ALBERTA TRANSPORTATION AND ECONOMIC CORRIDORS GRMP
PEACE REGION – (PEACE RIVER DISTRICT)
INSTRUMENTATION MONITORING - SPRING 2025

Site Number	Location	Name	Hwy	km
PH031	HWY 744:04 C1 57.7	Michelin Slide- Judah Hill	744:04	Km 57.7
Legal Description:		**UTM Co-ordinates**		
9-20-83-21 W5		11U E 483125.92	N 6229725.01	

Current Monitoring:	9-Jun-2025	**Previous Monitoring**	21-Sep-2024
Instruments Read By:	Mr. Niraj Regmi, G.I.T and Mr. Godfred Etiendem, of Thurber		

Instruments Read During This Site Visit			
Slope Inclinometers (SIs): SI98-10i, SI10-4, SI10-7, and SI10-9	**Pneumatic Piezometers (PN):** PN10-4, PN10-6 to PN10-9	**Vibrating Wire Piezometers (VW):** VW17-1 and VW17-2	**Standpipe Piezometers (SP):**N/A
Load Cell (LC): N/A	**Strain Gauges:** N/A	**SAAs:** SAA10-8	**Others:**N/A

Readout Equipment Used			
Slope Inclinometers: Two RST Digital Inclinometer probes with 2 ft wheelbases and RST Pocket PC readouts	**Pneumatic Piezometers:** RST C108 pneumatic piezometer readout	**Vibrating Wire Piezometers:** Campbell Scientific CR1000 datalogger	**Standpipe Piezometers:**
Load Cell:	**Strain Gauges:**	**SAAs:** Campbell Scientific CR1000 datalogger	**Others:**
Note: The Campbell Scientific CR1000 datalogger was replaced following the Fall 2024 readings.			

Zones of New Movement:	None
Interpretation of Monitoring Results:	**Slope Inclinometers** Slope inclinometer SI98-10i, located about 100 m downslope of the highway showed small incremental movements along six distinct shear planes, since the fall of 2024 readings. The multitude of distinct movement zones speaks to the complexity of ongoing valley wall deformations along Judah Hill. Since the slope indicator was installed in October 2000 the sum of the movements over all these zones is 383.3 mm. The movement rates in these zones has typically ranged between 1 mm/yr and 5 mm/yr with median rate below 3 mm/yr. The movement rates showed small decreases (less than 2 mm/yr) since the previous readings in the fall of 2024 with the exception an approximately 3 mm/yr increase in movement rate measured in the zones over 14.1 m to 17.7 m (3.7 mm/yr) depth and over 23.2 m to 26.9 m (4.7 mm/yr) depth. Slope inclinometer SI10-4 is located east of the highway and has one well defined movement zone at 6 m depth in a clay strata, and several subtle movement zones at greater depths in clay and clay till layers. A rate of movement of 1.6 mm/yr was measured over 5.7 m to 6.9 m depth and a rate of movement of 1.1 mm/yr over 11.8 m to 17.9 m depth

	since the fall of 2024 readings. Average movement rates in both zones has typically been below 1.5 mm/yr and cumulative measurement movement is less than 15 mm. The movement is in the direction of the active landslide in the Heart River valley slope, directly opposite from the Michelin Slide direction. SI10-7, located just west of the highway, showed three zones of movement. In the upper clay fill a movement rate of 1.8 mm/yr was measured over 1.9 m to 6.8 m depth; near a sand/clay transition a movement rate of 1.8 mm/yr was measured over 8.6 m to 9.8 m depth, and; in a lower clay layer 0.5 mm/yr was measured, over 14.1 m to 15.9 m depth, all since the fall of 2024 readings. These movement rates are generally consistent with measured rates since 2010. SI10-9, also located just west of the highway, showed one distinct zone of movement and several more subtle movement zones. In the upper clay no discernible movement was measured over 6.5 m to 7.7 m. The more distinct movement zone was between 11.9 and 14.4 m in a sand layer, where a movement rate of 1.1 mm/yr was measured since the fall of 2024 readings. **SAA** The internal battery for the datalogger recording SAA10-8 was found to be dead during the fall 2024 readings, and was replaced in November 2024. SAA10-8 was installed in the casing of SI10-8, and has shown a movement rate of 1.6 mm/yr since the spring 2024 readings. This corresponds to a decrease in rate of movement of 0.2 mm/yr since the spring 2024 readings. The movement rate plot for SAA 10-8 shows clearly a annual pattern of movement with accelerating movements in late summer to early winter and decelerating movements in late winter to early summer. **Piezometers** Pneumatic piezometer PN10-4 showed an increase in groundwater level of 0.59 m since the fall of 2024 readings. PN10-6, PN10-7, PN10-8, and PN10-9 showed decreases in groundwater levels of 0.47 m, 0.42 m, 2.32 m, and 0.41 m, respectively, since the fall of 2024 readings. Due to the dead battery, the readings for the vibrating wire piezometers were not downloaded during the fall of 2024. VW17-1 showed a decrease in ground water level of 0.04 m since the spring of 2023 readings. VW17-2 has been dry since initialization.
Future Work:	The instruments should be read again in the fall of 2025.
Instrumentation Repairs:	No instrumentation repairs are currently required.
Additional Comments:	In the next reading cycle an attempt should be made to read SI94-43i located near the rail line. This slope indicator is believed to be operational and has not been read since the summer of 2021.

Attachments:	▪ Table PH031-1: Spring 2025 – HWY 744:04 Judah Hill (Michelin Slide) Slope Inclinometer Instrumentation Reading Summary ▪ Table PH031-2: Spring 2025 – HWY 744:04 Judah Hill (Michelin Slide) Pneumatic Piezometer Instrumentation Reading Summary ▪ Table PH031-3: Spring 2025 – HWY 744:04 Judah Hill (Michelin Slide) Vibrating Wire Piezometer Instrumentation Reading Summary ▪ Statement for Use and Interpretation of Report ▪ Appendix A □ Field Inspector's Report □ Site Plan Showing Approximate Instrument Locations (Drawing No. 32121 PH031) □ SI and SAA Reading Plots □ Figure PH031-1 (Piezometric Depths) □ Figure PH031-2 (Piezometric Elevations)

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.
Roger Skirrow, M.Sc., P. Eng.
Senior Geotechnical Engineer

PROFESSIONAL ENGINEER ALBERTA
LUCAS R.M. GREEN
ID 206714
July 11, 2025

PROFESSIONAL ENGINEER ALBERTA
ROGER KEVIN SKIRROW
ID 36792
2025-07-11

PERMIT TO PRACTICE
THURBER ENGINEERING LTD.
RM SIGNATURE: Don Proudfoot
RM APEGA ID #: 51674
DATE: July 11, 2025
PERMIT NUMBER: P005186
The Association of Professional Engineers and Geoscientists of Alberta (APEGA)

Lucas Green, P.Eng.
Geotechnical Engineer

THURBER

Table PH031-1: Spring 2025 – HWY 744:04 Judah Hill (Michelin Slide) Slope Inclinometer Instrumentation Reading Summary

Date Monitored: June 9, 2025

INSTRUMENT #	DATE INITIALIZED	TOTAL CUMULATIVE RESULTANT MOVEMENT AT NOTED DEPTH SINCE INITIAL READING (mm)	MAXIMUM RATE OF MOVEMENT (mm/yr)	CURRENT STATUS	DATE OF PREVIOUS READING	INCREMENTAL MOVEMENT SINCE PREVIOUS READING (mm)	RATE OF MOVEMENT (mm/yr)	CHANGE IN RATE OF MOVEMENT SINCE PREVIOUS READING (mm/yr)
SI98-10i	Oct. 27, 2000	96.4 mm over 6.1 m to 7.4 m depth in 314° direction	14.0 mm/yr in September 2017	Operational	September 21, 2024	0.7	1.0	-0.4
		13.2 mm over 11.0 m to 12.2 m depth in 324° direction	2.9 mm/yr in October 2020			<0.1	<0.1	-0.7
		92.1 mm over 14.1 m to 17.7 m depth in 314° direction	15.3 mm/yr in September 2017			1.1	1.6	-2.2
		29.0 mm over 18.9 m to 20.2 m depth in 324° direction	5.0 mm/yr in September 2017			0.3	0.5	-0.1
		35.8 mm over 21.4 m to 22.6 m depth in 341° direction	9.2 mm/yr in October 14, 2021			0.4	0.6	-0.6
		116.8 mm over 23.8 m to 26.9 m depth in 324° direction	13.5 mm/yr in October 2021			2.2	3.1	-1.8

Drawing 32121-PH031 in Appendix A provides a sketch of the approximate location of the monitoring instrumentation for this site.

Table PH031-1 – Continued… Spring 2025 – HWY 744:04 Judah Hill (Michelin Slide) Slope Inclinometer Instrumentation Reading Summary

Date Monitored: June 9, 2025

INSTRUMENT #	DATE INITIALIZED	TOTAL CUMULATIVE RESULTANT MOVEMENT AT NOTED DEPTH SINCE INITIAL READING (mm)	MAXIMUM RATE OF MOVEMENT (mm/yr)	CURRENT STATUS	DATE OF PREVIOUS READING	INCREMENTAL MOVEMENT SINCE PREVIOUS READING (mm)	RATE OF MOVEMENT (mm/yr)	CHANGE IN RATE OF MOVEMENT SINCE PREVIOUS READING (mm/yr)
SI94-43i	*Oct. 27, 2000*	*59.0 mm over 24.8 m to 27.2 m depth in 282° direction*	*10.2 mm/yr in October 2020*	*Operational, not read during current readings*	*July 10, 2021*	*N/A*	*N/A*	*N/A*
SI10-4	March 26, 2010	12.6 mm over 5.7 m to 6.9 m depth in 86° direction	3.2 mm/yr in September 2024	Operational	September 21, 2024	1.1	1.6	-1.6
		9.2 mm over 11.8 m to 17.9 m depth in 86° direction	3.4 mm/yr in September 2011			0.8	1.1	-0.4
SI10-5	*March 26, 2010*	*225.9 mm over 0.9 m to 11.9 m depth in 120° direction*	*196.4 mm/yr in September 2011*	*Sheared at 2.1 m depth*	*September 21, 2011*	*N/A*	*N/A*	*N/A*
SI10-6	*March 26, 2010*	*237.5 mm over 0.9 m to 5.8 m depth in 120° direction*	*130.5 mm/yr in September 2013*	*Sheared at 3.0 m depth*	*June 1, 2014*	*N/A*	*N/A*	*N/A*
		7.2 mm over 11.9 m to 14.3 m depth in 110° direction	*6.8 mm/yr in September 2011*			*N/A*	*N/A*	*N/A*

Drawing 32121-PH031 in Appendix A D provides a sketch of the approximate location of the monitoring instrumentation for this site.

Table PH031-1 – Continued… Spring 2025 – HWY 744:04 Judah Hill (Michelin Slide) Slope Inclinometer Instrumentation Reading Summary

Date Monitored: June 9, 2025

INSTRUMENT #	DATE INITIALIZED	TOTAL CUMULATIVE RESULTANT MOVEMENT AT NOTED DEPTH SINCE INITIAL READING (mm)	MAXIMUM RATE OF MOVEMENT (mm/yr)	CURRENT STATUS	DATE OF PREVIOUS READING	INCREMENTAL MOVEMENT SINCE PREVIOUS READING (mm)	RATE OF MOVEMENT (mm/yr)	CHANGE IN RATE OF MOVEMENT SINCE PREVIOUS READING (mm/yr)
SI10-7	March 26, 2010	30.6 mm over 1.9 m to 6.8 m depth in 325° direction	5.6 mm/yr in May 2010	Operational	September 21, 2024	1.3	1.8	0.3
		18.9 mm over 8.6 m to 9.8 m depth in 336° direction	4.0 mm/yr in September 2013			1.3	1.8	1.5
		9.8 mm over 14.1 m to 15.9 m depth in 336° direction	5.0 mm/yr in September 2020			0.4	0.5	<0.1
SI10-8*	March 4, 2010	53.8* mm over 15.0 m to 16.5 m depth in 321° direction	16.1 mm/yr in September 2013	SAA Installed in SI10-8 Casing (Dec 2014)	May 23, 2024	1.7	1.6	-0.2
SI10-9	March 4, 2010	4.5 mm over 6.5 m to 7.7 m depth in 3° direction	1.8 mm/yr in September 2013	Operational	September 21, 2024	0.1	0.1	0.4
		26.0 mm over 11.9 m to 14.4 m depth in 3° direction	12.5 mm/yr in September 2013			0.8	1.1	-0.4

Drawing 32121-PH031 in Appendix A provides a sketch of the approximate location of the monitoring instrumentation for this site.

* Total cumulative movement is based on the movement of the SI prior to SAA installation plus the total movement recorded in the SAA to date.

THURBER

Table PH031-2: Spring 2025 – HWY 744:04 Judah Hill (Michelin Slide) Pneumatic Piezometer Instrumentation Reading Summary

Date Monitored: June 9, 2025

INSTRUMENT #	DATE INITIALIZED	TIP DEPTH (m)	GROUND ELEV. (m)	CURRENT STATUS	HIGHEST MEASURED WATER LEVEL BGS (m)	MEASURED PORE PRESSURE (kPa)	CURRENT WATER LEVEL BGS (m)	PREVIOUS WATER LEVEL BGS (m)	CHANGE IN WATER LEVEL SINCE PREVIOUS READING (m)
PN98-10 (22835)	*N/A*	*7.0*	*N/A*	*Damaged*	*6.59 in May 2004*	*N/A*	*N/A*	*N/A*	*N/A*
PN98-10a (22827)	*N/A*	*22.0*	*N/A*	*Damaged*	*8.64 in May 2009*	*N/A*	*N/A*	*N/A*	*N/A*
PN10-4	March 26, 2010	19.4	516.401	Operational	18.37 in June 2020	6.5	18.74	19.33	0.59
PN10-5	*March 5, 2010*	*16.9*	*514.950*	*Blocked*	*11.12 in May 2013*	*N/A*	*N/A*	*N/A*	*N/A*
PN10-6	March 5, 2010	10.2	513.055	Operational	7.53 in September 2024	21.6	8.00	7.53	-0.47
PN10-7	March 3, 2010	13.8	519.529	Operational	8.79 in September 2024	45.0	9.21	8.79	-0.42
PN10-8	February 27, 2010	17.5	514.522	Operational	11.75 in September 2013	17.3	15.74	13.41	-2.32
PN10-9	February 27, 2010	13.0	510.640	Operational	6.31 in September 2016	54.2	7.47	7.06	-0.41

Drawing 32121-PH031 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.

THURBER

Table PH031-3: Spring 2025 – HWY 744:04 Judah Hill (Michelin Slide) Vibrating Wire Piezometer Instrumentation Reading Summary

Date Monitored: June 9, 2025

INSTRUMENT	DATE INITIALIZED	TIP ELEV. (m)	GROUND ELEV. (m)	CURRENT STATUS	HIGHEST RECORDED GROUNDWATER LEVEL (mBGS)	CURRENT GROUNDWATER DEPTH (mBGS)	PREVIOUS GROUNDWATER DEPTH (mBGS)	CHANGE IN WATER LEVEL SINCE PREVIOUS READING (m)
VW17-1	June 6, 2017	502.52	514.52	Operational	10.40 on September 4, 2017	11.55	11.51 (May 23, 2024)	-0.04
VW17-2	June 6, 2017	496.38	514.52	Operational	DRY	DRY	DRY (May 23, 2024)	N/A

Drawing 32121-PH031 in Appendix A provides a sketch of the approximate location of the monitoring instrumentation for this site.

THURBER

STATEMENT FOR USE AND INTERPRETATION OF REPORT

1. STANDARD OF CARE

This Report has been prepared in a manner consistent with that degree of care and skill ordinarily exercised by members of the same profession currently practicing under similar circumstances at the same time and in the same or similar locality and in compliance with all applicable laws.

2. COMPLETE REPORT

All documents, records, data and files, whether electronic or otherwise, generated as part of this assignment, including this Statement For Use and Interpretation of Report, 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, AS DESCRIBED ABOVE. THURBER IS NOT RESPONSIBLE FOR USE BY ANY PARTY OF PORTIONS OF THE REPORT WITHOUT REFERENCE TOTHE WHOLE OF THE 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

The information and opinions expressed in the Report, or any document forming part of the Report, are for the sole benefit of the Client for the development, design objectives, and/or purposes described to Thurber by the Client. **NO OTHER PARTY MAY USE OR RELY ON THE REPORT OR ANY PORTION THEREOF FOR OTHER THAN THE CLIENT'S BENEFIT IN CONNECTION WITH THE PURPOSES DESCRIBED IN THE REPORT**. Any use which a third party makes of the Report is the sole responsibility of such third party and is always subject to this Statement for Use and Interpretation of Report. Thurber accepts no liability or responsibility for damages suffered by any third party resulting from use of the Report for purposes outside the reasonable contemplation of Thurber at the time it was prepared or in any manner unintended by Thurber.

