

Memorandum



DATE: August 7, 2013
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SUBJECT: Back River Project: 2013 Exploration Road Water Crossing Assessment

1. Introduction

The 2013 Exploratory Road Watercourse Crossing Assessment was conducted to provide baseline fish habitat and community data on water crossings potentially impacted by the proposed exploratory road at Goose Property. The specific study objectives were as follows:

- document fish presence, community composition, spatial distribution and the presence of barriers to fish movement for all watercourses along the proposed exploratory road;
- document channel dimensions and instream habitat characteristics for watercourses along the proposed exploratory road; and
- assess the quality of fish habitat in watercourses along the proposed exploratory road.

Each objective was achieved during field work in conducted in June of 2013, a review of previous work (Rescan 2010, 2012a, 2012b), a review of relevant background information about fish and fish habitat distribution, abundance and habitat use within the Project area.

This memo summarizes the methods and results of the fish and fish habitat assessments conducted in June 2013. Further, detailed data analysis will be presented in the 2013 fish and fish habitat baseline report.

2. Methods

2.1 Fish Habitat

During the period of June 12 to 25 2013, field crews ground-truthed the proposed road alignments for intersections with water at nine sites at the Goose and George Properties (Figures 1 and 2). Each intersection was classified as a stream, non-classified drainage (NCD) and no visible channel (NVC). Stream sites were classified as “true streams” if they met the definition of a stream – a continuous, defined channel for at least 100 m (MOF 1998). Sites with partial or discontinuous channelization were categorized as NCD. Sites where water seeped or flowed overland, or where water pooled at a potential road crossing but where no channelization was apparent, were classified as NVC.

For all intersection classifications (NVC, NCD or stream), a unique identifying site number, or interim locational point (ILP), was assigned. Each stream intersection was assessed using methods based on the detailed fish habitat assessments (FHAP, Johnston and Slaney 1996). For intersections classified as NCD and NVC, photos were taken facing upstream and downstream and global positioning system (GPS) coordinates (± 10 m) were obtained. The FHAP protocol involved characterizing fish habitat over a 100 m-long section of stream by measuring physical attributes (e.g., channel width, gradient, temperature and water quality),

characterizing cover types and substrate (dominant and subdominant cover and substrate type, cover abundance and location) and describing stream morphology. FHAP assessments involved differentiating the stream into separate habitat units such as riffles, runs, cascades, glides and pools, and then recording an array of habitat attributes for each unit. A complete list of the attributes measured is presented in Table 1. Stream habitats within these sites were separated into the following habitat units:

- pool - low velocity area with smooth, non-turbulent flow, low gradient (near 0%), and a concave bottom;
- glide - an area of smooth, non-turbulent flowing water with moderate velocity and gradient less than 4%;
- riffle - an area of turbulent, fast-flowing water with a gradient less than 4%;
- run - an area of low turbulence, fast-flowing water with a gradient less than 4%; and
- cascade - high gradient (>4%) area of turbulent, fast-flowing water.

Table 1. FHAP Attributes Assessed and Measured at Watercourse Sites

Habitat Type	Substrate Type	Physical Measurements		Habitat	Cover	
% Pool	% Sand	Length (m)	Gradient (%)	Pool Type	% Deep Pool	% LWD
% Riffle	% Gravel	Wetted Depth (m)	Bank Height (m)	Pool Residual Depth (m)	% Boulder	% SWD
% Glide	% Cobble	Bankfull Depth (m)	Temperature (°C)	Fish Passage Barriers	% Instream Vegetation	% Canopy Cover
% Cascade	% Boulder	Wetted Width (m)	pH		% Overhanging Vegetation	% Riparian Cover
% Run	% Bedrock	Bankfull Width (m)	Turbidity		% Undercut Bank	

A minimum of two photographs was taken to document each site, one facing upstream from the proposed crossing and one facing downstream from the crossing. Additional photographs were taken of barriers or features, and GPS coordinates were obtained.

