



**ALBERTA TRANSPORTATION  
NORTH CENTRAL REGION – ATHABASCA AREA  
INSTRUMENTATION MONITORING RESULTS**

**SPRING 2016**

**SECTION C**

**SITE NC003-1: TAWATINAW RIVER BRIDGE (ATHABASCA)**

**1. OBSERVATIONS**

**1.1 Field Program and Instrumentation Status**

Two slope inclinometers (SI33 and SI34) were attempted to be read at the Tawatinaw River Bridge in Athabasca on May 29, 2016 by Mr. Niraj Regmi, G.I.T. and Mr. Mahinder Dhillon, P.Geo., both of Thurber Engineering Ltd. (Thurber). Slope inclinometers SI33 and SI34 could not be found and were likely destroyed during construction.

**2. INTERPRETATION**

**2.1 Zones of Movement**

Zones of old movement are summarized on Table NC003-1-1 at the end of this report.

Table NC003-1-1 also provides a historical account of the total movement, the depth of movement, and the maximum rate of movement that has occurred since the initialization of the slope inclinometers when they were installed at this site.

**2.2 Groundwater Levels**

Table NC003-1-2 provides a summary of standpipe piezometer readings at this site.

**3. RECOMMENDATIONS**

**3.1 Future Work**

No further instrument readings are required at this site.

**3.2 Instrumentation Repairs**

No instrumentation repairs are required at this time.



**TABLE NC003-1-1  
 SPRING 2016 – TAWATINAW RIVER BRIDGE (ATHABASCA)  
 SLOPE INCLINOMETER  
 INSTRUMENTATION READING SUMMARY**

Date Monitored: May 29, 2016

<b>INSTRUMENT #</b>	<b>DATE INITIALIZED</b>	<b>TOTAL CUMULATIVE RESULTANT MOVEMENT AND DEPTH OF MOVEMENT TO DATE (mm)</b>	<b>MAXIMUM RATE OF MOVEMENT (mm/yr)</b>	<b>CURRENT STATUS OF SI</b>	<b>DATE OF PREVIOUS READING</b>	<b>INCREMENTAL MOVEMENT SINCE PREVIOUS READING (mm)</b>	<b>CURRENT RATE OF MOVEMENT (mm/yr)</b>	<b>CHANGE IN RATE OF MOVEMENT SINCE PREVIOUS READING (mm/yr)</b>
SI31	Jan. 11, 1996	65.3 over 10.1 m to 12.6 m depth in 290° direction	51.3 between May and Oct. 1997	Sheared off at 12.2 m	May 11, 2010	N/A	N/A	NA
SI32	Jan. 11, 1996	53.4 over 10.1m to 12 m depth in 281° direction	52.4 between May and Oct. 1997	Destroyed	May 26, 2009	N/A	N/A	NA
SI33	Jan. 11, 1996	29.2 over 5.1 m to 8.2 m depth in 271° direction	14.2 between May and Oct. 1997	Destroyed during construction	May 24, 2011	N/A	N/A	N/A
SI34	Jan. 11, 1996	No discernible movement	N/A	Destroyed during construction	May 24, 2011	N/A	N/A	NA

Figure 13357-NC003-1 in section D provides a sketch of the approximate location of the monitoring instrumentation for this site.



**TABLE NC003-1-2  
 SPRING 2016 – TAWATINAW RIVER BRIDGE (ATHABASCA)  
 STANDPIPE PIEZOMETER  
 INSTRUMENTATION READING SUMMARY**

Date Monitored: May 29, 2016

<b>INSTRUMENT #</b>	<b>DATE INITIALIZED</b>	<b>TIP ELEV. (m)</b>	<b>GROUND ELEV. (m)</b>	<b>CURRENT STATUS</b>	<b>MAXIMUM WATER LEVEL ELEVATION (mBGS)</b>	<b>MEASURED WATER LEVEL ELEVATION (mBGS)</b>	<b>PREVIOUS READING (mBGS) MAY 15, 2008</b>	<b>CHANGE IN WATER LEVEL SINCE PREVIOUS READING (m)</b>
<i>TH04-1</i>	<i>Nov. 9, 2004</i>	<i>498.91</i>	<i>515.95</i>	<i>Destroyed</i>	<i>5.74 on Nov. 10, 2004</i>	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>
<i>TH04-8</i>	<i>Nov. 9, 2004</i>	<i>506.62</i>	<i>513.94</i>	<i>Destroyed</i>	<i>5.24 on May 28, 2004</i>	<i>N/A</i>	<i>5.4</i>	<i>N/A</i>

Figure 13357-NC003-1 in section D provides a sketch of the approximate location of the monitoring instrumentation for this site.



**ALBERTA TRANSPORTATION  
NORTH CENTRAL REGION  
INSTRUMENTATION MONITORING RESULTS**

**SPRING 2016**

**SECTION D  
DATA PRESENTATION**

**SITE NC003-1: TAWATINAW RIVER BRIDGE (ATHABASCA)**

**ALBERTA TRANSPORTATION  
NORTH CENTRAL REGION - ATHABASCA AREA  
INSTRUMENTATION MONITORING FIELD SUMMARY (NC003-1)  
SPRING 2016**

<b>Location:</b> Tawatinaw Bridge (HWY 55:10 C1 0.506) <b>File Number:</b> 13357 <b>Probe:</b> - <b>Cable:</b> -	<b>Readout:</b> - <b>Extension:</b> 3.34" <b>Temp:</b> 12°C <b>Read by:</b> NKR/MSD
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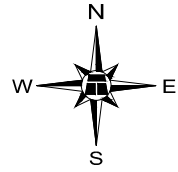
**SLOPE INCLINOMETER (SI) READINGS**

