

November 26, 2025

Alberta Transportation and Economic Corridors  
2<sup>nd</sup> Floor, 803 Manning Road N.E.  
Calgary, Alberta  
T2E 7M8

**Alex Frotten, P.Eng.**  
**Construction Engineer – Delivery Services Division (Southern Region)**

Dear Mr. Frotten:

**CON0022161 Southern Region GRMP Instrumentation Monitoring**  
**Site S004; H02:08, km 6.284 Willow Creek**  
**Section C – 2025 Fall Readings**

## **1 GENERAL**

Six vibrating wire piezometers (VWPs) (VW14-01A/B, VW14-02A/B, and VW14-03A/B), six standpipe piezometers (SPs) (SP-1B/C, SP-5B/C, SP-9B, and SP-10B) and four slope inclinometers (SIs) (SI-1A, SI-5A, SI-9A, and SI-10A) were read on October 9, 2025, by Mr. Shawn Keegan, E.I.T. of KCB. These instruments were read as part of the Southern Region Geohazard Risk Management Program (GRMP). The site is located at Hwy 02:08 km 6.284, north of Fort Macleod, Alberta, approximately 1.9 km north of the junction of RR 264 and Hwy 2. The approximate site coordinates are 5514351 N, 320169 E (UTM Zone 12, NAD 83). A site plan is presented in Figure 1.

The geohazard at the S004 site consists of a landslide at the outside bend of Willow Creek with the slope crest retrogressing into the northbound lane ditch of Hwy 02:08. Previous remedial actions at the site include soil nailing, grading, bioengineering (live staking), and bank armouring in 2008. A guardrail was also installed in 2014.

In 1994 and 2014, geotechnical site investigations, which included the installation of instruments, were conducted at the S004 site by the previous consultants. Based on the files received from the previous consultant, the encountered stratigraphy was as follows: clay till overlying shale bedrock.

### **1.1 Instrumentation**

KCB has been reading the instruments at this site since readings resumed in the fall of 2020 at the request of Alberta Transportation and Economic Corridors (TEC). No readings were completed at this site between 2003 and 2020. Instrumentation installation details are tabulated in Table 1.1. Instrument locations are shown in Figure 1. Any instruments not included in Table 1.1 or shown in Figure 1 are assumed to be inoperable and are not presented or discussed herein.

Between 1994 and 2014, ten (10) slope inclinometers (SI), seven (7) standpipes (SP) and six (6) piezometers (VWP) were installed at the site by the previous consultants to monitor movement and groundwater conditions. Some of these instruments are now inoperable (e.g., destroyed, sheared, or lost), including several SIs installed within the slide mass (SI-2A through SI-8A, excluding SI-5A).

In June 2023, three (3) data loggers were installed on the six (6) VWPs, with one (1) logger per two (2) VWPs in the same borehole. In May 2025 and October 2025, new batteries were inserted into VWP 14-03A/B after the initial batteries failed. It has been observed that the batteries are depleting faster than expected, possibly due to moisture buildup inside the loggers. This issue warrants continued monitoring of battery condition. The data loggers are housed in bags and taped, but moisture still seems to have penetrated into the data-logger housing.

The operable instruments are protected by either a flush-mounted or an above-ground casing protector.

**Table 1.1 Instrument Installation Details**

Instrument ID	Instrument Type	Date Installed <sup>1</sup>	UTM Coordinates <sup>2</sup> (m)		Ground Surface Elevation (m)	Stick Up (m)	Depth <sup>1</sup> (mbgs <sup>3</sup> )	Condition
			Northing	Easting				
SI-1A	SI	Jul. 1994	5514354	320200	Unknown	0.8	38.9	Operable
SI-5A	SI	Jul. 1994	5514343	320200	Unknown	0.7	38.2	Operable
SI-9A	SI	Jul. 1994	5514472	320115	971.2	0.6	38.7	Operable
SI-10A	SI	Jul. 1994	5514504	320128	971.0	0.4	39.2	Operable
SP-1B	SP	Jul. 1994	5514354	320200	970.0	0.7	38.6	Operable
SP-1C	SP	Jul. 1994	5514354	320200	970.0	0.6	27.3	Operable
SP-5B	SP	Jul. 1994	5514343	320213	970.0	0.7	32.0	Operable
SP-5C	SP	Jul. 1994	5514343	320213	970.0	0.7	16.9	Operable
SP-9B	SP	Jul. 1994	5514472	320115	971.1	0.5	40.9	Operable
SP-10B	SP	Jul. 1994	5514504	320128	971.0	0.6	40.1	Operable
VW14-01A	VWP	Jul. 2014	5514310	320229	968.8	N/A	14.7	Operable
VW14-01B	VWP	Jul. 2014	5514310	320229	968.8	N/A	6.0	Operable
VW14-02A	VWP	Jul. 2014	5514449	320122	969.2	N/A	14.8	Operable
VW14-02B	VWP	Jul. 2014	5514449	320122	969.2	N/A	6.1	Operable
VW14-03A	VWP	Jul. 2014	5514367	320141	969.0	N/A	14.9	Operable
VW14-03B	VWP	Jul. 2014	5514367	320141	969.0	N/A	5.9	Operable

**Notes:**

<sup>1</sup> Instrument installation details taken from reports and data files prepared or provided by the previous consultant(s) or Alberta Transportation.

<sup>2</sup> Coordinates were obtained by KCB with a handheld GPS. The handheld GPS had an accuracy of  $\pm 5$  m.

<sup>3</sup> Meters below ground surface (mbgs).

<sup>4</sup> Instruments (SI-2A through SI-8A, excluding SI-5A, and SP-9C) located within the slide mass are assumed inoperable.

The SI equipment was changed in 2020 when KCB began reading the instruments, and again in October 2021 after the previous equipment became inoperable. Currently, the operable SIs were read using a metric RST Digital MEMS Inclinometer System. The VWPs and SPs were read using an RST VWP readout box and Water Level Meter, respectively.

## 2 INTERPRETATION

### 2.1 General

The SI plots presented in the report include cumulative displacement, incremental displacement, and displacement-time data (Appendix I). The displacement-time data is plotted in the A-direction (i.e., the direction of the A0-groove) and, where applicable, the X-direction (i.e., the direction of maximum movement obtained at a skew angle from the A0-grooves). In 2016, KCB performed a reinitialization of the SI data after taking over the instrument readings. Since October 2021, KCB has been using a new inclinometer probe and reel, which might lead to slight differences in data compared to earlier readings. However, during the review of the SI data for this report, all prior data corrections were removed to facilitate better interpretation of displacement trends.

For the operable SPs, the recorded water levels were converted to equivalent water/piezometric elevations and plotted relative to the ground surface elevation. Screen elevations are not available for the SPs.

For the operable VWP, the recorded porewater pressures were converted to an equivalent water/piezometric elevation and plotted relative to ground surface elevation and the tip elevation for each instrument. Data from the VWPs has been downloaded twice a year, starting in spring 2024, to analyze whether irrigation affects the groundwater.

Monthly precipitation data is also plotted with the piezometer data. The data was obtained from the Alberta Climate Information Service (ACIS) database, referencing the Fort Macleod AGCM Station.

The SI and piezometer data plots are included in Appendix I.

### 2.2 Zones of Movement

Historical reports from 1999 to 2003, prepared by the previous consultant, indicated that no significant movements had been recorded for the operable SIs (SI-1A, SI-5A, SI-9A, and SI-10A).

Since these SIs are located outside the slide mass, such stability is not unexpected. Since KCB re-initialized the readings in September 2020 baseline—coinciding with changes to the SI equipment—no apparent movement has been observed in SI-5A, and SI-9A. However, readings at SI-10A, including for fall 2025, suggests a possible shear plane about 6 meters below the ground surface, which could be another slow failure retrogression near the prairie elevation, or a kinked casing. Additional information is still needed to evaluate the movement trends of this instrument.

### 2.3 Interpretation of Monitoring Results

#### 2.3.1 Slope Inclinometers

The SI data obtained with KCB's new SI reading equipment appears relatively noisy (despite good data quality) compared to the baseline reading obtained with KCB's old SI reading equipment and is

difficult to interpret, especially for SI-5A (the instrument has been read multiple times during both the spring and fall readings since 2022). It is unclear whether the noise is due to changes in the SI reading equipment, the low rate of movement being recorded by these instruments, or installation issues (e.g., a kinked or tilted casing). Based on the plots for these instruments, it has been noted that the casing for:

- SI-1A is “wavy” with kinks at approximately 22 m, 28 m, 30 m and 36 m below the ground surface.
- SI-5A is tilted approximately 1.0 m in the A-direction and 1.7 m in the B-direction, and there is also a kink in the casing at approximately 22 m below the ground surface.
- SI-9A is “wavy” with kinks at approximately 5 m, 11 m, and 25 m below the ground surface.
- SI-10A is “wavy” with kinks at approximately 6 m and 25 m below the ground surface.

The SI data plots presented herein include readings from both our new and old SI reading equipment. However, SI-5A was reinitialized to October 7, 2021, to improve movement interpretations, as previous readings were very noisy. No data for the SIs were available between 1994 and 2020. Data collected in the future should be reviewed to assess whether the instruments need to be re-initialized or to monitor movement trends.

The nature of sliding (back tilting blocks) observed on site suggests a combination of rotational failure and failure along a weak layer at depth.

### 2.3.2 Water Level and Precipitation

A few data points from 1994 were available for SP-01B, SP-01C, SP-05B, SP-05C, and SP-09B. No data was available for SP-10B or the six VWPs.

Since KCB began reading the SP in 2020, water levels have fluctuated slightly in most piezometers by  $\pm 40$  cm. The fall 2025 SP readings show a drop in water level between 20 cm and 60 cm, except for SP-1C, which shows a 40 cm increase. The highest increase of 1.1 m was recorded in the Spring of 2025 on SP-10B, and the most significant drop of 1.2 m was recorded in the fall of 2023 at SP-1C. Overall, the SP data shows consistent fluctuations between recharge and discharge periods. This cycle appears to be yearly, with an increase in water level occurring in the fall and spring of subsequent years, followed by a lower water level in the next fall and spring. The data trend in the piezometers should be reviewed during wet years to assess the impact of increased precipitation.

Water levels recorded in the nested VWPs installed between the highway and crest of the slide (VW14-01A/B and VW14-02A/B) varied from an approximate depth of 0.1 m to 5.9 m below ground surface in the upper “B” tips and 5.1 m to 12.6 m below ground surface in the lower “A” tips. Both the upper “A” tips have a similar elevation (El. 962.8 m and El. 963.1 m, respectively), and both the lower “B” tips have a similar tip elevation (El. 954.1 m and El. 954.4 m, respectively).

Water levels recorded in the nested VWP's installed in the median ditch of Hwy 02:08 (VW14-03A/B) were at approximate depths of 1.3 m and 4.7 m below ground surface in the upper "B" tip and the lower "A" tip, respectively, as of the most recent readings.

The VWP's show seasonal water-level fluctuations, with a sharp increase after winter and the beginning of spring, followed by a steady decrease through the summer and fall. The available data suggest that rainfall and snowmelt contribute to rising water levels in the VWP's. It is noticeable that piezometers at each of the three locations exhibit similar fluctuation responses throughout the year and across the two tip elevations; however, the deepest of the two nested VWP at the median ditch of the highway (VWP14-01A) is the least responsive to precipitation, with only small changes in water level.

Based on the VWP data logged to date, there is no clear correlation between irrigation activity and water levels. Future data will help to corroborate trends and seasonal changes in water levels, which may influence slope stability. It is also important to note that the VWP's are located outside the slide mass, possibly indicating higher groundwater levels than within the slide itself.

The data recorded in the piezometers, specifically the upper versus lower SP screens/VWP tips, indicate the possibility of two independent water levels, which may suggest a perched water table.

## 2.4 Summary

A summary of the SI, standpipe and piezometer data is provided in Table 2.1, Table 2.2, and Table 2.3, respectively. The SI data plots include only data acquired by KCB, as data records from previous consultants have not been provided. Furthermore, SI-10A and SP-10B were first read by KCB during the 2022 Fall reading cycle.

Table 2.1 Slope inclinometer Reading Summary

Instrument ID	Date				Ground Surface Elevation (m)	Depth of Movement (mbgs <sup>1</sup> )	Direction of Movement	Cumulative Movement (mm)					Rate of Movement (mm/year)		
	Initialized <sup>2</sup> (Re-initialization)	Previous Maximum Cumulative Movement <sup>2</sup>	Previous Reading	Most Recent Reading				Before First Re-Initialization <sup>3</sup>	Before Second Re-Initialization <sup>4</sup>	Most Recent Reading	Incremental Since Previous Reading	Total	Previous Maximum	Most Recent Reading	Change from Previous Reading
SI-1A	1994 (Sep. 23, 2020) <sup>3</sup>	N/A	May 23, 2025	October 9, 2025	970.0	2.0 m – 30.5 m	A-Direction	N/A	N/A	2.0	2.5	2.0	6.6	6.6	7.7
SI-5A	1994 (Sep. 23, 2020) <sup>3</sup> (Oct. 7, 2021) <sup>3</sup>	June 15, 2023	May 23, 2025	October 9, 2025	970.0	14.1 m – 38.6 m	A-Direction	N/A	N/A	-5.5	-1.0	-5.5	17.0	-2.6	11.7
SI-9A	1994 (Sep. 23, 2020) <sup>3</sup>	N/A	May 23, 2025	October 9, 2025	971.2	N/A <sup>5</sup>		N/A <sup>5</sup>							
SI-10A	1994 (Sep. 22, 2022) <sup>4</sup>	May 15, 2024	May 23, 2025	October 9, 2025	971.0	4 m – 6 m	X-Direction 45°	N/A	N/A	1.1	0.1	1.1	-2.9	0.2	-0.3

**Notes:**  
<sup>1</sup> Meters below ground surface (mbgs).  
<sup>2</sup> Movement recorded before 2020 was taken from reports prepared by the previous consultant.  
<sup>3</sup> SI#1A, 5A, and 9A were re-initialized in September 2020 when KCB took over the readings from the previous consultant and changed the SI reading equipment. SI-5A was re-initialized to October 7, 2021, due to data noise in the readings.  
<sup>4</sup> SI-10A read by KCB for the first time in September 2022. Previous data for instruments was not provided to KCB.  
<sup>5</sup> No discernible movement recorded since re-initialization, and historical data was not provided for KCB’s review.

