

# TOTE ROAD BG-27

15-JUL-24



A



B



C



D



E



F

**Photos 1-1.** Photos taken 20 m downstream (top) and 20 m upstream (bottom) in spring 2024: (A,D) facing upstream; (B,E) facing downstream; and (C,F) across (left bank looking at right bank).



## TOTE ROAD BG-27

15-JUL-24



**A**



**B**



**C**

**Photos 1-2.** Photos taken of the culverts in spring 2024: (A) downstream end; and (B,C) upstream end.

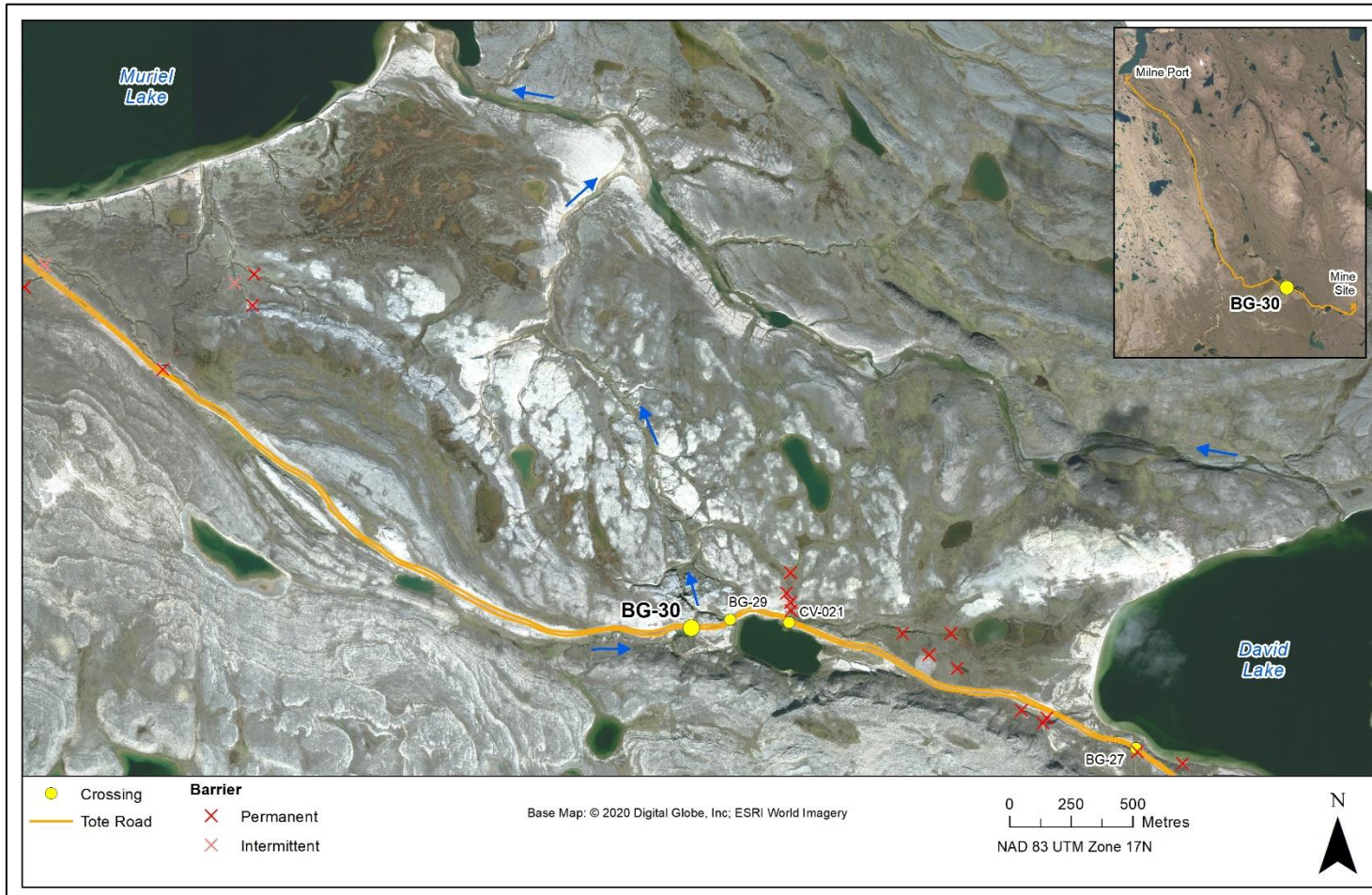
# TOTE ROAD BG-30

## LOCATION AND CROSSING DESCRIPTION

<b>Site ID:</b>	BG-30	<b>Date Surveyed:</b>	15-Jul-24	<b>Waterbody Type:</b>	Stream
<b>Project Interaction:</b>	Tote Road Culvert	<b>UTM Coordinates:</b>	17W 546070 E 7919844 N		

## GENERAL PHYSICAL CHARACTERISTICS

**Flow Regime:** Seasonal      **Stream Order:** 2



BAFFINLAND IRON MINES  
MARY RIVER PROJECT

 **North/South Consultants Inc.**  
Aquatic Environment Specialists

FISH HABITAT:

ARCTIC CHAR - YES

NINESPINE STICKLEBACK - YES

# TOTE ROAD BG-30

## SITE SUMMARY

The Tote Road crosses a small, unnamed stream at site BG-30 that flows 70 m north to the BG-29 stream system, sharing the same nearby potential overwintering lakes. This stream was part of the compensation plan for the original HADD authorization. A natural rockslide near the confluence with the BG-29 stream that had blocked fish access from overwintering areas and prevented fish use of available habitat upstream from the rockslide was removed in 2010. The channel was remediated into a natural step-pool approach to the culvert, successfully restoring fish passage to the entire watershed. This crossing is scheduled for additional future remediation.

