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EDI Job Number: 13-Y-0452

Assessment and Abandoned Mines
Yukon Government
Box 2703, K-419
Whitehorse, YT Y1A 2C6

Attention: Adrienne Turcotte, Project Officer

Re: Faro Mine Fish Telemetry Interim Reporting Summary (Sept 2012 to Mar 2014) – Final

EDI Environmental Dynamics Inc. (EDI) has been involved in fish and fish habitat investigations at the Faro Mine Site since 2011 when EDI and Assessment and Abandoned Mines (AAM) planned to initiate a radio-telemetry program targeting Arctic grayling (*Thymallus arcticus*) in and around the Faro Mine Site. The program was delayed to the following fiscal year, when in 2012, CH2M HILL Canada Ltd. (CH2M HILL) retained EDI to conduct the radio-telemetry field program. In 2013, the program was replicated to obtain additional data. Field work is anticipated to continue into the summer of 2014, with a final report completed by December 31, 2014.

The objective of the Faro Mine Fish Telemetry Project is to determine seasonal movements, habitat use, and identify potentially critical habitats of Arctic grayling in the Rose Creek watershed, near the Faro Mine Site (Figure 1). The purpose of this document is to provide an interim summary of the radio-telemetry program conducted from September 2012 to March 2014. Other fish and fish habitat investigations conducted by EDI at the Faro Mine Site are not included in this summary (e.g., juvenile fish sampling, habitat assessments and spawning surveys). Photos, tables and figures referenced in the text can be found in Attachments 1, 2, and 3, respectively.

Approach

The overall approach for both the 2012 and 2013 radio telemetry programs was to conduct sampling in the late summer in and around the mine site to target healthy, suitably sized, Arctic grayling for radio-tag placement. Internal tag placement would require field surgery.

Follow-up aerial and ground radio-telemetry surveys were planned for the following seasons/ life history stages:

Season	Timing	Life History Stage/Activity
late fall - early winter	October	Possible migration to overwintering sites
winter	December - March	Overwintering locations
spring	May - June	Possible spawning locations
summer	July	Rearing/ feeding locations

Methods

Sampling and Tag Deployment

In 2012 and 2013, adult Arctic grayling were targeted for tagging via angling, seining and electrofishing methods. Several qualified EDI Biologists and local First Nation assistants conducted the sampling. Sampling efforts were distributed based on the target tag distribution (Table 1). In 2012, the tagging field program objective was to deploy up to 35 radio-tags in and around the Faro Mine Site and the upper North and South Forks. Similarly, in 2013, the tagging field program objective was to deploy 30 to 40 radio-tags; however, in 2013 efforts were expanded downstream in Rose Creek and did not include the upper South Fork.

In 2012, two brands of internal radio tags were deployed, Lotek Wireless Inc. (Lotek) MST-930 and Sigma Eight Inc. (Sigma Eight) Pisces TX-P6-I-80 tags. In 2013, all tags were Sigma Eight. Both tag brands weighed approximately 4.5 grams (g) per tag and were equipped with motion sensors. These sensors are used to identify extensive periods of non-movement and potential mortality. With the particular settings requested, the tag life span was estimated at 9 to 12 months. The Lotek tags are pre-programmed by the manufacturer; however, the Sigma Eight tags require programing by EDI with the assistance of the manufacturer. All tags were on the frequency 150.500 or 150.600 Hz.

Only fish in healthy condition with a minimum weight of 225 g (required for the tag to remain under 2% of the total body weight of the fish) were to be selected for tagging. Once under anesthesia, fish were measured and weighed. Fish selected for radio-tag placement underwent surgical procedures guided by Wagner et al. (2011) and the field experience of EDI Senior Fish Biologist Jason Yarmish, who was present during both field tagging programs. Photos 1 to 5 demonstrate typical surgery set-up and procedures. After the surgical procedure was complete, fish were transferred to an aerated tote or a collapsible fish tube for recovery (Photo 6). Once fully recovered, the fish were released at the initial capture location (Photo 7). Any non-target species or under-sized individuals were identified to species, measured and released at the capture location.

Telemetry Tracking Surveys

Following the initial tagging event, radio-tagged fish were tracked using a combination of aerial (i.e., helicopter) and ground-based methods. Survey equipment included an H-antenna, coaxial cable, Lotek SRX 600 receiver and Trimble GPS antenna.

Aerial surveys were conducted with a Bell 206 Jet Ranger or R44 helicopter. The H-antenna was mounted on the skid of the helicopter, the cable was run from the antenna to the receiver in the interior of the helicopter, and the GPS antenna was fixed to the inside of the helicopter window (Photo 8). Audio was not connected directly to the helicopter audio system, as this is believed to introduce additional noise/ interference; instead, each crew member connected to the receiver with earbuds worn in one ear under the helicopter headset. The helicopter flew at speeds of 30 to 90 km/hr, approximately 30 to 60 m above the stream. When surveying the Pelly River, flight speed was increased to approximately 95 km/hr at an elevation of 60 to 100 m above the river. When potential signals were detected, the helicopter slowed, circled and/or hovered until sufficient data was collected to positively identify the tag and its location.

Ground surveys were conducted via truck, snowmobile and/or on foot. Where the stream paralleled an access road, the survey was conducted from the truck with the Trimble GPS attached to the receiver and the antenna mounted on the stream side of the truck exterior. The truck was driven very slowly along the access road; when potential signals were detected, the trucked slowed or stopped to ensure all data was collected. For portions not accessible by truck, the crew mobilized via snowmobile or on foot, walking the stream along the bank with the receiver and antenna hand-held, rotating the antenna direction occasionally (Photo 9).

Data downloaded from the receiver was sorted by the code ID and frequency, which is unique to each fish tagged. For each code ID, data was examined to eliminate false or interrupted data. If a code ID was encountered with successive hits at specific intervals, where an audio 'chirp' was detected this was considered valid tag detection. The strongest signal from this code ID was used to map the tag's approximate location. Lotek tag data also stated on the receiver if the tag was 'active' or 'inactive' (i.e., potential mortality or shed tag). To determine if a Sigma Eight tag was 'active' or 'inactive' the time between signals was analyzed; data received at intervals of 5.0 seconds was 'active', whereas 11.0 second intervals indicated the tag was in the 'inactive' mode. The use of subsequent surveys and individual fish positioning was used to confirm the presence of mortalities or shed tags.

Interim Data

Table 2 provides a summary the timing and objective of all radio-telemetry field trips to-date (i.e., tag deployment, seasonal tracking surveys). Following each field trip, a field report was prepared for CH2M HILL or AAM. Interim data collected during these trips is summarized below.

Sampling and Tag Deployment

The two radio-tagging field programs were conducted September 9 to 14, 2012 and September 4 to 13, 2013. Site locations and sampling conditions are summarized in Tables 3 and 4 for September 2012 and 2013, respectively. Figures 2 and 3 show the location of all sites sampled during the initial tagging programs. A summary of sampling effort, fish captured, fish tagged and catch-per-unit-effort (CPUE) are provided in Tables 5 to 8. All fish were captured via angling; both fly fishing and spin casting was conducted with a variety of flies and lures. Angling was found to be the most appropriate and effective sampling method;

however, in suitable habitats where angling was not successful, electrofishing or seining was attempted. Similar catch results generally occurred between the two field programs. Total number of fish caught angling in 2012 and 2013 was 94 and 101, respectively. In 2012, total angling effort was 124.42 angler-hours, resulting in a total CPUE of 0.76 fish per hour effort. Similarly, in 2013, total angling effort was 136.83 angler-hours, resulting in a total CPUE of 0.74 fish per hour effort.

Table 9 and Figures 2 and 3 provide a summary of the tag distribution for Arctic grayling in and around the Faro Mine Site for both 2012 and 2013. Total number of tags deployed in 2012 and 2013 was 35 and 37, respectively. In both 2012 and 2013, the field crew had difficulty catching fish in the upper North Fork; small-bodied Arctic grayling were observed in 2012 and one was captured in 2013 but the fish did not meet the minimum size requirement for tagging. Consequently, all upper North Fork fish tagged were captured in or very near the pond immediately upstream from the rock drain. In 2012, the overall target was reached by increasing the number of tags deployed near the mine site. In 2013, sampling ceased at 37 tags deployed, as the number of fish tagged in any one area was not to exceed a specific density as determined by AAM through local community group consultation.

Individual fish capture data, including fork length and weight, is presented in Tables 10 and 11 for 2012 and 2013, respectively. All fish species captured angling were Arctic grayling. Electrofishing efforts resulted in the capture of slimy sculpin (*Cottus cognatus*). No fish were captured beach seining. No known mortalities occurred during the September 2012 sampling and tagging. One fish mortality was observed during the 2013 sampling program while the fish was in holding (prior to tagging selection). The cause of the mortality is unknown; no hook injury was found and the fish appeared to be in good health.

Telemetry Tracking Surveys

As planned, EDI conducted aerial and ground telemetry tracking surveys throughout the winter and spring of 2012/2013 and 2013/2014 (Figures 4 and 5). In addition, AAM requested several ground telemetry surveys over the 2013/2014 winter period due to changing water quality and potential for fish health concerns. The results of all telemetry tracking surveys are summarized in Tables 12 and 13 and Figures 6 to 15. To better illustrate the individual fish movement, a few example tags were selected and their documented locations summarized in Figures 16 to 19.

During the initial 2012/2013 winter surveys (December), although tags were located in the Rose Creek diversion channel, it was apparent many fish left site for the winter season. In the final 2012/2013 winter survey (February), the aerial survey was expanded to include the lower Rose Creek, lower Anvil Creek and a portion of the Pelly River. Additional tags not previously found in December were located in the Pelly River in the February survey.

During the initial 2013 spring surveys (May), very few tags were detected. Further examination of the data revealed only Lotek tags were located. Follow-up discussions with the manufacturer of the other tags suggested that the Sigma Eight tags were not programmed to turn off at night, thus the battery life of these tags likely ceased in April 2013. Tags deployed in the upper North and South Forks were exclusively Sigma

Eight tags; whereas, the tags deployed near the mine site were a mix of both Lotek and Sigma Eight. Based on this knowledge, aerial surveys were discontinued for the remainder of the spring program. Ground surveyed combined with other spring sampling and habitat surveys were continued to determine spring spawning activity near the mine site.

In 2013, summer tracking surveys were not conducted, due to the tag battery issues discussed above.

During the 2013/2014 winter surveys, very few tags were detected in the Rose Creek diversion and Rose Creek; the majority of fish tagged downstream of the Haul Road were detected in the Pelly River. The fish tagged in the upper North Fork overwintered in the pond on the upstream side of the Haul Road rock drain (NF1 pond). The majority of these tags were detected; however, as the winter season progressed, fewer tags were found. It is suspected that tag clusters (i.e., multiple tags in a small area), ice conditions (i.e., thickness, layering and overflow) and tag inactivity (i.e., a signal is emitted less often when motionless or resting) resulted in signal disruptions.

Additional surveys are anticipated for the 2014 spring spawning period (May/June).

Discussion

Motion Sensors

Inactive motion status is typically interpreted as indication of fish mortality or a shed tag. However, the change in location and status between active/inactive in a few tags during both the 2012/2013 and 2013/2014 field programs suggest these motion sensors may not detect movements in Arctic grayling in resting state or the motion sensor is defective in some tags. The motion data is therefore considered unreliable and cannot be used to conclude fish mortality unless collaborated with successive 'inactive' detections in the same location or visual confirmation of fish mortality or shed tag.

Overwintering Locations

The interim results of the winter surveys for 2012/2013 indicate the Rose Creek diversion channel and the Pelly River provided important overwintering habitat for Arctic grayling tagged near the mine site. However, the interim results of the winter surveys for 2013/2014 indicate the majority of fish tagged near the mine site and downstream in Rose Creek overwintered in the Pelly River. Only two fish tagged were detected in the Rose Creek diversion channel during the 2013/2014 winter and these tags moved downstream sometime mid-winter. An important factor in fish overwintering in the diversion channel may be water quality; there were water quality issues identified on site during the 2013/2014 winter season which may have influenced overwintering site selection.

The pond on the upstream side of the Haul Road rock drain (NF1 pond) appeared to provide important overwintering habitat for fish in the upper North Fork. However, it must be considered that the majority of these fish were tagged in the pond.

Dixon Lake provides important habitat for fish in the upper South Fork. All fish tagged in this area in 2012 appeared to overwinter in Dixon Lake.

Spring Spawning Locations

Interim results indicate Arctic grayling utilize habitat near the mine site to spawn in the spring. However, it must be noted that the quantity of 2013 spring data was reduced due to the issue with tag battery life. Of the 11 Lotek tags with assumed ample battery life, eight were detected near the mine site in the spring of 2013. Two of these fish were assumed to be mortalities or shed tags based on the location and motion data. Two more of these eight fish were captured in the Rose Creek diversion channel and Pumphouse Pond and were found to be males in spawning stage (i.e., ripe with milt). The remaining four tags were detected in Rose Creek, the Rose Creek diversion channel and Pumphouse Pond.

Remaining 2014 Telemetry Surveys

Results from the anticipated 2014 spring telemetry surveys should provide additional insight and data regarding the spawning locations of Arctic grayling near the mine site. In addition, anticipated 2014 summer telemetry surveys may provide summer rearing and feeding locations near the mine site.

I trust this document provides AAM with the requested summary of interim telemetry results to-date. If you have any questions or comments, please do not hesitate to contact me at 867-393-4882 or mkearns@edynamics.com.

Yours truly,

EDI Environmental Dynamics Inc.

Meighan Kearns, B.Sc., R.P.Bio., P.Biol.
Aquatic Biologist

Attachments:

- A - Photos
- B - Tables
- C - Figures

References

Wagner, G.N., S.J. Cooke, R.S. Brown and K.A. Deters. 2011. Surgical implantation techniques for electronic tags in fish. Rev Fish Biol Fisheries 21: 71-81.

Attachment A
Photos

Photo 1. **Fish surgery for radio-tag deployment, Dixon Lake, September 12, 2012.**

Photo 2. **Fish surgery for radio-tag deployment, Rose Creek, September 07, 2013.**

Photo 3. Placement of Sigma Eight radio-tag in fish body cavity, September 11, 2013.

Photo 4. Overview of tag placement, prior to suturing, September 06, 2013.

Photo 5. Suturing of incision for tag placement, September 04, 2013.

Photo 6. Radio-tagged Arctic grayling in recovery tote, September 06, 2013.

Photo 7. Radio-tagged Arctic grayling released, September 07, 2013.

Photo 8. Telemetry H-antenna set-up for aerial surveys, February 12, 2014.

Photo 9. EDI Biologist conducting a ground-based telemetry survey on foot, June 06, 2013.

Attachment B
Tables

Table 1. Summary of radio-tag distribution targets, by area, Faro Mine Site, 2012 and 2013.

Area	Tag Distribution Target	
	2012	2013
Downstream from Mine [(a)]	0	8 – 12
Near Mine [(b)]	18 - 22	10 – 24
Upper South Fork [(c)] and Dixon Lake	5 - 7	0
Upper North Fork [(d)]	8 - 10	8 - 12
Total Tags	Up to 35	Up to 40

Notes:
(a) Includes Rose Creek downstream from X14/ effluent discharge to Anvil Creek.
(b) Includes Rose Creek near X14, Rose Creek diversion channel, lower North and South Forks (up to the Haul Road), North Fork ponds, and Pumphouse Pond.
(c) Includes the South Fork upstream from the Haul Road.
(d) Includes the North Fork upstream from the Haul Road rock drain.

Table 2. Summary of radio telemetry field trips, September 2012 to February 2014.

Season	Field Dates	Field Objective	Field/Trip Report
Early Fall	Sept 9-14, 2012	Deployment of radio tags	Interim Field Report No. 1 dated 06-Nov-12 to CH2M HILL
Winter	Oct 31, 2012	Aerial telemetry surveys near the mine site, upper North Fork and upper South Fork	Interim Field Report No. 2 dated 13-Dec-12 to CH2M HILL
	Dec 5-6, 2012	Ground telemetry surveys near the mine site	Interim Field Report No. 3 dated 21-Jan-13 to CH2M HILL
	Feb 5, 2013	Aerial and ground telemetry surveys near the mine site, and upper North and South Forks, and extended downstream into the Pelly River	Interim Field Report No. 4 dated 06-Mar-13 to CH2M HILL
Spring	May 24-25, 2013	Aerial and ground surveys near the mine site, upper North and South Forks	Interim Field Report No. 5 dated 07-Nov-13 to CH2M HILL (includes all spring surveys)
	June 4-6, 2013	Conduct ground surveys near the mine site	
	June 12-15, 2013	Conduct ground surveys near the mine site	
	June 21-25, 2013	Conduct ground surveys near the mine site	
Late Summer	Sept 4-13, 2013	Deployment of radio tags	Interim Field Report No. 6 dated 05-Nov-13 to CH2M HILL
Winter	Oct 29-30, 2013	Aerial and ground surveys near the mine site, upper North Fork and downstream into Rose Creek, Anvil Creek and the Pelly River	Interim Field Report No. 7 dated 21-Feb-14 to CH2M HILL
	Nov 13, 2013	Ground survey of the upper North Fork NF1 Pond	Faro Rose Creek Field Program Trip 1 to dated 03-Dec-13 to AAM
	Nov 27, 2013	Ground survey of the upper North Fork NF1 Pond	Faro Rose Creek Field Program Trips 2 & 3 dated 17-Dec-13 to AAM
	Dec 10, 2013	Ground surveys of the upper North Fork NF1 Pond and near mine site areas	Faro Rose Creek Field Program Trips 2 & 3 dated 17-Dec-13 to AAM
	Jan 8, 2014	Ground surveys of the upper North Fork NF1 Pond and near mine site areas	Faro Rose Creek Field Program Trip 7 dated 15-Jan-14 to AAM
	Jan 15, 2014	Ground survey of the upper North Fork NF1 Pond	Faro Rose Creek Field Program Trip 8 dated 28-Jan-14 to AAM
	Jan 29, 2014	Ground surveys of the upper North Fork NF1 Pond and near mine site areas	Faro Rose Creek Field Program Trip 10 dated 10-Feb-14 to AAM
	Feb 12, 2014	Aerial surveys near the mine site, upper North Fork and downstream into Rose Creek, Anvil Creek and the Pelly River	Interim Field Report No. 8 dated 10-Mar-14 to CH2M HILL

Table 3. Sample site locations and conditions, Faro Mine Site, September 2012.

