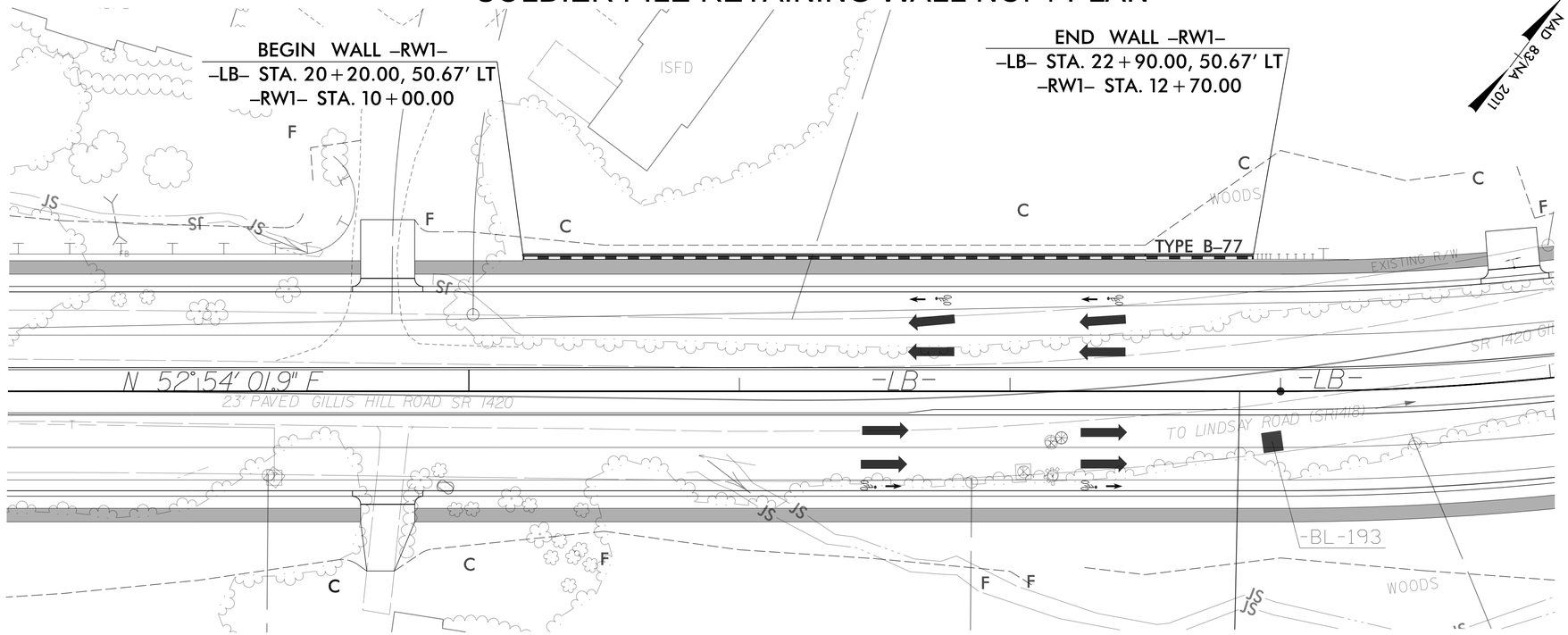
SOLDIER PILE RETAINING WALL NO. 1 PLAN



PROJECT REFERENCE NO.	SHEET NO.
U-5798B	W-1

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 014155 ENGINEER ALBERT F. RIGGS, JR.

