

ALBERTA TRANSPORTATION INSTRUMENTATION MONITORING RESULTS FALL 2004

SECTION C

PEACE REGION PEACE RIVER HIGH LEVEL

SITE PH8W: HWY 64:02, CLEAR RIVER WEST HILL

1. OBSERVATIONS

1.1 Field Program and Instrumentation Status

Eleven slope inclinometers (SI-24, 25, 26, 27, 50, 51, 52, 53, 54, 55, and 101) were read at Hwy 64:02 Clear River West Hill site on October 8, 2004 by Mr. Vedran Bijeljanin, E.I.T. of Thurber Engineering Ltd. (Thurber). Slope inclinometer SI-22 could not be located.

The SIs were read using a SINCO Digitilt probe with 2 ft wheelbase and a Digitilt Datamate readout. Inclinometer reading depths were defined as per cable markings with respect to the top of the inclinometer clamps.

Mr. Bijeljanin also took photographs of the site for our files and made observations as to the condition of the site. All of the located instruments were found to be in relatively good condition.

1.2 Site Observations

Based on observations at the time of instrumentation monitoring, no signs of recent movement were noted.

2. INTERPRETATION AND RECOMMENDATIONS

2.1 General

SI plots with A and B directions are presented in Section D and are summarized below. Where movement has been recorded the resultant plot (X direction, if applicable) and a rate of movement have also been provided.

2.2 Zones of Movement

No new zones of movement were observed in the SI's since the last set of readings in the spring 2004. Zones of old movement are summarized on Table PH8W-1 at the end of this report. Table PH8W-1 also provides a historical account of the total movement, the depth of movement, and the maximum rate of movement that has occurred at this site since the initialization of the slope inclinometers.

2.3 Interpretation of Monitoring Results And Recommendations

Some of the slope inclinometers located in active slide areas have been destroyed or sheared off in the past and are currently not being monitored.

2.3.1 Site 1: Station 1+800 (SI-22, 24, 25, 26, 50, 51, 52, 53,54, and 55)

2.3.1.1 Interpretation:

Since the last reading in the spring 2004, only minor movements were recorded in the area. SI-52 recorded an incremental movement of 3.2 mm in the upper 2.8 m, while SI-24 and SI-26 showed incremental movements of 0.9 and 0.7 mm, respectively. There have been no movements greater than 2 mm/yr recorded in the deeper movement zones. The readings are summarized in Table PH8W-1.

2.3.1.2 Recommendations:

Only minor surficial movements were recorded at Site 1, hence, no action is required. Since there are two rows of instruments relatively close together and only minor movements have been noted we recommend only annual readings (Fall) on SI-50, SI-51 and SI-52 with twice yearly readings on the other three SIs.

2.3.2 Site 2: Station 1+300 (SI-27)

2.3.2.1 Interpretation:

Slope inclinometer SI-27 indicated a movement rate of less than 1 mm/yr since the last reading in the spring 2004. The readings are summarized in Table PH8W-1.

2.3.2.2 Recommendations:

Although SI-27 did not indicate any significant movements, there is a trend of ongoing slow deep seated creep movement. Therefore, the SI should be read again during the spring 2005 program.

2.3.3 Campsite Slide: Station 0+400 (SI-101)

2.3.3.1 Interpretation:

Slope inclinometer SI-101 indicated incremental movement of 2.1 mm over 3.7 to 5.5 m depth. The movement rate has increased by 5.4 mm/y since the previous reading. The readings are summarized in Table PH8W-1.

2.3.3.2 Recommendations:

It is recommended that SI-101 be read again during the spring 2005 program, to further assess the effectiveness of the recent slide repairs.

3. INSTRUMENTATION REPAIRS

All operational instruments were found to be in good condition.

TABLE PH8W-1
Fall 2004 – Clear River West Hill
Slope Inclinator
Instrumentation Reading Summary

Date Monitored: October 8, 2004

INSTRUMENT #	DATE INITIALIZED	TOTAL CUMULATIVE RESULTANT MOVEMENT AT NOTED DEPTH SINCE INITIAL READING (mm)	MAXIMUM RATE OF MOVEMENT (mm/y)	CURRENT STATUS	DATE OF PREVIOUS READING	INCREMENTAL MOVEMENT SINCE PREVIOUS READING (mm)	RATE OF MOVEMENT (mm/y)	CHANGE IN RATE OF MOVEMENT SINCE PREVIOUS READING (mm/y)
SITE 1: STATION 1+800								
SI-24	06 Oct, 1996	99.3 mm over 0.0 to 2.4 m depth in 221° direction	41.1 mm/yr between Oct, 1997 and May, 1998	Operational	16 May, 2004	0.9	2.3	-7.2
SI-25	21 Feb, 1995	N/A	N/A	Operational	16 May, 2004	No discernible movement	N/A	N/A
SI-50	16 Jul, 1996	42.3 mm over 0.0 to 2.2 m depth in 180° direction	15.2 mm/yr between Oct, and May, 1997	Operational	15 May, 2004	No discernible movement	0.0	N/A
SI-51	16 Jul, 1996	118.5 mm over 0.0 to 2.2 m depth in 60° direction	77.8 mm/yr between May, and Oct, 1997	Operational	15 May, 2004	No discernible movement	0.0	N/A
		17.2 mm over 5.3 to 7.7 m depth in 60° direction	11.5 mm/yr in Oct, 1996			No discernible movement	0.8	-0.1
SI-52	16 Jul, 1996	43.3 mm over 0.0 to 2.8 m depth in 70° direction	21.9 mm/yr between Jun, 2000 and Sep, 2001	Operational	15 May, 2004	3.2	7.9	-6.3
SI-53	16 Jul, 1996	72.7 mm over 0.0 to 2.2 m depth in 228° direction	27.3 mm/yr between May and Oct, 1997	Operational	15 May, 2004	No discernible movement	0.0	N/A
		16.2 mm over 2.2 to 5.2 m depth in 228° direction	8.7 mm/yr between may and oct, 1997			No discernible movement	0.8	1.5

