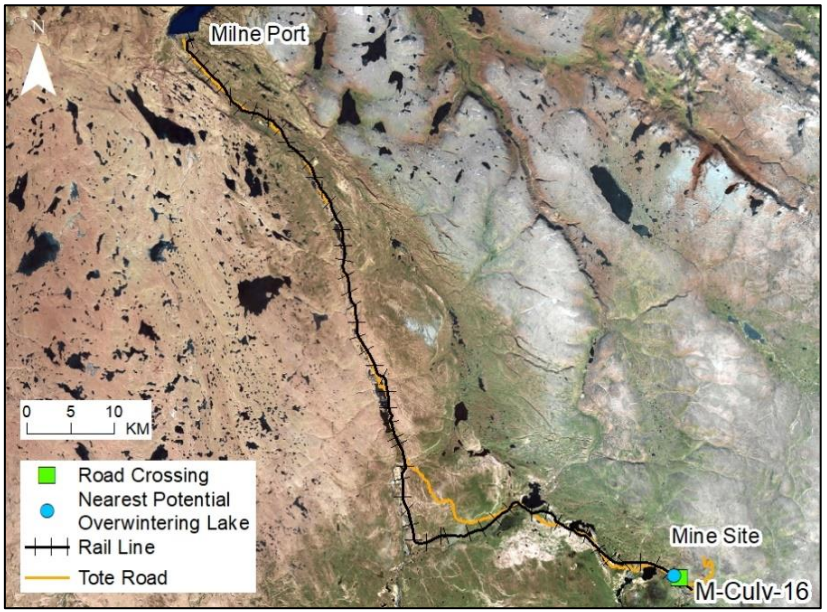
ROAD M-CULV-16

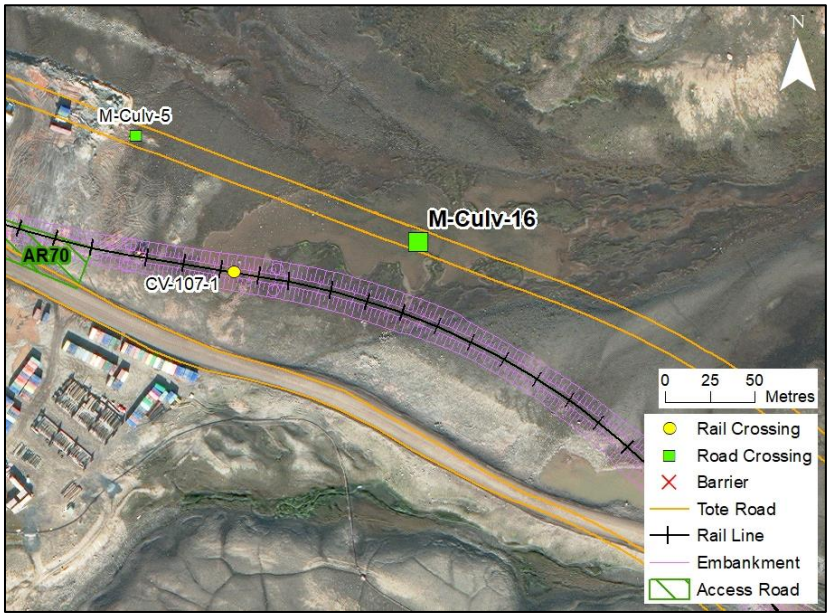
LOCATION AND CROSSING DESCRIPTION

Site ID:	M-Culv-16	**Dates Surveyed:**	23-Jun-19; 19-Aug-19	**Waterbody Type:**	Pond
Project Interaction:	Pond Infilling + Culvert	**Centreline UTM Coordinates:**	17W 560513 E 7913699 N	**Culvert Length (m):**	16.9
Number of Barrels:	1	**Culvert Diameter/Span (mm):**	600	**Slope (%):**	0

GENERAL PHYSICAL CHARACTERISTICS

Surface Area (m^2):	8,102	**Shoreline Length (m):**	818	**Drainage Basin Area (m^2):**	0.232
Maximum Depth (m):	0.6 (estimated)			**Mean Depth (m):**	-





SUMMARY

The rail alignment infills the southwest bay of a shallow pond that is intermittently connected via a shallow outflow channel to the lake at CV-106-3. The pond collects meltwater from the hills to the north and northeast; it is the headwaters area of the system that flows to Camp Lake >3 km downstream. The system includes all the fish-bearing rail sites from CV-105-2 to CV-106-3. The pond will also be infilled (the southwest tip) by the rail at site CV-107-1.

This pond, and the encroachment area in particular, provides minimal rearing habitat for both species as evidenced by few fish present in either 2018 or 2019. Stickleback spawning is unlikely due to minimal nest-building materials (i.e., vegetation)present in the pond. Depth is insufficient to support overwintering of either species. Fish likely enter this pond from the downstream lake CV-106-3 under higher flows, but may become stranded and winterkill. The infill area in the pond is shallow (<0.10 m) with primarily fines and the occasional large cobble or boulder.