In late spring 2024, measured wetted stream width 20 m downstream from the culvert was 4.6 m. and depths ranged from 0.03-0.14 m. A large pool is present immediately upstream of the road that persists throughout the open-water period. In spring 2024, the pool had a wetted width of 17.1 m and estimated maximum depth of >1.5 m. Measured velocities ranged from 0.16-0.77 m/s downstream; velocity was negligible in the upstream pond. Habitat was mainly riffle/run/pool downstream and deep pool upstream of the crossing. Substrates were predominantly cobble/gravel downstream and fines upstream.

Large numbers of juvenile Arctic Char were captured downstream of the crossing in spring 2024. Several char were observed upstream, but the large pool could not be effectively electrofished to quantify numbers or sizes of the fish. Juvenile char use habitat in the vicinity of the Tote Road crossing at BG-30 throughout the open-water period for rearing. There is no overwintering or spawning habitat for char in this stream.

Ninespine Stickleback were not captured in spring 2024 but have been found downstream of the culvert closer to the confluence with the BG-29 stream, where gradient is and velocities are lower, during previous site surveys. Stickleback can use habitat at the crossing area for rearing and potentially spawning, particularly in the upstream pool. There is no overwintering habitat for stickleback in this stream.



# TOTE ROAD BG-30

## FISH HABITAT POTENTIAL

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

## FISHERIES DATA

Location	Species	Survey Date	Temperature (°C)	Distance Fished (m)	Effort (Seconds)	# Fish Captured	# Fish Observed	CPUE (No. Fish/60 Seconds)	Length Range (mm)
Downstream	ARCH	15-Jul-24	8.0	50	380	32	0	5.053	55-95
	NNST					0	0	0.00	-
Upstream	ARCH			50	258	0	Several	0.00	-
	NNST					0	0	0.00	-

## OTHER NOTES / OBSERVATIONS

Large numbers of small (<100 mm) juvenile Arctic Char were captured downstream of the crossing in spring 2024. Several char were also observed upstream, but the large pool could not be effectively electrofished to quantify numbers or sizes of the fish. Ninespine Stickleback were not captured in spring 2024 but have been found downstream of the culvert closer to the confluence with the BG-29 stream, where gradient and velocities are lower, during previous site surveys.

# TOTE ROAD BG-30

## HYDROLOGY CHARACTERISTICS: 15-JUL-24

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

Stage:      Low

Site	Channel Width (m)		Water Depth (m)				Water Velocity (m/s)			
	Bankfull	Wetted	25%	50%	75%	Max	25%	50%	75%	Max
20D	11.10	4.60	0.03	0.04	0.10	0.14	0.16	0.24	0.44	0.77
0 (Centreline)	UNDER TOTE ROAD									
20U	17.60	17.10	-	-	-	>1.5	-	-	-	0.00

## OTHER NOTES / OBSERVATIONS

In late spring 2024, measured wetted width 20 m downstream from the culvert was 4.6 m and depths ranged from 0.03-0.14 m. A large pool is present immediately upstream of the road that persists throughout the open-water period. In spring 2024, the pool had a wetted width of 17.1 m and an estimated maximum depth of >1.5 m. Measured velocities ranged from 0.16-0.77 m/s downstream with negligible velocity in the upstream pond.

# TOTE ROAD BG-30

## HABITAT CHARACTERISTICS: 15-JUL-24

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

Stage:      Low

Site	Stream Morphology Composition (%)							Substrate Composition (%)				
	Riffle	Pool (<0.2 m)	Pool (>0.2 m)	Run	Cascade	Rapids	Flat	Fines	Gravel	Small Cobble	Large Cobble	Boulders
20D	20	30	-	50	-	-	-	10	30	30	30	-
0 (Centreline)	UNDER TOTE ROAD											
20U	-	5	95	-	-	-	-	100	-	-	-	-

## OTHER NOTES / OBSERVATIONS

Stream morphology was mainly riffle/run/pool downstream and deep pool upstream. Substrates were predominantly cobble/gravel downstream and fines upstream.

# TOTE ROAD BG-30

15-JUL-24



A



B



C



D



E



F

**Photos 1-1.** Photos taken 20 m downstream (top) and 20 m upstream (bottom) in spring 2024: (A,D) facing upstream; (B,E) facing downstream; and (C,F) across (left bank looking at right on top, right bank looking at left bank on bottom).