Study Area	Watercourse/ Waterbody	Site ID [a]	UTM Coordinates [b] E	UTM Coordinates [b] N	Water Temperature (˚C)	Habitat Type	Cover Types Available
Near Mine Site	Pumphouse Pond	1	583345	6912499	2.3 - 4.4	pond	depth
	Rose Creek diversion channel	2	581967	6913052	4.5	run	cobble/ boulders, depth
		3	580942	6913516	4.5	run	cobble/ boulders, depth
		16	580932	6913511	3.4	run	cobble/ boulders, depth
	Rose Creek	17	579425	6914891	3.8	riffle, run, pool	boulders, overhanging veg
	North Fork	4	584682	6913015	3.5	riffle, run	Boulders, trace of overhanging veg and small woody debris
	North Fork Ponds	8	583851	6912623	2.4	pond	depth; trace of small woody debris and boulders
	South Fork	13	585799	6911126	5.2	riffle, pool	deep pools, undercut banks, small woody debris
		14	585088	6911840	3.2	run, pool	undercut banks, instream and overhanging veg
		15	584826	6912076	3.2	riffle, pool	boulders, pool depth, undercut banks, trace of overhanging veg
North Fork - upstream from the Haul Road	North Fork	5	585061	6913254	3.5	pond, run	instream veg, depth
		6A	591598	6918828	1.6	run, pool	boulder, trace of overhanging veg
		6B	593430	6919250	1.6	run, pool	boulder, trace of overhanging veg
		7	595414	6919265	1.5	pond	abundance of instream veg
		11	586376	6914391	2.2	riffle, run, pool	boulder/ cobble, undercut banks, depth, trace of LWD
		12	588852	6917396	2.7	riffle, run, pool	boulder/ cobble, undercut banks, depth, trace of overhanging veg
Dixon Lake and South Fork - upstream from the Haul Road	Dixon Lake	9	593830	6911020	1.3 - 3.9	lake	depth, cobble/ boulder
	South Fork	10	593189	6910285	5.1	riffle, pool	undercut banks, small woody debris and overhanging veg

Notes: [a] Site locations shown on Figure 2; [b] Universal Transverse Mercator (UTM) coordinates in North American Datum (NAD) 83; Zone 8V; E = Easting, N = Northing

Table 4. Sample site locations and conditions, Faro Mine Site, September 2013.

Study Area	Watercourse/ Waterbody	Site ID [a]	UTM Coordinates [b] E	UTM Coordinates [b] N	Water Temperature (˚C)	Habitat Type	Dominant Cover Types
Near Mine Site	North Fork	NF-AG-21	584040	6912712	5.9	pool	cobble, overhanging veg, turbulence, depth
		NF-AG-22	584690	6913015	4.3	pool - run	boulder, rip rap, overhanging veg
	North Fork Ponds	NP-AG-01	583889	6912638	5.9	pond	depth, turbulence
		NP-AG-02	583797	6912610	6.6	pond	depth, turbulence
	Pumphouse Pond	PP-AG-01	583277	6912468	6.1	pond	depth
	Rose Creek	RC-AG-01	579397	6914864	6.0	pool - run	depth, LWD, overhanging veg
		RC-AG-02	579439	6914765	6.0	run	undercut bank, overhanging veg, boulders
	Rose Creek Diversion	RCD-AG-03	580202	6913885	7.2	riffle - run	cobble/ boulder, overhanging veg, turbulence
		RCD-AG-04	580329	6913803	7.2	run	boulders, overhanging veg
		RCD-AG-11	583235	6912519	4.1	pool	deep pool, overhanging veg
		RCD-AG-12	580547	6913692	4.0	run	boulders
		RCD-AG-13	581392	6913337	4.0	run	boulders
		RCD-AG-14	582481	6912928	4.0	run - pool	depth
		RCD-AG-15	581750	6913176	4.0	pool	depth, boulders
	South Fork	SF-AG-01	585671	6911215	5.2	riffle - run - pool	depth, undercut banks, overhanging veg
		SF-AG-02	585069	6911871	6.4	run - pool	deep pool, overhanging veg, undercut banks
		SF-AG-03	583648	6912356	5.7	riffle - run	cobble, overhanging veg
		SF-AG-04	584905	6912046	-	run - pool	deep pool, overhanging veg, undercut banks
North Fork - upstream from the Haul Road	North Fork	NF-AG-01	593458	6919485	4.8	pool - run	deep pools, undercut banks
		NF-AG-02	590621	6919109	4.8	riffle - pool - run	deep pools, undercut banks
		NF-AG-03	586491	6914370	4.8	riffle - pool - run	deep pools, undercut banks
		NF-AG-06	592975	6918886	5.1	run - cascade	undercut banks, overhanging veg

Table continued on next page.

Study Area	Watercourse/ Waterbody	Site ID [a]	E	N	Water Temperature (˚C)	Habitat Type	Dominant Cover Types
North Fork - upstream from the Haul Road	North Fork	NF-AG-07	589105	6917932	6.6	riffle - pool	deep pools, undercut banks, overhanging veg
		NF-AG-08	584878	6913180	7.1	pond	depth, boulders
		NF-AG-09	585471	6913680	5.5	pool	emergent and submerged aquatic veg
		NF-AG-11	595214	6919346	10.9	pond	emergent and submerged aquatic veg
		NF-AG-12	596903	6919322	10.3	pond	emergent and submerged aquatic veg
		NF-AG-13	591603	6918811	6.3	pool	depth, overhanging veg, undercut banks
		NF-EF-01	585521	6913705	4.5	riffle - pool - run	deep pools, undercut banks, boulders, cobble, overhanging veg, turbulence
		NF-SN-01	595185	6919335	9.9	pond	emergent and submerged aquatic veg
		NF-SN-02	595185	6919335	9.9	pond	emergent and submerged aquatic veg
		NF-SN-03	595185	6919335	9.9	pond	emergent and submerged aquatic veg
		NF-SN-04	595185	6919335	9.9	pond	emergent and submerged aquatic veg
Rose Creek - downstream from X14	Rose Creek	RC-AG-04	567865	6921816	4.1	riffle - pool	undercut banks, overhanging veg
		RC-AG-05	569367	6917896	4.1	pool - run	deep pools
		RC-AG-06	568023	6920867	4.5	riffle - run - pool	boulders, LWD, overhanging veg, undercut banks
		RC-AG-07	570100	6917708	5.1	riffle - pool	deep pools, LWD, undercut banks, overhanging veg
		RC-AG-08	571839	6917859	6.5	riffle - pool	deep pools, LWD, undercut banks, overhanging veg
		RC-AG-09	570650	6917953	7.2	riffle - pool	deep pools, LWD, undercut banks, overhanging veg
		RC-AG-10	577022	6916109	6.4	riffle - pool	deep pools
		RC-AG-11	575276	6916843	6.1	riffle - pool	deep pools, overhanging veg
		RC-AG-12	569585	6917755	6.9	riffle - pool - run	deep pools, overhanging veg
		RC-AG-16	577907	6915759	6.1	riffle - pool - run	deep pools, overhanging veg
		RC-AG-17	577566	6915909	6.8	riffle - pool - run	deep pools, overhanging veg
		RC-AG-18	578265	6915418	7.0	riffle - pool - run	deep pools, overhanging veg

Notes: [a] Site locations shown on Figure 3; [b] Universal Transverse Mercator (UTM) coordinates in North American Datum (NAD) 83; Zone 8V; E = Easting, N = Northing

Table 5. Angling effort, Faro Mine Site, September 2012.

Study Area	Watercourse/ Waterbody	Site ID [a]	Date	Start Time (hh:mm:ss)	End Time (hh:mm:ss)	Angling Time (hrs)	No. of Anglers	Total Effort (Angler-Hrs)
Near Mine Site	Pumphouse Pond	1	09-Sep-12	8:30:00	10:00:00	1.5	6	9
			11-Sep-12	13:25:00	14:00:00	0.58	4	8.08
				14:00:00	14:40:00	0.67	6	
				14:40:00	15:15:00	0.58	3	
			14-Sep-12	13:40:00	14:00:00	0.33	3	1
	Rose Creek diversion channel	2	09-Sep-12	12:30:00	13:40:00	1.17	6	7
			14-Sep-12	12:35:00	12:50:00	0.25	5	1.25
		3	09-Sep-12	16:00:00	17:00:00	1	6	6
		16	14-Sep-12	12:15:00	12:30:00	0.25	4	1
	Rose Creek	17	14-Sep-12	13:10:00	13:30:00	0.33	5	1.67
	North Fork	4	10-Sep-12	9:00:00	10:00:00	1	6	7
				10:00:00	10:30:00	0.5	2	
	North Fork Ponds	8	11-Sep-12	15:20:00	16:00:00	0.67	4	8.67
				16:00:00	17:00:00	1	6	
	South Fork	13	13-Sep-12	13:40:00	15:00:00	1.33	5	8.67
				16:00:00	16:40:00	0.67	3	
		14	14-Sep-12	8:30:00	9:20:00	0.83	4	3.33
		15	14-Sep-12	9:30:00	10:20:00	0.83	4	3.67
				10:00:00	10:20:00	0.33	1	
North Fork - upstream from the Haul Road	North Fork	5	10-Sep-12	13:15:00	14:45:00	1.5	6	10
				14:45:00	15:05:00	0.33	3	
			13-Sep-12	11:15:00	11:30:00	0.25	2	6.75
				11:30:00	12:45:00	1.25	5	
		6A	11-Sep-12	9:30:00	10:30:00	1	3	3
		6B	11-Sep-12	9:40:00	11:30:00	1.83	3	5.5
		7	11-Sep-12	11:00:00	11:30:00	0.5	3	1.5
		11	13-Sep-12	8:30:00	9:30:00	1	5	5

Table continued on next page.

Study Area	Watercourse/ Waterbody	Site ID [(a)]	Date	Start Time (hh:mm:ss)	End Time (hh:mm:ss)	Angling Time (hrs)	No. of Anglers	Total Effort (Angler-Hrs)
North Fork - upstream from the Haul Road	North Fork	12	13-Sep-12	10:00:00	10:50:00	0.83	4	3.33
Dixon Lake and South Fork - upstream from the Haul Road	Dixon Lake	9	12-Sep-12	8:30:00	9:00:00	0.5	2	19.67
				9:00:00	11:00:00	2	6	
				12:00:00	13:40:00	1.67	4	
	South Fork	10	12-Sep-12	12:00:00	13:40:00	1.67	2	3.33

Notes: [(a)] Site locations shown on Figure 2

Table 6. Angling effort, Faro Mine Site, September 2013.

Study Area	Watercourse/ Waterbody	Site ID [a]	Date	Start Time (hh:mm:ss)	End Time (hh:mm:ss)	Angling Time (hrs)	No. of Anglers	Angler-Hrs	Total Effort (Angler-Hrs)
Near Mine Site	North Fork	NF-AG-21	09-Sep-13	16:05:00	16:25:00	0.33	3	1.00	1.00
		NF-AG-22	10-Sep-13	12:40:00	13:10:00	0.50	5	2.50	2.50
	North Fork Ponds	NP-AG-01	09-Sep-13	14:10:00	15:40:00	1.50	3	4.50	4.50
		NP-AG-02	09-Sep-13	16:00:00	16:20:00	0.33	1	0.33	0.33
	Pumphouse Pond	PP-AG-01	09-Sep-13	11:50:00	13:20:00	1.50	3	4.50	4.50
	Rose Creek	RC-AG-01	04-Sep-13	11:30:00	12:00:00	0.50	3	1.50	1.50
		RC-AG-02	04-Sep-13	11:45:00	12:00:00	0.25	2	0.50	0.50
	Rose Creek Diversion	RCD-AG-03	04-Sep-13	14:20:00	14:50:00	0.50	3	1.50	1.50
		RCD-AG-04	04-Sep-13	14:30:00	14:50:00	0.33	2	0.67	0.67
		RCD-AG-11	09-Sep-13	11:50:00	13:20:00	1.50	2	3.00	3.00
		RCD-AG-12	10-Sep-13	8:30:00	9:13:00	0.72	3	2.15	2.15
		RCD-AG-13	10-Sep-13	9:50:00	10:20:00	0.50	3	1.50	1.50
		RCD-AG-14	10-Sep-13	10:25:00	10:45:00	0.33	3	1.00	1.00
		RCD-AG-15	10-Sep-13	10:00:00	10:22:00	0.37	2	0.73	0.73
	South Fork	SF-AG-01	09-Sep-13	10:00:00	11:20:00	1.33	5	6.67	6.67
		SF-AG-01	10-Sep-13	15:25:00	16:25:00	1.00	3	3.00	3.00
		SF-AG-02	10-Sep-13	15:20:00	17:00:00	1.67	2	3.33	3.33
		SF-AG-03	12-Sep-13	10:10:00	11:20:00	1.17	2	2.33	2.33
		SF-AG-04	12-Sep-13	10:20:00	11:35:00	1.25	2	2.50	2.50
North Fork - upstream from the Haul Road	North Fork	NF-AG-01	05-Sep-13	9:20:00	10:39:00	1.32	2	2.63	2.63
		NF-AG-02	05-Sep-13	11:30:00	12:30:00	1.00	2	2.00	2.00
		NF-AG-03	05-Sep-13	13:00:00	14:00:00	1.00	2	2.00	2.00
		NF-AG-06	05-Sep-13	10:00:00	10:42:00	0.70	4	2.80	2.80
		NF-AG-07	05-Sep-13	11:30:00	12:40:00	1.17	3	3.50	3.50

Table continued on next page.

Study Area	Watercourse/ Waterbody	Site ID [a]	Date	Start Time (hh:mm:ss)	End Time (hh:mm:ss)	Angling Time (hrs)	No. of Anglers	Angler-Hrs	Total Effort (Angler-Hrs)
North Fork - upstream from the Haul Road	North Fork	NF-AG-08	05-Sep-13	14:00:00	14:30:00	0.50	3	1.50	11.41
			05-Sep-13	14:30:00	15:35:00	1.08	5	5.42	
			05-Sep-13	15:00:00	15:35:00	0.58	2	1.17	
			11-Sep-13	9:30:00	11:10:00	1.67	2	3.33	
		NF-AG-09	11-Sep-13	13:10:00	13:30:00	0.33	1	0.33	0.33
		NF-AG-11	08-Sep-13	10:00:00	11:15:00	1.25	5	6.25	11.25
			08-Sep-13	12:30:00	13:30:00	1.00	5	5.00	
		NF-AG-12	08-Sep-13	10:00:00	11:00:00	1.00	2	2.00	2.00
		NF-AG-13	08-Sep-13	14:00:00	16:00:00	2.00	3	6.00	6.00
Rose Creek - downstream from X14	Rose Creek	RC-AG-04	06-Sep-13	8:40:00	9:20:00	0.67	2	1.33	1.33
		RC-AG-05	06-Sep-13	9:25:00	11:05:00	1.67	2	3.33	3.33
		RC-AG-06	06-Sep-13	9:00:00	10:20:00	1.33	3	4.00	4.00
		RC-AG-07	06-Sep-13	10:38:00	11:30:00	0.87	4	3.47	8.47
			06-Sep-13	11:40:00	12:30:00	0.83	6	5.00	
		RC-AG-08	06-Sep-13	12:55:00	14:40:00	1.75	3	5.25	5.25
		RC-AG-09	06-Sep-13	15:15:00	16:46:00	1.52	3	4.55	4.55
		RC-AG-10	06-Sep-13	13:05:00	14:35:00	1.50	2	3.00	3.00
		RC-AG-11	07-Sep-13	11:50:00	12:10:00	0.33	2	0.67	0.67
		RC-AG-12	07-Sep-13	15:15:00	15:25:00	0.17	2	0.33	6.33
			07-Sep-13	15:25:00	16:25:00	1.00	6	6.00	
		RC-AG-16	07-Sep-13	8:45:00	10:30:00	1.75	3	5.25	5.25
		RC-AG-17	07-Sep-13	11:00:00	13:00:00	2.00	3	6.00	6.00
		RC-AG-18	07-Sep-13	14:30:00	15:00:00	0.50	3	1.50	1.50

Notes: [a] Site locations shown on Figure 3

Table 7. Angling fish capture results and catch-per-unit-effort, Faro Mine Site, September 2012.

Study Area	Watercourse/ Waterbody	Site ID [(a)]	No. of Fish Tagged	No. of Fish Caught	Total Effort (Angler-Hrs)	Catch-per-Unit-Effort (CPUE)
Near Mine Site	Pumphouse Pond	1	6	10	18.08	0.55
	Rose Creek diversion channel	2	5	5	8.25	0.61
		3	5	9	6.00	1.50
		16	0	0	1.00	0.00
	Rose Creek	17	0	0	1.67	0.00
	North Fork	4	2	2	7.00	0.29
	North Fork Ponds	8	2	7	8.67	0.81
	South Fork	13	3	7	8.67	0.81
		14	0	0	3.33	0.00
		15	3	6	3.67	1.64
		Subtotal	26	46	66.34	0.69
North Fork - upstream from the Haul Road	North Fork	5	3	6	16.75	0.36
		6A	0	0	3.00	0.00
		6B	0	0	5.50	0.00
		7	0	0	1.50	0.00
		11	0	0	5.00	0.00
		12	0	0	3.33	0.00
		Subtotal	3	6	35.08	0.17
Dixon Lake and South Fork - upstream from the Haul Road	Dixon Lake	9	2	37	19.67	1.88
	South Fork	10	4	5	3.33	1.50
		Subtotal	6	42	23.00	1.83
		Total	35	94	124.42	0.76

Notes: [(a)] Site locations shown on Figure 2

Table 8. Angling fish capture results and catch-per-unit-effort, Faro Mine Site, September 2013.