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 is inherently judgement-based. 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 parties making use of such documents or records with or without our express written consent need to 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 parties. Some conditions are subject to change over time and those making use of the Report need to be aware of this possibility and understand that the Report only presents the interpreted conditions at the sampled points at the time of sampling. If special concerns exist, or the Client has special considerations or requirements, the Client must 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 based on conditions in evidence at the time of site inspections and based on 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 resulting from misstatements, omissions, misrepresentations, or fraudulent acts of the Client or other parties 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 is recommended to 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 need to 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 to confirm and document that the site conditions do not materially differ from those 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. 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 other parties 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, unless such decisions expressly form part of the stated purpose of the Report as described in Paragraph 3.

ALBERTA TRANSPORTATION AND ECONOMIC CORRIDORS GRMP (CON0022164)
PEACE REGION (PEACE RIVER DISTRICT)
INSTRUMENTATION MONITORING RESULTS

SPRING 2025

APPENDIX A
DATA PRESENTATION

SITE PH031: HWY 744:04, JUDAH HILL (MICHELIN SLIDE)

ALBERTA TRANSPORTATION AND ECONOMIC CORRIDORS
PEACE REGION (PEACE RIVER DISTRICT)
INSTRUMENTATION MONITORING FIELD SUMMARY (PH031)
SPRING 2025

Location:	Michelin Slide - Judah Hill (HWY 744:04 C1 57.664)	**Readout:**	RST PN C108 Unit 8
File Number:	32121	**Casing:**	2.75, SI 94-43i 3.34
Probe:	RST 5R and 8R	**Temp:**	20
Cable:	RST 5R and 8R	**Read by:**	NKR/GE

SLOPE INCLINOMETER (SI) READINGS

SI#	GPS Location (UTM 11)		Date	Stickup (m)	Depth from top of Casing (ft)	Magn. North A+ Groove degree	Current Bottom Depth Readings				Probe/ Reel #	Size (")	Remarks
	Easting (m)	Northing (m)					A+	A-	B+	B-			
SI98-10i	483125.92	6229725.01	09-Jun-25	0.57	116 to 2	305	1483	-1482	-799	795	8R/8R	2.75	See notes
SI94-43i	482827.64	6229848.63		0.85	118 to 2	10	-8	22	3	7	8R/8R	3.34	Did not read due to bear den
SI10-4	483255.5	6229708.92	09-Jun-25	0.74	106 to 4	85	404	-395	35	-54	5R/5R	2.75	
SI10-7	483212.56	6229673.47	09-Jun-25	0.84	106 to 4	315	1231	-1215	-1558	1557	8R/8R	2.75	
SI10-9	483248.88	6229762.37	09-Jun-25	0.55	106 to 4	330	869	-854	-349	347	8R/8R	2.75	

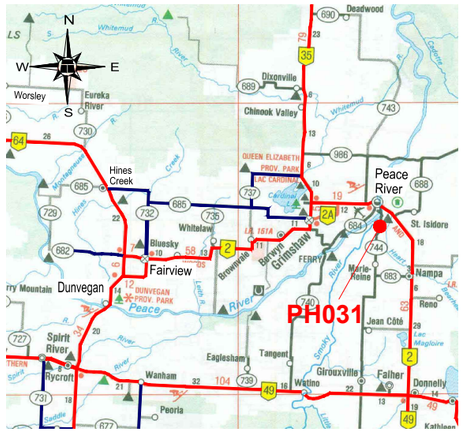
PNEUMATIC PIEZOMETER READINGS

PN#	GPS Location (UTM 11)		Date	Reading (kPa)	Identification Number
	Easting (m)	Northing (m)			
10-4	483255.5	6229708.92	09-Jun-25	6.5	33094
10-6	483273.71	6229767.84	09-Jun-25	21.6	33084
10-7	483212.56	6229673.47	09-Jun-25	45	33085
10-8	483245.04	6229732.33	09-Jun-25	17.3	33082
10-9	483248.88	6229762.37	09-Jun-25	54.2	33087

INSPECTOR REPORT

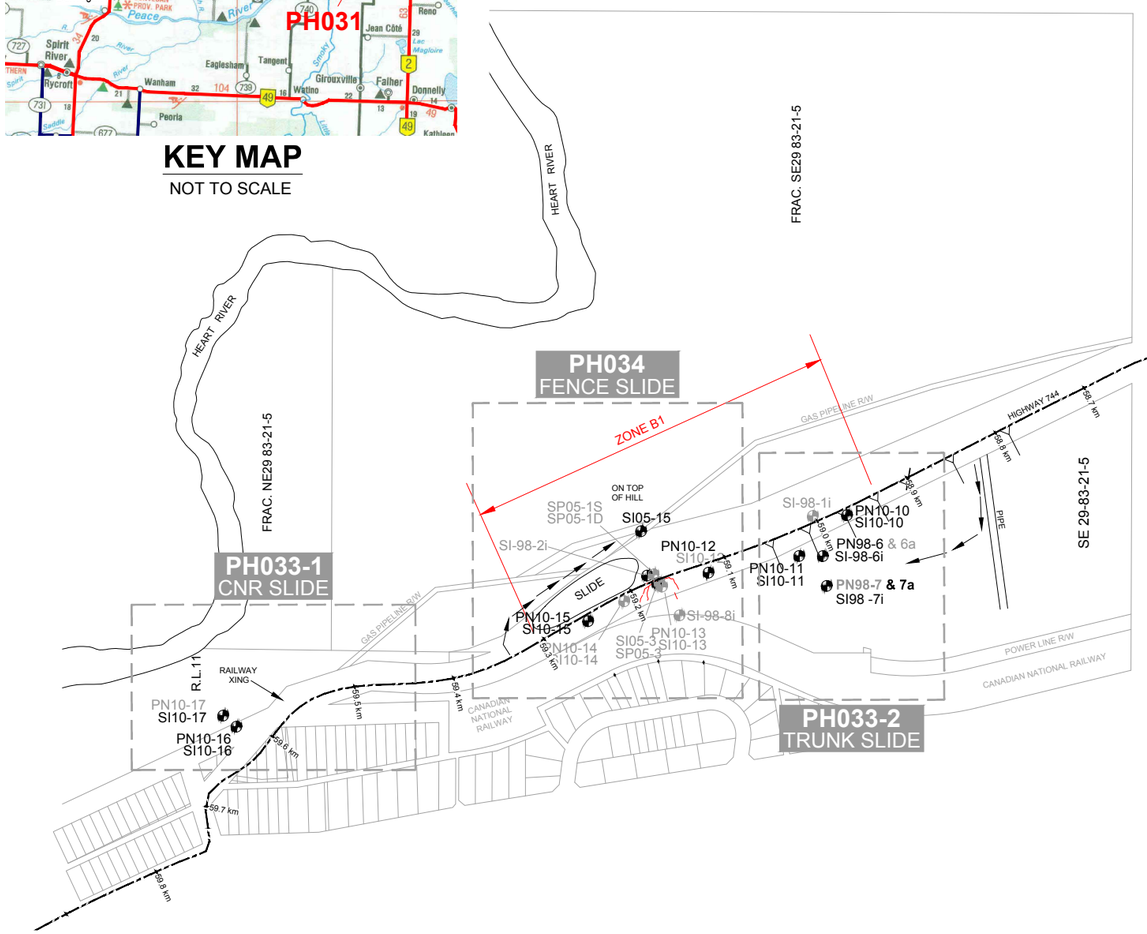
For SI98-10i multiply readings by 2 to get the plot in Gtilt.
CR1000 has ben updated and new battery installed, just need to download using loggernet spring 2025

G:\32000\32121 AT GRMP Peace River District 2021-2025\CAD\2021 INSTRUMENT\32121-PH030, PH031, PH032, PH033, PH034, PH072.dwg - 31 - Jul. 03, 2025



KEY MAP

NOT TO SCALE



NOTE:
* A SHAPE ACCELEROMETER ARRAY (SAA) WAS INSTALLED INSIDE THE **SI10-08** CASING IN DECEMBER 2014.

LEGEND

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

Alberta Transportation

PEACE REGION (PEACE RIVER DISTRICT)

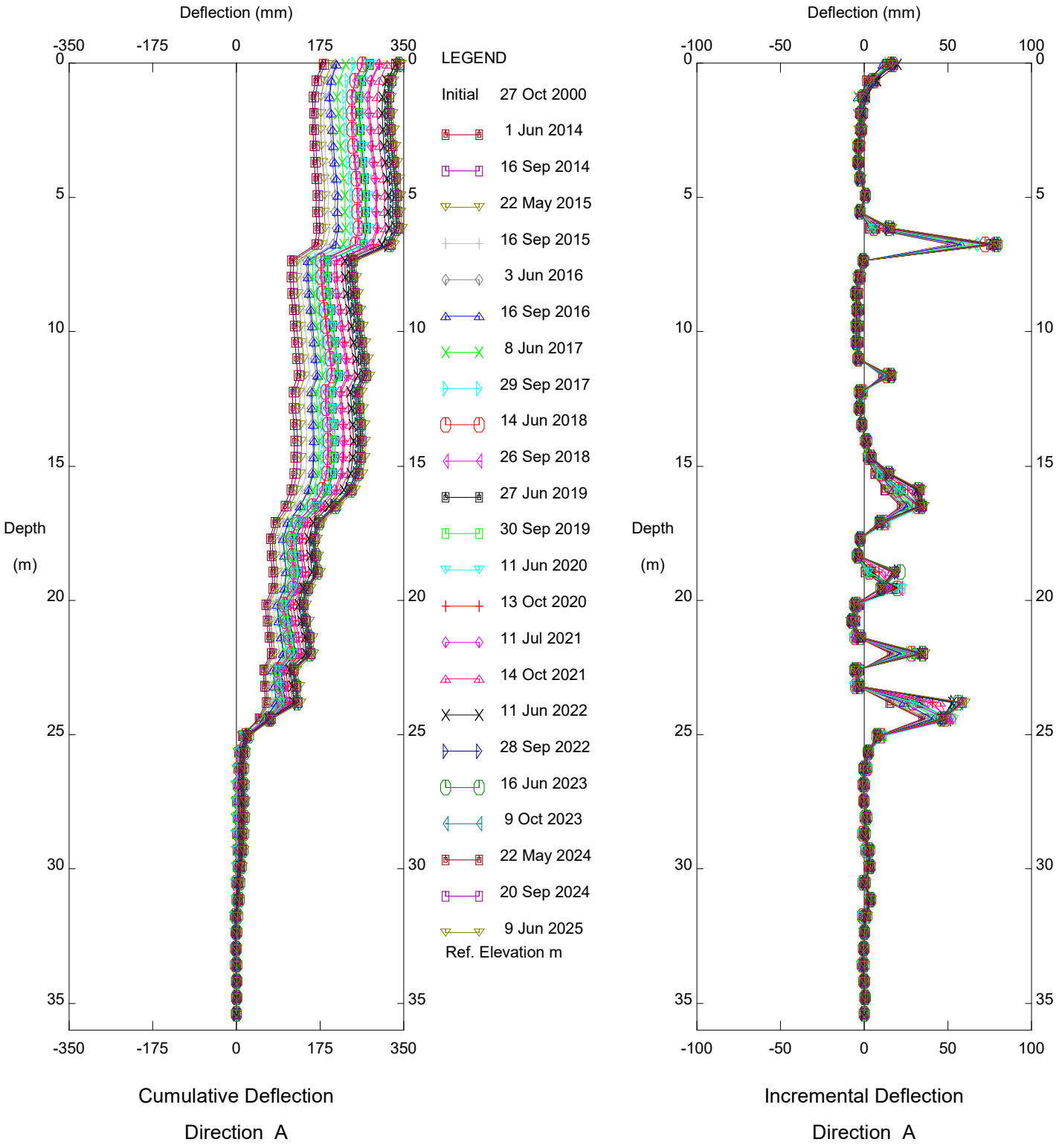
PH031: HWY 744:04 - JUDAH HILL (MICHELIN SLIDE) INSTRUMENT LOCATIONS

DWG No. 32121-PH031

DRAWN BY	ML
DESIGNED BY	BWN
APPROVED BY	DWP
SCALE	APPROX. 1:6000
DATE	JULY 2025
FILE No.	32121

THURBER

Thurber Engineering Ltd.



Cumulative Deflection

Direction A

Incremental Deflection

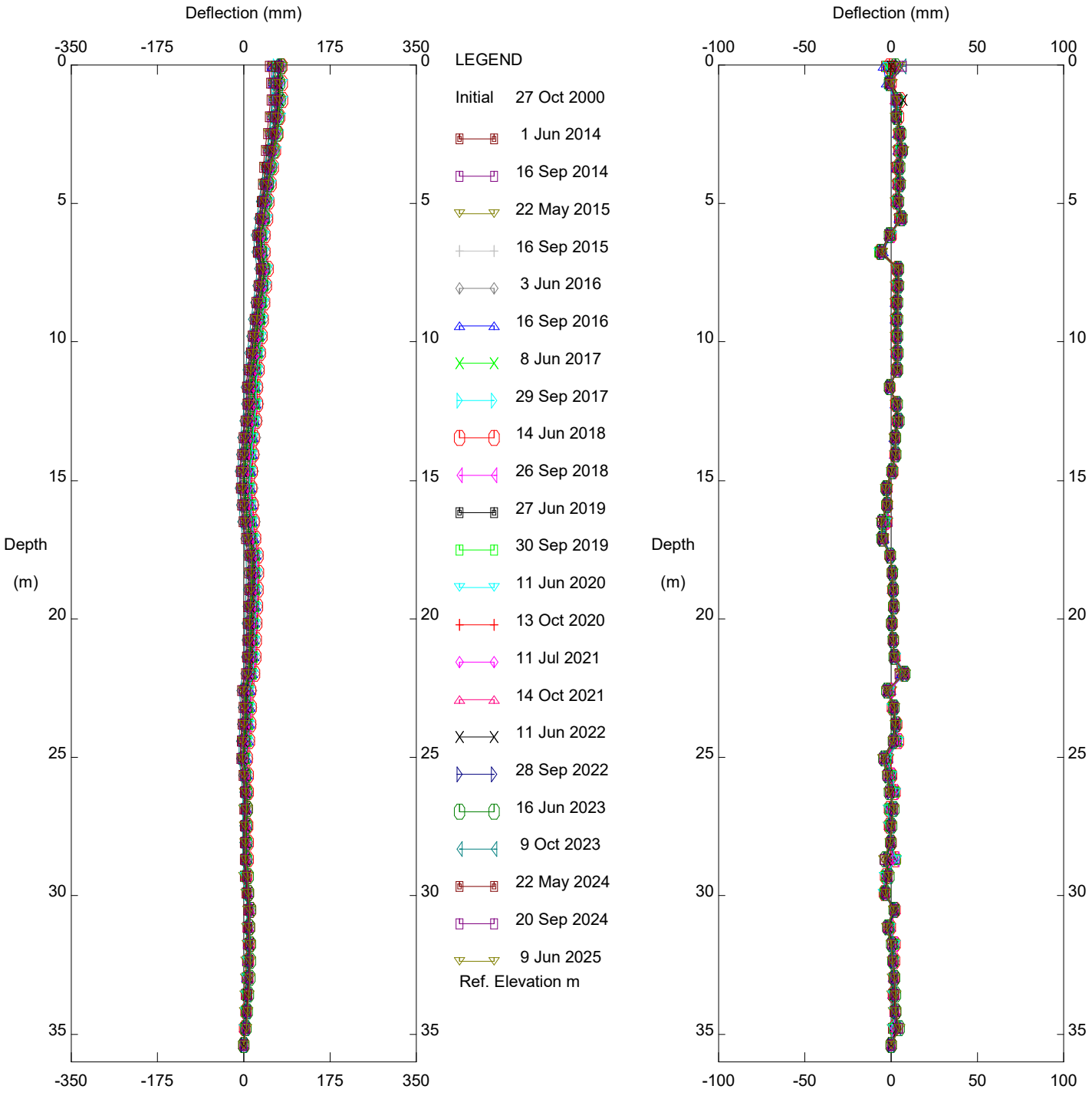
Direction A

HWY 744:04 - STA. 57+700 to 58+000, Inclinometer SI98-10i

Alberta Transportation

G:\32000\32121 AT GRMP Peace River District 2021-2025\Section C\2025A-Spring\SI Readings\PH031\JH98-10I (1).GTL

Thurber Engineering Ltd.



