SOUTHERN REGION GRMP
SITE INSPECTION FORM

SITE NUMBER AND NAME:	HIGHWAY & KM:	PREVIOUS INSPECTION DATE:	INSPECTION DATE:
S042-I & -II **Spray Lakes Rockfall Barrier**	742:02, 10.799 & 10.968	July 6, 2020	**July 6, 2021**

LEGAL DESCRIPTION:	NAD 83 COORDINATES:			RISK ASSESSMENT:
SW-25-024-11 W5M 13-24-024-11 W5M	UTM 11	Northing 5658604	Easting 611006	PF: 13 CF: 4 TOTAL: 52 (Small rockfalls) PF: 7 CF: 7 TOTAL: 49 (Large rockfalls)

AVERAGE ANNUAL DAILY TRAFFIC (AADT):	CONTRACTOR MAINTENANCE AREA (CMA):
1220 (west), 1540 (east), (Ref. No. 70000698)	28

SUMMARY OF SITE INSTRUMENTATION:	INSPECTED BY:
None LAST READING DATE: N/A	Chris Morgan (KCB) Chris Grapel (KCB) Roger Skirrow (AT) Alex Frotten (AT)

PRIMARY SITE ISSUE: Rockfall from steep, high rock slope, large rockfall in 2013, dilated rock mass, active processes. Large rockfalls are defined as generally >15 m^3 in size.

APPROXIMATE DIMENSIONS: Slope height at Site I is approximately 150 m.

DATE OF ANY REMEDIAL ACTION: Fencing installed at S042-I between 2016 and 2017 inspections. Material behind the fence appears to have been cleared out (by TransAlta).

ITEM	CONDITION EXISTS		DESCRIPTION AND LOCATION	NOTICABLE CHANGE FROM LAST INSPECTION	
	YES	NO		YES	NO
Pavement Distress		X	Gravel road.		X
Slope Movement	X		Previously fallen rocks (small and large) are visible and have been pushed off the roadway.		X
Erosion	X		Differential weathering, freeze thaw, ice jacking, and seepage eroding rock mass.		X
Seepage	X		Evidence of seepage out of cracks and below the overhang.		X
Culvert Distress		X			X
Rockfall	X		Mainly single rockfalls and ongoing raveling. Possible signs of rock mass failures above the narrowest section of road, and at the north end of S042-I.		X

COMMENTS

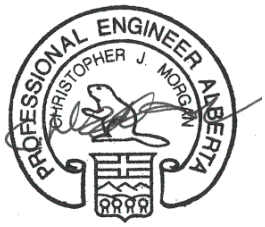
Large rock mass falls are possible (including areas with visible disaggregated rock at the north end of S042-I). Rockfalls are potentially triggered by deep seated water build up in cracks and ice damming during freezing trend (early winter).

Smaller rockfalls may be triggered by precipitation and ice jacking during thawing trend (late winter). Small rockfalls could also be caused by rock climbers or wildlife, although this is difficult to quantify.

S042-I

Rockfall event reported to AT on May 6, 2019 at Site I, in the order of 0.3 m^3 to 0.5 m^3. Small rockfalls appear to be ongoing because fresh unweathered rockfall debris with sharp edges was noted in the ditch, indicating recent detachment from the slope.

