

**ALBERTA TRANSPORTATION
GEOHAZARD ASSESSMENT PROGRAM
PEACE REGION – HIGH LEVEL
2020 CALLOUT**



Site Number	Location	Name	Hwy	km
PH011-3	North of Town of Peace River	Whitemud River (km 42.8)	743:02	42.8
Legal Description		UTM Co-ordinates		
SW01-88-21-W5		11V N 6272586	E 487326	

	Date	PF	CF	Total RISK LEVEL
Previous Inspection:				
Current Inspection:	4-August-2020	10	6	60
Road AADT:	110	Year:	2019	
Inspected By:	Ed Szmata, TRANS		Don Proudfoot, Thurber	
Report Attachments:	<input checked="" type="checkbox"/> Photographs <input checked="" type="checkbox"/> Plans <input type="checkbox"/> Maintenance Items			

Primary Site Issue:	A landslide scarp has developed in the surface of a two laned gravelled road.		
Dimensions:	100 m wide along the shoulder, approx. 400 m wide at the creek and 170 m long from the highway to the creek.		
Date of any remediation:			
Maintenance:	Highway officially closed on July 13, 2020 due to landslide movements at other sites.	Worsened?	
Observations:	Description	Yes	No
<input checked="" type="checkbox"/> Pavement Distress	Cracks crossing both lanes and dip in gravel road surface.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> Slope Movement	Cracks and dip across roadway indicate slope movement. LiDAR indicates historical scarps on slope above and below roadway.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Erosion		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Seepage		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Culvert Distress		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Other		<input type="checkbox"/>	<input type="checkbox"/>
Instrumentation:	None.		

Assessment:

The slide at PH011-3 was first noticed during a callout inspection of other sites on Hwy 743 on August 4, 2020.

The site is located on Highway 743:02 on a sidehill alignment ascending the valley slope of a tributary to the Whitemud River. LiDAR provided by Alberta Transportation (Figure 1) shows that the valley slope has been affected by historic landslide movements. It is considered that recent higher groundwater levels have re-activated a large slide block which is now affecting about 100 m of the road surface. At the centre of the disturbance the highway is located about 25 m above the creek. The valley slope surface, as shown by the cross-section on Dwg. No.13351-PH011-3, is hummocky, indicating the presence of several retrogressive slide blocks between the creek and the road.

Recommendations:**Landslide Movements:**

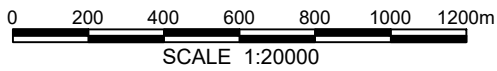
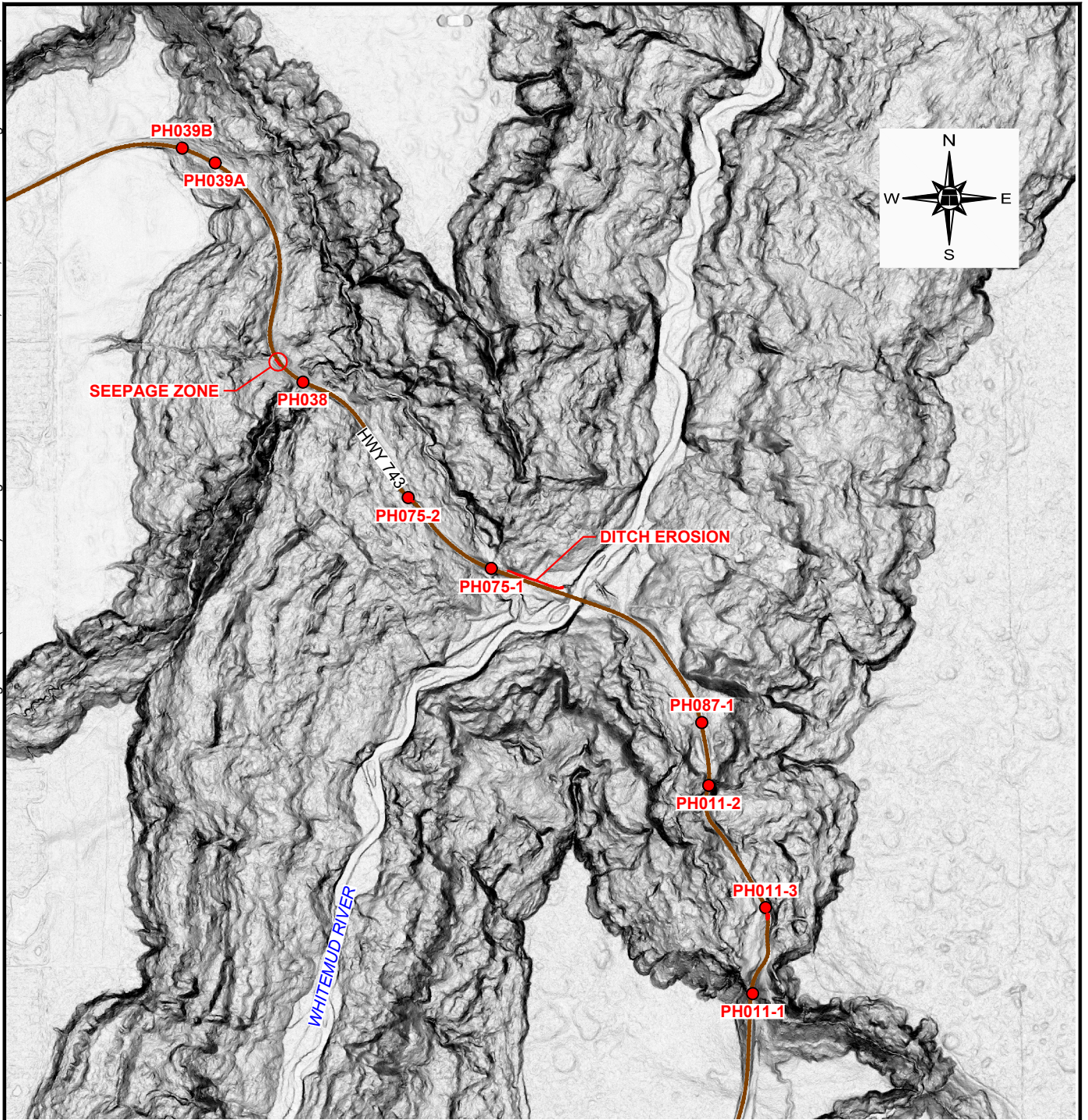
The most practical solutions available at the PH075-2 landslide site involve monitoring, improving drainage and re-aligning the highway away from the current slide cracks.

