



**THURBER ENGINEERING LTD.**

November 16, 2022

File No.: 32121

Alberta Transportation  
Provincial Building  
9621-96 Avenue  
Peace River, Alberta  
T8S 1T4

Attention: Mr. Max Shannon

**ALBERTA TRANSPORTATION GRMP (CON0022164)  
PEACE REGION (PEACE RIVER DISTRICT)  
INSTRUMENTATION MONITORING RESULTS – FALL 2022**

**SECTION C**

**SITE PH033-1: HWY 744:04, JUDAH HILL (CNR SLIDE)  
SITE PH033-2: HWY 744:04, JUDAH HILL (TRUNK SLIDE)**

Dear Mr. Shannon:

This report provides the results of the bi-annual geotechnical instrumentation monitoring for the above-mentioned site as part of Alberta Transportation's Geohazard Risk Management Program for Peace Region – Peace River District (CON0022164).

It is a condition of this letter report that Thurber's performance of its professional services will be subject to the attached Statement of Limitations and Conditions.

**1. FIELD PROGRAM AND INSTRUMENTATION STATUS**

Two slope inclinometers (SI10-16 and SI10-17) and one pneumatic piezometer (PN10-16) were monitored at the Hwy 744:04 Judah Hill CNR Slide (PH033-1) site on September 28, 2022, by Mr. Niraj Regmi, G.I.T. and Mr. Kyle Crooymans, both of Thurber Engineering Ltd.

Four slope inclinometers (SI98-6i, SI98-7i, SI10-10 and SI10-11) and three pneumatic piezometers (PN98-6, PN10-10, and PN10-11) were also monitored at the Hwy 744:04 Judah Hill Trunk Slide (PH033-2) site on September 28, 2022 by Mr. Niraj Regmi, G.I.T. and Mr. Kyle Crooymans, of Thurber Engineering Ltd. Pneumatic piezometer PN98-7a is currently damaged and no reading could be obtained.

The SIs were read using two RST Digital Inclinometer probes with 2 ft. wheelbases and RST Pocket PC readouts. Inclinometer reading depths were defined as per cable markings with respect to the top of the inclinometer casings. The pneumatic piezometers were read using a RST C108 pneumatic piezometer readout.



## **2. DATA PRESENTATION**

### **2.1 General**

SI plots for A and B directions are included in Appendix A. Where movement has been recorded the resultant plot (X direction, if applicable) and rate of movement have also been provided. Piezometer and load cell reading plots are also included in Appendix A.

Slope inclinometer and piezometer reading summary tables are provided below. These tables also include instruments deleted from the GRMP program, for reference.

### **2.2 Zones of Movement**

Zones of new movement were not observed in the SIs since the previous readings in the spring of 2022.

Zones of movements are summarized in Tables PH033-1-1 and PH033-2-1 below. Tables PH032-1-1 and PH032-2-1 also provides a historical account of the total movement, the depth of movement and the maximum rate of movement that has occurred in the SIs since initialization.



**TABLE PH033-1-1  
FALL 2022 – HWY 744:04 JUDAH HILL CNR SLIDE  
SLOPE INCLINOMETER INSTRUMENTATION READING SUMMARY**

Date Monitored: September 28, 2022

<b>INSTRUMENT #</b>	<b>DATE INITIALIZED</b>	<b>TOTAL CUMULATIVE RESULTANT MOVEMENT AT NOTED DEPTH SINCE INITIAL READING (mm)</b>	<b>MAXIMUM RATE OF MOVEMENT (mm/yr)</b>	<b>CURRENT STATUS</b>	<b>DATE OF PREVIOUS READING</b>	<b>INCREMENTAL MOVEMENT SINCE PREVIOUS READING (mm)</b>	<b>RATE OF MOVEMENT (mm/yr)</b>	<b>CHANGE IN RATE OF MOVEMENT SINCE PREVIOUS READING (mm/yr)</b>
SI10-16	September 23, 2010	15.1 mm over 11.7 m to 13.5 m depth in 70° direction	3.4 mm/yr in June 2014	Operational	June 14, 2022	No discernible movement	N/A	-1.5
SI10-17	March 5, 2010	13.0 mm over 9.5 m to 11.3 m depth in 68° direction	3.3 mm/yr in June 2014	Operational	June 14, 2022	0.1	0.4	-0.2

Drawings 32121-PH033-1 and 32121-PH033-2 in Appendix A provides a sketch of the approximate location of the monitoring instrumentation for this site.



**TABLE PH033-1-2**  
**FALL 2022 – HWY 744:04 JUDAH HILL CNR SLIDE**  
**PNEUMATIC PIEZOMETER INSTRUMENTATION READING SUMMARY**

Date Monitored: September 28, 2022

<b>INSTRUMENT #</b>	<b>DATE INITIALIZED</b>	<b>TIP DEPTH (m)</b>	<b>GROUND ELEV. (m)</b>	<b>CURRENT STATUS</b>	<b>HIGHEST MEASURED WATER LEVEL BGS (m)</b>	<b>MEASURED PORE PRESSURE (kPa)</b>	<b>CURRENT WATER LEVEL BGS (m)</b>	<b>PREVIOUS WATER LEVEL BGS (m)</b>	<b>CHANGE IN WATER LEVEL SINCE PREVIOUS READING (m)</b>
PN10-16 (33086)	Feb. 27, 2010	14.6	N/A	Active	10.62 on May 22, 2015	27.6	11.82	11.80	-0.02
<i>PN10-17 (33081)</i>	<i>Feb 27, 2010</i>	<i>11.6</i>	<i>N/A</i>	<i>No return (DRY)</i>	<i>11.55 on June 10, 2012</i>	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>

Drawings 32121-PH033-1 and 32121-PH033-2 in Appendix A provides a sketch of the approximate location of the monitoring instrumentation for this site.

Notes:  
 PN - pneumatic piezometer.  
 BGS - below ground surface.



**TABLE PH033-2-1  
FALL 2022 – HWY 744:04 JUDAH HILL TRUNK SLIDE  
SLOPE INCLINOMETER INSTRUMENTATION READING SUMMARY**

Date Monitored: September 28, 2022

<b>INSTRUMENT #</b>	<b>DATE INITIALIZED</b>	<b>TOTAL CUMULATIVE RESULTANT MOVEMENT AT NOTED DEPTH SINCE INITIAL READING (mm)</b>	<b>MAXIMUM RATE OF MOVEMENT (mm/yr)</b>	<b>CURRENT STATUS</b>	<b>DATE OF PREVIOUS READING</b>	<b>INCREMENTAL MOVEMENT SINCE PREVIOUS READING (mm)</b>	<b>RATE OF MOVEMENT (mm/yr)</b>	<b>CHANGE IN RATE OF MOVEMENT SINCE PREVIOUS READING (mm/yr)</b>
SI98-1i	Oct. 26, 2000	Not Known	Not Known	Destroyed	May 18, 2004	N/A	N/A	N/A
SI98-6i	Oct. 26, 2000	25.7 mm over 0.4 m to 3.4 m depth in 316° direction	17.0 mm/yr in May 2007	Operational	June 14, 2022	No discernible movement	N/A	0.5
		16.9 mm over 6.5 m to 8.9 m depth in 316° direction	9.3 mm/yr in September 2013			0.5	1.7	1.9
		59.4 mm over 0.4 m to 9.5 m depth in 316° direction	22.6 mm/yr In May 2013			No discernible movement	N/A	23.2
SI98-7i	May 10, 2001	8.4 mm over 3.3 m to 4.5 m depth in 241° direction	8.1 mm/yr in September 2013	Operational	June 14, 2022	No discernible movement	N/A	-4.9
SI10-10	March 27, 2010	41.8 mm over 1.0 m to 8.3 m depth in 326° direction	7.1 mm/yr in June 2022	Operational	June 14, 2022	0.2	0.6	-5.4
		8.7 mm over 5.2 m to 8.3 m depth in 326° direction	5.3 mm/yr in June 2011			No discernible movement	N/A	-2.0
SI10-11	March 2010	68.2 mm over 2.0 m to 5.0 m depth in 241° direction	11.9 mm/yr in October 2020	Operational	June 14, 2022	0.9	3.0	-1.7

Drawings 32121-PH033-1 and 32121-PH033-2 in Appendix A provides a sketch of the approximate location of the monitoring instrumentation for this site.



**TABLE PH033-2-2**  
**FALL 2022 – HWY 744:04 JUDAH HILL TRUNK SLIDE**  
**PNEUMATIC PIEZOMETER INSTRUMENTATION READING SUMMARY**

Date Monitored: September 28, 2022

<b>INSTRUMENT #</b>	<b>DATE INITIALIZED</b>	<b>TIP DEPTH (m)</b>	<b>GROUND ELEV. (m)</b>	<b>CURRENT STATUS</b>	<b>HIGHEST MEASURED WATER LEVEL BGS (m)</b>	<b>MEASURED PORE PRESSURE (kPa)</b>	<b>CURRENT WATER LEVEL BGS (m)</b>	<b>PREVIOUS WATER LEVEL BGS (m)</b>	<b>CHANGE IN WATER LEVEL SINCE PREVIOUS READING (m)</b>
PN98-6 (22830)	Oct. 26, 2000	9.8	N/A	Active	9.14 on October 1, 2019	6.1	9.17	9.17	0.00
PN98-6a (22833)	Oct. 26, 2000	16.2	N/A	<i>Not Operational</i>	<i>14.86 on October 4, 2016</i>	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>
PN98-7 (22838)	May 10, 2001	7.8	N/A	<i>Not Operational</i>	<i>6.74 on October 4, 2002</i>	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>
PN98-7a (22831)	May 10, 2001	16.2	N/A	<i>Damaged</i>	<i>9.77 on May 22, 2015</i>	<i>52.8</i>	<i>10.82</i>	<i>10.82</i>	<i>N/A</i>
PN10-10 (33088)	March 13, 2010	18.0	N/A	Active	17.67 on September 23, 2010	2.1	17.77	17.76	-0.01
PN10-11 (33077)	March 26, 2010	18.3	N/A	Active	18.03 on September 23, 2010	1.3	18.16	18.16	0.00

Drawings 32121-PH033-1 and 32121-PH033-2 in Appendix A provides a sketch of the approximate location of the monitoring instrumentation for this site.

Notes:

PN - pneumatic piezometer.  
 BGS - below ground surface.



### **3. INTERPRETATION OF MONITORING RESULTS**

#### Judah Hill CNR Slide (PH033-1)

SI10-16 showed no discernible movement over 11.7 m to 13.5 m depth since the spring of 2022 readings. SI10-17 showed a rate of movement of 0.4 mm/yr over 9.5 m to 11.3 m depth since the spring of 2022 readings.

Pneumatic piezometer PN10-16 showed a decrease in groundwater level of 0.02 m since the spring of 2022 readings. The pneumatic piezometer readings are summarized in Table PH033-1-2, and are plotted in Figure PH033-1 (by depth) in Appendix A.

#### Judah Hill Trunk Slide (PH033-2)

SI98-6i showed no discernible movement over 0.4 m to 3.4 m depth, a rate of movement of 1.7 mm/yr over 6.5 m to 8.9 m depth and no discernible movement over 0.4 m to 9.5 m depth since the spring of 2022 readings. SI98-7i showed no discernible movement over 3.3 m to 4.5 m depth since the spring of 2022 readings.

SI10-10 showed a rate of movement of 0.6 mm/yr over 1.0 m to 8.3 m depth and no discernible movement over 5.2 m to 8.3 m depth since the spring of 2022 readings. SI10-11 showed a rate of movement of 3.0 mm/yr over 2.0 m to 5.0 m depth since the spring of 2022 readings.

Pneumatic piezometer PN98-6 and PN10-11 showed no change in groundwater levels since the spring of 2022 readings. PN10-10 showed a decrease in groundwater level of 0.01 m since the spring of 2022 readings. The piezometer readings are summarized in Table PH033-2-2, and are plotted in Figure PH033-2 (by depth) in Appendix A.

### **4. RECOMMENDATIONS**

#### **4.1 Future Work**

The instruments should be read again in the spring of 2023.

#### **4.2 Instrumentation Repairs**

Pneumatic piezometer PN98-7a should be repaired to enable future groundwater readings. The current tip has been chewed off by an animal. To allow a repair, the pneumatic tubes will need to be excavated to an approximate depth of 1 ft to splice on a new pneumatic piezometer tip. It is also recommended to install a stickup protector over PN98-7a to reduce the potential for future damage to the instrument.



## 5. CLOSURE

We trust this report meets your requirements at present. If you have any questions, please contact the undersigned at your convenience.

Yours very truly,  
Thurber Engineering Ltd.  
Don Proudfoot, M.Eng., P. Eng.  
Principal | Senior Geotechnical Engineer

Bruce Nestor, P.Eng.  
Geotechnical Engineer  
/jf

### Attachments:

- Statement of Limitations and Conditions
- Appendix A
  - Field Inspector's report
  - Site Plan Showing Approximate Instrument Locations (Drawings No. 32121-PH033-1 and 32121-PH033-2)
  - SI Reading Plots
  - Figure PH033-1 (Judah Hill CNR Slide Pneumatic Piezometer Readings)
  - Figure PH033-2 (Judah Hill Trunk Slide Pneumatic Piezometer Readings)





## STATEMENT OF LIMITATIONS AND CONDITIONS

### 1. STANDARD OF CARE

This Report has been prepared in accordance with generally accepted engineering or environmental consulting practices in the applicable jurisdiction. No other warranty, expressed or implied, is intended or made.

### 2. COMPLETE REPORT

All documents, records, data and files, whether electronic or otherwise, generated as part of this assignment are a part of the Report, which is of a summary nature and is not intended to stand alone without reference to the instructions given to Thurber by the Client, communications between Thurber and the Client, and any other reports, proposals or documents prepared by Thurber for the Client relative to the specific site described herein, all of which together constitute the Report.

IN ORDER TO PROPERLY UNDERSTAND THE SUGGESTIONS, RECOMMENDATIONS AND OPINIONS EXPRESSED HEREIN, REFERENCE MUST BE MADE TO THE WHOLE OF THE REPORT. THURBER IS NOT RESPONSIBLE FOR USE BY ANY PARTY OF PORTIONS OF THE REPORT WITHOUT REFERENCE TO THE WHOLE REPORT.

### 3. BASIS OF REPORT

The Report has been prepared for the specific site, development, design objectives and purposes that were described to Thurber by the Client. The applicability and reliability of any of the findings, recommendations, suggestions, or opinions expressed in the Report, subject to the limitations provided herein, are only valid to the extent that the Report expressly addresses proposed development, design objectives and purposes, and then only to the extent that there has been no material alteration to or variation from any of the said descriptions provided to Thurber, unless Thurber is specifically requested by the Client to review and revise the Report in light of such alteration or variation.

### 4. USE OF THE REPORT

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### 5. INTERPRETATION OF THE REPORT

- a) Nature and Exactness of Soil and Contaminant Description: Classification and identification of soils, rocks, geological units, contaminant materials and quantities have been based on investigations performed in accordance with the standards set out in Paragraph 1. Classification and identification of these factors are judgmental in nature. Comprehensive sampling and testing programs implemented with the appropriate equipment by experienced personnel may fail to locate some conditions. All investigations utilizing the standards of Paragraph 1 will involve an inherent risk that some conditions will not be detected and all documents or records summarizing such investigations will be based on assumptions of what exists between the actual points sampled. Actual conditions may vary significantly between the points investigated and the Client and all other persons making use of such documents or records with our express written consent should be aware of this risk and the Report is delivered subject to the express condition that such risk is accepted by the Client and such other persons. Some conditions are subject to change over time and those making use of the Report should be aware of this possibility and understand that the Report only presents the conditions at the sampled points at the time of sampling. If special concerns exist, or the Client has special considerations or requirements, the Client should disclose them so that additional or special investigations may be undertaken which would not otherwise be within the scope of investigations made for the purposes of the Report.
- b) Reliance on Provided Information: The evaluation and conclusions contained in the Report have been prepared on the basis of conditions in evidence at the time of site inspections and on the basis of information provided to Thurber. Thurber has relied in good faith upon representations, information and instructions provided by the Client and others concerning the site. Accordingly, Thurber does not accept responsibility for any deficiency, misstatement or inaccuracy contained in the Report as a result of misstatements, omissions, misrepresentations, or fraudulent acts of the Client or other persons providing information relied on by Thurber. Thurber is entitled to rely on such representations, information and instructions and is not required to carry out investigations to determine the truth or accuracy of such representations, information and instructions.
- c) Design Services: The Report may form part of design and construction documents for information purposes even though it may have been issued prior to final design being completed. Thurber should be retained to review final design, project plans and related documents prior to construction to confirm that they are consistent with the intent of the Report. Any differences that may exist between the Report's recommendations and the final design detailed in the contract documents should be reported to Thurber immediately so that Thurber can address potential conflicts.
- d) Construction Services: During construction Thurber should be retained to provide field reviews. Field reviews consist of performing sufficient and timely observations of encountered conditions in order to confirm and document that the site conditions do not materially differ from those interpreted conditions considered in the preparation of the report. Adequate field reviews are necessary for Thurber to provide letters of assurance, in accordance with the requirements of many regulatory authorities.

