

November 30, 2022

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

Ed Szmata
Construction Technologist

Dear Mr. Szmata:

CON0022166 Peace Region (Grande Prairie District – South) GRMP Instrumentation Monitoring Site GP028; H43:12, km 34.473 Two Creeks Section C – 2022 Fall Readings

1 GENERAL

One slope inclinometer (SI) (SI02-02), two vibrating wire piezometers (VWPs) (VWP15-13U/L), four standpipe piezometers (SPs) (SP02-05, SP02-07, SP02-08, and SP14-2), two monitoring wells (MW14-7 and MW14-9), and one pumping well (PW14-1) were read at the GP028 site in the Peace Region (Grande Prairie District – South, GP South Region) on September 26, 2022 by Messrs. Gabriel Bonot, E.I.T. and Guerin White, E.I.T. of Klohn Crippen Berger Ltd. (KCB). Five levelloggers (MW14-3, MW14-5, MW14-8, MW14-10, and MW14-11) were read on October 27, 2022 by Mr. Gabriel Bonot, E.I.T. Data from the four remotely monitored VWPs (MW14-6, MW15-12, PW14-2, and PW15-3) was downloaded on September 29, 2022. These instruments were read as part of the GP South Region Geohazard Risk Management Program (GRMP). The site is located on Hwy 43:12, km 34.473. The approximate site coordinates are 6017213 N, 544193 E (UTM Zone 11, NAD 83). A site plan is presented in Figure 1.

The geohazard at the GP028 site consists of a landslide with a backscarp that extends through the south (eastbound) lanes of Hwy 43:12, along with elevated groundwater levels impacting the pavement subgrade/surface. The site is located north (upslope) of Two Creeks.

Previous remedial actions completed at the GP028 site include the installation of 1 m deep pavement drains beneath the eastbound lane and a 315-m long subdrain in the median in 2003. The subdrain is approximately 2.5 m deep, 400 mm diameter, and outlets via a culvert beneath the south (eastbound) lane that eventually drains into Two Creeks. In 2015, two pumps were installed in pumping wells that discharge water into the same subdrain outlet, a remote monitoring station was installed, and Class 2 riprap was keyed-in along a 100 m length of the creekbank to protect it from erosion.

Between 2002 and 2015, several geotechnical site investigations, which included installing instruments, were conducted by the previous consultants. The encountered stratigraphy has not been provided to KCB.

1.1 Instrumentation

KCB has been reading the instruments at this site since the spring of 2021. 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 2002 and 2015, several SIs, piezometers, and wells were installed at the site by the previous consultants to monitor movement and groundwater conditions, respectively. A barologger was also installed in 2014. Some of these instruments are now inoperable (e.g., destroyed, sheared, or lost) as detailed in Table 1.1 (see table notes).

The instruments are protected by above-ground casing protectors.

The operable SI was read using the same metric RST Digital MEMS Inclinometer System that has been used to read the SI since KCB took over the readings in June 2021.

The VWPs were read using RST Instruments DTLink software and Campbell Scientific LoggerNet software. The levelloggers were read using a Solinst PC Interface Cable. The operable SPs were read using an RST Water Level Meter.

The barologger (BW14-10) was attempted to be read during the spring and fall 2022 readings, using a Solinst Desktop Reader 5 (with accompanying L5 Threaded Adaptor). However, no data was able to be retrieved from the instrument.

Table 1.1 Instrumentation Installation Details¹

Instrument ID	Instrument Type	Date Installed	UTM Coordinates ¹ (m)		Ground Surface Elevation (m)	Stick Up ¹ (m)	Depth (mbgs ²)	Condition
			Northing	Easting				
SI02-01	SI	Sep. 11, 2002	Unknown	Unknown	Unknown	Unknown	Unknown	Inoperable ⁵
SI02-02	SI	Sep. 12, 2002	6017223	544356	851.9	0.7	14.6 ⁶	Operable ⁶
SI02-03	SI	Sep. 12, 2002	Unknown	Unknown	Unknown	Unknown	Unknown	Inoperable ²
VW15-13U	VWP ¹⁰	2015	6017220	544327	850.2	N/A	13.7	Operable
VW15-13L	VWP ¹⁰	2015	6017220	544327	850.2	N/A	18.3	Operable
MW14-6	VWP ³	2014	6017259	544435	856.0	N/A	15.3	Operable
MW15-12	VWP ³	2014	6017259	544435	858.2	N/A	27.1	Operable
PW14-2	VWP ³	2014	6017259	544435	856.3	N/A	18.0	Operable
PW15-3	VWP ³	2014	6017259	544435	857.0	N/A	26.9	Operable
SP02-01	SP	Sep. 13, 2002	Unknown	Unknown	Unknown	Unknown	Unknown	Inoperable
SP02-02	SP	Sep. 11, 2002	Unknown	Unknown	Unknown	Unknown	Unknown	Inoperable
SP02-03	SP	Sep. 11, 2002	Unknown	Unknown	Unknown	Unknown	Unknown	Inoperable
SP02-04	SP	Sep. 12, 2002	Unknown	Unknown	Unknown	Unknown	Unknown	Inoperable
SP02-05 ¹¹	SP	Sep. 11, 2002	6017232	544367	854.0	0.8	12.4	Operable
SP02-06	SP	Sep. 11, 2002	Unknown	Unknown	Unknown	Unknown	Unknown	Inoperable
SP02-07	SP	Sep. 12, 2002	6017214	544358	851.2	0.7	6.6	Operable

Instrument ID	Instrument Type	Date Installed	UTM Coordinates ¹ (m)		Ground Surface Elevation (m)	Stick Up ¹ (m)	Depth (mbgs ²)	Condition
			Northing	Easting				
SP02-08	SP	Sep. 12, 2002	6017195	544351	849.8	0.8	6.9	Operable
SP14-2	SP	2014	6017298	544055	839.3	1.0	8.8	Operable
MW14-3	SP ⁴	2014	6017279	544221	845.0	-	7.0	Operable
MW14-4	SP⁴	2014	6017264	544350	851.7	-	10.1	Inoperable⁸
MW14-5	SP ⁴	2014	6017264	544354	851.7	-	6.9	Operable ⁸
MW14-8	SP ⁴	2014	6017247	544513	861.2	-	12.1	Operable
MW14-10	SP ⁴	2014	6017263	544546	870.7	-	12.8	Operable
MW14-11	SP ⁴	2014	6017264	544547	870.7	-	27.1	Operable
BW14-10	Barologger⁹	2014	6017263	544546	870.7	N/A	N/A	Operable⁹
PW14-1	Pumping Well	2014	6017250	544423	855.5	0.6	17.5	Operable
MW14-7	Monitoring Well	2014	6017258	544431	856.0	1.1	11.9	Operable
MW14-9	Monitoring Well	2014	6017247	544521	861.2	1.0	6.1	Operable

Notes:

- ¹ Installation details taken from reports and data files prepared or provided by the previous consultant(s) or AT. Instrument coordinates and stick ups (where applicable) were confirmed by KCB using a handheld GPS (accuracy of ± 5 m) and tape measure, respectively.
- ² Meters below ground surface (mbgs). Bottom casing depth for SIs, and tip or screen depth for piezometers.
- ³ Data for this instrument is being recorded by a central monitoring station. The coordinates are for the location of the central monitoring station.
- ⁴ A Solinst Levelogger is installed in this instrument.
- ⁵ SI02-1 has sheared at an approximate depth of 13.0 m below ground surface.
- ⁶ SI02-2 has sheared at an approximate depth of 15.7 m below ground surface and is currently being read above this depth.
- ⁷ SI02-3 has sheared at an approximate depth of 14.0 m below ground surface.
- ⁸ On March 24, 2021, the protective head boxes for MW14-4 and MW14-5 were struck by a vehicle, leaving MW14-4 inoperable.
- ⁹ BW14-10 could not be successfully read during the spring and fall 2022 readings, but no data was able to be retrieved from the instrument. It was taken to the KCB Edmonton office for troubleshooting. Previously, BW14-10 was in the head box for MW14-10.
- ¹⁰ VW15-13U and -13L are connected to RST Instrument single channel data loggers (Model No. DT2011B), which are recording data every 2-hours.
- ¹¹ SP02-05 was blocked at an approximate depth of 1.9 m during the fall 2021 readings. However, the instrument was successfully read in spring and fall 2022.

2 INTERPRETATION

2.1 General

For SI02-2, the cumulative displacement, incremental displacement, and displacement-time data was plotted in the A-direction (i.e., the direction of the A0-grooves) and the X-direction (i.e., the direction of maximum movement obtained at a skew angle from the A0-grooves). SI02-02 has a skew angle of 340°, measured clockwise from the direction of the A0-grooves.

For the operable PNs and VWPs, the recorded porewater pressures were converted to an equivalent water/piezometric elevation and plotted relative to ground surface elevation and each instruments tip elevation.

For the operable SPs and monitoring/pumping wells, the water level data was plotted relative to ground surface elevation and each instruments screen elevation.

The SI and piezometer data plots are included in Appendix I, and a summary of the SI and piezometer data is provided in Table 2.1 through Table 2.4.

In 2021, KCB reviewed the instrumentation data provided by the previous consultant and removed corrections applied to the historical SI data based on our experience. The instrumentation data obtained by KCB is consistent with the data obtained by the previous consultant. No re-initialization of the SI is recommended. The SI data plots presented herein include data for readings taken with both the previous consultants' and KCB's SI reading equipment.

Table 2.1 Slope Inclinometer Reading Summary

Instrument ID ³	Date				Ground Surface Elevation (m)	Depth of Movement (mbgs ¹)	Direction of Movement, Skew Angle ²	Movement (mm)		Rate of Movement (mm/year)		
	Initialized	Previous Maximum Cumulative Movement Recorded	Previous Reading	Most Recent Reading				Maximum Cumulative	Incremental Since Previous Maximum Cumulative	Previous Maximum	Current	Change from Previous Reading
SI02-02	Sep. 13, 2002	Jun. 27, 2021	Jun. 20, 2022	Sep. 26, 2022	851.9	13.6 – 14.6	X-direction, 340°	23.3	-0.2	7.7	-0.8	-1.1

Notes:

¹ Meters below ground surface (mbgs).

² Skew angle of X-direction measured clockwise from the A-direction. Azimuth of SI A0-grooves measured by KCB with a magnetic compass during spring 2022 readings.

³ SI02-2 has sheared at an approximate depth of 15.7 m below ground surface and is currently being read above this depth.

