Ontario

We are committed to providing accessible customer service.
If you need accessible formats or communications supports, please contact us.

Nous tenons à améliorer l’accessibilité des services à la clientèle.
Si vous avez besoin de formats accessibles ou d’aide à la communication, veuillez nous contacter.

Assessment Report on Crown Land for the

Whitefish River Area – 2021 Prospecting Program

Wavell Lake Area & Upper Goose Lake Area – 052N10,
Red Lake Mining Division, Ontario, Canada

Sundog Geology

John Fingas, P.Geo
Thunder Bay, ON

May 27, 2022

Contents

Introduction

In September of 2021, the author trekked northwards along the Berens River and then up the lower reaches of the Whitefish River in order to explore crown land covering the neglected northern tip of the Birch-Uchi greenstone belt. Prospecting was initially focussed on gold mineralization, but the focus shifted to base metals when a large footprint of aluminosilicate alteration was discovered northeast of Coathup Lake. This report describes the 2021 crown land prospecting program in the Whitefish River Area.

Location and Access

The Whitefish River Area ("the Area" in this report) is a regional-scale exploration area encompassing the north tip of the Birch-Uchi Greenstone belt (Figure 1). The Area sits within cell 052N10 of the provincial grid and includes parts of the Wavell Lake & Upper Goose Lake Areas. The Area is centered on Coathup Lake; the major water features in the area are the Berens & Whitefish Rivers, which together wrap around Coathup Lake in a broad loop. The Area is relatively devoid of lakes, with significant lakes to the northwest (Upper Goose Lake), west (Wavell Lake) and southeast (Blondin Lake). The nearest communities are Cat Lake First Nation (~45 km to the east); McDowell Lake first nation (~55 km to the north); Slate Falls First Nation (~80 km to the southeast); and the Pikangikum First Nation (~100 km to the west). The nearest full-service community is Red Lake, ~110 km to the southwest.

For the 2021 prospecting program, the Area was accessed from the town of Ear Falls; access was overland by logging road using a 4x4 Ford Ranger, and over water by canoe (a Souris River 16' prospector canoe). From Ear Falls, the Goldpines Road was followed north for approximately 2.5 km, and then Hwy 657 (the Wenesaga Logging Road) was followed north for 1.6 km to its junction with the South Bay Road. After 47 km on the South Bay Road, a left turn was taken onto Joyce Road; and Joyce Road was followed for ~68 km to its northernmost extremity east of Shabumeni Lake. The truck was parked at the end of the Joyce Road, and the canoe as well as gear were portaged along skidder down to a small creek feeding into Shabumeni Lake. These skidder trails were very rough but extended to within 50 m of the creek; a short portage was cut through the intervening distance. The total length of this trail is ~1.4 km.

Once on the waterways, access to the Area required multiple days of trekking (~4 days out and 3 days back; the return trip was faster since portages had already been cut). The route was northwards on Shabumeni Lake for 3.2 km; an excellent 105 m portage links Shabumeni Lake and a small, nameless lake to the north. After a 1.7 km paddle on the nameless lake, a 420 m portage was cut northwards across a small peninsula into the central bay of Little Shabumeni Lake. After a 7 km paddle northwards, a 200 m portage was cut westward off of a small squarish bay of in the north part of Little Shabumeni Lake, and onto another small, nameless lake. From the west shore of this lake, a 620 m portage was cut across to a small lake in the upper reaches of the Berens River. After a 2.8 km paddle north and a 70 m portage, the canoe was put onto the river.

Further progress northwards was along the irregular course of the Berens River. The upper reaches of the river proved shallow and swampy, and progress was slow and tedious here, particularly during the drier return leg of the journey. Portages were cut after 4 km traveled (a 130 m portage); after a further 0.7 km (35 m portage); and then a further 5.1 km to the north (90 m portage). In this section the swampy upper reaches of the river gave out to a small, swampy cluster of lakes. At the bottom of these lakes, a 170 m portage was cut next to a small, steep gorge. This gorge marks the approximate south extent of the Whitefish River Work Area.

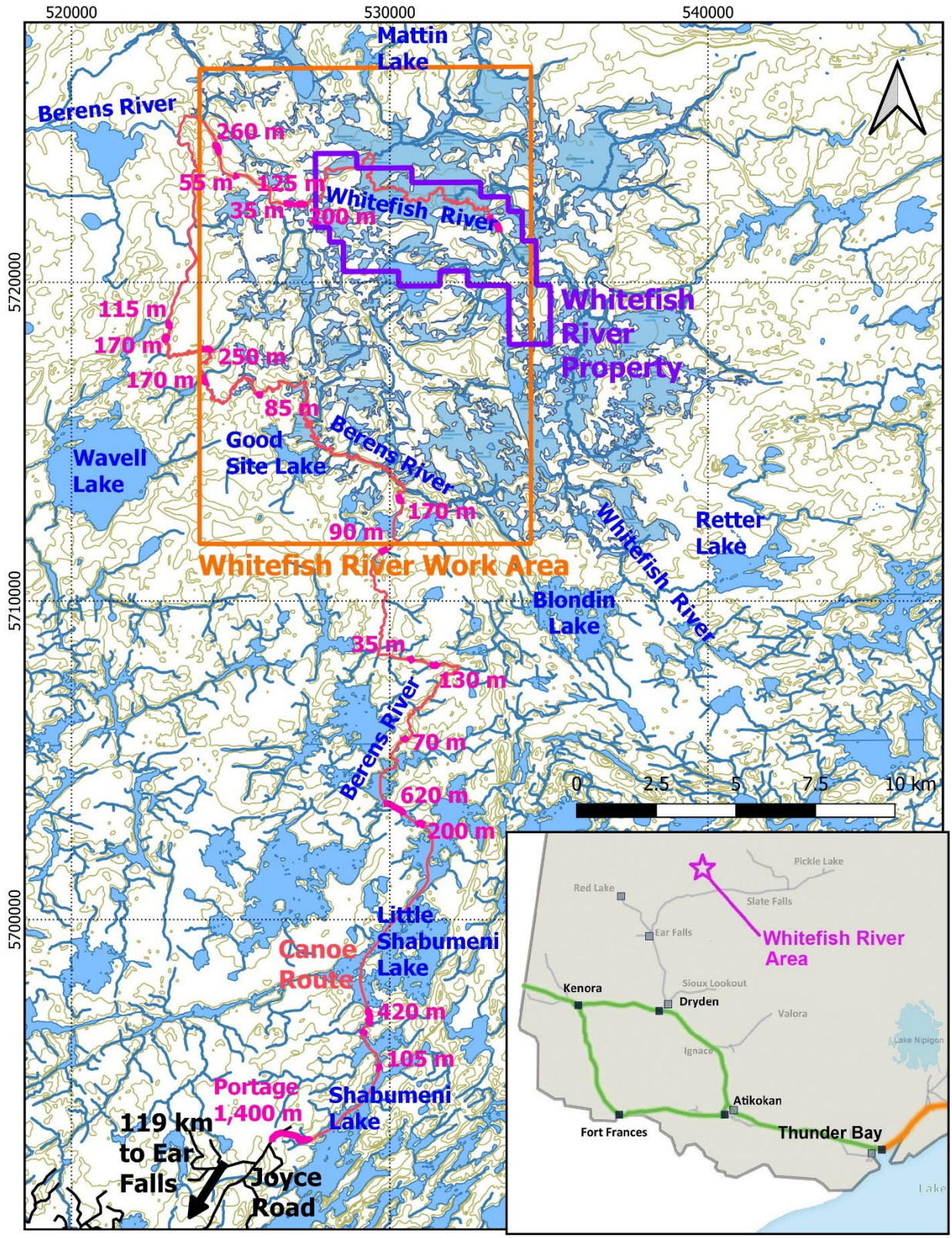


Figure 1 – Location of the Whitefish River Area

The next section of the Berens River is tortuous, with a shallow bottom and endless tight meanders; progress was slow although few portages were necessary. This section lasted for ~14 km, with 5 short portages, mostly in the second half of the section (85 m; 170 m; 250 m; 170 m; and 115 m respectively). Several of these portages had recently been cut by another party (within the last 5 years?), and only minor brushing out was needed. At the bottom of this section is a waterfall, and then the Berens River merges with the outflow north from Wavell Lake; at this point the river opens out substantially, and paddling was easy for the 7 km to the junction of the Berens and Whitefish Rivers.

Further progress east was along the Whitefish River. The lower reaches of the river are broad but after 2 km give way to a series of rapids. In the following 4.2 km, fast-flowing section of the river, 5 separate portages were cut, including a 260 m portage; a 55 m portage; a 35 m portage; a 125 m portage; and a 200 m portage. Beyond the last portage, the river slows down and flattens out, with a 10 km long, weakly meandering section with swampy shores. A final camp was made at the base of rapids which mark the eastward extent of this flatter section. Beyond the camp rapids, the river was used for accessing traverses, and followed for this purpose for another 1.8 km. The river in this section continues to narrow down, and runs through intermittent rapids which make constant portages necessary; trees fallen across the river are also common in this area and further impede navigation. The river was not explored further to the east; maps and satellite images suggest it eventually opens into a swampier section, where the river is small but presumably simpler to navigate. The Whitefish River links up with Blondin Lake ~10 km south of the Work Area.

Land Status

The Whitefish River Property comprises 8 multi-cell mining claims totalling 2,265 hectares. All claims are contiguous and are 100% owned by the author. Claims are summarized in Table 1. All of the work described in this report was performed on crown land prior to staking.

Table 1 – Claims comprising the Costello Lake Property

Claim No	Township	No. of Cells	Area (ha)	Issue Date	Due Date	Amount Due ($)
729042	Upper Goose Lake Area	13	260.6	2021-11-09	2023-11-09	5200
729036	Upper Goose Lake Area	19	380.7	2021-11-09	2023-11-09	7600
729037	Upper Goose Lake Area	17	340.6	2021-11-09	2023-11-09	6800
729038	Upper Goose Lake Area	22	440.9	2021-11-09	2023-11-09	8800
729040	Upper Goose Lake Area	10	200.4	2021-11-09	2023-11-09	4000
729039	Upper Goose Lake Area	8	160.3	2021-11-09	2023-11-09	3200
729041	Upper Goose Lake Area	10	200.4	2021-11-09	2023-11-09	4000
729043	Brownstone Lake Area, Wavell Lake Area, Upper Goose Lake Area, BMA 516 922	14	280.7	2021-11-09	2023-11-09	5600

History

The early history of the Whitefish River Area is undocumented. The first mapping in the region was not until 1932, with a map by the ODM (Furse 1932) which covered the area of recent Au discoveries in the north part of the Birch-Uchi belt, around Birch and Shabumeni Lakes; mapping didn't extend far enough

north to cover the Whitefish Lake Area. The 2021 prospecting program discovered old pits in iron formation east of Coathup Lake which likely date to this period, but no mapping or record of work exists for the Area until a regional compilation map produced by Ayres et al. in 1972, which included the north spur of the Birch Lake Belt at a very low resolution (scale of 1:126,720). In the mid 1970s, Selco Mining staked some claims along this newly-mapped north spur, including claims ~4 km east of Coathup Lake. No mapping was performed but ground geophysics (mag & EM) indicated a weak anomaly on the geophysical grid; a single follow-up hole intercepted a thin (~20 cm) horizon of massive pyrrhotite with minor associated chalcopyrite hosted in mafic tuff. No further follow-up work was performed. In 1988 Tanqueray staked several blocks north of the Birch-Uchi belt, and once again performed geophysics without accompanying mapping. This airborne mag & VLF-EM survey straddled Coathup Lake; 4 bedrock conductive zones were identified, but no follow-up work was performed.

In 1991, the area just south of the Whitefish River Area was mapped at a 1:15,840 scale by Beakhouse; and in 1992, the Whitefish River Area was mapped at 1:50,000 scale by Stone, the highest-resolution mapping to date of this area. This phase of mapping was accompanied by airborne magnetic & electromagnetic surveys covering almost the entire Birch-Uchi belt, including the Whitefish River Area (Gupta 1991). A regional-scale compilation was completed by Stone in 1998, synthesizing the various pre-existing work programs at a subprovince scale. The area has seen no further work since the early 90s, apart from the release of low-resolution satellite images in 2002.

The entire work history for the belt is summarized in Table 2.

2021 Exploration Program

The 2021 prospecting program at Whitefish River took place from September 10th to October 1st of 2022; all work took place entirely on crown land and is summarized in Table 3. Work consisted of grassroots prospecting and grab sampling along traverses looping off from the Berens and Whitefish Rivers. A minor amount of riverbank prospecting was undertaken, but in most instances the rivers either run through unfavourable lithologies (mostly, the batholith surrounding the greenstone belt): or else have swampy banks unsuitable for prospecting; therefore most prospecting occurred on traverses. Sample and outcrop locations were recorded in a field notebook, and geolocated with a handheld Garmin GPSmap 76Cx GPS. Samples were collected using a GeoTool, and a chisel where necessary. Grab samples were described in the field notebook, then placed with a sample tag in clear poly sample bags, and secured with a zip tie. Sample locations were marked with flagging tape. Samples were packed out along the portage rouge with the rest of the gear, and submitted to Activation Laboratories Ltd. ('Actlabs') in Thunder Bay, Ontario for Au analysis by fire assay with atomic absorption finish, and multi-element (ultratrace) analysis by aqua regia digest, with an ICP-MS finish. Selected sample results are presented in Table 3; full results for all Whitefish River Area sampling can be found in Appendix 3 of this report, while the assay certificate is in Appendix 4. Mapping and grab sample stations are shown in Figure 3; while Appendix 5 contains high-resolution maps for all Whitefish River grab samples and prospecting stations.

Table 2 – Work History of the Costello Lake Area

Area	Reference/ AFRI Number	Year	Work Type	Company	Author	Description
Whitefish River Area	N/A	1920s-1940s?	Prospecting, Pitting	(Unknown Prospector)	N/A	Overgrown pits discovered on a sulphidic BIF east of Whitefish River. No documents are known which relate to this work; it is assumed to date from the time of early activity within the Birch Lake belt (late 1920s to 1940s)
Regional	ARM42D	1932	Geological Mapping	ODM	Furse, G.D.	Regional map of the Shabumeni-Birch Lake Area at a scale of 1:63,360, covering the NW flank of the Birch-Uchi belt. This mapping does not include the north arm of the Birch-Uchi belt (i.e. the Whitefish River Area); the north extremity of the map ends at approximately the south margin of the Work Area. The map is accompanied by a report in ODM Vol. XLII, Part 6
Regional	P0771, M2262	1972	Geological Compilation	OGS	Ayres, L.D et al	Geological compilation covering the Sampson Lake - Shearstone Lake Sheet; scale of 1:126,720. Includes the Whitefish River Area. This map was then colourized and included in an even bigger compilation (m2262), the Favourable Lake - Berens Lake map, with a scale of 1:253,440
Whitefish Property	52N09SE0015	1976	Geophysics	Selco Mining	Thorsen, K.	Ground magnetometer and HLEM surveys at a 1:2400 scale. A weak conductive zone with good ratios was discovered between lines 12N and 16N, corresponding with a magnetic low. One hole was recommended to test this conductive zone
Whitefish Property	52N09SW9977	1977	Drilling	Selco Mining	Hutton, D.A.	A single 60 m drillhole ~4 km east of Coathup Lake, testing a geophysical conductor. Massive sulphides were intercepted from 45.9 m - 46.1 m depth; sulphides consisted of 65% fine pyrrhotite, 30% smokey quartz fragments and trace fine chalcopyrite; the sulphides area hosted in finely banded mafic volcanic tuff, and associated with a biotite alteration zone in close proximity to the batholith margin. No assays or follow-up drilling are recorded
Whitefish River Area (south part only)	52N10SE8223	1977	Geophysics	Selco Mining	Thorsen, K.	An exploration program including line-cutting and ground electromagnetic and magnetic surveys on two claim blocks ~4 km NW of Blondin Lake, in the very southernmost extremity of the Work Area. The program was successful in defining several weak to strong conductive zones. mostly associated with magnetic anomalies and assumed to be related to iron formation. Follow-up drilling was recommended but no record of further work exists
Whitefish Property	52N10NE9978	1988	Geophysics	Tanqueray Resources	Henriksen, G.N.	Airborne magnetic and VLF-EM surveys across several properties, including claim blocks held by Tanqueray both east and west of Coathup Lake. Surveys were of moderate resolution (1:15,840). 6 conductive zones were identified within the Coathup Lake property; 4 of these were interpreted to represent bedrock conductors. Further work was recommended including geological mapping and ground geophysics (combined vertical gradient/total field magnetic survey) followed by diamond drilling to test anomalies and geological targets. No record of further work exists
Whitefish River Area (south part only)	OFM0176, P3245	1991	Geological Mapping	OGS	Beakhouse, G.P.	Geology of the Cassumit Lake Area; includes mapping at a scale of 1:15,840 in the Blondin Lake Area, and north up to the southern extremity of the Whitefish River Area. Mapping later incorporated into P3245
Regional	GDS1025	1991	Geophysics	OGS	Gupta, V.K.	Airborne Magnetic & Electromagnetic Surveys, covers the Birch-Uchi belt including the Whitefish River Area
Regional	P3282	1992	Geological Mapping	OGS	Stone, D.	Mapping of the "Mamakwash Lake Area" at 1:50,000 scale; the map includes much of the NW tip of the Birch-Uchi Lake, including all of the of the Whitefish River Area. To date this is the highest-resolution mapping of the Area.
Regional	P3383, OFR5963	1998	Geological Compilation	OGS	Stone, D.	Precambrian Geology of the Berens River Area, Northwest Ontario. Massive compilation covering the Berens River subprovince as well as sections of the Uchi Belt subprovince. Accompanied by report OFR5963 which provides an overview of this section of the subprovinces
Regional	P3497	2002	Remote Sensing	OGS	Singhroy, V.H. et al	Satellite Image Map for the Trout Lake Area northeast; includes the Whitefish River Area

Program Observations

Examples of Whitefish River Area lithologies are shown in Figures 4 & 5. The Birch-Uchi Belt in the Area consists predominantly of ~unaltered mafic flows, especially coarse pillowed lavas. The Belt is bounded by batholith phases; to the west, the rocks are typically granitic in composition, sometimes with coarse phenocrysts of kspar averaging ~2 cm across. To the east are fine- to medium-grained, lightly foliated pink granites, generally lacking in phenocrysts, but often containing angular xenoliths of metasediments (e.g. Figure 4F). Within the greenstone belt, lithologies and textures are highly variable, including a mix of fine- to coarse-grained clastic sediments (Figure 4C), chemical sediments (Figure 5A), mafic to intermediate volcanics (Figure 4A & 4B), and mafic, intermediate & felsic intrusions of various ages (Figures 4D, 5C & 5E). Lithologies tend to be strongly flattened along the "arm" or the belt, with evidence for isoclinal folding parallel to the arm (Figure 6); while stretching lineations dominate in the NW tip of the belt (Figure 5B). Remarkable steep-plunging stretching ratios, possibly as great as 30:1, were measured NW of Coathup Lake.

The following description is focused on the area of maximum economic interest, peripheral to Coathup Lake.

The area directly northeast of Coathup lake is marked by a profound break in stratigraphy, separating two markedly dissimilar lithological packages. To the south is an assemblage dominated by a relatively monotonous sequence of coarse pillowed flows (Figure 4A), cut by a variety of intrusives including gabbros, diorites, tonalites & granites. The pillowed flows seem continuous with mafic flows observed all along the north arm of the Birch-Uchi greenstone belt; however, in the vicinity of Coathup Lake, the pillowed flows become intensely altered with an assemblage of epidote, orange garnet (grossular?), calcite & quartz (Figures 4A & 5D), giving the rock almost a 'skarn-like' appearance. Alteration is heavily concentrated into pillow selvage and breccias. This alteration is not present (or at least much more poorly developed) to the south, and seems to represent a feature local to the area southeast of Coathup Lake. Another interesting feature of this area is the presence of an unusual intermediate 'variolitic' flow, characterized by fine to coarse spheroids and crystals of feldspar up to ~20 cm (!) across in a dark green, biotite-rich groundmass (Figure 4B); more typically these varioles range from 0.5 – 3 cm in diamter. Smaller 'varioles' are frequently rectangular, with a conspicuously crystalline appearance; while larger varioles are typically more spherical, but with angular faces suggesting some degree of crystallization. This unit has good potential as a marker horizon.

To the north of Coathup Lake is a very different lithological package (henceforth the "Whitefish Assemblage"); this package is shown as clastic sediments in mapping by Ayres (1972), but as mafic metavolcanics in mapping by Stone & Crawford (1991). In fact, the package consists of interbedded mafic tuff and clastic metasediments, with wacke predominating among the metaseds, but also with occasional conglomerate horizons (Figure 4C). Both units are commonly intruded by early fine-grained tonalites (Figure 4D); the early timing is confirmed by intense folding of the unit, giving it a much more deformed appearance compared to later cross-cutting granitic dikes. These relationships are nicely summarized in a sketch of Station 481 (Figure 9). A second Whitefish Assemblage sketch (from Station 615: Figure 10) shows confusing relationships at the folded contact between a wacke and a conglomerate. Hosted within the wacke unit are several irregular units of quartz with a smokey appearance, which may represent chert horizons; however, in at least one instance such a "chert" horizon was observed to contact potassic feldspar grains, suggesting an intrusive affinity. To the south of the wacke and overlaying it is a ~1.4 m thick unit of conglomerate; the dominant clast composition of the conglomerate is smokey quartz with a

near-identical appearance to the “chert” layers, suggesting that the conglomerate is locally derived. The conglomerate also contains some clasts of tonalite. Taken together, these features may indicate that the tonalite is ~syn-sedimentary, and intruded into a partially lithified sedimentary basin; if so this could have implications for mineralization. More observation is needed to clarify these relations.

