STATE OF NORTH CAROLINA
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STATE PROJECT: 33341.1.1 B-3906
FEDERAL PROJECT: BRSTP-403(2)
COUNTY: Sampson
DESCRIPTION: Bridge No. 44 on NC 403 over Six Runs Creek

SUBJECT: Geotechnical Report - Bridge Foundation Investigation for NC 403 over Six Runs Creek at -L- Sta. 28+52.5

Site Description

The proposed bridge site is located at the existing NC 403 bridge over Six Runs Creek approximately 7 miles northeast of Clinton. The replacement structure will be constructed along the existing alignment. Based on the proposed design, the new structure will have three spans having a total length of 105 feet. The bents will have a skew of 90 degrees.

One Standard Penetration Test (SPT) boring was made at or near each proposed bent location to provide subsurface information relative to foundation design. The borings were made with an ATV mounted CME 45B drill machine and were advanced by rotary drill methods using bentonite drilling fluid.

The bridge site is located in the Coastal Plain Physiographic Province and is underlain by Recent alluvial deposits and Cretaceous age sediments of the Black Creek Formation. Six Runs Creek is a slow flowing stream typically 45± feet wide and 5 to 10 feet deep. Topography along the project is nearly flat to gently sloping. Elevations at the site range from 97± feet along the stream bed to 112± feet along the existing NC 403 embankment. The existing approach embankments are bordered by a 1600± foot wide flood plain lying at elevations ranging from 105± to 108± feet.

The bridge site is situated in an area characterized by artesian water levels. Artesian flow was noted in the end bent borings drilled at the site where the hydrostatic head was measured at an elevation of 112± feet at EB1-B. The true water levels will generally match the stream flow line. The water surface of Six Runs Creek was measured at an elevation of 107.5 feet during this

investigation. The end bent borings were sealed after completion. Artesian flow was not noted at the interior bent borings but they were also sealed as a precautionary measure.

Soil Description

Surficial soils generally consist of 3 to 12 feet of very loose to medium dense alluvial fine to coarse sand (A-2-4, A-3). Soils belonging to the Cretaceous age Black Creek Formation underlie the surficial deposits at elevations ranging from 94± to 96± feet. The initial 20± feet of the Cretaceous soils typically consist of loose to medium dense fine to coarse sand (A-2-4). The Black Creek sediments below an elevation of 74± feet grades to a medium dense to very dense compactness which contains some coarser sands (A-2-4, A-3). A 5± foot discontinuous stiff sandy clay (A-6) layer was encountered within the Cretaceous deposits near an elevation of 90± in boring B2-B. Lignite was noted throughout the majority of the Black Creek Formation. Boring B1-A was extended to an elevation of 36.5 feet with no significant change in stratigraphy noted.

Based on the proposed design, the existing grade will be maintained at the bridge site. The existing fill at the end bents primarily consists of 4 to 6 feet of very loose to loose fine to coarse sand (A-2-4). The proposed end bent slopes will be mainly constructed within the existing embankment. Some additional fill will be required for construction of the end bent and side slopes. Borrow meeting Coastal Plain criteria is available in nearby areas.

The Geotechnical foundation report is based on the bridge survey report for Six Runs Creek dated December 3, 2003. If significant changes are made in the design or location of the proposed structure, the subsurface information should be reviewed and modified as necessary.

Prepared By:

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