Table 2.2 Vibrating Wire Piezometer, Monitoring Well, and Pumping Reading Summary

Instrument ID	Serial No.	Date			Ground Surface Elevation (m)	Tip Depth (mbgs ¹)	Water Level		
		Installed	Previous Reading	Most Recent Reading			Previous Reading (mbgs ¹)	Most Recent Reading (mbgs ¹)	Change from Previous Reading (m)
VW15-13U	34611	2015	Jun. 20, 2022	Sep. 26, 2022	850.2	13.7	5.1	5.9	-0.8
VW15-13L	34612	2015	Jun. 20, 2022	Sep. 26, 2022	850.2	18.3	N/A – instrument is dry		
MW14-6 ²	-	2014	Jul. 04, 2022	Sep. 29, 2022	856.0	15.3	7.6	8.3	-0.7
MW15-12 ²	-	2015	Jul. 04, 2022	Sep. 29, 2022	858.2	27.1	18.6	19.3	-0.7
PW14-2 ²	-	2014	Jul. 04, 2022	Sep. 29, 2022	856.6	18.0	7.6	8.1	-0.5
PW15-3 ²	-	2015	Jul. 04, 2022	Sep. 29, 2022	857.0	26.9	17.3	19.9	-2.6

Notes:

¹ Meters below ground surface (mbgs).

² Data for this instrument is being recorded by a central monitoring station. The change in water level was calculated using the average water elevation recorded on the most recent and previous reading dates.

Table 2.3 Standpipe Piezometer, Monitoring Well, and Pumping Well Reading Summary

Instrument ID	Instrument Type	Date			Ground Surface Elevation (m)	Screen Depth (mbgs ¹)	Water Level		
		Installed	Previous Reading	Most Recent Reading			Previous Reading (mbgs ¹)	Most Recent Reading (mbgs ¹)	Change from Previous Reading (m)
SP02-05 ²	SP	2002	Jun. 20, 2022	Sep. 26, 2022	854.0	12.4	5.3	5.8	-0.5
SP02-07	SP	2002	Jun. 20, 2022	Sep. 26, 2022	851.2	6.6	3.3	3.4	-0.1
SP02-08	SP	2002	Jun. 20, 2022	Sep. 26, 2022	849.8	6.9	1.8	3.5	-1.7
SP14-2	SP	2014	Jun. 20, 2022	Sep. 26, 2022	839.3	8.8	3.0	2.2	0.8
MW14-7	Monitoring Well	2014	Jun. 20, 2022	Sep. 26, 2022	856.0	11.9	7.5	8.1	-0.6
MW14-9	Monitoring Well	2014	Jun. 20, 2022	Sep. 26, 2022	861.2	6.1	1.6	1.8	-0.2
PW14-1	Pumping well	2014	Jun. 20, 2022	Sep. 26, 2022	855.5	17.5	7.2	7.7	-0.5

Notes:

¹ Meters below ground surface (mbgs).

² SP02-05 was blocked at an approximate depth of 1.9 m below ground surface in September 2021. Blockage was no longer present during the spring and fall 2022 readings.

Table 2.4 Levellogger Reading Summary

Instrument ID	Serial No.	Date			Ground Surface Elevation (m)	Screen Depth (mbgs ¹)	Water Level		
		Installed	Previous Reading	Most Recent Reading			Previous Reading (mbgs ¹)	Most Recent Reading (mbgs ¹)	Change from Previous Reading (m)
MW14-3	62053343	2014	Jun. 20, 2022	Oct. 27, 2022	845.0	7.0	1.6	2.2	-0.6
MW14-5	62053320	2014	Jun. 20, 2022	Oct. 27, 2022	851.7	6.9	3.7	4.4	-0.7
MW14-8	62053315	2014	Jun. 20, 2022	Oct. 27, 2022	861.2	12.1	1.9	1.2	0.7
MW14-10	62053298	2014	Jun. 20, 2022	Oct. 27, 2022	870.7	12.8	8.2	9.7	-1.5
MW14-11	62053314	2014	Jun. 20, 2022	Oct. 27, 2022	870.7	27.1	19.4	20.5	-1.1

Notes:

¹ Meters below ground surface (mbgs).

2.2 Zones of Movement

Discrete movement (i.e., occurring on a defined failure plane) is being recorded in SI02-2 between an approximate depth of 13.6 m and 14.6 m below ground surface (elevation 838.3 m to 837.3 m). This instrument previously sheared at an approximate depth of 15.7 m below ground surface (approximately elevation 839 m) in 2005 and has been read above this depth since. Movements may be occurring below a depth of 15.7 m below ground surface. The movements recorded in SI02-02 likely do not reflect all the subsurface movements occurring at this site.

SI02-1 and SI02-3 (inoperable) were previously reported as sheared at an approximate depth of 13.0 m and 14.0 m below ground surface, respectively.

2.3 Interpretation of Monitoring Results

Since installation in 2020, the rate of movement being recorded in SI02-02, above where it has sheared at an approximate depth of 15.7 m below ground surface, has been relatively steady with an overall rate of less than 1 mm/year. The negative rate of movement recorded in September 2022 indicates the rate of movement is within the accuracy of the SI reading equipment and instrument.

Our comments on the piezometer data are as follows:

- In November 2017, an increase in porewater pressure (up to approximately 15 m) was recorded in the VWPs connected to the central monitoring station (PW14-2, MW14-6, PW15-3, and MW15-12), four monitoring wells (MW14-4, MW14-5, MW14-7, and MW14-11), and one pumping well (PW14-1). The recorded increases were believed to be caused by the pumping wells not being operational. Porewater pressures recorded in these instruments remained elevated until the fall of 2020 when they decreased up to approximately 15 m. Since fall 2020, there have been short-term increases in water level recorded in the spring typically followed by a decrease in the fall (excluding MW15-2, which has decreased approximately 2 m since fall of 2020). The increases and decreases vary between approximately 0.4 m up to 5.0 m. The short-term increases recorded in spring 2021 and 2022 are most likely attributed to wet weather and infiltration due to spring freshet.
 - ◆ Occasionally “spikes” in water level of over 1 m are recorded in PW14-2, MW14-6, PW15-3, and MW15-12 for short periods of time (less than a day). These spikes have been removed from the data plots because KCB suspects these readings are due to connectivity issues.
- Water levels recorded in MW14-8 have historically been relatively steady between approximately 1 m and 2 m below ground surface. In fall 2021 and 2022, short-term water level increases of approximately 4 m and 2 m were recorded in this instrument, the highest two water levels recorded in this instrument. Since the most recent high-water level recorded in early-September, the water level has been steadily decreasing.

- The water levels recorded in the remaining instruments were relatively consistent with previous readings for these instruments. Water levels recorded in these instruments appear to fluctuate seasonally, with the spring readings typically being higher than the fall readings.

3 RECOMMENDATIONS

3.1 Future Work

All operable instruments should continue to be read twice per year (spring and fall). Spring readings should be completed after late-May or early-June, due to the risk of water inside the instruments casing being frozen earlier in the year.

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

3.2 Instrument Repairs and Maintenance

The barologger (BW14-10) could not be read in 2022 and should be repaired or replaced. Otherwise, no other instrument repairs or maintenance is required.

4 CLOSING

This report is an instrument of service of Klohn Crippen Berger (KCB). The report has been prepared for the exclusive use of Alberta Transportation (Client) for the specific application to GP South Geohazard Risk Management Program (Contract No. CON0022166), 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.



James Lyons, P.Eng.
Civil Engineer

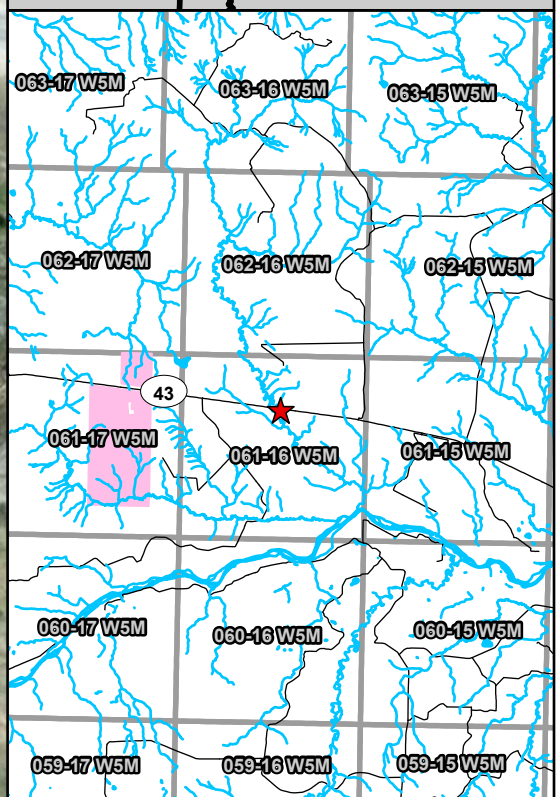
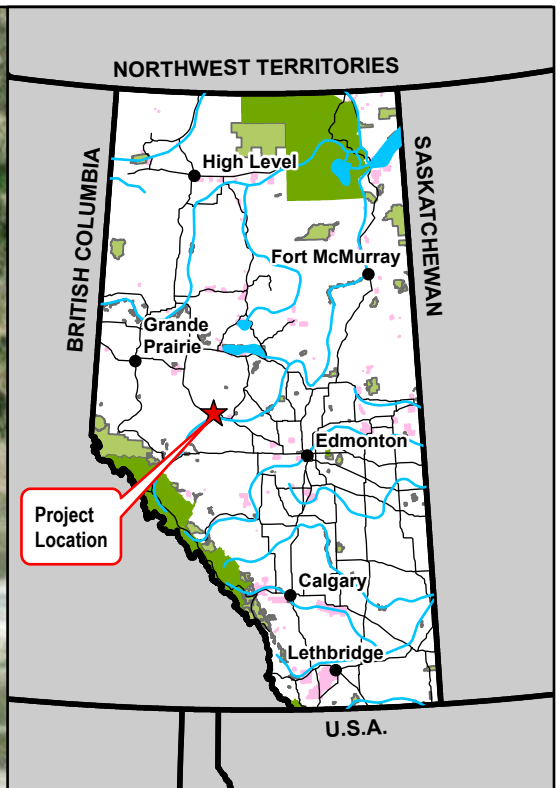
Chris Gräpel, M.Eng., P.Eng.
Senior Civil Engineer, Associate

JL:bb

ATTACHMENTS

Figure
Appendix I Instrumentation Plots

FIGURE



Legend

- ◆ Pneumatic Piezometer (PN)
- Slope Inclinator (SI)
- ⊕ Standpipe Piezometer (SP)
- ⊕ Standpipe Piezometer (PW or MW)
- Levellogger (MW)
- ⊕ Monitoring Well (MW)
- Pumping Well (PW)
- ⊗ Vibrating Wire Piezometer (VW)
- ⊗ Vibrating Wire Piezometer (PW or MW)
- Flow Direction
- Watercourse



NOTES:
 1. HORIZONTAL DATUM: NAD83
 2. GRID ZONE: UTM ZONE 11N
 3. IMAGE SOURCE: 2022 MICROSOFT CORPORATION, 2022 MAXAR CNES, DISTRIBUTION AIRBUS DS
 4. SI02-01, SI02-03, SP02-01 THROUGH SP02-04, SP02-06 NOT SHOWN AS COORDINATES NOT PROVIDED TO KCB. THEY ARE INOPERABLE.
 5. BW14-10 IS A BAROLOGGER AND IS LOCATED WITHIN THE PROTECTIVE HEADBOX FOR MW14-10.
 6. STRIKETHROUGH INDICATES INSTRUMENT IS INOPERABLE.

