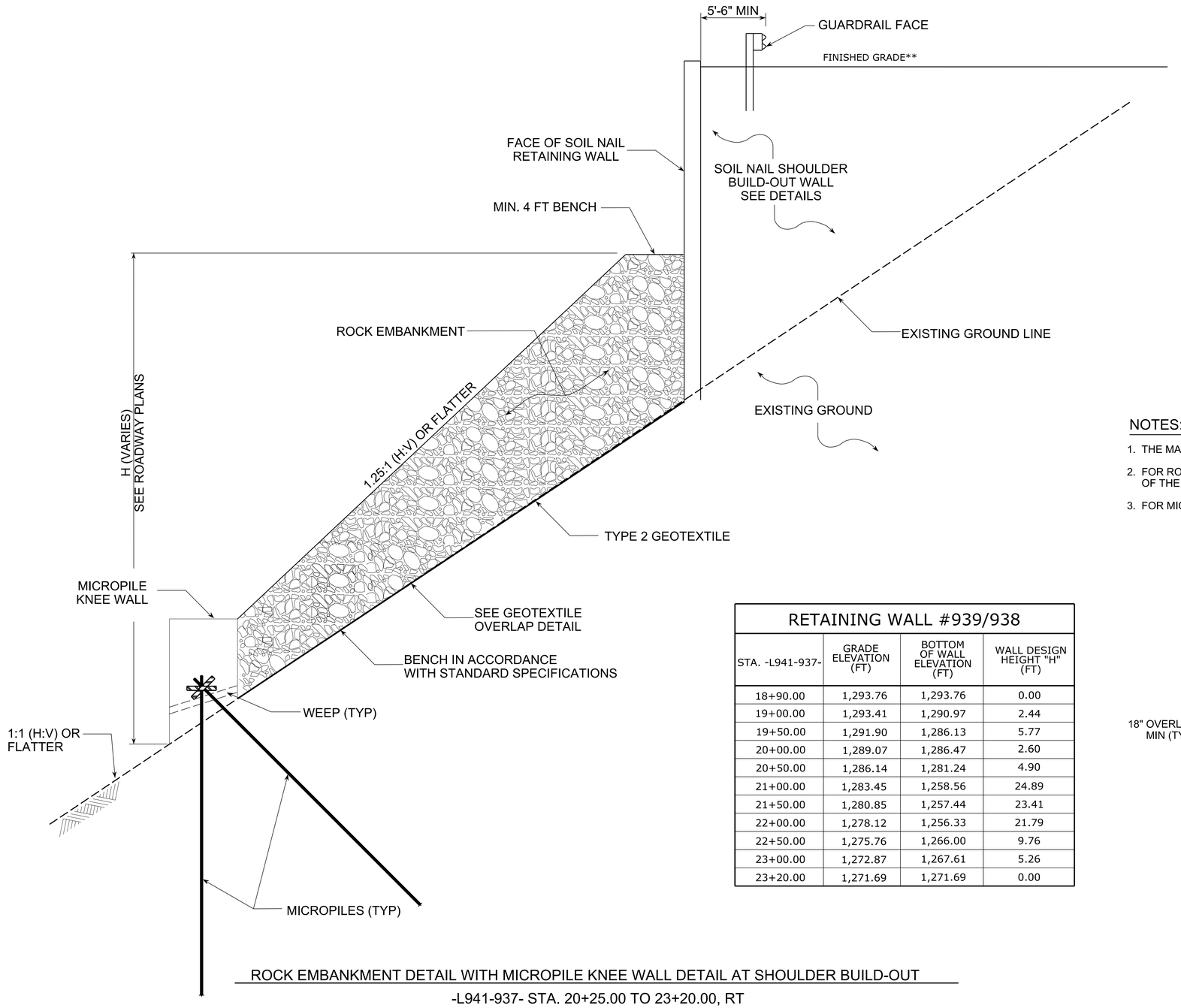


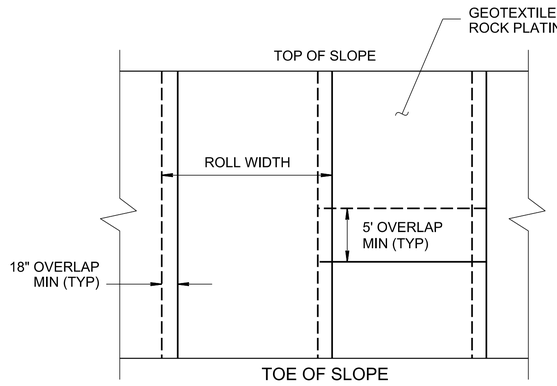
ROCK EMBANKMENT DETAIL WITH MICROPILE KNEE WALL DETAIL AT SHOULDER BUILD-OUT

-L941-937- STA. 20+25.00 TO 23+20.00, RT

RETAINING WALL #939/938			
STA. -L941-937-	GRADE ELEVATION (FT)	BOTTOM OF WALL ELEVATION (FT)	WALL DESIGN HEIGHT "H" (FT)
18+90.00	1,293.76	1,293.76	0.00
19+00.00	1,293.41	1,290.97	2.44
19+50.00	1,291.90	1,286.13	5.77
20+00.00	1,289.07	1,286.47	2.60
20+50.00	1,286.14	1,281.24	4.90
21+00.00	1,283.45	1,258.56	24.89
21+50.00	1,280.85	1,257.44	23.41
22+00.00	1,278.12	1,256.33	21.79
22+50.00	1,275.76	1,266.00	9.76
23+00.00	1,272.87	1,267.61	5.26
23+20.00	1,271.69	1,271.69	0.00

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 MICROPILE KNEE WALL, SEE THE MICROPILE GRADE BEAM SPECIAL PROVISION.



GEOTEXTILE OVERLAP DETAIL

(PLAN VIEW)

PROJECT NO.: W03293

POLK COUNTY

STATION: -L941-937- STA. 18+70.00 TO 23+50.00, RT

SHEET 3 OF 4

PREPARED BY: KND	DATE: 10/25
REVIEWED BY: REK	DATE: 10/25

Prepared in the Office of:

CAROLINAS GEOTECHNICAL GROUP

1805 SARDIS ROAD NORTH
SUITE 100
CHARLOTTE, NC 28270
(980) 339-8684

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

RETAINING WALL #938/939
SHOULDER BUILD-OUT &
ROCK EMBANKMENT WITH
MICROPILE KNEE WALL

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	W-14
1			3			
2			4			

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 042642 ENGINEER ROBERT E. KRAL

Signed by: Robert E. Kral 12/3/2025
AAF88FF730C94BA... SIGNATURE DATE

ENGINEER

SIGNATURE DATE

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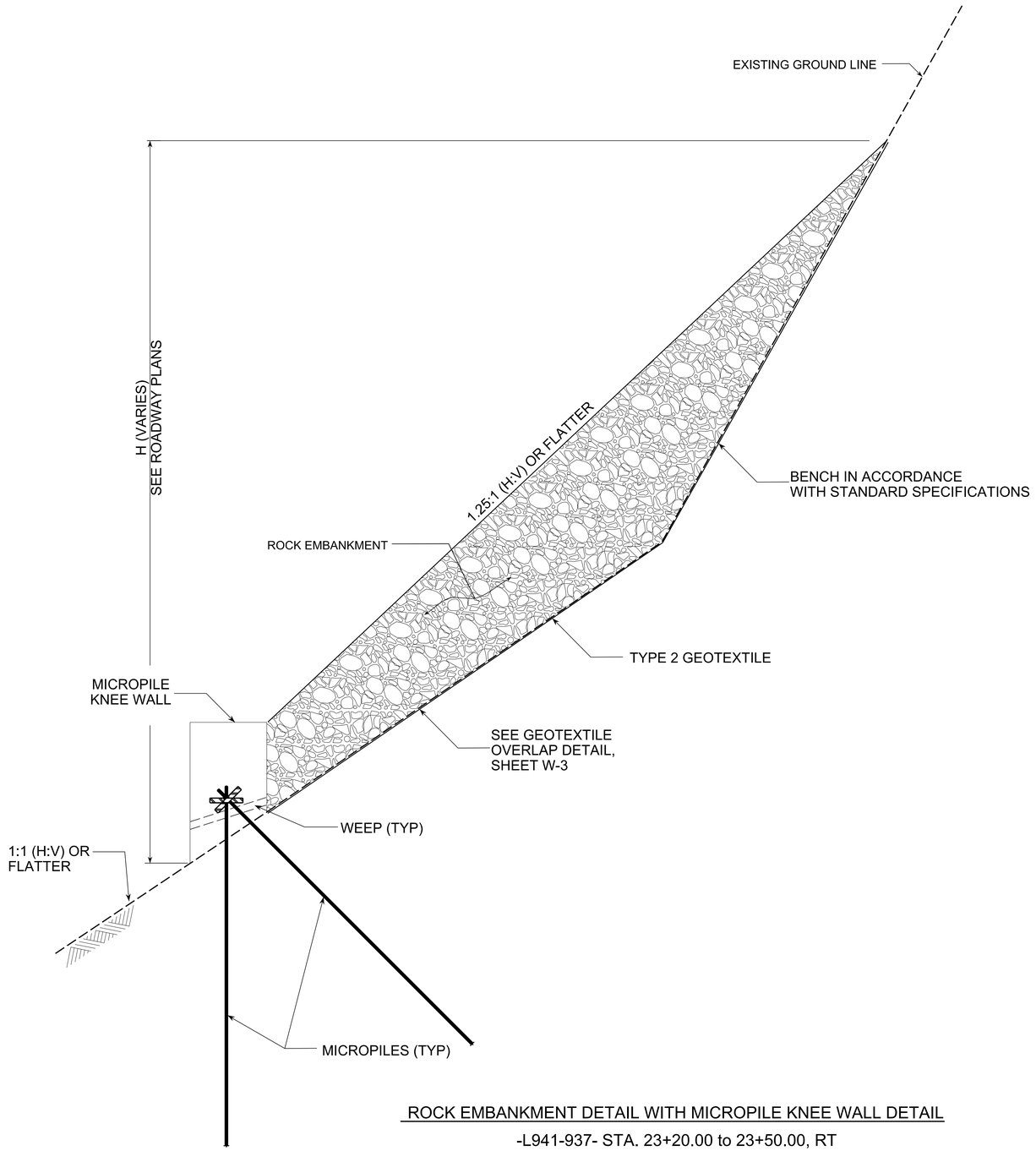


