

ALBERTA TRANSPORTATION INSTRUMENTATION MONITORING RESULTS Fall 2003

SECTION C

NORTH CENTRAL REGION

SITE SH5(NC): HWY33:10, MORSE RIVER SLIDE

1. OBSERVATIONS

1.1 Field Program and Instrumentation Status

Six slope inclinometers (SI's 1 to 6) were read at the Hwy 33:10 Morse River Slide site on October 21, 2003, by Mr. Gurpreet Dhaliwal, E.I.T. of Thurber Engineering Ltd. (Thurber).

The SI's 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 casing. Mr. Dhaliwal also took photographs of the site for our files and made observations as to the condition of the site.

1.2 Site Observations

Observations of the site conditions made at the time of instrumentation monitoring are as follows:

- 1) There were no signs of recent movement visible at surface.

2. INTERPRETATION

2.1 General

All inclinometer readings were transferred from the DataMate Logger to a portable computer, which was used to check the field results with previous readings. Further data handling, interpretation, presentation, and storage was carried out using GTILT software.

For each inclinometer, the new readings were combined with earlier readings using GTILT software. The resulting SI plots for A and B directions are presented in Section D and summarized below. Where movement has been recorded the resulting plot for the X direction and rate of movement have also been provided.

2.2 Zones of Movement

No new zones of movement were observed since the last set of readings in the fall of 2002. Zones of old movement are summarized on Table-SH5(NC)-1 at the end of this report. Table SH5(NC)-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

Since the last reading in October 2002 there have been small creep movement recorded in one of the six slope inclinometers (SI#4). Table SH5(NC)-1 summarizes the readings.

3. RECOMMENDATIONS

3.1 Future Work

Since small creep movement was recorded in one SI it is recommended that no action be taken before the next scheduled reading in the Fall of 2004.

3.2 Instrumentation Repairs

No repairs are required. All the instrumentations are operational.

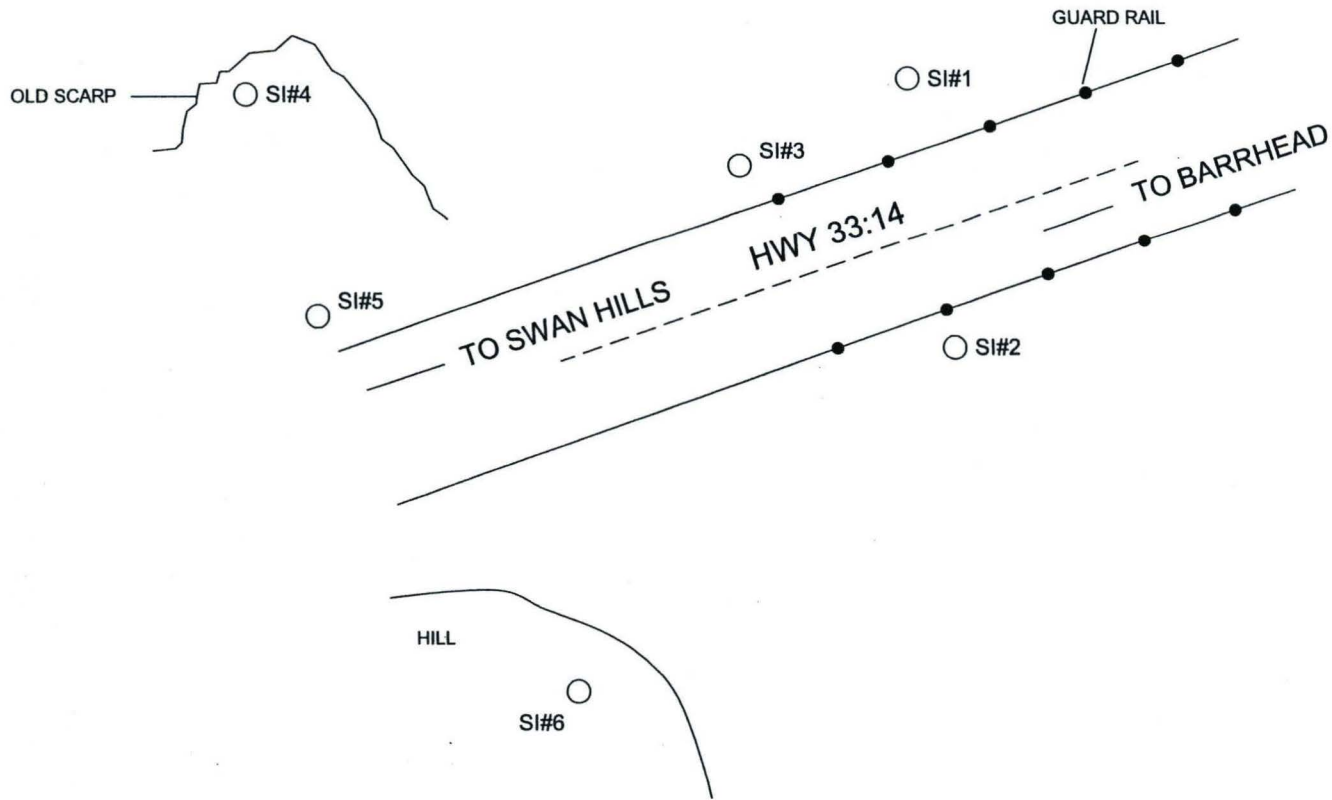
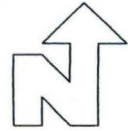
TABLE SH5(NC)-1
Fall 2003 – HWY33:10, MORSE RIVER SLIDE
Instrumentation Reading Summary

