

PROJECT REFERENCE NO. B-5898B-3186	SHEET NO. W-5D
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GEOTECHNICAL ENGINEER

PROFESSIONAL SEAL
045161
REG. IN THE STATE OF NORTH CAROLINA
R. PATRICK DOYLE

DocuSigned by:
Ryan Patrick Doyle 11/9/2023

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

AECOM

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.

A CONCRETE BARRIER RAIL WITH MOMENT SLAB IS REQUIRED ABOVE RETAINING WALL NO. 5. SEE PLANS FOR CONCRETE BARRIER RAIL WITH MOMENT SLAB DETAILS.

AT THE CONTRACTOR'S OPTION, USE FINE AGGREGATE IN THE REINFORCED ZONE OF RETAINING WALL NO. 5.

A SEPARATION GEOTEXTILE IS REQUIRED AT THE BACK OF THE REINFORCED ZONE FOR RETAINING WALL NO. 5.

A DRAIN IS REQUIRED FOR RETAINING WALL NO. 5.

PILE SLEEVES ARE REQUIRED AROUND PILES FOR END BENT NO.1 LOCATED AT STATION 31+56.00.

TO PREVENT STAINING AND DAMAGE DURING EXCAVATION OF OVERBUILD FILL, PROTECTION OF WALL FACING PANELS IS REQUIRED FOR RETAINING WALL NO.5 WHERE PANELS WILL BE TEMPORARILY BURIED DURING CONSTRUCTION.

A TEMPORARY PIEZOMETER SHALL BE INSTALLED IN FRONT OF RETAINING WALL NO.5 TO MONITOR PORE PRESSURE DISSIPATION DURING FILL PLACEMENT AND CONSTRUCTION AT L.LT STA. 31+59 14' LT

BEFORE BEGINNING MSE WALL DESIGN FOR RETAINING WALL NO.5, 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.5 FOR THE FOLLOWING:

- 1) H = WALL HEIGHT + WALL EMBEDMENT
- 2) DESIGN LIFE = 100 YEARS
- 3) MAXIMUM FACTORED VERTICAL PRESSURE ON FOUNDATION MATERIAL = 6750 PSF
- 4) MINIMUM REINFORCEMENT LENGTH (L) = 0.80 H OR 6 FT, WHICHEVER IS LONGER
- 5) MINIMUM WALL EMBEDMENT H/10.0 OR 2 FT, WHICHEVER IS GREATER
- 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	115	30	0

DESIGN RETAINING WALL NO. 5 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 OR CONNECTORS INTO CAP BACKWALL FOR END BENT NO.1 LOCATED AT STATION 31+56.00. MAINTAIN A CLEARANCE OF AT LEAST 3' BETWEEN REINFORCEMENT OR CONNECTORS AND REINFORCING STEEL IN CAP.

INSTALL PILE SLEEVES BEFORE CONSTRUCTING THE MECHANICALLY STABILIZED EARTH (MSE) ABUTMENT WALL AT END BENT NO.1. OBSERVE A 2 MONTH WAITING PERIOD AFTER CONSTRUCTING THE MSE ABUTMENT WALL TO WITHIN 1 FT OF THE BOTTOM OF CAP ELEVATION. THEN, INSTALL PILES THROUGH THE CORRUGATED STEEL PIPES AND FILL PIPES WITH LOOSE UNCOMPACTED SAND BEFORE CONSTRUCTING END BENT CAPS. FOR PILE SLEEVES, SEE MSE RETAINING WALL PLANS AND PROVISION. FOR BRIDGE WAITING PERIODS, SEE ROADWAY PLANS AND SECTION 235 OF THE STANDARD SPECIFICATIONS.

