

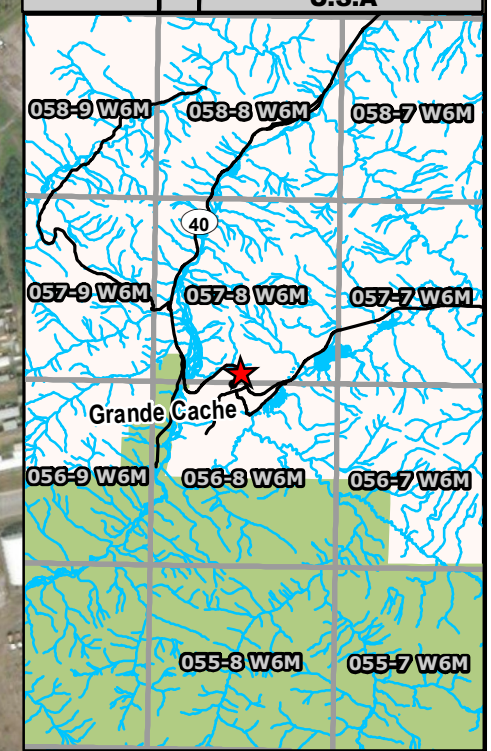
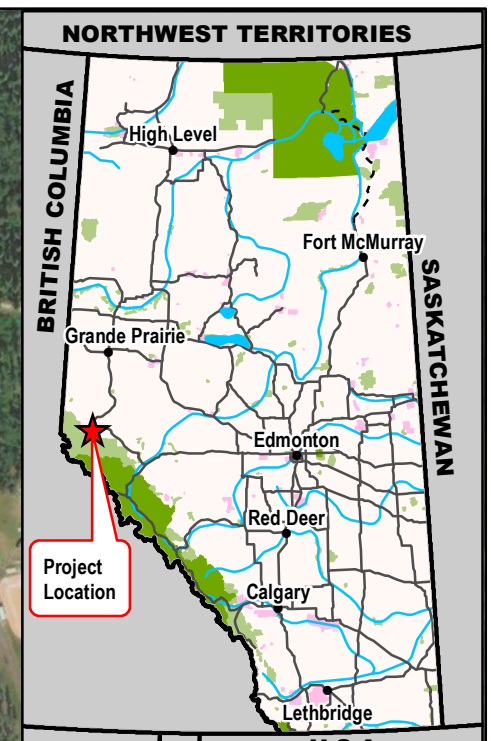
SITE NUMBER AND NAME: GP041 Hwy 40:34 Ditch Erosion		HIGHWAY & KM: 40:34, 32.405	PREVIOUS INSPECTION DATE: May 25, 2020	INSPECTION DATE: July 21, 2021
LEGAL DESCRIPTION: SE 04-57-08-W6M	NAD 83 COORDINATES: UTM Northing Easting 11 5973931 360755		RISK ASSESSMENT: PF: 11 CF: 2 TOTAL: 22	
AVERAGE ANNUAL DAILY TRAFFIC (AADT): 1450 (north) & 1470 (south) (Reference No. 70000104)			CONTRACT MAINTENANCE AREA (CMA): 504	

SUMMARY OF SITE INSTRUMENTATION: There is no instrumentation at the GP041 site LAST READING DATE: N/A	INSPECTED BY: Chris Gräpel James Lyons Roger Skirrow (AT) Rocky Wang (AT) Ed Szmata (AT) Max Shannon (AT) Dwayne Lowen (AT MCI) Renato Macciotta (UofA)
PRIMARY SITE ISSUE: Erosion gully has formed in the east highway ditch, alongside Class 1 riprap ditch protection placed in 2014. Site is at north limit of the Town of Grande Cache.	
APPROXIMATE DIMENSIONS: Erosion approximately 400 m long x 2 to 3 m wide x approximately 0.5 to 1.0 m deep. Ditch is steep (approximately 7%)	
DATE OF ANY REMEDIAL ACTION: Initial repairs conducted in 2006 or 2007 using design section prepared by EBA	