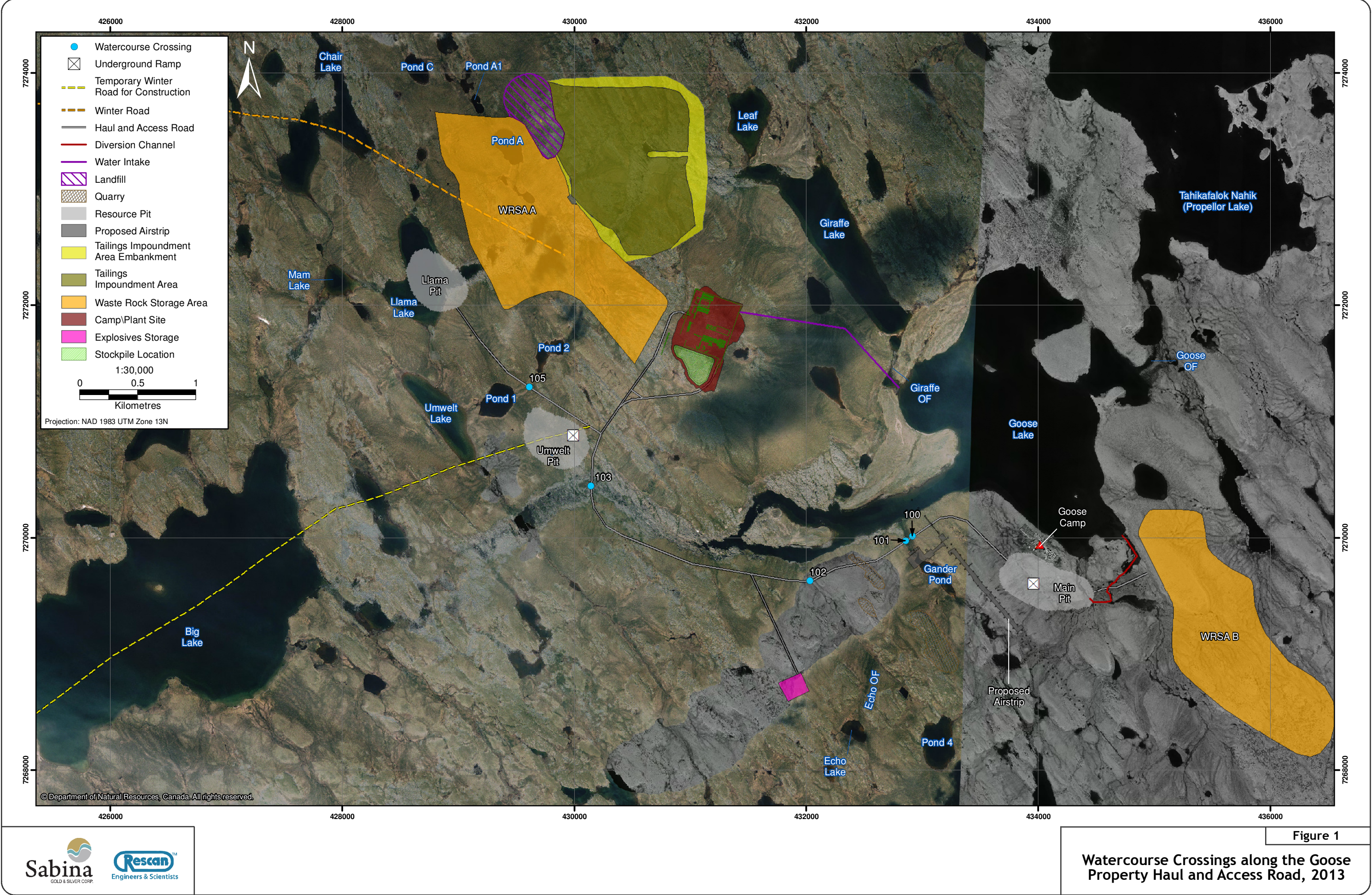
2.2 Fish Bearing Status and Community Composition

The stream intersections along the proposed exploratory road were sampled using backpack electrofishers following *RISC Fish Collection Methods and Standards* (RISC 1997), *Reconnaissance (1:20,000) Fish and Fish Habitat Inventory: Standards and Procedures* (RISC 2001) and the *Reconnaissance (1:20,000) Fish and Fish Habitat Inventory: Fish Collection Field Guide* (RISC 1999). Fish sampling was conducted primarily to confirm fish presence and secondarily to determine the fish community composition (MOE 1998). Fish sampling was conducted in the same stream intersections as the FHAP habitat assessments.