Table 2.2 Standpipe Piezometer Reading Summary

Instrument ID	Geologic Installation Unit	Date			Ground Surface Elevation (m)	Screen Depth (mbgs <sup>1</sup> )	Water Level		
		Installed	Previous Reading	Most Recent Reading			Previous Reading (mbgs <sup>1</sup> )	Most Recent Reading (mbgs <sup>1</sup> )	Change from Previous Reading (m)
SP-1B	Clay Shale	Jul. 1994	May 23, 2025	October 7, 2025	970.0	Unknown	13.7	14.2	0.5
SP-1C	Not Provided	Jul. 1994	May 23, 2025	October 7, 2025	970.0	Unknown	15.8	15.4	-0.4
SP-5B	Clay Shale	Jul. 1994	May 23, 2025	October 7, 2025	970.0	Unknown	13.4	14.1	0.7
SP-5C	Till Above Clay Shale	Jul. 1994	May 23, 2025	October 7, 2025	970.0	Unknown	3.0	3.4	0.4
SP-9B	Clay Shale	Jul. 1994	May 23, 2025	October 7, 2025	971.2	Unknown	13.6	14.2	0.6
SP-10B	Unknown	Jul. 1994	May 23, 2025	October 7, 2025	971.0	Unknown	13.3	13.9	0.6

**Notes:**  
<sup>1</sup> Meters below ground surface (mbgs).

Table 2.3 Vibrating Wire Piezometer Reading Summary

Instrument ID	Serial No.	Date			Ground Surface Elevation (m)	Screen Depth (mbgs <sup>1</sup> )	Water Level		
		Installed	Previous Reading	Most Recent Reading			Previous Reading (mbgs <sup>1</sup> )	Most Recent Reading (mbgs <sup>1</sup> )	Change from Previous Reading (m)
VW14-01A	1400848	Jul. 2014	May 23, 2025	October 7, 2025	968.8	14.7	12.0	11.5	-0.5
VW14-01B	1400846	Jul. 2014	May 23, 2025	October 7, 2025	968.8	6.0	3.4	2.6	-0.8
VW14-02A	1400849	Jul. 2014	May 23, 2025	October 7, 2025	969.2	14.8	7.5	7.0	-0.5
VW14-02B	1400248	Jul. 2014	May 23, 2025	October 7, 2025	969.2	6.1	2.9	2.0	-0.9
VW14-03A	1400843	Jul. 2014	September 24, 2024	October 7, 2025	969.0	14.9	6.1	4.7	-1.4
VW14-03B	1400842	Jul. 2014	September 24, 2024	October 7, 2025	969.0	5.9	2.0	1.3	-0.7

**Notes:**  
<sup>1</sup> Meters below ground surface (mbgs).



### 3 RECOMMENDATIONS

#### 3.1 Future Work

All operable instruments should continue to be read twice per year (spring and fall).

The site should continue to be inspected by the Maintenance Contract Inspector (MCI) and as part of the Southern Region GRMP Section B inspections.

#### 3.2 Instrument Repairs and Maintenance

The dataloggers VW14-01 and VW14-03 have a flash-mount installation and exhibit signs of internal water damage that impacted the battery. Battery problems at BH14-01A have disrupted data collection from fall 2024 to spring 2025. Similarly, at BH14-03, readings have been missing since fall 2024 due to a datalogger battery issue. The batteries for VW14-01 and VW14-03, which were replaced during spring 2025, were found dead in fall 2025. Another battery replacement was performed during the fall 2025 readings, and the daily reading was taken. The loggers have been placed in a new, sealed bag to ensure waterproof protection. If the water problem with the dataloggers persists, we recommend installing them above ground using an anchored post.

**Photo 3.1** Bagged data logger at the VW14-01 inside the flash-mount installation.



## 4 CLOSING

This report is an instrument of service of Kohn Crippen Berger (KCB). The report has been prepared for the exclusive use of Alberta Transportation and Economic Corridors (Client) for the specific application to the Southern Region Geohazard Risk Management Program (Contract No. CON0022161), and it may not be relied upon by any other party without KCB's written consent.

KCB has prepared this report in a manner consistent with the level of care, skill and diligence ordinarily provided by members of the same profession for projects of a similar nature at the time and place the services were rendered. KCB makes no warranty, express or implied.

Use of or reliance upon this instrument of service by the Client is subject to the following conditions:

1. The report is to be read in full, with sections or parts of the report relied upon in the context of the whole report.
2. The observations, findings and conclusions in this report are based on observed factual data and conditions that existed at the time of the work and should not be relied upon to precisely represent conditions at any other time.
3. The report is based on information provided to KCB by the Client or by other parties on behalf of the client (Client-supplied information). KCB has not verified the correctness or accuracy of such information and makes no representations regarding its correctness or accuracy. KCB shall not be responsible to the Client for the consequences of any error or omission contained in Client-supplied information.
4. KCB should be consulted regarding the interpretation or application of the findings and recommendations in the report.
5. This report is electronically signed and sealed, and its electronic form is considered the original. A printed version of the original can be relied upon as a true copy when supplied by the author or when printed from its original electronic file.



Please contact the undersigned if you have any questions or comments regarding this report.

Yours truly,

**KLOHN CRIPPEN BERGER LTD.**

Jorge Rodriguez, Ph.D., M.Sc., P.Eng.  
Geotechnical Engineer

JR:bb

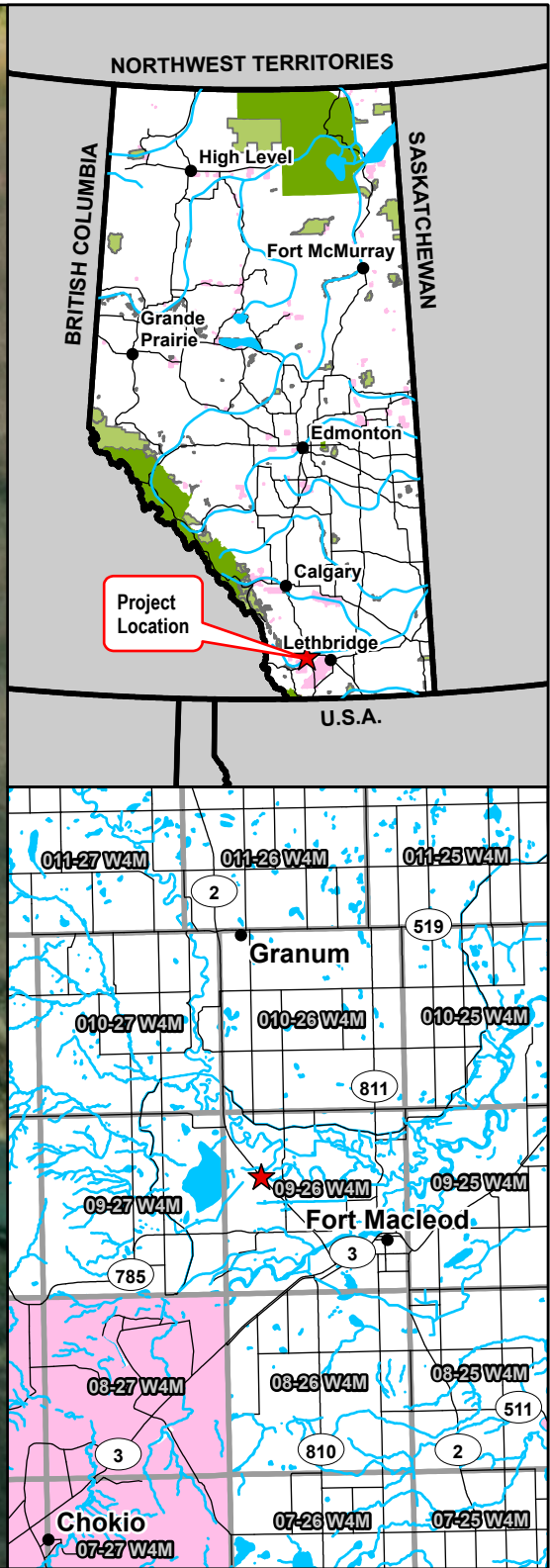
#### **ATTACHMENTS**

Figure  
Appendix I      Instrumentation Plots

## FIGURE

---





**Legend**

- Slope Inclinator (SI)
- ⊕ Standpipe Piezometer (SP)
- ⊗ Vibrating Wire Piezometer (VW)
- Flow Direction
- ⊥ Scarp
- × Fence



NOTES:  
1. HORIZONTAL DATUM: NAD83  
2. GRID ZONE: UTM ZONE 12N  
3. IMAGE SOURCE: MD OF WILLOW CREEK NO. 26, TOWN OF CARDSTON, MAXAR

CLIENT

*Alberta*

Klohn Crippen Berger

PROJECT	SOUTHERN REGION GEOHAZARD RISK MANAGEMENT PROGRAM		
TITLE	Site Plan S004 - Willow Creek (North of Ft. Macleod) Hwy 2:08, km 6.284		
SCALE	1:2,000	PROJECT No.	A05116A03
FIG No.	1		