ROCK EMBANKMENT DETAIL WITH MICROPILE KNEE WALL DETAIL

-L941-937- STA. 23+20.00 to 23+50.00, RT

ESTIMATED QUANTITIES - SITE 939

SOIL NAIL RETAINING WALL #938/939	2,575 SF
MICROPILE GRADE BEAM	260 LF
ROCK EMBANKMENTS	4,250 TON
GEOTEXTILE FOR ROCK EMBANKMENTS	1,050 SY
MICROPILE GRADE BEAM	125 LF
GROUT FOR ROCK FILL	150 CY

ESTIMATED QUANTITIES - SITE 938

SOIL NAIL RETAINING WALL #938/939	2,350 SF
MICROPILE GRADE BEAM	200 LF
ROCK EMBANKMENTS	6,800 TON
GEOTEXTILE FOR ROCK EMBANKMENTS	1,675 SY
MICROPILE GRADE BEAM	200 LF
GROUT FOR ROCK FILL	375 CY

ROCK EMBANKMENT WITH MICROPILE KNEE WALL

STA. -L941-937-	TOP OF SLOPE OFFSET (FT)	TOP OF KNEE WALL OFFSET (FT)	TOP OF KNEE WALL ELEVATION (FT)	BOTTOM OF KNEE WALL ELEVATION (FT)	500-YR FLOOD ELEVATION (FT)	MIN. ROCK FILL ELEVATION (FT)
20+50.00	29.6' RT	55.0' RT	1245.8	1241.8	1281.7	1283.7
21+00.00	20.5' RT	55.0' RT	1241.2	1237.2	1274.0	1276.0
21+50.00	20.5' RT	60.0' RT	1239.8	1235.8	1270.0	1272.0
22+00.00	20.5' RT	65.0' RT	1237.5	1233.5	1262.7	1264.7
22+50.00	20.5' RT	70.0' RT	1234.0	1230.0	1256.2	1258.2
23+00.00	20.5' RT	70.0' RT	1233.0	1229.0	1255.8	1257.8
23+50.00	19.5' RT	70.0' RT	1233.3	1229.3	1247.7	1249.7

PROJECT NO.: W03293

POLK COUNTY

STATION: -L941-937- STA. 18+70.00 TO 23+50.00, RT

SHEET 4 OF 4

PREPARED BY: KND	DATE: 10/25
REVIEWED BY: REK	DATE: 10/25

Prepared in the Office of:

CAROLINAS GEOTECHNICAL GROUP
1805 SARDIS ROAD NORTH
SUITE 100
CHARLOTTE, NC 28270
(980) 339-8684

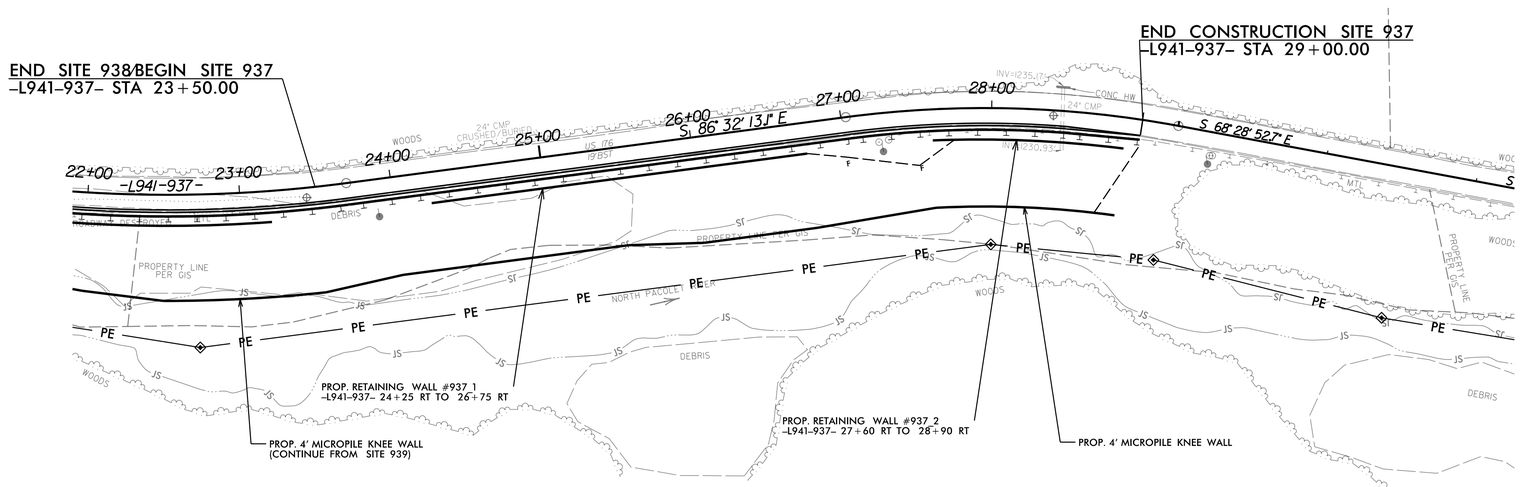
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

RETAINING WALL #938/939 SHOULDER BUILD-OUT & ROCK EMBANKMENT WITH MICROPILE KNEE WALL

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1			3			W-15
2			4			

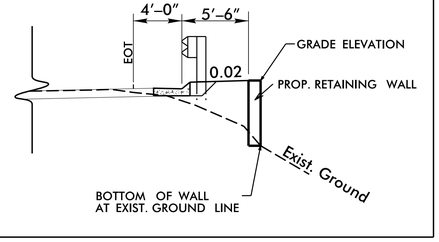
SITE 937 RETAINING WALLS:

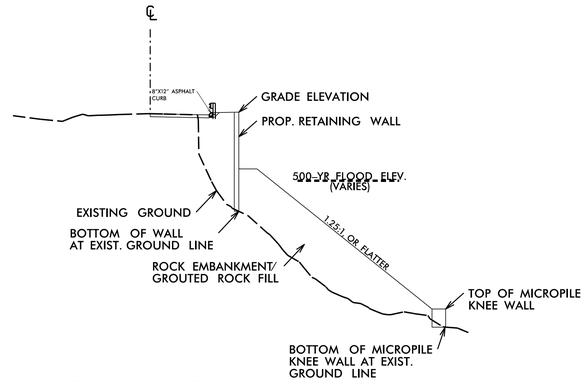


SITE 937 – PLAN

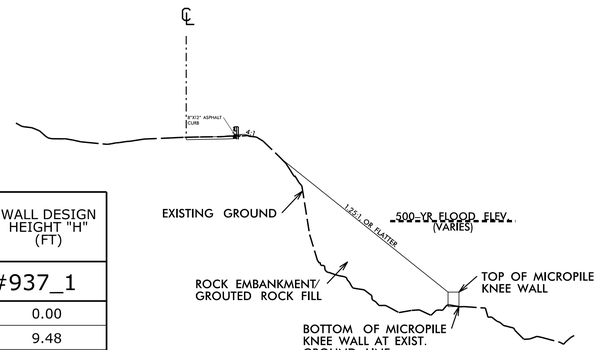
NOT TO SCALE

DETAIL FOR WALL #937_1 & 937_2

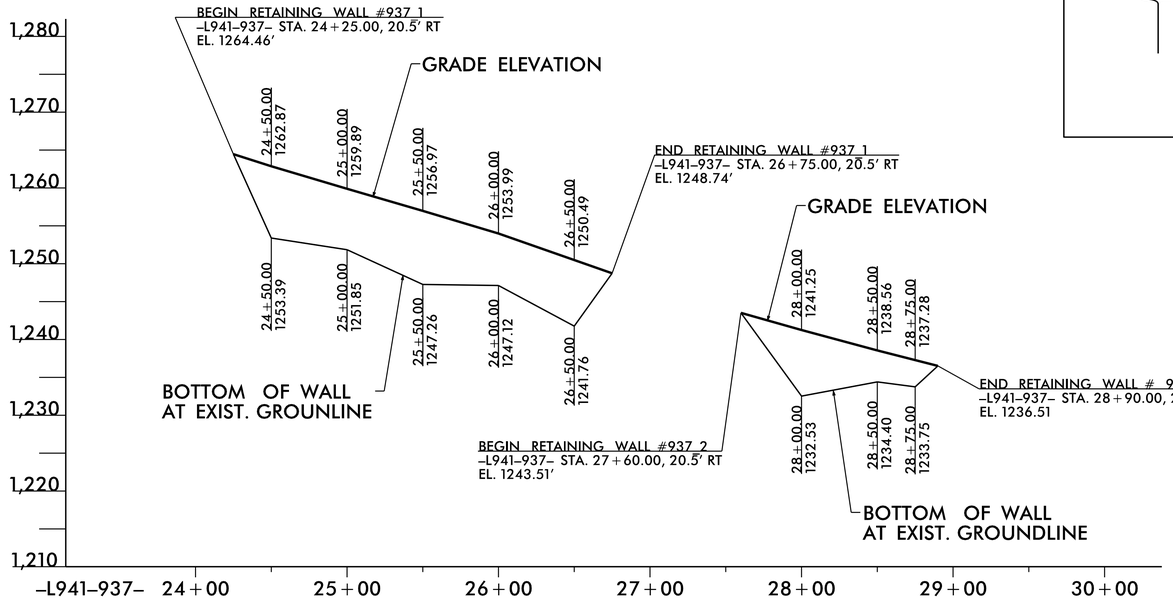




SECTION THROUGH RETAINING WALL
–L941–937– STA. 24+25, RT TO STA. 26+75, RT
–L941–937– STA. 27+60, RT TO STA. 28+90, RT



TYPICAL SECTION
–L941–937– STA. 23+50, RT TO STA. 24+25, RT
–L941–937– STA. 26+75, RT TO STA. 27+60, RT



RETAINING WALL #937_1 & #937_2 – ENVELOPE

NOT TO SCALE
(LOOKING AT FACE OF WALL)

THE WALL ENVELOPE DOES NOT ACCURATELY DEPICT THE ACTUAL WALL FACE OF WALL #937_2 AT THE FOLLOWING LOCATIONS:
–L941–937– STA. 27+60.00 TO 28+90.00, RT

STA. -L941-937-	GRADE ELEVATION (FT)	BOTTOM OF WALL ELEVATION (FT)	WALL DESIGN HEIGHT "H" (FT)
SITE 937 RETAINING WALL #937_1			
24+25.00	1,264.46	1,264.46	0.00
24+50.00	1,262.87	1,253.39	9.48
25+00.00	1,259.89	1,251.85	8.04
25+50.00	1,256.97	1,247.26	9.71
26+00.00	1,253.99	1,247.12	6.87
26+50.00	1,250.49	1,241.76	8.73
26+75.00	1,248.74	1,248.74	0.00
SITE 937 RETAINING WALL #937_2			
27+60.00	1,243.51	1,243.41	0.00
28+00.00	1,241.25	1,232.53	8.72
28+50.00	1,238.56	1,234.40	4.16
28+75.00	1,237.28	1,233.75	3.53
28+90.00	1,236.51	1,236.51	0.00

PREPARED BY: KND	DATE: 10/25
REVIEWED BY: REK	DATE: 10/25

RETAINING WALL ENVELOPES AND DESIGN LAYOUT PROVIDED BY TGS JULY 30, 2025.

