

Highway 742 – Rummel Creek Cut Slope (South)

This site is located a short distance southbound of the highway crossing of Rummel Creek, approximately 35 km southbound from the junction between Highway 742 and Three Sisters Parkway in Canmore, AB and roughly 30 km northbound from the junction between Highway 40 and Highway 742 near Lower Kananaskis Lake. The site location is shown on Figures A1 and A3 in Appendix A. The site coordinates are listed in Table A1 in Appendix A.

The site inspection was performed on October 18, 2008 by Mr. Andrew Bidwell, P.Eng. of AMEC.

Background

AMEC is not aware of any previously reported problems at this site.

A general description of the physical setting and conditions around this site is presented in Section 4.2 of this report.

Site Observations

- There is a pre-split rock cut slope along the east side of the highway at this site. The cut slope is typically 6 to 8 m high at 60 to 80° inclination. Photo 742-52 shows the cut slope.
- The east road ditch along the toe of the cut slope is approximately 3 m wide and typically ranges from approximately 0.8 to 1 m deep. The ditch is grassed with a few small trees growing in it. Photo 742-53 shows the east ditch.
- The rock exposed in the cut slope is bedded with a strike of 330 and dip of 50° down to the east. The bearing of the road at this site is approximately 005. The rock structure is favorable relative to the west facing cut slope because the bedding dips down into the cut slope.
- At the time of the site inspection, there were some fresh rockfalls of cobble-sized rocks that had broken off from cross-bedding joints exposed in the cut slope face. Photo 742-53 shows the minor amount of debris accumulation in the ditch.
- There is a “Watch For Falling Rock” sign posted for northbound traffic at this site.

Assessment

The rockfall catch ditch design chart shown on Figure C1 in Appendix C suggests a ditch approximately 4 m wide by 1.3 m deep for a cut slope of this height and inclination. The existing 3 m wide and up to 1 m deep ditch does not meet these criteria. However, based on the observations from the October 2008 site inspection there is relatively little rockfall volume into the ditch and little, if any, of the rockfall appears to bounce or roll onto the road.

Risk Level

The recommended Risk Level for this site, based on AT's rock fall geohazard risk matrix, is as follows:

- Probability Factor of 13 to reflect the active rockfall conditions with several rock falls occurring each year.
- Consequence Factor of 1 based on the apparent ability of the existing ditch to contain the rock fall debris.

Therefore, the recommended Risk Level for this site is 13.

Recommendations

The accumulated rock fall debris should be cleaned from the ditch as necessary to keep the ditch near maximum capacity. This should be done as part of the regular maintenance program for the highway.

No other work or additional mitigative measures are recommended at this time.

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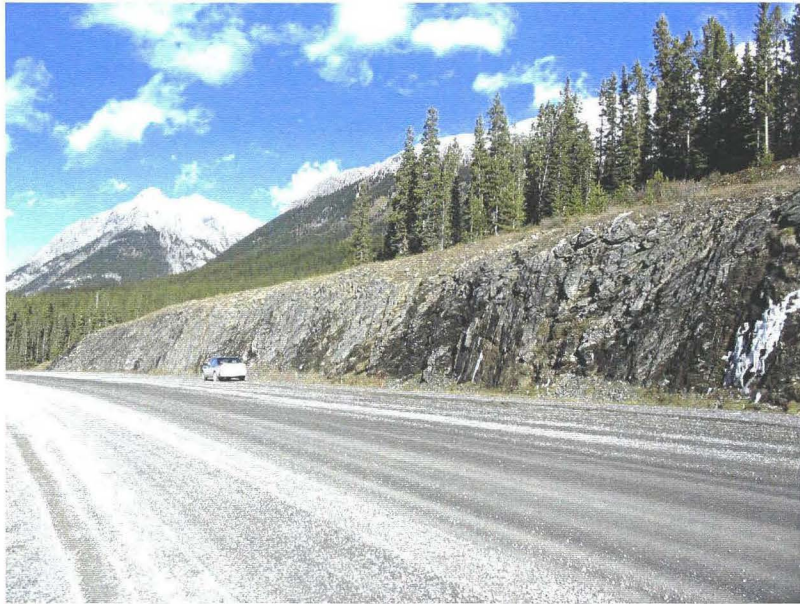


Photo 742-52 (top) – Typical view of the cut slope a short distance southbound of the Rummel Creek crossing.

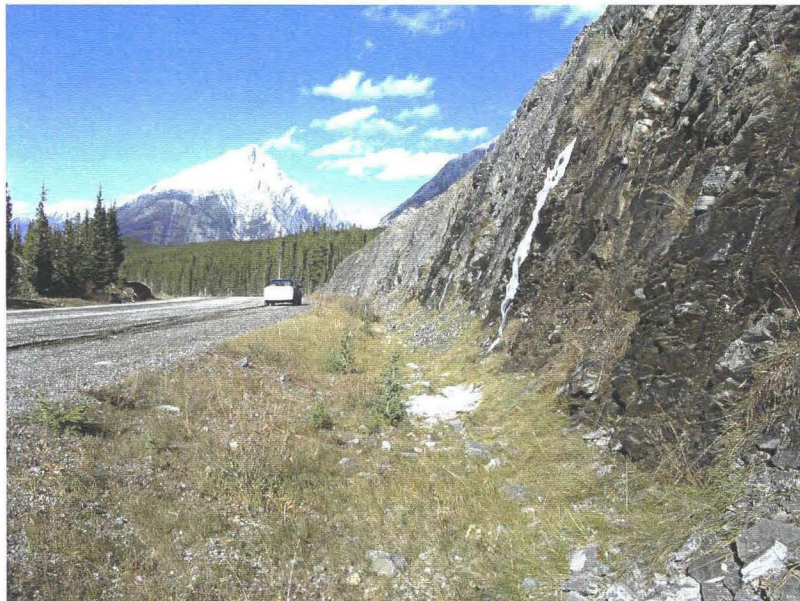


Photo 742-53 (bottom) – Facing northbound along the east road ditch.