Study Area	Watercourse/ Waterbody	Site ID [a]	No. of Fish Tagged	No. of Fish Caught	Total Effort (Angler-Hrs)	Catch-per-Unit-Effort (CPUE)
Near Mine Site	North Fork	NF-AG-21	1	1	1.00	1.00
		NF-AG-22	2	16	2.50	6.40
	North Fork Ponds	NP-AG-01	1	6	4.50	1.33
		NP-AG-02	1	1	0.33	3.00
	Pumphouse Pond	PP-AG-01	1	3	4.50	0.67
	Rose Creek	RC-AG-01	1	1	1.50	0.67
		RC-AG-02	1	2	0.50	4.00
	Rose Creek Diversion	RCD-AG-03	1	1	1.50	0.67
		RCD-AG-04	1	1	0.67	1.50
		RCD-AG-11	1	1	3.00	0.33
		RCD-AG-12	1	1	2.15	0.47
		RCD-AG-13	0	0	1.50	0.00
		RCD-AG-14	1	4	1.00	4.00
		RCD-AG-15	1	1	0.73	1.36
	South Fork	SF-AG-01	0	0	9.67	0.00
		SF-AG-02	0	0	3.33	0.00
		SF-AG-03	0	0	2.33	0.00
		SF-AG-04	0	0	2.50	0.00
		Subtotal	14	39	43.22	0.90
North Fork - upstream from the Haul Road	North Fork	NF-AG-01	0	0	2.63	0.00
		NF-AG-02	0	0	2.00	0.00
		NF-AG-03	0	0	2.00	0.00
		NF-AG-06	0	0	2.80	0.00
		NF-AG-07	0	0	3.50	0.00
		NF-AG-08	9	44	11.41	3.86
		NF-AG-09	1	2	0.33	6.00
		NF-AG-11	0	0	11.25	0.00
		NF-AG-12	0	0	2.00	0.00
		NF-AG-13	0	1	6.00	0.17
		Subtotal	10	47	43.93	1.07
Rose Creek - downstream from X14	Rose Creek	RC-AG-04	0	0	1.33	0.00
		RC-AG-05	0	0	3.33	0.00
		RC-AG-06	0	0	4.00	0.00
		RC-AG-07	1	1	8.47	0.12
		RC-AG-08	1	1	5.25	0.19
		RC-AG-09	2	2	4.55	0.44
		RC-AG-10	2	3	3.00	1.00

Table continued on next page.

Study Area	Watercourse/ Waterbody	Site ID [a]	No. of Fish Tagged	No. of Fish Caught	Total Effort (Angler-Hrs)	Catch-per-Unit-Effort (CPUE)
		RC-AG-11	0	0	0.67	0.00
		RC-AG-12	2	2	6.33	0.32
		RC-AG-16	2	2	5.25	0.38
		RC-AG-17	2	3	6.00	0.50
		RC-AG-18	1	1	1.50	0.67
		Subtotal	13	15	49.68	0.30
		Total	37	101	136.83	0.74

Notes: [a] Site locations shown on Figure 3

Table 9. Summary of the distribution of radio-tags, by area, Faro Mine Site, 2012 and 2013.

Area	Radio-tags Deployed	
	2012	2013
Downstream from Mine [a]	N/A	13
Near Mine [b]	26	14
Upper South Fork [c] and Dixon Lake	6	N/A
Upper North Fork [d]	3	10
Total Deployed	35	37

Notes:
(a) Includes Rose Creek downstream from X14/ effluent discharge to Anvil Creek.
(b) Includes Rose Creek near X14, Rose Creek diversion channel, lower North and South Forks (up to the Haul Road), North Fork ponds, and Pumphouse Pond.
(c) Includes the South Fork upstream from the Haul Road.
(d) Includes the North Fork upstream from the Haul Road rock drain.

Table 10. Individual fish capture data, Faro Mine Site, September 2012.

Date	Site ID(1)	Fish ID	Species(2)	Fork Length (mm)	Weight (g)	Radio Tag Type (3)	Freq	Radio Tag ID	Scale Sample
09-Sep-12	1	1	GR	295	320	-	-	-	N
09-Sep-12	1	2	GR	285	260	-	-	-	N
09-Sep-12	1	3	GR	325	475	Lotek	150.600	2b	N
09-Sep-12	1	4	GR	330	475	Lotek	150.600	3b	N
09-Sep-12	1	5	GR	330	425	Lotek	150.600	4b	N
09-Sep-12	2	6	GR	377	700	Lotek	150.600	5b	Y
09-Sep-12	2	7	GR	312	400	Lotek	150.600	6b	Y
09-Sep-12	2	8	GR	330	475	Lotek	150.600	7b	Y
09-Sep-12	2	9	GR	370	675	Lotek	150.600	8b	Y
09-Sep-12	2	10	GR	350	550	Lotek	150.600	9b	Y
09-Sep-12	3	11	GR	300	375	-	-	-	N
09-Sep-12	3	12	GR	350	600	Lotek	150.600	10b	Y
09-Sep-12	3	13	GR	345	550	S8	150.600	11b	N
09-Sep-12	3	14	GR	322	420	S8	150.600	12b	N
09-Sep-12	3	15	GR	365	640	S8	150.600	13b	N
09-Sep-12	3	16	GR	300	350	-	-	-	N
09-Sep-12	3	17	GR	357	560	S8	150.600	14b	N
09-Sep-12	3	18	GR	303	375	-	-	-	N
09-Sep-12	3	19	GR	305	395	-	-	-	N
10-Sep-12	4	20	GR	342	450	S8	150.600	15b	Y
10-Sep-12	4	21	GR	337	450	S8	150.600	16b	Y
10-Sep-12	5	22	GR	286	325	S8	150.600	17b	Y
10-Sep-12	5	23	GR	225	255	-	-	-	Y
10-Sep-12	5	24	GR	271	280	-	-	-	Y
10-Sep-12	5	25	GR	288	310	-	-	-	Y
10-Sep-12	5	26	GR	295	273	S8	150.600	18b	Y
10-Sep-12	5	27	GR	290	275	S8	150.500	20a	Y
11-Sep-12	1	28	GR	311	375	S8	150.500	19a	Y
11-Sep-12	1	29	GR	260	266	-	-	-	Y
11-Sep-12	1	30	GR	267	275	-	-	-	Y
11-Sep-12	8	31	GR	316	380	S8	150.500	21a	Y
11-Sep-12	8	32	GR	313	360	S8	150.500	22a	Y
11-Sep-12	8	33	GR	286	300	-	-	-	Y
11-Sep-12	8	34	GR	225	180	-	-	-	Y
11-Sep-12	8	35	GR	223	125	-	-	-	Y
11-Sep-12	8	36	GR	140	-	-	-	-	N

Table continued on next page.

Date	Site ID[1]	Fish ID	Species[2]	Fork Length (mm)	Weight (g)	Radio Tag Type [3]	Freq	Radio Tag ID	Scale Sample
11-Sep-12	8	37	GR	110	-	-	-	-	N
12-Sep-12	9	38	GR	180	-	-	-	-	N
12-Sep-12	9	39	GR	279	275	S8	150.500	11a	Y
12-Sep-12	9	40	GR	255	190	-	-	-	Y
12-Sep-12	9	41	GR	262	175	-	-	-	N
12-Sep-12	9	42	GR	234	125	-	-	-	Y
12-Sep-12	9	43	GR	243	155	-	-	-	Y
12-Sep-12	9	44	GR	233	145	-	-	-	Y
12-Sep-12	9	45	GR	215	110	-	-	-	Y
12-Sep-12	9	46	GR	204	100	-	-	-	Y
12-Sep-12	9	47	GR	240	170	-	-	-	Y
12-Sep-12	9	48	GR	235	160	-	-	-	Y
12-Sep-12	9	49	GR	232	150	-	-	-	Y
12-Sep-12	9	50	GR	233	150	-	-	-	Y
12-Sep-12	9	51	GR	235	140	-	-	-	Y
12-Sep-12	9	52	GR	222	130	-	-	-	Y
12-Sep-12	9	53	GR	233	125	-	-	-	Y
12-Sep-12	9	54	GR	235	-	-	-	-	N
12-Sep-12	9	55	GR	225	-	-	-	-	N
12-Sep-12	9	56	GR	366	515	S8	150.500	23a	N
12-Sep-12	9	57	GR	245	-	-	-	-	N
12-Sep-12	9	58	GR	227	-	-	-	-	N
12-Sep-12	9	59	GR	235	-	-	-	-	N
12-Sep-12	9	60	GR	225	-	-	-	-	N
12-Sep-12	9	61	GR	235	-	-	-	-	N
12-Sep-12	9	62	GR	225	-	-	-	-	N
12-Sep-12	9	63	GR	210	-	-	-	-	N
12-Sep-12	9	64	GR	215	-	-	-	-	N
12-Sep-12	9	65	GR	260	200	-	-	-	N
12-Sep-12	9	66	GR	252	160	-	-	-	N
12-Sep-12	9	67	GR	255	195	-	-	-	N
12-Sep-12	9	68	GR	252	200	-	-	-	N
12-Sep-12	9	69	GR	240	160	-	-	-	N
12-Sep-12	9	70	GR	225	-	-	-	-	N
12-Sep-12	9	71	GR	235	-	-	-	-	N
12-Sep-12	9	72	GR	233	-	-	-	-	N
12-Sep-12	9	73	GR	222	-	-	-	-	N
12-Sep-12	9	74	GR	237	-	-	-	-	N

Table continued on next page.

Date	Site ID[1]	Fish ID	Species[2]	Fork Length (mm)	Weight (g)	Radio Tag Type [3]	Freq	Radio Tag ID	Scale Sample
12-Sep-12	10	75	GR	290	250	S8	150.500	24a	Y
12-Sep-12	10	76	GR	283	230	S8	150.500	25a	Y
12-Sep-12	10	77	GR	304	260	S8	150.500	26a	Y
12-Sep-12	10	78	GR	268	225	S8	150.500	9a	Y
12-Sep-12	10	79	GR	295	175	-	-	-	Y
13-Sep-12	13	100	GR	275	225	-	-	-	N
13-Sep-12	13	101	GR	288	280	S8	150.500	10a	Y
13-Sep-12	13	102	GR	282	225	S8	150.500	12a	Y
13-Sep-12	13	103	GR	263	200	-	-	-	N
13-Sep-12	13	104	GR	285	250	S8	150.500	5a	Y
13-Sep-12	13	105	GR	262	180	-	-	-	N
13-Sep-12	13	106	GR	230	-	-	-	-	N
14-Sep-12	15	107	GR	285	260	S8	150.500	6a	Y
14-Sep-12	15	108	GR	245	-	-	-	-	N
14-Sep-12	15	109	GR	225	-	-	-	-	N
14-Sep-12	15	110	GR	245	-	-	-	-	N
14-Sep-12	15	111	GR	301	315	S8	150.500	7a	Y
14-Sep-12	15	112	GR	264	230	S8	150.500	8a	Y
14-Sep-12	1	113	GR	296	320	Lotek	150.500	1a	Y
14-Sep-12	1	114	GR	295	325	Lotek	150.500	2a	Y

Notes: [1] Site locations shown on Figure 2;
[2] Where, GR = Arctic grayling;
[3] Where, Lotek = Lotek Wireless Inc. MST-930 and S8 = Sigma Eight Inc Pisces TX-P6-I-80; and,
- = no data

Table 11. Individual fish capture data, Faro Mine Site, September 2013.

Date	Site ID[1]	Fish ID	Species[2]	Fork Length (mm)	Weight (g)	Sex[3]	Radio Tag ID	Scale Sample
04-Sep-13	RC-AG-02	1	GR	340	500	M	-	Y
04-Sep-13	RC-AG-01	2	GR	365	400	M	108	Y
04-Sep-13	RC-AG-02	3	GR	390	600	M	109	Y
04-Sep-13	RCD-AG-03	4	GR	310	300	F	113	Y
04-Sep-13	RCD-AG-04	5	GR	350	475	M	116	Y
05-Sep-13	NF-AG-08	6	GR	307	275	~F	117	Y
05-Sep-13	NF-AG-08	7	GR	315	280	~F	120	Y
05-Sep-13	NF-AG-08	8	GR	292	300	UNK	-	Y
05-Sep-13	NF-AG-08	9	GR	290	281	F	121	Y
05-Sep-13	NF-AG-08	10	GR	289	269	M	124	Y
05-Sep-13	NF-AG-08	11	GR	272	222	UNK	-	Y
05-Sep-13	NF-AG-08	12	GR	247	243	F	-	Y
05-Sep-13	NF-AG-08	13	GR	291	271	UNK	-	Y
05-Sep-13	NF-AG-08	14	GR	240	156	UNK	-	Y
05-Sep-13	NF-AG-08	15	GR	233	111	UNK	-	Y
05-Sep-13	NF-AG-08	16	GR	212	97	UNK	-	Y
05-Sep-13	NF-AG-08	17	GR	203	84	UNK	-	Y
05-Sep-13	NF-AG-08	18	GR	239	147	UNK	-	Y
05-Sep-13	NF-AG-08	19	GR	208	80	UNK	-	Y
05-Sep-13	NF-AG-08	20	GR	175	48	UNK	-	Y
06-Sep-13	RC-AG-07	21	GR	345	445	M	125	Y
06-Sep-13	RC-AG-10	22	GR	360	474	M	128	Y
06-Sep-13	RC-AG-10	23	GR	316	339	M	129	Y
06-Sep-13	RC-AG-10	24	GR	248	152	F	-	Y
06-Sep-13	RC-AG-08	25	GR	330	420	M	132	Y
06-Sep-13	RC-AG-09	26	GR	316	325	M	133	Y
06-Sep-13	RC-AG-09	27	GR	345	393	M	136	Y
07-Sep-13	RC-AG-16	28	GR	285	244	M	137	Y
07-Sep-13	RC-AG-16	29	GR	291	247	M	140	Y
07-Sep-13	RC-AG-17	30	GR	326	394	M	141	Y
07-Sep-13	RC-AG-17	31	GR	355	480	M	144	Y
07-Sep-13	RC-AG-17	32	GR	270	202	F	-	Y
07-Sep-13	RC-AG-18	33	GR	337	440	M	145	Y
07-Sep-13	RC-AG-12	34	GR	355	497	M	112	Y
07-Sep-13	RC-AG-12	35	GR	395	703	M	148	Y
08-Sep-13	NF-AG-13	42	GR	235	145	UNK	-	N
09-Sep-13	PP-AG-01	43	GR	338	384	M	149	Y

Table continued on next page.

Date	Site ID[1]	Fish ID	Species[2]	Fork Length (mm)	Weight (g)	Sex[3]	Radio Tag ID	Scale Sample
09-Sep-13	PP-AG-01	44	GR	340	403	M	-	Y
09-Sep-13	PP-AG-01	45	GR	320	334	F	-	Y
09-Sep-13	RCD-AG-11	46	GR	315	331	M	185	Y
09-Sep-13	NP-AG-01	47	GR	325	364	M	184	Y
09-Sep-13	NP-AG-01	48	GR	235	113	F	-	Y
09-Sep-13	NP-AG-01	49	GR	260	169	M	-	Y
09-Sep-13	NP-AG-01	50	GR	311	321	M	-	Y
09-Sep-13	NP-AG-01	51	GR	244	144	F	-	Y
09-Sep-13	NP-AG-01	52	GR	286	228	M	-	Y
09-Sep-13	NF-AG-21	53	GR	308	296	~M	181	Y
09-Sep-13	NP-AG-02	54	GR	290	267.5	M	180	Y
10-Sep-13	RCD-AG-12	56	GR	365	520	M	177	Y
10-Sep-13	RCD-AG-15	57	GR	330	363	M	176	Y
10-Sep-13	RCD-AG-14	58	GR	343	466	M	173	Y
10-Sep-13	RCD-AG-14	59	GR	334	422	M	-	Y
10-Sep-13	RCD-AG-14	60	GR	325	394	M	-	Y
10-Sep-13	RCD-AG-14	61	GR	355	460	M	-	Y
10-Sep-13	NF-AG-22	62	GR	322	381	M	172	Y
10-Sep-13	NF-AG-22	63	GR	323	396	M	169	Y
10-Sep-13	NF-AG-22	64	GR	237	129	UNK	-	Y
10-Sep-13	NF-AG-22	65	GR	255	151	UNK	-	Y
10-Sep-13	NF-AG-22	66	GR	229	111.5	UNK	-	Y
10-Sep-13	NF-AG-22	67	GR	283	235.5	M	-	Y
10-Sep-13	NF-AG-22	68	GR	293	262.5	M	-	Y
10-Sep-13	NF-AG-22	69	GR	195	68.5	UNK	-	Y
10-Sep-13	NF-AG-22	70	GR	252	160.5	UNK	-	Y
10-Sep-13	NF-AG-22	71	GR	228	113	UNK	-	Y
10-Sep-13	NF-AG-22	72	GR	237	147	UNK	-	Y
10-Sep-13	NF-AG-22	73	GR	200	74.5	UNK	-	Y
10-Sep-13	NF-AG-22	74	GR	205	82.5	UNK	-	Y
10-Sep-13	NF-AG-22	75	GR	200	72.5	UNK	-	Y
10-Sep-13	NF-AG-22	76	GR	244	133	UNK	-	Y
10-Sep-13	NF-AG-22	77	GR	270	199	M	-	Y
11-Sep-13	NF-EF-01	81	CCG	64	30	UNK	-	N
11-Sep-13	NF-EF-01	82	CCG	84	70	UNK	-	N
11-Sep-13	NF-EF-01	83	CCG	105	140	UNK	-	N
11-Sep-13	NF-EF-01	84	CCG	103	135	UNK	-	N
11-Sep-13	NF-EF-01	85	CCG	58	25	UNK	-	N

Table continued on next page.

