
To:	Amy Driessen	From:	Leslie Cho and Xiteng Liu
	Transportation and Economic Corridors		Stantec Consulting Ltd.
File:	123315222	Date:	June 18, 2024

**Reference: North Central Region, Stony Plain, Site NC057 - Highway 624:02, Spring 2024
Instrumentation Monitoring Report**

1.0 OBSERVATIONS

1.1 FIELD PROGRAM AND INSTRUMENTATION STATUS

The Spring 2024 reading cycle consisted of instrument readings of two vibrating wire piezometers (VW17-02a and VW17-02b) and one standpipe piezometer (SP17-06). The instruments were read by Andres Padros, Technician and Olawale Odusi, Geotechnical Technologist on May 16, 2024.

The vibrating wire piezometers (VW) were read with an RST VW2106 readout box. Standpipe piezometers (SP) were read/attempted to be read with a Heron Instruments water tape.

GPS coordinates of all instruments were obtained using a Garmin GPSmap 60Cx handheld GPS unit.

2.0 INSTRUMENTATION READINGS

2.1 GENERAL

There are no slope inclinometers installed at this site.

The standpipe and vibrating wire piezometers readings are summarized in **Table NC57-1**.

2.2 MONITORING RESULTS

2.2.1 Piezometers

The water levels in most of the piezometers remained relatively steady since the first reading in December 2017.

Compared with the water level measured during the Fall 2023 reading cycle, the water level in VW17-02a showed no change while that in VW17-02b dropped by less than 0.1 m during the Spring 2024 reading cycle. The water level in VW17-02a is about 0.3 m above ground surface (artesian) and the water level in VW17-02b is about 5.2 m below ground surface.

SP17-06 showed an increase in water level by less than 0.1 m since the previous reading in Fall 2023 and indicated a piezometric level 0.3 m above ground surface.

3.0 RECOMMENDATIONS

3.1 FUTURE WORK

It is recommended that all instruments are read in Fall 2024.

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3.2 INSTRUMENT REPAIR

SP17-01, SP07-03, and SP17-05 were blocked at 0.2 m, 0.0 m, and 0.8 m, respectively during the Spring 2021 reading cycle. The standpipes could potentially be fixed by removing the protective casing and cutting the standpipes below the blockage depth. An attempt to remove the blockage can be carried out upon approval by Transportation and Economic Corridors.

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Table NC57-1: Spring 2024 Standpipe and Vibrating Wire Piezometer Reading Summary

INSTRUMENT NAME	DATE INITIALIZED	GROUND ELEVATION (m aMSL) ⁽¹⁾	COORDINATES (UTM 11U, NAD1983) (m)		PIEZOMETER TIP ELEVATION OR SCREEN ELEVATION (m aMSL)	CURRENT STATUS	MAXIMUM PIEZOMETRIC ELEVATION (m aMSL)	MEASURED PIEZOMETRIC ELEVATION (m aMSL)	PREVIOUS PIEZOMETRIC ELEVATION (Fall 2023) (m aMSL)	CHANGE IN WATER LEVEL SINCE PREVIOUS READING (m)
			NORTHING	EASTING						
VW17-02a (1702901)	Dec 6, 2017	810.6	5915081	637126	807.5	Operational	811.0 May 2019	811.0	811.0	No Change
VW17-02b (1702902)	Dec 6, 2017	810.6	5915081	637126	803.7	Operational	805.6 Sept. 2019	805.5	805.5	< -0.1
VW17-04 (1702903)	Dec 6, 2017	811.2	5915064	637090	808.5	Damaged	n/a	Damaged or dry since 2017. Stick-up found damaged in 2019.		
SP17-01	Dec 6, 2017	809	5915085	637077	808.8 – 805.8	Non-Operational	811.1 Sep. 2019	Blocked at 0.2 m since Spring 2021		
SP17-03	Dec 6, 2017	807	5915090	637162	804.3 – 801.3	Non-Operational	809.1 Dec. 2017	Blocked at ground surface in Fall 2021		
SP17-05	Dec 6, 2017	809	5915061	637127	806.8 – 803.8	Non-Operational	809.9 Sept. 2019	Blocked at 0.8 m Spring 2021		
SP17-06	Dec 6, 2017	812	5915067	637165	805.3 – 802.3	Operational	810.5 Dec. 2017	810.2	810.2	< 0.1
Notes:										
(1) aMSL = Above Mean Sea Level										
(2) Updated May 16, 2024, with approximate accuracy of ± 3 m										