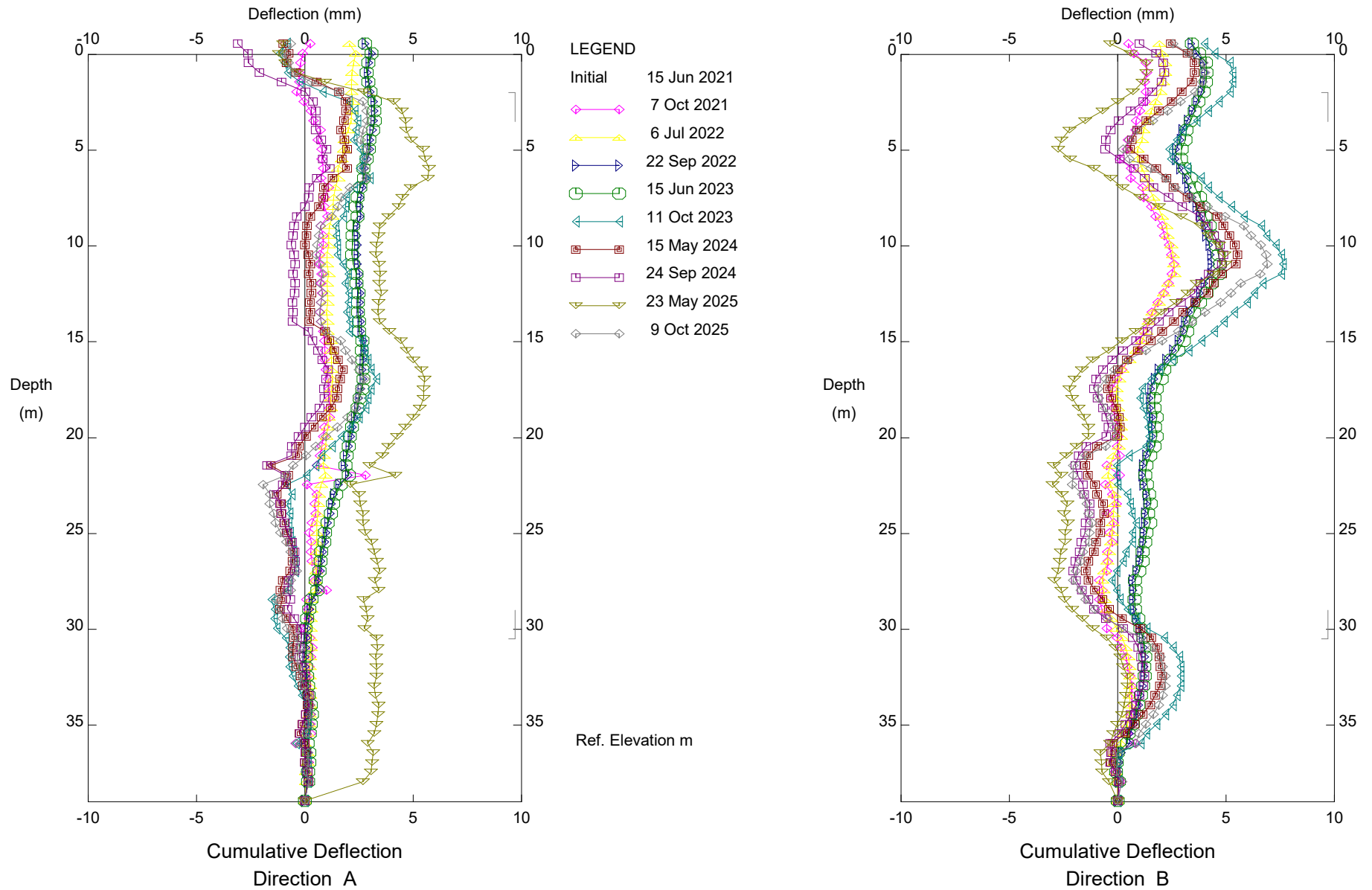


## APPENDIX I

### Instrumentation Plots

---

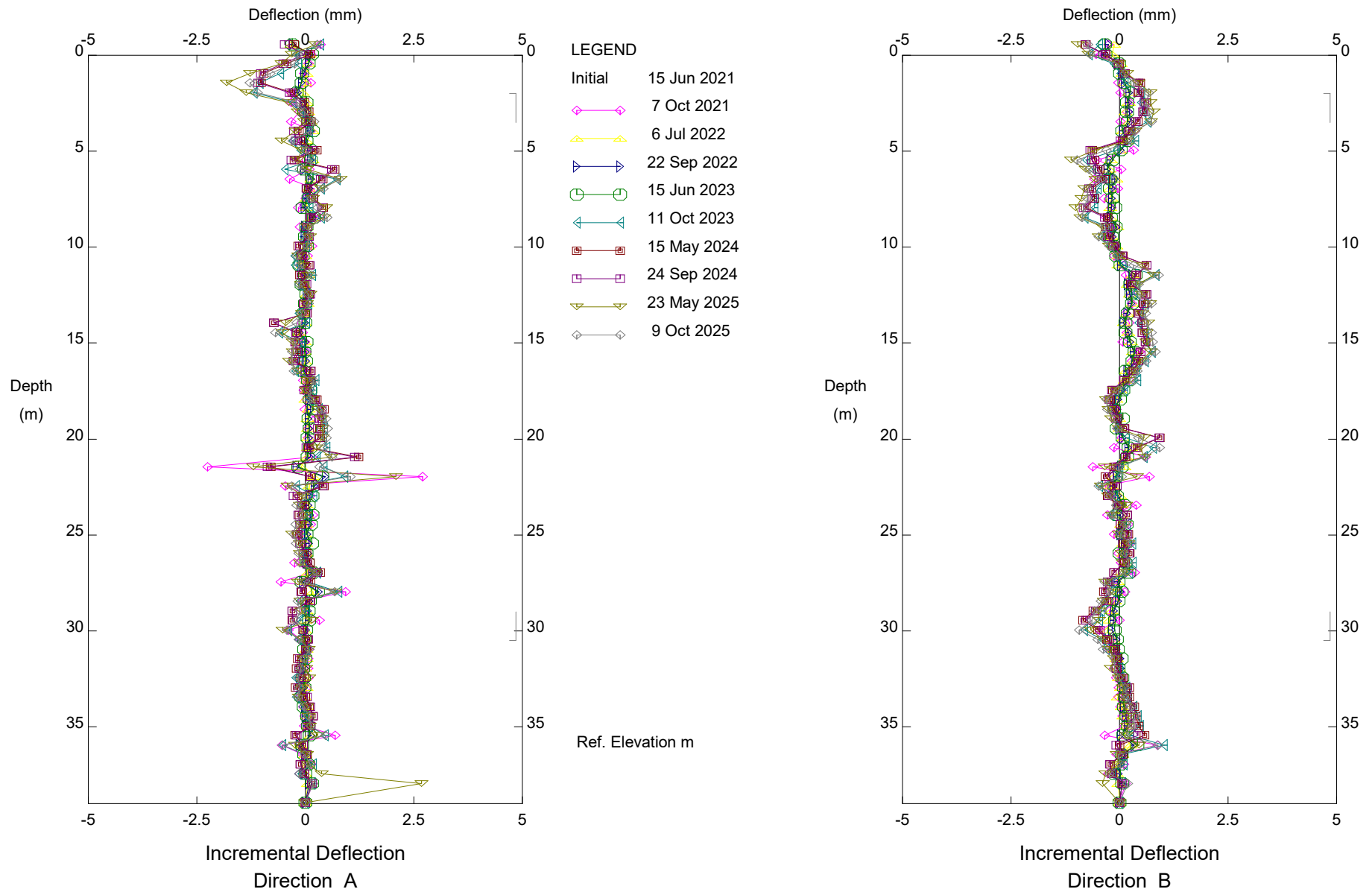
# Klohn Crippen Berger - Calgary



S004; H02:08, Willow Creek, Inclinator SI-1A  
 Alberta Transportation

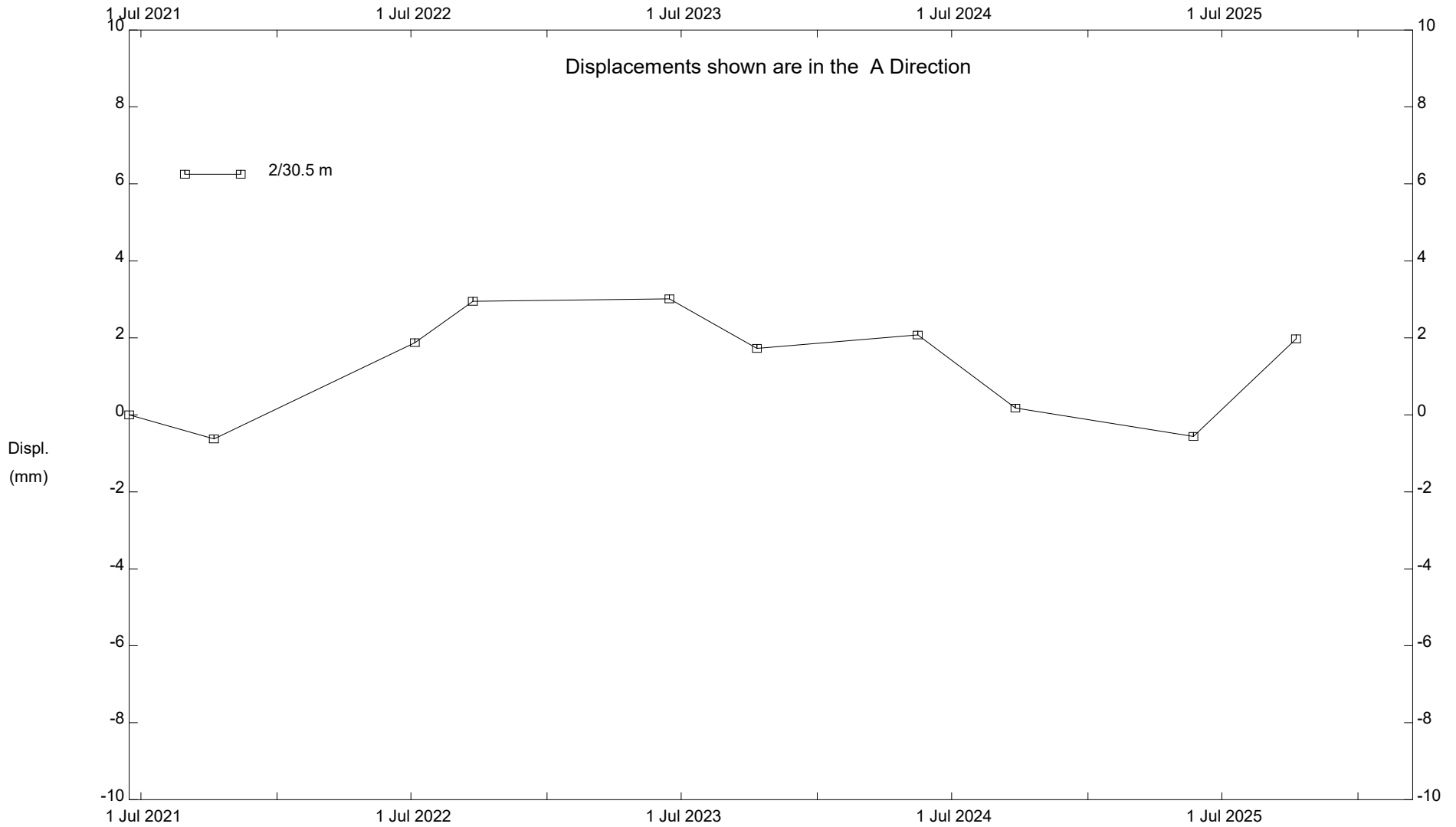


# Klohn Crippen Berger - Calgary



S004; H02:08, Willow Creek, Inclinator SI-1A  
 Alberta Transportation

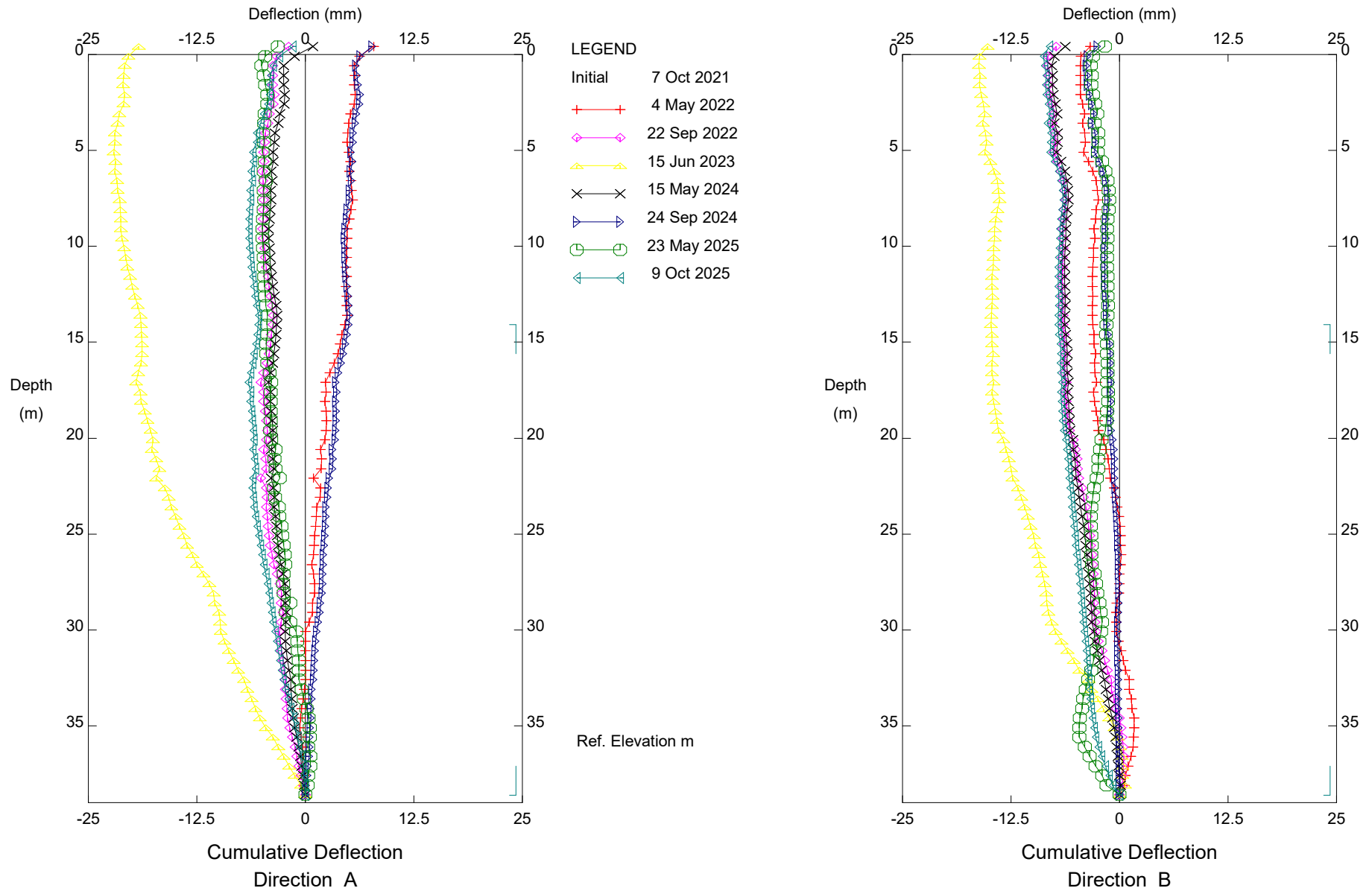
# Klohn Crippen Berger - Calgary



S004; H02:08, Willow Creek, Inclinator SI-1A

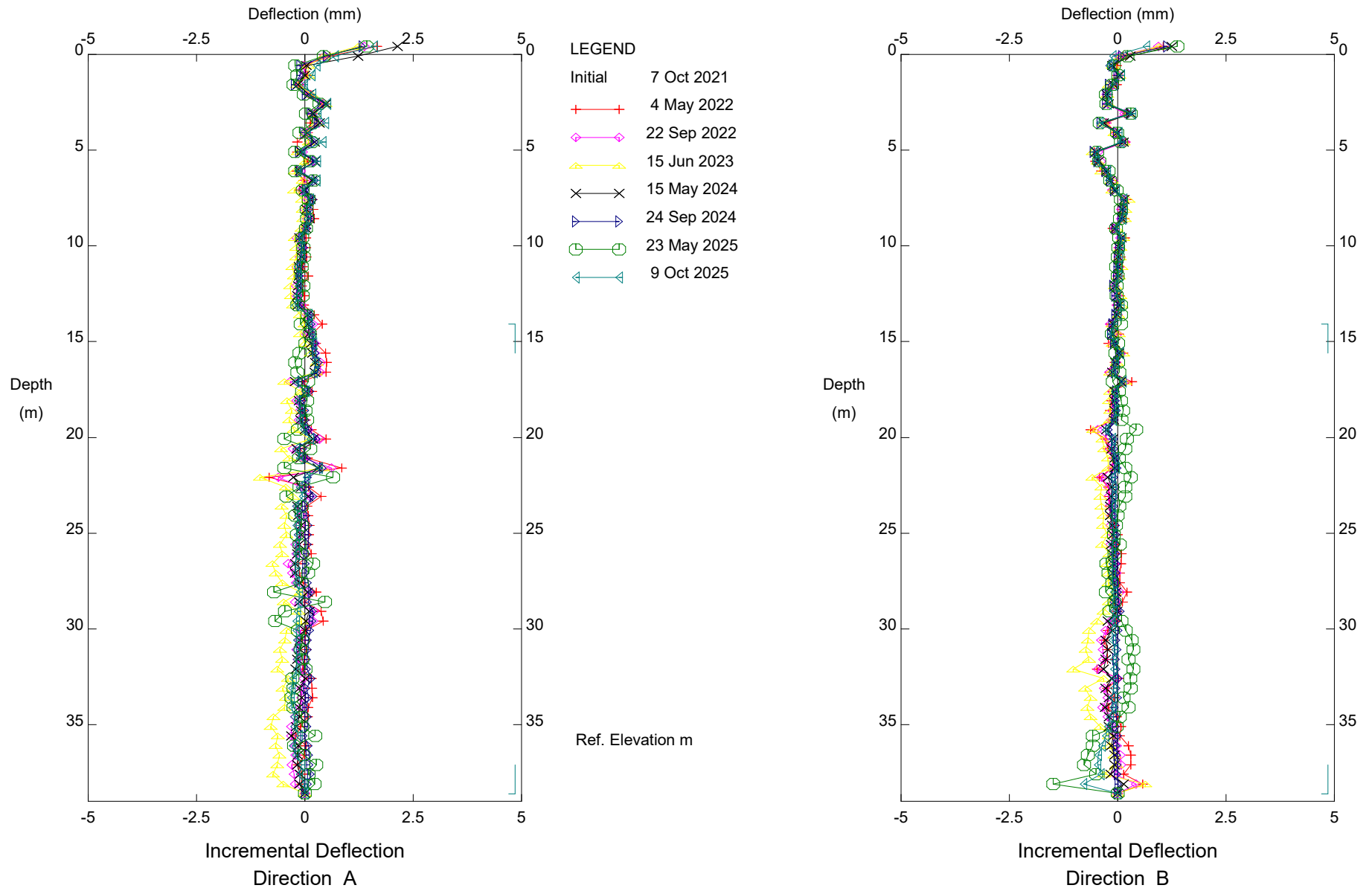
Alberta Transportation

# Klohn Crippen Berger - Calgary



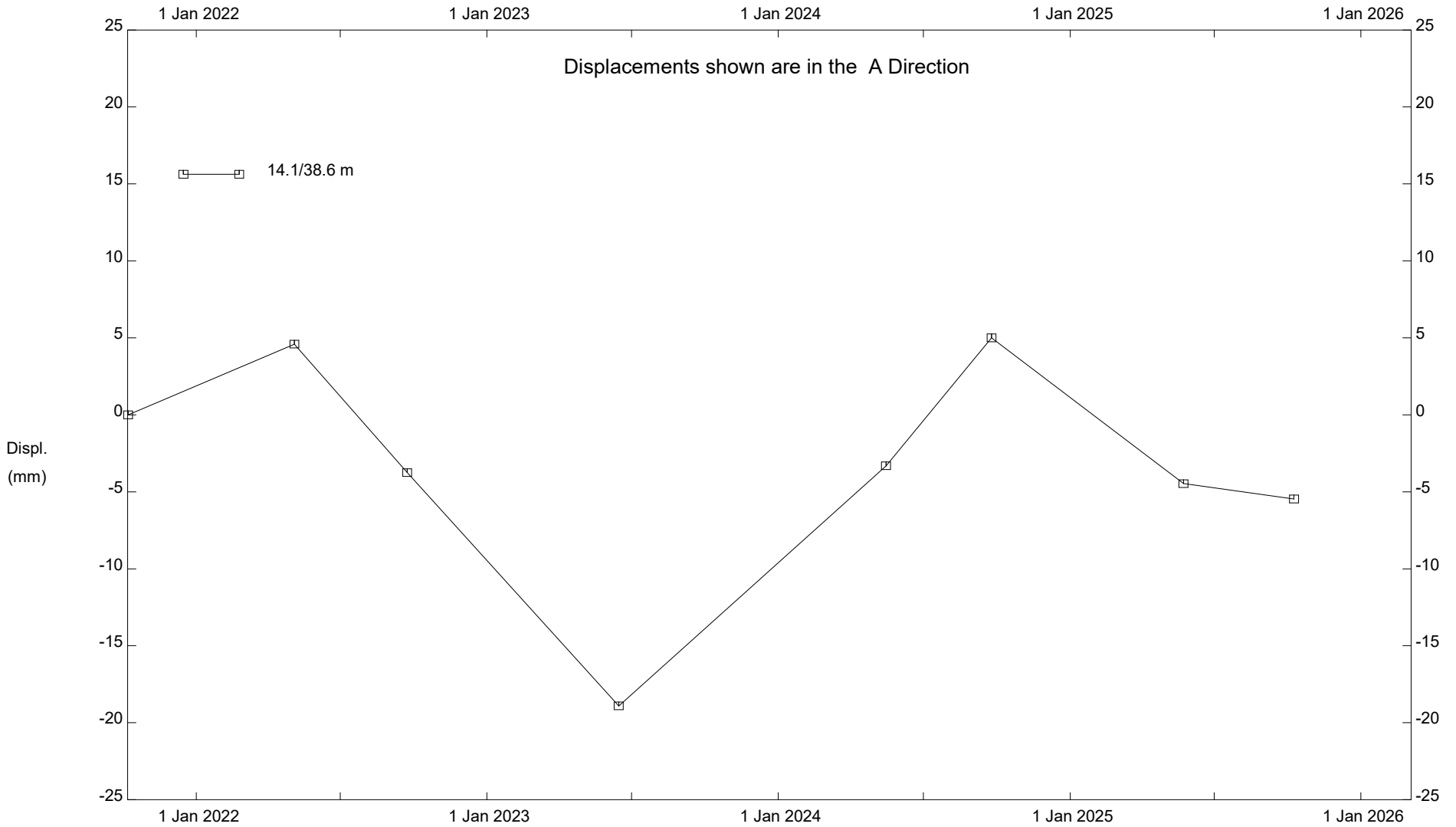
S004; H02:08, Willow Creek, Inclinator SI-5A  
 Alberta Transportation

