



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

JAMES B. HUNT JR. P.O. BOX 25201, RALEIGH, N.C. 27611-5201 E. NORRIS TOLSON
GOVERNOR SECRETARY

April 5, 1999

STATE PROJECT: 8.T190301 R-2514A
FEDERAL PROJECT: NHF-17(17)
COUNTY: Onslow

DESCRIPTION: US 17 North of Jacksonville from SR 1327 to South of Belgrade

SUBJECT: Geotechnical Report - Inventory

Project Description

The project consists of widening existing two lane US 17 to a four lane divided facility with a typical 14 meter median. The project begins at the SR 1327 intersection and proceeds 9.6 km in a northerly direction to a point approximately 0.5 km north of SR 1330. The geotechnical investigation of subsurface conditions was confined to the corridor of proposed new construction.

The following base lines were investigated for the project:

<u>Line</u>	<u>Station</u>
-L- NBL	100+80 to 195+80
NB TIE-IN	193+00 to 197+00

Areas of Special Geotechnical Interest

- 1) The majority of the project exhibits a high water table, seasonal high ground water or the potential for ground water related construction problems.
- 2) The majority of the upland areas contain surficial cohesive soils of A-4, A-6 or A-7-6 AASHTO Classification that exhibit fair to poor engineering properties and have the potential to cause subgrade failure.

- 3) The majority of the project contains a thin veneer of slightly organic clayey fine sandy silt (A-4) topsoil and rootmat.
- 4) The following sections contain slightly organic flood plain sediments and pocosin soils:

<u>Line</u>	<u>Station</u>
-L- NBL	111+85 to 112+20
-L- NBL	181+60 to 184+10
-L- NBL	191+60 to 192+35
-L- NBL	194+30 to 195+30
NB TIE-IN	194+30 to 195+30

Physiography and Geology

The project corridor is located in the Lower Coastal Plain Physiographic Province. Topography is level to gently sloping and typical of the area. Natural ground elevations range from 8 to 14 meters along the project with upland areas typically occurring at an elevation of 13± meters. Starky's Creek located near the project's northern terminus and minor tributaries of Northeast Creek located near the southern terminus and mid portion of the project are the major drainage features on the project. Flood plain elevations generally range from 8 to 9 meters at Starky's Creek and 11 to 12± meters at the Northeast Creek tributaries.

The geology of the project area typically consists of Quaternary age mixed fluvial marine sediments overlying Tertiary age marine sediments of the River Bend Formation.

Ground Water

Ground water data was collected during the early fall and winter of 1998/1999 during average rainfall conditions. Ground water levels along the project tend to fluctuate with rainfall conditions. During the relatively dry fall and early winter of 1998, ground water levels in upland areas generally occurred at depths of 1.8 meters or more below the ground surface. However, later in the winter of 1998/1999 after significant periods of rainfall, ground water levels were generally measured at depths of 0.5 to 1.5 meters or less. The majority of the project lacks an established natural drainage system and should experience seasonal high ground water conditions.

Soils

The most prevalent soil type occurring along the project corridor consists of a silty fine sandy clay (A-6) and clayey fine sandy silt (A-4) which appears to be derived from marine sediments. Engineering properties of the silt-clay soils are generally poor due to higher than optimum moisture contents, in excess of 60 percent passing the 75µm sieve and medium plasticity indices for the clay material. In addition, the cohesive soils typically have a low to marginal bearing capacity as shown by SPT blow counts of 5 or less blows/0.3 meters.