Table 3 – Daily log of 2021 prospecting activities in the Costello Lake Area*

Date	Activity	Field Work (Days)
10-Sep-21	Mob equipment. Drive from Thunder Bay to Shabumeni Lake Area; camped at the end of Joyce Road	1
11-Sep-21	Trekked from the end of Joyce Road up to the portage to Berens River; set up camp on the east side of the Portage	1
12-Sep-21	Trekked up the Berens River; set up camp on Good Site Lake	1
13-Sep-21	Traverse 1 - within the greenstone belt east of Good Site Lake	1
14-Sep-21	Traverse 2 - within the greenstone belt south of Good Site Lake	1
15-Sep-21	Traverse 3 - within the greenstone belt, NE of Good Site Lake and SW of Coathup Lake	1
16-Sep-21	Packed up camp; trekked down the Berens River to the junction, then up Whitefish River to the first rapids; made camp at the base of the rapids	1
17-Sep-21	Traverse 4 - traverse mostly within the granites east from the junction of the Whitefish & Berens rivers. Investigating fertile granites mapped north of the Birch Lake spur; no success in finding fertile granites, area mainly mapped as gneiss. Cut the portage above the first set of rapids	1
18-Sep-21	Move camp above the Whitefish River rapids; and prospected within the greenstone belt north of the river (Traverse 5)	1
19-Sep-21	Traverse 6: within the greenstone south from the camp above the Whitefish River rapids. Discovered some weak mineralization (silicification; pyrite & pyrrhotite up to 5%; weak shearing) just south of the river which is reminiscent of Red Lake in appearance	1
20-Sep-21	Traverse 7. Prospecting within mixed granites/seds/volcanics just northeast of the Birch-Uchi belt	1
21-Sep-21	Traverse 8: traverse south from Whitefish river into the northern part of the greenstone belt	1
22-Sep-21	Traverse 9: short traverse north from the Whitefish Rapids Camp; then packed up camp and moved to the East Whitefish Camp	1
23-Sep-21	Traverse 10: traverse within the greenstone belt west from the Whitefish River. Discovery of the 'garnet-biotite-anthophyllite' alteration footprint	1
24-Sep-21	Traverse 11: traverse southwest from Whitefish River into the section of greenstone belt southeast of Coathup Lake.	1
25-Sep-21	Traverse 12: follow-up traverse in the alteration footprint area, and the area north of Coathup Lake	1
26-Sep-21	Traverse 13: 2nd follow-up traverse on the alteration footprint area	1
27-Sep-21	Traverse 14: final day of traversing. Minor 3rd day of follow-up on the alteration footprint; then a second phase of traversing south along the Whitefish River, into the area just east of the greenstone belt	1
28-Sep-21	Trekking out day 1: Whitefish East camp to a temporary camp on the Berens River	1
29-Sep-21	Trekking out day 2: Berens River temporary camp, to a second temporary camp at the top of the Berens River	1
30-Sep-21	Trekking out day 3: 2nd Berens River camp to the truck parking spot on Joyce Road; set up camp next to the truck	1
01-Oct-21	Drive from Shabumeni Lake to Thunder Bay; demob equipment	1

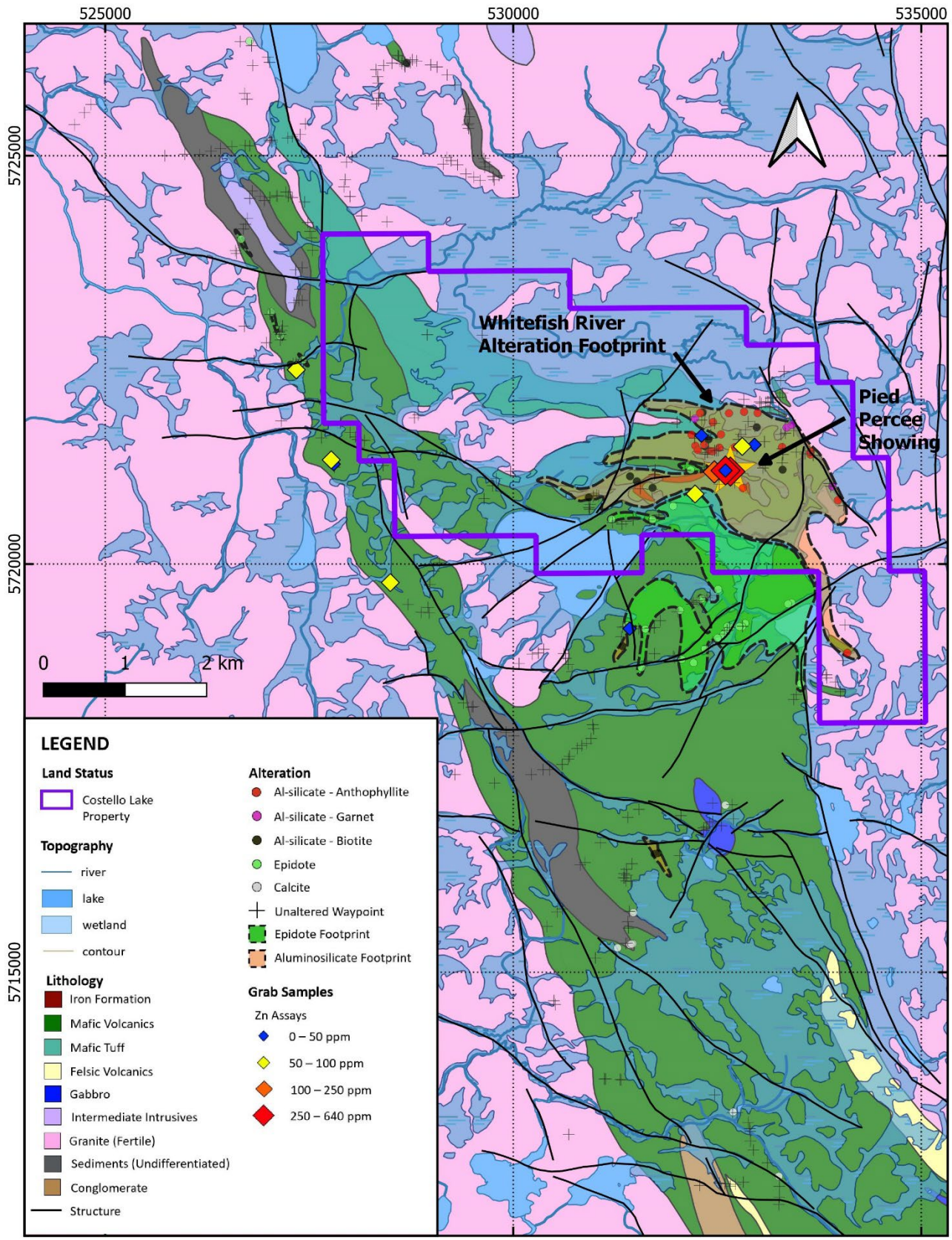


Figure 2 – 2021 mapping and grab sampling program in the Whitefish River Area

Table 4 – Significant 2021 samples from the Whitefish River Area

ID	Easting	Northing	Area	Description	Au*	Ag	Cu	Pb	Zn
169103	532307	5721572	Whitefish East	Composite sample from across the 6 m BIF horizon. Minor pyrrhotite?	0.128	0.1	46.8	16.1	13
169104	531427	5719209	Whitefish East	Sample of deep gossan from the thickest part of the gossan horizon; no fresh sulphides	0.005	0.4	272	3.1	41
169105	532229	5720858	Whitefish East	Sample of ~massive, thinly banded pyrite	0.025	0.9	208	2.1	58
169106	532662	5721133	Whitefish East (Pied Percee)	Banded sample of chert and a heavy, non-magnetic, very fine grained "matte black" phase, gossanous coating; sample Is ~70% black phase	0.011	0.6	150	89.8	640
169107	532465	5721128	Whitefish East (Pied Percee)	Thin-bedded, highly-gossanous fragment with sulphides obviously rotting out; but no pyrite? ~80% black quartz/chert	0.007	0.3	126	31.1	141
169109	532601	5721145	Whitefish East (Pied Percee)	Sample of ~100% heavy, matte black, very fine-grained phase	0.007	0.2	49.8	45.5	269

*All assays in ppm

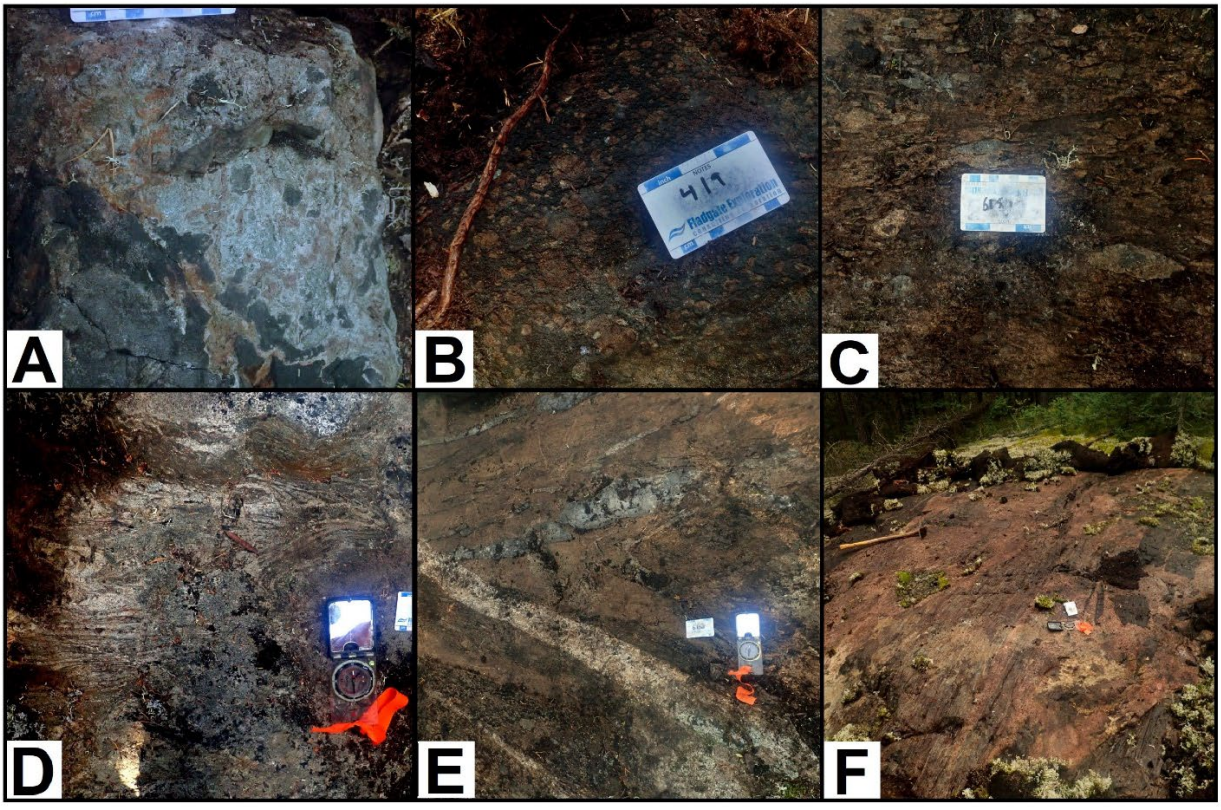


Figure 4– Whitefish River Area lithologies. A. Pillow basalt south of Coathup Lake; note the heavy garnet-epidote alteration. B. Variolitic flow from southeast of Couthup Lake. C. Polymict conglomerate from northeast of Coathup Lake; the clast left of the scale card appears to be tonalitic, and may originate from synvolcanic flows? D. Intermixed and co-folded tonalite & wacke northeast of Coathup Lake. E. Narrow greyish chert beds overlying a a folded conglomerate and cut by late, fertile granitic dikes. F. Blocky stoping of metasediments into granitic batholith east of the Birch-Uchi belt

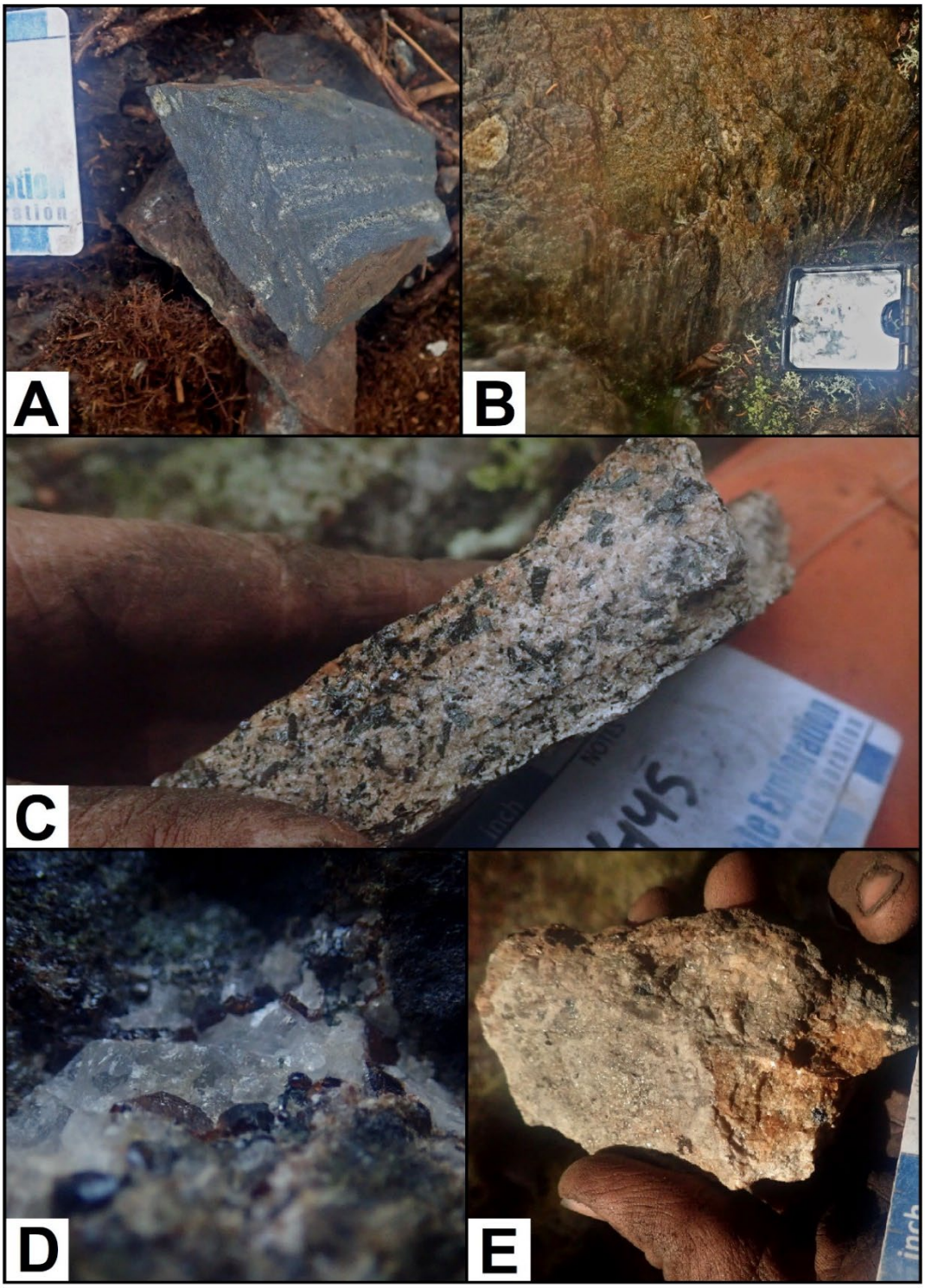


Figure 5 – Grab samples of Whitefish River lithologies. A. Magnetite-rich BIF with minor grunerite bands. B. Intensely lineated conglomerate (~10:1 stretching ratio?). C. Unusual diorite from south of Coathup Lake. D. Garnet/epidote alteration in the selvage of a pillowed flow. E. Molybdenite grains in a fertile muscovite pegmatite, northeast of Coathup Lake.

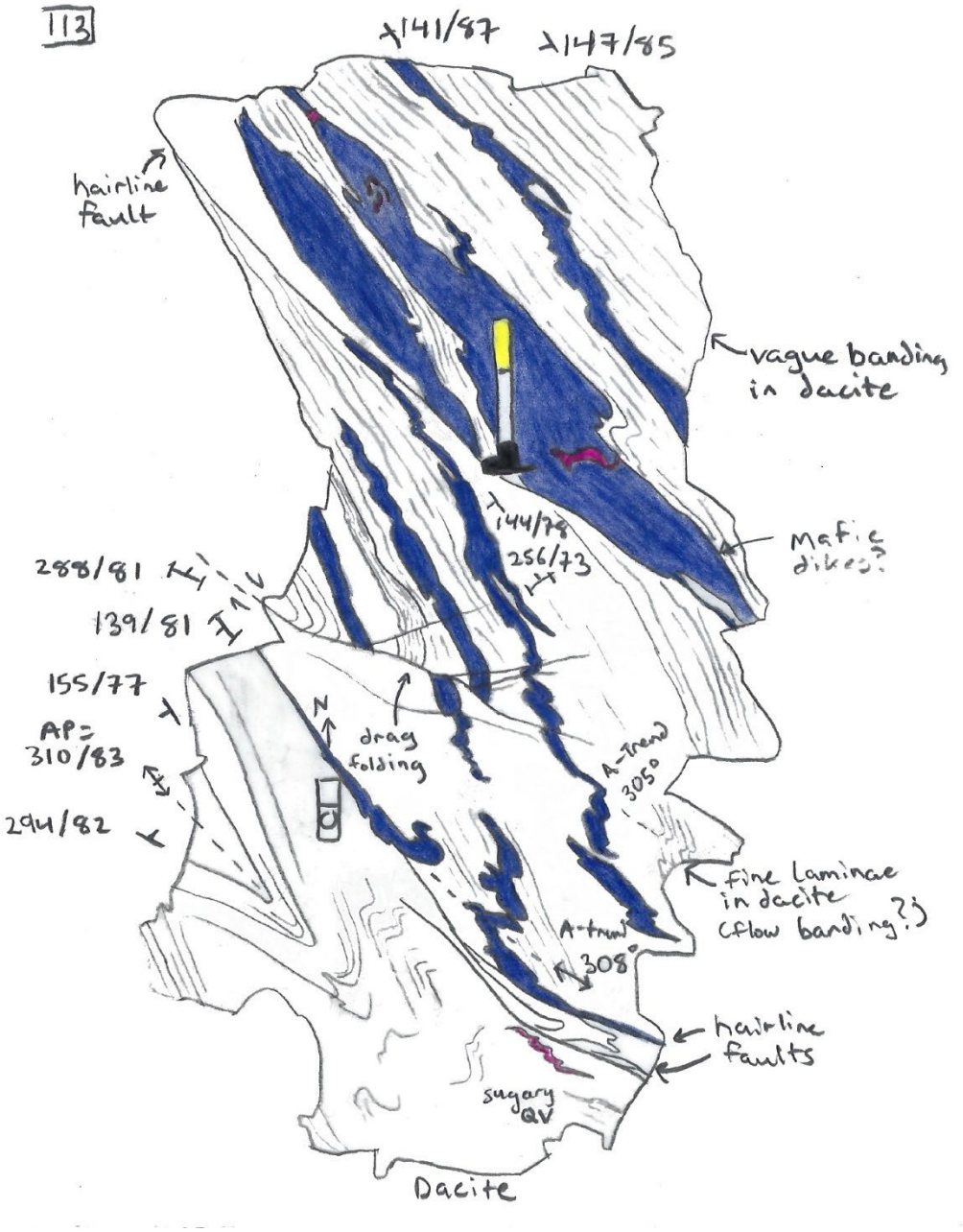


Figure 6: Sketch of a hand-stripped area at prospecting station 113 (southwest of Coathup Lake, in the 'arm' of the greenstone belt). Note the tight folding mapped within the dacite unit.

Aside from the mafic tuff, the clastic sediments and the tonalite, the other major rocktype abundant within the Whitefish Assemblage is chemical sediments (Figure 5A; Figures 7C & 8D). A variety of different styles have been recognized, including rusty chert-rich BIFs with minor magnetite; massive magnetite horizons at least 8 m thick with minor bands of grunerite (Figure 5A); small massive pyrite lenses (Figure 8D); and composite formations with multiple forms of Fe-mineralization. The thickest BIF discovered to date has been named the "Pied Percée" Showing, and consists of a horizon at least 15 m wide of rusty

interbedded chert and magnetite, with lesser horizons of actinolite/grunerite and minor seams of fine-grained pyrite (~2% overall). This horizon has been traced for at least 1.2 km with an ~E-W strike. At the "Showing", the BIF has been tested by a series of shallow pits over a strike length of ~130 m; these prospector pits are suspected to date back to the 1930s. The abundance of chemical sediments throughout the Whitefish Assemblage indicates a hiatus period of slow sedimentation, potentially attractive seafloor conditions for the formation of a massive sulphide deposit.

Apart from lithological differences, the alteration within the Whitefish Assemblage is also radically different than alteration elsewhere in the Birch Uchi Belt. Alteration is strongest within the mafic tuffs, and consists of an aluminosilicate alteration package including biotite, garnets, minor pyrite, and a fibrous white- to yellow/green/brown mineral in crystals up to ~2 inches in length, tentatively identified as anthophyllite (Figures 7E, 7F, 8A & 8B). Sediments also show biotite and garnet alteration; the sediments appear to be less reactive, and alteration is typically less noticeable in the seds. To date, the alteration footprint within the Whitefish Assemblage has been traced over a footprint of ~2 x 0.5 km (Figure 2). Alteration is variable within this footprint but intense over large areas. Intensity of alteration does not seem to be related to any of the intrusive phases, and is strongest in areas more central to the belt, especially in an area ~1.6 km northeast of Coathup Lake; this makes it unlikely that the alteration footprint could be related to amphibolite-facies alteration associated with the nearby batholith.

