

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



Site Number	Location	Name	Hwy	km
PH002	Station 2+350 to 4+500	Peace River East Hill	2:60	km 34.5
Legal Description: 1-28-83-21 W5		UTM Co-ordinates		
		11U E 484847	N	6230679

Current Monitoring:	09-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): SI63, SI64, and SI10-3	Pneumatic Piezometers (PN): PN10-3	Vibrating Wire Piezometers (VWP): N/A	Standpipe Piezometers (SP): N/A
Load Cell (LC): N/A	Strain Gauges: N/A	SAA: N/A	Others:

Readout Equipment Used			
Slope Inclinometers: RST Digital Inclinator probe with 2 ft wheelbases and RST pocket readout.	Pneumatic Piezometers: RST C108 pneumatic piezometer reader	Vibrating Wire Piezometers:	Standpipe Piezometers:
Load Cell:	Strain Gauges:	SAA:	Others:
Note			

Discussion	
Zones of New Movement:	None
Interpretation of Monitoring Results:	<p>Slope inclinometers SI63 and SI10-3 continued to show no discernible movement. SI64 showed a rate of movement of 0.8 mm/yr over 0.5 m to 4.1 m depth since the fall of 2024 readings.</p> <p>Pneumatic piezometer PN10-3 showed an increase in groundwater level of 0.16 m since the fall of 2024 readings. The pneumatic piezometer readings are summarized in Table PH002-2 below, and are plotted on Figure PH002-1 in Appendix A.</p>
Future Work:	The instruments should be read again during the fall of 2025.
Instrumentation Repairs:	No instrument repairs are required.
Additional Comments:	

<p>Attachments:</p>	<ul style="list-style-type: none"> • Table PH002-1 Spring 2025 – Peace River East Hill (Station 2+350 to 4+500) Slope Inclinator Instrumentation Reading Summary • Table PH002-1 Spring 2025 – Peace River East Hill (Station 2+350 to 4+500) Pneumatic Piezometer Instrumentation Reading Summary • Statement for Use and Interpretation of Report • APPENDIX A - PH002-1 SPRING 2025 <ul style="list-style-type: none"> ○ Field Inspector's Report ○ Site Plan Showing Approximate Instrument Locations (Drawing No. 32121-PH002-1 and 32121-PH002-2) ○ SI Reading Plots ○ Figure PH002-1 (Piezometric Depths)
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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.
Tarek Abdelaziz, Ph.D., P.Eng.
Partner | Senior Geotechnical Engineer

Lucas Green, P.Eng.
Geotechnical Engineer

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 TO THE 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.
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- 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.

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Table PH002-1: Spring 2025 – Peace River East Hill (Station 2+350 To 4+500) Slope Inclinator 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)	CURRENT RATE OF MOVEMENT (mm/yr.)	CHANGE IN RATE OF MOVEMENT SINCE PREVIOUS READING (mm/yr.)
SI63	Oct. 22, 1996	No discernible movement	N/A	Operational	September 21, 2024	N/A	N/A	N/A
SI64	Sept. 4, 1996	26.0 mm over 0.5 m to 4.1 m depth in 206° direction	12.1 mm/yr. September 2017	Operational	September 21, 2024	0.6	0.8	-7.3
SI10-3	March 4, 2010	No discernible movement	N/A	Operational	September 21, 2024	N/A	N/A	N/A
SI10-4	March 4, 2010	56.3 mm over 4.2 m to 7.2 m depth in 0° direction	49.9 mm/yr. in September 2011	Sheared at ~ 6.7 m depth	June 10, 2012	N/A	N/A	N/A
SI10-5	March 5, 2010	34.7 mm over 7.9 m to 15.2 m in 20° direction	53.9 mm/yr. in September 2011	Sheared at ~ 12.2 m depth	September 21, 2011	N/A	N/A	N/A

Drawings 32121-PH002-1 and 32121-PH002-2 in Appendix A provide a sketch of the approximate locations of the monitoring instrumentation for this site.

Table PH002-2: Spring 2025 – Peace River East Hill (Station 2+350 To 4+500) 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)
PN10-3 (33090)	Feb. 21, 2010	17.7	-	Operational	14.39 on May 20, 2015	25.9	15.04	15.20	0.16
PN10-4 (33098)	Feb. 21, 2010	10.7	-	Damaged	5.05 on May 20, 2015	N/A	N/A	2.58 (Sep 27, 2017)	N/A
PN10-5 (33097)	Feb. 21, 2010	11.7	-	Damaged	3.62 on September 17, 2014	N/A	N/A	7.40 (June 7, 2017)	N/A

Drawings 32121-PH002-1 and 32121-PH002-2 in Appendix A provide a sketch of the approximate locations of the monitoring instrumentation for this site.

Note: BGS – Below Ground Surface



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

SPRING 2025

**APPENDIX A
DATA PRESENTATION**

SITE PH002: HWY 2:60, PEACE RIVER EAST HILL

**ALBERTA TRANSPORTATION AND ECONOMIC CORRIDORS
PEACE REGION (PEACE RIVER DISTRICT)
INSTRUMENTATION MONITORING FIELD SUMMARY (PH002)
SPRING 2025**

Location: Peace River East Hill (HWY 2:60 C1 34.464)	Readout: RST PN C108 Unt 8
File Number: 32121	Casing 3.34, SI 10-3 -2.75
Probe: RST SET 5R and 8R	Temp: 20
Cable: RST SET 5R and 8R	Read by: NKR/GE