## TOTE ROAD BG-30

15-JUL-24



**A**



**B**

**Photos 1-2.** Photos taken of the culvert in spring 2024: (A) downstream end; and (B) upstream end.

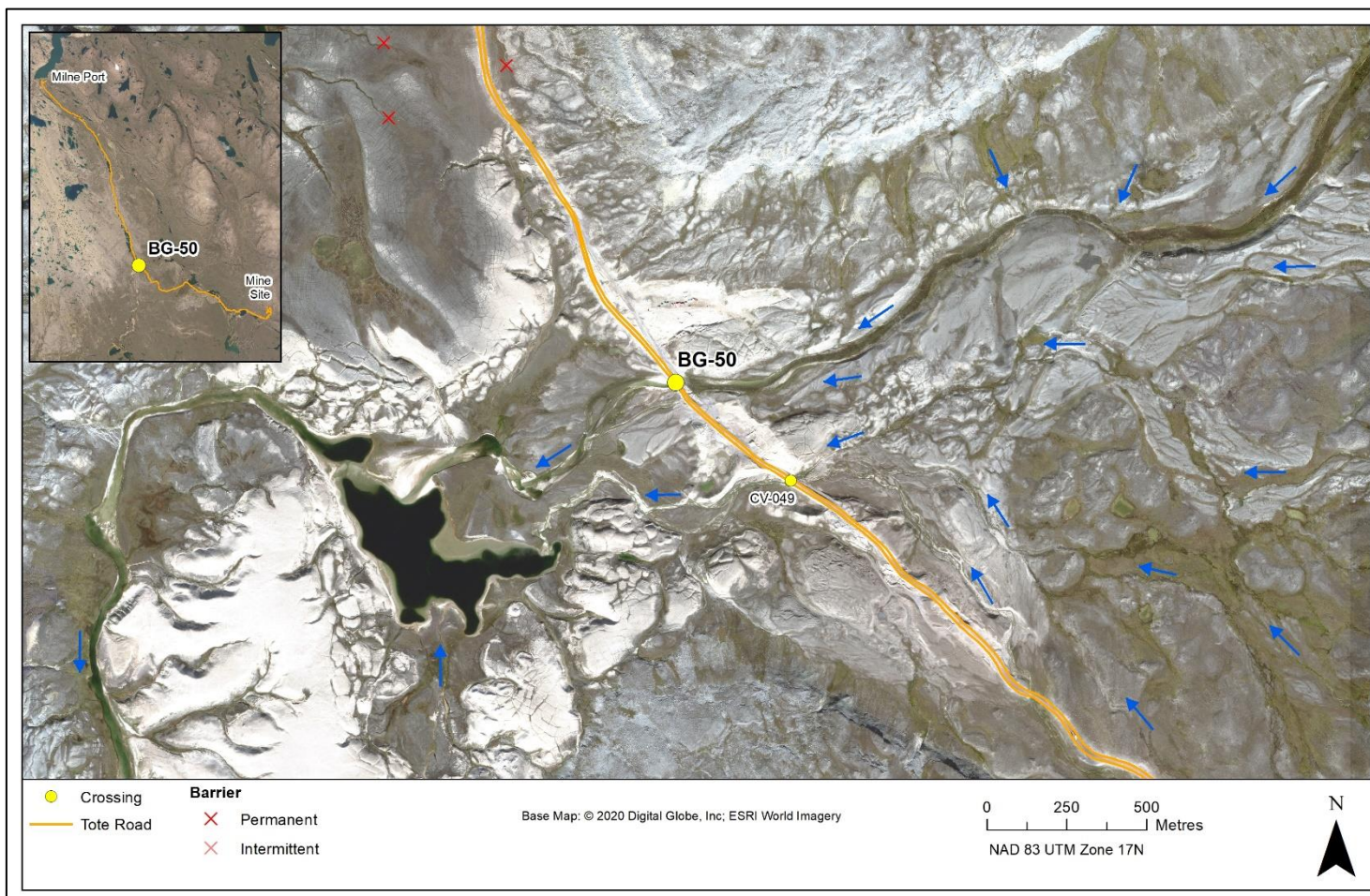
# TOTE ROAD BG-50

## LOCATION AND CROSSING DESCRIPTION

<b>Site ID:</b>	BG-50	<b>Dates Surveyed:</b>	14-Jul-24	<b>Waterbody Type:</b>	Stream
<b>Project Interaction:</b>	Tote Road Culvert	<b>UTM Coordinates:</b>	17W 529294 E 7926852 N		

## GENERAL PHYSICAL CHARACTERISTICS

**Flow Regime:** Seasonal      **Stream Order:** 3+



BAFFINLAND IRON MINES  
MARY RIVER PROJECT

 **North/South Consultants Inc.**  
Aquatic Environment Specialists

FISH HABITAT:

ARCTIC CHAR - YES

NINESPINE STICKLEBACK - YES

# TOTE ROAD BG-50

## SITE SUMMARY

The Tote Road crosses a large, unnamed river at site BG-50 that flows 1.0 km west to a small lake. Although a bathymetric survey has not been conducted, the lake is suspected of being of sufficient depth to support overwintering based on shoreline surveys and review of available imagery. The road crossing is located at the upstream end of a mid-channel island and is separated into a bridge crossing on the larger north channel and a culvert crossing at the smaller south channel. The culverts are perched and impassable to fish but the bridge crossing does not affect fish passage. This road crossing is scheduled for future remediation.