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 042642 ENGINEER ROBERT E. KRAL

Signed by: Robert E. Kral 12/3/2025
AAF88FF7... SIGNATURE DATE

ENGINEER

SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT NO.: W03293

POLK COUNTY

STATION: -L941-937- STA. 23+50.00 TO 29+00.00, RT

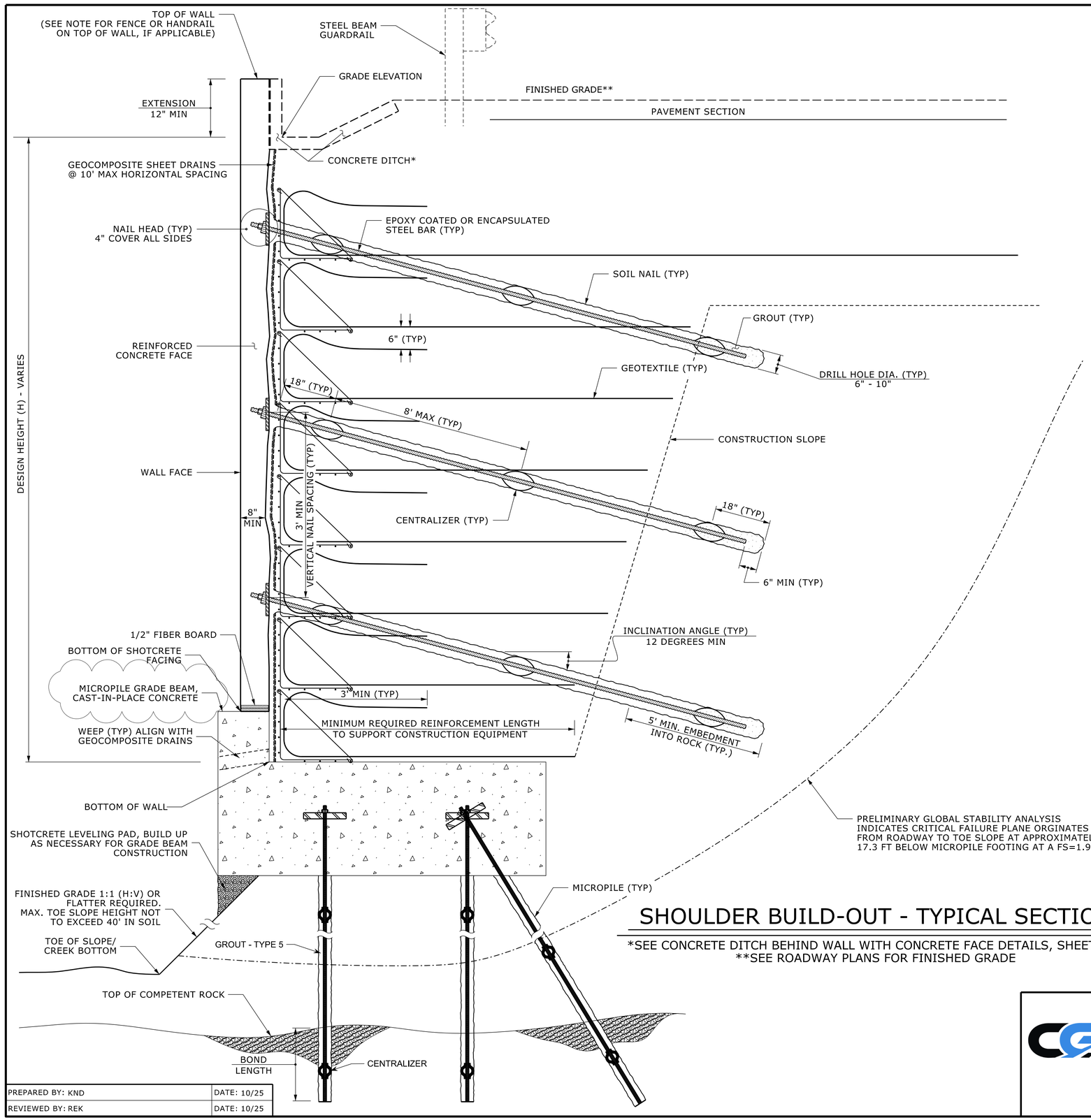
SHEET 1 OF 4

Prepared in the Office of:

CAROLINAS GEOTECHNICAL GROUP
1805 SARDIS ROAD NORTH
SUITE 100
CHARLOTTE, NC 28270
(980) 339-8684

SITE 937 RETAINING WALLS
SHOULDER BUILD-OUT &
ROCK EMBANKMENT WITH
MICROPILE KNEE WALL

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1			3			W-16
2			4			



SHOULDER BUILD-OUT - TYPICAL SECTION

*SEE CONCRETE DITCH BEHIND WALL WITH CONCRETE FACE DETAILS, SHEET W-6
**SEE ROADWAY PLANS FOR FINISHED GRADE

PREPARED BY: KND	DATE: 10/25
REVIEWED BY: REK	DATE: 10/25

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 042642 ENGINEER ROBERT E. KRAL

Signed by: Robert E. Kral 03/13/2026
XAF88FF73C9E4B... SIGNATURE DATE

ENGINEER

SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NOTES:

FOR SOIL NAIL SHOULDER BUILD-OUT, SEE SOIL NAIL RETAINING WALLS SPECIAL PROVISION.

FOR MICROPILE GRADE BEAM, SEE MICROPILE GRADE BEAM SPECIAL PROVISION.

FOR MICROPILES, SEE MICROPILE GRADE BEAM SPECIAL PROVISION.

DESIGN MICROPILE GRADE BEAM FOR A MINIMUM OF 5 FEET OF GROUND LOSS BELOW GRADE BEAM.

MICROPILE CASING MAY BE REQUIRED.

ESTABLISH THE BACK OF SOIL NAIL WALL FACE AT A 3.5' OR GREATER OFFSET FROM THE BACK OF THE EXISTING OR PROPOSED GUARDRAIL POST.

EXTEND THE TOP TWO LAYERS OF GEOTEXTILE TO CENTERLINE OF ROAD.

FOR SOIL NAIL RETAINING WALLS, SEE SOIL NAIL RETAINING WALLS SPECIAL PROVISION.

DESIGN SOIL NAIL RETAINING WALL AND MICROPILE GRADE BEAM FOR INTERNAL, EXTERNAL, AND GLOBAL STABILITY.

FOR STEEL BEAM GUARDRAIL, SEE ROADWAY PLANS AND SECTION 862 OF THE STANDARD SPECIFICATIONS.

BEFORE BEGINNING SOIL NAIL WALL DESIGN FOR SITE 937 RETAINING WALL, SURVEY WALL LOCATION AND SUBMIT A REVISED WALL PROFILE VIEW (WALL ENVELOPE) FOR REVIEW. DO NOT START WALL DESIGN OR CONSTRUCTION UNTIL THE REVISED WALL ENVELOPE IS ACCEPTED.

DESIGN SITE 937 RETAINING WALL FOR THE FOLLOWING:
1) DESIGN HEIGHT (H) = WALL HEIGHT + WALL EMBEDMENT
2) DESIGN LIFE = 75 YEARS
3) MINIMUM WALL EMBEDMENT DEPTH = 1 FT
4) ROCK EMBANKMENT PARAMETERS:
   UNIT WEIGHT, γ = 135 PCF
   FRICTION ANGLE, φ = 42 DEGREES
   COHESION, c = 0 PSF
5) ASSUMED BORROW MATERIAL PARAMETERS, SEE SECTION 1018 OF THE STANDARD SPECIFICATIONS
   UNIT WEIGHT, γ = 120 PCF
   FRICTION ANGLE, φ = 30 DEGREES
   COHESION, c = 0 PSF
6) IN-SITU ASSUMED MATERIAL PARAMETERS RESIDUAL SOIL:
   UNIT WEIGHT, γ = 120 PCF
   FRICTION ANGLE, φ = 30 DEGREES
   COHESION, c = 0 PSF
7) IN-SITU ASSUMED MATERIAL PARAMETERS CRYSTALLINE ROCK:
   UNIT WEIGHT, γ = 170 PCF
   FRICTION ANGLE, φ = 34 DEGREES
   COHESION, c = 1,000 PSF

EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, FENCE OR HANDRAIL POSTS, PAVEMENTS, PIPES, INLETS OR UTILITIES MAY INTERFERE WITH SOIL NAILS FOR SITE 937 RETAINING WALL.

"TEMPORARY SHORING" MAY BE REQUIRED FOR SITE 937 RETAINING WALL IN ACCORDANCE WITH THE TEMPORARY SHORING PROVISION. SEE ROADWAY OR TRAFFIC CONTROL PLANS.