Cumulative Deflection

Direction B

Incremental Deflection

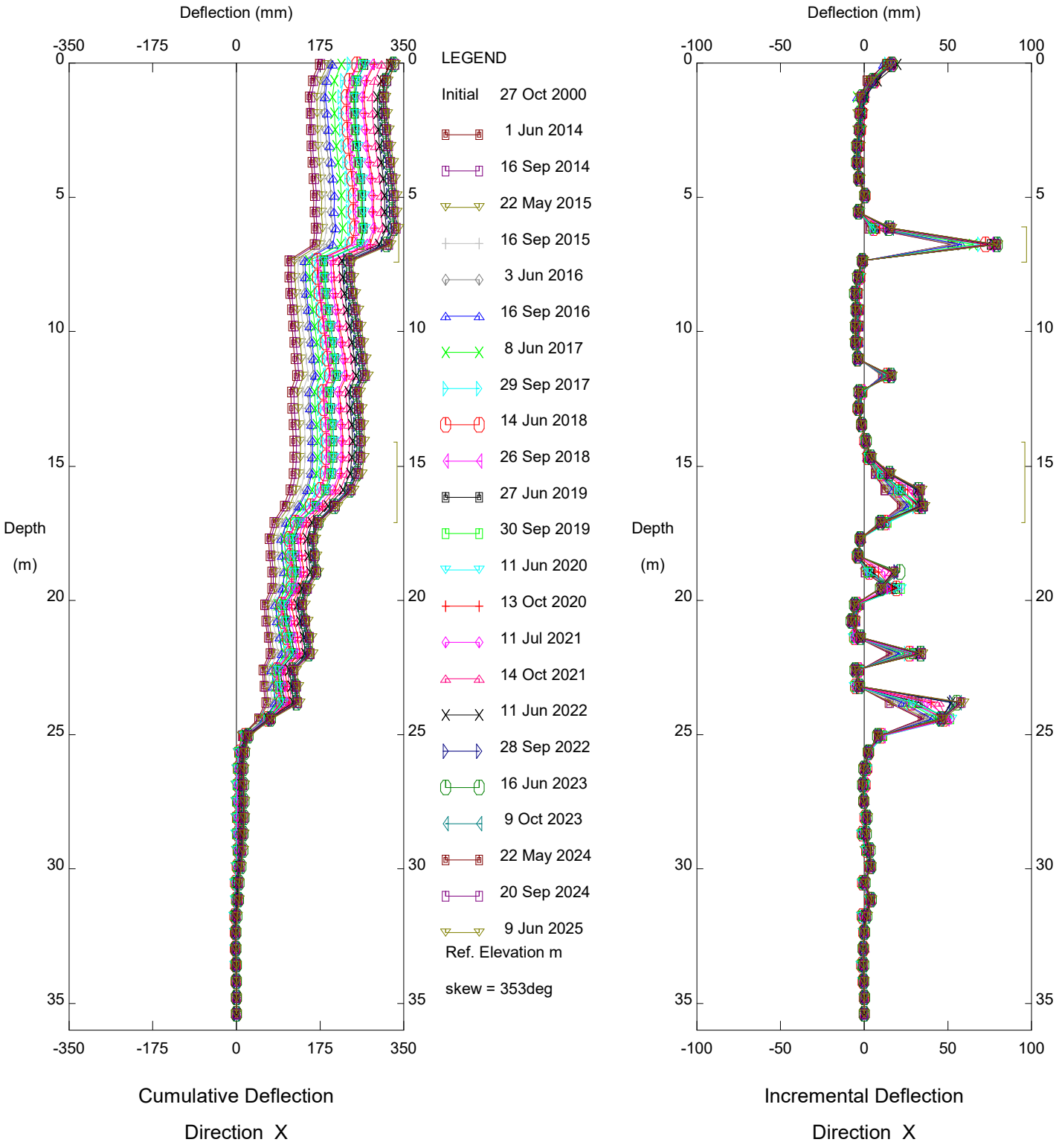
Direction B

HWY 744:04 - STA. 57+700 to 58+000, Inclinometer SI98-10i

Alberta Transportation

G:\32000\32121 AT GRMP Peace River District 2021-2025\Section C\2025A-Spring\SI Readings\PH031\JH98-10I (1).GTL

Thurber Engineering Ltd.



Cumulative Deflection

Direction X

Incremental Deflection

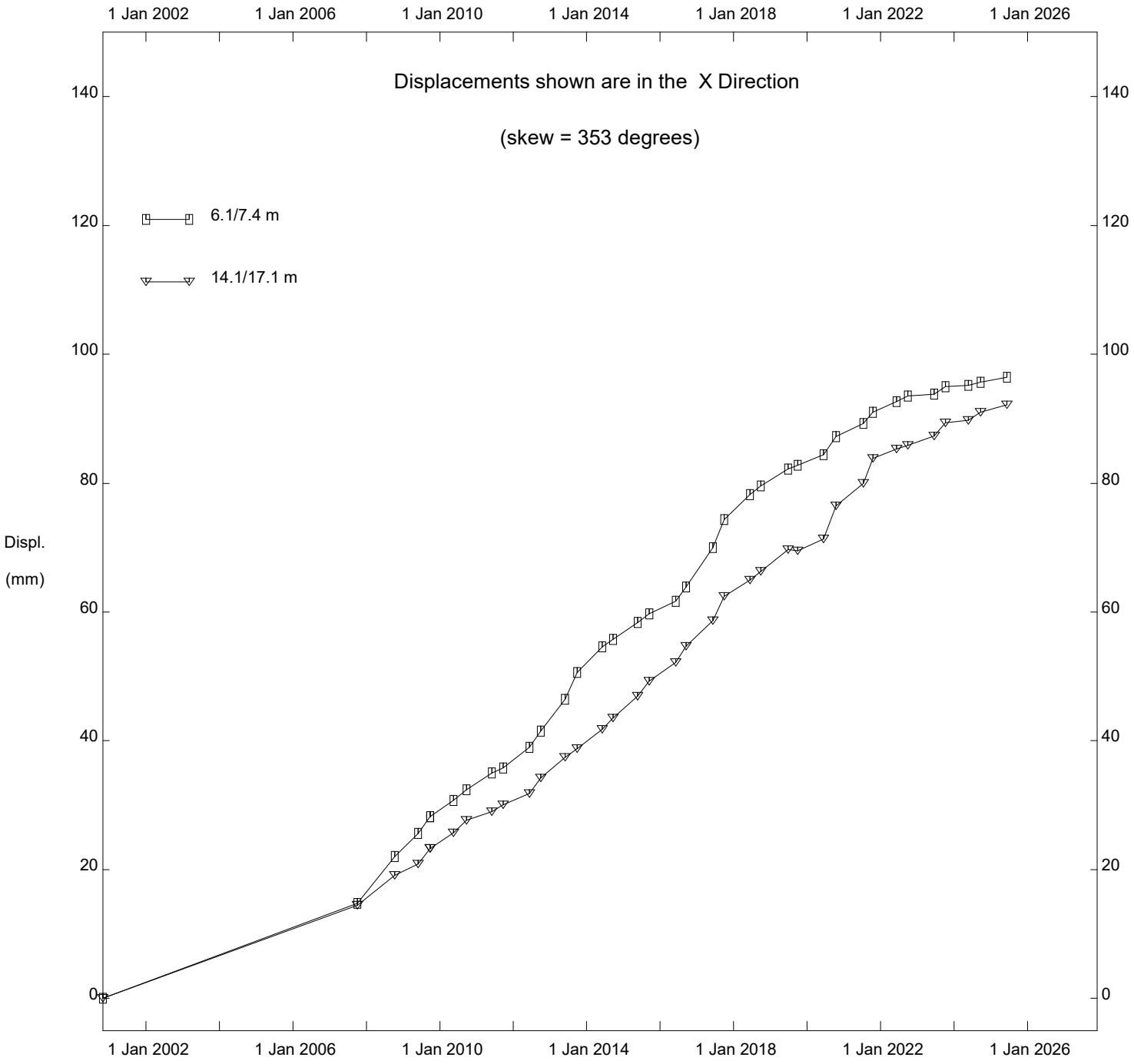
Direction X

HWY 744:04 - STA. 57+700 to 58+000, Inclinometer SI98-10i

Alberta Transportation

G:\32000\32121 AT GRMP Peace River District 2021-2025\Section C\2025A-Spring\SI Readings\PH031\JH98-10I (1).GTL

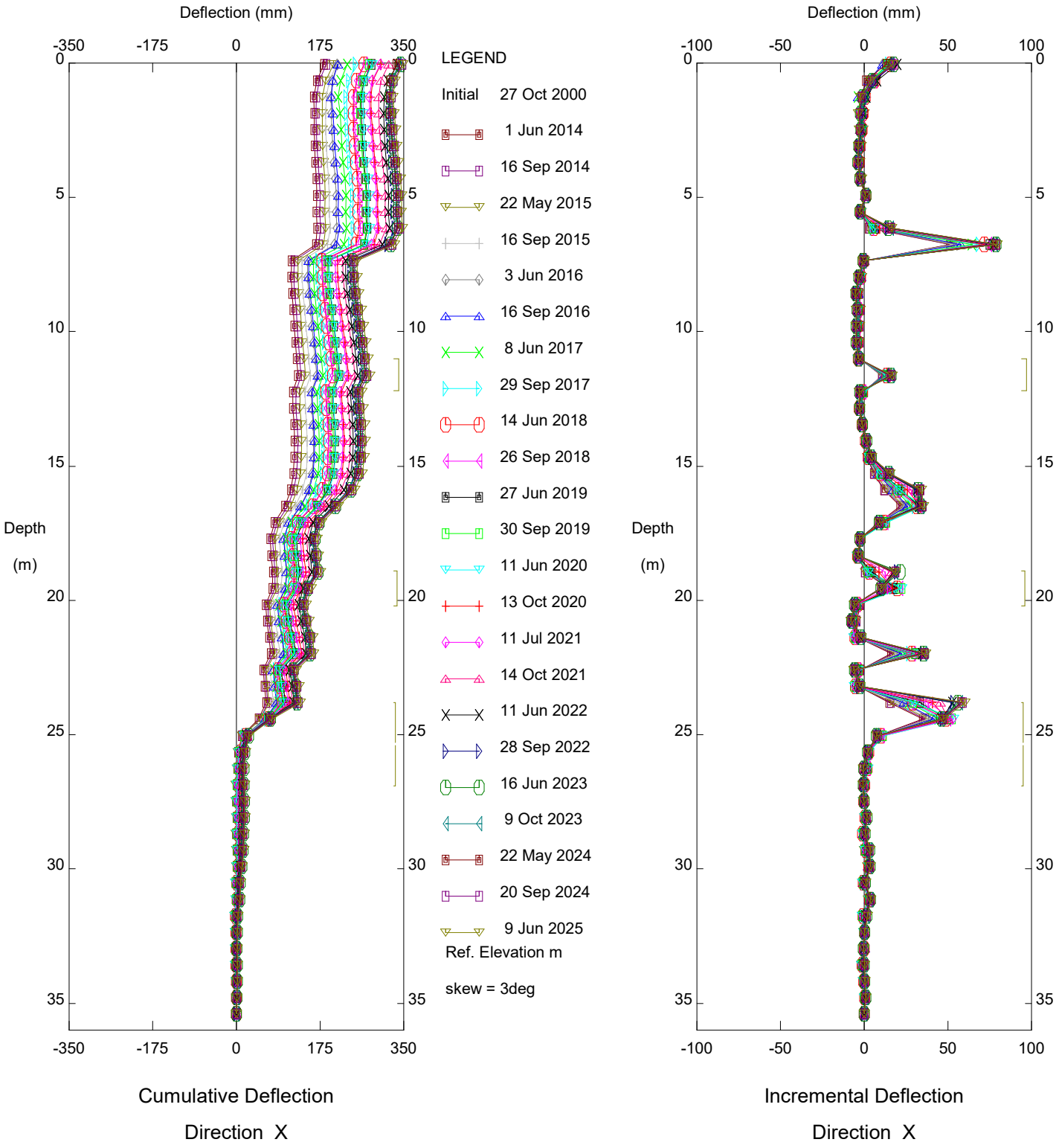
Thurber Engineering Ltd.



HWY 744:04 - STA. 57+700 to 58+000, Inclinometer SI98-10i

Alberta Transportation

Thurber Engineering Ltd.



Cumulative Deflection

Direction X

Incremental Deflection

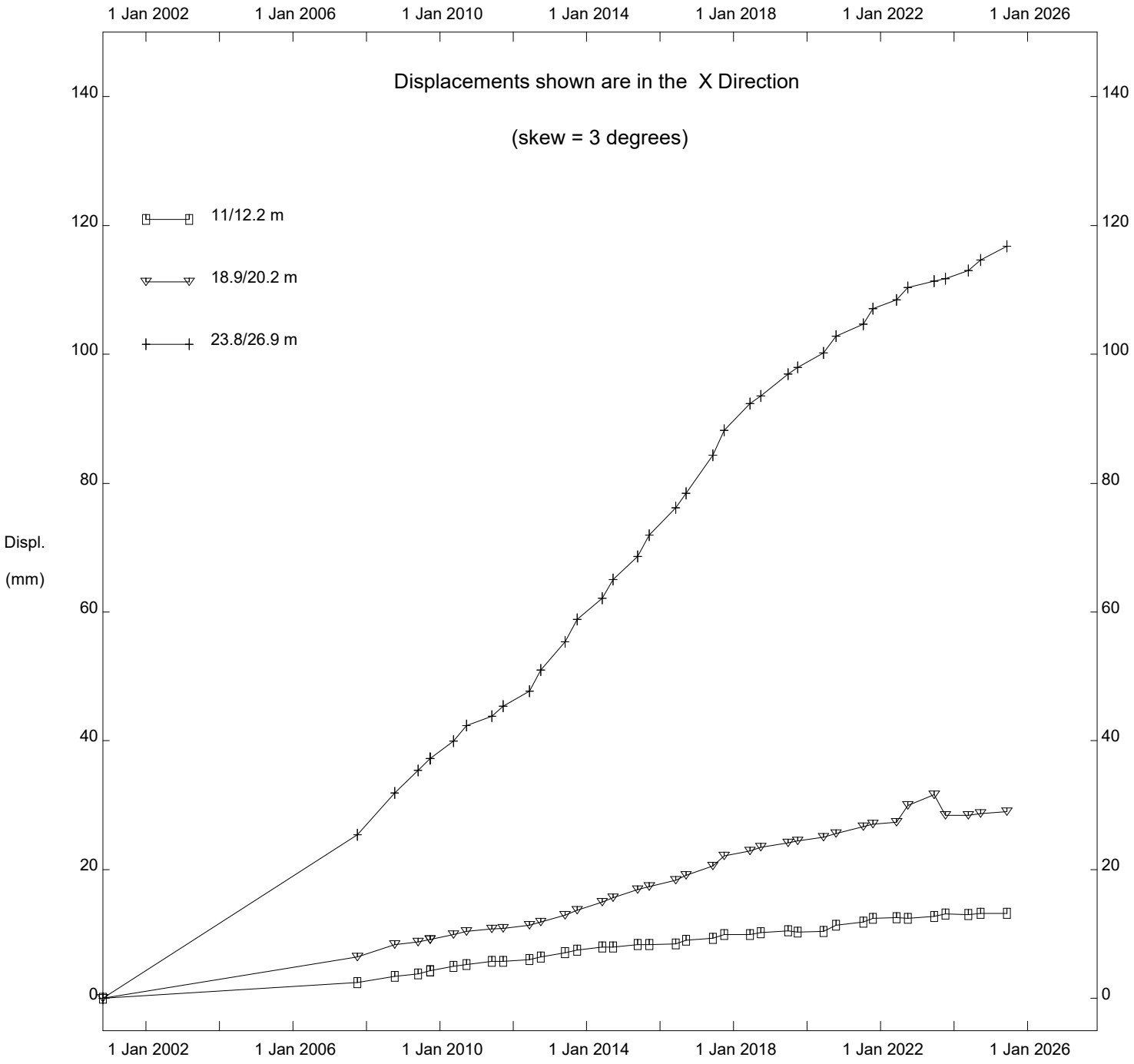
Direction X

HWY 744:04 - STA. 57+700 to 58+000, Inclinometer SI98-10i

Alberta Transportation

G:\32000\32121 AT GRMP Peace River District 2021-2025\Section C\2025A-Spring\SI Readings\PH031\JH98-10I (1).GTL

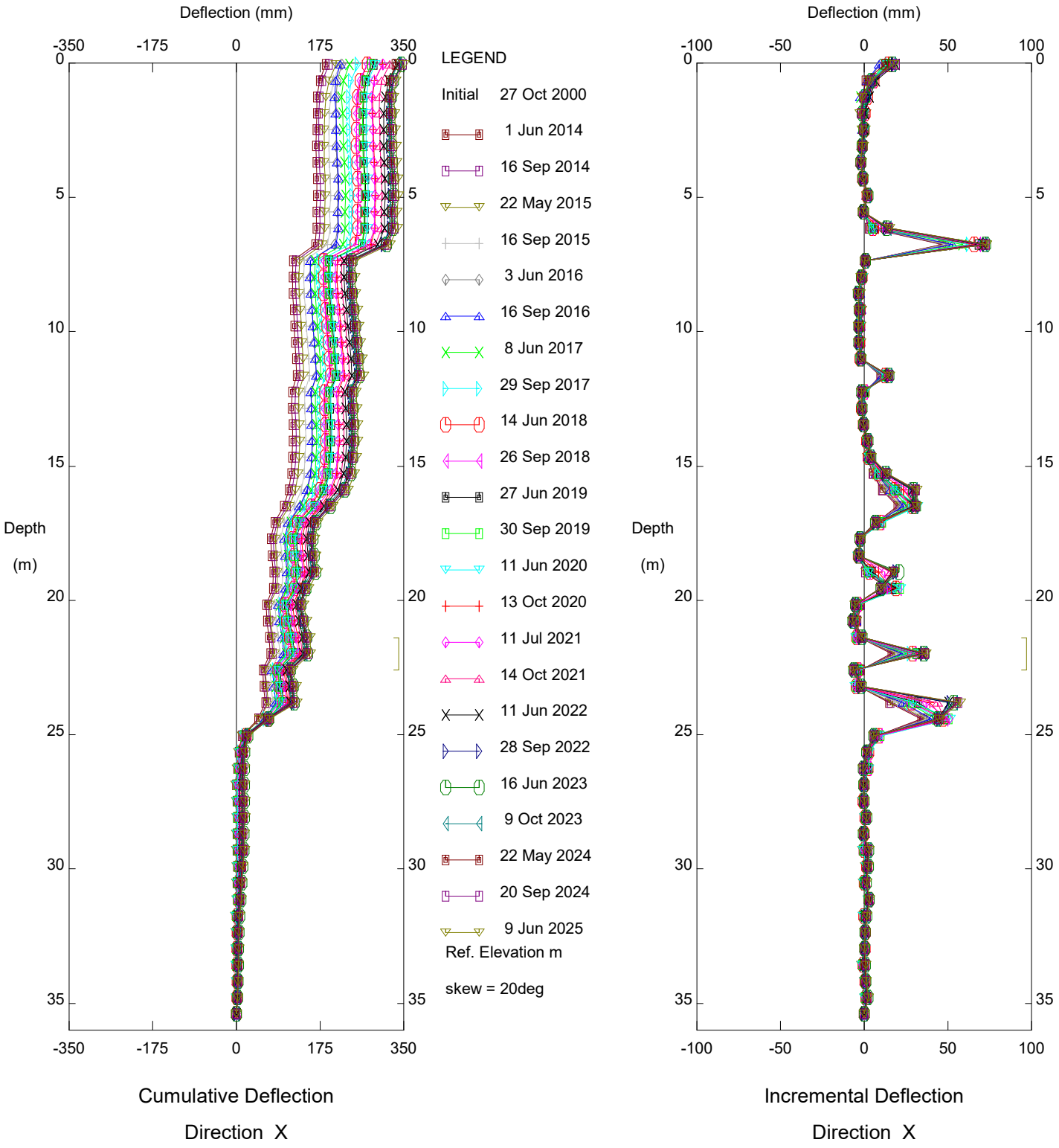
Thurber Engineering Ltd.