CLIENT

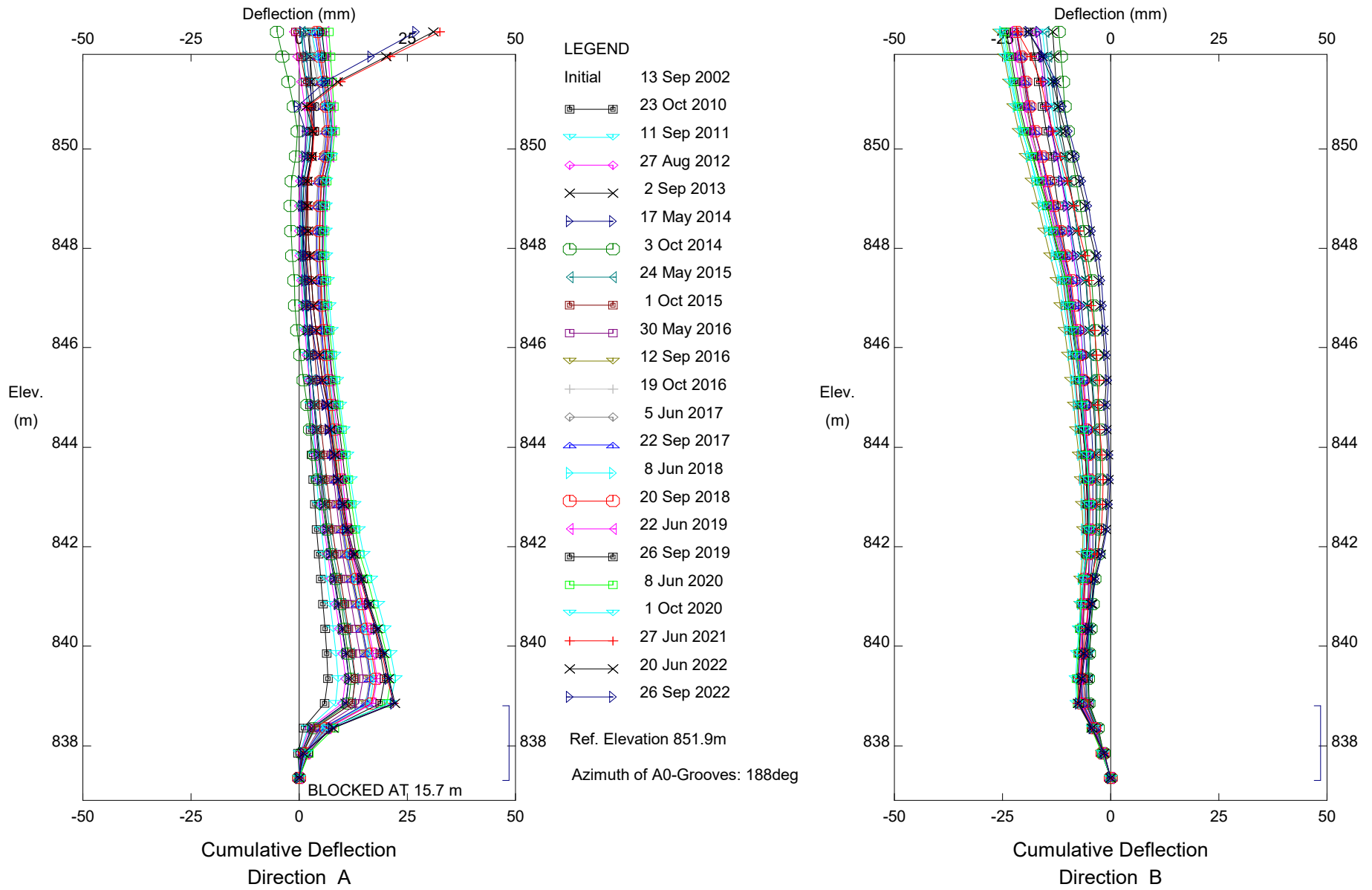
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TITLE	Site Plan GP028 - Two Creeks Hwy 43:12, km 34.473	
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File: Z:\A\EDM\A05116A01\ABT Grande Prairie South GRMP\400 Drawings\GIS\MXD\2022\Section C\GRMP GP South Section C - Figures_220718.aprx Date: Time: Creator: aharrison

APPENDIX I

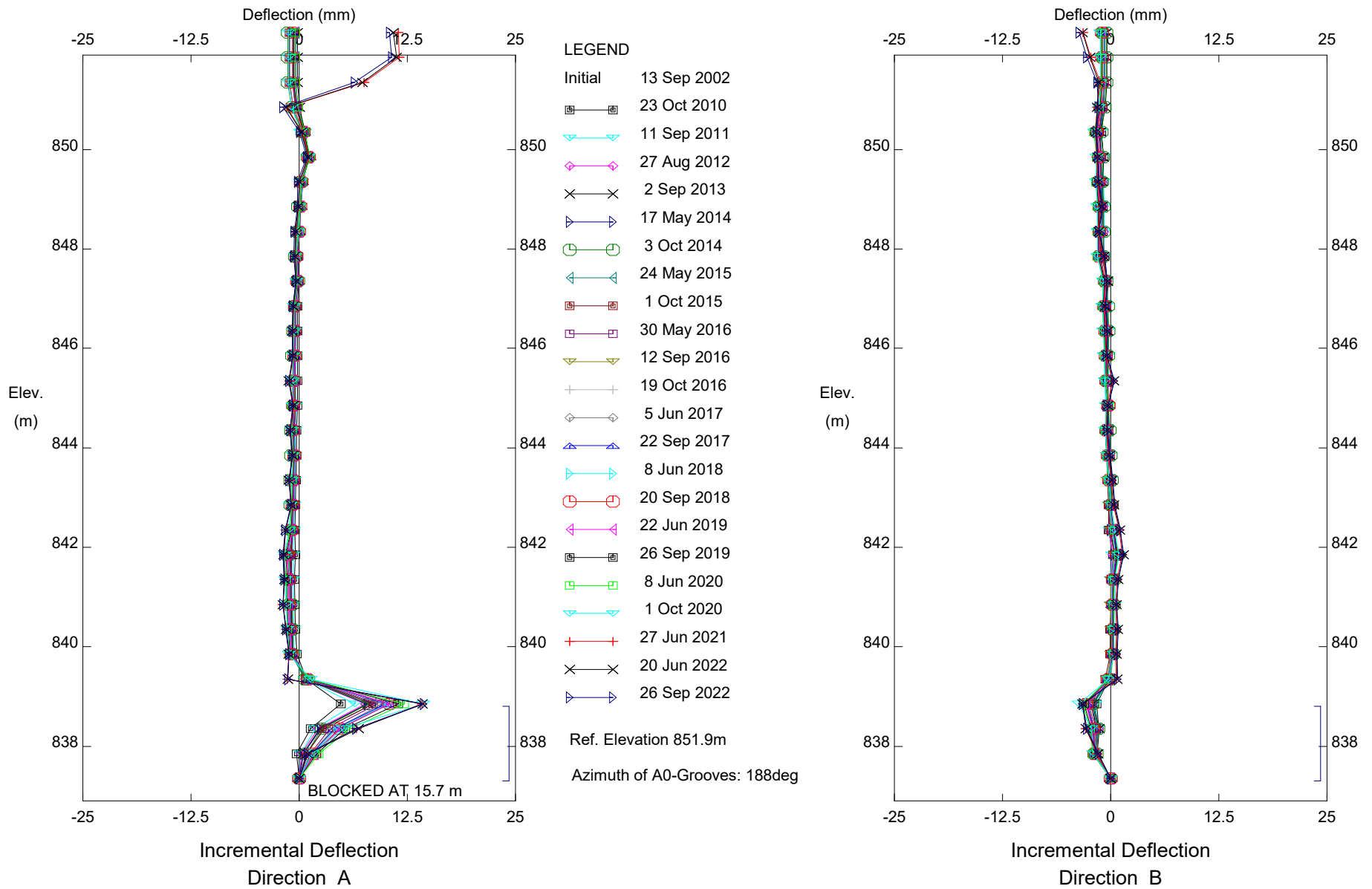
Instrumentation Plots

Klohn Crippen Berger - Edmonton



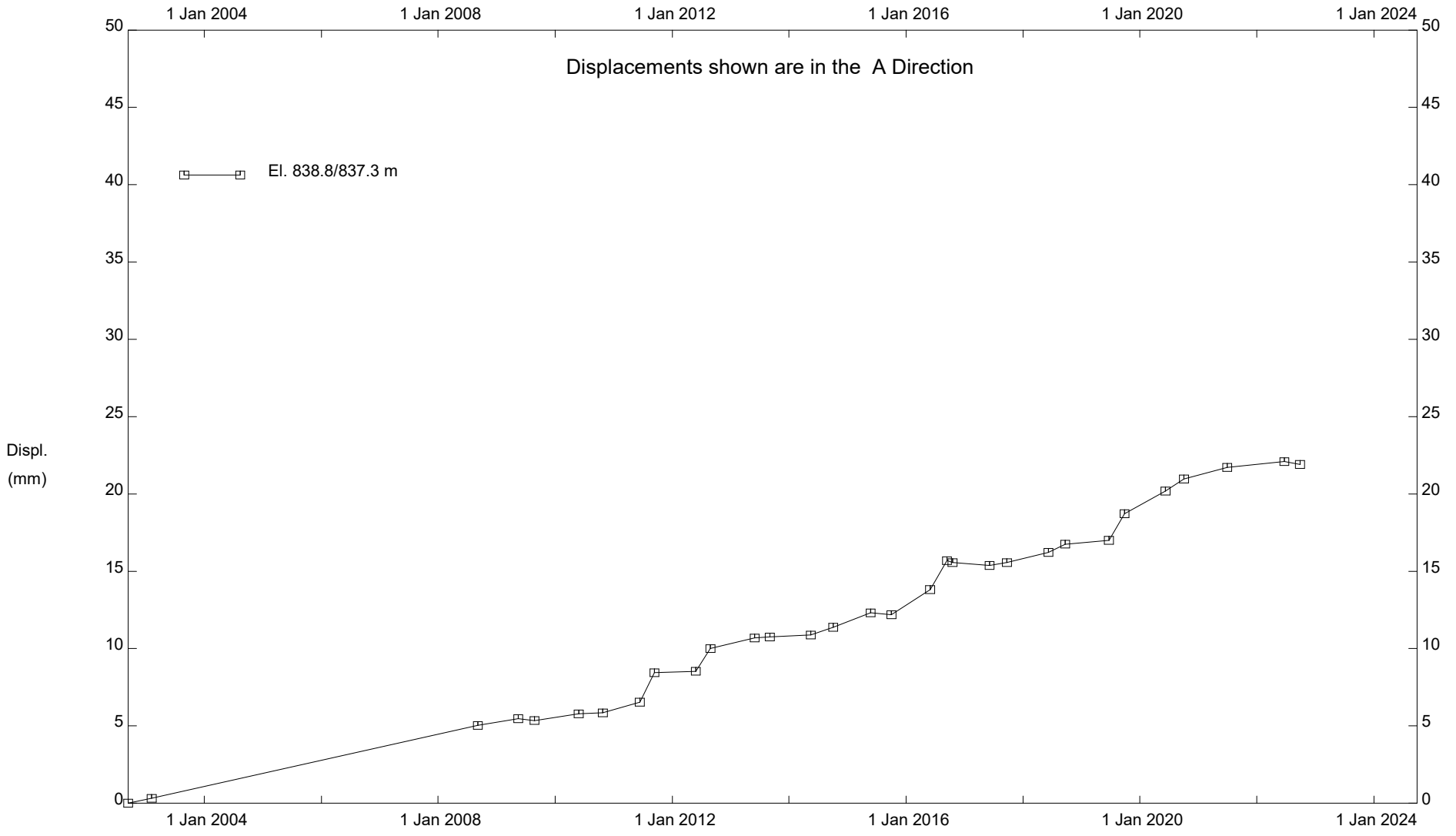
GP028; H43:12, Two Creeks, Inclinometer SI02-02
Alberta Transportation