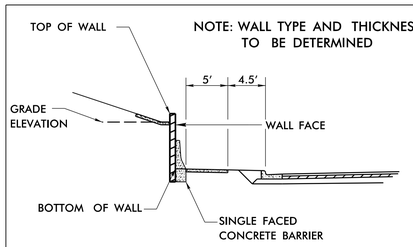
DocuSigned by: Albert Riggs Jr. C2F8ACAB4D27481... 3/7/2025

SIGNATURE DATE

ENGINEER

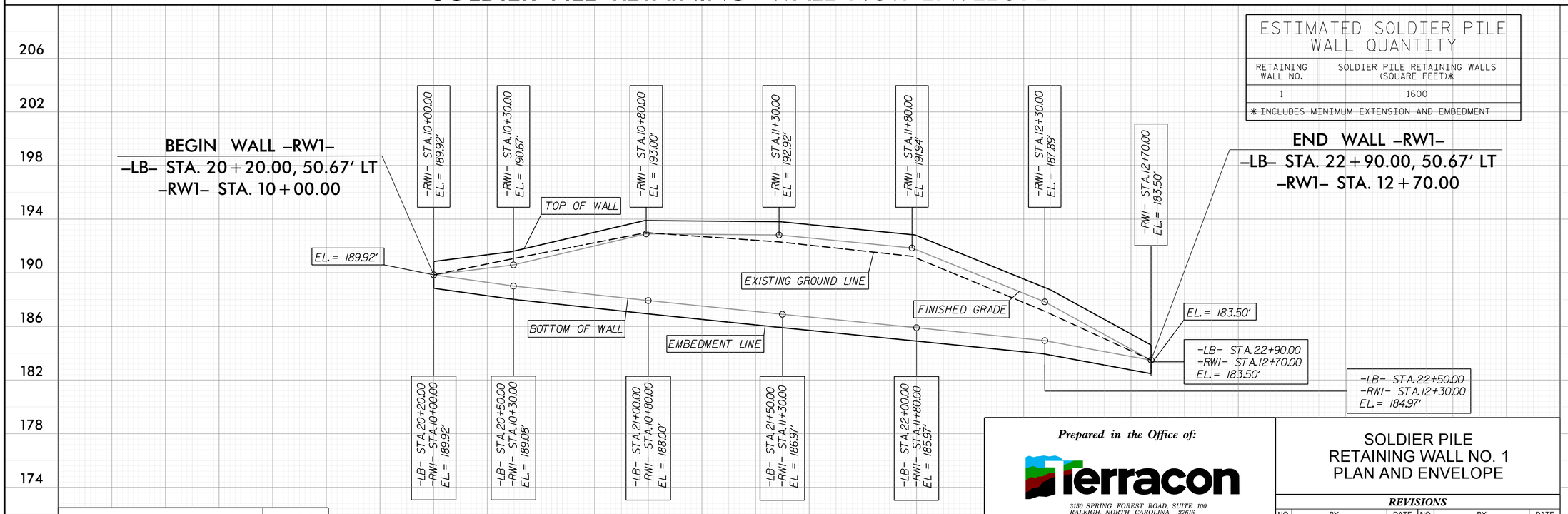
SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



SECTION THROUGH RETAINING WALL
–LB– STA. 20+20.00 TO STA. 22+90.00
–RW1– STA. 10+00.00 TO STA. 12+70.00

SOLDIER PILE RETAINING WALL NO.1 ENVELOPE



ESTIMATED SOLDIER PILE WALL QUANTITY

RETAINING WALL NO.	SOLDIER PILE RETAINING WALLS (SQUARE FEET)*
1	1600

* INCLUDES MINIMUM EXTENSION AND EMBEDMENT

PREPARED BY: ALMULLA, H.	DATE: 03/03/2025
REVIEWED BY: RIGGS, Jr., A. F.	DATE: 03/03/2025

Prepared in the Office of:

Terracon

3150 SPRING FOREST ROAD, SUITE 100
RALEIGH, NORTH CAROLINA 27616
NC REGISTERED ENGINEERING FIRM: P-0869
NC REGISTERED GEOLOGIC FIRM: C-367