HWY 744:04 - STA. 57+700 to 58+000, Inclinometer SI98-10i

Alberta Transportation

Thurber Engineering Ltd.



Cumulative Deflection

Direction X

Incremental Deflection

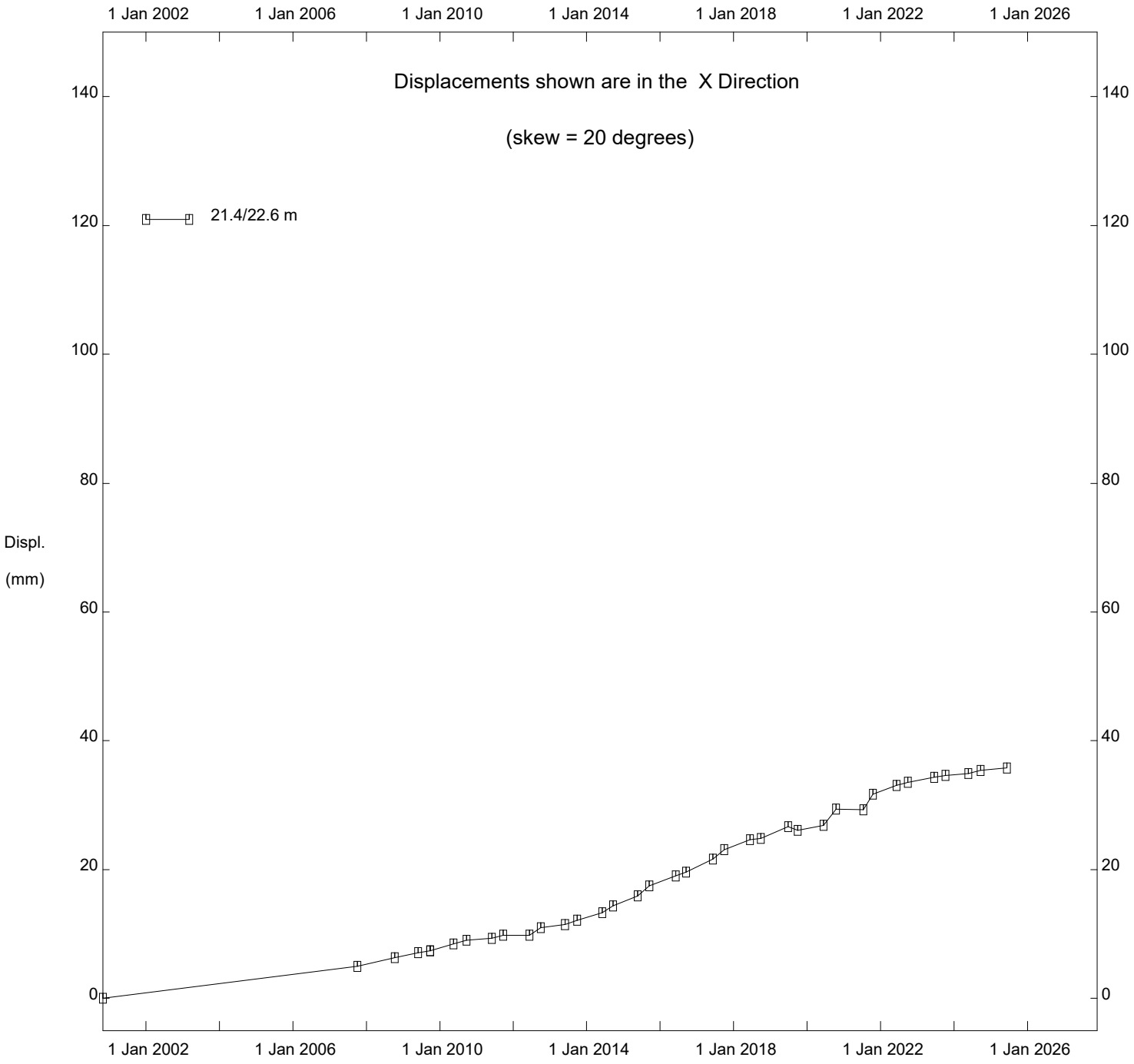
Direction X

HWY 744:04 - STA. 57+700 to 58+000, Inclinometer SI98-10i

Alberta Transportation

G:\32000\32121 AT GRMP Peace River District 2021-2025\Section C\2025A-Spring\SI Readings\PH031\JH98-10I (1).GTL

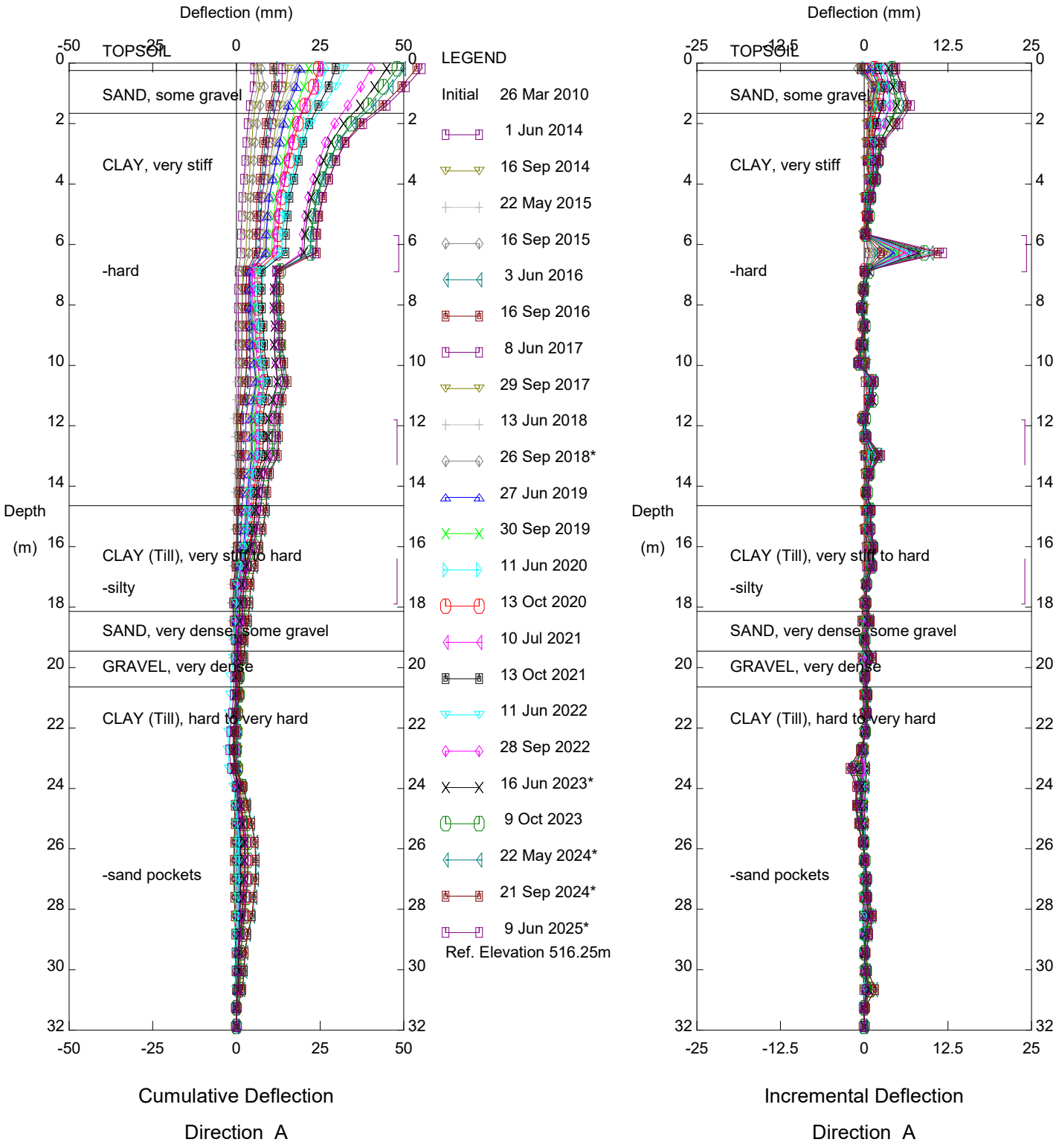
Thurber Engineering Ltd.



HWY 744:04 - STA. 57+700 to 58+000, Inclinometer SI98-10i

Alberta Transportation

Thurber Engineering Ltd.



Cumulative Deflection

Direction A

Incremental Deflection

Direction A

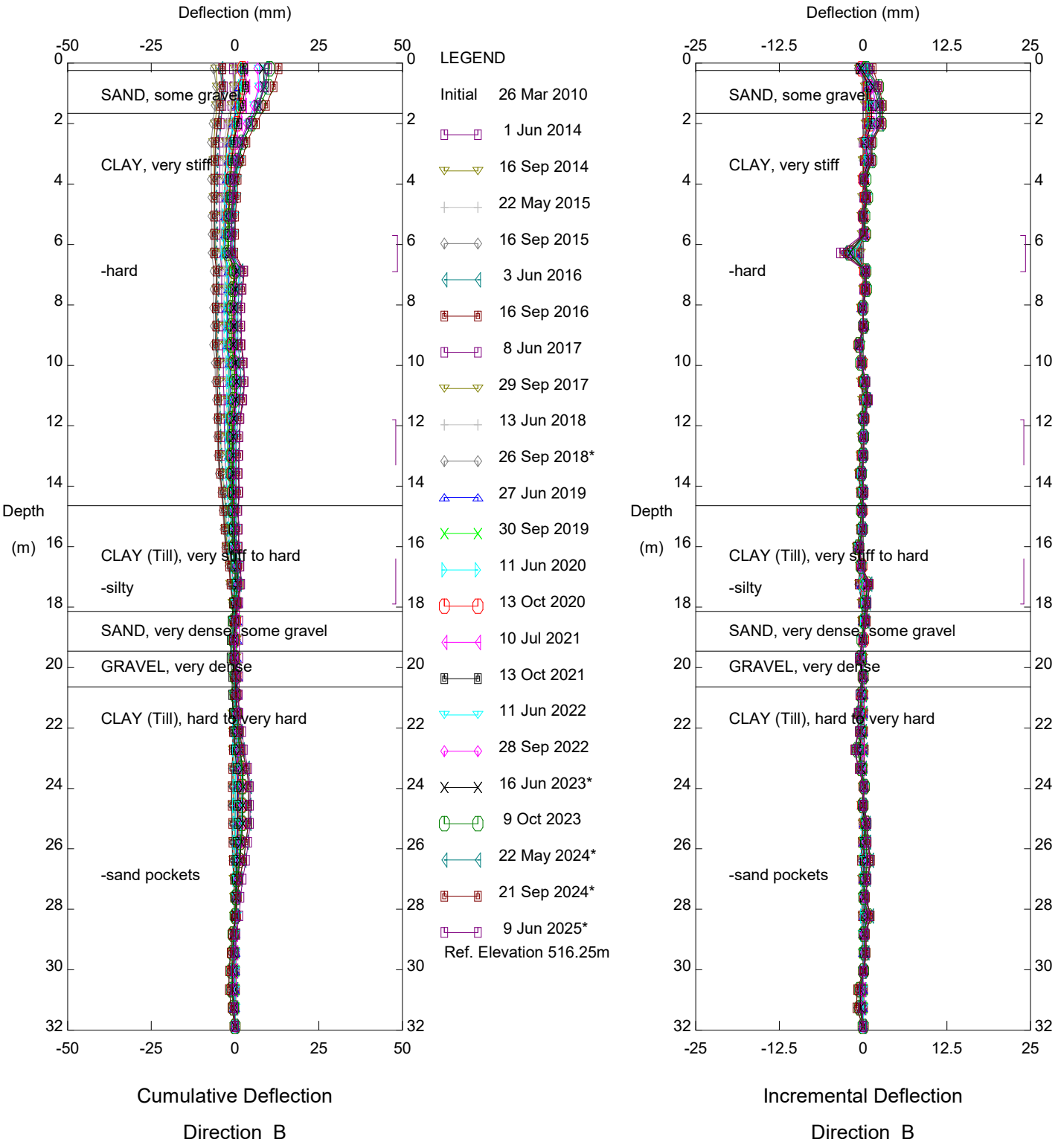
PH031 Judah Hill Michelin Slide, Inclinometer SI10-4

Alberta Transportation

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

G:\32000\32121 AT GRMP Peace River District 2021-2025\Section C\2025A-Spring\SI Readings\PH031\SI10-4.gtl

Thurber Engineering Ltd.



Cumulative Deflection

Direction B

Incremental Deflection

Direction B

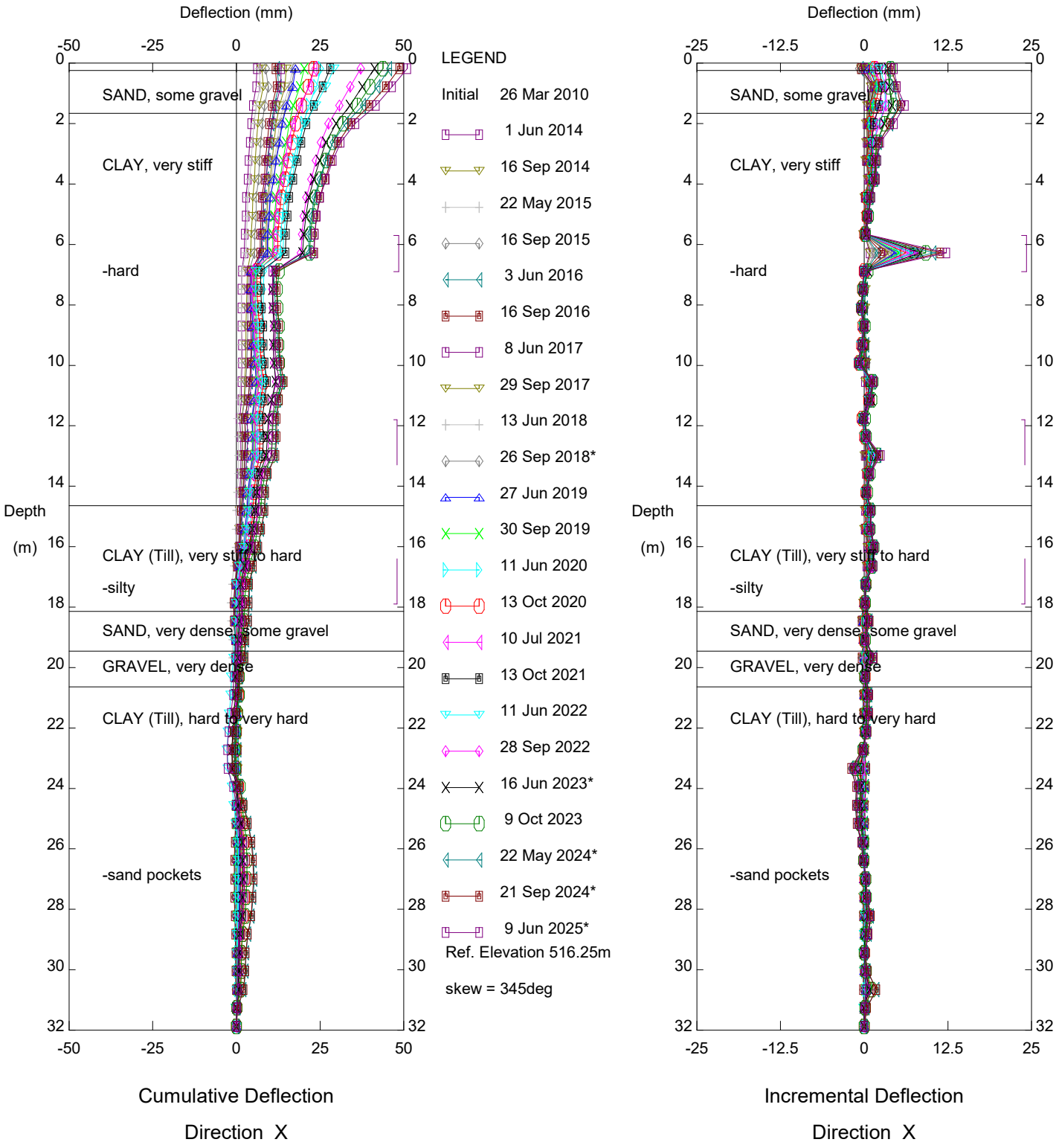
PH031 Judah Hill Michelin Slide, Inclinometer SI10-4

Alberta Transportation

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

G:\32000\32121 AT GRMP Peace River District 2021-2025\Section C\2025A-Spring\SI Readings\PH031\SI10-4.gtl

Thurber Engineering Ltd.