# Klohn Crippen Berger - Calgary



S004; H02:08, Willow Creek, Inclinator SI-5A  
Alberta Transportation

# Klohn Crippen Berger - Calgary

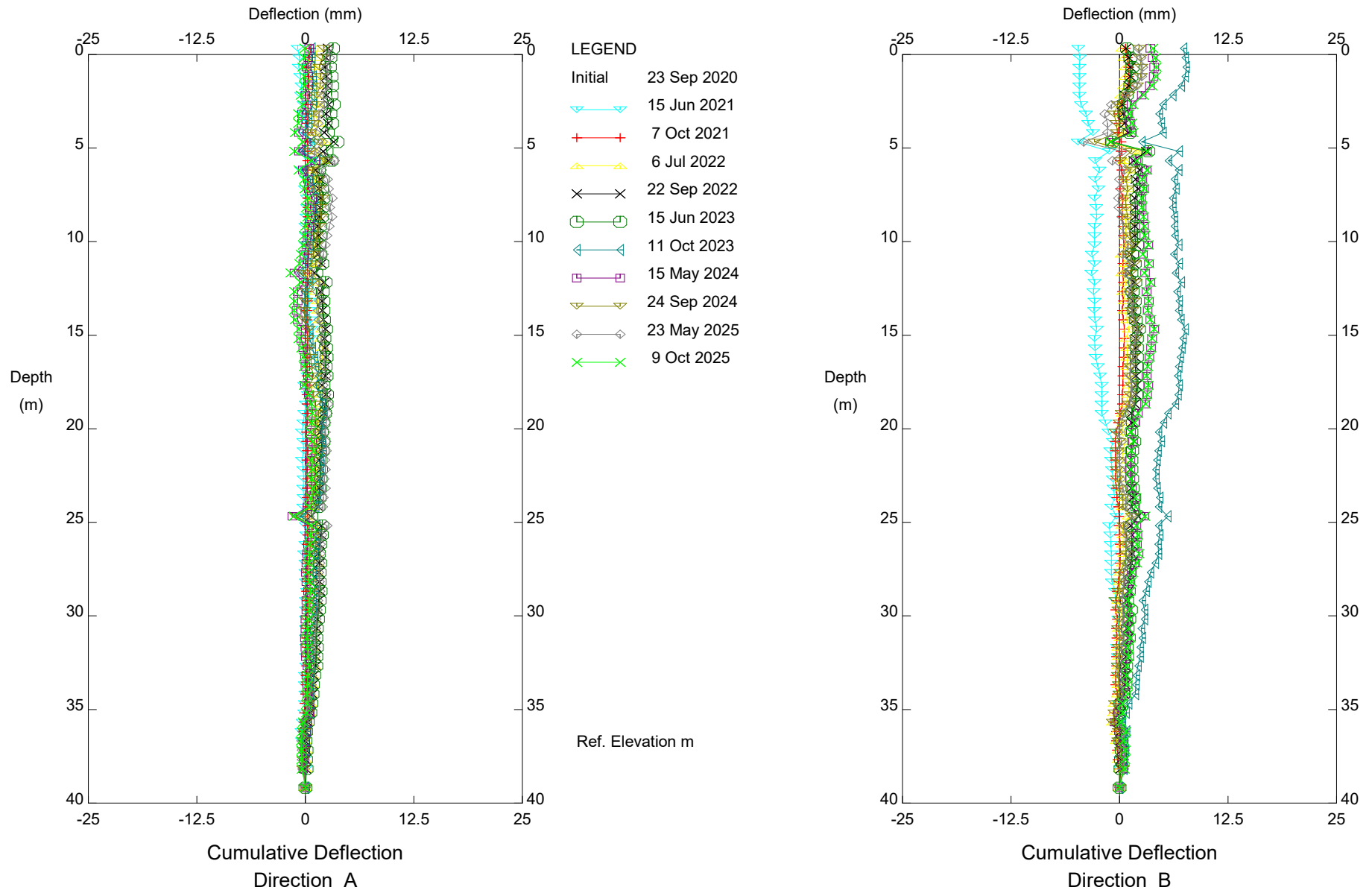


S004; H02:08, Willow Creek, Inclinator SI-5A

Alberta Transportation

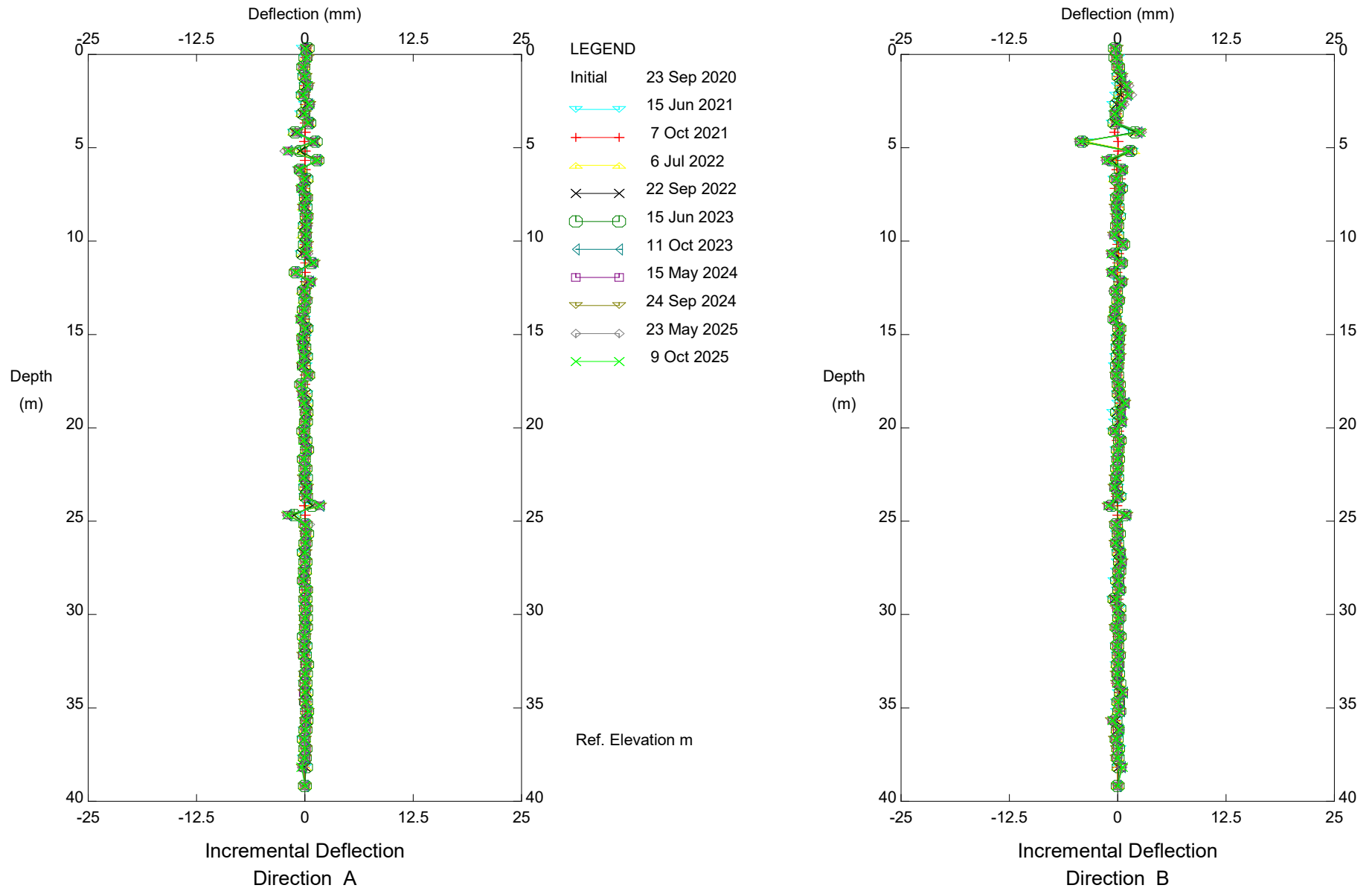


# Klohn Crippen Berger - Calgary



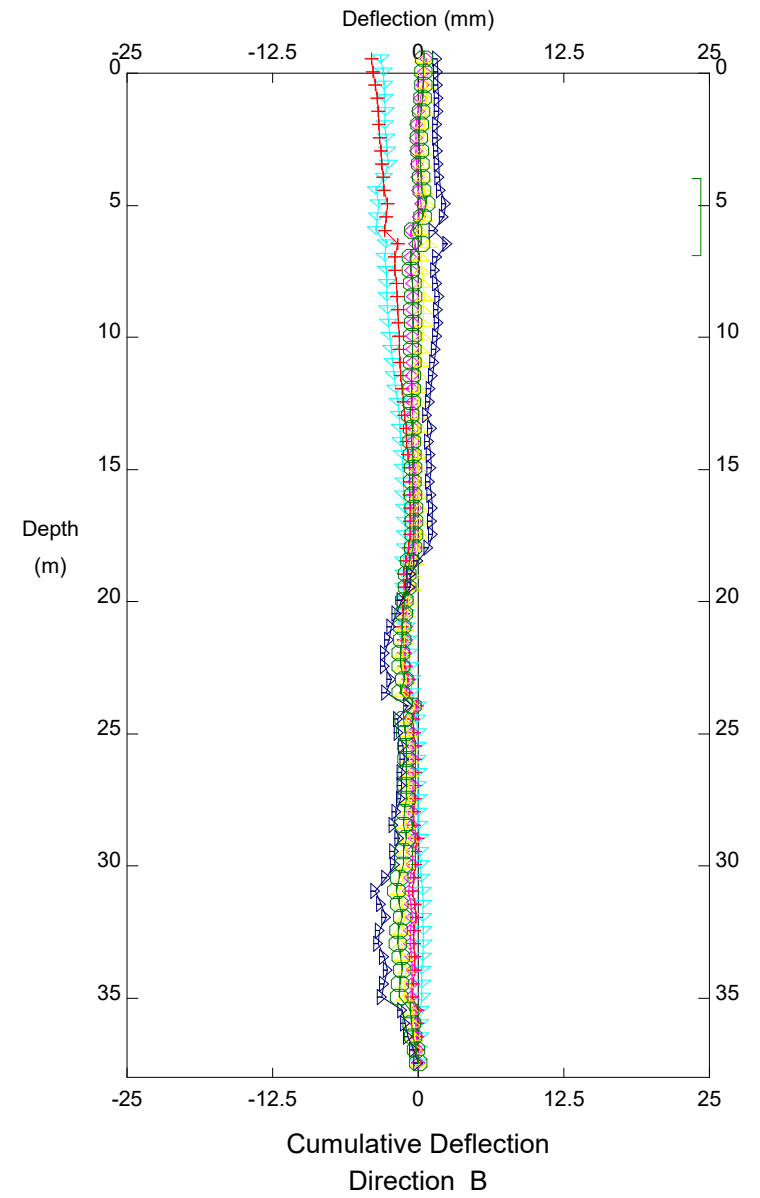
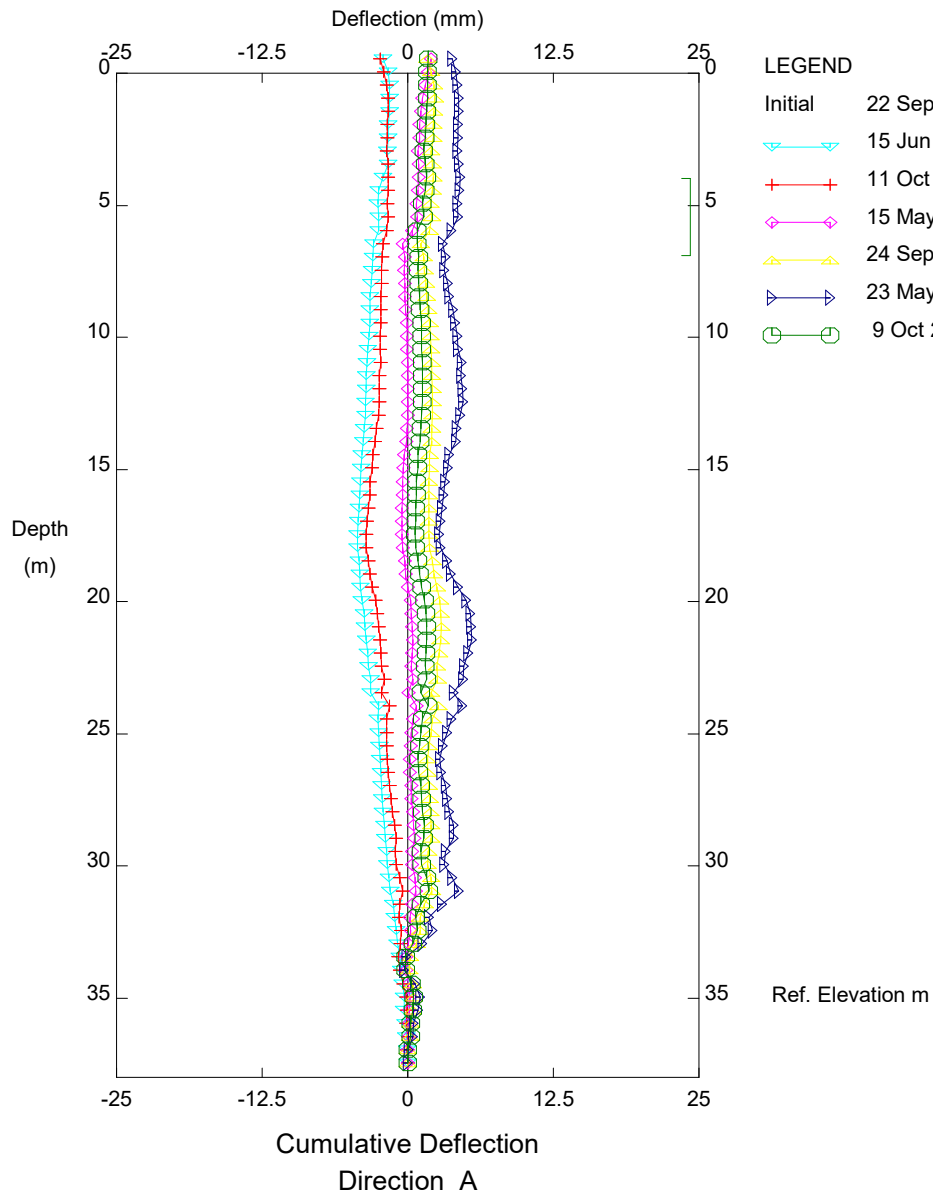
S004; H02:08, Willow Creek, Inclinator SI-9A  
Alberta Transportation

