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Assessment Report on the

Birch Lake Property – 2020 Prospecting Program

Satterly Lake Area / Casummit Lake Area, 052N08
Red Lake Mining Division,
Ontario, Canada

Sundog Geology

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Contents

Introduction

The Birch Lake Property was staked by the author in August of 2020 to cover new discoveries within the north-central section of the Birch-Uchi greenstone belt. Two separate claim blocks were staked in 2020; a southern block (the "Stargazer Block"), and a northern block (the "Horseshoe East Block"). This report details the 2020 prospecting program on the two Birch Lake Properties, which proceeded intermittently from July 23 to August 14, 2020.

Location and Access

The Birch Lake Property (Figure 1) is located within the Satterly and Casummit Lake Areas of the Red Lake Mining Division, cell 052N08 of the Provincial Cell Grid. Both claim blocks overlie sections of Birch Lake. The Horseshoe East Block occurs in the south-central part of Birch Lake, ~3.5 km west of Wagner Bay. The Stargazer Block occupies a central position in the South Bay of Birch Lake, and covers most of Hodgson Island. Overall, the property lies ~96 km to the NNE of Ear Falls, and ~105 km ENE of Red Lake. The nearest communities are Slate Falls & Cat Lake, each approximately 55 km distant to the ESE and NE respectively.

The Property was accessed in 2020 by logging road and canoe. From Ear Falls, the Goldpine road was followed north for approximately 2 km, and then the Wenesaga logging road was followed for a further 5 km to its junction with the South Bay Mine road. Access proceeded north along the South Bay Mine road for 73.4 km until the turn-off for the South Bay Mine; and continued a further 10 km along the main road beyond the South Bay Mine turn-off. At this point, a right turn was taken onto an E-W running minor logging road, which was followed for a distance of 4.3 km. The truck was parked at the top of a small, overgrown logging road, and equipment was portaged along an ATV trail 850 m down to the SW shore of Okanse Lake. The main logging roads proved readily traversable by a 4wd vehicle, however a minor roadblock had been excavated just beyond the road junction 2.45 km east of the South Bay Mine road; it was possible to circumvent this roadblock in a small 4wd truck. The roadblock had been removed (repaired) as of August 14, 2020.

Further progress was by canoe & portage. Access proceeded northeast across Okanse Lake, into the river system of Wagner Lake, and northwards into Wilkins Lake. The river between Okanse Lake & Wagner Lake was low but mostly navigable by canoe; however dry mid-August weather required wading and dragging of the canoe through muddy flats for a considerable distance on the trip out. Low water also necessitated several short portages in a steep, rocky section just north of Wagner Lake; parts of this section might be navigable in high-water conditions. A 320 m portage was cut between Wilkins & Grace Lakes, and a 510 m portage was rehabilitated north of Grace Lake, allowing access to the SW tip of Birch Lake (South Bay). Further access was by canoe over Birch Lake, with minor portages as necessary to explore peripheral lakes (e.g. Superstition Lake, Bergstrand Lake, etc.). Access to the Stargazer (southern) Property involved a canoe route of approximately 25.5 km; a further 9.6 km was needed to access the Horseshoe East Property. The same route was used both to access the property as to exit it at the end of the work program.

The primary alternative to canoe-trekking would be to access the lake by air; Birch Lake is readily accessible by float plane, and docks, motorboats and cabins can be rented at Green's Poplar Grove Camp, situated approximately midway between the Stargazer & Horseshoe East claim blocks (~3.8 km north of the Stargazer Property).

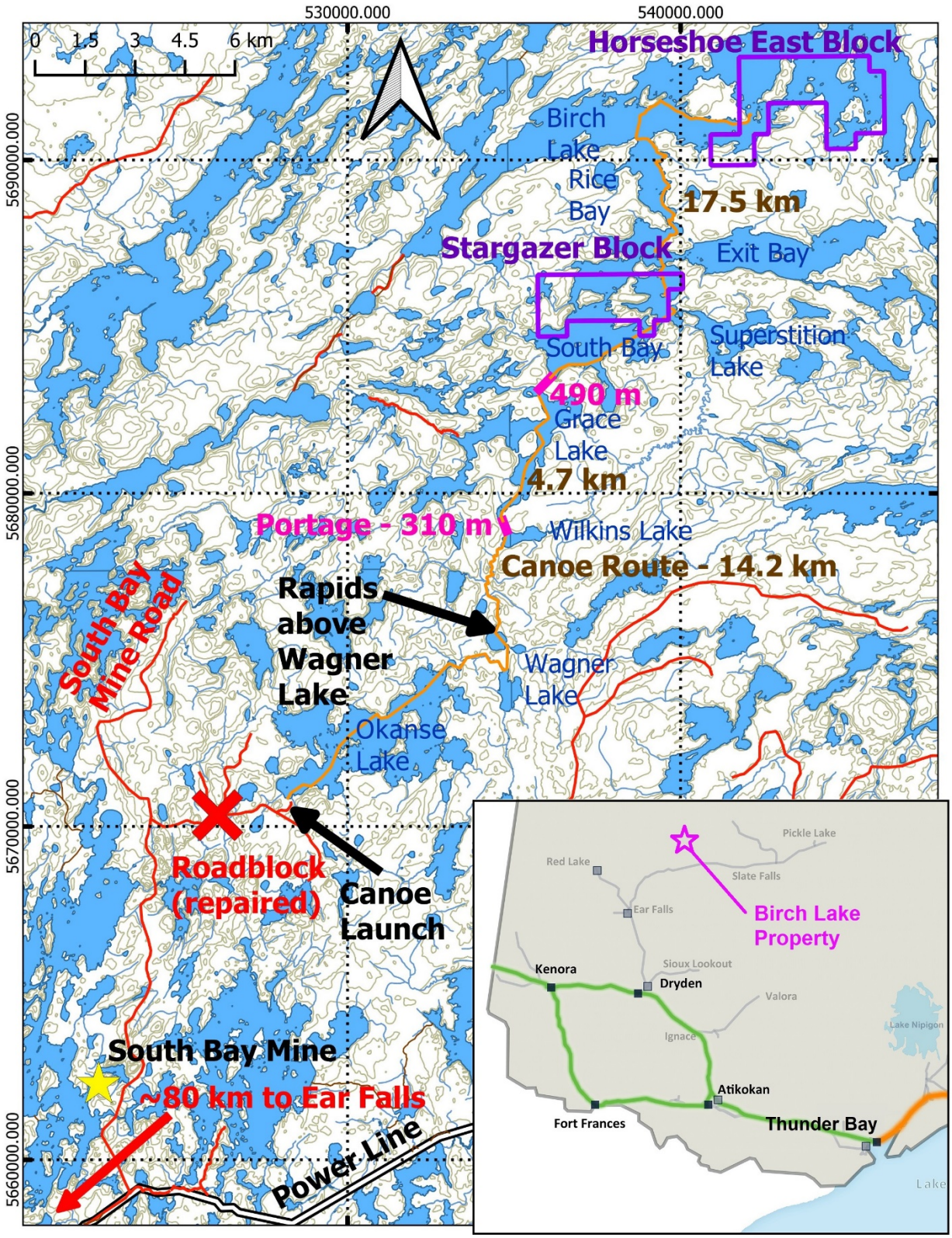

Figure 1 – Location of the Birch Lake Property

Land Status

The Stargazer Claim Block consists of 4 multi-cell claims, totalling 31 units and 625.7 ha. The Horseshoe East Claim Block consists of 6 multi-cell claims, totalling 49 units and 987.8 ha. All claims are 100% owned by the author. Claims are summarized in Table 1.

Table 1 – Claims comprising the Birch Lake Property

Claim Block	Township	Claim No	Claim Type	No. of Cells	Area (ha)	ISSUE_DATE	DUE DATE	Amount Due ($)
Horseshoe East	Satterly /Casummit	618606	Multi-cell Mining Claim	6	121	2020-11-10	2022-08-15	2400
Horseshoe East	Satterly	618605	Multi-cell Mining Claim	6	121	2020-11-10	2022-08-15	2400
Horseshoe East	Casummit	618609	Multi-cell Mining Claim	11	221.7	2020-11-10	2022-08-15	4400
Horseshoe East	Casummit	618608	Multi-cell Mining Claim	6	120.9	2020-11-10	2022-08-15	2400
Horseshoe East	Casummit	618607	Multi-cell Mining Claim	10	201.6	2020-11-10	2022-08-15	4000
Horseshoe East	Satterly	618610	Multi-cell Mining Claim	10	201.6	2020-11-10	2022-08-15	4000
Stargazer	Satterly	618602	Multi-cell Mining Claim	6	121.1	2020-11-10	2022-11-02	2400
Stargazer	Satterly	618604	Multi-cell Mining Claim	8	161.5	2020-11-10	2022-11-02	3200
Stargazer	Satterly	618601	Multi-cell Mining Claim	8	161.5	2020-11-10	2022-11-02	3200
Stargazer	Satterly	618603	Multi-cell Mining Claim	9	181.6	2020-11-10	2022-11-02	3600

History

The first recorded work in the Birch Property area was regional (1:126,720 scale) mapping produced by the Ontario Department of Mines (ODM) in 1927, soon after the discovery of the Howey Mine at Red Lake. Northern Aerial Mineral Exploration (NAME) discovered the Springpole Showing in 1928; more gold was found south of Wagner Bay in 1933. Higher-resolution follow-up mapping by W.D. Harding of the ODM gave better definition to the geology of the central Birch Lake area, and identified gold-bearing mineralization at Horseshoe Lake. Development within the Birch-Uchi belt was quite active at this time including mining at the Sol D'Or Mine, development at the Uchi Mine area, production from the Argosy Mine, surface exploration at the Bobjo Mine, and reopening of the Bathurst Mine. In spite of this, the South Bay area remained relatively unexplored, with recorded work mainly being sporadic geophysics and mapping efforts during the 1960s & 1970s. Following an updated OGS map at a 1:50,000 scale published in 1981, the South Bay of Birch Lake saw renewed exploration activity. Several showings were discovered in the mid 80s, including the Superstition Lake NW showing, the Trench Grid showing, and mineralization

just south of Rice Bay. Exploration at South Bay culminated with the discovery of the Greencamp Zone by St. Joe Exploration in 1987; drilling at the Greencamp Zone returned intervals up to 1.37 g/t over 117 m, while channel samples returned up to 4.1 g/t Au over 7.3 m. Most of the South Bay area was investigated by mapping, geochemistry and geophysics during the 1980s and early 1990s, including mapping and sampling of Hodgson Island; the entire Birch Lake Property area was remapped by the OGS at a scale of ~1:15,000 in 1989, and a high-resolution airborne survey over the entire Birch-Uchi greenstone belt was published in 1991. Work in the area since the 1990s has been sporadic, mostly confined to prospecting, geochemical sampling and localized geophysical surveys. The Horseshoe East claim block has been prospected, but has never been mapped in detail.

A complete history of work on the property claim blocks is presented in Table 2.

2020 Exploration Program

Prospecting at Birch Lake took place over the period from July 24th to August 14th of 2020. Activities during this time included grassroots prospecting and grab sampling in the area of Grace Lake, Bergstrand and Bobarris Lakes, Louwag Lake, Superstition Lake, and the southern parts of Birch Lake, including South Bay, Exit Bay and the area west of Wagner Bay. All sampling and prospecting was conducted using a handheld GPS, specifically a Garmin GPSmap 76Cx. Table 3 provides a daily log of activities; field notes related to these activities are presented in Appendix 2. Figure 3 summarizes prospecting activities on the Birch Lake claims during the 2020 season. High-resolution maps for the Stargazer & Horseshoe East claim blocks are presented in Appendix 5.

Mapping in 2020 confirmed that much of the South Bay area is underlain by steep-dipping, relatively monotonous sediments; textures are typically well-preserved, and deformation is modest (cobble stretching ratios from conglomerates typically indicate a 10 x 5 x 3 ratio for long-, intermediate- and short-axes of deformed cobbles). Volcanics are less common within the sedimentary basin which occupies the prospecting area; however thin volcanic beds were encountered occasionally, as well as thicker volcanic packages. Volcanics typically show an intermediate to felsic composition. Fold overprinting was observed in felsic tuff in several locations (e.g. Figures 4 & 5); similar fold patterns were not seen within the sedimentary units, possibly supporting a younger (pre- to syn-deformation) age for the basinal sedimentary package. Both sediments and volcanics have been overprinted by ductile shear zones with associated Fe-carbonate alteration, quartz veining and sulphide mineralization; both sediments and volcanics have also been intruded by late, Au-hosting intrusives within the South Bay area (gabbro and diorite, including the diorite host of the Greencamp Showing). Most significant showings nearby the Birch Lake Property are hosted in or related to intrusions, including the Springpole, Horseshoe, Greencamp and Hanson showings. Areas distal to high-strain zones are typically unaltered. Figure 2 shows some characteristic Birch Lake rock types.

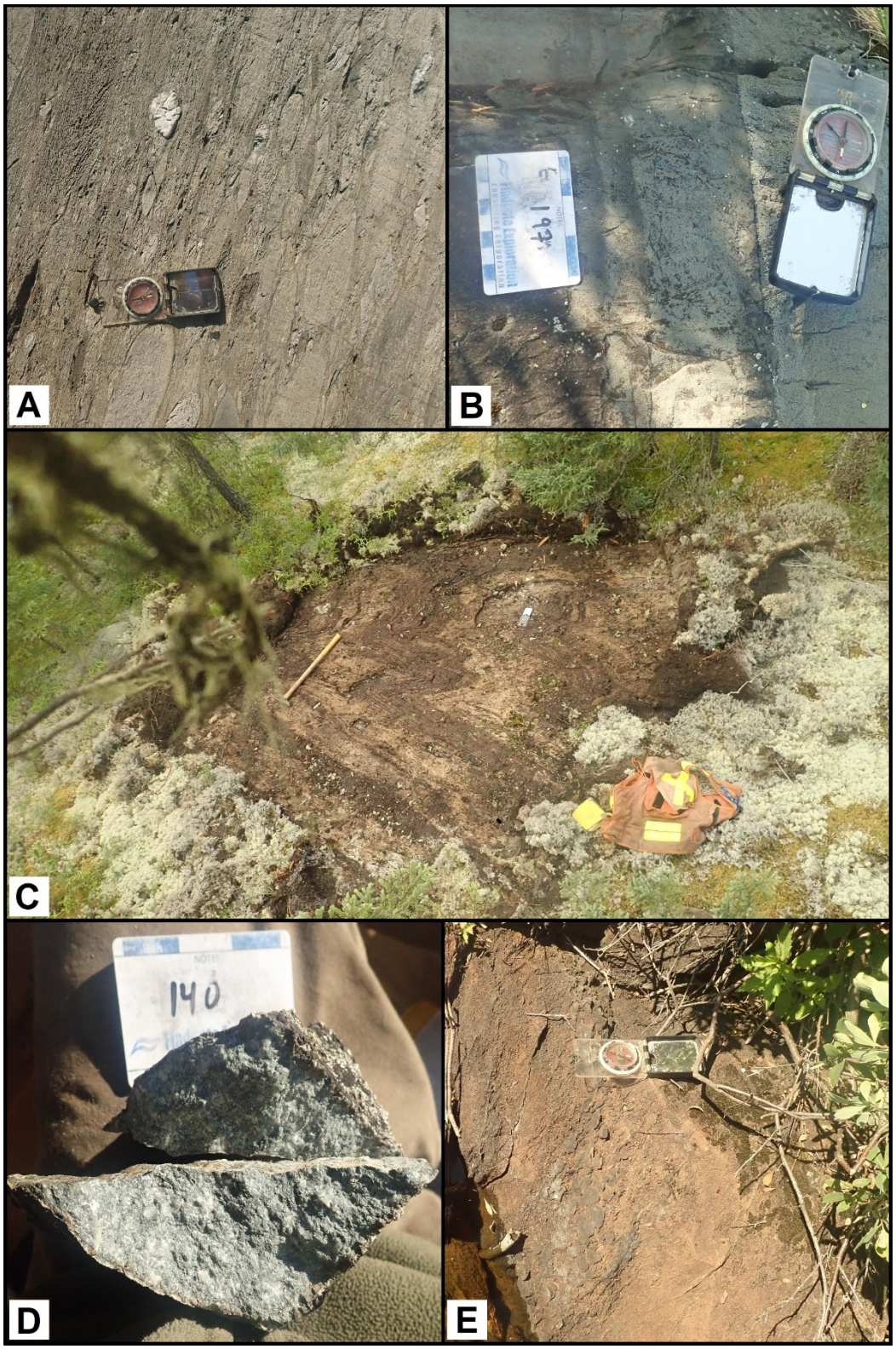

Figure 2 – Photos from the 2020 Birch Lake prospecting program. A – quartz cobble in a moderately deformed cobble conglomerate west of Superstition Lake. B – Well-preserved bedding in fine sediments; Superstition Lake area. C – Fold overprinting in thin-bedded felsic tuff. D – Medium-grained diorite; host to the Hanson Showing. E – Fe-Carbonate breccia on the NE shore of Hodgson Island

Table 2 – Work History at the Birch Lake Property

Claim Block	Reference/ AFRI Number	Year	Work Type	Company	Author	Description
Horseshoe East & Stargazer	arm36e	1927	Geological Mapping	ODM	Greig, J.W.	ODM map published at a scale of 1:126,720; covers the property (south and central sections of Birch Lake)
Horseshoe East & Stargazer	ARM45C	1936	Geological Mapping	ODM	Harding, W.D.	ODM map at a scale of 1:63,360 for the Birch-Springpole Lakes Area; covers both Claim Blocks
Horseshoe East & Stargazer	p0406	1967	Geological Compilation	OGS	Davies, J.C., & Pryslak, A.P.	Compilation covering almost the entire Birch-Uchi greenstone belt; scale of 1:126,720
Stargazer	52N08SW0012	1969	Airborne Geophysics	McGregor Telephone and Power Construction Company	Stemp, R.W.	Combined airborne EM, magnetic and gamma ray spectrometer survey covering much of South Bay and part of Exit Bay
Stargazer	52N08SW0050	1974	Geologic Mapping	Ronda Copper Mines	Ogden, M.	Geologic survey, with lines 400 feet apart; covers the westernmost edge of the Stargazer claim block only. Map not available in the online assessment file, but a copy is available in 52N08SW0014
Horseshoe East & Stargazer	P1186	1976	Geophysics	OGS	Barlow, R.B., et al.	Bouguer Gravity Map for the entire Birch-Uchi-Confederation Lake Area; scale 1:126,720
Stargazer	52N08SW0014	1976	Ground Geophysics	Karl Koezur	Huston, C.D.	Ground magnetometer survey, 400 ft line spacing; covers just the SE corner of the Stargazer claim block
Horseshoe East & Stargazer	P2387	1981	Geological Mapping	OGS	Thurston, P.C., et al.	OGS pmap for the Birch Lake Area; 1:50,000 scale. Covers both claim blocks. This mapping used in the P2386 map
Horseshoe East	52N08SW0020	1985	Ground Geophysics	Loydex Resources Inc.	Nelson, L.J.	Small ground magnetic survey overlapping the south edge of the Horseshoe East claim block