Date	Site ID[1]	Fish ID	Species[2]	Fork Length (mm)	Weight (g)	Sex[3]	Radio Tag ID	Scale Sample
11-Sep-13	NF-EF-01	86	CCG	84	65	UNK	-	N
11-Sep-13	NF-EF-01	87	CCG	63	30	UNK	-	N
11-Sep-13	NF-EF-01	88	CCG	59	30	UNK	-	N
11-Sep-13	NF-AG-08	89	GR	393	699	M	160	Y
11-Sep-13	NF-AG-08	90	GR	324	344	~F	164	Y
11-Sep-13	NF-AG-08	91	GR	385	680	M	157	Y
11-Sep-13	NF-AG-08	92	GR	315	349	F	-	Y
11-Sep-13	NF-AG-08	93	GR	319	351	-	-	N
11-Sep-13	NF-AG-08	94	GR	308	302	F	165	Y
11-Sep-13	NF-AG-08	95	GR	314	356	M	161	Y
11-Sep-13	NF-AG-08	96	GR	292	274	-	-	N
11-Sep-13	NF-AG-08	97	GR	308	276	-	-	N
11-Sep-13	NF-AG-08	98	GR	302	300	-	-	N
11-Sep-13	NF-AG-08	99	GR	286	252	-	-	N
11-Sep-13	NF-AG-08	100	GR	308	311	-	-	N
11-Sep-13	NF-AG-08	101	GR	295	278	-	-	N
11-Sep-13	NF-AG-08	102	GR	297	278	-	-	N
11-Sep-13	NF-AG-08	103	GR	280	238	-	-	N
11-Sep-13	NF-AG-08	104	GR	286	250	-	-	N
11-Sep-13	NF-AG-08	105	GR	268	215	F	-	N
11-Sep-13	NF-AG-08	106	GR	252	175	F	-	N
11-Sep-13	NF-AG-08	107	GR	297	324	-	-	N
11-Sep-13	NF-AG-08	108	GR	280	239	-	-	N
11-Sep-13	NF-AG-08	109	GR	290	286	-	-	N
11-Sep-13	NF-AG-08	110	GR	290	283	-	-	N
11-Sep-13	NF-AG-08	111	GR	273	240	-	-	N
11-Sep-13	NF-AG-08	112	GR	212	83	-	-	N
11-Sep-13	NF-AG-08	113	GR	302	320	-	-	N
11-Sep-13	NF-AG-08	114	GR	295	280	-	-	N
11-Sep-13	NF-AG-08	115	GR	275	235	-	-	N
11-Sep-13	NF-AG-08	116	GR	289	240	-	-	N
11-Sep-13	NF-AG-08	117	GR	292	278	-	-	N
11-Sep-13	NF-AG-09	118	GR	310	374	F	168	Y
11-Sep-13	NF-AG-09	119	GR	285	261	F	-	N

Notes: [1] Site locations shown on Figure 3;
[2] Where, CCG = slimy sculpin, and GR = Arctic grayling;
[3] Where, F = female, M = male, UNK = unknown and ~ = suspected/ unconfirmed;
- = no data

Table 12. Summary of radio tags located during telemetry surveys, September 2012 to June 2013.

	2012			2013				
Tag ID [a]	Sept 9-14 [b]	Oct 31	Dec 5-6	Feb 5-8	May 24-25	Jun 4-6 [c]	Jun 12-15 [c]	Jun 21-25 [c]
01a	PP	-	-	-	RCD	RCD	RCD	RCD [f]
02a	PP	RCD	-	RCD	PP	-	PP	PP
02b	PP	RCD	RCD	RCD	RCD [f]	RCD [f]	RCD [f]	RCD [f]
03b	PP	-	-	PR	-	-	-	-
04b	PP	RCD	RCD	RCD	PP	PP	PP	PP
05a	Lower SF	-	RCD	RCD	- [e]	- [e]	- [e]	- [e]
05b	RCD	RCD	RCD	RCD	RCD → RC	-	RC → RCD	RCD [g]
06a	Lower SF	RCD	RCD	-	- [e]	- [e]	- [e]	- [e]
06b	RCD	-	-	PR	-	-	-	-
07a	Lower SF	RCD	-	RCD	- [e]	- [e]	- [e]	- [e]
07b	RCD	-	-	-	-	-	-	-
08a	Lower SF	RCD	RCD	RCD	- [e]	- [e]	- [e]	- [e]
08b	RCD	RCD	-	-	RC	-	RC → RCD	PP [g]
09a	Upper SF	-	- [d]	-	- [e]	- [e]	- [e]	- [e]
09b	RCD	RCD	-	Lower NF	RCD [f]	RCD [f]	RCD [f]	-
10a	Lower SF	-	RCD	-	- [e]	- [e]	- [e]	- [e]
10b	RCD	-	-	-	PP	-	PP	PP
11a	DL	DL	- [d]	DL	- [e]	- [e]	- [e]	- [e]
11b	RCD	-	-	PR	- [e]	- [e]	- [e]	- [e]
12a	Lower SF	RCD	RCD	RCD	- [e]	- [e]	- [e]	- [e]
12b	RCD	-	-	-	- [e]	- [e]	- [e]	- [e]
13b	RCD	RCD	RCD	RCD	- [e]	- [e]	- [e]	- [e]
14b	RCD	-	-	PR	- [e]	- [e]	- [e]	- [e]
15b	Lower NF	-	-	PR	- [e]	- [e]	- [e]	- [e]
16b	Lower NF	-	-	-	- [e]	- [e]	- [e]	- [e]
17b	Upper NF	-	NF	NF	- [e]	- [e]	- [e]	- [e]

Table continued on next page.

	2012			2013				
Tag ID [a]	Sept 9-14 [b]	Oct 31	Dec 5-6	Feb 5-8	May 24-25	Jun 4-6 [c]	Jun 12-15 [c]	Jun 21-25 [c]
18b	Upper NF	-	NF	NF	- [e]	- [e]	- [e]	- [e]
19a	PP	RCD	-	-	- [e]	- [e]	- [e]	- [e]
20a	Upper NF	-	NF	NF	- [e]	- [e]	- [e]	- [e]
21a	NF pond	RCD	RCD	RCD	- [e]	- [e]	- [e]	- [e]
22a	NF pond	RCD	RCD	-	- [e]	- [e]	- [e]	- [e]
23a	DL	-	- [d]	DL	- [e]	- [e]	- [e]	- [e]
24a	Upper SF	DL	- [d]	DL	- [e]	- [e]	- [e]	- [e]
25a	Upper SF	DL	- [d]	-	- [e]	- [e]	- [e]	- [e]
26a	Upper SF	DL	- [d]	DL	DL	- [e]	- [e]	- [e]

Notes: (a) Where a and b are the ID sub-codes for frequencies 150.500 and 150.600 MHz, respectively.
(b) Tagging Sites
(c) No aerial surveys were conducted; ground surveys were conducted around the mine site
(d) Upper South Fork/ Dixon Lake area was not surveyed
(e) Sigma Eight tag; battery life ceased
(f) Tag motion detected as inactive; suspected mortality
(g) fish captured; male in spawning stage

Where: - = no data (i.e., tag not detected during survey)
→ = tag moved from one area to another during the survey period
DL = Dixon Lake
NF = North Fork
PP = Pumphouse Pond
PR = Pelly River
RCD = Rose Creek Diversion
SF = South Fork

Table 13. Summary of radio tags located during telemetry surveys, September 2013 to February 2014.

Tag ID	2013					2014			
	Sept 04-13 [a]	Oct 29-30	Nov 13 [b]	Nov 27 [b]	Dec 10 [c]	Jan 08 [c]	Jan 15 [b]	Jan 29 [c]	Feb 12
117	Upper NF	Upper NF	Upper NF	Upper NF	Upper NF	-	-	-	Upper NF
120	Upper NF	Upper NF	Upper NF	Upper NF	Upper NF	-	-	-	-
121	Upper NF	Upper NF	Upper NF	Upper NF	Upper NF	-	-	-	-
124	Upper NF	Upper NF	Upper NF	Upper NF	Upper NF	-	-	-	-
157	Upper NF	Upper NF	Upper NF	Upper NF	Upper NF	Upper NF	Upper NF	Upper NF	Upper NF
160	Upper NF	Upper NF	Upper NF	Upper NF	Upper NF	Upper NF	Upper NF	Upper NF	Upper NF
161	Upper NF	Upper NF	Upper NF	Upper NF	Upper NF	-	-	-	Upper NF
164	Upper NF	Upper NF	Upper NF	Upper NF	Upper NF	Upper NF	-	-	Upper NF
165	Upper NF	-	-	Active	-	-	-	-	-
168	Upper NF	Upper NF	Upper NF	Upper NF	Upper NF	Upper NF	Upper NF	Upper NF	Upper NF
169	Lower NF	PR	n/a	n/a	n/a	n/a	n/a	n/a	PR
172	Lower NF	PR	n/a	n/a	n/a	n/a	n/a	n/a	PR
181	Lower NF	RC	n/a	n/a	n/a	n/a	n/a	n/a	AC
180	Lower NF	SF	n/a	n/a	SF [d]	SF [d]	SF [d]	SF [d]	SF (x)
184	Lower NF	PP	n/a	n/a	RCD	RCD	n/a	-	RC
149	PP	PR	n/a	n/a	n/a	n/a	n/a	n/a	PR
113	RCD	PR	n/a	n/a	n/a	n/a	n/a	n/a	PR
116	RCD	PR	n/a	n/a	n/a	n/a	n/a	n/a	PR
173	RCD	RCD	n/a	n/a	RCD	RCD	n/a	-	-
176	RCD	PR	n/a	n/a	n/a	n/a	n/a	n/a	PR
177	RCD	PR	n/a	n/a	n/a	n/a	n/a	n/a	PR
185	RCD	-	n/a	n/a	n/a	n/a	n/a	n/a	PR
108	RC	RC	n/a	n/a	n/a	n/a	n/a	n/a	RC
109	RC	PR	n/a	n/a	n/a	n/a	n/a	n/a	PR
112	RC	PR	n/a	n/a	n/a	n/a	n/a	n/a	PR
125	RC	PR	n/a	n/a	n/a	n/a	n/a	n/a	PR

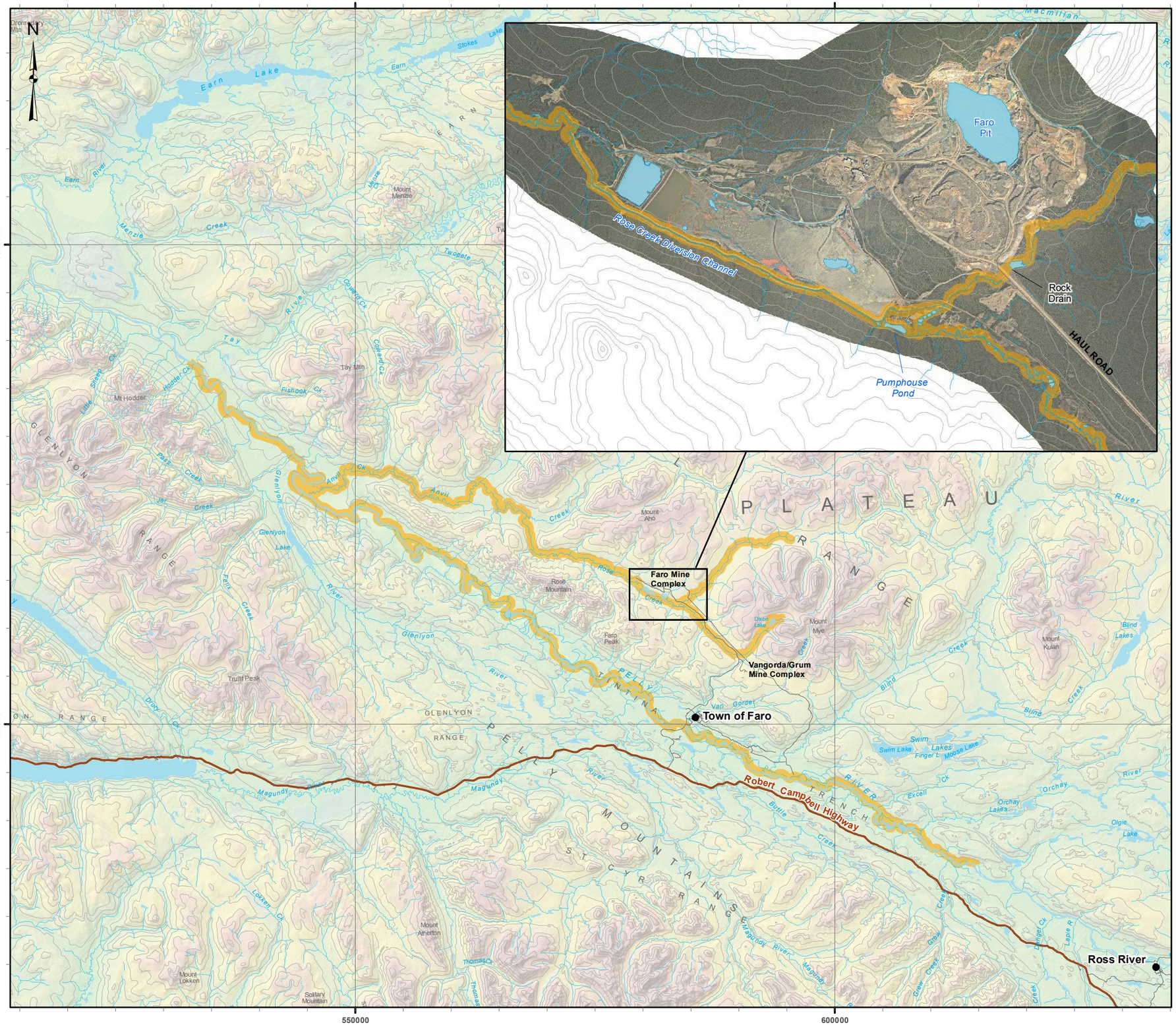
Table continued on next page.

Tag ID	2013					2014			
	Sept 04-13 [a]	Oct 29-30	Nov 13 [b]	Nov 27 [b]	Dec 10 [c]	Jan 08 [c]	Jan 15 [b]	Jan 29 [c]	Feb 12
128	RC	RC	n/a	n/a	n/a	n/a	n/a	n/a	RC
129	RC	-	n/a	n/a	n/a	n/a	n/a	n/a	PR
132	RC	PR	n/a	n/a	n/a	n/a	n/a	n/a	PR
133	RC	PR	n/a	n/a	n/a	n/a	n/a	n/a	PR
136	RC	PR	n/a	n/a	n/a	n/a	n/a	n/a	PR
137	RC	PR	n/a	n/a	n/a	n/a	n/a	n/a	PR
140	RC	-	n/a	n/a	n/a	n/a	n/a	n/a	PR
141	RC	PR	n/a	n/a	n/a	n/a	n/a	n/a	PR
144	RC	PR	n/a	n/a	n/a	n/a	n/a	n/a	PR
145	RC	PR	n/a	n/a	n/a	n/a	n/a	n/a	PR
148	RC	PR	n/a	n/a	n/a	n/a	n/a	n/a	-

Notes: (a) Tagging Sites
(b) Ground survey of the North Fork NF1 Pond only
(c) Ground survey of the North Fork NF1 Pond, lower North Fork and RCD only
(d) Tag motion detected as inactive; suspected mortality

Where: - = no data (i.e., tag not detected during survey)
n/a = not applicable (i.e., area not surveyed)
AC = Anvil Creek
NF = North Fork; Upper = upstream of the Haul Rd rock drain in or near the pond; Lower = downstream side of the rock drain
PP = Pumphouse Pond
PR = Pelly River
RC = Rose Creek
RCD = Rose Creek Diversion
SF = South Fork (downstream side of mine access road, near mine site)

Attachment C
Figures



Legend

- Settlement/Community
- Secondary Road
- Topographic Contour (150 m interval)
- Project Study Area

Project Study Area, 2012 to 2014

1:250,000 topographic spatial data provided by Geomatics - Yukon Government via online source (Corporate Spatial Warehouse) www.geomaticsyukon.ca.

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0 5 10 15 20 25
Kilometres

Map Scale = 1:400,000 (printed on 11 x 17)
Map Projection: North American Datum 1983 UTM Zone 8N

Drawn:	Checked:		
LG	MK	FIGURE 1	Date: 14/04/2014

EDI

Path: J:\Yukon\Projects\2013\13_Y_0452_AAM_NF_Sampling\Mapping\Telemetry_Finals\Fig1_StudyArea.mxd

Arctic grayling sampling and radio tagging locations, Faro Mine Site, September 2012

Legend

- Fish Tagged at Site
- No Fish Tagged at Site
- Road (mine access/haul)
- Topographic Contour (30m Interval)

N
W E
S

0 1 2 3 4 5
Kilometres

Map Scale = 1:75,000 (printed on 11 x 17)
Map Projection: North American Datum 1983 UTM Zone 8N

Data sources
1:50,000 topographic spatial data provided by Geomatics - Yukon Government via online source (Corporate Spatial Warehouse) www.geomaticsyukon.ca.

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Detailed toppgraphic features of the Faro, Grum and Vangorda mine sites were provided by Yukon Government - Energy, Mines and Resources - Assessment and Abandoned Mines Branch (March 2012).

Project data displayed is site specific. Data collected by EDI Environmental Dynamics Inc. was obtained using Garmin GPS technology.

This document is not an official land survey and the spatial data presented is subject to change.

Drawn:	Checked:	FIGURE 2	Date: 16/04/2014
LG	MK		

Project Map Area
Town of Faro

EDI

Map Prepared by
EDI Environmental Dynamics Inc.

