

**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.

AT THE CONTRACTOR'S OPTION, USE FINE AGGREGATE IN THE REINFORCED ZONE OF RETAINING WALL NOS. 1, 2, 3, 4, 5, AND 6.

AN ASHLAR FORM LINER ARCHITECTURAL FINISH IS REQUIRED FOR PRECAST CONCRETE PANELS FOR RETAINING WALL NOS. 1, 2, 3, 4, 5, AND 6. CREATE AN ASHLAR ARCHITECTURAL FINISH ON THE EXPOSED WALL FACE. THE PATTERN IS TO HAVE A MINIMUM/MAXIMUM RELIEF OF 0.5 INCH/1.0 INCH, OR AS DIRECTED BY THE ENGINEER. THE SELECTED ASHLAR PATTERN IS TO BE APPROVED BY THE ENGINEER PRIOR TO ORDERING OR PLACEMENT IN THE FORMS. THE COPING IS TO BE SMOOTH FINISHED. THE ARCHITECTURAL FINISH WILL BE CONSIDERED INCIDENTAL TO THE SQUARE FOOT COST OF THE WALL. NO ADDITIONAL PAYMENT WILL BE PROVIDED.

A SEPARATION GEOTEXTILE IS REQUIRED AT THE BACK OF THE REINFORCED ZONE FOR RETAINING WALL NOS. 1, 2, 3, 4, 5, AND 6 WHEN COARSE AGGREGATE IS USED.

A DRAIN IS REQUIRED FOR RETAINING WALL NOS. 1, 2, 3, 4, 5, AND 6.

BEFORE BEGINNING MSE WALL DESIGN FOR RETAINING WALL NOS. 1, 2, 3, 4, 5, AND 6, 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 NOS. 1, 2, 3, 4, 5, AND 6 FOR THE FOLLOWING:

- 1) H = DESIGN HEIGHT + EMBEDMENT
- 2) DESIGN LIFE = 100 YEARS
- 3) MAXIMUM FACTORED BEARING PRESSURE AT BASE OF WALL = SEE TABLE
- 4) MINIMUM REINFORCEMENT LENGTH (L) = 1.0H OR 6 FT, WHICHEVER IS LONGER FOR WALL NOS. 1, 2, AND 4  
0.8H OR 6 FT, WHICHEVER IS LONGER FOR WALL NOS. 3, 5, AND 6
- 5) MINIMUM EMBEDMENT ELEVATION = VARIES, SEE MSE WALL PROVISION
- 6) REINFORCED ZONE AGGREGATE PARAMETERS:

AGGREGATE TYPE*	UNIT WEIGHT ( $\gamma$ ) LB/CF	FRICTION ANGLE ( $\phi$ ) 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 ( $\gamma$ ) LB/CF	FRICTION ANGLE ( $\phi$ ) DEGREES	COHESION (c) LB/SF
BACKFILL	30	120	0
FOUNDATION	30	120	0

8) MAXIMUM FACTORED BEARING PRESSURE AT BASE OF WALL:

RETAINING WALL NO.	MAX. FACTORED BEARING PRESSURE LB/SF
WALL NO. 1	4,500
WALL NO. 2	6,200
WALL NO. 3	6,500
WALL NO. 4	7,600
WALL NO. 5	7,600
WALL NO. 6	7,600

9) END BENT STRAP FACTORED LOAD:

RETAINING WALL NO.	FACTORED STRAP LOAD KIP/LFT	STRAP LOCATION FROM BOTTOM OF CAP, Z FT
WALL NO. 1	10	5.0
WALL NO. 2	3.8	4.6
WALL NO. 3*	16	3.5
WALL NO. 4*	16	3.5
WALL NO. 5	NOT REQUIRED (INTEGRAL BRIDGE) - REINFORCED BRIDGE APPROACH FILL REQUIRED	
WALL NO. 6	NOT REQUIRED (INTEGRAL BRIDGE) - REINFORCED BRIDGE APPROACH FILL REQUIRED	

\*FACTORED LOADS PROVIDED ARE FOR LT LANE AND RT LANE END BENTS.

DESIGN RETAINING WALL NOS. 1, 2, 3, 4, 5, AND 6 FOR A LIVE LOAD (TRAFFIC) SURCHARGE.

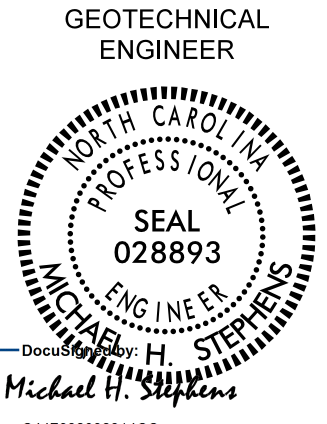
DESIGN REINFORCEMENT CONNECTED TO END BENT CAPS FOR FACTORED LOAD AND LENGTH OF REINFORCEMENT IN ACTIVE ZONE ( $L_d$ ) SHOWN. CAST REINFORCEMENT CONNECTORS INTO CAP BACKWALL FOR END BENTS LOCATED AT RETAINING WALL NOS. 1, 2, 3, AND 4. MAINTAIN A CLEARANCE OF AT LEAST 3" BETWEEN CONNECTORS AND REINFORCING STEEL IN CAP.