# Klohn Crippen Berger - Calgary

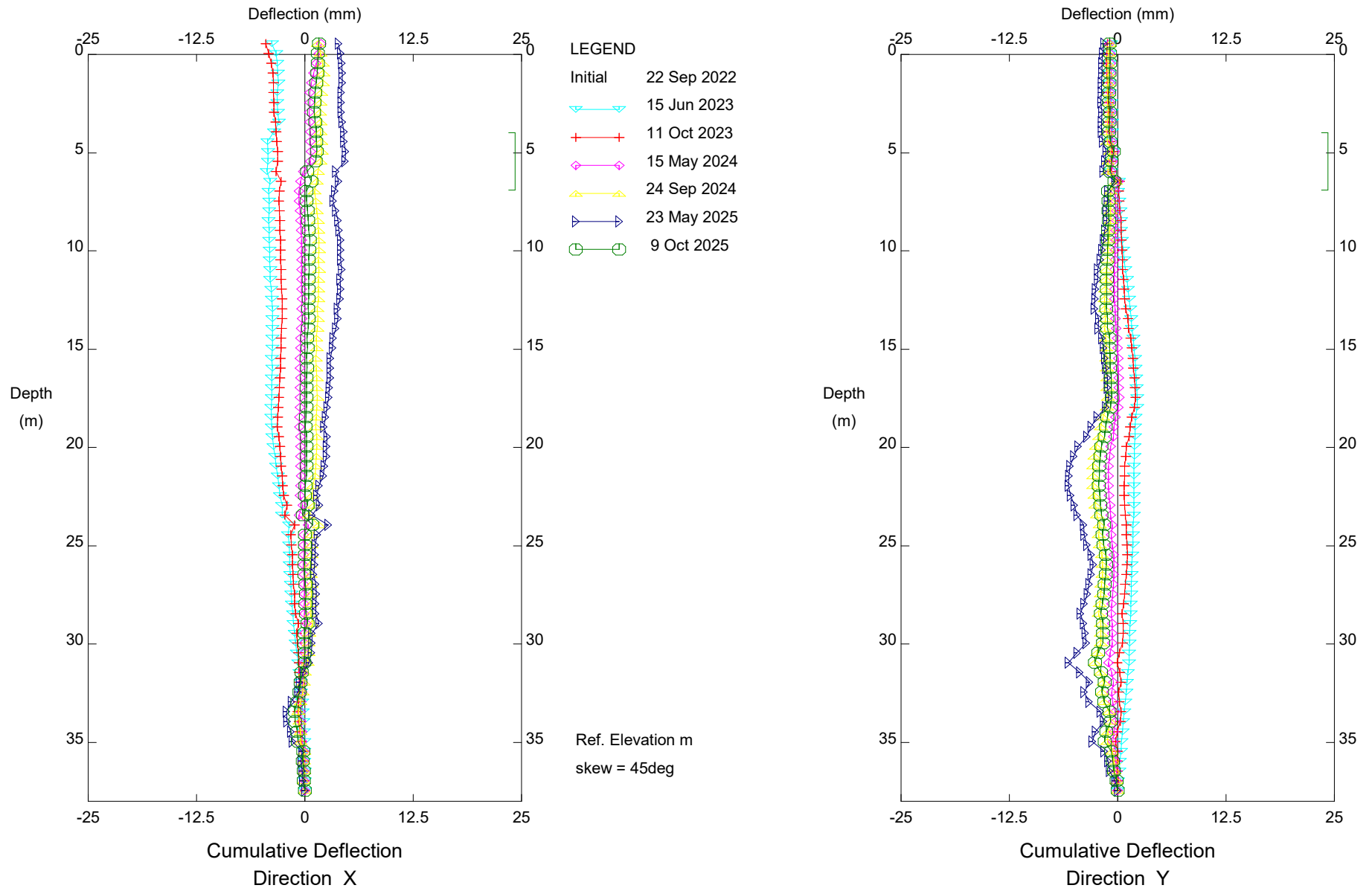


S004; H02:08, Willow Creek, Inclinator SI-9A  
 Alberta Transportation

# Klohn Crippen Berger - Calgary

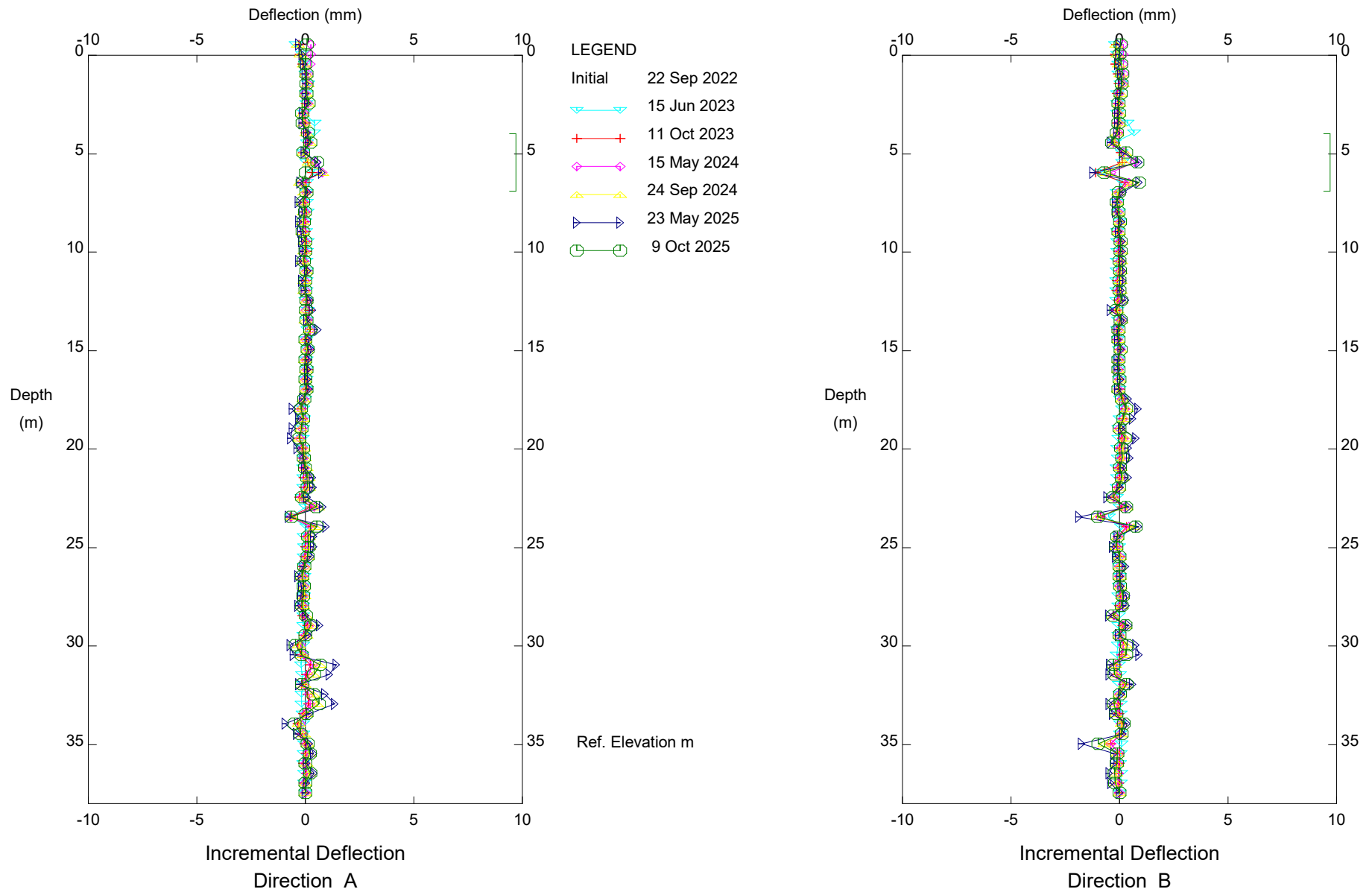


# Klohn Crippen Berger - Calgary



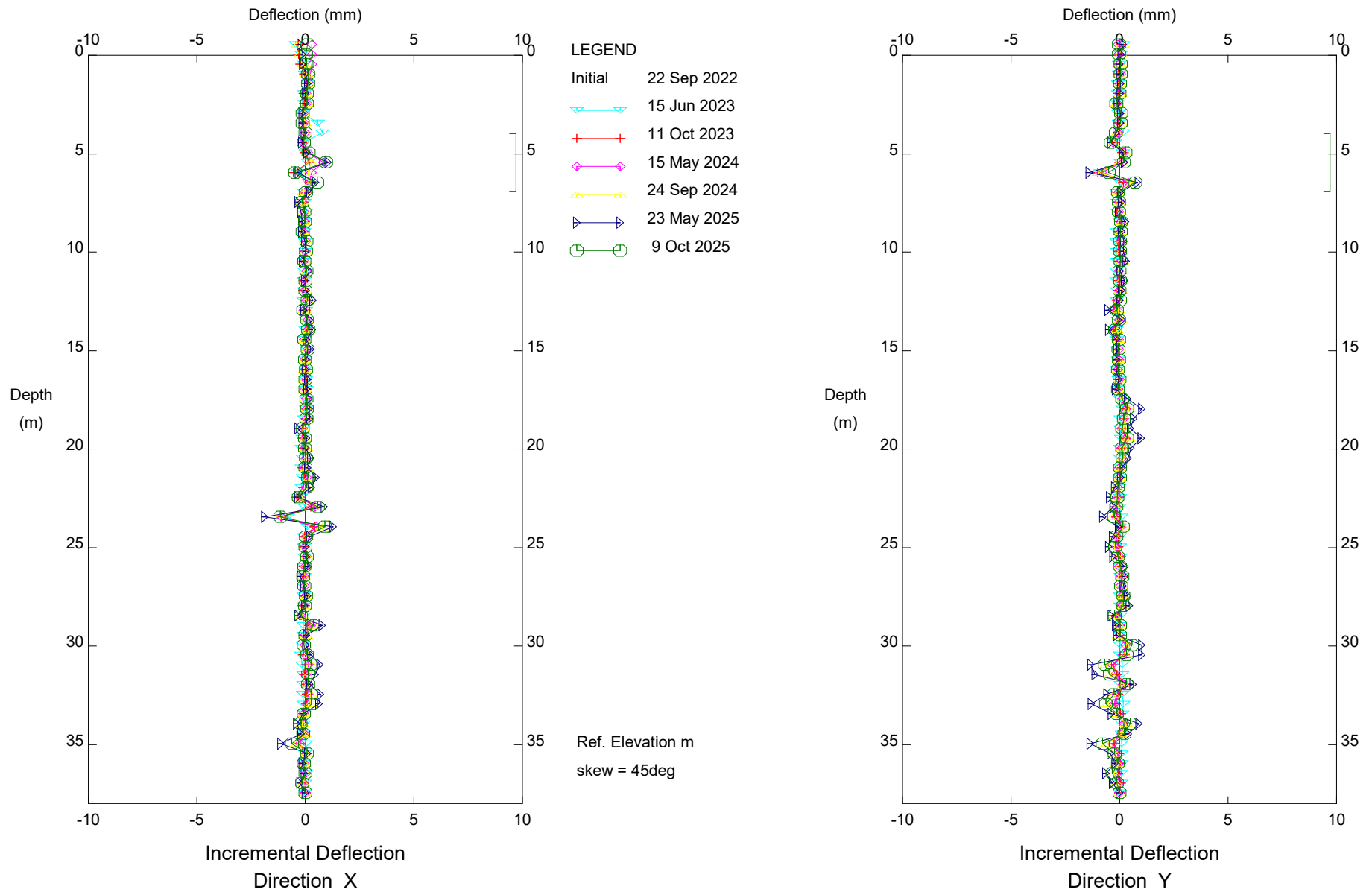
Alberta Southern Region, Inclinator S04 SI-10A

# Klohn Crippen Berger - Calgary



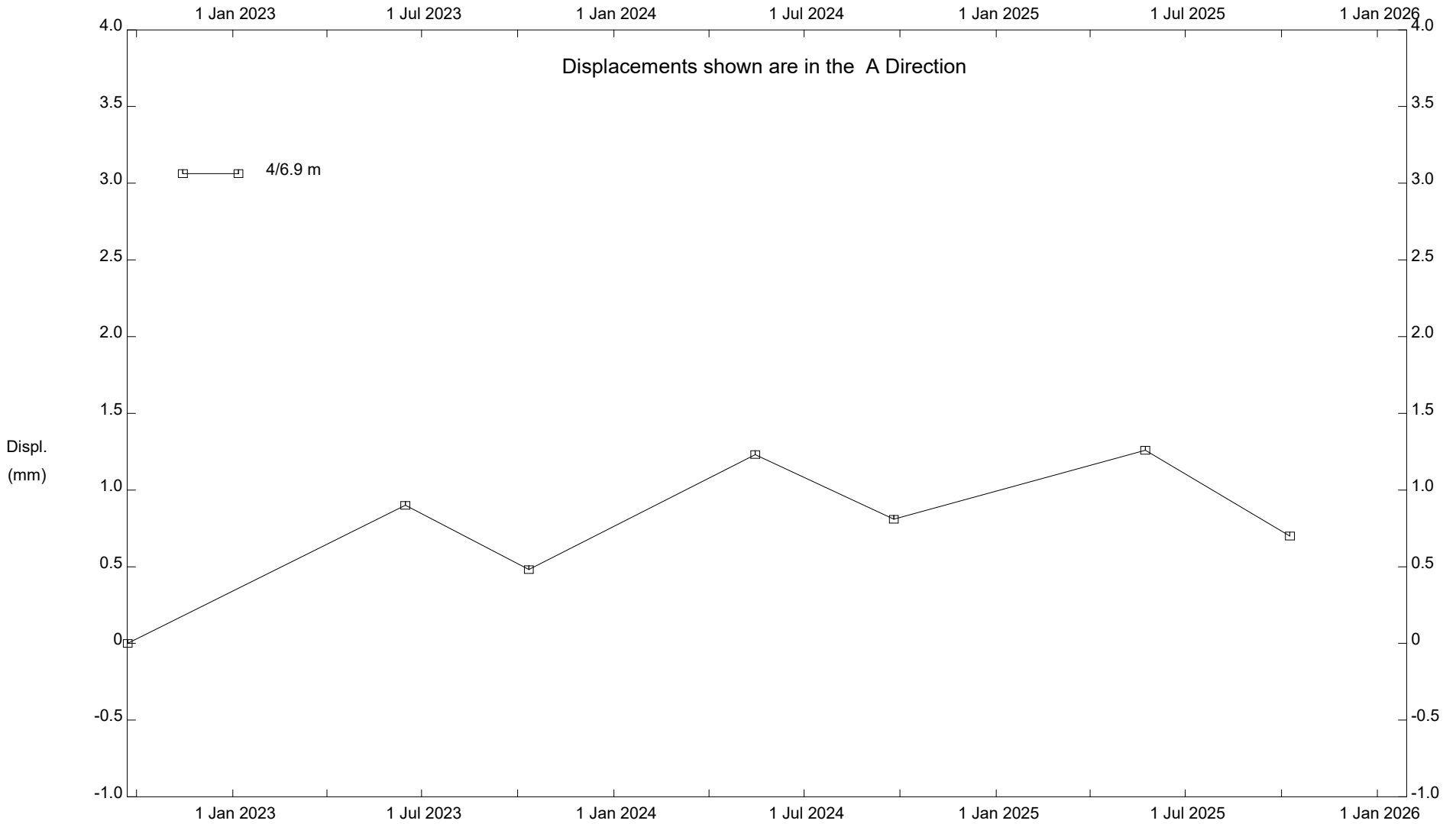


# Klohn Crippen Berger - Calgary



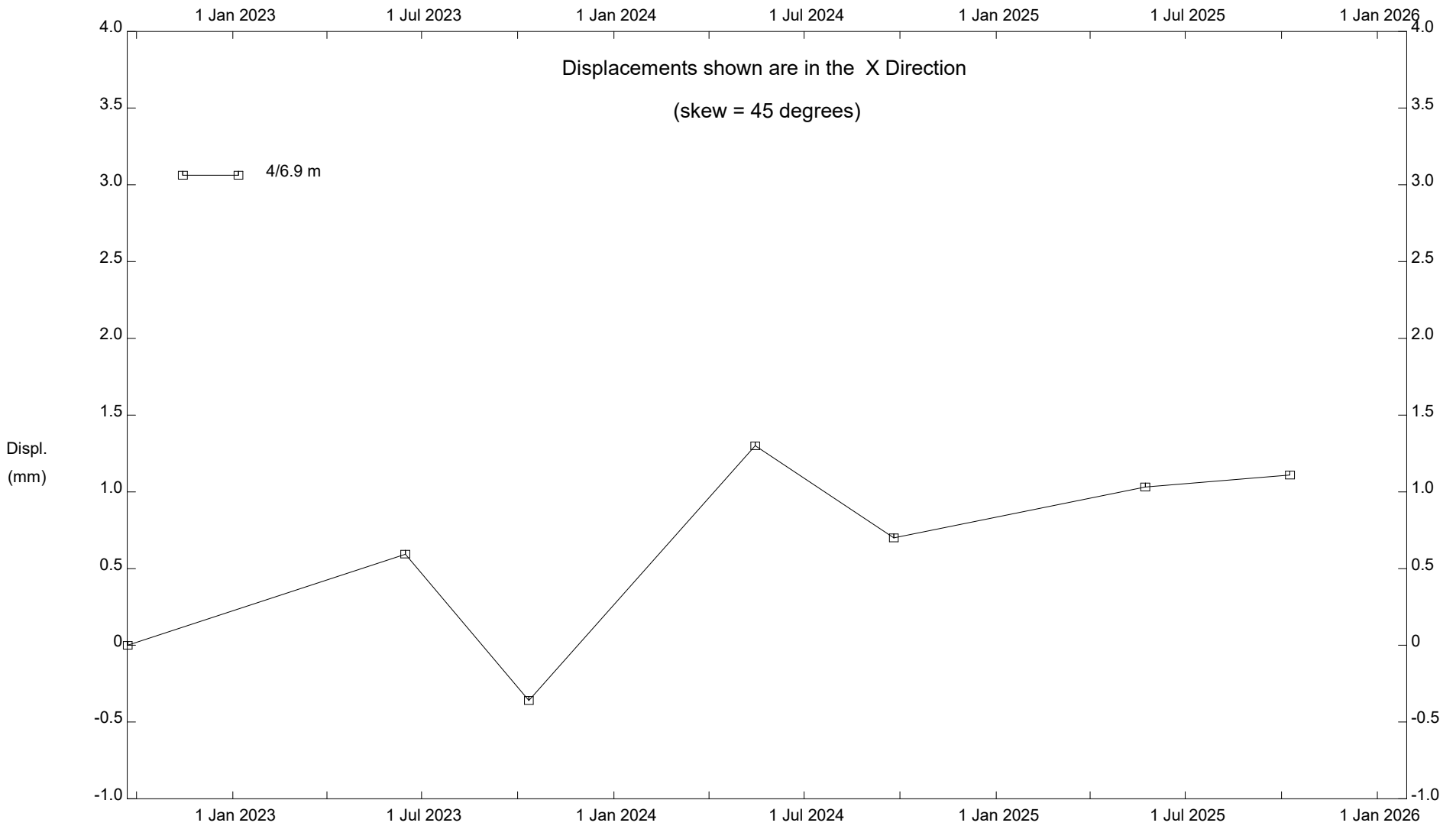
