

### Site 31 – Lineham Ridge Creek II

This site consists of a creek crossing the highway along the southwest flank of Lineham Ridge. This creek channel was flagged as possibly having debris flow potential during the airphoto review.

The creek crossing at the highway was inspected on August 19, 2005. The following issues were noted:

- There appeared to have been a shallow slide in the highway sideslope around the culvert inlet earlier in 2005. At the time of the inspection, the culvert inlet was clear and it appeared that the debris from the shallow slide had been cleaned out by the maintenance contractor (Photo 1). This slide is unrelated to any debris flow hazard along this creek channel.
- The creek channel immediately above the culvert inlet did not show any significant erosion. The segment of the channel on the natural slope face above the crest of the cut slope along the road was subtle and very poorly defined. There was no permanently incised channel nor were there any levees of debris deposited by creek flow.
- There was a shallow slump in the cut slope above the road approximately 10 m west of the culvert inlet (Photo 2). The debris from this slump was blocking the ditch.
- The culvert outlet was plugged with soil and rock debris. At the time of the inspection there was grass growing in the soil debris at the outlet. It was not clear if this debris had been deposited earlier in 2005 or had been in place for longer.

The heavy rainfall events in this area during June 2005 do not appear to have caused any significant erosion or debris deposition along the creek channel both above and below the highway. It is judged that the shallow slide around the culvert inlet as well as the slump along the ditch to the west of the culvert inlet were triggered by saturation of the near-surface soils in these areas during these heavy rainfall events. The shallow slide and slumping appear to have had negligible impacts on the highway.

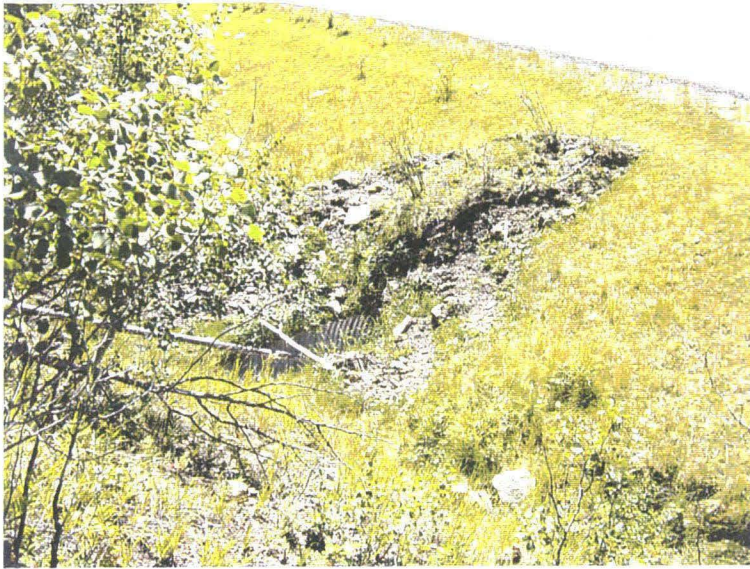
AMEC recommends the following Risk Level factors for this site using the debris flow frequency-severity matrix:

- Probability Factor of 1 based on the appearance of the creek channel. It is judged that the probability of a debris flow along this channel is very low.
- Consequence Factor of 4 because if a debris flow occurred along this channel, the existing culvert and ditch would not be sufficient to contain and convey the

debris below the road and partial closure of the road for debris clearing would likely be required.

Therefore, the recommended Risk Level for this site is 4.

It is recommended that the slump debris in the upslope ditch west of the culvert be cleared in order to restore the ditch gradient.



**Photo 1** (top) – Culvert inlet adjacent to the westbound lane of the highway. There appeared to have been a shallow slide in the sideslope around the culvert inlet earlier in 2005.



**Photo 2** (bottom) – Shallow slump in the cut slope above the highway, approximately 10 m northwest of the culvert inlet. The debris from this slump was contained within the ditch.