PROJECT NO.: W03293

POLK COUNTY

STATION: -L941-937- STA. 23+50.00 TO 29+00.00, RT

SHEET 2 OF 4

Prepared in the Office of:

CAROLINAS GEOTECHNICAL GROUP

1805 SARDIS ROAD NORTH
SUITE 100
CHARLOTTE, NC 28270
(980) 339-8684

SITE 937 RETAINING WALLS
SHOULDER BUILD-OUT &
ROCK EMBANKMENT WITH
MICROPILE KNEE WALL

REVISIONS

NO.	BY	DATE	NO.	BY	DATE
1	KND	03/26	3		
2			4		

SHEET NO. W-17

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 042642 ENGINEER ROBERT E. KRAL

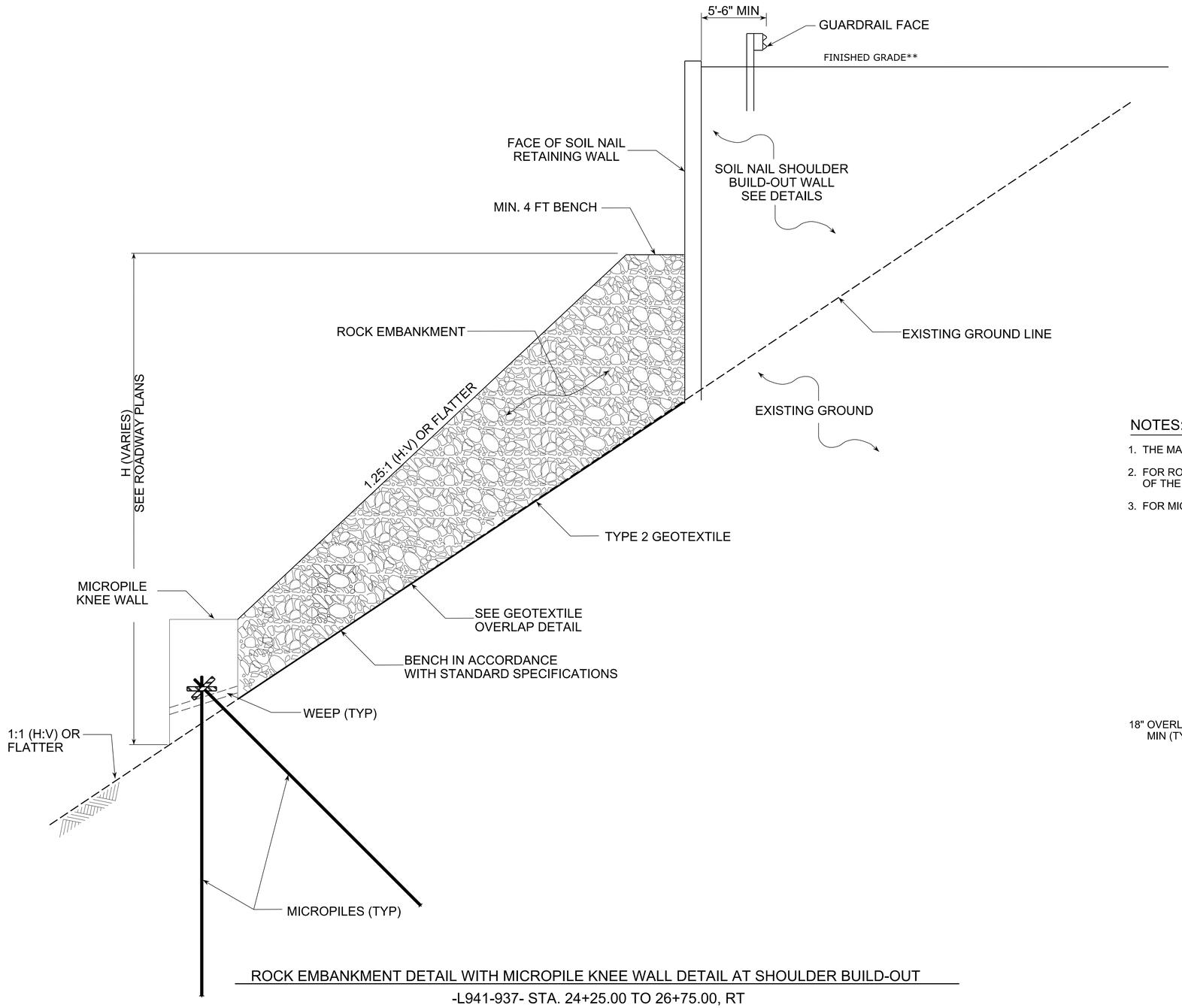
Signed by: Robert E. Kral 12/3/2025

AAF88FF73359485... SIGNATURE DATE

ENGINEER

SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

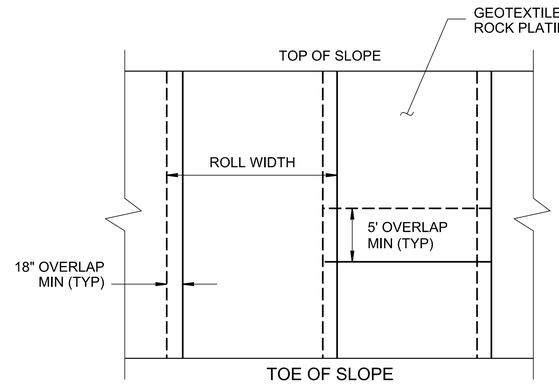


ROCK EMBANKMENT DETAIL WITH MICROPILE KNEE WALL DETAIL AT SHOULDER BUILD-OUT

-L941-937- STA. 24+25.00 TO 26+75.00, RT
-L941-937- STA. 27+60.00 TO 28+90.00, RT

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 MICROPILE KNEE WALL, SEE THE MICROPILE GRADE BEAM SPECIAL PROVISION.



GEOTEXTILE OVERLAP DETAIL
(PLAN VIEW)

PROJECT NO.: W03293

POLK COUNTY

STATION: -L941-937- STA. 23+50.00 TO 29+00.00, RT

SHEET 3 OF 4

PREPARED BY: KND	DATE: 10/25
REVIEWED BY: REK	DATE: 10/25

Prepared in the Office of:

CAROLINAS GEOTECHNICAL GROUP
1805 SARDIS ROAD NORTH
SUITE 100
CHARLOTTE, NC 28270
(980) 339-8684

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

SITE 937 RETAINING WALLS SHOULDER BUILD-OUT & ROCK EMBANKMENT WITH MICROPILE KNEE WALL

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1			3			W-18
2			4			

GEOTECHNICAL ENGINEER

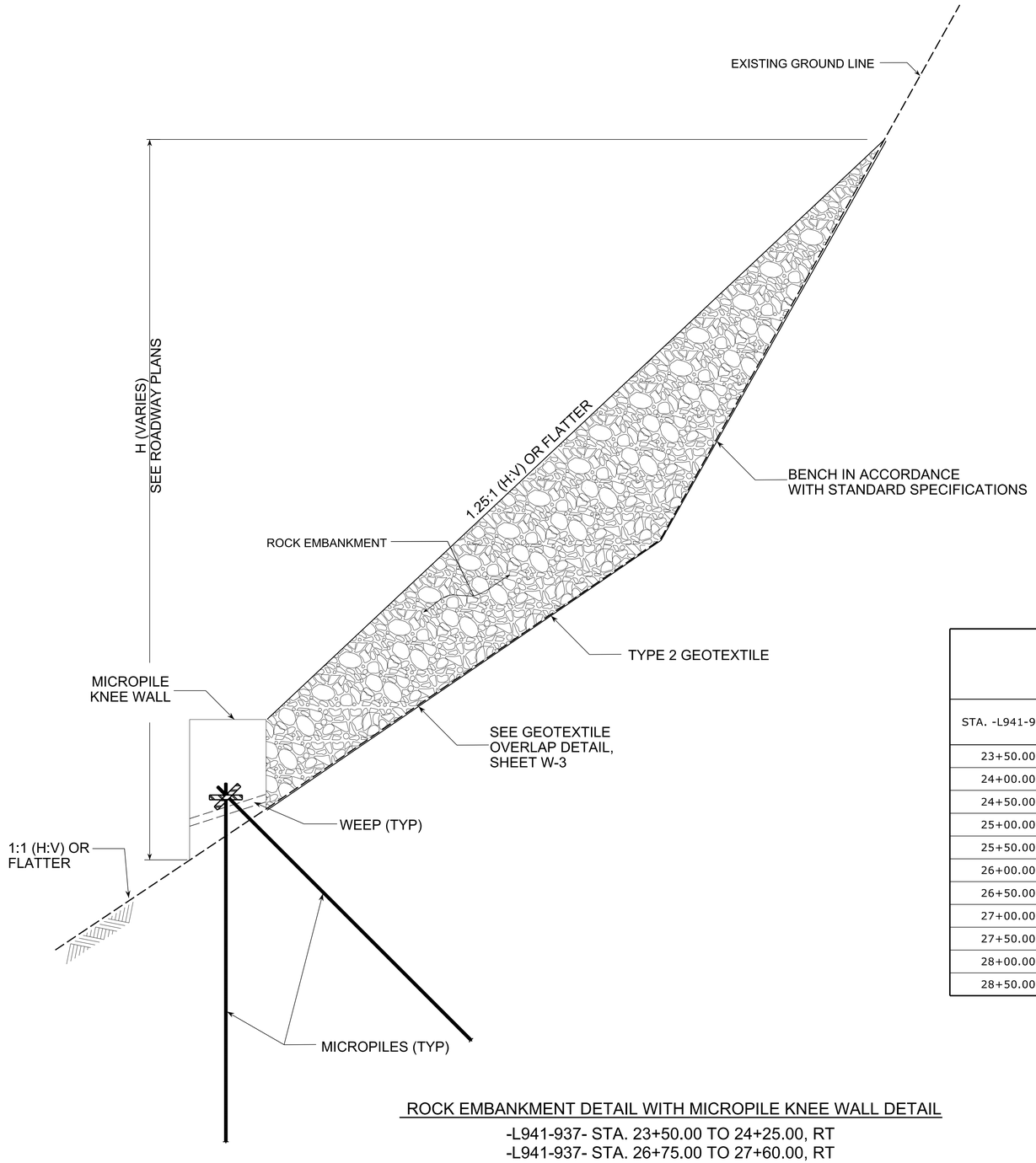
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 042642 ROBERT E. KRAL

Signed by: Robert E. Kral 12/3/2025
AAF88FF73... SIGNATURE DATE

ENGINEER

SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



ESTIMATED QUANTITIES - SITE 937

SOIL NAIL RETAINING WALL #937_1	1,920 SF
SOIL NAIL RETAINING WALL #937_2	620 SF
MICROPILE GRADE BEAM	380 LF
ROCK EMBANKMENTS	17,100 TON
GEOTEXTILE FOR ROCK EMBANKMENTS	4,350 SY
MICROPILE GRADE BEAM	540 LF
GROUT FOR ROCK FILL	1,200 CY