Path: J:\Yukon\Projects\2013\13_Y_0452_AAM_NF_Sampling\Mapping\Telemetry_Finals\Fig2_TaggingLoc_2012.mxd

Arctic grayling sampling and radio tagging locations, Faro Mine Site, September 2013

Legend

- Fish Tagged at Site
- No Fish Tagged at Site
- Road (Mine Access/Haul)
- Topographic Contour (30 m Interval)

N
W E
S

0 1 2 3 4 5
kilometres

Map Scale = 1:85,000 (printed on 11 x 17)
Map Projection: North American Datum 1983 UTM Zone 8N

Data sources
1:50,000 topographic spatial data provided by Geomatics - Yukon Government via online source (Corporate Spatial Warehouse) www.geomaticsyukon.ca.

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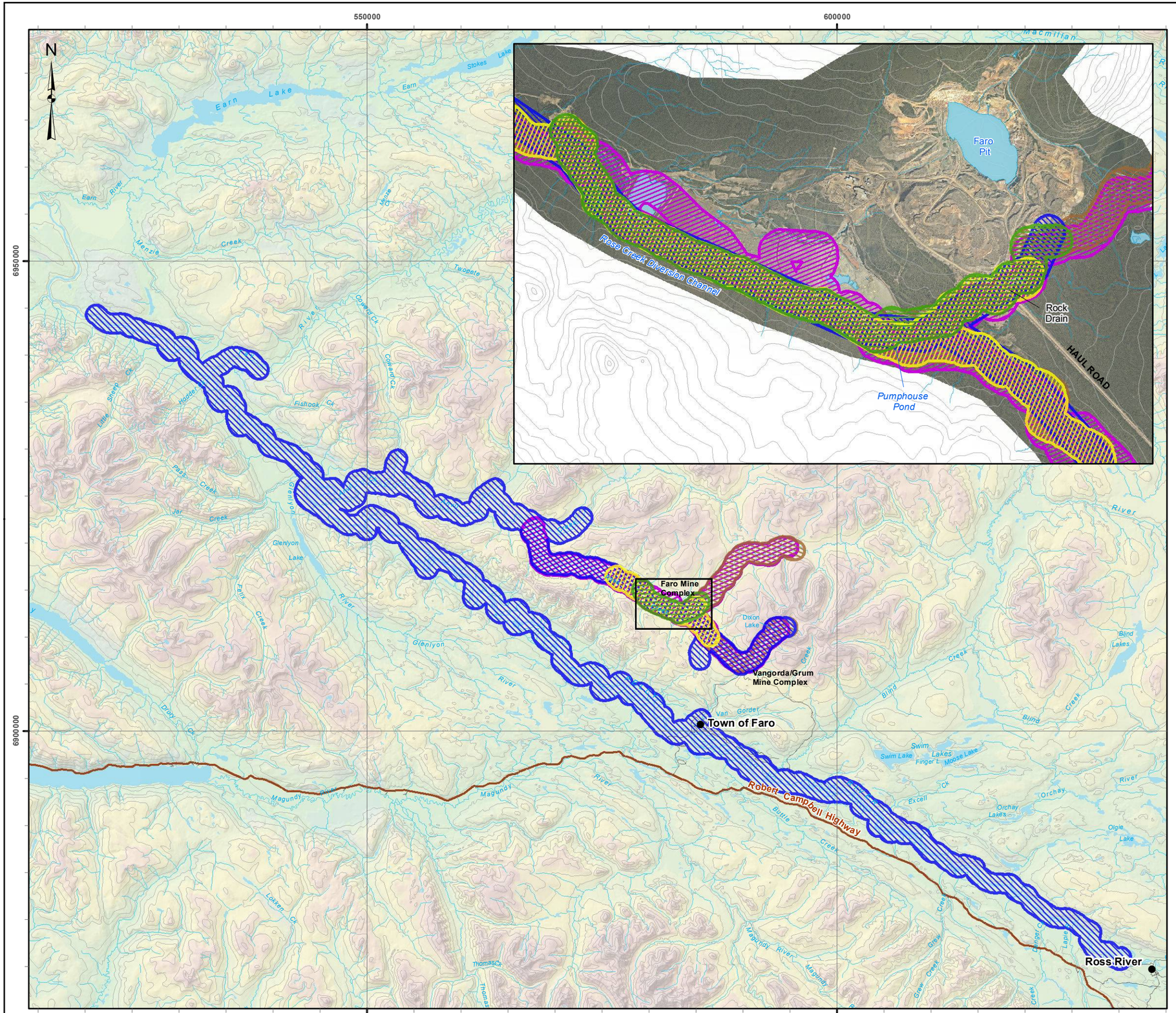
Drawn:	Checked:		
LG	MK	FIGURE 3	Date: 16/04/2014

Project Map Area
Town of Faro

EDI

Map Prepared by
EDI Environmental Dynamics Inc.

Path: J:\Yukon\Projects\2013\13_Y_0452_AAM_NF_Sampling\Mapping\Telemetry_Finals\Fig3_TaggingLoc_2013.mxd



Legend

- Settlement/Community
- Secondary Road
- Topographic Contour (150 m interval)

Extent of Aerial and Ground Telemetry Surveys

- 31 October 2012 (Aerial)
- 5 & 6 December 2012 (Aerial)
- 18 February 2013 (Ground)
- 18 February 2013 (Aerial)
- Spring 2013 (Ground and Aerial)

Extent of ground and aerial fish telemetry surveys, 2012 and 2013

Project data displayed is site specific. Data collected by EDI Environmental Dynamics Inc. was obtained using Garmin GPS technology.

This document is not an official land survey and the spatial data presented is subject to change.

0 5 10 15 20 25
Kilometres

Map Scale = 1:400,000 (printed on 11 x 17)
Map Projection: North American Datum 1983 UTM Zone 8N

Drawn:	Checked:		
LG	MK	FIGURE 4	Date: 14/04/2014

EDI

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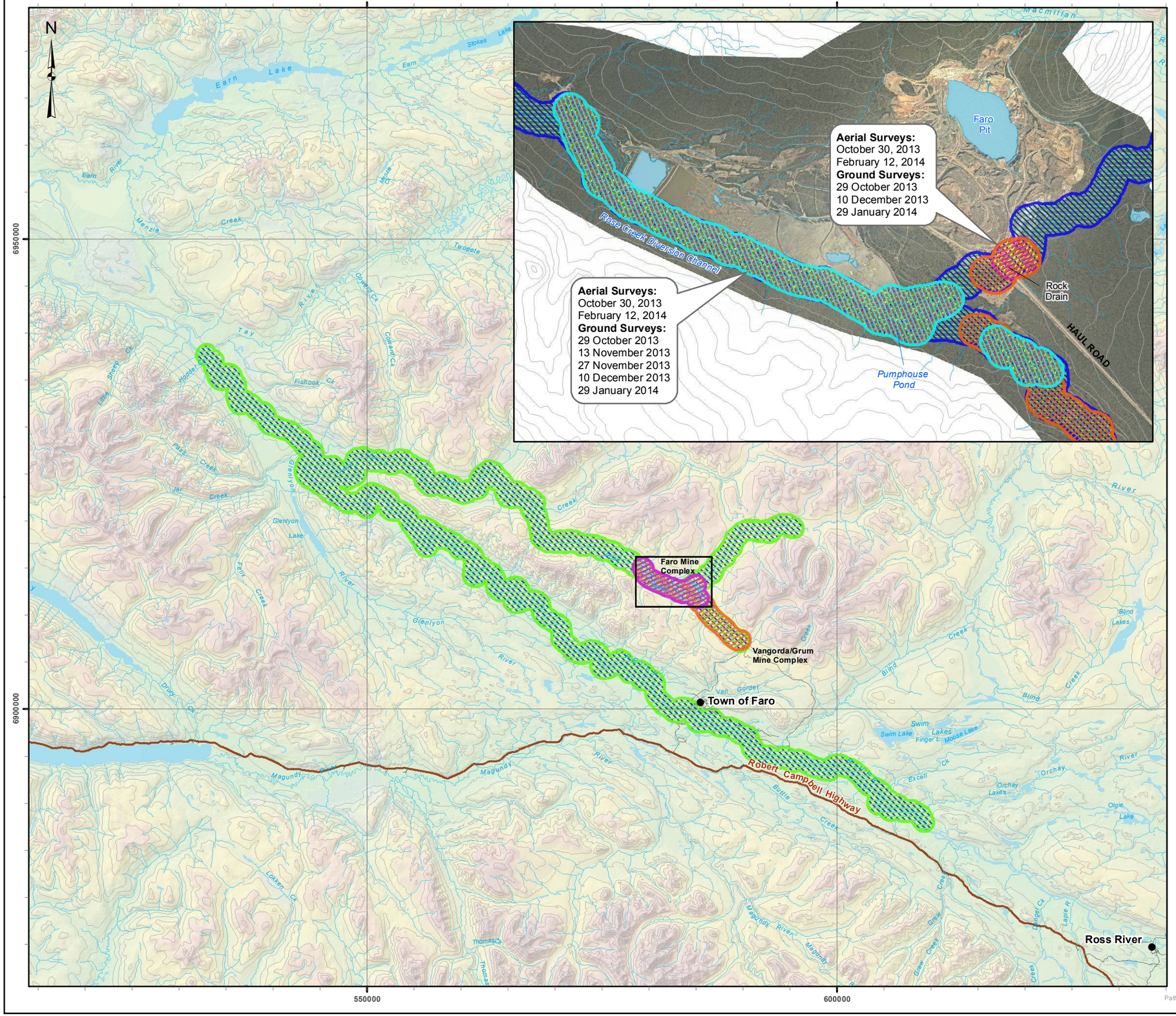

Legend

- Settlement/Community
- Secondary Road
- Topographic Contour (150 m interval)

Label

- 29 October 2013 (Ground)
- 30 October 2013 (Aerial)
- 13 November 2013 (Ground)
- 27 November 2013 (Ground)
- 10 December 2013 (Ground)
- 29 January 2014 (Ground)
- 12 February 2014 (Aerial)

Extent of ground and aerial fish telemetry surveys, 2013 and 2014

Project data displayed is site specific. Data collected by EDI Environmental Dynamics Inc. was obtained using Garmin GPS technology.

This document is not an official land survey and the spatial data presented is subject to change.

0 5 10 15 20 25
Kilometres

Map Scale = 1:400,000 (printed on 11 x 17)
Map Projection: North American Datum 1983 UTM Zone 8N

Drawn:	Checked:		
LG	MK	FIGURE 5	Date: 14/04/2014

EDI

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570000 580000 590000

6920000

6910000

Inset 1: Dixon Lake Area

ID 11a from Site 09
Tagging Site 9
ID 25a from Site 10
ID 26a from Site 10
ID 24a from Site 10
Tagging Site 10
Dixon Lake

Inset 2: Rose Creek Diversion Area

Tagging Site 2
ID 09b from Site 2
ID 04b from Site 01
ID 05b from Site 02
ID 12a from Site 13
ID 13b from Site 03
ID 02a from Site 01
ID 02b from Site 01
ID 08b from Site 02
ID 19a from Site 01
ID 21a from Site 08
ID 22a from Site 08
ID 06a from Site 15
ID 08a from Site 15
Rose Creek Diversion

Faro Creek
Next Creek
Guardhouse Creek
Faro Pit
Faro Creek Diversion
Rose Creek North Fork
North Fork Diversion
Rock Drain
Tagging Site 3
Tagging Site 2
Rose Creek Diversion
Inset 2
Tagging Site 1
Pumphouse Pond
Tagging Site 8
Tagging Site 15
Tagging Site 13
Former Fresh Water Supply Reservoir
Rose Creek South Fork
HAUL ROAD
Upstream Barriers

Inset 1
Tagging Site 9
Dixon Lake
Tagging Site 10

Location of radio-tags detected during telemetry surveys at the Faro Mine Site, October 31, 2012

Legend

- Label — Location of strongest signal, October 31, 2012
- Label — Location of tagging site, September 2012
- Road (mine access/haul)
- Topographic contour (30 m interval)
- Survey Extent

N W E S

0 1 2 3 4 5
kilometres

Map Scale = 1:75,000 (printed on 11 x 17)
Map Projection: North American Datum 1983 UTM Zone 8N

Data sources
1:50,000 topographic spatial data provided by Geomatics - Yukon Government via online source (Corporate Spatial Warehouse) www.geomaticsyukon.ca.

Detailed topographic features of the Faro, Grum and Vangorda mine sites were provided by Yukon Government - Energy, Mines and Resources - Assessment and Abandoned Mines Branch (March 2012).

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This document is not an official land survey and the spatial data presented is subject to change.

Drawn:	Checked:	FIGURE 6	Date: 25/03/2014
LG	MK / PT		

Project Map Area
Faro Mine Site
Town of Faro
Robert Campbell Highway

EDI

Map Prepared by
EDI Environmental Dynamics Inc.

Path: J:\Yukon\Projects\2013\13_Y_0452_AAM_NF_Sampling\Mapping\Telemetry_Finals\Fig6_TelemResults_31Oct2012.mxd

570000
580000
590000
6920000
6910000
Rose Creek
Next Creek
Guardhouse Creek
Faro Creek
Rose Creek North Fork
Faro Creek Diversion
Faro Pit
Rose Creek Diversion
North Fork Diversion
Pumphouse Pond
Former Fresh Water Supply Reservoir
Rose Creek South Fork
HAUL ROAD
Dixon Lake
Upstream Barriers
Tagging Site 1
Tagging Site 2
Tagging Site 3
Tagging Site 4
Tagging Site 5
Tagging Site 8
Tagging Site 9
Tagging Site 10
Tagging Site 13
Tagging Site 15
Rock Drain
ID 17b from Site 05
ID 18b from Site 05
ID 20a from Site 05
ID 02b from Site 01
ID 12a from Site 13
ID 13b from Site 03
ID 21a from Site 08
ID 04b from Site 01
ID 05a from Site 13
ID 05b from Site 02
ID 22a from Site 08
ID 06a from Site 15
ID 08a from Site 15
ID 10a from Site 13

Location of radio-tags detected during telemetry surveys at the Faro Mine Site, December 5 and 6, 2012

Legend

- Location of strongest signal, December 5 and 6 2012
- Location of tagging site, September 2012
- Road (mine access/haul)
- Topographic contour (30 m interval)
- Survey Extent (December 5 and 6, 2012)

N
W E
S

0 1 2 3 4 5
kilometres

Map Scale = 1:75,000 (printed on 11 x 17)
Map Projection: North American Datum 1983 UTM Zone 8N

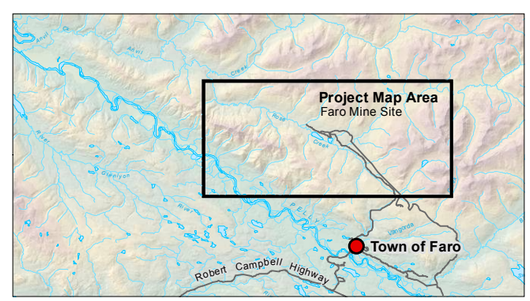
Data sources
1:50,000 topographic spatial data provided by Geomatics - Yukon Government via online source (Corporate Spatial Warehouse) www.geomaticsyukon.ca.

Detailed topographic features of the Faro, Grum and Vangorda mine sites were provided by Yukon Government - Energy, Mines and Resources - Assessment and Abandoned Mines Branch (March 2012).

Project data displayed is site specific. Data collected by EDI Environmental Dynamics Inc. was obtained using Garmin GPS technology.

This document is not an official land survey and the spatial data presented is subject to change.

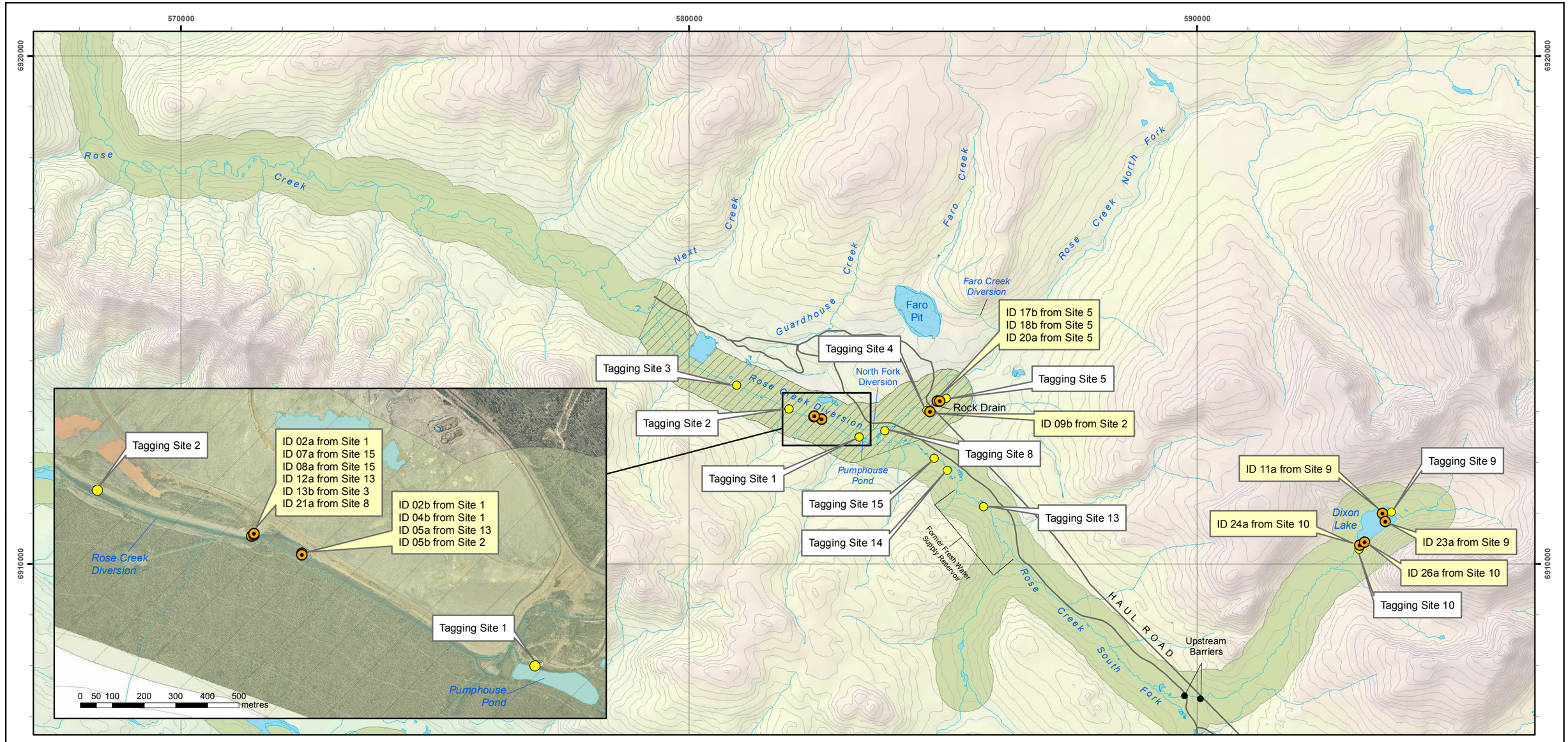
Drawn:	Checked:		
LG	MK / PT	FIGURE 7	Date: 25/03/2014



EDI

Map Prepared by
EDI Environmental Dynamics Inc.