Cumulative Deflection

Direction X

Incremental Deflection

Direction X

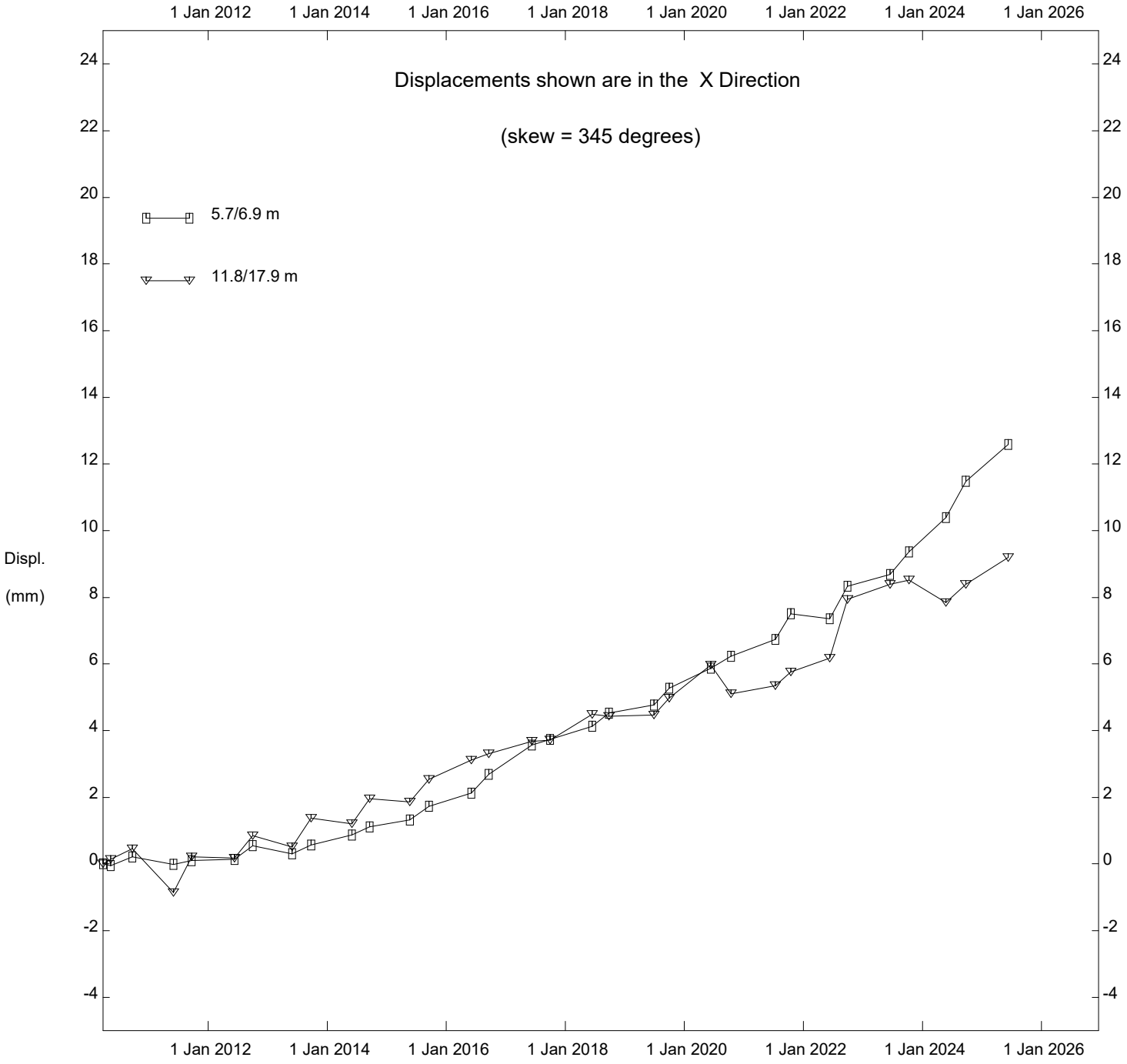
PH031 Judah Hill Michelin Slide, Inclinometer SI10-4

Alberta Transportation

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

G:\32000\32121 AT GRMP Peace River District 2021-2025\Section C\2025A-Spring\SI Readings\PH031\SI10-4.gtl

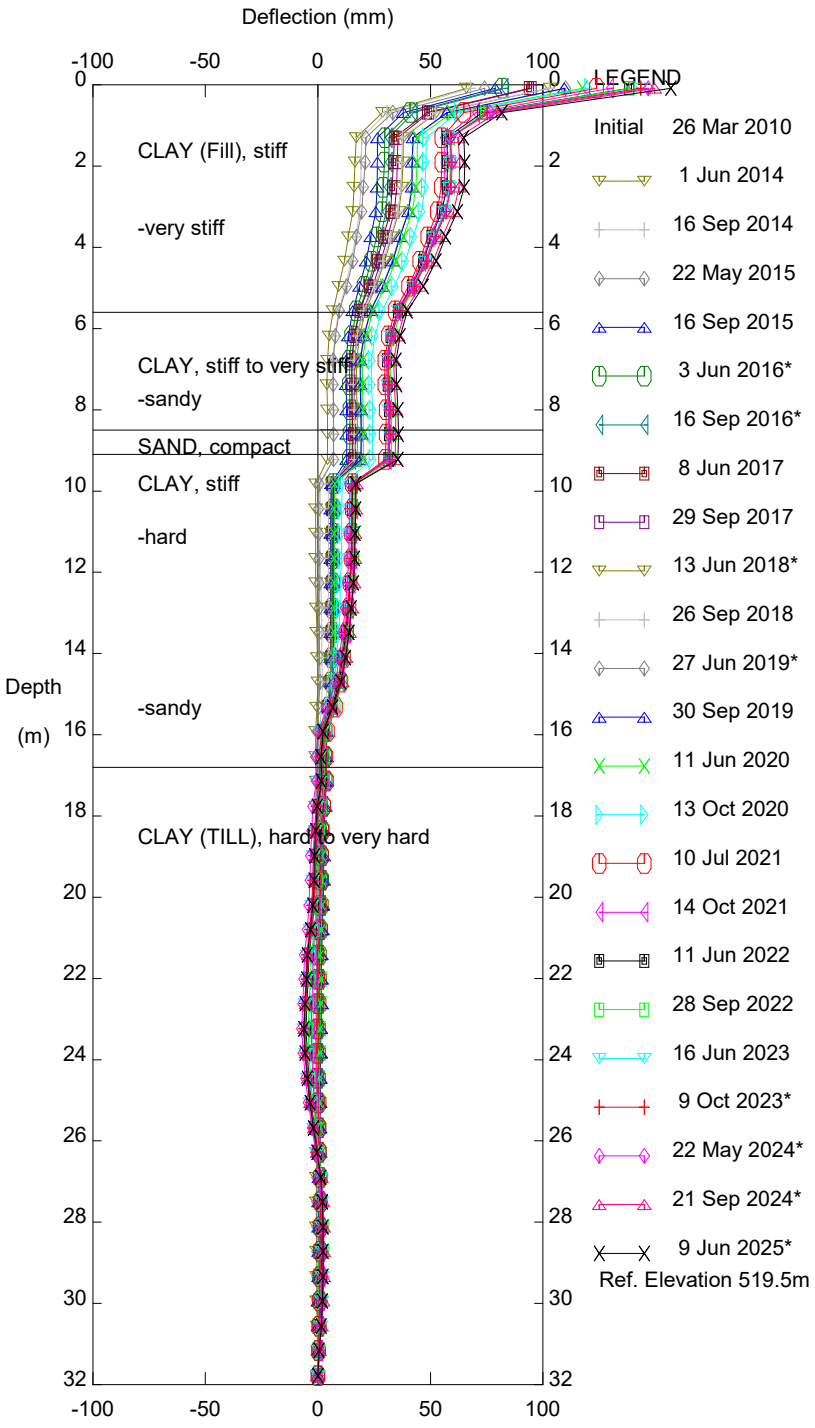
Thurber Engineering Ltd.



PH031 Judah Hill Michelin Slide, Inclinometer SI10-4

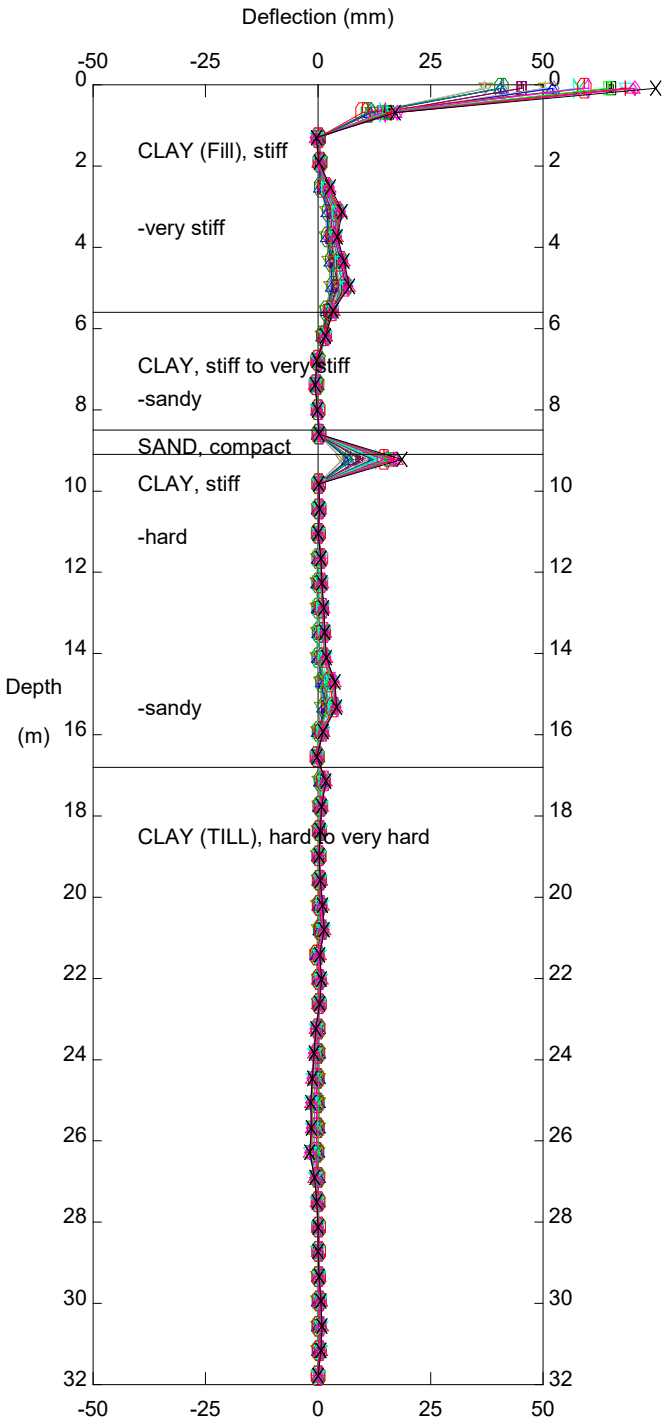
Alberta Transportation

Thurber Engineering Ltd.



Cumulative Deflection

Direction A



Incremental Deflection

Direction A

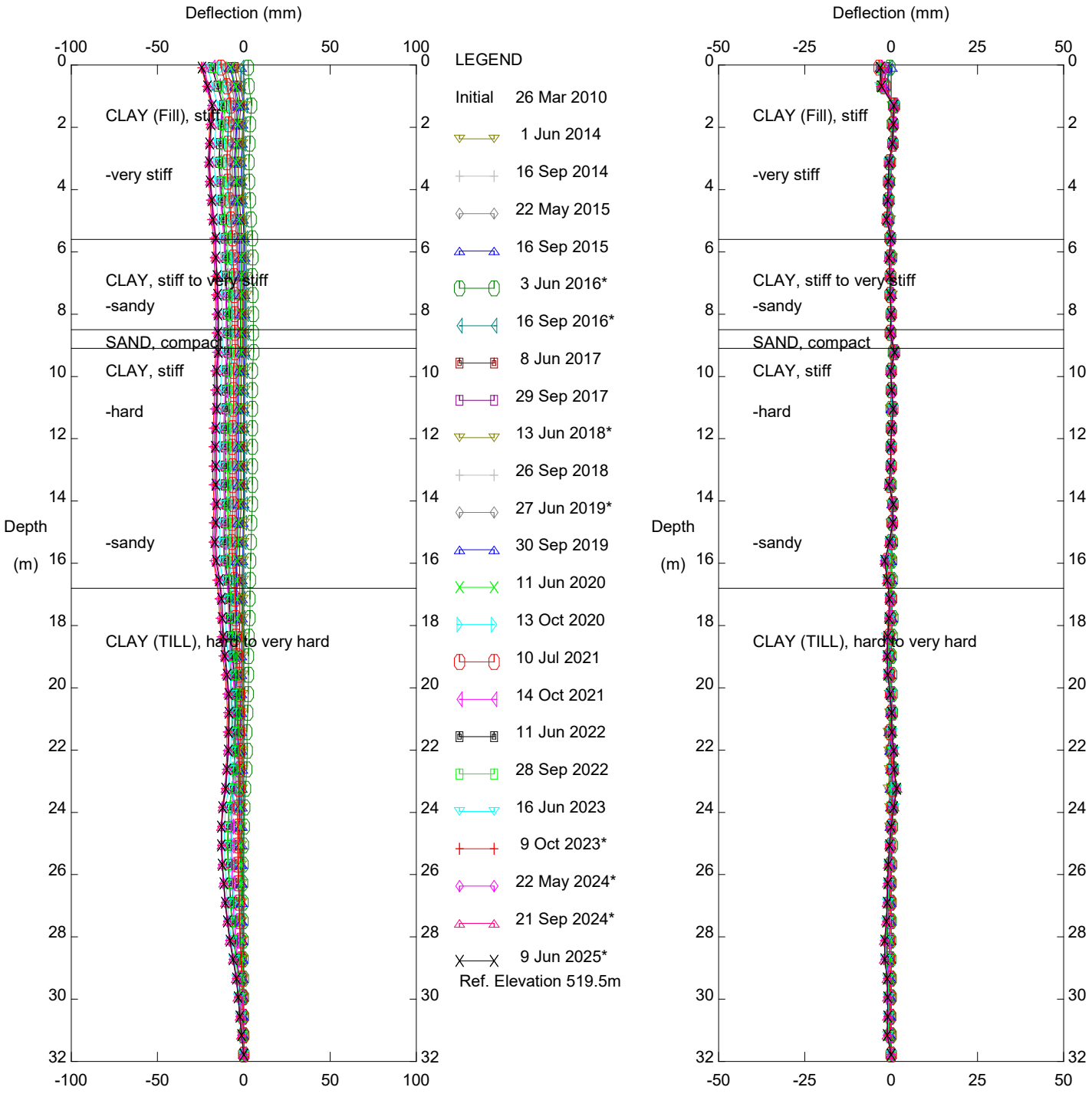
PH031 Judah Hill Michelin Slide, Inclinometer SI10-7

Alberta Transportation

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

G:\32000\32121 AT GRMP Peace River District 2021-2025\Section C\2025A-Spring\SI Readings\PH031\SI10-7.gtl

Thurber Engineering Ltd.



