

crystalline rock ranged from 50 to 100 percent and strata Rock Quality Designation (RQD) values ranged from 0 to 100 percent. The quality of the crystalline rock generally improved with increasing depth, and was generally of better quality from the top of the rock at Bent-2 than at Bent-1. The majority of the crystalline rock encountered was of very good quality.

### 3.5 GROUNDWATER

Groundwater was encountered in all of the borings drilled for this project. The groundwater elevation ranged from  $\pm 652$  feet to  $\pm 655$  feet. The water surface elevation of Rich Fork Creek measured during the survey portion of our exploration on March 9, 2004 was  $\pm 652$  feet. Fluctuation of groundwater and creek water surface levels can occur with seasonal and climatic variations. According to the Bridge Survey and Hydraulic Report, the normal creek water surface elevation is approximately 653.0 feet, the 10-year floodwater surface elevation is approximately 661.2 feet, the 50-year floodwater surface elevation is approximately 663.1 feet, the 100-year flood elevation is approximately 663.9 feet, and the 500-year flood elevation is approximately 665.8 feet.

### 4.0 NOTES TO THE DESIGNER

Gravel is present to varying degrees within the roadway embankment fill and alluvium present at the site, and rock fragments are present within some of the residual soil present at the site. In addition, rip rap is present along the existing embankment slopes. It should also be noted that the floodplain area at the subject site tends to be very wet, soft, and unstable under equipment.

### 5.0 CLOSURE

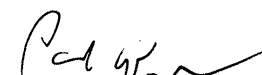
The geotechnical investigation, analysis, and general foundation recommendations are based on the Bridge Survey & Hydraulic Design Report, and the data obtained from our field and laboratory-testing program. If the proposed location and geometry, or finished grades are changed or are different from those outlined above, or if subsurface conditions are encountered during construction which differ from those indicated by our borings, we will require the opportunity to review these changed conditions and make any necessary modifications to the general recommendations presented in this report.

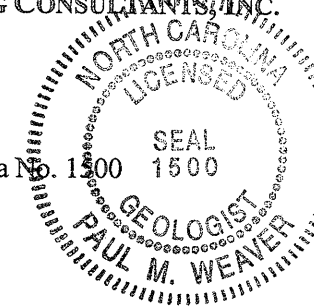
Cross-sections and profiles are a generalized interpretation of soil conditions between borings and should not be considered accurate other than at the boring locations. Subsurface conditions between boring locations or elsewhere on the site may vary, and subsurface anomalies may exist which were not detected.


Trigon Engineering Consultants, Inc. appreciates the opportunity to be of service to the NCDOT on this project. Should you have any questions concerning this report, please feel free to contact the undersigned.

Respectfully submitted,

TRIGON ENGINEERING CONSULTANTS, INC.

  
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Attachments

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