PEACE REGION
(GRANDE PRAIRIE DISTRICT – SOUTH) GRMP
SITE INSPECTION FORM

SITE NUMBER AND NAME: **GP002 Candle Road Slide**	HIGHWAY & KM: 40:38, 7.457	PREVIOUS INSPECTION DATE: June 13, 2023	INSPECTION DATE: **June 3, 2025**
LEGAL DESCRIPTION: NE 20-61-04-W6M	NAD 83 COORDINATES: UTM 11 Northing 6017104 Easting 398952	RISK ASSESSMENT: PF: 8 CF: 2 TOTAL: 16	
AVERAGE ANNUAL DAILY TRAFFIC (AADT): 900 (north) & 880 (south) (Reference No. 70000673, 2024)		CONTRACT MAINTENANCE AREA (CMA): 504	

SUMMARY OF SITE INSTRUMENTATION:	INSPECTED BY:
Operable: In 2023, a reference/survey stake was placed approximately 1 m upslope of the slide scarp to monitor retrogression. Inoperable: Two slope inclinometers installed in 1997. LAST READING DATE: N/A	Chris Gräpel (KCB) Courtney Mulhall (KCB) Babatunde Awokunle (TEC) Rocky Wang (TEC)
PRIMARY SITE ISSUE: Slide in highway embankment side-hill fill and foundation on east side of Hwy 40:38 due to a high groundwater table. Site is a repeat failure at a previous repair site completed in 2004 as described below.	
APPROXIMATE DIMENSIONS: Slide approximately 20 m to 40 m wide, and 25 m to 30 m high.	
DATE OF ANY REMEDIAL ACTION: Repaired in 2004 as described below.	

ITEM	**CONDITION EXISTS**		**DESCRIPTION AND LOCATION**	**NOTICABLE CHANGE FROM LAST INSPECTION**	
	YES	NO		YES	NO
Pavement Distress		X	None observed at time of 2025 inspection, except where guardrail struck and damaged as discussed below.		X
Slope Movement	X		Extents of slide area appeared similar to 2021 and 2023 inspections, but some possible additional movement and cracking observed in middle slide area.	X	
Erosion	X		Some erosion of exposed soils along slide scarps.		X
Seepage	X		Seepage previously observed in lower slide area during 2021 inspection. Conditions during 2023 and 2025 inspections were drier at ground surface (some cracks appeared damp, but no visible seepage or ponded water observed).		X
Culvert Distress		X	No culverts observed by KCB.		X

COMMENTS
Slide is on an embankment side-hill fill with a shear key excavated into a subsurface bedrock ledge that was previously repaired in 2004 with granular fill and subsurface drains (perforated pipe). TEC previously mentioned that the bedrock ledge was at the same elevation below the slope as it was below the highway (based on borehole logs). Two drain outlets were installed (upper and lower) in case the lower drain became blocked with sediment which was happening in 2004.
Silt fencing observed at the mid-slope and near the tree line at the toe of the slide area, likely the extent of the previous repairs.
Seems to be more rounded gravel and cobbles visible in the upper slide area than the lower slide area. Seems like the lower slide area may have been previously graded with native material and the upper slide area was previously reconstructed with gravelly/granular fill.
Upper slide area (Photos 1 through 3) has settled, and middle and lower slide areas (Photos 4 through 6) appear more active than upper slide area, especially along the left/north side were several scarps have formed.
Slope appears to have failed again due to plugged drains resulting in rising water level and saturation of the repair fill and/or shearing through the bedrock ledge.
Gully near the north side of the slide.
Section of the guardrail along the northbound lane of Hwy 40:38, south of the site, was struck and damaged. Pavement damaged around the posts which were shifted by the impact.
Maintenance/Repair/Monitoring Recommendations: • A geotechnical site investigation, including installation of geotechnical instruments and possible geophysical surveying, is recommended so repair options can be assessed. Estimated cost: approximately $250,000. • Possible repair options could include construction of deep cast-in-place piles, construction of a driven-steel wall, and/or reconstructing the slope with drainage. Estimated cost: approximately $2,000,000 to $4,000,000 (deep cast-in-place piles), $800,000 to $1,500,000 (driven-steel wall), and/or $400,000 to $800,000 (slope reconstruction and drainage – similar to previous repair, which failed), respectively. • Falling down and/or damaged silt fencing should be removed and disposed.