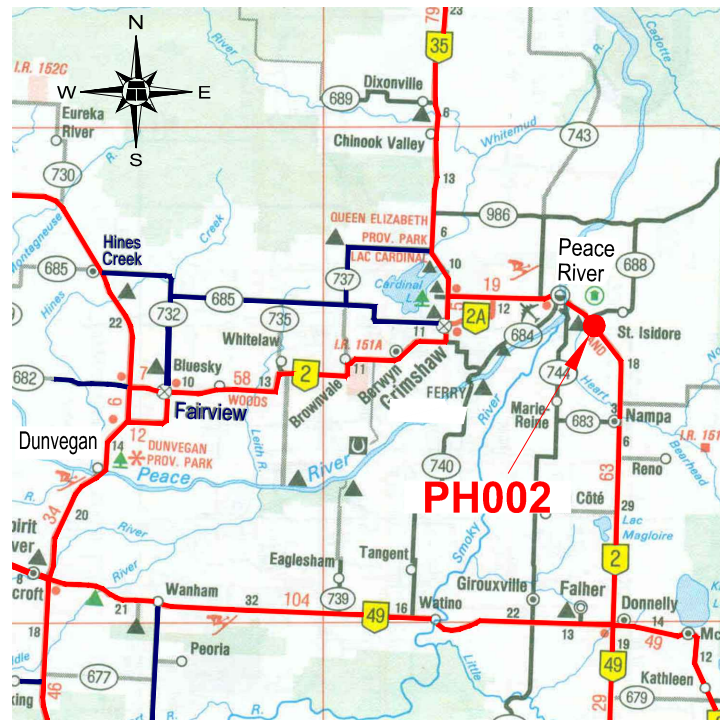
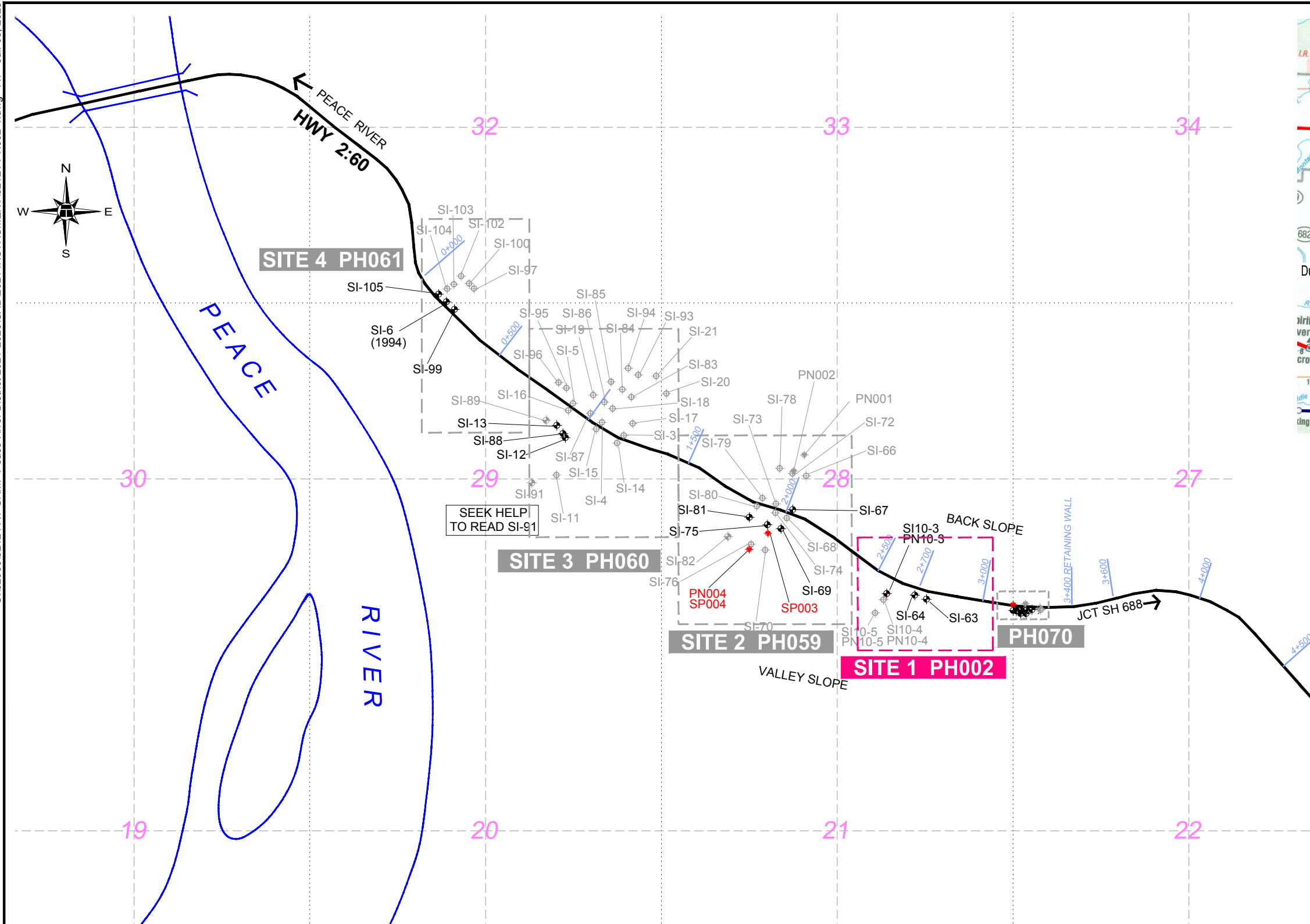
SLOPE INCLINOMETER (SI) READINGS