Table 2 – Work History at the Birch Lake Property [CONTINUED]

Claim Block	Reference/ AFRI Number	Year	Work Type	Company	Author	Description
Stargazer	20008061	1986	Ground Geophysics	Kidd Creek Mines Ltd.	Zang, M.W.	Proton precession magnetometer, VLF-EM and HLEM traverses; covers the area north of Superstition Lake, overlapping the Stargazer Claim Block east of Hodgson Island
Horseshoe East	52N07NE0001	1988	Geology	Lencourt Limited	Kociumbas, M.W.	Line cutting, Geologic mapping (1:2500 scale), ground geophysical surveys (magnetometer & VLF-EM surveys); c-horizon & humus geochemical sampling at 50 x 60 m spacing (analyzed for Au). Two mapping areas are adjacent the Birch Lake Property; mapping at "Tom Group" barely overlaps the Horseshoe East claim block, while the "Satterly Group" mapping sits just northeast of the Stargazer Claim Block
Horseshoe East	P3117	1989	Geological Mapping	OGS	Beakhouse, G.P., & McNeil, A.M.	OGS pmap for the Western Birch Lake Area; 1:15,840 scale; covers just the north part of the Horseshoe East Claim Block
Horseshoe East & Stargazer	P3118	1989	Geological Mapping	OGS	Beakhouse, G.P., et al.	OGS pmap published for the Western Birch Lake Area, 1:15,840 scale. Covers all of the Stargazer Claim Block, and about half of the Horseshoe East Claim Block
Stargazer	20007979	1990	Geologic Mapping & Geochemistry	Noranda Exploration	Fitzpatrick, D.	Geologic mapping of Hodgson Island, as well as an area to the east of the property (Superstition Lake area) at a scale of 1:5000. A humus survey was also carried out over Hodgson Island and other parts of the property, testing Au, As & Sb; no significant anomalies were noted
Horseshoe East & Stargazer	GDS1025	1991	Geophysics	OGS	Gupta, V.K.	Airborne Magnetic & Electromagnetic Surveys covering the entire Birch-Uchi belt at a scale of 1:20,000
Stargazer	52N08SW2003	2003	Compilation; Geophysics	Nucanolan Resources	Watson, Roger K.	High sensitivity Tri-sensor magnetic & VLF-EM airborne Survey; covers much of the South Bay area

Table 2 – Work History at the Birch Lake Property [CONTINUED]

Claim Block	Reference/ AFRI Number	Year	Work Type	Company	Author	Description
Stargazer	52N08SW2004	2004	Geochemistry	Westchester Resources	Archibald, J.C.	Line-cutting and re-establishing grid over the Green Camp occurrence (NW of Stargazer Property). Also, prospecting and sampling around South Bay and Hodgson Island, 110 rock samples & 81 soil geochemical samples
N/A	20007704	2009	Geochemistry	Northern Mineral Exploration Services	Buck, H.M., & Tims, A.	45 rock samples (mainly of existing showings) and 150 b-horizon soil samples (at the Greencamp showing). None of the sampling was directly on the Stargazer Claim Block
Stargazer	20007964	2010	Geochemistry	Lateegra Gold Corp.	Smith, G.K.	148 MMI samples taken, including 5 samples taken on Hodgson Island
Stargazer	20010338	2011	Prospecting & Geochemistry	Strike Gold Corp.	Archibald, J.C.	Prospecting and grab sampling around South Bay; most sampling on the property was focussed on Hodgson Island; other sampling at the Greencamp, Hanson, Superstition Lake and Exit Bay showings
N/A	20010339	2011	Geochemistry	Strike Gold Corp.	Archibald, J.C.	MMI survey. The main survey was conducted north of the property, on the peninsula east of the Greencamp Showing
Horseshoe East	20011507	2012	Geochemistry, Geophysics	Mega Precious Metals	Malegus, P.	Airborne magnetic & resistivity surveys covering the Horseshoe East area; and geochemical sampling on the property, 95 grab samples and 118 channel samples

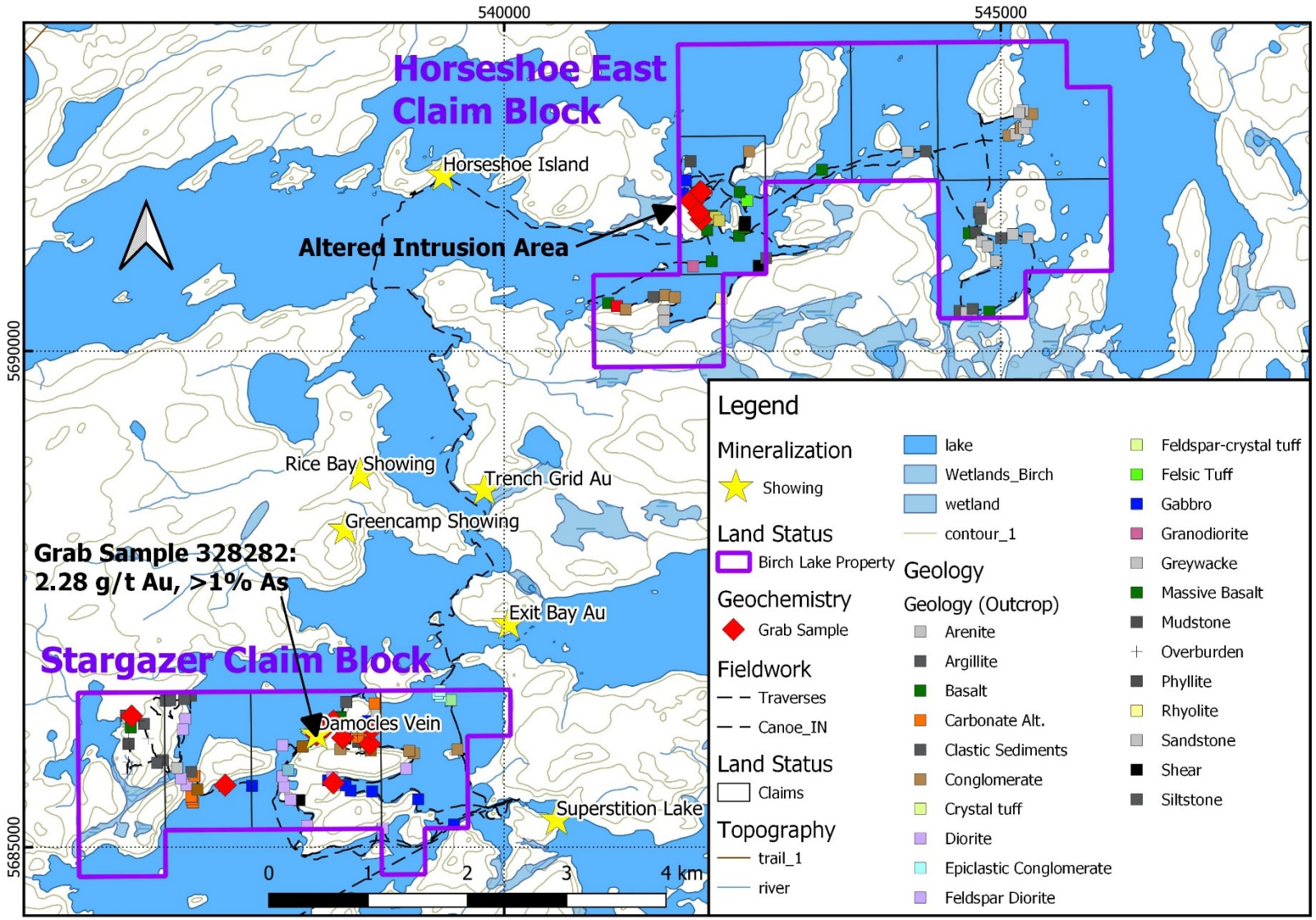

Figure 3: 2020 mapping and grab sampling program at the Birch Lake Property

Table 3 – Daily log of 2020 prospecting activities at the Birch Lake Property*

Date	Activity	Field Work (Days)
24-Jul-20	Mobilizing equipment, supplies. Drove from Thunder Bay to the Birch Lake area	1
25-Jul-20	(prospecting off of property)	0
26-Jul-20	Canoe out to the Grace Lake camp, including establishing the Wilkins-Grace portage	1
2020-07-27 to 2020-07-31	(prospecting off of property)	0
01-Aug-20	Cut the Grace Lake - Birch Lake portage; canoeing; moved camp to Birch Lake	1
02-Aug-20	(prospecting off of property)	0
2020-08-03 to 2020-08-05	Prospecting on the Stargazer Claim Block; mainly on Hodgson Island and in the bay east of Hodgson Island. One half day prospecting off the property	2.5
2020-08-06 to 2020-08-07	(prospecting off of property)	0
08-Aug-20	Prospecting on the west side of South Bay	1
09-Aug-20	(prospecting off of property)	0
10-Aug-20	Half-day of prospecting; inland on Hodgson Island	0.5
10-Aug-20	Moved camp from South Bay to the main lake (Horseshoe East area)	0.5
2020-08-11, 2020-08-12	Prospecting on the Horseshoe East Claim Block; main channel, islands, and Wagner Bay areas	2
2020-08-13, 2020-08-14	Pack up camp; canoe out from the Horseshoe East camp back to the logging road; drive back to Thunder Bay; demob equipment	2
	Total Days	**11.5**

*Detailed prospecting station observations are recorded in Appendix 2

2020 prospecting results were mixed. A heavy focus was given to investigating and sampling mineralization on Hodgson island, where Fe-carbonate alteration and arsenopyrite mineralization had been recorded by past mappers (e.g. Beakhouse et al., 1989). Prospecting and sampling here confirmed a zone of ~E-W strain and intense alteration approximately 270 m wide. Ankerite alteration is the strongest and most abundant alteration phase within the shear, including a ~10 m wide outcrop of semi-massive ankerite breccia with minor fuchsite hosted on the NE side of the island. Intense sericite and silica alteration is also common. Sulphides are abundant within the shear, including intervals of sericite + fuchsite schist with up to 10% pyrite over metres-wide intervals. Veining is present, but most veins are massive carbonate or bullish quartz-carbonate; these typically return low grades. Sampling confirmed the widespread occurrence of arsenopyrite, both on the west edge of the island as previously reported by Beakhouse, but also continuous to the east side of the island (see Figure 6). Of a total of 20 samples taken within the Hodgson Island alteration/strain zone, the average As assay was 0.56% As; this includes 3 samples which assayed above analytical limit for As (>1% As). Other elements are sporadically elevated within the shear, especially (Au-Bi-Co-Pb-Sb + Se) as well as Al, Fe, Hg, K, Ni, P, S, Tl & W. The shear is depleted in B, La, Na & Ti.

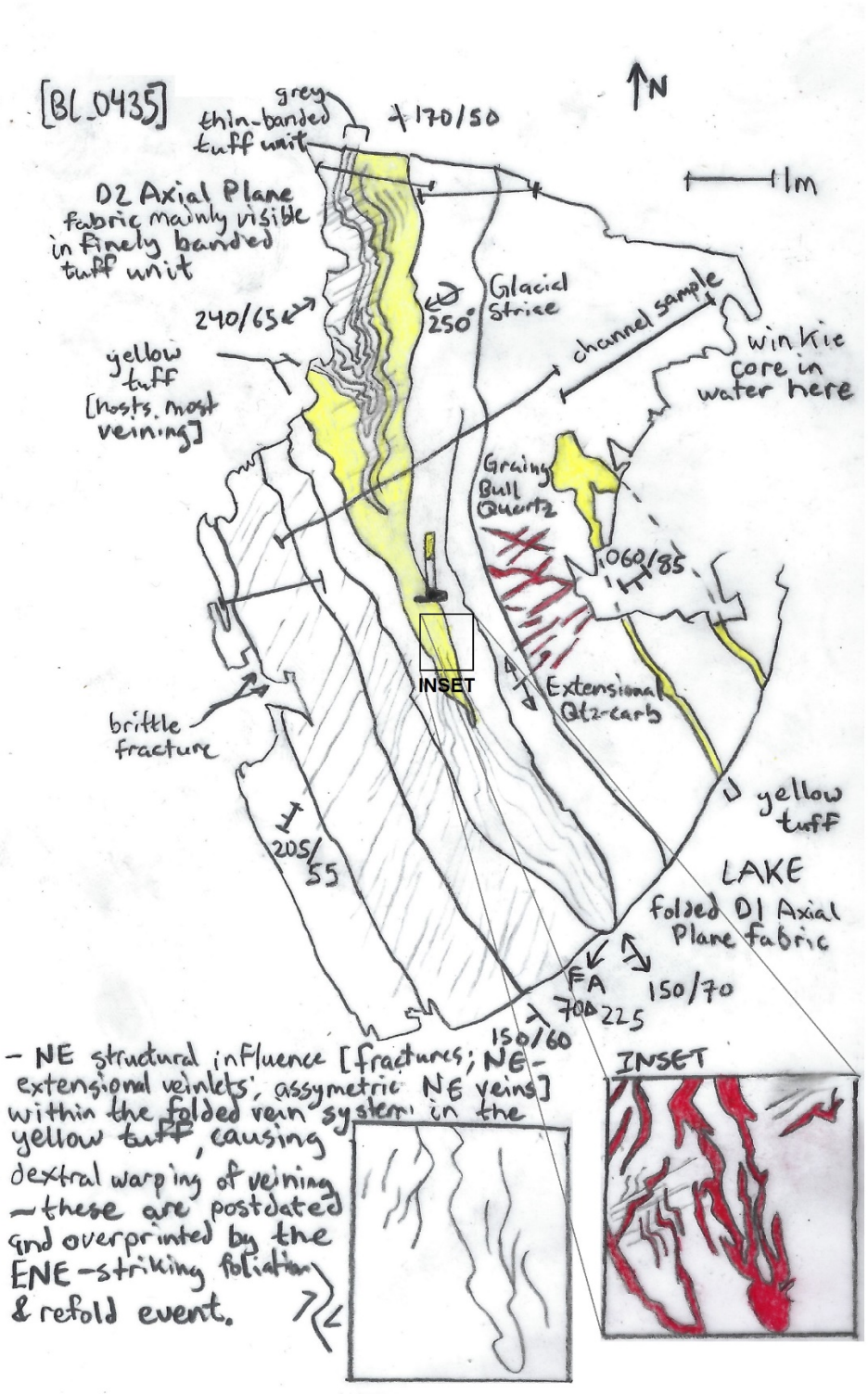

Figure 4: fold overprinting in a thin-bedded tuff on a small island on the Horseshoe East Claim Block. The yellow tuff band contains abundant barren quartz veining which was too intricate to show in the full-scale sketch; a small sample is depicted in the two insets

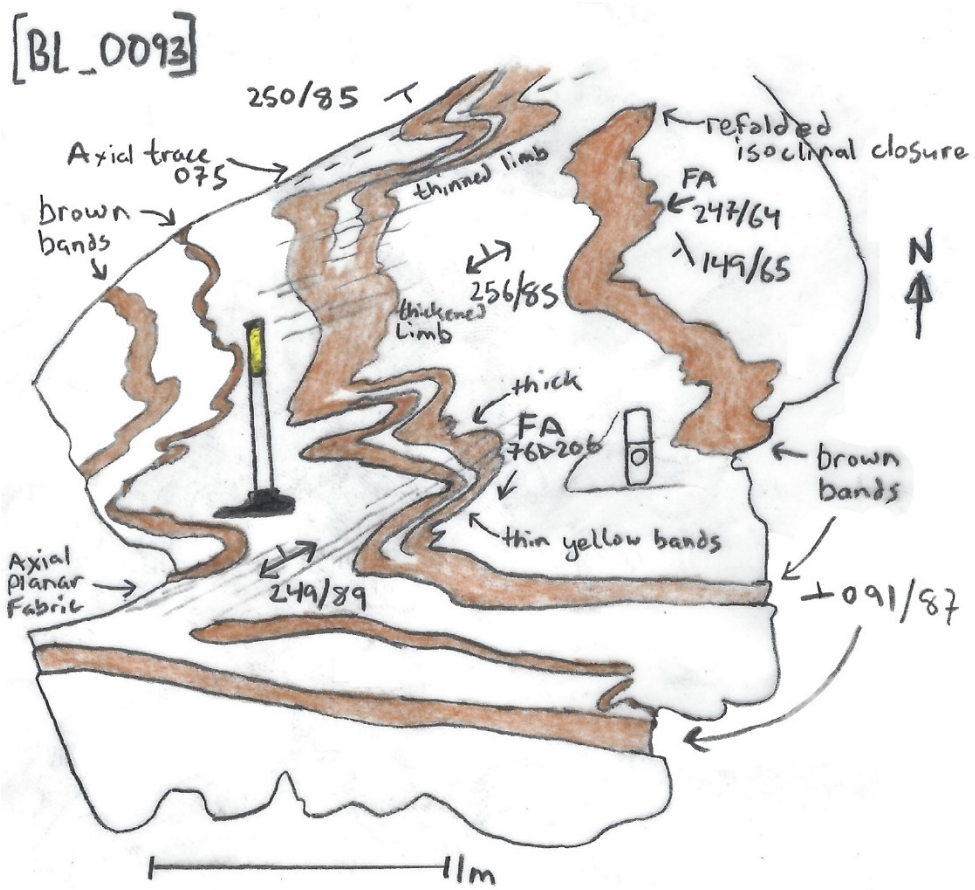

Figure 5: fold overprinting patterns in banded tuff west of the Stargazer Claim Block (near Louwag Lake). The thin-banded tuff occurs in a small outcrop area, possibly as a thin horizon within the sedimentary basin; however, the contact relations between the two units are uncertain

In spite of the intense alteration and strong sulphide content of the shear (including abundant arsenopyrite), Au content was typically low, consistent with past sampling campaigns; even intensely altered samples rarely returned >0.05 g/t Au. One exception is a small shear hosting a ~30 cm breccia vein striking 063/73 (the "Damocles Vein" showing), just to the south of the main deformation/alteration zone on Hodgson Island. Most of the Damocles Vein material is bullish quartz-ankerite-chlorite veining with minimal sulphides; however, the structure is also host to occasional unusual pods of massive, coarse-grained arsenopyrite, observed in masses up to ~20 cm across (Figure 7). One float sample of massive arsenopyrite returned an assay of 2.28 g/t Au (possibly the highest-grade sample to date from Hodgson Island). Chunks of massive arsenopyrite were also recovered from two other locations. Several chunks of arsenopyrite float were dredged from underwater shear-zone rubble off the northeast end of a point on the east side of the Hodgson Island shear; this included one sample which assayed 0.14 g/t Au and >1% As. Given the other alteration and mineralization in this area, it is likely that this sample is local in origin. One other sample of massive arsenopyrite with minor adhering quartz was discovered sitting on a mostly unaltered conglomerate on the small island ~350 m east of Hodgson Island (Figure 6); this sample was obviously not in-situ, and it is unclear how it came to rest on that island. This piece of float was not assayed.

