

NOTES:

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

A CONCRETE BARRIER RAIL WITH MOMENT SLAB IS REQUIRED ABOVE RETAINING WALL NO.1 FROM -W1- STA. 34+00.00 TO -W1- STA. 38+52.60 AND RETAINING WALL NO. 2. SEE PLANS FOR CONCRETE BARRIER RAIL WITH MOMENT SLAB DETAILS.

USE AN MSE WALL SYSTEM WITH SEGMENTAL RETAINING WALL UNITS (SRW) UNITS THAT MEET ARTICLE 1040-4 OF THE STANDARD SPECIFICATIONS FOR RETAINING WALL NO. 4 THROUGH NO. 7.

AT THE CONTRACTOR'S OPTION, USE FINE AGGREGATE IN THE REINFORCED ZONE OF RETAINING WALL NO. 3 THROUGH NO. 7.

A HANDRAIL IS REQUIRED AT TOP OF RETAINING WALL NO. 7. THE CONTRACTOR SHALL SUBMIT THE DESIGN AND DETAILS OF HANDRAIL. FOR HANDRAIL, SEE ROADWAY PLANS.

CAST-IN-PLACE REINFORCED CONCRETE COPING IS REQUIRED FOR RETAINING WALL NO 7.

A SEPARATION GEOTEXTILE IS REQUIRED AT THE BACK OF THE REINFORCED ZONE FOR RETAINING WALL NO.1 THROUGH NO. 7.

A DRAIN IS REQUIRED FOR RETAINING WALL NO.1 THROUGH NO. 7.

BEFORE BEGINNING MSE WALL DESIGN FOR RETAINING WALL NO.1 THROUGH NO. 7, SURVEY WALL LOCATIONS AND SUBMIT REVISED WALL PROFILE VIEWS (WALL ENVELOPES) FOR REVIEW. DO NOT START WALL DESIGN OR CONSTRUCTION UNTIL THE REVISED WALL ENVELOPES ARE ACCEPTED.

DESIGN RETAINING WALL NO.1 THROUGH NO. 7 FOR THE FOLLOWING:

- 1) H = DESIGN HEIGHT + EMBEDMENT
- 2) DESIGN LIFE = 100 YEARS
- 3) MAXIMUM FACTORED VERTICAL PRESSURE ON FOUNDATION MATERIAL = 6,760 LB/SF (RW1), 6,440 LB/SF (RW2), 7,000 LB/SF (RW3), 1,530 LB/SF (RW4), 2,810 LB/SF (RW5), 1,450 LB/SF (RW6), 1,340 LB/SF (RW7)
- 4) 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.

5) 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 THROUGH NO. 3 FOR A LIVE LOAD (TRAFFIC) SURCHARGE.

DESIGN RETAINING WALL NO. 4 FOR A PIPE EXTENDING THROUGH THE WALL AS SHOWN. VERIFY PIPE LOCATION AND ELEVATION BEFORE BEGINNING MSE WALL DESIGN OR CONSTRUCTION.

DESIGN REINFORCEMENT CONNECTED TO END BENT CAPS FOR FACTORED LOAD AND LENGTH OF REINFORCEMENT IN ACTIVE ZONE (L_a) SHOWN. CAST REINFORCEMENT CONNECTORS INTO CAP BACKWALL FOR END BENT NO.1 LOCATED AT STATION 38+05.73 -L- AND END BENT NO. 2 LOCATED AT STATION 39+94.43 -L-. MAINTAIN A CLEARANCE OF AT LEAST 3" BETWEEN CONNECTORS AND REINFORCING STEEL IN CAP.

FOUNDATIONS FOR SOUND BARRIER WALLS WILL BE LOCATED BEHIND RETAINING WALL NO. 4 THROUGH NO. 6 AND MAY INTERFERE WITH REINFORCEMENT. BEFORE BEGINNING MSE WALL CONSTRUCTION, SUBMIT PROPOSED CONSTRUCTION METHODS FOR THESE FOUNDATIONS FOR APPROVAL.

