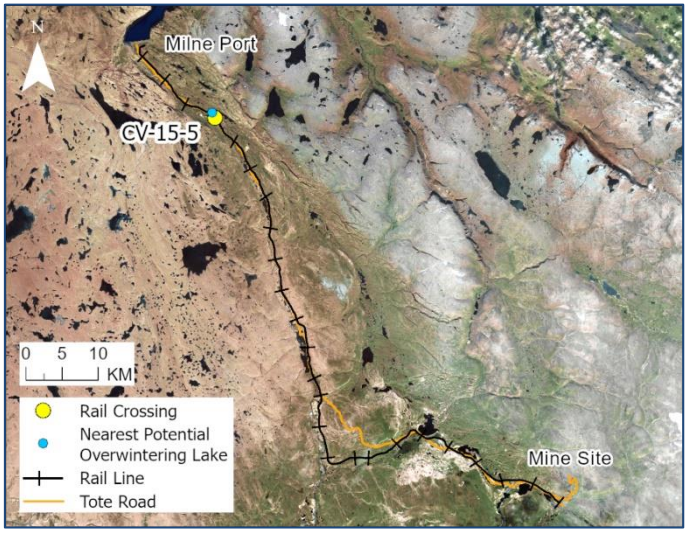
RAIL CV-15-5

LOCATION AND CROSSING DESCRIPTION

Site ID:	CV-15-5	**Dates Surveyed:**	27-Aug-19	**Waterbody Type:**	Stream
Project Interaction:	Rail Bridge	**Centreline UTM Coordinates:**	17W 514238 E 7965626 N	**Culvert Length (m):**	N/A
Number of Barrels:	N/A	**Culvert Diameter/Span (mm):**	N/A	**Slope (%):**	N/A

GENERAL PHYSICAL CHARACTERISTICS

Flow Regime: Seasonal **Stream Order:** 3+ **Drainage Basin Area (km^2):** 538.3



SUMMARY

The rail alignment crosses a large unnamed river at bridge CV-15-5 that drains much of the mountainous terrain to the east and flows into Phillips Creek approximately 1.3 km downstream from the rail crossing. This river is also crossed by a bridge on the Tote Road (CV-128) approximately 800 m downstream of the rail centreline.

There are no barriers to fish movement between this crossing and Phillips Creek downstream or several distant upstream lakes. The nearest overwintering location is either the upstream Lake POWL-1 (2.3 km from the crossing) or the downstream km 26 Lake (>10 km from the rail) on Phillips Creek.

The river could not be effectively electrofished due to its size and high water velocities. A visual survey noted several large (>150 mm) juvenile Arctic Char using the river. Similar observations have been made downstream at the Tote Road bridge crossing during annual surveys conducted since 2009. Juvenile land-locked char may use this river for rearing in the open-water season and it may also support adult feeding and movements. Maximum depth is estimated to be approximately 2 m. The river does not provide overwintering or spawning habitat for char due to insufficient depth.

Ninespine Stickleback were not captured or observed in this stream in spring or summer/fall 2019 or in previous years, but this species has been observed in ponds at CV-15-2 and CV-15-3, both of which have at least occasional connectivity to this river. Stickleback use of this river is likely limited to nearshore rearing and potentially movements to and from overwintering locations.

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BARRIERS

Upstream/ Downstream	UTM		Barrier Type			Height (m)	Gradient (°)	Description	Site Label
	Easting	Northing	1	2	3				
Downstream	NO BARRIERS								
Upstream	NO BARRIERS								