TABLE PH8W-1 (Continued)
Fall 2004 – Clear River West Hill
Slope Inclinometer
Instrumentation Reading Summary

INSTRUMENT #	DATE INITIALIZED	TOTAL CUMULATIVE RESULTANT MOVEMENT AT NOTED DEPTH SINCE INITIAL READING (mm)	MAXIMUM RATE OF MOVEMENT (mm/y)	CURRENT STATUS	DATE OF PREVIOUS READING	INCREMENTAL MOVEMENT SINCE PREVIOUS READING (mm)	RATE OF MOVEMENT (mm/y)	CHANGE IN RATE OF MOVEMENT SINCE PREVIOUS READING (mm/y)
SITE 1: STATION 1+800 (CONTINUED)								
SI-54	16 Jul, 1996	97.6 mm over 0.0 to 2.3 m depth in 51° direction	84.6 mm/yr between May and Oct, 1998	Operational	16 May, 2004	No discernible movement	0.0	N/A
		15.8 mm over 7.8 to 10.2 m depth in 51° direction	8.1 mm/yr between Oct. and Nov, 1996			No discernible movement	0.0	N/A
		7.9 mm over 14.5 to 16.3 m depth in 51° direction	3.5 mm/yr between Oct. and Nov, 1996			No discernible movement	0.0	N/A
SI-55	16 Jul, 1996	N/A	N/A	Operational	16 May, 2004	No discernible movement	N/A	N/A
SITE 2: STATION 1+300								
SI-26	21 Feb, 1995	146.6 mm over 0.0 to 2.4 m depth in 41° direction	70.5 mm/yr between Feb, 1995 and Oct, 1996	Operational	15 May, 2004	No discernible movement	0.0	N/A
		3.9 mm over 37.8 to 40.2 m depth in 41° direction	6.6 mm/yr between Oct. and Nov, 1996			0.7	1.7	1.9
SI-27	30 Nov, 1996	3.7 mm over 9.1 to 11.0 m depth in 45° direction	1.4 mm/yr between May and Sep, 2001	Operational	15 May, 2004	No discernible movement	0.4	0.5
		6.8 mm over 26.8 to 28 m depth in 45° direction	2.6 mm/yr between May and Sep, 2001			No discernible movement	0.8	0.7

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SI-26	21 Feb, 1995	146.6 mm over 0.0 to 2.4 m depth in 41° direction	70.5 mm/yr between Feb, 1995 and Oct, 1996	Operational	15 May, 2004	No discernible movement	0.0	N/A
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SI-50	16 Jul, 1996	42.3 mm over 0.0 to 2.2 m depth in 180° direction	15.2 mm/yr between Oct, and May, 1997	Operational	15 May, 2004	No discernible movement	0.0	N/A
SI-51	16 Jul, 1996	118.5 mm over 0.0 to 2.2 m depth in 60° direction	77.8 mm/yr between May, and Oct, 1997	Operational	15 May, 2004	No discernible movement	0.0	N/A
		17.2 mm over 5.3 to 7.7 m depth in 60° direction	11.5 mm/yr in Oct, 1996			No discernible movement	0.8	-0.1
SI-52	16 Jul, 1996	43.3 mm over 0.0 to 2.8 m depth in 70° direction	21.9 mm/yr between Jun, 2000 and Sep, 2001	Operational	15 May, 2004	3.2	7.9	-6.3

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SITE 1: STATION 1+800 (CONTINUED)								
SI-53	16 Jul, 1996	72.7 mm over 0.0 to 2.2 m depth in 228° direction	27.3 mm/yr between May and Oct, 1997	Operational	15 May, 2004	No discernible movement	0.0	N/A
		16.2 mm over 2.2 to 5.2 m depth in 228° direction	8.7 mm/yr between May and Oct, 1997			No discernible movement	0.8	1.5
SI-54	16 Jul, 1996	97.6 mm over 0.0 to 2.3 m depth in 51° direction	84.6 mm/yr between May and Oct, 1998	Operational	16 May, 2004	No discernible movement	0.0	N/A
		15.8 mm over 7.8 to 10.2 m depth in 51° direction	8.1 mm/yr between Oct. and Nov, 1996			No discernible movement	0.0	N/A
		7.9 mm over 14.5 to 16.3 m depth in 51° direction	3.5 mm/yr between Oct. and Nov, 1996			No discernible movement	0.0	N/A
SI-55	16 Jul, 1996	N/A	N/A	Operational	16 May, 2004	No discernible movement	N/A	N/A
SITE 2: STATION 1+300								
SI-27	30 Nov, 1996	3.7 mm over 9.1 to 11.0 m depth in 45° direction	1.4 mm/yr between May and Sep, 2001	Operational	15 May, 2004	No discernible movement	0.4	0.5
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CAMPSTIE SLIDE: STATION 0+400								
SI-101	10 Sep, 2001	13.8 mm over 3.7 to 5.5 m depth in 38° direction	23.1 mm/yr between June and Sep, 2002	Operational	16 May, 2004	2.1	5.2	5.4
SI-102	10 Sep, 2001	N/A	N/A	Sheared off in 2003	20 Sep, 2001	N/A	N/A	N/A