DESIGN RETAINING WALL NO. 4 THROUGH NO. 6 FOR A LATERAL LOAD FROM FOUNDATION OF THE SOUND BARRIER WALL LOCATED BEHIND THE WALL APPLIED AS FACTORED UNIFORM PRESSURES AS BELOW TO THE BACK OF SRW UNITS.

SOUND BARRIER WALL FOUNDATION SPACING	FACTORED LATERAL LOAD BEHIND WALL (PSF)		
	WALL NO. 4	WALL NO. 5	WALL NO. 6
10 FT.	350	260	650
15 FT.	490	380	760

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. 7.

FOUNDATIONS FOR END BENT NO. 1 LOCATED AT STATION 38+05.73 -L- MAY INTERFERE WITH REINFORCEMENT FOR RETAINING WALL NO. 1 AND RETAINING WALL NO. 2. SEE "FOUNDATION LAYOUT" SHEET FOR FOUNDATION LOCATIONS.

FOUNDATIONS FOR END BENT NO. 2 LOCATED AT STATION 39+94.43 -L- MAY INTERFERE WITH REINFORCEMENT FOR RETAINING WALL NO. 3. SEE "FOUNDATION LAYOUT" SHEET FOR FOUNDATION LOCATIONS.

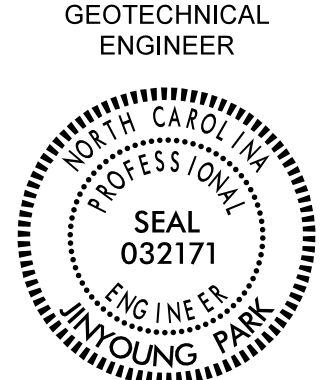
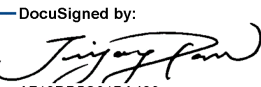
CONSTRUCT RETAINING WALL NO. 1 AND RETAINING WALL NO. 2 BEFORE INSTALLING FOUNDATIONS FOR END BENT NO. 1 LOCATED AT STATION 38+05.73 -L-.

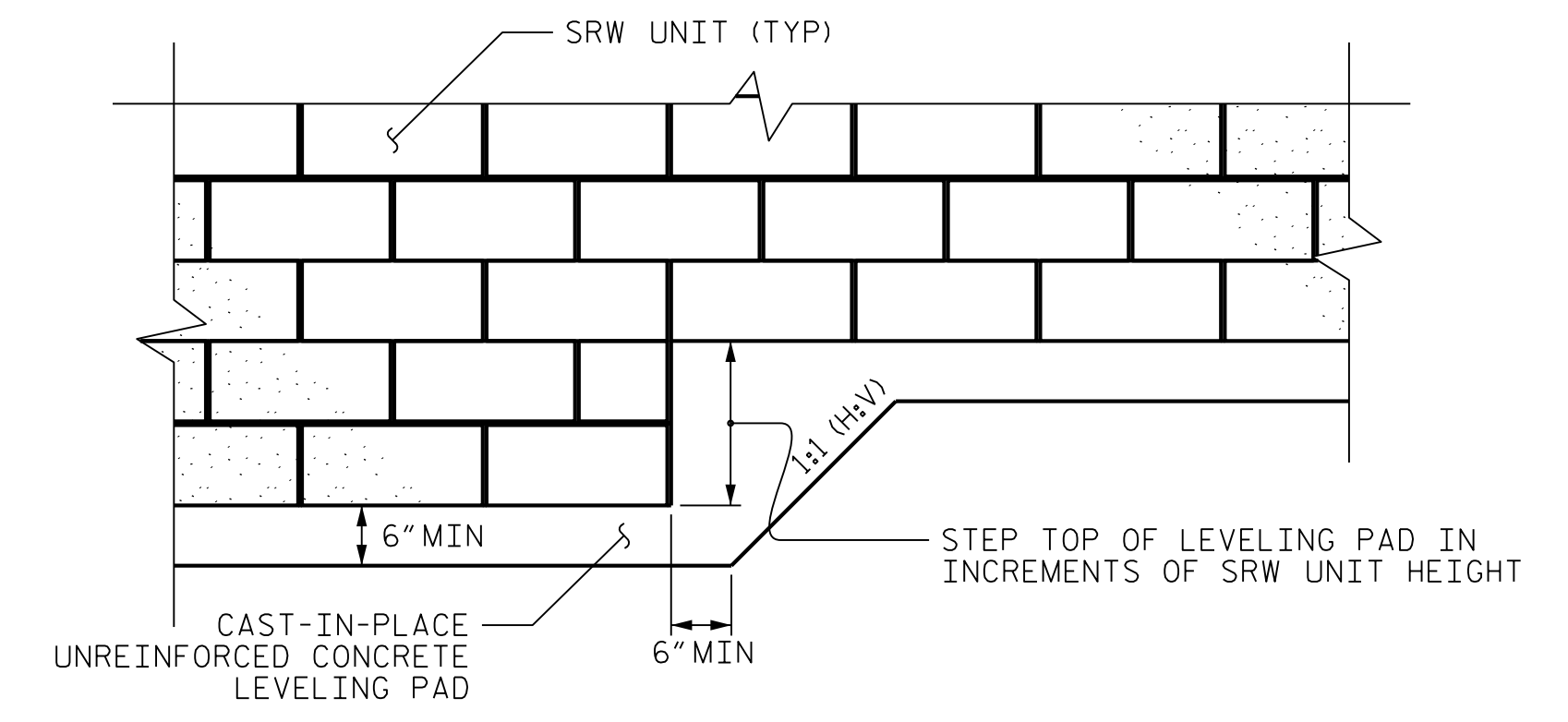
CONSTRUCT RETAINING WALL NO. 3 BEFORE INSTALLING FOUNDATIONS FOR END BENT NO. 2 LOCATED AT STATION 39+94.43 -L-.

