THURBER ENGINEERING LTD.

ALBERTA TRANSPORTATION GEOHAZARD ASSESSMENT PROGRAM
PEACE REGION – PEACE-HIGH LEVEL
2009 INSPECTION

Site Number	Location	Name	Hwy	km
PH12	Judah Hill	Heart River Slides	744:04	57.30
Legal Description		**UTM Co-ordinates**		
SE¼ 20-083-21 W5M		11V E 483284	N 6229209	

	Date	PF	CF	Total
Previous Inspection:	02-Jun-2008	9	2	18
Current Inspection:	26-May-2009	10	2	20
Road AADT:	2250		**Year:**	2007
Inspected By:	Simon Cullum-Kenyon Roger Skirrow Neil Kjelland		Don Proudfoot Ed Szmata	
Report Attachments:	☑ Photographs ☑ Plans		☐ Maintenance Items	

Primary Site Issue:	Four slides on the east side of Hwy 744, adjacent to a layby. Slide 1 was repaired in March 1998. Slides 2 and 4 are most active, with backscarps now 2.4 m and 3.3 m from the guardrail, respectively.	
Dimensions:	Slide 1: 45 m wide Slide 2: 25 m wide, backscarp is 2.4 m from guardrail Slide 3: 20 m wide, backscarp is 6.5 m from guardrail Slide 4: 15 m wide, backscarp is 3.3 m from guardrail	
Maintenance:	No maintenance activity since 2008.	
Observations:	**Description**	**Worsened?**
☐ Pavement Distress		☐
☑ Slope Movement	Backscarps of Slide 2 (Photos 3 and 4) and Slide 4 (Photo 6) have retrogressed. There is erosion on the south flank of Slide 2, caused by drainage from the ditch. The vertical offset on the incipient scarp between Slides 2 and 3 has increased (Photo 3). There has been significant movement of debris in the bowl of Slide 4 (Photo 7). PF increased to 10 from 9 to reflect retrogression of slides.	☑
☐ Erosion		☐
☐ Seepage		☐

☐ Bridge/Culvert Distress		☐
☐ Other		☐

Instrumentation:

No instrumentation installed at this site.

Assessment:

Surface water drainage in the ditch appears to be driving retrogression of the slides that have not been repaired. The repairs at slide 1 continue to perform well. Slides 2, 3 and 4 are expected to continue to expand laterally and retrogress back towards the road. The incipient failure between slides 2 and 3 (Photo 3) is expected to cause these slides to coalesce in the future. Slide 4 appears to be most active over the last few years, though slide 2 has also shown significant movement. All the slides are sufficiently far away from the active road lanes that there are no immediate concerns.

Recommendations:	**Cost**
Repair slides 2 and 4 using similar method as slide 1 (drain to the toe of the slope, gravel fill buttress). Alternate stabilisation methods could include a pile wall, micro-pile supported retaining wall and smaller gravel buttress.	$ 220,000 or higher for alternates
Install French drain along ditch to capture drainage and direct it down slope in a controlled manner (to prevent further slide retrogression).	$ 45,000