Site#	SI#	GPS Location (UTM 11)		Date	Stickup (m)	Depth from top of Casing (ft)	Magn. North A+ Groove	Current Bottom Depth Readings				Probe/ Reel #	Size (")	Remarks
		Easting (m)	Northing (m)					A+	A-	B+	B-			
1	SI-63	484847.44	6230679.44	09-Jun-25	0.94	148 to 2	170°	-157	167	-91	81	5R/5R	3.34	
	SI-64	484797.84	6230683.40	09-Jun-25	0.76	148 to 2	155	-85	93	-22	23	8R/8R	3.34	
	SI10-3	484642.01	6230685.96	09-Jun-25	0.61	106 to 4	170	-1629	1640	1113	-1132	5R/5R	2.75	

PNEUMATIC PIEZOMETER (PN) READINGS

PN#	GPS Location (UTM 11)		Date	Reading kPa	Identification Number
	Easting (m)	Northing (m)			
10-3	484642.01	6230685.96	09-Jun-25	25.9	33090

DAILY INSPECTOR REPORT



SITE MAP
NOT TO SCALE

LEGEND :

- SLOPE INCLINOMETER
(currently using)
- SP STANDPIPE PIEZOMETER
- PN PNEUMATIC PIEZOMETER
- SLOPE INCLINOMETER
(not in use)
- PNEUMATIC PIEZOMETER
(not in use)

SITE PLAN
1:20,000 (APPROX.)

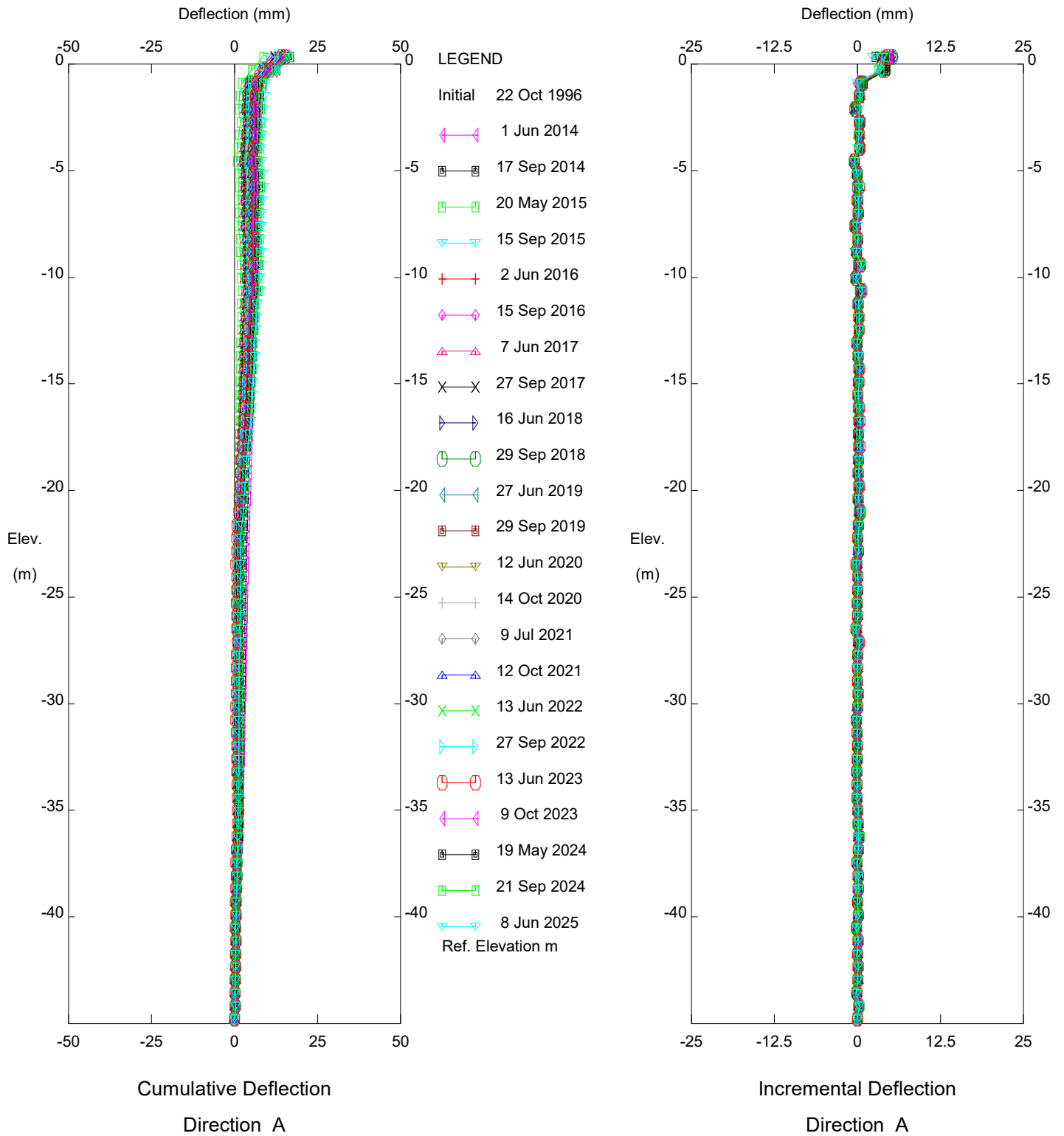
PEACE REGION (PEACE RIVER DISTRICT)

