

SITE NUMBER AND NAME: <b>S002 Priddis</b>		HIGHWAY & KM: 22:14, 12.595	PREVIOUS INSPECTION DATE: April 30, 2018	INSPECTION DATE: <b>May 6, 2019</b>
LEGAL DESCRIPTION: 01-34-022-04 W5M	NAD 83 COORDINATES: UTM Northing Easting 11 5642606 678005		RISK ASSESMENT: PF: 7 CF: 4 TOTAL: 28	
AVERAGE ANNUAL DAILY TRAFFIC: 4,200 (east) & 4,180 (west) (Ref No. 62187)			CONTRACTOR MAINTENANCE AREA (CMA): 27	

SUMMARY OF SITE INSTRUMENTATION:  2 functioning slope inclinometers (SI) SI #9 and SI #11 and 3 active vibrating wire piezometers (VWPs).  LAST READING DATE: May 2019		INSPECTED BY: Chris Gräpel (KCB) Chris Morgan (KCB) Roger Skirrow (AT) Alex Frotten (AT) Nicolas Ropchan (AT)
PRIMARY SITE ISSUE: Pavement cracking at the northwest edge of the highway caused by continued slope movement downslope of a concrete pile wall (unknown date of construction and unknown design details).		
APPROXIMATE DIMENSIONS: Landslide zone affecting highway is approximately 90 m long. Slope varies from 3H:1V on the upper half of the slope and 5H:1V on the lower half of the slope. Embankment slope approximately 15 m high.		
DATE OF ANY REMEDIAL ACTION: A concrete pile wall was installed along the northwest shoulder of highway in 1992, to stabilize the highway against the ongoing landslide movement. Additionally, a row of gravel columns were installed on the upslope, southeast, side of the highway and two pumps placed in the gravel columns with a water-level-activated switch to turn the pumps on. The pumps are permanently installed but are turned off during winter months. As-built information for repairs is not available.		

ITEM	CONDITION EXISTS		DESCRIPTION AND LOCATION	NOTICABLE CHANGE FROM LAST INSPECTION	
	YES	NO		YES	NO
Pavement Distress	X		Cracking and settlement of the north shoulder of the road surface was observed, between the guard rail and existing pile wall location. Depth of settlement around piles appears to be about the same from last year. Pavement cracking across full width of highway (last overlay was 6 years ago). Crack extends to 1.12 m from inside of north shoulder white line.	X	
Slope Movement	X		There is an active slope failure to the north of the highway in front of the pile wall. Dip in guard rail.	X	
Erosion	X		None noted. Vegetation cover was continuous over the slide area.		X
Seepage	X		Seepage at the toe of the slope, from buried culvert.		X
Culvert Distress	X		Buried culvert appears to be discharging water into small pond at the toe of the slope.		X

<b>COMMENTS</b>
The slope was partially snow covered during the 2019 inspection.
At the time of the inspection, the pumps in the gravel columns were not operational. The pumps are permanently installed in the wells and get turned on and off for winter. The MCI reports that the pumps were turned on May 15.
Pavement cracks seem to have widened slightly when compared to 2018 observations. Cracking should be repaired by the maintenance contractor through patching.
Ponded water observed in the upslope ditch, adjacent to the discharge lines from the groundwater pumps.
Guard rail deflection appears to have increased slightly north of the highway.
New instrumentation covers should be installed on the SIs adjacent to the roadway. The current covers have holes in them that allows sediment to migrate into the instruments, making reading difficult and impacting the ability to accurately read instruments.
Slope cracking appears to have increased, and additional movement was present on the right flank.
Seepage was noted at the tree line approximately in the centre of the slide, via a buried culvert. Seepage reports to a drainage channel.
There is a culvert to the east of the slide zone. The culvert channel is overgrown and partly filed with sediment. A ditch plug diverts water into this culvert.
It is understood that Highway 22 at this location is to be twinned at some point in the future.
AT pavement LIDAR could be used to survey to monitor changes in the road surface over several years.
The thickness of asphalt on the north shoulder is around 500 mm thick.
The nature of the reinforced pile wall should be investigated with the use of wet rotary diamond drilling techniques to identify how deep the piles are. Geophysical methods could be used to assess pile depths and check for the presence of rebar. At least three piles should be located and investigated. The assessment should include drilling boreholes downslope of the pile wall to install two slope inclinometers to allow assessment of the depth of movement downslope of the pile wall against the depth of the pile wall. The impact of turning off the groundwater pumps in the winter should be assessed by placing level loggers in the pump wells and reviewing the data in the spring when the pumps are turned back on.