Alberta Southern Region, Inclinometer S04 SI-10A

# Klohn Crippen Berger - Calgary



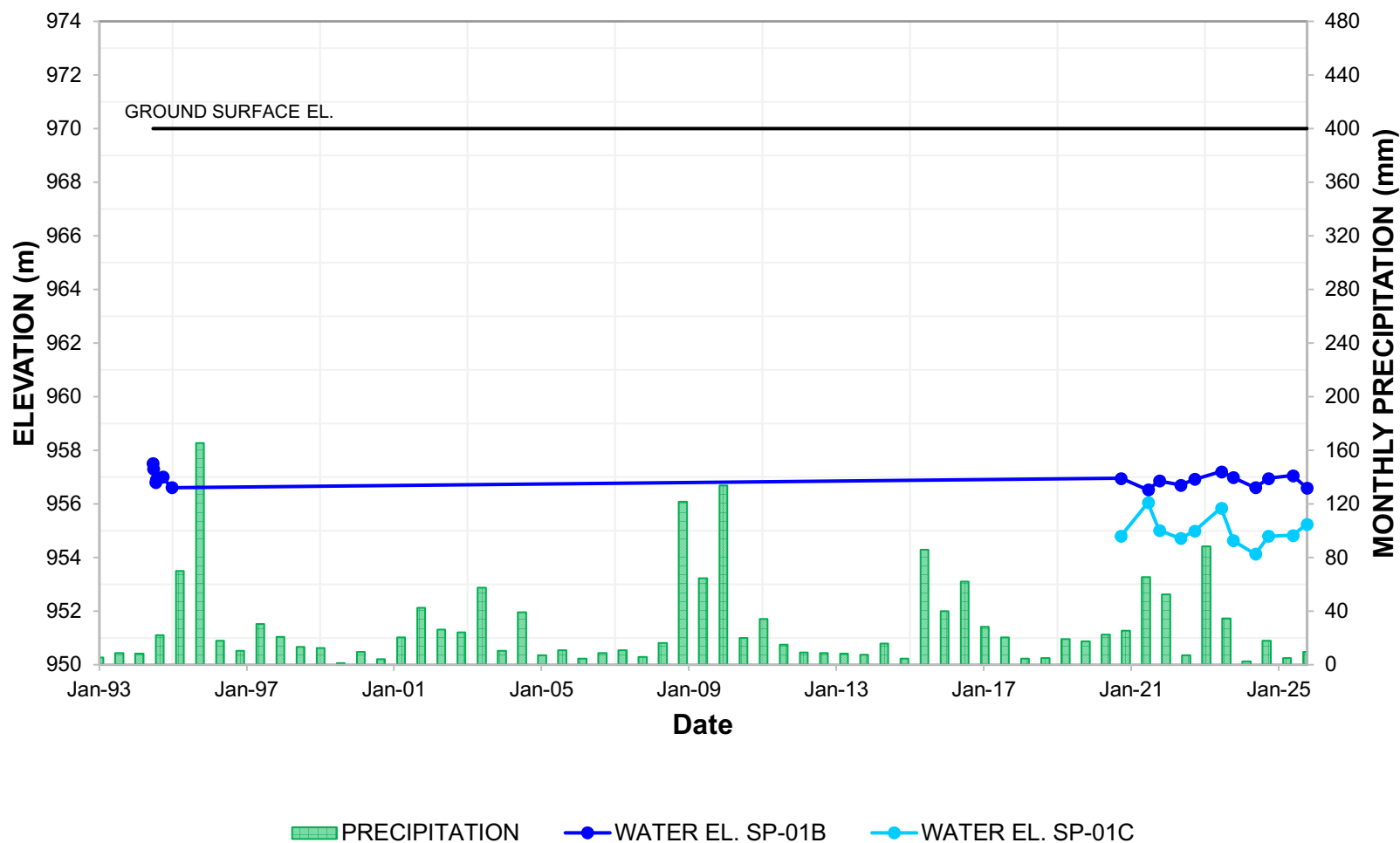
Alberta Southern Region, Inclinator S04 SI-10A

# Klohn Crippen Berger - Calgary



Alberta Southern Region, Inclinator S04 SI-10A

## SP-01B AND SP-01C



### NOTES:

1. MONTHLY PRECIPITATION DATA OBTAINED FROM THE ALBERTA CLIMATE INFORMATION SERVICE (ACIS) DATABASE, REFERENCING FORT MACLEOD AGCM STATION.
2. THE INSTRUMENTS WERE NOT READ BETWEEN OCTOBER 2015 AND SEPTEMBER 2020.

