

**BRIEF FILE REVIEW
(LANDSLIDE RISK ASSESSMENT)**

1)	Site (GP8a)	Hwy 40:36 Sideslope movement S. of McIntyre Mine
2)	Reference Location along Highway:	Hwy 40:36 approximately 0.5 km S ^N of McIntyre Mine
3)	Legal Description:	SW Section 15, Twp 58, Rge 8, W6M
4)	UTM Coordinate:	Northing 5990131.990 Easting -268557.402
5)	AI File:	N/A

6) **Alberta Infrastructure Plan and Profile**
N/A

7) **General Description of Instability**

The slide was located approximately 500 m S. of McIntyre Mine along a sidehill fill construction which was located close to the lower mountain slope of the Smoky River Valley wall. Cracking and minor settlement of pavement progressed to cross the centreline. From observation in June 1999, the backslope is a 5 to 6 m cut in shale rock material; the sideslope was probably constructed of sidehill fill approximately 40 to 50 m high at 2H:1V to 2.5H:1V slope, above an apparent coal tailing pond which was located along the Smoky River floodplain at the slope bottom. It was possible that the coal tailing pond was constructed in earlier times along the wet soft grounds of the floodplain. Some undulation of the slope face can be observed at a location close to the toe area. It is uncertain whether the slope was a sidehill fill constructed in 1985 during the Hwy 40 grading works or it was formed from part of the original mining bench construction with the use of waste mining rock. The Smoky River flows at approximately 500 m away from the toe of the slope with a railway spur line constructed along the river flat between the highway and the river.

As the slope is quite steep, equipment access to the proposed slope instrumentation locations will require bench construction by dozer.

8) **Date of Initial Observation**

- June 1999 (1999 Slide Tour)

9) **Date of Last Inspection**

- June 1999 (1999 Slide Tour)

10) **Instrument Installed**

- None

11) **Instrument Operational**

- N/A

12) **Risk Assessment**

$$PF (5) * CF (4) = 20$$

$$PF = 5$$

- Road probably built with mining rock waste material along sidehill rock cut and sidehill fill constructed over soft coal tailings storage area as part of the mining process in earlier times along the river flats.
- Footprint toe of slope probably founded on coal tailings and soft flood plain deposits.
- Steep fill slope and soft foundation at slope toe probably contributed to road settlement and slope movement.
- Movement rate considered moderate; should be assessed by slope indicator instrumentation in the future.

CF = 4

- Slide movement (if catastrophic) will force closure of road; however, this scenario is considered unlikely in the short term.
- Highway is the only link between Grande Cache and Grande Prairie.

Note:

This Risk Assessment rating is based on the Scheme proposed by AI in the Request for Proposal (2000).

Probability Factor (PF) : 1 to 20 scale

Consequence Factor (CF) : 1 to 10 scale

13) **Geotechnical Conditions**

- This site is a sidehill fill embankment located along the lower slope of the Smoky River Valley. It is possible that the road was constructed of waste rock fill over the tailings pond. The Little Smoky River Valley is located on steeply sloping and mountainous topography in the foothills and eastern flank of the Rocky Mountains. The surficial (overburden) deposits in the general area include glacial till, gravel, and in places weathered bedrock. The glacial till can comprise sandy to stoney clay; close to river areas, glacial outwash material of sand/silt and gravel can be located. Part of the surficial deposits can be of colluvial origin.
- The bedrock generally consists of Cretaceous bedrock of the Brazeau Formation of sandstone; shale; conglomerate; minor coal and ash beds.
- The bedrock stratigraphy could be affected by faulting and folding due to past tectonic activities in the Rocky Mountain area.
- Groundwater flow can be along the interface between soil overburden and bedrock and/or along permeable bedrock zones toward the Smoky River along the river valley topography.

14) **Chronology**

Historical setting:

- Drilling and instrumentation was recommended by EBA in June 1999 and approved by AI in March 2000.
- However, pavement overlay was carried out in June 2000 at the affected area to cover up the settlement and cracking area. It was decided (during the 2000 June slide tour) to postpone the drilling and instrumentation until cracking/settlement re-appear and the affected area can be clearly identified.

15) **Action**

- Delay instrumentation installation at this site until the old crack and settlement area can be identified when it reflects through the overlay (constructed in 2000) in the future.
- AI maintenance forces should inform EBA of recurrence of cracking and settlement so that instrumentation can be planned at the distress area.

END