ROCK EMBANKMENT WITH MICROPILE KNEE WALL

STA. -L941-937-	TOP OF SLOPE OFFSET (FT)	TOP OF KNEE WALL OFFSET (FT)	TOP OF KNEE WALL ELEVATION (FT)	BOTTOM OF KNEE WALL ELEVATION (FT)	500-YR FLOOD ELEVATION (FT)	MIN. ROCK FILL ELEVATION (FT)
23+50.00	19.5' RT	70.0' RT	1233.3	1229.3	1247.7	1249.7
24+00.00	19.5' RT	65.0' RT	1234.6	1230.6	1245.9	1247.9
24+50.00	20.5' RT	65.0' RT	1226.5	1222.5	1252.2	1254.2
25+00.00	20.5' RT	65.0' RT	1221.4	1217.4	1237.6	1239.6
25+50.00	20.5' RT	65.0' RT	1218.8	1214.8	1236.7	1238.7
26+00.00	20.5' RT	39.8' RT	1215.6	1211.6	1230.7	1232.7
26+50.00	20.5' RT	70.0' RT	1211.8	1207.8	1231.1	1233.1
27+00.00	19.5' RT	69.1' RT	1207.2	1203.2	1235.1	1237.1
27+50.00	19.5' RT	65.8' RT	1516.1	1212.1	1227.7	1229.7
28+00.00	32.2' RT	65.0' RT	1197.6	1193.63	1228.9	1230.9
28+50.00	20.5' RT	65.0' RT	1201.6	1197.6	1221.1	1223.1

ROCK EMBANKMENT DETAIL WITH MICROPILE KNEE WALL DETAIL

-L941-937- STA. 23+50.00 TO 24+25.00, RT
-L941-937- STA. 26+75.00 TO 27+60.00, RT

PROJECT NO.: W03293

POLK COUNTY

STATION: -L941-937- STA. 23+50.00 TO 29+00.00, RT

SHEET 4 OF 4

PREPARED BY: KND	DATE: 10/25
REVIEWED BY: REK	DATE: 10/25

Prepared in the Office of:

CAROLINAS GEOTECHNICAL GROUP
1805 SARDIS ROAD NORTH
SUITE 100
CHARLOTTE, NC 28270
(980) 339-8684

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

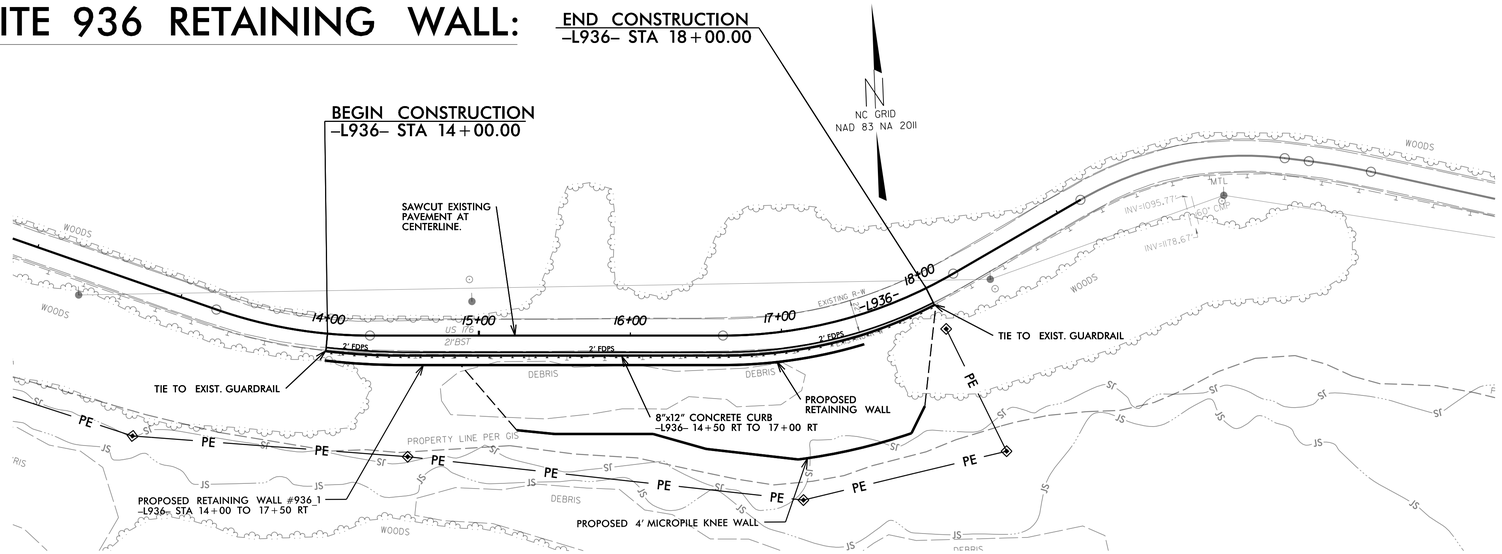
SITE 937 RETAINING WALLS SHOULDER BUILD-OUT & ROCK EMBANKMENT WITH MICROPILE KNEE WALL

REVISIONS

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

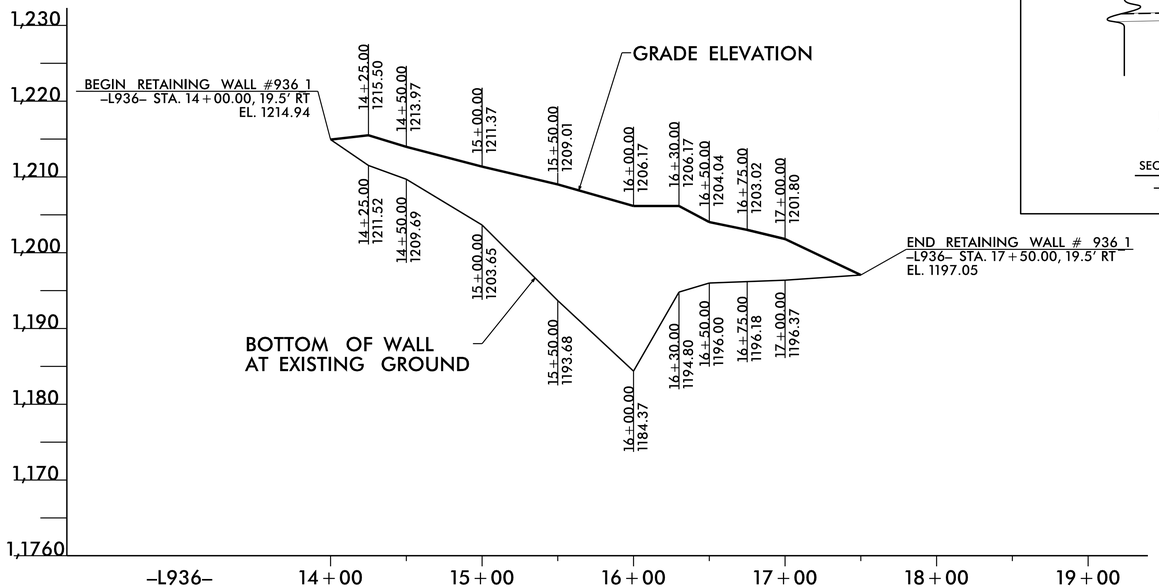
SHEET NO. W-19

SITE 936 RETAINING WALL:



SITE 936 – PLAN

NOT TO SCALE

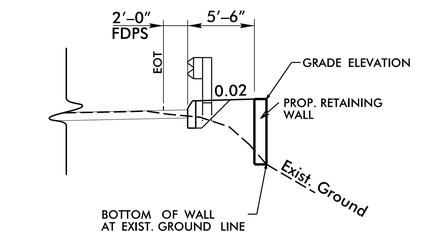


RETAINING WALL #936_1 – ENVELOPE

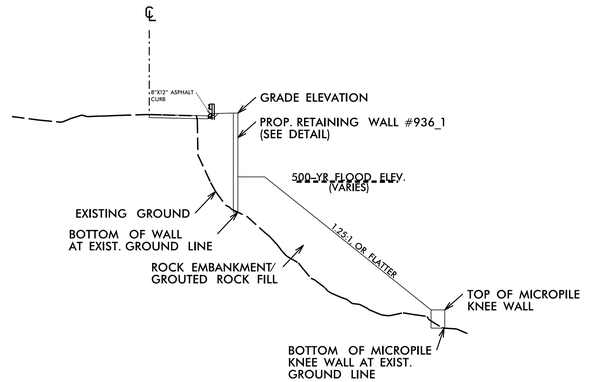
NOT TO SCALE
(LOOKING AT FACE OF WALL)

THE WALL ENVELOPE DOES NOT ACCURATELY DEPICT THE ACTUAL WALL FACE OF WALL #936_1 AT THE FOLLOWING LOCATIONS:
–L936– STA. 14+00.00 TO 14+50.00, RT
AND –L936– STA. 16+61.11 TO 17+50.00, RT

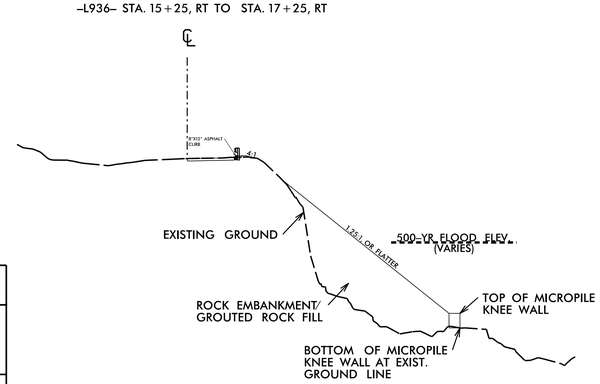
DETAIL FOR RETAINING WALL #936_1



SECTION THROUGH RETAINING WALL
–L936– STA. 14+00 TO 15+25, RT



SECTION THROUGH RETAINING WALL
–L936– STA. 15+25, RT TO STA. 17+25, RT



TYPICAL SECTION
–L936– STA. 17+25, RT TO STA. 17+71, RT

SITE 936 RETAINING WALL

STA. -L936-	GRADE ELEVATION (FT)	BOTTOM OF WALL ELEVATION (FT)	WALL DESIGN HEIGHT "H" (FT)
14+00.00	1,214.94	1,214.94	0.00
12+25.00	1,215.50	1,211.52	3.98
14+50.00	1,213.97	1,209.69	4.28
15+00.00	1,211.37	1,203.65	7.72
15+50.00	1,209.01	1,193.68	15.33
16+00.00	1,206.17	1,184.37	21.80
16+30.00	1,206.17	1,194.80	11.37
16+50.00	1,204.04	1,196.00	8.04
16+75.00	1,203.02	1,196.18	6.84
17+00.00	1,201.80	1,196.37	5.43
17+50.00	1,197.05	1,197.05	0.00

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 042642 ENGINEER ROBERT E. KRAL

Signed by: Robert C. Kral 12/3/2025
AAF88FF73... SIGNATURE DATE

ENGINEER
SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT NO.: W03293
POLK COUNTY
STATION: -L936- STA. 14+00.00 TO 18+00.00, RT
SHEET 1 OF 6

