

SITE NUMBER AND NAME: <b>GP007 Wanyandie Road</b>		HIGHWAY & KM: 40:36, 29.339	PREVIOUS INSPECTION DATE: May 26, 2020	INSPECTION DATE: <b>July 20, 2021</b>
LEGAL DESCRIPTION: NW 02-59-07-W6M	NAD 83 COORDINATES: UTM Northing Easting 11 5993890 372875		RISK ASSESSMENT: PF: 13 CF: 7 TOTAL: 91	
AVERAGE ANNUAL DAILY TRAFFIC (AADT): 429 (north) & 453 (south) (Reference No. 60403650)			CONTRACT MAINTENANCE AREA (CMA): 504	

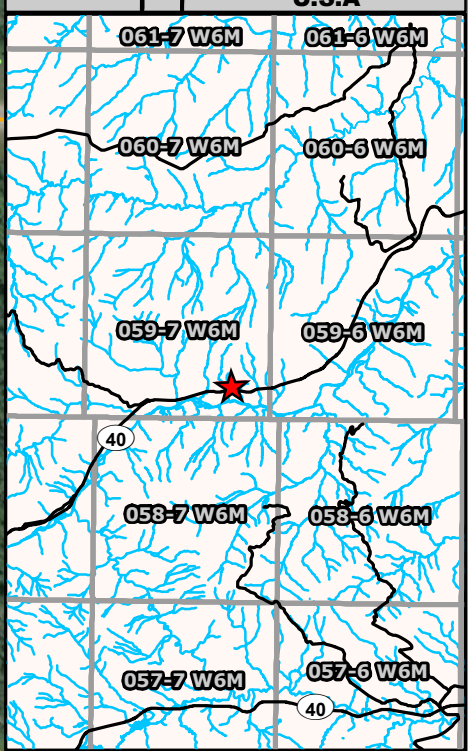
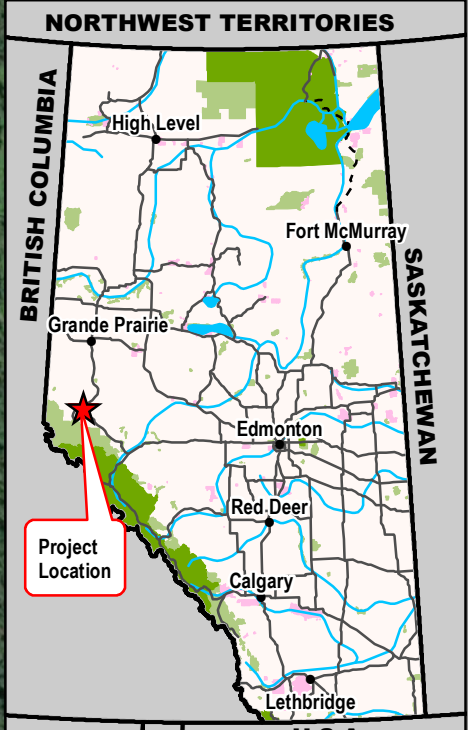
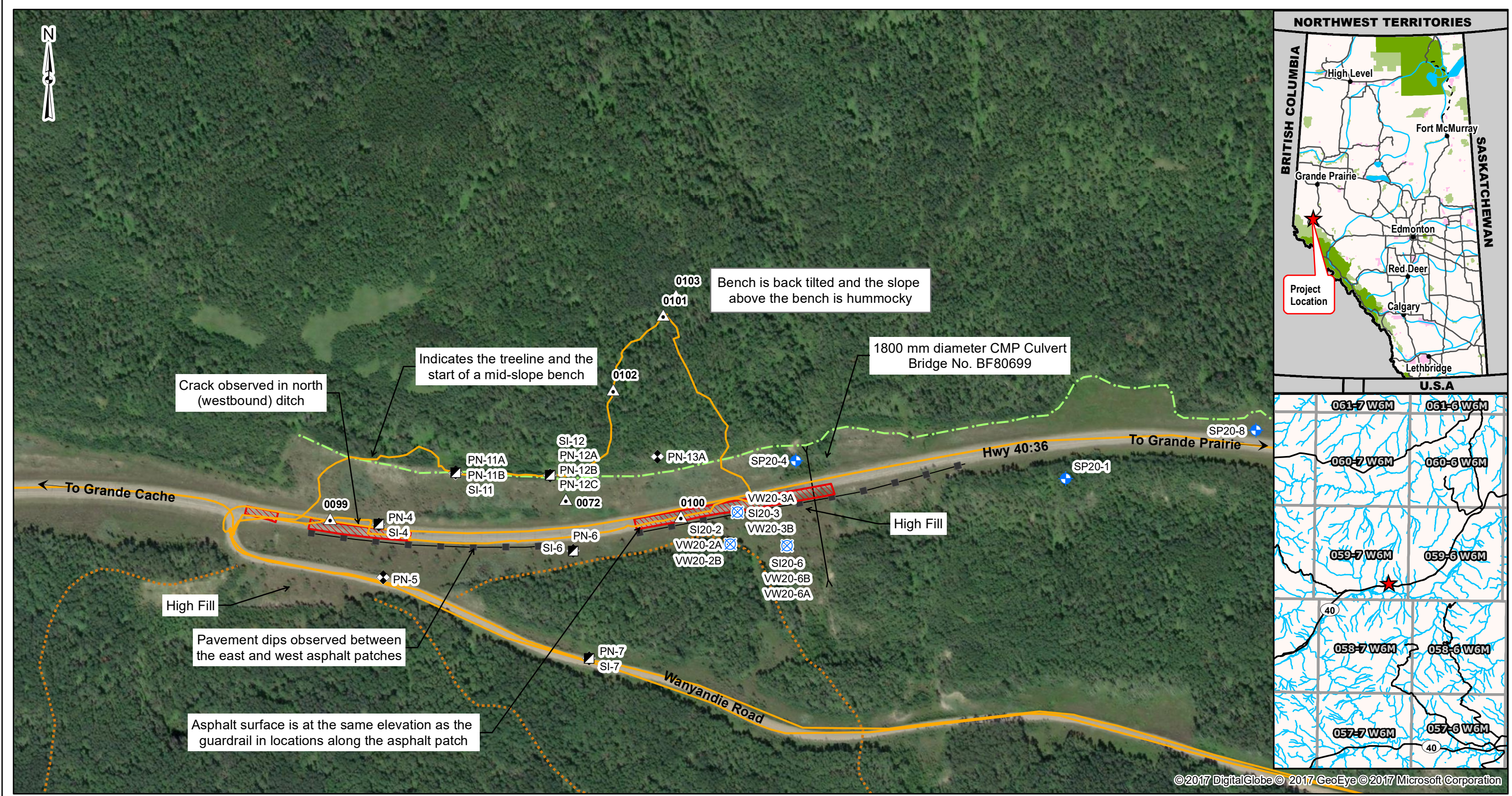
SUMMARY OF SITE INSTRUMENTATION:  Five SIs and ten PNs were installed between 1998 and 2008. Three SIs, six PNs and three SPs were installed in 2020  LAST READING DATE: June 29, 2021		INSPECTED BY: Chris Gräpel James Lyons Roger Skirrow (AT) Rocky Wang (AT) Ed Szmata (AT) Max Shannon (AT) Dwayne Lowen (AT MCI)
PRIMARY SITE ISSUE: Deep seated landslide along the highway that sits about midway up the north valley slope of the Smoky River.		
APPROXIMATE DIMENSIONS: About 600 m wide along highway and is anticipated to toe out near the edge of the old River floodplain ~400 to 500 m downslope (~100 m lower than highway).		
DATE OF ANY REMEDIAL ACTION: A geotechnical investigation and planning study was completed in 2003, recommending a realignment further upslope. Another investigation was completed in July 2020 to provide additional information. An overlay was placed in the summer of 2018 and patched in a couple areas in 2019.		

