



THURBER ENGINEERING LTD.

GEOTECHNICAL • ENVIRONMENTAL • MATERIALS

December 4, 2007

File: 15-85-66

Alberta Infrastructure and Transportation
Unit 2, Jewell Building
3603 – 53 Street
Athabasca, Alberta
T9S 1A9

Attention: Mr. Arthur Kavulok

**NORTH CENTRAL REGION GEOHAZARD ASSESSMENT
HWY 2:48 (NC 43), WEST OF WIDEWATER
2007 ANNUAL INSPECTION REPORT**

Dear Sir:

This letter documents the 2007 annual site inspection of an area of slope instability located along Hwy 2:48 at km 21 about 500 m west of Widewater, Alberta (refer to Figure NC43-1, 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 (**CE143/2006**) with Alberta Infrastructure and Transportation (INFTRA).

Mr. Don Proudfoot, P.Eng. and Mr. Masud Karim, M.Sc. of Thurber undertook the inspection on May 24, 2007 in the presence of Mr. Roger Skirrow, P. Eng., Mr. Arthur Kavulok and Dr. Rocky Wang of INFTRA.

1. BACKGROUND

Thurber last visited the site in May 2006 and the site condition at that time is described in our Part B assessment letter in the site binder.

Based on the recommendation by Thurber, two slope inclinometers (SI1 and SI2) were installed in 2006 and the location is shown on the site sketch plan, Figure NC43-1, attached.

2. SITE OBSERVATIONS

The changes in condition since last year are shown on the site sketch plan, Figure NC43-1, attached for inclusion in Appendix F of the binder. A cross-section is also attached for inclusion in Section F (Figure NC43-2). Selected photographs taken during the visit are also attached.

No significant changes were observed since the last visit in 2006 except for surface disturbance at the west end of the bench area possibly due to the equipment running for SI installation. The cut slope, bench and side slope areas were dry at the time of the visit and no evidence of seepage was noted.

Similar to the previous observations the highway surface did not show any slide related cracks. A recent chipseal on the highway was observed. Shallow stagnant water was observed inside the CSP culvert near the west end of the bench area.

3. ASSESSMENT

The borehole logs obtained from the slope inclinometer installations indicate 2.4 m of clay fill over clay to the end of the test hole at 15.2 m (SI1) and clay (SI2) overlying siltstone and mudstone bedrock. The borehole logs are attached for inclusion in Appendix G of the binder.

The slope inclinometers readings (first reading after the initialization) taken during Spring 2007 indicated no discernible movement. The cumulative and incremental deflection plots of the SIs are attached for inclusion in Appendix G of the binder.

As mentioned previously there is no visible slide related movement at the site. The absence of movement in the SIs indicates that the slide poses no immediate threat both to the highway and the quad trail that exists between the highway guard rail and the slide scarp.

The sliding depth is yet to be identified from the SI readings. The previous assumption that this shallow slump is a result of weathering and loss of cohesion in the embankment fill leading to progressive failure is still valid.

4. RISK LEVEL

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

$$PF (5) * CF (2) = 10$$

A Probability Factor of 5 is considered appropriate since this is possibly an active slide with very slow rate of movement rate or indeterminate movement pattern. A

Consequence Factor of 2 is considered appropriate since the slide is located in the side slope of the highway embankment and would have to retrogress further to the south before it would affect the use of the highway.

The rating has been lowered compared to last year (was 14) due to the more stable condition observed at the site this year.

5. RECOMMENDATIONS

5.1 Short Term

In the short term the site should be regularly inspected by the MCI to assess whether further movement is occurring.

5.2 Long Term

The site should be included again in the annual geohazards assessments for 2007. The newly installed SI's should be read twice a year during the annual geohazard instrumentation program.

5.3 Maintenance

There are currently no maintenance measures required for the site this year.

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.