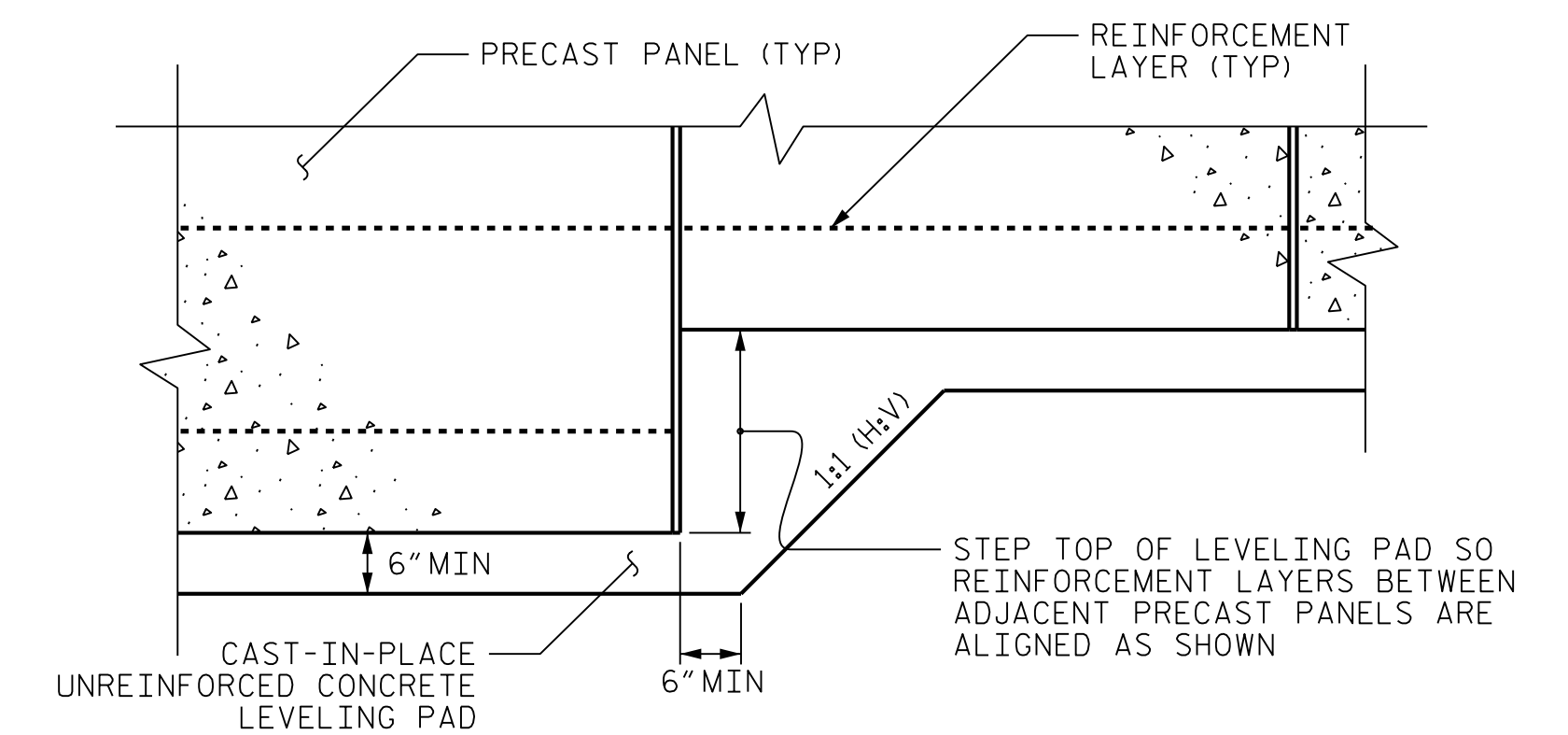
FOUNDATIONS FOR END BENTS AT RETAINING WALL NOS. 1, 2, 3, 4, 5, AND 6 WILL INTERFERE WITH REINFORCEMENT FOR RETAINING WALL NOS. 1, 2, 3, 4, 5, AND 6. SEE FOUNDATION LAYOUT SHEET FOR FOUNDATION LOCATIONS.

EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, GUARDRAIL, FENCE OR HANDRAIL POSTS, PAVEMENTS, PIPES, INLETS OR UTILITIES MAY INTERFERE WITH REINFORCEMENT FOR RETAINING WALL NOS. 1, 2, 3, 4, 5, AND 6.

DO NOT PLACE LEVELING PAD CONCRETE, AGGREGATE OR REINFORCEMENT FOR RETAINING WALL NOS. 1, 2, 3, 4, 5, AND 6 UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.

PREPARED BY: MHS	DATE: 11/17/16
REVIEWED BY: SY/SCC	DATE: 11/17/16

GEOTECHNICAL ENGINEER  Michael H. Stephens C44782092014CC	ENGINEER
SIGNATURE	DATE
12/6/2016	DATE
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	



PRECAST CONCRETE PANELS


LEVELING PAD STEP DETAILS

PROJECT NO.: 34497.1.2 (R-2707C)

CLEVELAND COUNTY

STATION: VARIES, SEE ROADWAY PLANS

SHEET 09 OF 09

	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS
	<b>GEOTECHNICAL ENGINEERING UNIT</b>

MSE RETAINING WALL

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1	-	-	3	-	-	W-9
2	-	-	4	-	-	