GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 037998 THOMAS R. WELLS

DocuSigned by: Thomas Wells 2/22/2017

SIGNATURE DATE

ENGINEER

SIGNATURE DATE

NOT CONSIDERED FINAL UNLESS ALL SIGNATURES ARE COMPLETED

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 NO. 1 AND 2.

CAST-IN-PLACE REINFORCED CONCRETE COPING IS REQUIRED FOR RETAINING WALL NO 1 AND 2.

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

A DRAIN IS NOT REQUIRED FOR RETAINING WALL NO. 1 AND 2.

BEFORE BEGINNING MSE WALL DESIGN FOR RETAINING WALL 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 WALL 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 = 44,352 LB/SF FOR WALL NO. 1 AND 73,997 LB/SF FOR WALL NO. 2
4) MINIMUM REINFORCEMENT LENGTH (L) = 0.7H OR 17 FT FOR WALL NO. 1 AND 22 FT FOR WALL NO. 2, WHICHEVER IS LONGER
5) MINIMUM EMBEDMENT ELEVATION = 637.4 FT FOR WALL NO. 1 AND 629.0 FT FOR WALL NO. 2
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	32	0

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

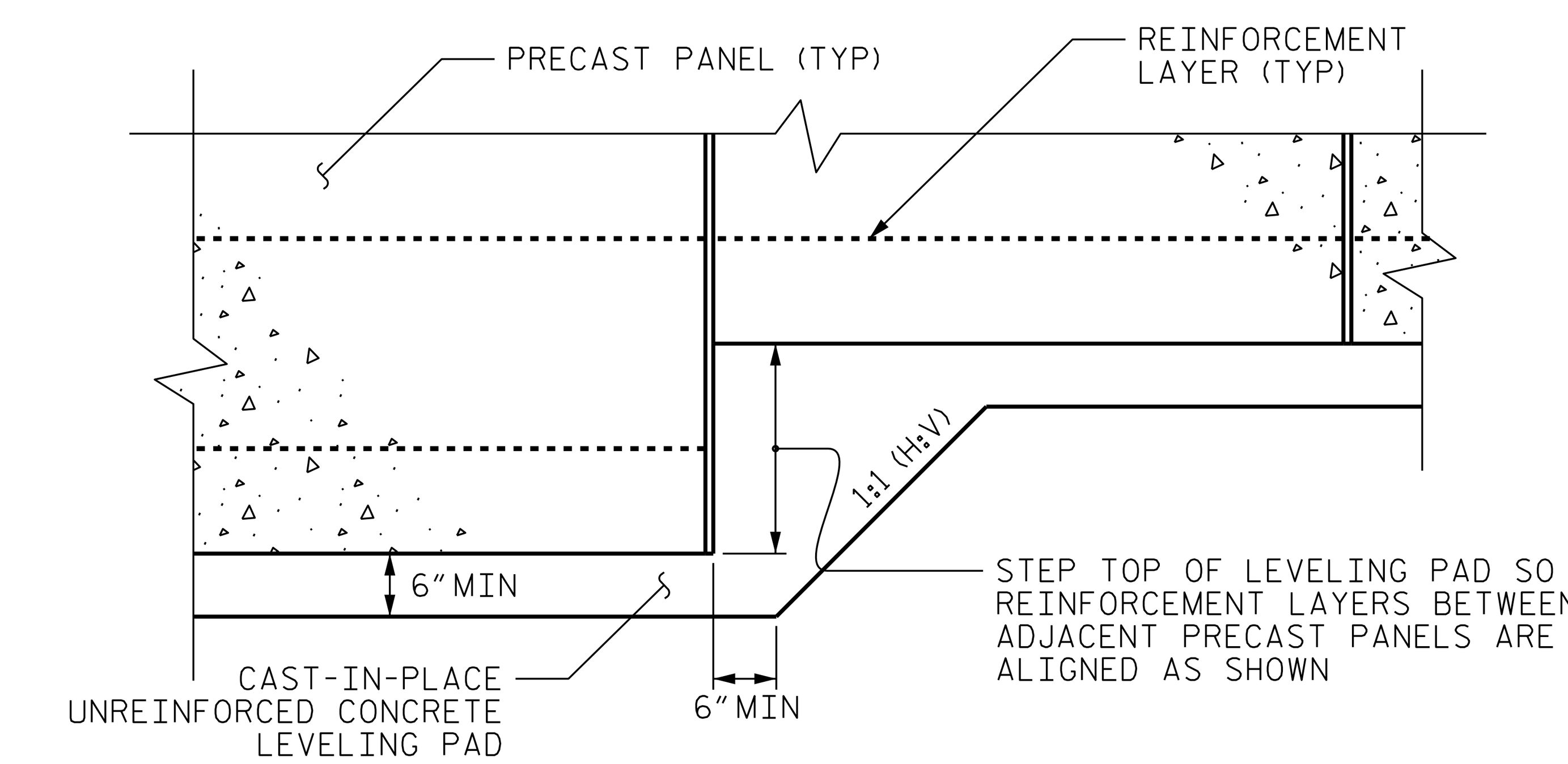
DESIGN REINFORCEMENT CONNECTED TO END BENT CAPS FOR FACTORED LOAD AND LENGTH OF REINFORCEMENT IN ACTIVE ZONE (L) SHOWN. CAST REINFORCEMENT CONNECTORS INTO CAP BACKWALL FOR END BENT NO. 1 LOCATED AT STATION 142+47.09 -L-. MAINTAIN A CLEARANCE OF AT LEAST 3" BETWEEN CONNECTORS AND REINFORCING STEEL IN CAP.

DESIGN REINFORCEMENT CONNECTED TO END BENT CAPS FOR FACTORED LOAD AND LENGTH OF REINFORCEMENT IN ACTIVE ZONE (L) SHOWN. CAST REINFORCEMENT CONNECTORS INTO CAP BACKWALL FOR END BENT NO. 2 LOCATED AT STATION 147+37.41 -L-. MAINTAIN A CLEARANCE OF AT LEAST 3" BETWEEN CONNECTORS AND REINFORCING STEEL IN CAP.

FOUNDATIONS FOR END BENT NO. 1 LOCATED AT STATION 142+47.09 -L- WILL INTERFERE WITH REINFORCEMENT FOR RETAINING WALL NO. 1. SEE "FOUNDATION LAYOUT" SHEET FOR FOUNDATION LOCATIONS.

FOUNDATIONS FOR END BENT NO. 2 LOCATED AT STATION 147+37.41 -L- WILL INTERFERE WITH REINFORCEMENT FOR RETAINING WALL NO. 2. SEE "FOUNDATION LAYOUT" SHEET FOR FOUNDATION LOCATIONS.

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



PRECAST CONCRETE PANELS

LEVELING PAD STEP DETAILS

PROJECT NO.: U-3109A

ALAMANCE COUNTY

STATION: 143+22.52 -L- 21+72.20 -Y26-

STATION: 146+61.35 -L- 22+02.76 -Y16-

SHEET 3 OF 4

KLEINFELDER
Bright People. Right Solutions.

KLEINFELDER
7343 WEST FRIENDLY AVE
GREENSBORO, NC 27410
NC ENGINEERING F-1143

MSE
RETAINING WALL

REVISIONS

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

SHEET NO. W-3

PREPARED BY: TRW	DATE: 9/15
REVIEWED BY: XCB	DATE: 9/15