ITEM	CONDITION EXISTS		DESCRIPTION AND LOCATION	NOTICABLE CHANGE FROM LAST INSPECTION	
	YES	NO		YES	NO
Pavement Distress	X		Pavement cracked at north and south flanks of slide zone. Cracks 2 to 3 cm wide. Depression along backscarp crack in pavement, seems to be a void forming that pavement is deflecting into, settlement of about 4"	X	
Slope Movement	X		The slope above and below the highway backslope is landslide terrain		X
Erosion		X			X
Seepage		X	Ditch is wet and poorly drained near south pavement cracking where backscarp cracks progress into the ditch		X
Culvert Distress		X			X

<b>COMMENTS</b>
- MCI says the HMC patches the road every year. In the winter of 2020, the ongoing deflections of the pavement got so bad that some of the pavement was milled, gravel was placed as the highway surface, and the speed was temporarily reduced before the asphalt surfacing could be re-established the following spring
- Cracking on west flank extends across the recent pavement patch to the ditch; depression noted in ditch (backscarp). The pavement surface has a long linear depression about 100 mm deep and approximately 5 m long that appears to indicate there is a void forming below the pavement. The ditch is wet and poorly drained, and it appears that water is infiltrating into the slide backscarp. Cracking on east flank not as well

<p>developed through the latest patch. Cracking was not continuously observed in the ditch between the west and east flanks of the slide.</p>	
<ul style="list-style-type: none"> <li>- The portions of the landslide that are most active appear to coincide with areas of high fill (Wanyandie Road to the west, high fill across deep gully to east).</li> </ul>	
<ul style="list-style-type: none"> <li>- WP100, top of guardrail at same elevation as top of pavement</li> </ul>	
<ul style="list-style-type: none"> <li>- Walked up backslope and natural slope and across bench to where the land slopes up again (WP101). Bench is tilted back towards the upper slope and slope above the bench is hummocky and looks like slide terrain. Crest of the bench above the highway and above the access trail for the EBA drilling investigation (as part of EBA 2003 realignment assessment) is also the location of slope failure (WP102). Discussed if slide above is linked to slide below, highway drainage could be making the lower part of the slide worse, upper part could be dormant, but still interlinked. Concern is that if slope is cut, it could destabilize the upper parts of the slide above the cut slope, AT's experience is that, in some cases, slides where the upper part and lower part are initially believed to be separate are soon proven to be not independent of each other when construction starts.</li> </ul>	
<ul style="list-style-type: none"> <li>- Less active parts of the slide above the road may not be as influenced by fill placement or drainage infiltration into backscarp in ditch as the west flank of the slide. However, without any changes to the slide or highway geometry, continued movement of the lower parts of the slide or prolonged periods of wet weather causing groundwater levels to rise could eventually result in movements further upslope.</li> </ul>	
<ul style="list-style-type: none"> <li>- AT requested KCB to prepare a proposal that included highway realignment for the road, including a slope unloading option to avoid a large excavation into the slope above the highway. AT and KCB discussed that slope unloading would have to remove at least 5 m to get a 10% improvement in FOS. One possibility is that excavated material could go to Smokey River Coal as reclamation material. AT advised that oil and gas companies have taken excess material from previous highway repairs for reclamation.</li> </ul>	
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<p>Chris Gräpel, M.Eng., P.Eng. Senior Civil Engineer, Associate</p>	





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- Legend**
- ▲ GPS Waypoint (July 20, 2021)
  - ◆ Pneumatic Piezometer (PN)
  - Slope Inclinometer (SI)
  - ⊕ Standpipe Piezometer (SP)
  - ⊗ Vibrating Wire Piezometer (VW)
  - GPS Track (July 20, 2021)
  - Guardrail
  - Culvert
  - Active Slide Zone
  - Treeline
  - ▨ Asphalt Patches



**NOTES:**  
 1. HORIZONTAL DATUM: NAD83  
 2. GRID ZONE: UTM Zone 11N  
 3. IMAGE SOURCE: ESRI Basemap

CLIENT

PROJECT	GRANDE PRAIRIE SOUTH REGION GEOHAZARD RISK MANAGEMENT PROGRAM	
TITLE	Site Plan GP007 - Wanyandie Road Hwy 40:36, km 29.339	
SCALE	PROJECT No.	FIG No.
1:4,000	A05116A01	1

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**Photo 1** Overview of the GP007 site, highlighting the east and west patches, and areas of asphalt cracking and settlement.  
Photo taken July 20, 2021 facing northwest.





**Photo 2** Lower (west) patch located just east of Wanyandie Road. Photo taken July 20, 2021 facing northeast.



**Photo 3** Asphalt cracking observed in the south (northbound) lane that extends from the edge of the highway to the centreline. Photo taken July 20, 2021 facing northeast.





**Photo 4** Asphalt cracking at the west flank of the slide in the north (southbound) lane that extends from the edge of the asphalt to the centreline. Photo taken July 20, 2021 facing southwest.





**Photo 5** Ground cracking observed in the north (southbound) ditch that may be the backscarp of the slide (obscured by vegetation). Photo taken July 20, 2021 facing southwest.



**Photo 6** Asphalt patch near the east extent of the site that is typically repaved on an annual basis. Photo taken July 20, 2021 facing southwest.





**Photo 7** An area near the east extent of the site (west of the high embankment fill) that is regularly patched, where the asphalt surface is close to the top of the guardrail (WP101). Photo taken July 20, 2021 facing northeast.



**Photo 8** An area of the site that is regularly patched (shown in Photo 7) where the asphalt surface is near the top of the guardrail. Photo taken July 20, 2021 facing north.