Detailed habitat data were collected in the channel with the culvert crossing in spring 2024. Measured wetted widths in the north channel ranged from 10.8 m downstream to 46.5 m upstream. Measured depths downstream ranged from 0.02-0.18 and velocities from 0.10-0.38 m/s. Water levels upstream were too deep to accurately measure, but maximum depth and velocity were estimated at >0.5 m and >1.50 m/s, respectively. Stream morphology was primarily run and riffle throughout. Substrate was mainly cobble/boulder.

The river could not be fished in spring 2024 due to an electrofisher malfunction. However, juvenile char were observed downstream and upstream of the crossing. Both species have been captured in this river in previous surveys. Juvenile, and potentially adult, char can use habitat in the vicinity of the Tote Road crossing throughout the open-water period for rearing/feeding. There is no overwintering or spawning habitat for char in this river.

Stickleback use habitat in the slower-flowing areas of the stream along the banks in summer/fall for feeding. Spawning is unlikely given the lack of suitable habitat. Additional surveys of the area have shown some evidence of stickleback spawning in small, marshy tributaries of this river. There is no overwintering habitat for stickleback in this river.



# TOTE ROAD BG-50

## FISH HABITAT POTENTIAL

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

## FISHERIES DATA

Location	Species	Survey Date	Temperature (°C)	Distance Fished (m)	Effort (Seconds)	# Fish Captured	# Fish Observed	CPUE (No. Fish/60 Seconds)	Length Range (mm)
Downstream	ARCH	14-Jul-24	5.0	N/A	N/A	0	0	-	-
	NNST					0	0	-	-
Upstream	ARCH			N/A	N/A	0	0	-	-
	NNST					0	0	-	-

## OTHER NOTES / OBSERVATIONS

The river could not be fished in spring 2024 due to an electrofisher malfunction. However, juvenile char were observed downstream and upstream of the crossing. Both species have been captured in this river in previous surveys.

# TOTE ROAD BG-50

## HYDROLOGY CHARACTERISTICS: 14-JUL-24

**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
20D	12.20	10.80	0.05	0.15	0.02	0.18	0.33	0.33	0.10	0.38
0 (Centreline)	UNDER TOTE ROAD									
20U	60.60	46.50	-	-	-	>0.5	-	-	-	>1.5

## OTHER NOTES / OBSERVATIONS

Measured wetted widths in the channel with the culvert crossing ranged from 10.8 m downstream to 46.5 m upstream. Measured depths downstream ranged from 0.02-0.18 and velocities from 0.10-0.38 m/s. Water levels upstream were too deep to accurately measure, but maximum depth and velocity were estimated at >0.5 m and >1.50 m/s, respectively.

# TOTE ROAD BG-50

## HABITAT CHARACTERISTICS: 14-JUL-24

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

**Stage:**      Moderate

Site	Stream Morphology Composition (%)							Substrate Composition (%)				
	Riffle	Pool (<0.2 m)	Pool (>0.2 m)	Run	Cascade	Rapids	Flat	Fines	Gravel	Small Cobble	Large Cobble	Boulders
20D	30	20	-	50	-	-	-	-	10	60	25	5
0 (Centreline)	UNDER TOTE ROAD											
20U	30	10	-	50	-	10	-	-	5	30	50	15

## OTHER NOTES / OBSERVATIONS

Stream morphology was primarily run and riffle throughout. Substrate was mainly cobble/boulder.



# TOTE ROAD BG-50

14-JUL-24



A



B



C



D



E



F

**Photos 1-1.** Photos taken 20 m downstream (top) and 20 m upstream (bottom) in spring 2024: (A,D) facing upstream; (B,E) facing downstream; and (C,F) across (right bank looking at left bank).

# TOTE ROAD BG-50

14-JUL-24



**A**

**Photos 1-2.** Photos taken of the culvert at the downstream end in spring 2024. The upstream end of the culverts could not be accessed due to water depth and steep banks near the road.



