



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

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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. 2 on -Y- (SR 1003, Chicken Rd.) over -L- (US 74 Bypass)

Project Description

A two-span bridge, 80.3 meters in length with a skew that ranges from 134°-18'-37.8" to 138°-8'-31.2", is proposed on -Y5- (SR 1155, Chicken Rd.) over -L- (US 74 Bypass). The project is located in Robeson County about 5 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 January, 2002. 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 to red, moist to wet, soft to very stiff, silty clay and tan-brown to dark gray, wet, very loose to medium dense, sand, clayey sand and silty sand. The moisture content of the tested clay sample was 33 percent.

The Black Creek Formation underlies the Duplin Formation at an elevation of approximately 31 meters and typically consists of light to dark gray, dry to wet, very stiff, sandy and silty clay and

light gray, wet, medium to very dense, silty sand. The moisture content of the tested clay samples ranged from 23 to 30 percent.

Groundwater

Groundwater was encountered at each bent location. Groundwater elevations ranged from 44.67 to 44.12 meters at the end bents at the time of this investigation. Groundwater elevation at the interior bent was measured at elevation 42.12 meters during the roadway investigation in January, 2002. The variable nature of the groundwater elevations is likely due to significant differences in rainfall amounts prior to the two investigations. 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. 2 on -Y- (SR 1103) over -L- (US 74 Bypass) dated 10/10/02. 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,

N. T. Roberson

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Project Geologist