±19 feet to ±23 feet (Elevations ±416 feet to ±412 feet) at Boring EB2-B. In addition, weathered rock occurs as a zone within the crystalline rock at Boring B2-A extending between depths of ±17 feet to ±22 feet (Elevations ±404 feet to ±399 feet). End Bent-2 boring EB2-A was terminated within weathered rock.

Crystalline rock was encountered in all borings with the exception of EB2-A, which terminated in weathered rock. The crystalline rock was encountered at the following depths and elevations: ±13 to ±16 feet (Elevations ±422 feet to ±418 feet) at the End Bent-1 borings, ±6 feet to ±7 feet (Elevations ±412 feet to ±410 feet) at the Bent-1 borings, and ±9 feet to ±11 feet (Elevations ±412 feet to ±411 feet) at the Bent-2 borings. As noted in the previous paragraph, a zone of weathered rock was encountered within the crystalline rock at Boring B2-A extending between depths of ±17 feet to ±22 feet (Elevations ±404 feet to ±399 feet). All end bent borings were terminated on crystalline rock with the exception of EB2-A, which was terminated in weathered rock.

Between ±18 and ±32 feet of weathered rock/crystalline rock was cored at each of the interior bent borings. The cored weathered rock, from the zone encountered only in B2-A, is severely to moderately severely weathered, medium hard to soft metavolcanic rock with very close to close fracture spacing. The strata REC value for the weathered rock zone that was cored in B2-A was 36 percent. In general, the cored crystalline rock is moderately to very slightly weathered, moderately hard to hard metavolcanic rock with very close to wide fracture spacing. Run recovery (REC) values within the crystalline rock ranged from 40 to 100 percent and run Rock Quality Designation (RQD) values ranged from 0 to 100 percent, while strata REC values within the crystalline rock ranged from 70 to 100 percent and strata RQD values ranged from 0 to 100 percent. The crystalline rock cored was highly variable in quality, ranging from very poor to excellent with the majority of the rock being poor to good in quality. The quality of the rock cored generally increased with increasing depth.

3.5 GROUNDWATER

Groundwater was present in all of the borings drilled for this project except the borings at End Bent 1 which were terminated above the measured groundwater level. The groundwater elevation ranged from ±413 to ±414 feet. The water surface elevation of Cane Creek measured during the survey portion of our exploration on July 21, 2003 was ±413 feet. Fluctuation of groundwater and river water surface levels can occur with seasonal and climatic variations. According to the Bridge Survey and Hydraulic Report, the normal river water surface elevation is approximately 413 feet, the 25-year flood water surface elevation is approximately 428.5 feet, the

50-year flood water surface elevation is approximately 429.8 feet, the 100-year flood elevation is approximately 430.9 feet, and the 500-year flood elevation is approximately 433.8 feet.

4.0 CONSTRUCTION CONSIDERATIONS

Large cobbles and boulders are evident in abundance within the channel bed at the subject site, especially upstream from the existing bridge. Although cobbles and boulders were not encountered within the boreholes drilled as part of this exploration, it is possible that boulders may be encountered during construction operations at the site.

5.0 CLOSURE

The cross-sections and profile, included as part of this report, 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,

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Attachments

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