Short-Term (<3 months):

- The cracks and slumping at this site are still limited in extent such that the road can still be used at this location with care and at slow speeds. Slide warning signs and a 30 km/hr speed limit are recommended. Frequent visits by the AT Maintenance Contractor are also recommended to ensure that the roadway remains safe for the travelling public as this slide could continue to move and further damage the road, especially following heavy periods of precipitation and the coming spring thaw when groundwater levels could be higher.

Medium-Term:

- A vertical realignment of the roadway through the slide could be carried out if the road condition worsens. The reprofiling could lower the road a few meters through the slide zone by taking out the hump in the road profile starting from south of the site. The slide area itself could be further unloaded by subexcavating some of the soil and replacing it with EPS light weight fill. A subdrain could also be installed along the upslope side of the road to locally lower the groundwater and the shoulder of the road in the slide zone could be cut down to take a bit of the weight of the slide block.



2008 LIDAR PROVIDED BY ALBERTA TRANSPORTATION

PEACE REGION (PEACE RIVER / HIGH LEVEL)

HWY 743 KEY MAP

FIGURE 1



DRAWN BY	KLW
DESIGNED BY	KEF
APPROVED BY	DWP
SCALE	1:20000
DATE	DECEMBER 2020
FILE No.	13351



THURBER ENGINEERING LTD.



Photo 1 – Looking north at landslide site.



Photo 2 – Scarp crack crossing road



Photo 3 – Looking north along backscarp crack.