### 6. RELEASE OF POLLUTANTS OR HAZARDOUS SUBSTANCES

Geotechnical engineering and environmental consulting projects often have the potential to encounter pollutants or hazardous substances and the potential to cause the escape, release or dispersal of those substances. Thurber shall have no liability to the Client under any circumstances, for the escape, release or dispersal of pollutants or hazardous substances, unless such pollutants or hazardous substances have been specifically and accurately identified to Thurber by the Client prior to the commencement of Thurber's professional services.

### 7. INDEPENDENT JUDGEMENTS OF CLIENT

The information, interpretations and conclusions in the Report are based on Thurber's interpretation of conditions revealed through limited investigation conducted within a defined scope of services. Thurber does not accept responsibility for independent conclusions, interpretations, interpolations and/or decisions of the Client, or others who may come into possession of the Report, or any part thereof, which may be based on information contained in the Report. This restriction of liability includes but is not limited to decisions made to develop, purchase or sell land.



**ALBERTA TRANSPORTATION GRMP (CON0022164)  
PEACE REGION (PEACE RIVER DISTRICT)  
INSTRUMENTATION MONITORING RESULTS**

**FALL 2022**

**APPENDIX A  
DATA PRESENTATION**

**SITE PH033-1: HWY 744:04, JUDAH HILL (CNR SLIDE)  
SITE PH033-2: HWY 744:04, JUDAH HILL (TRUNK SLIDE)**

**ALBERTA TRANSPORTATION  
PEACE REGION (PEACE RIVER DISTRICT)  
INSTRUMENTATION MONITORING FIELD SUMMARY (PH033)  
FALL 2022**

<b>Location:</b> Trunk and CNR Slide - Judah Hill (HWY 744:04 C1 59.451) <b>File Number:</b> 32121 <b>Probe:</b> RST SI SET 5R and 8R <b>Cable:</b> RST SI SET 5R and 8R	<b>Readout:</b> <b>Casing:</b> 2.75 <b>Temp:</b> 26 <b>Read by:</b> NKR/KTC
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**SLOPE INCLINOMETER (SI) READINGS**

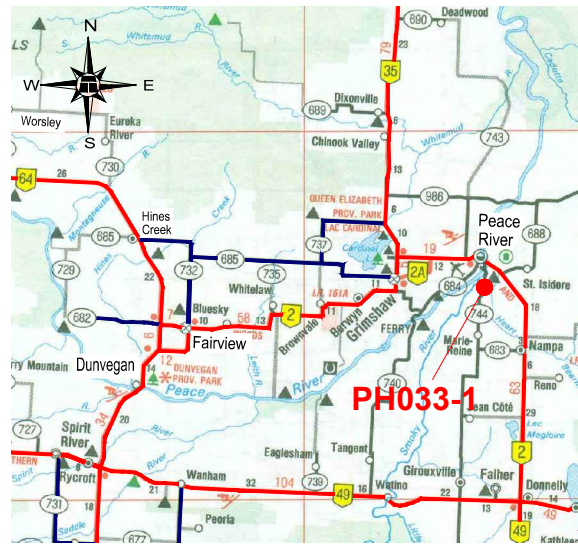
SI#	GPS Location (UTM 11)		Date	Stickup (m)	Depth from top of casing (ft)	Magn. North A+ Groove	Current Bottom Depth Readings				Probe/ Reel #	Remarks
	Easting (m)	Northing (m)					A+	A-	B+	B-		
SI98-6i	482825.09	6230757.65	28-Sep-22	0.85	84 to 2	245	296	-289	-24	44	8R/8R	*See notes
SI98-7i	482795.09	6230746.64	28-Sep-22	0.40	66 to 2	225	488	-485	82	-72	8R/8R	*See notes
SI10-10	482874.96	6230715.49	28-Sep-22	1.17	106 to 4	300	290	-276	735	-772	5R/5R	
SI10-11	482851.63	6230772.35	28-Sep-22	0.75	102 to 4	255	-370	374	1043	-1060	5R/5R	
SI10-16	482662.27	6231329.62	28-Sep-22	0.84	64 to 4	11	98	-86	304	-324	5R/5R	
SI10-17	482673.49	6231342.93	28-Sep-22	1.17	60 to 4	5	1056	-1052	683	-681	5R/5R	

**PNEUMATIC PIEZOMETER READINGS**

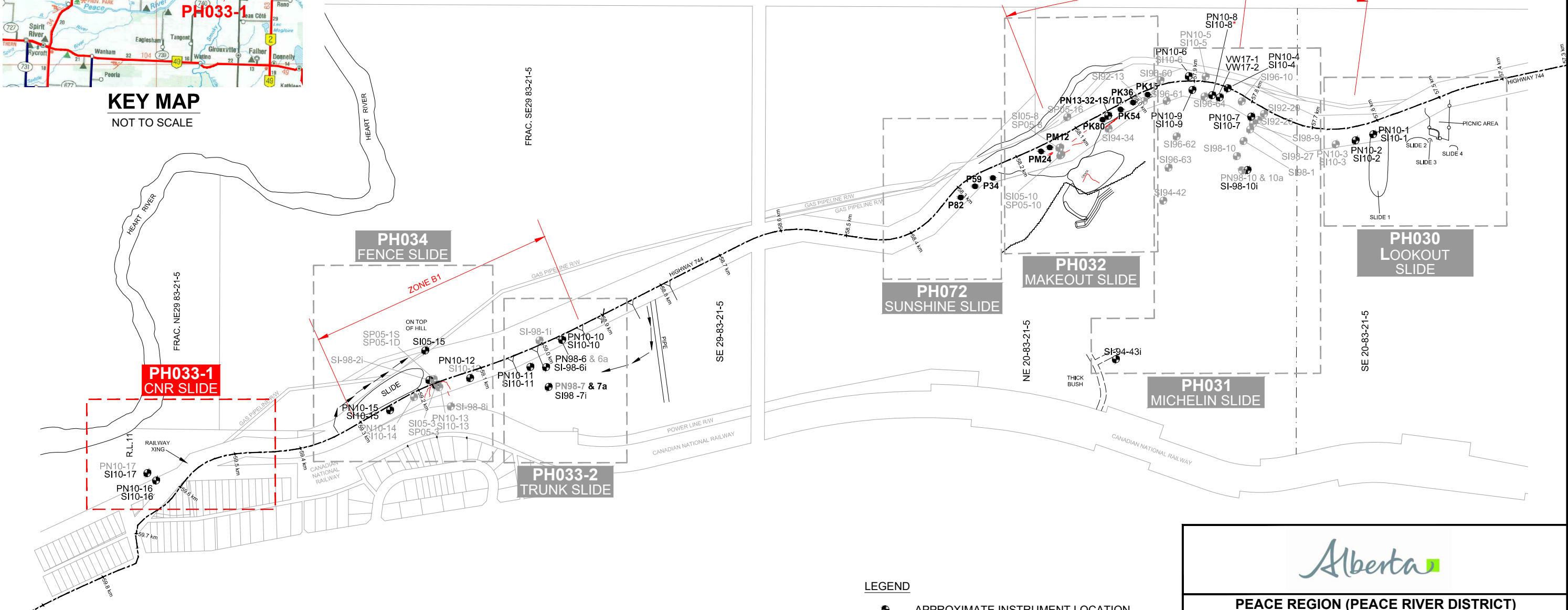
PN#	GPS Location (UTM 11)		Date	Reading (kPa)	Identification Number
	Easting (m)	Northing (m)			
PN98-6	482825.09	6230757.65	28-Sep-22	6.1	22830
PN98-7a	482795.09	6230746.64	28-Sep-22	52.8**	22831
PN10-10	482874.96	6230715.49	28-Sep-22	2.1	33088
PN10-11	482851.63	6230772.35	28-Sep-22	1.3	33077
PN10-16	482662.27	6231329.62	28-Sep-22	27.6	33086

**INSPECTOR REPORT**


* For SI98-6i & SI98-7i multiply readings by 2 to get the plot in Gtilt.
** PN top chewed by animal. Fix needed, have to dig down 1.0ft, splice and install PN top. No stickup protector on SI, see photograph



**KEY MAP**  
NOT TO SCALE



- LEGEND**
- APPROXIMATE INSTRUMENT LOCATION
  - INSTRUMENT NOT IN USE
  - PN PNEUMATIC PIEZOMETER
  - SP STANDPIPE PIEZOMETER
  - SI SLOPE INCLINOMETER
  - VW VIBRATING WIRE PIEZOMETER
  - APPROXIMATE PILE LOCATION




**PEACE REGION (PEACE RIVER DISTRICT)**

**PH033-1: HWY 744:02 - JUDAH HILL (CNR SLIDE)**

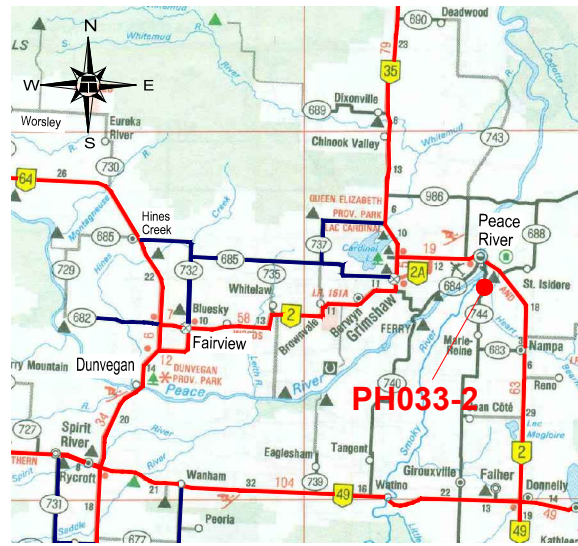
**INSTRUMENT LOCATIONS**

**DWG No. 32121-PH033-1**

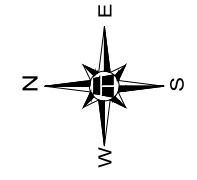
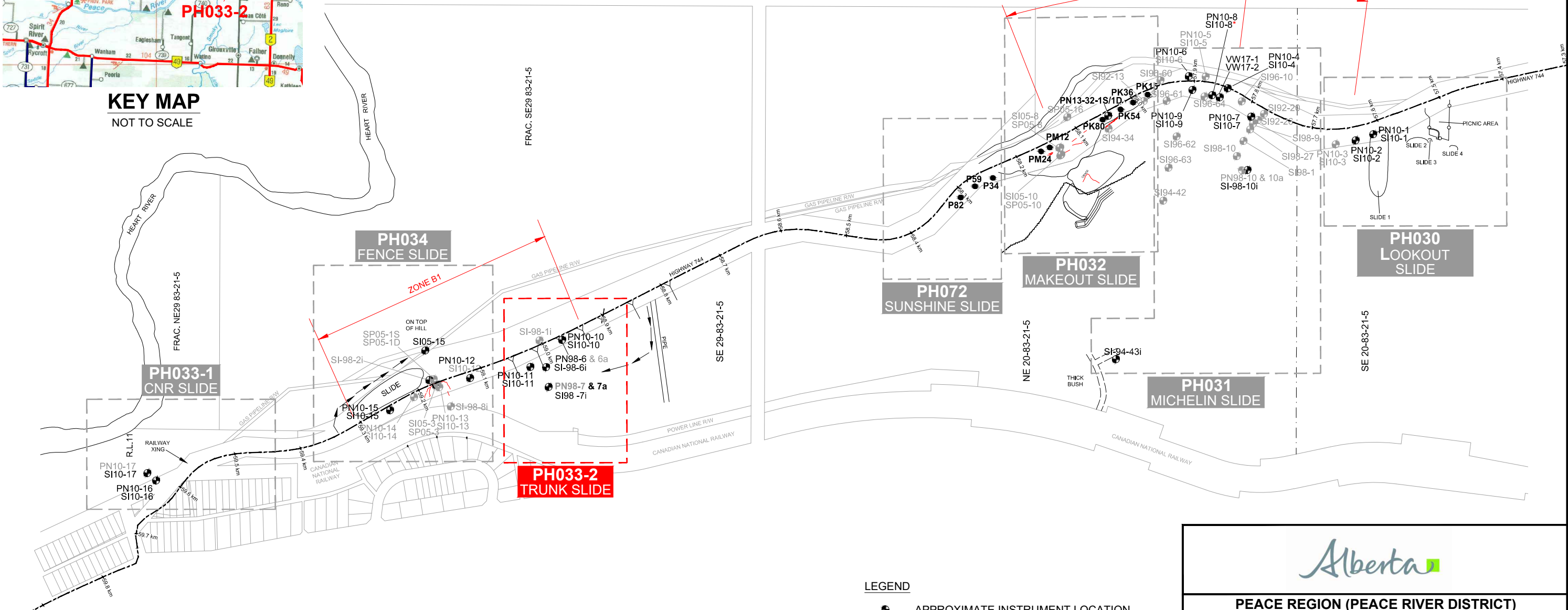
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DESIGNED BY	BWN
APPROVED BY	DWP
SCALE	APPROX. 1:6000
DATE	SEPTEMBER 2021
FILE No.	32121




**THURBER ENGINEERING LTD.**



**KEY MAP**  
NOT TO SCALE



- LEGEND**
- APPROXIMATE INSTRUMENT LOCATION
  - INSTRUMENT NOT IN USE
  - PN PNEUMATIC PIEZOMETER
  - SP STANDPIPE PIEZOMETER
  - SI SLOPE INCLINOMETER
  - VW VIBRATING WIRE PIEZOMETER
  - APPROXIMATE PILE LOCATION




**PEACE REGION (PEACE RIVER DISTRICT)**

**PH033-2: HWY 744:02 - JUDAH HILL  
(TRUNK SLIDE)  
INSTRUMENT LOCATIONS**

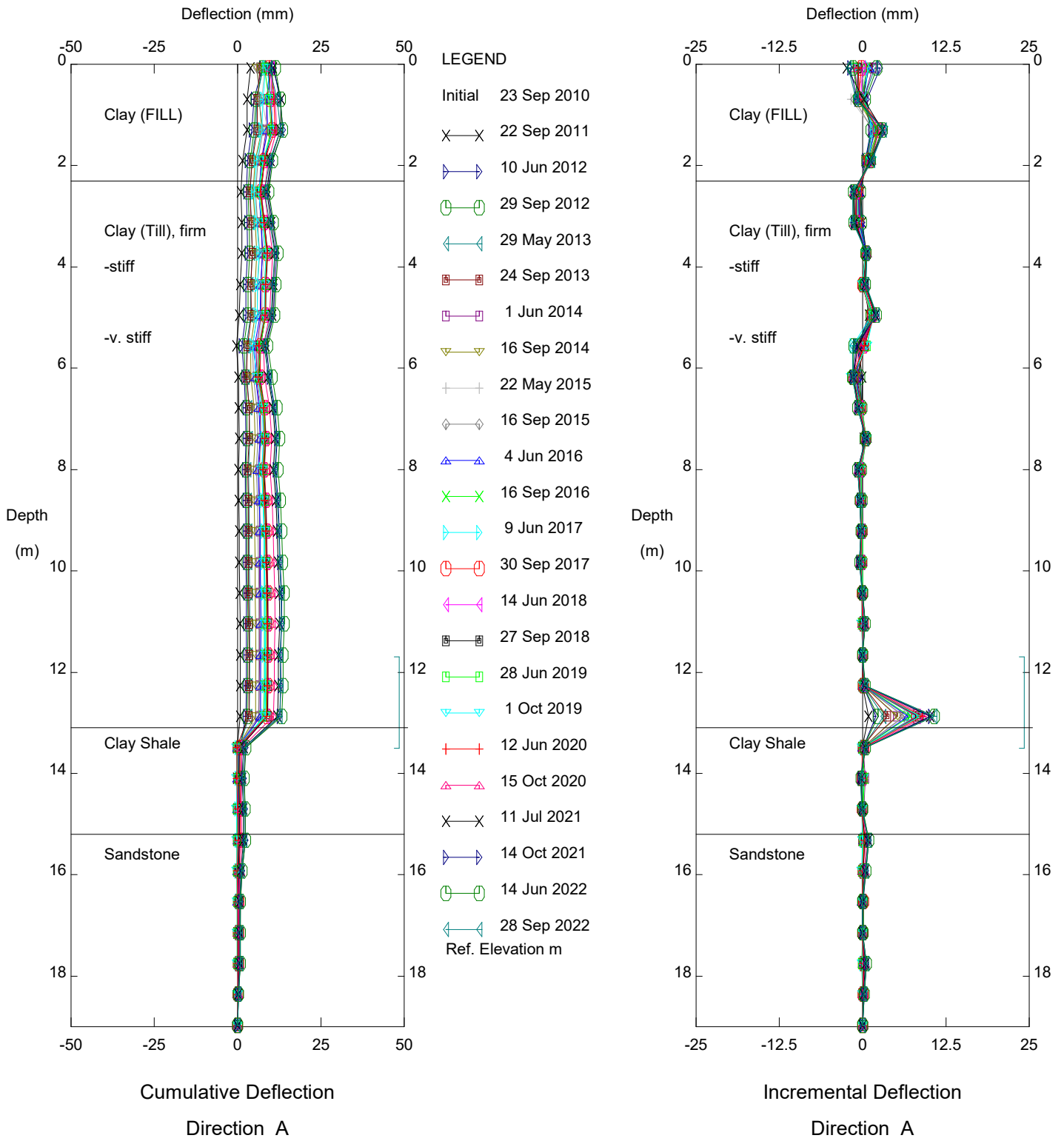
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**THURBER ENGINEERING LTD.**