Electrofishing was conducted over a minimum 100 m-long stream section (50 m upstream and downstream of each stream intersection) and for a minimum of approximately 500 electrofishing seconds at each site. Only one electrofishing pass was made and stop nets were not employed. Additional biological information was collected on all captured fish for the purpose of the baseline report. All fish were released live back to the stream.

3. Results

A total of nine intersections were assessed along the proposed exploratory road, five at the Goose Property and four at the George Property (Table 2).



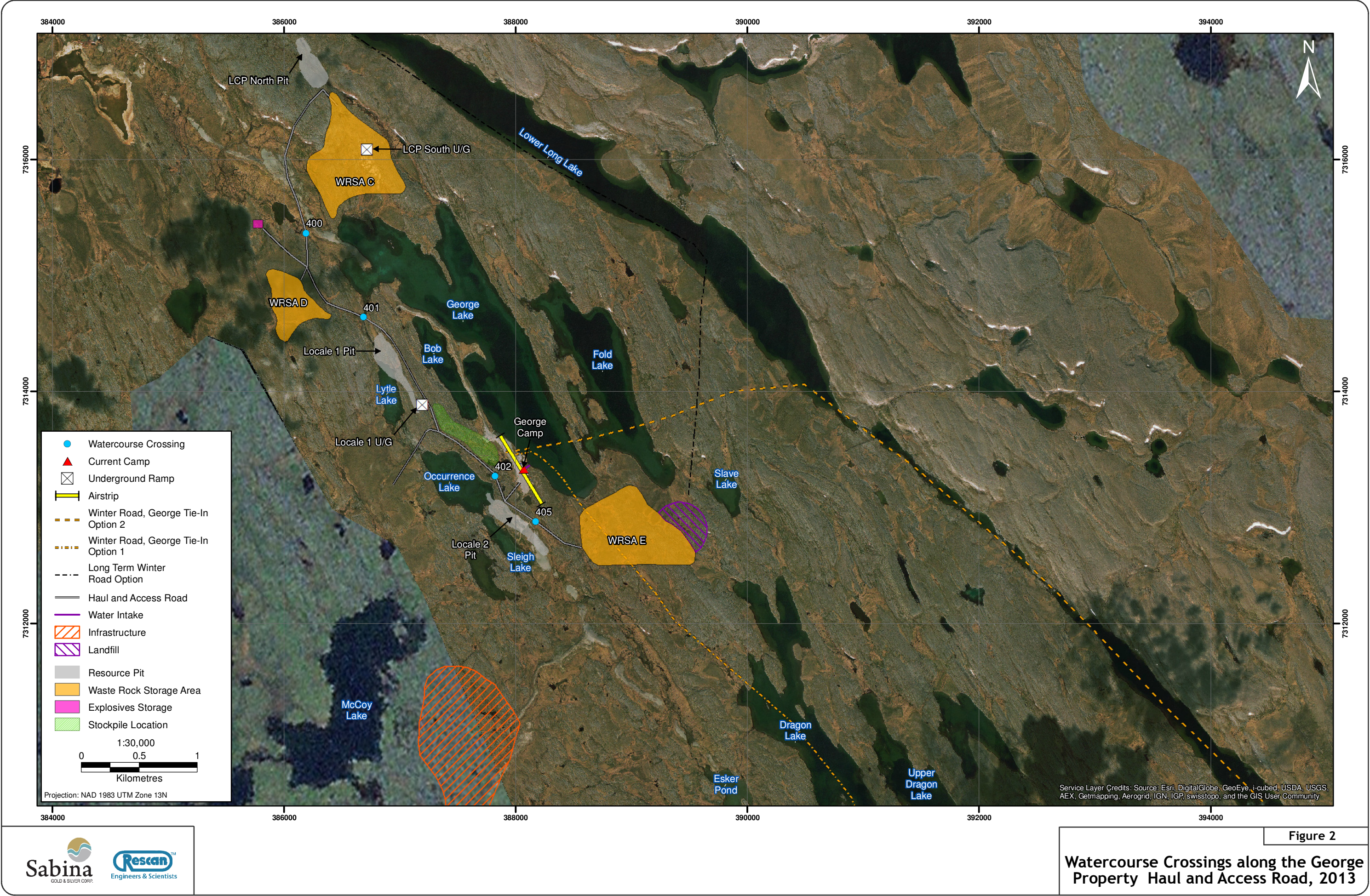


Table 2. Fish and Fish Habitat Individual Watercourse Crossing Summary Data, 2013

