

SITE NUMBER AND NAME: S045-I West Fisher Creek		HIGHWAY & KM: 549:02, 10.704	PREVIOUS INSPECTION DATE: July 5, 2021	INSPECTION DATE: May 9, 2023
LEGAL DESCRIPTION: 16-08-021-03 W5M	NAD 83 COORDINATES: UTM Northing Easting 11 5626463 683084		RISK ASSESMENT: PF: 10 CF: 10 TOTAL: 100	
AVERAGE ANNUAL DAILY TRAFFIC (AADT): 800 (east), (Ref. No. 65170)			CONTRACTOR MAINTENANCE AREA (CMA): 27	

SUMMARY OF SITE INSTRUMENTATION: None LAST READING DATE: N/A		INSPECTED BY: Chris Grapel (KCB) Peter Roy (KCB) Alex Frotten (AT) Roger Skirrow (AT) Maury Siddons (AT)
PRIMARY SITE ISSUE: Active slope erosion due to seasonal high flows and flood flows at meander bend in Fisher Creek. Seepage and surface runoff erosion threatens to undermine road. Crest of the erosion feature is approximately 1.1 m from edge of pavement (was 2.7 m during 2016 inspection, 2.0 m during the 2017 and 2018 inspections, 1.9 m during 2019 inspection, 1.4 m during the 2020 inspection, 1.2 m during 2021 inspection).		
APPROXIMATE DIMENSIONS: Approximately 70 m long.		
DATE OF ANY REMEDIAL ACTION: HTCB installed in 2014.		

ITEM	CONDITION EXISTS		DESCRIPTION AND LOCATION	NOTICABLE CHANGE FROM LAST INSPECTION	
	YES	NO		YES	NO
Pavement Distress	X		Some minor cracks at center of the westbound lane		X
Slope Movement	X		Oversteepened and undermined erosion bank has caused numerous slump blocks and sloughing		X
Erosion	X		Erosion has progressed in the past 6 years during periods of high water. Seepage in slope and gully erosion from highway ditch draining over bank continues. The downstream bend is eroding, extending the erosion site.	X	
Seepage	X		Seepage evident from the eroded slope		X
Culvert Distress		X			X

COMMENTS
Fisher Creek, in this reach, is a freely meandering stream in a wide silt-sand-gravel plain, showing cut-offs, oxbow lakes, meander scars and point bars.
This bank has a high attack angle (85°), gravel bed, scour hole formed, and erodible material in the bank slope. Due to gravel/cobble beds, significant changes to the bed and channel only occur during high energy runoff events.
Slope appears saturated and midslope seepage has been visible during past inspections. At the time of the 2023 inspection it had recently rained and the slope was wet.
Erosion and sloughing of the slope are undermining the fence. Recently displaced blocks of grass and soil were observed. The equivalent of thirteen fence posts were hanging from the fence in 2020. In 2021 and 2023, all the fence posts had fallen off and KCB were not able to confirm whether the erosion limits had extended laterally.

There are three black utility cables in the slope, exposed by erosion (two cables have snapped).

Recommendations:

- **Short-Term**
 - Monitor location during and after high flows and significant antecedent rain or snow melt.
 - Divert surface water flow away from site.
- **Long-Term**
 - Slope reconstruction with traditional riprap armouring and geogrid reinforcement gravel. The design solution has been finalized and KCB have completed a tender document for S045-I. Construction is currently scheduled for 2024.

This report is an instrument of service of Klohn Crippen Berger (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) The report is based on information provided to KCB by the Client or by other parties on behalf of the client (Client-supplied information). KCB has not verified the correctness or accuracy of such information and makes no representations regarding its correctness or accuracy. KCB shall not be responsible to the Client for the consequences of any error or omission contained in Client-supplied information.
- (iv) KCB should be consulted regarding the interpretation or application of the findings and recommendations in the report.
- (v) This report is electronically signed and sealed and its electronic form is considered the original. A printed version of the original can be relied upon as a true copy when supplied by the author or when printed from its original electronic file.

Peter Roy, P.Eng.
Civil Engineer

Time: 15:02:23 PM
Date: October 07, 2021
File: Z:\ACGY\Alberta\A05116A03\ABT Southern Region GRMP\400 Drawings\2021\Section B figures\MXD\S045_1_211007.mxd Date: October 07, 2021 Time: 15:02:23 PM Creator: ahanrison



Legend

- Flow Direction
- Bank Erosion
- Scour Hole

NOTES:
1. HORIZONTAL DATUM: NAD83
2. GRID ZONE: UTM Zone 11N
3. IMAGE SOURCE: World Imagery, ArcGIS Online
Source Date January 15, 2015

CLIENT

Alberta
Government

Klohn Crippen Berger

PROJECT

SOUTHERN REGION GEOHAZARD RISK MANAGEMENT PROGRAM

TITLE

Site Plan
S045-1 - West Fisher Creek
Hwy 549:02; km 10.704

SCALE 1:1,000

PROJECT No. A05116A03

FIG No. 1

Photo 1 **Active slope erosion from creek flow. The ditch has eroded and is draining onto the slope. Hanging fence and exposed utility cables in scarp. Photo was taken facing southwest on May 9, 2023.**



Photo 2 **Upstream corner of slope erosion (west end). Photo was taken facing west on May 9, 2023.**



Photo 3 Displaced grass and soil due to surface runoff and ongoing bank erosion from Fisher Creek. Photo taken facing east on May 9, 2023.



Photo 4 Crest of erosion approximately 1.1 m from guardrail. Photo taken facing west on May 9, 2023.

