

SITE NUMBER AND NAME: <b>S058 Spring Hill Slide</b>		HIGHWAY & KM: 505:04, 21.110	PREVIOUS INSPECTION DATE: July 8, 2021	INSPECTION DATE: <b>May 19, 2022</b>
LEGAL DESCRIPTION: 15-29-04-23 W4M	NAD 83 COORDINATES: UTM Northing Easting 12 5466599 350117		RISK ASSESMENT: PF: 7 CF: 6 TOTAL: 42	
AVERAGE ANNUAL DAILY TRAFFIC (AADT): 570 (east) & 530 (west) (Reference No. 93050 & 99030)			CONTRACTOR MAINTENANCE AREA (CMA): 25	

SUMMARY OF SITE INSTRUMENTATION:  There is no instrumentation at the S058 site.  LAST READING DATE: N/A	INSPECTED BY: Chris Morgan (KCB) Laura Assaad (KCB) Roger Skirrow (AT) Alex Frotten (AT) Bill Sayeed (AT) Don Kovacs (AT)
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**PRIMARY SITE ISSUE:** Deep-seated earth slide within coulee side slope. The head scarp extends into the roadway and is impacting the pavement and south shoulder of the embankment.

**APPROXIMATE DIMENSIONS:** Cracking extends across the pavement and along left flank of slide. The visible head scarp is approximately 200 m long. The highway embankment is sloped approximately 2H:1V and the coulee slope to the left of the slide is approximately 3H:1V.

**DATE OF ANY REMEDIAL ACTION:** Road pavement has been patched (unknown date). Gravel appears to have been placed on the south shoulder of the embankment. The pavement appears to have been milled recently to improve the smoothness of the highway through this site.

ITEM	CONDITION EXISTS		DESCRIPTION AND LOCATION	NOTICABLE CHANGE FROM LAST INSPECTION	
	YES	NO		YES	NO
Pavement Distress	X		Pavement cracking due to slope movement. Signs of milling and patching	X	
Slope Movement	X		Active slope movement in coulee side slope south of the highway		X
Erosion		X	N/A – none observed		X
Seepage	X		Possible seepage from blocked culverts		X
Culvert Distress		X	Unable to inspect during the 2022 inspection.		X

**COMMENTS**

The site was named Bulrush Hill prior to 2021. The current site name is Spring Hill Slide.

No significant changes were observed during the 2022 inspection.

The pavement cracking extends westward through the recent overlay (Photo 1 and 2) and there is possible tension cracking between the highway and the fence line along the side of the coulee. The cracking has extended downhill and appears to have worsened when compared to 2021 inspection photos. There is no visible instability on the slope north of the highway.

The pavement cracking lines up with tension cracking along the wall of the coulee (Photo 1 and 2).

A transverse pavement crack was observed west of the pavement cracking and milling (WP 145) (Photo 3).

There is a possible toe bulge at the base of the valley, near to the old creek alignment. The creek appeared dry during the 2022 inspection.

There is a possible horizontal spur (may be perforated) running east to west along the ditch alignment, which appears to have a blocked outlet and could be associated with the area of inclined marsh with cattails (bulrushes) During the 2022 inspection, the marsh area appeared dry.

The vertical HDPE pipe in the north (westbound) ditch may be plugged (WP 19).

A high-pressure pipeline was marked in the shoulder on the north side of the highway.

Maintenance/Repair/Monitoring Recommendations:

Short-Term:

- Additional hazard signs should be installed to give more warning to motorists of the area of settlement in the highway.
- The site should be resurfaced (i.e., milled and repaved to not add any additional loading on the slide).
- A site investigation should be completed to investigate the drainage pipe. The outlet should be cleared to increase drainage capacity.

Long-Term:

- The load on the slide could be reduced by changing the vertical alignment of the highway (i.e., reducing the elevation of the highway above the slide) and replacing the current highway subgrade with lightweight fill to further reduce the loading on the slide. The excavated material could be repurposed to build a toe berm to further stabilize the highway embankment; or
- A driven steel pile wall with drainage improvements; or
- The section of the highway could be closed and traffic re-routed to Range Road 234A (east of the site).
- A geotechnical site investigation should be completed, including the installation of instruments to assess depth of movement, to support design and construction. The geotechnical investigation could include at least two boreholes with the installation of two slope inclinometers to monitor movement.