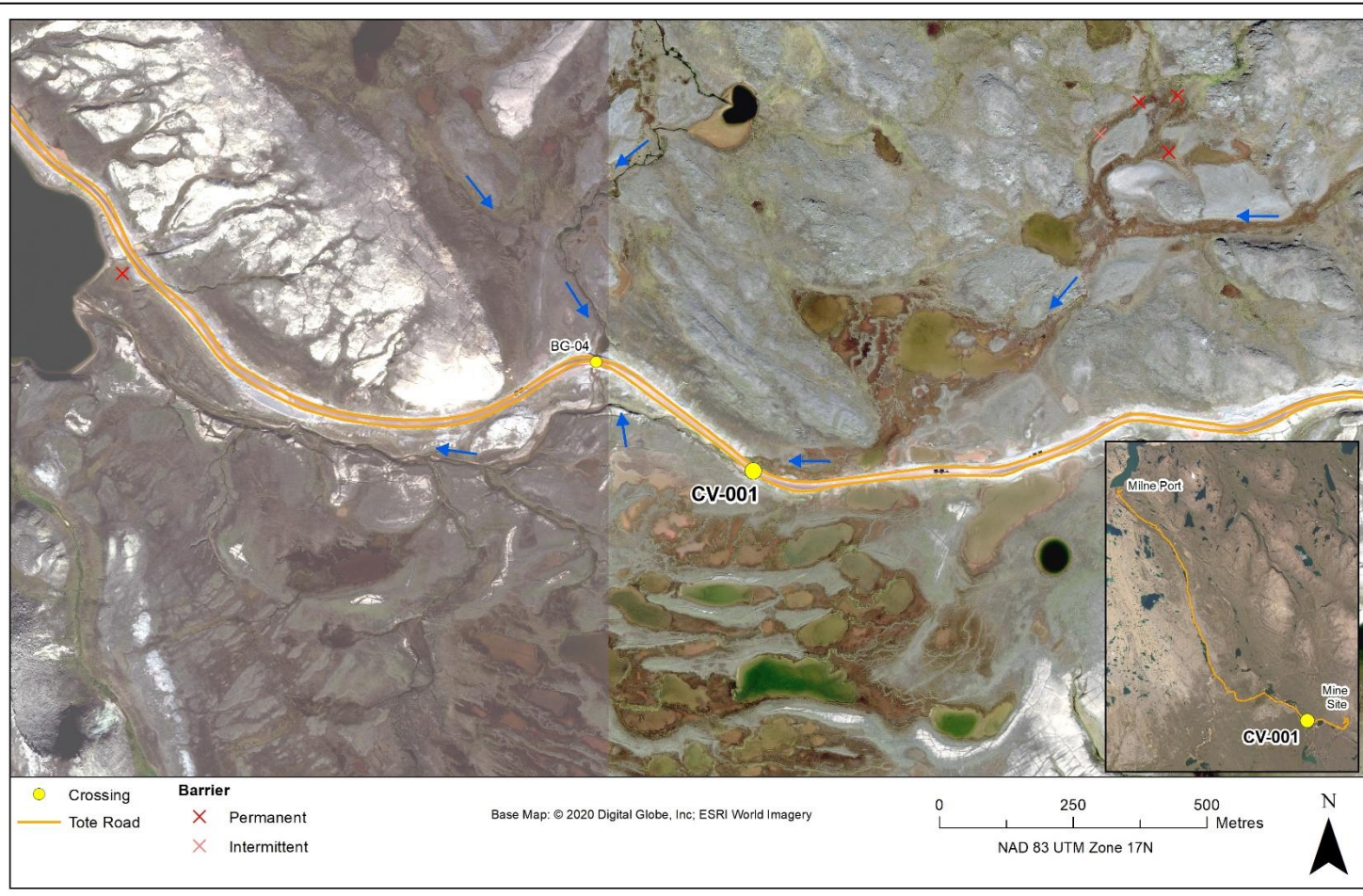
# TOTE ROAD CV-001

## LOCATION AND CROSSING DESCRIPTION

<b>Site ID:</b>	CV-001	<b>Dates Surveyed:</b>	16-Jul-24	<b>Waterbody Type:</b>	Stream
<b>Project Interaction:</b>	Tote Road Culvert	<b>UTM Coordinates:</b>	17W 553544 E 7914897 N		

## GENERAL PHYSICAL CHARACTERISTICS

**Flow Regime:** Seasonal      **Stream Order:** 2



BAFFINLAND IRON MINES  
MARY RIVER PROJECT

 **North/South Consultants Inc.**  
Aquatic Environment Specialists

FISH HABITAT:

ARCTIC CHAR - YES

NINESPINE STICKLEBACK - YES



# TOTE ROAD CV-001

## SITE SUMMARY

The Tote Road crosses a small, unnamed stream at site CV-001 that flows westward into an unnamed lake 1.5 km downstream. This stream is a smaller branch of the stream crossed by the road at site BG-04. The downstream lake has sufficient depth to support overwintering for both species.

This crossing was remediated in winter 2023/2024. The crossing now consists of two large, embedded culverts with cobble substrate that allow unimpeded fish passage. No issues with the crossing were identified.

Detailed habitat data were collected at this site in late spring 2024. Wetted widths ranged between 0.8 and 6.0 m downstream and 19.3 and 22.1 m upstream. Measured depths ranged from 0.01-0.54 m. Measured velocities were typically low ( $<0.20$  m/s) but ranged between 0.00 and 1.31 m/s; velocities tended to be higher in more constricted areas of the stream downstream from the crossing. Stream morphology was typically pool and run downstream and almost exclusively pool upstream. The substrate was primarily composed of fines and gravel interspersed with small amounts of cobble downstream and mostly fines upstream.

Only one juvenile Arctic Char was captured in this stream in spring 2024 but was upstream of the culvert indicating successful fish passage. Ninespine Stickleback were not captured or observed. Both species have typically been more abundant near the crossing during annual monitoring. The reason for the low CPUE in July 2024 is unknown, though similarly low CPUE was noted for both species in the BG-04 branch of this watershed. There is no char spawning or overwintering habitat in this stream. Ninespine Stickleback can use habitat in the vicinity of the Tote Road crossing at CV-001 for rearing/feeding and likely spawning. There is no overwintering habitat for stickleback in this stream.