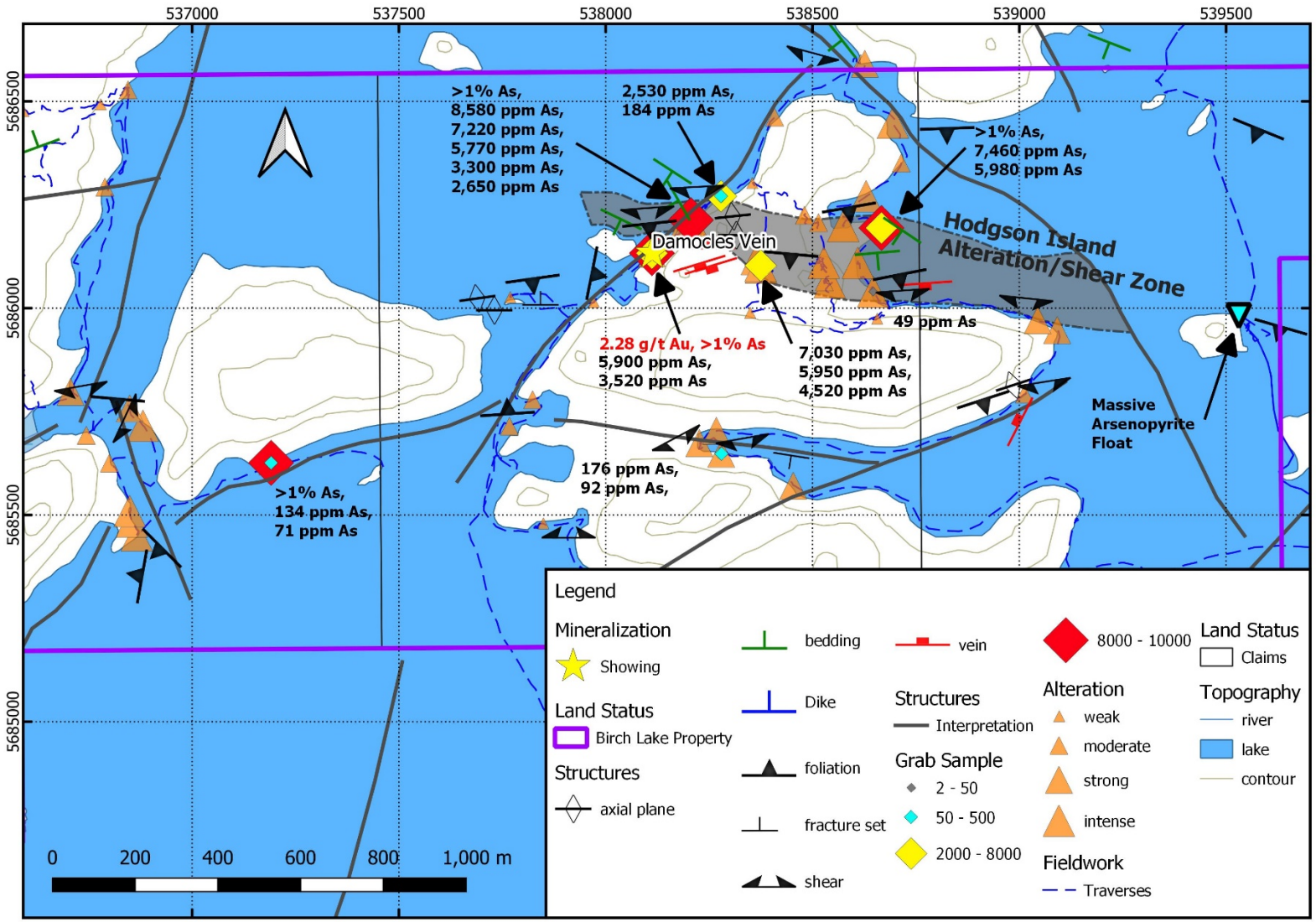

Figure 6: Detail from the Stargazer (south) Claim Block, showing the Hodgson Island Shear, and the distribution of ankerite alteration and arsenopyrite mineralization throughout the central South Bay Area.

Figure 7: massive arsenopyrite float, weathered out of the Damocles Vein (Hodgson Island). This sample returned 2.28 g/t Au; however, most of the structure was barren bull quartz-carbonate

Sampling was also conducted on several smaller altered shear zones, especially on the west edge of South Bay, where intense ankerite alteration was noted within WSW- and NNW-striking structures. Sampling did indicate that these shears are highly anomalous in As, but Au values were low.

Prospecting west of Wagner Bay revealed weak but widespread ankerite alteration. An E-W corridor of shear and alteration was noted in the channel running south of Horseshoe Bay; this is consistent with the interpretation by Beakhouse et al. (1989) which shows the Swaim Lake Deformation Zone cutting between South Bay and Horseshoe Island and trending onto the SW corner of the Horseshoe East claim block. A grab sample from altered and brecciated sedimentary float found on the east end of the channel (not on the claim block) returned 5.57 g/t Au & 0.12% As, suggesting that the Swaim Lake Deformation Zone could host Au mineralization; unfortunately, the channel is mostly submerged, making sampling and evaluation difficult.

Prospecting discovered an intensely altered intermediate intrusive exposed on the southeast corner of the large triangular island just east of Horseshoe Island (Figure 8). This intrusion forms a series of gossanous exposures over ~300 m strike length along the shoreline of the island and on a small island just to the east; geometric constraints suggest that the intrusion probably runs NNW. The composition of the intrusion is unclear, since it is intensely and pervasively altered with ankerite, sericite and kspar, with ~10% fine pyrite on average and specks of a fine greyish mineral noted in several places (possibly an unidentified telluride). Chlorite is absent, suggesting a more felsic composition than the intrusion hosting mineralization at Horseshoe Island. Veining is also mostly absent, although float fragments of vein were found along the shore. Sampling of the altered intrusion proved disappointing. Of the 14 samples taken, the highest assay was 0.249 g/t Au. The altered intrusion seems geochemically barren, with no associated

As mineralization; sampling shows the intrusion to be relatively enriched in La, Ba & Sr, with occasional weak anomalies in Mn, Te & Pb. Geochemical affinities are therefore dissimilar to mineralization at Hodgson Island, and also unrelated to Au-As float mineralization discovered along the Swaim Lake Deformation Zone.

Figure 8: Comparison between mineralized Horseshoe Granodiorite (left), and heavily altered felsic intrusives sampled at the Horseshoe East Claim Block (right).

Other sections of the Horseshoe East Claim Block were relatively uninteresting, mainly unaltered- to weakly-altered metasediments. Some pristine but beautifully exposed, isoclinally-folded felsic tuff was mapped north of the Swaim Lake Deformation Zone (Figure 3). No further samples were taken on the claim block.

A summary of significant grab samples is presented in Table 4. The highest-grade sample taken on the Birch Lake Property in 2020 was the 2.28 g/t Au sample of massive arsenopyrite from the Damocles Vein. A complete list of grab sample locations and description is provided in Appendix 3, while the associated assay certificates are attached in Appendix 4.

Table 4 – All 2020 grab samples >0.05 g/t from the Birch Lake Property

Sample ID	Easting	Northing	Claim Block	Description	Au (g/t)	As (ppm)
328282	538112	5686133	Stargazer	Damocles Vein. Massive arsenopyrite with thin coat of yellow "scum"; thin adhering portion of quartz/chlorite vein	2.28	> 10000
328315	541891	5691507	Horseshoe Northeast	Granodiorite, not sheared, intense sericite, strong ankerite, minor fuchsite, ~10% fine pyrite, mainly within sericite slips. Cut by small (0.5 cm) ladder veinlets of pink k-spar & ankerite	0.249	11.6
328297	538667	5686194	Stargazer	Sample of bullish quartz vein on the NE side of Hodgson Island; like Damocles, contains ~50% arsenopyrite, ~15% pyrite	0.14	> 10000
328303	537191	5685626	Stargazer	Local float. Strongly foliated, strong = sericite alteration, moderately ankeritized, ankerite fragment. Contains two ~1 cm veinlets of quartz-carbonate and ~20% fine pyrite; probably minor arsenopyrite (no loupe…)	0.088	> 10000
328325	541987	5691602	Horseshoe Northeast	Heavily ankeritized growth, ~5% pyrite as coarse cubes and filling small fractures	0.06	12

Conclusions & Recommendations for Future Work

Sampling and prospecting was successful in defining new mineralization and alteration in the Birch Lake area; this includes sporadic massive arsenopyrite mineralization within the Hodgson Island shear zone, as well as a previously unmapped intensely altered intermediate intrusion east of Horseshoe Island. These discoveries precipitated a decision to stake the Stargazer & Horseshoe East Claim blocks. While assay values were disappointing in both instances, occasional assays of higher-grade Au-As mineralization in both areas suggest potential for an economic orebody at one or both properties.

Stargazer Claim Block

At Hodgson Island, the width of the deformation/alteration zone is impressive (up to ~200 m), as is the intensity of alteration within the deformation zone, the high sulphide content, and the widespread arsenopyrite mineralization. Previous interpretations (e.g. Beakhouse et al., 1989) have not recognized the full significance of the Hodgson Island Shear Zone, a major ankerite-bearing structure which splays off the Swaim Lake Deformation Zone just north of Swaim Lake and can be traced for ~10 km west of South Bay before it is exposed in the north part of Hodgson Island. Prospecting by the author in 2020 suggests that this is the strongest structure within the South Bay area.

Mapping to date suggests some unusual geometric features of the Hodgson Island Shear Zone where it is exposed on Hodgson Island; this includes a dramatic widening of the shear to the east over a short strike length (from ~80 m width on the west side of the island, to ~200 m width on the east side of the island; this change occurs over a strike length of only ~400 m). The shear zone also displays a consistent E-W fabric, in spite of an overall WNW-strike. These features suggest that the Hodgson Island shear has likely been overprinted by later deformation: the extreme variability in width could be a function of folding, or could be related to “blowout” proximal to a structural intersection east of Hodgson Island.

The massive arsenopyrite ‘pods’ adjacent bull-quartz discovered in several locations around South Bay are reminiscent of pods of silica-arsenopyrite observed in the Redaurum area of the Red Lake belt. In both

cases, small masses of intense mineralization occur in relatively unmineralized structures, and are likely related to reactivation of a pre-existing structural framework during a late Au-As mineralizing event. At Red Lake/Redaurum, isolated silica-arsenopyrite pods are typically low-grade (0.1 – 2.0 g/t Au) and may even be barren; however, very similar mineralization at the Redaurum 14a showing is high grade, typically >35 g/t Au (note that South Bay and Red Lake Au-As min have very different textures; Red Lake mineralization consists of extremely fine needles of arsenopyrite mineralization disseminated in silica and having a "steel grey" appearance, while the South Bay mineralization is massive, coarse-grained arsenopyrite intermixed with bull quartz).

The area of South Bay just east of Hodgson island is of structural interest. Mapping shows that a thick band of mafic to intermediate volcanics are truncated underneath the lake here. Magnetic surveys indicate a dramatic NW-striking magnetic lineament which cuts the bay to the east of Hodgson Island; this can be seen on the regional high-resolution aeromagnetics (i.e. Gupta 1991), and in better detail in magnetic surveys flown by Terraquest Ltd. For Nucanolan Resources (Barrie 2003). Broadly speaking, this magnetic lineament corresponds with a distinct topographic trough; seems to link the diorite intrusions hosting the Greencamp & Hanson Showings; and possibly truncates both the Hodgson Island Shear Zone, as well as the volcanic package on the mainland east of South Bay. NW-striking structures are known to host mineralization within the Birch Uchi Lake, including mineralization at Greencamp, and NW-striking mineralization of the Springpole Deposit (~13 km east of Hodgson Island).

Combining all of these observations, a significant target is suggested under the lake east of Hodgson Island, where the major ~E-W Hodgson Island Shear Zone intersects the NW-striking structure along which the Greencamp and Hanson diorites intruded. Gold may be hosted in massive arsenopyrite mineralization injected along the structural intersection; a possible analogue for Au-As mineralization may be seen in the sketch of outcrop 258, where barren quartz is hosted along a NW-striking vein with sinistral motion, and along a swarm of subordinate WNW-striking quartz gashes (Figure 9). Mineralization may be enhanced where volcanics on the east side of the fault are juxtaposed against sediments on the west side of the fault. The main target would be an area ~ 700 x 400 m to the east of the Hodgson Island Shear, primarily on claim 618604. Because the target is primarily under the lake, novel prospecting approaches will be necessary, potentially including lake-bottom sediment surveys and further geophysics, with an aim to define drill targets. Detailed mapping on Hodgson Island and other islands in the area could also help in refining targeting and improving the structural model for the area.

Horseshoe Island Claim Block

Despite the disappointing sample results at Horseshoe East, the sample of Au-bearing As-rich brecciated sedimentary float found east of the Swaim Lake Deformation Zone could indicate potential for undiscovered mineralization in the Wagner Bay area (note that the glacial transport direction in this area is WSW); it is unclear whether this target would be located on the existing claims block. Further prospecting of the islands within Wagner Bay is therefore warranted, since these islands are underlain by metasediments and are a potential source area for the Au-As-bearing float.

While the altered intrusion is not gold-bearing where sampled, there is potential that it could be auriferous to the south, where it interacts with the Swaim Lake Deformation Zone; mapping of islands within the channel indicate that the intrusion probably does continue into the channel, although exposures there are not significantly mineralized. Further mapping of the island is warranted to better define the extent of the intrusion and associated alteration. Lake-bottom sediments of the channel south

of the altered intrusion may also be warranted, especially around the projected intersection of the altered intrusion and the Swaim Lake Deformation Zone.

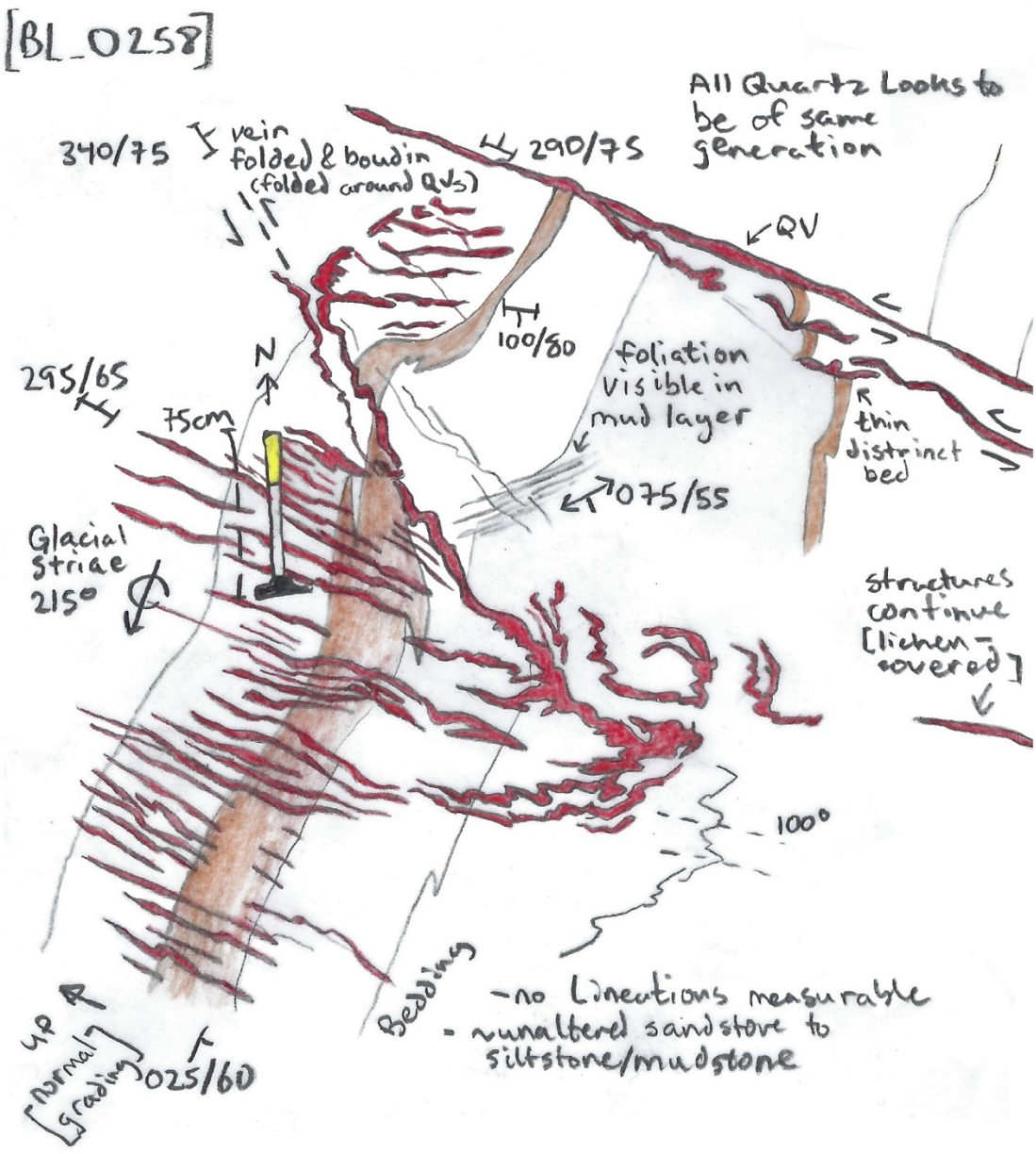

Figure 9: Barren quartz veining cutting steep-dipping sediments on an island just north of the Stargazer Claim Block. Note the interaction of the NW-striking and ~E-W striking veining; this is a possible structural analogue for Au-As mineralization in the South Bay area.