PH002: PEACE RIVER EAST HILL SITE #1
INSTRUMENTATION READINGS
KEY PLAN

DWG No. 32121-PH002-1

DRAWN BY	ML
DESIGNED BY	NFR
APPROVED BY	DWP
SCALE	AS SHOWN
DATE	JULY 2025
FILE No.	32121

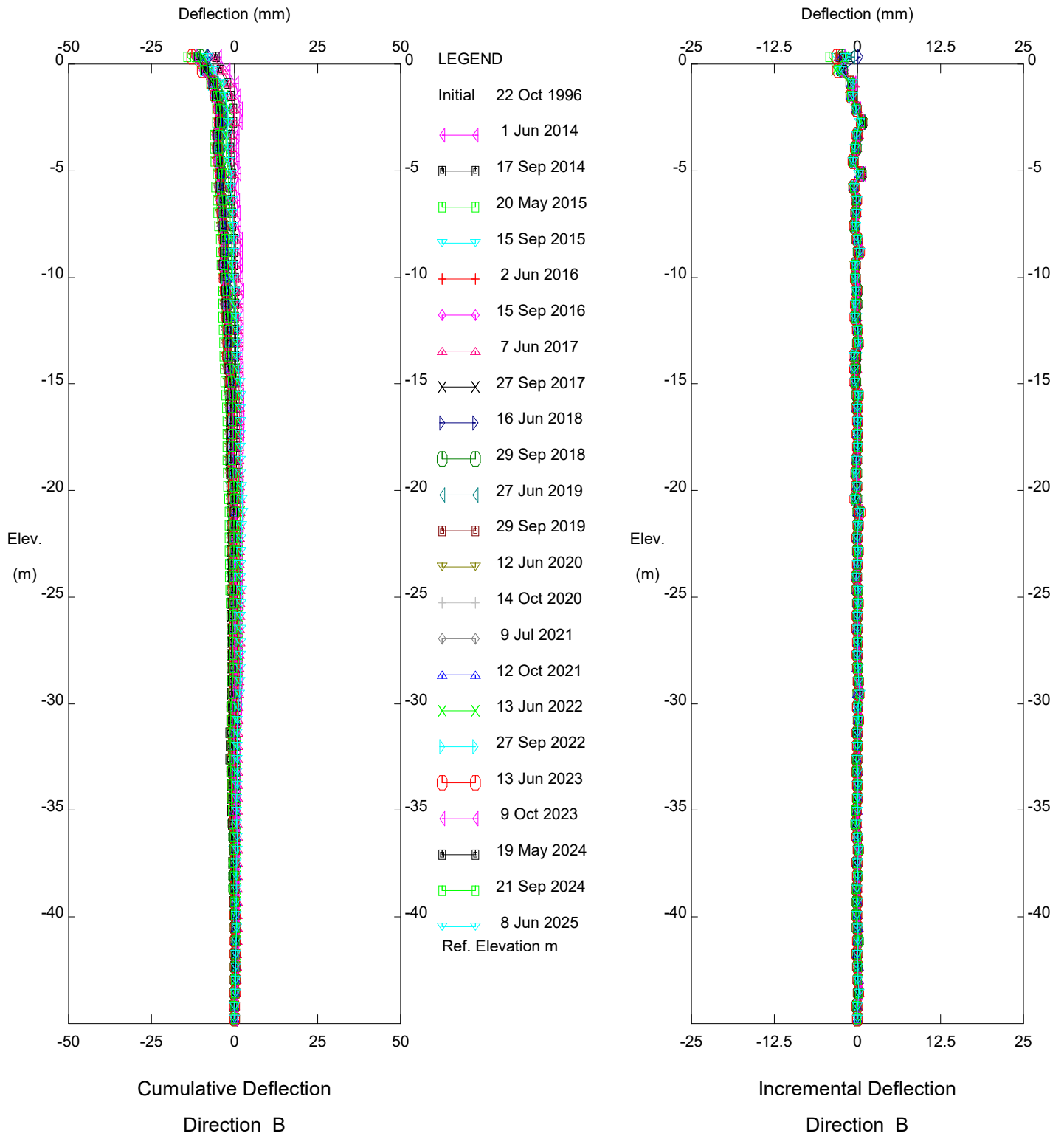
Thurber Engineering Ltd.