Date Monitored: October 21, 2003

INSTRUMENT #	DATE INITIALIZED	TOTAL CUMULATIVE RESULTANT MOVEMENT AT NOTED DEPTH SINCE INITIAL READING	MAXIMUM RATE OF MOVEMENT (mm/y)	CURRENT STATUS OF SI	DATE OF PREVIOUS READING	INCREMENTAL MOVEMENT SINCE PREVIOUS READING	CURRENT RATE OF MOVEMENT (mm/y)	CHANGE IN RATE OF MOVEMENT SINCE PREVIOUS READING (mm/y)
1	27 Mar., 1998	No discernible movement	NA	Active	01 Oct, 2002	No discernible movement	NA	NA
2	27 Mar., 1998	No discernible movement	NA	Active	01 Oct, 2002	No discernible movement	NA	NA
3	27 Mar., 1998	No discernible movement.	NA	Active	01 Oct, 2002	No discernible movement	NA	NA
4	27 Mar., 1998	6.6 mm over 2.8 to 4.6m depth in 203° direction	15 mm/y between May and Sept. 2001	Active	01 Oct, 2002	2.3 mm over 2.8 to 4.6m depth in 203° direction	2.2	+2.2
5	27 Mar., 1998	7.2 mm at 3.5 m depth in 78° direction	10.3 mm/yr between May and Sept. 1999	Active	01 Oct, 2002	No discernible movement	NA	NA
6	27 Mar., 1998	No discernible movement	NA	Active	01 Oct, 2002	No discernible movement	NA	NA

Figure SH5(NC)-1 in section D provides a sketch of the approximate location of the monitoring instrumentation for this site.

NORTH CENTRAL REGION



LEGEND

○ SI CASING

SH5 (NC) : HWY 33:10
MORSE RIVER SLIDE
SITE PLAN N.T.S

UPDATED: OCT., 2002
DRAWN: MNG
THURBER PROJECT #15-76-12

FIGURE SH5 (NC) - 1



**ALBERTA TRANSPORTATION
NORTH CENTRAL REGION
SLOPE INCLINOMETER MONITORING FIELD SUMMARY
FALL 2003**

Location: Morse Creek Slide (Hwy 33:10)	Readout: Datamate
File Number: 15-76-12	Extension: N/A
Probe: Sinco 26960B	Temp: 7°
Cable: 250' Sinco	Read by: GD

SLOPE INCLINOMETER (SI) READINGS

SI#	Date	Stickup (ft)	Depth from top of casing (ft)	Magn. North A+ Groove	Current Bottom Depth Readings				Any signs of recent movement visible at surface
					A+	A-	B+	B-	
1	21-Oct	3.15	69 to 5	16°	564	-586	-691	903	None
2	21-Oct	2.95	64 to 4	103°	400	-411	1396	-1401	None
3	21-Oct	1.97	64 to 4	52°	-208	185	-1212	1202	None
4	21-Oct	1.8	68 to 4	203°	-848	829	273	-283	None
5	21-Oct	3.28	68 to 4	78°	1465	-1483	-1295	1290	None
6	21-Oct	1.64	48 to 4	96°	-1135	1122	-2862	2862	None