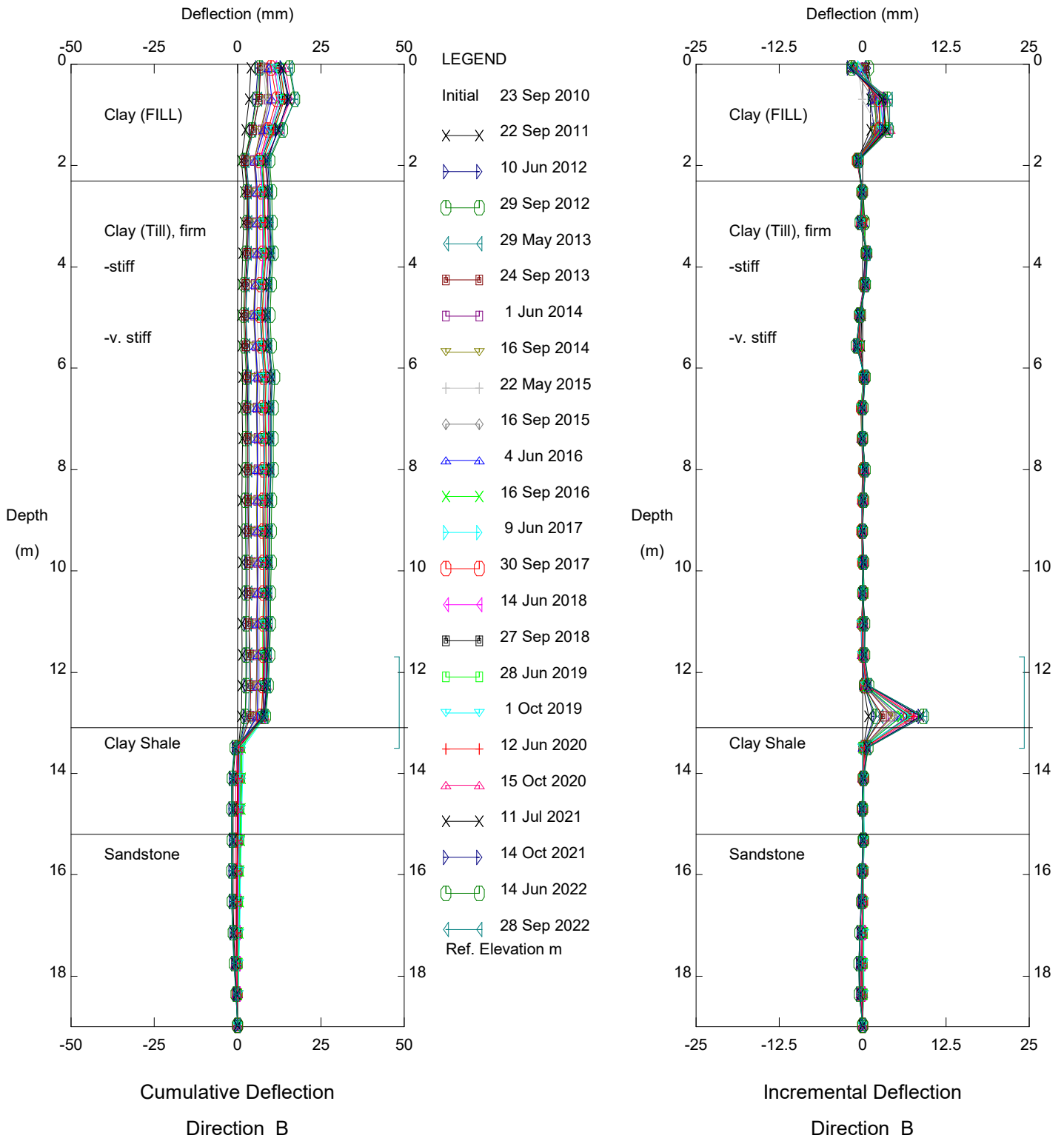
Thurber Engineering Ltd.



PH033-1 Judah Hill CNR Slide, Inclinometer SI10-16

Alberta Transportation

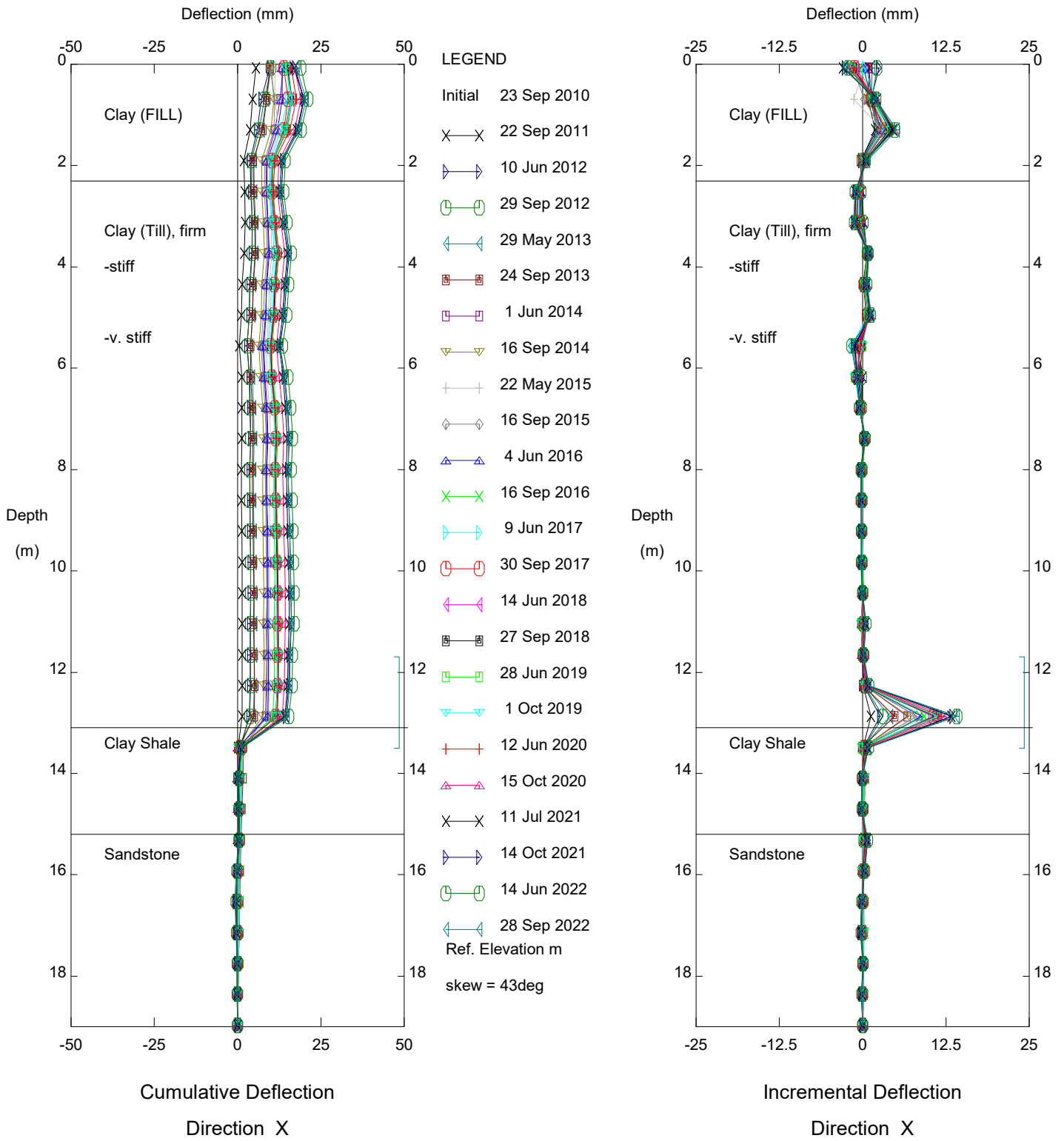
Thurber Engineering Ltd.



PH033-1 Judah Hill CNR Slide, Inclinometer SI10-16

Alberta Transportation

Thurber Engineering Ltd.

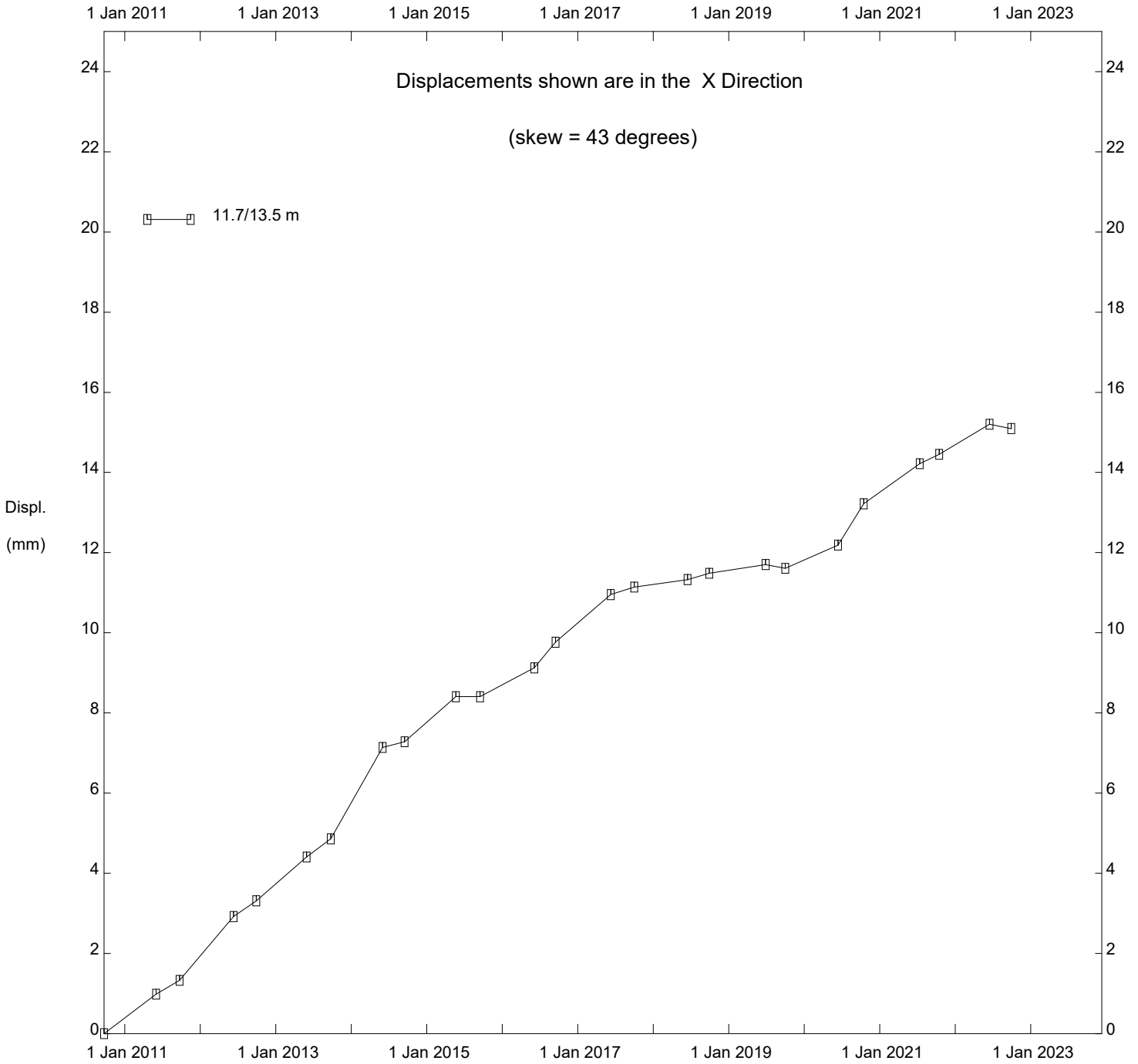


PH033-1 Judah Hill CNR Slide, Inclinometer SI10-16

Alberta Transportation



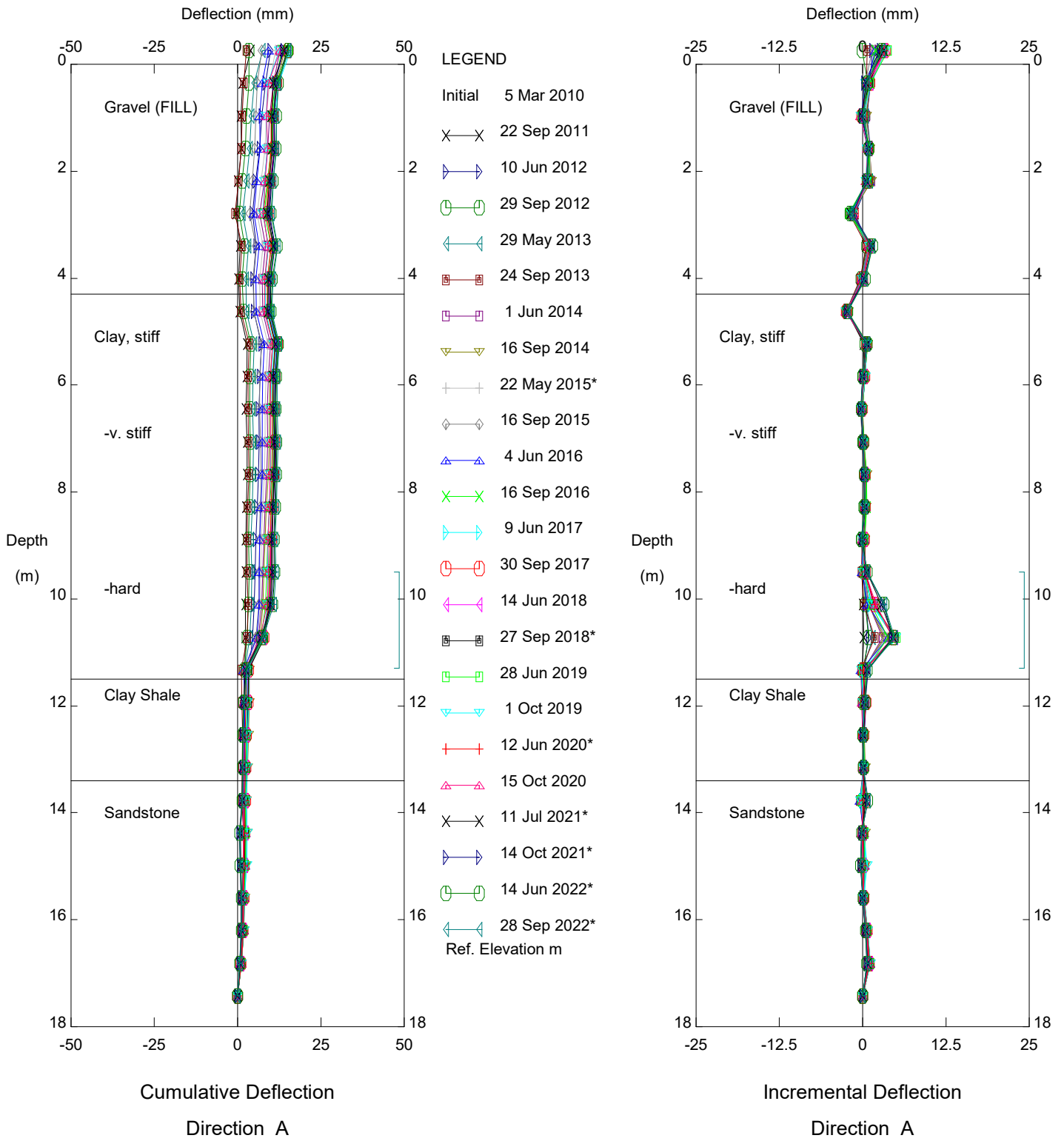
Thurber Engineering Ltd.



PH033-1 Judah Hill CNR Slide, Inclinator SI10-16

Alberta Transportation

Thurber Engineering Ltd.

