GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 040231 ENGINEER MATTHEW J ALEXANDER

DocuSigned by: Matt Alexander AC113DDE6101413... 4/30/2018
SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NOTES:

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

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

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

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

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

A DRAIN IS REQUIRED FOR RETAINING WALLS NO. 1 AND 2.

BEFORE BEGINNING MSE WALL DESIGN FOR RETAINING WALLS NO. 1 AND 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 WALLS NO. 1 AND 2 FOR THE FOLLOWING:
1) H = DESIGN HEIGHT + EMBEDMENT
2) DESIGN LIFE = 100 YEARS
3) MAXIMUM FACTORED VERTICAL PRESSURE ON FOUNDATION MATERIAL = 6,283 PSF (RW1) AND 6,475 PSF (RW2)
4) MINIMUM REINFORCEMENT LENGTH (L) = 0.8H OR 6 FT, WHICHEVER IS LONGER
6) REINFORCED ZONE AGGREGATE PARAMETERS:

AGGREGATE TYPE*	UNIT WEIGHT (γ) PCF	FRICTION ANGLE (ϕ) DEGREES	COHESION (c) PSF
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) PCF	FRICTION ANGLE (ϕ) DEGREES	COHESION (c) PSF
BACKFILL	120	30	0
FOUNDATION	110	16	1500

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

DESIGN RETAINING WALL NO. 1 FOR A FACTORED LATERAL LOAD FROM FOUNDATIONS OF THE SOUND BARRIER WALL LOCATED BEHIND THE RETAINING WALL APPLIED AS A FACTORED UNIFORM PRESSURE TO THE BACK OF MSE RETAINING WALL PANELS.

SOUND BARRIER WALL FOUNDATION SPACING	FACTORED LATERAL LOAD BEHIND RETAINING WALL NO. 1 (PSF)
10 FT.	320 PSF
15 FT.	420 PSF

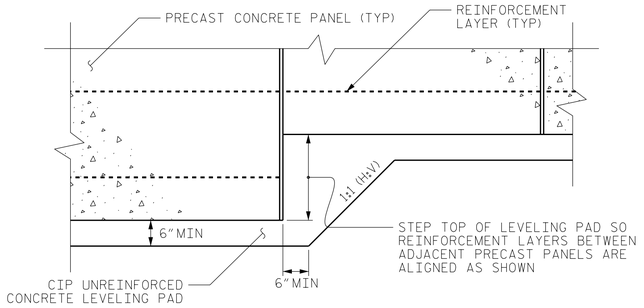
DESIGN REINFORCEMENT CONNECTED TO END BENT CAPS FOR THE FACTORED LOAD AND LENGTH OF REINFORCEMENT IN ACTIVE ZONE (L_a) SHOWN. CAST REINFORCEMENT OR CONNECTORS INTO CAP BACKWALL FOR END BENTS NO. 1 AND 2 LOCATED AT STATION 26+35.80 -RPB- AND STATION 27+20.21 -RPB-, RESPECTIVELY. MAINTAIN A CLEARANCE OF AT LEAST 3" BETWEEN REINFORCEMENT OR CONNECTORS AND REINFORCING STEEL IN CAP.

FOUNDATIONS FOR SOUND BARRIER WALLS WILL BE LOCATED BEHIND RETAINING WALL NO. 1 AND WILL INTERFERE WITH REINFORCEMENT. BEFORE BEGINNING MSE WALL CONSTRUCTION, SUBMIT PROPOSED CONSTRUCTION METHODS FOR THESE FOUNDATIONS FOR APPROVAL.

FOUNDATIONS FOR END BENTS NO. 1 AND 2 LOCATED AT STATION 26+35.80 -RPB- AND STATION 27+20.21 -RPB-, RESPECTIVELY, WILL INTERFERE WITH REINFORCEMENT FOR RETAINING WALLS NO. 1 AND 2. SEE "FOUNDATION LAYOUT" SHEET FOR FOUNDATION LOCATIONS.

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

AT THE CONTRACTOR'S OPTION, "TEMPORARY SHORING FOR WALL CONSTRUCTION" MAY BE USED TO CONSTRUCT RETAINING WALLS NO. 1 AND 2. SEE MSE RETAINING WALLS PROVISION FOR TEMPORARY SHORING FOR WALL CONSTRUCTION.



PRECAST PANELS
LEVELING PAD STEP DETAIL

PROJECT NO.: 39049.1.1 (U-4405)
CUMBERLAND COUNTY
STATION: MSE RETAINING WALLS NO. 1 & 2
SHEET 7 OF 7

PREPARED BY: ALEXANDER, M. J.	DATE: 4/18/18
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NC REGISTERED GEOLOGIC FIRM: C-367

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

MSE RETAINING WALLS NO. 1 AND 2 NOTES AND DETAILS

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1			3			W-7
2			4			