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

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**Reference: North Central Region, Edson/Stony Plain Area, Site NC014 - Highway 661:02 North of Fort Assiniboine, 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 four standpipe piezometers (SP06-1, SP06-13, SP06-14 and SP06-19) and two monitoring wells (MW18-1 and MW18-2). SP06-18 is leaning downhill significantly and was blocked near ground surface since 2022. **Figure 1** attached provides a schematic of the site. The instruments were read by Andres Padros, Technician and Olawale Odusi, Geotechnical Technician on May 14, 2024.

The standpipes and monitoring wells were measured using a Heron Instruments water tape.

GPS coordinates of all instruments were surveyed using a Garmin eTrex 22x handheld GPS unit.

## 2.0 INTERPRETATION

### 2.1 GENERAL

Standpipe piezometer results are summarized in **Table NC014-1** and in the following sections with resulting plots attached.

Monitoring well results are summarized in **Table NC014-2** and in the following sections with resulting plots attached.

### 2.2 INSTRUMENTATION READINGS

#### 2.3.1 Slope Inclinometers

Slope inclinometer readings were not obtained since the access agreement to enter private property was not extended after 2021.

#### 2.3.2 Piezometers

Water level in SP06-1, SP06-13 and SP06-14 dropped by 0.2 m, <0.1 m and 0.3 m, respectively. SP06-19 was dry during the Spring 2024 reading cycle.

#### 2.3.3 Monitoring Wells

Water level in MW18-1 and MW18-2 dropped by 0.5 m and 0.3 m, respectively.

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## **3.0 RECOMMENDATIONS**

### **FUTURE WORK**

It is recommended that the next reading cycle take place in Fall 2024.

### **3.1 INSTRUMENTATION REPAIRS**

No instrument repair is needed at this time.

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**Table NC014-1: Spring 2024 Piezometer Reading Summary**

Instrument Name	Date Initialized	Coordinates <sup>(1)</sup> (UTM 11U, NAD1983) (m)		Bottom Depth (m bgs)	Current Status	Highest Recorded Water Level (m bgs)	Measured Water Level (m bgs)	Previous Water Level September 20, 2023 (m bgs)	Change in Water Level (m)
		Northing	Easting						
SP06-1	Apr 2, 2006	6023684	644585	9.1	Operational	Sept. 12, 2016 (1.3)	2.4	2.2	-0.2
SP06-13	Apr 2, 2006	6023480	644683	10.0	Operational	Oct. 1, 2020 (6.9)	7.0	7.0	<-0.1
SP06-14	Mar 28, 2006	6023458	644739	9.2	Operational	May 30, 2017 (6.6)	7.2	6.8	-0.3
SP06-18	Apr 2, 2006	6023377	644831	9.4	Non- operational	Sept. 12, 2016 (1.9)	Blocked near ground surface since 2022		
SP06-19	Apr 2, 2006	6023215	644998	8.0	Operational	Oct. 1, 2020 (6.3)	Dry	6.8	N/A

(1) Updated May 14, 2024, with approximate accuracy of ± 3 m  
 (2) 'bgs' refers to below ground surface

**Table NC014-2: Spring 2024 Monitoring Well Reading Summary**

Instrument Name	Date Initialized	Coordinates <sup>(1)</sup> (UTM 11U, NAD1983) (m)		Bottom Depth (m bgs),	Current Status	Maximum Water Level (m bgs)	Measured Water Level (m bgs),	Previous Water Level Sep 20, 2023 (m bgs)	Change in Water Level (m)
		Northing	Easting						
MW18-1	June 2, 2018	6023436	644772	9.1	Operational	Oct. 1, 2020 (7.0)	7.6	7.1	-0.5
MW18-2	July 16, 2018	6023426	644783	35.6	Operational	Oct. 1, 2020 (24.9)	26.3	26.0	-0.3