HWY. 2:60 - STA. 2+600, Inclinometer SI-63

Alberta Transportation

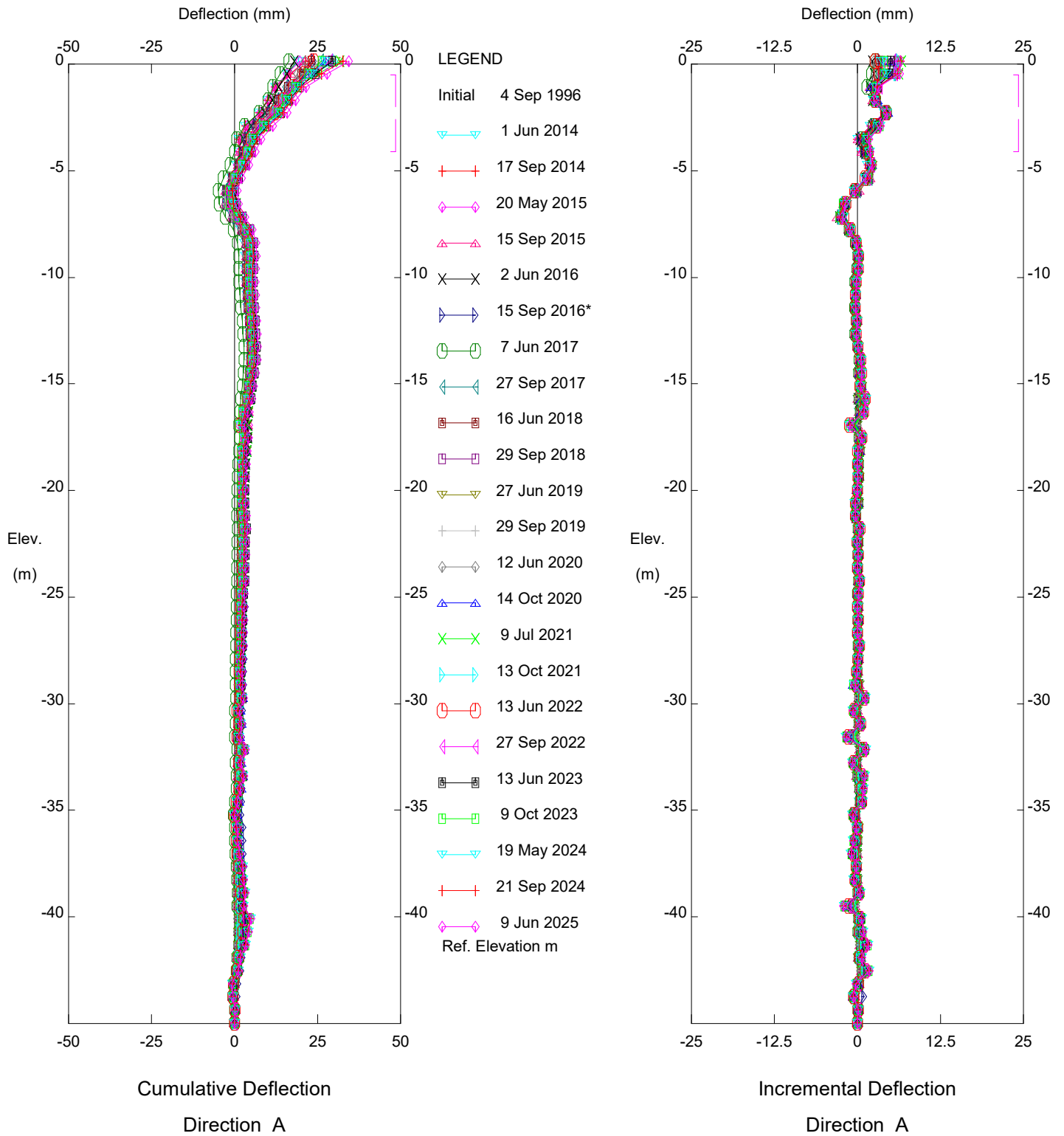
Thurber Engineering Ltd.



HWY. 2:60 - STA. 2+600, Inclinometer SI-63

Alberta Transportation

Thurber Engineering Ltd.

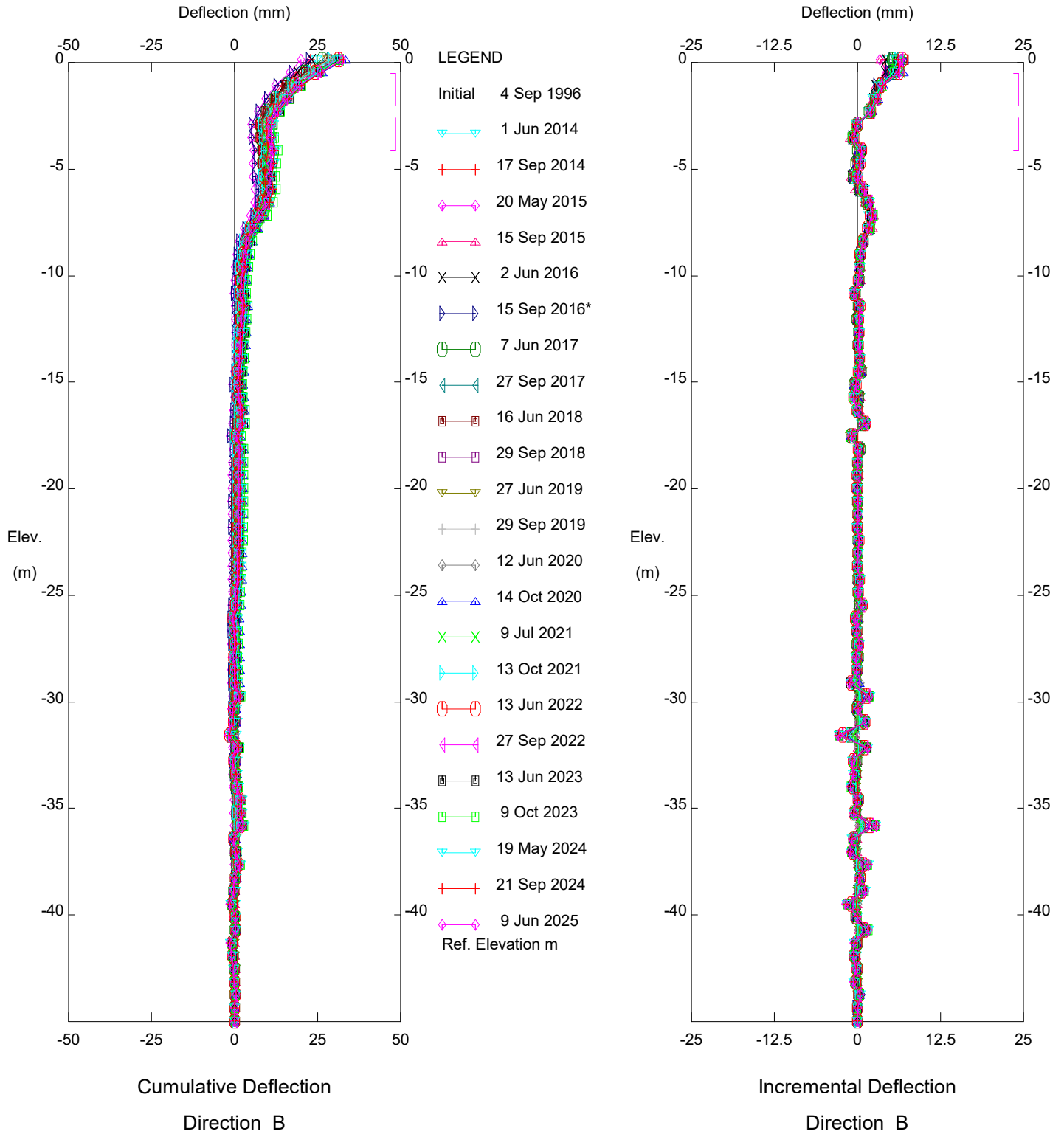


HWY. 2:60 - STA. 2+600, Inclinometer SI-64

Alberta Transportation

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

Thurber Engineering Ltd.