FISH HABITAT POTENTIAL

Nearest Potential Overwintering Habitat - ARCH: Lake POWL-1/km 26 Lake

Distance to Nearest Potential Overwintering Habitat - ARCH (km): 2.3/>10

Overwintering Habitat Upstream of Site - ARCH (Y/N): Lake POWL-1

Species	Spawning	Overwintering	Rearing	Adults Present
ARCH	N	N	Y	P
NNST	N	N	P	P

FISHERIES DATA

Date: 27-Aug-19 **Temperature (°C):** 7.5 **Gear Used:** Visual

Distance Fished (m): N/A **Duration Fished (seconds):** N/A

Species	Season	Pass	Effort (Seconds)	Fish Captured	Fish Observed	CPUE (No. Fish/60 Seconds)	Length Range (mm)
ARCH	Spring	-	-	-	several	-	>150

GENERAL HABITAT CHARACTERISTICS

Channel Confinement: UC **Stream Morphology:** Sinuous **Riparian Vegetation Type (%):** Grass 70, Willow 30

Centreline	Height (m)	Stability	Materials (%)	Shape
LHB	0.49	Moderate	Organic 100	Vertical
RHB	0.55	Moderate	CGS 10, Organic 90	Vertical

COMMENTS

Electrofishing could not be conducted due to high velocities. Juvenile Arctic Char were observed throughout the surveyed reach in summer/fall.

Ninespine Stickleback were not captured or observed in 2019, or in previous years, but are known to occur in nearby ponds with at least periodic connectivity to this river. Potential use of this area by stickleback is likely limited to nearshore rearing and/or movements to and from overwintering habitat.

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HYDROLOGY & HABITAT CHARACTERISTICS: 27-AUG-19

Wetted/Dry/Shallow (<0.02 m)/Unconnected Pools: Wetted **Stage:** Moderate

Site	Channel Width (m)		Water Depth (m)				Water Velocity (m/s)			
	Bankfull	Wetted	25%	50%	75%	Max	25%	50%	75%	Max
100D	-	-	-	-	-	-	-	-	-	-
80D	-	-	-	-	-	-	-	-	-	-
60D	-	-	-	-	-	-	-	-	-	-
40D	-	-	-	-	-	-	-	-	-	-
20D	-	-	-	-	-	-	-	-	-	-
0 (Centreline)	85.0	83.0	-	-	-	-	-	-	-	-
20U	-	-	-	-	-	-	-	-	-	-
40U	-	-	-	-	-	-	-	-	-	-
60U	-	-	-	-	-	-	-	-	-	-
80U	-	-	-	-	-	-	-	-	-	-
100U	-	-	-	-	-	-	-	-	-	-

Site	Stream Morphology Composition (%)							Substrate Composition (%)				
	Riffle	Pool (<0.2 m)	Pool (>0.2 m)	Run	Cascade	Flat	Rapids	Fines	Gravel	Small Cobble	Large Cobble	Boulders
100D	-	-	-	-	-	-	-	-	-	-	-	-
80D	-	-	-	-	-	-	-	-	-	-	-	-
60D	-	-	-	-	-	-	-	-	-	-	-	-
40D	-	-	-	-	-	-	-	-	-	-	-	-
20D	-	-	-	-	-	-	-	-	-	-	-	-
0 (Centreline)	40	-	-	60	-	-	-	15	-	-	5	80
20U	-	-	-	-	-	-	-	-	-	-	-	-
40U	-	-	-	-	-	-	-	-	-	-	-	-
60U	-	-	-	-	-	-	-	-	-	-	-	-
80U	-	-	-	-	-	-	-	-	-	-	-	-
100U	-	-	-	-	-	-	-	-	-	-	-	-

OTHER NOTES / OBSERVATIONS

The river discharges to Phillips Creek approximately 1.3 km downstream of the rail crossing centreline. Habitat is consistent from the downstream confluence with Phillips Creek to as far upstream as was visible from the air.

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27-AUG-19

A

B

C

D

E

F

Photos 1. Photos taken at the rail crossing centreline while standing at the centreline (top) and from the left bank offset from the actual centreline (bottom) in summer/fall: (A,D) facing upstream; (B,E) facing downstream; (C,F) across (left bank looking at right bank).