SOLDIER PILE RETAINING WALL NO. 1 PLAN AND ENVELOPE

REVISIONS

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

PROJECT REFERENCE NO.	SHEET NO.
U-5798B	W-2

GEOTECHNICAL ENGINEER

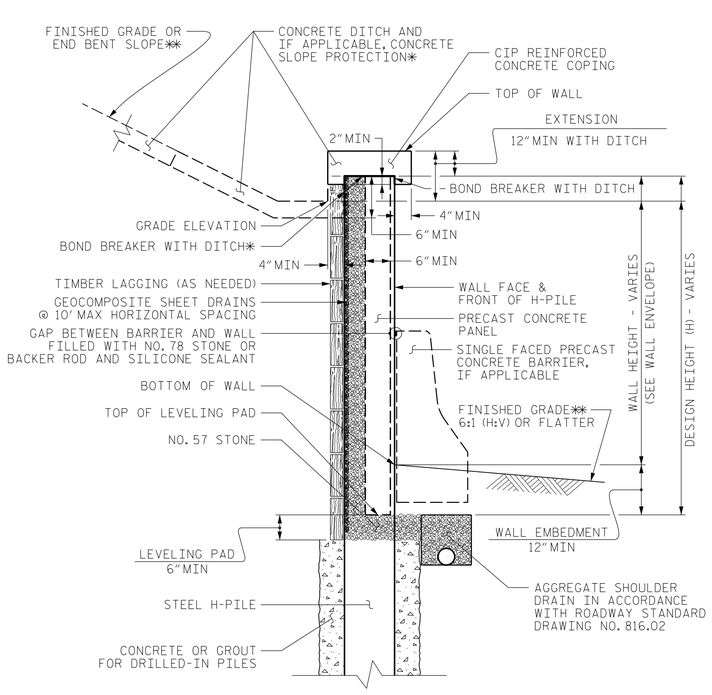
NORTH CAROLINA PROFESSIONAL SEAL 014155 ENGINEER ALMER F RIGGS JR

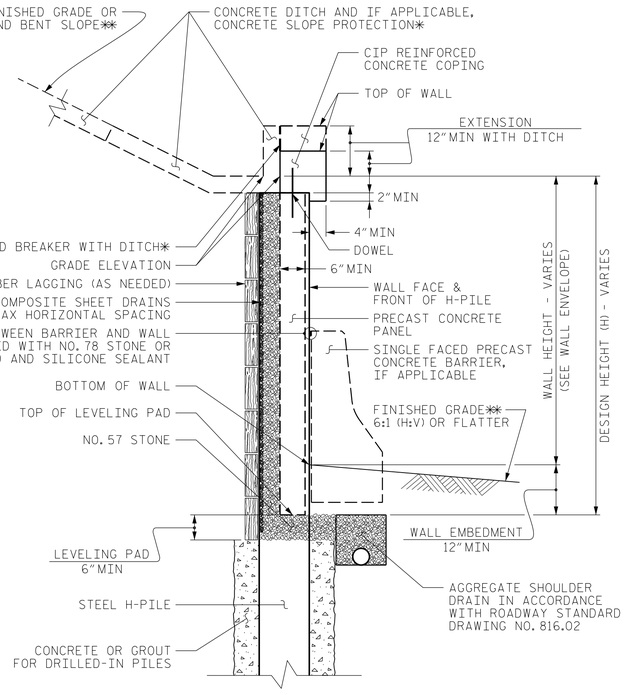
DocuSigned by: Almer Riggs Jr. C2F6ACA2AE0F481... SIGNATURE 3/7/2025 DATE

ENGINEER

SIGNATURE DATE

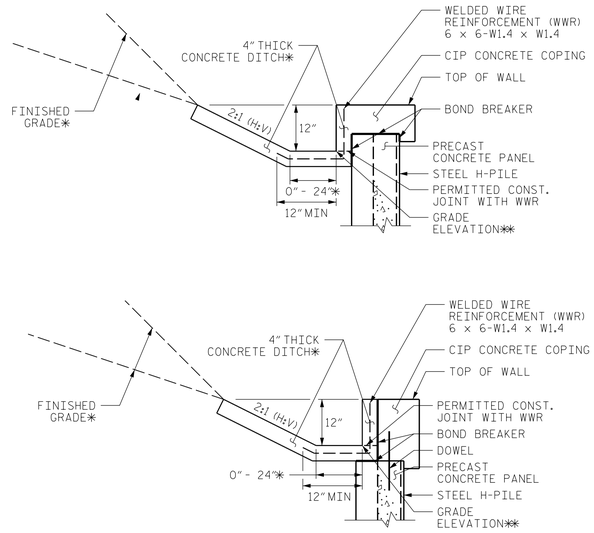
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED