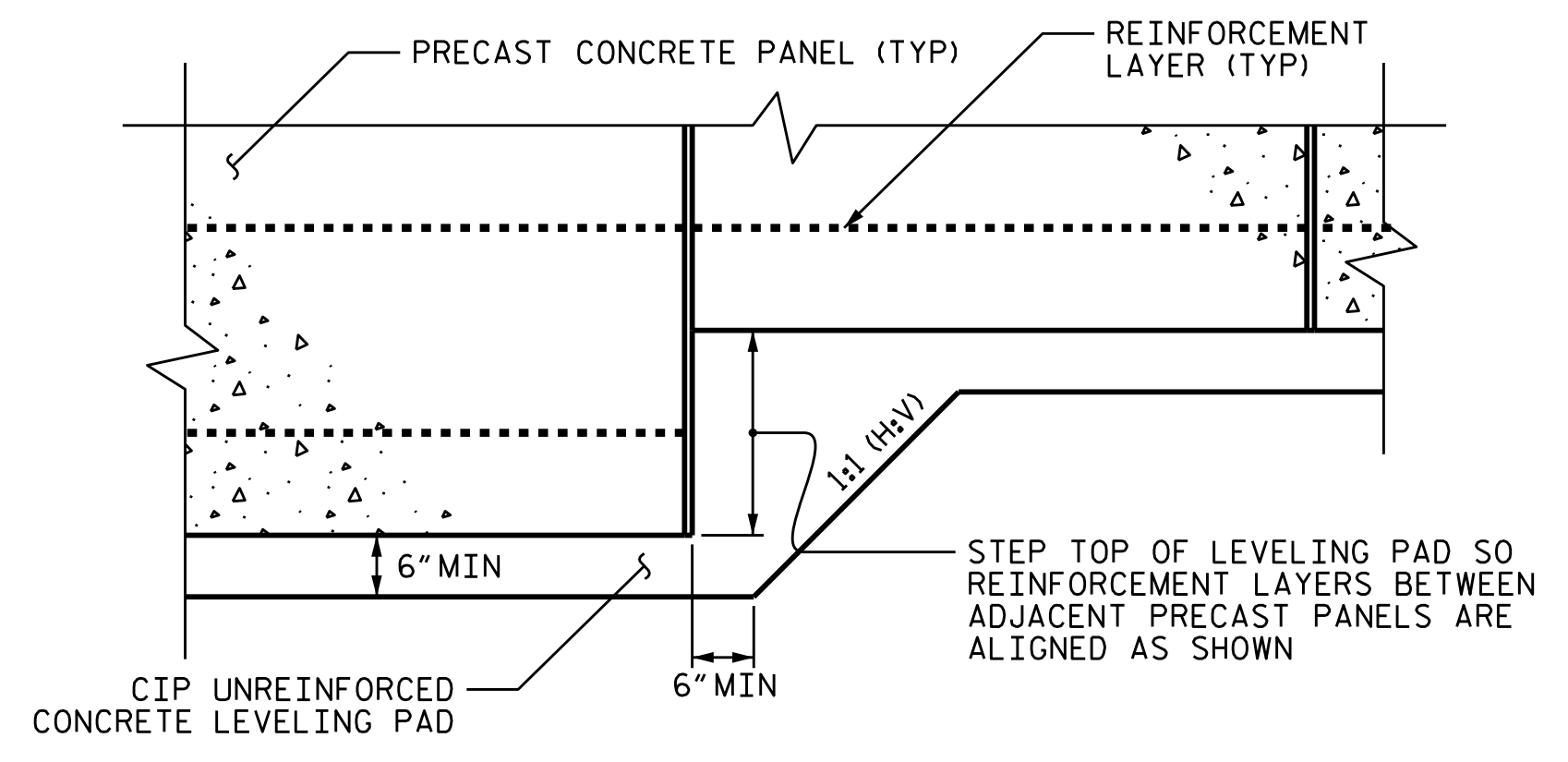
INSTALL PVC PIPE THROUGH MSE WALL COPING AT LOCATIONS SHOWN ON STRUCTURE PLANS. INVERT OF PVC PIPE SHALL BE FLUSH WITH BOTTOM OF PAVED SLOPE PROTECTION. EXTEND PIPE 4" BEYOND FACE OF COPING. PVC PIPE MATERIAL, LABOR, AND INCIDENTALS ARE CONSIDERED INCIDENTAL TO THE CONSTRUCTION OF THE WALL.

FOUNDATIONS FOR END BENT NO.1 LOCATED AT STATION 31+56.00 WILL INTERFERE WITH REINFORCEMENT FOR RETAINING WALL NO. 5. SEE "FOUNDATION LAYOUT" SHEET FOR FOUNDATION LOCATIONS.

DO NOT PLACE LEVELING PAD CONCRETE, AGGREGATE OR REINFORCEMENT FOR RETAINING WALL NO.5 UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.

AT THE CONTRACTOR'S OPTION, "TEMPORARY SHORING FOR WALL CONSTRUCTION" MAY BE USED TO CONSTRUCT RETAINING WALL NO.5. SEE MSE RETAINING WALLS PROVISION FOR TEMPORARY SHORING FOR WALL CONSTRUCTION.

ESTIMATED MSE WALL QUANTITIES (SQUARE FEET)	
MSE RETAINING WALL NO. 5	16,980



**PRECAST PANELS
LEVELING PAD STEP DETAIL**