One unit of potential importance is an intermediate pyroclastic discovered as a sub-rounded boulder ~570 m southeast of Coathup Lake (Figures 7D, 8C). The groundmass of this pyroclastic is intensely biotitized and contains minor chalcopyrite. The alteration style suggests that the boulder has been glacially transported south from the Whitefish Assemblage, however such a unit has not yet been discovered in outcrop.

Late intrusives including gabbro, diorite and late granitic dikes affect stratigraphy both north & south of Coathup Lake. Of minor economic interest are narrow, muscovite-bearing late pegmatites cross-cutting other units (Figure 5E; sketch in Figure 9). These have the appearance of fertile peraluminous pegmatites, with potential for lithium and other rare metals. The discovery of minor molybdenite in some of these dikes reinforces their potential. Unfortunately the parent intrusion has not been identified; and fertile pegmatites discovered to date are small (max ~1 m across), sparsely distributed, and relatively unevolved beyond lithian muscovite and molybdenite mineralization. While the Whitefish River Area likely has little rare metal potential, these pegmatites may belong to an unidentified swarm, and effort may be warranted in tracing them back to their source.

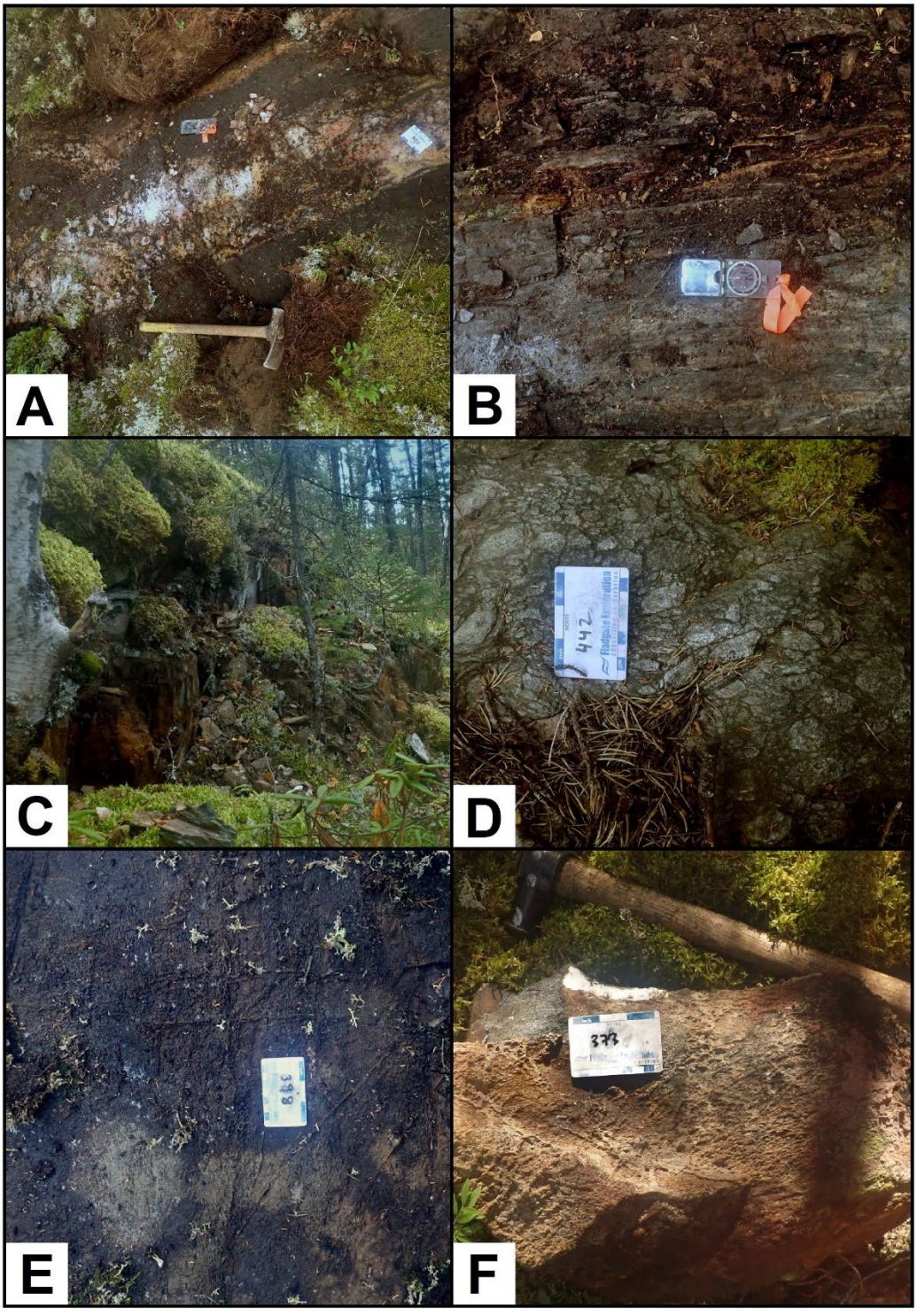


Figure 7: Mineralization in the Whitefish River Area. A. Barren rusty quartz vein exposed east of Good Site Lake. B. Pyrite horizon in pillowed flows, SE of Coathup Lake. C. The 'Pied Percee' sulhpide-BIF horizon. D. Boulder of intensely biotite-altered felsic pyroclastic flow, mineralized with minor chalcopyrite (boulder discovered southeast of Coathup Lake). E. 'Warty' surface of an intensely altered mafic tuff (garnet & anthophyllite alteration, NE of Coathup Lake). F. Another example of intense alteration NE of Coathup Lake

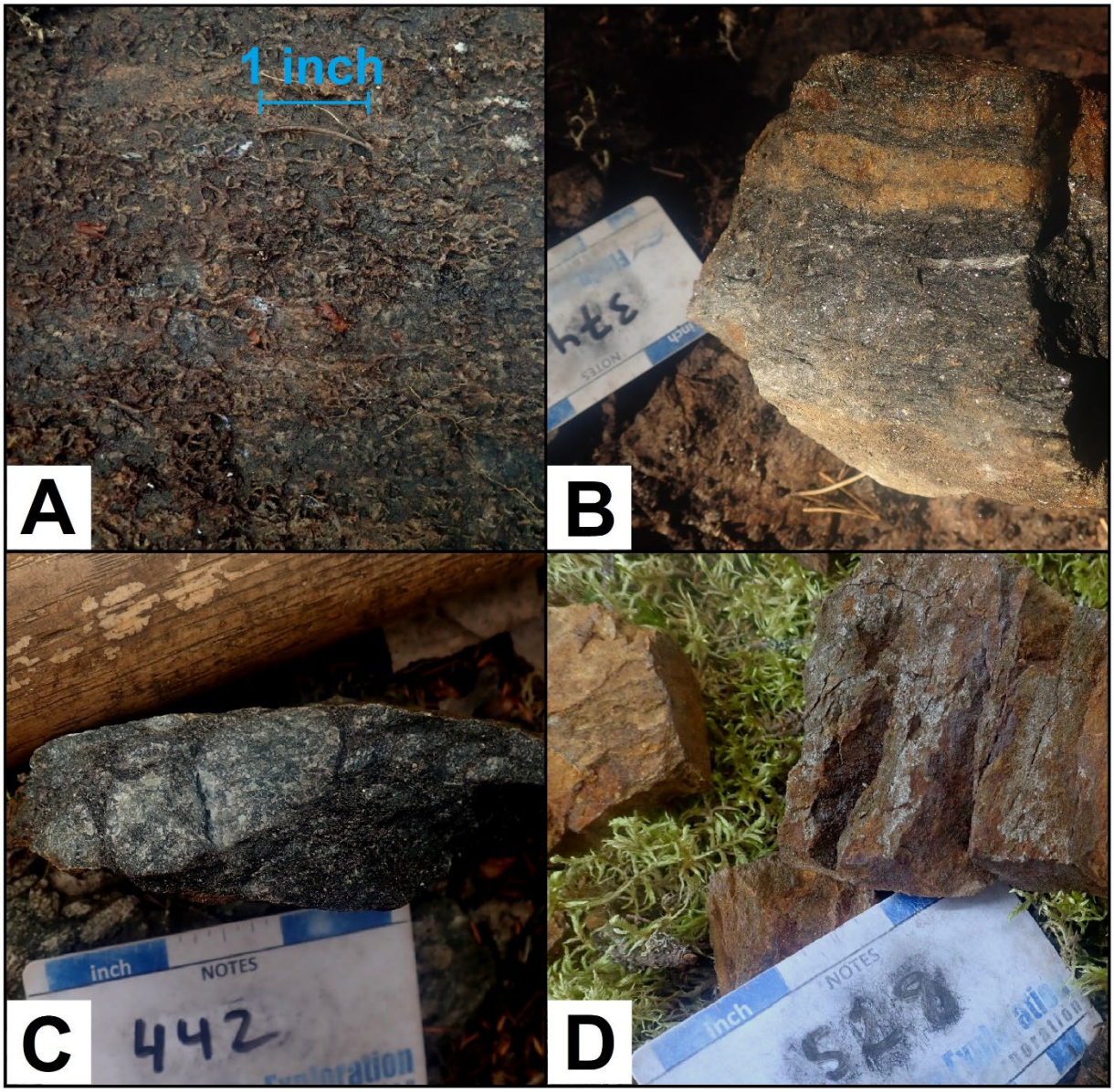


Figure 8: Closeups of mineralization from the Whitefish River Area. A. Anthophyllite crystals weathering in relief in an intensely anthophyllite/biotite altered mafic tuff, NE of Coathup Lake. B. Hand specimen of a similar, intensely altered specimen; note the black biotite groundmass and coarse (whitish) anthophyllite needles to >1 inch in length. C. Hand sample of the pyroclastic boulder; the groundmass is intensely biotitized and contains minor chalcopyrite. D. Massive pyrite hosted in mafic tuff, east of Coathup Lake.

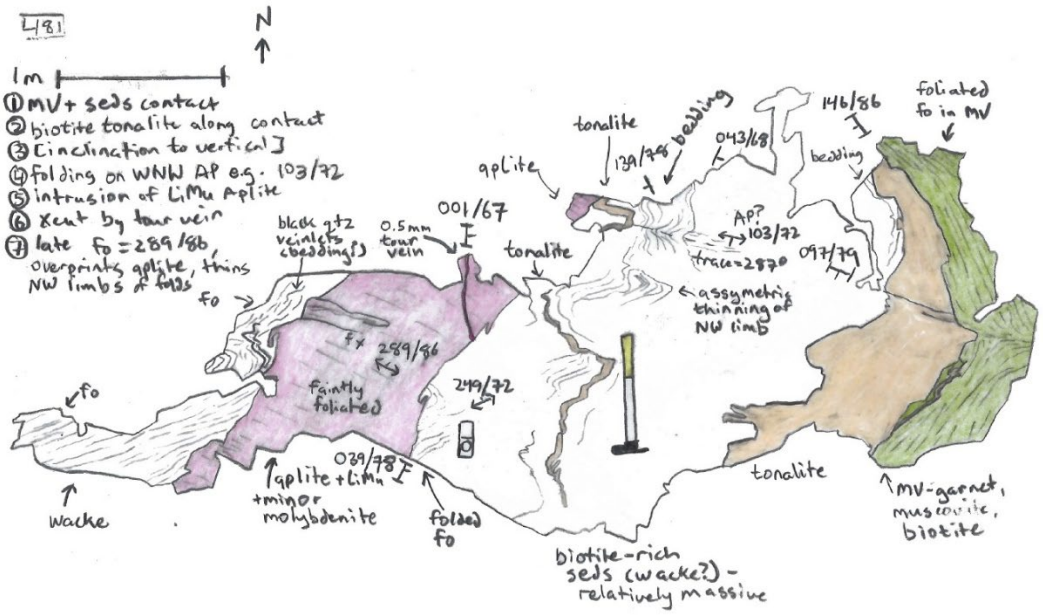


Figure 9: Sketch of Station 481, showing the major lithologies within the stratigraphic package northeast of Coathup Lake

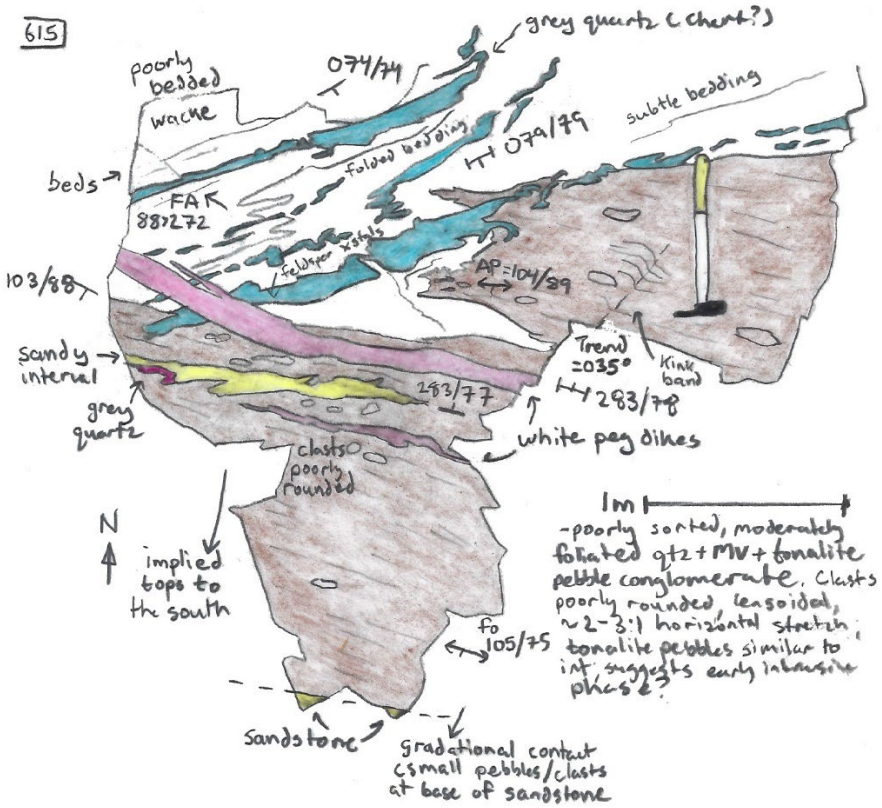


Figure 10: Sketch of Station 615, showing the folded contact between wacke and conglomerate within the stratigraphic package northeast of Coathup Lake. Grey quartz within the 'chert' bands is extremely similar in appearance to grey quartz pebbles within the conglomerate

Program Results

While the prospecting program was successful in identifying and delineating a major new VMS-type alteration footprint, direct prospecting results were very modest. The most significant "showing" to date is the Pied Percée BIF, which is a minimum of 15 m wide and internally variable, consisting of bands of chert, actinolite, magnetite and pyrite. Some samples from the BIF (Table 4) are highly anomalous in Zinc, up to 0.064% Zn in sample 169106 and 0.027% Zn in 169109. While far from economic, these grades do indicate that zinc was concentrating within the seafloor hydrothermal system. Cu is also anomalous in several samples, mostly associated with pyrite mineralization. The highest Cu assay to date (0.027% Cu in sample 169104) is actually from a gossanous/pyritic structure cutting pillowed volcanics just southeast of Coathup Lake; this relation is suggestive of the typical VMS metal zonation, with Cu-rich footwall stringers and Zn-rich seafloor mineralization. Au is highly anomalous in one rusty BIF sample ~500 m north of Pied Percée (0.128 g/t Au in sample 169103), supporting the potential for a Au-rich VMS system. Silver & lead values returned to date have been very low. Chalcopyrite mineralization (<1%) within altered felsic pyroclastics was not sampled since the unit was only seen in boulders.

Other sampling returned low values. This includes fairly attractive sugary quartz veins with abundant rust spots up to ~1 m across discovered east of Good Site Lake; these returned Au below detection. Samples of fine sulphides (up to 2%) associated with silicification and minor biotite/chlorite mineralization discovered near the junction of the Berens and Whitefish Rivers were also considered prospective, and reminded the author somewhat of mineralization at the Cochenour Mine in Red lake (albeit much weaker and with no associated Fe-carbonate or arsenopyrite); these samples also returned very low Au values, up to a maximum of 0.012 g/t Au.

Conclusions & Recommendations for Future Work

Orogenic Au

The initial impetus for exploration in the Whitefish River Area was the hope that deep-seated structures responsible for Au mineralization in the north part of the Birch-Uchi Belt (Argosy Mine, Kostynuk Brothers Mine, etc.) might continue along the north arm of the belt, and that Au might be trapped along folded stratigraphy in the vicinity of Coathup Lake. Exploration failed to uncover any robust Orogenic Au mineralizing system; Fe-carbonate is almost completely absent along the section of the arm explored, and veining, sulphides and silicification are relatively rare. A small number of somewhat prospective outcrops were uncovered, containing rusty quartz veining or sulphides associated with silicification; however assays were very low, to a maximum of 0.012 g/t Au. The failure to find any showings or anomalous orogenic-style gold, and especially the lack of an orogenic alteration system, suggests very limited Orogenic Au potential for the Whitefish River Area.

Cu-Zn-(Au) VMS

Based on 2021 prospecting, the author is far more optimistic about the base metal potential of the Whitefish River Area. Several factors which point towards significant VMS potential:

- A major alteration footprint, at least 2 x 0.5 km in outcrop, within a mixed package of mafic tuff and clastic metasediments. Alteration is locally intense and characteristic of proximal VMS

alteration, including intense biotite alteration, coarse anthophyllite crystals, garnets, and disseminated pyrite. This alteration style is localized northeast of Coathup Lake and is completely absent in other parts of the belt

- Lithological characteristics of the Whitefish Assemblage. This includes an abundance of chemical sediments (cherts, magnetite BIFs, composite BIFs, massive pyrite lenses) indicating a hydrothermally active seafloor and slow sedimentation rates, appropriate conditions for VMS formation. The assemblage also hosts an odd conglomerate consisting largely of quartz (chert?) clasts which may be very local, suggesting an active tectonic environment
- Occurrence of an intensely altered felsic pyroclastic unit with minor chalcopyrite; alteration style suggests that this unit is local to the Whitefish Assemblage, although it has not yet been discovered in outcrop
- Massive sulphides discovered to date; including a poorly exposed massive pyrite lens at least 10 cm thick hosted in the Whitefish River Assemblage (Figure 8D); and massive pyrrhotite with minor chalcopyrite intercepted by Selco on the southeast margin of the Whitefish River Assemblage (Hutton 1977)
- Two untested bedrock conductive zones on the Whitefish River Property northeast of Coathup Lake, identified by Tanqueray Resources (Henriksen 1988). These untested conductive zones sit under swamp cover near the contact between the pillowed and tuffaceous; the No. 4 conductive zone has a strike length of 1.1 km
- Intense epidote-garnet-calcite-quartz alteration of the pillowed volcanics south of Coathup Lake; tentatively this alteration may be associated with hydrothermal circulation and leaching of metals in the footwall stratigraphy of the Whitefish Assemblage
- Anomalous grab sample results from several chemical sediments, including Cu assay up to 0.027% in small pyrite-rich zones; Au values up to 0.128 g/t Au in rusty BIF; and Zn assays up to 0.064% from the 15 m thick Pied Percée BIF horizon. Pied Percée is also associated with elevated Mn values (up to 0.23% Mn)
- Tentatively, syn-volcanic tonalite intruding the Whitefish Assemblage (more observation is needed to establish the precise timing of the early tonalite)
- A very early stage of exploration and extensive swamp cover
- Property is hosted by the Birch-Uchi greenstone belt, a significant VMS province including the South Bay Mine

A follow-up program of detailed mapping is recommended, with a focus on defining the Whitefish Assemblage stratigraphy; finding outcrop of the pyroclastic felsic volcanics; understanding the complicated structural history of the Whitefish River Area (including polyphase folding); and properly delineating the aluminosilicate alteration footprint northeast of Coathup Lake, including alteration extents and contours of mineral assemblage & intensity. High-resolution geophysics (magnetics & EM) will likely be the best method for direct detection. The existing VLF-EM survey (Henriksen 1988) did define anomalies but better resolution will be needed, particularly given that massive sulphides are likely to be highly transposed into the lineation direction. Survey design should account for the possibility that high-grade mineralization may be primarily concentrated into steeply-plunging pipes. A parallel program of intensive prospecting and b-horizon soils could also be worthwhile to supplement mapping & geophysics.

Rare-Metal Pegmatites

A number of rare-metal-affinity pegmatites were discovered incidentally while working in the Whitefish River Area. Unfortunately these pegmatites are very small (maximum of 1 m), sparsely distributed, and

not sufficiently evolved to be of economic interest; therefore the Whitefish River Area is not considered to hold rare-metal potential. The pegmatites do seem to belong to an as yet unidentified fertile peraluminous pegmatite swarm, and it is possible that this swarm may intensify and have real economic potential, probably somewhere north of the Whitefish River Property. Stone & Crawford (1992) mapped two-mica granite north of the Property in an area just west of Mattin Lake; this outcrop could not be located during the current survey but may be part of the same fertile swarm. Further crown land prospecting may be warranted to find the source of these pegmatites, and potentially vector towards more significant molybdenum and rare-metal mineralization.

References

Ayres, L.D., Raudsepp, M., Averill, S.A., and Edwards G.R., 1972, Favourable Lake – Berens Lake, Geological Compilation Series, Kenora District; Ontario Division of Mines, Map M2262, 1:253,440.

Furse, G.D., 1933, Shabumeni-Birch Lakes Area, District of Kenora (Patricia Portion), Ontario, geological map for the Ontario Department of Mines Annual report, 1933, Map ARM42D, 1:63,360.

Gupta, V.K., and Wadge, D.R., 1986, Gravity Study of the Birch, Uchi and Red Lakes area, District of Kenora (Patricia Portion); Ontario Geological Survey, Report 252, 98p.

Hutton, D.A., 1977, Diamond Drill Log for hole 115-2A-1, for Selco Mining Corporation Limited, Brownstone Lake Area, assessment file 52N09SW9977.

