



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

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STATE PROJECT: 33212.1.1 (B-3667)
F.A. PROJECT: BRZ-1131(5)
COUNTY: Jackson
DESCRIPTION: Bridges No. 47 and 48 on SR-1131 over Trout Creek
SUBJECT: Geotechnical Report – Foundation Investigation

Site Description

This project is located in central Jackson County approximately 4 miles south of the Tuckasegee community. The site area is rural but contains nearby residences. A campground is located at the eastern terminus of the project.

The replacement bridges are to be constructed with a single span 63-feet long and a roadway width of 18 feet. Bridge No. 47 is to be located downstream from the existing crossing and erected on a 90-degree skew. Bridge No. 48 will be built upstream on a 60-degree skew.

The subsurface investigation was conducted in the winter of 2003-2004. Two borings were advanced at each bridge on either proposed end bent. Borings were achieved with the use of a CME-550 drill unit equipped with NW casing advancer and NXWL rock coring apparatus. Standard Penetration Tests (SPT's) were performed and soil samples collected and submitted for quality analysis testing.

Foundation Materials - Bridge No. 47

Surficial soils consist of 17 to 21 feet of colluvium that has collected at this proposed bridge site. The colluvium consists of loose to very dense wet sand, gravel, and boulders with interlayered clay and silt. Beneath this gravity deposit lies very dense alluvial sand, gravel, cobbles, and boulders. The alluvium is from 5 to 7 feet thick and has been deposited upon saprolite. The

saprolite horizon lies uniformly at approximate elevation 2688 feet and is composed of micaceous silt and sand. Densities range from stiff to very stiff for the silt and from medium to very dense for the sand. This residual soil is approximately 30 feet thick. Borings revealed weathered rock beneath the saprolite. It was encountered at elevation 2661 feet at End Bent One and elevation 2673 feet at End Bent Two.

Foundation Materials – Bridge No. 48

A similar soil profile as Bridge No. 47 has been developed at this site. Ten feet of wet, medium stiff, clayey colluvium overlies 5 to 10 feet of medium dense alluvial sand and gravel. Approximately 30 feet of saprolite lies beneath the alluvium. The top of the saprolite horizon is at approximate elevation 2716 feet and is predominantly composed of loose to very dense micaceous silty sand. A ten foot lense of stiff micaceous sandy silt was found at Boring EB1-B. Borings revealed weathered rock to lie uniformly along profile at elevation 2686 feet. Hard rock was encountered only at End Bent One before boring advancement was terminated.

Respectfully Submitted,

fa J. W. Mann, LG
Project Engineering Geologist

JWM:mw