(1) Updated May 14, 2024, with approximate accuracy of ± 3 m

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## **CLOSING**

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

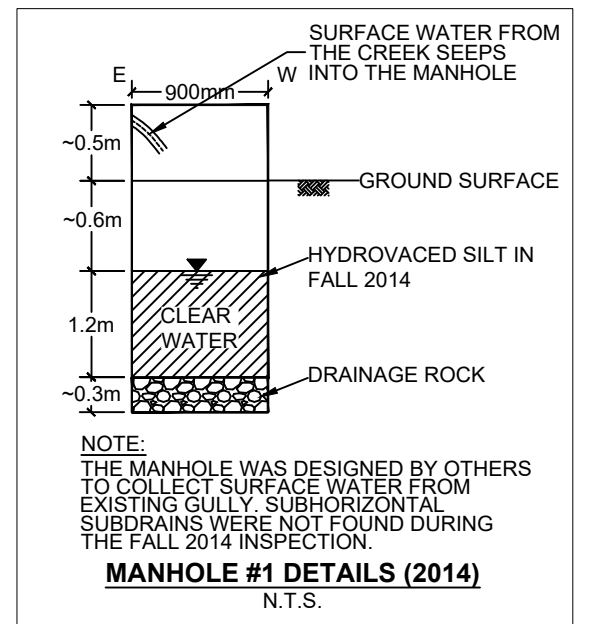
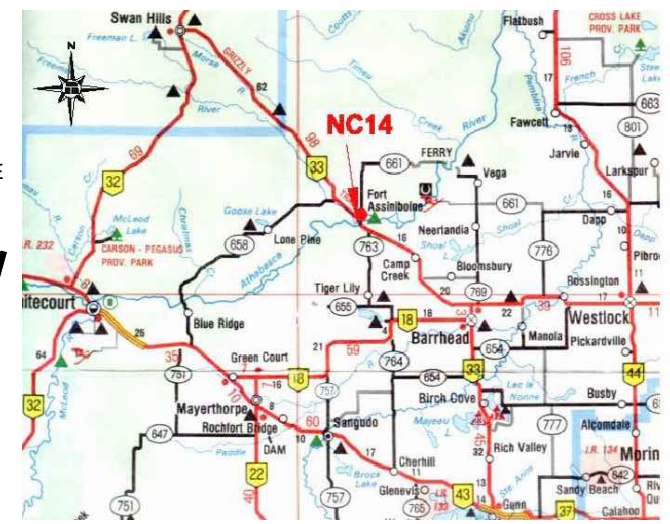
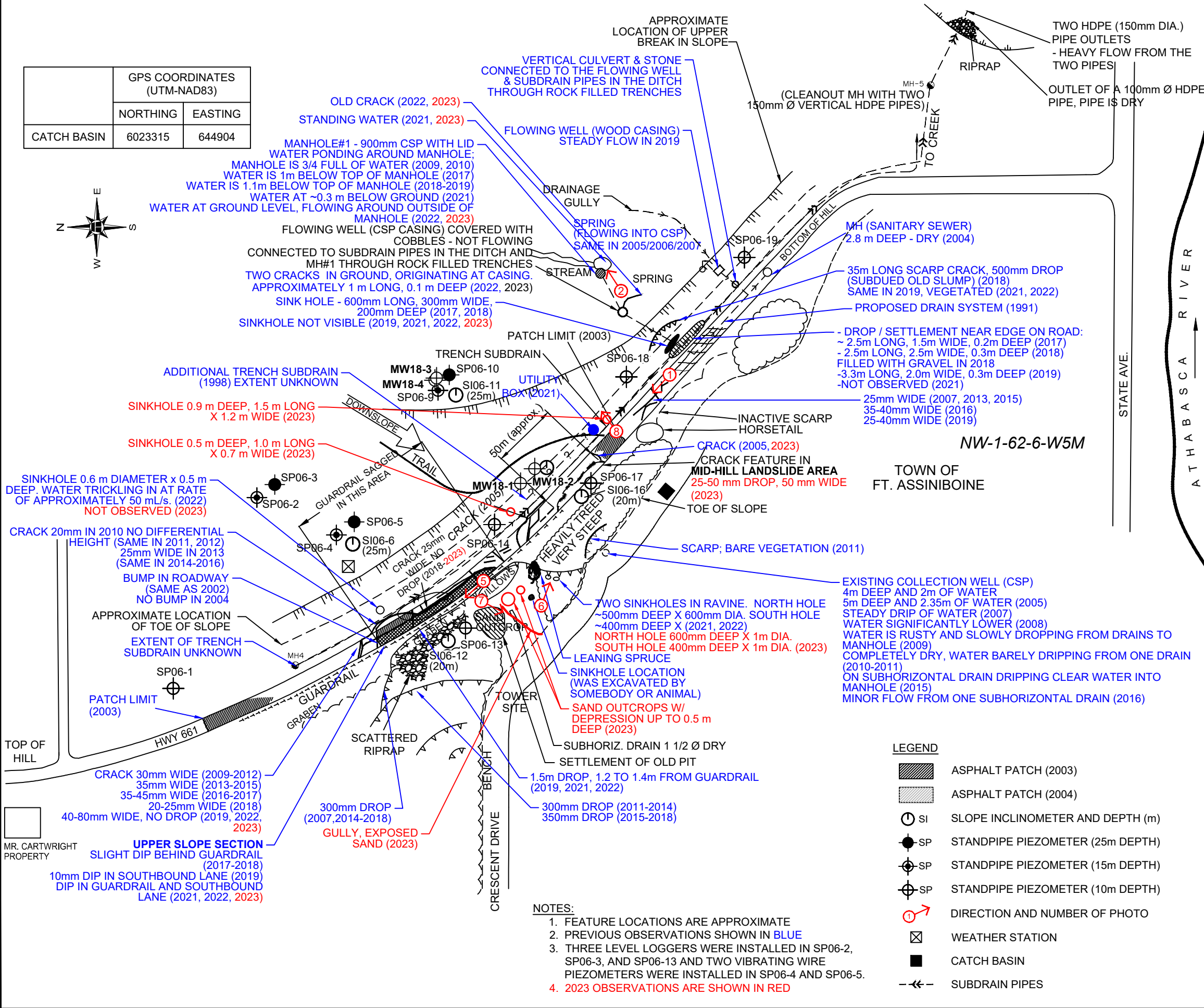
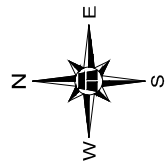
**Stantec Consulting Ltd.**

