


GEOTECHNICAL ENGINEER



SEAL
029147
KIRSTEN H. HILL

DocuSigned by:
Kristen Hill 5/12/2021

ES2CFE84622FE2 SIGNATURE DATE

ENGINEER

SIGNATURE DATE

NOTES:

FOR MECHANICALLY STABILIZED EARTH (MSE) RETAINING WALLS, SEE MECHANICALLY STABILIZED EARTH RETAINING WALLS PROVISION.

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

FOR TYPE III REINFORCED BRIDGE APPROACH FILL SEE BRIDGE FILL PROVISION AND ROADWAY DETAIL DRAWING NO. 422D10.

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

USE AN MSE WALL SYSTEM WITH PRECAST CONCRETE PANELS THAT MEET SECTION 1077 OF THE STANDARD SPECIFICATIONS FOR RETAINING WALLS AT END BENT NO.1 AND END BENT NO. 2.

AN ASHLAR STONE PATTERN ARCHITECTURAL FINISH IS REQUIRED FOR PRECAST PANELS FOR RETAINING WALLS AT END BENT NO.1 AND END BENT NO. 2. FOR ARCHITECTURAL FINISH, SEE THE ARCHITECTURAL CONCRETE SURFACE TREATMENT SPECIAL PROVISION. ANTI-GRAFFITI COATING IS REQUIRED FOR THE PRECAST PANELS FOR RETAINING WALLS NO.1 AND NO.2.

A SEPARATION GEOTEXTILE IS REQUIRED AT THE BACK OF THE REINFORCED ZONE FOR RETAINING WALL NO.1 AND NO. 2.

AT THE CONTRACTOR'S OPTION USE FINE AGGREGATE IN THE REINFORCED ZONE FOR RETAINING WALLS NO.1 AND NO. 2.

BEFORE BEGINNING MSE WALL DESIGN FOR RETAINING WALL NO.1 AND NO. 2, 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 AND NO.2 FOR THE FOLLOWING:

- 1) H = DESIGN HEIGHT + EMBEDMENT
- 2) DESIGN LIFE = 100 YEARS
- 3) MAXIMUM FACTORED VERTICAL PRESSURE ON FOUNDATION MATERIAL = 6,100 LB/SF FOR WALL NO.1 AND FOR WALL NO. 2
- 4) MINIMUM REINFORCEMENT LENGTH (L) = 0.7H OR 6 FT WHICH EVER IS LONGER FOR WALL NO.1 AND WALL NO. 2.
- 5) MINIMUM EMBEDMENT DEPTH = 2.4 FT
- 6) REINFORCED ZONE AGGREGATE PARAMETERS:

AGGREGATE TYPE*	UNIT WEIGHT (γ) LB/CF	FRICTION ANGLE (φ) DEGREES	COHESION (c) LB/SF
COARSE	110	38	0
FINE	115	34	0

*SEE MSE RETAINING WALLS PROVISION FOR COARSE AND FINE AGGREGATE MATERIAL REQUIREMENTS.

7) IN-SITU ASSUMED MATERIAL PARAMETERS:

MATERIAL TYPE	UNIT WEIGHT (γ) LB/CF	FRICTION ANGLE (φ) DEGREES	COHESION (c) LB/SF
BACKFILL	120	30	0
FOUNDATION	120	30	0

DESIGN RETAINING WALL NO.1 AND NO.2 FOR A LIVE LOAD (TRAFFIC) SURCHARGE.