Henriksen, G.N., 1988, Report on the Airborne Geophysical Survey on the Property of Tanqueray Resources Ltd., Upper Goose Lake, Wavell Lake and Brownstone lake Area, Ontario, by H. Ferderber Geophysics Ltd., April 1988, assessment file 52N10NE9978, 26p.

Stone, D., & Crawford, J., 1992, Geology of the Birch-Uchi Greenstone Belt, Eastern Mamakwash Lake Area, for Mines and Minerals Division of the Ontario Geological Survey, Precambrian Geology Series, Map P3282, 1:50,000.

Appendix 1 – Expenditures

Item	Units	Unit Cost ($)	Total ($)
Time Prospecting (Days)	22	$350/day	$ 7,700.00
Expenses - Gasoline	1,277	$0.5/km	$ 638.50
Expenses - Food	22	$25/day	$ 550.00
Expenses - Actlabs Assay (Au 50 g Fire Assay Only)	3	$32.2/sample	$ 96.60
Expenses - Actlabs Assay (Au 50 g Fire Assay + Multi-element Aqua Regia with ICP-MS finish)	15	$49.95/sample	$ 749.25
		Total 2021 Expenditures	$ 9,734.35

Appendix 2 – Prospecting Stations

Waypoint	Easting	Northing	Timestamp	Rock Type	Description
WR_0006	530039	5714055	13-SEP-21 10:47:43AM	Overburden	Sand/clay blocks of the river, this is a high spot; jackpine dominated; no outcrop
WR_0007	530451	5714486	13-SEP-21 11:10:25AM	Overburden	Here, wet spruce swamp, no outcrop to date
WR_0008	530908	5715072	13-SEP-21 11:44:13AM	Overburden	Small alder stream runs ~340 degrees; still no outcrop. This stream with a remarkable number of small bright red-capped suillus growing along its banks and even ON the mossy bases of dead and live alder (maybe not in the wood though?)
WR_0009	531007	5715177	13-SEP-21 11:55:38AM	Massive Intermediate Flow	Subcrop! Fine-grained, probably massive IV, banded or bedded, no alteration; oriented 326/steep
WR_0010	531280	5715300	13-SEP-21 12:22:29PM	Banded Basalt	outcrop ~10 m section across bedding, amphibolite MV, well-banded. Some "sericite" glimmer (=weak) on fine planes in some places, and boudinaged stringers of moderate =vQ-chlorite, up to ~10 cm across; two of them subparallel with band = 166/75 = vein, or a bit discordant = 185/88. Veins sort of attractive, very sugary, green = type on margins (chlorite) reminiscent of Cochenour; but ~no alteration and no sulphides
WR_0011	531380	5715355	13-SEP-21 12:33:05PM	Pillow Breccia - Basalt	MV, knobby appearance, fragmental?
WR_0012	531395	5715356	13-SEP-21 12:34:54PM	Gabbro	Medium-grained gabbro
WR_0013	531433	5715345	13-SEP-21 12:53:35PM	Pillow Basalt	Pillowed flows, dark green, well exposed here, minor amygdules, pillow from ~10 m up to maybe 60 cm across, probable flow contact = 163/79. pCalcite - weak, a few stringers; however on W side of outcrop, a healthy 70 cm shear = weak, hosts quartz-calcite veins, irregular in pods up to 50 cm, minor pyrite, pChlorite = strong veins, sugary, boudinaged & disseminated/irregular 160/82, vQCalcite = strong
WR_0014	531432	5715340	13-SEP-21 1:14:11PM	Veining	20x20x20 cm sugary vein chunk, minor rust & calcite. Source of float definitely fairly local, but could not be located in outcrop
WR_0015	531466	5715351	13-SEP-21 1:34:15PM	Pillow Basalt	Large bland dome of pillow MV, pCalcite = minor
WR_0016	531451	5715347	13-SEP-21 1:38:10PM	Veining	Chunks of bullish quartz vein to 10 cm, in intensely chloritized, crenulated/wallrock vein = strong = vQcalcite, minor malachite/chalcopyrite observed adjacent vein
WR_0017	531412	5715542	13-SEP-21 2:34:15PM	Pillow Basalt	Pillow MV, good exposure, several outcrop knobs
WR_0018	531406	5715621	13-SEP-21 2:47:56PM	Veining	Striking zone, 1.2 - 1.5 m wide, 2 veins with variable width (10 cm to 60 cm); these are sugary milky quartz, occasional green chlorite seams, heavily red/orange strained by sulphides, pyrite = moderate, observed in broken specimens. Veins exposed for ~6 m along strike, pChlorite = moderate, also some odd breccia which looks like granitic (!) pods. Vein zone hosted in massive MV, main zone = 155/70, some subordinate veinlets with dextral apparent offset = 195/65, these seemingly band the thick sections of vein and may control the "shoot" where total vein thickness is ~80 cm
WR_0019	531474	5715732	13-SEP-21 3:11:45PM	Mafic Volcanics (Undifferentiated)	Good MV exposure here, occasional calcite & QV, nothing too interesting exposed
WR_0020	531424	5715747	13-SEP-21 3:15:34PM	Mafic Volcanics (Undifferentiated)	Good low ~E-W cliff exposure here, MV, a few bland QV, otherwise nothing too interesting
WR_0021	531426	5715867	13-SEP-21 3:19:34PM	Overburden	Alder divot ~E-W; no outcrop since 020
WR_0022	531444	5716114	13-SEP-21 3:27:54PM	Mafic Volcanics (Undifferentiated)	Abrupt knob of outcrop; bland MV, well banded. No alteration or carb here, exposure excellent (less moss)
WR_0023	531384	5716120	13-SEP-21 3:31:43PM	Amygdular Basalt	MV; amygdular; very bland
WR_0024	531367	5716155	13-SEP-21 3:33:18PM	Veining	Rusty bullish QV float, veins to 10 cm

Waypoint	Easting	Northing	Timestamp	Rock Type	Description
WR_0025	531352	5716158	13-SEP-21 3:34:56PM	Mafic Volcanics (Undifferentiated)	Sugary vein float to ~30 cm, minor rust, wallrock indicates folding/boudinage
WR_0026	531360	5716210	13-SEP-21 3:38:50PM	Mafic Volcanics (Undifferentiated)	Edge of outcrop, low (bland) MV ridge running ~120 degrees
WR_0027	531393	5716191	13-SEP-21 3:42:30PM	Pyroclastic breccia	Strongly foliation ~139/88, MV with felsic "pods", possibly a pyroclastic MV, strongly flattened; fold around AP = 340/84, also "felsicky" looking joint fills, S-fold here
WR_0028	531387	5716261	13-SEP-21 3:55:04PM	Pyroclastic breccia	some "pyroclastic" outcrop
WR_0029	531456	5716330	13-SEP-21 4:00:30PM	Veining	Here, ~30 cm sugary QV, running ~332 (with banding in MV). Good exposure to here, bland MV
WR_0030	531733	5716451	13-SEP-21 4:10:40PM	Mafic Volcanics (Undifferentiated)	MV, biotite-calcite alteration = moderate
WR_0031	531776	5716461	13-SEP-21 4:12:04PM	Pillow Basalt	MV, biotite-calcite alteration = moderate, porphyritic pillow MV
WR_0032	532039	5716430	13-SEP-21 4:20:37PM	Mafic Volcanics (Undifferentiated)	MV, subcrop & boulders descending into swamp
WR_0033	532166	5716476	13-SEP-21 4:25:18PM	Overburden	Out of swamp; low boulder forest, spruce
WR_0034	532335	5716739	13-SEP-21 4:36:13PM	Gabbro	Subcrop, soft (chloritized?), medium-grain gabbro
WR_0035	532332	5716769	13-SEP-21 4:37:55PM	Mafic Volcanics (Undifferentiated)	Prominent outcrop, bland MV
WR_0036	532370	5716784	13-SEP-21 4:39:52PM	Pillow Basalt	Pillow MV
WR_0037	532408	5716830	13-SEP-21 4:42:31PM	Gabbro	gabbro
WR_0038	532445	5716847	13-SEP-21 4:44:12PM	Gabbro	gabbro
WR_0039	532551	5716796	13-SEP-21 4:47:41PM	Gabbro	Knob of gabbro next to stream, excellent exposure
WR_0040	532700	5716878	13-SEP-21 4:53:59PM	Massive Basalt	Massive MV
WR_0041	532681	5717053	13-SEP-21 4:58:53PM	Mafic Volcanics (Undifferentiated)	Huge massif of bland, ~unaltered low-shear MV. Getting late, going to truck back, minimal notes
WR_0042	532601	5717048	13-SEP-21 5:07:00PM	Pillow Basalt	Great pillow exposure, very good exposure along massif, rock is tough (pQ - weak?); minor calcite veining, rusty selvage (NO ankerite)
WR_0043	532443	5717072	13-SEP-21 5:13:46PM	Gabbro	gabbro
WR_0044	532056	5716918	13-SEP-21 5:22:42PM	Mafic Volcanics (Undifferentiated)	MV end of massif
WR_0045	531542	5716996	13-SEP-21 5:37:23PM	Mafic Volcanics (Undifferentiated)	MV knob after gap
WR_0046	531404	5716898	13-SEP-21 5:43:56PM	Pillow Basalt	Pillow MV, 20 cm QV striking ~332, sugary, a bit rusty
WR_0047	531069	5716586	13-SEP-21 5:55:03PM	Mafic Volcanics (Undifferentiated)	MV; across swamp
WR_0048	530878	5716345	13-SEP-21 6:01:46PM	Porphyry	Narrow packed porphyry dike trending 332/steep, in odd… MV I guess? Or seds?? Rusty, ~pAK = mod, adjacent porphyry dike?
WR_0049	530823	5716316	13-SEP-21 6:07:22PM	Clastic Sediments (Undifferentiated)	tan seds, ~unaltered
WR_0050	530604	5715776	13-SEP-21 6:21:34PM	Banded Basalt	Rusty banded… MV?
WR_0051	530539	5715741	13-SEP-21 6:23:43PM	Dacite	Fine-grained dacite
WR_0052	530416	5715561	13-SEP-21 6:28:10PM	Banded Basalt	thin-bedded MV, amphibolite
WR_0053	530354	5714909	13-SEP-21 6:41:46PM	Overburden	Claim post! 4031404, "GF#4"
WR_0054	530499	5714653	13-SEP-21 6:51:40PM	Porphyritic Granite	Coarse pink granite; contains some QV

Waypoint	Easting	Northing	Timestamp	Rock Type	Description
WR_0055	530515	5714606	13-SEP-21 6:53:05PM	Porphyritic Granite	Ditto; no QV
WR_0056	530686	5713617	14-SEP-21 10:17:03AM	Overburden	Float, jackpine woods, no outcrop
WR_0057	530965	5713663	14-SEP-21 10:21:33AM	Overburden	Thicker moss spruce forest
WR_0058	531002	5713665	14-SEP-21 10:22:35AM	Overburden	Rising ground, mixed/poplar forest starts here
WR_0059	531118	5713695	14-SEP-21 10:25:59AM	Clastic Sediments (Undifferentiated)	Outcrop (or boulder?); looks gneissic, sediments?
WR_0060	531133	5713694	14-SEP-21 10:27:28AM	Intermediate Volcanics (Undifferentiated)	Medium-green rock, with little fragments and wisps of (rhyolite?); probably IV, ~unaltered , banding here trending ~310/steep
WR_0061	531312	5713687	14-SEP-21 10:34:39AM	Massive Intermediate Flow	Very massive/blocky, fine-grained unit, blocky jointing, minor pyrite; my instinct says a fine-grained intermediate intrusive (diorite composition?); weak foliation, subcrop
WR_0062	531329	5713682	14-SEP-21 10:39:59AM	Tuff - Mafic	Nice exposure under rootfall; a thin-banded unit, probably mafic tuff, with some thin felsic bands, sort of a grainy texture, including some small feldspar phenos. Unit is tightly folded, 1 m-scale m-folds, FA (bedding-foliation intercept) = 069>169, tight to isoclinal folds, foliation = strong = 313/81, seemingly planar. All outcrop is ~unaltered
WR_0063	531520	5713974	14-SEP-21 11:00:07AM	Overburden	Sandy area; jackpines, moss, no outcrop
WR_0064	531712	5713882	14-SEP-21 11:05:32AM	Overburden	Spruce bog, dry, lab tea
WR_0065	531769	5713699	14-SEP-21 11:10:03AM	Overburden	Edge of bog, low spruce woods
WR_0066	531856	5713769	14-SEP-21 11:13:03AM	Overburden	Jackpine woods
WR_0067	532044	5713921	14-SEP-21 11:39:25AM	Overburden	Highlands, jackpine & sparse poplar, some boulders, till? Lovely open bush, looks like a place that someone might actually choose to come
WR_0068	532506	5713836	14-SEP-21 11:51:20AM	Overburden	End of jackpines, low spruce woods
WR_0069	532600	5713777	14-SEP-21 11:53:30AM	Overburden	Back in jackpines
WR_0070	532681	5713641	14-SEP-21 11:56:54AM	Overburden	Edge of jackpine woods, back up to jackpines on the dogleg
WR_0071	532468	5713500	14-SEP-21 12:07:26PM	Mafic Volcanics (Undifferentiated)	Foliation = 328/84, small MV outcrop, strongly foliated. Entering low damp spruce forest
WR_0072	532505	5713291	14-SEP-21 12:16:28PM	Overburden	Low spruce forest next to swamp, scrubby, lab tea
WR_0073	532625	5713284	14-SEP-21 12:20:25PM	Overburden	~2 m high glacial boulder ridge running ~075 degrees
WR_0074	532688	5713281	14-SEP-21 12:23:51PM	Pillow Breccia - Basalt	Probable small outcrop, strongly foliated (SHEARED) amygdular pillow basalt, maybe pillow breccia. No significant alteration. Angular blocks, jumbled no measure possible. "Mylonitized" = 152/88, probably appropriate, still ~unaltered
WR_0075	532696	5713291	14-SEP-21 12:31:15PM	Massive Basalt	Massive greenstone (unclear texture). MV NOT sheared, but contains pCalcite = moderate, some bullish irregular quartz veins and some felty pChlorite = strong. Nothing economically interesting
WR_0076	532744	5713281	14-SEP-21 12:37:45PM	Mafic Volcanics (Undifferentiated)	Bland MV along long beaver dam
WR_0077	532880	5713161	14-SEP-21 12:47:51PM	Pillowed Amygdular Basalt	Pillow basalt, amygdular & with small varioles near pillow margins, bland selvage, foliation = moderate = 142/79
WR_0078	532899	5713087	14-SEP-21 1:34:35PM	Massive Basalt	Massive MV
WR_0079	532904	5713052	14-SEP-21 1:36:03PM	Pillow Basalt	Pillow MV, entering alder swamp
WR_0080	532909	5712933	14-SEP-21 1:39:57PM	Pyroxenite	End of swamp, massive pyroxenite = phyric gritty flows? No alterations, looks gabbroic in some places

Waypoint	Easting	Northing	Timestamp	Rock Type	Description
WR_0081	532944	5712823	14-SEP-21 1:44:28PM	Pillow Basalt	Ridge of pillow MV, minor bullish flat-lying quartz veinlets
WR_0082	533116	5712668	14-SEP-21 1:51:47PM	Pillow Basalt	Good string of exposures along ridge, mostly bland pillow basalt
WR_0083	533256	5712503	14-SEP-21 1:59:56PM	Pillowed Amygdular Basalt	Ridge continues with generally excellent exposures of bland pillow MV, minor amygdules, occasionally more massive segments. Foliation = weak = 121/86, pCalcite = weak, 229/16 = flat-lying bull-quartz veinlets (1-2 cm wide); possibly concentrated in more massive flows?
WR_0084	533262	5712378	14-SEP-21 2:09:29PM	Gabbro	Fine-grained gabbro (or coarse flow)
WR_0085	533263	5712248	14-SEP-21 2:12:39PM	Massive Basalt	Massive MV flow
WR_0086	533270	5712178	14-SEP-21 2:14:24PM	Overburden	Upland mixed forest
WR_0087	533256	5712156	14-SEP-21 2:16:36PM	Pillow Basalt	Pillow MV, selvages invaded with irregular pods of "pegmatitic' quartz & feldspar
WR_0088	533072	5712315	14-SEP-21 2:29:51PM	Overburden	Gravel/boulder ridge running ~330 degrees
WR_0089	533010	5712464	14-SEP-21 2:33:36PM	Overburden	Knob of bland MV, sticking out of till berm
WR_0090	532950	5712442	14-SEP-21 2:35:32PM	Overburden	Thick orange swamp! Bog iron locale?
WR_0091	532821	5712431	14-SEP-21 2:40:44PM	Mafic Volcanics (Undifferentiated)	Strongly foliated MV, strong calcite alteration
WR_0092	532726	5712406	14-SEP-21 3:14:01PM	Massive Intermediate Flow	Fine-grained, pale-green massive unit, possibly a massive andesite flow? IV
WR_0093	532660	5712382	14-SEP-21 3:17:53PM	Dacite	333/85, banded dacite, no alteration
WR_0094	532597	5712411	14-SEP-21 3:24:34PM	Wacke	Strongly foliated = 123/85. Seds greywacke? Biotite-rich dark grey schistose rock; a couple small pyroxene augen visible in hand specimen
WR_0095	532527	5712420	14-SEP-21 3:30:31PM	Diorite	Diorite, fine-grained amphibole crystals next to a small pond (with SO many ducks). Some bland bull quartz veins up to ~30 cm in diorite
WR_0096	532287	5712390	14-SEP-21 3:41:16PM	Massive Intermediate Flow	Brownish-weathering massive IV (andesite?) subcrop in small mound
WR_0097	532126	5712859	14-SEP-21 3:57:03PM	Overburden	Swampy spruce area. Pockets full of old candy caps
WR_0098	531986	5713046	14-SEP-21 4:04:56PM	Overburden	Single hill of bad blowdown, real mess up here (50 x 50m); tornado touched down?
WR_0099	531977	5713099	14-SEP-21 4:13:39PM	Overburden	Edge of swamp, strong boulder ridge striking ~005 degrees to the south
WR_0100	531949	5712900	14-SEP-21 4:19:16PM	Overburden	Low "Terrace" of jackpine, overlooking swamp
WR_0101	531649	5712789	14-SEP-21 4:25:55PM	Overburden	jackpine ridge continues
WR_0102	531541	5712765	14-SEP-21 4:28:27PM	Overburden	Buff end of gravel mound, some spruce, can see the lake from here
WR_0103	531491	5712855	14-SEP-21 4:31:44PM	Overburden	Back on high ground, more jackpine, lots of boulders seds here, no outcrop to speak of
WR_0104	530823	5712994	14-SEP-21 4:48:26PM	Overburden	Still open pine forest
WR_0105	530681	5713014	14-SEP-21 4:55:32PM	Gabbro	Small mound in low spruce woods, fine-grained dark green rock, gabbro??
WR_0106	530595	5713168	14-SEP-21 5:00:03PM	Overburden	Jackpine/poplar on small boulder ridge trending ~330 degrees, back at boat
WR_0107	527847	5717477	15-SEP-21 10:14:13AM	Overburden	Open woods, sand/gravel soil, mainly jackpine
WR_0108	528353	5718394	15-SEP-21 10:45:02AM	Overburden	Open pin highlands, dense undergrowth of alders

Waypoint	Easting	Northing	Timestamp	Rock Type	Description
WR_0109	528684	5718426	15-SEP-21 11:06:30AM	Overburden	Highland once again, open pine woods, still not a single outcrop
WR_0110	529375	5718285	15-SEP-21 11:24:51AM	Overburden	Spruce forest, high & dry, boulder till, no outcrop, jackpine
WR_0111	529391	5718300	15-SEP-21 11:26:35AM	Mafic Volcanics (Undifferentiated)	MV subcrop, no alteration
WR_0112	529490	5718247	15-SEP-21 11:33:29AM	Wacke	Tan-weathering greyish rock, I suspect a wacke, sheared, rust coating internal fractures, but probably not big alteration; shear = weak = 330/83
WR_0113	529507	5718255	15-SEP-21 12:12:40PM	Dacite	See sketch; a dacitic flow or dome, thin-banded; I assume that this banding is flow-banding, shows isoclinal folding, is invaded by narrow, folded mafic dikes; possibly somewhat discordant to flow banding, presumably also early. Some fault offsets, minor quartz veining, fantastic exposure overall, could hand-strip a 5 x 15 m exposure if desired
WR_0114	529743	5718074	15-SEP-21 3:19:54PM	Overburden	Low pine & spruce woods, no outcrop
WR_0115	529912	5717939	15-SEP-21 3:30:56PM	Sandstone	Rusty red-strained ochre sandstone, strongly foliated 138/69, contains some glassy quartz stringers, but overall seem "mineralized" per se
WR_0116	530008	5717895	15-SEP-21 3:48:02PM	Sandstone	157/70 = bedding = weak foliation, well-bedded sandstone, rusty surface, minor quartz stringers, great outcrop here
WR_0117	530128	5717848	15-SEP-21 3:54:55PM	Overburden	Pine barrens, sandy soil
WR_0118	530124	5718258	15-SEP-21 4:03:17PM	Overburden	Pines, boulder till ridge
WR_0119	530119	5718280	15-SEP-21 4:04:08PM	Overburden	Claim post 1 - 3011394; T O Cheewasawan Dec. 29/02
WR_0120	530072	5718782	15-SEP-21 4:41:03PM	Granite	!! Fine-grained granite, quite massive in small cliff
WR_0121	530234	5718895	15-SEP-21 4:46:13PM	Granite	Granite
WR_0122	530308	5718911	15-SEP-21 4:47:46PM	Granite	Big granite boss
WR_0123	530374	5718957	15-SEP-21 4:49:11PM	Granite	Granite descending slope extremely monotonous
WR_0124	530618	5718903	15-SEP-21 4:55:32PM	Granite	Granite subcrop
WR_0125	530645	5718847	15-SEP-21 4:57:03PM	Sandstone	Sandy seds, bedding 041/50 (!), but irregular. Includes a ~30 cm irregular, glassy quartz vein, some rust spots; otherwise ~unaltered
WR_0126	530641	5718845	15-SEP-21 5:00:50PM	Granite	Granite; content must be ~here
WR_0127	530675	5718772	15-SEP-21 5:03:43PM	Pillowed Amygdular Basalt	337/30, white-pink sugary, aplite dikes & granite to the east, intruding dark green MV (amygdular; pillowed?). No accompanying alteration
WR_0128	530720	5718682	15-SEP-21 5:09:02PM	Pillow Basalt	Good exposure on small ridge, sheared pillow amygdular MV & a 20 cm glassy quartz vein, trending ~350 degrees, granite contact on south end of ridge
WR_0129	530897	5718248	15-SEP-21 5:22:44PM	Overburden	Boulder, jackpine
WR_0130	530974	5718033	15-SEP-21 5:29:15PM	Pillow Basalt	Dark green (hornfelsed?) pillow basalt, injected by flat-lying pink granite dikes
WR_0131	530985	5717983	15-SEP-21 5:32:47PM	Pillow Basalt	Fantastic bald pillow basalt exposure
WR_0132	530955	5717864	15-SEP-21 5:37:02PM	Pillow Basalt	Edge of pillow MV boss
WR_0133	530901	5717802	15-SEP-21 5:40:47PM	Amygdular Basalt	Basalt
WR_0134	530840	5717777	15-SEP-21 5:43:14PM	Amygdular Basalt	Basalt, good exposure in jumbled blocks, unaltered
WR_0135	530785	5717742	15-SEP-21 5:44:44PM	Pillow Basalt	Pillow basalt, good exposure in low ridges

