PROJECT REFERENCE NO.	SHEET NO.
17BP.8.R.119	2G-2

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 015741 ENGINEER XAVIER C. BARRETT

DocuSigned by: Xavier Barrett 5/12/2017
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ENGINEER

SIGNATURE DATE

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NOTES:

1. SEE ROADWAY PLANS AND SUMMARY SHEETS FOR REINFORCED SOIL SLOPE (RSS) AND ROCK PLATING LOCATIONS.
2. FOR REINFORCED SOIL SLOPES, SEE REINFORCED SOIL SLOPES PROVISION. FOR STEEL BEAM
3. FOR ROCK PLATING, SEE SECTION 275 OF THE STANDARD SPECIFICATIONS.
4. FOR ROCK PLATING, USE CLASS 1, 2 OR B RIPRAP UNLESS REQUIRED OTHERWISE IN THE ROADWAY SUMMARY SHEETS.
5. RSS ARE BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:
   UNIT WEIGHT, γ = 120 LB/CF
   FRICTION ANGLE, ϕ = 30 DEGREES
   COHESION, c = 0 LB/SF
6. FOR SHOULDER AND SLOPE BORROW, SEE ARTICLE 1019-2 OF THE STANDARD SPECIFICATIONS.
7. GEOGRIDS ARE TYPICALLY APPROVED FOR ULTIMATE TENSILE STRENGTHS IN THE MACHINE DIRECTION (MD) AND CROSS-MACHINE DIRECTION (CD) OR LONG-TERM DESIGN STRENGTHS FOR A 75-YEAR DESIGN LIFE IN THE MD BASED ON MATERIAL TYPE. THE LIST OF APPROVED GEOGRIDS WITH DESIGN STRENGTHS IS AVAILABLE FROM:
   connect.ncdot.gov/resources/Materials/Pages/SoilsLaboratory.aspx
   DEFINE MATERIAL TYPE FROM THE WEBSITE ABOVE FOR SELECT MATERIAL AS FOLLOWS:

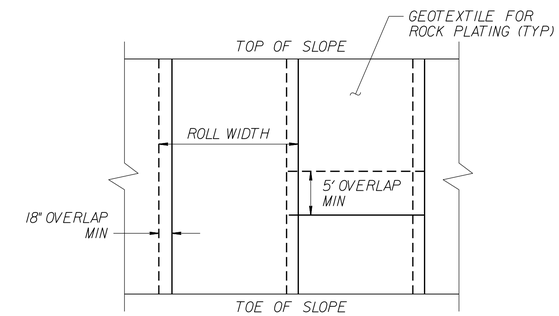
MATERIAL TYPE	SELECT MATERIAL
BORROW	CLASS I SELECT MATERIAL
FINE AGGREGATE	CLASS II OR III SELECT MATERIAL

   IF THE WEBSITE DOES NOT LIST A LONG-TERM DESIGN STRENGTH FOR AN APPROVED GEOGRID IN THE MD, DO NOT USE THE GEOGRID FOR PRIMARY GEOGRID. IF THE WEBSITE DOES NOT LIST A LONG-TERM DESIGN STRENGTH FOR AN APPROVED GEOGRID IN THE CD, USE A LONG-TERM DESIGN STRENGTH EQUAL TO THE ULTIMATE TENSILE STRENGTH DIVIDED BY 7 FOR THE SECONDARY GEOGRID.
8. DO NOT OVERLAP PRIMARY GEOGRIDS IN THE MD SO OVERLAPS ARE PARALLEL TO THE TOE OF RSS. POLYOLEFIN (e.g., HDPE OR PP) GEOGRIDS MAY BE SPLICED ONCE PER PRIMARY GEOGRID LENGTH IN ACCORDANCE WITH THE GEOGRID MANUFACTURER'S INSTRUCTIONS. USE POLYOLEFIN GEOGRID PIECES AT LEAST 4' LONG. DO NOT SPLICE POLYESTER TYPE (PET) GEOGRIDS.
9. FOR PRIMARY GEOGRIDS WITH 100% COVERAGE, PLACE PRIMARY GEOGRIDS SO GEOGRIDS ARE ADJACENT TO EACH OTHER IN THE CD.
10. SEE TABLE FOR LTDS BASED ON 100% COVERAGE AND GEOGRID PLACEMENT DETAILS FOR PRIMARY GEOGRID ROLL WIDTH (W) AND SPACING (S).
11. DO NOT PLACE ANY GEOGRIDS UNTIL EXCAVATION DIMENSIONS AND IN-SITU MATERIAL ARE APPROVED.
12. FOR EXTENT OF REQUIRED UNDECUT, REFER TO THE RECOMMENDATIONS CROSS SECTIONS.
13. FOR SHEET PILES, SEE SEE SECTION 452 OF THE STANDARD SPECIFICATIONS AND THE PERMANENT SHEET PILE SPECIAL PROVISION.
14. INSTALL SHEET PILES TO AN EMBEDMENT DEPTH OF 23 FEET BELOW THE BOTTOM OF THE UNDERCUT.
15. INSTALL SHEET PILES FROM STATION 19+25 TO STATION 20+20.
16. A PERMANENT SHEET PILE SHORING QUANTITY OF 450 SQUARE FEET IS INCLUDED. AN ADDITIONAL QUANTITY OF 50 SQUARE FEET OF PERMANENT SHORING IS INCLUDED AS A CONTINGENCY, TO BE USED AT THE DISCRETION OF THE ENGINEER.
17. PERMANENT SHEET PILE SHORING WILL BE MEASURED AND PAID FOR IN SQUARE FEET OF EXPOSED WALL FACE AREA

