August 28, 2009

CG25309.B

Alberta Transportation
2nd Floor, 803 Manning Road NE
Calgary, AB T2E 7M8

Attn: Mr. Ross Dickson

Re: Southern Region Geohazard Assessment Program
Highway 742:02 – August 2004 Debris Flow Site
2009 Annual Inspection Report

This letter updates the previous assessment of the August 2004 debris flow site around Km 4.9 of Highway 742:02 (kilometre reference measured southbound from the junction between Highway 742 and Three Sisters Parkway in Canmore, AB).

BACKGROUND

This site was previously assessed as part of the 2007/2008 geohazards review of the Highway 742 corridor[1]. The previous assessment recommended confirming the location of the August 2004 debris flow as well as a more detailed field inspection of the drainage courses crossing the highway in this area that might be prone to debris flows.

JUNE 2009 OBSERVATIONS

The location of the August 2004 debris flow was confirmed to Alberta Transportation (AT) and AMEC by Mr. George Field, Public Safety Specialist for Kananaskis Country with the Parks Division of Alberta Tourism, Parks and Recreation during a joint AT, AMEC and Parks Division field review of this segment of the highway on June 11, 2009. The August 2004 debris flow crossed the highway at the following location:

- Latitude 51.079710 N, Longitude 115.407780 W.
- UTM coordinates Easting 611531, Northing 5659895 (Zone 11).

This location is illustrated on Figure 1, attached.

[1] See Appendix A section re. "~Km 5.4 (?) Debris Flow" in AMEC report "Geohazards Review, Highway 742 and Highway 940 Corridors, Southwestern Alberta", submitted to AT on April 8, 2009, AT Consulting Services Agreement CE044/04, AMEC project number CG25262.

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This location is approximately 4.9 km southbound along the highway from the junction between Highway 742 and Three Sisters Parkway in Canmore, AB. Therefore, "~Km 5.4(?)" location referenced in the April 2009 report on the Highway 742 corridor geohazards review is revised to "Km 4.9" as listed in this report.

The Parks Division also noted that a rockfall originating from the uppermost slopes of Mount Rundle in this area deposited several boulder-sized rocks on the highway around this location in 2006. Please refer to the 2009 annual inspection report regarding the rockfall hazard along this segment of the highway for further information[2].

ASSESSMENT

The more detailed field inspection of the drainage courses was not performed while at site on June 11, 2009 because the AT and AMEC personnel were scheduled to perform joint site inspections in other areas later that day and there was not time available on that day to remain at the Highway 742 site. Therefore, the assessment of the debris flow hazard at this site from the April 2009 report on the Highway 742 corridor geohazards review has not yet been updated.

This site is also within a snow avalanche runout zone below source areas on the upper slopes of the East End of Rundle avalanche area[3].

RISK LEVEL

The recommended Risk Level for the August 2004 debris flow site based on AT's debris flow risk matrix, is as follows:

- Probability Factor of 7 because a debris flow has occurred at the site in the historic past.
- Consequence Factor of 6 because the August 2004 debris flow resulted in a complete closure of the road while maintenance crews used heavy equipment to clear the roadway.

Therefore, the recommended Risk Level for this site is 42. This is unchanged from the April 2009 report on the Highway 742 corridor geohazards review.

[2] AMEC report "Southern Region Geohazard Assessment Program, Highway 742:02 Rockfall Areas, Between ~Km 4.8 and 6.1, June 2009 Inspection Report", submitted to AT August 28, 2009, AT Consulting Services Agreement no. CE061/08, AMEC project number CG25309.B.
[3] AMEC report "Southern Region Geohazard Assessment Program, Highway 742:02 Avalanche Areas, 2009 Annual Inspection Report", submitted to AT July 8, 2009, AT Consulting Services Agreement no. CE061/08, AMEC project number CG25309.B.

As noted in the April 2009 report, a more accurate Probability Factor for this site may be 5 or less (and the Risk Level therefore 30 or less), if a debris flow can be rationalized as being at most a “remote probability”. The Probability Factor for this site can be clarified after the recommended field inspection of the drainage courses that cross the highway in this area (see below).

RECOMMENDATIONS

AMEC recommends that the previously-recommended field inspection of the drainage course above the August 2004 debris flow site and other drainage courses crossing the highway in this area be performed in order to assess the potential for further debris flows impacting the highway. When this inspection is completed it may be possible to reduce the Risk Level for this site, as discussed above. If this inspection is not completed, the currently recommended Risk Level of 42 will be maintained.

CLOSURE

This report has been prepared for the exclusive use of Alberta Transportation for the specific project described herein. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it are the responsibility of such third parties. AMEC Earth & Environmental, a division of AMEC Americas Limited, cannot accept responsibility for such damages, if any, suffered by any third party as a result of decisions made or actions based on this report. This report has been prepared in accordance with accepted geotechnical engineering practices. No other warranty, expressed or implied, is made.

We trust that this meets your needs at this time. Please contact the undersigned if you have any questions or require any further information.

Respectfully Submitted,

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APEGGA Permit to Practice No. P-04546

Reviewed by:

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Attachments: Figure 1
AT Debris Flow Risk Matrix