Waypoint	Easting	Northing	Timestamp	Rock Type	Description
WR_0136	530689	5717646	15-SEP-21 5:47:45PM	Porphyritic Basalt	Odd flow looks fresh/"phenocrysts" of biotite
WR_0137	530678	5717612	15-SEP-21 5:48:44PM	Gabbro	fine-grained gabbro, massive
WR_0138	530601	5717546	15-SEP-21 5:52:05PM	Mafic Volcanics (Undifferentiated)	MV
WR_0139	530448	5717483	15-SEP-21 5:56:07PM	Clastic Sediments (Undifferentiated)	seds?
WR_0140	530367	5717482	15-SEP-21 5:58:08PM	Sandstone	brown-weathering sandy seds
WR_0141	530223	5717423	15-SEP-21 6:02:22PM	Wacke	Fine-grained greyish sediments, wacke? Great caribou moss subcrop exposure here
WR_0142	529772	5717317	15-SEP-21 6:12:09PM	Porphyritic Basalt	Great exposure, feldspar porphyry andesite, flows strongly banded (foliated?) = 336/80, no alteration
WR_0143	529285	5717423	15-SEP-21 6:29:01PM	Gneiss	Fine-grained, pink, weakly foliated gneiss. Am out of greenstone belt?
WR_0144	525732	5725002	17-SEP-21 10:53:03AM	Granite	Outcrop has been common along the deadwalk; not paying much attention , mostly bland equigranular pink granite as observe here, ~unstrained
WR_0145	525976	5725020	17-SEP-21 11:02:28AM	Granite	granite
WR_0146	526156	5725017	17-SEP-21 11:07:42AM	Massive Intermediate Flow	IV, fo = strong = 335/70, massive andesite, orange-rimmed (hematite=weathering?), NO alteration
WR_0147	526297	5725056	17-SEP-21 11:16:59AM	Wacke	dark grey grainy rock, greywacke, no alteration, good exposure
WR_0148	526412	5725091	17-SEP-21 11:24:31AM	Epiclastic Conglomerate	SW unit as 147? Dark grey, slightly green brownish-weathering unit, well-exposed and can be seen that it is a fine-polymict clastic unit, clasts stretched ~8 : 1 along-strike, felsic and fine volcanic clasts, seem subrounded, a polymict epiclastic/mafic flow, foliation = strong = 139/89, no alt
WR_0149	526552	5725114	17-SEP-21 11:37:48AM	Mafic Volcanics (Undifferentiated)	strongly foliated MV
WR_0150	526717	5725126	17-SEP-21 11:44:59AM	Mafic Volcanics (Undifferentiated)	MV
WR_0151	526772	5725123	17-SEP-21 11:48:23AM	Pillow Basalt	MV, highly strained, possibly pillowed? Injected with tiny torn up pink granite veinlets, also contains some sugary quartz & k-spar veins to 10 cm with minor pyrite, foliation = moderate = 166/81
WR_0152	527016	5725186	17-SEP-21 11:59:00AM	Gneiss	Gneiss = 345/85, moderate gneissosity, a foliated equigranular pink granite, very bland, with a few k-spar phenos (on augen?)
WR_0153	527044	5725193	17-SEP-21 12:03:25PM	Mafic Volcanics (Undifferentiated)	MV, invaded by many small potassic veinlets
WR_0154	527043	5725171	17-SEP-21 12:04:44PM	Gneiss	Bland granitic gneiss, some pink aplitic dikelets
WR_0155	527236	5725219	17-SEP-21 12:10:55PM	Gneiss	Pale pink granite gneiss. Pale pink interspersed with bright pink aplite dikes, different rock than 154? Gn = 380/steep
WR_0156	527293	5725236	17-SEP-21 12:17:33PM	Massive Intermediate Flow	Interesting outcrop, white granite & pink aplite injected into a massive, grey-green, probably andesitic dacite?
WR_0157	527390	5725261	17-SEP-21 12:24:51PM	Granite	White fine-grained strongly foliated felsic intrusive (another new unit)
WR_0158	527455	5725392	17-SEP-21 12:32:22PM	Gneiss	Medium-grey gneiss (paragneiss??); intruded by small pink granitic veinlets, some ptygmatic folding. Strong gneissosity 336/84. Notes spruce here; rocks are similar & boring & I am cold
WR_0159	526738	5725694	17-SEP-21 1:44:48PM	Gneiss	Whitish medium-grained biotite gneiss
WR_0160	526710	5725766	17-SEP-21 1:48:25PM	Gneiss	Medium-grained pink gneiss, some aplite dikes
WR_0161	526807	5726107	17-SEP-21 2:00:13PM	Gneiss	Phenocrystic gneiss
WR_0162	527014	5726145	17-SEP-21 2:07:17PM	Gneiss	Good exposure or west shore of a small mostly outcrop-less lake; "Otter Poop Point". Unit is a medium-grained, bright pink granite, banded and tectonized (... "gneissic"?); probably syn-deformation,

Waypoint	Easting	Northing	Timestamp	Rock Type	Description
					~20 m section exposed here, sub-continuous, contains a couple fo-parallel quartz & pure k-spar, pegmatitic veinlets, these are pretty but no rare-metal affinity. Tight chevron-folding exposed in gneiss! AP = 349/85, main banding 345/83, s-fold with short limb 184/83. Greater cormorant (!!) landed on lake!! Big dark bird, cormorant beak (reddish or deep orange), about the size of a loon). Steep fold plunge.
WR_0163	526994	5726207	17-SEP-21 2:38:11PM	Gneiss	Small banded granite
WR_0164	526794	5726349	17-SEP-21 2:51:29PM	Gneiss	Weird greyish banded gneiss; prominent k-spar crystals, a few granitic veinlets intruding
WR_0165	526770	5726406	17-SEP-21 2:54:15PM	Gneiss	Some gneiss, in contact with MV to the east, contact folded, main strike ~175/steep, some epidote veinlets here = moderate
WR_0166	526655	5726400	17-SEP-21 3:00:11PM	Gneiss	Gneiss, great exposure here, intruded by pink aplite dikes with some grey sugary quartz fractions. Nor real interest to these rocks, definitely NOT rare-metal affinity. Time to return to camp.
WR_0167	526262	5726248	17-SEP-21 3:17:05PM	Overburden	Jackpines, deep soil
WR_0168	524828	5725629	17-SEP-21 4:01:54PM	Granite	Medium-grained pink granite
WR_0169	524747	5725530	17-SEP-21 4:10:08PM	Granite	pink granite
WR_0170	524623	5725383	17-SEP-21 4:17:11PM	Granite	Pink granite, coarsely porphyritic, kspar crystals to 1 x 2 inches
WR_0171	526540	5723419	18-SEP-21 11:13:08AM	Overburden	Small boulder ridge aligned 020 degrees
WR_0172	526531	5723455	18-SEP-21 11:14:44AM	Overburden	pines & pebbly gravel
WR_0173	526479	5723552	18-SEP-21 11:18:12AM	Overburden	open pine woods, deep sandy soil
WR_0174	526609	5723806	18-SEP-21 11:25:32AM	Gneiss	Prominent hump of strongly foliated granite gneiss, very bland/equigranular
WR_0175	526598	5723839	18-SEP-21 11:27:50AM	Gneiss	Prominent hump of strongly foliated granite gneiss, very bland/equigranular
WR_0176	526666	5723980	18-SEP-21 11:41:00AM	Epiclastic Conglomerate	Unaltered massive MV, however with a few flattened stretched clasts, probably a massive flow, with a few xenoliths? Flattening extreme (10:1?), and at an angle to the dominant foliation. Some sections overgrown with blocky green amphibole crystals to ~2 mm; a few vSaus = weak, including flat-lying one which give the outcrop an odd knobby appearance, and a few minor fragments = 342/80; boudinaged felsite veins = 324/79; epidote (retrograde?) veinlets = 217/58, 293/70, 024/11
WR_0177	526693	5724104	18-SEP-21 12:11:30PM	Wacke	Seds? Greywacke? Dark grey, prominently bedded, biotite-rich rock, 319 degrees/steep = bedding, foliation = weak/moderate. No alteration
WR_0178	526720	5724163	18-SEP-21 12:16:00PM	Pyroclastic Breccia - Intermediate	Foliation = 314/84 = strong. Pyroclastic andesite with flattened pyroclasts, ~50% of rock mass, strong flattening. No alteration
WR_0179	526742	5724235	18-SEP-21 12:21:17PM	Diorite	Fine-grained foliated diorite, equigranular
WR_0180	526773	5724479	18-SEP-21 12:29:39PM	Diorite	Same unit? Fine-grained diorite
WR_0181	526802	5724570	18-SEP-21 12:35:57PM	Sandstone	Brown-weathering greyish friable rock, seds? Sandstone?
WR_0182	526901	5724505	18-SEP-21 12:39:31PM	Sandstone	Brown-weathering seds
WR_0183	526950	5724453	18-SEP-21 12:42:11PM	Sandstone	151/66 = 5 cm sugary rusty-spotted quartz veins, ~foliation-parallel in a buff-weathering sandstone, bland foliation = moderate
WR_0184	527019	5724491	18-SEP-21 12:48:36PM	Mafic Volcanics (Undifferentiated)	Strongly folded unit, MV
WR_0185	527100	5724508	18-SEP-21 12:51:40PM	Pyroclastic Breccia - Intermediate	Heavily stretched IV pyroclastic, trending ~346 degrees. Strongly flattened coarse pyroclastic with polymict felsic flattened clasts,

Waypoint	Easting	Northing	Timestamp	Rock Type	Description
					shear = moderate = 166/87, extreme clast stretching, e.g. 30:1. Unaltered? Hard to tell, small subcrop
WR_0186	527114	5724511	18-SEP-21 12:56:49PM	Feldspar-crystal tuff - Intermediate	Feldspar porphyritic IV
WR_0187	527216	5724557	18-SEP-21 1:03:42PM	Wacke	Dark grey seds, wacke I guess? With some flakes and small veinlets of white muscovite grown along fo-parallel fractures; also a few bluish flakes which may be graphite in one fracture? However, these seem rare, also some odd kspar (orange) ocelli, these are both (local?) boulders? Some pink granitic dikes here, 165/77, subparallel to foliation and strongly foliated; ~1 m with bright pink with some associated quartz vein
WR_0188	527244	5724506	18-SEP-21 1:14:34PM	Diorite	QV in a medium-grained diorite, strongly foliated
WR_0189	527294	5724489	18-SEP-21 1:16:15PM	Gneiss	Coarse gneissic granite?
WR_0190	527443	5724435	18-SEP-21 1:21:08PM	Massive Intermediate Flow	Massive, medium-green andesite (?), with small packed feldspar (plagioclase?) crystals, injected with a few felsite stringers and a pink granitic dike; need to hurry to geo camp set up. Spars notes from here on out, a good section did not reveal any significant mineralization
WR_0191	527450	5724353	18-SEP-21 2:02:52PM	Overburden	Deep sand; jackpines
WR_0192	527483	5724184	18-SEP-21 2:08:08PM	Gneiss	Coarse-grained granitic gneiss
WR_0193	527511	5724075	18-SEP-21 2:12:32PM	Feldspar-crystal tuff - Intermediate	Great exposure, andesitic feldspar (+kspar?) IV, massive or tuffaceous, dirty non-descript veined surface. No alteration
WR_0194	527529	5723996	18-SEP-21 2:15:05PM	Intermediate Volcanics (Undifferentiated)	IV exposure ends here
WR_0195	527542	5723844	18-SEP-21 2:18:10PM	Dacite	160/70 = banding = strong, in a pervasively banded - folded (~20 cm s-fold) (of banding) andesitic dacite? Unaltered, fold axial plane = 340/steep
WR_0197	527415	5723630	18-SEP-21 2:28:33PM	Clastic Sediments (Undifferentiated)	Well-bedded seds, thinly-bedded (2 mm - 10 cm); bedding = 145/80
WR_0198	527334	5723603	18-SEP-21 2:33:01PM	Diorite	fine-grained diorite
WR_0199	527146	5723638	18-SEP-21 2:36:47PM	Overburden	pines on sandy till
WR_0200	527234	5723537	18-SEP-21 2:41:04PM	Overburden	Open jackpine sand flats
WR_0201	527388	5723365	18-SEP-21 2:48:29PM	Intermediate Volcanics (Undifferentiated)	Pale green andesitic dacite, darker green banding, may likely be "gneissic" remobilized; follow fractures; a few small medium (andesite) lapilli suggest lapilli tuff. Evidence of folding foliation = moderate = 003/73 (more of a banding?). 2nd direction = 151/78 = moderate banding; also a 34d "boxwork" direction
WR_0202	527416	5723229	18-SEP-21 3:02:01PM	Wacke	Bedding? Foliation = 158/79 = strong, variably bedded, medium-grey dirty (wacke) seds, exposed in a great 50 x 50 m dome
WR_0203	527373	5723232	18-SEP-21 3:06:06PM	Wacke	wacke
WR_0204	527314	5723198	18-SEP-21 3:08:30PM	Gabbro	fine-grained gabbro? Cut by some felsite veinlets
WR_0205	527035	5723087	18-SEP-21 3:14:12PM	Massive Basalt	Ugly patchy massive basalt, reminiscent of 173, shot through with vSaussurite = moderate, minor felsite veinlets
WR_0206	527019	5723058	18-SEP-21 3:18:10PM	Banded Basalt	Black amphibolitized MV
WR_0207	526837	5722957	18-SEP-21 3:23:16PM	Overburden	deep spruce swamp
WR_0208	526706	5722913	18-SEP-21 3:27:00PM	Granite	pink kspar dominated granite, small pockets of greyish quartz (miarolitic)
WR_0209	526950	5722416	18-SEP-21 6:35:03PM	Overburden	Grove of the Great Spruce

Waypoint	Easting	Northing	Timestamp	Rock Type	Description
WR_0210	527346	5722381	19-SEP-21 2:20:48PM	Tuff - Mafic	Black -green mafic tuff, abundant (metamorphic?) biotite give it black brown appearance, minor po stains surface & foliation, giving a rusty appearance. Here, a ~70 cm NNW "fossil" (banded) shear, contains a CHERTY veinlet (straight-edged), a rusty pyrite +pyrrhotite-rich veinlet (~10% fine sulphides), also contains pinkish kspar; these are haloed by moderate silicification & chlorite alteration. Miles better looking than anything else I have found to date
WR_0211	527370	5722373	19-SEP-21 2:20:59PM	Tuff - Mafic	Mafic tuff (not rusty); out by a ~10 cm felsic (coarse feldspar) dike; trending ~335 degrees
WR_0212	527442	5722360	19-SEP-21 2:23:29PM	Overburden	Steep boulder slope; jackpines
WR_0213	527578	5722356	19-SEP-21 2:26:21PM	Overburden	Boggy spruce woods, alder understory
WR_0214	527748	5722424	19-SEP-21 2:31:43PM	Overburden	Spectacular mound of ~m-size boulders
WR_0215	527767	5722465	19-SEP-21 2:33:13PM	Overburden	Spectacular mound of ~m-size boulders; continues; trending ~015 degrees
WR_0216	528033	5722553	19-SEP-21 2:39:15PM	Overburden	low "dry swamp" sphagnum & spruce, no outcrop
WR_0217	527835	5722364	19-SEP-21 2:47:30PM	Overburden	jackpines, open boulder ridge
WR_0218	527889	5722229	19-SEP-21 2:52:38PM	Overburden	Boulder ridge? All boulders are well-rounded, bright pink-granite
WR_0219	527897	5722158	19-SEP-21 2:55:41PM	Overburden	Peak of jackpine hill; coarse granite boulder train, trending ~350 degrees
WR_0220	527923	5722048	19-SEP-21 2:59:26PM	Overburden	Descending edge of boulder train
WR_0221	527891	5721745	19-SEP-21 3:06:00PM	Granite	Small outcrop!! Bland medium-grained pink granite
WR_0222	527881	5721727	19-SEP-21 3:11:49PM	Dacite	Foliation = moderate = 320/62, ~massive dacite, some vague banding which appears folded; no alteration, good exposure
WR_0223	528002	5721610	19-SEP-21 3:19:00PM	Dacite	Dacite subcrop, fresh
WR_0224	528066	5721557	19-SEP-21 3:25:36PM	Andesite	Fresh, thin-banded tuff, andesitic composition, dramatic open folding, ~50 degrees interlimb angle. S-folding (as exposed), minor quartz-veining, milky & bland, subparallel to axial plane
WR_0225	528093	5721526	19-SEP-21 3:53:26PM	Andesite	Ditto, strongly banded andesite = 154/81
WR_0226	528140	5721512	19-SEP-21 3:56:24PM	Intermediate Tuff	IV tuff
WR_0227	528178	5721515	19-SEP-21 4:00:22PM	Pyroclastic Breccia - Intermediate	Cliff running ~155 degrees, IV, andesitic maybe but with an odd more felsic anastomosing section, possibly pyroclastic, but I think more likely it's a shear texture, implies sericite alteration but very bland looking shear = weak = 328/88
WR_0228	528113	5721432	19-SEP-21 4:07:31PM	Intermediate Tuff	Fantastic exposure here, nearly bald (at least 50 x050 m); very monotonous banded IV tuff, no min observed, mostly consistent banding, folding not commonly observed
WR_0229	528013	5721399	19-SEP-21 4:10:57PM	Overburden	Open pin woods, till base, sloping flat ground
WR_0230	527979	5721356	19-SEP-21 4:12:30PM	Overburden	Spruce & lab tea dry bog
WR_0231	527894	5721252	19-SEP-21 4:15:13PM	Overburden	Pebble till flat jackpine & spruce woods
WR_0232	527810	5721187	19-SEP-21 4:19:26PM	Sandstone	Seds, banded = 337. Buff-weathering sandstone
WR_0233	527799	5721198	19-SEP-21 4:21:37PM	Porphyritic Basalt	MV (massive?) with small blocks amphibole crystals
WR_0234	527812	5721223	19-SEP-21 4:33:20PM	Ultramafic Volcanics (Undifferentiated)	Mixed komatiitic (??), & basaltic flows? Adjacent dark green (fresh) and rich brown rocks. Rich brown weathering is a rind to a dark-green, non-magnetic, non-sulphidic rock, no sign of ankerite. Contact 157/83, but probably tightly m-folded.

