GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 029147 ENGINEER KRISTEN H. HILL

DocuSigned by: kristen Hill 3/5/2020
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SIGNATURE DATE

ENGINEER

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CONSTRUCTION SEQUENCE FOR REINFORCED RETAINING WALL BACKFILL

1. INSTALL CONCRETE SHEET PILES AND END BENT PILES PRIOR TO CONSTRUCTING REINFORCED RETAINING WALL BACKFILL.
2. CONTROL DRAINAGE DURING CONSTRUCTION IN THE VICINITY OF REINFORCED RETAINING WALL BACKFILL.
3. COLLECT AND DIRECT RUNOFF AWAY FROM REINFORCED RETAINING WALL BACKFILL.
4. EXCAVATE AS NECESSARY TO CONSTRUCT BOTTOM OF REINFORCED RETAINING WALL BACKFILL TO THE ELEVATION SHOWN ON THE PLANS.
5. PLACE GEOTEXTILE OR GEOGRID REINFORCEMENT AT LOCATIONS AND ELEVATIONS SHOWN ON SHEET W-17 & W-18 AND IN SLIGHT TENSION FREE KINKS,FOLDS,WRINKLES OR CREASES.
6. ERECT WELDED WIRE FORMS AS SHOWN ON THE PLANS.
7. STAGGER VERTICAL JOINTS OF WELDED WIRE FORMS TO CREATE A RUNNING BOND.
8. PLACE WELDED WIRE FORMS AS NEAR TO VERTICAL AS POSSIBLE WITH NO NEGATIVE BATTER. CONSTRUCT REINFORCED APPROACH FILLS WITH A MAXIMUM VERTICAL AND HORIZONTAL TOLOERANCE OF 3" WHEN MEASURED WITH A 10'-0" STRAIGHT EDGE AND AN OVERALL PLUMBNESS (BATTER) AND HORIZONTAL ALIGNMENT OF LESS THAN 6".
9. DO NOT SPLICE OR OVERLAP GEOTEXTILE REINFORCEMENT IN THE MACHINE DIRECTION (MD),i.e., PERPENDICULAR TO THE REINFORCED RETAINING WALL BACKFILL FACE. OVERLAPS ONLY ARE ALLOWED IN THE CROSS-MACHINE DIRECTIONS (CMD).
10. PLACE BACKFILL WITHIN REINFORCED RETAINING WALL BACKFILLS IN 8" TO 10" THICK LIFTS AND COMPACT IN ACCORDANCE WITH SUBARTICLE 235-3(C) OF THE STANDARD SPECIFICATIONS. USE ONLY HAND OPERATED COMPACTION EQUIPMENT WITHIN 3'-0" OF THE REINFORCED RETAINING WALL BACKFILL FACE.
11. RETENTION GEOTEXTILE SHALL BE USED AT THE BOTTOM OF THE CLASS III SELECT MATERIAL TO SEPARATE THE BACKFILL FROM THE CLASS VI SELECT MATERIAL.
12. WRAP GEOTEXTILE OR GEOGRID REINFORCEMENT AT VERTICAL CORNERS AS DIRECTED BY THE ENGINEER.
13. DO NOT DAMAGE GEOTEXTILE OR GEOGRID REINFORCEMENT OR WELDED WIRE FORMS WHEN PLACING AND COMPACTING BACKFILL. DO NOT OPERATE HEAVY EQUIPMENTON ON GEOTEXTILE REINFORCEMENT FABRIC OR GEOGRID UNTIL IT IS COVERED WITH AS LEAST 8" OF BACKFILL. DO NOT USE SHEEPSFOOT,GRID ROLLERS OR OTHER TYPES OF COMPACTION EQUIPMENT WITH FEET.
14. CONSTRUCT REINFORCED RETAINING WALL BACKFILL TO BOTTOM OF COPING OR BOTTOM OF SUBGRADE WHICH EVER IS LOWER AND BOTTOM OF END BENT CAP ELEVATIONS AND ALLOW THEM TO SIT IDLE FOR A MINIMUM OF 30 DAYS PRIOR TO FILLING SPACE BETWEEN FACE OF REINFORCED RETAINING WALL BACKFILL AND BACK OF CONCRETE SHEET PILING WITH CLASS VI SELECT MATERIAL.
15. BACKFILL SPACE WITH CLASS VI SELECT MATERIAL BETWEEN FACE OF REINFORCED RETAINING WALL BACKFILL AND BACK OF CONCRETE SHEET PILING PRIOR TO PLACING FINAL LIFTS OF REINFORCEMENT AS SHOWN IN DETAILS.
16. CONSTRUCT RETAINING WALL COPINGS AND END BENT CAPS PRIOR TO PLACING FINAL LIFTS OF REINFORCEMENT WHICH SHALL BE INSTALLED DIRECTLY AGAINST IN-PLACE RETAINING WALL.COPINGS AND END BENT CAPS WITHOUT USING WELDED WIRE FORMS.