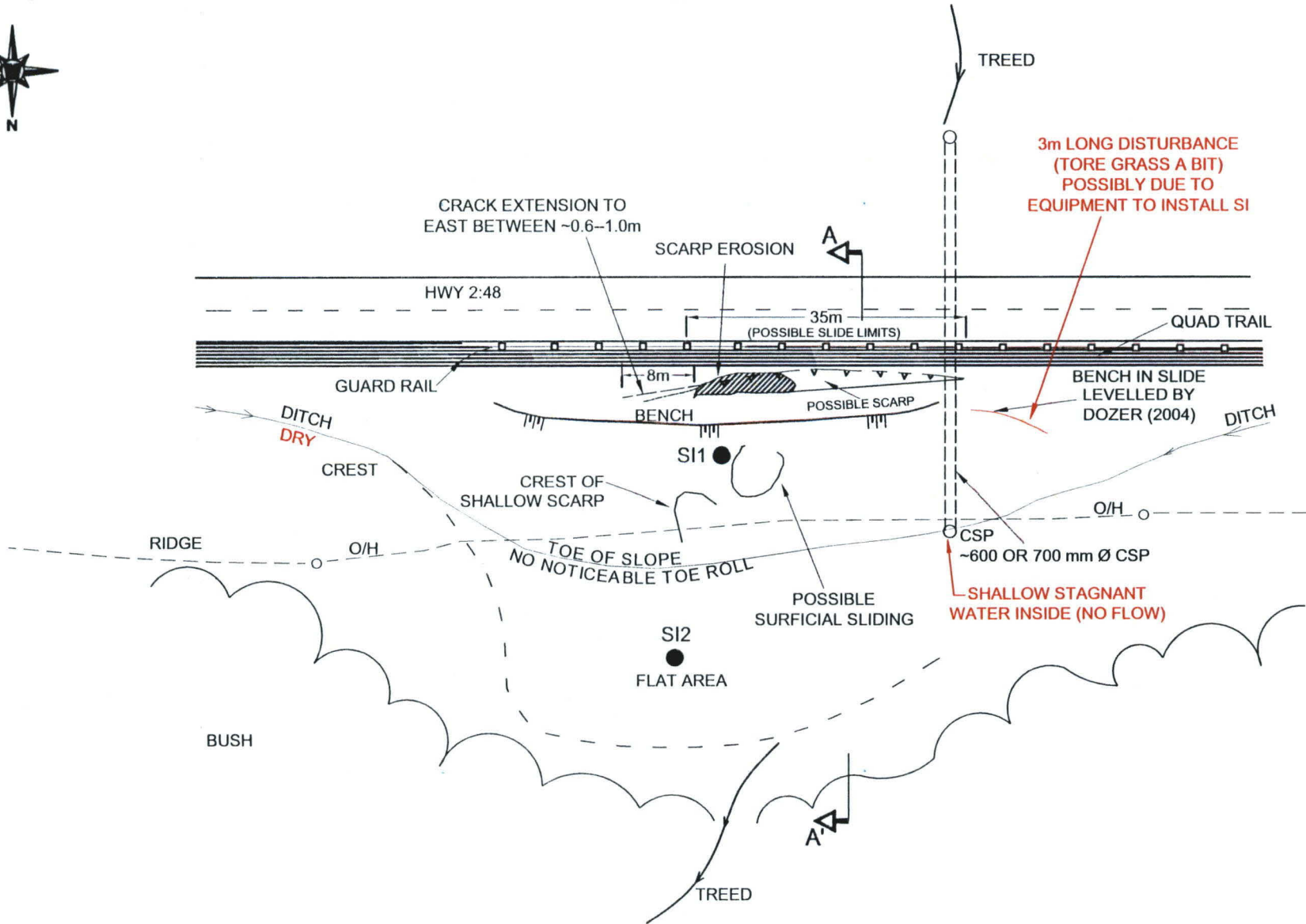
Yours very truly,
Thurber Engineering Ltd.
Don Proudfoot, P.Eng.