Waypoint	Easting	Northing	Timestamp	Rock Type	Description
WR_0235	527800	5721223	19-SEP-21 4:48:16PM	Mafic Volcanics (Undifferentiated)	Rusty-weathering, dark-green rock, hard, sharp edged & subconchoidal foliation = moderately silicified? Weakly mylonitic, ~1% very fine-grained pyrrhotite, otherwise pretty bland appearance, foliation = moderate = 141/86, doesn't look sheared
WR_0236	527799	5721211	19-SEP-21 5:13:41PM	Ultramafic Volcanics (Undifferentiated)	Strange & beautiful exposure. Two band, 1.5 & 2m, of a warm brown rock, very little sulphide, warm brown as rind, probably more komatiite? Intermixed with intermediate tuff, also contains an unusual sugary block, quartz-veined up to 5 cm wide, boudinaged. Vein & banding in rock = 137/81
WR_0237	527771	5721282	19-SEP-21 5:31:23PM	Mafic Volcanics (Undifferentiated)	Similar to 235? Minor sulphide, rusty MV, weakly silicified. Adjacent a strange strong shear zone/tuffaceous banded zone, interbanded with bland sugary quartz veinlets, ~1% pyrite, zone with veins maybe 5 m wide? Okay looking shear = intense/mylonite = 146/87
WR_0238	527686	5721434	19-SEP-21 5:57:24PM	Overburden	Pines, mixed woods, open forest on flat till
WR_0239	527651	5721545	19-SEP-21 6:02:58PM	Magnetite BIF	Local float, thin, shaley, up to 2% pyrite also thin (2 cm) fragments of grainy magnetic BIF; very unexpected, rep taken here
WR_0240	527536	5721697	19-SEP-21 6:13:29PM	Overburden	low boulder mound
WR_0241	527504	5721710	19-SEP-21 6:14:44PM	Overburden	boulder mound trending 305 degrees
WR_0242	527171	5721762	19-SEP-21 6:22:09PM	Overburden	low boulder mound
WR_0243	527157	5721753	19-SEP-21 6:23:03PM	Gneiss	knob of lightly gneissic pink granite, cut by a 6 cm pink pegmatite vein
WR_0244	527063	5721863	19-SEP-21 6:30:16PM	Overburden	boulder train running 060 degrees
WR_0245	527113	5721978	19-SEP-21 6:42:09PM	Overburden	Massive men-on-horseback harvest!! Dry flat mossy spruce & pine woods; sparse bunchberry undergrowth only
WR_0246	527195	5722308	19-SEP-21 6:56:22PM	Overburden	rising ground; boulder mound
WR_0247	527208	5722387	19-SEP-21 6:58:39PM	Overburden	Descending from boulder mound
WR_0248	529247	5724219	20-SEP-21 9:54:02AM	Overburden	Middle of spruce/larch bog, small sand/pebble hills
WR_0249	529303	5724689	20-SEP-21 10:23:25AM	Overburden	128 degrees = low boulder ridge
WR_0250	529142	5724898	20-SEP-21 11:37:36AM	Granite	subcrop, pink medium-grained slightly foliated granite
WR_0251	529187	5724981	20-SEP-21 11:42:44AM	Granite	fine-graine fresh pink granite; big break around here
WR_0252	529239	5724942	20-SEP-21 11:45:06AM	Granite	granite
WR_0253	529318	5724891	20-SEP-21 11:47:59AM	Granite	large fresh pink granite knob
WR_0254	529420	5724778	20-SEP-21 11:52:09AM	Granite	ditto; weakly foliated
WR_0255	529514	5724739	20-SEP-21 11:54:55AM	Granodiorite	coarse-grained greyish int (granodiorite?); intruded by dikes = 135/76 = granite associated veins & pink granite dikes, granodiorite dikes, granodiorite is moderately foliated
WR_0256	529581	5724700	20-SEP-21 11:59:19AM	Overburden	jackpine-covered boulder mound
WR_0257	529594	5724698	20-SEP-21 12:00:58PM	Gabbro	Coarse-grained gabbro, fine plagioclase groundmass with 0.5 - 1 cm crystals of dark green augite packed throughout; fresh and ~unfoliated. Pretty rock
WR_0258	529767	5724706	20-SEP-21 12:21:24PM	Granite	Huge outcrop, fresh pink granite with pegmatitic pockets & segregations. No alteration, foliation not obvious
WR_0259	529754	5724746	20-SEP-21 12:24:08PM	Granite	End of outcrop. Coarse pockets of quartz kspar (crystals up to ~20 cm) seen here; no rare metals affinity
WR_0260	529828	5724758	20-SEP-21 12:28:02PM	Clastic Sediments (Undifferentiated)	Raft or xenolith of seds, at least 1.5 m wide, surrounded by coarsely porphyritic pink granite

Waypoint	Easting	Northing	Timestamp	Rock Type	Description
WR_0261	529705	5724864	20-SEP-21 12:33:34PM	Granodiorite	Pale pink granodiorite with hornblende. Intruded by some coarse pink pegmatite
WR_0262	529650	5724864	20-SEP-21 12:37:46PM	Clastic Sediments (Undifferentiated)	Seds, strongly foliated dark grey-brown rock, biotite-rich, cut by a 10 cm pale pink pegmatite dike (late & fairly planar). Foliation =- strong = 136/58, dikes = 277/46
WR_0263	529656	5724923	20-SEP-21 12:43:35PM	Clastic Sediments (Undifferentiated)	Mix of granite & seds
WR_0264	529640	5724967	20-SEP-21 12:45:16PM	Granite	granite, lots of peg
WR_0265	529590	5725163	20-SEP-21 12:50:24PM	Overburden	Ridge, spruce & pine, mostly boulders
WR_0266	529454	5725337	20-SEP-21 12:55:13PM	Granite	pink granite, pegmatitic
WR_0267	529442	5725381	20-SEP-21 12:58:29PM	Wacke	Fine-grained "paragneiss" wacke, intruded by a pegmatite dike 136/steep
WR_0268	529458	5725396	20-SEP-21 1:01:53PM	Conglomerate	Cool outcrop! Intensely deformed & lineated conglomerate, polymict clasts, including seds; granitoids; but especially greyish quartz veins, foliation = 120/69, but mainly a stretching lineation = 35?275 = intense, penetrative throughout rock mass, ~1% disseminated pyrite
WR_0269	529465	5725478	20-SEP-21 1:13:52PM	Conglomerate	Intensely stretched conglomerate
WR_0270	529453	5725576	20-SEP-21 1:24:27PM	Sandstone	Sediments, rusty sandstone, no conglomerate, cobbles here?
WR_0271	529286	5725868	20-SEP-21 1:33:45PM	Granite	Pink granite & pegmatite, big exposure
WR_0272	529191	5725991	20-SEP-21 1:37:57PM	Granite	Pink granite & pegmatite, big exposure
WR_0273	529068	5726089	20-SEP-21 2:12:02PM	Granite	granite
WR_0274	528990	5726114	20-SEP-21 2:14:11PM	Granite	granite
WR_0275	528817	5726163	20-SEP-21 2:18:30PM	Granite	granite
WR_0276	528764	5726176	20-SEP-21 2:19:58PM	Granite	granite
WR_0277	528740	5726141	20-SEP-21 2:20:59PM	Granite	Pink granite, polished glacial striae = 088 degrees
WR_0278	528694	5726142	20-SEP-21 2:24:36PM	Massive Basalt	Massive MV? Green-weathering, almost black-brown on fracture surface (biotitic); strongly banded indistinct appearance
WR_0279	528677	5726145	20-SEP-21 2:27:39PM	Intermediate Volcanics (Undifferentiated)	Massive, bland, medium-green rock, probably an andesite, no distinct banding or colour
WR_0280	528675	5726094	20-SEP-21 2:36:52PM	Granite	granite
WR_0281	528670	5726115	20-SEP-21 2:54:11PM	Dacite	Dacite, dominant banding = 303/63, strong lineation = 57 >335. Dacite range from massive to thin-banded tuffaceous to possibly pyroclastic; banding is quite variable, mainly 34>300 FA, sometimes folded around consistent AP 166/85; intruded by granitic dikes, pink, 10-100 cm each at it sown orientation e.g. 266/45, 148/69, 167/75, also irregular "masses", most dikes? pretty linear (not def), also adjacent a large mass of granite, impression is of stoping/block foundering rather than injection along foliation/banding
WR_0282	528633	5726130	20-SEP-21 3:05:53PM	Granite	pink granite
WR_0283	528639	5726165	20-SEP-21 3:07:34PM	Mafic Volcanics (Undifferentiated)	dark green MV
WR_0284	528597	5726220	20-SEP-21 3:10:14PM	Pillow Basalt	foliation = 292/84 = strong, streaky MV with indistinct texture (pillowed?)
WR_0285	528587	5726231	20-SEP-21 3:13:34PM	Granite	Bright pink granite, some blue-black grains of anhedral magnetite in a porphyritic swarm

Waypoint	Easting	Northing	Timestamp	Rock Type	Description
WR_0286	528514	5726135	20-SEP-21 3:21:09PM	Granite	pink granite
WR_0287	528412	5726107	20-SEP-21 3:24:20PM	Granite	granite boss in swamp
WR_0288	528318	5726055	20-SEP-21 3:26:56PM	Granite	granite
WR_0289	528338	5725971	20-SEP-21 3:29:25PM	Granite	fine-grained, lightly foliated pink granite, some pegs cutting
WR_0290	528348	5725893	20-SEP-21 3:31:49PM	Granite	granite
WR_0291	528356	5725768	20-SEP-21 3:37:04PM	Granite	granite
WR_0292	528351	5725708	20-SEP-21 3:38:44PM	Granite	granite
WR_0293	528350	5725676	20-SEP-21 3:39:41PM	Granite	granite
WR_0294	528327	5725635	20-SEP-21 3:41:00PM	Granite	granite
WR_0295	528061	5725096	20-SEP-21 4:00:32PM	Overburden	Thick sand, caribou moss under jackpine
WR_0296	528025	5724984	20-SEP-21 4:04:08PM	Gneiss	Foliation = moderate = 325/steep, moderate foliation pink granite & gneiss, could be a somewhat foliated version of the intrusive pink granite?
WR_0297	527957	5724924	20-SEP-21 4:07:23PM	Granite	medium-grained pink granite
WR_0298	527941	5724710	20-SEP-21 4:13:02PM	Granite	Pale pink granite
WR_0299	527926	5724621	20-SEP-21 4:16:04PM	Granite	Pale pink granite
WR_0300	528000	5724502	20-SEP-21 4:22:13PM	Granite	granite
WR_0301	528143	5724265	20-SEP-21 4:30:12PM	Granite	granite, small spruce close together
WR_0302	528275	5724232	20-SEP-21 4:34:54PM	Overburden	Mixed pine & spruce woods, caribou moss, till flats
WR_0303	528455	5724192	20-SEP-21 4:39:32PM	Granite	pale pink granite
WR_0304	528806	5724146	20-SEP-21 4:52:21PM	Overburden	horrible alder swamp
WR_0305	529170	5724089	20-SEP-21 5:04:30PM	Overburden	alders ends; larch/tamarack bog
WR_0306	529614	5722842	21-SEP-21 10:11:24AM	Overburden	Dry, boggy tamarack & spruce
WR_0307	529621	5722804	21-SEP-21 10:13:46AM	Granite	small ledge of pink granite
WR_0308	529596	5722531	21-SEP-21 10:23:19AM	Overburden	start of open spruce bog
WR_0309	529622	5722215	21-SEP-21 10:32:38AM	Overburden	ridge, jackpines, boulders & till
WR_0310	529584	5722052	21-SEP-21 10:36:35AM	Overburden	Boulder till ridge ~93 degrees
WR_0311	529969	5721136	21-SEP-21 11:29:06AM	Granite	Cool outcrop, hump in low spruce woods, medium-grained forest green gabbro, non-magnetic, marbled with small pink pegmatite veins; foliation = moderate = (!) 109/37; also with a moderate, well-developed body lineation (chlorite alignment, stretching?) = 26>148
WR_0312	529794	5721046	21-SEP-21 11:41:43AM	Intermediate Volcanics (Undifferentiated)	Indistinct stretching to banded pale green andesitic dacite, unaltered
WR_0313	529749	5720959	21-SEP-21 11:45:27AM	Granite	Swamp, fine-grained pink granite
WR_0314	529642	5720801	21-SEP-21 11:51:44AM	Sandstone	bland, sandy seds, weak foliation

Waypoint	Easting	Northing	Timestamp	Rock Type	Description
WR_0315	529259	5720546	21-SEP-21 12:04:00PM	Overburden	Massive open dry spruce bog
WR_0316	529054	5720265	21-SEP-21 12:13:38PM	Overburden	Mixed woods, some poplar, low sloping ground
WR_0317	529078	5720059	21-SEP-21 12:18:23PM	Overburden	Boulders, low drift, nice pine & spruce forest
WR_0318	529094	5720014	21-SEP-21 12:21:21PM	Feldspar-crystal tuff - Intermediate	Massive, plagioclase-phyric crystal tuff, andesitic, no alteration; foliation = weak = trending 122 degrees
WR_0319	529071	5719966	21-SEP-21 12:25:53PM	Overburden	back to open spruce swamp
WR_0320	529026	5719915	21-SEP-21 12:33:04PM	Feldspar-crystal tuff - Intermediate	Low outcrop next to swamp, stripped ~ 2 x 2 m, some feldspar crystal andesitic tuff or flow, banded & foliation = moderate = 333/88, banding also appears folded, m-scale, M-folded around AP = 333/88, IV is intruded by very odd, blobby pink granitic mass with some quartz vein, granite VERY LIGHTLY foliated, but also partially intruded along foliation, presumably a stoping mechanism of int, but during the foliation event
WR_0321	528979	5719750	21-SEP-21 1:05:44PM	Tuff - Mafic	Glacial striae = 256 degrees!! Amazing outcrop, stripped 5 x 3 m, granite breccia, stoping/injection intrusion into a still-ordered reaction sequence of mafic tuff & massive mafic flows, minor epidote alteration. Banding/bedding relatively intact of consistent = moderate = 303/85, some evidence of minor post-intense folding of granite, ptygmatic, but largely unstrained
WR_0322	528956	5719470	21-SEP-21 1:33:38PM	Ultramafic Volcanics (Undifferentiated)	Big mound of outcrop, dark-green, non-magnetic rock indistinct texture, greenish rind, very hackly. Probably basalt, maybe komatiitic basalt?
WR_0323	528971	5719402	21-SEP-21 1:41:58PM	Ultramafic Volcanics (Undifferentiated)	Same unit, komatiitic basalt, some veined fracture, very dark green and a bit of a greenish rind. Unit is indistinct, sublimely banded & moderately foliated = 170/82. Non-magnetic, no alteration, forms the most prominent hill, bald rounded dome, goal view over surrounding country. Rep sample taken
WR_0324	528872	5719410	21-SEP-21 2:23:02PM	Massive Basalt	Basalt, dark green massive strong foliation
WR_0325	528757	5719469	21-SEP-21 2:30:03PM	Overburden	poplar woods, dirt ground
WR_0326	528711	5719505	21-SEP-21 2:33:03PM	Ultramafic Volcanics (Undifferentiated)	Same "KB" unit as 323? Whitish rind, very massive, no alteration?
WR_0327	528494	5719771	21-SEP-21 2:49:00PM	Shear	Weak shear zone = 152/85, in massive? MV, some bullish quartz veining along foliation. Some rust on fracture, brown biotite alteration, weak pQ, subconchoidal fracture, weakly magnetic and with ~1% very fine po; similar to material nearby the rapids. Shear zone maybe ~3 m wide?
WR_0328	528187	5720302	21-SEP-21 3:22:27PM	Overburden	Caribou moss, pine/spruce flats
WR_0329	528053	5720446	21-SEP-21 3:27:25PM	Overburden	Top of low mound of pine flats; no outcrop
WR_0330	528158	5721021	21-SEP-21 3:41:20PM	Overburden	Low spruce - moss - lab tea forest; no outcrop
WR_0331	528405	5721207	21-SEP-21 4:07:38PM	Feldspar-crystal tuff - Intermediate	Massive, tough, feldspar crystal IV (flow or tuff?)
WR_0332	528627	5721251	21-SEP-21 4:13:32PM	Overburden	low spruce/pine woods, no outcrop
WR_0333	528934	5721437	21-SEP-21 4:21:47PM	Overburden	Low, boggy ground, jackpine & spruce
WR_0334	528790	5721791	21-SEP-21 4:31:38PM	Porphyritic Granite	319/86 = moderate foliation /gneissosity in a p-Epidote altered block of kspar porphyritic gneiss, fairly similar to gneiss exposed west of the belt
WR_0335	528837	5721829	21-SEP-21 4:39:02PM	Granite	mostly granitic (pink); some highly strained gabbro
WR_0336	528842	5722023	21-SEP-21 4:45:09PM	Overburden	low boulder train 305 degrees

Waypoint	Easting	Northing	Timestamp	Rock Type	Description
WR_0337	528872	5722750	21-SEP-21 5:25:47PM	Overburden	boulder ridge
WR_0338	528947	5722809	21-SEP-21 5:29:22PM	Wacke	First outcrop since forever, folded and foliated white medium-grained felsic intrusive (NOT the pink granite?); intruding a dark seds package (wacke?). No alteration. Intrusive to the west, contact trending 310 degrees, seds, strongly foliated = 138/74, no more outcrop, entire traverse was very outcrop poor, back to boat
WR_0339	527273	5722444	22-SEP-21 9:26:12AM	Mafic Volcanics (Undifferentiated)	Moderate foliation basalt next to rapids; sloping down to water, texturally indistinct, p-biotite = weak? Not silicified, minor sulphides
WR_0340	527304	5722451	22-SEP-21 9:39:52AM	Intermediate Volcanics (Undifferentiated)	Foliation = strong = 327/78, foliation = moderate = 340/70, IV (andesite) with mafic pyroclastics, well exposed on steep rock next to the portage, minor po but not really mineralized or interesting
WR_0341	527338	5722470	22-SEP-21 9:49:09AM	Pyroclastic breccia	Following cliff; mafic pyroclastic?? No min, minor bland vQ = weak
WR_0342	527402	5722507	22-SEP-21 9:58:27AM	Feldspar-crystal tuff - Intermediate	Massive feldspar crystal IV
WR_0343	527398	5722485	22-SEP-21 10:20:42AM	Lapilli tuff - Intermediate	Contact, between MV tuff to the west, and feldspar crystal andesite tuff to the east. Contact = 314/62 = foliation = moderate, the distinctive feldspar crystal tuff, can be observed to have some small lapilli here, suggesting that it is indeed a tuff & not a flow(as does its lateral extent...)
WR_0344	527424	5722501	22-SEP-21 10:32:13AM	Feldspar-crystal tuff - Intermediate	40 cm pQ = strong, bull quartz, slight saussurite rims, in the feldspar crystal tuff, subparallel foliation, vQ = 143/69
WR_0345	527357	5722640	22-SEP-21 10:40:02AM	Overburden	Open jackpine bush no outcrop
WR_0346	527377	5723058	22-SEP-21 10:47:52AM	Overburden	pine forest continues
WR_0347	527174	5722917	22-SEP-21 11:00:40AM	Massive Basalt	Soft, dark green MV, massive, foliation = moderate-strong = 328/steep
WR_0348	527118	5722886	22-SEP-21 11:03:26AM	Overburden	Mostly just boulders under spruce
WR_0349	527126	5722839	22-SEP-21 11:07:07AM	Massive Basalt	Massive/indistinct MV, ~unaltered
WR_0350	527133	5722844	22-SEP-21 11:11:57AM	Tuff - Mafic	Ugly mafic (airfall?) tuff texture variably, tuffaceous & ugly/indistinct, no alteration, foliation = weak = axial planar? = 302/76, bedding variable, conspicuous m-scale M-folding around trend = 302 FA = 56 > 337, moderate-tight folding, limbs 325/84 & 119/82, similarity of AP to limb suggests refolding
WR_0351	527165	5722862	22-SEP-21 11:29:54AM	Pyroclastic breccia	Folded MV tuff (pyroclastic MV clasts)
WR_0352	527150	5722811	22-SEP-21 11:32:29AM	Mafic Volcanics (Undifferentiated)	MV
WR_0353	527144	5722796	22-SEP-21 11:36:57AM	Tuff - Mafic	mafic tuff, bedded = 333/56, some saussurite veinlets, = 297/72 = fault with ~10 cm dextral-apparent offset cutting bedding
WR_0354	527146	5722745	22-SEP-21 11:44:57AM	Pyroclastic breccia	Mafic pyroclastic tuff
WR_0355	526978	5722711	22-SEP-21 11:49:36AM	Granite	small knob of outcrop, pink granite
WR_0356	526825	5722491	22-SEP-21 12:02:14PM	Gneiss	Next to rapids; foliated, biotite-rich gneiss, next to the rapids, marbled with aplite dikes, foliation/gneissosity = 001/74; definitely batholith
WR_0357	527073	5722522	22-SEP-21 12:47:19PM	Overburden	Open mixed forest
WR_0358	527158	5722442	22-SEP-21 12:53:13PM	Gneiss	Great exposure next to portage, strongly foliated pale pink orthogneiss, batholith phase? Foliation = strong = 325/77
WR_0359	533159	5722031	23-SEP-21 8:43:14AM	Granite	Big exposure of fine-medium grained granite, pale pink, at camp. Very massive, monotonous, no pegmatite, no foliation evident
WR_0360	533393	5721764	23-SEP-21 9:31:28AM	Wacke	How am I STILL in rapids? Seds (wacke?) next to water. Banding (bedding?) = 173/77

