



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

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GOVERNOR

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LYNDO TIPPETT  
SECRETARY

September 5, 2002

STATE PROJECT: 8.1502101 (U-4008)  
FEDERAL PROJECT: NHF-15 (9)  
COUNTY: Orange  
DESCRIPTION: Intersection Improvement at US 15-501 and Erwin Road in Chapel Hill

SUBJECT: Geotechnical Report – Inventory

**Project Description**

This project is located in southeastern Orange County within the city limits of Chapel Hill. The proposed project consist of intersection improvement at US 15-501 and Erwin Road. The scope of work will consist of variable width widening of US 15-501 and realignment of Dobbins Drive.

A reconnaissance subsurface investigation has been performed on the following survey lines of this project.

<u>Line</u>	<u>Station</u>
-L-	16+00 to 36+70
-Y-	10+00 to 13+19
-Y2A-	15+00 to 35+74
-Y4A-	10+00 to 22+40

**Areas of Special Geotechnical Interest**

- 1) Ground Water: No ground water was encountered during their investigation.
- 2) Hard Rock: No hard rock was encountered during this investigation. A small amount of boulders are exposed right of -Y2A- Sta. 20+00 ±.

**Physiography and Geology**

The project is located in southeastern Orange County, within the Piedmont Physiographic Province and is underlain by sandstone, siltstone and mudstone of the Chatham Group of the Triassic Basin. Topography of the project corridor is gently rolling. Drainage is generally good and is provided by a unnamed tributary to Bolin Creek. Land use is mixed residential and commercial.

**Geotechnical Descriptive Analysis**

Triassic soils are the prevalent soils type and are derived from weathering of the underlying Triassic sedimentary rocks. Soils encountered were silty sands (A-2-4), sandy silts (A-4) and sandy/silty clays (A-6, A-7) with low to moderate plasticity indices.

**Gravity Wall**

A gravity wall ranging in height from 5.0 ft. to 7.5 ft. is proposed along the right of way of (-Y4A-) Dobbins Drive. The boring for the gravity wall was offset approximately 10 ft. right from the center of the proposed wall due to underlying utilities. One Standard Penetration Test was performed near the highest elevation of the proposed wall.

Gravity Wall (-Y4A- Sta. 15+65 to 18+14 RT)

Roadway embankment soils were encountered at this location from 0.9 ft to 2.0 ft. The embankment soil consisted of, medium stiff, tan-brown, moist, sandy silt (A-4). Triassic soils were encountered from 2.0 ft to 7.0 ft. The Triassic soils consisted of, stiff to hard, red-brown, dry, sandy silt (A-4) with plasticity indices ranging from 2 to 10 and a moisture content of 11.3%. The Triassic soil was underlain by Triassic weathered rock. The proposed wall is down-slope from the natural ground and may divert surface run-off. Erosion control may be required to prevent wash-out of the material behind the wall.

Respectfully Submitted,

Lawrence T. Packer  
Transportation Engineer Geologist Supervisor