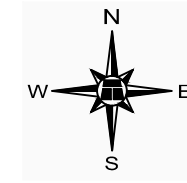
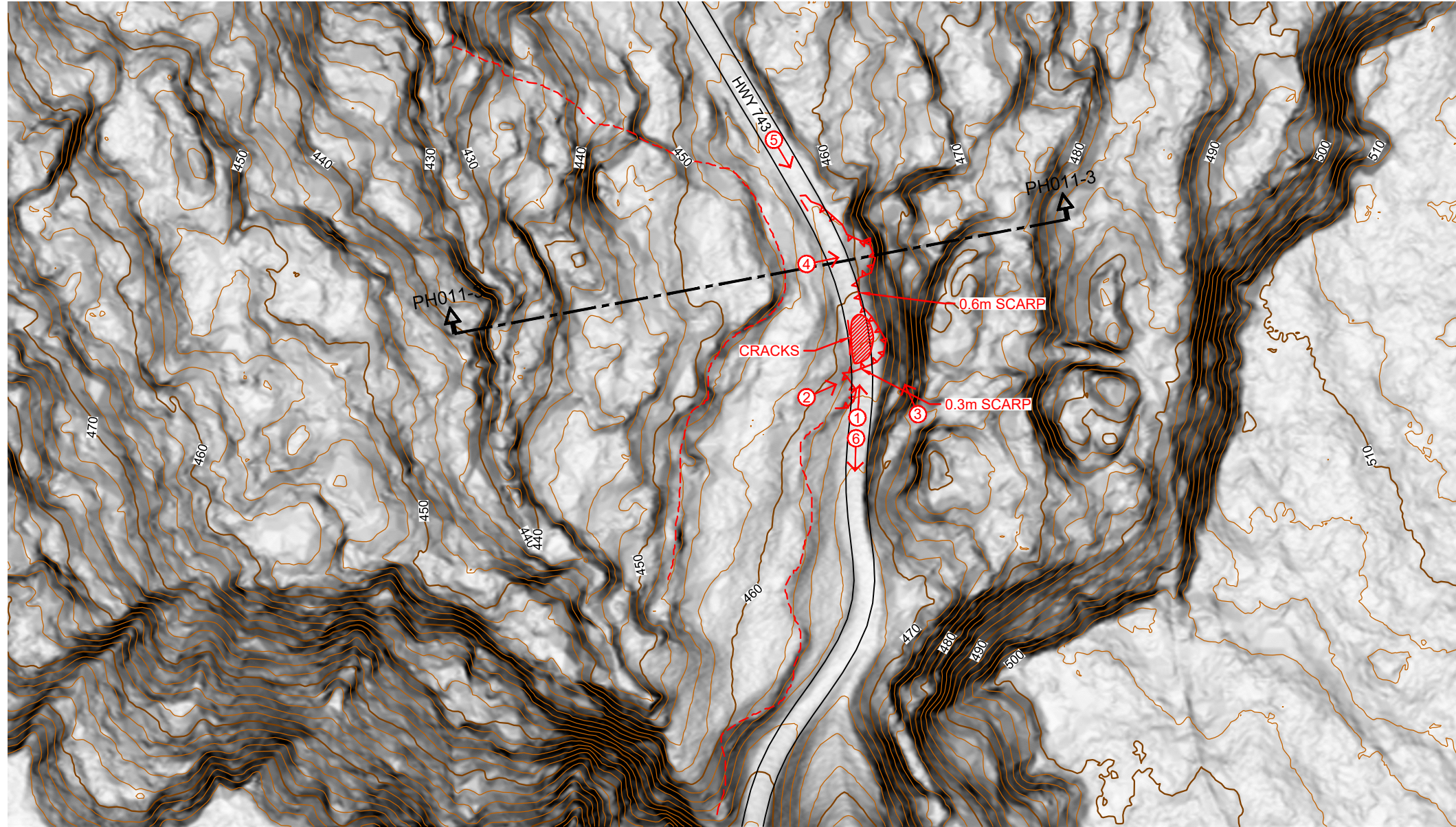
Photo 4 – Backscarp of slide



Photo 5 – Looking south toward the landslide.

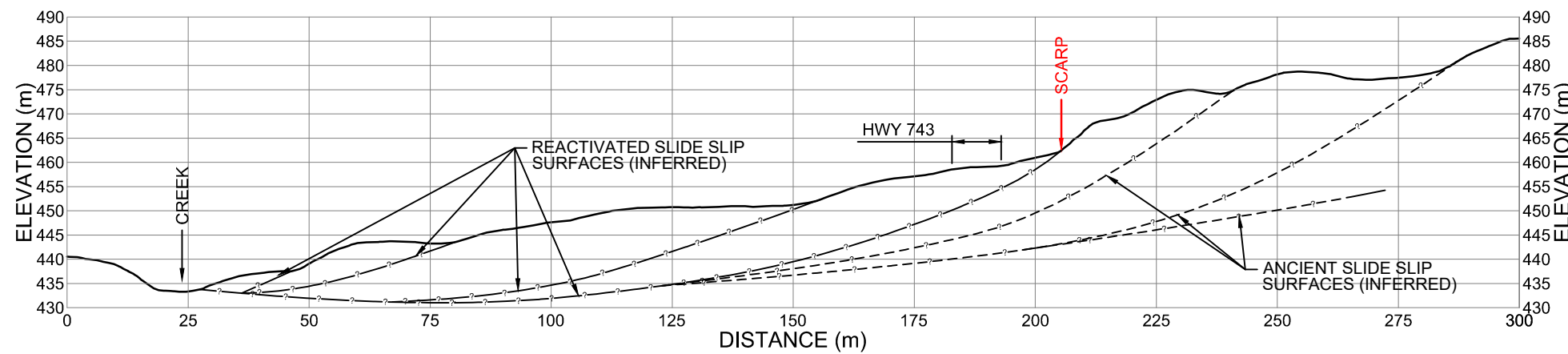
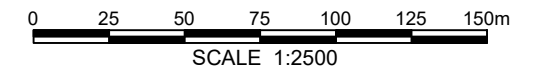


Photo 6 – Looking south at hump in road profile south of the site.



LEGEND

- ▼▼▼▼ ACTIVE LANDSLIDE SCARP
- - - - ANCIENT LANDSLIDE SCARP
- ▨ DIP IN ROAD SURFACE
- ① PHOTOGRAPH NUMBER AND DIRECTION



SECTION
SCALE 1:1250

LIDAR PROVIDED BY ALBERTA TRANSPORTATION



PEACE REGION (PEACE RIVER/HIGH LEVEL AREA)

PH011-3 AUGUST 4, 2020 CALL OUT PLAN

DWG No. 13351-PH011-3

DRAWN BY	KLW
DESIGNED BY	DWP
APPROVED BY	DWP
SCALE	1:2500
DATE	DECEMBER 2020
FILE No.	13351