SI#	GPS Location (NAD83)		Date	Stickup (ft)	Depth from top of casing (ft)	Azimuth of A+ Groove	Current Bottom Depth Readings				Remarks
	Latitude (N)	Longitude (W)					A+	A-	B+	B-	
33	53 ° 43' 20"	113 ° 16' 37"	29-May-16	3.21	63 to 5	242°	*	*	*	*	
34	54 ° 43' 19"	113 ° 16' 44"	29-May-16	2.92	63 to 5	2°	*	*	*	*	

**INSPECTOR REPORT**

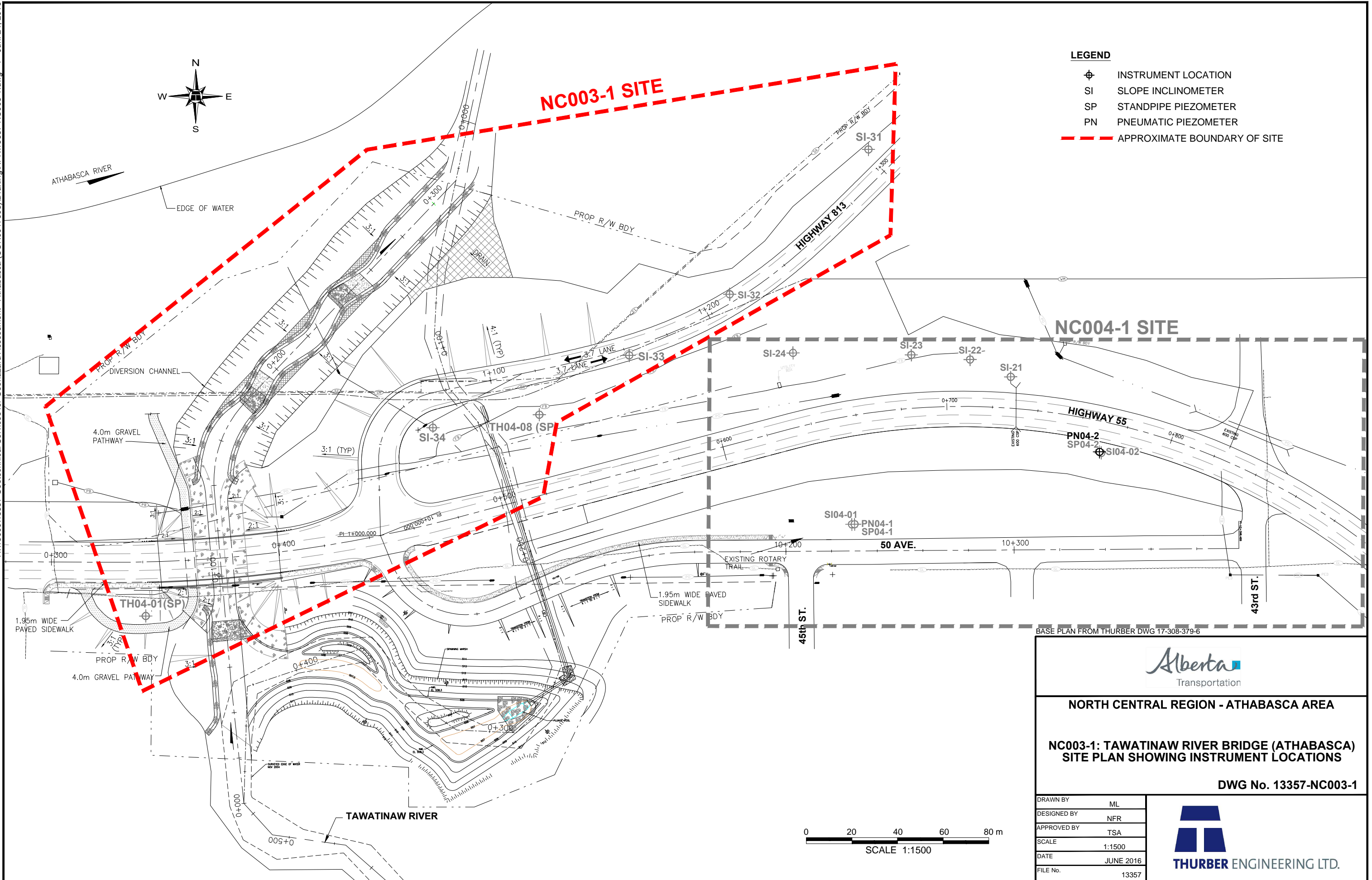
Note: * SI 33 and 34 - Could not find, possibly destroyed during construction

H:13000113357 Geotechnical Services for Geohazard Assessment - Athabasca (CON0017605) Drafting\NFR\13357 NC003-1.dwg - 1 - Jun. 24, 2016



**LEGEND**

- ⊕ INSTRUMENT LOCATION
- SI SLOPE INCLINOMETER
- SP STANDPIPE PIEZOMETER
- PN PNEUMATIC PIEZOMETER
- - - - - APPROXIMATE BOUNDARY OF SITE



BASE PLAN FROM THURBER DWG 17-308-379-6



**NORTH CENTRAL REGION - ATHABASCA AREA**

**NC003-1: TAWATINAW RIVER BRIDGE (ATHABASCA)  
SITE PLAN SHOWING INSTRUMENT LOCATIONS**

DWG No. 13357-NC003-1

DRAWN BY	ML
DESIGNED BY	NFR
APPROVED BY	TSA
SCALE	1:1500
DATE	JUNE 2016
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