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Attachment: Figure 1 – Site Plan Showing Instrument Locations  
Standpipe Piezometer Level Depth vs Time Plot  
Monitoring Well Level Depth vs Time Plot

CATCH BASIN	GPS COORDINATES (UTM-NAD83)	
	NORTHING	EASTING
	6023315	644904

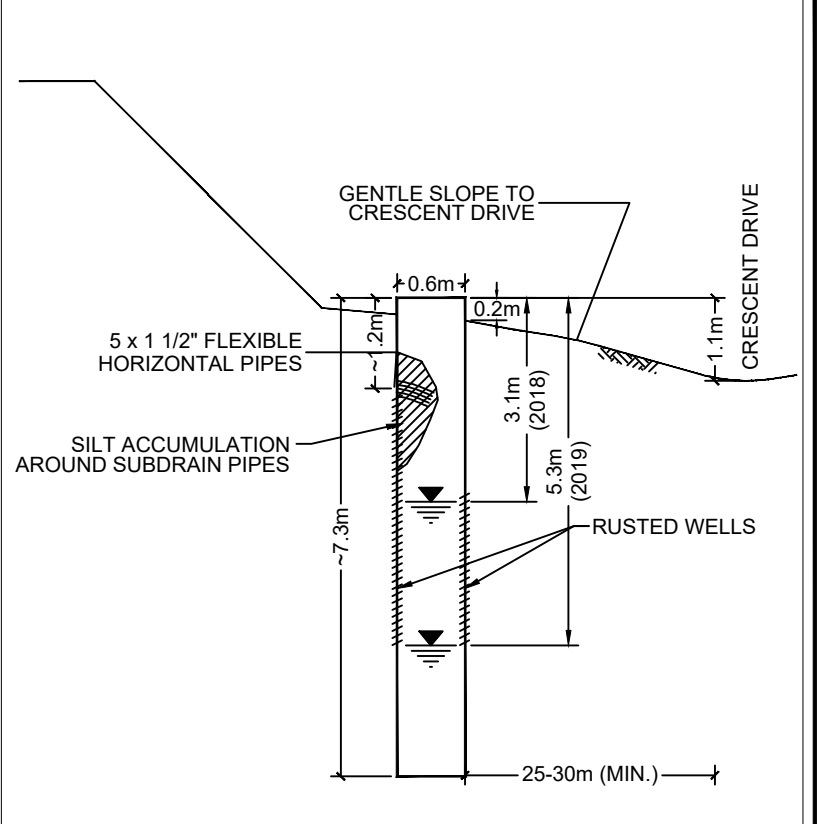
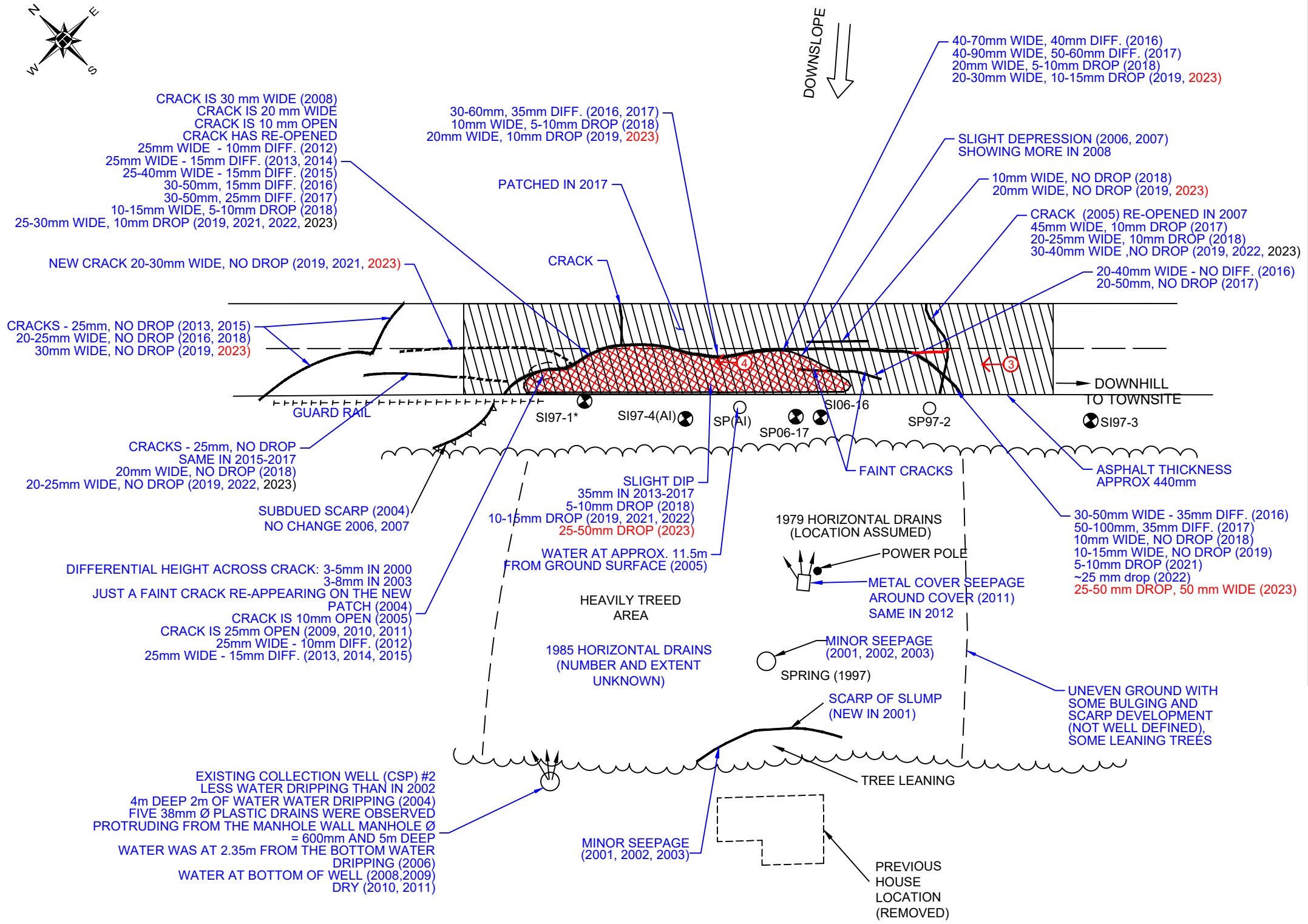


