

Site 17 – Ripple Rock Creek

The Ripple Rock Creek crossing is located approximately 4 km south of the Fortress Junction service station. The culvert at this crossing is a multiplate culvert with a diameter of greater than 2 m.

The airphotos of this site show that the headwaters of Ripple Rock Creek are on the south slopes of Mount Evan-Thomas. The gradient of the creek channel above the highway is approximately 13°. There are a number of open colluvium slopes and avalanche tracks above the creek channel and therefore it is likely that debris is being transported down into the creek channel. However, as shown in Photos 1 and 2, at the time of the site inspection in October 2005 the segment of the creek channel immediately upstream of the highway was essentially clear of debris aside from a minor accumulation and gravel and cobble-sized material around the culvert inlet.

As shown on Photo 3, there is a drop-off of approximately 1 m at the culvert outlet at the west toe of the highway embankment. The channel around the culvert outlet is well-armored and the creek channel further downstream is well-incised into a natural fluvial fan further downslope, therefore it was judged that the hazard of erosion and undermining around the culvert outlet is low.

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

- Probability Factor of 3 based on the interpreted low probability of debris flow activity along this channel despite the apparent accumulation of debris in the upper portion of the creek channel.
- Consequence Factor of 1 based on the large culvert available to convey a debris flow past the road alignment and also the catchment volume around the culvert inlet and the adjacent ditch line in the event that the culvert becomes blocked.

Therefore, the recommended Risk Level for this site is 3.

No further work is recommended for this site.



Photo 1 (top) – Facing the culvert inlet at the Ripple Rock Creek crossing. The diameter of the multiplate culvert is greater than 2 m and aside from a minor accumulation of gravel and cobbles near the inlet, it was completely clear of debris.



Photo 2 (middle) – Facing downstream through the culvert at the Ripple Rock Creek crossing. Note the lack of debris along the portion of the channel immediately upstream of the culvert inlet.



Photo 3 (bottom) – Facing upstream through the culvert at the Ripple Rock Creek crossing. There was a minor drop-off at the culvert outlet, however the channel below the culvert was well-armored and no signs of erosion that could undermine the culvert outlet were noted.