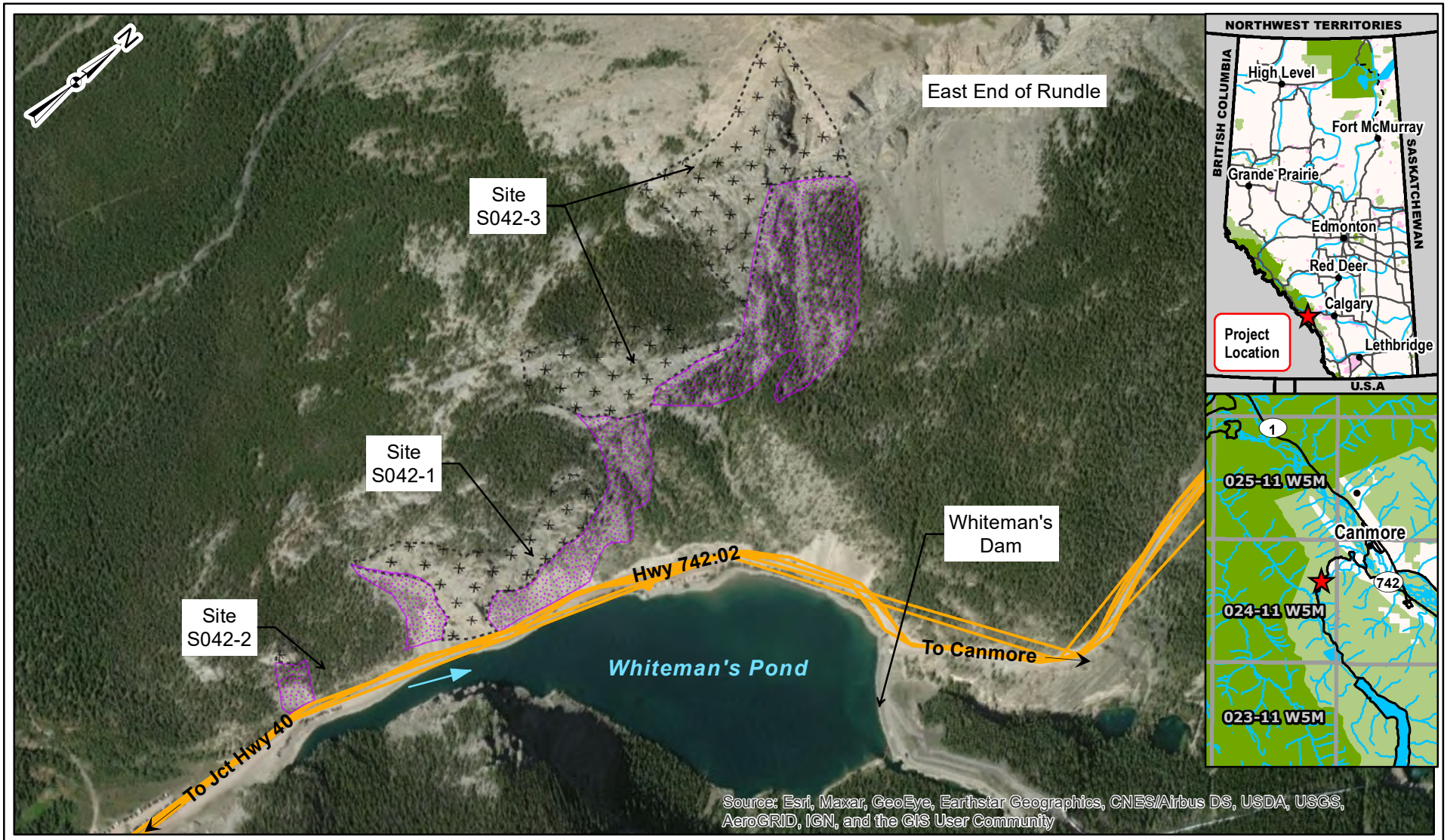
No significant changes to the rock slope were noted in 2021 when compared to 2020 observations.
There is a build-up of rockfall debris behind the existing rockfall fence at the toe of the slope and a tear in the fence mesh was noted in 2020.
Proposed short-term management recommendations include LiDAR / radar survey to monitor the location and frequency of rockfalls, as well as any potential continued dilation of larger volumes of rock. Additional road signage is recommended to warn road uses of risk of fallen rocks on highway.
KCB submitted a design report to AT in March 2021.Repair options include installation of a rockfall fence, rock slope scaling, installation of a mesh attenuation curtain, and ongoing monitoring. At the closest point, the powerline appears to be 3 m to 5 m away from the rock slope, which could restrict drape mesh placement locations. The rock slope is the site of several climbing routes. Alberta Environment are planning to construct an improved parking area for cars and buses at the north limit of the site. The additional traffic and exposure to rockfall needs to be considered.
S042-II
Work on this site is not included in KCB's work scope for repair/mitigation design.
This report is an instrument of service of Klohn Crippen Berger Ltd. (KCB). The report has been prepared for the exclusive use of Alberta Transportation (Client) for the specific application to the Southern Region Geohazard Risk Management Program (Contract No. CON0022161) and it may not be relied upon by any other party without KCB's written consent. KCB has prepared this report in a manner consistent with the level of care, skill, and diligence ordinarily provided by members of the same profession for projects of a similar nature at the time and place the services were rendered. KCB makes no warranty, express or implied. Use of or reliance upon this instrument of service by the Client is subject to the following conditions: (i) The report is to be read in full, with sections or parts of the report relied upon in the context of the whole report. (ii) The observations, findings, and conclusions in this report are based on observed factual data and conditions that existed at the time of the work, and should not be relied upon to precisely represent conditions at any other time. (iii) KCB should be consulted regarding the interpretation or application of the findings and recommendations in the report.



2021-11-24

Chris Morgan, M.Sc., P.Eng.
Senior Geotechnical Engineer

PERMIT TO PRACTICE
KLOHN CRIPPEN BERGER LTD.
RM SIGNATURE: _____
RM APEGA ID #: 187607
DATE: 25 Nov. 2021
PERMIT NUMBER: P009196
The Association of Professional Engineers and Geoscientists of Alberta (APEGA)



Legend

- GPS Track (2021)
- Flow Direction
- Potential Rockfall Source
- Active Talus

NOTES:
1. HORIZONTAL DATUM: NAD83
2. GRID ZONE: UTM Zone 11N
3. IMAGE SOURCE: World Imagery, ArcGIS Online Source Date July 17, 2018

CLIENT: Alberta Government

Klohn Crippen Berger

PROJECT: SOUTHERN REGION GEOHAZARD RISK MANAGEMENT PROGRAM

TITLE: Site Plan
S042 - Spray Lakes Rockfall
Hwy 742:02; km 30.434

SCALE	PROJECT No.	FIG No.
1:8,000	A05116A03	1

Time: 11:18:56 AM
Date: October 12, 2021
File: Z:\AICGY\Alberta\A05116A03 ABT Southern Region GRMP\400 Drawings\2021\Section B figures\MXD\S042_211012.mxd Date: October 12, 2021 Time: 11:18:56 AM Creator: aharrison

Photo 1 **Source area for rockfall, north of highway. Photo taken facing northwest on July 6, 2021.**

Photo 2 **Rock slope north of the highway. Photo was taken facing west on July 6, 2021.**