Cumulative Deflection

Direction B

Incremental Deflection

Direction B

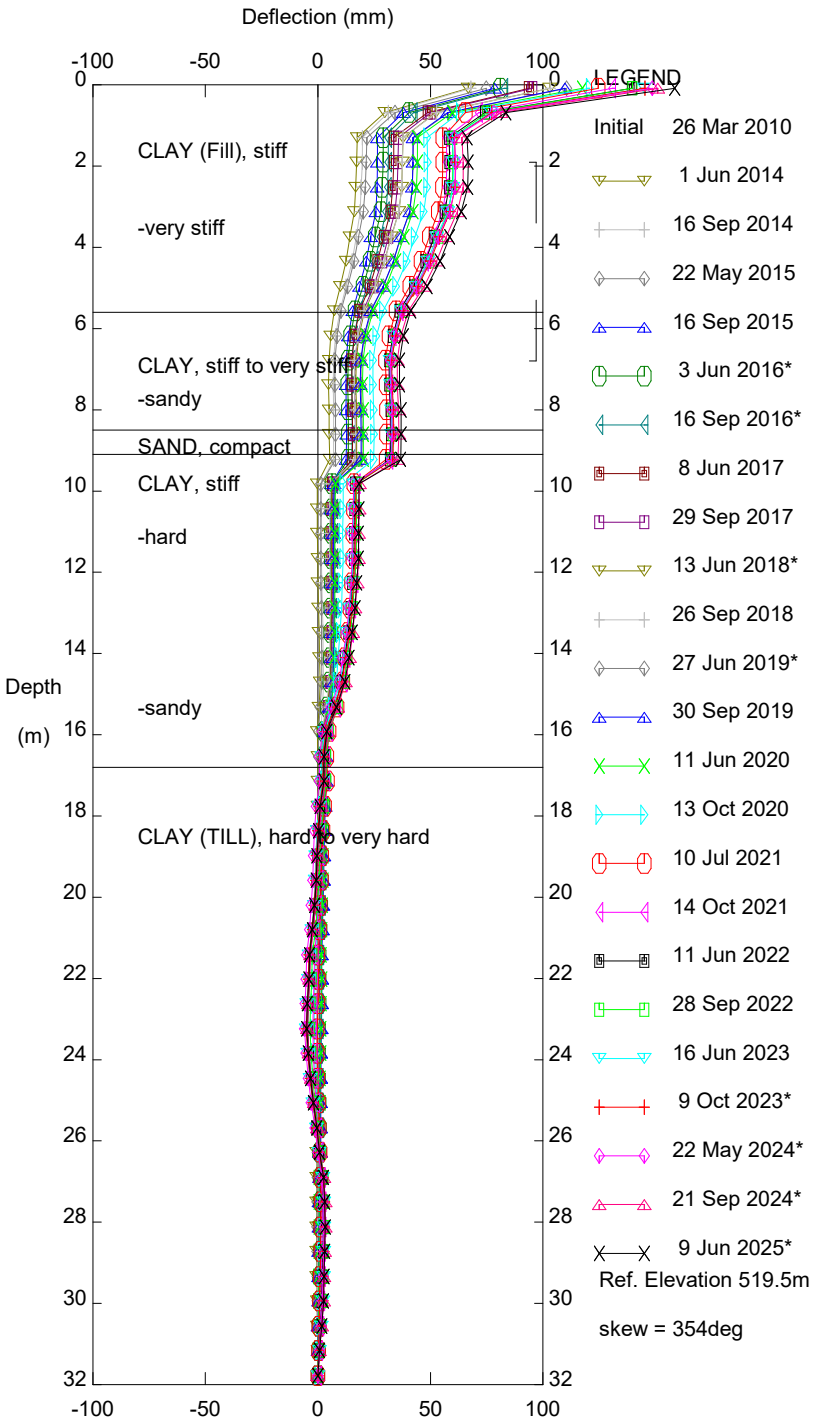
PH031 Judah Hill Michelin Slide, Inclinometer SI10-7

Alberta Transportation

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

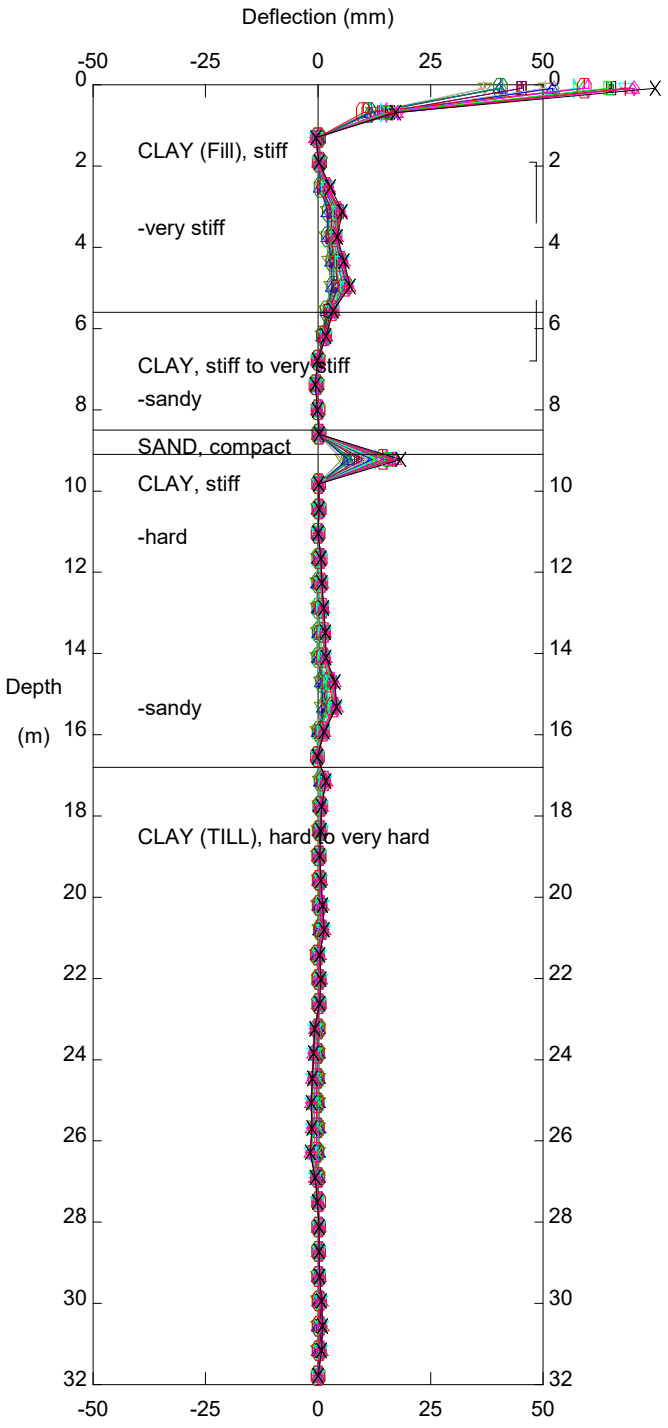
G:\32000\32121 AT GRMP Peace River District 2021-2025\Section C\2025A-Spring\SI Readings\PH031\SI10-7.gtl

Thurber Engineering Ltd.



Cumulative Deflection

Direction X



Incremental Deflection

Direction X

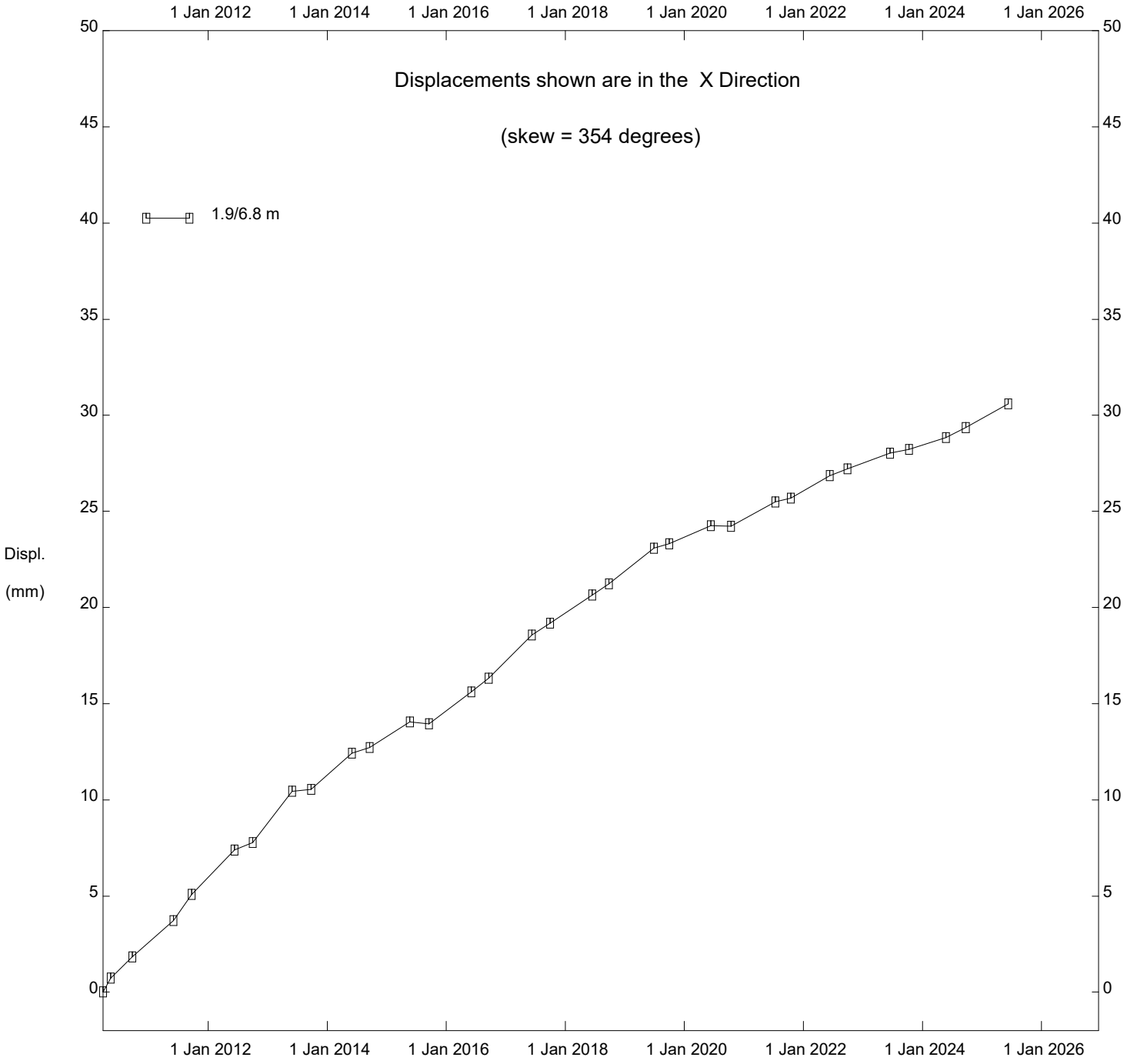
PH031 Judah Hill Michelin Slide, Inclinometer SI10-7

Alberta Transportation

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

G:\32000\32121 AT GRMP Peace River District 2021-2025\Section C\2025A-Spring\SI Readings\PH031\SI10-7.gtl

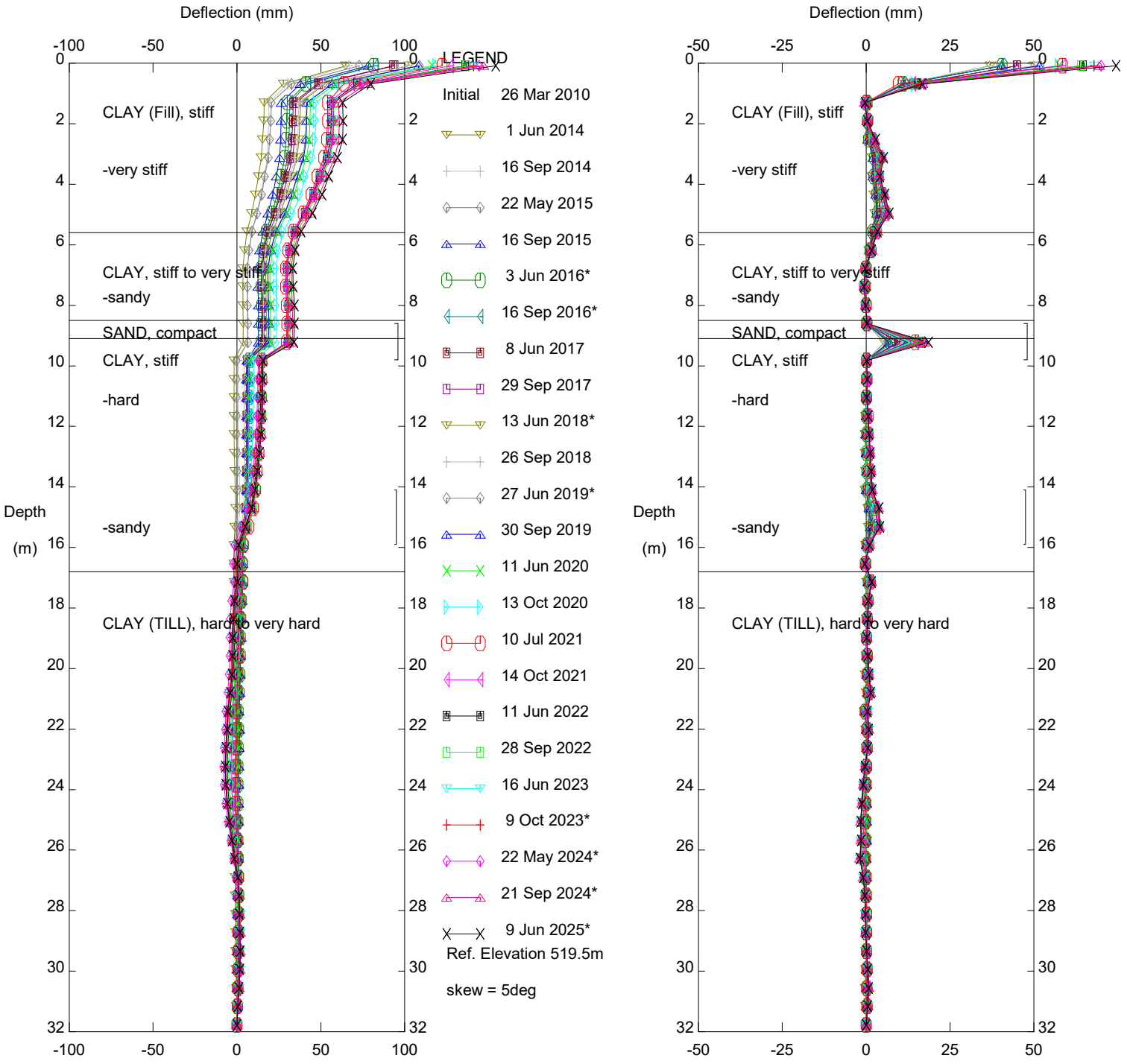
Thurber Engineering Ltd.



PH031 Judah Hill Michelin Slide, Inclinometer SI10-7

Alberta Transportation

Thurber Engineering Ltd.



Cumulative Deflection

Direction X

Incremental Deflection

Direction X

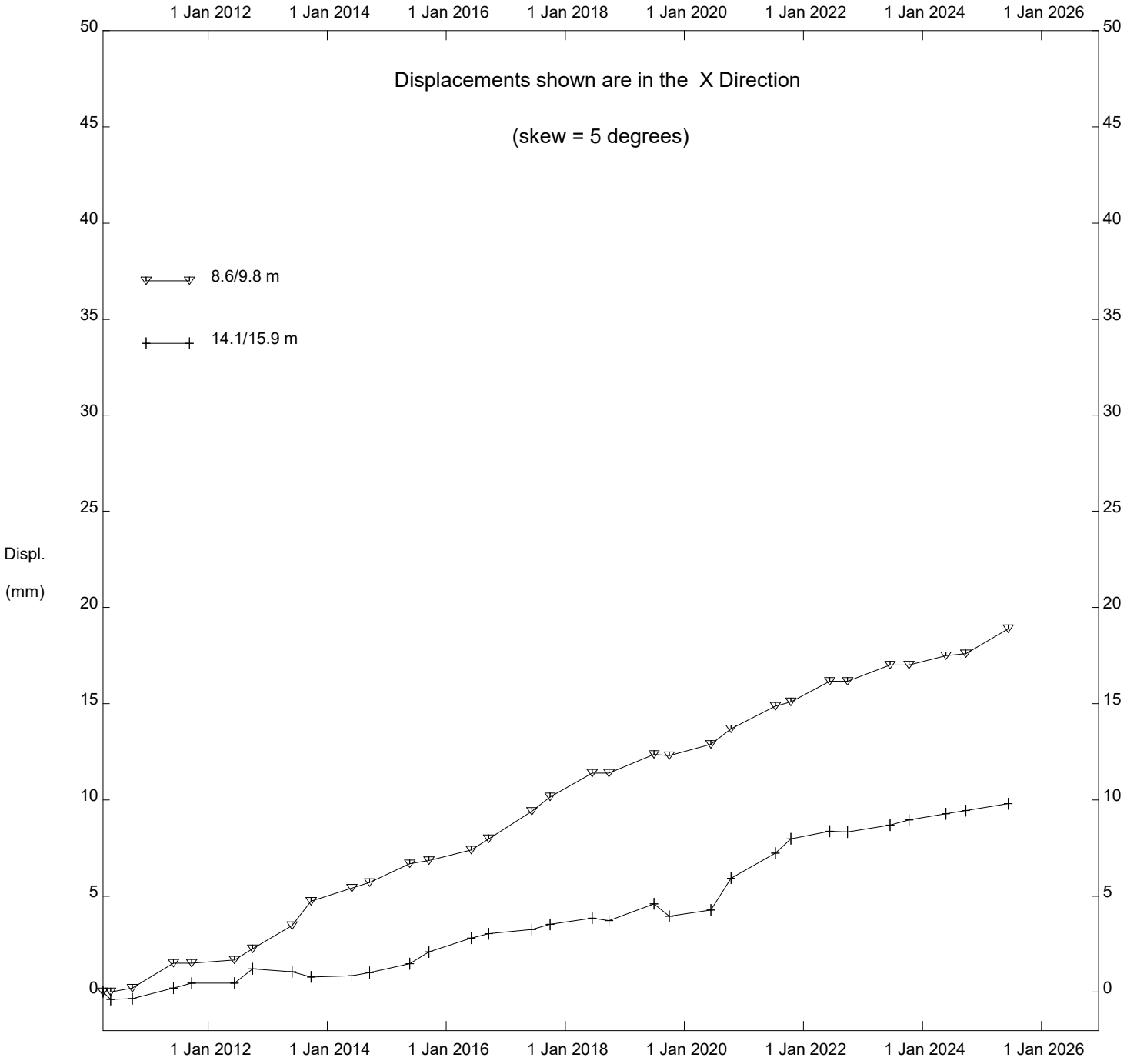
PH031 Judah Hill Michelin Slide, Inclinometer SI10-7