CLIENT

Alberta

Klohn Crippen Berger

PROJECT

SOUTHERN REGION GEOHAZARD RISK  
MANAGEMENT PROGRAM

TITLE

Standpipe Piezometer Data  
S004 - Willow Creek  
Hwy 02:08, km 6.284

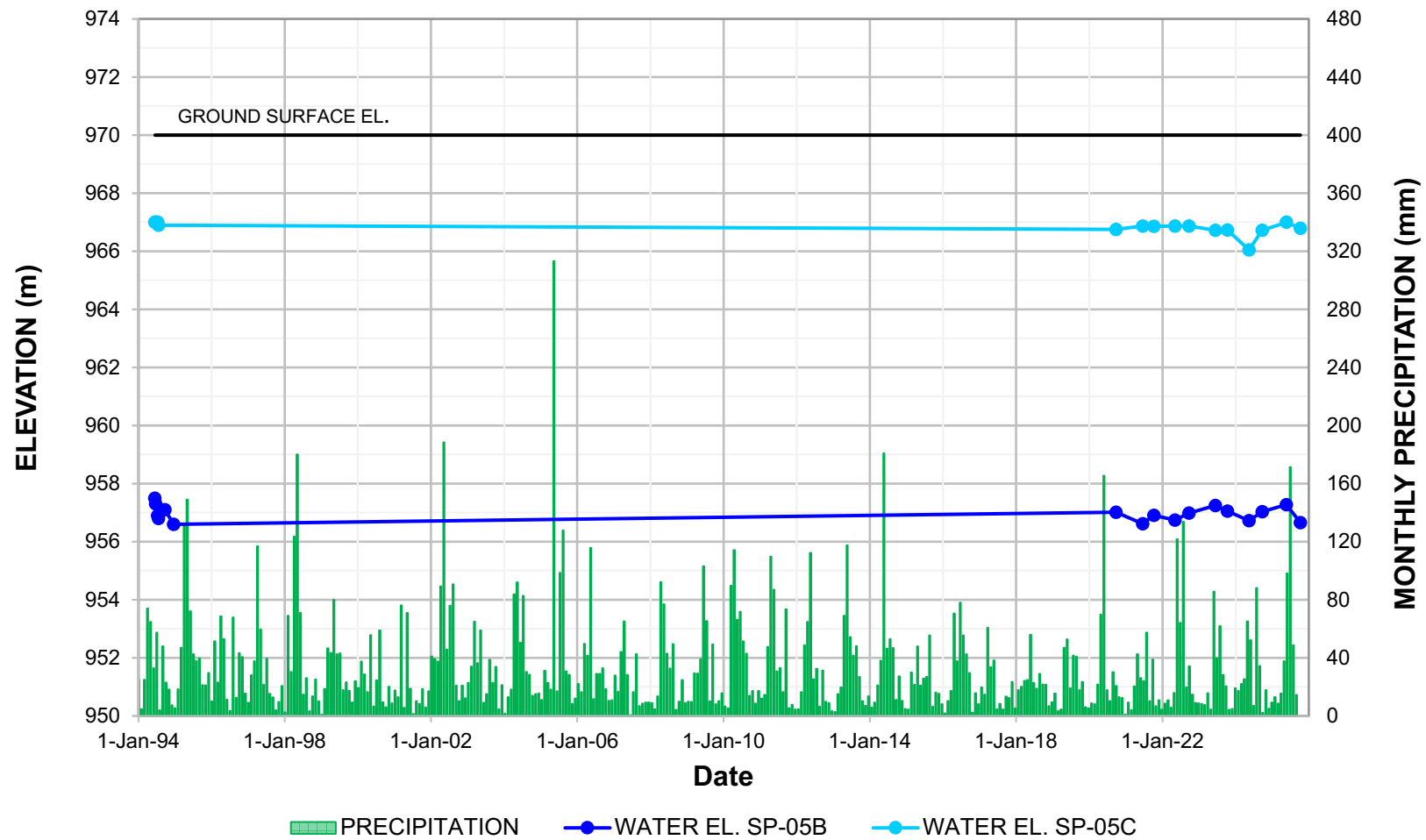
SCALE

PROJECT No.

A05116A03

FIG No.

## SP-05B AND SP-05C



### NOTES:

1. MONTHLY PRECIPITATION DATA OBTAINED FROM THE ALBERTA CLIMATE INFORMATION SERVICE (ACIS) DATABASE, REFERENCING FORT MACLEOD AGCM STATION.
2. THE INSTRUMENTS WERE NOT READ BETWEEN OCTOBER 2015 AND SEPTEMBER 2020.

CLIENT

Alberta

Klohn Crippen Berger

PROJECT

SOUTHERN REGION GEOHAZARD RISK  
MANAGEMENT PROGRAM

TITLE

Standpipe Piezometer Data  
S004 - Willow Creek  
Hwy 02:08, km 6.284

SCALE

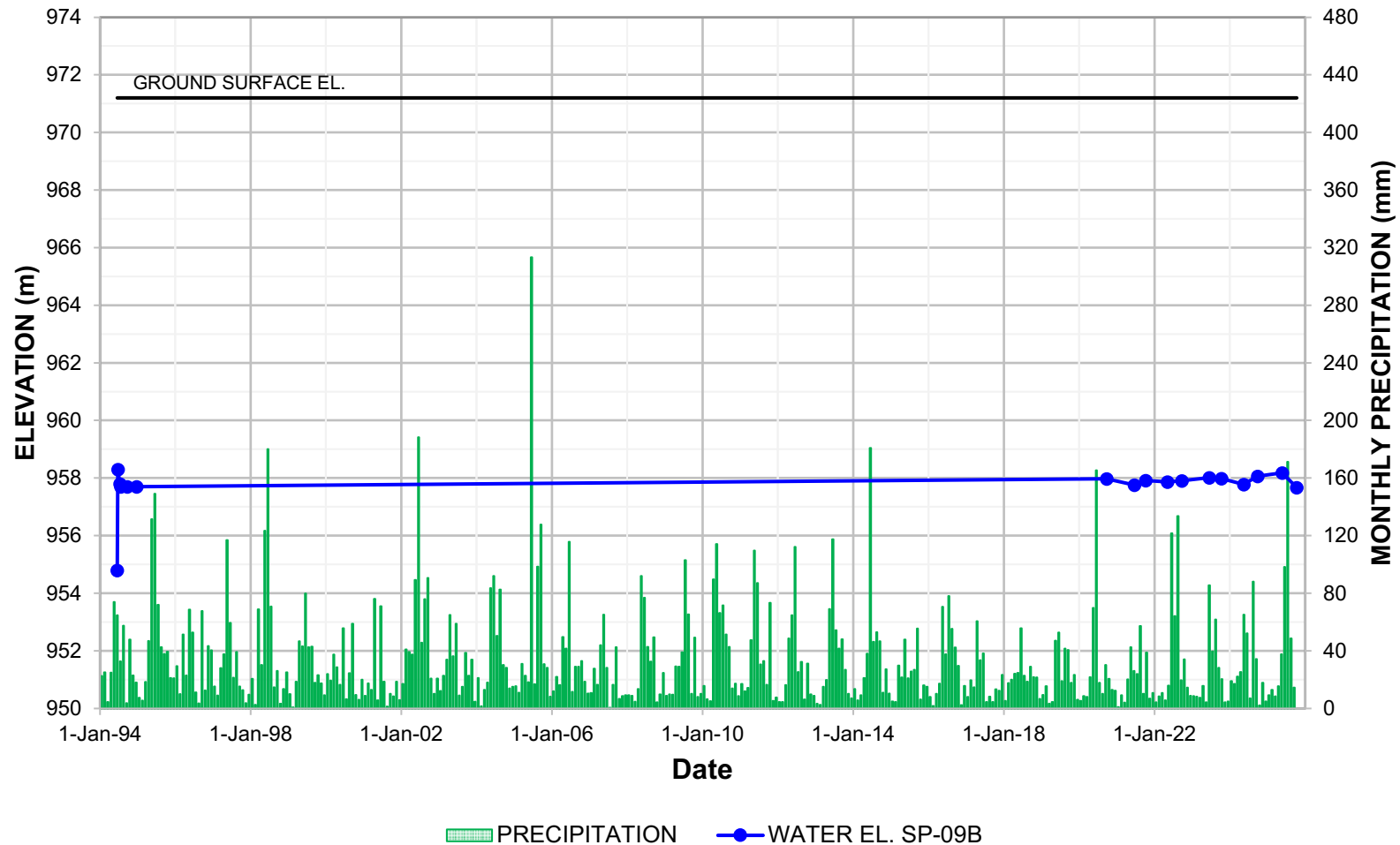
PROJECT No.

A05116A03

FIG No.



## SP-09B



### NOTES:

1. MONTHLY PRECIPITATION DATA OBTAINED FROM THE ALBERTA CLIMATE INFORMATION SERVICE (ACIS) DATABASE, REFERENCING FORT MACLEOD AGCM STATION.
2. THE INSTRUMENTS WERE NOT READ BETWEEN OCTOBER 2015 AND SEPTEMBER 2020.

CLIENT



PROJECT

SOUTHERN REGION GEOHAZARD RISK  
MANAGEMENT PROGRAM

TITLE

Standpipe Piezometer Data  
S004 - Willow Creek  
Hwy 02:08, km 6.284

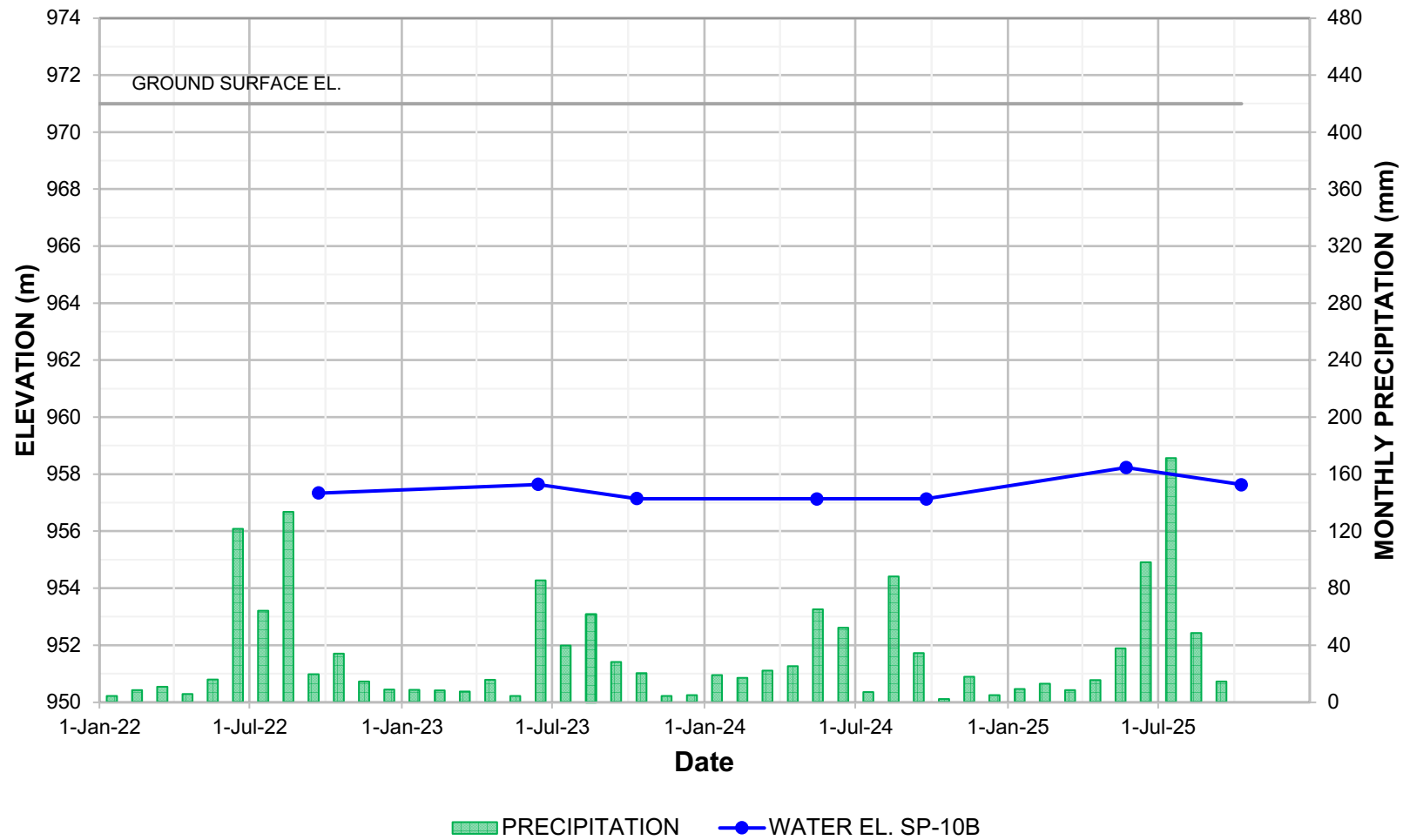
SCALE

PROJECT No.

A05116A03

FIG No.

