



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

June 24, 2019

STATE PROJECT: 45657.1.1 (B-5703)
COUNTY: Cumberland
DESCRIPTION: Bridge No. 60 on US 401 over Lower Little River
SUBJECT: Geotechnical Report – Inventory

The Geotechnical Engineering Unit has completed a review of nearby projects and presents the following inventory. No plans, profiles, or cross-sections will be submitted for this roadway project.

Project Description

This project lies approximately 2 miles west of the town of Linden and is situated on the Harnett/Cumberland County line. The project consists of grading, draining, paving, and replacing Bridge No. 60 with upgrades to the approaches on US 401. The total mainline (-L-) project length is 0.14 miles.

Physiography and Geology

The project is located in the Coastal Plain physiographic province of North Carolina. The project corridor is a mixture of residential, woods and farmland. The terrain consists of gently rolling hills. Geologically, the soils in this region are derived from weathering of sediments of the Cape Fear Formation which overlies phyllite and schist of the Raleigh Belt.

Soil Properties

Soils encountered during this investigation are roadway embankment, alluvial, Coastal Plain and residual soils.

Roadway Embankment soils are likely derived from nearby sources and are similar to Coastal Plain soils in composition. These soils generally consist of tan and brown, loose to medium dense, moist, silty sand (A-2-4) with some sandy clay (A-6) and range in thickness from 3.0 to 10.0 feet.

Alluvial soils consist of gray and tan, very soft to medium stiff, moist to saturated, sandy silt and clay (A-4, A-6) and silty clay (A-7-6) with some loose to medium dense, moist to saturated, silty and coarse sand and sand (A-2-4, A-1-b, and A-3). The alluvial soils overlie Coastal Plain soils.

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL ENGINEERING UNIT
1589 MAIL SERVICE CENTER
RALEIGH NC 27699-1589

Telephone: 919-707-6850
Fax: 919-250-4237
Customer Service: 1-877-368-4968

Website: www.ncdot.gov

Location:
CENTURY CENTER COMPLEX
ENTRANCE B-2
1020 BIRCH RIDGE DRIVE
RALEIGH NC

Coastal Plain soils are from the Cape Fear Formation and consist interbedded sands and clays. The sands are tan, gray, and brown, loose to dense, moist to wet, silty sand and sand (A-2-4 and A-3) with sub-rounded quartz gravel. The clays are gray, green, and brown, stiff to hard, moist, silty and sandy clay (A-6 and A-7-6).

Residual soils are derived from the weathering of the underlying phyllite and schist, and generally consist of gray-green, tan, orange, and brown, stiff to hard, saprolitic, silty clay and sandy silt (A-7-6 and A-4). These soils range in thickness from 7.5 to 20.0 feet thick and grade into weathered rock with increasing depth.

Rock Properties

Weathered and crystalline rock consists of tan, brown, green, and gray, severely weathered to fresh, moderately hard to hard, phyllite and schist. Weathered or crystalline rock ranges from 17.0 to 45.0 feet from the existing ground surface.

Groundwater

Groundwater ranges from 9.0 to 21.0 feet from the existing ground surface. Groundwater elevation is similar to that of the Lower Little River.