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2025 Oct. 15
ID#153449

Courtney Mulhall, M.Sc., P.Eng.
Geotechnical Engineer

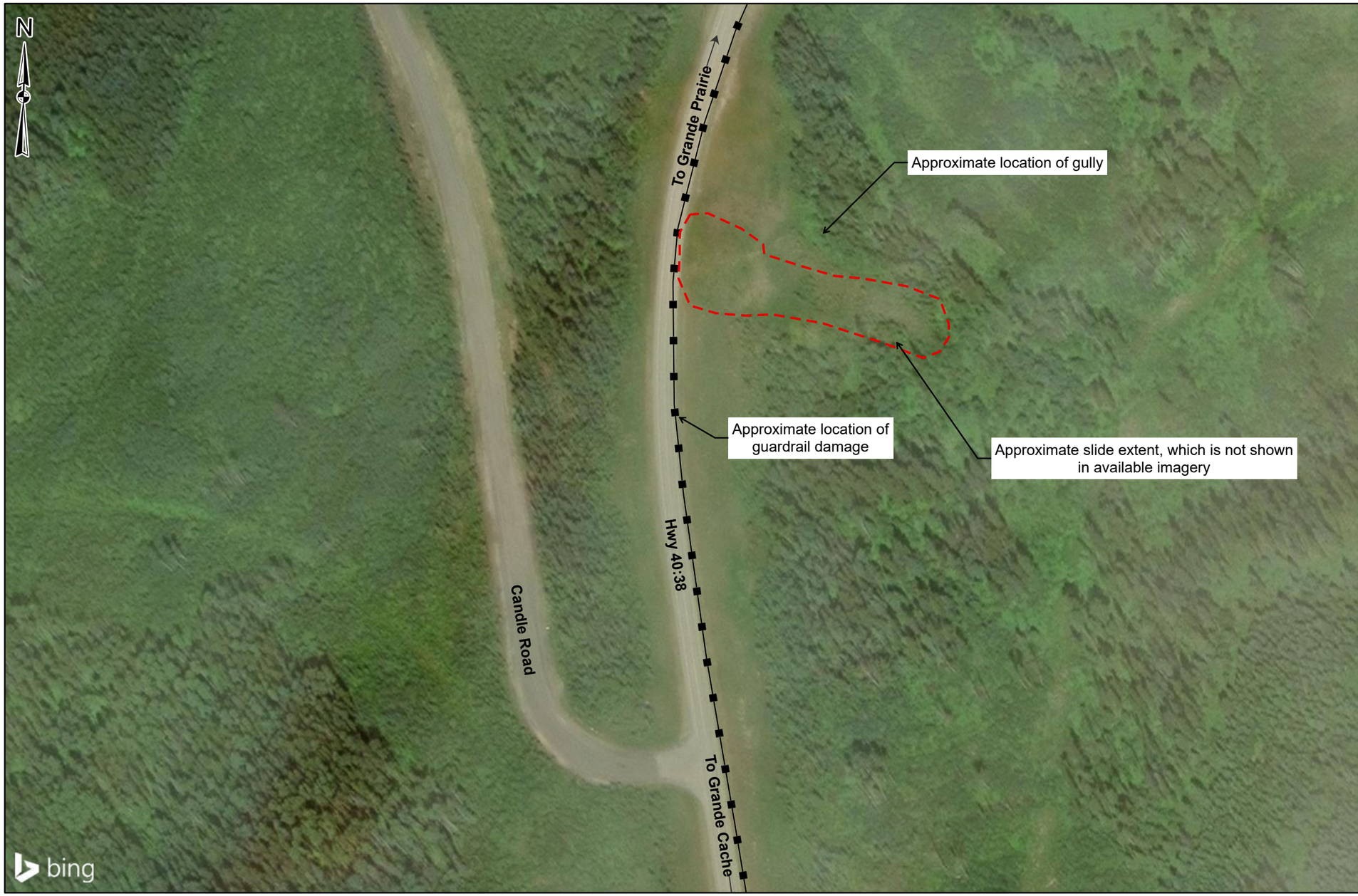
PERMIT TO PRACTICE
KLOHN CRIPPEN BERGER LTD.

