PROJECT REFERENCE NUMBER	SHEET NO.	TOTAL SHEETS
B-3445	3A	7
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

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LYNDO TIPPETT
SECRETARY

February 26, 2001

STATE PROJECT: 8.1040601 B-3445
FEDERAL PROJECT: BRZ-615(1)
COUNTY: Currituck
DESCRIPTION: Bridge No. 7 on NC 615 over Corey's Ditch and Approaches

SUBJECT: Geotechnical Report - Inventory

The proposed project is located at the existing NC 615 bridge over Corey's Ditch approximately 2.3 miles north of the NC 615 and SR 1255 intersection. The roadway portion of the project consists of minor widening of the NC 615 roadway and embankment. Based on the current plans, the existing alignment will be maintained. The existing grade will be raised 2± feet. A Foundation Investigation Report for the replacement structure will be submitted at a later date.

The following base line was investigated for this project:

-L- Station 19+70 to 28+65

Areas of Special Geotechnical Interest

1) The entire project contains tidal marsh deposits consisting of soft organic alluvial deposits.

2) Water levels are high throughout the project limits.

Physiography and Geology

The project is located in the Lower Coastal Plain Physiographic Province and is underlain by Pleistocene to Recent sediments deposited by alluvial and/or marine action. Topography along the corridor is nearly flat. Elevations range from -16± feet in the bed of Corey's Ditch to a high of 5± feet on the existing embankment. A 3.0± mile wide tidal marsh lying at an elevation of 1± feet borders the project.

Ground Water

The project lies within the Currituck Sound estuarine system. Back Bay borders NC 615 on the north side. Subsurface drainage is poor in the tidal marsh. The water level of Corey's Ditch and adjacent areas are variable due primarily to the effects of wind tides. At the time of this investigation, the water levels of Corey's Ditch and adjacent tidal marsh were measured at an elevation of 1 foot.

Soils

Surficial soils along the entire project generally consist of 4 to 8 feet of soft organic silt and clay underlain by medium stiff clayey sandy silt (A-4). The organic content of tested samples range from 7 to 8 percent. Natural moisture contents of tested samples range from 54 to 62 percent. Vane Shear Tests performed in the organic deposits along the natural tidal marsh indicate typical shear strengths of 480 to 660 psf. Shear strengths of the organic soils below the existing embankment increase in consistency and typically range from 700 to 1440 psf. Two undisturbed samples were taken in the organic sediments and submitted for Triaxial CU and Consolidation testing. Based on borings made along the existing roadway, there is 3 to 5 feet of loose fine to coarse sand (A-2-4) fill material overlying the tidal marsh deposits. The existing embankment along the right side of -L- Station 19+70± to 27+00± has been lined with stone in order to protect the roadway from wave action from Back Bay. In addition, sheet piles have been installed adjacent to the end bents of the existing bridge.

Respectfully submitted,

Stuart S Bowman

Stuart S. Bowman, TEG-III

SSB:ts