TOTE ROAD CV-001

FISH HABITAT POTENTIAL

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

FISHERIES DATA

Location	Species	Survey Date	Temperature (°C)	Distance Fished (m)	Effort (Seconds)	# Fish Captured	# Fish Observed	CPUE (No. Fish/60 Seconds)	Length Range (mm)
Downstream	ARCH	16-Jul-24	5.0	50	172	0	0	0.00	-
	NNST					0	0	0.00	-
Upstream	ARCH			50	243	1	0	0.247	130
	NNST					0	0	0.00	-

OTHER NOTES / OBSERVATIONS

Only one juvenile Arctic Char was captured in this stream in spring 2024 (upstream of the culvert). Ninespine Stickleback were not captured or observed. Both species have been typically more abundant near the crossing during annual monitoring. The reason for the low CPUE in July 2024 is unknown.

# TOTE ROAD CV-001

## HYDROLOGY CHARACTERISTICS: 16-JUL-24

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

**Stage:**    Low

Site	Channel Width (m)		Water Depth (m)				Water Velocity (m/s)			
	Bankfull	Wetted	25%	50%	75%	Max	25%	50%	75%	Max
<b>100D</b>	8.70	0.80	0.07	-	0.02	0.32	1.31	-	0.12	1.31
<b>60D</b>	9.70	6.00	0.14	0.13	0.06	0.24	0.15	0.09	0.05	0.25
<b>20D</b>	5.50	2.80	0.10	0.10	0.08	0.26	0.05	0.10	0.19	0.35
<b>0 (Centreline)</b>	UNDER TOTE ROAD									
<b>20U</b>	20.50	20.50	0.54	0.02	0.11	0.54	0.00	0.00	0.00	0.00
<b>60U</b>	31.60	22.10	0.02	0.01	0.08	0.17	0.00	0.14	0.07	0.19
<b>100U</b>	26.30	19.30	0.23	0.39	0.13	0.39	0.00	0.00	0.00	0.00

## OTHER NOTES / OBSERVATIONS

Wetted widths ranged between 0.8 and 6.0 m downstream and 19.3 and 22.1 m upstream. Measured depths ranged from 0.01-0.54 m. Measured velocities were typically low (<0.20 m/s) but ranged between 0.00 and 1.31 m/s; velocities tended to be higher in more constricted areas of the stream downstream from the crossing.



# TOTE ROAD CV-001

## HABITAT CHARACTERISTICS: 16-JUL-24

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

**Stage:** Low

Site	Stream Morphology Composition (%)							Substrate Composition (%)				
	Riffle	Pool (<0.2 m)	Pool (>0.2 m)	Run	Cascade	Rapids	Flat	Fines	Gravel	Small Cobble	Large Cobble	Boulders
<b>100D</b>	10	30	10	50	-	-	-	10	70	20	-	-
<b>60D</b>	10	40	-	50	-	-	-	95	5	-	-	-
<b>20D</b>	-	20	10	70	-	-	-	20	70	10	-	-
<b>0 (Centreline)</b>	UNDER TOTE ROAD											
<b>20U</b>	-	80	20	-	-	-	-	60	30	10	-	-
<b>60U</b>	-	90	-	10	-	-	-	75	20	5	-	-
<b>100U</b>	-	70	30	-	-	-	-	85	10	5	-	-

## OTHER NOTES / OBSERVATIONS

Stream morphology was typically pool and run downstream and almost exclusively pool upstream. The substrate was primarily composed of fines and gravel interspersed with small amounts of cobble downstream and mostly fines upstream.

# TOTE ROAD CV-001

16-JUL-24



A



B



C



D



E



F

**Photos 1-1.** Photos taken 20 m downstream (top) and 60 m downstream (bottom) in spring 2024: (A,D) facing upstream; (B,E) facing downstream; and (C,F) across (left bank looking at right bank).



# TOTE ROAD CV-001

16-JUL-24



**A**



**B**



**C**

**Photos 1-2.** Photos taken 100 m downstream in spring 2024: (A) facing upstream; (B) facing downstream; and (C) across (left bank looking at right bank).



# TOTE ROAD CV-001

16-JUL-24



A



B



C



D



E



F

**Photos 1-3.** Photos taken 20 m upstream (top) and 60 m upstream (bottom) in spring 2024: (A,D) facing upstream; (B,E) facing downstream; and (C,F) across (left bank looking at right bank).



# TOTE ROAD CV-001

16-JUL-24



**A**



**B**



**C**

**Photos 1-4.** Photos taken 100 m upstream in spring 2024: (A) facing upstream; (B) facing downstream; and (C) across (left bank looking at right bank).