Alberta Transportation

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

G:\32000\32121 AT GRMP Peace River District 2021-2025\Section C\2025A-Spring\SI Readings\PH031\SI10-7.gtl

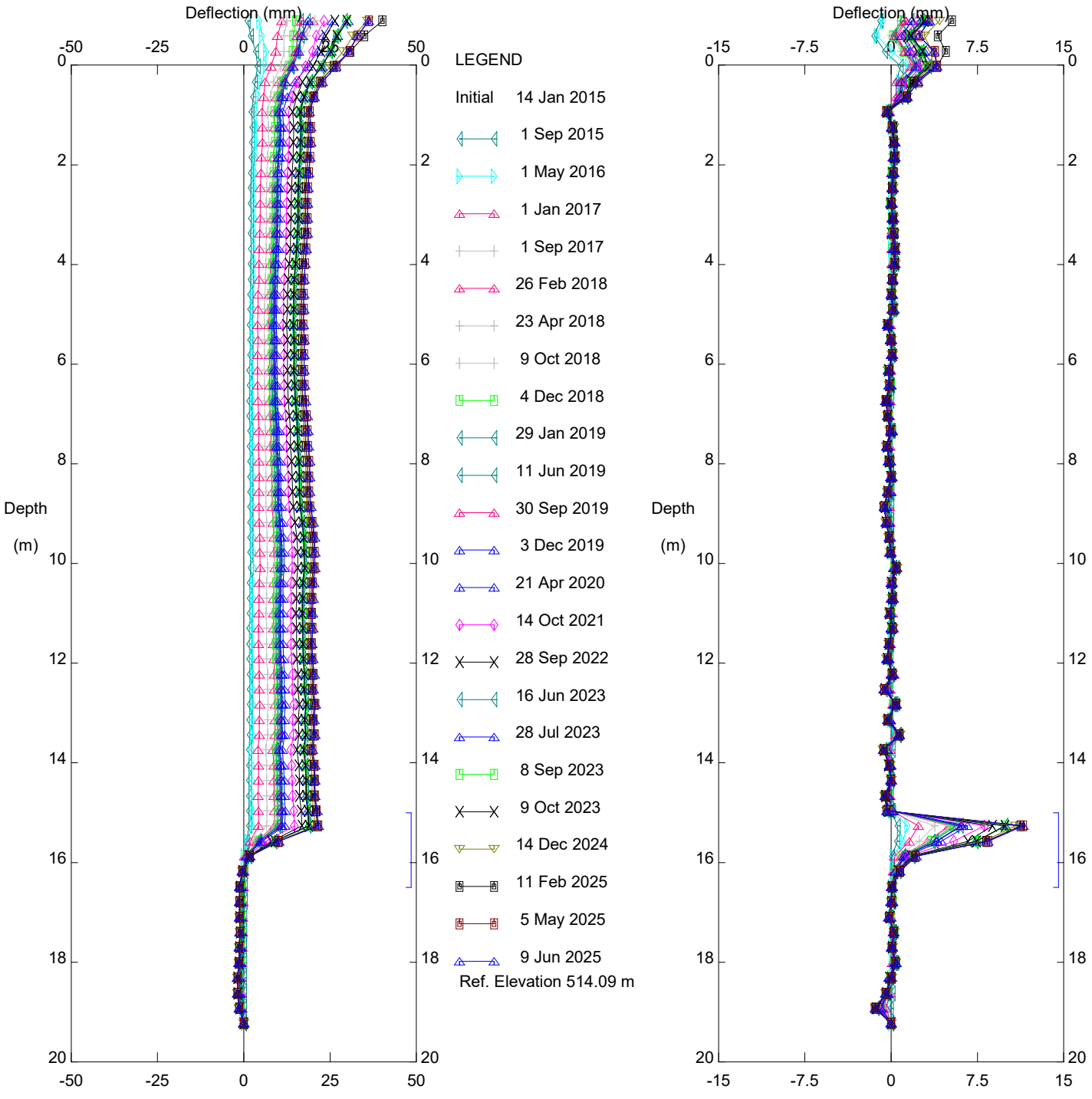
Thurber Engineering Ltd.



PH031 Judah Hill Michelin Slide, Inclinometer SI10-7

Alberta Transportation

Thurber Engineering Ltd.



Cumulative Deflection

Direction A

Incremental Deflection

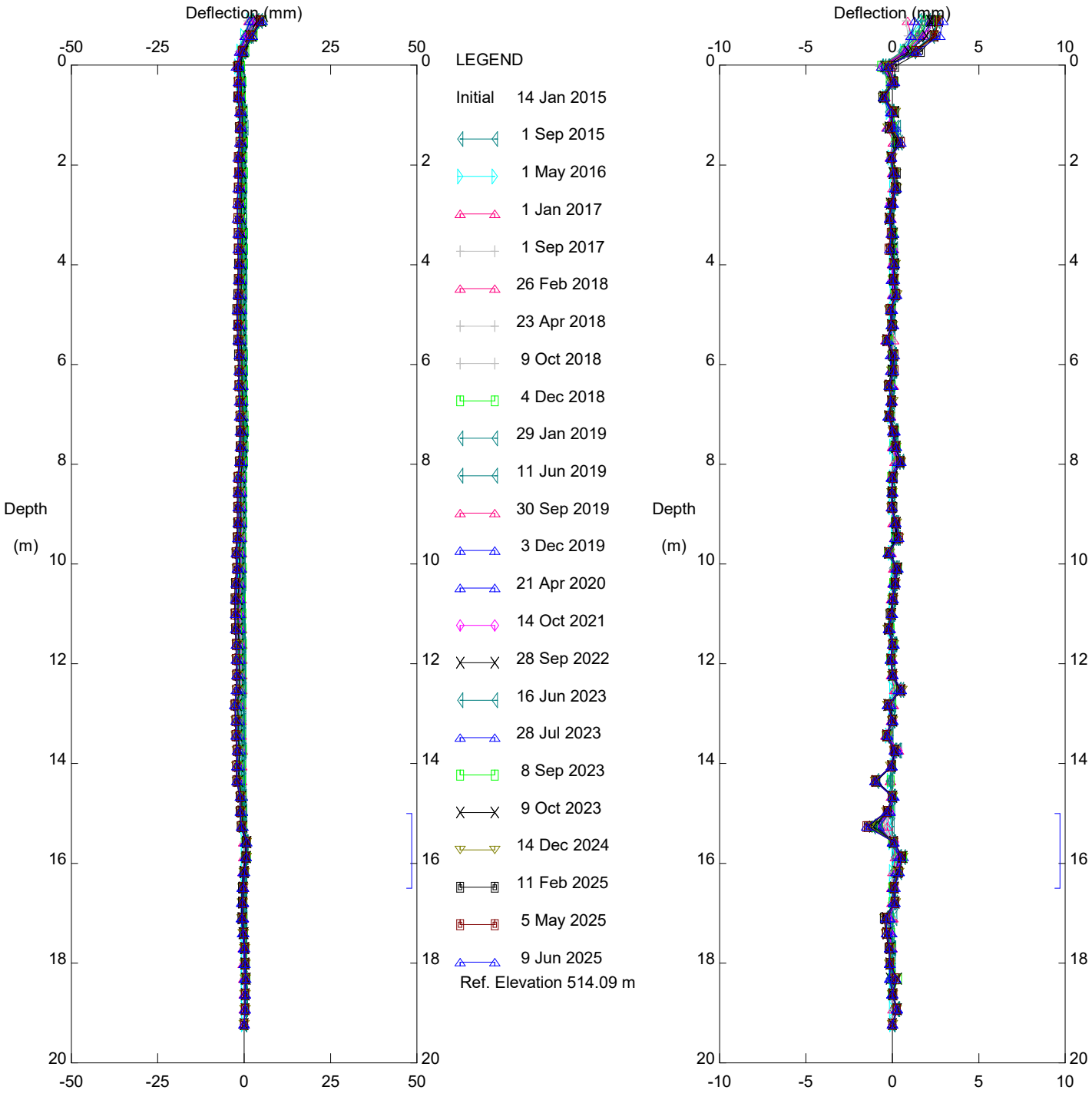
Direction A

PH031 Judah Hill Michelin Slide, Inclinometer SAA10-8

Alberta Transportation

G:\32000\32121 AT GRMP Peace River District 2021-2025\Section C\2025A-Spring\SAA'S\2025 PH031 Spring SAA Readings\SAA10-8.gtl

Thurber Engineering Ltd.



Cumulative Deflection

Direction B

Incremental Deflection

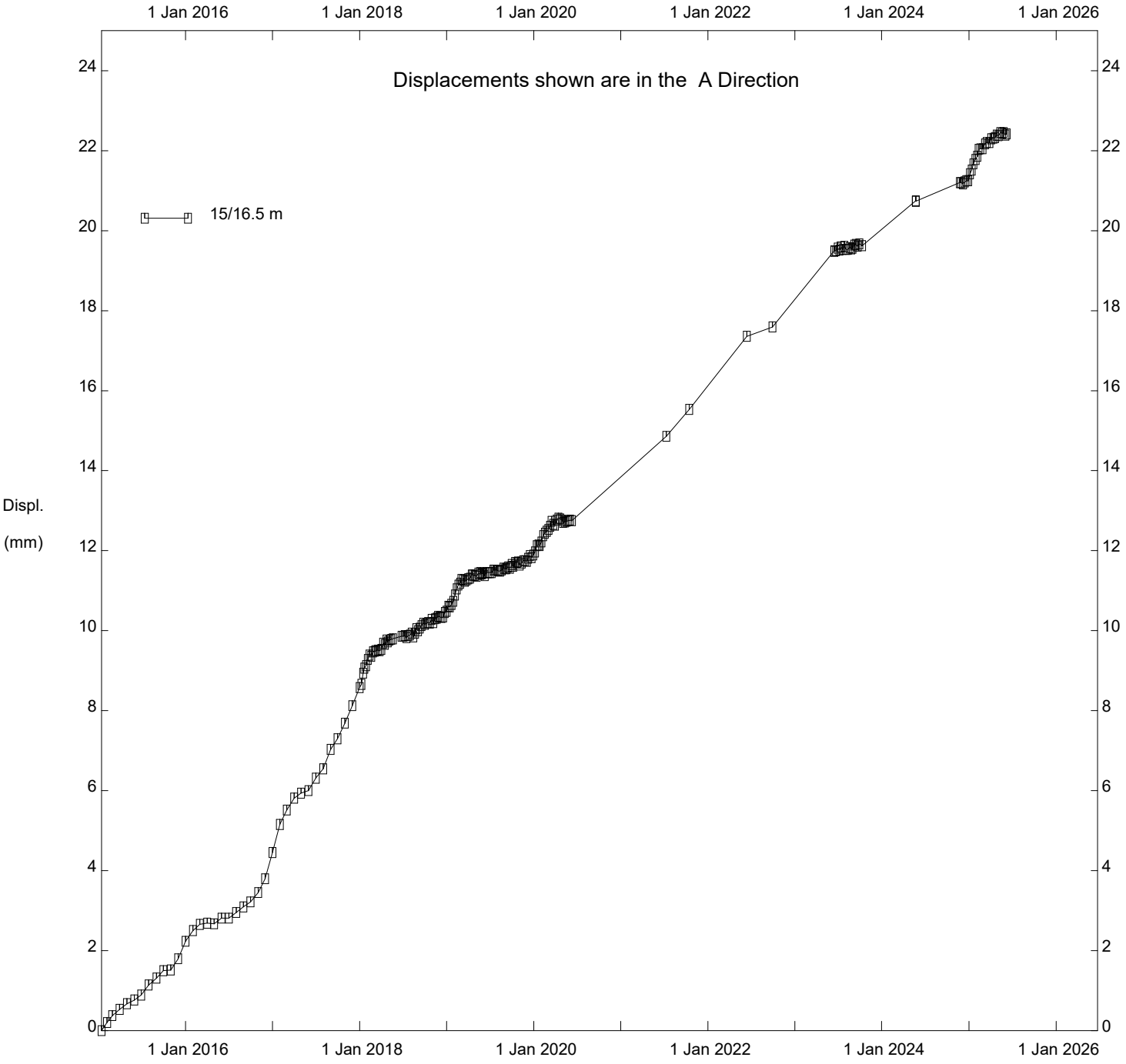
Direction B

PH031 Judah Hill Michelin Slide, Inclinometer SAA10-8

Alberta Transportation

G:\32000\32121 AT GRMP Peace River District 2021-2025\Section C\2025A-Spring\SAA'S\2025 PH031 Spring SAA Readings\SAA10-8.gtl

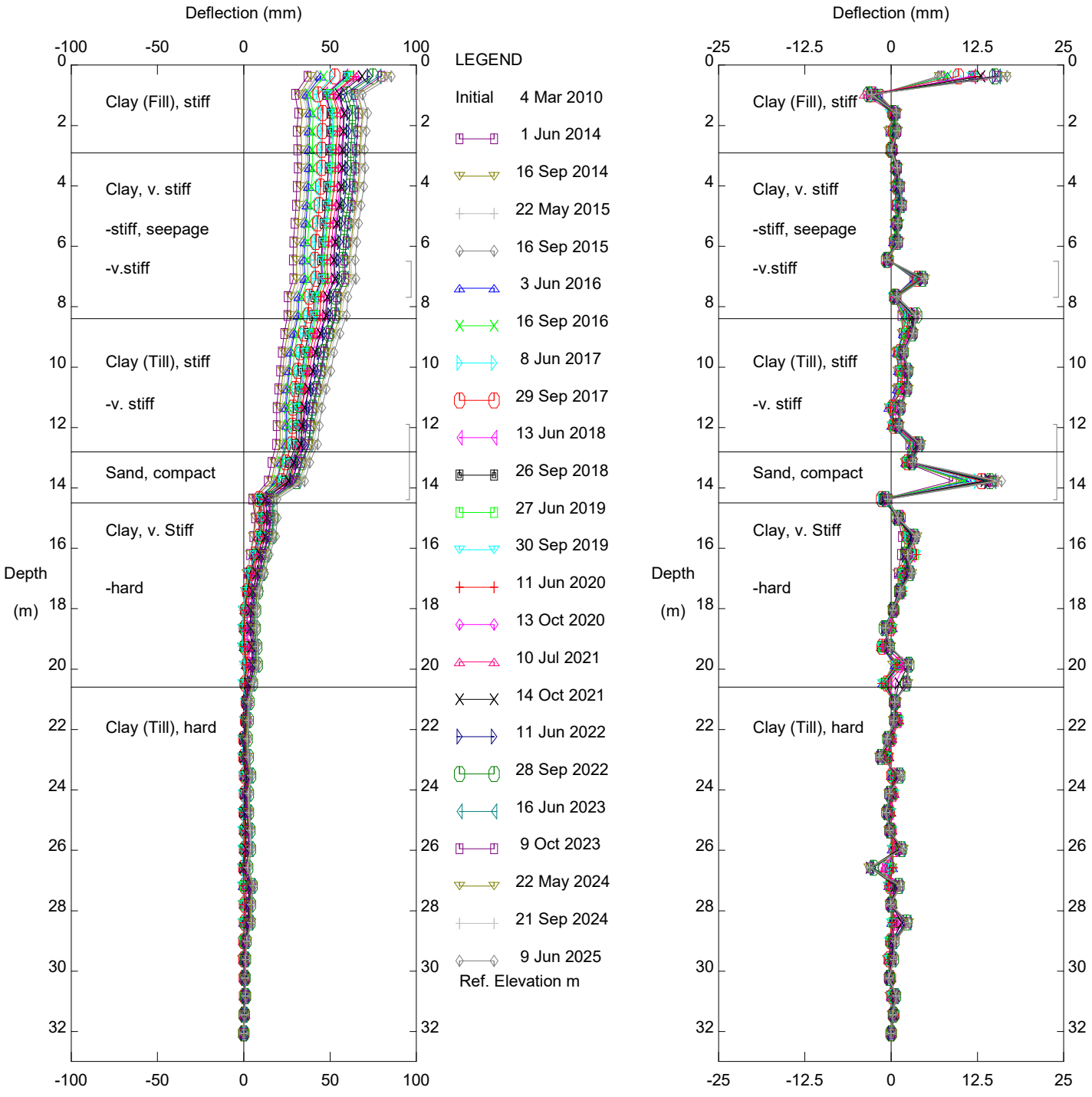
Thurber Engineering Ltd.