Klohn Crippen Berger - Edmonton



GP028; H43:12, Two Creeks, Inclinometer SI02-02
Alberta Transportation

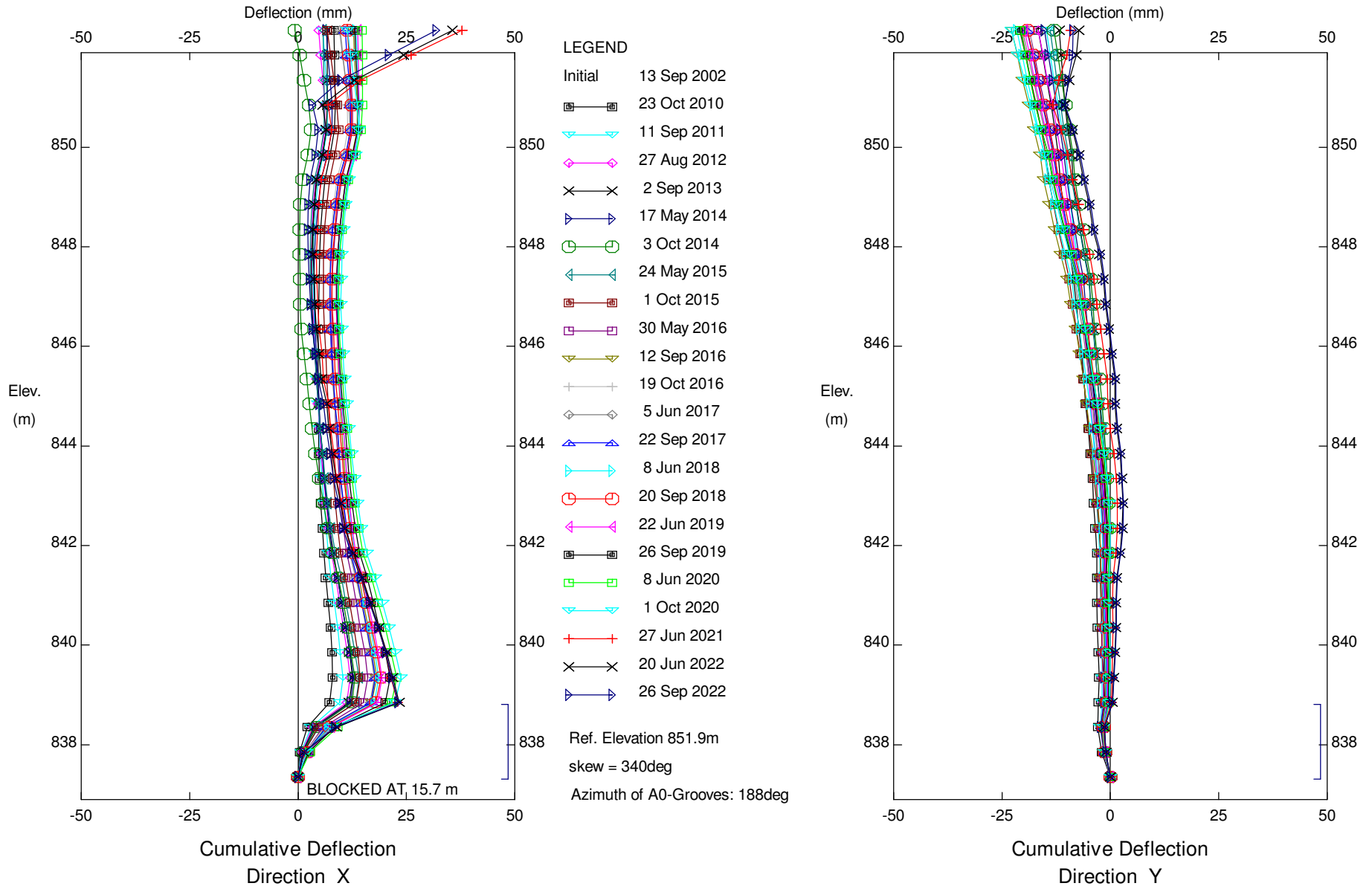
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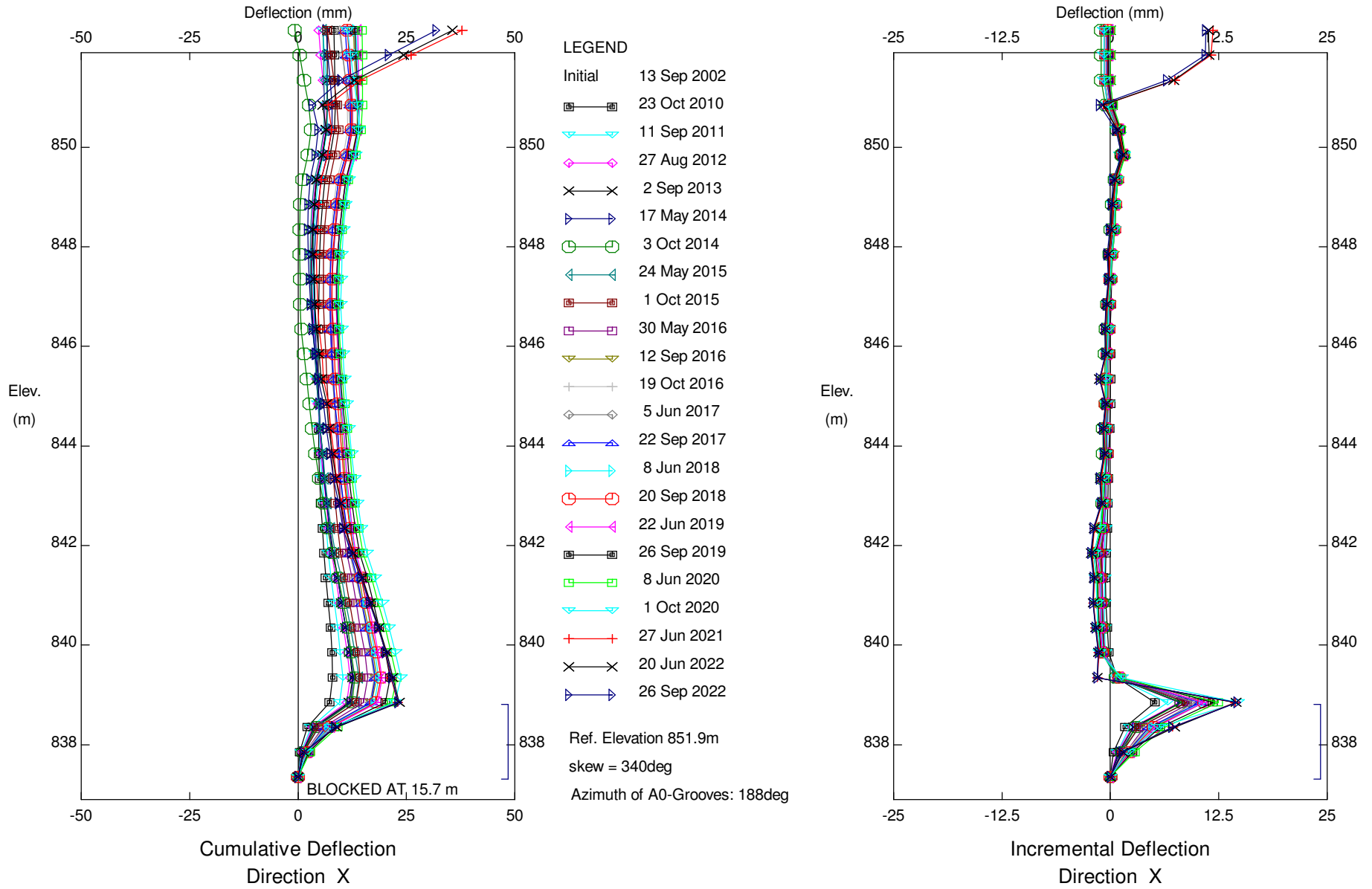
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Klohn Crippen Berger - Calgary



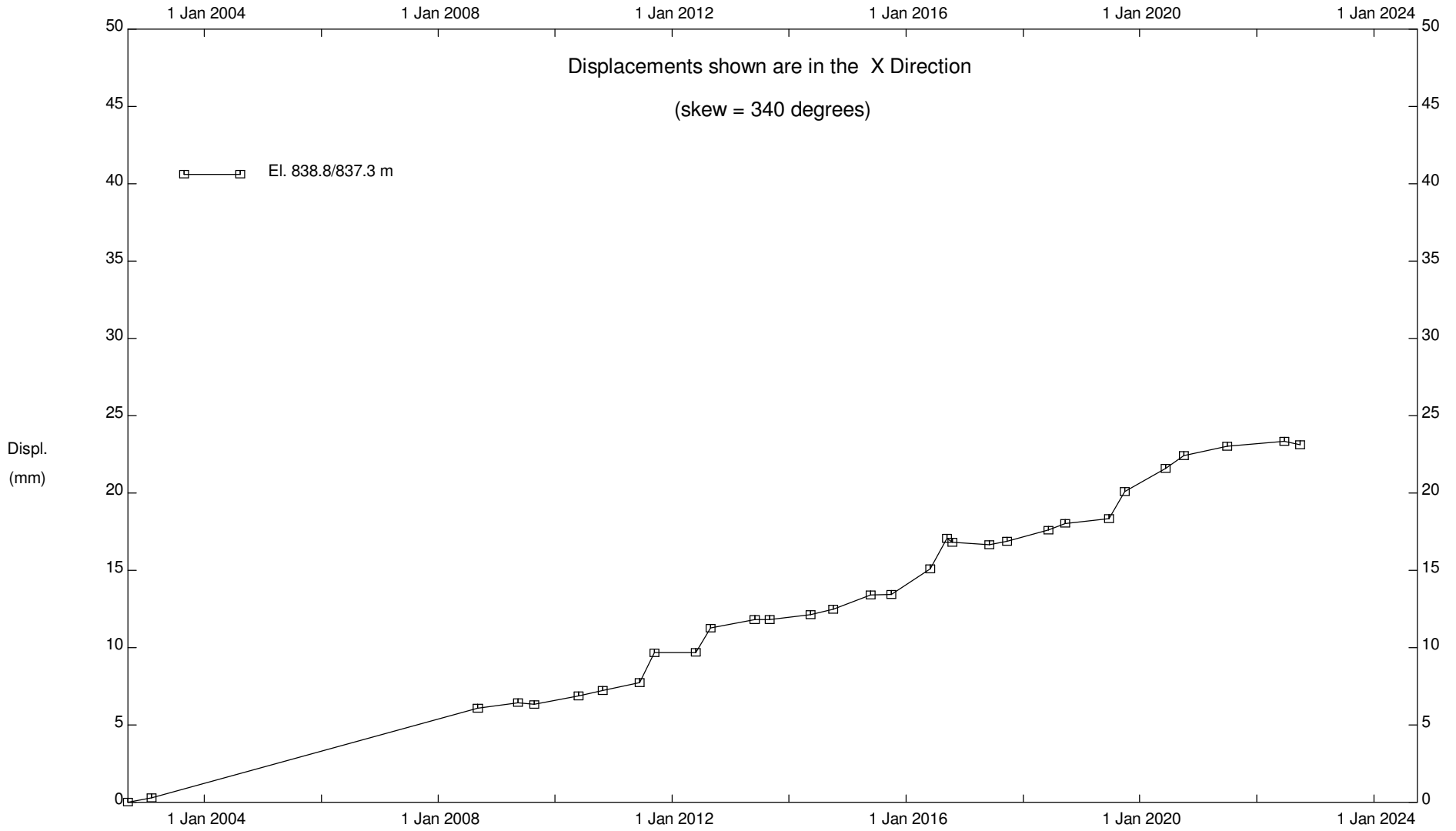
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Alberta Transportation