References

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Appendix 1 – Expenditures

Item	Units	Unit Cost ($)	Total ($)
Time Prospecting (Days)	11.5	$ 350.00	$ 4,025.00
Expenses - Gasoline	-	-	$ 151.20
Expenses - Food	-	-	$ 252.50
Expenses - Actlabs Assay (Au Only)	2	$ 32.20	$ 64.40
Expenses - Actlabs Assay (Au + Aqua Regia ICP-MS)	38	$ 49.95	$ 1,898.10
		Total 2020 Expenditures	**$ 6,391.20**

Appendix 2 – Prospecting Stations

Way-point	Easting	Northing	GPS Timestamp	Rock Type	Description
141	539496	5685228	03-AUG-20 8:41:46AM	Gabbro	Gabbro, moderate foliation, no alteration
143	538776	5685190	03-AUG-20 9:08:30AM	Diorite	CONTACT: 271/48, between fine-medium grain diorite to the north and MW to the south. Bull quartz-calcite-chlorite developed in rolls and flats at the contact over a few 10s of cms. Otherwise ~unaltered. MV is absolute stock-standard massive basalt, minor amygdules, weak calcite veinlets
148	538016	5685217	03-AUG-20 11:17:54AM	Diorite	Diorite. Area of substantial glassy bull-quartz in diorite. No other alteration
149	537938	5685475	03-AUG-20 11:32:11AM	Shear	Strong ankerite in and adjacent to a shear in diorite; shear at least 2 m wide. Shear is 286/80, south edge of small bog; no mineralization observed
150	537849	5685480	03-AUG-20 11:39:34AM	Diorite	Coarse, pretty diorite, some xenoliths ~unstrained, but ankerite = weak
151	537784	5685608	03-AUG-20 12:49:12PM	Diorite	Gabbro, unaltered
152	537767	5685715	03-AUG-20 12:59:12PM	Diorite	islet of fallen slabs; ankerite = sericite = moderate, probably sheared diorite? With quartz grains, so NOT sheared gabbro
153	537823	5685779	03-AUG-20 1:03:08PM	Quartz diorite	Quartz-diorite, strongly foliated, ankerite = sericite = moderate; other side of bog, foliation = 266/85
154	537769	5686027	03-AUG-20 1:25:55PM	Diorite	Fractures in diorite, ankerite = weak, on a little islet west of Hodgson Island of South Bay. Island is moderately foliated 082/82. Fractures folded around this axial plane, dip 353/88, FA = 82 > 150. Forms an open "z-fold" here.
155	537971	5686015	03-AUG-20 1:45:04PM	Cobble Conglomerate	Conglomerate! Huge cobbles to 60 cm long, biggest I have seen yet! Virtually all conglomerate, no fine beds. ankerite = weak, foliation = mod. Pebble aspects 2:1 to 3:1, averaging 2.5; total ratios probably 5:2.5:1, steep plunging, foliation = 011/78. This conglomerate ends abruptly and precipitously on a cliff trending 090 degrees
156	538112	5686133	03-AUG-20 2:51:09PM	Crystal tuff - Intermediate	DAMOCLES VEIN. Shear exposed in a very awkward spot on the island; shore structure 073/63; breccia "vein" up to 30 cm wide, internal flat-lying veinlets ~073/17. Vague lineation 239/65. Hosts apparently a well-bedded ankerite = strong, sericite = mod, intermediate tuff (dacite within andesite interbeds?). Bedding = 116/69. North part possibly hosted in arenite? Previously sampled; recent tag = E34, taken from N (worse). Total width ~2.5 m? "HW" is hosted by the 30 cm breccia vein, while remainder of zone is strongly foliated ankerite/sericite altered, with moderate-dipping QCV veins (~5% overall); e.g. 307/47. Veining is primarily quartz-carbonate (ankerite) with a bullish appearance; chlorite (deep green) is also common, while wall-rock fragments are strongly pale-green sericitized sulphides are rare, but some stringy fine pyrite & arsenopyrite (~1% each) were observed in one place, and some gossanous wall-rock fragments suggest further sulphide weathered out. BY FAR the most notable thing encountered was a single chunk, taken from a covered section in the footwall of the 30 cm breccia vein, of MASSIVE ARSENOPYRITE; in a similar vein of bullish quartz & chlorite. The piece found is about the size of my two firsts and very heavy. A brief search didn't find more, but possibly more vein may be buried here. Past sampling is unlikely to have

Way-point	Easting	Northing	GPS Timestamp	Rock Type	Description
					discovered this material, so samples and prospecting follow-up are warranted. Reminds me of Gab's Vein; a "pop" of juicy material invading an earlier structure? Sexy but elusive... NOTE; suggestion of reverse motion
157	538128	5686133	03-AUG-20 3:22:53PM	Siltstone	ankerite = weak; fine-grained sediments; some bullish veins seen through here
158	538195	5686208	03-AUG-20 4:08:51PM	Siltstone	ankerite = intense, ankerite vein = mod, Hinge zone of folded fine-grained sediments, ankerite vein = foliation = axial plane = 084/84; sediment bedding broadly m-folded? = e.g. 150/72. FA = 234/62. A 10 cm outside of the axis, fold limbs seem foliation parallel? Maybe very dismembered folding pattern?
159	538206	5686213	03-AUG-20 5:05:53PM	Shear	South edge of a BIG shear. Intense sulphide shearing in sediments, 086/76, cutting bedded, fine-grained sediment bedded 123/66. Edge of shear has been excavated and sampled at some point; some old flagging evident. Gossanous, sheared zone partially exposed over ~3 m, under burden to the NE (along shore). Best point may previously have been under water? The exposed shear is highly gossanous, but this is in part due to the permeable sediments. Overall pyrite ~10%, mainly fine disseminated. One module observed (possibly clast replacement?) Some greyish mineral, probably the arsenopyrite as seen at Damocles, was observed as rhomboidal grains in some specimens. One small calcite vein contains grains of bright purple FLUORITE! This vein is also rimmed by a narrow (<1 cm) seam of the same "arsenopyrite". A second calcite-quartz-fluorite vein also found without the arsenopyrite, minor fuchsite, observed in one specimen. Also, sediments are highly ankeritized. The following argue for hydrothermal rather than sedimentary sulphides. 1) discordance between structure & bedding. 2) presence of veins & exotics, 3) lack of other sulphides throughout the belt. Variably gossaned pieces are stretched down the beach for about 10 m; suggesting a total zone width of ~7 m (i.e. 45 degrees). Must have less sulphide, but fragments on the "N side of the shear" are actually more sulphide rich, up to 25% pyrite and ~3% arsenopyrite (including well-formed crystals). To the north of this extends a zone of variable to strong foliation, and strong to intense ankerite; will check this out tomorrow
160	539135	5685484	04-AUG-20 10:19:56AM	Gabbro	foliated but aggressively bland intrusions down here; this is gabbro
161	538670	5685562	04-AUG-20 10:28:47AM	Gabbro	Continuous intrusion, bland, to here; south to sediments
162	538454	5685571	04-AUG-20 10:33:20AM	Gabbro	Gabbro; pretty massive ankerite = strong
163	538403	5685624	04-AUG-20 10:44:29AM	Gabbro	Surprising rusty/fracture zone in mostly unaltered unjointed gabbro. Zone is maybe 1-1.5 m across, heavily rusty boulders on shore. Strike a bit uncertain, measured 099/68. Some foliation in addition to fracturing, but doesn't look "sheared". Chlorite alt = mod, and up to ~10% coarse and fine pyrite; no particular carbonate or other alteration observed. 1 sample
164	538280	5685648	04-AUG-20 11:18:53AM	Arenite	Odd Zone… actually within arenaceous to silty sediments rather than gabbro. Exposed just south of major channel is a ~50 cm gossanous structure, 080/80. Much of rust is due to ankerite = strong, despite gossanous, sulphide restricted to minor beds, probably ~2% overall. sericite = strong, also

Way-point	Easting	Northing	GPS Timestamp	Rock Type	Description
					many cherty fragments present, these possibly are primary (??) since the shear isn't otherwise strongly silicified; so possibly a chemical sediment? Sulphides strongest in a 10 cm pyrite/sericite fissile band; probably 10% pyrite here? Very fine and typically rusted out. Sulphides in the "cherty breccia" band above include seams of pyrrhotite to 0.5 cm, and (!!) what appears to be flattened clasts of chalcopyrite-sphalerite (dark purple-brown type) and pyrrhotite, up to 4 cm across!! So possibly... a reworked VMS?? Very unusual. On second examination, host for "VMS" may be a quart-crystal unit?? Chert fragments. Unit to N is a fine-bedded mudstone, while to the south sits a ankerite = strong gabbro. Note how flattened the sulphide clast is (1:10); also note that the fissile unit includes "coherent" chert; suggesting that we are possibly on the same horizon from where the chert originated
165	538227	5685674	04-AUG-20 12:26:59PM	Gabbro	Strong ankerite + gossan staining (and ~5% fine disseminated pyrite) continue along this gabbro cliff
166	538268	5685704	04-AUG-20 12:32:55PM	Diorite	N margin of channel; Sheared diorite, only on edge of channel (then massive); ankerite = strong; shear 062/80? (tilted blocks)
167	539013	5685793	04-AUG-20 12:43:31PM	Diorite	Low coastline to this point. Here: 081/73 = sheared diorite, ankerite = moderate, shearing here is "weak" but ~10 m wide? Folded quartz veins in diorite; folded around AP = 072/75 = foliation. (moderate). Veins probably bullish quartz - calcite; sheeted veins e.g. 207/53; open folded
168	539092	5685947	04-AUG-20 1:31:58PM	Conglomerate	Blocks of sheared conglomerate, ankerite = strong, ~1% pyrite
169	539045	5685971	04-AUG-20 1:35:37PM	Conglomerate	Strongly foliated conglomerate; strong = ankerite = sericite. High strain, sericite/ankerite altered conglomerate all along this shore; sheared e.g. 096/80. Minor pyrite observed, not more than 1% as fine cubes
170	538660	5686019	04-AUG-20 1:56:21PM	Overburden	Boulder shore. Cool boulder! Folded conglomerate?
171	538647	5686040	04-AUG-20 2:00:21PM	Carbonate Alteration Zone	ECHO BAY - carbonate breccia. Bound to the south by a sheared silica = strong, ankerite = mod, band of strongly ankerite veined sediments, striking 086/84. These are heavy, slightly magnetic, up to 1% po and 5% fine pyrite (no arsenopyrite noted). Main alteration is a "Red Lake Reminiscent" 10 m wide outcrop of listwanite or ankerite breccia; deep orange with blocks and fragments of wallrock. These are sometimes folded, but more usually planar brittle fracture zones, trending (along with the foliation) 079/67. Fragments are typically sericitized and silicified beyond recognition. Minor fuchsite & serpentine are present; not enough to solidly recommend an ultramafic origin. O/C is hard and silicified, but sulphides are rare within the ankerite body. A few late cross-cutting veins are present; these have been sampled in the past, presumably without result. This material looks similar to carb material north of KoRL. O/C is "shouldered" on each side by boulder-covered gaps (~50 m ore more on each side); curious to see what's under there.
172	538610	5686110	04-AUG-20 3:17:12PM	Carbonate Alteration Zone	Intense carb (also a carb breccia appearance...) flooding interbedded conglomerate & sandstone; bedding 085/72. Not strongly strained, not silicified
173	538667	5686194	04-AUG-20 3:55:53PM	Argillite	Seds, thin-bedded mudstone, = 124/72 = bedding. ankerite = strong, as veining and weak disseminated... foliation is

Way-point	Easting	Northing	GPS Timestamp	Rock Type	Description
					moderate, x-cutting bedding. More notable here are: 1) a bullish folded ~50 cm wide quartz vein, mostly underwater. 2) on the south side of this point; a jumbled underwater mix of sheared argillite with moderate = ankerite; these are mixed with bullish quartz-carbonate veins, contains 1-3% pyrite (including pyrite paint), as well as substantial arsenopyrite, up to semi-massive lumps of arsenopyrite as seen at Damocles. These veins seem to be folded and contained within the shear; for the most part they are not in-situ. Lots of pieces here... chose 3 samples
174	538575	5686199	04-AUG-20 4:41:35PM	Argillite	Intensely = ankerite sediments; next to the biggest beaver lodge I have ever seen
175	538542	5686227	04-AUG-20 4:48:44PM	Late mafic intrusive	STRUCTURE ENDS. Bizarre, apparently folded porous; possibly a late mafic dike? Intruding sediments, which also are alt = calcite. Tightly… s-folded?; around foliation = 080/73. Bizarre O/C, especially here
176	538630	5686271	04-AUG-20 4:56:43PM	Late mafic intrusive	Or NOT?? Abundant fragments of shearing and ankerite = intense
177	538715	5686351	04-AUG-20 5:01:37PM	Arenite	Arenite? Foliation = strong to sheared, ankerite = mod = sericite. Rocks north of here on the island are moderately ankeritized; not part of the 'zone'
178	538695	5686449	04-AUG-20 5:07:52PM	Carbonate Alteration Zone	ankerite = intense, rock in middle of channel, sort of a weak ankerite breccia, foliation = 088/77
182	538409	5686462	04-AUG-20 5:53:47PM	Clastic Sediments (Undifferentiated)	Large ugly vein chunks here, mainly quartz-calcite-ankerite up to 50 cm in minimum dimension. Wallrock is ankerite = moderate, sediments
183	538350	5686314	04-AUG-20 6:00:08PM	Basalt	Bland green MV (!), weak calcite, chlorite = strong. Reminiscent of unit on other side?
184	538245	5686246	04-AUG-20 6:18:40PM	Shear	Within the shear. Remarkably gossanous O/C along shore, of ~50:50 pyrite/sericite; the sericite is bright green and partially "infused" with fuchsite, which shows up sometimes as more apple green flecks. Boulders between "KoRL" and here are glacial or else intensely carbonatized.
185	538279	5686271	04-AUG-20 6:22:42PM	Shear	North margin of structure. Presumably the "arsesnopyrite" showing show on map; and the sheared North margin of the structure. Shear (gossanous band at least 2 m wide) runs along beach here, leaving an impressive accumulation of veins and shear debris. Shear measure 087/74. Vein fragments on beach but not in-situ; the couple samples broken were mostly QCV. Gossanous shear seems mainly to be sericite-pyrite (up to ~25%), +/- small fuchsite flecks. This zone is most prominent and must have been well-sampled in the past; only 2 samples taken
215	539530	5685987	05-AUG-20 5:16:33PM	Conglomerate	Conglomerate, calcite = mod, foliation = strong = 106/73. Well exposed in what would be a good camping spot on the island. Oddly; a vein of quartz with coarse arsenopyrite in margin sitting on TOP of outcrop; must have been placed there? No way to know its origin
216	539464	5686483	05-AUG-20 5:31:34PM	Andesite	IV; andesite? Broken chunks display a "biotite breccia" texture; black biotite = strong, sericite = mod (quite splintery). Foliation = 112/72; surface of outcrop is jointed and "contorted". calcite = mod, good exposure further along shows that this is a fragmental; includes fragments of thin-bedded ash-fall tuff

Way-point	Easting	Northing	GPS Timestamp	Rock Type	Description
217	539358	5686521	05-AUG-20 5:49:36PM	Epiclastic Conglomerate	Cool "hybrid" conglomerate. Similar to other conglomerate, but matrix is greener (more volcanics), while clasts are dominantly (60-95%) volcanics, including many feathery IV clasts; however, still includes some large rounded exotic fragments (e.g. quartz tourmalinaceous quartz, granites, etc.). A proximal volcanic equivalent (epiclastic) to the typical conglomerates
218	539332	5686549	05-AUG-20 5:59:11PM	Epiclastic Conglomerate	?Bedding = 111/85. Bedded like a sediment, looks like an IV (feldspar-porphyritic andesite). Not sure what's going on
219	539356	5686578	05-AUG-20 6:02:27PM	Epiclastic Conglomerate	Sediments… breccia unit? Very angular clasts, looks like an IV (feldspar porphyritic andesite) Not sure what's going on
285	537461	5685619	08-AUG-20 8:43:17AM	Gabbro	coarse-grained gabbro; calcite = weak, some pinkish calcite veining
286	537191	5685626	08-AUG-20 9:03:57AM	Mudstone	Boulder shore. Many chunks of vein here, predominantly large (min 30 cm across) Quartz-carbonate veins with minor sericite & chlorite. Looked for sulphides, found none. Wall-rock is mudstone to arenite; ankerite = mod. Several chunks are sheared & gossanous, up to ~10% pyrite. Some observe cutting arenite in one post. Not sure of position of the shear.
287	537183	5685619	08-AUG-20 9:40:07AM	Interbedded Conglomerate & Sandstone	sheared gossan exposed in outcrop here; shear striking ~080/70. Heavy rust in conglomerate & arenite; however, overall sulphides not really high (2-3%?). ankerite = sericite = mod. One cobble (location uncertain) looks much more interesting, ~20 x 30 x 40, angular boulder. Matrix is strongly silicified, (or possibly chert, I don't think so); and sample contains ~5% disseminated pyrite & pyrrhotite, as well as ~1% disseminated needles of arsenopyrite. Only one such boulder was located
288	536866	5685451	08-AUG-20 10:12:54AM	Carbonate Alteration Zone	the "Ankerite breccia", ankerite = intense, basically ankerite cemented, polymict fragments. Most fragments are angular, including many sediment fragments, unusual for the "conglomerate"; however, there are a few rounded pebbles, as the wide grain size of polymict nature suggest this is probably an intensely altered, proximal conglomerate O/C. Structure is interesting, S margin of outcrop has a pencil cleavage; one foliation direction pointing ~070 degrees; but the dominant is actually ~190/75!! About 5 m to the north, only 1 single fabric visible, which appears FOLDED (bedding?); ~135/70
289	536854	5685485	08-AUG-20 10:31:58AM	Carbonate Alteration Zone	Ankerite breccia continues up the shore; seemingly as a sort of vein, striking ~N-S, which is in sharp contact with coarse fine-grained, weakly = calcite altered gabbro… very strange… gabbro is maybe later intrusive??
290	536849	5685510	08-AUG-20 10:43:04AM	Carbonate Alteration Zone	Good o/c here. Ankerite breccia clearly visible including rounded conglomerate cobbles (rare); as a ~5 m section, ankerite = intense, Sericite = strong, Fuchsite = weak, ~2% disseminated pyrite cubes. This ankerite breccia runs ~N-S; the bx is bound to these east by an unusual fine gabbro; looks almost like MV as broken surface; best identified as weathered surface, where it looks finely gabbroic with diffuse rounded feldspar phenocrysts (~2-5 mm across). Contains calcite & pyrite on the west side, ankerite breccia is bounded by a siltstone, ankerite = mod = quartz
291	536800	5685626	08-AUG-20 10:57:09AM	Diorite	Relatively fine-grained diorite (I think); has that same light green colour; ankerite = mod, sericite = strong, some quartz veinlets