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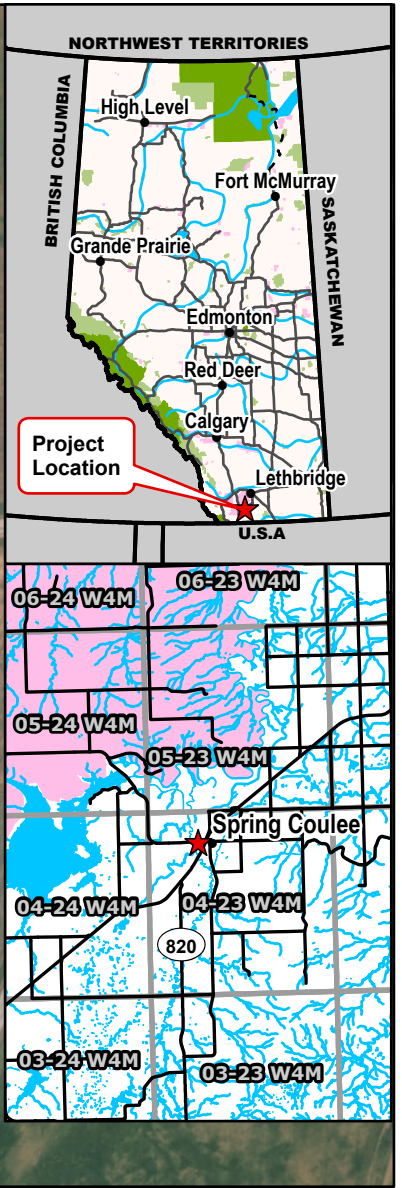
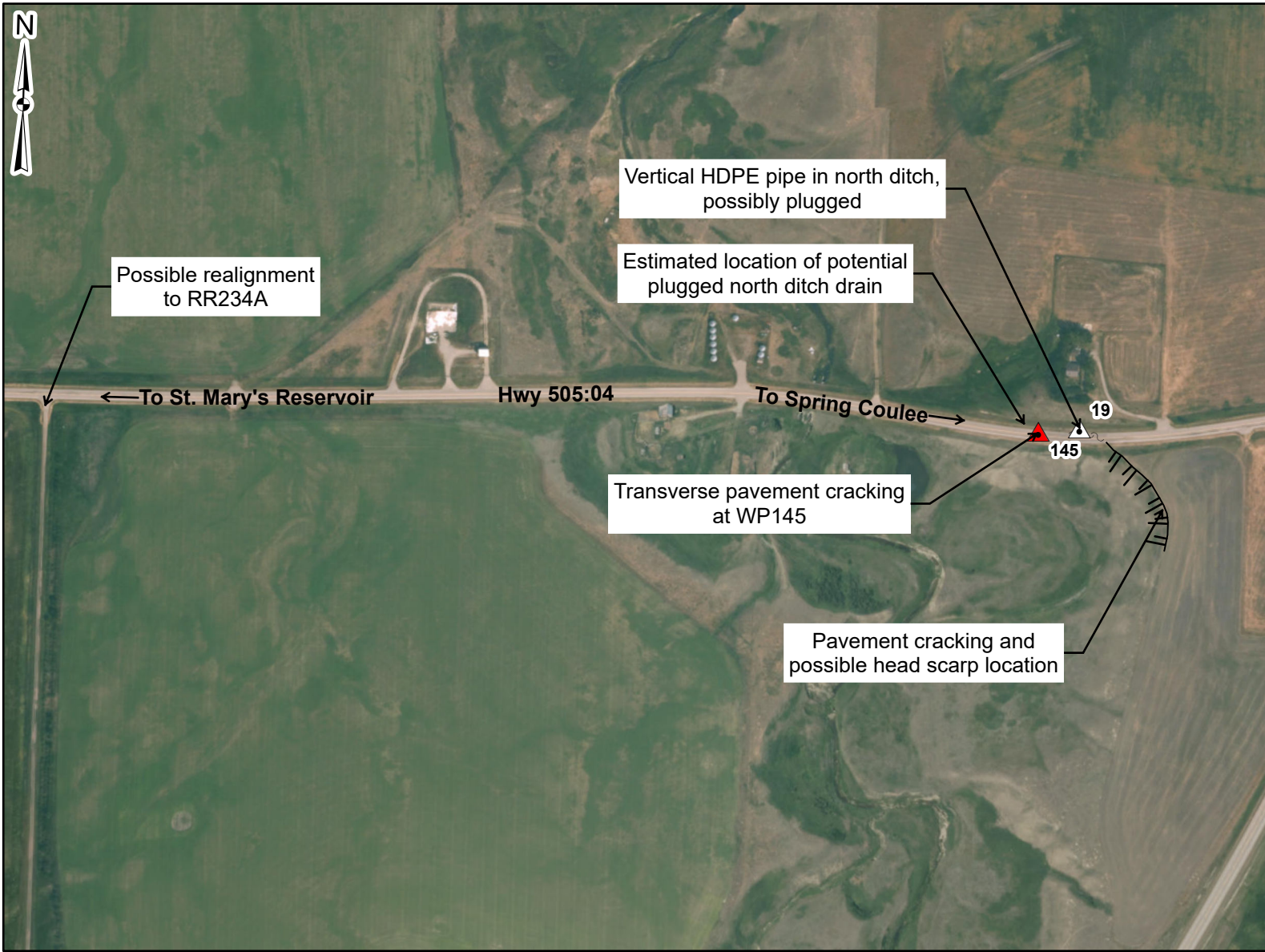
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- Legend**
- GPS Waypoint (July 8, 2021)
  - GPS Waypoint (July 7, 2020)
  - Scarp
  - Crack

NOTES:  
 1. HORIZONTAL DATUM: NAD83  
 2. GRID ZONE: UTM ZONE 12N  
 3. IMAGE SOURCE: ESRI, MAXAR, EARTHSTAR  
 GEOGRAPHICS AND THE GIS USER COMMUNITY.

CLIENT




PROJECT SOUTHERN REGION GEOHAZARD RISK MANAGEMENT PROGRAM		
TITLE Site Plan S058 - Spring Hill Slide Hwy 505:04, km 21.110		
SCALE 1:6,000	PROJECT No. A05116A03	FIG No. 1

## Inspection Photographs

**Photo 1** Pavement cracking and settlement due to head scarp of slide on coulee slope south of highway. Photo taken May 19, 2022, facing northwest.



**Photo 2** Pavement patching and milling due to ongoing slope movement. Cracking has extended through the overlay. Photo taken May 19, 2022, facing east.



**Photo 3** Transverse pavement crack (WP 145) to the west of the pavement cracking and milling shown in Photo 1 and 2. Photo taken May 19, 2022, facing south.



**Photo 4** Head scarp of slide on coulee slope south of highway. Photo was taken May 19, 2022, facing southeast.