Klohn Crippen Berger - Calgary



GP028; H43:12, Two Creeks, Inclinometer SI02-02
Alberta Transportation

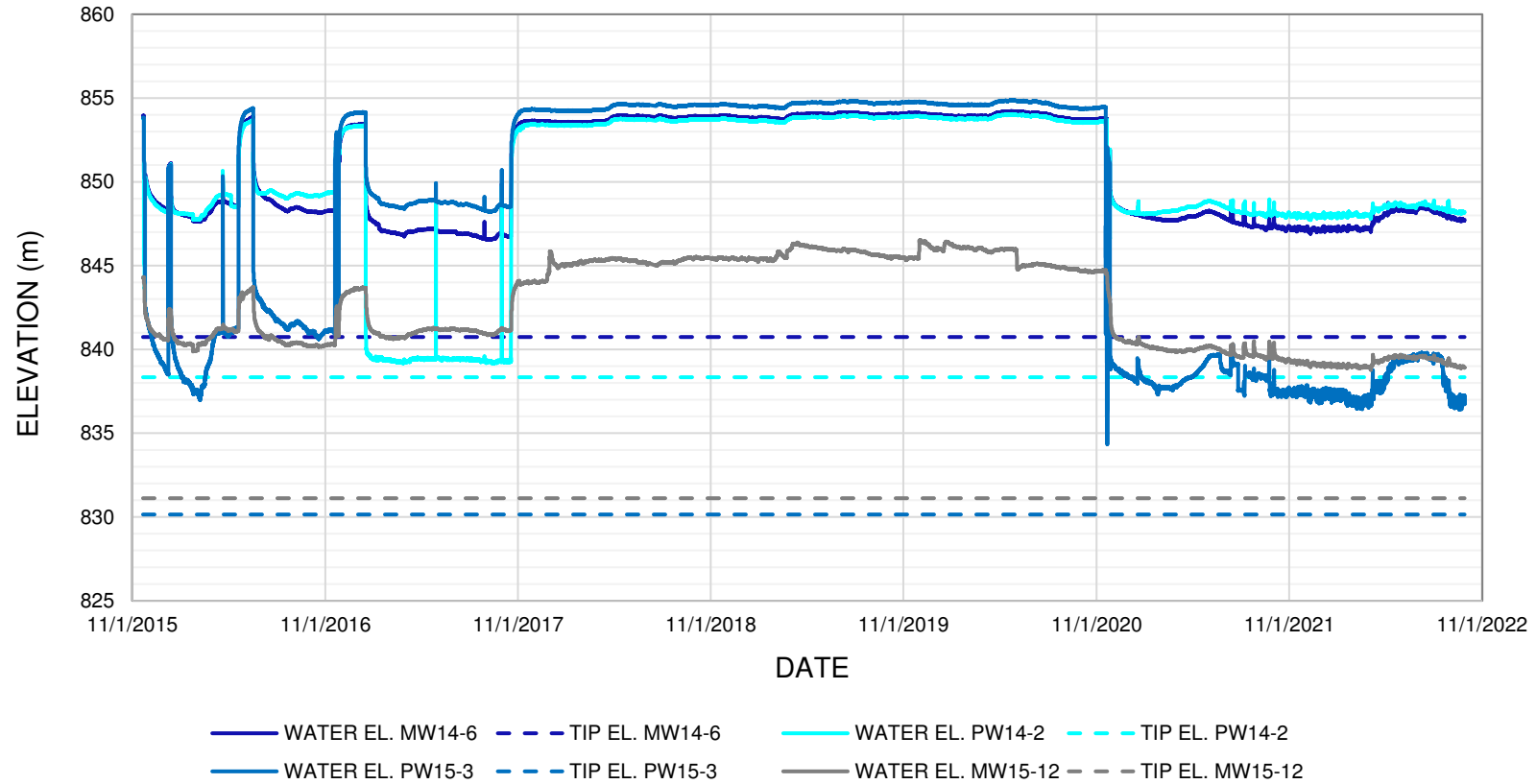
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GP028; H43:12, Two Creeks, Inclinator SI02-02


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VWP Data from Central Monitoring Station

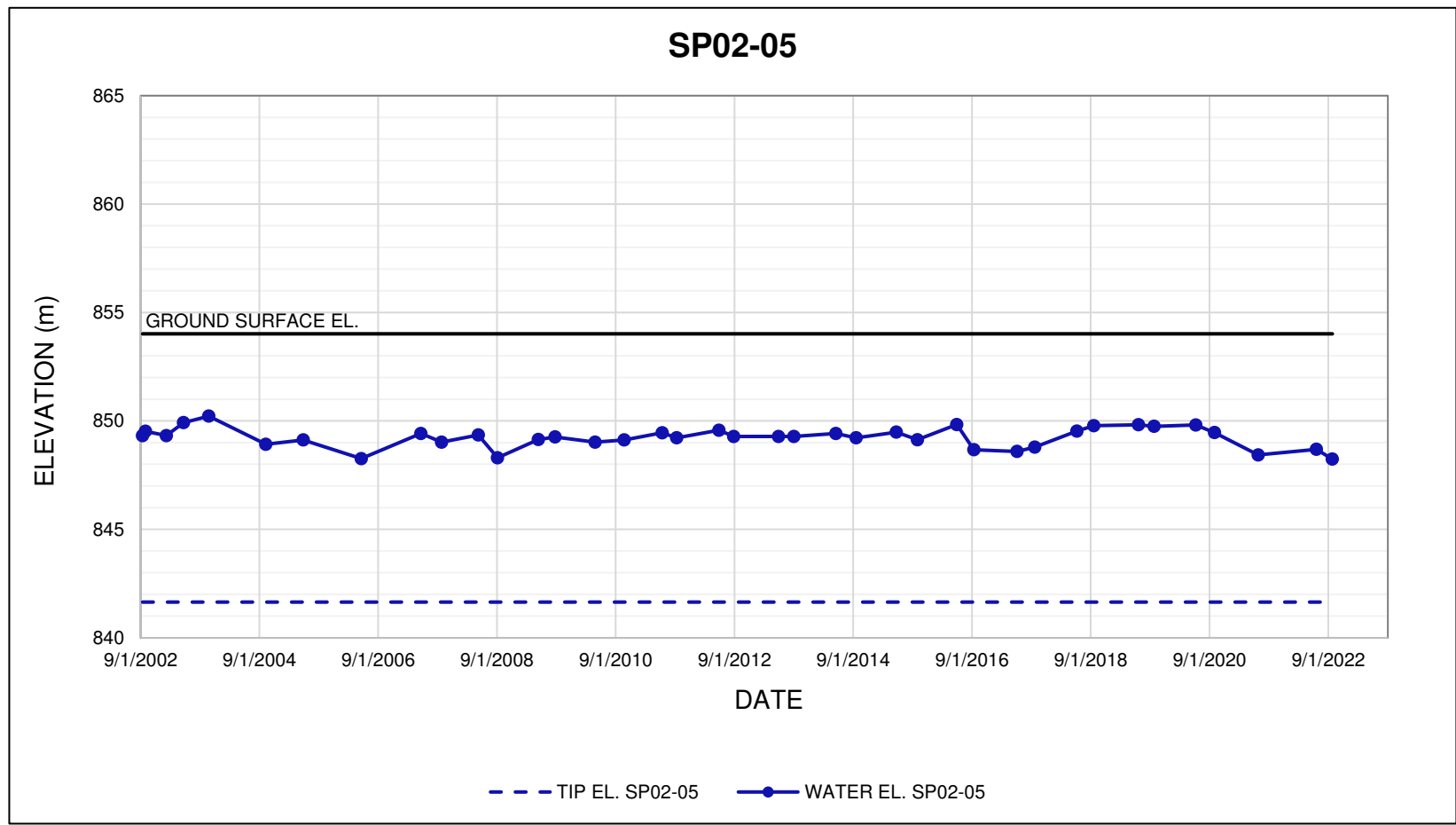


Notes:

1. Piezometer data obtained before June 27, 2021 was provided to Klohn Crippen Berger Ltd. by Alberta Transportation on June 25, 2021.
2. Data for these instruments is being recorded by a central monitoring station.



CLIENT 	PROJECT PEACE REGION (GRANDE PRAIRIE DISTRICT - SOUTH) GEOHAZARD RISK MANAGEMENT PROGRAM		
	TITLE Piezometer Data GP028 - Two Creeks Hwy 43:12, km 34.473		
SCALE AS SHOWN	PROJECT No. A05116A01	FIG No.	