			Location		Channel Measurements				Channel Characteristics			Habitat		Fish		
			Easting	Northing	Mean Channel Width (m)	Mean Bankfull Depth (m)	Mean Gradient (%)	Mean Residual Pool Depth (m)	Dominant Substrate	Sub-Dominant Substrate	Morphology	Dominant Cover Type	Sub-Dominant Cover Type	Sampled	Fish-bearing Status	Species Present
Goose Property	100	NCD	432888	7270063	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Goose Property	101	Stream	432861	7270020	2.4	0.35	1.6	0.35	Sand	Cobble	Riffle-Pool	Pool	Boulder	Yes	Confirmed	NSSB, ARGR, SLSC, BURB
Goose Property	102	NCD	431996	7269679	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Goose Property	103	Stream	430179	7270435	55.8	0.80	1.0	3.90	Boulder	Cobble	Boulder Garden	Boulder	Pool	No	Unconfirmed	-
Goose Property	105	NVC	429653	7271335	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
George Property	400	Stream	386325	7315192	1.5	0.44	0.2	0.65	Sand	Cobble	Riffle-Pool	Pool	Instream Vegetation	Yes	Confirmed	ARGR
George Property	401	Stream	386677	7314593	8.8	0.34	0.7	NA	Boulder	Cobble	Riffle-Pool	Boulder	Instream Vegetation	Yes	Confirmed	LKTR
George Property	402	NCD	387833	7313275	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
George Property	405	NCD	388162	7312856	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NVC = No visible channel

NCD = Non-classified drainage

NA = Not applicable

Species: ARGR = Arctic Grayling, BURB = burbot, NSSB = ninespine stickleback, SLSC = slimy sculpin

3.1 Fish Habitat

At the Goose Property, two intersections (sites 101 and 103) were classified as streams, two were classified as NCD (sites 100 and 102) and one classified NVC (site 105). At the George Property, two intersections (sites 400 and 401) were classified as streams and two were classified as NCD (sites 402 and 405).

Table 2 presents a summary of fish habitat data for each watercourse crossing. Details regarding stream classification, location, channel measurements, bed substrate, channel morphology, cover type, riparian habitat and habitat quality are presented in this table. Channel characteristics and fish habitat cover are sites specific, and habitat quality varied between sites. Generally, intersections along the exploratory roads had narrow bankfull widths, low channel gradients, were dominated by boulder substrate and boulders provided the majority of habitat cover.

Detailed site specific fish habitat data and photos are located in Appendices 1, 2, and 3.

3.2 Fish Bearing Status and Community Composition

Of the five intersections present at the Goose Property there was one confirmed fish-bearing intersection (site 101). Fish presence was confirmed in two of the four intersections present at the George Property (sites 400 and 401). Fish presence was based upon multiple lines of evidence including single pass electrofishing, existing information, habitat conditions, lack of fish movement barriers, and suitable gradient to support fish. At the Goose Property, site 103 was considered non-fish bearing as the stream was comprised of small areas of open surface water interspersed extensive fish barriers preventing fish access to the site.

Table 2 presents a summary of fish species captured or observed at each intersection along the proposed exploratory roads. At the Goose Property, Arctic Grayling, Slimy Sculpin, Ninespine Stickleback and Burbot were sampled at Site 101. At the Goose Property, approximately 23 individual Arctic Grayling (adults and juveniles) were observed at site 400, whereas Lake trout were present at Site 401. Fish sampling effort and catch data are located in Appendix 4.

References

- MOF. 1998. Fish-stream identification guidebook. Second Edition. Forest Practices Code Guidebook. B.C. Ministry of Forests. Victoria, B.C.
- Rescan. 2010. *Back River Project: 2010 Fish and Fish Habitat Baseline Report*. Vancouver, BC. Prepared for Sabina Gold and Silver Corp. by Rescan Environmental Services Ltd.
- Rescan. 2012a. *Back River Project: 2011 Fish and Fish Habitat Baseline Report*. Vancouver, BC. Prepared for Sabina Gold and Silver Corp. by Rescan Environmental Services Ltd.
- Rescan. 2012b. *Back River Project: 2012 Fish and Fish Habitat Baseline Report*. Vancouver, BC. Prepared for Sabina Gold and Silver Corp. by Rescan Environmental Services Ltd.
- RISC. 1997. Fish collection methods and standards. Version 4.0. Victoria, B.C.
- RISC. 1999. Reconnaissance (1:20 000) fish and fish habitat inventory: Fish Collection Field Guide. Victoria, B.C.
- RISC. 2001. Reconnaissance (1:20 000) fish and fish habitat inventory: Standards and procedures. Victoria, B.C.