Way-point	Easting	Northing	GPS Timestamp	Rock Type	Description
292	536911	5685582	08-AUG-20 11:00:53AM	Cobble Conglomerate	conglomerate, round cobbles
293	536881	5685716	08-AUG-20 11:10:14AM	Carbonate Alteration Zone	Large accumulation of ankerite breccia boulders on shore. These are intensely carbonatized but lack bx fragments. fuchsite = moderate, seen in several places; ~1% flattened clots of grainy pyrite seen in one place. Presumably the northward continuation of the "carb breccia" seen at 288
294	536849	5685758	08-AUG-20 11:19:04AM	Siltstone	Shear in fine-grained sediments, ankerite = strong, main shear is ~025/80 (roughly paralleling edge of the island); this appears to be folding and overprinting an earlier fabric, ~095/80. Some ankerite veining = weak, paralleling the main (025) shear direction
295	536744	5685693		Diorite	diorite; zero doubt, fine-medium grain, strongly foliated, blocky here, some tourmaline veining painting a fracture; ankerite = mod, sericite = strong
296	536706	5685798	08-AUG-20 11:35:50AM	Arenite	arenite, ankerite = strong, sericite = strong. Sheared arenite, strike is similar to the small adjacent bag; e.g. ~080/80, zone weakly sheared at least 3 m across
297	536789	5686293	08-AUG-20 12:03:51PM	Feldspar Diorite	Odd, blocky, moderately foliated, ankerite = moderate "feldspar diorite", different II, this one characterized by large, blocky rectangular phenocrysts. Just to the north, is contact with fissile, moderately foliated margins; contact seems to follow bedding/foliation, ~E-W? Many flat-lying quartz veins in the diorite; these are bland and generally lack sulphides
298	536845	5686528	08-AUG-20 12:13:38PM	Mudstone	Bland, bedded arenitic to muddy sediments; ankerite = mod. Where did our "Intense fabric" go? Did they confuse the mudstone for intense shearing??
299	536592	5686477	08-AUG-20 2:00:19PM	Siltstone	One of the few outcrops on this traverse; mostly low mixed bush. Here; thinly-bedded siltstone, ankerite = weak
300	536636	5686480	08-AUG-20 2:02:53PM	Siltstone	ditto; bedding ~250/80
301	536779	5686493	08-AUG-20 2:07:18PM	Siltstone	strongly foliated siltstone, ankerite = weak
302	536766	5686186	08-AUG-20 2:21:35PM	Diorite	blocky jointed, weakly foliated, fine-grained… diorite?
303	536562	5685876	08-AUG-20 2:45:00PM	Siltstone	fine sediments, no strain, ankerite = weak
304	536416	5686097	08-AUG-20 2:51:40PM	Overburden	low area no outcrop, big section of "jungle gym" interweaved spruce blowdown
307	536372	5686243	08-AUG-20 3:04:57PM	Siltstone	end of blowdown, fine silty sediments, ~ unaltered
308	536326	5686276	08-AUG-20 3:08:18PM	Overburden	starting into low ground, alders, dry spruce bog
309	536248	5686322	08-AUG-20 3:57:27PM	Siltstone	stripped a small hump in the swamp, 2 x 4 m. Outcrop overall is apparently a thin-bedded siltstone; bedding warps from NW to NE. Black silt bands give the appearance of tourmaline, in fact I don't think any tourmaline is present. Quartz veining intrudes ~along bedding; and also forms a set of shallow-dipping veins, stepping across the outcrop. Veins are quartz-ankerite with minor chlorite & sericite. Other main feature is a 40 - 70 cm wide band of ankerite alteration, with strong fuchsite and up to 2% pyrite; the source of this strange unit is unknown.
310	536191	5686326	08-AUG-20 5:02:49PM	Siltstone	Oddities continue. A tough… hornfelsed siltstone? ankerite = weak, pyrite = 3%, but as coarse euhedral cubes up to ~1 cm

Way-point	Easting	Northing	GPS Timestamp	Rock Type	Description
					across, these unfortunately usually break upon splitting the rock
311	536211	5686268	08-AUG-20 5:08:27PM	Arenite	arenite; ankerite = mod
312	536218	5686243	08-AUG-20 5:11:37PM	Overburden	ditto; descending to low ground, spruce bog
313	536240	5686208	08-AUG-20 5:13:33PM	Basalt	At the spruce bog, low mixed basalt float, scrubby
314	536218	5686104	08-AUG-20 5:16:49PM	Overburden	high ground, open spruce & fir forest
315	536217	5686041	08-AUG-20 5:19:35PM	Mudstone	Same bush. Fortuitous root rip-up, black shaley, a few percent pyrite but not really altered, not sheared
316	536222	5686011	08-AUG-20 5:21:34PM	Overburden	Alder swamp starts
317	536217	5685858	08-AUG-20 5:26:43PM	Overburden	Higher ground mixed bush
318	536207	5685737	08-AUG-20 5:30:21PM	Overburden	Alder swamp starts to the south, trending ~E-W. Continuation of swampy arm next to the lake?
319	536251	5685814	08-AUG-20 5:34:45PM	Overburden	Entering alder swamp
320	536306	5685821	08-AUG-20 5:36:51PM	Overburden	low forest, poplar, spruce, balsam understory
321	536506	5685850	08-AUG-20 5:44:17PM	Siltstone	Silty grey sediments; ankerite = weak
322	536552	5685801	08-AUG-20 5:46:55PM	Overburden	alders
375	538661	5685976	10-AUG-20 9:52:02AM	Overburden	No outcrop since canoe. Relatively open spruce forest on slope
376	538657	5685975	10-AUG-20 9:53:42AM	Cobble Conglomerate	Small outcrop, conglomerate, rounded cobbles, ankerite = weak
377	538605	5685965	10-AUG-20 9:57:50AM	Overburden	no outcrop since canoe. Relatively open spruce forest on slope
378	538555	5685968	10-AUG-20 10:02:38AM	Overburden	entering alder swamp/spruce/mountain maple low ground
379	538532	5686046	10-AUG-20 10:06:33AM	Overburden	slightly higher low ground, poplars, mixed woods
380	538542	5686063	10-AUG-20 10:14:42AM	Siltstone	subcrop. Probably a deeply ankerite (ankerite = intense) altered siltstone, with ankerite veins running along foliation ~40% of O/C. Could be stripped further
381	538529	5686064	10-AUG-20 10:17:48AM	Phyllite	Fragments under a treefall. Finely banded phyllite, dark & pale grey layers; ~2% grainy clots of pyrite along foliation, ankerite = mod, mainly as veinlets distributed throughout (slate doesn't altered up good). Very platy, appearance not specifically "sheared"
382	538528	5686110	10-AUG-20 10:34:15AM	Carbonate Alteration Zone	"CARB BRECCIA", possibly correlative to the unit on shore. Unit here is ~5 m wide; bound by moderately foliated (~095/70) conglomerate to the south and probably arenite to the north; both being intensely ankerite = sericite, carb breccia looks fragmental occasional, and sometimes almost gabbroic. this may represent phenocrysts within cobbles in the conglomerate. Best guess is carb-flooded conglomerate at the arenite contact. Hard and at least silica = moderate, fuchsite = mod as scattered apple=-green crystals. Trace pyrite observed, otherwise not mineralized

Way-point	Easting	Northing	GPS Timestamp	Rock Type	Description
383	538523	5686125	10-AUG-20 11:07:24AM	Overburden	Low woods, birch & mountain maple
384	538515	5686207	10-AUG-20 11:11:04AM	Arenite	Arenite, strongly foliated, ankerite = mod. Back into mixed woods; higher ground
385	538487	5686222	10-AUG-20 11:14:17AM	Massive Basalt	Basalt, dismal-looking, fine-grained and massive, calcite = mod, biotite = weak
386	538481	5686225	10-AUG-20 11:16:19AM	Arenite	arenite, strongly foliated, sericite = strong. ankerite = mod
387	538355	5686303	10-AUG-20 11:24:24AM	Basalt	MV; ankerite = weak
388	538378	5686146	10-AUG-20 11:29:38AM	Overburden	low mixed woods no O/C
389	538366	5686119	10-AUG-20 11:33:27AM	Massive Basalt	small O/C, looks like massive MV but sericite = strong, ankerite = intense, ~1% fine pyrite, not sheared, strongly foliated
390	538373	5686105	10-AUG-20 11:36:12AM	Overburden	open pine uplands blow-over
391	538376	5686099	10-AUG-20 11:38:10AM	Siltstone	sheared siltstone fragments under a root-fall. Intense =- ankerite , bright red dirt
392	538375	5686103	10-AUG-20 11:50:38AM	Interbedded Conglomerate & Sandstone	Good exposure under some root-falls. Rusty to gossanous fragments of siltstone to conglomerate in a moderately foliated contact zone (conglomerate to the south, siltstone to the north). Both units are ankerite = sericite = intense. General area of mineralization. Some quartz-ankerite stringers, a bullish quartz-calcite-chlorite vein ~10 cm across (irregular/folded); and abundant pyrite in small veinlets, disseminated cubes and grainy masses up to 10% but averaging 2%; NOT sheared. One area of conglomerate also DEEPLY carbonatized, weakly = silica, and with minor fuchsite
393	538402	5686095	10-AUG-20 12:25:05PM	Shear	shear zone? Gossanous frags in root pull
394	538370	5686024	10-AUG-20 12:28:34PM	Overburden	Mature spruce forest
395	538350	5685989	10-AUG-20 12:30:44PM	Conglomerate	conglomerate, strongly foliated, ankerite = weak.
406	542090	5691361	11-AUG-20 7:28:28AM	Feldspar-crystal tuff - Intermediate	Next to Camp. Pencil cleavage in a strongly foliated green unit, chloritized & feldspar phenocrysts, andesite crystal tuff? Dominant foliation = 160/60, other fracture plane ~at right angles; ~240/75. ankerite = weak, some quartz-chlorite veining within what amounts to a weak NNW deformation zone, >6 m wide
407	542097	5691363	11-AUG-20 7:42:09AM	Basalt	on the "steps" of camp. Not sheared basalt, ankerite = mod, ~1% disseminated pyrite; good looking stuff. Basalt with a pitted "moonscape" appearance (due to carb flooding?) A ~50 cm boudinaged felsic dike, tan colour, aphanitic, strikes ~135/70, hosts a robust set of quartz-ankerite ladder veinlets in bounding rocks; these are steep-dipping, e.g. ~060/70
408	542128	5691348	11-AUG-20 7:50:15AM	Diabase Hornblende	Jagged "slag heap" reef protruding from water, deeply pitted, calcite = mod. Dark green with hornblende phenocrysts up to ~0.7 mm; some sections with finer pitting. Contact with a more massive portion, very shallow-dipping; probably bedding (unless this is a dike) ~180/30. late. Maybe a hornblende "diabase"; see next entry
409	542166	5691316	11-AUG-20 8:02:13AM	Diabase Hornblende	Barren reef in the middle of the channel; fantastic exposure. Porous unit with hornblende crystals in the groundmass; probably the same "slag rock". On this outcrop we can see an

Way-point	Easting	Northing	GPS Timestamp	Rock Type	Description
					abundance (maybe 10%?) of xenoliths, from fine (<1 cm) up to ~30 cm across. The majority of these are mafic volcanics, although some clasts of mafic & felsic intrusives also are present. Striking feature is that some clasts are STRONGLY foliated while groundmass is massive; suggests late intrusive calcite = strong, also a well developed set of epidote fracture fills, ~305/56
410	542044	5691218	11-AUG-20 8:21:36AM	Basalt	shear on edge of island, in basalt (or andesite?); calcite = mod, sericite = strong, shear = 190/50
411	542091	5690906	11-AUG-20 8:33:57AM	Basalt	Good exposure on low island, would be covered if water were high ger. Foliation = 170/60. Calcite = sericite = mod, foliation =strong but NOT sheared, indistinct porous (rusty brecciated?) basalt flow, bland
412	541903	5690855	11-AUG-20 8:44:15AM	Granodiorite	Medium-grained granodiorite, packed feldspar crystals, tan colouration. ankerite = weak, bullish quartz veining, weakly foliated, looks different from the one at Horseshoe. Good exposure. Floatplane just took off from Green's Camp (tourists?)
415	541048	5690483	11-AUG-20 9:58:27AM	Massive Basalt	Similar fine sediments ~1% disseminated pyrite, spare calcite. ~no foliation, very blocky/massive
416	541135	5690454	11-AUG-20 10:10:37AM	Qtz Vein w Actinolite	Similar tough, blocky sediments here, minor pyrite Host to a very odd bull quartz vein with ~50 % coarse sprays of pale green actinolite, up to ~2 inches in length. Associated with minor ilmenite? Not other particular alteration. Very unusual
417	541225	5690420	11-AUG-20 10:20:32AM	Interbedded Conglomerate & Sandstone	Similar blocks of fine sediments; rare conglomerate blocks in this area. Bedding ~105/45
418	541504	5690545	11-AUG-20 10:31:19AM	Siltstone	Silty sediments, minor fine pyrite or pyrrhotite (non-magnetic)
419	541622	5690564	11-AUG-20 10:35:46AM	Interbedded Conglomerate & Sandstone	Thin-bedded conglomerate exposed on boisterous shore. ~unaltered beds of sand and cobbles, maybe 30 cm thick
420	541720	5690542	11-AUG-20 10:39:06AM	Conglomerate	Conglomerate
421	541613	5690407	11-AUG-20 10:46:29AM	Greywacke	~unaltered fine sediments. "Greywacke"; and some fine pebble beds; no alt or deformation, bay (~120) following bedding?
422	541610	5690306	11-AUG-20 10:53:46AM	Greywacke	massive, blocky, bland, ~unaltered "greywacke". Pure boulder coastline from 422 - 424, mostly rounded/glacial
423	542188	5690531	11-AUG-20 11:07:00AM	Rhyolite	Amongst glacial boulders, a sub-angular (… maybe local?) boulder, with gossan patches, fine-grained rhyolite volcanics, greenish sericite colouration, moderate ankerite and abundant pyrite, fine disseminated and in grainy clots, ~15%
424	542564	5690859	11-AUG-20 11:18:13AM	Shear	slabs of mylonitic basalt, strong bright green chlorite and ankerite = mod; surely a local shear zone and salient of MV
425	542638	5690937	11-AUG-20 11:21:36AM	Siltstone	local blocks of fine sediments
431	542366	5691162	11-AUG-20 2:20:49PM	Massive Basalt	bland, massive basalt, quartz = weak and with some bullish quartz ladders
432	542418	5691243	11-AUG-20 2:25:21PM	Basalt	basalt
433	542424	5691265	11-AUG-20 2:30:44PM	Shear	large shear or edge of island, ~160/60. At least 5 m wide; ankerite = mod, Chlorite = strong. Strong lineation almost straight down a plunge i.e. = 60 > 250
434	542426	5691302	11-AUG-20 2:38:09PM	Shear	shear continues AT LEAST to here; very strong; ankerite = chlorite = strong