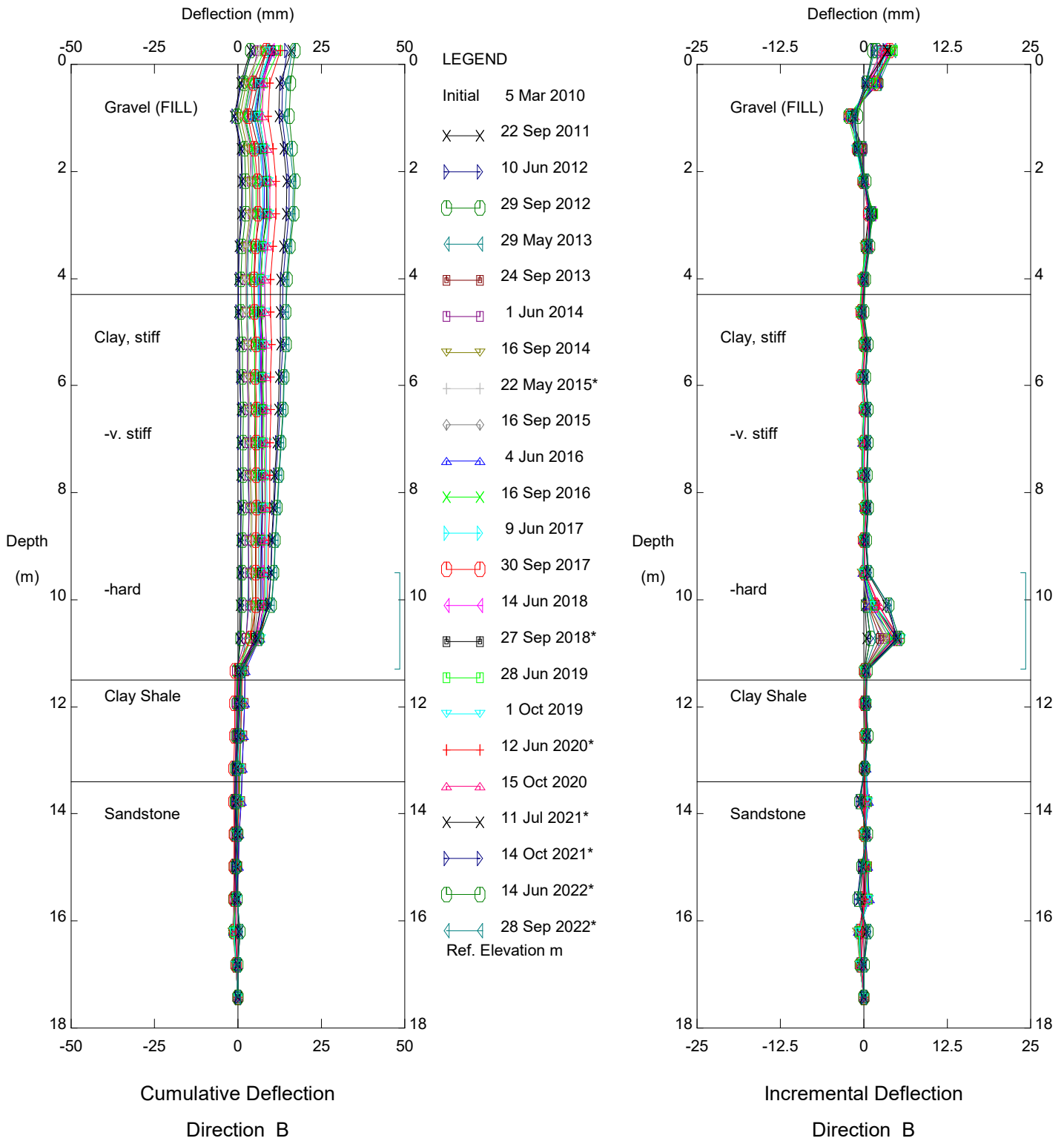


PH033-1 Judah Hill CNR Slide, Inclinometer SI10-17

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Sets marked \* include zero shift and/or rotation corrections.

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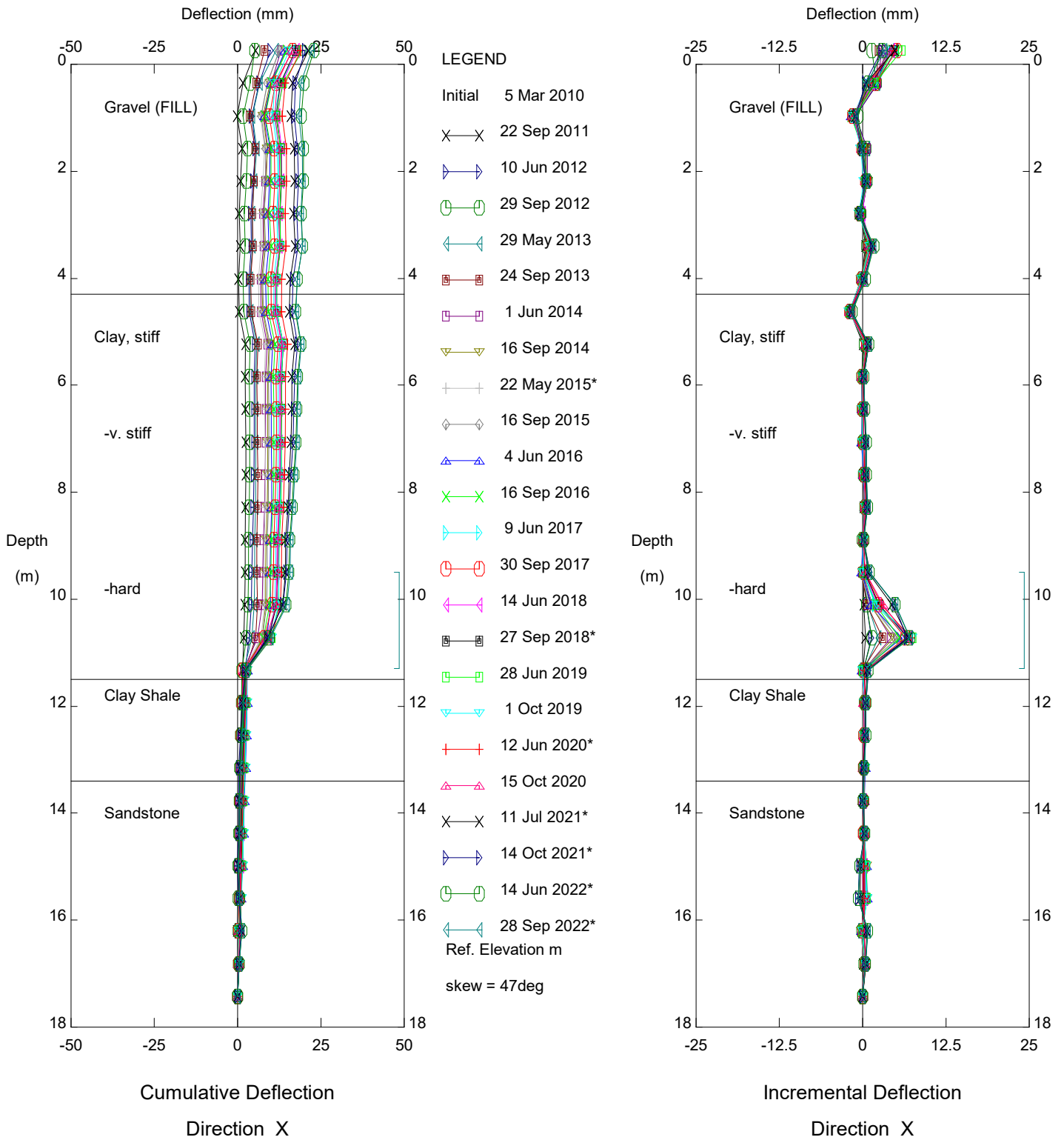


PH033-1 Judah Hill CNR Slide, Inclinometer SI10-17

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Sets marked \* include zero shift and/or rotation corrections.

Thurber Engineering Ltd.

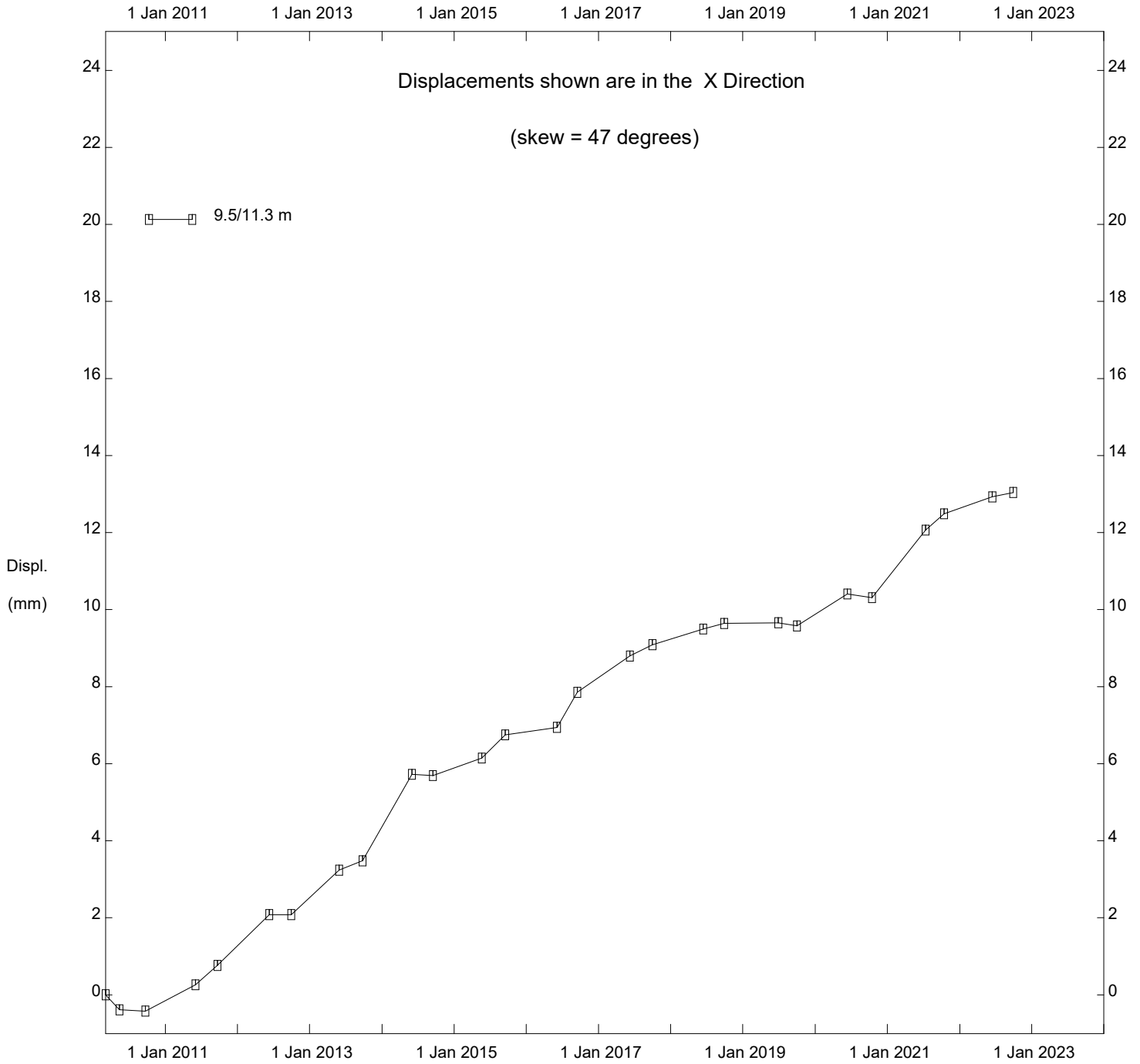


PH033-1 Judah Hill CNR Slide, Inclinometer SI10-17

Alberta Transportation

Sets marked \* include zero shift and/or rotation corrections.

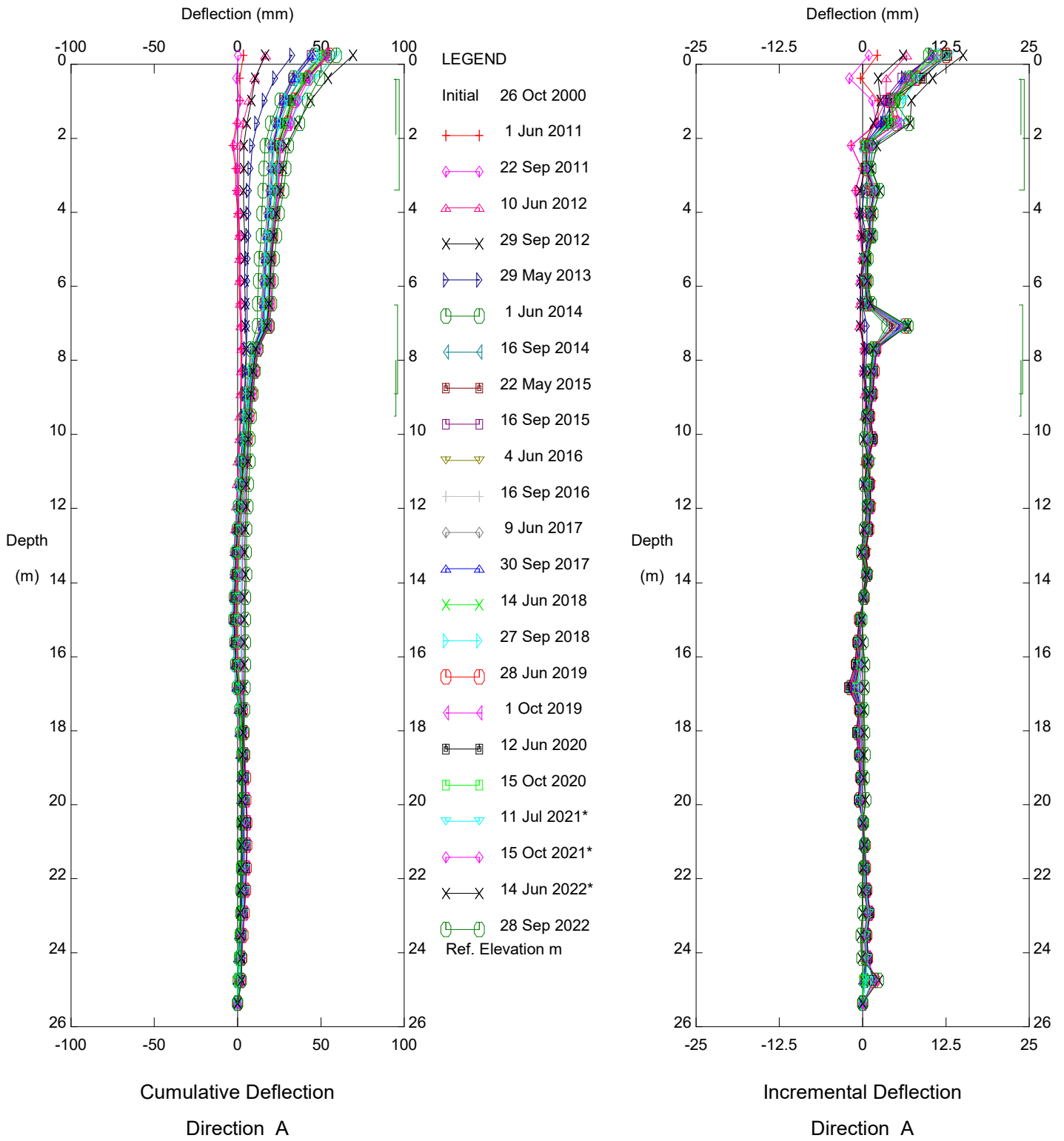
Thurber Engineering Ltd.



PH033-1 Judah Hill CNR Slide, Inclinator SI10-17

Alberta Transportation

Thurber Engineering Ltd.

