

SECTION A – FILE REVIEW

Site Location

- Both sides of Highway 40:12, approximately 32 km southbound (as measured along the highway) of the junction between Highway 40 and Highway 1 and just north of the Galatea Creek Provincial Recreation Area.
- SW-15-22-9 W5M
- UTM coordinates: Easting 628365, Northing 5636456 (NAD 83, Zone 11U).
- NTS mapsheet 82J/14

Chronological Background

Table A1 provides a chronological background of this site.

Site Geology, Hydrogeologic And Geomorphologic Setting

This site consists of a through-cut along the west toe of a mountain labelled as “The Wedge” on published topographic maps and above the Kananaskis River channel. The slopes above and below the through-cut are bedrock controlled with negligible to thin thicknesses of colluvium and glacially-derived soils at surface. The local bedrock consists of Devonian and Cambrian limestones and dolostones that have been thrust up-section over younger Cretaceous rocks. The bedrock exposed in the cut slopes at this site consists of dark grey shale to siltstone with occasional white quartz veins. The bedding of the rock has a strike of 140 to 150° and a dip angle varying between 35 and 45° down towards the southwest.

There is no hydrogeological data for this site and significant groundwater seepage has not been noted from the cut slope face during site inspections up to 2008. It is likely that rainfall and snowmelt infiltrating into the natural slopes adjacent to both of the cut slopes flows downwards towards the Kananaskis River along joints and fractures in the bedrock.

Description Of Past Site Problems

No record of reported problems since the present highway was constructed in the 1970’s. Caution signs (“Watch For Fallen Rock”) are posted for traffic approaching the site from both directions, but no information available regarding if this was done in response to a problem or as a precautionary measure only.

Description Of Past Investigations

No records have been found from AT’s archives during the documentation review for this site. The rockbolts that are installed in the east cut slope suggest that some geotechnical work was done for this site as part of the original construction of the highway.

This site was initially inspected by AMEC in June 2004 in response to a call-out request by AT and on two occasions during 2005 as part of the Highway 40 / 541 corridor

geohazard review. Since 2007, the site has also been inspected annually as part of the annual Southern Region geohazard inspection tour.

Description Of Mitigative Measures Implemented

A number of rockbolts have been installed in the east cut slope, as detailed in the previous reports attached in Sections B and G of this binder. A number of the rockbolts have visibly deteriorated since installation and in some locations the rock surrounding specific rockbolts has fractured and fallen away, leaving the shaft of the rockbolt protruding from the slope face.

The rockfall debris has been cleaned from the east highway ditch in recent years (and likely in previous years as well, but no records to quantify the timing of the cleaning or quantity of debris).

Table A1 – S18 – Galatea Rockfall – Chronological Background

Date	Description
1970's	Current highway constructed.
June 2004	<p>First inspection by AMEC in response to a call-out request by AIT.</p> <p>Recommended Risk Levels:</p> <p>East Cut Ongoing Rockfall = 36 Potential Failure Along Bedrock Structure = 42</p> <p>West Cut Risk Level = 9</p> <p>Recommendations for ditch cleaning and placement of a line of jersey barriers along the east shoulder to increase the capacity of the east ditch. Also listed options for longer term mitigative measures such as scaling of the cut slopes, installation of a free-hanging net on the east slope to direct rockfall into the ditch, follow-up site inspections, and more detailed inspection of the condition/integrity of the rockbolts.</p>
2005	<p>Site inspections by AMEC as part of the Highway 40 / 541 corridor geohazard review.</p> <p>Recommended Risk Levels: East Cut = 45 West Cut = 12</p> <p>Recommendations for ditch cleaning along with placement of jersey barriers along the east shoulder of the highway to increase the ditch capacity. Also recommended continued inspections by a geotechnical engineer, with the need for scaling or perhaps net installation assessed after further inspections.</p>
June 2007	<p>Site inspection by AMEC and AT personnel as part of the 2007 Southern Region geohazard inspection tour.</p> <p>No change to the Risk Levels or recommendations from the 2005 inspections.</p>
June 2008	<p>Annual site inspection by AT and AMEC personnel.</p> <p>No change to the Risk Levels or recommendations from the 2005 inspections.</p>