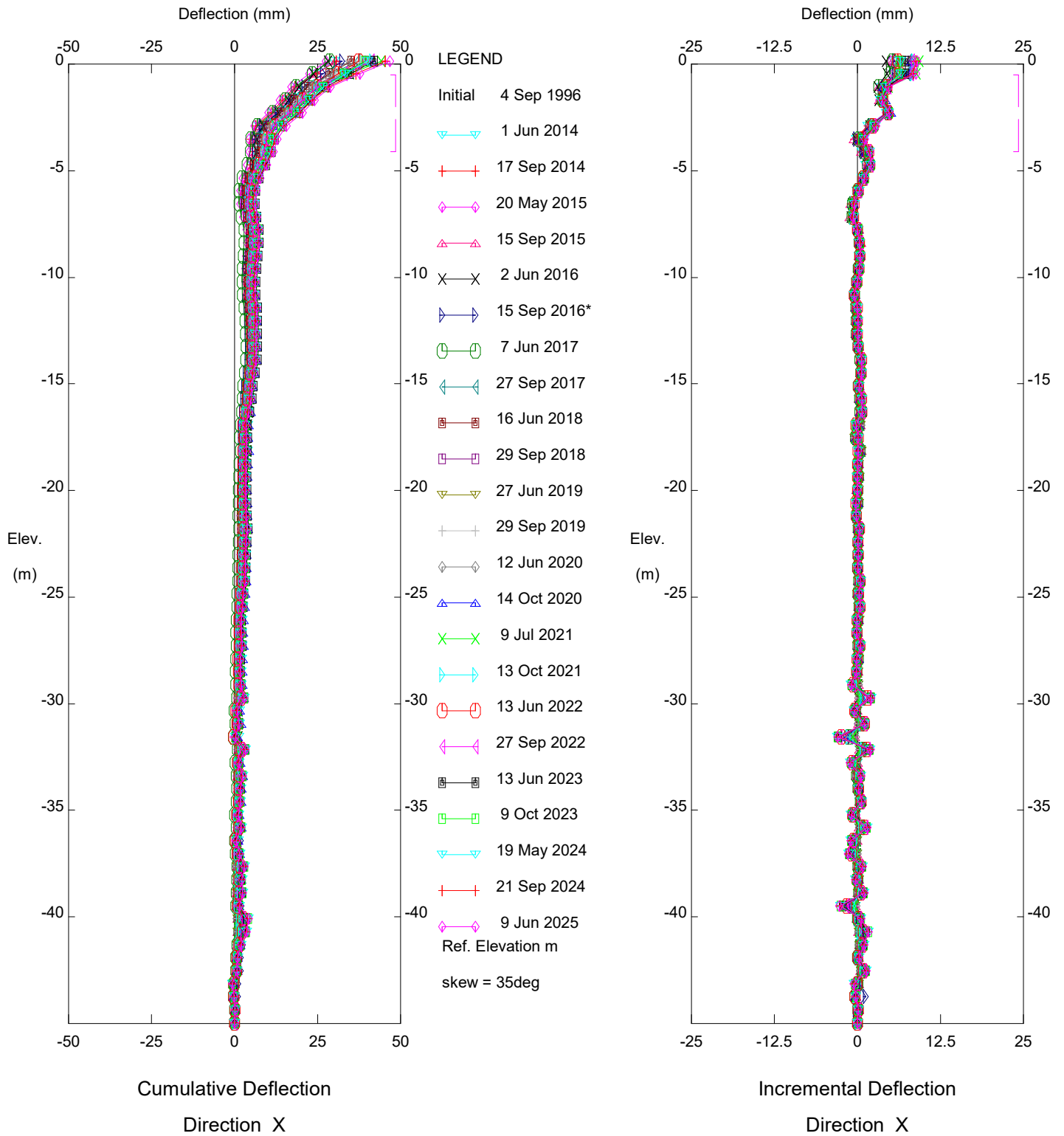


HWY. 2:60 - STA. 2+600, Inclinometer SI-64

Alberta Transportation

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

Thurber Engineering Ltd.