PH031 Judah Hill Michelin Slide, Inclinometer SAA10-8

Alberta Transportation

Thurber Engineering Ltd.



Cumulative Deflection

Direction A

Incremental Deflection

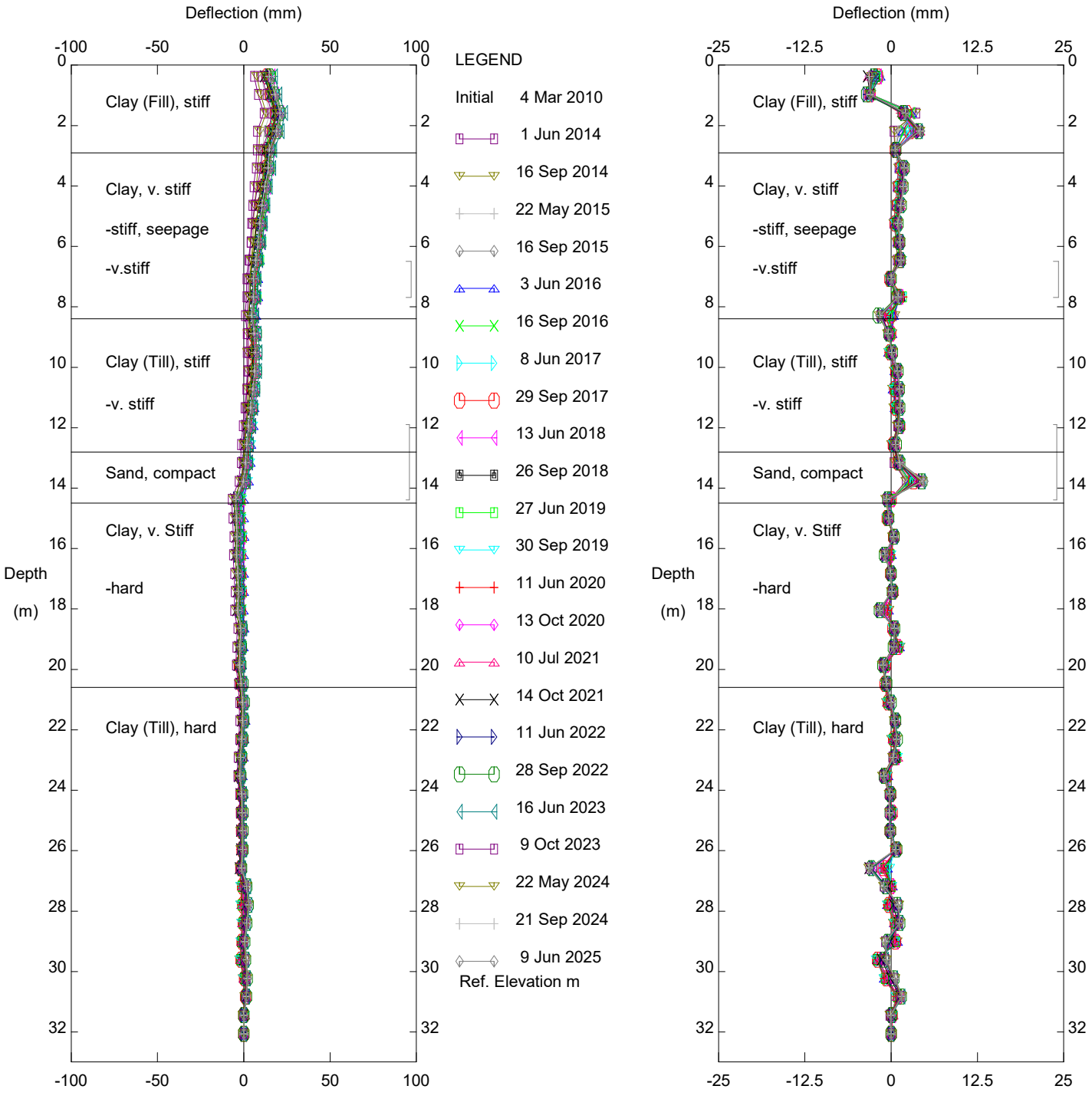
Direction A

PH031 Judah Hill Michelin Slide, Inclinometer SI10-9

Alberta Transportation

G:\32000\32121 AT GRMP Peace River District 2021-2025\Section C\2025A-Spring\SI Readings\PH031\SI10-9.gtl

Thurber Engineering Ltd.



Cumulative Deflection

Direction B

Incremental Deflection

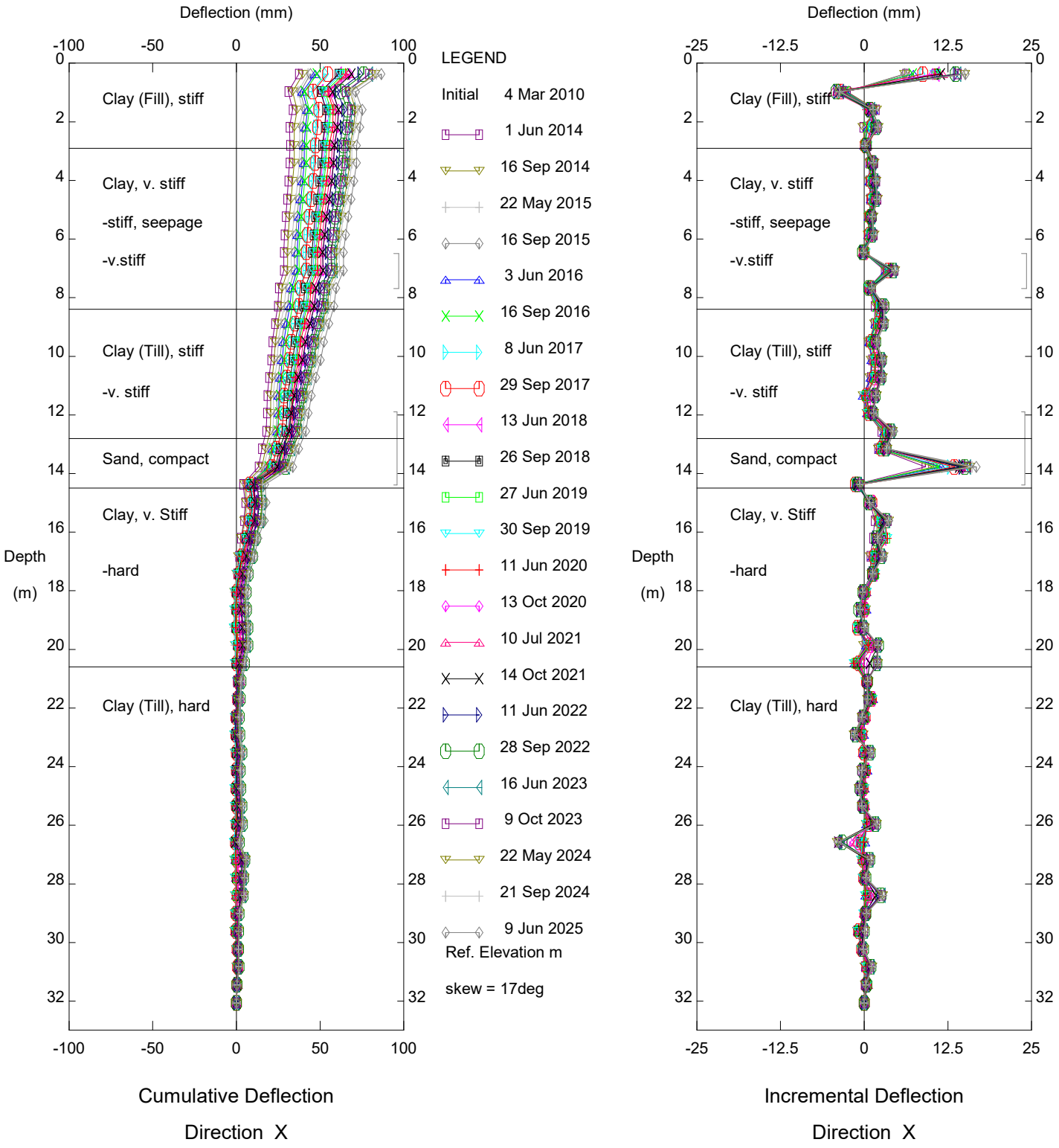
Direction B

PH031 Judah Hill Michelin Slide, Inclinometer SI10-9

Alberta Transportation

G:\32000\32121 AT GRMP Peace River District 2021-2025\Section C\2025A-Spring\SI Readings\PH031\SI10-9.gtl

Thurber Engineering Ltd.



Cumulative Deflection

Direction X

Incremental Deflection

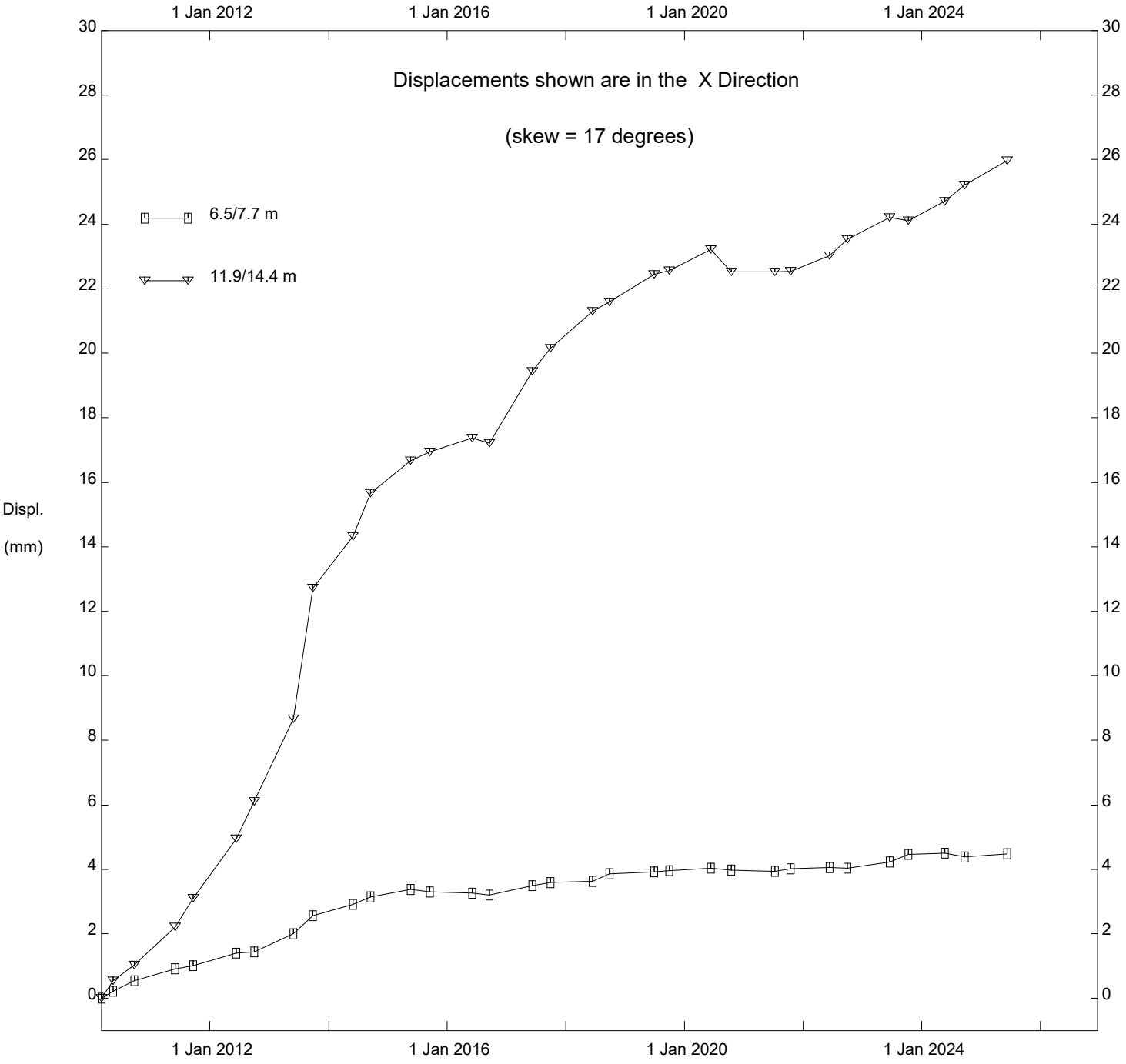
Direction X

PH031 Judah Hill Michelin Slide, Inclinometer SI10-9

Alberta Transportation

G:\32000\32121 AT GRMP Peace River District 2021-2025\Section C\2025A-Spring\SI Readings\PH031\SI10-9.gtl

Thurber Engineering Ltd.



PH031 Judah Hill Michelin Slide, Inclinometer SI10-9

Alberta Transportation

FIGURE PH031-1
PIEZOMETRIC DEPTHS FOR HWY 744:04 JUDAH HILL (MICHELIN SLIDE)

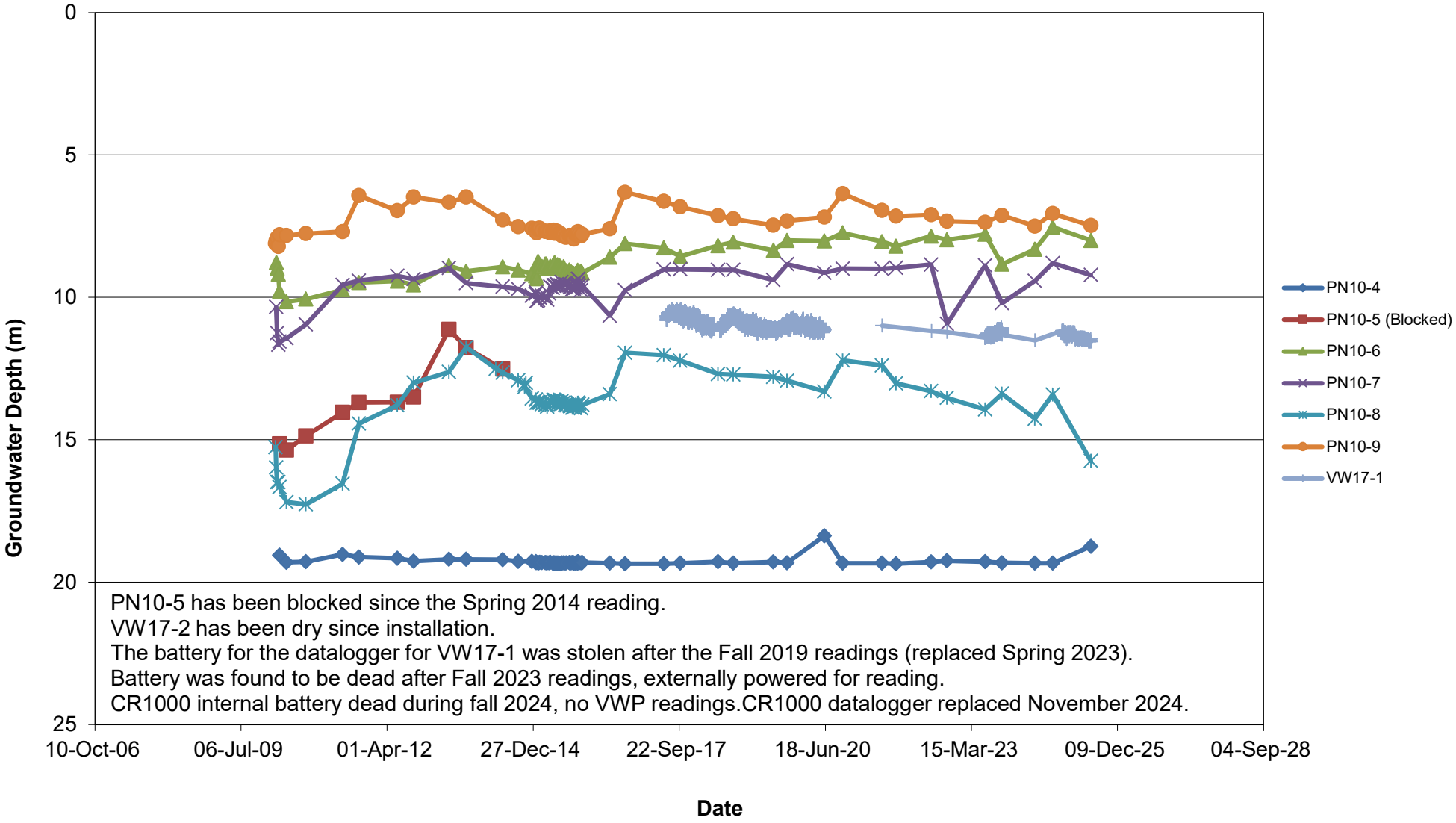


FIGURE PH031-2
PIEZOMETRIC ELEVATIONS FOR HWY 744:04 JUDAH HILL (MICHELIN SLIDE)