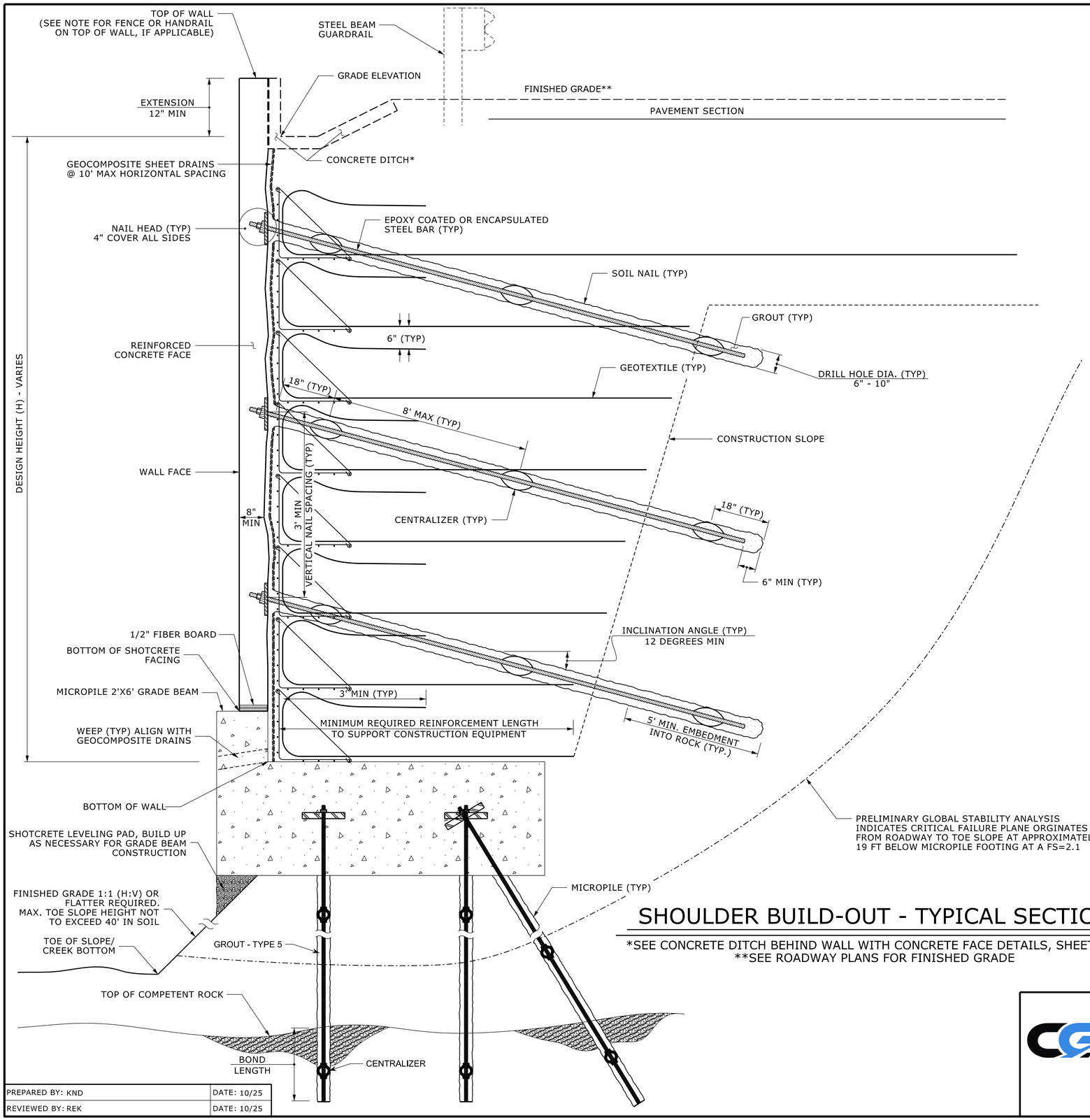
PREPARED BY: KND	DATE: 10/25
REVIEWED BY: REK	DATE: 10/25

RETAINING WALL ENVELOPE AND DESIGN LAYOUT PROVIDED BY TGS JULY 25, 2025.

Prepared in the Office of:
CAROLINAS GEOTECHNICAL GROUP
1805 SARDIS ROAD NORTH
SUITE 100
CHARLOTTE, NC 28270
(980) 339-8684

SITE 936 RETAINING WALL
SHOULDER BUILD-OUT &
ROCK EMBANKMENT WITH
MICROPILE KNEE WALL

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1			3			W-20
2			4			



SHOULDER BUILD-OUT - TYPICAL SECTION

*SEE CONCRETE DITCH BEHIND WALL WITH CONCRETE FACE DETAILS, SHEET W-6
**SEE ROADWAY PLANS FOR FINISHED GRADE

PREPARED BY: KND	DATE: 10/25
REVIEWED BY: REK	DATE: 10/25

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 042642 ENGINEER ROBERT E. KRAL

Signed by: Robert E. Kral 12/3/2025
AAFB8FF7... SIGNATURE DATE

ENGINEER

SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NOTES:

FOR SOIL NAIL SHOULDER BUILD-OUT, SEE SOIL NAIL RETAINING WALLS SPECIAL PROVISION.

FOR MICROPILE GRADE BEAM, SEE MICROPILE GRADE BEAM SPECIAL PROVISION.

FOR MICROPILES, SEE MICROPILE GRADE BEAM SPECIAL PROVISION.

DESIGN MICROPILE GRADE BEAM FOR A MINIMUM OF 5 FEET OF GROUND LOSS BELOW GRADE BEAM.

MICROPILE CASING MAY BE REQUIRED.

ESTABLISH THE BACK OF SOIL NAIL WALL FACE AT A 3.5' OR GREATER OFFSET FROM THE BACK OF THE EXISTING OR PROPOSED GUARDRAIL POST.

EXTEND THE TOP TWO LAYERS OF GEOTEXTILE TO CENTERLINE OF ROAD.

FOR SOIL NAIL RETAINING WALLS, SEE SOIL NAIL RETAINING WALLS SPECIAL PROVISION.

DESIGN SOIL NAIL RETAINING WALL AND MICROPILE GRADE BEAM FOR INTERNAL, EXTERNAL, AND GLOBAL STABILITY.

FOR STEEL BEAM GUARDRAIL, SEE ROADWAY PLANS AND SECTION 862 OF THE STANDARD SPECIFICATIONS.

BEFORE BEGINNING SOIL NAIL WALL DESIGN FOR SITE 936 RETAINING WALL, SURVEY WALL LOCATION AND SUBMIT A REVISED WALL PROFILE VIEW (WALL ENVELOPE) FOR REVIEW. DO NOT START WALL DESIGN OR CONSTRUCTION UNTIL THE REVISED WALL ENVELOPE IS ACCEPTED.

DESIGN SITE 936 RETAINING WALL FOR THE FOLLOWING:
1) DESIGN HEIGHT (H) = WALL HEIGHT + WALL EMBEDMENT
2) DESIGN LIFE = 75 YEARS
3) MINIMUM WALL EMBEDMENT DEPTH = 1 FT
4) ROCK EMBANKMENT PARAMETERS:
   UNIT WEIGHT, γ = 135 PCF
   FRICTION ANGLE, φ = 42 DEGREES
   COHESION, c = 0 PSF
5) ASSUMED BORROW MATERIAL PARAMETERS, SEE SECTION 1018 OF THE STANDARD SPECIFICATIONS
   UNIT WEIGHT, γ = 120 PCF
   FRICTION ANGLE, φ = 30 DEGREES
   COHESION, c = 0 PSF
6) IN-SITU ASSUMED MATERIAL PARAMETERS RESIDUAL SOIL:
   UNIT WEIGHT, γ = 120 PCF
   FRICTION ANGLE, φ = 30 DEGREES
   COHESION, c = 0 PSF
7) IN-SITU ASSUMED MATERIAL PARAMETERS CRYSTALLINE ROCK:
   UNIT WEIGHT, γ = 170 PCF
   FRICTION ANGLE, φ = 34 DEGREES
   COHESION, c = 1,000 PSF

EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, FENCE OR HANDRAIL POSTS, PAVEMENTS, PIPES, INLETS OR UTILITIES MAY INTERFERE WITH SOIL NAILS FOR SITE 936 RETAINING WALL.

"TEMPORARY SHORING" MAY BE REQUIRED FOR SITE 936 RETAINING WALL IN ACCORDANCE WITH THE TEMPORARY SHORING PROVISION. SEE ROADWAY OR TRAFFIC CONTROL PLANS.

PROJECT NO.: W03293

POLK COUNTY

STATION: -L936- STA. 14+00.00 TO 18+00.00, RT

SHEET 2 OF 6

Prepared in the Office of:
CAROLINAS GEOTECHNICAL GROUP
1805 SARDIS ROAD NORTH
SUITE 100
CHARLOTTE, NC 28270
(980) 339-8684

SITE 936 RETAINING WALL
SHOULDER BUILD-OUT &
ROCK EMBANKMENT WITH
MICROPILE KNEE WALL

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1			3			W-21
2			4			

GEOTECHNICAL ENGINEER	ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 042642 ENGINEER ROBERT E. KRAL Signed by: Robert E. Kral 12/3/2025 AAF88FF73358486... SIGNATURE DATE	SIGNATURE DATE

