

### **Site 43 – Fir Creek Crossing**

The Fir Creek crossing on Highway 541 is approximately 7 km east (as measured along the highway) from the junction between Highways 40, 541 and 940 at Highwood House. There is a large metal corrugated culvert in place to carry the creek flow beneath the highway fill embankment.

The culvert was open and clear of debris at the time of the inspection. There were no issues noted around the culvert inlet. Some erosion of the toe of the embankment fill was noted around the culvert outlet, as illustrated in Photos 1 and 1A. It did not appear that this erosion has destabilized the fill embankment to date.

AMEC recommends the following Risk Level factors for this site using AIT's general geohazard frequency-severity matrix:

- Probability Factor of 2 to reflect the very low to low probability of fill embankment instability developing under the current conditions.
- Consequence Factor of 1 to indicate that this is a maintenance issue with no immediate impact to the road.

Therefore, the recommended Risk Level for this site is 2.

As a proactive measure, it is recommended that additional rip-rap be placed around the culvert outlet to minimize further erosion of the exposed soils below the outlet.



**Photo 1** (upper left) and **Photo 1A** (enlarged view, below) – Culvert outlet at the Fir Creek crossing along Highway 541, as seen from southwest of the crossing. The exposed soils around the outlet have been eroded by culvert flow splashing down from the elevated outlet. This does not create a hazard to the stability of the road at present, however additional armoring should be placed to prevent further erosion.