Path: J:\Yukon\Projects\2013\13_Y_0452_AAM_NF_Sampling\Mapping\Telemetry_Finals\Fig7_TelemResults_5_6Dec2012.mxd



Location of radio-tags detected during telemetry surveys at the Faro Mine Site, February 5 and 6, 2013

Legend

- Location of strongest signal, February 5-6, 2013
- Location of tagging site, September 2012
- Road (mine access/haul)
- Topographic contour (30 m interval)
- Extent of ground telemetry survey (February 5, 2013)
- Extent of aerial telemetry survey (February 6, 2013)

N
W E
S

0 1 2 3 4 5
Kilometres

Map Scale = 1:75,000 (printed on 11 x 17)
Map Projection: North American Datum 1983 UTM Zone 8N

Data sources
1:50,000 topographic spatial data provided by Geomatics - Yukon Government via online source (Corporate Spatial Warehouse) www.geomaticsyukon.ca.

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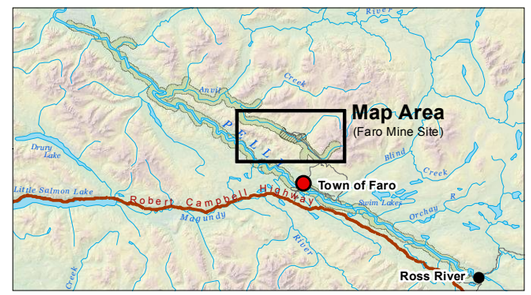
Detailed topographic features of the Faro, Grum and Vangorda mine sites were provided by Yukon Government - Energy, Mines and Resources - Assessment and Abandoned Mines Branch (March 2012).

Project data displayed is site specific. Data collected by EDI Environmental Dynamics Inc. was obtained using Garmin GPS technology.

This document is not an official land survey and the spatial data presented is subject to change.

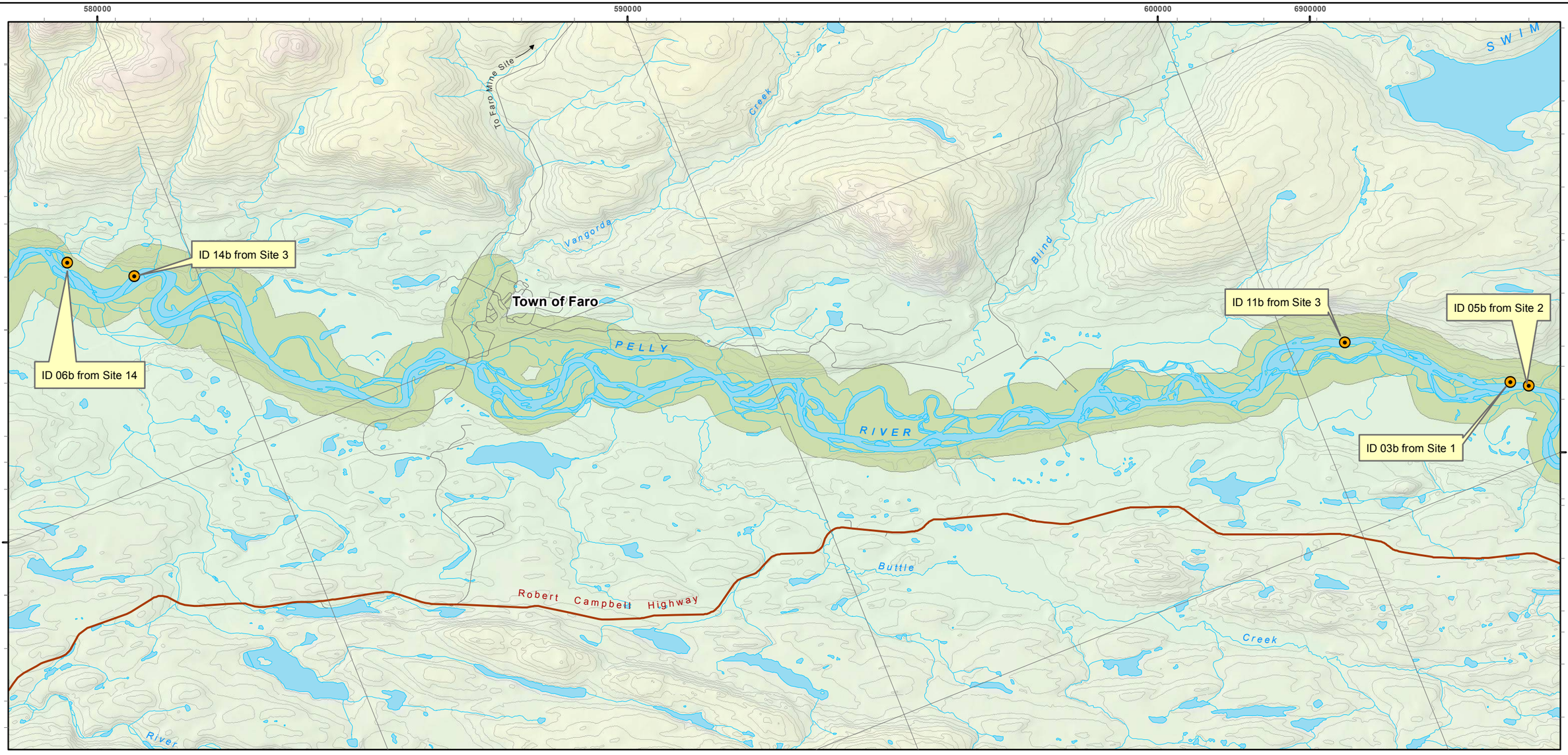
Drawn:	Checked:		
LG	MK	FIGURE 8	Date: 25/03/2014



EDI

Map Prepared by
EDI Environmental Dynamics Inc.

Path: J:\Yukon\Projects\2013\13_Y_0452_AAM_NF_Sampling\Mapping\Telemetry_Finals\Fig8_TelemResults_5_6Feb2013.mxd



Location of radio-tags detected during telemetry surveys of the Pelly River, February 7 and 8, 2013.

Legend

- Label — Location of strongest signal, February 7-8, 2013
- Robert Campbell Highway
- Secondary Road
- Topographic contour (30 m interval)
- Extent of aerial telemetry survey (February 7-8, 2013)

N E S W

0 1 2 3 4 5
kilometres

Map Scale = 1:80,000 (printed on 11 x 17)
Map Projection: North American Datum 1983 UTM Zone 8N

Data sources
1:50,000 topographic spatial data provided by Geomatics - Yukon Government via online source (Corporate Spatial Warehouse) www.geomaticsyukon.ca.

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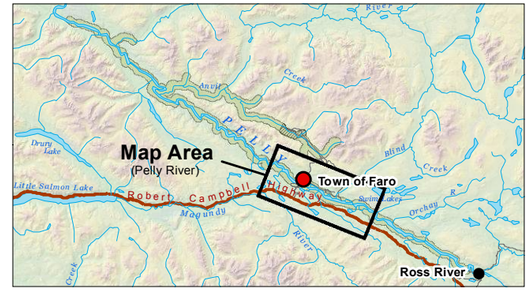
This document is not an official land survey and the spatial data presented is subject to change.

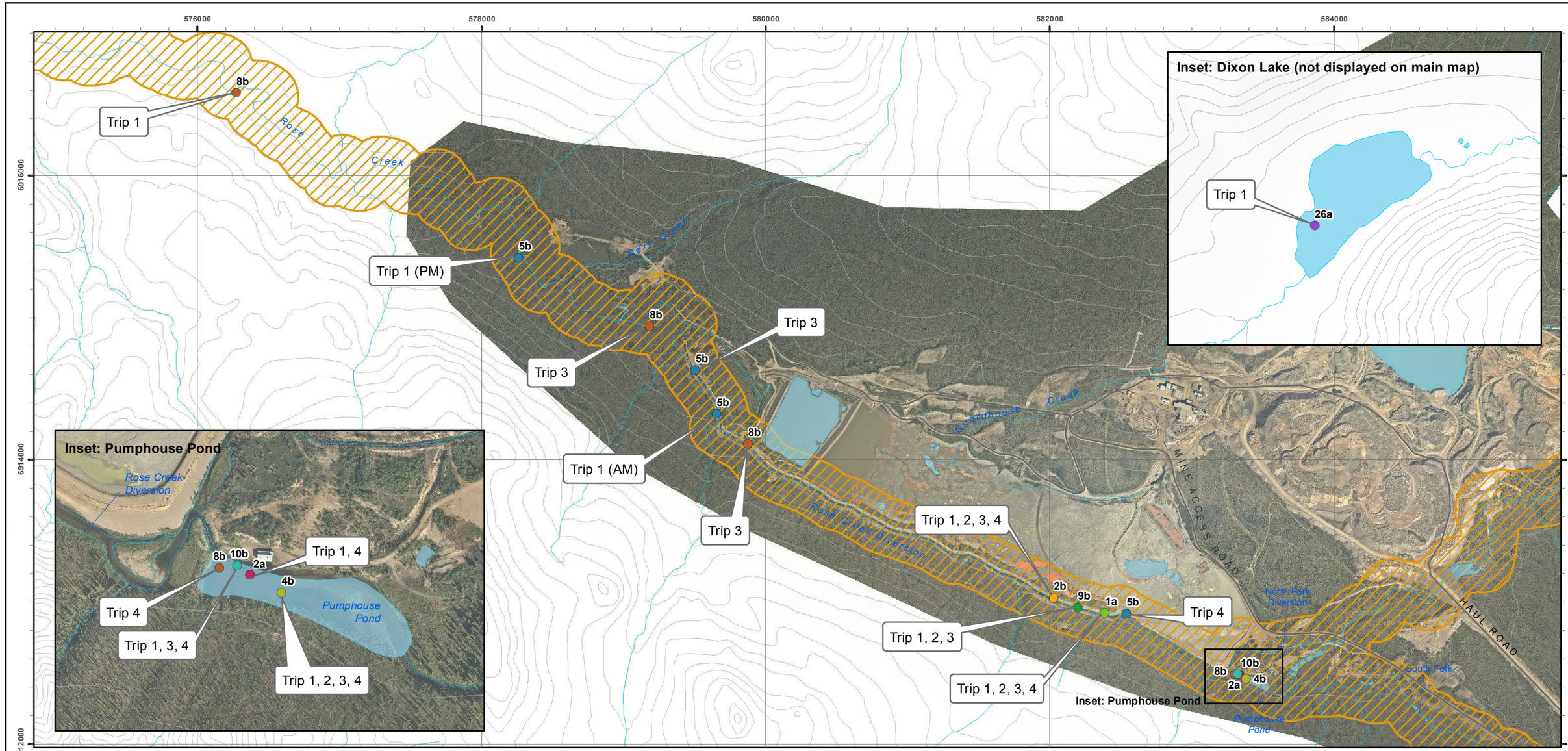
Drawn:	Checked:		
LG	MK	FIGURE 9	Date: 25/03/2014



EDI

Map Prepared by
EDI Environmental Dynamics Inc.

Path: J:\Yukon\Projects\2013\13_Y_0452_AAM_NF_Sampling\Mapping\Telemetry_Finals\Fig9_TelemResultsPelly_7_8Feb2013.mxd



Location of radio-tags detected during telemetry surveys, near the Faro Mine Site, Spring 2013

Legend

Telemetry Tag ID

- 1a
- 2a
- 2b
- 4b
- 5b
- 8b
- 9b
- 10b
- 26a

- Road (Mine Access/Haul)
- Topographic Contour (30 m Interval)
- Extent of Spring Telemetry Surveys

Spring Surveys Dates:
Trip 1: May 24 to 25, 2013
Trip 2: June 04 to 06, 2013
Trip 3: June 12 to 15, 2013
Trip 4: June 21 to 25, 2013

N W E S

0 250 500 1,000 1,500 2,000
Metres

Map Scale = 1:30,000 (printed on 11 x 17)
Map Projection: North American Datum 1983 UTM Zone 8N

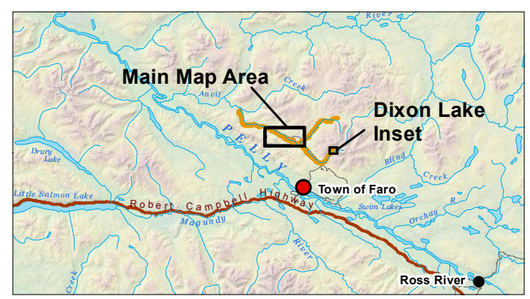
Data sources
1:50,000 topographic spatial data provided by Geomatics - Yukon Government via online source (Corporate Spatial Warehouse) www.geomaticsyukon.ca.

Detailed topographic features of the Faro, Grum and Vangorda mine sites were provided by Yukon Government - Energy, Mines and Resources - Assessment and Abandoned Mines Branch (March 2012).

Project data displayed is site specific. Data collected by EDI Environmental Dynamics Inc. was obtained using Garmin GPS technology.

This document is not an official land survey and the spatial data presented is subject to change.

Drawn:	Checked:		
LG	MK	**FIGURE 10**	Date: 28/03/2014

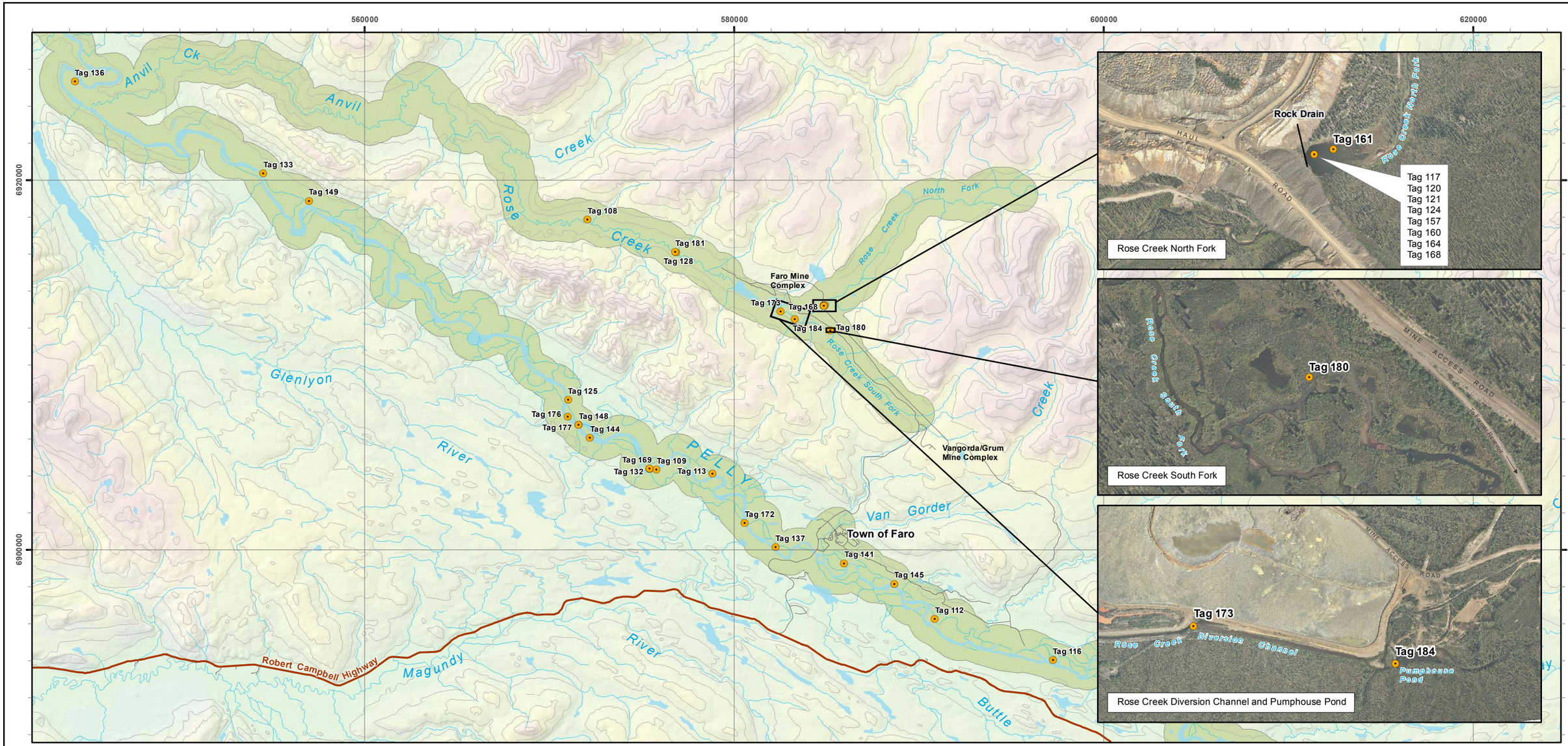


EDI

Map Prepared by
EDI Environmental Dynamics Inc.