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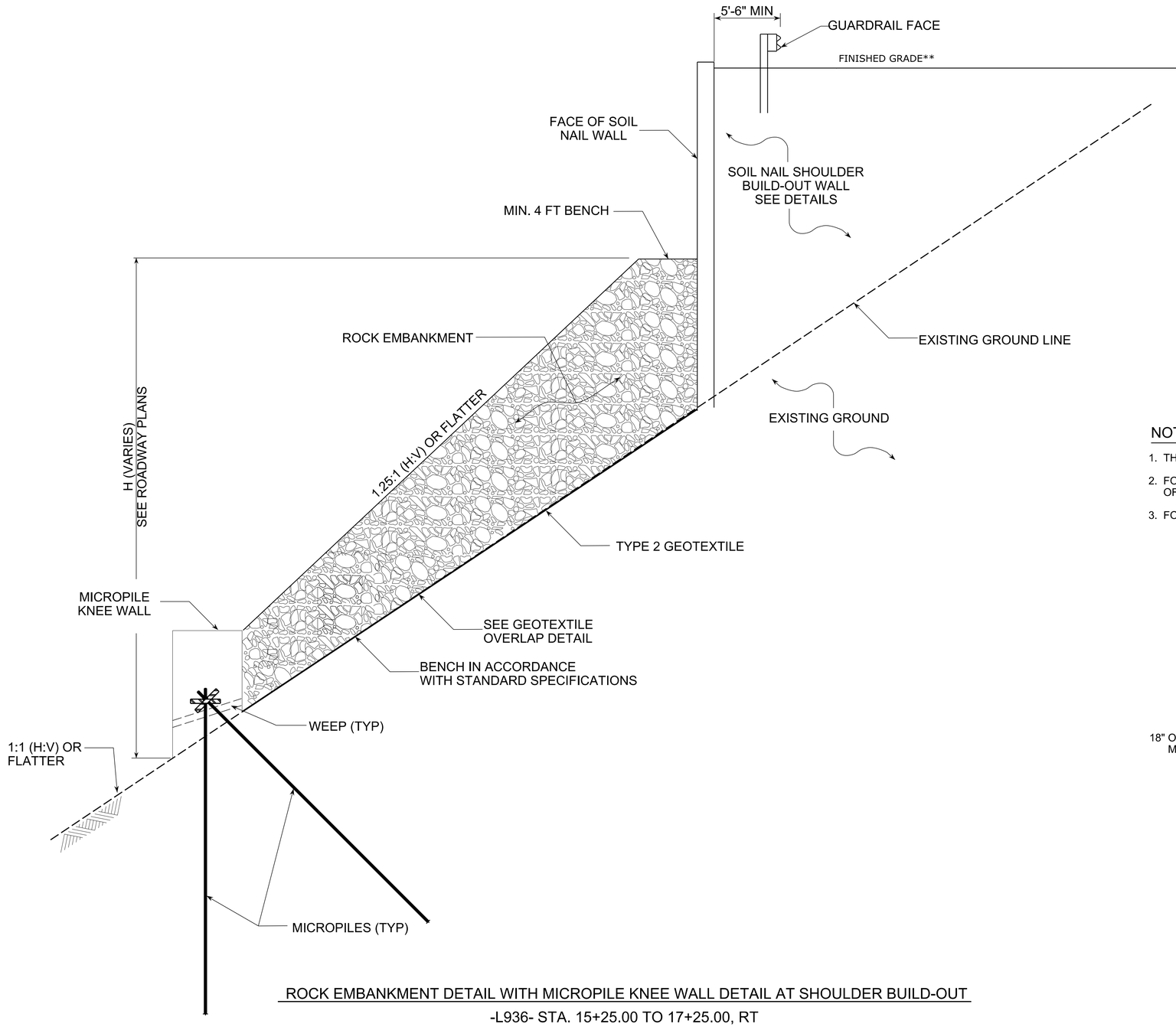
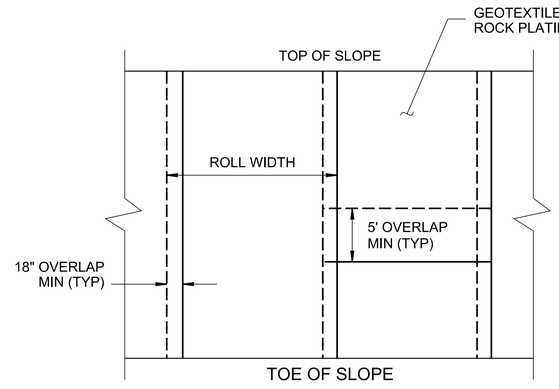


ROCK EMBANKMENT DETAIL WITH MICROPILE KNEE WALL DETAIL AT SHOULDER BUILD-OUT

-L936- STA. 15+25.00 TO 17+25.00, RT

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 MICROPILE KNEE WALL, SEE THE MICROPILE GRADE BEAM SPECIAL PROVISION.



GEOTEXTILE OVERLAP DETAIL

(PLAN VIEW)

PROJECT NO.: W03293

POLK COUNTY

STATION: -L936- STA. 14+00.00 TO 18+00.00, RT

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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

SITE 936 RETAINING WALL SHOULDER BUILD-OUT & ROCK EMBANKMENT WITH MICROPILE KNEE WALL

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	W-22
1			3			
2			4			

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 042642 ROBERT E. KRAL

Signed by: Robert E. Kral 12/3/2025
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ENGINEER

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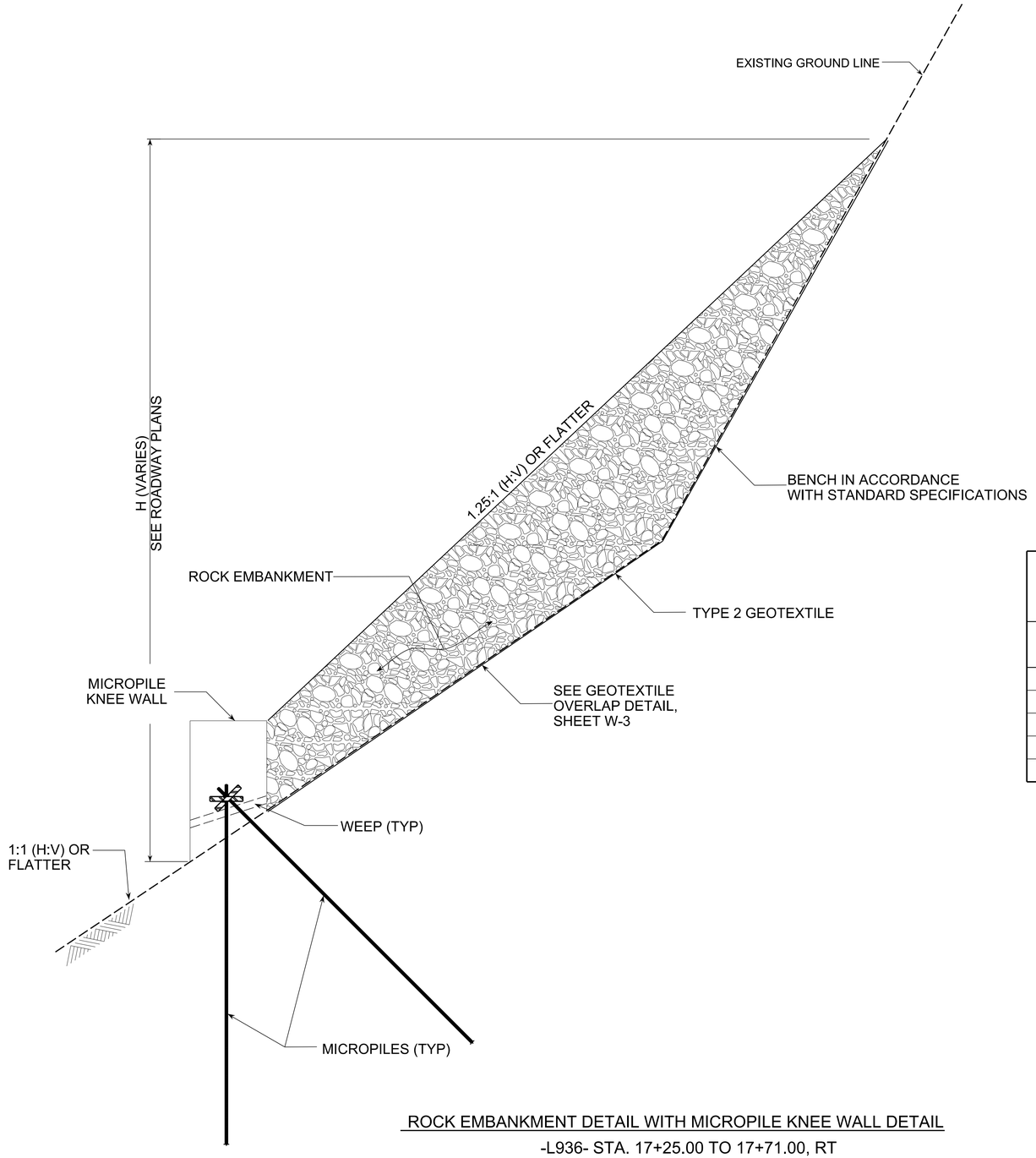

ROCK EMBANKMENT DETAIL WITH MICROPILE KNEE WALL DETAIL

-L936- STA. 17+25.00 TO 17+71.00, RT

ESTIMATED QUANTITIES - SITE 936

SOIL NAIL RETAINING WALL	3,200 SF
MICROPILE GRADE BEAM	280 LF
ROCK EMBANKMENTS	11,700 TON
GEOTEXTILE FOR ROCK EMBANKMENTS	2,800 SY
MICROPILE GRADE BEAM	250 LF
GROUT FOR ROCK FILL	650 CY

ROCK EMBANKMENT WITH MICROPILE KNEE WALL

STA. -L936-	TOP OF SLOPE OFFSET (FT)	TOP OF KNEE WALL OFFSET (FT)	TOP OF KNEE WALL ELEVATION (FT)	BOTTOM OF KNEE WALL ELEVATION (FT)	500-YR FLOOD ELEVATION (FT)	MIN. ROCK FILL ELEVATION (FT)
15+50.00	19.5' RT	65.0' RT	1167.6	1163.6	1193.8	1195.8
16+00.00	19.5' RT	65.0' RT	1162.9	1158.9	1191.1	1193.1
16+50.00	26.1' RT	75.0' RT	1160.7	1156.7	1180.2	1182.2
17+00.00	27.5' RT	85.0' RT	1144.6	1140.6	1173.9	1175.9
17+50.00	17.3' RT	85.0' RT	1139.2	1135.2	1168.5	1170.5