Way-point	Easting	Northing	GPS Timestamp	Rock Type	Description
435	542446	5691517		Felsic Tuff	Exquisite exposure of a refolded isoclinally folded felsic tuff; minor influence from a ~brittle NNE-striking structure during a pre-D2 min event which emplaced ~30% bullish white quartz veining into the yellow tuff unit of the rhyolite. Outcrop is SO nice... that someone channel sampled & winkie drilled it despite its pristine nature... ~unaltered, despite the abundant quartz veining; "Synform Island".
436	542372	5691604	11-AUG-20 4:35:58PM	Basalt	Basalt, sheared ~NS; ankerite = sericite = chlorite = mod
437	541831	5691720	11-AUG-20 4:49:19PM	Gabbro	Medium-grained gabbro, with small subrounded xenoliths; weak foliation, ankerite = mod
438	541802	5691587	11-AUG-20 4:53:25PM	Gabbro	gabbro, weak alteration
439	541888	5691518	11-AUG-20 5:03:03PM	Granodiorite	The "gossan" I observed while scouting for camp. Host rock is granodiorite, probably the same unit observed in the Main Birch Lake channel; entire unit (observed over at least 40 x 20 m) is intensely and pervasively sericite altered, with an average ~10% fine sulphide, up to ~25% ankerite = strong, sometimes as veinlets; fuchsite = mod as apple green spots. Also some stringers of quartz alteration. A small, intensely gossanous shear cuts interval to the granodiorite on the waterfront = 255/80 (described above). ~30 cm wide and concentrating sulphides. A much broader zone of subparallel shearing/high strain (= 255/80?) is exposed to the south; maybe ~7 m wide or wider? This is also granodiorite and also heavily gossanous; similar composition. Unsheared granodiorite on each side is also heavily mineralized. Pencil lineation is evident in many pieces, as well as folded sericite banding; min evidently is folded, and likely this is a hinge zone. No flagging observed but presumably this O/C has been sampled in the past? Minor evidence of hammer breaks and moss peels; and possibly a small blasted trench at the top of the outcrop. Scale of outcrop makes sampling strategy difficult... going to go for four samples.
440	541985	5691326	12-AUG-20 7:46:05AM	Granodiorite	"THE CAVE" granodiorite continues here, looks much the same, sericite = intense, ankerite = strong, Fuchsite = weak, ~5% fine disseminated pyrite overall, exposed for ~30 m along the shore. Some gossanous shears… these seem erratic in their disposition and cleavage is once again pencil-like, suggesting folding. At point; sheared, pencilly section, gossanous, shear ~ 190/65
441	541979	5691348	12-AUG-20 8:05:30AM	Granodiorite	same as 440. Foliation here in a small shear, 275/75
442	541962	5691393	12-AUG-20 9:01:00AM	Granodiorite	Small and potentially important cluster of boulders (local) on shore; would be covered in high water and may never have been sampled? Like before, heavily altered granodiorite. Unlike other areas; fragments here are subject to several stages of quartz & quartz-carb veining. At least 4 distinctive vein types encountered
443	541955	5691604	12-AUG-20 10:21:02AM	Andesite	Shore slabs, local. Probably andesite? Strongly sheared, ankerite = sericite = moderate to strong; up to 5% pyrite locally, also some chunks with large QCV + ankerite veins. Some of this almost worth sampling
444	541976	5691609	12-AUG-20 10:31:25AM	Basalt	Very interesting rock, sheared, silica = strong, black to dark green (basalt?) rock weathering into "ribs"; fossil sheared section, ~ 075/70, invaded by intense ankerite veining; black

Way-point	Easting	Northing	GPS Timestamp	Rock Type	Description
					colour presumably due to biotite = strong. Up to 5% pyrite as coarse clusters and grains & crystals, in matrix and overprinting ankerite veining
445	541987	5691602	12-AUG-20 10:59:10AM	Granodiorite	Exposed on a N-S running cliff, a ~15 m section of what is probably the same granodiorite; lacks the feldspar crystals, fine-grained, may be a border phase? Very massive and bastion-like. As before, the granodiorite is heavily altered; here however, alteration has a different form, silicification = moderate, a few quartz-carb veins especially near the shear. Dominant alteration is brittle ankerite veinlets & breccia zones; both sericite = chlorite = weak on a few fractures. Pyrite overall is less, but coarser, occurring disseminated but also in coarse cubes and in brittle veinlets. Some pyritic quartz veins. Overall, style of min is totally different versus the other granodiorite. Possibly a completely different unit? No shearing internally
446	541877	5691913	12-AUG-20 11:31:35AM	Mudstone	Blocky local shear boulders. 3 relevant populations; 1) rare highly fissile IV, ankerite = strong; presumably from the shear to the east of the island. 2) ~unaltered mudstone fragments (sediments on island?). 3) Most common are strongly blocky chunks of a greenish (saussauritized) moderately foliated quartz-diorite "green-black" appearance with green-tinged feldspar phenocrysts, with rare quartz phenocrysts in a ... biotite matrix? Weathering indicates some xenoliths. Odd rock and unlike other diorites I have seen in this belt (e.g. Greencamp diorite, etc.). No ankerite and possibly a late intrusive
447	542467	5692011	12-AUG-20 11:52:38AM	Conglomerate	Conglomerate (under cedars!); strong foliation = 205/55. Strong lineation here ~40>255 ~no alteration. 1st outcrop seen on this shore; however many "local boulders" observed
448	542413	5691856	12-AUG-20 12:02:42PM	Overburden	~15 m long sand beach; good spot for lunch
453	543202	5691826	12-AUG-20 1:56:56PM	Volcanic breccia	MV, still flow breccia? ~unaltered
454	544066	5692007	12-AUG-20 2:13:40PM	Greywacke	Odd… greywacke. Lumpy weathering, with greenish (saussaurite?) nodules, i.e. resembling andalusite alteration. Otherwise weakly bedded, >30 cm beds ~ 110/80; ankerite = No
455	544246	5692013	12-AUG-20 2:21:39PM	Siltstone	Siltstone, thin-bedded (0.2 - 10 cm); ~unaltered. Striking as shown on map
456	545082	5692173	12-AUG-20 2:51:36PM	Interbedded Conglomerate & Sandstone	Bedding ~ 035/75. Thin-bedded, distal conglomerate beds, ~30 - 50 cm thick interbedded with arenite; large rounded cobbles; normal grading of arenite shows tops to the SE (way up ~ 115). Minor biotite ~ calcite, however some large bull quartz-calcite tension gashes ~perpendicular to bedding, very little fabric
457	545154	5692186	12-AUG-20 3:00:57PM	Sandstone	fissile, sheared, sandstone, ~unaltered. Shear ~140/64; much bull quartz here, and some rust on foliation planes, nothing that looks interesting
458	545202	5692248	12-AUG-20 3:13:10PM	Interbedded Conglomerate & Sandstone	shear ~ 2 m wide, bedding concordant, localized in a conglomerate bed with sparse but large (up to ~10 cm cobbles). calcite = strong
459	545237	5692246	12-AUG-20 3:19:27PM	Arenite	foliation = 140/70 in arenite? ankerite = mod, some small quartz-ankerite strings here also
460	545262	5692311	12-AUG-20 3:26:34PM	Arenite	arenite, no alteration; bedded 30 - 60 cm? Bedding here quite flat; only ~30 degrees dip

Way-point	Easting	Northing	GPS Timestamp	Rock Type	Description
461	545318	5692391	12-AUG-20 3:29:52PM	Interbedded Conglomerate & Sandstone	cool gull-besmirched dome of rock in the lake. Thick-bedded sandstone and conglomerate, (>2 m each); contact is irregular, with large angular bedded rip-up clasts; most of conglomerate is very coarse/rounded however. No alteration, very little structure
462	545224	5692424	12-AUG-20 3:38:37PM	Sandstone	Sandstone, some muddy drapes; ~unaltered
463	545188	5692399	12-AUG-20 3:41:47PM	Sandstone	Sandstone, some muddy drapes; ~unaltered
464	544780	5692392	12-AUG-20 3:58:36PM	Overburden	Boulder shore along this entire coast to here; going to try the south island
465	544807	5691446	12-AUG-20 4:11:40PM	Sandstone	Sandstone; Bedding ~ foliation, foliation = mod, ankerite = mod, foliation = 135/50
466	544781	5691399	12-AUG-20 4:19:05PM	Argillite	slate slabs on shore; ankerite veining = mod
467	544800	5691332	12-AUG-20 4:22:14PM	Siltstone	siltstone, calcite = mod, and some gossan spots; however, rocks bland
468	544715	5691181	12-AUG-20 4:28:21PM	Greywacke	next to the channel, bland, tough, blocky-weathering "greywacke". Minor calcite
470	544680	5691188	12-AUG-20 4:41:44PM	Basalt	MV right "in" channel; some sheared greywacke slabs; these have ankerite = weak to moderate, probably indicating that channel is mineralized over width
471	544747	5691196	12-AUG-20 4:47:10PM	Mudstone	Shear on inside of channel; ~160/50, sheared siltstone + mudstone. No significant alteration
472	544814	5691106	12-AUG-20 4:53:24PM	Greywacke	Greywacke, no alteration
473	544871	5691056	12-AUG-20 4:56:22PM	Greywacke	Greywacke, no alteration
474	544957	5690908	12-AUG-20 5:00:38PM	Greywacke	Greywacke, no alteration
475	544636	5690710	12-AUG-20 5:06:30PM	Overburden	Low reed shore all on south side of island, no outcrop or boulders
476	544586	5690404	12-AUG-20 5:20:43PM	Siltstone	Kind of an interesting outcrop; fine-grained, finely bedded sediments, bedding ~175/35. Pervasively folded here, predominantly s-folding although in some places almost m-folding. Axial plane ~ 075/40, readily visible in beds although foliation is lacking. Clear lineation paralleling fold axis. Alteration here is weak, a bit of rustiness. One large (>20 cm) local vein chunk noted, mainly bullish quartz-chlorite, sericite, but also some minor pyrite paint.
477	544655	5690388	12-AUG-20 5:36:21PM	Greywacke	Moderate shear in greywacke & siltstone, ~4 m wide but not strong. Shear (1) = 205/70. ankerite = mod, including some veining along foliation
478	544719	5690423	12-AUG-20 5:41:57PM	Siltstone	siltstone, ankerite = weak. Some folding still evident but much less. Mostly low, reedy shore in here
479	544886	5690396	12-AUG-20 5:48:54PM	Volcanic breccia	! Basalt, massive to flow brecciated; contains some big (>50 cm) bullish irregular veining; otherwise ~unaltered
481	545275	5691142	12-AUG-20 6:13:05PM	Sandstone	sandstone salient on an out-jutting point; ~unaltered
482	545124	5691178	12-AUG-20 6:19:47PM	Sandstone	Sandstone maybe? ankerite = strong, up to ~2% pyrite, some small shears (main shear to the East?); shear = 160/60
483	545006	5691138	12-AUG-20 6:32:54PM	Siltstone	old shore lunch spot; table is broken, weeds growing in the fire pit. Good exposure of sand & silt interbeds, mainly sand; very disrupted bedding in places. calcite - strong, almost lean ankerite

Appendix 3 – Grab Samples

Sample ID	Easting	Northing	Claim Block	Sample Description	Analysis Type	Au (ppb)	As (ppm)
328282	538112	5686133	Stargazer	Massive arsenopyrite with thin coat of yellow "scum"; thin adhering portion of quartz/chlorite vein	Au and ICP-MS	2280	> 10000
328283	538112	5686133	Stargazer	Samples of fissile, gossanous wall-rock, strong ankerite alteration	Au and ICP-MS	46	5900
328284	538112	5686133	Stargazer	Chips from the 30 cm "breccia structures" on the hanging-wall; both quartz-carbonate-chlorite vein and sericite/ankerite altered wall-rock in sample. Minor pyrite and arsenopyrite in one chip	Au and ICP-MS	12	3520
328285	538112	5686133	Stargazer	~10 cm sample of quartz-ankerite vein with minor chlorite, local float, uncertain location on outcrop, no sulphides	Au only	2.5	
328286	538206	5686213	Stargazer	Calcite vein with fluorite specks and seam of arsenopyrite	Au and ICP-MS	27	> 10000
328287	538206	5686213	Stargazer	More massive looking sediments; crystals of carbonate, one crystal of (arsenopyrite?) noted; ~10% fine pyrite	Au and ICP-MS	17	5770
328288	538206	5686213	Stargazer	Sheared sericite sediments, ~10% mixed very fine and coarser cubes of pyrite.	Au and ICP-MS	12	3300
328289	538206	5686213	Stargazer	Conglomerate with sediments between clasts? ~10% fine pyrite	Au and ICP-MS	14	2650
328290	538206	5686213	Stargazer	Coarser arenite sediments, quartz grains, ~15% pyrite and ~3% arsenopyrite, including well-formed crystals	Au and ICP-MS	25	7220
328291	538206	5686213	Stargazer	Intensely sericitized sediments, ~15% fine pyrite	Au and ICP-MS	16	8580
328293	538280	5685648	Stargazer	Sample of fissile, pyrite-rich (10%?) 10 cm layer	Au and ICP-MS	19	176
328294	538280	5685648	Stargazer	The quartz-crystal tuff with ~10% chert fragments and a xenolith (3%?) of sphalerite-pyrrhotite-chalcopyrite; sphalerite predominates within the xenolith.	Au and ICP-MS	2.5	92.2
328296	538647	5686040	Stargazer	Sample from sheared mudstone next to the carbonate breccia. Strong silicification, moderate ankerite, 5% pyrite, 1% pyrrhotite	Au and ICP-MS	6	49.2
328297	538667	5686194	Stargazer	Sample of bullish quartz vein; like Damocles, contains ~50% arsenopyrite, ~15% pyrite	Au and ICP-MS	140	> 10000
328298	538667	5686194	Stargazer	Sample of vein & wall-rock; bullish quartz in sericite/argillite wall-rock vein with ~1% pyrite, much of it as "paint" on internal fractures, ~5% arsenopyrite infolded with quartz stringers in the wall-rock vein with odd cloudy grey patches; reminiscent of fine tellurides at Goldlund... favourable appearance	Au and ICP-MS	7	5980
328299	538667	5686194	Stargazer	Sample FROM the point; sheared, intensely ankeritized argillite invaded by two ~1.5 cm	Au and ICP-MS	2.5	7460

Sample ID	Easting	Northing	Claim Block	Sample Description	Analysis Type	Au (ppb)	As (ppm)
				ankerite veins; ~3% fine pyrite throughout in wall-rock and veinlets			
328300	538279	5686271	Stargazer	Typical gossanous shear material; ~25% fine pyrite, some coarse crystals; rest is mainly sericite, minor fuchsite	Au and ICP-MS	7	2530
328301	538279	5686271	Stargazer	Sample of QCV vein with sheared, gossanous wall-rock, some pyrite in margins of the vein; ~5% fine pyrite	Au and ICP-MS	16	184
328303	537191	5685626	Stargazer	Local float. Strongly foliated, strong = sericite alteration, moderately ankeritized ankerite fragment. Contains two ~1 cm veinlets of quartz-carbonate and ~20% fine pyrite; probably minor arsenopyrite (no loupe…)	Au and ICP-MS	88	> 10000
328304	537191	5685626	Stargazer	Heavily carbonatized fragment suggesting a fold nose; carb/chlorite "rod" with ~5% disseminated pyrite, with foliated pyrite, sericite schist (10-15% pyrite, fine grey pyrite) striking into it	Au and ICP-MS	7	134
328305	537191	5685626	Stargazer	Sample of silicified material (arenite?) with pyrite, pyrrhotite, arsenopyrite	Au and ICP-MS	2.5	70.9
328306	536248	5686322	Stargazer	Sample of deeply gossanous ankerite strata"; strong fuchsite; ~2% pyrite, ~20% QCV	Au and ICP-MS	2.5	1390
328307	538375	5686103	Stargazer	Weakly silicified and strongly ankeritized conglomerate; weak fuchsite; ~3% disseminated cubes of pyrite	Au and ICP-MS	7	5950
328308	538375	5686103	Stargazer	sericite schist, gossanous (mudstone?); containing small veinlets of grainy quartz rimmed with pyrite (and possibly arsenopyrite); and veinlets of pyrite-calcite, ~50% pyrite, maybe ~10% pyrite overall	Au and ICP-MS	6	4520
328309	538375	5686103	Stargazer	Fragments of quartz-calcite-chlorite veins, and minor wall-rock, no sulphide	Au only	2.5	
328310	538375	5686103	Stargazer	Intensely carbonatized conglomerate, minor fuchsite, ~9% pyrite as disseminated cubes and grainy clots; clots also contain PROBABLY arsenopyrite as silvery crystals, maybe 1% overall. Sheared	Au and ICP-MS	2.5	7030
328313	541897	5691502	Horseshoe East	From the big shear, pencil fragment rods of greyish pyritic quartz in anastomosing yellow sericite & fuchsite blebs; ~15% pyrite?	Au and ICP-MS	5	30.1
328314	541902	5691495	Horseshoe East	Folded greyish replacement veinlet of quartz-pyrite in a less altered, strongly ankeritized/sericitized, unsheared piece on the south end of the outcrop; ~5% pyrite	Au and ICP-MS	9	16.8
328315	541891	5691507	Horseshoe East	Granodiorite, not sheared, intense sericite, strong ankerite, minor fuchsite, ~10% fine pyrite, mainly within sericite slips. Cut by small (0.5 cm) ladder veinlets of pink k-spar & ankerite	Au and ICP-MS	249	11.6
328316	541875	5691513	Horseshoe East	Local float boulder. Granodiorite, richer in quartz (silicified?); less sericite. Greyish	Au and ICP-MS	15	14.6

Sample ID	Easting	Northing	Claim Block	Sample Description	Analysis Type	Au (ppb)	As (ppm)
				quartz with fine pyrite, stronger fuchsite alteration			
328317	541985	5691326	Horseshoe East	Sample of a rare quartz vein, ~1.5 cm across, paralleling foliation; glassy quartz ankerite in intensely ankerite/sericite altered matrix. ~3% pyrite, mostly in matrix.	Au and ICP-MS	7	11
328318	541985	5691326	Horseshoe East	Sample of intensely sericitized shear, "pencil" fragment; anastomosing, thin sericite seams surrounding rod-like quartz-feldspar-pyrite (~10%) lithons. Some discrete grains of fuchsite, <1%	Au and ICP-MS	5	7.8
328319	541962	5691393	Horseshoe East	Composite sample of the boulder, contains pinkish veining and galena and sphalerite in white quartz-carb veins; this sample contains some of all of those, as well as coarse pyrite in the vein	Au and ICP-MS	29	9.6
328320	541962	5691393	Horseshoe East	Sample (from different boulder?) with a glassy quartz vein, contains ~5% coarse pyrite and some blocky ankerite, wall-rock is silicified with a speck of galena ~2 inches from the vein	Au and ICP-MS	22	9.4
328321	541962	5691393	Horseshoe East	Sample contains a bullish QCV with 'needles' of ankerite; but rimmed with coarse pyrite. Matrix with some fine greyish quartz stringers, and strong grey silicification	Au and ICP-MS	17	14.2
328322	541962	5691393	Horseshoe East	Sample fine granodiorite (or possibly sediments???); intensely greyish silicified, many fine quartz and quartz-carb veinlets, includes some dark grey patches which MAY contain fine galena. ~2% fine pyrite, mainly on sericite seams	Au and ICP-MS	6	16.5
328323	541962	5691393	Horseshoe East	Strongly silicified, whitish silicification, associated with quartz-carb extensional veins to ~1.5 cm, ~4% fine pyrite, fine pyrite as streaks with sericite	Au and ICP-MS	10	5.1
328324	541976	5691609	Horseshoe East	Sample of fossil-sheared, silicified/biotitized basalt, ~50% ankerite vein; overprinted by ~5% grainy pyrite in the vein	Au and ICP-MS	2.5	3.7
328325	541987	5691602	Horseshoe East	Heavily ankeritized growth, ~5% pyrite as coarse cubes and filling small fractures	Au and ICP-MS	60	12
328326	541987	5691602	Horseshoe East	Sample of 50:50 granodiorite and QCV. Veins includes some internal pyrite veins, ~2% pyrite overall, mainly in a fracture within the wallrock.	Au and ICP-MS	2.5	1.8

Appendix 4 – Assay Certificates

Quality Analysis ... *Innovative Technologies*

Report No.: **A20-10894**
Report Date: **27-Oct-20**
Date Submitted: **11-Sep-20**
Your Reference: **Birch Lake**

John Fingas
3465 Crossen Road
Coburg Ontario K9A 4J9
Canada

ATTN: John Fingas

CERTIFICATE OF ANALYSIS

47 Rock samples were submitted for analysis.

The following analytical package(s) were requested:		Testing Date:
1A2B-50-Tbay	QOP AA-Au (Au - Fire Assay AA)	2020-09-30 18:07:01
1A3-50-Tbay	QOP AA-Au (Au - Fire Assay Gravimetric)	2020-10-05 14:15:14

REPORT **A20-10894**

Notes:

If value exceeds upper limit we recommend reassay by fire assay gravimetric-Code 1A3

The Au from AR-MS is for information purposes, for accurate Au fire assay 1A2 should be requested.