Waypoint	Easting	Northing	Timestamp	Rock Type	Description
WR_0361	533439	5721633	23-SEP-21 9:57:47AM	Shear	Good exposure, 1 m wide mylonitic MV band, biotite-rich, in contact to the west with rusty-weathering sandy wacke. A bit of bullish veining; contract subparallel to mylonite = 155/64
WR_0362	533282	5721586	23-SEP-21 10:07:23AM	Granite	Large subcrop in swamp. Granite, bright pink with pegmatite dikes
WR_0363	533079	5721499	23-SEP-21 10:13:20AM	Granite	Very fine-grained white rock, looks rhyolitic but with coarse patches/pockets of white intrusive, probably a fine-grained granite intrusive phase
WR_0364	532959	5721462	23-SEP-21 10:28:47AM	Tuff - Mafic	Interesting; soft, non-descript outcrop, broken fragments are STRONGLY biotitised also some amphibole, some sections look like sediments, others like MV. Not pQ, but contains some stringers and one boudinaged vein (10 cm wide) of sugary/rusty but not especially sulphide rich = vQ = mod = 188/87. Sulphides are rare in the outcrop, not quite sure what to make of this, hard to sample
WR_0370	532853	5721446	23-SEP-21 11:09:17AM	Tonalite	Big flat subcrop of pale pink, slightly foliated biotitic tonalite, fine-medium grained
WR_0371	532843	5721436	23-SEP-21 11:10:55AM	Tonalite	tonalite again, almost looks dioritic?
WR_0372	532807	5721440	23-SEP-21 11:21:47AM	Tuff - Mafic	Even more interesting stringer zone, in what probably (?) are heavily metasomatized MV (but could be seds?); mostly biotite, gritty texture (reminiscent of seds), still soft, but outcrop is veined with vQ = mod = dominantly = 047/84 & slightly folded set = 085/79 (some of these seem constrained to certain litho bands). Besides biotite & quartz-feldspar, this rock contains brown-orange-red garnets to ~0.6 cm, & needly tabular plates of a pale green mineral, up to ~1 cm long, either an amphibole (... actinolite, could be anthophyllite). Unit is banded parallel to foliation = 047/84
WR_0373	532779	5721425	23-SEP-21 11:52:27AM	Tuff - Mafic	Similar altered rock; probably seds here still with garnet, white fibrous mineral (anthophyllite?), also sometimes intergrown with coarse biotite crystals (to ~1 cm). "Anthophyllite" forms weird, deformed, ramifying "stockworks" in some places contains biotite and locally up to ~30% of rock mass
WR_0374	532761	5721422	23-SEP-21 12:23:59PM	Tuff - Mafic	Alteration zone continues here, forms a patchy m-scale stockwork of "anthophyllite" = strong, stockwork looks surprisingly untectonized, vQ = weak = rusty reddish veins to ~3 cm, in a few places, p-Garnet = weak, p-Biotite = mod, p-Anthophyllite = intense, whitish or sometimes with brown notes; crystals here to ~1 inch in length (adjacent QV), foliation = mod = 067/55 (!!); however, more strongly developed = stretching lineation = 51 > 191, on foliation , possibly fold related, this protolith more resembles MV
WR_0375	532743	5721419	23-SEP-21 1:19:35PM	Tonalite	Medium-grained biotite tonalite
WR_0376	532718	5721433	23-SEP-21 1:27:50PM	Clastic Sediments (Undifferentiated)	Seds, pBiotite = pTremolite = mode, intruded by a medium-grained tonalite dike, intruded along conspicuous bedding = 069/73 = tonalite dike. Alteration does NOT increase adjacent the dike
WR_0377	532687	5721435	23-SEP-21 1:32:50PM	Overburden	Start of spruce swamp
WR_0378	532528	5721426	23-SEP-21 1:56:09PM	Tuff - Mafic	Big knob of outcrop rising from swamp; mix of seds, white granite & MV, seds not highly altered, white granite includes a ~4 cm pegmatite vein, this contains lithian muscovite & schorl, spheres of what is probably molybdenite (…). Most granite is equal, associated with greyish quartz veins & pods. MV is intensely = pAnthophyllite = pBiotite = pGarnet, anthophyllite is clearly folded, forms a sort of stockwork to cellular texture, up to 30% of outcrop in places, folding is also clear in seds. Possibly 5 fold generations? Main folding of alteration (around ~255) completely at odds with dominant bedding, folding AP
WR_0380	532514	5721392	23-SEP-21 3:10:54PM	Clastic Sediments (Undifferentiated)	Seds & white granite

Waypoint	Easting	Northing	Timestamp	Rock Type	Description
WR_0381	532491	5721389	23-SEP-21 3:12:09PM	Tonalite	biotite tonalite, medium-grained, fresh
WR_0382	532470	5721391	23-SEP-21 3:13:50PM	Late mafic intrusive	Odd soft chlorite mafic dike (lamprophyre?)
WR_0383	532444	5721383	23-SEP-21 3:19:35PM	Tuff - Mafic	MV, strong metasomatism, pBiotite = strong, another fine, slightly greenish mineral instead of "anthophyllite", pTalc = strong??
WR_0384	532392	5721419	23-SEP-21 3:23:10PM	Clastic Sediments (Undifferentiated)	seds, subcrop
WR_0385	532362	5721414	23-SEP-21 3:26:29PM	Clastic Sediments (Undifferentiated)	folded seds, with strong 2=10 cm pActinolite (?), reaction rims forming around grainy quartz veins, weird
WR_0386	532352	5721442	23-SEP-21 3:34:52PM	Tuff - Mafic	MV having pGarnet = pBiotite = strong, no anthophyllite observed
WR_0387	532342	5721462	23-SEP-21 3:40:58PM	Tuff - Mafic	MV intense alteration pBiotite = pAnthophyllite = pGarnet
WR_0388	532305	5721566	23-SEP-21 3:48:24PM	Dacite	IV or II; Fine-grained dacitic composition unit; looks vaguely intrusive, could be "massive dacitic flow"
WR_0389	532311	5721596	23-SEP-21 5:00:46PM	Magnetite BIF	BIF = ~175/67 (based on sun…); ~6 m thick BIF, massive horizon, mainly actinolite, lesser chert, magnetite, disseminated and in beds up to ~3 cm. Very rusty/gossanous appearance, initially very exciting… minor po noted in one spot, but overall sulphide deficient. Cut by felsics in a couple places
WR_0390	532262	5721644	23-SEP-21 5:32:28PM	Mafic Volcanics (Undifferentiated)	Subcrop, altered MV, entering spruce/lab tea bog
WR_0391	532222	5721746	23-SEP-21 5:37:07PM	Overburden	small mound, possible subcrop
WR_0392	532227	5721782	23-SEP-21 5:40:54PM	Clastic Sediments (Undifferentiated)	Mainly seds? pGarnet = mod, pQ = mod
WR_0393	532210	5721822	23-SEP-21 5:44:45PM	Overburden	Spruce swamp; thick sphagnum carpet
WR_0394	532309	5721764	23-SEP-21 5:50:20PM	Diorite	195/75 is contact between granite & a coarse-grained diorite
WR_0395	532547	5721589	23-SEP-21 5:59:16PM	Tuff - Mafic	intensely altered MV, pBiotite = pAnthophyllite = intense
WR_0396	532611	5721588	23-SEP-21 6:02:00PM	Mafic Volcanics (Undifferentiated)	Subcrop; altered MV
WR_0397	532791	5721587	23-SEP-21 6:07:12PM	Tonalite	Large angular blocks of white biotite tonalite
WR_0398	532985	5721676	23-SEP-21 6:17:39PM	Tuff - Mafic	MV, intense = pBiotite = pGarnet, moderate = pMuscovite, no tremolite noted, vQ = strong, a 1 m band of irregular stringers, folded, but trending = 100 degrees; also a strong boxwork fracture set running 012/84
WR_0399	533352	5721673	23-SEP-21 6:33:40PM	Tuff - Mafic	MV, not highly altered, but pGarnet = strong, large (to ~0.5 cm euhedral brown-red garnets disseminated throughout)
WR_0400	533417	5721707	23-SEP-21 6:47:31PM	Mafic Volcanics (Undifferentiated)	MV by water; pGarnet = strong, abundant fine garnets
WR_0401	533324	5721832	23-SEP-21 6:59:15PM	Massive Basalt	tough, massive MV; dark green, ~unaltered
WR_0402	533255	5721891	23-SEP-21 7:02:07PM	Granite	fine-grained pink granite
WR_0403	533153	5721978	23-SEP-21 7:09:54PM	Granite	medium-grained pink granite
WR_0404	533980	5720783	24-SEP-21 9:26:46AM	Tuff - Mafic	MV, altered, pAnthophyllite = pGarnet = strong, pBiotite = moderate. Banding/foliation = mod = 175/86, some sections rusty and almost gossanous (on fractures), some sulphur stench, but sulphides not observed
WR_0405	534051	5720717	24-SEP-21 9:39:02AM	Diorite	Odd unit, grey with pink phenos, kspar phenocrysts, possibly a IV but I am calling it diorite/marbled with granitic veins
WR_0406	534104	5720468	24-SEP-21 9:51:40AM	Overburden	alder subcrop
WR_0407	534039	5720287	24-SEP-21 9:59:06AM	Overburden	Rising ground; spruce & sphagnum, some pine
WR_0408	533975	5720199	24-SEP-21 10:03:21AM	Overburden	high open pine flats, caribou moss

Waypoint	Easting	Northing	Timestamp	Rock Type	Description
WR_0409	533718	5719916	24-SEP-21 10:24:15AM	Overburden	Ends… entering open spruce swamp
WR_0410	533633	5719776	24-SEP-21 10:27:55AM	Overburden	End of swamp, ground rises to jackpine plateau
WR_0411	533412	5719526	24-SEP-21 10:45:02AM	Massive Basalt	Soft, fresh (…) massive basalt; but marbled by some pale green vSaussurite = mod- strong (possibly?) on pillow margins?
WR_0412	533369	5719513	24-SEP-21 10:50:17AM	Pillow Breccia - Basalt	Possibly a pillow breccia MV? Fragments are pEpidote = strong, pCalcite = weak, vQ = weak blobs
WR_0413	532843	5719275	24-SEP-21 11:27:11AM	Pillow Basalt	MV under overturned stump. Pillow MV, pale pSaus = mod, flooding pillow selvage; a few black crystals (tour or amphibole?) grown with quartz into this selvage material, otherwise fresh and ~unstrained, some amygdules
WR_0414	532811	5719238	24-SEP-21 11:35:23AM	Massive Basalt	Massive fresh MV, no foliation
WR_0415	532806	5719235	24-SEP-21 11:37:41AM	Pillow Breccia - Basalt	Pillow breccia? Striking "epidosite" fragments averaging ~40% epidote, some sections metamorphosed to "skarn" assemblage (epidote & orange, euhedral ~1-2 mm "skarn" grossular); pEpidote = intense, pGarnet = strong, pCalcite = weak, vQ = mod as bullish chunks associated with epidote. Couple reps taken, very impressive looking
WR_0416	532773	5719236	24-SEP-21 12:17:16PM	Pillow Breccia - Basalt	Another spectacular epidosite, outcrop ~50% epidote within a pillow breccia horizon, elongate = 338/85 (stretched but not visibly foliated) = bedding as well (based on breccia horizon). pEpidote = intense, pGrossular = strong, especially filling selvage of pillows
WR_0417	532733	5719228	24-SEP-21 12:26:46PM	Overburden	alder swamp
WR_0418	532660	5719226	24-SEP-21 12:29:48PM	Massive Basalt	Foliation = mod = 159/80, soft green massive MV, couple of foliation parallel granitic veinlets…. pEpidote = weak, along foliation and in a tension gash
WR_0419	532651	5719225	24-SEP-21 12:37:39PM	Variolitic Mafic	Coarsely variolitic flow, plagioclase nodules to ~1.5 inches across, sub-crystalline faces to nodules. Fresh but cut by a couple "diorite" veinlets (crosscut varioles, not feeder structures). Reminds me of the unit in Sioux Lookout
WR_0420	532626	5719236	24-SEP-21 12:43:48PM	Variolitic Mafic	Variolitic, huge varioles here (a mix though) up to ~20 cm across; weak stockwork here of vEpidote = mod
WR_0421	532621	5719191	24-SEP-21 12:49:11PM	Variolitic Mafic	Variolitic flow
WR_0422	532612	5719174	24-SEP-21 12:50:57PM	Pillow Basalt	Pillow amygdular MV, pEpidote = pGrossular = strong, filling amygdules & selvage
WR_0423	532588	5719141	24-SEP-21 12:58:28PM	Massive Basalt	Dark green, massive MV, minor pyrrhotite noted. Tonnes of outcrop here
WR_0424	532577	5719135	24-SEP-21 1:00:52PM	Pillowed Amygdular Basalt	Pillowed/amygdular basalt, pEpdiote = strong to selvage & amygdules
WR_0425	532505	5719094	24-SEP-21 1:07:51PM	Pillowed Amygdular Basalt	Weakly foliated = 150/85, massive or obscurely/coarsely pillowed mafic flow, vQ = pEpidote = moderate, epidote vQ = epidote = 304/63 filling (selvage?), gas vesicles haloing quartz veins, filling tension gash arrays; common but not overly abundant. Similar being massive to pillowed, 1 cm strain MV with weak to moderate epidote across this bastion of outcrop
WR_0426	532445	5719045	24-SEP-21 1:16:47PM	Massive Basalt	massive MV, outcrop ridge
WR_0427	532396	5719001	24-SEP-21 1:19:33PM	Granite	Coarse-grained gabbro
WR_0428	532349	5718964	24-SEP-21 1:23:53PM	Pillow Basalt	Pillow MV; top of a dramatic bald hill; Unit is tough, lacks epidote, with "polished patches" on outcrop surface (but not apparently silicified, despite hardness). pCalcite = weak, pEpidote = weak (occasional blobs & patches)
WR_0429	532371	5718769	24-SEP-21 1:34:37PM	Overburden	south margin of poplar forest
WR_0430	532261	5718782	24-SEP-21 1:37:51PM	Overburden	open poplar forest
WR_0431	532211	5718792	24-SEP-21 1:50:31PM	Massive Basalt	Good stripping location, but pointless to have done so… Massive, black MV flow, not obviously pillowed, vEpidote = moderate,

Waypoint	Easting	Northing	Timestamp	Rock Type	Description
					vSaussurite = moderate, as veins and indistinct blobs (possibly pillow-related?), vSaussurite = dominating = 136/84, possibly subtle bedding features? Foliation = weak = 159/78, almost more of a cleavage, similar but not identical to pSaussurite direction
WR_0432	532067	5718833	24-SEP-21 2:00:05PM	Tonalite	295/70 = tonalite dike, 30 cm thick cutting a strongly banded/bedded = moderate = foliated, = 005/77, probably a pillow breccia horizon, pEpidote = intense in this horizon up to ~25% of this outcrop
WR_0433	532065	5718837	24-SEP-21 2:04:25PM	Overburden	poplar woods ends; entering low spruce swamp
WR_0434	531980	5718856	24-SEP-21 2:06:40PM	Gabbro	Rising cliff, mixed woods, fine-grained gabbro
WR_0435	531964	5718869	24-SEP-21 2:09:06PM	Mafic Volcanics (Undifferentiated)	bland MV
WR_0436	531731	5718902	24-SEP-21 2:15:42PM	Tonalite	Angular biotite-tonalite blocks, probably local
WR_0437	531639	5718813	24-SEP-21 2:19:16PM	Syenite	Medium-grained pink syenite; large subcrop (lots of nothing)
WR_0438	531571	5718734	24-SEP-21 2:26:00PM	Pillow Basalt	MV, probably pillowed, pEpidote = intense, pGrossular = strong. Intruded by pink medium-grained syenite; irregular margins
WR_0439	531372	5718675	24-SEP-21 2:33:48PM	Overburden	Odd open forest, lab tea & pines
WR_0440	531305	5718732	24-SEP-21 3:22:15PM	Overburden	Birch, good example of the die-off in this area
WR_0441	531331	5718943	24-SEP-21 3:32:12PM	Overburden	Open poplar woods
WR_0442	531340	5718996	24-SEP-21 3:34:31PM	Feldspar-crystal tuff - Intermediate	Large float block (glacial), rounded, 1.5 x 2.5 m, IV felsic pyroclastic tuff in mafic matrix, intensely biotitized (close to 100%), bright green (amphibole?) , some grains of chalcopyrite (<0.1%) noted
WR_0443	531333	5718997	24-SEP-21 3:56:51PM	Tonalite	subcrop of white biotite-tonalite; contains coarse blobs of magnetite; strongly magnetic (!)
WR_0444	531325	5719110	24-SEP-21 4:03:54PM	Pillow Basalt	Strongly banded/foliated pillow amphibolite = 028/55, some odd greyish quartz veins and granitic sweats, otherwise not strongly altered (?)
WR_0445	531341	5719228	24-SEP-21 4:10:15PM	Hornblende Syenite	hornblende syenite intruding MV
WR_0446	531374	5719234	24-SEP-21 4:12:33PM	Gabbro	medium-grained gabbro, non-magnetic
WR_0447	531400	5719249	24-SEP-21 4:14:09PM	Pillow Basalt	Pillow MV, pEpidote = pGrossular = intense, up to ~20% in pillow selvage, some rusty patches on outcrop
WR_0448	531426	5719206	24-SEP-21 4:34:19PM	Massive Sulphides	Frustrating outcrop, mainly strongly banded, pEpidote = pGrossular = strongly altered pillowed MV; cut by a true gossan band = 175/79; = banding/foliation in outcrop; appears to be a shear band?? Swells from ~2 cm up to ~20 cm, then abruptly swings to the west and disappearing, possibly folded? Also interacts with a rusty intrusive dike in this area. Swampy section is foliated = 229/56, dike = 121/81. Minor pyrite in the dike, gossan is ~100% rust and no fresh sulphides could be obtained, but a sample was taken rusty/gossanous material.
WR_0449	531538	5719209	24-SEP-21 5:05:02PM	Mafic Volcanics (Undifferentiated)	MV. Must pick up the pace, already 5:00 pm, long way back home…
WR_0450	531620	5719204	24-SEP-21 5:08:11PM	Pillow Breccia - Basalt	Pillow breccia, pEpidote = intense
WR_0451	531678	5719217	24-SEP-21 5:11:57PM	Pillow Breccia - Basalt	pillow breccia, some gossan here, no sulphides observed
WR_0452	531729	5719224	24-SEP-21 5:13:44PM	Massive Basalt	Variable MV, massive exposure here
WR_0453	531802	5719307	24-SEP-21 5:18:18PM	Pillow Basalt	Edge of massive outcrop; pillow MV, stretched trending 027 degrees
WR_0454	532014	5719416	24-SEP-21 5:25:50PM	Hornblende Syenite	Medium-grained light pink "hornblende syenite"

Waypoint	Easting	Northing	Timestamp	Rock Type	Description
WR_0455	532045	5719435	24-SEP-21 5:29:29PM	Pillow Basalt	pillow MV epidote = strong
WR_0456	532189	5719510	24-SEP-21 5:33:43PM	Hornblende Syenite	hornblende syenite
WR_0457	532209	5719529	24-SEP-21 5:35:04PM	Banded Basalt	Banded MV trending 021 degrees
WR_0458	532252	5719546	24-SEP-21 5:36:51PM	Mafic Volcanics (Undifferentiated)	MV; another large outcrop massif
WR_0459	532278	5719557	24-SEP-21 5:37:53PM	Granite	Medium-grained gabbro
WR_0460	532298	5719567	24-SEP-21 5:39:03PM	Pillow Basalt	Pillow MV, pEpidote = strong, in pillow selvage
WR_0461	532312	5719576	24-SEP-21 5:40:26PM	Pillow Basalt	Foliation = moderate, 161/80, pillow MV epidote banding following foliation, pEpidote = pGrossular = strong
WR_0462	532376	5719592	24-SEP-21 5:43:36PM	Massive Basalt	End of massif, foliation = moderate = 337/88; this MV massive, weakly banded parallel foliation, alteration is weak
WR_0463	532414	5719616	24-SEP-21 5:47:35PM	Gabbro	Gabbro, entering spruce swamp
WR_0464	532456	5719678	24-SEP-21 5:49:56PM	Overburden	Out of swamp, jackpines, till
WR_0465	532512	5719692	24-SEP-21 5:51:41PM	Pillow Basalt	Massive, pillowed/banded MV; pEpidote = intense, some bull vQ = moderate, banded = 024/81, not strongly foliated
WR_0466	532562	5719834	24-SEP-21 5:58:17PM	Overburden	Spruce swamp
WR_0467	532664	5719948	24-SEP-21 6:02:29PM	Overburden	"Bouncy castle", stunted spruce bog
WR_0468	532922	5720203	24-SEP-21 6:10:28PM	Overburden	Small boulder mound trending 345 degrees, rising from the bog
WR_0469	533222	5720282	24-SEP-21 6:20:47PM	Overburden	Small (1 m) till ridge rising from swamp trending = 342 degrees
WR_0470	533297	5720322	24-SEP-21 6:26:09PM	Overburden	Walking on dry beaver meadow next to a stream
WR_0471	533592	5720684	24-SEP-21 6:37:27PM	Overburden	Departed from river/beaver meadow (good pathway!) New on thick till, mixed jackpine & spruce
WR_0472	533721	5720771	24-SEP-21 6:41:28PM	Overburden	Scrubby pine & spruce bush, no outcrop
WR_0473	533123	5721988	25-SEP-21 9:12:03AM	Granite	Pink fine-medium grain granite
WR_0474	533096	5721982	25-SEP-21 9:13:02AM	Granite	Granite
WR_0475	533040	5721967	25-SEP-21 9:14:45AM	Granite	Weakly foliated medium-grained granite
WR_0476	533022	5721987	25-SEP-21 9:15:42AM	Granite	granite
WR_0477	532892	5722027	25-SEP-21 9:19:23AM	Overburden	Living (!) birch, ~16 inches in diameter
WR_0478	532827	5722017	25-SEP-21 9:21:41AM	Granite	Medium-grained pink granite, large subcrop
WR_0479	532681	5722027	25-SEP-21 9:25:44AM	Overburden	Spruce bog, thick sphagnum
WR_0480	532312	5722128	25-SEP-21 9:35:34AM	Overburden	Wet boggy spruce area no outcrop
WR_0481	532319	5721858	25-SEP-21 11:51:50AM	Tuff - Mafic	See sketch next page; mainly seds & MV, pBiotite = moderate, pMuscovite = weak = pGarnet
WR_0482	532290	5721851	25-SEP-21 12:00:21PM	Tuff - Mafic	Rusty boulders, presumably local. pAnthophyllite =- pBiotite = pGarnet = strong
WR_0483	532168	5721803	25-SEP-21 12:07:07PM	Tuff - Mafic	MV subcrop, knobby surface
WR_0484	532010	5721738	25-SEP-21 12:12:07PM	Granite	Pale pink granite & peg
WR_0485	531895	5721754	25-SEP-21 12:15:30PM	Overburden	End of pine ridge, mostly OVB