PROJECT NO.: W03293

POLK COUNTY

STATION: -L936- STA. 14+00.00 TO 18+00.00, RT

SHEET 4 OF 6

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DIVISION OF HIGHWAYS

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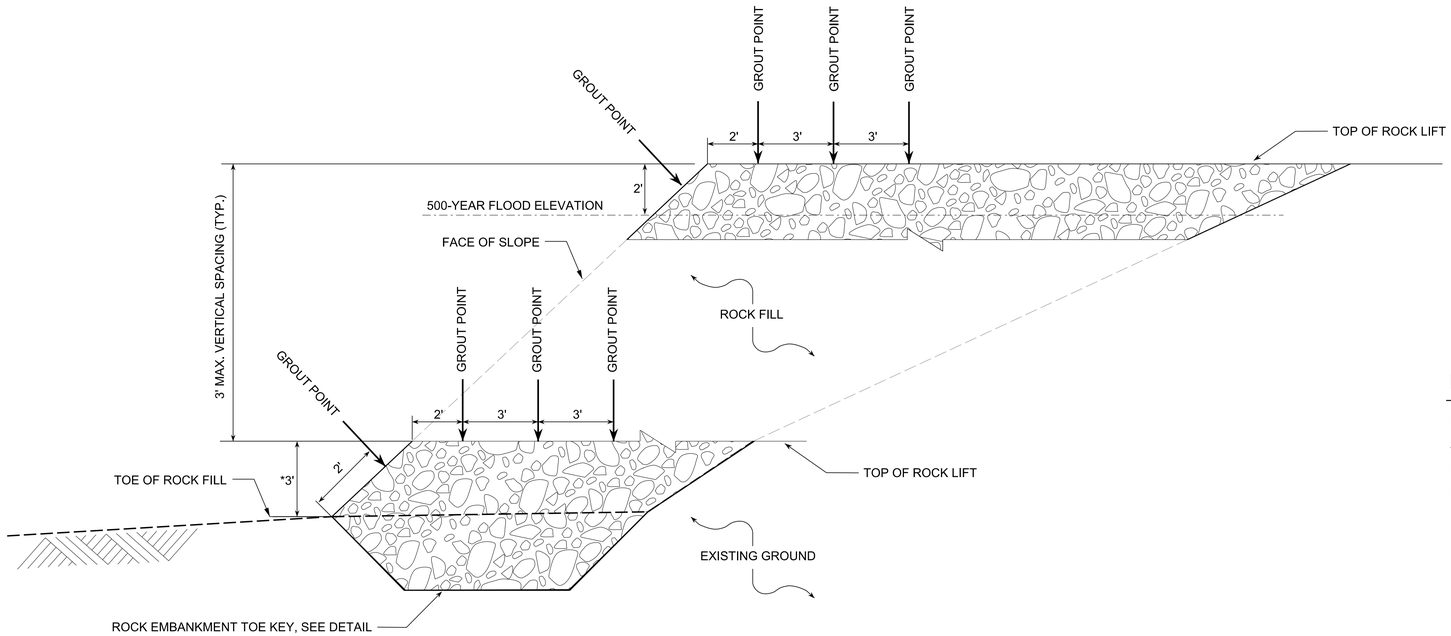
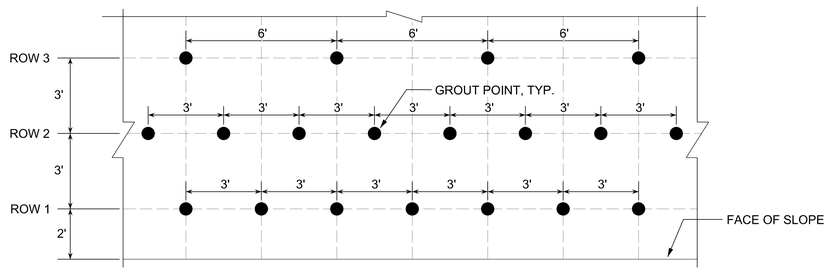
SITE 936 RETAINING WALL SHOULDER BUILD-OUT & ROCK EMBANKMENT WITH MICROPILE KNEE WALL

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1			3			W-23
2			4			



PARTIALLY GROUTED ROCK FILL - ROCK FILL SECTION

* IF NO TOE KEY, START GROUTING AT THE TOP OF THE FIRST 3-FT LIFT



PARTIALLY GROUTED ROCK FILL - PLAN VIEW GROUT POINTS

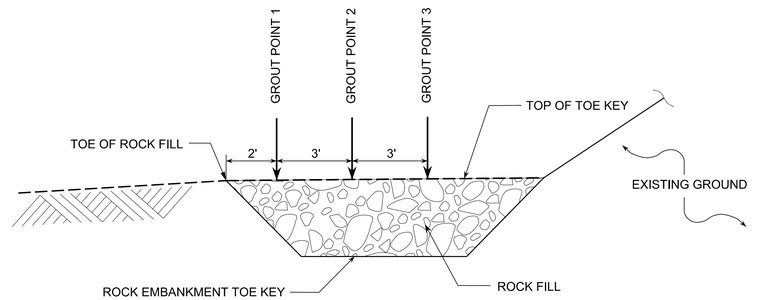
VIEW FROM FRONT TOP

NOTES:

FOR PARTIALLY GROUTED ROCK FILL, SEE THE PARTIALLY GROUTED ROCK FILL SPECIAL PROVISION.

APPLY GROUT ON THE SLOPE FACE AND AT THE TOP OF EACH 3 FT LIFT OF ROCK FILL. APPLY 3 CUBIC FEET OF GROUT AT EACH GROUT POINT IN THE PATTERNS SHOWN ON PAGE 2. THE HIGHEST GROUT POINT WILL BE THE TOP OF THE ROCK EMBANKMENT.

USE PARTIALLY GROUTED ROCK FILL FROM TOE TO AT LEAST 2FT ABOVE THE 500-YR FLOOD ELEVATION.



PARTIALLY GROUTED ROCK FILL - TOE KEY DETAIL

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NORTH CAROLINA PROFESSIONAL SEAL 042642 ENGINEER ROBERT E. KRAL

Signed by: Robert E. Kral 12/3/2025

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ENGINEER

SIGNATURE DATE

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PARTIALLY GROUTED ROCK FILL DETAILS

PROJECT NO.: W03293

POLK COUNTY

SITE 942 STATION: -L943-942- STA. 15+50.00 TO 23+62.00, RT

SITE 939/938 STATION: -L941-937- STA. 18+70.00 TO 23+50.00, RT

SITE 937 STATION: -L941-937- STA. 23+50.00 TO 29+00.00, RT

SITE 936 STATION: -L936- STA. 14+00.00 TO 18+00.00, RT

SHEET 5 OF 6

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DIVISION OF HIGHWAYS

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PARTIALLY GROUTED ROCK FILL NOTES & DETAILS

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1			3			W-24
2			4			

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 042642 ROBERT E. KRAL

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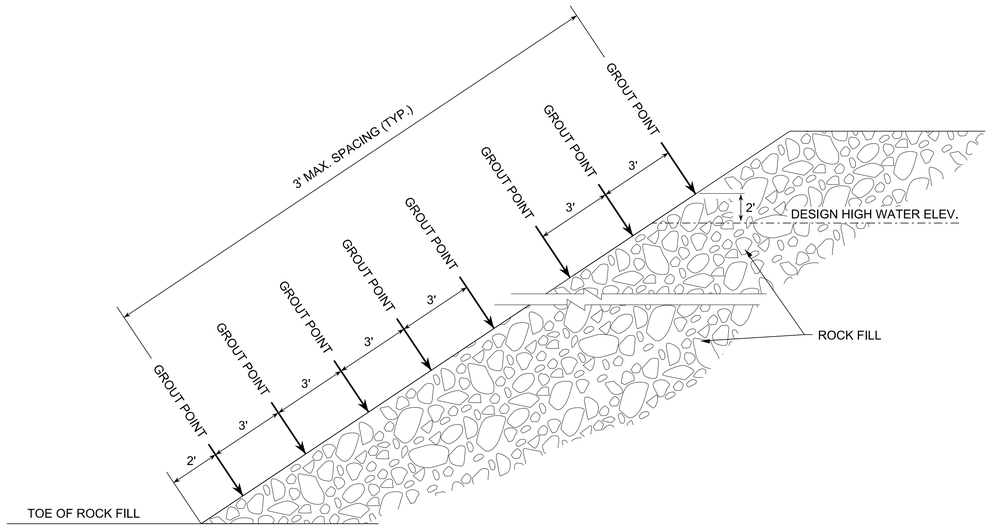
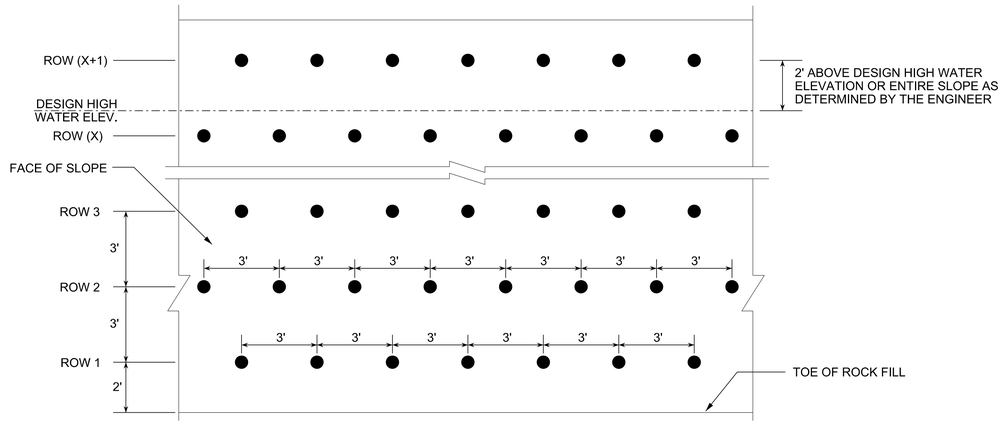


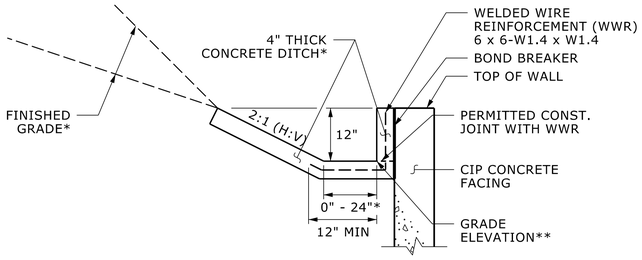
PARTIALLY GROUTED ROCK FILL - SLOPE FACE DETAIL



PARTIALLY GROUTED ROCK FILL - SLOPE FACE GROUT POINTS

VIEW FROM FRONT SLOPE FACE

PARTIALLY GROUTED ROCK FILL DETAILS



CONCRETE DITCH BEHIND WALL WITH CONCRETE FACING

*SEE ROADWAY PLANS FOR CONCRETE DITCH AND FINISHED GRADE DETAILS.

**SEE WALL ENVELOPE SHEET AND TABLE ON SHEET W-1 FOR GRADE ELEVATIONS.

PROJECT NO.: W03293

POLK COUNTY

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SITE 937 STATION: -L941-937- STA. 23+50.00 TO 29+00.00, RT

SITE 936 STATION: -L936- STA. 14+00.00 TO 18+00.00, RT

SHEET 6 OF 6

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PARTIALLY GROUTED ROCK FILL NOTES & DETAILS

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1			3			W-25
2			4			