CERTIFIED BY:

Emmanuel Eseme , Ph.D.
Quality Control Coordinator

ACTIVATION LABORATORIES LTD.
1201 Walsh Street West, Thunder Bay, Ontario, Canada, P7E 4X6
TELEPHONE +807 622-6707 or +1.888.228.5227 FAX +1.905.648.9613
E-MAIL Tbay@actlabs.com ACTLABS GROUP WEBSITE www.actlabs.com

Report No.: **A20-10894**
Report Date: **27-Oct-20**
Date Submitted: **11-Sep-20**
Your Reference: **Birch Lake**

John Fingas
3465 Crossen Road
Coburg Ontario K9A 4J9
Canada

ATTN: John Fingas

CERTIFICATE OF ANALYSIS

47 Rock samples were submitted for analysis.

The following analytical package(s) were requested:		Testing Date:
UT-1M	QOP Ultratrace-1 (Aqua Regia ICPMS)	2020-10-20 11:33:08

REPORT **A20-10894**

Notes:

If value exceeds upper limit we recommend reassay by fire assay gravimetric-Code 1A3

The Au from AR-MS is for information purposes, for accurate Au fire assay 1A2 should be requested.

CERTIFIED BY:

Emmanuel Eseme , Ph.D.
Quality Control Coordinator

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E-MAIL Ancaster@actlabs.com ACTLABS GROUP WEBSITE www.actlabs.com

Analyte Symbol	Au	Ag	Al	As	Au	B	Ba	Bi	Ca	Cd	Co	Cr	Cu	Fe	Ga	Hg	K	La	Mg	Mn	Mo	Na	Ni
Unit Symbol	ppb	ppm	%	ppm	ppb	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	%	ppm	%	ppm	ppm	%	ppm
Lower Limit	5	0.1	0.01	0.5	0.5	20	0.5	0.1	0.01	0.1	0.1	1	0.2	0.01	1	0.01	0.01	1	0.01	1	0.1	0.001	0.1
Method Code	FA-AA	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
328285	< 5																						
328309	< 5																						
328282	2280	1.7	0.12	> 10000	588	< 20	6.9	11.0	0.11	< 0.1	113	6	47.3	22.2	< 1	0.14	0.06	9	0.01	85	8.8	0.018	94.6
328283	46	0.5	1.11	5900	39.3	< 20	108	4.5	0.66	< 0.1	21.6	23	157	5.61	3	0.05	0.32	32	0.50	247	42.1	0.128	37.5
328284	12	0.2	0.39	3520	11.5	< 20	70.6	0.7	3.59	0.3	8.5	13	14.6	1.66	< 1	0.05	0.18	15	0.21	497	4.6	0.028	13.4
328286	27	0.2	0.32	> 10000	22.6	< 20	95.8	< 0.1	8.66	< 0.1	21.0	35	10.6	3.74	< 1	0.29	0.17	10	0.09	692	0.8	0.015	59.5
328287	17	0.2	0.52	5770	15.5	< 20	11.9	0.3	0.96	0.1	55.6	57	93.8	7.10	2	< 0.01	0.30	14	0.12	104	1.3	0.034	199
328288	12	0.1	0.60	3300	9.1	< 20	13.0	0.2	0.50	< 0.1	43.5	51	81.1	5.54	2	< 0.01	0.31	9	0.06	42	1.2	0.034	121
328289	14	0.2	0.45	2650	9.6	< 20	27.5	0.1	4.60	< 0.1	42.3	27	36.0	6.37	1	< 0.01	0.24	18	0.18	807	1.1	0.030	102
328290	25	0.1	0.46	7220	22.5	< 20	9.8	0.1	1.32	< 0.1	20.2	8	14.8	10.2	1	< 0.01	0.23	20	0.17	178	5.6	0.045	20.0
328291	16	< 0.1	0.53	8580	15.4	< 20	12.5	< 0.1	1.71	< 0.1	16.2	8	13.8	6.47	2	< 0.01	0.27	18	0.12	155	15.8	0.057	19.7
328293	19	0.3	0.29	176	24.4	< 20	10.0	3.8	0.03	< 0.1	19.0	18	75.9	5.73	4	0.03	0.02	11	0.09	120	2.0	0.071	7.5
328294	< 5	0.3	0.81	92.2	2.3	< 20	57.2	0.9	1.95	< 0.1	84.4	6	295	4.73	3	0.03	0.28	65	0.60	201	0.4	0.047	22.3
328296	6	0.2	1.39	49.2	1.6	< 20	126	1.4	7.07	< 0.1	21.9	58	106	5.39	3	0.05	0.18	17	3.03	959	1.3	0.091	64.6
328297	140	0.2	0.40	> 10000	120	< 20	12.6	16.9	0.89	< 0.1	48.6	11	15.9	10.3	1	0.19	0.09	13	0.15	235	2.0	0.022	92.8
328298	7	< 0.1	1.10	5980	6.0	< 20	168	< 0.1	2.52	< 0.1	13.1	27	39.3	2.66	2	0.16	0.15	13	0.49	478	2.0	0.035	29.3
328299	< 5	< 0.1	0.57	7460	2.5	< 20	62.2	0.2	8.92	< 0.1	23.1	37	56.3	4.19	1	0.05	0.19	5	0.34	1690	1.4	0.051	46.7
328300	7	< 0.1	0.46	2530	4.8	< 20	50.0	0.1	0.05	< 0.1	17.3	10	26.8	2.32	1	9.58	0.34	20	0.03	34	3.0	0.016	24.3
328301	16	< 0.1	0.23	184	14.7	< 20	42.1	0.2	4.42	< 0.1	7.8	7	27.3	2.27	< 1	3.18	0.17	6	0.02	507	1.1	0.013	7.1
328303	88	0.4	0.50	> 10000	67.4	< 20	41.6	1.3	0.14	0.1	48.4	6	121	5.05	1	0.11	0.21	42	0.04	100	19.0	0.031	26.0
328304	7	0.2	2.08	134	2.3	< 20	48.6	0.4	1.67	< 0.1	13.9	17	117	10.0	7	0.08	0.12	19	1.12	1600	2.1	0.021	33.2
328305	< 5	< 0.1	1.06	70.9	2.3	< 20	53.1	0.2	0.34	< 0.1	13.0	12	32.2	3.59	4	0.04	0.14	21	0.38	248	1.0	0.061	19.8
328306	< 5	< 0.1	1.53	1390	0.5	< 20	32.6	0.1	5.46	< 0.1	26.1	153	6.1	5.43	5	0.06	0.14	90	3.06	1070	2.1	0.014	97.5
328307	7	< 0.1	1.28	5950	6.5	< 20	109	< 0.1	3.35	0.1	42.8	330	73.7	5.21	3	< 0.01	0.18	5	1.49	601	3.1	0.039	265
328308	6	< 0.1	1.82	4520	5.3	< 20	81.3	0.2	0.67	< 0.1	20.5	217	96.1	6.45	4	< 0.01	0.23	9	1.06	185	2.6	0.036	141
328310	< 5	< 0.1	1.45	7030	3.8	< 20	61.6	< 0.1	5.06	0.2	78.2	363	74.0	6.49	4	0.13	0.14	4	2.13	1060	0.5	0.031	539
328313	5	< 0.1	0.39	30.1	2.8	< 20	69.6	0.3	0.02	< 0.1	2.7	10	5.1	1.42	1	0.04	0.27	47	0.03	50	10.1	0.052	10.4
328314	9	0.1	0.43	16.8	7.4	< 20	83.8	0.3	1.46	< 0.1	9.5	10	18.0	2.24	1	0.03	0.27	41	0.04	843	6.4	0.043	21.8
328315	249	0.3	0.25	11.6	210	< 20	46.9	0.2	0.17	< 0.1	9.4	14	7.1	2.87	1	0.03	0.17	52	0.01	54	0.5	0.082	32.7
328316	15	< 0.1	0.19	14.6	6.5	< 20	79.3	0.2	0.21	< 0.1	3.4	14	13.5	2.04	< 1	0.03	0.16	41	0.01	68	1.5	0.067	14.1
328317	7	0.3	0.40	11.0	5.1	< 20	115	0.9	0.63	< 0.1	3.3	11	11.9	1.80	< 1	0.09	0.25	36	0.03	174	9.2	0.027	9.8
328318	5	< 0.1	0.27	7.8	1.1	< 20	69.2	0.3	0.02	< 0.1	3.5	8	4.1	1.22	< 1	0.09	0.17	41	0.02	37	1.8	0.046	12.3
328319	29	0.2	0.24	9.6	22.2	< 20	47.2	0.7	0.04	0.2	7.7	8	11.6	2.00	< 1	0.16	0.13	45	0.03	55	0.6	0.074	22.8
328320	22	0.1	0.22	9.4	16.4	< 20	47.5	0.3	0.11	0.2	6.4	12	17.1	1.82	< 1	0.12	0.11	39	0.04	99	1.1	0.082	21.7
328321	17	0.3	0.17	14.2	12.2	< 20	20.0	0.3	0.13	0.2	5.4	29	9.5	1.61	< 1	0.08	0.04	29	0.08	101	3.6	0.103	18.8
328322	6	< 0.1	0.15	16.5	2.6	< 20	22.6	0.2	0.21	0.1	4.5	13	9.8	1.55	< 1	0.09	0.06	33	0.05	97	1.7	0.075	16.1
328323	10	0.3	0.13	5.1	7.3	< 20	18.6	0.3	< 0.01	< 0.1	3.9	10	7.5	1.20	< 1	0.13	0.04	31	< 0.01	40	1.7	0.093	12.5
328324	< 5	< 0.1	0.16	3.7	< 0.5	< 20	220	< 0.1	4.95	0.1	11.5	19	7.6	6.32	< 1	< 0.01	0.04	10	1.28	1790	0.7	0.075	18.3
328325	60	0.4	0.16	12.0	54.9	< 20	25.0	0.7	3.57	0.1	22.0	11	68.7	4.90	< 1	0.06	0.03	29	1.00	1510	1.6	0.073	24.9
328326	< 5	< 0.1	0.07	1.8	< 0.5	< 20	8.1	< 0.1	2.50	< 0.1	4.4	19	10.4	2.28	< 1	0.05	0.02	6	0.73	787	1.7	0.051	8.5

Analyte Symbol	P	Pb	S	Sb	Sc	Se	Sr	Te	Th	Ti	Tl	V	W	Zn	Au
Unit Symbol	%	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	g/tonne
Lower Limit	0.001	0.1	1	0.1	0.1	0.5	1	0.2	0.1	0.001	0.1	2	0.1	1	0.02
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	FA-GRA
328285															
328309															
328282	0.056	243	8	> 500	0.4	59.8	21	72.5	35.2	0.001	< 0.1	3	0.7	3	
328283	0.075	78.2	< 1	10.5	2.5	2.4	41	2.7	8.2	0.010	0.1	19	0.9	64	
328284	0.045	40.6	< 1	5.0	1.3	1.0	215	0.4	8.1	0.006	< 0.1	8	0.5	30	
328286	0.034	15.2	2	21.0	4.1	0.7	489	< 0.2	0.7	0.002	0.5	11	28.4	32	
328287	0.139	40.2	6	25.2	3.2	0.7	43	< 0.2	2.6	0.002	1.0	20	162	79	
328288	0.131	28.8	5	23.6	3.1	< 0.5	25	< 0.2	2.2	0.002	1.0	19	156	32	
328289	0.103	27.9	5	22.3	3.1	< 0.5	210	< 0.2	2.4	0.002	0.9	15	165	27	
328290	0.059	13.7	10	17.5	1.4	< 0.5	58	< 0.2	1.9	0.001	0.9	11	156	33	
328291	0.046	12.3	6	15.8	1.5	< 0.5	75	< 0.2	1.4	0.001	1.2	13	112	34	
328293	0.031	7.2	< 1	3.5	3.0	0.9	11	0.6	3.4	0.051	< 0.1	43	0.9	10	
328294	0.051	2.2	2	1.4	1.1	0.7	77	< 0.2	3.1	0.015	< 0.1	8	0.4	14	
328296	0.058	16.2	1	4.4	6.2	2.3	225	0.4	4.5	0.002	< 0.1	54	0.6	74	
328297	0.010	260	5	283	1.0	3.8	43	1.7	5.2	< 0.001	< 0.1	6	0.8	14	
328298	0.067	6.8	< 1	19.0	1.9	< 0.5	213	< 0.2	4.1	0.002	0.1	14	1.3	38	
328299	0.070	19.6	2	23.6	3.3	< 0.5	386	< 0.2	3.4	0.001	0.1	18	6.6	32	
328300	0.011	8.4	2	20.6	1.7	< 0.5	11	< 0.2	4.5	0.004	1.3	9	56.6	21	
328301	0.034	12.9	< 1	4.9	1.4	< 0.5	795	< 0.2	1.6	0.002	0.2	4	3.4	13	
328303	0.037	40.8	3	42.4	0.5	1.3	47	1.8	13.5	< 0.001	0.1	5	4.3	57	
328304	0.047	16.7	3	6.6	4.6	< 0.5	133	< 0.2	4.2	0.003	< 0.1	27	2.4	73	
328305	0.062	9.1	< 1	2.8	1.4	< 0.5	49	< 0.2	6.0	0.002	< 0.1	15	0.4	73	
328306	0.109	9.1	< 1	2.0	7.1	< 0.5	439	< 0.2	9.7	0.003	0.1	27	0.4	93	
328307	0.075	7.6	< 1	41.1	5.3	< 0.5	197	< 0.2	0.8	0.002	0.3	35	81.4	120	
328308	0.138	24.1	1	28.5	3.3	0.5	62	< 0.2	2.7	0.003	0.4	31	39.8	89	
328310	0.092	8.7	2	28.4	6.7	< 0.5	169	< 0.2	0.8	0.002	0.3	32	5.3	190	
328313	0.014	15.8	< 1	0.7	0.5	< 0.5	15	< 0.2	7.9	0.003	< 0.1	5	0.1	4	
328314	0.063	13.7	1	0.9	0.7	< 0.5	292	< 0.2	8.8	0.023	0.1	6	0.2	9	
328315	0.118	18.9	2	0.5	1.3	< 0.5	84	2.0	11.2	0.003	< 0.1	5	0.4	10	
328316	0.077	20.5	1	0.4	1.1	< 0.5	67	< 0.2	7.9	0.002	< 0.1	5	0.2	22	
328317	0.085	61.7	< 1	0.8	0.4	< 0.5	171	0.4	7.2	0.002	< 0.1	4	5.4	22	
328318	0.013	17.4	< 1	0.4	0.4	< 0.5	23	< 0.2	6.8	0.001	< 0.1	4	0.2	19	
328319	0.010	62.6	2	0.6	0.5	0.9	16	1.5	9.1	0.002	< 0.1	3	0.2	82	
328320	0.009	19.9	1	0.5	0.5	1.1	22	1.4	7.2	0.002	< 0.1	3	0.2	80	
328321	0.008	37.4	1	0.6	0.5	0.8	24	0.7	5.4	0.002	< 0.1	3	0.2	52	
328322	0.045	19.8	1	0.5	0.4	< 0.5	35	0.4	5.8	0.001	< 0.1	< 2	0.1	65	
328323	0.006	13.1	1	0.4	0.3	< 0.5	11	0.3	5.9	< 0.001	< 0.1	< 2	0.1	11	
328324	0.053	9.8	< 1	0.4	5.7	< 0.5	844	< 0.2	2.2	0.049	< 0.1	41	1.4	57	
328325	0.059	41.1	1	0.9	4.6	0.7	372	20.3	3.2	0.033	< 0.1	5	3.5	65	
328326	0.038	2.1	< 1	0.3	3.3	< 0.5	299	< 0.2	1.3	0.013	< 0.1	2	0.9	20	