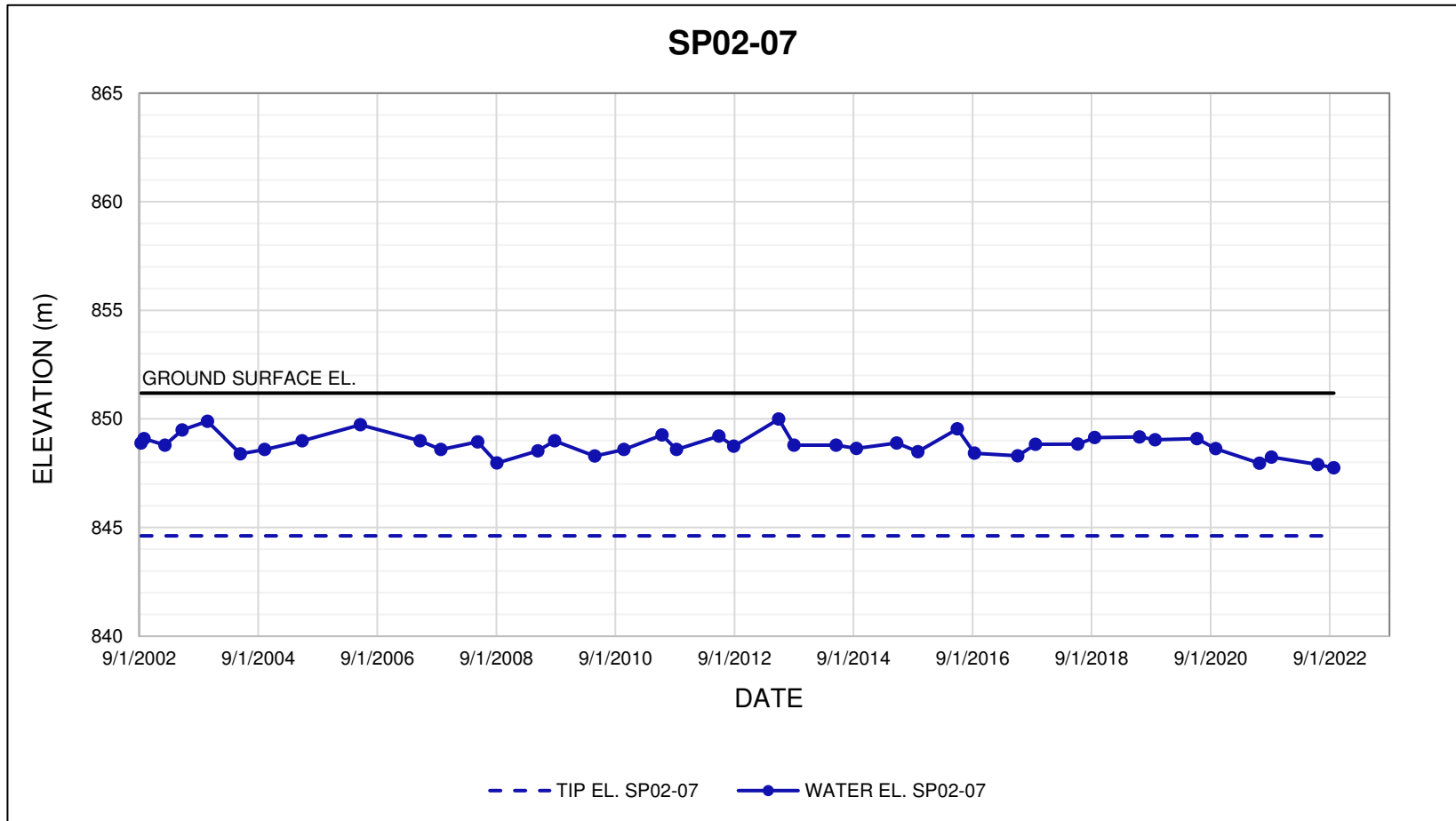




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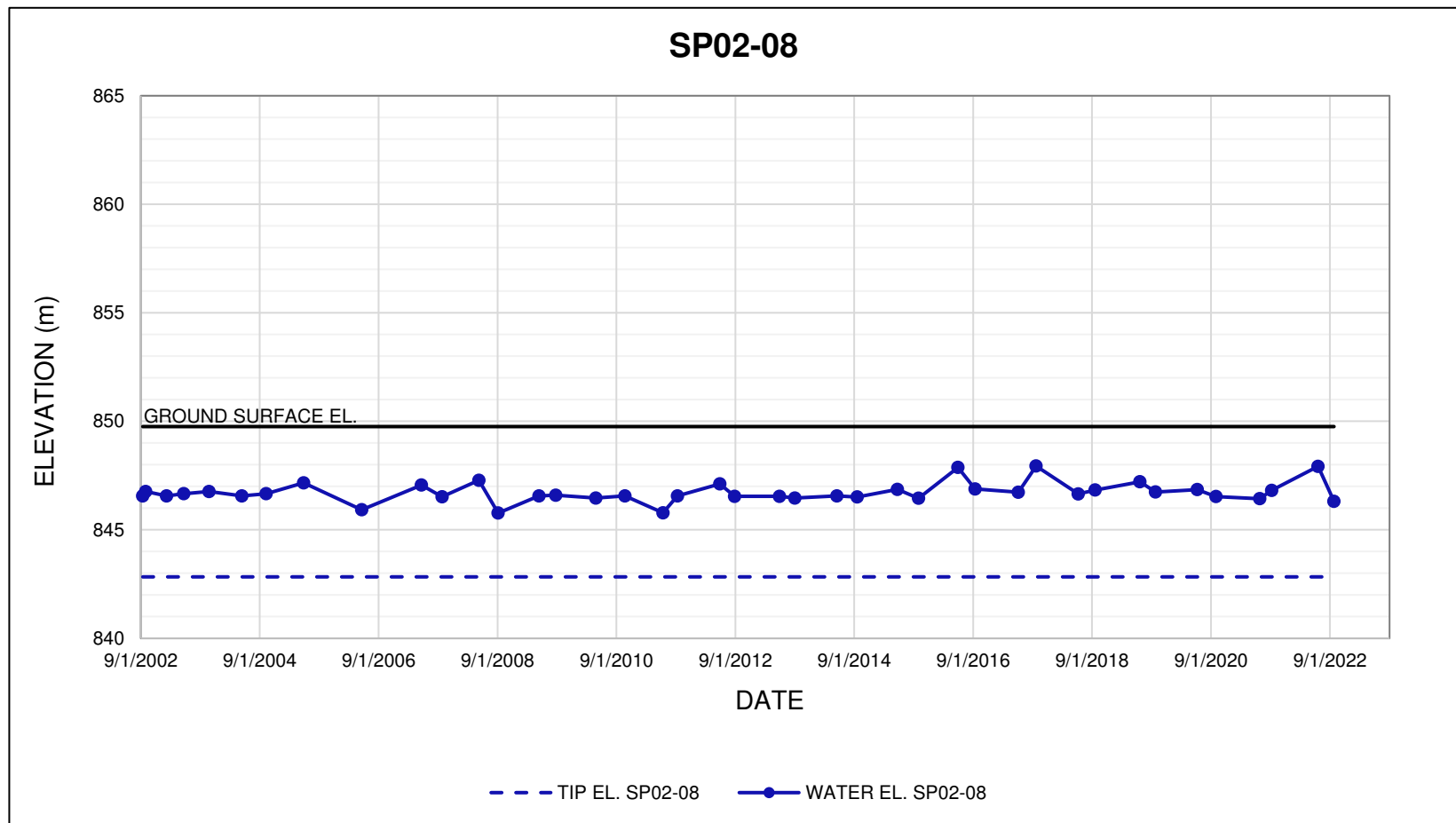
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	TITLE Piezometer Data GP028 - Two Creeks Hwy 43:12, km 34.473		
	SCALE AS SHOWN	PROJECT No. A05116A01	FIG No.



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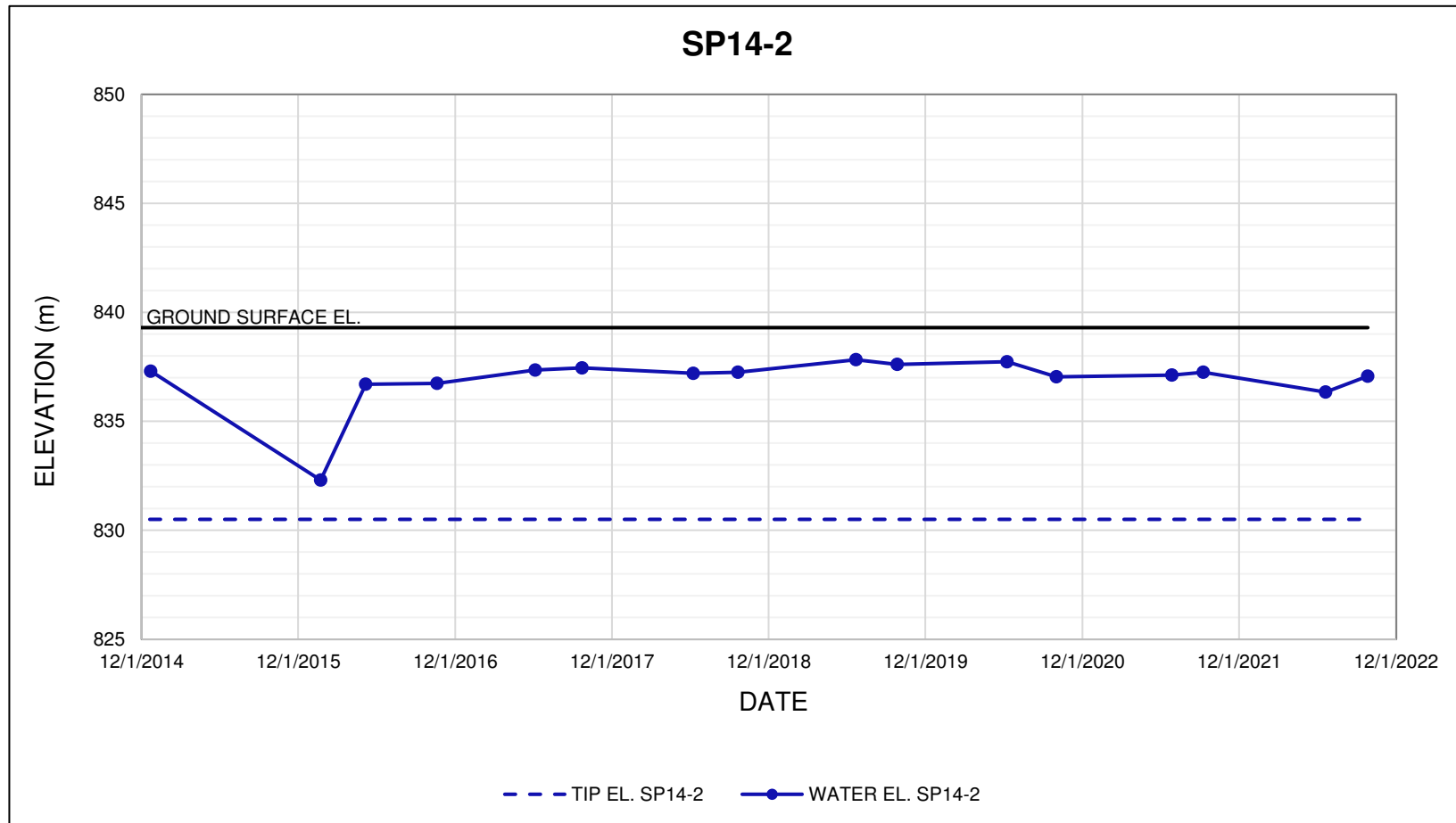
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	TITLE Piezometer Data GP028 - Two Creeks Hwy 43:12, km 34.473		
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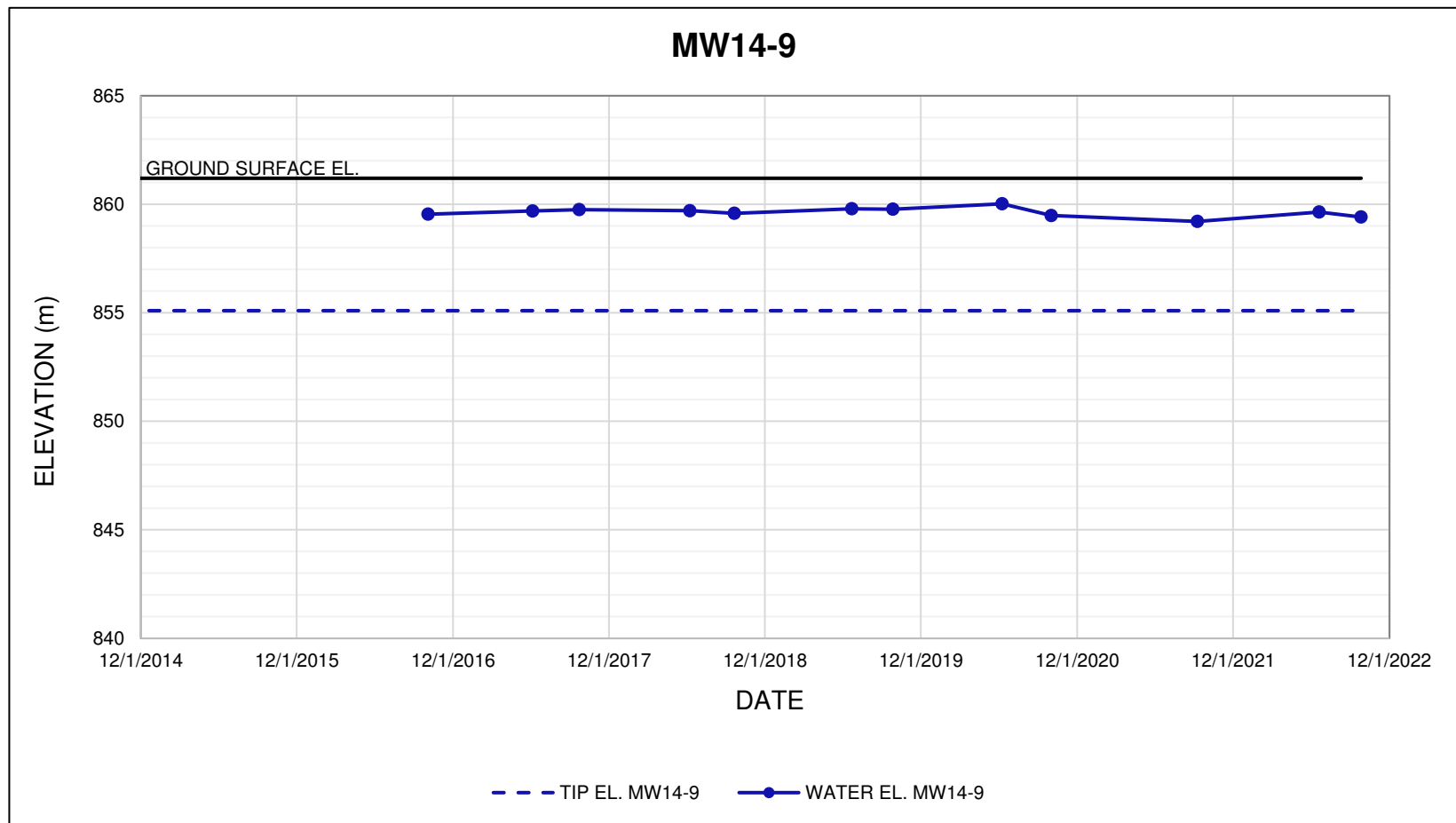
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	TITLE Piezometer Data GP028 - Two Creeks Hwy 43:12, km 34.473		
	SCALE AS SHOWN	PROJECT No. A05116A01	FIG No.
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Notes:



