

GEOHAZARD ASSESSMENT PROGRAM

PEACE RIVER / HIGH LEVEL AREA

2012 INSPECTION



Site Number	Location	Name	Hwy	km
PH47	West of Deadwood, AB	Deadwood Slide	690:02	Approx. 2.2
Legal Description		UTM Co-ordinates		
SW1/4 28-89-23-W5M		11V N 6289120	E 462789	

	Date	PF	CF	Total
Previous Inspection:	August 2, 2011	14	3	42
Current Inspection:	June 28, 2012	14	3	42
Road AADT:	80	Year:		2011
Inspected By:	(Don Proudfoot , Thurber Engineering) (Roger Skirrow and Ed Szmata, Alberta Transportation)			
Report Attachments:	<input checked="" type="checkbox"/> Photographs <input checked="" type="checkbox"/> Plans <input type="checkbox"/> Maintenance Items			

Primary Site Issue:	Slope movement affecting highway		
Dimensions:	See drawing		
Date of any remediation:	None in the last year		
Maintenance:	ACP patch (Fall 2011)		Worsened?
Observations	Description	Yes	No
<input checked="" type="checkbox"/> Pavement Distress	Crack widening and vertical drop in asphalt pavement.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> Slope Movement	Slow creep movement causing cracks in pavement	<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 checked="" type="checkbox"/> Bridge/Culvert Distress	Coupling near centreline culvert has separated creating sinkholes	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Other		<input type="checkbox"/>	<input type="checkbox"/>

Instrumentation:

As per spring 2012 SI readings, slope inclinometers SI 10-1 and -2 have sheared at 10.7 m and 6.4 m depths, respectively, since the last readings on November 4, 2011 by Hoggan.

Assessment (Refer to Figure PH47-1):

- The slope failure appears to be the result of toe erosion caused by the creek located immediately south of the highway leading to over-steeping of the slope. It is expected that, if left untreated, slow creep movements will continue.
- The road pavement was patched in the fall of 2011
- Pavement cracks of up to about 60 mm wide and vertical drops of about 20 mm were noticed. These cracks were developed after the patch work in the fall of 2011.

Recommendations:

Three options have been identified as possible long term solutions.

The first option would involve the installation of a 1500 mm diameter CSP culvert along the toe of the slide, which would prevent further creek erosion of the toe of the slope. In addition to the culvert installation, a toe berm would be constructed and the slide mass re-graded to a flatter uniform slope in order to re-establish slope stability. A DFO authorization would be required to carry out this option.

The second solution would be based on the use of a pile wall to stabilize the highway side slope. Drilled, reinforced concrete piles would likely be needed to stabilize the slide. As the slide appears to be greater than 5 m to 6 m deep, tie-back anchors might also be needed.

The third option would include either partial or full excavation of the slide mass, construction of a deep shear key, and reconstruction of the highway sideslope. This option would also involve the lining of the creek bed with riprap in order to prevent further toe erosion.