

Site 28 – Lipsett Ridge Rock Cut

This site consists of a rock cut slope along the northeast side of the highway between the Storm Creek and Mist Creek crossings. The cut slope is near-vertical with an estimated maximum height of 10 m. There is a warning sign (“Watch For Fallen Rock”) posted for northbound traffic approaching this site.

The bedrock exposed in the cut slope consists of bedded shale and coal. The bedding dips steeply down towards the west. The dip direction is oblique to the orientation of the highway, i.e. slightly adverse from a slope stability perspective.

There was an accumulation of rockfall debris in the ditch at the time of the inspection in September 2005. The debris consisted of particles ranging from gravel to boulder sizes. The majority of the debris had accumulated along the toe of the cut slope, although in some locations boulder-sized particles had rolled along the debris that had accumulated below weak coal beds exposed in the cut slope and been deposited within 1.5 m of the edge of the pavement. The pavement along the northeast shoulder of the highway did not show any signs of damage from past rockfall.

The width of the ditch at the toe of the slope varies, with a minimum of approximately 6 m. The depth of the ditch was approximately 1.5 m. The ditch sizing criteria shown on Figure B1 in Appendix B indicate that for a near-vertical slope with a maximum height of 10 m, the ditch should be at least 4.9 m wide and 1.3 m deep. Therefore, the existing ditch meets these criteria.

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

- Probability Factor of 15 based on visual evidence of ongoing rockfalls occurring along this cut slope.
- Consequence Factor of 1 based on no visual evidence of past rockfalls reaching the paved surface of the road.

Therefore, the recommended Risk Level for this site is 15.

The Consequence Factor of 1 is contingent on the ditch being cleaned as required to maintain its capacity to hold rockfall debris. It is recommended that cleaning of the rockfall debris from the ditch be treated as an ongoing maintenance issue.

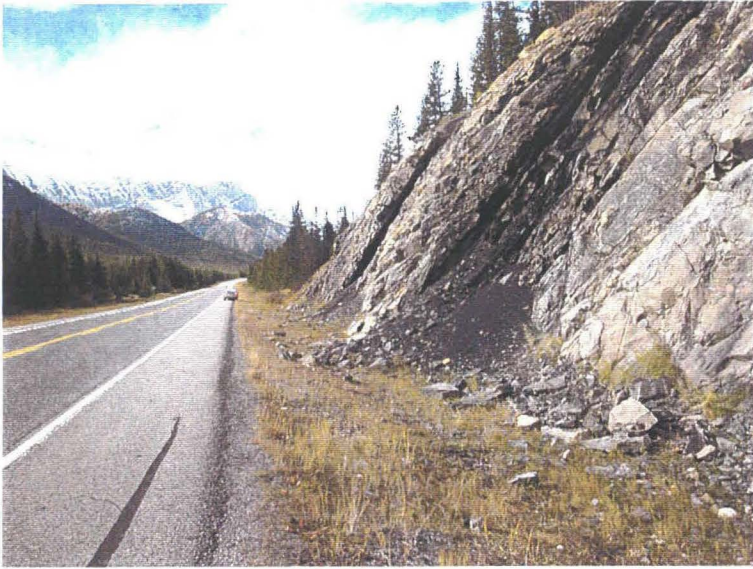


Photo 1 (top) – Facing northwest across the Lipsett Ridge rock cut site. The bedrock exposed in the cut slope consists of bedded shale and coal that is steeply dipping down to the west. The rockfall debris from this cut slope ranges from gravel to boulder sizes. The rockfall debris typically accumulates at the toe of the cut slope, however there were a few locations where boulder-sized particles had rolled to within 1.5 m of the edge of the pavement.

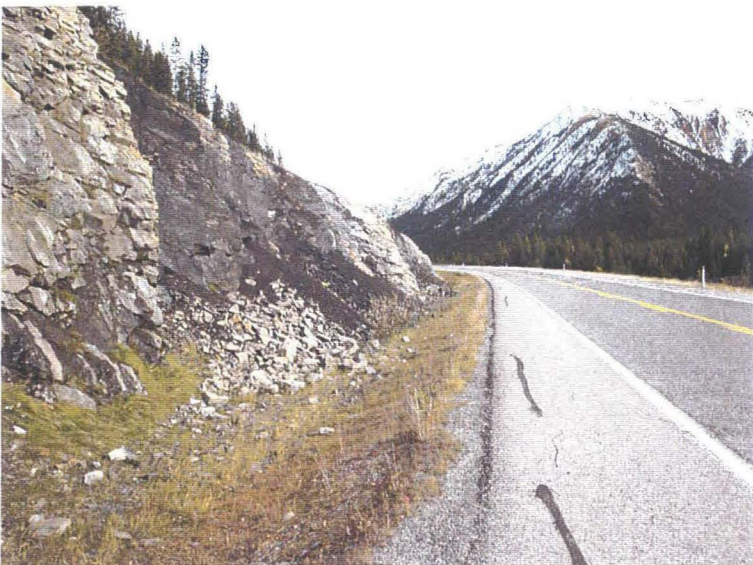


Photo 2 (bottom) – Facing southeast across the Lipsett Ridge rock cut site. The amount of rockfall debris observed in the ditch was relatively minor, however the ditch should be cleaned in order to restore its full capacity and reduce the hazard of rockfall debris rolling onto the pavement.