


**CENTRAL REGION
GEOHAZARDS RISK ASSESMENT
SITE INSPECTION FORM**

SITE NUMBER AND NAME C29 Meridian Pit		HIGHWAY & KM	PREVIOUS INSPECTION DATE July 18, 2003	INSPECTION DATE May 19, 2004
LEGAL DESCRIPTION NE/SE26-53-01-W4	NAD 83 COORDINATES N 5939566 E 565036		RISK ASSESMENT PF: 9 CF: 2 TOTAL: 18	

SUMMARY OF SITE INSTRUMENTATION: Inclinometers adjacent to gabion structure LAST READING DATE: Recent (by Sask Highways)	INSPECTED BY: 
PRIMARY SITE ISSUE: Unsafe embankment (removed Fall 2003), channel erosion, damage to gabion structure	
APPROXIMATE DIMENSIONS:	
DATE OF ANY REMEDIAL ACTION:	

ITEM	CONDITION EXISTS		DESCRIPTION AND LOCATION	NOTICABLE CHANGE FROM LAST INSPECTION	
	YES	NO		YES	NO
Pavement Distress					
Slope Movement					
Erosion	X		No significant changes were observed from the previous inspection		X
Seepage					
Culvert Distress					
Frost Heave					

COMMENTS
Refer to previous reports and attached photos
The unsafe embankment was removed in the fall of 2003. Approval for site remediation was obtained from DFO. It is understood that AT will undertake the re-grading and restoration of the area. The channel downstream will be left to re-vegetate naturally.
It is recommended that the downstream end of the gabion chute and stilling basin area be repaired.

1. SITE C29 H17:08 GABION STRUCTURE REPAIR

1.1 Background

The project site is located about 0.8 km east of Highway 17 and south of the North Saskatchewan River. To enable gravel to be hauled from the pit with a short haul to Highway 17, an earthfill embankment was constructed across a creek to the west of the pit. The fill effectively dammed the creek and provided a source of water for the cattle farmer. A nominal 600 mm diameter culvert was provided just below the crest to act as an overflow. No engineering design was performed for the structure.

In late June 2003, a significant rainfall event occurred in the area, with about 150 mm of rain falling in about 4 hours. The result of this was the overtopping and destruction of the haul road “dam” with a significant release of water downstream. The embankment was subsequently rebuilt by the farmer, but was removed in the fall of 2003 at the request of Alberta Transportation. It is understood that Alberta Transportation will undertake the necessary re-grading and remediation of the embankment area.

A high degree of erosion was observed in the channel downstream of the “dam”, however no remedial work is proposed for this section and it is to be left to re-vegetate naturally.

About 1000 m downstream of the “dam”, the natural creek flows into a man-made channel about 10 m wide. It is understood that this channel was constructed as part of the Highway 17 construction and the area between the end of the natural channel and the pump station access road is a fill disposal area. The constructed channel flows into a gabion drop structure before passing under the access road via a 1.8 m diameter culvert and subsequently flowing into the North Saskatchewan River. It was apparent that some flow went around the gabion structure and rejoined the main flow at the plunge pool. Geotechnical instrumentation was observed along the gabion drop structure.

At the end of the gabion structure, a plunge pool has formed and the end of the gabion structure has been damaged. It is recommended that the end of the structure be repaired and the plunge pool area remediated.

1.2 2004 Scope of Work and Cost Estimate

Based on the site observations and measurements, a design (including drawings and Terms of Reference) will be prepared indicating the general repair work to be undertaken. It is understood that the technical monitoring and field supervision of the construction to field fit the design to the structure will be undertaken by others.

For budgeting purposes, we have estimated the costs based on the scope of work and provided a summary of man-hour and cost estimates in Table 1. As shown in Table 1, the total estimated cost is \$4,680 exclusive of GST.

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Table 1 Cost Estimate for Site C29 Design

Task	Description	Fees (\$)	Expenses (\$)	Total (\$)
1	Design & Reporting	3860	-	3860
2	Construction Support	520	300	820
		4380	300	4680





Looking upstream



Gabion drop structure













Slope inclinometer (recently painted and assumed read)











Deposition fan in North Saskatchewan River