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4.0 CLOSING

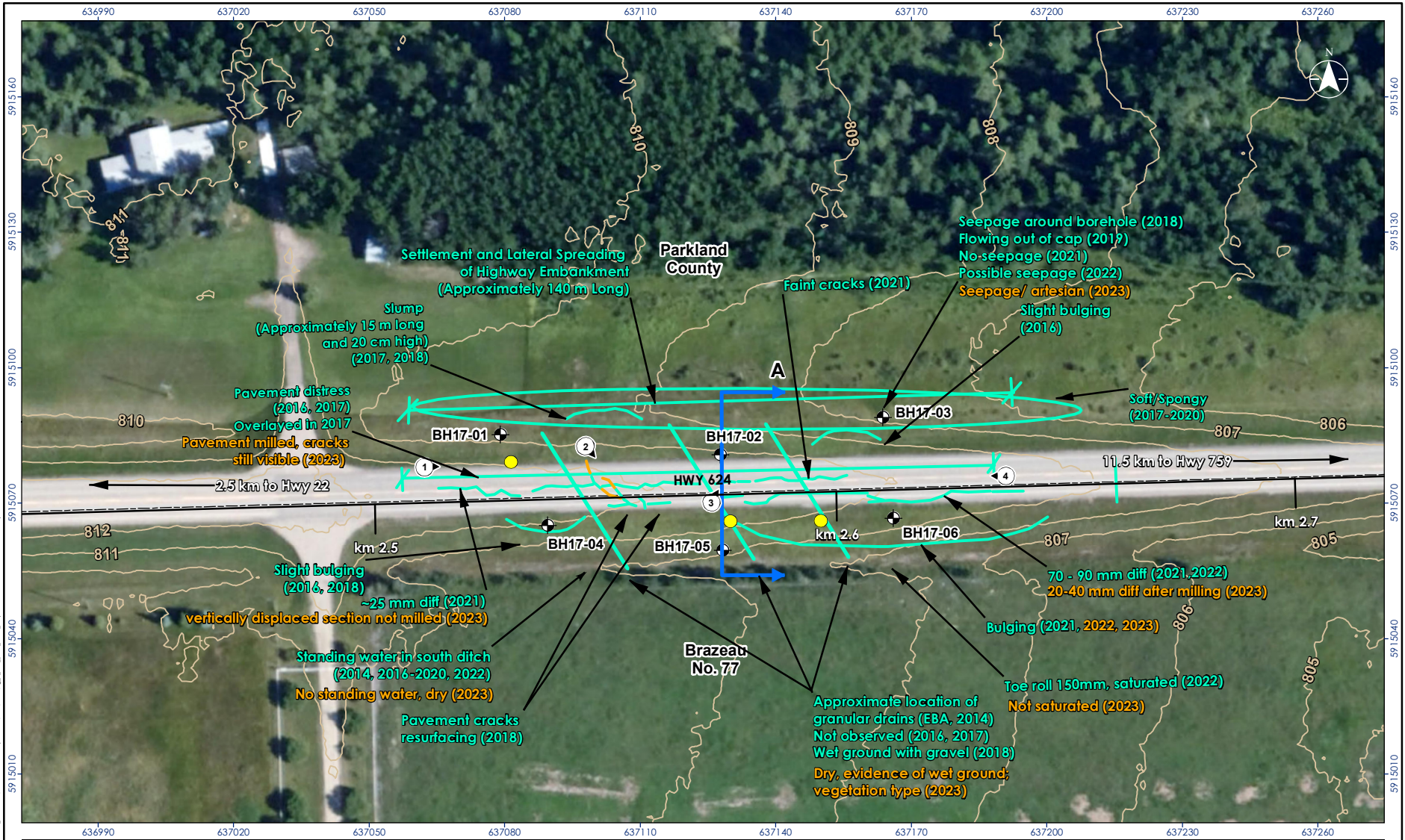
We trust this instrumentation report meets your requirements. If you have any questions, please do not hesitate to contact the undersigned.

Stantec Consulting Ltd.

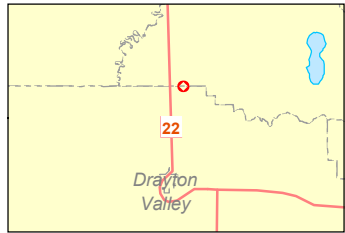
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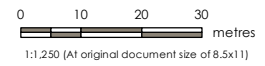
Attachment: Figure 1 – Site Plan
Standpipe and Vibrating Wire Piezometer Depth vs. Time Plot
Standpipe and Vibrating Wire Piezometer Elevation vs. Time Plot



\s\cd100_1\2023\WORK\624\624_1323122425\NC 21666_P_1057_Hwy 624_2.5 km East of Hwy 22 - 1.mxd
 Prepared: 2023-07-24 By: csherman