PNEUMATIC PIEZOMETER (PI) READINGS

PI#	Date	Reading (psi)	Identification Number
NO PIEZOMETERS AT THIS LOCATION			

DAILY INSPECTOR REPORT

No signs of recent movement visible at surface

**TABLE 1
NORTH CENTRAL REGION
SUMMARY OF GEOTECHNICAL INSTRUMENTATION FALL 2003**

LOCATION	INSTRUMENTATION	RECOMMENDED ADDITIONAL INSTRUMENTS	NEW INSTRUMENTS ADDED (Since Last Reading in Fall 2001)	INSTRUMENTS DELETED FROM READING SCHEDULE	RECOMMENDATION	CURRENT TOTAL NUMBER OF INSTRUMENTS	NUMBER OF INSTRUMENTS READ IN FALL 2003 (SEMI-ANNUAL AND ANNUAL READINGS)
NC1: HWY43:16 Whitecourt East Hill	SI 5, 10, 11, 12, 30, 31, 32, SI01-1 and 01-2 PN01-1 and PN01-2	8 SP & 2 SI's	None	SI# 32	- Read all existing instrumentation semi-annually.	10 (8 SI's, 2 PN)	10 (8 SI's, 2 PN)
NC2: HWY 22:30 Willey West Park	SI 3A, 4A, 7, 8, 9, 10, 01-1 SP 01-1 & 01-2 PN 01-1	None	None	None	- Read all existing instrumentation semi-annually.	10 (7 SI's, 1 PN, 2 SP)	10 (7 SI's, 1 PN, 2 SP)
NC3: BF1517 Tawatinaw Br. Athabasca	SI 31, 32, 33, 34	None	None	None	- Read all existing instrumentation semi-annually. - Top of casing of SI# 3 was damage and needs to be fixed. SI was not read.	4 (4 SI's)	4 (4 SI's)
NC4: BF75118 Overpass H55/SH813 (Athabasca)	SI 22, 23, 24	None	None	None	- Read all existing instrumentation semi-annually.	3 (3 SI's)	3 (3 SI's)
NC5: HWY39:06 Sauders Lake (Modeste Creek)	SI 1, 01-2A & 01-3A PN 1(8339), 2(8342), 3(8343), 4(8346), 5(11548), 6(11551), 01-1A, 01-2A, 01-3A	None	None	PN#6(11551)	- Read all existing instrumentation semi-annually.	11 (3 SI's, 8 PN)	11 (3 SI's, 8 PN)
NC6: HWY2:46 Mitsue Rec. Area	SI 1, 2, & 3 PN 1(34439) & 2(34443)	None	None	SI# 2 & PN# 2	- Read all existing instrumentation semi-annually.	3 (2 SI's, 1 PN)	3 (2 SI's, 1 PN)