Masud Karim, M.Sc.
Project Coordinator
/dw

Attachments

cc: Mr. Roger Skirrow, P.Eng., Director, Geotechnical Services (AIT)



LEGEND

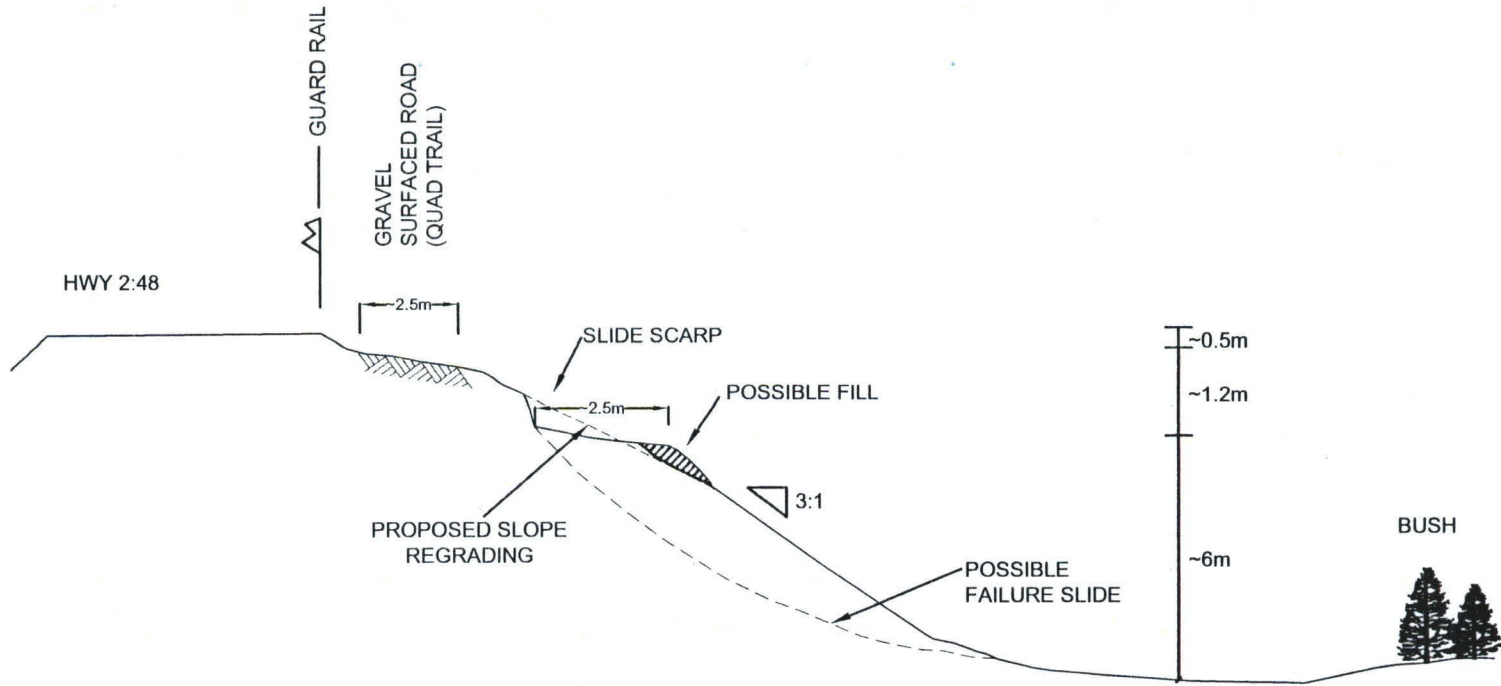
● SLOPE INDICATOR INSTALLED BY JACQUES WHITFORD IN 2006.

2007 OBSERVATIONS IN RED

**FIGURE NC43-1 SKETCH SITE PLAN
NC43- HWY 2:48 Km 21**



N.T.S.
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SECTION A--A'
(APPROXIMATE)

FIGURE NC43-2 SKETCH SITE PLAN
NC43- HWY 2:48 Km 21



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Photo 1 - Looking west at the distress area, May 24, 2007.



Photo 2 - Looking at the downslope toe area, May 24, 2007.



Photo 3 -Looking east at the distress area, May 24, 2007.



Photo 4 - Looking south at the side slope area (SI's), May 24, 2007.