ITEM	CONDITION EXISTS		DESCRIPTION AND LOCATION	NOTICABLE CHANGE FROM LAST INSPECTION	
	YES	NO		YES	NO
Pavement Distress	X		Where the erosion has progressed to the edge of pavement.		
Slope Movement		X			
Erosion	X		From edge of pavement to about 4 m away, within clear zone.	X	
Seepage		X			
Culvert Distress		X			

COMMENTS
- Erosion is on east side of Hwy 40 north of Grande Cache. Previous ditch riprap work was conducted that did not include adequate channel freeboard to contain the ditch flows. The riprap armoured ditch was constructed above the toe of the road embankment, leaving a secondary channel for water to flow in closer to the road.
- Erosion repair in 2006 or 2007 is also located on west side of highway. Repair work was conducted using conglomerate riprap from the old Savage Rail quarry. The conglomerate has poor long-term durability, requiring the addition of riprap by the HMC from once or twice since 2013 as the conglomerate breaks down.
- AT says that erosion has worsened (getting worse every year) since development on east side of highway upslope in Town side of the highway (clearing, grading, gas station, parking lot). AT also said that snow plows can put large thicknesses of snow into the ditch which can block flow during spring freshet, causing

<p>water to flow on un-armoured soil or fill, and that ATVs are using the ditch as a trail which can create tire ruts that can cause erosion to form.</p>	
<p>- Short term solution – Sheep Creek fill will be used to fill the erosion gully at the edge of the pavement</p>	
<p>- Long-term solution – HMC will shape a new ditch, salvage durable intact pieces of riprap from existing armoring and import some new, better-quality riprap, and rebuild the armoured ditch with adequate freeboard.</p>	
<p>This report is an instrument of service of Klohn Crippen Berger (KCB). The report has been prepared for the exclusive use of Alberta Transportation (Client) for the specific application to the Central Region Geohazard Risk Management Program (Contract No. CON0022166) and it may not be relied upon by any other party without KCB's written consent.</p> <p>KCB has prepared this report in a manner consistent with the level of care, skill and diligence ordinarily provided by members of the same profession for projects of a similar nature at the time and place the services were rendered. KCB makes no warranty, express or implied.</p> <p>Use of or reliance upon this instrument of service by the Client is subject to the following conditions:</p> <ul style="list-style-type: none">(i) The report is to be read in full, with sections or parts of the report relied upon in the context of the whole report.(ii) The observations, findings and conclusions in this report are based on observed factual data and conditions that existed at the time of the work and should not be relied upon to precisely represent conditions at any other time.(iii) KCB should be consulted regarding the interpretation or application of the findings and recommendations in the report.	
<p>Chris Gräpel, M.Eng., P.Eng. Civil Engineer, Associate</p>	



- Legend**
- GPS Track (July 21, 2021)
 - Ditch Erosion



NOTES: 1. HORIZONTAL DATUM: NAD83 2. GRID ZONE: UTM Zone 11N 3. IMAGE SOURCE: Microsoft BING Maps	CLIENT 	PROJECT GRANDE PRAIRIE SOUTH REGION GEOHAZARD RISK MANAGEMENT PROGRAM
		TITLE Site Plan GP041 Ditch Erosion Hwy 40:34, km 32.405
	SCALE 1:4,000	PROJECT No. A05116A01
		FIG No. 1

Time: 15:00:14 PM
 Date: October 05, 2021
 File: Z:\AEDM\A05116A01\ABT_Grande Prairie South GRMP\400 Drawings\GIS\MXD\2021\Section B\GP041_210929.mxd



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Photo 1 North extent of the ditch erosion on the east (northbound) side of Hwy 40. Photo taken July 21, 2021 facing south.



Photo 2 Exposed geotextile from a previous repair, on the east edge of the ditch erosion. Photo taken July 21, 2021 facing south.



Photo 3 Exposed geotextile on the east edge of the ditch erosion (riprap channel being bypassed and undermined by the ongoing erosion). Photo taken July 21, 2021 facing northeast.



Photo 4 The ditch erosion has retrogressed to the east edge (southbound lane) of Hwy 40 and is beginning to impact the shoulder of the highway. Photo taken July 21, 2021 facing south.