REINFORCED RETAINING WALL BACKFILL NOTES:

1. FOR REINFORCED RETAINING WALL BACKFILLS,SEE REINFORCED RETAINING WALL BACKFILL SPECIAL PROVISION.
2. REINFORCED RETAINING WALL BACKFILL ARE DESIGNED FOR MAXIMUM FACTORED VERTICAL PRESSURE ON FOUNDATION MATERIAL = 3800 PSF.
3. USE GROUNDWATER ELEVATION NOTED IN THE PLANS,IF NO GROUNDWATER ELEVATION IS SHOWN IN THE PLANS, ASSUME GROUNDWATER DEPTH IS LESS THAN 7' BELOW BOTTOM OF REINFORCED ZONE.
4. USE CLASS III AND VI FOR REINFORCED RETAINING WALL BACKFILL AS SHOWN ON PLANS.
5. RETENTION GEOTEXTILE FABRIC SHALL MEET THE REQUIREMENTS OF TYPE 2 GEOTEXTILE AS SHOWN IN TABLE 1056-1 OF THE STANDARD SPECIFICATIONS.
6. FOR GEOGRID REINFORCEMENT WITH LESS THAN 100% COVERAGE,STAGGER REINFORCEMENT SO GEOGRIDS ARE CENTERED OVER GAPS IN REINFORCEMENT LAYER BELOW.
7. AT THE CONTRACTOR'S OPTION,REINFORCEMENT MAY BE INSTALLED WITH THE MD PARALLEL TO THE WALL FACE IF BOTH OF THE FOLLOWING CONDITIONS OCCUR:
   a. W (REINFORCEMENT ROLL WIDTH) = (MINIMUM REQUIRED REINFORCEMENT LENGTH) + 4.5' &
   b. REINFORCEMENT STRENGTH IN CD = MINIMUM REQUIRED REINFORCEMENT STRENGTH IN MD.
8. SUBMIT A WELDED WIRE BASKET WALL SELECTION FORM AT LEAST 7 DAYS BEFORE STARTING WALL CONSTRUCTION. SELECTION FORMS ARE AVAILABLE FROM: connect.ncdot.gov/resources/Geological/Pages/Geotech_Forms_Details.aspx
9. DO NOT PLACE BACKFILL OR REINFORCEMENT UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.
10. DO NOT SPLICE OR OVERLAP REINFORCEMENT SO SEAMS ARE PARALLEL TO THE WALL FACE.
11. CONTACT THE ENGINEER WHEN EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS,PAVEMENTS,PIPES,INLETS OR UTILITIES WILL INTERFERE WITH REINFORCEMENT.
12. FOR WELDED WIRE BASKET WALLS WITH INTERIOR ANGLES LESS THAN 90 DEGREES,WRAP GEOSYNTHETICS AT ACUTE CORNERS AS DIRECTED BY THE ENGINEER.

PROJECT NO.: 40212.1.1 (B-4863)
CARTERET COUNTY
STATION: 15+75 & 50+70 -L-

PREPARED BY: K.H.H.	DATE: 03/2020
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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

REINFORCED RETAINING WALL BACKFILL

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	W-21
1			3			
2			4			