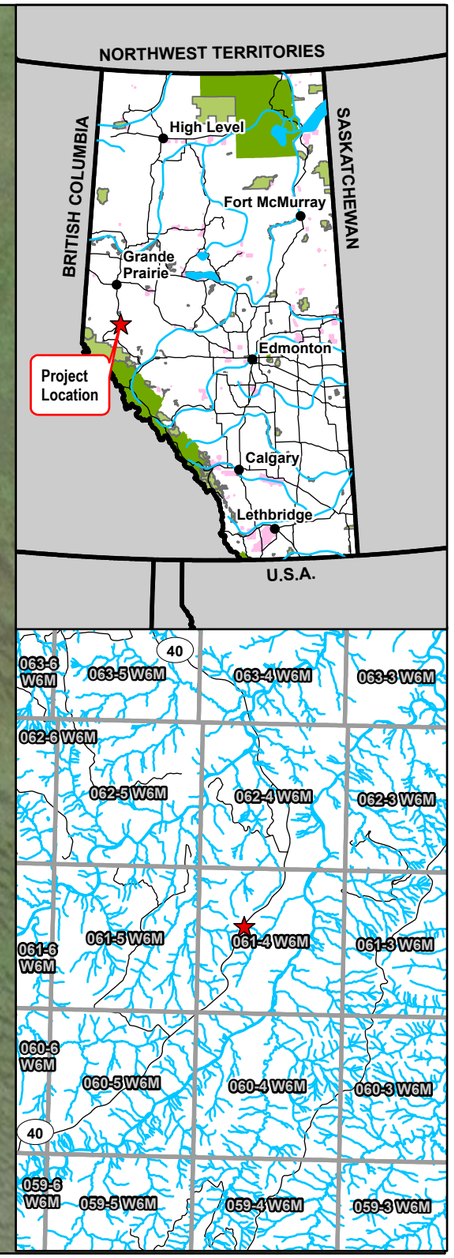
RM SIGNATURE: _____

RM APEGA ID #: 187607

DATE: 15 Oct. 2025

PERMIT NUMBER: P009196
The Association of Professional Engineers and Geoscientists of Alberta (APEGA)





Legend

- Slide Extent
- Guardrail

0 100 Metres

NOTES:
1. HORIZONTAL DATUM: NAD83
2. GRID ZONE: UTM ZONE 11N
3. IMAGE SOURCE: 2025 MICROSOFT CORPORATION 2025 MAXAR CNES, DISTRIBUTION AIRBUS DS
4. INSTRUMENTS INOPERABLE PRIOR TO 2021 NOT SHOWN.

CLIENT: Alberta

Klohn Crippen Berger

PROJECT: PEACE REGION (GRANDE PRAIRIE DISTRICT-SOUTH) GEOHAZARD RISK MANAGEMENT PROGRAM

TITLE: Site Plan
GP002 - Candle Road Slide
Hwy 40:38 km, 7.457

SCALE	PROJECT No.	FIG No.
1:2,000	A05116A01	1

File: Z:\AEDM\A05116A01 ABT Grande Prairie South GRMP\400 Drawings\GIS\MXD\2025\Section B\GIS\1\ABT_GPSouth_SectionB_250703.aprx Date: Time: Creator: : HManandyan

Inspection Photographs

Photo 1 **Slide backscarp on east side of Hwy 40:38. Photo taken June 3, 2025, facing north.**

Photo 2 **Slide backscarp on east side of Hwy 40:38. Photo taken June 3, 2025, facing south.**

Photo 3 **Looking up across top slide area from north/left flank. Photo taken June 3, 2025, facing southwest.**

Photo 4 **Looking down across middle slide area from north/left flank. Photo taken June 3, 2025, facing southeast.**

Photo 5 **Looking across middle of slide from north/left flank. Photo taken June 3, 2025, facing south.**

Photo 6 **Looking down across lower slide area from middle of slide. Photo taken June 3, 2025, facing southwest.**

Photo 7 **Gully near north side of slide. Photo taken June 3, 2025, facing north.**

Photo 8 **Section of guardrail damaged south of site. Photo taken June 3, 2025, facing north.**