Path: J:\Yukon\Projects\2013\13_Y_0452_AAM_NF_Sampling\Mapping\Telemetry_Finals\Fig10_TelemResults_Spring2013.mxd

Location of radio-tags detected during telemetry surveys, October 29 and 30, 2013



Legend

- Location of strongest signal, October 29 and 30, 2013
- Robert Campbell Highway
- Secondary Road
- Topographic Contour (150 m interval)
- Extent of telemetry survey, October 29 and 30, 2013

N
W E
S

0 2 4 6 8 10
Kilometres

Map Scale = 1:200,000 (printed on 11 x 17)
Map Projection: North American Datum 1983 UTM Zone 8N

Data sources

1:250,000 topographic spatial data provided by Geomatics - Yukon Government via online source (Corporate Spatial Warehouse) www.geomaticsyukon.ca.

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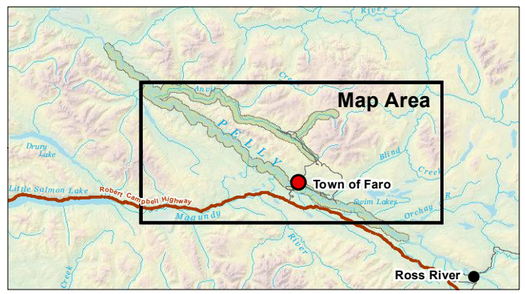
Detailed topographic features and imagery of the Faro, Grum and Vangorda mine sites were provided by Yukon Government - Energy, Mines and Resources - Assessment and Abandoned Mines Branch (2012).

Project data displayed is site specific. Data collected by EDI Environmental Dynamics Inc. was obtained using Garmin GPS technology.

This document is not an official land survey and the spatial data presented is subject to change.

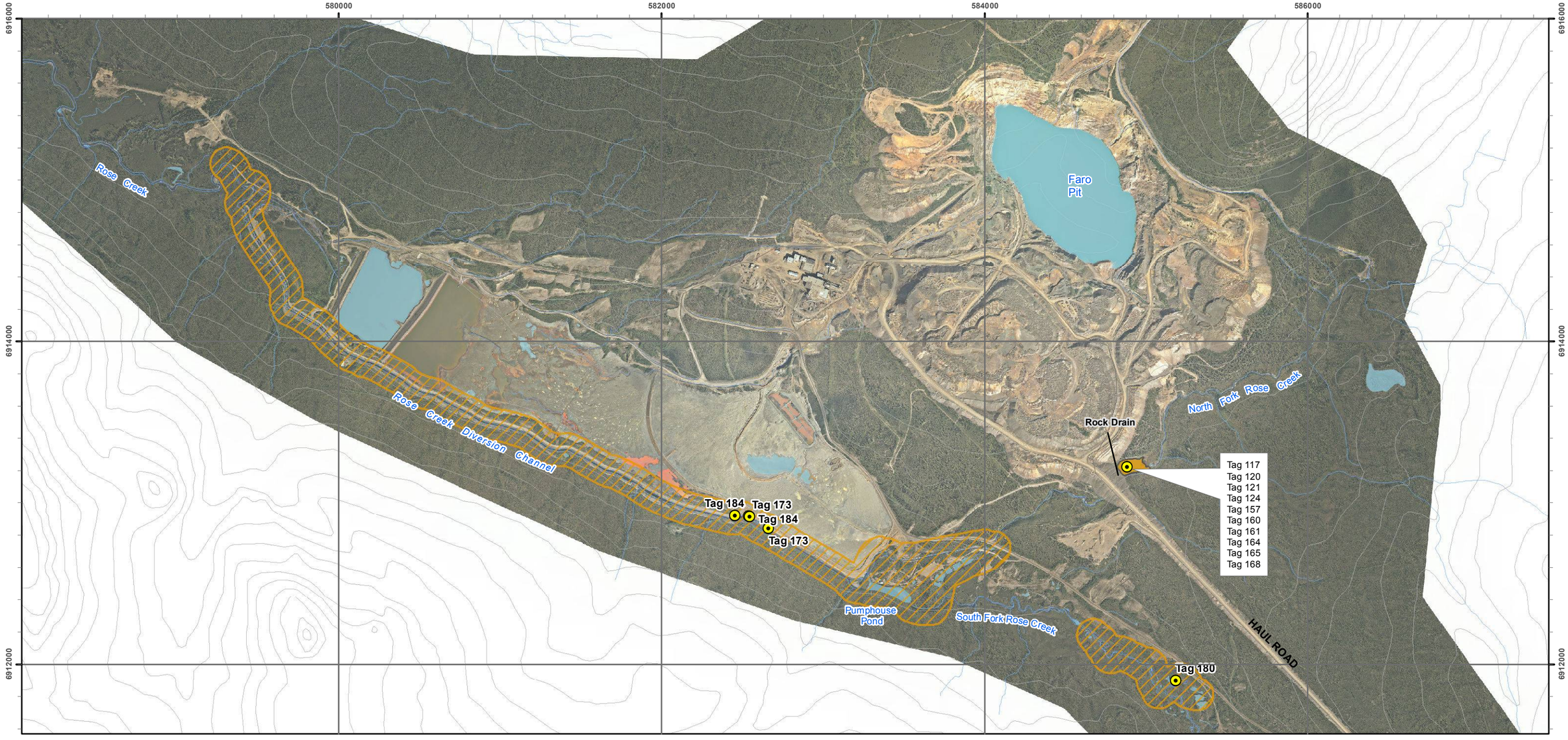
Drawn:	Checked:		
LG	MK	FIGURE 11	Date: 28/03/2014



EDI

Map Prepared by
EDI Environmental Dynamics Inc.

Path: J:\Yukon\Projects\2013\13_Y_0452_AAM_NF_Sampling\Mapping\Telemetry_Finals\Fig11_GRTelemetry_29_30Oct2013.mxd



Location of radio-tags detected during telemetry surveys at the Faro Mine Site, November 13, November 27 and December 10, 2013

Legend

- Location of radio tag detected
- Topographic contour (30 m interval)
- Telemetry survey extent (trips 1, 2 and 3)
- Telemetry survey extent (trip 3)

Telemetry Survey Trip Dates:
Trip 1: November 13, 2013
Trip 2: November 27, 2013
Trip 3: December 10, 2013

N
W E
S

0 200 400 600 800 1,000
Metres

Map Scale = 1:24,000 (printed on 11 x 17)
Map Projection: North American Datum 1983 UTM Zone 8N

Data sources

1:50,000 topographic spatial data provided by Geomatics - Yukon Government via online source (Corporate Spatial Warehouse) www.geomaticsyukon.ca.

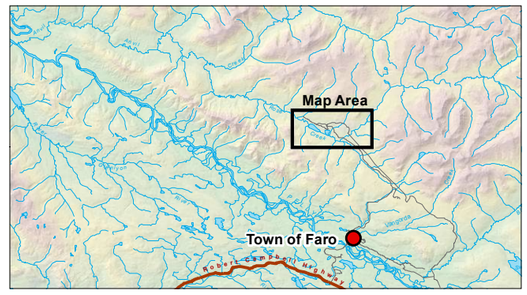
National Road Network courtesy of Her Majesty the Queen in Right of Canada, Department of Natural Resources. All Rights Reserved.

Detailed toppgraphic features of the Faro, Grum and Vangorda mine sites were provided by Yukon Government - Energy, Mines and Resources - Assessment and Abandoned Mines Branch (March 2012).

Project data displayed is site specific. Data collected by EDI Environmental Dynamics Inc. was obtained using Garmin GPS technology.

This document is not an official land survey and the spatial data presented is subject to change.

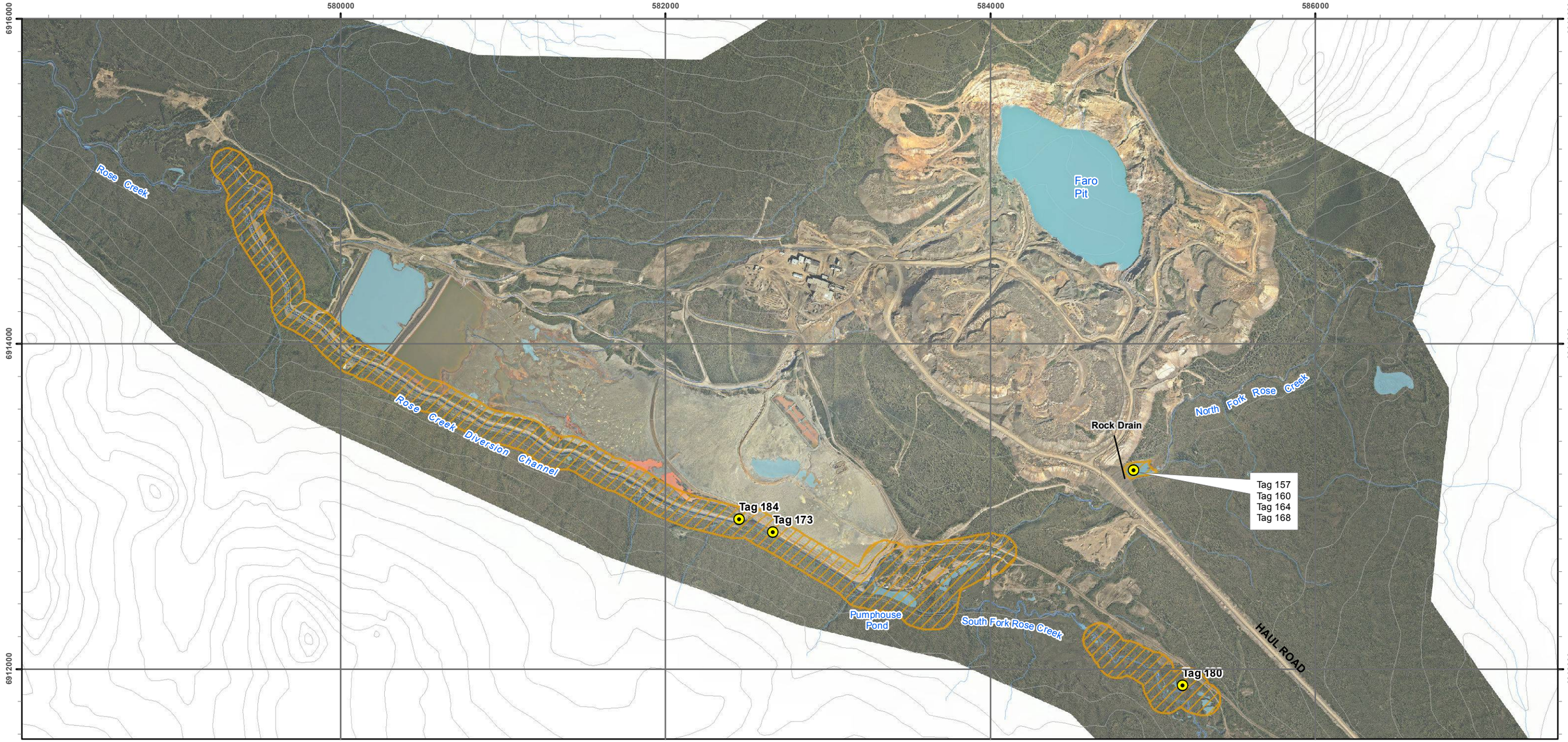
Drawn:	Checked:		
LG	MK	FIGURE 12	Date: 28/03/2014



EDI

Map Prepared by
EDI Environmental Dynamics Inc.

Path: J:\Yukon\Projects\2013\13_Y_0452_AAM_NF_Sampling\Mapping\Telemetry_Finals\Fig12_GRTelemetry_13Nov_27Nov_10Dec.mxd



Location of radio-tags detected during telemetry surveys at the Faro Mine Site, January 7, 2014

Legend

- Location of radio tags detected
- Topographic contour (30 m interval)
- Telemetry survey extent

N
W E
S

0 200 400 600 800 1,000
Metres

Map Scale = 1:24,000 (printed on 11 x 17)
Map Projection: North American Datum 1983 UTM Zone 8N

Data sources

1:50,000 topographic spatial data provided by Geomatics - Yukon Government via online source (Corporate Spatial Warehouse) www.geomaticsyukon.ca.

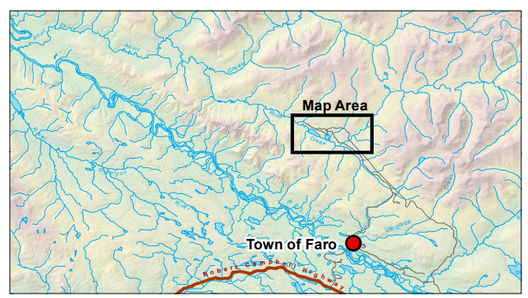
National Road Network courtesy of Her Majesty the Queen in Right of Canada, Department of Natural Resources. All Rights Reserved.

Detailed toppgraphic features of the Faro, Grum and Vangorda mine sites were provided by Yukon Government - Energy, Mines and Resources - Assessment and Abandoned Mines Branch (March 2012).

Project data displayed is site specific. Data collected by EDI Environmental Dynamics Inc. was obtained using Garmin GPS technology.

This document is not an official land survey and the spatial data presented is subject to change.

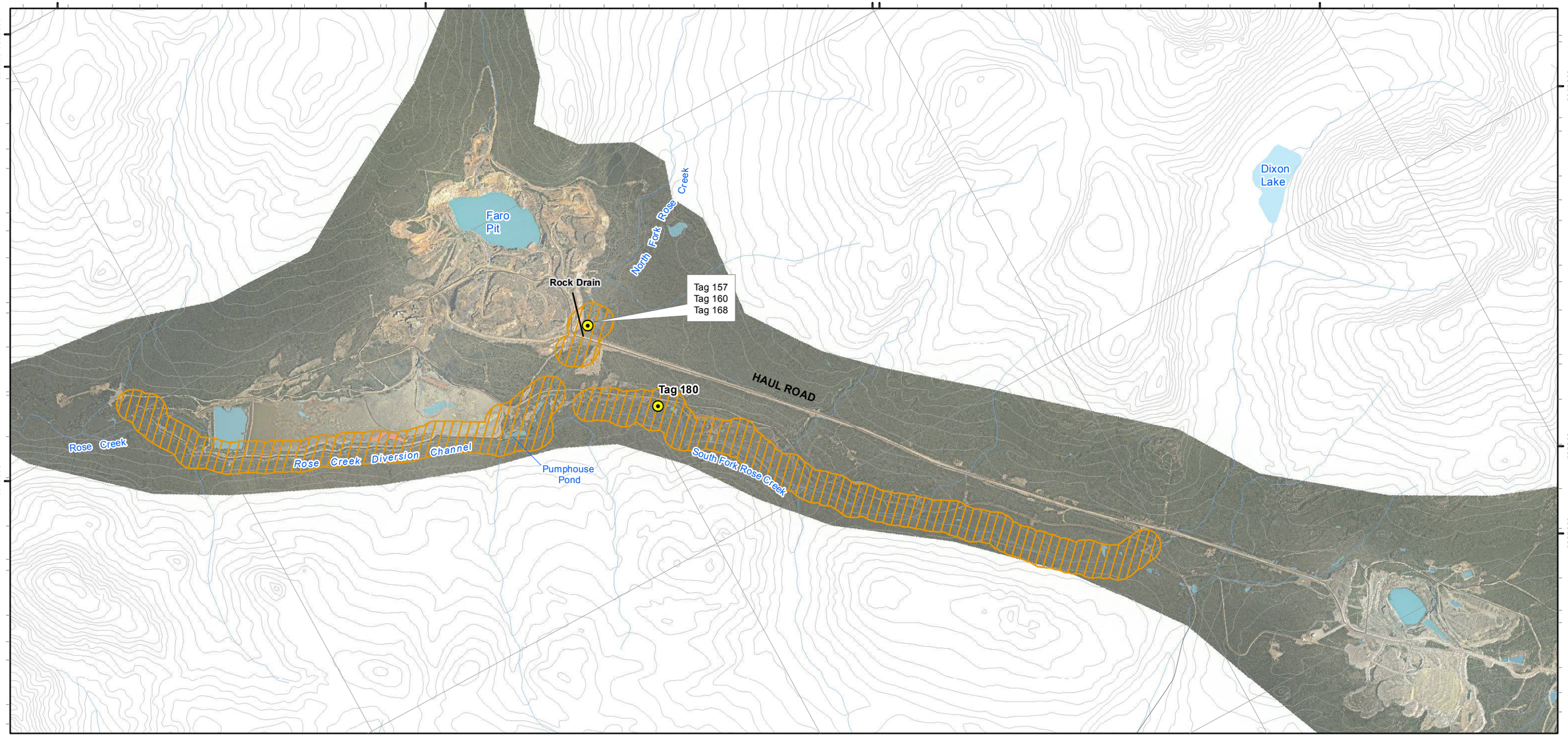
Drawn:	Checked:		
LG	MK	FIGURE 13	Date: 28/03/2014



EDI

Map Prepared by
EDI Environmental Dynamics Inc.