# TOTE ROAD CV-001

16-JUL-24



**A**



**B**



**C**

**Photos 1-5.** Photos taken of the culvert in spring 2024: (A, B) downstream end; and (C) upstream end.



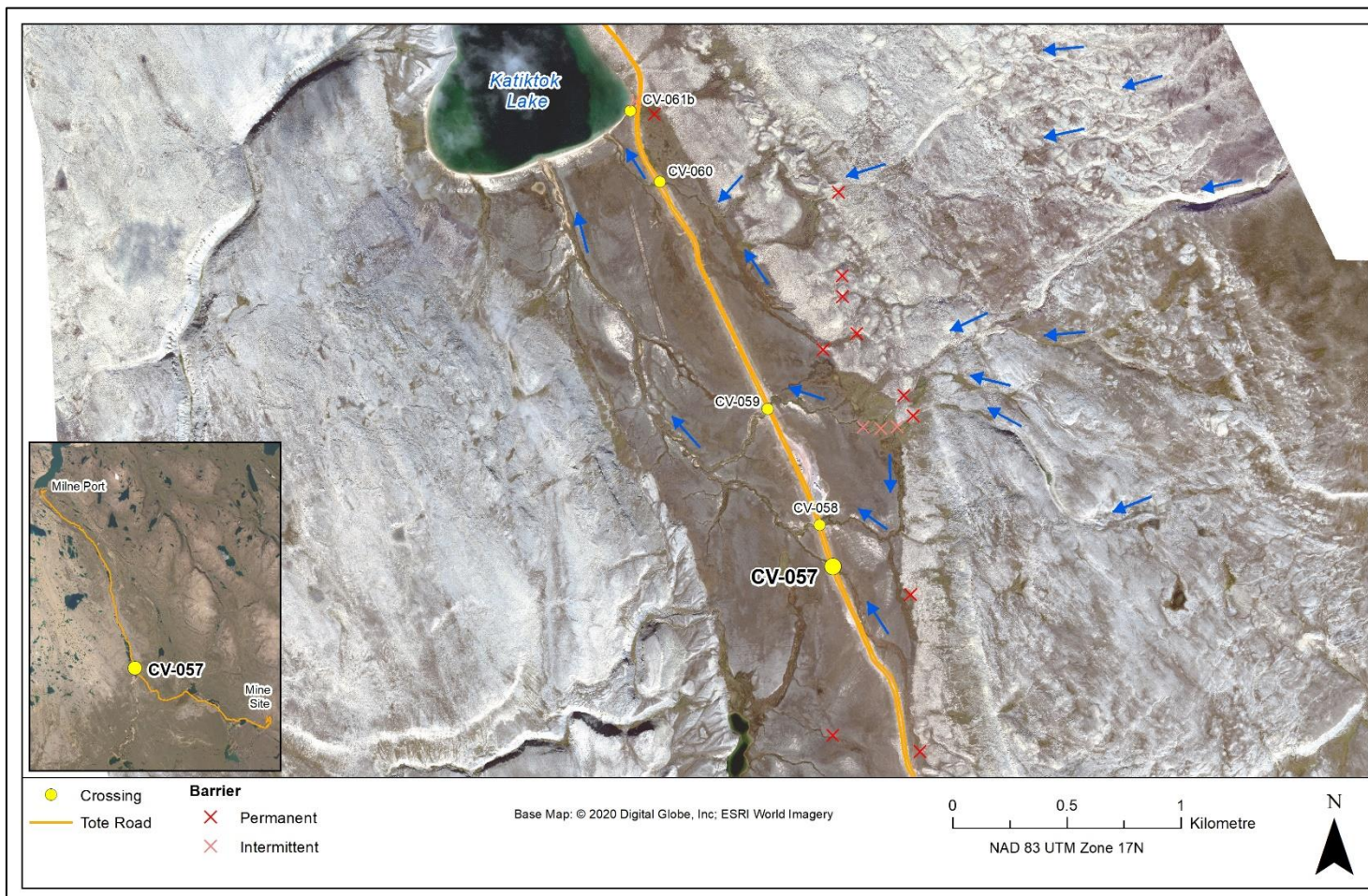
# TOTE ROAD CV-057

## LOCATION AND CROSSING DESCRIPTION

<b>Site ID:</b>	CV-057	<b>Dates Surveyed:</b>	14-Jul-24	<b>Waterbody Type:</b>	Stream
<b>Project Interaction:</b>	Tote Road Culvert	<b>UTM Coordinates:</b>	17W 528094 E 7929347 N		

## GENERAL PHYSICAL CHARACTERISTICS

**Flow Regime:** Seasonal      **Stream Order:** 2



BAFFINLAND IRON MINES  
MARY RIVER PROJECT

 **North/South Consultants Inc.**  
Aquatic Environment Specialists

FISH HABITAT:

ARCTIC CHAR - YES

NINESPINE STICKLEBACK - POTENTIAL

# TOTE ROAD CV-057

## SITE SUMMARY

The Tote Road crosses a small, unnamed stream at site CV-057 that flows northwest into Katiktok Lake 2.5 km downstream of the culvert. A bathymetry and substrate survey was conducted in Katiktok Lake which confirmed the lake is of sufficient depth to support overwintering. This stream is part of the same catchment as streams crossed by the road at sites CV-058 and CV-059 and collectively they represent the southernmost streams in the Phillips Creek drainage area.

This crossing was remediated in winter 2023/2024. There is now a large, embedded culvert with a cobble apron and in-culvert cobble that allows unimpeded fish passage. No issues with the crossing were identified.

This stream is generally narrow, deep, and relatively slow moving. Wetted widths in spring 2024 ranged from 0.8-7.3 m. Measured depths did not exceed 0.75 m, and ranged from 0.02-0.72 m. Maximum velocities at each transect were generally low, ranging from 0.00-0.44 m/s. Stream morphology was a combination of shallow and deep pools in wider areas and riffle-run at constrictions throughout. The stream is nearly uniformly composed of fine substrate with small patches of gravel and occasional piece of cobble. Since remediation, there are greater proportions of cobble (associated with the apron) within 20 m of the culvert

Small numbers of juvenile Arctic Char were captured downstream and upstream of the crossing in spring 2024. Juvenile char use habitat in the vicinity of the Tote Road crossing at CV-057 for rearing/feeding throughout the open-water period. There is no char spawning habitat and no overwintering habitat for either species in this stream.