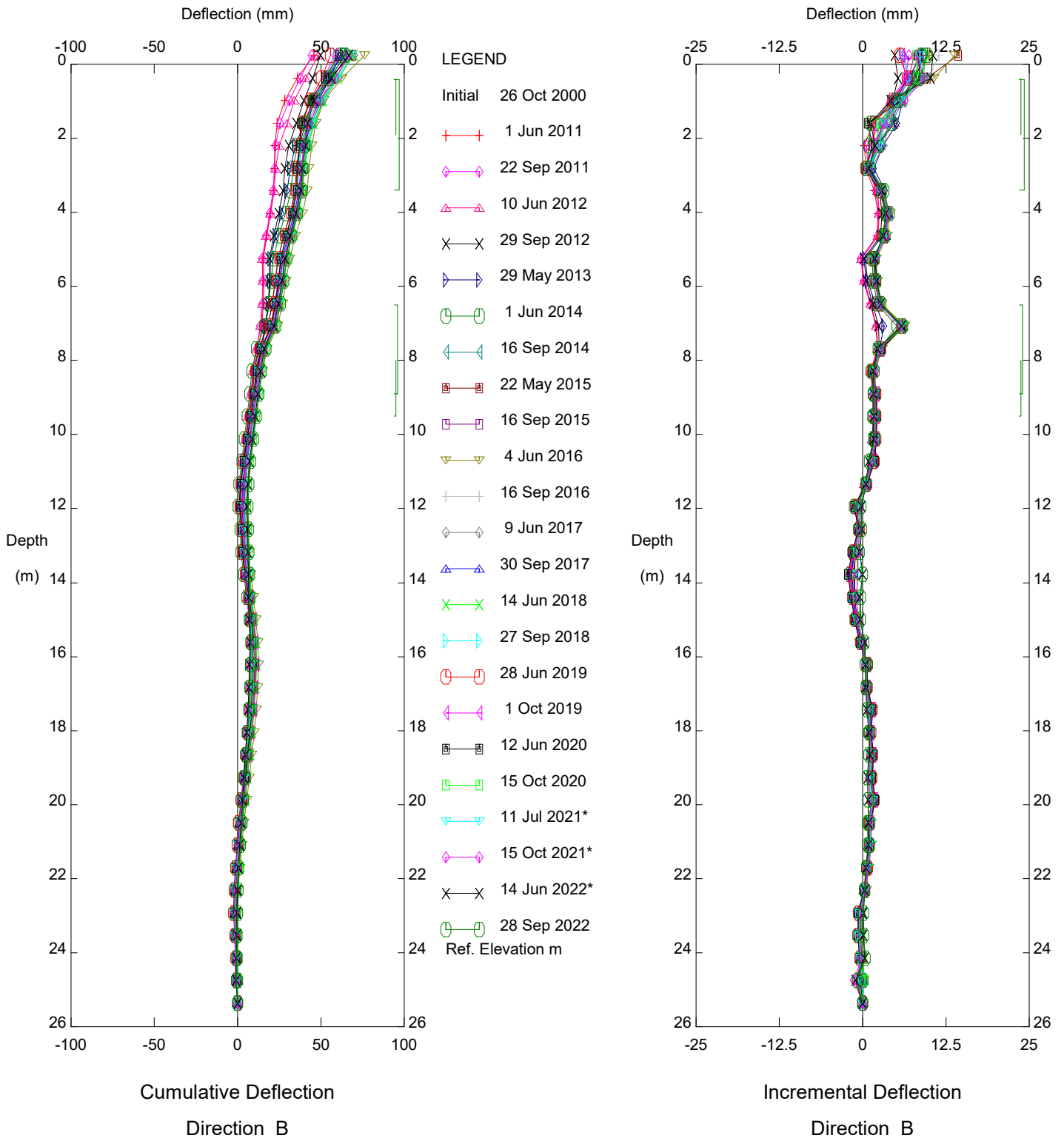


PH033-2 Judah Hill Trunk Slide, Inclinometer SI98-6i

Alberta Transportation

Sets marked \* include zero shift and/or rotation corrections.

Thurber Engineering Ltd.

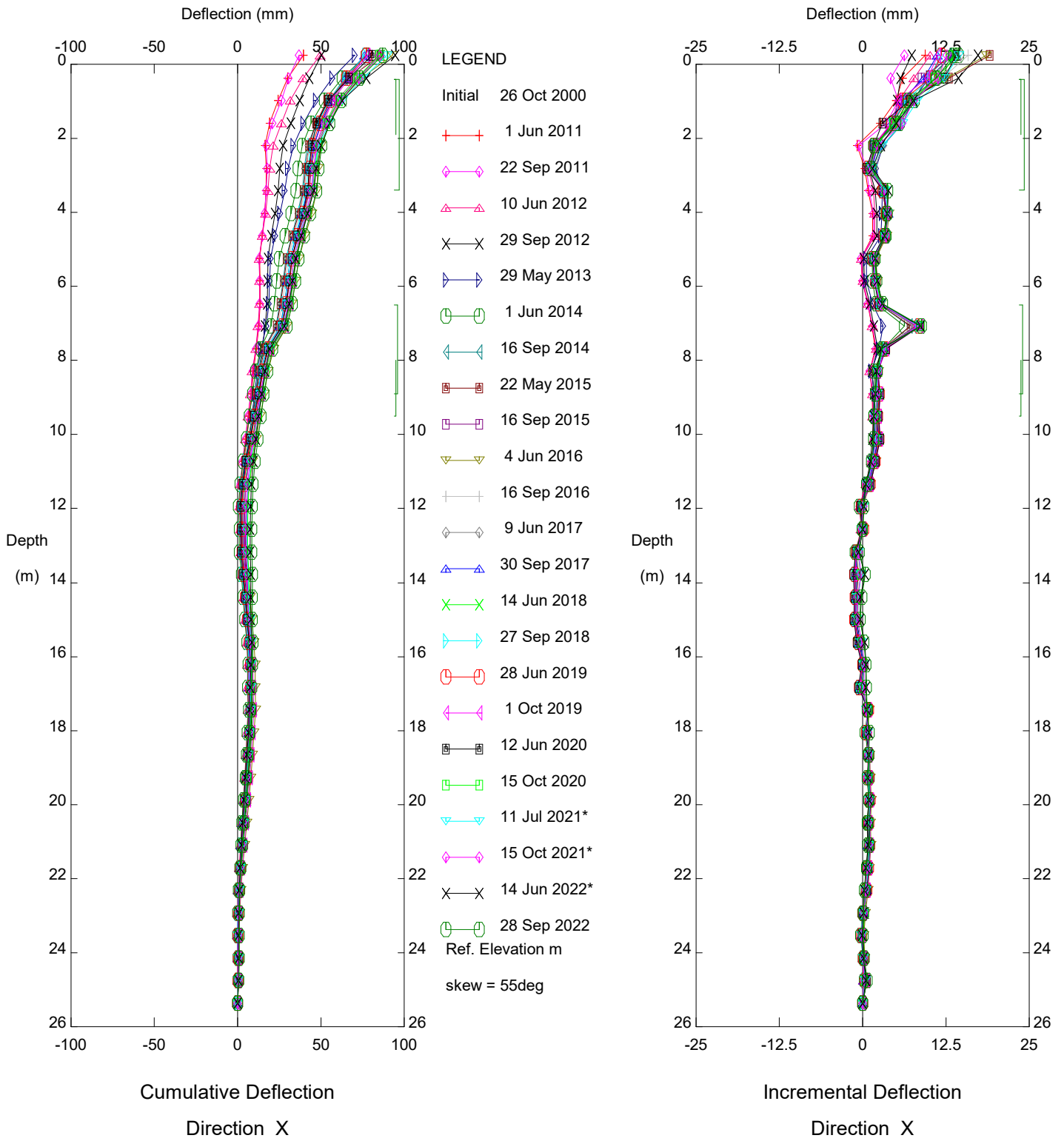


PH033-2 Judah Hill Trunk Slide, Inclinometer SI98-6i

Alberta Transportation

Sets marked \* include zero shift and/or rotation corrections.

Thurber Engineering Ltd.



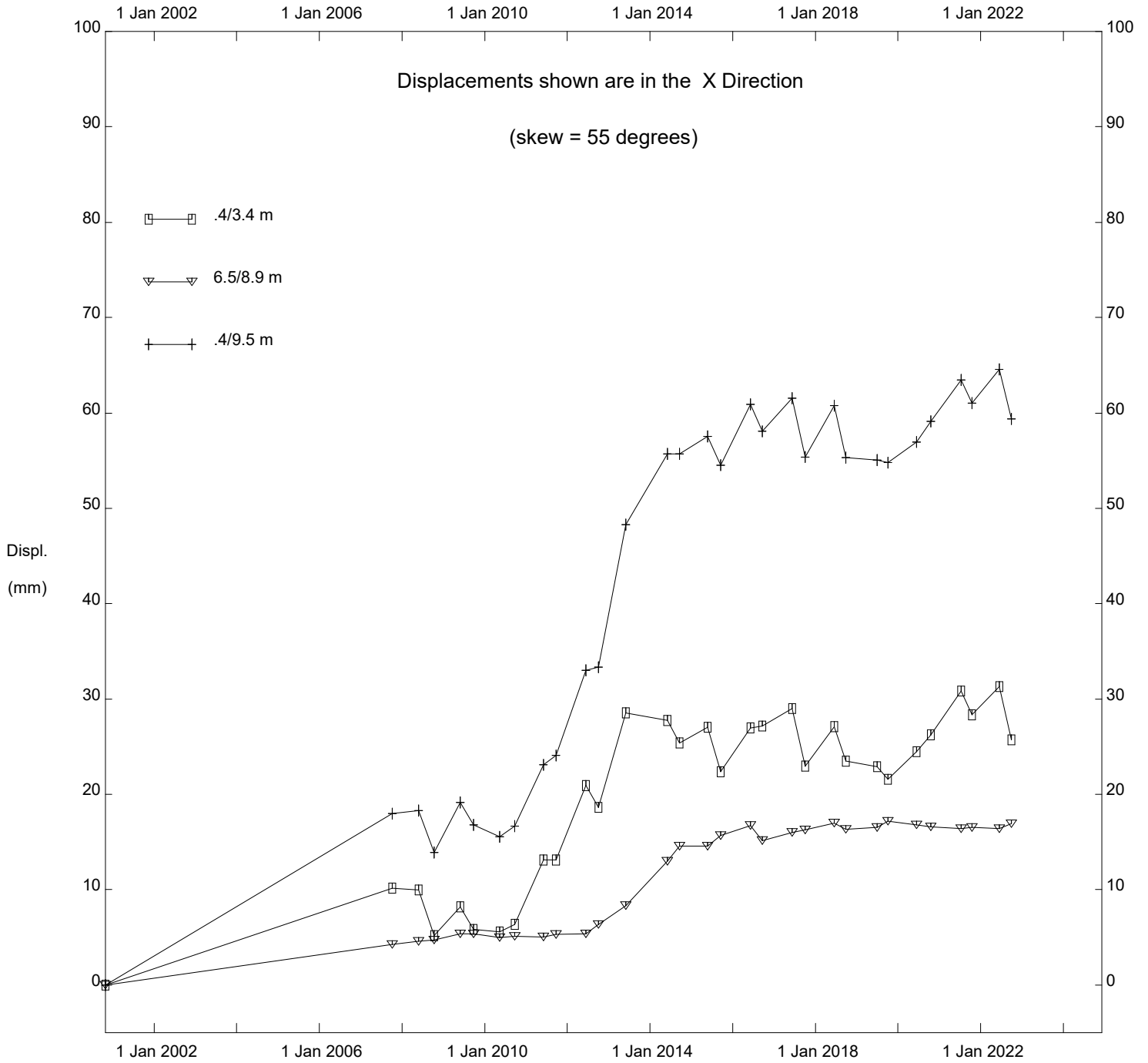
PH033-2 Judah Hill Trunk Slide, Inclinometer SI98-6i

Alberta Transportation

Sets marked \* include zero shift and/or rotation corrections.



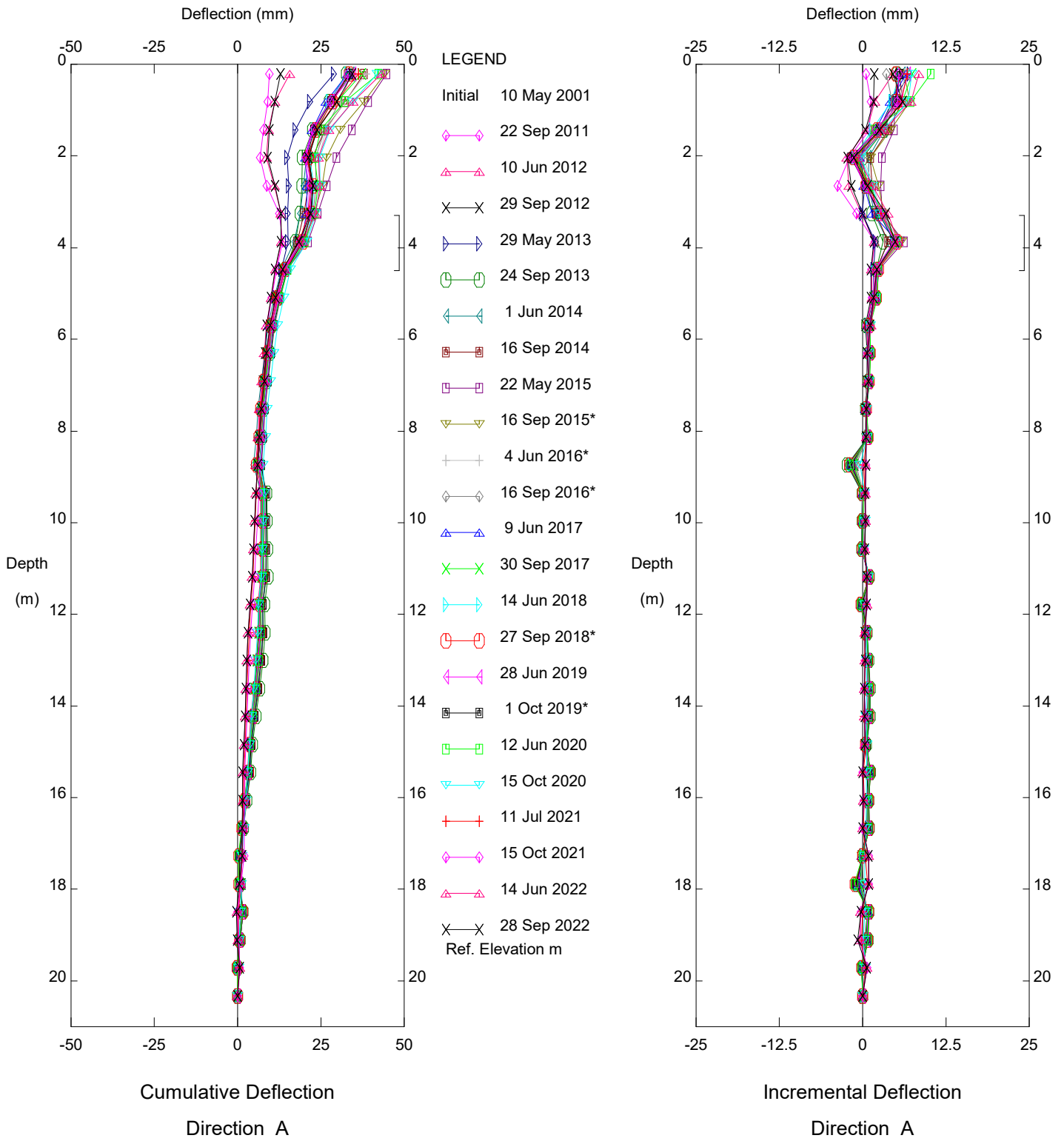
Thurber Engineering Ltd.



PH033-2 Judah Hill Trunk Slide, Inclinator SI98-6i

Alberta Transportation

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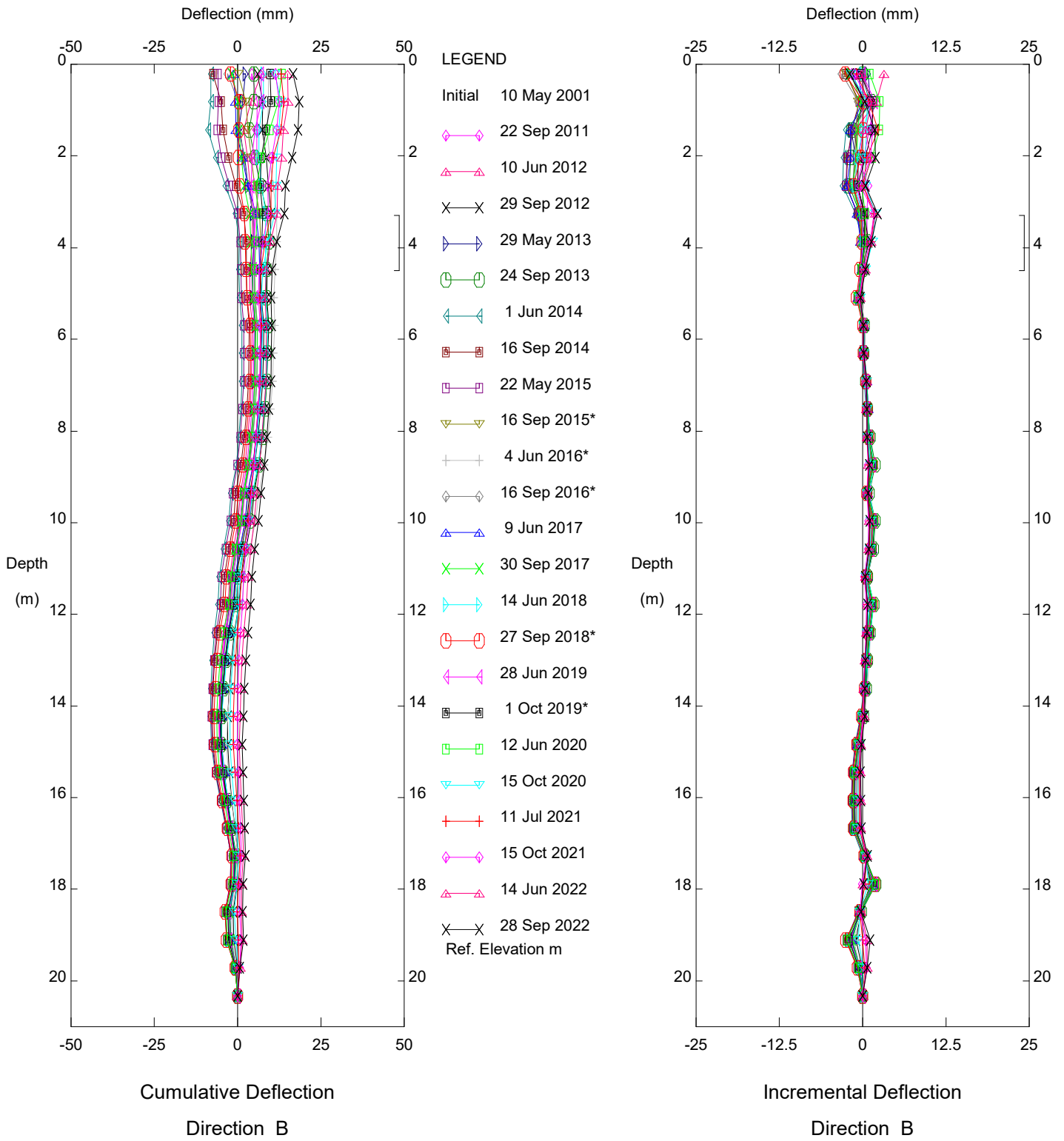


PH033-2 Judah Hill Trunk Slide, Inclinometer SI98-7i

Alberta Transportation

Sets marked \* include zero shift and/or rotation corrections.