- Appendix 1 -

Goose and George Properties Watercourse Crossing Fish Habitat Data, 2013

Appendix 1. Goose and George Properties Watercourse Crossing Fish Habitat Data, 2013

Station ID Survey Date Survey Crew			Location				Water Characteristics				Channel Characteristics								Substrate				
			DS Easting	DS Northing	US Easting	US Northing	Temp (° C)	pH	Turbidity	Current Flow	Habitat Type	Distance From Start (m)	Length (m)	Slope (%)	Wetted Depth (m)	Bankfull Depth (m)	Wetted Width (m)	Bankfull Width (m)	% Sand	% Gravel	% Cobble	% Boulder	% Bedrock
100	14-Jun-13	SL, TM	432888	7270063	-	-	11	5.9	C	Low	Dry Channel	0	100	2.5	0.04	0.17	0.9	1.4	0	5	20	75	0
101	14-Jun-13	SL, TM	432861	7270020	432891	7269925	14.5	6.7	C	High	P	0	12.2	2.0	0.35	0.35	1.8	1.8	40	0	20	5	0
101	14-Jun-13	SL, TM	432861	7270020	432891	7269925	14.5	6.7	C	High	R	12.2	19.2	2.0	0.31	0.31	1.2	1.2	20	0	40	40	0
101	14-Jun-13	SL, TM	432861	7270020	432891	7269925	14.5	6.7	C	High	P	31.4	3.9	0.0	0.51	0.51	1.9	1.9	10	50	40	0	0
101	14-Jun-13	SL, TM	432861	7270020	432891	7269925	14.5	6.7	C	High	G	35.3	21	1.5	0.30	0.30	2.4	2.4	0	40	40	20	0
101	14-Jun-13	SL, TM	432861	7270020	432891	7269925	14.5	6.7	C	High	C	56.3	10.5	3.0	0.28	0.28	2.5	2.5	0	10	30	60	0
101	14-Jun-13	SL, TM	432861	7270020	432891	7269925	14.5	6.7	C	High	P	66.8	17.6	1.0	0.34	0.34	4.3	4.3	80	10	10	0	0
101	14-Jun-13	SL, TM	432861	7270020	432891	7269925	14.5	6.7	C	High	G	84.4	26.5	2.0	0.34	0.34	2.8	2.8	90	0	10	0	0
102	14-Jun-13	SL, TM	431996	7269679	432055	7269604	17	5.7	C	High	G	0	11	4.0	0.13	0.28	1	1.2	0	0	50	50	0
102	14-Jun-13	SL, TM	431996	7269679	432055	7269604	17	5.7	C	High	P	11	2.6	0.0	0.22	0.22	1.1	1.1	0	50	50	0	0
102	14-Jun-13	SL, TM	431996	7269679	432055	7269604	17	5.7	C	High	G	13.6	10.6	3.0	0.16	0.26	1.2	1.4	10	20	35	35	0
102	14-Jun-13	SL, TM	431996	7269679	432055	7269604	17	5.7	C	High	P	74.2	8.6	0.0	0.20	0.20	1.6	1.6	60	20	20	0	0
102	14-Jun-13	SL, TM	431996	7269679	432055	7269604	17	5.7	C	High	G	82.8	13.9	3.0	0.10	0.16	0.2	0.2	20	80	0	0	0