- Photo Number and Direction
- Cross Section Location
- Borehole Location
- Gravel Drain
- Previous Observation
- 2023 Observation
- Municipality Boundary



- Notes**
1. Coordinate System: NAD 1983 UTM Zone 11U
 2. Base features: Geogratis, ©Department of Natural Resources Canada. All rights reserved.
 3. Imagery: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

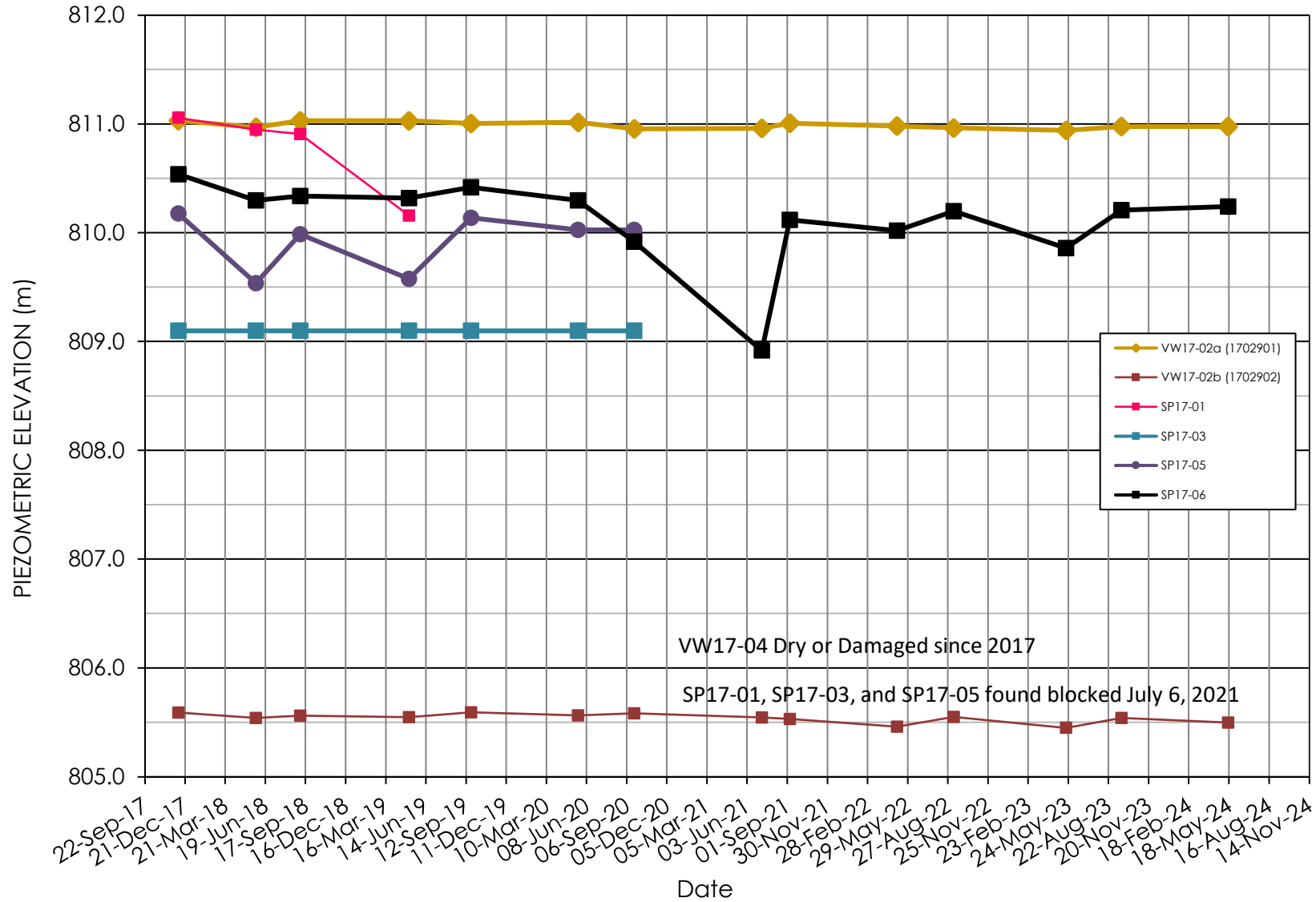
Project Location: Hwy 624, 2.5 km East of Hwy 22, Alberta
 Prepared by CL on 2023-07-25
 Quality Review by LC on 2023-07-25
 Independent Review by XL on 2023-07-25

Client/Project: Transportation and Economic Corridors
 Geohazard Monitoring Program
 NC57 Embankment Failure on Hwy 624

Figure No.: 1
 Title: Site Plan



PIEZOMETER DATA



PIEZOMETER DATA