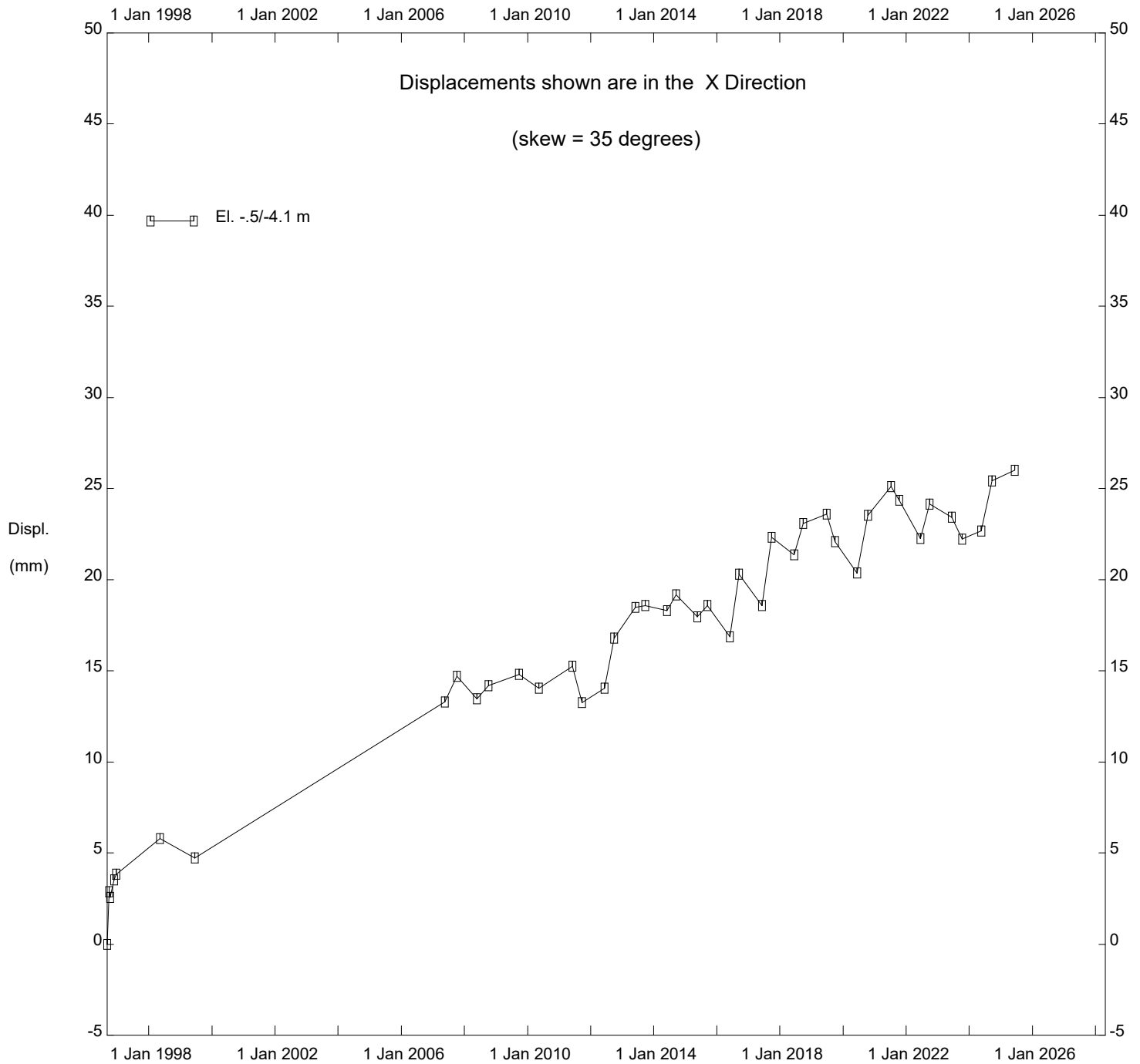


HWY. 2:60 - STA. 2+600, Inclinometer SI-64

Alberta Transportation

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

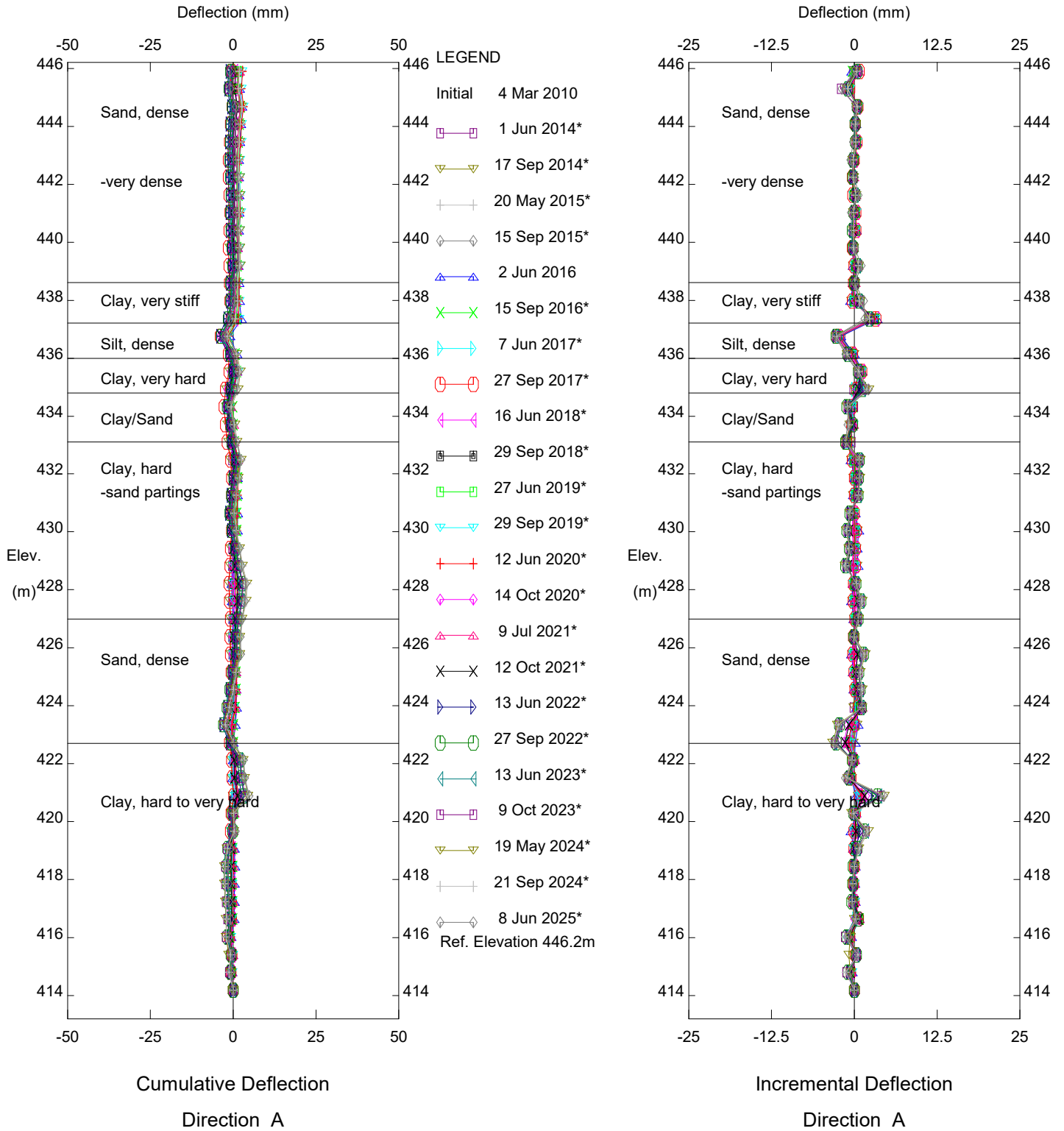
Thurber Engineering Ltd.