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TRANSPORTATION AND ECONOMIC CORRIDORS  
GEOHAZARD MONITORING PROGRAM  
NC014-1: HWY 661:02 FORT ASSINIBOINE (km 1.8)  
SITE PLAN SHOWING EXISTING FEATURES

DRAWN	ML	CHECK	XL	APPROVE	LC
DATE	18 JULY 2023	SCALE	AS SHOWN	PROJECT #	123315222

**FIGURE - 1**



- NOTES:**
- MH #2 HAS NO OUTFLOW PIPE - WATER IS LIKELY PERCOLATING INTO GROUND (2015)
  - MINOR FLOW FROM ONE OF SUBHORIZONTAL DRAINS IN 2016
  - ONE OF THE SUBHORIZONTAL DRAINS IS DRIPPING WATER
  - ONE OF THE DRAINS IS FLOWING. MORE WATER NOTED IN 2018
  - STEADY FLOW FROM ONE OF THE DRAINS; HEAVIEST FLOW SINCE OBSERVED

**MANHOLE #2 DETAILS (2014)**  
N.T.S.

- LEGEND**
- SI SI - SLOPE INCLINOMETER
  - SP SP - STANDPIPE PIEZOMETER
  - DIRECTION AND NUMBER OF PHOTO

- NOTES:**
- FEATURE LOCATIONS ARE APPROXIMATE.
  - PREVIOUS OBSERVATIONS SHOWN IN BLUE  
PREVIOUS CRACK PATTERN WAS COVERED BY NEW (2004) ASPHALT PATCH
  - 2023 OBSERVATIONS ARE SHOWN IN RED