102	14-Jun-13	SL, TM	431996	7269679	432055	7269604	17	5.7	C	High	P	96.7	4.2	0.0	0.20	0.25	0.5	0.85	0	50	50	0	0
103	14-Jun-13	SL, TM	430179	7270435	430084	7270372	10	6.4	C	High	G/O	0	67.8	3.0	0.33	1.30	19.5	21.5	0	0	20	80	0
103	14-Jun-13	SL, TM	430179	7270435	430084	7270372	10	6.4	C	High	G	67.8	27	1.0	0.53	0.80	19.0	22.8	0	0	20	80	0
103	14-Jun-13	SL, TM	430179	7270435	430084	7270372	10	6.4	C	High	P	94.8	19.5	1.0	0.45	0.64	30.0	34	0	0	20	80	0
104	14-Jun-13	SL, TM	430174	7270465	430114	7270529	6.2	6.2	C	High	P	0	19	0.0	0.37	0.57	12.8	15.8	0	0	30	70	0
104	14-Jun-13	SL, TM	430174	7270465	430114	7270529	6.2	6.2	C	High	G	19	40	1.0	0.24	0.36	8.4	11.2	0	0	30	70	0
104	14-Jun-13	SL, TM	430174	7270465	430114	7270529	6.2	6.2	C	High	BF	59	41	1.0	0.40	1.12	58.0	62	0	0	20	80	0
105	14-Jun-13	SL, TM	429653	7271335	429597	7271257	16.4	-	C	High	G/O	0	100	3.0	0.18	0.28	0.3	0.25	70	25	5	0	0
400	17-Jun-13	KW, SL	386325	7315192	386217	7315342	-	-	C	High	G	0	100	1	0.2	0.15	2.8	1.4	80	0	20	0	0
400	17-Jun-13	KW, SL	386325	7315192	386217	7315342	-	-	C	High	P	25	2	0	0.8	0.67	2.25	0.82	50	0	50	0	0
400	17-Jun-13	KW, SL	386325	7315192	386217	7315342	-	-	C	High	P	35	3	0	0.5	0.35	2.8	2.25	100	0	0	0	0
400	17-Jun-13	KW, SL	386325	7315192	386217	7315342	-	-	C	High	P	55	5	0	0.6	0.4	1.4	1.05	100	0	0	0	0
400	17-Jun-13	KW, SL	386325	7315192	386217	7315342	-	-	C	High	P	60	5	0	0.84	0.65	4	2.2	100	0	0	0	0
401	17-Jun-13	KW, SL	386677	7314593	386887	7314689	7.6	6.73	C	High	G	0	50	1	0.24	0.18	2.4	2.1	0	0	25	75	0
401	17-Jun-13	KW, SL	386677	7314593	386887	7314689	7.6	6.73	C	High	R	0	60	1	0.28	0.28	4.5	6.1	0	0	60	40	0
401	17-Jun-13	KW, SL	386677	7314593	386887	7314689	7.6	6.73	C	High	G	60	40	0	0.78	0.56	20	18.3	65	0	20	15	0
402	17-Jun-13	KW, SL	387833	7313275	-	-	-	-	-	-	NCD	-	-	-	-	-	-	-	-	-	-	-	-
404	17-Jun-13	KW, KK	387729	7312942	387723	7312957	6.8	6.5	C	High	G	0	23	1	0.41	0.21	26.2	26	30	0	35	35	0
405	17-Jun-13	KW, KK	388162	7312856	-	-	-	-	-	-	NCD	-	-	-	-	-	-	-	-	-	-	-	-