INSTALL 24 INCH DIAMETER CORRUGATED STEEL PIPES FOR HP12X53 STEEL PILE FOUNDATIONS AT END BENT NO. 1 AND END BENT NO. 2 DURING CONSTRUCTION OF RETAINING WALL NO. 1 AND NO. 3. THE CORRUGATED STEEL PIPES SHOULD BE FILLED WITH FLOWABLE MATERIAL AFTER PILES ARE INSTALLED.

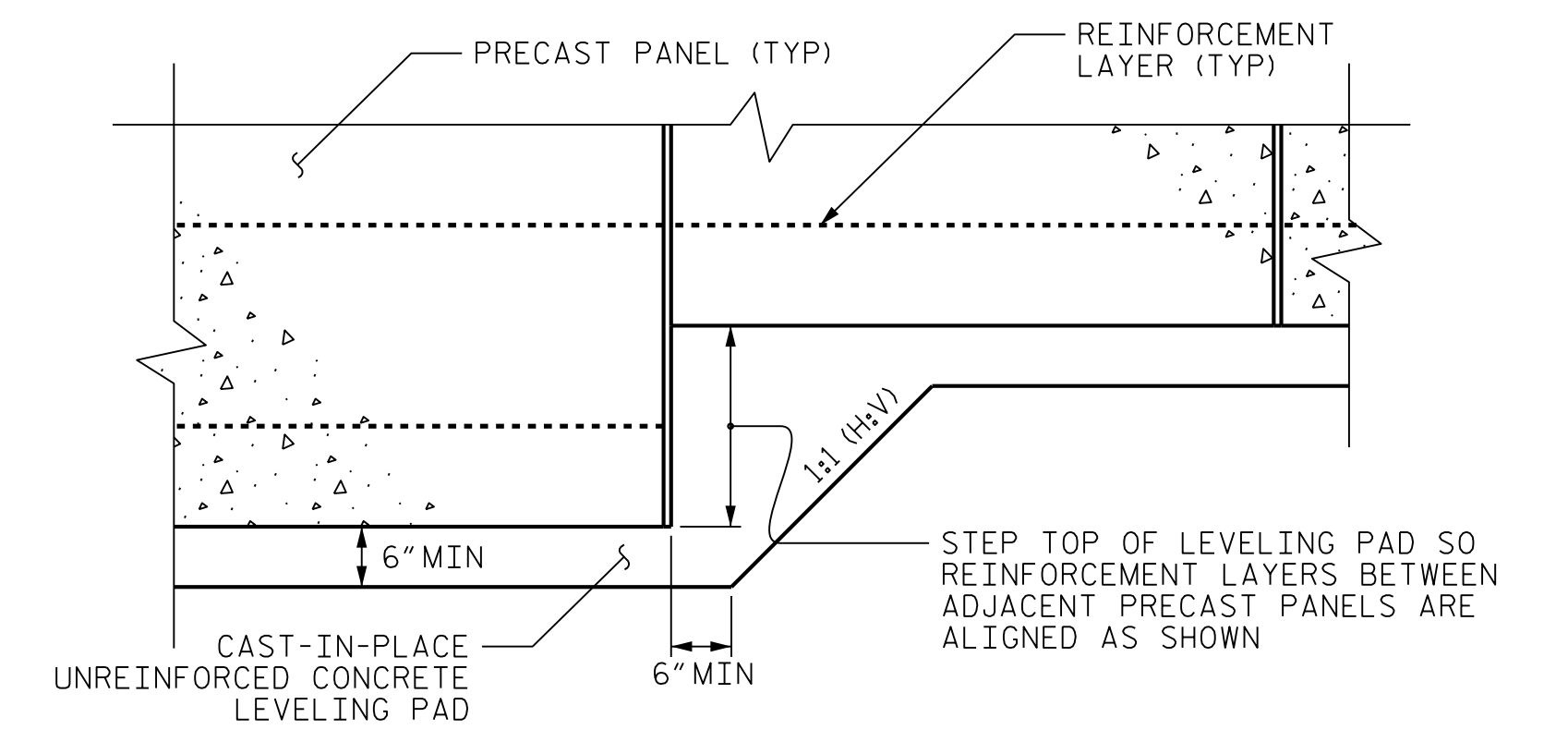
THE COST FOR THE 24 INCH DIAMETER CORRUGATED STEEL PIPES INSTALLED DURING CONSTRUCTION OF RETAINING WALL NO. 1 AND NO. 3 IS INCIDENTAL TO MSE RETAINING WALL NO. 1 AND NO. 3.

DO NOT PLACE LEVELING PAD CONCRETE, AGGREGATE OR REINFORCEMENT FOR RETAINING WALL NO. 1 THROUGH NO. 7 UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.