GEOGRID TYPE, DIRECTION	H (FT)	0 - < 12
	SELECT MATERIAL CLASS	I, II, OR III
PRIMARY GEOGRID, MD	1.5:1 TO 1.75:1 (H:V) RSS	1,000
SECONDARY GEOGRID, CD	1.5:1 TO 1.75:1 (H:V) RSS	285

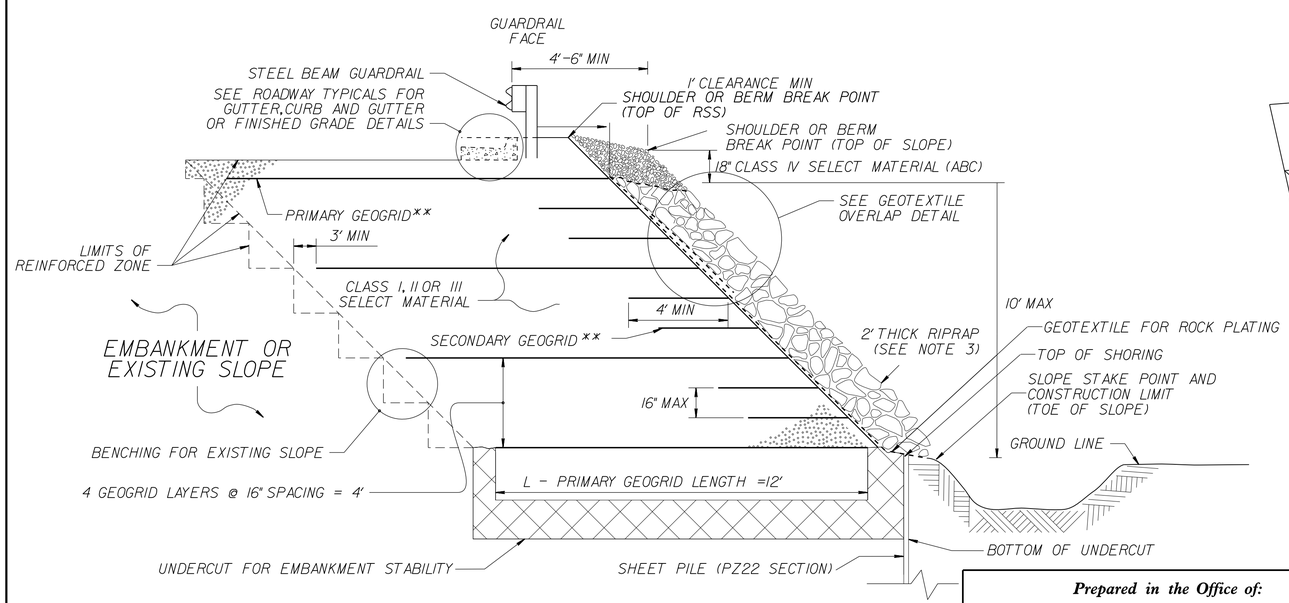
LTDS – MINIMUM REQUIRED LONG-TERM DESIGN STRENGTH (LB/FT)

(LTDS IS BASED ON 100% COVERAGE FOR PRIMARY GEOGRID.)



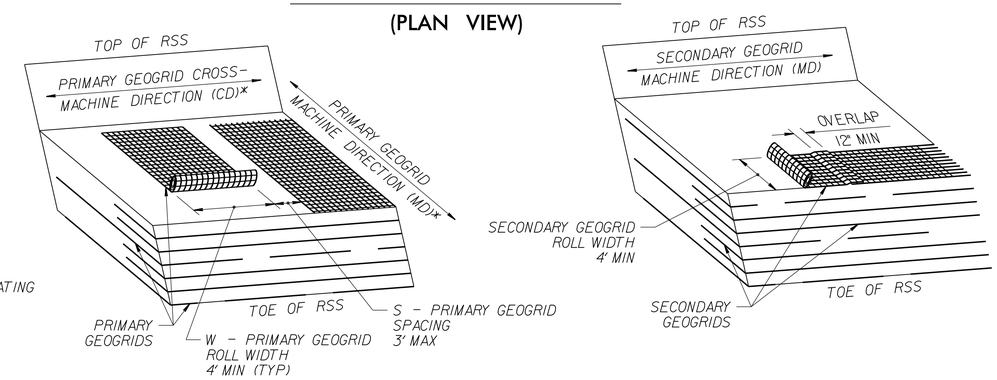
GEOTEXTILE OVERLAP DETAIL

(PLAN VIEW)



REINFORCED SOIL SLOPE WITH ROCK PLATING

**SEE TABLE AND GEOGRID PLACEMENT DETAILS



GEOGRID PLACEMENT DETAILS

*SEE NOTES 8 AND 9

PREPARED BY: B. JOHNSON	DATE: 03/17
REVIEWED BY: X. BARRETT	DATE: 03/17

Prepared in the Office of:

KLEINFELDER
Bright People. Right Solutions.
7343 WEST FRIENDLY AVENUE, SUITE B
GREENSBORO, NC 27403
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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

REINFORCED SOIL SLOPE WITH ROCK PLATING DETAIL

REVISIONS

NO.	BY	DATE	NO.	BY	DATE
1	T. WELLS	04/17	3		
2	T. WELLS	05/17	4		