MANHOLE NUMBER	GPS COORDINATES (UTM-NAD83)	
	NORTHING	EASTING
MH #1	6023351	644914
MH #2	6023367	644730
METAL COVER	6023374	644771

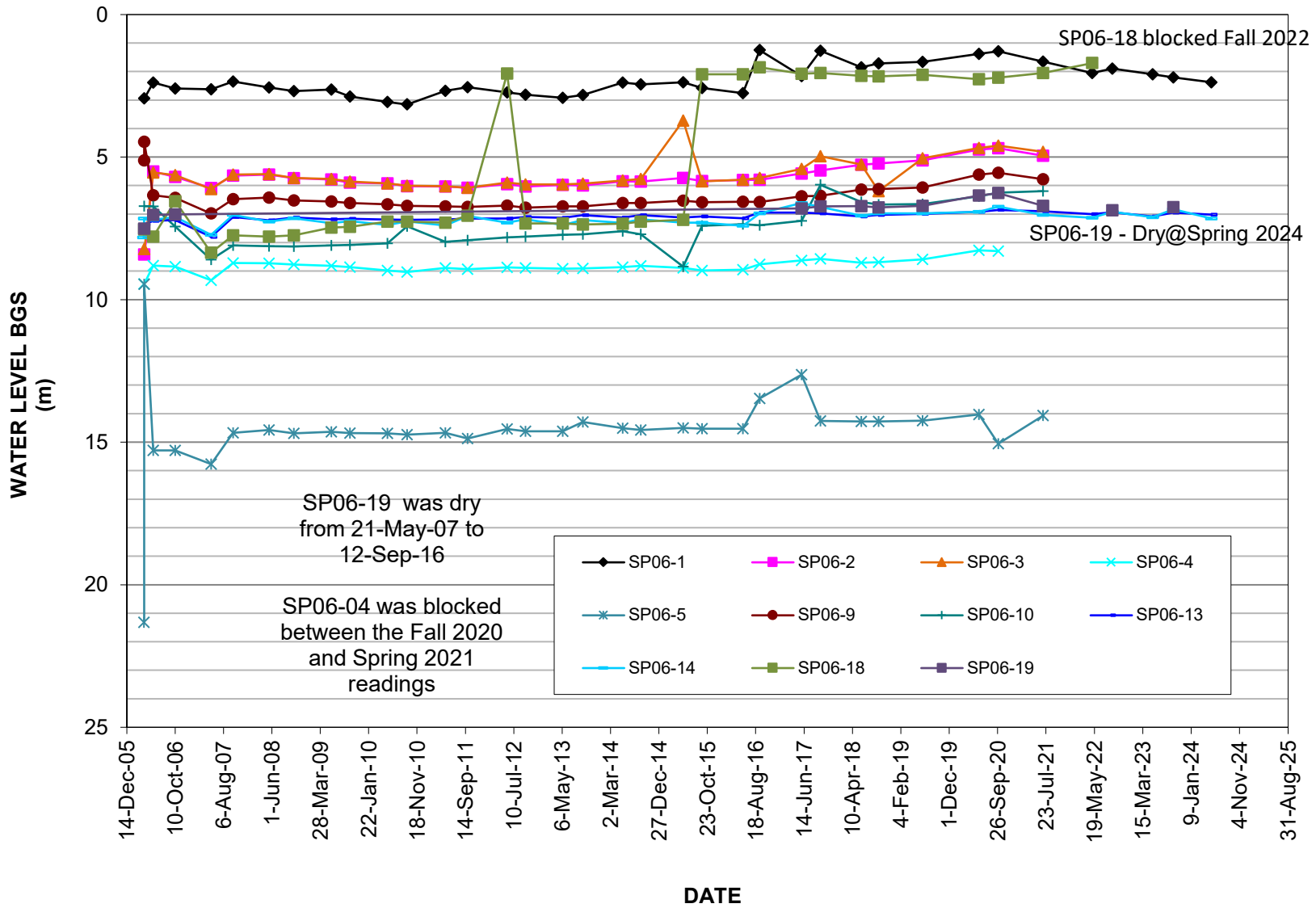
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TRANSPORTATION AND ECONOMIC CORRIDORS  
GEOHAZARD RISK MANAGEMENT PROGRAM  
NC014-1: HWY 661:02 NORTH OF FORT ASSINIBOINE  
SITE PLAN

DRAWN KE	CHECK XL	APPROVE LC	
DATE 18 JULY 2023	SCALE AS SHOWN	PROJECT # 123315222	

FIGURE - 2

### PIEZOMETER DATA



### MONITORING WELLS DATA

