

November 23, 2009
CG25309.C

Mr. Ross Dickson
Alberta Transportation
2nd Floor, 803 Manning Road NE
Calgary, AB T2E 7M8

Dear Ross:

**Re: Southern Region Geohazard Assessment
Fall 2009 Instrumentation Monitoring Results
Site S1: Highway 1:06, Jumpingpound Creek**

This letter documents the Fall 2009 instrument readings at the above-noted site and can be inserted into Section C of the site binder. The updated site plan, instrument data, and plots are also attached and can be inserted into Section D of the site binder.

1.0 OBSERVATIONS

1.1 Field Program and Instrumentation Status

One slope inclinometer (SI #3A) was read at the S1 - Jumpingpound Creek site on Hwy 1:06, on October 19, 2009 by Mr. Ryan Mateff, EIT of AMEC Earth and Environmental (AMEC), a division of AMEC Americas Limited. The SI was read with a metric probe along with a Digitilt Datamate readout manufactured by Durham Geo Slope Indicator (DGSI). Inclinometer reading depths were referenced to the top of the SI casing.

The two SI's at this site were installed in 1992 in order to monitor for slope movement in the east abutments of the two bridges at this site. Slope inclinometer SI #1A has not been read since the spring of 2004 due to a blockage at 0.9 m depth.

Please refer to Figure S1-1 attached in Section D for site layout and instrument locations.

2.0 INTERPRETATION AND RECOMMENDATIONS

2.1 General

Plots of the SI data are presented in Section D and are summarized in the following sections. Where applicable, the resultant movement has also been plotted. Please note that due to the transition from Imperial readout equipment (2 foot probe wheelbase and readings taken at 2 foot intervals) to metric readout equipment (0.5 m probe wheelbase and readings taken at 0.5 m intervals) at the time of the Fall 2008 reading, the attached A-direction and B-direction data plots

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show the September 2008 data set as the initial data set however the interpretation presented in the following subsection as well as the displacement vs. time plot on Figure S1-4 incorporate the monitoring data back to the spring of 2000.

2.2 Zones of Movement

No zones of new movement have been detected since the last reading in May 2009. Zones of previous movement and historical results are summarized in Table S1-1.

2.3 Interpretation of Monitoring Results and Recommendations

2.3.1 Interpretation

As noted in previous reports, the casing groove orientation in SI #3A is such that the B direction movement in SI #3A represents downslope movement.

As shown in Figures S1-1 to S1-4, the October 2009 readings do not confirm the apparent downslope movement in the uppermost 2 m between the September 2008 and May 2009 readings and in fact suggest, at face value, a small amount of upslope movement. It is judged that this is not actually “real” upslope movement, but rather noise in the data due to the precision of the readout equipment and overall there has been little to no confirmed downslope movement in the uppermost 2 m of this SI in recent years.

2.3.2 Recommendations

Based on the monitoring results, AMEC does not consider specific remedial measures relative to slope movement in the east abutment slope of the eastbound lanes bridge to be required at this time.

The site was inspected annually by AMEC and AT geotechnical personnel from 2000 to 2008. The inspection reports from those years included recommendations for further work related to improving the surface drainage control below the bridges and hydrotechnically assessing the risk to the highway from recent erosion of the east creek bank upstream of the eastbound bridge. Please refer to the 2008 annual inspection report for further details.

AMEC recommends discontinuing the semi-annual instrument readings at this site, as per previous reports.

3.0 INSTRUMENTATION REPAIRS AND MAINTENANCE REQUIRED

Neither of the SI's were installed with casing protectors at surface. SI #3A is in good condition. The blockage in SI #1A discovered during the Fall 2004 readings may be a result of vandalism (e.g. debris thrown into the unprotected casing). Replacement of SI #1A is not recommended at this point.



**TABLE S1-1
FALL 2009 – JUMPINGPOUND CREEK
Slope Inclinator Instrumentation
Reading Summary**

Date Monitored: October 19, 2009

INSTRUMENT NAME AND COORDINATES (LATITUDE AND LONGITUDE)	DATE INITIALIZED	TOTAL CUMULATIVE RESULTANT MOVEMENT AT DEPTH SINCE INITIAL READING	MAXIMUM RATE OF MOVEMENT	CURRENT STATUS	DATE OF PREVIOUS READING	SINCE PREVIOUS READING		
						INCREMENTAL MOVEMENT	RATE OF MOVEMENT	CHANGE IN RATE OF MOVEMENT
SI #1A	5/19/2000	3mm between 0.6 and 1.8m (up to April 2004 reading)	1mm/yr between May 2001 and September 2000	Blocked at 0.9m depth since Fall 2004	N/A (last read on 4/29/2004)	N/A	N/A	N/A
SI #3A (51°05.453' N, 114°32.644' W)	5/19/2000	40mm between 0.8 and 3.3m at 289°	23mm/yr between October 2001 and April 2002	Operational	May 5, 2009	Minor, apparent upslope movement (see text).	N/A	N/A



4.0 CLOSURE

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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,