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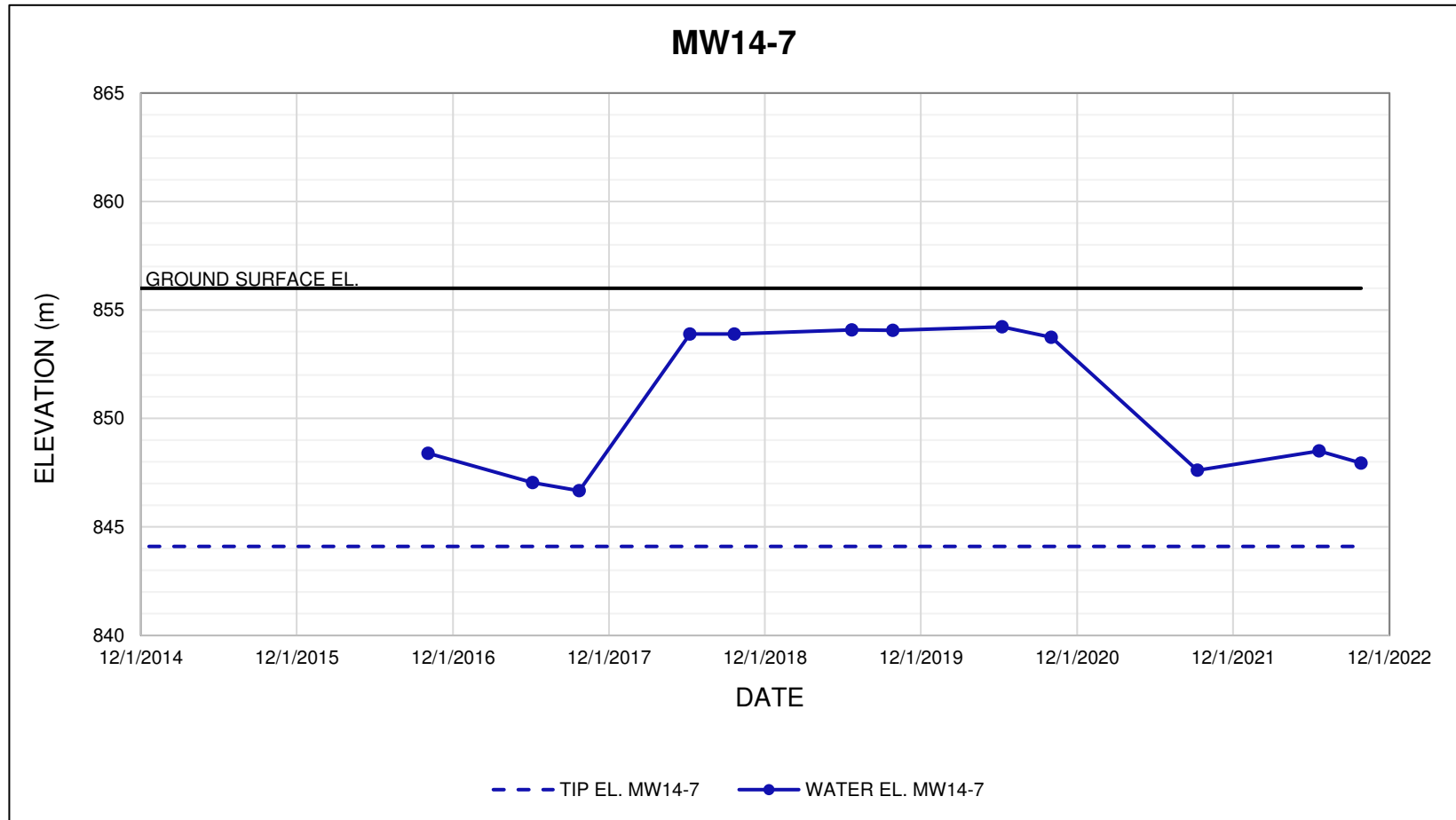
CLIENT 	PROJECT PEACE REGION (GRANDE PRAIRIE DISTRICT - SOUTH) GEOHAZARD RISK MANAGEMENT PROGRAM		
	TITLE Piezometer Data GP028 - Two Creeks Hwy 43:12, km 34.473		
	SCALE AS SHOWN	PROJECT No. A05116A01	FIG No.



Notes:



1. Piezometer data obtained before June 27, 2021 was provided to Klohn Crippen Berger Ltd. by Alberta Transportation on June 25, 2021.

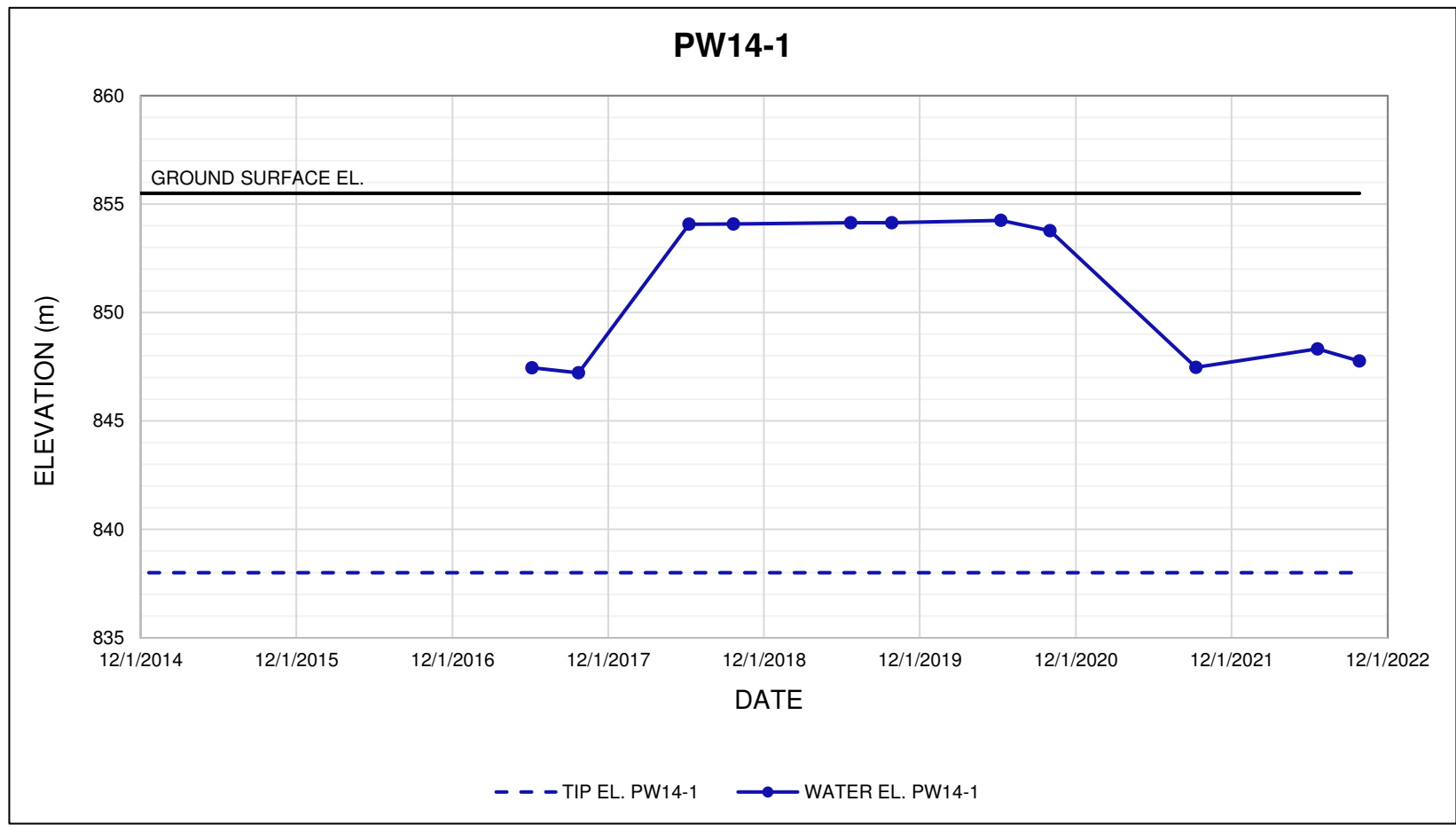
CLIENT 	PROJECT PEACE REGION (GRANDE PRAIRIE DISTRICT - SOUTH) GEOHAZARD RISK MANAGEMENT PROGRAM		
	TITLE Piezometer Data GP028 - Two Creeks Hwy 43:12, km 34.473		
	SCALE AS SHOWN	PROJECT No. A05116A01	FIG No.