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BARRIERS

Upstream/ Downstream	UTM		Barrier Type			Height (m)	Gradient (°)	Description	Site Label
	Easting	Northing	1	2	3				
Inflowing Stream	NO BARRIERS								
Outflowing Stream	OUTFLOW HAS POTENTIAL TO DRY UP IN LOW WATER PERIODS								

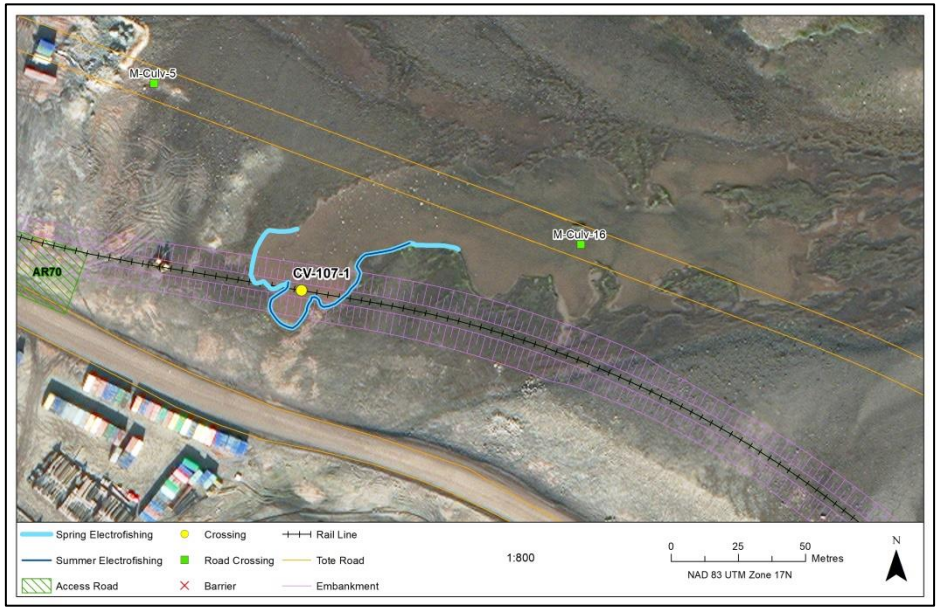
FISH HABITAT POTENTIAL

Nearest Potential Overwintering Habitat - ARCH: Unnamed Lake/Camp Lake **Distance to Nearest Potential Overwintering Habitat - ARCH (km):** 0.50/3.3

Overwintering Habitat Upstream of Site - ARCH (Y/N): No

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

FISHING SITES



ROAD M-CULV-16

FISHERIES DATA

Date: 23-Jun-19 **Temperature (°C):** NR **Gear Used:** Backpack Electrofisher/Visual

Distance Fished (m): 180 **Duration Fished (seconds):** 766

Species	Season	Effort (Seconds)	Fish Captured	Fish Observed	CPUE (No. Fish/60 Seconds)	Length Range (mm)
ARCH	Spring	766	0	0	-	-
NNST	Spring	766	0	5	-	-

Date: 19-Aug-19 **Temperature (°C):** NR **Gear Used:** Backpack Electrofisher/Visual

Distance Fished (m): 100 **Duration Fished (seconds):** 226

Species	Season	Effort (Seconds)	Fish Captured	Fish Observed	CPUE (No. Fish/60 Seconds)	Length Range (mm)
ARCH	Summer/Fall	226	1	0	0.27	105
NNST	Summer/Fall	226	26	0	6.90	21 – 69 (measured)

INFILL HABITAT

Habitat Use – ARCH: Juvenile rearing **Habitat Use – NNST:** Rearing **Maximum Water Depth (m):** ~0.40

Area	Fines (%)	Gravel (%)	Small Cobble (%)	Large Cobble (%)	Boulders (%)
Nearshore	90	0	0	8	2
Offshore	80	0	0	15	5

OTHER NOTES/OBSERVATIONS

Stickleback were observed throughout the infill area during spring. During summer/fall, both species were captured on the west side of the pond. Within the M-Culv-16 infill, stickleback were evenly distributed in available habitat, but char were not observed. Fish were not captured or observed in 2018. A shallow water or subsurface flow barrier has the potential to form in the outlet stream (consistently very shallow, <0.02 m), which could lead to fish stranding and winterkill. Connectivity was maintained during the two 2019 surveys.

ROAD M-CULV-16

23-JUN-19 & 19-AUG-19

A

B

C

D

E

F

Photos 1. Photos taken during spring (top) and summer/fall (bottom): (A) northwest across infill area; (B) southeast across infill area; (C) southwest across infill area; (D) across infill; (E) towards outflow; and (F) possible intermittent barrier area in outflow channel.