## SP-10B



### NOTES:

1. MONTHLY PRECIPITATION DATA OBTAINED FROM THE ALBERTA CLIMATE INFORMATION SERVICE (ACIS) DATABASE, REFERENCING FORT MACLEOD AGCM STATION.
2. THE INSTRUMENTS WERE NOT READ BETWEEN OCTOBER 2015 AND SEPTEMBER 2020.

CLIENT

Alberta

Klohn Crippen Berger

PROJECT

SOUTHERN REGION GEOHAZARD RISK  
MANAGEMENT PROGRAM

TITLE

Standpipe Piezometer Data  
S004 - Willow Creek  
Hwy 02:08, km 6.284

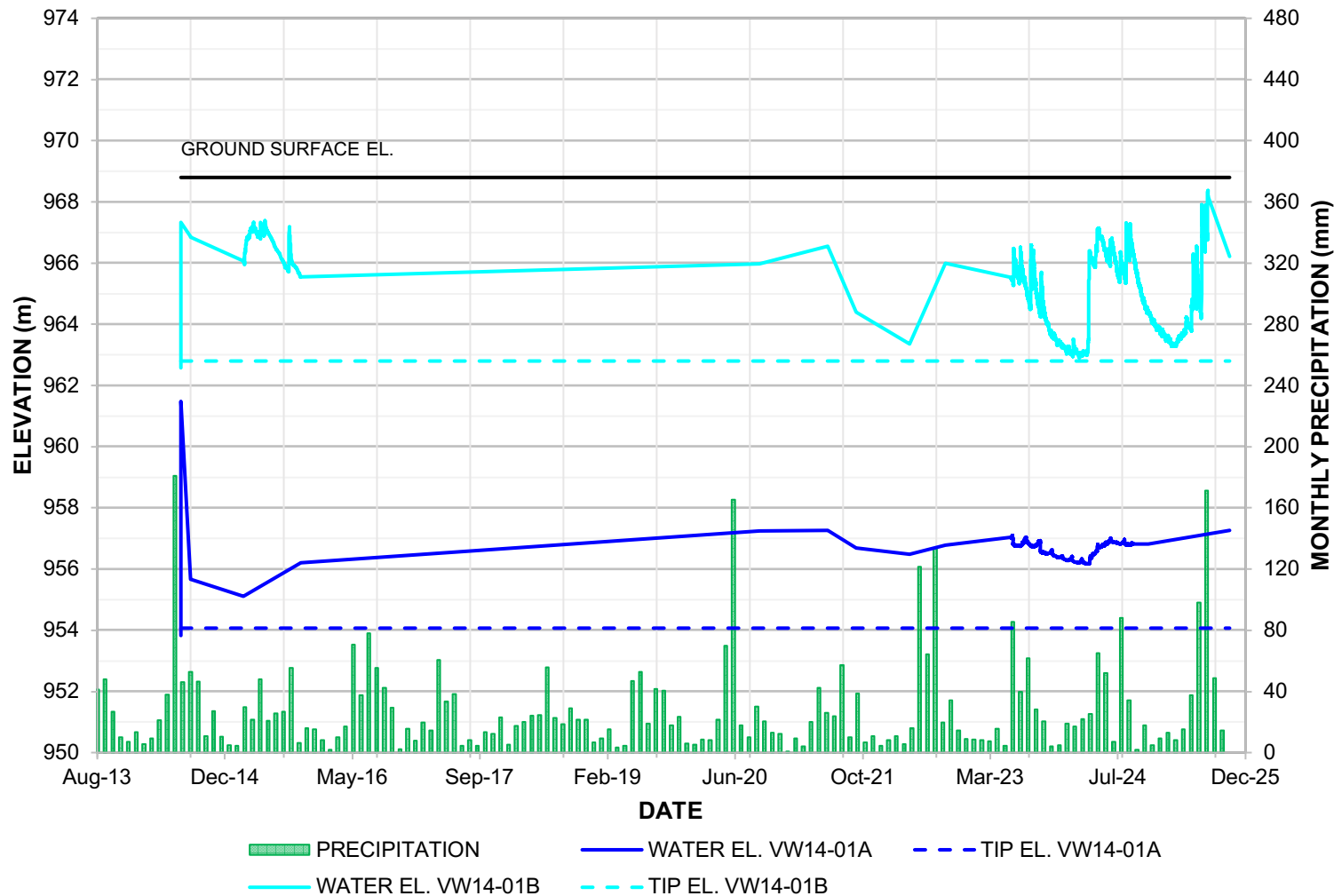
SCALE

PROJECT No.

A05116A03

FIG No.

## VW14-01A AND VW14-01B



### NOTES:

1. MONTHLY PRECIPITATION DATA OBTAINED FROM THE ALBERTA CLIMATE INFORMATION SERVICE (ACIS) DATABASE, REFERENCING FORT MACLEOD AGCM STATION.
2. THE INSTRUMENTS WERE NOT READ BETWEEN OCTOBER 2015 AND SEPTEMBER 2020.

CLIENT



PROJECT

SOUTHERN REGION GEOHAZARD RISK  
MANAGEMENT PROGRAM

TITLE

Vibrating Wire Piezometer Data  
S004 - Willow Creek  
Hwy 02:08, km 6.284

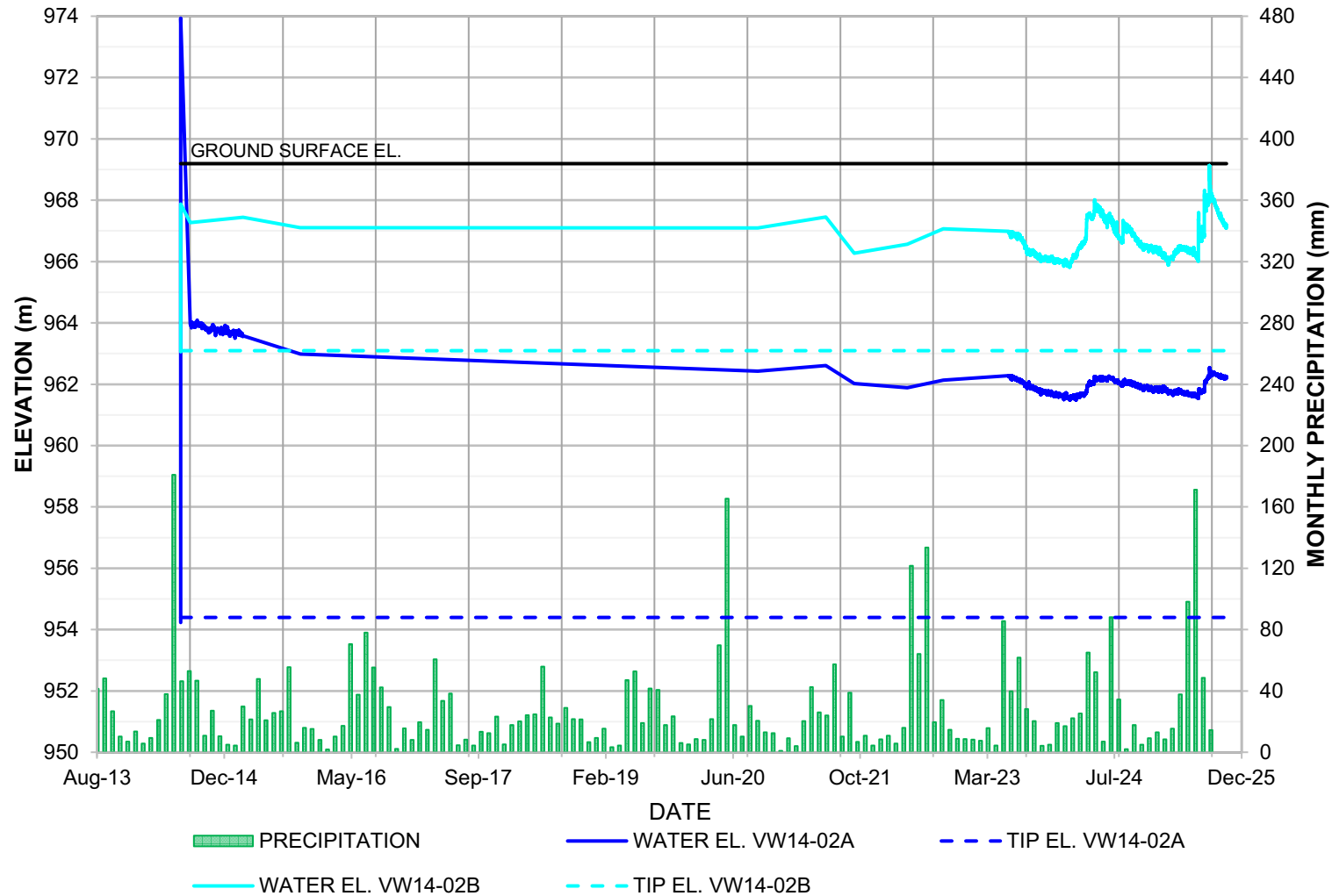
SCALE

PROJECT No.

A05116A03

FIG No.

## VW14-02A AND VW14-02B



### NOTES:

1. MONTHLY PRECIPITATION DATA OBTAINED FROM THE ALBERTA CLIMATE INFORMATION SERVICE (ACIS) DATABASE, REFERENCING FORT MACLEOD AGCM STATION.
2. THE INSTRUMENTS WERE NOT READ BETWEEN OCTOBER 2015 AND SEPTEMBER 2020.

CLIENT



PROJECT

SOUTHERN REGION GEOHAZARD RISK  
MANAGEMENT PROGRAM

TITLE

Vibrating Wire Piezometer Data  
S004 - Willow Creek  
Hwy 02:08, km 6.284

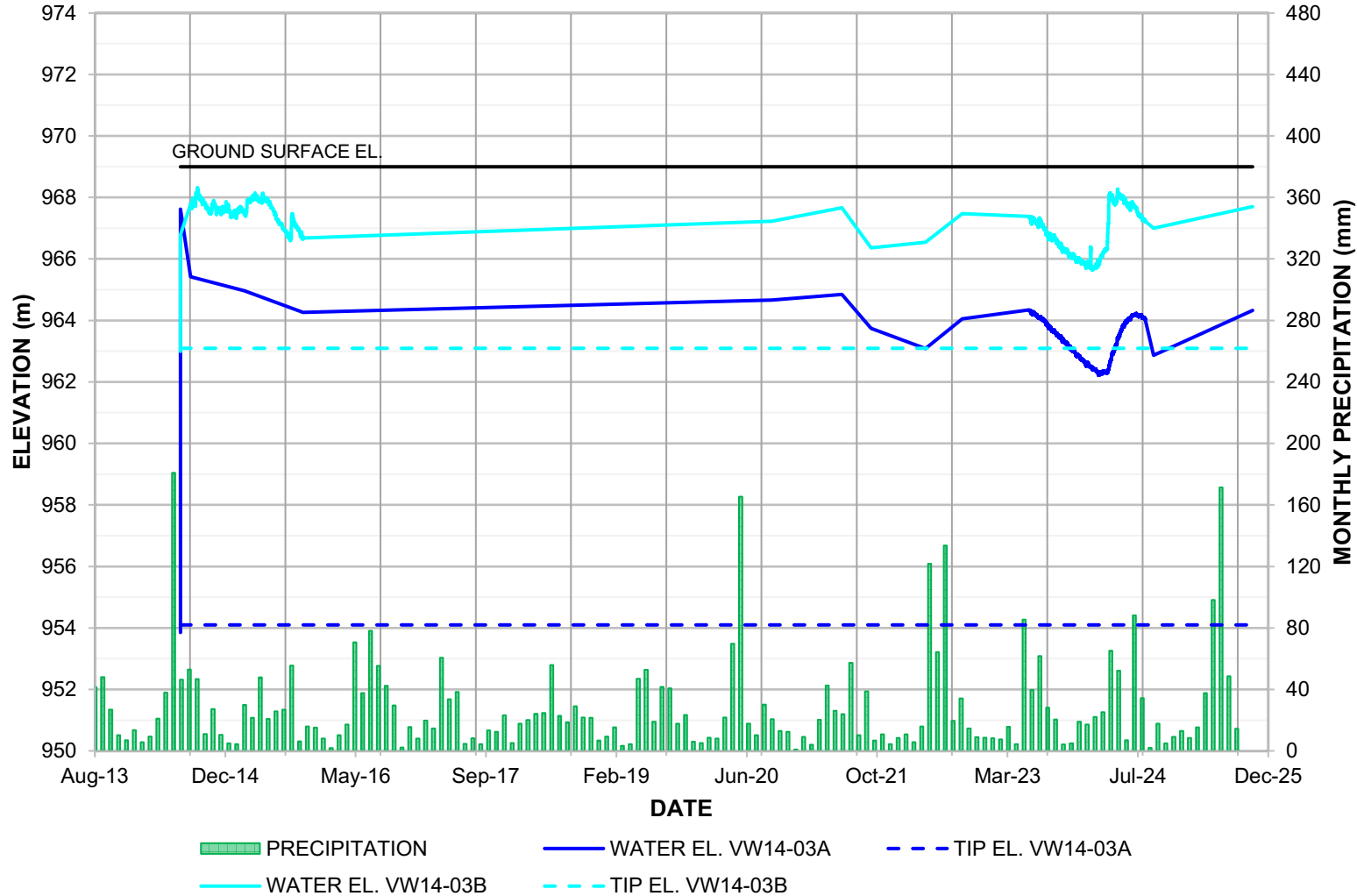
SCALE

PROJECT No.

A05116A03

FIG No.

## VW14-03A AND VW-03B



### NOTES:

1. MONTHLY PRECIPITATION DATA OBTAINED FROM THE ALBERTA CLIMATE INFORMATION SERVICE (ACIS) DATABASE, REFERENCING FORT MACLEOD AGCM STATION.
2. THE INSTRUMENTS WERE NOT READ BETWEEN OCTOBER 2015 AND SEPTEMBER 2020.

CLIENT



PROJECT

SOUTHERN REGION GEOHAZARD RISK  
MANAGEMENT PROGRAM

TITLE

Vibrating Wire Piezometer Data  
S004 - Willow Creek  
Hwy 02:08, km 6.284

SCALE

PROJECT No.

A05116A03

FIG No.