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December 11, 2001

City of Fort Collins – Engineering Department
Street Oversizing Program
281 North College Avenue
P.O. Box 580
Fort Collins, Colorado 80522

Attn: Mr. Eileen Bayens

Re: **Proposal/Agreement for Geotechnical Engineering Services
Larimer County Road 36 (Kechter Road) Improvements
Larimer County Road 9 to Larimer County Road 7 - Pavement Evaluation Project
Fort Collins, Colorado
Terracon Proposal No. D2001422**

Terracon is pleased to submit this proposal for providing geotechnical exploration and engineering services for the subject project. This proposal includes an outline of the project information provided to us, the proposed scope of services, our fee, and the proposed schedule.

PROJECT INFORMATION

We understand the City of Fort Collins – Engineering Department intends on improving Larimer County Road 36 from LCR 9 east to LCR 7 along with improvements to the existing culvert structure at the crossing of Muskrat and Mail Creek Ditch. We have been requested to provide existing pavement thicknesses and subgrade characteristics for the project and provide pavement thickness recommendations for the improvements to arterial standards. Traffic Control operations will be required for the field drilling operations.

PROPOSED SCOPE OF SERVICES

The purpose of the geotechnical engineering services will be to evaluate the subsurface soil, groundwater conditions, and to determine geotechnical engineering and pavement design criteria for the design and development of the project. We propose to explore the subsurface conditions on the site with a total of 14 test borings located within the area of the proposed roadway improvements at the locations as shown on the enclosed site plan. Twelve test borings will be located along the proposed roadway alignment at approximate 500-foot intervals with one of those borings along with one additional test boring located adjacent to the proposed culvert structure at the crossing of Muskrat and Mail Creek Ditch. Two additional test borings will be located within the proposed borrow source area to determine suitability of fill material for the project. These borings will be located along the alignment of the ditches and will be cased with 3-inch diameter PVC casing in an effort to monitor fluctuations in the groundwater. The above-referenced scope of services was discussed

Arizona ■ Arkansas ■ Colorado ■ Georgia ■ Idaho ■ Illinois ■ Iowa ■ Kansas ■ Kentucky ■ Minnesota ■ Missouri ■ Montana
Nebraska ■ Nevada ■ New Mexico ■ Oklahoma ■ Tennessee ■ Texas ■ Utah ■ Wisconsin ■ Wyoming

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during a site visit with Terracon and City of Fort Collins personnel on December 3, 2001. The test borings will be drilled to approximate depths of 10 to 25 feet.

All borings will be advanced to the minimum depths outlined unless refusal to drilling is encountered prior to full boring advancement. The depth and location of test borings may be further adjusted depending upon actual subsurface conditions encountered.

During the drilling operations, a geotechnical engineer or engineering geologist will log the borings, record the results of penetration tests, and will obtain representative samples for further laboratory evaluation. Groundwater measurements will be made in each boring during exploration. All drilling and sampling will be conducted in general accordance with applicable ASTM or local standards.

At the completion of drilling operations, all samples will be returned to our laboratory where they will be examined by the project geotechnical engineer. At that time, the field descriptions will be confirmed or modified, an applicable laboratory-testing program will be formulated and final-boring logs prepared.

Relatively undisturbed samples will be tested for moisture content, dry density, expansion, and compression characteristics. Representative disturbed samples will be tested for liquid limit, plasticity index, percent fines, Hveem stabilometer characteristics and water-soluble sulfates. All laboratory testing will be conducted in accordance with applicable ASTM or other locally recognized standards.

The information obtained from the field exploration and laboratory-testing program will be used to evaluate the soil and subsurface conditions at the project site. From these determinations, engineering analyses will be undertaken in order to formulate specific design criteria for the project.

Based upon our analyses, a geotechnical engineering report will be prepared. The following information will be provided in the report:

- A brief review of our field and laboratory procedures, and the results of all testing conducted;
- A discussion of the general subsurface conditions including soil and groundwater conditions;

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- Location and characteristics of groundwater, and recommended dewatering methods
- Unsatisfactory soil conditions and recommended remedial measures;
- A general evaluation of possible alternate foundation systems (if applicable), and a discussion of the recommended foundation system for the proposed culvert;
- Design criteria related to the recommended foundation system, including allowable bearing pressures, minimum sizes, predicted performance and lateral earth pressures for the proposed culvert;
- Alternative pavement thickness designs and recommended specifications for planned pavement areas based on the AASHTO design criteria;
- Unsatisfactory soil conditions and recommended remedial measures; and
- Recommended earthwork construction procedures and quality control measures.

SCHEDULE

It is anticipated that the field work for this project could commence one to two weeks after authorization to proceed, and that about 1 day would be required for completion. Before the borings can be drilled it is necessary to obtain utility clearances, which require 48-hour notification. In addition, a traffic control plan along with signs, cones and flaggers will be necessary to properly complete the drilling program. An additional 7 to 10 working days would be required for the completion of laboratory testing, engineering analyses and development of the final report and recommendations. Verbal communications, including preliminary findings and recommendations, can generally be issued approximately 3 to 5 working days after completion of the field work and prior to issuing the final report.

COST OF SERVICES

The cost for our services, including all field work, traffic control plan and signs, cones and flaggers required to accomplish the required drilling, laboratory testing, engineering analyses, and report

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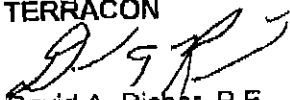
preparation, (four copies will be provided), will be charged on a time and materials estimated fee, not to exceed (NTE) \$5,250.00, or approximately \$375.00 per test boring. The unit price and/or hourly rate fees used to justify the NTE fee are in accordance with our standard City of Fort Collins annual contract. Should additional services be required beyond the scope of work outlined above, our standard unit rates will be applicable.

AUTHORIZATION

We appreciate the opportunity of submitting this proposal, and are available to discuss the details with you. Our Terms and Conditions are considered a part of this proposal and have been attached for your review. To authorize us to proceed with the proposed services please indicate by signing below and returning one executed copy of this agreement to us. Acceptance of our proposal will be considered permission by the owner for our entry onto the site.

We appreciate your consideration of Terracon for this work, and look forward to working as your geotechnical consultant on this and future projects.

Sincerely,
TERRACON



David A. Richer, P.E.
Geotechnical Engineer/Department Manager

Copies to: Addressee (2)

Enclosures: Site Plan - Proposed Test Boring Location Diagram
Terms and Conditions

Accepted this _____ day of _____, 2001

By: _____
Title: _____
of: _____