 GEOTECHNICAL ENGINEER	ENGINEER
DocuSigned by:  DATE: 6/5/2017	SIGNATURE: DATE:



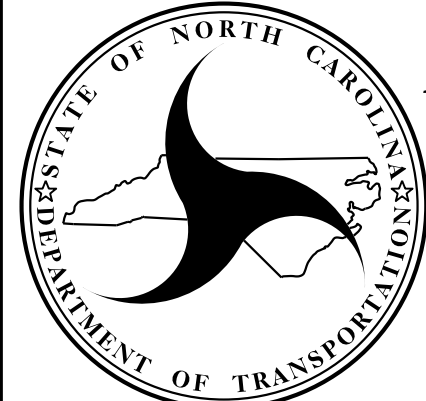
SEGMENTAL RETAINING WALL (SRW) UNITS



PRECAST CONCRETE PANELS

LEVELING PAD STEP DETAILS

PROJECT NO.: U-4751
 NEW HANOVER COUNTY
 STATION: RETAINING WALL NO. 1 - NO. 7
 SHEET 8 OF 13

	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS GEOTECHNICAL ENGINEERING UNIT
---	---

NOTES AND DETAILS FOR MSE RETAINING WALL NO. 1 THROUGH NO. 7					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1	-	-	3	-	-
2	-	-	4	-	-

SHEET NO. W-8

PREPARED BY: J. PARK	DATE: 06 / 2017
REVIEWED BY: J. BATTS	DATE: 06 / 2017