**AMEC Earth & Environmental,
a division of AMEC Americas Limited**

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Associate Geological Engineer

APEGGA Permit to Practice No. P-04546

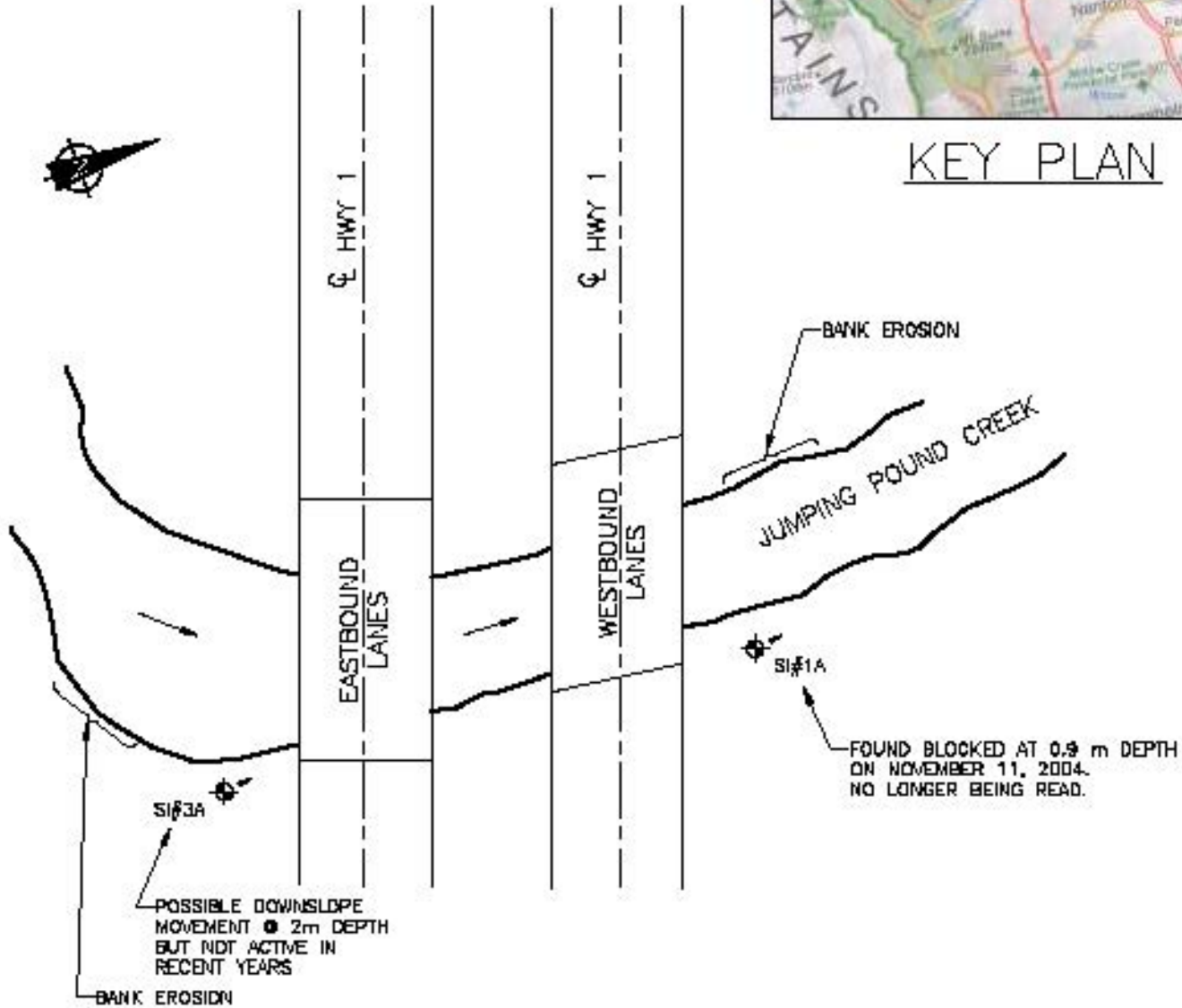
Reviewed by:

Pete Barlow, M.Sc., P.Eng.
Principal Geotechnical Engineer

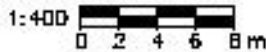
SECTION D
Southern Region Geohazard Assignment
Site S1 – Jumpingpound Creek
Fall 2009 Instrument Data and Plots



KEY PLAN



APPROXIMATE SCALE



NOTE: SCHEMATIC SITE PLAN - SCALE IS APPROXIMATE

LEGEND

SI#1A SLOPE INCLINOMETER WITH A-GROOVE ORIENTATION RELATIVE TO MAGNETIC NORTH.

amec Earth & Environmental

PROJECT: SOUTHERN REGION GEOHAZARD ASSESSMENT AND INSTRUMENTATION MONITORING

TITLE: INSTRUMENTATION SITE PLAN HWY 1 JUMPING POUND CREEK

DATE: NOVEMBER 2009	JOB No.: CG25309	CAD FILE: 25309ND2.dwg	FIGURE No.: FIGURE S1-1	REV: A
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Alberta Transportation