GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL ATEFEH ASOUDEH

DocuSigned by: Atefeh Asoudeh

9/30/2024

SIGNATURE DATE

ENGINEER

SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NOTES:

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

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

USE AN MSE WALL SYSTEM WITH PRECAST CONCRETE PANELS THAT MEET SECTION 1077 OF THE STANDARD SPECIFICATIONS FOR RETAINING WALL NO. 1 THROUGH NO. 3.

AN ASHLAR STONE ARCHITECTURAL FINISH IS REQUIRED FOR CONCRETE FOR RETAINING WALLS NO. 1 THROUGH NO. 3. SEE ARCHITECTURAL CONCRETE SURFACE TREATMENT SPECIAL PROVISION.

CIP REINFORCED CONCRETE COPING IS REQUIRED FOR RETAINING WALL NO. 1 THROUGH NO. 3.

AT THE CONTRACTOR'S OPTION, USE FINE AGGREGATE IN THE REINFORCED ZONE OF RETAINING WALL NO. 1 THROUGH NO. 3.

A SEPARATION GEOTEXTILE IS NOT REQUIRED AT THE BACK OF THE REINFORCED ZONE FOR RETAINING WALL NO. 1 THROUGH NO. 3, PROVIDED FINE AGGREGATE IS USED IN THE REINFORCED ZONE.

A DRAIN IS REQUIRED FOR RETAINING WALL NO. 1 THROUGH NO. 3.

BEFORE BEGINNING MSE WALL DESIGN FOR RETAINING WALL NO. 1 THROUGH NO. 3, 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 THROUGH NO. 3 FOR THE FOLLOWING:
1) DESIGN HEIGHT (H) = WALL HEIGHT + WALL EMBEDMENT
2) DESIGN LIFE = 75 YEARS
3) MINIMUM EMBEDMENT DEPTH = 2 FT
4) MAXIMUM FACTORED VERTICAL PRESSURE ON FOUNDATION MATERIAL SHALL BE AS SHOWN BELOW.
5) MINIMUM REINFORCEMENT LENGTH (L) SHALL BE AS SHOWN BELOW OR 6 FT, WHICHEVER IS LONGER

WALL NO.	-L- STATION	REINFORCEMENT LENGTH RATIO	MAXIMUM FACTORED VERTICAL PRESSURE ON FOUNDATION MATERIAL (KSF)
1	27+25.00 TO 29+50.00	0.8H	2.5
2	44+00.00 TO 45+00.00	1.2H	1.4
3	48+00.00 TO 49+00.00	0.8H	2.2
3	49+00.00 TO 52+00.00	0.7H	3.9
3	52+00.00 TO 53+00.00	0.8H	2.2

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
RETAINED	120	30	0
FOUNDATION AT RW NO. 1	120	28	0
FOUNDATION AT RW NO. 2	120	28	0
FOUNDATION AT RW NO. 3	120	28	0

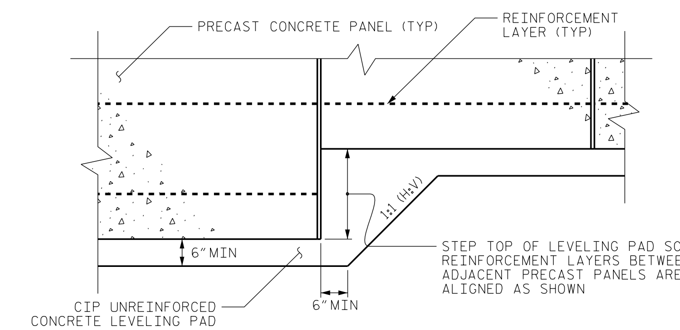
DESIGN RETAINING WALL NO. 1 THROUGH NO.3 FOR A LIVE LOAD (TRAFFIC) SURCHARGE.

FOUNDATIONS FOR SIGNS, LIGHTING or SIGNALS MAY BE LOCATED BEHIND RETAINING WALL NO. 1 THROUGH NO. 3, AND MAY INTERFERE WITH REINFORCEMENT. BEFORE BEGINNING MSE WALL CONSTRUCTION, SUBMIT PROPOSED CONSTRUCTION METHODS FOR THESE FOUNDATIONS FOR APPROVAL.

EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, GUARDRAIL, FENCE OR HANDRAIL POSTS, PAVEMENTS, PIPES, INLETS OR UTILITIES MAY INTERFERE WITH REINFORCEMENT FOR RETAINING WALL NO. 1 THROUGH NO. 3.

DO NOT PLACE LEVELING PAD CONCRETE, AGGREGATE OR REINFORCEMENT FOR RETAINING WALL NO. 1 AND NO. 3, UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.

"TEMPORARY SHORING" MAY BE REQUIRED FOR RETAINING WALL NO. 1 THROUGH NO. 3, IN ACCORDANCE WITH THE TEMPORARY SHORING PROVISION. SEE ROADWAY or TRAFFIC CONTROL PLANS.



PRECAST PANELS
LEVELING PAD STEP DETAIL

PROJECT NO.: U-4015A

GUILFORD COUNTY

STATION: RW1: -L- 27+25.00 TO -L- 29+50.00
RW2: -L- 44+00.00 TO -L- 45+00.00
RW3: -L- 48+00.00 TO -L- 53+00.00

SHEET 5 OF 5 WALL ID RW-1 TO 3

RK&K
P: (919) 878-9560
8601 Six Forks Road, Forum 1,Suite 700
Raleigh, North Carolina 27615-3960
NC License No. F-0112
Engineers | Construction Managers | Planners | Scientists
www.rkk.com
Responsive People | Creative Solutions

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

MSE RETAINING WALL NO. 1 THROUGH NO. 3 NOTES AND LEVELING PAD DETAILS

REVISIONS

NO.	BY	DATE	NO.	BY	DATE
1	S. KABRA	12/20/21	3		
2	M. METRY	02/13/23	4		

SHEET NO. W-5

PREPARED BY: S. KABRA	DATE: 03/25/22
REVIEWED BY: M. METRY	DATE: 03/28/22