



August 30, 2006

File: 15-85-37

Alberta Infrastructure and Transportation
Room 301, Provincial Building
9621 - 96 Avenue
Peace River, Alberta
T8S 1T4

Attention: Mr. Ed Szmata

**PEACE REGION (PEACE – HIGH LEVEL AREA) GEOHAZARD ASSESSMENT
HWY 744:04 JUDAH HILL (PH 12), HEART RIVER SLIDES
2006 ANNUAL INSPECTION REPORT**

Dear Sir:

This letter documents the 2006 annual site inspection of an area of slope instability located along Hwy 744:04 about 2.5 km south of the CN Rail crossing on the southern outskirts of Peace River, Alberta (refer to Figure PH12-1, Section F). Thurber Engineering Ltd. (Thurber) undertook this inspection in partial fulfillment of our Geotechnical Services for Geohazard Assessment, Instrumentation Monitoring and Related Work contract (CE049/2004) with Alberta Infrastructure and Transportation (AIT).

Mr. Simon Cullum-Kenyon, P.Eng. of Thurber undertook the inspection on June 12, 2006 in the presence of Mr. Ed Szmata of AIT. The site was later reviewed with Mr. Don Proudfoot, P.Eng. of Thurber, and Mr. Roger Skirrow, P. Eng. of AIT.

1. BACKGROUND

Thurber last visited the site in June 2005 and the site condition at that time is described in our Part B assessment letter in the site binder. Additional site information is provided in the Geotechnical File Review in Section A of the binder.

2. SITE OBSERVATIONS

The changes in condition since last year are shown on the site plan, Figure PH12-2A attached for inclusion in Section F. Selected photographs taken during the visit are also attached.

No changes in the slumps were noted at Slides 1, 3 and 4; specifically there has been no additional movement or regression of the scarp of these slides. Slide 2 shows fresh movement, however, its scarp is 3 m from the guardrail, which is similar to last year. The slide has regressed laterally up the ditch, probably in response to water flow over the scarp.

No maintenance activity has occurred at this site since last year.

3. ASSESSMENT

Surface water drainage appears to be the primary factor driving development of these slides. Slide 2 is expected to continue to enlarge as it now captures all drainage in the ditch. Repair work at Slide 1 is working well. The bench area downslope has an intermittent lake, and appears to be part of a much larger, ancient slide. Changes in drainage during repair work at Slide 1, or proposed for Slide 2, are expected to have no detrimental impact on this larger slide.

4. RISK LEVEL

The risk level for this site has been assessed as follows:

$$PF(11) * CF(2) = 22$$

The risk level is unchanged from last year. Slide 2 continues to develop, as expected, in response to surface water drainage.

5. RECOMMENDATIONS

5.1 Short Term

The slides are far enough away from the active road lanes that there are no immediate concerns, although regular inspections should be conducted, particularly after significant rainfall, to ensure that movement has not accelerated.

It is recommended to continue the yearly geohazard inspections as currently programmed.

5.2 Long Term

Consideration should be given to repair work at Slide No.2 similar to that for Slide No.1 (geogrid reinforced gravel fill and drain installed in 1998). The work could be deferred and the slide observed, but the extent of future repair work required will likely be greater.

The repair could be combined with more general improvements to drainage alongside the lay-by, such as installation of a French drain, in order to decrease or arrest slide development in this area. With no work, the slides will develop and expand to affect the lay-by, and ultimately the active lanes.

The approximate cost for repairing Slide No. 2 is \$110,000 to \$140,000, with installation of a French drain along the ditch estimated to cost another \$ 35,000 to \$60,000.

5.3 Investigation

No investigation is required at present.

5.4 Maintenance

There are no maintenance items.

6. CLOSURE

We trust this assessment and recommendations meet with your needs at this time. Please contact the undersigned should questions arise or if the slide condition worsens.

Yours very truly,
Thurber Engineering Ltd.
Don Law, P.Eng.
Review Principal



Simon Cullum-Kenyon, P.Eng.
Project Engineer
/dw

Attachments

c.c.: Mr. Roger Skirrow, P.Eng.
Director of Geotechnical Services, AIT