SOLDIER PILE WALL WITH PRECAST PANEL - TYPICAL SECTIONS

AT THE CONTRACTOR'S OPTION, CONNECT COPING TO PANELS WITH DOWELS OR EXTEND COPING DOWN BACK OF PANELS AND PILES.
✱SEE CONCRETE DITCH BEHIND WALL DETAILS.
✱✱SEE PLANS FOR FINISHED GRADE SLOPE DETAILS.



CONCRETE DITCH BEHIND WALL WITH CONCRETE COPING

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

NOTES:

FOR SOLDIER PILE RETAINING WALLS, SEE SOLDIER PILE RETAINING WALLS PROVISION.

FOR SINGLE FACED PRECAST CONCRETE BARRIER, SEE ROADWAY PLANS AND SECTION 857 OF THE STANDARD SPECIFICATIONS.

DRILLED-IN H-PILES ARE REQUIRED FOR RETAINING WALL NO. 1.

USE A SOLDIER PILE RETAINING WALL WITH PRECAST CONCRETE PANELS THAT MEET SECTION 1077 OF THE STANDARD SPECIFICATIONS FOR RETAINING WALL NO. 1.

AN EXPOSED AGGREGATE FINISH THAT MEETS ARTICLE 1077-12 OF THE STANDARD SPECIFICATIONS IS REQUIRED FOR PRECAST CONCRETE PANELS FOR RETAINING WALL NO. 1.

PAINT GALVANIZED H-PILES GRAY IN ACCORDANCE WITH ARTICLE 442-13 OF THE STANDARD SPECIFICATIONS FOR RETAINING WALL NO. 1.

BEFORE BEGINNING SOLDIER PILE WALL DESIGN FOR RETAINING WALL NO. 1, 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 NO. 1 FOR THE FOLLOWING:
1) DESIGN HEIGHT (H) = WALL HEIGHT + WALL EMBEDMENT
2) DESIGN LIFE = 75 YEARS
3) MINIMUM WALL EMBEDMENT DEPTH = 1.0 FT
4) IN-SITU ASSUMED MATERIAL PARAMETERS ABOVE BOTTOM OF WALL
   UNIT WEIGHT, γ = 120 PCF
   FRICTION ANGLE, ϕ = 26 DEGREES
   COHESION, c = 0 PSF
5) IN-SITU ASSUMED MATERIAL PARAMETERS BELOW BOTTOM OF WALL
   UNIT WEIGHT, γ = 110 PCF
   FRICTION ANGLE, ϕ= 20 DEGREES
   COHESION, c = 0 PSF
6) IN-SITU ASSUMED MATERIAL PARAMETERS BELOW ELEVATION 178 FT:
   UNIT WEIGHT, γ = 120 PCF
   FRICTION ANGLE, ϕ = 0 DEGREES
   COHESION, c = 2000 PSF
7) IN-SITU ASSUMED MATERIAL PARAMETERS BELOW ELEVATION 172 FT:
   UNIT WEIGHT, γ = 120 PCF
   FRICTION ANGLE, ϕ= 34 DEGREES
   COHESION, c = 0 PSF

PROJECT NO.: 44369.1.3 (U-5798B)
HOKE/ CUMBERLAND COUNTY
STATION: STA. 10+00 TO 12+70 -RW1-

PREPARED BY: ALMULLA, H.	DATE: 03/03/2025
REVIEWED BY: RIGGS, Jr., A. F.	DATE: 03/03/2025

Prepared in the Office of:

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3150 SPRING FOREST ROAD, SUITE 100
RALEIGH, NORTH CAROLINA 27616
NC REGISTERED ENGINEERING FIRM: F-0869
NC REGISTERED GEOLOGIC FIRM: C-367

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

SOLDIER PILE RETAINING WALL NO. 1 TYPICAL SECTIONS AND NOTES

REVISIONS

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