Thurber Engineering Ltd.

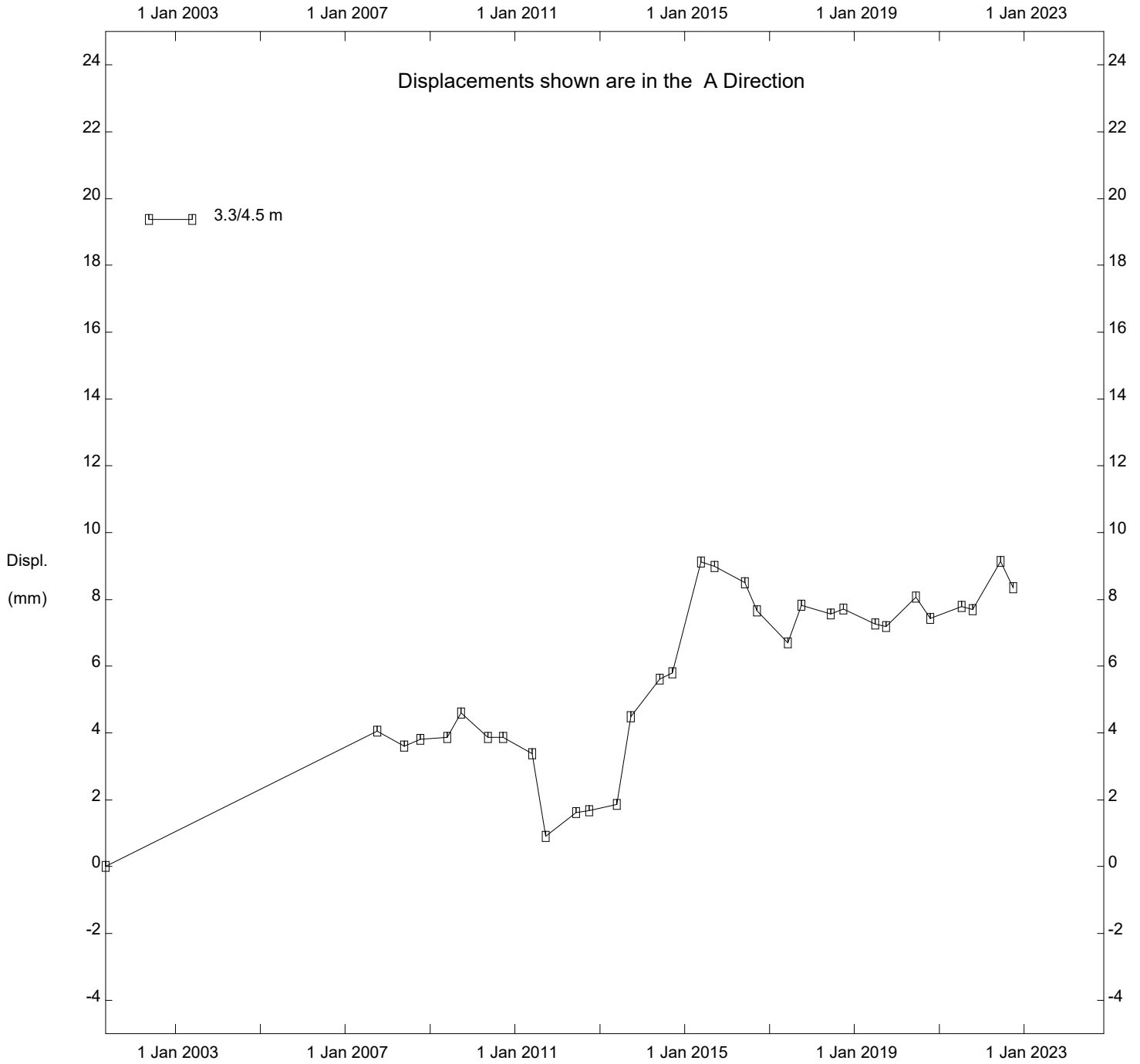


PH033-2 Judah Hill Trunk Slide, Inclinometer SI98-7i

Alberta Transportation

Sets marked \* include zero shift and/or rotation corrections.

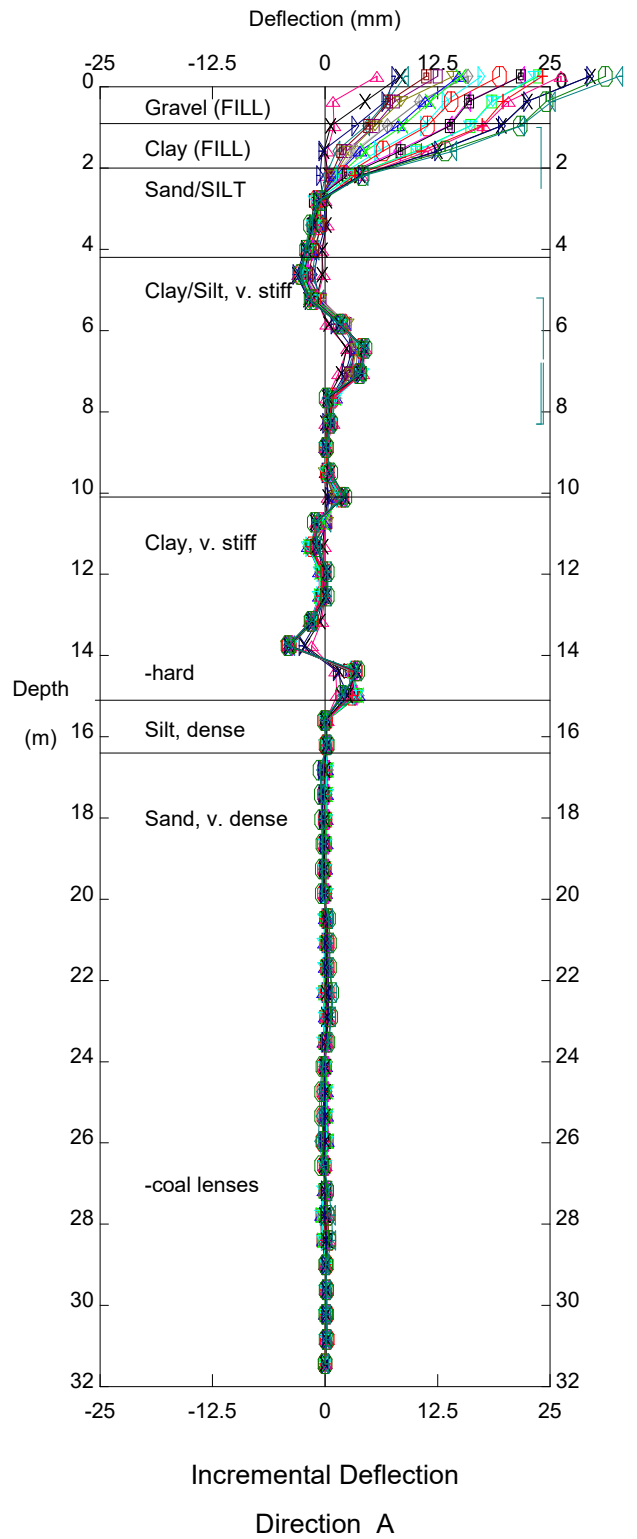
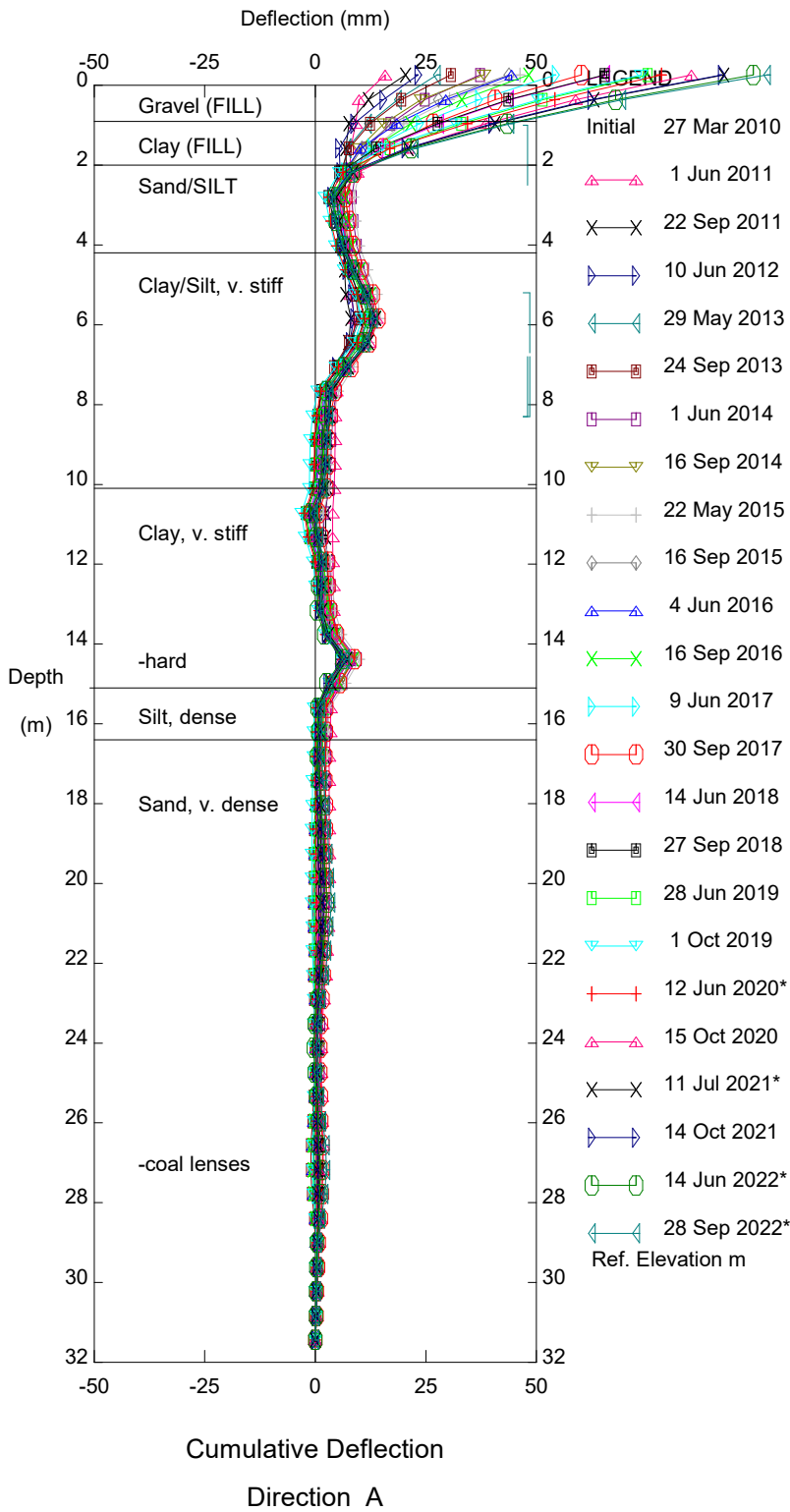
Thurber Engineering Ltd.



PH033-2 Judah Hill Trunk Slide, Inclinator SI98-7i

Alberta Transportation

Thurber Engineering Ltd.

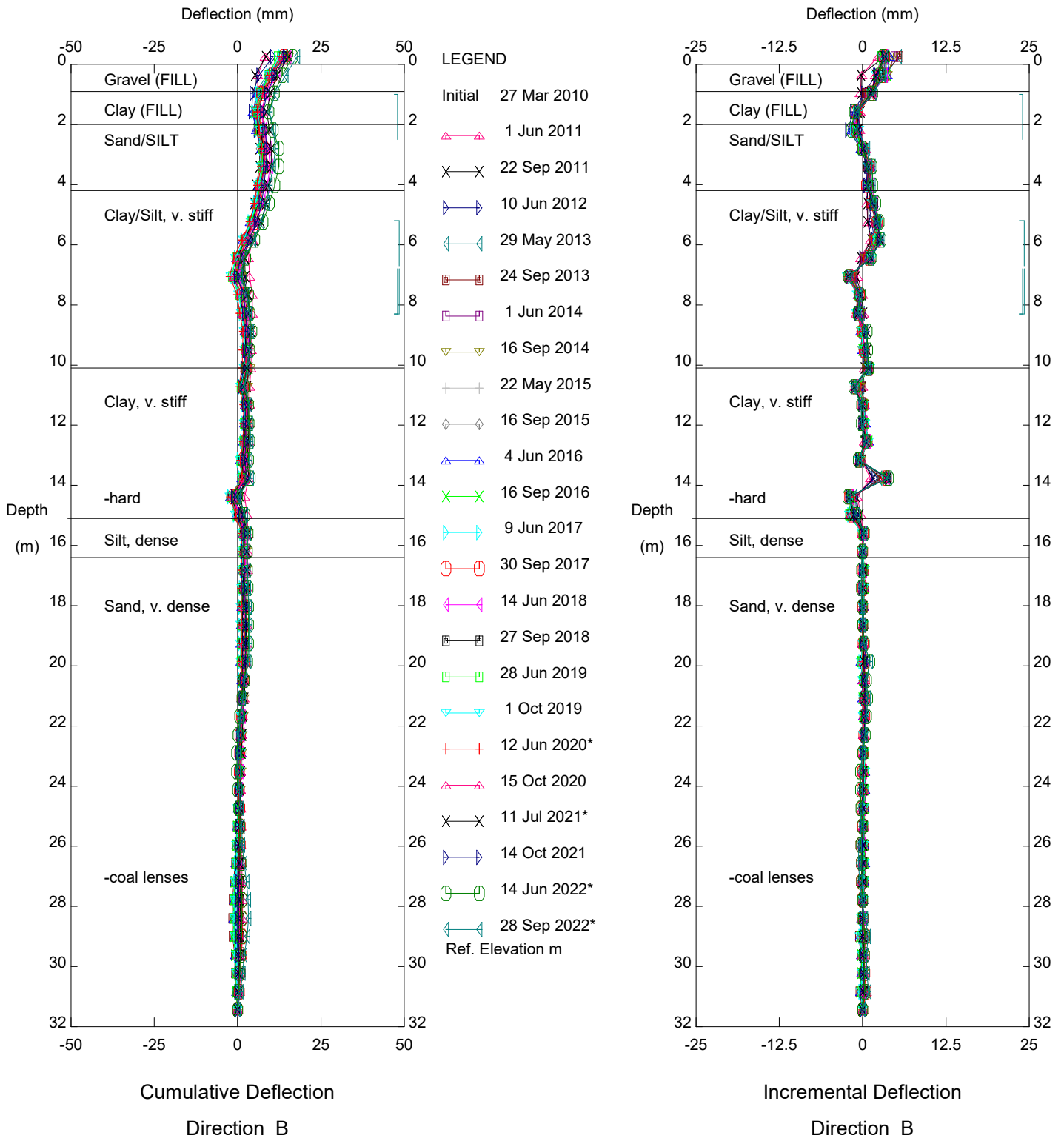


PH033-2 Judah Hill Trunk Slide, Inclinator SI10-10

Alberta Transportation

Sets marked \* include zero shift and/or rotation corrections.

Thurber Engineering Ltd.

