



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

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STATE PROJECT: 8.1080701 B-3349  
FEDERAL PROJECT: BRSTP-264(11)  
COUNTY: Hyde  
DESCRIPTION: Bridge No. 32 over Rose Bay Creek on US 264  
SUBJECT: Geotechnical Report - Inventory

Project Description

The project design has been revised to minimize the impacts in high quality wetlands and mitigation costs associated with the project. The revision briefly consists of eliminating the detour structure and utilizing stage construction of the new structure to maintain traffic. The Inventory Report dated March 14, 2002 should be disregarded. It should be noted that this is the third revision and the majority of our data was collected in August 2000. All the information contained in the report accurately reflects the subsurface conditions along the project.

The proposed project is located on US 264 at the existing bridge over Rose Bay Creek approximately 2 miles west of Rose Bay. The roadway portion of the project will primarily consist of constructing the approaches for the new bridge. This will involve some major widening of the shoulder along US 264 to accommodate the stage construction. Based on the current plans, the existing alignment will be maintained and the grade will be raised 1± foot along portions of the approaches. The investigation of subsurface conditions was confined to the corridor of proposed new construction.

The following base line was investigated for this project:

<u>Line</u>	<u>Station</u>
-L-	11+50 to 20+00

Areas of Special Geotechnical Interest

- 1) The entire project contains very soft to medium stiff silt-clay and organic alluvial soils.
- 2) The entire project was found to exhibit high water levels, seasonal high ground water or the potential for ground water related construction problems.

Physiography and Geology

The project corridor is located in Hyde County along existing US 264 between SR 1304 and SR 1139. Topography is typical of the Lower Coastal Plain and ranges from flat to gently sloping. The existing US 264 embankment lies at an elevation of 5 to 7 feet.

The geology of this region primarily consists of Recent to Pleistocene sediments consisting of alluvial organic soils, silt-clay and granular sediments. The project area is drained by Rose Bay Creek that flows into Rose Bay and the Pamlico Sound. Surface drainage is poor in the flood plain throughout the proposed corridor due to the relatively flat terrain.

Ground Water

Ground water data was collected primarily in August 2000 during average rainfall conditions. During our investigation, the water table was generally within 1 foot of the natural ground surface in the flood plain. Surface water elevations fluctuate with wind and lunar tidal action. Typically, water levels are at or slightly above natural ground.

Soils

Soils encountered during this investigation are separated into two major categories based on origin and published data. These categories are alluvial soils and embankment soils.

Alluvial flood plain deposits, which exhibit very poor engineering properties, were noted along the entire project. The sediments primarily consist of 1 to 2 feet of very soft muck underlain by 3 to 7 feet of very soft to medium stiff sandy clay (A-6) and clayey sandy silt (A-4). Organic content of a tested sample was 35 percent. Moisture content of a tested organic sample was 112 percent. Vane Shear Tests performed in the organic and clay-silt deposits typically range from 165 to 920 psf. The cohesive deposits are underlain by loose fine to coarse sand (A-2-4).

Embankments are man-made fills built during construction of existing roadways. Roadway embankment soils overlie the flood plain sediments along the entire width and length of -L-. These embankment soils are typically 3 to 6 feet thick and consist of loose fine to coarse sand (A-2-4) and sandy silt (A-4) and generally exhibit fair to excellent engineering properties.