



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

JOSH STEIN
GOVERNOR

J.R. "JOEY" HOPKINS
SECRETARY

January 14, 2025

MEMORANDUM TO: Trevor Carroll, P.E.
Division Engineer

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

FROM: Tom Santee, P.E.

 Assistant State Geotechnical Engineer – Eastern Region 
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STATE PROJECT: 50524

F.A. PROJECT: N/A

COUNTY: Pender

DESCRIPTION: US 17N from Sidbury Rd to Scotts Hill Loop Rd

SUBJECT: Geotechnical Report - Design and Construction Recommendations

The Geotechnical Engineering Unit (GEU) has completed a review of previous subsurface investigations that overlap with the current project. Subsurface data from WBS projects 34425.1.1 and 3.107111 indicates the soils along this project are sandy in nature and the ground water is 6 feet or more below natural ground. The geotechnical recommendations are presented as follows.

I. Slope/Embankment Stability

A. Slope/Embankment Stability

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

B. Undercut for Embankment Stability

Recommend 50 cubic yards of Undercut Excavation for embankment stability be included in the contract as a contingency item to be used at the direction of the Engineer.

C. Geotextile for Soil Stabilization

Include 50 square yards of Geotextile for Soil Stabilization in the contract as a contingency item to be used at the discretion of the Engineer.

II. Subgrade Stability

A. Undercut for Subgrade Stability

Include 50 cubic yards of Undercut Excavation in the contract as a contingency item to be used at the discretion of the Engineer.

B. Special Ditches

Special ditches are not recommended for this project.

C. Subsurface Drainage - Subsurface Drain

Recommend 50 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 50 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 the Exceptions to Statewide Criteria for Acceptance of Borrow Material, Article 1018-2(B).

B. Select Granular Material

Recommend 100 cubic yards of Select Granular Material be included in the contract for backfill as a contingency item for Section I. B. and 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

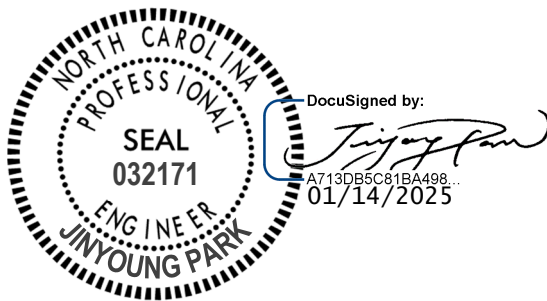
A. Reduction of Unclassified Excavation - Loss Due to Clearing and Grubbing

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

B. Reduction of Unsuitable Unclassified Excavation - Unsuitable Waste

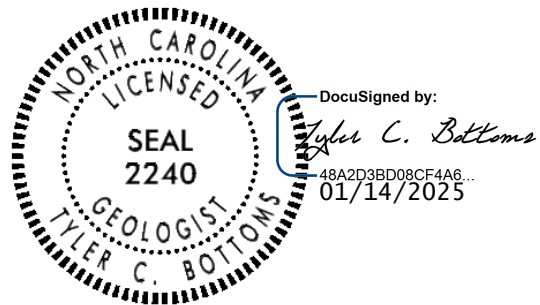
Based on the current roadway plans, unclassified excavation along this project will be primarily derived from shallow subgrade cuts and ditch excavation. These areas contain granular soils which are suitable for subgrade construction.

Prepared By:



Jinyoung Park, P.E.
Regional Geotechnical Design Engineer

Prepared By:



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

TGS/JYP/TCB

See Page 4 for Summary of Quantities



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL ENGINEERING UNIT

Summary of Quantities

WBS Number: 50524

County: PENDER

Project Engineer: J. PARK

TIP Number: N/A

Field Office / PEF: GREENVILLE

Project Geologist: T.C. BOTTOMS

Description: US 17N FROM SIDBURY RD TO SCOTTS HILL LOOP ROAD

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	I. B	Contingency	N/A	N/A	50	CY
0036000000-E	Undercut Excavation	225 - Roadway Excavation	II. A	Contingency	N/A	N/A	50	CY
Total Quantity of Undercut Excavation =							100	CY
0195000000-E	Select Granular Material	265 - Select Granular Material	III. B	Contingency	N/A	N/A	100	CY
Total Quantity of Select Granular Material =							100	CY
0196000000-E	Geotextile for Soil Stabilization	270 - Geotextile for Soil Stabilization	I. C	Contingency	N/A	N/A	50	SY
0196000000-E	Geotextile for Soil Stabilization	270 - Geotextile for Soil Stabilization	II. D	Contingency	N/A	N/A	50	SY
Total Quantity of Geotextile for Soil Stabilization =							100	SY
2044000000-E	6" Perforated Subdrain Pipe	815 - Subsurface Drainage	II. C	Contingency	N/A	N/A	50	LF
Total Quantity of 6" Perforated Subdrain Pipe =							50	LF

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