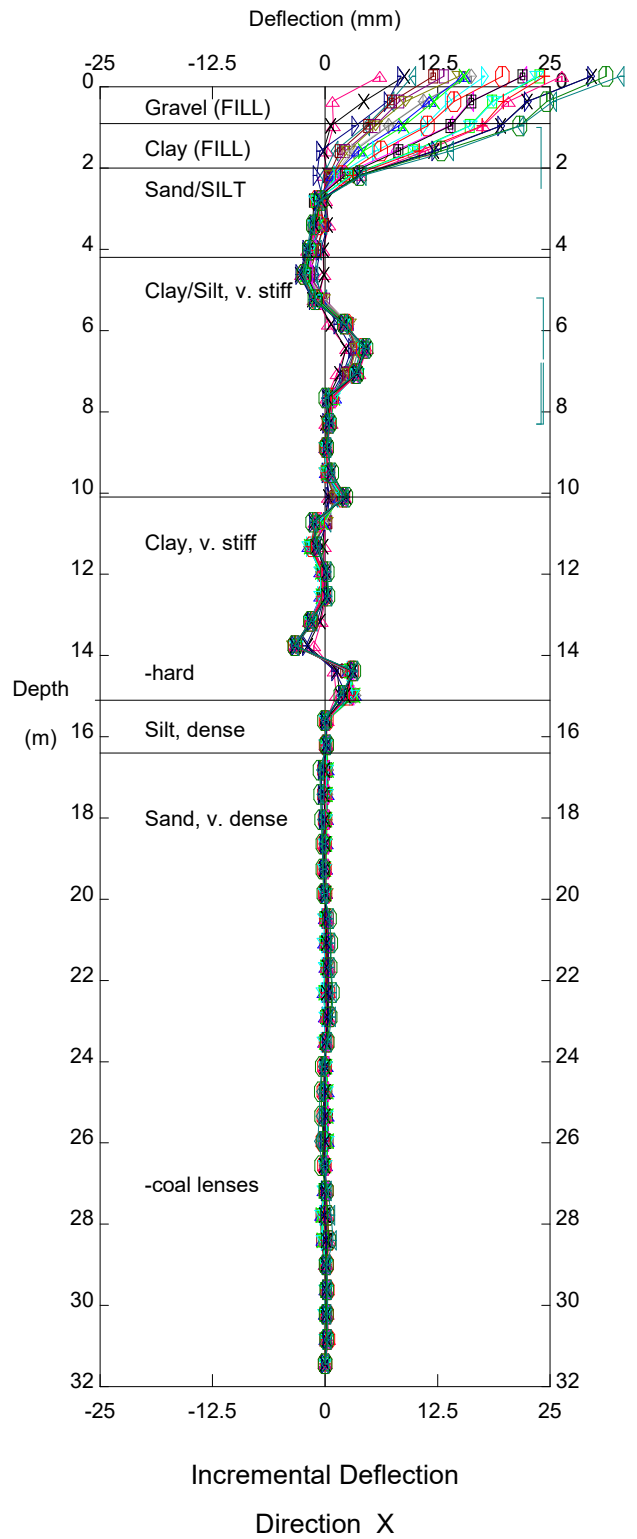
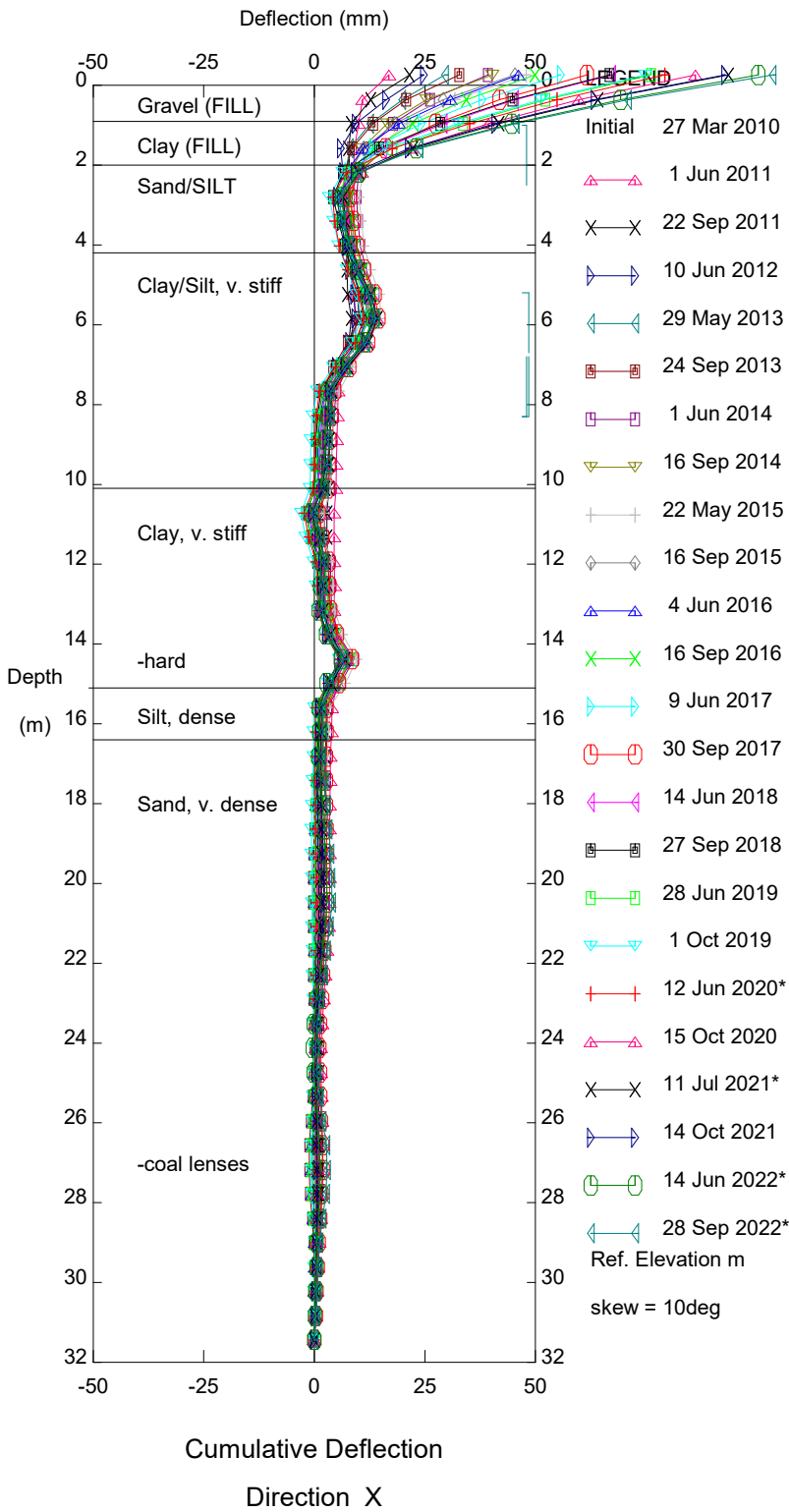


PH033-2 Judah Hill Trunk Slide, Inclinometer SI10-10

Alberta Transportation

Sets marked \* include zero shift and/or rotation corrections.

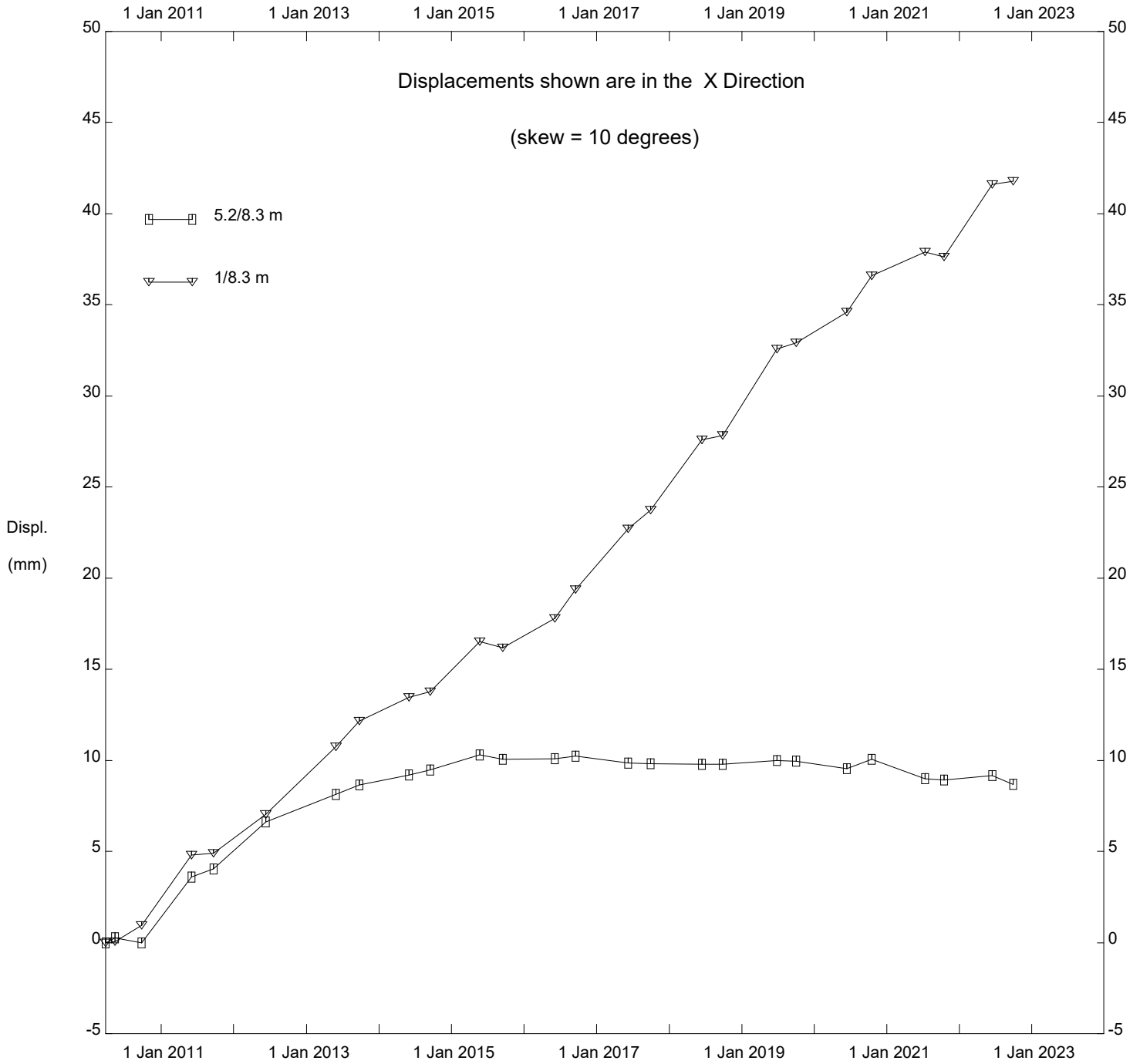
Thurber Engineering Ltd.



PH033-2 Judah Hill Trunk Slide, Inclinator SI10-10

Alberta Transportation

Sets marked \* include zero shift and/or rotation corrections.

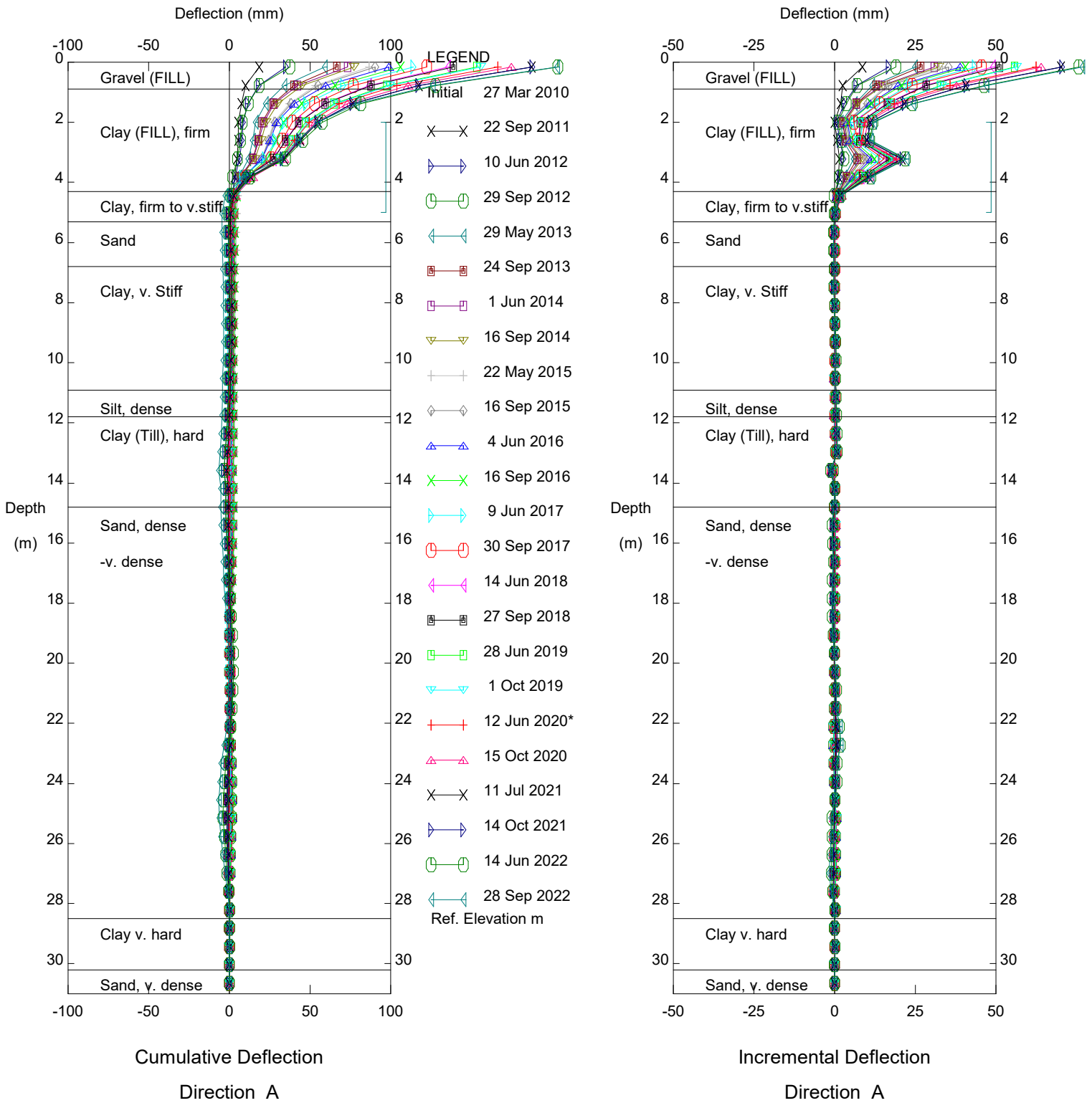


PH033-2 Judah Hill Trunk Slide, Inclinator SI10-10

Alberta Transportation



Thurber Engineering Ltd.

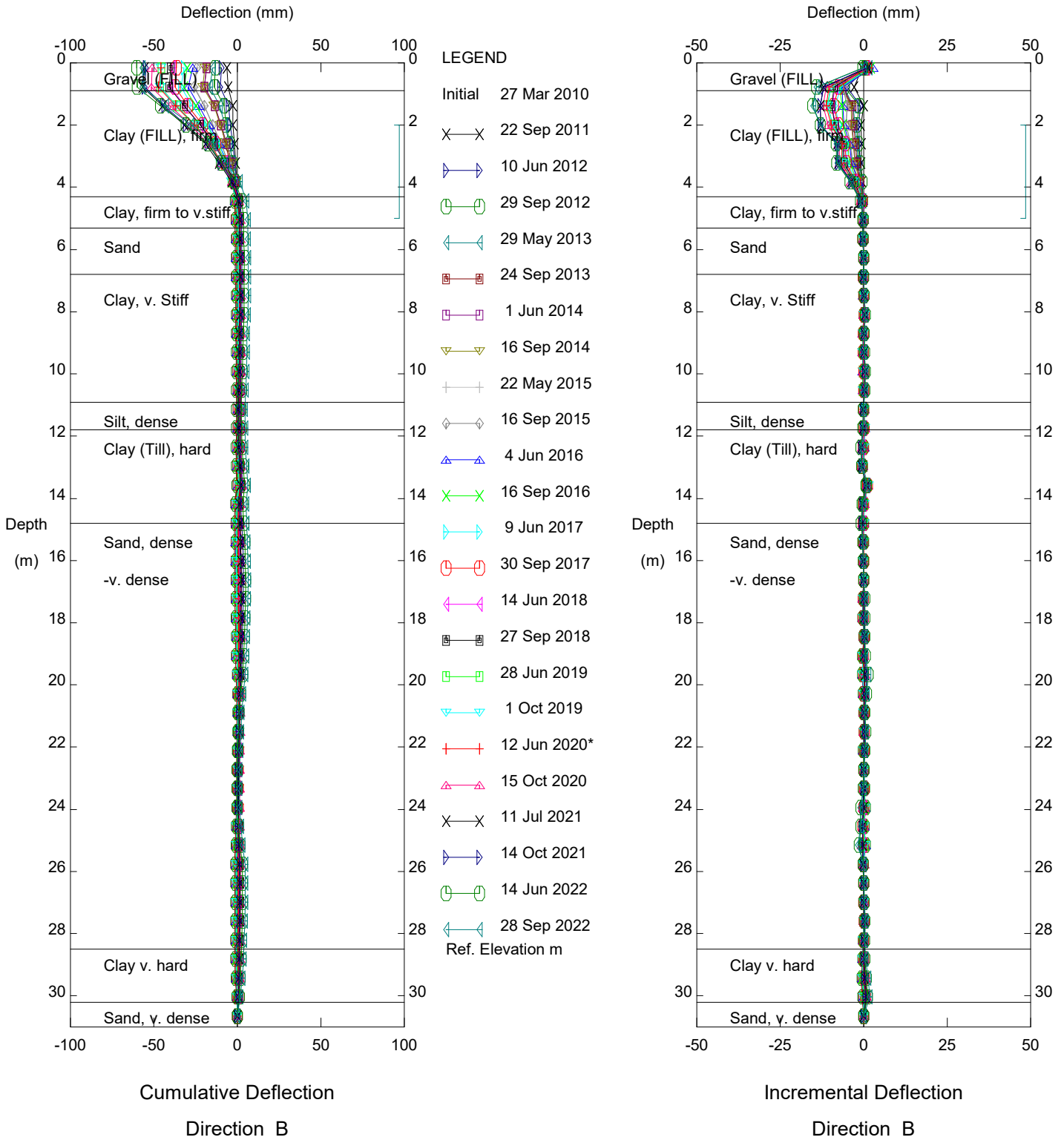


PH033-2 Judah Hill Trunk Slide, Inclinometer SI10-11

Alberta Transportation

Sets marked \* include zero shift and/or rotation corrections.

