STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

ERIC BOYETTE
SECRETARY

September 29, 2021

MEMORANDUM TO: Chad Kimes, P.E.
Division Engineer

ATTENTION: Katie Hite, P.E.
Division Project Development Engineer

FROM: David Herring, P.E.
Assistant State Geotechnical Engineer

DocuSigned by: David Herring
5A824EE05A0E460...

DS JRB

STATE PROJECT: 44849.1.18 (W-5703R)
F.A. PROJECT: HSIP-0132(013)
COUNTY: New Hanover

DESCRIPTION: NC 132 (South College Rd.) and Bragg Dr. Construct Offset Lefts

SUBJECT: Geotechnical Report - Design and Construction Recommendations

The Geotechnical Engineering Unit (GEU) has completed a subsurface investigation for this project and presents the following recommendations.

I. Slope/Embankment Stability

A. Slope/Embankment Stability

Recommend all roadway slopes be constructed no steeper than 3:1 (H:V).

No contingency quantities for Undercut Excavation and Geotextile for Soil Stabilization included for Section I of the report.

II. Subgrade Stability

A. Undercut for Subgrade Stability

Include 200 cubic yards of Undercut Excavation in the contract as a contingency item to be used at the discretion of the Engineer.

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL ENGINEERING UNIT – EASTERN REGIONAL OFFICE
1570 MAIL SERVICE CENTER
RALEIGH, NC 27699-1570

Telephone: (919) 662-4710
Customer Service: 1-877-368-4968
Website: www.ncdot.gov

Location:
3301 JONES SAUSAGE RD. SUITE 100
GARNER, NC 27529

B. Special Ditches

Special ditches are not recommended for this project.

C. Subsurface Drainage - Subsurface Drain

Recommend 200 linear feet of 6" Perforated Subdrain Pipe for subsurface drain (Roadway Standard Drawing 815.02) be included in the contract as a contingency item to be used at the discretion of the Engineer.

D. Geotextile for Soil Stabilization

Recommend 200 square yards of Geotextile for Soil Stabilization be included in the contract as a contingency item to be used in Section II A.

III. Borrow Specifications

A. Borrow Criteria

Common borrow for embankment construction to subgrade shall meet Coastal Plain specifications outlined in the Standard Specifications, Article 1018-2(B).

B. Select Granular Material

Recommend 200 cubic yards of Select Granular Material be included in the contract for backfill as a contingency item for Section II. A.

Select granular material for embankment/backfill for geotextile for soil stabilization if required, or backfill in water shall meet the criteria outlined in the Standard Specifications, Article 1016-3, Class II and/or III.

C. Shrinkage Factor

A shrinkage factor of 25 percent is recommended for calculation of earthwork on this project.

D. Borrow Reconnaissance and Availability

Sandy soils with good to excellent engineering properties are available in nearby areas.

IV. Miscellaneous

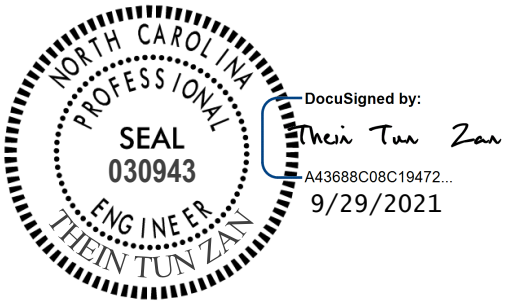
A. Reduction of Unclassified Excavation - Loss Due to Clearing and Grubbing

No significant loss of unclassified excavation is anticipated due to clearing and grubbing.

B. Reduction of Unsuitable Unclassified Excavation - Unsuitable Waste

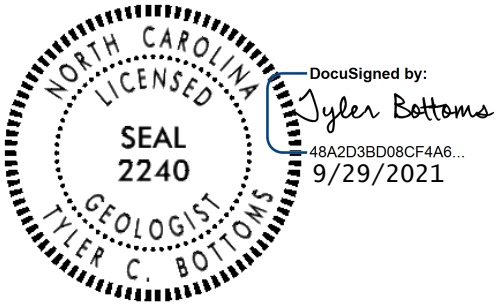
Based on the current roadway plans, unclassified excavation along this project will be primarily derived from shallow subgrade cuts. These areas contain granular soils which are suitable for subgrade construction.

Prepared By:



Thein Tun Zan, P.E.
Geotechnical Design Engineer

Prepared By:



Tyler C. Bottoms, L.G.
Project Geological Engineer

DH/JRB/TCB/TTZ

See Page 5 for Bore Logs

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL ENGINEERING UNIT
Summary of Quantities

WBS Number: 44849.1.18 | County: New Hanover | Project Engineer: Thein Tun Zan

TIP Number: W-5703R | Field Office: GREENVILLE | Project Geologist: TYLER BOTTOMS

Description: NC 132 (South College Rd.) and Bragg Dr. Construct Offset Lefts

Pay Item No.	Pay Item/ Quantity Adjustment	Spec Book Section No. or Special Provision (SP) Reference	Report Section	Alignment	Begin Station	End Station	Quantity	Units / %
0036000000-E	Undercut Excavation	225 - Roadway Excavation	II. A	Contingency	N/A	N/A	200	CY
						Total Quantity of Undercut Excavation =	**200**	**CY**
0195000000-E	Select Granular Material	265 - Select Granular Material	III. B	Contingency	N/A	N/A	200	CY
						Total Quantity of Select Granular Material =	**200**	**CY**
0196000000-E	Geotextile for Soil Stabilization	270 - Geotextile for Soil Stabilization	II. D	Contingency	N/A	N/A	200	SY
						Total Quantity of Geotextile for Soil Stabilization =	**200**	**SY**
2044000000-E	6" Perforated Subdrain Pipe	815 - Subsurface Drainage	II. C	Contingency	N/A	N/A	200	LF
						Total Quantity of 6" Perforated Subdrain Pipe =	**200**	**LF**

These Items Only Impact Earthwork Totals								
N/A	Shrinkage Factor	235 - Embankments	III. C	N/A	N/A	N/A	25	%

LINE	PROJECT	W-5703R	DATE	9/23/2021		
-L-	COUNTY	New Hanover				
	NOTES BY	Zimarino				EST.
STATION	DEPTH	SAMP	DESCRIPTION		MOI.	CLASS
31+00	0.0-3.0		LOOSE BROWN SAND (ROADWAY EMBANKMENT)		M	A-2-4
27' RT	3.0-6.0		LOOSE GRAY SAND (UNDIVIDED COASTAL PLAIN)		M	A-2-4
24hr: DRY						
30+50	0.0-2.5		LOOSE BROWN SAND (ROADWAY EMBANKMENT)		M	A-2-4
80' RT	2.5-6.0		LOOSE GRAY SAND (UNDIVIDED COASTAL PLAIN)		M	A-2-4
24hr: DRY						
29+00	0.0-3.0		LOOSE BROWN AND TAN SAND (ROADWAY EMBANKMENT)		M	A-2-4
25' RT	3.0-6.0		LOOSE GRAY SAND (UNDIVIDED COASTAL PLAIN)		M	A-2-4
24hr: DRY						
27+50	0.0-3.0		LOOSE BROWN AND TAN SAND (ROADWAY EMBANKMENT)		M	A-2-4
25' RT	3.0-6.0		LOOSE GRAY SAND (UNDIVIDED COASTAL PLAIN)		M	A-3
24hr: DRY						