Ninespine Stickleback have never been captured or observed in this stream since the monitoring program began in 2009 despite an abundance of suitable habitat. It is unknown if they are present in Katiktok Lake.



# TOTE ROAD CV-057

## FISH HABITAT POTENTIAL

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

## FISHERIES DATA

Location	Species	Survey Date	Temperature (°C)	Distance Fished (m)	Effort (Seconds)	# Fish Captured	# Fish Observed	CPUE (No. Fish/60 Seconds)	Length Range (mm)
Downstream	ARCH	14-Jul-24	5.0	50	231	3	0	0.779	65-93
	NNST					0	0	0.00	-
Upstream	ARCH			50	272	2	0	0.441	108-170
	NNST					0	0	0.00	-

## OTHER NOTES / OBSERVATIONS

Small numbers of juvenile Arctic Char were captured downstream and upstream of the crossing in spring 2024. The larger size of the juveniles captured upstream of the culvert is likely due to the greater abundance of deep pool habitat upstream of the crossing. Ninespine Stickleback have never been captured or observed in this stream since the monitoring program began in 2009 despite an abundance of suitable habitat. It is unknown if they are present in Katiktok Lake.

TOTE ROAD CV-057

HYDROLOGY CHARACTERISTICS: 14-JUL-24

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

Site	Channel Width (m)		Water Depth (m)				Water Velocity (m/s)			
	Bankfull	Wetted	25%	50%	75%	Max	25%	50%	75%	Max
100D	-	0.80	-	0.32	-	0.72	-	0.04	-	0.10
60D	6.50	3.80	0.08	0.07	0.03	0.34	0.25	0.22	0.07	0.27
20D	10.60	1.60	0.02	0.04	0.03	0.12	0.01	0.17	0.04	0.17
0 (Centreline)	UNDER TOTE ROAD									
20U	10.80	7.30	0.23	0.28	0.11	0.30	0.00	0.00	0.00	0.05
60U	4.50	0.80	-	0.30	-	0.35	-	0.00	-	0.44
100U	4.70	2.60	-	0.38	-	0.53	-	0.04	-	0.33

OTHER NOTES / OBSERVATIONS

Wetted widths in spring 2024 ranged from 0.8-7.3 m. Measured depths did not exceed 0.75 m and ranged from 0.02 – 0.72 m. Maximum velocities at each transect were generally low, ranging from 0.00-0.44 m/s.

# TOTE ROAD CV-057

## HABITAT CHARACTERISTICS: 14-JUL-24

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

**Stage:** Low-Moderate

Site	Stream Morphology Composition (%)							Substrate Composition (%)				
	Riffle	Pool (<0.2 m)	Pool (>0.2 m)	Run	Cascade	Rapids	Flat	Fines	Gravel	Small Cobble	Large Cobble	Boulders
<b>100D</b>	-	10	70	20	-	-	-	100	-	-	-	-
<b>60D</b>	20	25	15	40	-	-	-	100	-	-	-	-
<b>20D</b>	20	50	10	20	-	-	-	50	25	15	5	5
<b>0 (Centreline)</b>	UNDER TOTE ROAD											
<b>20U</b>	-	60	35	5	-	-	-	20	10	20	30	20
<b>60U</b>	-	10	70	20	-	-	-	95	-	5	-	-
<b>100U</b>	10	10	50	30	-	-	-	100	-	-	-	-

## OTHER NOTES / OBSERVATIONS

Stream morphology was a combination of shallow and deep pools in wider areas and riffle-run at constrictions throughout. The stream is nearly uniformly composed of fine substrate with small patches of gravel and occasional piece of cobble. There are greater proportions of cobble within 20 m of the culvert since remediation due to the new cobble aprons.

# TOTE ROAD CV-057

14-JUL-24



A



B



C



D



E



F

**Photos 1-1.** Photos taken 20 m downstream (top) and 60 m downstream (bottom) in spring 2024: (A,D) facing upstream; (B,E) facing downstream; and (C,F) across (left bank looking at right bank).



# TOTE ROAD CV-057

14-JUL-24



**A**



**B**



**C**

**Photos 1-2.** Photos taken 100 m downstream in spring 2024: (A) facing upstream; (B) facing downstream; and (C) across (left bank looking at right bank).

# TOTE ROAD CV-057

14-JUL-24



A



B



C



D



E



F

**Photos 1-3.** Photos taken 20 m upstream (top) and 60 m upstream (bottom) in spring 2024: (A,D) facing upstream; (B,E) facing downstream; and (C,F) across (left bank looking at right bank).



## TOTE ROAD CV-057

14-JUL-24



**A**



**B**



**C**

**Photos 1-4.** Photos taken 100 m upstream in spring 2024: (A) facing upstream; (B) facing downstream; and (C) across (left bank looking at right bank).

## TOTE ROAD CV-057

14-JUL-24



**A**



**B**

**Photos 1-5.** Photos taken of the culverts in spring 2024: (A) downstream end; and (B) upstream end.