April 19, 2010 Project No. 09-1184-6030 (4000)

S. Pozderka
Ministry of Transportation, Ontario
Central Region
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RESPONSE TO MTO REVIEW COMMENTS
FOUNDATION INVESTIGATION REPORT
FAIRCHILD CREEK CULVERT REPLACEMENT,
HIGHWAY 8, CITY OF HAMILTON, ONTARIO
AGREEMENT NO. 2009-E-0035, ASSIGNMENT NO. 4

Dear Sirs:

Attached please find the final Foundation Investigation Report for the Fairchild Creek culvert replacement on Highway 8 in the City of Hamilton, under the above-noted assignment. We have received the comments provided by MTO Foundations Section on the draft Foundation Investigation Report, in their memorandum dated April 16, 2010. Our responses to the comments are outlined in the following pages of this letter, and have been incorporated into the final Foundation Investigation Report for the culvert replacement.

RESPONSE TO MTO FOUNDATIONS SECTION'S COMMENTS

The GEOCRES No. assigned to this project is 30M5-279.

The GEOCRES No. has been added to the cover page of the Foundation Investigation Report and to Drawing 1.

Section 3.0, Investigation Procedures, page 1/2: Clarification is needed as to why bedrock was not cored so as to determine the strength, quality, degree of weathering, bedding, fissures and jointing of the bedrock.

The Terms of Reference for low complexity foundation work under this assignment (RFQ Retainer Agreement, Part A, Version 1.6 dated June 2009 – Assignment Number: 2009-E-0035 and 2009-E-0036) require that boreholes for culvert extensions or replacement extend either:

- to refusal as defined by competent material for which the resistance measured by the Standard Penetration Test exceeds 100 blows per 0.3 m of penetration;
- 0.5 m below frost depth or 0.5 m below the founding elevation of the culvert, whichever is greater, provided that sufficient bearing resistance is achieved; or
- to a depth of 6 m.

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bedrock coring was neither required nor covered in this retainer assignment, we consider that by advancing six boreholes to refusal ("smooth" auger grinding at approximately the same depth/elevation in each borehole) and four hand-dug test excavations to expose the bedrock surface, Golder has met the terms of reference for this assignment.

Subsequent correspondence with MTO Geotechnical/Pavements Section (email dated April 19, 2010 from Mr. R. Kohlberger, attached) confirms that bedrock coring is not required for low-complexity culvert foundation investigations under this retainer assignment.

Section 4.0, Site Geology and Stratigraphy, page 2 (Subsections 4.2 and 4.2.3): Confirmation is needed that the Atterberg limits testing is applicable to the cohesive embankment fill and the results of this testing will be included in the report.

The Atterberg limits testing was completed the day after submission of the draft report, and the results have been added to Section 4.2.3 and to Record of Borehole 3 in the final Foundation Investigation Report.

Section 4.2.4, Limestone Bedrock: Rock descriptions shall include bedding, jointing, fracturing, strength and degree of weathering of bedrock.

This information cannot be provided, as bedrock coring was not required and was not carried out for this assignment (refer to the response to the first review comment, above).

Borehole Logs: Borehole 1 should include rock core description.

This information cannot be provided, as bedrock coring was not required and was not carried out for this assignment (refer to the response to the first review comment, above).

Test Pits: The report describes that four shallow test holes were dug by hand to prove and confirm bedrock. Will the results of these test holes be included in the report both in plan view and also individual test hole logs?

The approximate location of the test excavations has been included on Drawing 1, and a summary of the subsurface conditions encountered the test excavations has been included in Table 1 appended to the final Foundation Investigation Report.

We trust that this letter and our finalized report suitably address the comments made by the MTO Foundations Section. Please contact our office if you have any questions or require further information.

GOLDER ASSOCIATES LTD.

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Geotechnical Engineer, Principal

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Designated MTO Contact, Principal

MWK/LCC/JMAC/mwk

CC: Mr. Tony J. Sangiuliano, P.Eng. – MTO Foundations Engineer

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Attachments: Email from R. Kohlberger dated April 19, 2010

From: Kohlberger, Rob (MTO) [mailto:Rob.Kohlberger@ontario.ca]
Sent: April 19, 2010 9:11 AM
To: Sellick, Darrin
Cc: Pozderka, Steve (MTO)
Subject: RE: Fairchild Creek Culvert Report

Hi Darrin,

This issue is a bit of a grey area. The retainer terms of reference (Part A – Section 6.8.2.1) for low complexity foundation boreholes does refer to coring of rock in certain situations. The Foundations Borehole item (Part C – Form 1 Fee Schedule) in turn refers back to the specifics in the low complexity foundations section of the terms of reference. So rock coring is indeed part of the foundation borehole item. However, of the three low complexity foundation elements (High Mast Lighting, Noise Barrier Walls and Culverts) identified in the terms of reference, only High Mast Lighting requires coring of rock. The Culvert item simply requires the borehole to penetrate to refusal or a depth of 6m. So in terms of the letter of the agreement, there is no requirement to core rock for culvert investigations.

The reason for this is that the retainer is set up for the low complexity foundations environment. In this particular situation, we were using our retainer to complete fieldwork work normally associated with medium complexity foundations activities because of the very short turn around time. It was not a perfect situation, however, it was the only practical option and everyone was of the understanding that three would be limitations.

I feel you folks did a great job under the circumstances with the deadlines imposed. In response to this issue it is sufficient to relate back to the terms of reference for culverts where the depth of boreholes is specified to refusal. No need for further action given the time constraints. However, do keep in mind the rock coring requirement for HML poles on future assignments.

Thanks…..Rob