



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

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GOVERNOR

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Lyndo Tippet
SECRETARY

July 29, 2003

STATE PROJECT: 6.469002T (R-0513BB)
F.A. PROJECT: N/A
COUNTY: Robeson

DESCRIPTION: US 74 from west of SR 1157 to west of SR 1164

SUBJECT: Geotechnical Report – Structure Inventory for Structure No. 1 on -Y5- (SR 1155, Dew Rd.) over -L- (US 74 Bypass)

Project Description

A two-span bridge, 77.6 meters in length with a 46° 13' 52.3" skew, is proposed on -Y5- (SR 1155) over -L- (US 74 Bypass). The project is located in Robeson County about 12 kilometers west of Lumberton.

The subsurface investigation was conducted during March of 2003 using an ATV-mounted CME 550 drill machine. Standard Penetration Test borings were performed at each of the proposed end bent locations. The interior bent boring B1-A was drilled during the roadway investigation performed by Catlin Engineers and Scientists in November, 2001. All borings were advanced using rotary drilling methods with bentonite fluid. Representative soil samples were obtained for visual classification in the field and selected samples were sent to the Materials and Test Unit for laboratory analysis.

Physiography and Geology

The project is located in flat terrain of the Coastal Plain Physiographic Province. Geologically, the site is underlain by sands and clays of the Duplin and Black Creek Formations. The area consists of a mixture of farm land, woods and sparse homes.

Soil Properties

Subsurface conditions at the site are relatively uniform. Surficial soils belonging to the Duplin Formation generally consist of light gray-brown to red, moist to wet, soft to very stiff, silty clay and tan-brown to dark gray, wet, very loose to medium dense, clayey and silty sand.

The Black Creek Formation underlies the Duplin Formation at an elevation of approximately 34 meters and typically consists of dark gray and gray-brown, dry to wet, stiff to hard, sandy and silty clay on top of light gray, wet, dense, silty sand. The moisture content of the tested silty clay sample was approximately 28 percent.

Groundwater

Groundwater was encountered at each bent location. Groundwater elevations ranged from 45.11 to 45.06 meters at the end bents at the time of this investigation. Groundwater elevation at the interior bent was 43.15 meters during the roadway investigation in November, 2002. The difference in groundwater elevations is likely due to regional groundwater fluctuations during the time interval between investigations rather than the conditions at the site.

Notice

This Geotechnical foundation report is based on the Preliminary General Drawing for Structure No. 1 on -Y5- (SR 1155) over -L- (US 74 Bypass) dated 10/2/02. If significant changes are made in the design or location of the proposed structure, the subsurface information should be reviewed and modified as necessary.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "N. T. Roberson".

N. T. Roberson
Project Geologist