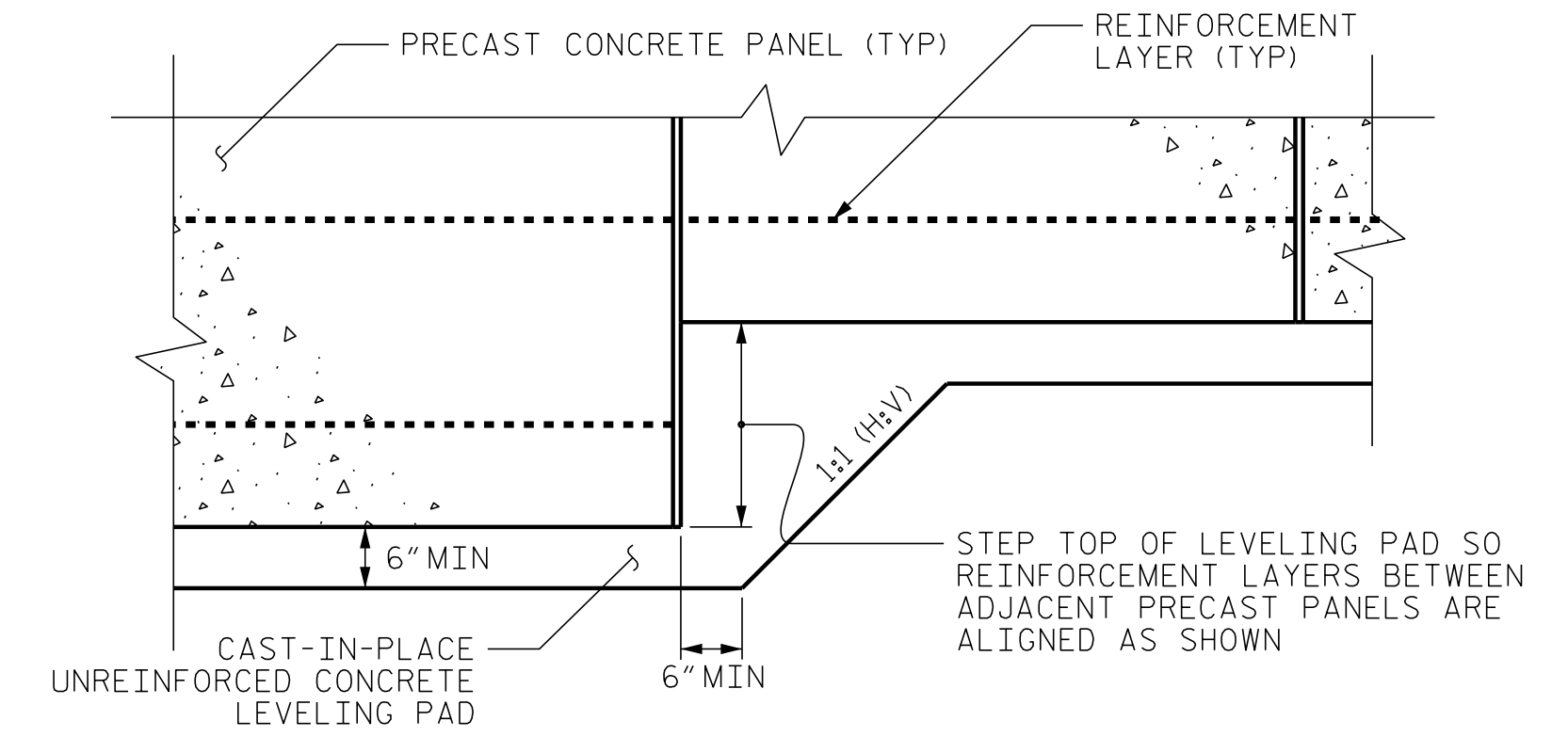
DESIGN REINFORCEMENT CONNECTED TO END BENT CAPS FOR FACTORED LOAD AND LENGTH OF REINFORCEMENT IN ACTIVE ZONE (L_a) SHOWN. CAST REINFORCEMENT OR CONNECTORS INTO CAP BACKWALL FOR END BENT NO.1 LOCATED AT STATION 24+91.78 -Y14- AND END BENT NO.2 LOCATED AT STATION 27+18.78 -Y14-. MAINTAIN A CLEARANCE OF AT LEAST 3" BETWEEN REINFORCEMENT OR CONNECTORS AND REINFORCING STEEL IN CAP.

EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, GUARDRAILS, FENCE OR HANDRAIL POST, PAVEMENTS, PIPES, INLETS OR UTILITIES MAY INTERFERE WITH REINFORCEMENT FOR RETAINING WALL NO.1 AND NO. 2

FOUNDATIONS FOR END BENT NO.1 LOCATED AT STATION 24+91.78 -Y14- AND END BENT NO.2 AT STATION 27+18.78 -Y14-, WILL INTERFERE WITH REINFORCEMENT FOR RETAINING WALL NO.1 AND RETAINING WALL NO.2. SEE FOUNDATION LAYOUT SHEET FOR FOUNDATION LOCATIONS.

INSTALL PILE SLEEVES FOR END BENT NO.1 LOCATED AT STATION 24+91.78 -Y14- WHILE CONSTRUCTING RETAINING WALL NO.1. INSTALL PILE SLEEVES FOR END BENT NO.2 LOCATED AT STATION 27+18.78 -Y14-. THEN, INSTALL PILES THROUGH THE CORRUGATED STEEL PIPES AND FILL PIPES WITH LOOSE UNCOMPACTED SAND BEFORE CONSTRUCTING END BENT CAPS.

DO NOT PLACE LEVELING PAD CONCRETE, AGGREGATE OR REINFORCEMENT FOR RETAINING WALL NO.1 AND NO.2 UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.



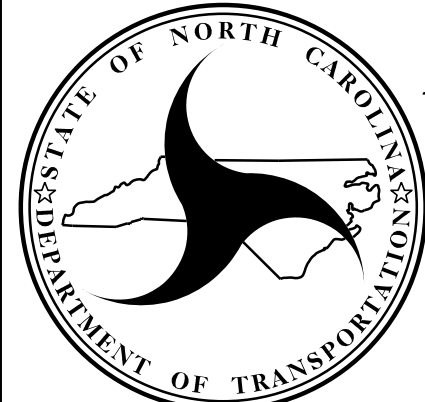
**PRECAST PANELS
LEVELING PAD STEP DETAIL**

PROJECT NO.: I-5878

HARNETT COUNTY

STATION: 26+05.28 -Y14- / 971+41.06 -L-

SHEET 5 OF 5



**NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS**

**GEOTECHNICAL
ENGINEERING UNIT**

**MSE RETAINING WALL
NO. 1 AND NO. 2
NOTES**

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

PREPARED BY: KHH DATE: 03/23/20

REVIEWED BY: SEM DATE: 03/23/20