Dashes indicate not applicable or no data available

Asterisks indicate species not confirmed but likely present based upon habitat characteristics

NCD = non-classified drainage

Turbidity: C = clear

Habitat Type: P = pool, G = glide, R = riffle, C = cascade, O = other

Pool Type: S = scour, D = dammed

Barrier Type: N = none, BF = boulder field, P = permanent

Bank Stability: S = stable, U = unstable, H = highly stable

Cover: B = boulder; IV = intream veg.; LWD = large woody debris; P = pool; OV = overhanging veg.; SWD = small woody debris; UB = undercut banl

Appendix 1. Goose and George Properties Watercourse Crossing Fish Habitat Data, 2013

Station ID			Cover																			Photos	Comments
			Pool Type	Max Pool Depth (m)	Crest Height (m)	Barrier Type	Temporary or Permanent	Left Bank Height (m)	Right Bank Height (m)	Left Bank Stability	Right Bank Stability	% Pool	% Boulder	% Instream Vegetation	% Overhanging Vegetation	% UC Bank	% LWD	% SWD	Canopy (%)	Left Bank Riparian (%)	Right Bank Riparian (%)		
100	14-Jun-13	SL, TM	-	-	-	D	P	0.20	0.20	S	S	0	0	0	0	0	0	0	0	100	100	79-80	Boulderfield with seeps of water in some places, not fish bearing
101	14-Jun-13	SL, TM	S	0.50	0.14	N	-	0.18	0.35	S	U	20	0	5	0	5	0	0	0	100	100	81-83	Overflowing right bank
101	14-Jun-13	SL, TM	-	-	-	N	-	0.20	0.25	S	S	0	20	0	5	0	0	0	0	100	100	84	Overflowing banks
101	14-Jun-13	SL, TM	S	0.51	0.18	N	-	0.14	0.30	S	S	30	0	0	0	0	0	0	0	100	100	85	Overflowing banks
101	14-Jun-13	SL, TM	-	-	-	N	-	0.20	0.21	S	S	0	25	0	0	0	0	0	0	100	100	86	Overflowing banks
101	14-Jun-13	SL, TM	-	-	-	N	-	0.09	0.23	S	S	5	5	0	0	0	0	0	0	100	100	87	Overflowing banks
101	14-Jun-13	SL, TM	S	0.57	0.22	N	-	0.30	0.4	S	S	75	0	0	0	0	0	0	0	100	100	88	VO 4 fish
101	14-Jun-13	SL, TM	-	-	-	N	-	0.20	0.25	S	S	0	0	10	0	0	0	0	0	100	100	89	Overflowing banks
102	14-Jun-13	SL, TM	-	-	-	N	-	0.20	0.28	S	S	0	10	0	0	0	0	0	0	100	100	90	Small stream, flowing but very narrow in some stretches, unlikely fish bearing
102	14-Jun-13	SL, TM	S	0.26	0.07	N	-	0.16	0.23	S	S	15	0	0	0	0	0	0	0	100	100	91	-
102	14-Jun-13	SL, TM	-	-	-	N	-	0.26	0.27	S	S	0	5	10	0	0	0	0	0	100	100	92	-
102	14-Jun-13	SL, TM	S	0.31	0.08	N	-	0.12	0.07	S	S	15	0	5	0	0	0	0	0	100	100	93	-
102	14-Jun-13	SL, TM	-	-	-	N	-	0.10	0.16	S	S	0	0	0	0	0	0	0	0	100	100	94	Slender glide
102	14-Jun-13	SL, TM	S	0.24	0.1	N	-	0.25	0.2	S	S	15	0	0	0	0	0	0	0	100	100	95	Slender
103	14-Jun-13	SL, TM	-	-	-	BF	P	-	-	H	H	0	40	0	0	0	0	0	0	15	10	106-107	Shrub, boulder garden
103	14-Jun-13	SL, TM	-	-	-	-	-	0.27	0.52	H	H	5	25	0	0	0	0	0	0	50	0	108-109	-
103	14-Jun-13	SL, TM	D	0.81	0.71	BF	P	0.19	0.45	H	H	25	10	10	0	0	0	0	0	50	75	110-112	Fish barriers throughout, intermittent stream
104	14-Jun-13	SL, TM	D	0.89	0.22	BF	P	0.20	0.2	H	H	10	10	0	10	0	0	0	0	10	50	113	DS impassable, fish barriers throughout, long stretch of boulders
104	14-Jun-13	SL, TM	-	-	-	BF	P	0.12	0.1	H	H	2	15	0	15	0	0	0	0	80	80	114-116	-
104	14-Jun-13	SL, TM	-	-	-	BF	P	0.72	0.75	H	H	2	2	0	1	0	0	0	0	60	80	117-128	-
105	14-Jun-13	SL, TM	-	-	-	NC	P	0.07	0.07	S	S	1	0	2	0	0	0	0	0	100	100	138-141	-
400	17-Jun-13	KW, SL	-	-	-	N	-	0	0	U	U	0	0	7	0	13	0	0	-	100	100	247-249	-
400	17-Jun-13	KW, SL	S	0.93	0.46	N	-	0	0	U	U	55	0	10	0	15	0	0	-	100	100	255	-
400	17-Jun-13	KW, SL	S	0.75	0.23	N	-	0	0	U	U	20	0	15	0	5	0	0	-	100	100	256	Spawning ARGR observed
400	17-Jun-13	KW, SL	S	1.18	0.43	N	-	0	0	U	U	30	0	10	0	10	0	0	-	100	100	264-266	Spawning ARGR observed, VO 2 Adult ARGR
400	17-Jun-13	KW, SL	S	1.05	0.29	N	-	0	0	U	U	40	0	10	0	5	0	0	-	100	100	267-273	Spawning ARGR observed, VO 7 Adult ARGR
401	17-Jun-13	KW, SL	-	-	-	N	-	0	0	U	U	0	60	5	0	10	0	0	-	85	100	289-290	-
401	17-Jun-13	KW, SL	-	-	-	N	-	0	0	S	S	0	30	7	0	0	0	0	-	90	100	291-292	-
401	17-Jun-13	KW, SL	-	-	-	N	-	0	0	U	U	0	3	7	0	0	0	0	-	100	90	279-280	-
402	17-Jun-13	KW, SL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	299-309	A series of underground seeps occasionally ponding above ground, surveyed pond to Occurrence Lake
404	17-Jun-13	KW, KK	-	-	-	N	-	0	0	S	S	0	2	2	0	0	0	0	-	100	50	312-314	Not really a stream, a short constriction in a single lake
405	17-Jun-13	KW, KK	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	331-347	No channel, just wet ground, some slight channelization near lake but not continuous, photos document lake to road site

