



*Transportation*

B-5160  
Replace Bridge No. 50 over Nail Branch  
on SR 1986 (Mt. Vernon Road)

Rowan County

Geotechnical Impact Evaluation

Prepared by the NCDOT Geotechnical Engineering Unit  
Compiled by the NCDOT Division 9 Project Development Unit

## **GEOTECHNICAL IMPACT EVALUATION**

PROJECT 42335.1 (B-5160)  
Bridge No. 50 on SR 1986 over Nails Branch, Rowan Co.

### **Techniques and Methodologies**

Our geotechnical investigation consisted of 2 SPT borings and field reconnaissance. Both borings were performed on the downstream side of the existing structure. Boring B-1 was located south of the creek 9 feet back from the bridge center point and 9 feet off of centerline. Boring B-2 was located north of the creek at a distance even with the center of the bridge and 10.6 feet from centerline.

### **Findings**

Severely weathered and hard crystalline rock was encountered at each boring location. Boring B-1 encounters weathered rock at a depth of 24.2' and refuses on rock at 29.1'. This places weathered rock 14.5' below creek bed followed by rock at 19.4'. The generalized boring log shows:

0 – 10.1' Roadway Embankment Fill – medium stiff brown silty sandy clay, moist  
 10.1 – 14.2' Alluvium – soft gray sandy clayey silt, moist  
 14.2 – 24.2' Residual – stiff to hard gray-white silty sand, dry  
 24.2 – 29.1' Severely weathered crystalline rock  
 29.1' Boring refusal on crystalline rock

Boring B-2 encounters weathered rock at a depth of 18.9' and refuses on rock at 19.7'. This places weathered rock 9' below creek bed followed by rock at 9.8'. The generalized boring log shows:

0 – 10.4' Roadway Embankment Fill – medium stiff brown silty sandy clay, moist  
 10.4 – 14.0' Alluvium – medium stiff gray sandy clayey silt, moist  
 14.0 – 18.9' Residual – stiff to hard gray-black-tan silty sand, dry  
 18.9 – 19.7' Severely weathered crystalline rock  
 19.7' Boring refusal on crystalline rock