Thurber Engineering Ltd.

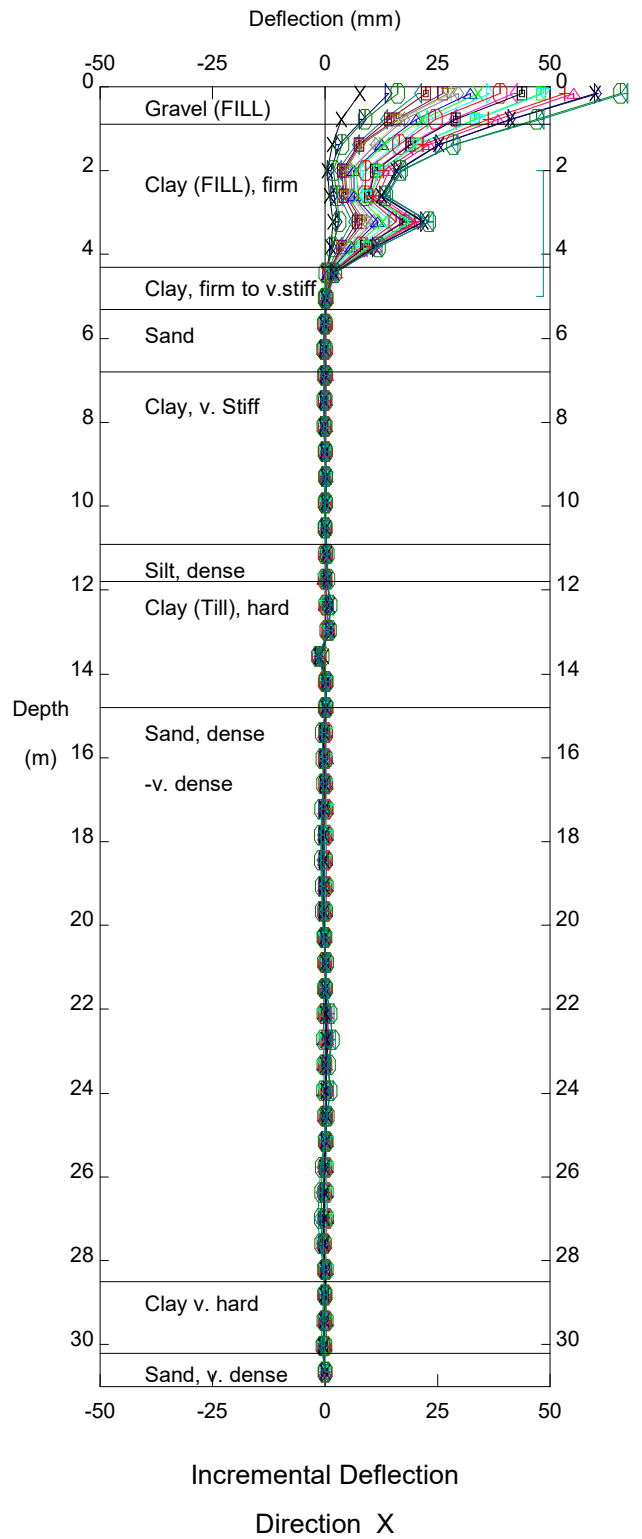
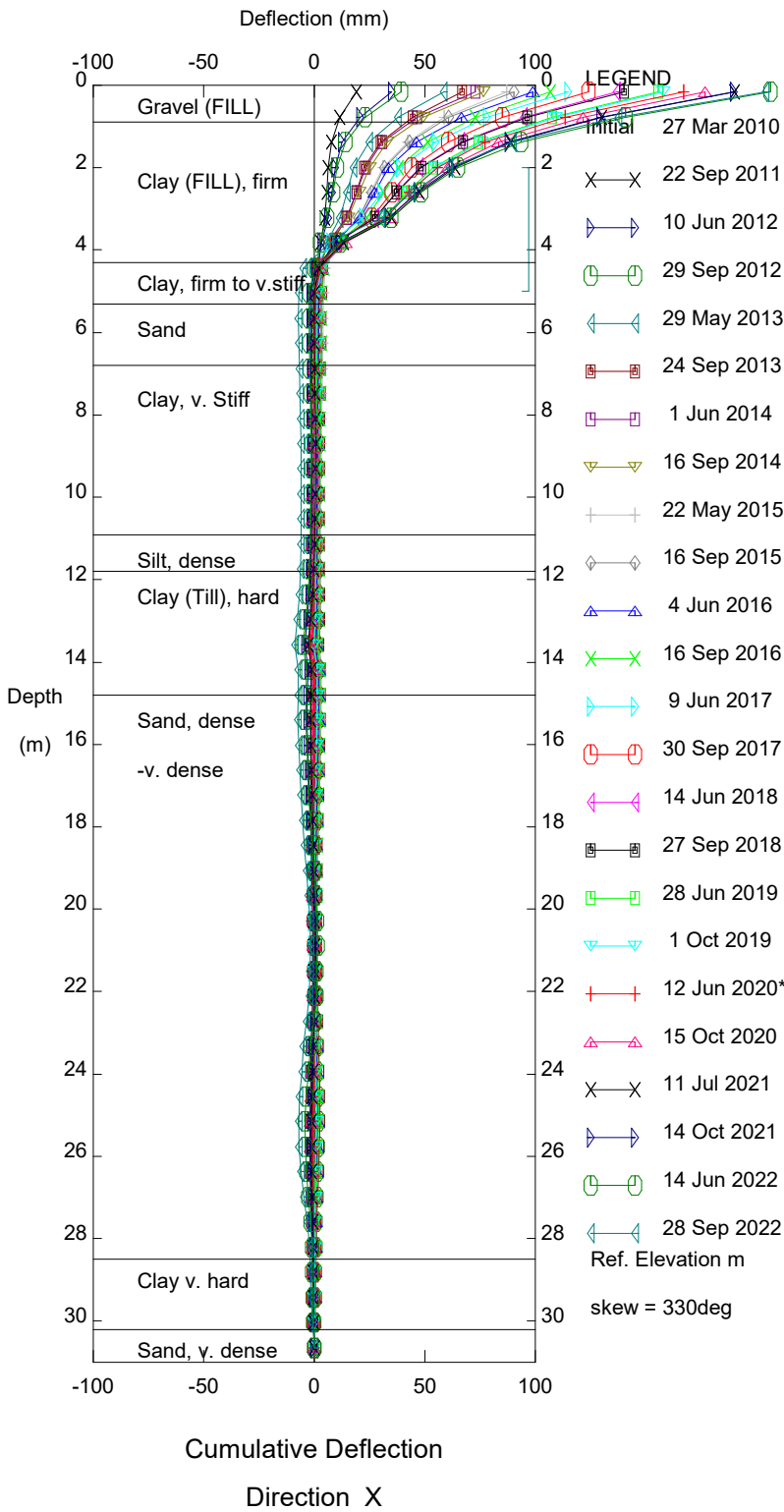


PH033-2 Judah Hill Trunk Slide, Inclinometer SI10-11

Alberta Transportation

Sets marked \* include zero shift and/or rotation corrections.

Thurber Engineering Ltd.

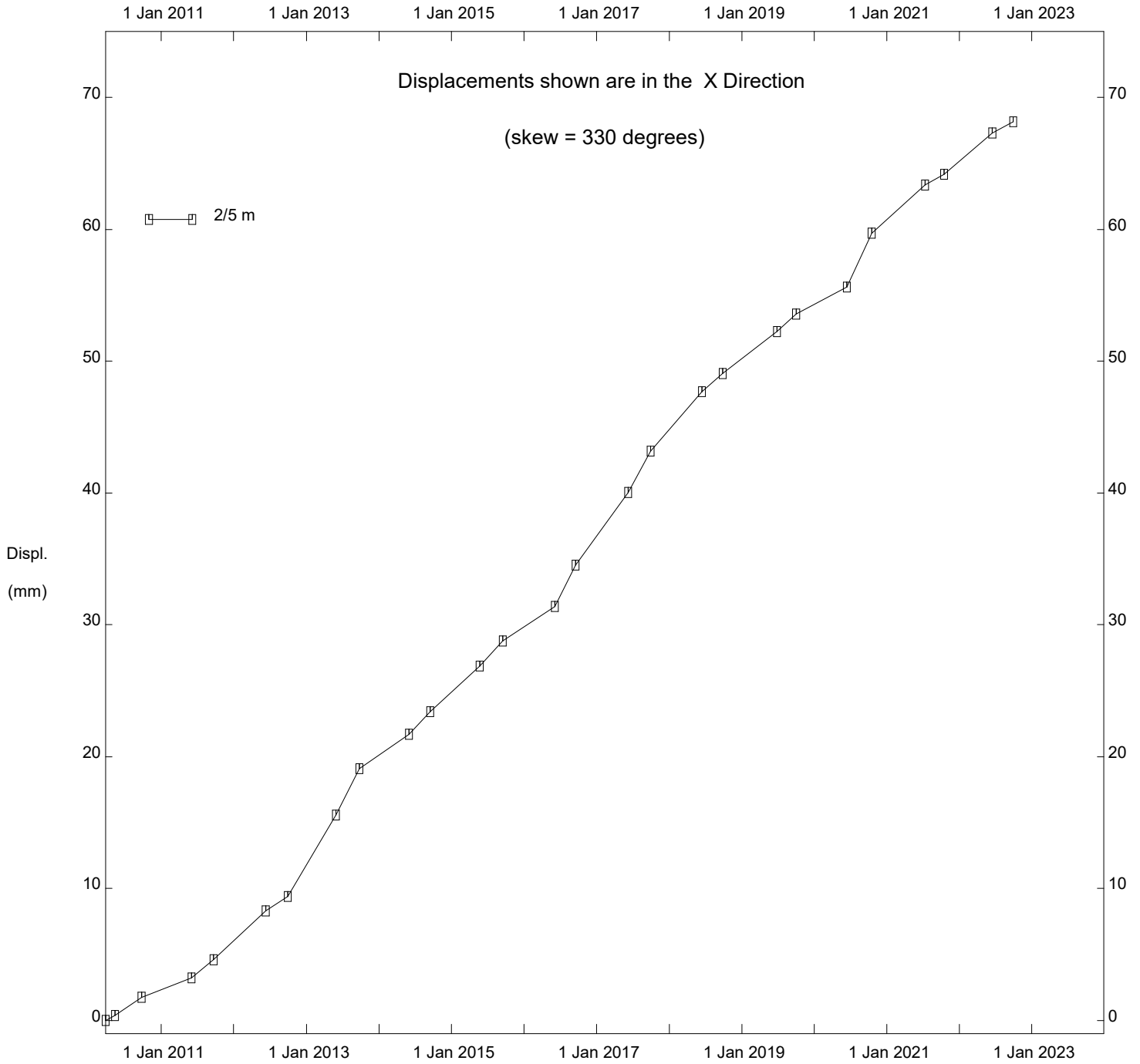


PH033-2 Judah Hill Trunk Slide, Inclinator SI10-11

Alberta Transportation

Sets marked \* include zero shift and/or rotation corrections.

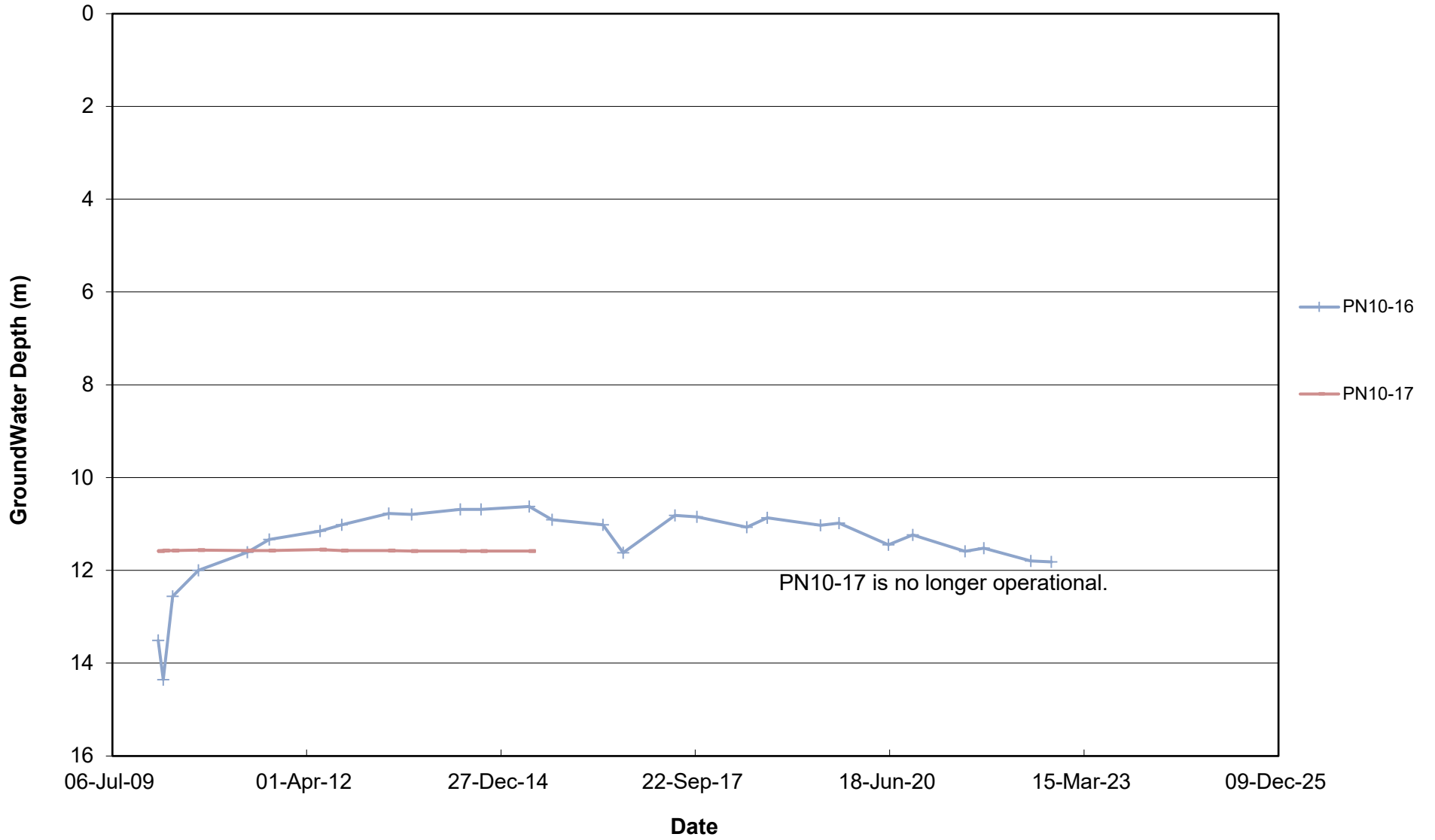
Thurber Engineering Ltd.



PH033-2 Judah Hill Trunk Slide, Inclinator SI10-11

Alberta Transportation

**FIGURE PH033-1**  
**PIEZOMETER DATA FOR HWY 744:04: JUDAH HILL CNR SLIDE**



**FIGURE PH033-2  
PIEZOMETER DATA FOR HWY 744:04: JUDAH HILL TRUNK SLIDE**