Dashes indicate not applicable or no data available
Asterisks indicate species not confirmed but likely present based upon habitat characteristics
NCD = non-classified drainage
Turbidity: C = clear
Habitat Type: P = pool, G = glide, R = riffle, C = cascade, O = other
Pool Type: S = scour, D = dammed
Barrier Type: N = none, BF = boulder field, P = permanent
Bank Stability: S = stable, U = unstable, H = highly stable
Cover: B = boulder; IV = intream veg.; LWD = large woody debris; P = pool; OV = overhanging veg.; SWD = small woody debris; UB = undercut bank

- Appendix 2 -
Goose Property Watercourse Crossing Photographs, 2013

Appendix 2. Goose Property Watercourse Crossing Photographs, 2013



Site 100 - Upstream.



Site 100 - Downstream.



Site 101 - Upstream.



Site 101 - Downstream.



Site 102 - Upstream.



Site 102 - Downstream.



Site 103 - Upstream.



Site 103 - Downstream.



Site 104 - Upstream.



Site 104 - Downstream.



Site 105 - Downstream.

- Appendix 3 -
George Property Watercourse Crossing Photographs, 2013

Appendix 3. George Property Watercourse Crossing Photographs, 2013



Site 400 - Upstream.



Site 400 - Downstream.



Site 401 - Upstream.



Site 401 - Downstream.



Site 402 - Upstream.



Site 402 - Downstream.



Site 404 - Upstream



Site 404 - Downstream.



Site 405 - Upstream.



Site 405 - Downstream.

- Appendix 4 -
Goose and George Properties Watercourse Crossing Fish Sampling Data,
2013

Appendix 4. Goose and George Properties Fish Sampling Data, 2013

Station ID	Easting	Northing	Sampling Method	Method Number	Temperature (° C)	Turbidity	Haul or Pass No.	EF Seconds	Length (m)	Width (m)	Enclosure	Voltage	Frequency (Hz)	Pulse	Make	Model	Species Code	Stage	Total Number	Min. Length (mm)	Max. Length (mm)	Comments
101	432837	7270080	EF	1	-	Clear	1	831	300	1.5	No	675	30	12	LR	24	NSSB	-	14	36	56	-
101	432837	7270080	EF	1	-	Clear	1	831	300	1.5	No	675	30	12	LR	24	ARGR	IM	1	77	77	-
101	432837	7270080	EF	1	-	Clear	1	831	300	1.5	No	675	30	12	LR	24	SLSC	-	1	50	50	-
101	432837	7270080	EF	1	-	Clear	1	831	300	1.5	No	675	30	12	LR	24	BURB	IM	1	95	95	-
400	386293	7315225	EF	1	-	Clear	1	244	50	1	No	500	30	12	LR	24	NFC	-	-	-	-	VO 6 Adult ARGR so discontinued EF survey and performed spawning survey instead
401	386687	7314689	EF	1	7.3	Clear	1	473	100	13.5	No	625	30	12	LR	24	LKTR	IM	1	191	191	-

IM = immature
Species: ARGR = Arctic Grayling, BURB = burbot, NSSB = ninespine stickleback, SLSC = slimy sculpin