2013 INSTRUMENTATION
FALL MONITORING RESULTS
SITE: SH 7 ISLAND CREEK SLIDE
HWY 33:14
SWAN HILLS REGION

Submitted To:

ALBERTA TRANSPORTATION
EDMONTON, ALBERTA

Submitted By:

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EDMONTON, ALBERTA

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1.0 OBSERVATIONS

1.1 FIELD PROGRAM AND INSTRUMENTATION STATUS

Three slope inclinometers (SI's 01, 02, and 03) and one standpipe (SP 00-1) were monitored at the Swan Hills SH-7 site on the 21st of October 2013 by Mr. Charles Ahlf, C.E.T, of AMEC Environment and Infrastructure (AMEC).

The SI's were monitored using a Digitilt Datamate readout and SINCO Digitilt probe with a two foot wheelbase. Inclinometer reading depths were defined as per cable markings with respect to the top of the inclinometer clamp. The standpipes were monitored using a standard electronic water level indicator.

2.0 MONITORING RESULTS AND INTERPRETATION

2.1 GENERAL

SI plots, including cumulative and incremental movement for both A and B directions, are presented in Appendix A and are summarized below. Where movement has been recorded below the upper 2.5 m (+/-), the resultant plot and the rate of movement in the 'X' direction[1] have also been provided.

Standpipe plots include ground and water surface depths or elevations over the life of the instrument.

2.2 ZONES OF MOVEMENT AND CHANGES IN GROUNDWATER CONDITIONS

Table SH7-1 provides a summary of the operational SI's, including zones and direction of movement, and respective magnitudes or rates.

Table SH7-2 provides a summary of the operational standpipes, including current and historic high water levels.

2.3 INTERPRETATION OF MONITORING RESULTS

2.3.1 Slope Inclinometers

No distinct shear movement zone has been identified at SI 01 and deflections measured were not noticeably different from historic readings.

At SI-02 and 03, deflections at the depth of interest (7 to 8 m) have continued at relatively low rates of less than 2 mm/yr.

[1] The 'X' direction provides a resultant direction of movement calculated relative to the A+ direction of the SI casing.

2.3.2 Standpipes

A minor increase from the Spring 2013 reading was measured for SP 00-1. The current groundwater elevation is typical of elevations previously measured (refer to Appendix B).

3.0 RECOMMENDATIONS

3.1 FUTURE WORK

Continued monitoring is recommended for this site. If movement rates continue to be relatively negligible, reading frequency can be reduced with the understanding that roadway conditions will be monitored by maintenance personnel.

3.2 INSTRUMENTATION REPAIRS

No instruments have been identified for repairs.

4.0 CLOSURE

This report has been prepared based on the Fall 2013 instrumentation monitoring results and available historic documentation. We trust the information provided meets your needs at this time. Please contact the undersigned if you have any questions or concerns.

Respectfully submitted,

AMEC Environment & Infrastructure

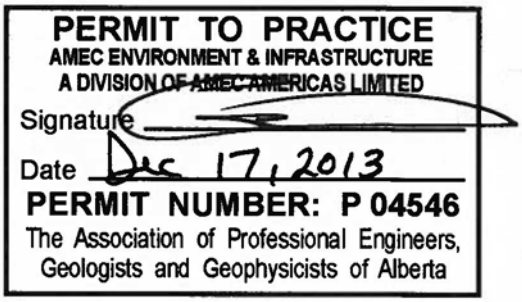

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Table SH7-1 – Operational Slope Inclinometers

Instrument	Data Initialized	A^+ Direction (° Azimuth)	X^+ Direction (° Azimuth)	Movement Depth Interval[1] (m)	Movement X-Direction[2] (mm)			Comments
					Incremental	Cumulative	Rate (per yr)	
SI 01	28 Mar 1998	181	--	--	-1.4	17	-3.4	• No distinct shear zone identified. • Movements reflect entire length of SI.
SI 02	28 Mar 1998	231	221	6.5 to 8.9	< -1	12.9	-1.4	• Historical maximum rate of movement is 10 mm/yr (1998) at noted depth interval.
SI 03	28 Mar 1998	211	238	5.6 to 7.4	1.7	41.9	3.9	• Historical maximum rate of movement is 11 mm/yr (1999) at noted depth interval.

1. Movements within the upper 2.5 m (+/-) typically represent general surface disturbances and have not been summarized above.
2. Deflections and rates indicate results of most recent readings and are relative to movement depth interval only.

Table SH7-2 – Operational Standpipes

Instrument	Elevations (m ASL)			Change from Previous (m)	Nearest SI	Comments
	Ground	Tip *(depth)*	Current Groundwater Surface			
SP 00-1	676.61	669.64 *(6.97)*	673.94	0.0	Installed with SI 01	• Historical maximum groundwater surface of 676.02 m ASL (Jun 2011).

1. m bgs refers to depth in metres below the ground surface (provided where elevation is not available).