Analyte Symbol	Au	Ag	Al	As	Au	B	Ba	Bi	Ca	Cd	Co	Cr	Cu	Fe	Ga	Hg	K	La	Mg	Mn	Mo	Na	Ni
Unit Symbol	ppb	ppm	%	ppm	ppb	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	%	ppm	%	ppm	ppm	%	ppm
Lower Limit	5	0.1	0.01	0.5	0.5	20	0.5	0.1	0.01	0.1	0.1	1	0.2	0.01	1	0.01	0.01	1	0.01	1	0.1	0.001	0.1
Method Code	FA-AA	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
OREAS 45d (Aqua Regia) Meas			5.76	4.4	14.8		75.7	0.3	0.10		26.4	476	328	13.9	18		0.10	11	0.16	417		0.033	199
OREAS 45d (Aqua Regia) Cert			4.860	6.50	21		80	0.30	0.089		26.2	467	345.0	13.650	17.9		0.097	9.960	0.144	400.000		0.031	176.0
OREAS 45d (Aqua Regia) Meas			5.47	5.5	15.0		71.4	0.2	0.10		26.5	467	343	13.9	18		0.11	11	0.16	408		0.031	198
OREAS 45d (Aqua Regia) Cert			4.860	6.50	21		80	0.30	0.089		26.2	467	345.0	13.650	17.9		0.097	9.960	0.144	400.000		0.031	176.0
OREAS 922 (AQUA REGIA) Meas		0.9	2.62	6.8			82.6	10.1	0.42	0.3	19.4	47	2440	5.57	8		0.45	37	1.39	830	0.7	0.021	35.9
OREAS 922 (AQUA REGIA) Cert		0.851	2.72	6.12			70	10.3	0.324	0.28	19.4	40.7	2176	5.05	7.62		0.376	32.5	1.33	730	0.69	0.021	34.3
OREAS 922 (AQUA REGIA) Meas		0.8	2.82	6.4			79.8	9.9	0.42	0.3	18.2	45	2140	5.03	7		0.46	36	1.36	752	0.7	0.022	34.9
OREAS 922 (AQUA REGIA) Cert		0.851	2.72	6.12			70	10.3	0.324	0.28	19.4	40.7	2176	5.05	7.62		0.376	32.5	1.33	730	0.69	0.021	34.3
OREAS 522 (Aqua Regia) Meas		1.4	1.24	536	573			9.4	3.75		641	32	> 10000	26.5	13		0.60	160	1.09	4240	219		71.8
OREAS 522 (Aqua Regia) Cert		1.23	1.29	492	549			8.87	3.43		533	28.6	9040	24.13	13.2		0.528	192	1.07	3670	198		64.0
OREAS 907 (Aqua Regia) Meas		1.3	1.09	37.1	90.2		237	22.5	0.29	0.5	41.0	10	6240	7.87	14		0.32	37	0.23	306	5.6	0.085	5.1
OREAS 907 (Aqua Regia) Cert		1.30	0.945	37.0	101		225	22.3	0.280	0.540	43.7	8.59	6370	8.18	14.7		0.286	36.1	0.221	330	5.64	0.0860	4.74
OREAS 229b (Fire Assay) Meas																							
OREAS 229b (Fire Assay) Cert																							
OREAS 238 (Fire Assay) Meas	3080																						
OREAS 238 (Fire Assay) Cert	3030																						
OREAS 238 (Fire Assay) Meas	3130																						
OREAS 238 (Fire Assay) Cert	3030																						
OREAS 263 (Aqua Regia) Meas		0.3	1.66	31.7			187	0.6	1.05	0.2	32.3	57	90.6	4.02	5	0.20	0.35		0.60	521	0.5	0.083	75.6
OREAS 263 (Aqua Regia) Cert		0.285	1.29	30.8			175	0.570	1.03	0.270	31.0	48.0	87.0	3.68	4.92	0.170	0.288		0.593	490	0.570	0.0790	72.0
OREAS 263 (Aqua Regia) Meas		0.3	1.59	31.3			181	0.6	1.03	0.3	32.0	54	96.0	3.63	4	0.21	0.34		0.61	478	0.6	0.075	73.0
OREAS 263 (Aqua Regia) Cert		0.285	1.29	30.8			175	0.570	1.03	0.270	31.0	48.0	87.0	3.68	4.92	0.170	0.288		0.593	490	0.570	0.0790	72.0
Oreas 623 (Aqua Regia) Meas		20.8	1.56	80.9	801			17.2	1.08	48.5	220	16	> 10000	13.3	13	0.68	0.15	18	1.07	575	9.2	0.074	14.9
Oreas 623 (Aqua Regia) Cert		20.4	1.80	76.0	797			16.9	1.09	52.0	216	19.4	17200	13.0	11.9	0.830	0.175	17.9	1.11	570	8.38	0.0680	15.6
Oreas 623 (Aqua Regia) Meas		21.0	1.59	85.3	755			18.9	1.14	62.9	200	17	> 10000	12.7	14	0.71	0.16	19	1.07	556	8.2	0.070	13.7

Analyte Symbol	Au	Ag	Al	As	Au	B	Ba	Bi	Ca	Cd	Co	Cr	Cu	Fe	Ga	Hg	K	La	Mg	Mn	Mo	Na	Ni
Unit Symbol	ppb	ppm	%	ppm	ppb	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	%	ppm	%	ppm	ppm	%	ppm
Lower Limit	5	0.1	0.01	0.5	0.5	20	0.5	0.1	0.01	0.1	0.1	1	0.2	0.01	1	0.01	0.01	1	0.01	1	0.1	0.001	0.1
Method Code	FA-AA	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
Oreas 623 (Aqua Regia) Cert		20.4	1.80	76.0	797			16.9	1.09	52.0	216	19.4	17200	13.0	11.9	0.830	0.175	17.9	1.11	570	8.38	0.0680	15.6
OREAS 257b (Fire Assay) Meas																							
OREAS 257b (Fire Assay) Cert																							
Oreas E1336 (Fire Assay) Meas	522																						
Oreas E1336 (Fire Assay) Cert	510																						
Oreas E1336 (Fire Assay) Meas	517																						
Oreas E1336 (Fire Assay) Cert	510																						
328286 Orig	27																						
328286 Dup	27																						
328294 Orig		0.3	0.81	93.7	4.1	< 20	58.9	0.9	1.97	< 0.1	85.4	6	303	4.78	3	0.03	0.29	66	0.60	204	0.4	0.045	22.5
328294 Dup		0.2	0.82	90.7	0.6	< 20	55.5	0.8	1.94	< 0.1	83.4	6	288	4.68	3	0.02	0.28	63	0.60	199	0.4	0.048	22.0
328298 Orig	7																						
328298 Dup	7																						
328302 Orig	< 5																						
328302 Dup	< 5																						
328308 Orig		< 0.1	1.81	4590	5.9	< 20	94.0	0.2	0.67	< 0.1	20.6	222	99.6	6.56	4	< 0.01	0.24	9	1.06	189	2.7	0.035	143
328308 Dup		< 0.1	1.83	4450	4.7	< 20	68.6	0.1	0.67	< 0.1	20.3	212	92.6	6.34	4	< 0.01	0.22	9	1.05	180	2.5	0.038	138
328321 Orig		0.4	0.18	14.3	13.1	< 20	20.3	0.4	0.14	0.2	5.5	30	9.8	1.67	< 1	0.08	0.04	30	0.09	106	3.7	0.107	19.1
328321 Dup		0.2	0.16	14.0	11.4	< 20	19.7	0.3	0.12	0.1	5.2	28	9.3	1.55	< 1	0.08	0.04	29	0.07	96	3.6	0.098	18.6
328324 Orig	< 5																						
328324 Dup	< 5																						
328328 Orig																							
328328 Dup																							
Method Blank	< 5																						
Method Blank	< 5																						
Method Blank	< 5																						
Method Blank		< 0.1	< 0.01	< 0.5	< 0.5	< 20	3.5	< 0.1	< 0.01	< 0.1	< 0.1	1	0.3	< 0.01	< 1	< 0.01	< 0.01	< 1	< 0.01	< 1	< 0.1	0.008	< 0.1
Method Blank		< 0.1	< 0.01	< 0.5	< 0.5	< 20	3.2	< 0.1	< 0.01	< 0.1	< 0.1	< 1	< 0.2	< 0.01	< 1	0.04	< 0.01	< 1	< 0.01	< 1	< 0.1	0.008	< 0.1
Method Blank		< 0.1	< 0.01	< 0.5	< 0.5	< 20	2.2	< 0.1	< 0.01	< 0.1	< 0.1	< 1	< 0.2	< 0.01	< 1	0.07	< 0.01	< 1	< 0.01	< 1	< 0.1	0.006	< 0.1
Method Blank		< 0.1	< 0.01	< 0.5	1.7	< 20	1.7	< 0.1	< 0.01	< 0.1	< 0.1	2	< 0.2	< 0.01	< 1	0.08	< 0.01	< 1	< 0.01	< 1	< 0.1	0.005	< 0.1
Method Blank		< 0.1	< 0.01	< 0.5	1.0	< 20	1.9	< 0.1	< 0.01	< 0.1	< 0.1	< 1	< 0.2	< 0.01	< 1		< 0.01	< 1	< 0.01	< 1	< 0.1	0.006	< 0.1
Method Blank																							

Analyte Symbol	P	Pb	S	Sb	Sc	Se	Sr	Te	Th	Ti	Tl	V	W	Zn	Au
Unit Symbol	%	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	g/tonne
Lower Limit	0.001	0.1	1	0.1	0.1	0.5	1	0.2	0.1	0.001	0.1	2	0.1	1	0.02
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	FA-GRA
OREAS 45d (Aqua Regia) Meas	0.035	17.7	< 1		39.8		13		11.2			187		35	
OREAS 45d (Aqua Regia) Cert	0.035	17.00	0.045		41.50		11.0		11.3			201.0		30.6	
OREAS 45d (Aqua Regia) Meas	0.036	16.1	< 1		38.8		12		10.3			188		38	
OREAS 45d (Aqua Regia) Cert	0.035	17.00	0.045		41.50		11.0		11.3			201.0		30.6	
OREAS 922 (AQUA REGIA) Meas	0.070	59.2	< 1	0.3	4.2	2.7	17		16.2		0.2	30	1.0	243	
OREAS 922 (AQUA REGIA) Cert	0.063	60	0.386	0.57	3.15	3.44	15.0		14.5		0.14	29.4	1.12	256	
OREAS 922 (AQUA REGIA) Meas	0.060	68.8	< 1	0.7	3.7	3.1	16		15.5		0.2	33	1.4	247	
OREAS 922 (AQUA REGIA) Cert	0.063	60	0.386	0.57	3.15	3.44	15.0		14.5		0.14	29.4	1.12	256	
OREAS 522 (Aqua Regia) Meas	0.093	11.3	3	4.8	8.6	2.3	51	1.1	6.0	0.144	0.1	147	111	30	
OREAS 522 (Aqua Regia) Cert	0.0890	12.5	2.59	5.39	8.18	3.06	64.0	1.11	7.33	0.146	0.130	153	113	28.3	
OREAS 907 (Aqua Regia) Meas	0.021	38.4	< 1	2.6	2.3	8.9	12	< 0.2	8.2	0.019	0.2	5	1.1	143	
OREAS 907 (Aqua Regia) Cert	0.0240	34.1	0.0660	2.28	2.16	9.05	11.7	0.230	8.04	0.0170	0.120	5.12	0.980	139	
OREAS 229b (Fire Assay) Meas															11.4
OREAS 229b (Fire Assay) Cert															11.9
OREAS 238 (Fire Assay) Meas															
OREAS 238 (Fire Assay) Cert															
OREAS 238 (Fire Assay) Meas															
OREAS 238 (Fire Assay) Cert															
OREAS 263 (Aqua Regia) Meas	0.046	33.9	< 1	2.7	4.1		18	< 0.2	12.0		0.6	24		125	
OREAS 263 (Aqua Regia) Cert	0.0410	34.0	0.126	7.37	3.52		16.9	0.210	10.6		0.530	22.8		127	
OREAS 263 (Aqua Regia) Meas	0.038	39.0	< 1	8.8	3.6		17	0.2	11.1		0.6	25		124	
OREAS 263 (Aqua Regia) Cert	0.0410	34.0	0.126	7.37	3.52		16.9	0.210	10.6		0.530	22.8		127	
Oreas 623 (Aqua Regia) Meas	0.041	2360	10	12.7	5.2	18.4	14	0.5	4.6		0.2	14	2.0	> 5000	
Oreas 623 (Aqua Regia) Cert	0.0400	2520	8.75	20.2	4.63	18.6	14.2	0.570	4.72		0.260	15.8	2.62	10100	
Oreas 623 (Aqua	0.040	2360	8	20.4	5.0	19.4	15	0.6	4.6		0.3	16	2.3	> 5000	

Analyte Symbol	P	Pb	S	Sb	Sc	Se	Sr	Te	Th	Ti	Tl	V	W	Zn	Au
Unit Symbol	%	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	g/tonne
Lower Limit	0.001	0.1	1	0.1	0.1	0.5	1	0.2	0.1	0.001	0.1	2	0.1	1	0.02
Method Code	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	FA-GRA
Regia) Meas															
Oreas 623 (Aqua Regia) Cert	0.0400	2520	8.75	20.2	4.63	18.6	14.2	0.570	4.72		0.260	15.8	2.62	10100	
OREAS 257b (Fire Assay) Meas															14.1
OREAS 257b (Fire Assay) Cert															14.2
Oreas E1336 (Fire Assay) Meas															
Oreas E1336 (Fire Assay) Cert															
Oreas E1336 (Fire Assay) Meas															
Oreas E1336 (Fire Assay) Cert															
328286 Orig															
328286 Dup															
328294 Orig	0.052	2.2	2	1.4	1.1	0.7	78	< 0.2	3.1	0.016	< 0.1	8	0.4	15	
328294 Dup	0.050	2.1	2	1.4	1.0	0.7	76	< 0.2	3.1	0.015	< 0.1	7	0.4	14	
328298 Orig															
328298 Dup															
328302 Orig															
328302 Dup															
328308 Orig	0.140	25.2	1	29.3	3.3	0.5	63	< 0.2	2.7	0.003	0.4	32	41.0	92	
328308 Dup	0.135	23.0	1	27.6	3.3	0.5	60	< 0.2	2.6	0.003	0.4	31	38.6	87	
328321 Orig	0.009	37.9	1	0.6	0.5	0.8	25	0.8	5.6	0.002	< 0.1	3	0.2	52	
328321 Dup	0.008	36.8	1	0.6	0.5	0.9	23	0.7	5.3	0.002	< 0.1	3	0.2	51	
328324 Orig															
328324 Dup															
328328 Orig															11.5
328328 Dup															12.9
Method Blank															
Method Blank															
Method Blank															
Method Blank	< 0.001	< 0.1	< 1	< 0.1	< 0.1	< 0.5	< 1	< 0.2	< 0.1	< 0.001	< 0.1	< 2	< 0.1	< 1	
Method Blank	< 0.001	< 0.1	< 1	< 0.1	< 0.1	< 0.5	< 1	< 0.2	< 0.1	< 0.001	< 0.1	< 2	0.1	< 1	
Method Blank	< 0.001	< 0.1	< 1	< 0.1	< 0.1	< 0.5	< 1	< 0.2	< 0.1	< 0.001	< 0.1	< 2	< 0.1	< 1	
Method Blank	< 0.001	< 0.1	< 1	< 0.1	< 0.1	< 0.5	< 1	< 0.2	< 0.1	< 0.001	< 0.1	< 2	< 0.1	< 1	
Method Blank	< 0.001	0.1	< 1	< 0.1	< 0.1	< 0.5	< 1	< 0.2	< 0.1	< 0.001	< 0.1	< 2	< 0.1	< 1	
Method Blank															< 0.02

Appendix 5 – Map of 2020 Prospecting Traverses

536000 537000 538000 539000 540000

5687000 5686000 5685000 5684000

EXIT BAY AU SHOWING

BIRCH LAKE
EXIT BAY

SUPERSTITION LAKE

HODGSON ISLAND

BIRCH LAKE - SOUTH BAY

618601 618602 618603 618604

Grab Sample: 328306

Grab Samples: 328303, 328304, 328305

DAMOCLES VEIN

Grab Samples: 328282, 328283, 328284, 328285

Grab Samples: 328286, 328287, 328288, 328289, 328290, 328291

Grab Samples: 328300, 328301

Grab Samples: 328307, 328308, 328309, 328310

Grab Sample: 328296

Grab Samples: 328297, 328298, 328299

Grab Samples: 328293, 328294

Traverse 1
August 3, 2020

Traverse 2
August 4, 2020

Traverse 3
August 5, 2020

Traverse 4
August 8, 2020

Traverse 5
August 10, 2020

0 200 400 600 800 m

LEGEND

Mineralization
- Showing

Land Status
- Claims
- Birch Lake Property

Structures
- Interpretation

Fieldwork
- Grab Sample

Traverses
- Traverse

Topography
- river
- lake
- wetland
- contour

Geology (Outcrop)
- Arenite
- Argillite
- Basalt
- Carbonate Alt.
- Clastic Sediments
- Conglomerate
- Crystal tuff
- Diorite
- Epiclastic Conglomerate
- Feldspar Diorite
- Gabbro
- Massive Basalt
- Mudstone
- Overburden
- Phyllite
- Shear
- Siltstone

300 — Prospecting Station ID / Station Location

Sundog Geology

Date: 2021-04-25	Birch Lake Property Stargazer Claim Block 2020 Prospecting
Author: J. Fingas	
Office: Thunder Bay	
Scale: 1:5000	
Township: Satterly	Projection: UTM NAD83 Zone 15

541000 542000 543000 544000 545000 546000

5693000 5692000 5691000 5690000

N

618607 618608 618609 618610 618606 618605

CASUMMIT LAKE AREA

SATTERLY LAKE AREA

BIRCH LAKE

SWAIM LAKE
DEFORMATION ZONE

BIRCH LAKE
WAGNER BAY

Grab Sample:
328324, 328325,
328326

Grab Samples:
328313, 328314,
328315, 328316

Grab Samples:
328319, 328320,
328321, 328322,
328323

Grab Samples:
328317, 328318

Traverse 7
August 12, 2020

Traverse 8
August 11, 2020

0 200 400 600 800 m

LEGEND

Mineralization
- Showing

Land Status
- Claims
- Birch Lake Property

Structures
- Interpretation

Fieldwork
- Grab Sample

Traverses
- Traverse
- Traverse

Topography
- river
- lake
- Wetland
- contour

Geology (Outcrop)
- Arenite
- Argillite
- Basalt
- Conglomerate
- Feldspar-crystal tuff
- Felsic Tuff
- Gabbro
- Granodiorite
- Greywacke
- Massive Basalt
- Mudstone
- Overburden
- Rhyolite
- Sandstone
- Shear
- Siltstone

300 — Prospecting Station ID / Station Location

Sundog Geology

Date: 2021-04-25

Author: J. Fingas

Office: Thunder Bay

Scale: 1:5000

Township: Satterly/Casummit

Birch Lake Property
Horseshoe East Claim Block

2020 Prospecting

Projection: UTM NAD83 Zone 15