**Photo 1** Pavement distress at the location of the pile wall. Photo taken facing west on May 6, 2019.



**Photo 2** Embankment slope facing toward right flank of slide. Photo taken facing east on May 6, 2019.

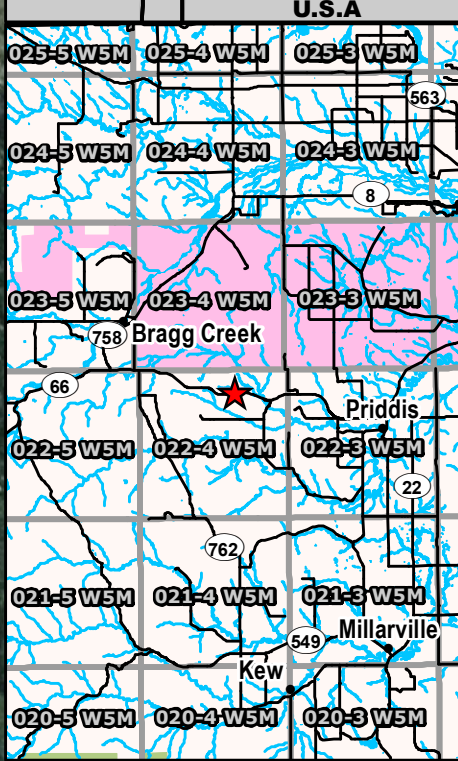
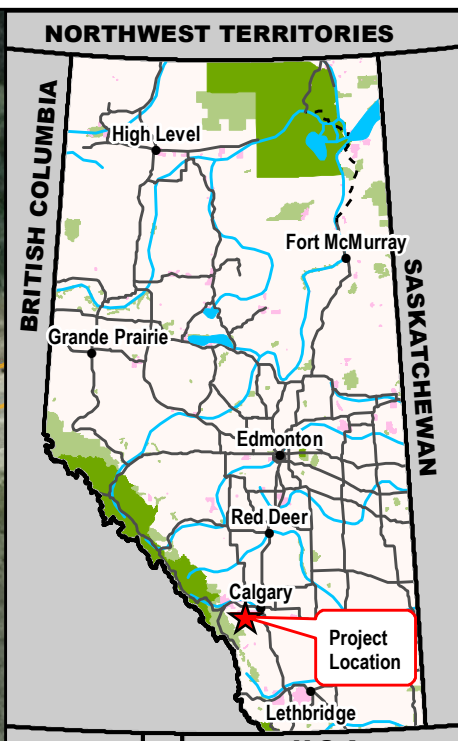


**Photo 3** Embankment slope in slide area. Photo taken facing west on May 6, 2019.



**Photo 4** Pavement cracking. Photo taken from south side of highway facing northeast on May 6, 2019.





Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



- Legend**
- GPS Track (May 6, 2019)
  - ▴ Slope Inclinometer
  - ⊗ Vibrating Wire Piezometer

Time: 16:40:00 PM  
Date: May 29, 2019  
File: Z:\A\EDM\A05115A03 ABT Southern Region GRMP\A00 Drawings\2019\2 Section BIM\XDS\02\_190517.mxd

NOTES: 1. HORIZONTAL DATUM: NAD83 2. GRID ZONE: UTM Zone 11N 3. IMAGE SOURCE: World Imagery from ESRI ArcGIS Online. Source date January 15, 2015	CLIENT	PROJECT
		SOUTHERN REGION GEOHAZARD RISK MANAGEMENT PROGRAM
	TITLE	
	Site Plan S002 - Priddis Hwy 22:14, km 12.595	
SCALE	PROJECT No.	FIG No.
1:1,000	A05115A03	1