HWY. 2:60 - STA. 2+600, Inclinometer SI-64

Alberta Transportation

Thurber Engineering Ltd.

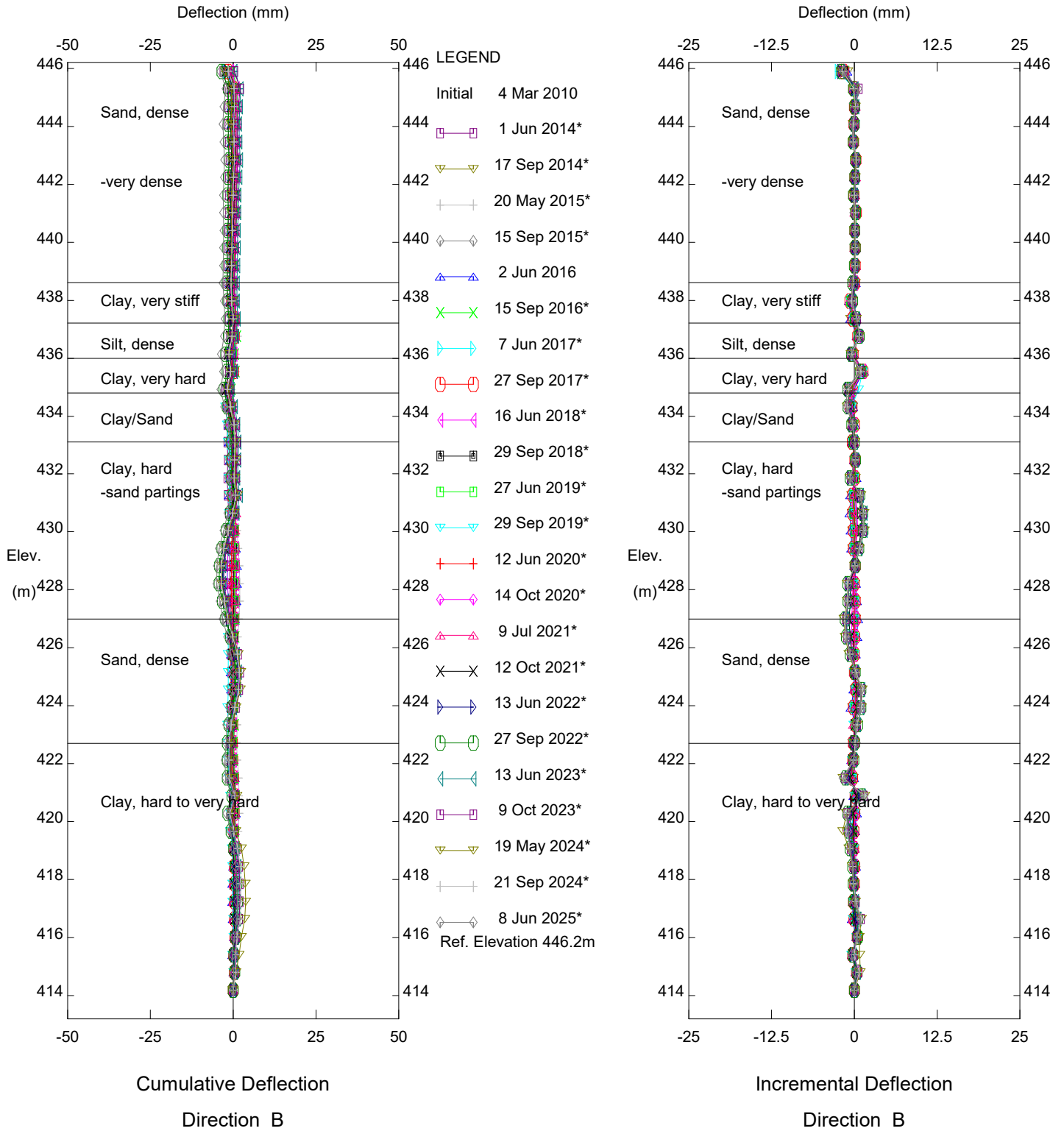


Peace River East Hill PH2, Inclinometer SI10-3

Alberta Transportation

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

Thurber Engineering Ltd.



Peace River East Hill PH2, Inclinator SI10-3

Alberta Transportation

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

FIGURE PH002-1
PIEZOMETRIC DEPTHS FOR HWY 2:60 PEACE RIVER EAST HILL