**TABLE 1 - CONTINUED
NORTH CENTRAL REGION
SUMMARY OF GEOTECHNICAL INSTRUMENTATION FALL 2003**

LOCATION	INSTRUMENTATION	RECOMMENDED ADDITIONAL INSTRUMENTS	NEW INSTRUMENTS ADDED (Since Last Reading in Fall 2001)	INSTRUMENTS DELETED	RECOMMENDATION	CURRENT TOTAL NUMBER OF INSTRUMENTS	NUMBER OF INSTRUMENTS READ IN FALL 2003 (SEMI-ANNUAL AND ANNUAL READINGS)
NC7:SH759 Berrymore Bridge	SI01-1, 01-2, 01-3 SP01-1, 01-2, 01-3	None	SI02-1, 02-2 & 02-3	None	- Read all existing SIs semi-annually. - New: SI02-1; 02-2 & 02-3 (initialized under Thurber Job# 15-16-148)	9 (6 SI's, 3 SP)	9 (6 SI's, 3 SP)
NC8: HWY63:02 LaBiche River	SI 1A, 1B, 4A, 4B	None	None	None	- Read all existing instrumentation semi-annually.	4 (4 SI's)	4 (4 SI's)
NC9: HWY2:48 Canyon Creek	SI 2, 3, 4, & 6 PN 1 (34445), 2 (34441), 4 (34453) & 5 (34442)	1 SP & 1 SI	None	None	- Read all existing instrumentation semi-annually.	8 (4 SI's, 4 PN)	8 (4 SI's, 4 PN)
NC10: HWY33:04	SI 97-1, 97-2, & 97-3	None	None	None	- Read all existing SIs semi-annually.	3 (3 SI's)	3 (3 SI's)
NC11: HWY40:30 Hinton	SI 1,2, 4	None	None	None	- Read all existing SIs annually.	3 (3 SI's)	0
NC13: SH633 Cattlepass East and West Sites	None active	4 SIs	None	None	None	0	0
NC17a:HWY63:12 Twinning	SI 1, 2, 3, 4, 5, & 6	None	None	None	- Read all existing SIs semi-annually.	6 (6 SI's)	6 (6 SI's)
NC17b: HWY63:12 Super Test Hill	SI 1, 2, 3, 4, 5 & 6	None	None	None	- Read all existing SIs semi-annually.	6 (6 SIs)	6 (6 SI's)
NC18: SH764 Pembina River	SI# 7, 8, 9, 21, 22, 23, & 24 SP#96-1, 2, & 3	None	None	SP#3(Blocked)	- Read all existing SIs semi-annually.	9 (7 SI's, 2 SP)	9 (7 SI's, 2 SP)
NC19:HWY39:06 Buck Lake Creek	SI 1, 2, 5, 01-1A, 01-2A, & 01-3A PN 1, 2, 01-1A & 01-2A SP2A & 3A	None	SI02-1 & 02-2	None	- Read all existing SIs semi-annually. - New: SI02-1 & 02-2 (initialized under Thurber Job# 15-16-149)	14 (8 SI's, 4 PN, 2 SP)	14 (8 SI's, 4 PN, 2SP)

**TABLE 1 - CONTINUED
NORTH CENTRAL REGION
SUMMARY OF GEOTECHNICAL INSTRUMENTATION FALL 2003**

LOCATION	INSTRUMENTATION	RECOMMENDED ADDITIONAL INSTRUMENTS	NEW INSTRUMENTS ADDED (Since Last Reading in Fall 2001)	INSTRUMENTS DELETED	REMARKS	CURRENT TOTAL NUMBER OF INSTRUMENTS	NUMBER OF INSTRUMENTS READ IN FALL 2003 (SEMI-ANNUAL AND ANNUAL READINGS)
NC23: HWY39:06 km 12.6 (Near Greenwood Lake Road)	SI01-1, 01-2, 01-3, 01-4, PN01-1A, 01-2A, 01-1, 01-2, 01-3, 01-4, 01-5, 01-6 & 01-7 GW01-1 & 01-2 SP01-2	None	None	None	- Read all existing SIs semi-annually.	17 (5 SI's, 9 PN, 1 SP, 2 GW)	17 (5 SI's, 9 PN, 1 SP, 2 GW)
SH5(NC):HWY33:10 Morse River Slide	SI# 1, 2, 3, 4, 5, & 6	None	None	None	- Read all existing SIs semi-annually.	6 (6 SI's)	6 (6 SI's)
NC24: HWY28:02 Kehewin Lake	SI 02-1, 02-2, 02-3, 02-4 & 02-5 SP02-1, 02-2, 02-3, 02-4, & 02-5	None	None	None	- Read all existing SIs semi-annually. - New: Initialized under Thurber Job# 15-16-159	10 (5 SI's, 5SP)	10 (5 SI's, 5SP)
NC25: SH646:04 Lindberg Hill	SI02-1, 02-2, 02-3 & 02-4 SP02-1, 02-2, 02-3 & 02-4	None	None	SI02-4(sheared)	- Read all existing SIs semi-annually. - New: Initialized under job# 15-16-157	8 (4 SI's, 4SP)	8 (4 SI's, 4SP)
NC26: HWY43:12 Two Creeks	SI02-1, 02-2, & SI02-3 SP02-1, 02-2, 02-3, 02-4, 02-5, 02-6, 02-7 & 02-8	None	None	None	- Read all existing SIs semi-annually. - New: Initialized under Thurber Job# 15-16-158	11 (3 SI's, 8SP)	11 (3 SI's, 8SP)
TOTAL						155 (97 SI's, 29 PN, 27 SP, 2 G)	152 (94 SI's, 29 PN, 27 SP, 2 GW)

SI (slope inclinometer); PN (Pneumatic Piezometer); SP (Standpipe Piezometer); GW (Ground Water Monitoring Well)