Path: J:\Yukon\Projects\2013\13_Y_0452_AAM_NF_Sampling\Mapping\Telemetry_Finals\Fig13_GRTelemetry_Jan7.mxd



Location of radio-tags detected during telemetry surveys at the Faro Mine Site, January 29, 2014

Legend

- Location of radio tags detected
- Topographic contour (30 m interval)
- Telemetry survey extent

N E S W

0 500 1,000 1,500 2,000 2,500 3,000

Metres

Map Scale = 1:50,000 (printed on 11 x 17)
Map Projection: North American Datum 1983 UTM Zone 8N

Data sources

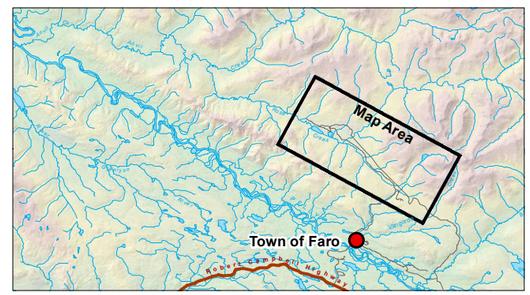
1:50,000 topographic spatial data provided by Geomatics - Yukon Government via online source (Corporate Spatial Warehouse) www.geomaticsyukon.ca.

Detailed toppgraphic features of the Faro, Grum and Vangorda mine sites were provided by Yukon Government - Energy, Mines and Resources - Assessment and Abandoned Mines Branch (March 2012).

Project data displayed is site specific. Data collected by EDI Environmental Dynamics Inc. was obtained using Garmin GPS technology.

This document is not an official land survey and the spatial data presented is subject to change.

Drawn:	Checked:		
LG	MK	FIGURE 14	Date: 28/03/2014



EDI

Map Prepared by
EDI Environmental Dynamics Inc.

Path: J:\Yukon\Projects\2013\13_Y_0452_AAM_NF_Sampling\Mapping\Telemetry_Finals\Fig14_GRTelemetry_Jan29.mxd

Location of radio-tags detected during telemetry surveys, February 12, 2014

Legend

- Location of strongest signal, February 12, 2014
- Robert Campbell Highway
- Secondary Road
- Topographic contour (150 m interval)
- Extent of telemetry survey, February 12, 2014

N
W E
S

0 2 4 6 8 10
Kilometres

Map Scale = 1:250,000 (printed on 11 x 17)
Map Projection: North American Datum 1983 UTM Zone 8N

Data sources

1:250,000 topographic spatial data provided by Geomatics - Yukon Government via online source (Corporate Spatial Warehouse) www.geomaticsyukon.ca.

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Detailed topographic features and imagery of the Faro, Grum and Vangorda mine sites were provided by Yukon Government - Energy, Mines and Resources - Assessment and Abandoned Mines Branch (2012).

Project data displayed is site specific. Data collected by EDI Environmental Dynamics Inc. was obtained using Garmin GPS technology.

This document is not an official land survey and the spatial data presented is subject to change.

Drawn:	Checked:		
LG	MK	FIGURE 15	Date: 28/03/2014

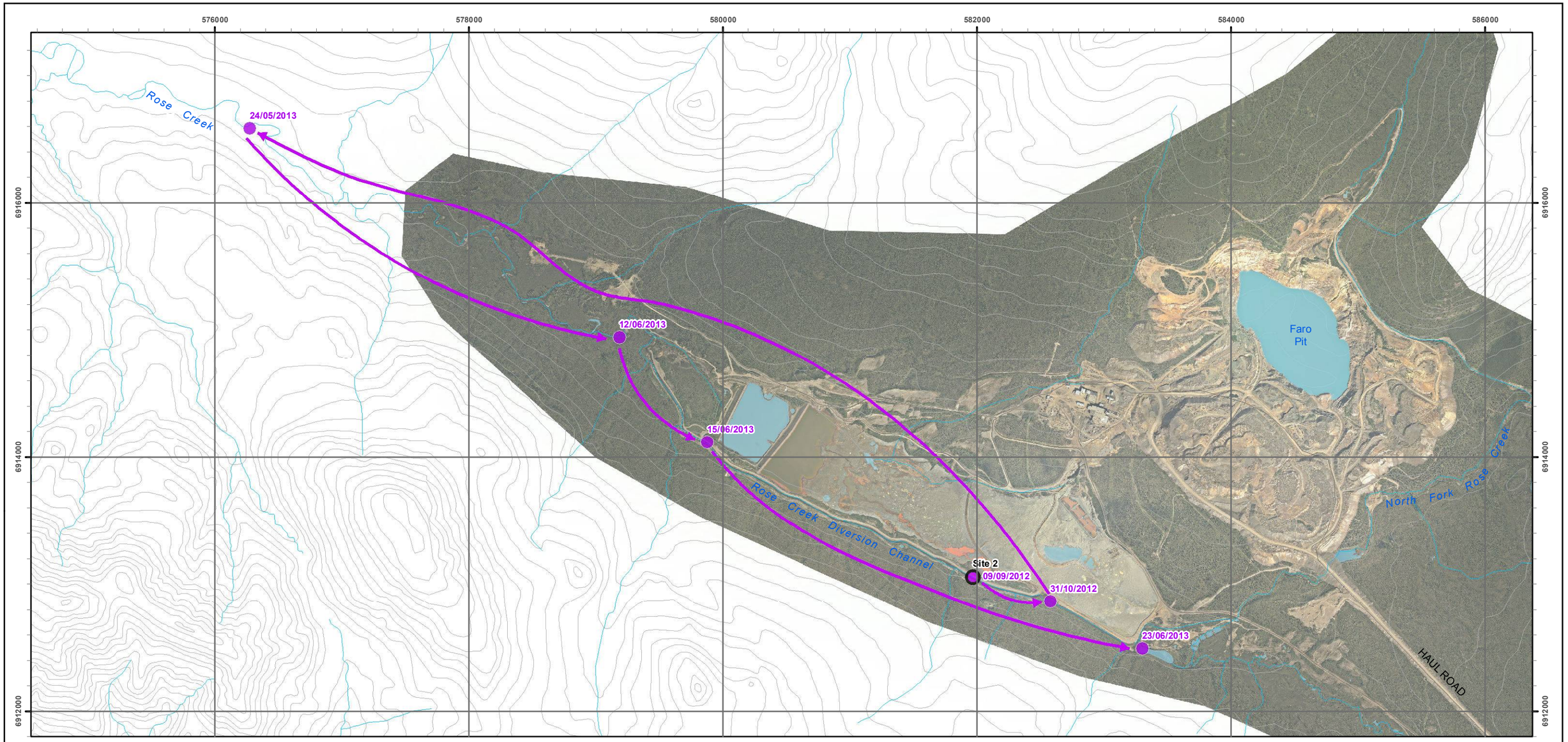
Map Area

Town of Faro

Ross River

EDI

Path: J:\Yukon\Projects\2013\13_Y_0452_AAM_NF_Sampling\Mapping\Telemetry_Finals\Fig15_GRTelemetry_12Feb2014.mxd



Location of radio-tag 8b during telemetry surveys, 2012 - 2013

Legend

- Site 2 09/09/2012* — Location and Date of Tagging Site 2
- 31/10/2012* — Location of Tag 8b and Date of Telemetry Survey
- Tag 8b Movement
- Road (Mine Access/Haul)
- Topographic Contour (30 m Interval)

* Day/Month/Year

N
W E
S

0 200 400 600 800 1,000
Metres

Map Scale = 1:30,000 (printed on 11 x 17)
Map Projection: North American Datum 1983 UTM Zone 8N

Data sources

1:50,000 topographic spatial data provided by Geomatics - Yukon Government via online source (Corporate Spatial Warehouse) www.geomaticsyukon.ca.

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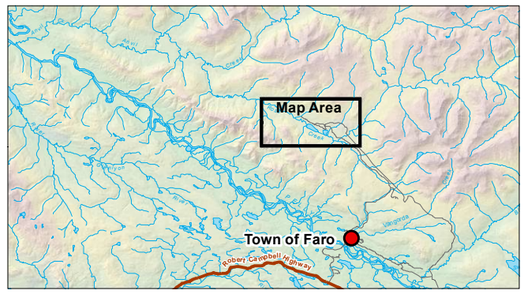
Detailed toppgraphic features of the Faro, Grum and Vangorda mine sites were provided by Yukon Government - Energy, Mines and Resources - Assessment and Abandoned Mines Branch (March 2012).

Project data displayed is site specific. Data collected by EDI Environmental Dynamics Inc. was obtained using Garmin GPS technology.

This document is not an official land survey and the spatial data presented is subject to change.

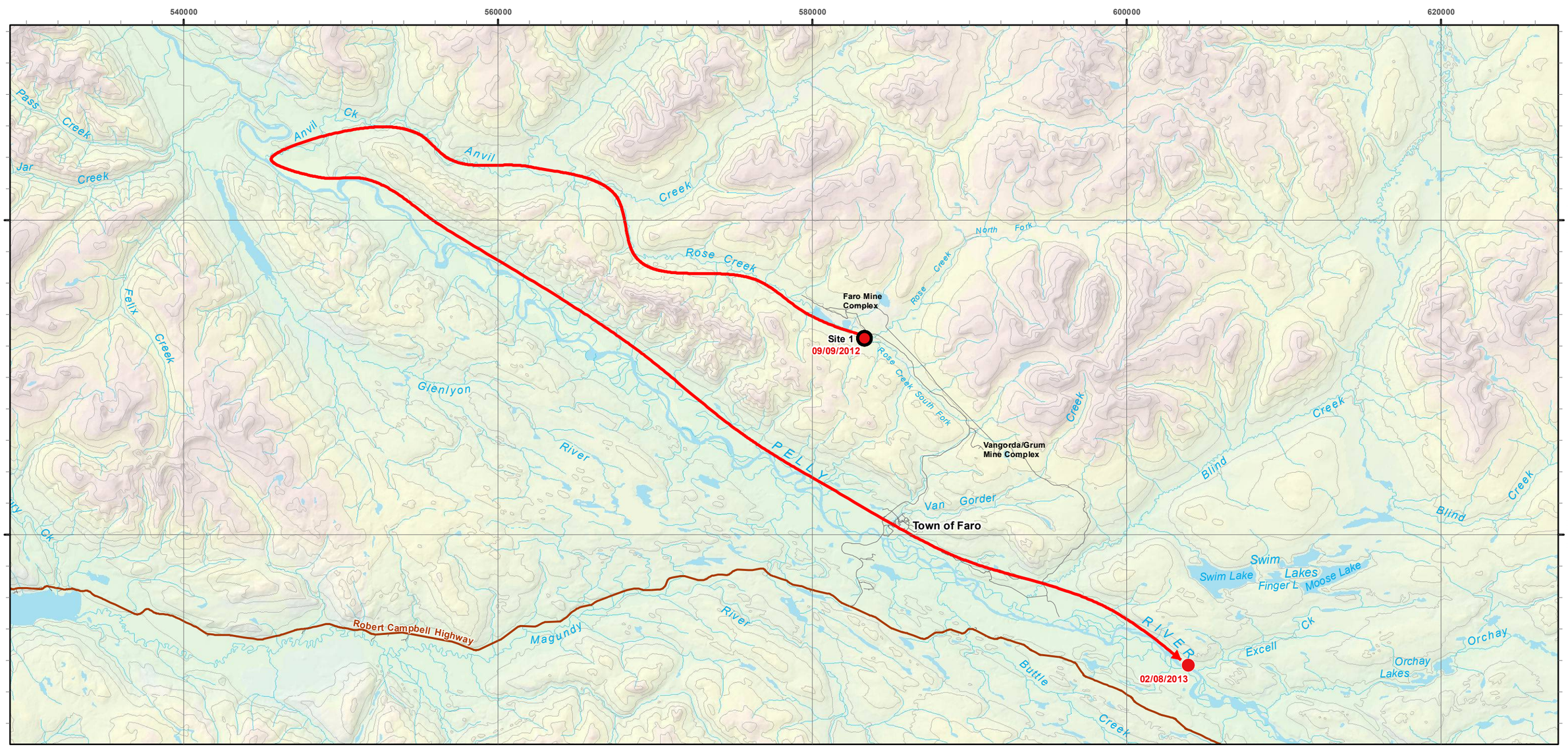
Drawn:	Checked:		
LG	MK	FIGURE 16	Date: 16/04/2014



EDI

Map Prepared by
EDI Environmental Dynamics Inc.

Path: J:\Yukon\Projects\2013\13_Y_0452_AAM_NF_Sampling\Mapping\Telemetry_Finals\Fig16_GRTagsFMS_2012_13.mxd



Location of radio-tag 3b during telemetry surveys, 2012 - 2013

Legend

- Site 1 09/09/2012* — Location and Date of Tagging Site 1
- 31/10/2012* — Location of Tag 3b and Date of Telemetry Survey
- Tag 3b Movement
- Robert Campbell Highway
- Secondary Road
- Topographic contour (150 m interval)

*Day/Month/Year

N W E S

0 2 4 6 8 10
Kilometres

Map Scale = 1:250,000 (printed on 11 x 17)
Map Projection: North American Datum 1983 UTM Zone 8N

Data sources

1:250,000 topographic spatial data provided by Geomatics - Yukon Government via online source (Corporate Spatial Warehouse) www.geomaticsyukon.ca.

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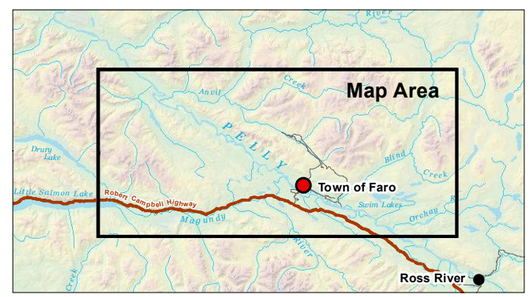
Detailed topographic features and imagery of the Faro, Grum and Vangorda mine sites were provided by Yukon Government - Energy, Mines and Resources - Assessment and Abandoned Mines Branch (2012).

Project data displayed is site specific. Data collected by EDI Environmental Dynamics Inc. was obtained using Garmin GPS technology.

This document is not an official land survey and the spatial data presented is subject to change.

Drawn:	Checked:		
LG	MK	FIGURE 17	Date: 16/04/2014



EDI

Map Prepared by
EDI Environmental Dynamics Inc.

Path: J:\Yukon\Projects\2013\13_Y_0452_AAM_NF_Sampling\Mapping\Telemetry_Finals\Fig17_GRTagsPelly_2012_13.mxd

572000 574000 576000 578000 580000 582000 584000 586000

6918000 6916000 6914000 6912000

30/10/2013
12/02/2014
Tag108
Rose Creek
12/02/2014
RC-AG-01
04/09/2013
Tag 184
Faro Pit
Rose Creek Diversion Channel
10/12/2013
07/01/2014
09/09/2013
NP-AG-02
NP-AG-01
09/09/2013
Tag 184
30/10/2013
Tag 184
Tag 180
North Fork Rose Creek
HAUL ROAD
30/10/2013
12/02/2014
10/12/2013

Location of radio-tags 108, 180 and 184 during telemetry surveys, 2013 - 2014

Legend

RCD-AG-02 09/09/2013* — Tagging Location and Date

30/10/2013* — Date of Telemetry Survey and Tag Location

Movement of Tag

Road (Mine Access/Haul)

Topographic Contour (30 m Interval)

* Day/Month/Year

Tag Colour

Tag 184

Tag 180

Tag 108

N W E S

0 500 1,000 1,500 2,000

Metres

Map Scale = 1:35,000 (printed on 11 x 17)
Map Projection: North American Datum 1983 UTM Zone 8N

Data sources

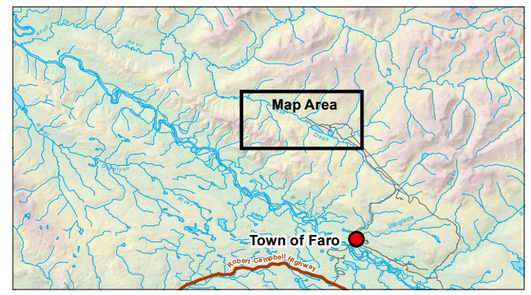
1:50,000 topographic spatial data provided by Geomatics - Yukon Government via online source (Corporate Spatial Warehouse) www.geomaticsyukon.ca.

Detailed toppgraphic features of the Faro, Grum and Vangorda mine sites were provided by Yukon Government - Energy, Mines and Resources - Assessment and Abandoned Mines Branch (March 2012).

Project data displayed is site specific. Data collected by EDI Environmental Dynamics Inc. was obtained using Garmin GPS technology.

This document is not an official land survey and the spatial data presented is subject to change.

Drawn:	Checked:		
LG	MK	FIGURE 18	Date: 16/04/2014



EDI

Map Prepared by
EDI Environmental Dynamics Inc.

Path: J:\Yukon\Projects\2013\13_Y_0452_AAM_NF_Sampling\Mapping\Telemetry_Finals\Fig18_GRTagsFMS_2013_14.mxd

Location of radio-tags 136, 177 and 181 during telemetry surveys, 2013 - 2014

Legend

- RCD-AG-12 09/09/2013* — Tagging Location and Date
- 30/10/2013* — Date of Telemetry Survey and Tag Location
- Movement of Tag
- Robert Campbell Highway
- Secondary Road
- Topographic contour (150 m interval)

*Day/Month/Year

Tag Colour

- Tag 136
- Tag 177
- Tag 181

N W E S

0 2 4 6 8 10
Kilometres

Map Scale = 1:250,000 (printed on 11 x 17)
Map Projection: North American Datum 1983 UTM Zone 8N

Data sources

1:250,000 topographic spatial data provided by Geomatics - Yukon Government via online source (Corporate Spatial Warehouse) www.geomaticsyukon.ca.

Detailed topographic features and imagery of the Faro, Grum and Vangorda mine sites were provided by Yukon Government - Energy, Mines and Resources - Assessment and Abandoned Mines Branch (2012).

Project data displayed is site specific. Data collected by EDI Environmental Dynamics Inc. was obtained using Garmin GPS technology.

This document is not an official land survey and the spatial data presented is subject to change.

Drawn:	Checked:		
LG	MK	FIGURE 19	Date: 16/04/2014

Map Area

Map Prepared by
EDI Environmental Dynamics Inc.

Path: J:\Yukon\Projects\2013\13_Y_0452_AAM_NF_Sampling\Mapping\Telemetry_Finals\Fig19_GRTagsPelly_2013_14.mxd