Notes:



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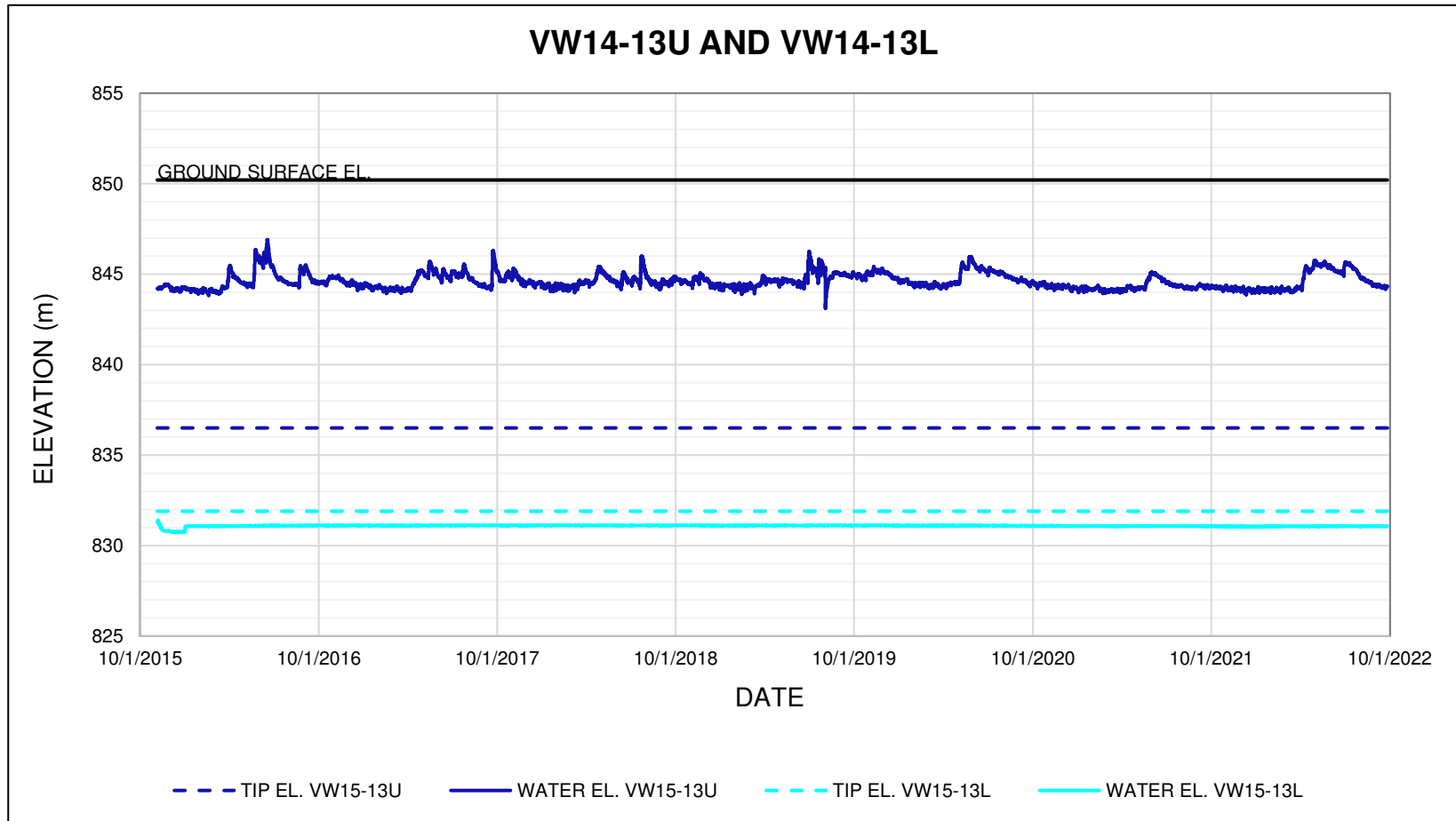
CLIENT 	PROJECT PEACE REGION (GRANDE PRAIRIE DISTRICT - SOUTH) GEOHAZARD RISK MANAGEMENT PROGRAM		
	TITLE Piezometer Data GP028 - Two Creeks Hwy 43:12, km 34.473		
	SCALE AS SHOWN	PROJECT No. A05116A01	FIG No.



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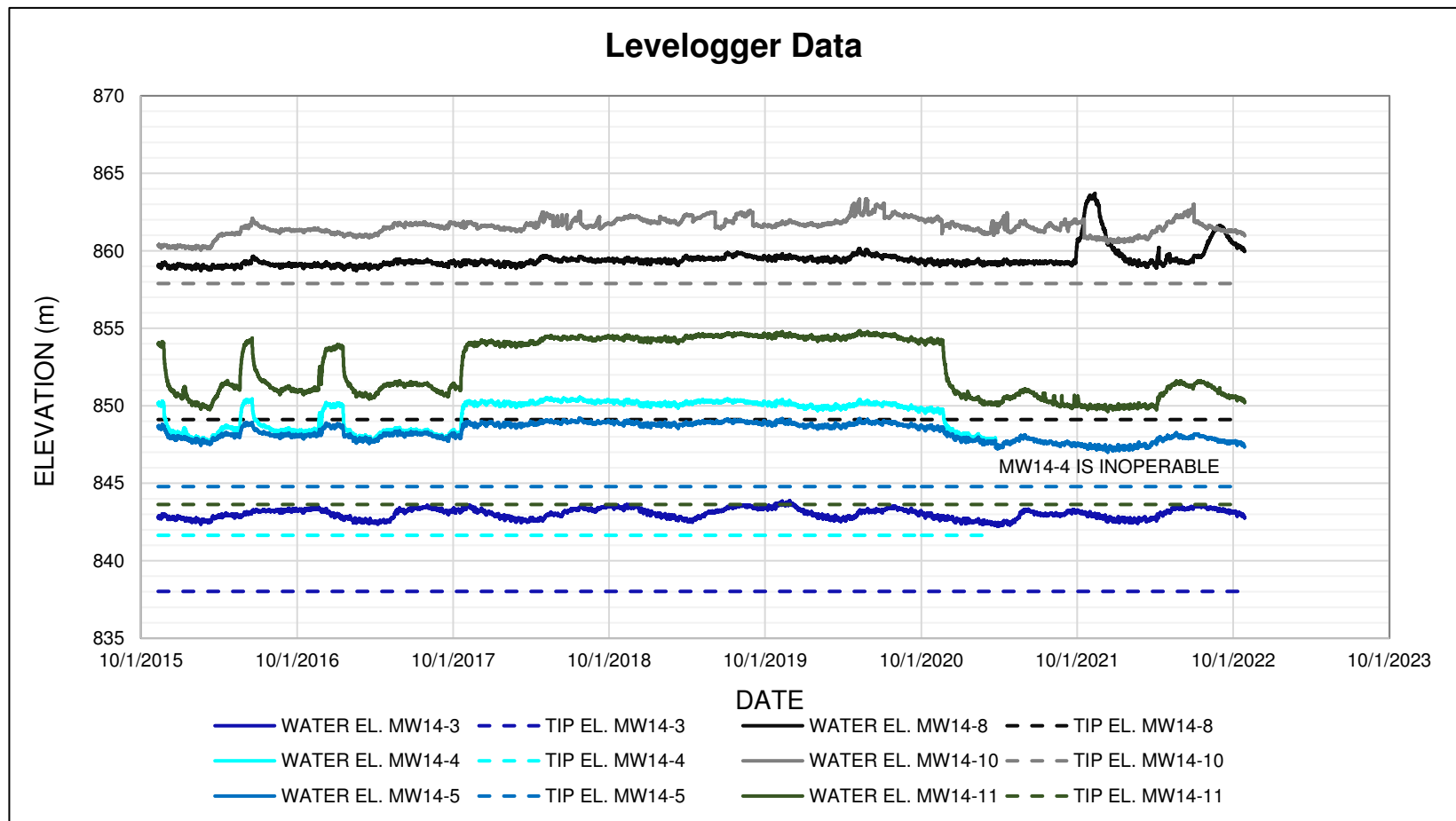
CLIENT 	PROJECT PEACE REGION (GRANDE PRAIRIE DISTRICT - SOUTH) GEOHAZARD RISK MANAGEMENT PROGRAM		
	TITLE Piezometer Data GP028 - Two Creeks Hwy 43:12, km 34.473		
	SCALE AS SHOWN	PROJECT No. A05116A01	FIG No.
	(Empty space for additional information)		



Notes:



1. Piezometer data obtained before June 27, 2021 was provided to Klohn Crippen Berger Ltd. by Alberta Transportation on June 25, 2021.
2. VW14-13U/L are connected to single channel RST Instrument data loggers (Model No. DT2011B).

CLIENT 	PROJECT PEACE REGION (GRANDE PRAIRIE DISTRICT - SOUTH) GEOHAZARD RISK MANAGEMENT PROGRAM
	TITLE Piezometer Data GP028 - Two Creeks Hwy 43:12, km 34.473
SCALE AS SHOWN	PROJECT No. A05116A01
FIG No.	



Notes:

1. Piezometer data obtained before June 27, 2021 was provided to Klohn Crippen Berger Ltd. by Alberta Transportation on June 25, 2021.
2. The protective headboxes for MW14-4 and MW14-5 were destroyed between the fall 2020 and spring 2021 readings.
3. A Solinst Levellogger is installed in these instruments.

CLIENT 	PROJECT PEACE REGION (GRANDE PRAIRIE DISTRICT - SOUTH) GEOHAZARD RISK MANAGEMENT PROGRAM		
	TITLE Piezometer Data GP028 - Two Creeks Hwy 43:12, km 34.473		
	SCALE	PROJECT No.	FIG No.
	AS SHOWN	A05116A01	