Waypoint	Easting	Northing	Timestamp	Rock Type	Description
WR_0486	531786	5721738	25-SEP-21 12:20:06PM	Overburden	Low spruce woods; found caribou antler!
WR_0487	531665	5721777	25-SEP-21 12:22:54PM	Overburden	Flat jackpine woods, going to check out the "seds knob" (…)
WR_0488	531538	5722086	25-SEP-21 12:33:16PM	Overburden	boulder till under jackpine
WR_0489	531518	5722190	25-SEP-21 12:39:47PM	Overburden	Till mound/ridge continues, slopes down to the north
WR_0490	531395	5721947	25-SEP-21 12:47:12PM	Overburden	Birch forest, not in great shape but some healthy mature trees to ~1 foot
WR_0491	531251	5721654	25-SEP-21 1:02:56PM	Overburden	Odd, elevated spruce woods, deep moss, no outcrop here, transitioning to pine forest
WR_0492	531088	5721664	25-SEP-21 1:18:34PM	Overburden	continues… Boulder till mainly, jackpine here
WR_0493	531117	5721615	25-SEP-21 1:21:23PM	Overburden	Height of land, jackpine, thick sand/gravel till
WR_0494	531263	5721566	25-SEP-21 1:24:44PM	Overburden	Edge of jackpine woods, entering low spruce woods
WR_0495	531502	5721330	25-SEP-21 1:31:55PM	Overburden	low mossy spruce forest
WR_0496	531632	5721280	25-SEP-21 1:35:38PM	Overburden	pine flats
WR_0497	531739	5721149	25-SEP-21 1:51:00PM	Gabbro	Outcrop, fine-grained gabbro, ~unaltered, some fragments with folded appearance (early gabbro?)
WR_0498	531731	5721096	25-SEP-21 2:46:09PM	Magnetite BIF	Spectacular outcrop ~2 x 8 m, mainly ~E-W magnetite-rich BIF, probably ~70 degrees magnetite overall with lesser actinolite (?), garnet & chert bands. Thin-bedded, 2mm - 3 cm usually, moderately z-folded, can't use compass but geometries estimated based on the sun (to the SW at this time)
WR_0499	531709	5720934	25-SEP-21 3:45:18PM	Tuff - Mafic	MV, banded, strong = 298/79; bland appearance, but pBiotite = strong, forming lustrous slips & veinlets, heavy feel to the rock, but no other alteration could be identified
WR_0500	531702	5720917	25-SEP-21 3:50:28PM	Gabbro	Subcrop, fine-grained, green, very massive = gabbro?
WR_0501	531636	5720898	25-SEP-21 3:53:00PM	Overburden	Pines, thick sand
WR_0502	531559	5720923	25-SEP-21 3:59:09PM	Magnetite BIF	BIF? Compass freaking out and spinning in circles
WR_0503	531516	5721015	25-SEP-21 4:06:38PM	Tuff - Mafic	MV, feels kind of heavy, non-magnetic, pBiotite = weak, looks a little strange but not very interesting
WR_0504	531433	5721076	25-SEP-21 4:10:48PM	Tuff - Mafic	Bland looking MV, but pBiotite=moderate, fairly large lustrous black flakes
WR_0505	531357	5721074	25-SEP-21 4:14:04PM	Overburden	Witness post; 3811385; 400 m S of #1, edge of till ridge, descending to spruce swamp
WR_0506	531180	5721032	25-SEP-21 4:19:14PM	Overburden	Deep sphagnum bog stunted spruce
WR_0507	531047	5720837	25-SEP-21 4:26:40PM	Wacke	Abrupt end of bog; outcrop, bland wacke, well bedded 1 mm - 10 cm, bedding = 245/79, intruded by minor granitic sweats
WR_0508	531022	5720846	25-SEP-21 4:33:07PM	Wacke	Seds
WR_0509	530982	5720830	25-SEP-21 4:35:05PM	Tonalite	Tiny subcrop, felsic int? (tonalite??)
WR_0510	530927	5720817	25-SEP-21 4:38:40PM	Massive Basalt	MV; weak = pBiotite as coarse black flakes, very massive except intruded by folded granitic (pale pink sweats)
WR_0511	530943	5720733	25-SEP-21 4:43:06PM	Gabbro	Medium-grain gabbro
WR_0512	530928	5720693	25-SEP-21 4:45:28PM	Tonalite	White-pinkish medium-grained, quart poor, "biotite-tonalite"
WR_0513	530937	5720671	25-SEP-21 4:47:50PM	Tonalite	265/60 = ~50 cm medium-grained biotite tonalite dike intruding seds
WR_0514	531077	5720642	25-SEP-21 4:53:52PM	Overburden	Spruce swamp

Waypoint	Easting	Northing	Timestamp	Rock Type	Description
WR_0515	531182	5720581	25-SEP-21 4:56:32PM	Overburden	rising ground, thick till
WR_0516	531207	5720550	25-SEP-21 4:58:52PM	Pillow Basalt	105/69 = white granitic dike including strongly = banded = foliated = 112/75, pEpidote = weak along some band, MV, probably pillowed, no evidence of biotite alteration
WR_0517	531218	5720509	25-SEP-21 5:04:51PM	Banded Basalt	Strongly banded MV, big knob of outcrop here
WR_0518	531332	5720490	25-SEP-21 5:08:26PM	Pillow Basalt	Pillow MV, low-strain
WR_0519	531385	5720525	25-SEP-21 5:10:26PM	Mafic Volcanics (Undifferentiated)	MV
WR_0520	531471	5720542	25-SEP-21 5:13:20PM	Mafic Volcanics (Undifferentiated)	MV
WR_0521	531567	5720526	25-SEP-21 5:16:40PM	Overburden	small boulder ridge
WR_0522	531666	5720538	25-SEP-21 5:19:47PM	Granite	Fine, sugary pink granite, minor biotite
WR_0523	531707	5720546	25-SEP-21 5:21:50PM	Pillow Basalt	Banding = strong = 018/86, probably pillow MV, pEpidote = strong, along bands (selvage?)
WR_0524	531786	5720601	25-SEP-21 5:26:56PM	Massive Basalt	Massive MV, also friable texture
WR_0525	531961	5720712	25-SEP-21 5:33:17PM	Pillow Basalt	Pillow MV, low strain, pEpidote = strong; weak banding trending ~357 degrees
WR_0526	532164	5720832	25-SEP-21 5:39:36PM	Overburden	Deep overburden, high ground, jackpine & spruce
WR_0527	532190	5720831	25-SEP-21 5:40:49PM	Granite	fine-grained gabbro
WR_0528	532227	5720856	25-SEP-21 5:51:04PM	Massive Sulphides	Massive Pyrite Occurrence, thin-bedded pyrite chunks, from a horizon at least 10 cm across, discovered here under a fallen tree. All fallen blocks, primarily pyrite, with some associated black-green chlorite, pChlorite = strong as well as some quartz veins (possibly recrystallized chert...). All min is as chunks, but directly adjacent MV is 256/82, sulphides are probably stratabound & similar, pEpidote = weak in adjacent volcanics
WR_0529	532299	5720871	25-SEP-21 6:08:46PM	Tuff - Mafic	Intricately banded (airfall tuff?) mafic tuff, banding isoclinally folded, s-folded here around AP = 097/83, vQ = strong here, some bull quartz veins to ~20 cm, FA =70>299
WR_0530	532525	5720980	25-SEP-21 6:22:46PM	Massive Basalt	Massive, bland MV
WR_0531	532603	5720967	25-SEP-21 6:27:39PM	Overburden	Open forest, pine & spruce, till
WR_0532	532714	5720996	25-SEP-21 6:30:20PM	Mafic Volcanics (Undifferentiated)	MV subcrop
WR_0533	532872	5721089	25-SEP-21 6:34:32PM	Overburden	stunted spruce bog
WR_0534	533050	5721136	25-SEP-21 6:38:23PM	Overburden	Alder bog 10 m across
WR_0535	533061	5721177	25-SEP-21 6:43:29PM	Clastic Sediments (Undifferentiated)	Seds, banding (bedding) = 118/53, not significantly altered
WR_0536	533090	5721204	25-SEP-21 6:46:17PM	Hornblende Syenite	Subcrop, hornblende syenite? Hard to be sure without broken piece
WR_0537	533179	5721233	25-SEP-21 6:48:46PM	Overburden	Lab tea & spruce, damp forest
WR_0538	533302	5721157	25-SEP-21 6:53:52PM	Tuff - Mafic	MV & seds, MV is rusty, pBiotite = pMuscovite = moderate, soft and altered volcanics
WR_0539	533297	5721241	25-SEP-21 6:57:40PM	Clastic Sediments (Undifferentiated)	Seds
WR_0540	533306	5721342	25-SEP-21 7:01:14PM	Tonalite	Fine-medium grained biotite tonalite, white
WR_0541	533300	5721412	25-SEP-21 7:03:48PM	Wacke	207/81 = finely laminated bedding in a well exposed wacke intruded by felsic dikes, great bald flat outcrop, knobby surface to seds, one lithan-muscovite-bearing 50 - cm granitic dike, striking 137 degrees, cross-cutting seds bedding, late

Waypoint	Easting	Northing	Timestamp	Rock Type	Description
WR_0542	533296	5721434	25-SEP-21 7:13:43PM	Tuff - Mafic	MV, very knobby (andalusite crystals?) pAndalusite = strong, pBiotite = strong
WR_0543	533337	5721603	25-SEP-21 7:20:08PM	Clastic Sediments (Undifferentiated)	Seds
WR_0544	533210	5721760	25-SEP-21 7:26:56PM	Overburden	Spruce bog, HUGE candy caps!!! (20 cm across)
WR_0545	533164	5721835	25-SEP-21 7:30:08PM	Granite	Bog ends, fine pink granite
WR_0546	533145	5721918	25-SEP-21 7:33:45PM	Mafic Volcanics (Undifferentiated)	Massive dark green rock of bland appearance, MV? Cut by a weak stockwork of granite veinlets, on cliff trending ~113 degrees
WR_0547	533177	5722045	26-SEP-21 9:34:59AM	Granite	Granite next to pool
WR_0548	533268	5722043	26-SEP-21 9:40:17AM	Wacke	065/67 = bedding, thick-bedded (30 cm) to massive, bland wacke, section at least 10 m thick, intruded by some granitic dikes (<5%)
WR_0549	533301	5722094	26-SEP-21 9:48:30AM	Massive Basalt	Cliff exposure… massive MV? Almost gabbroic in appearance, with small felsite "sweats" rimmed with amphiboles, bland appearance, not bx altered
WR_0550	533276	5722246	26-SEP-21 9:55:19AM	Granite	Medium-grained pink granite
WR_0551	533319	5722359	26-SEP-21 9:58:31AM	Granite	Big outcrop, pink granite & pegmatite. Good example of stoping here (see pics). A coherent 5 x 2 m block, probably a weakly banded massive (~5%) granitic veinlets. The unit has been "cooked" with coarse hornblende crystals (porphyroblasts), scattered throughout, to ~ 1 cm in length, some angular blocks floating in granite matrix as well. Xenolith is irregular, sort of sailboat shaped; but generally elongate along weak banding = 203/75 (with "sail" and "keel" sticking out roughly perpendicular)
WR_0552	533377	5722404	26-SEP-21 10:42:18AM	Overburden	till area; jackpines
WR_0553	533133	5722317	26-SEP-21 10:56:48AM	Overburden	low hill; till. Stepped on a jagged branch end, pierced my shoe & my foot; going to bandage it back in camp
WR_0554	533635	5721386	26-SEP-21 12:03:02PM	Tonalite	White fine-medium grain intrusive by the falls, contains some mafic xenos, not sure if it is granite or (more likely?) biotite tonalite blocks are VERY massive, going to get out here, try to examine the "EM anomaly"
WR_0555	533645	5721375	26-SEP-21 12:08:08PM	Tuff - Mafic	Moderately altered MV blocks in stream (angular) at waterfall, probably local, pBiotite = pMuscovite = pAnthophyllite = moderate, but odd in that it contains ~2% pyrite are little veinlets following foliation
WR_0556	533644	5721343	26-SEP-21 12:25:15PM	Tuff - Mafic	Altered MV, strong = pBiotite = pAnthophyllite (? Flattened elongate milky white clots…); trace pyrite. Unit looks almost intrusive on surface, as it is somewhat pinkish and knobby, Foliation = strong= variable & seemingly folded; = 182/49
WR_0557	533630	5721074	26-SEP-21 12:37:00PM	Overburden	Low spruce woods, no outcrop
WR_0558	533559	5721001	26-SEP-21 12:44:50PM	Overburden	My belove grassy river!!
WR_0559	533497	5720932	26-SEP-21 12:50:03PM	Overburden	Steep boulder mound
WR_0560	533303	5720861	26-SEP-21 12:55:14PM	Overburden	thick spruce/sphagnum bog
WR_0561	533221	5720856	26-SEP-21 12:57:06PM	Overburden	Out of swamp; flat pin highlands
WR_0562	533062	5720998	26-SEP-21 1:54:15PM	Overburden	Low pine-spruce ridge all along here; no outcrop observed
WR_0563	533385	5720630	26-SEP-21 2:04:50PM	Overburden	Same… low pine-spruce woods; presumably thick overburden
WR_0564	533298	5720600	26-SEP-21 2:08:02PM	Overburden	Steep overgrown gravel & till mound
WR_0565	533221	5720644	26-SEP-21 2:10:35PM	Overburden	Low spruce woods; lab tea
WR_0566	533168	5720743	26-SEP-21 2:13:50PM	Overburden	Entering stunted spruce/lab tea bog

Waypoint	Easting	Northing	Timestamp	Rock Type	Description
WR_0567	532955	5720797	26-SEP-21 2:19:45PM	Overburden	Spruce bog, area of EM anomaly
WR_0568	532815	5720931	26-SEP-21 2:34:08PM	Massive Basalt	Very massive basalt flow or possibly gabbro, vSaus = moderate, vActinolite = strong, saussurite veinlets form a sort of "boxwork" across the outcrop, with saussurite cores to ~2 cm and strong actinolite (green) fine-grained, replacing chlorite? Haloes generally 1-2 cm radius. Dominant fractures = vSaus orientation = 320/78, but veinlets in many orientations
WR_0569	532658	5721125	26-SEP-21 2:47:37PM	Magnetite BIF	Rubble (local) under root pull; lean BIF, highly magnetic but magnetite bands typically ~1 m thick, associated with sugary chert bands and coarsely-grained pale green actinolite, rusty, on small ridge next to Spruce Bog
WR_0570	532606	5721147	26-SEP-21 3:48:07PM	Magnetite BIF	Pied Percée Showing. Westernmost exposure, confusing & frustrating exhalite horizon, significant magnetite component, but mag ~10% overall. Remaining minerals apparently mostly chert bands (~40%?), minor pyrite seams (2% overall?, these are quite rare), with remaining being blocks actinolite & grunerite? However the overall BIF is inexplicably very gossanous... white sems of pyrite are present, these are rare & pyrite is ~absent as disseminations, there are some fine blackish phases, and some coarser pale green & honey-brown phases; may just be silicates (seem to have silicate cleavage); but some of them also seem unusually susceptible to weathering. Could there be cryptic sphalerite in this horizon? Horizon trends ~105/75 (as trend in GPS). Folding not observed in observable sections (but presumably present). Horizon about 15 m as observed; to the south is a low spruce woods; to teh N is a broad spruce bog, presumably the same which covers the EM anomaly; the BIF is continuous to the edge of the bog, nor is the south contact exposed. magnetite content seems to increase to the north. Traced for 80 m along-strike, no effort made to trace it beyond that. I am not the 1st to discover the horizon.
WR_0571	532680	5721126	26-SEP-21 4:30:31PM	Magnetite BIF	Pied Percée East End, there is a 3 x 1.5 x 1.5 m, clearly dug or blasted pit on the showing, now overgrown with deep moss, age is unknown but obviously old.
WR_0572	532673	5721127	26-SEP-21 4:33:20PM	Magnetite BIF	Pied Percée - Evidence of two smaller pits, 2 x 2 x 1, perched partway up the hill
WR_0573	532657	5721133	26-SEP-21 4:34:10PM	Magnetite BIF	Pied Percée; small pit (1 x 1 x 1 m)
WR_0574	532560	5721145	26-SEP-21 5:15:23PM	Magnetite BIF	BIF continues
WR_0575	532501	5721171	26-SEP-21 5:19:25PM	Tuff - Mafic	Foliation = 117/77 = moderate = banding, MV, knobby surface, pBiotite = pAndalusite (grainy white knobs?) = strong, pMuscovite = weak. Getting cool out, foot is bugging me
WR_0576	532342	5721187	26-SEP-21 5:29:27PM	Massive Basalt	Bland massive MV; possibly biotitized
WR_0577	532217	5721188	26-SEP-21 5:37:20PM	Overburden	Sphagnum bog
WR_0578	532176	5721156	26-SEP-21 5:39:06PM	Pillow Basalt	End of swamp, good outcrop, pillowed MV, pEpidote = mod in selvage
WR_0579	532108	5721151	26-SEP-21 5:42:06PM	Pillow Breccia - Basalt	Pillow bx? Not sure, ~unaltered
WR_0580	532013	5721245	26-SEP-21 5:47:19PM	Overburden	Mixed woods; ground sloping down; typical of this ridge; occasional outcrop
WR_0581	532041	5721340	26-SEP-21 5:52:01PM	Overburden	Pine & spruce, till ridge, cobble till
WR_0582	532070	5721457	26-SEP-21 5:57:18PM	Overburden	Lot of blowdown, mixed pine & spruce flat, no outcrop
WR_0583	532055	5721527	26-SEP-21 6:01:57PM	Overburden	Ground descending into swamp, going to turn east here
WR_0584	532186	5721587	26-SEP-21 6:13:00PM	Tuff - Mafic	Big outcrop of MV, banded 223/69, possibly most altered outcrop yet, pBiotite = pMuscovite = strong, pAnthophyllite = INTENSE, po - up to 2%, unusual for these outcrops, intense alteration gives rock surface a very rough "bone marrow" texture. "Anthophyllite"

Waypoint	Easting	Northing	Timestamp	Rock Type	Description
					crystals commonly 1 inch in length, this area could use prospecting follow-up, not sure I'll get to it (already 6:30 today)
WR_0585	532225	5721541	26-SEP-21 6:38:08PM	Conglomerate	Conglomerate!! Similar to the conglomerate unit seen up north, mostly sheared quartz pebbles, but includes some flattened mafic clasts as well, intensely tectonized, foliation = intense = 116/74, intruded by a felsic dike; unit exposed over ~2 m width
WR_0586	532233	5721449	26-SEP-21 6:45:40PM	Tuff - Mafic	Rough-surface, altered (pBiotite/etc.) MV subcrop, too small for better description
WR_0587	532263	5721398	26-SEP-21 6:49:16PM	Tuff - Mafic	pBiotite = pAnthophyllite = strong, MV alteration appearance folded, thickened hinges
WR_0588	532280	5721375	26-SEP-21 6:56:50PM	Overburden	N edge of spruce bog
WR_0589	532331	5721346	26-SEP-21 6:58:44PM	Overburden	Ditto, shadowing bog, hoping for a situation analogous to Pied Percée
WR_0590	532352	5721346	26-SEP-21 7:00:58PM	Granite	Fine-grained pale pink biotite granite
WR_0591	532380	5721369	26-SEP-21 7:02:28PM	Granite	Fine-grained pale pink biotite granite
WR_0592	532414	5721386	26-SEP-21 7:05:31PM	Tuff - Mafic	MV, intensely altered, mod = Anthophyllite, intense = pBiotite = pMuscovite = pAndalusite. Already 7:10, still have a long way to go & am recrossing ground… probably no more notes
WR_0593	532762	5721527	26-SEP-21 7:16:57PM	Conglomerate	large subcrop, seds?
WR_0594	533472	5721371	26-SEP-21 7:35:30PM	Conglomerate	seds outcrop
WR_0595	533578	5721352	26-SEP-21 7:40:09PM	Tonalite	exposure in rapids in the "mysterious forest creek". Massive, rounded blocks of pale pink "biotite tonalite" medium-grained, very little quartz
WR_0596	532996	5721851	27-SEP-21 8:44:57AM	Tuff - Mafic	Heavily altered MV; pBiotite = pAnthophyllite = pGarnet = strong, anthophyllite needles are small (<1 cm length), mode foliation = 117/73 = moderate; otherwise appears massive & homogeneous! Cut by a 20 cm straight-edged greenish (LiMu) granitic dike with ~5 cm pegmatitic margins, dike = 153/51. Generic spruce & pine woods here, moderate relief, no particular swamps or breaks
WR_0597	532962	5721685	27-SEP-21 9:07:10AM	Clastic Sediments (Undifferentiated)	Bland, massive seds, bedding not obvious, not obviously altered
WR_0598	532947	5721713	27-SEP-21 9:10:40AM	Overburden	Spruce/lab tea bog, fairly dry
WR_0599	532879	5721745	27-SEP-21 9:15:21AM	Tonalite	Knob of white, sparsely biotite "tonalite", no pegmatite, very homogeneous, weak-moderate foliation trending 119/steep; moderate quartz content
WR_0600	532816	5721849	27-SEP-21 9:21:24AM	Overburden	pines; thick cobble till mound
WR_0601	532830	5721866	27-SEP-21 9:30:37AM	Tuff - Mafic	MV; intensely altered, pBiotite = pAnthophyllite = intense, pGarnet= strong, anthophyllite forming blocker or more blade-like crystals to ~1 x 3 cm, small reddish garnets, fo = mod = 155/83; probably bedding = foliation, several small (to 20 cm) dikes and pods of "biotite tonalite" injected along this orientation (along foliation) as well, both fo & dikes are folded, show dm-scale z-folding. Abrupt ~1.5 m ledge sloping down to the N, running ~070 degrees
WR_0602	532824	5721895	27-SEP-21 9:57:30AM	Overburden	Big lab tea, spruce, tamarack swamp
WR_0603	532802	5722013	27-SEP-21 10:01:23AM	Overburden	Ground rises to the N; edge of dry spruce swamp
WR_0604	532659	5721962	27-SEP-21 10:05:42AM	Overburden	Wet spruce/sphagnum swamp, trees not stunted
WR_0605	532583	5721843	27-SEP-21 10:14:49AM	Overburden	Rising Ground
WR_0606	532645	5721849	27-SEP-21 10:21:25AM	Tuff - Mafic	MV/tonalite, foliation = mod = 006/74 (= bedding?). Strongly altered, pBiotite = strong, pAnthophyllite = pGarnet = mod, typically small anthophyllite needles
WR_0607	532596	5721825	27-SEP-21 10:24:13AM	Overburden	Thick sandy hill under pines

Waypoint	Easting	Northing	Timestamp	Rock Type	Description
WR_0608	532546	5721814	27-SEP-21 10:26:09AM	Overburden	Alder swamp
WR_0609	532515	5721805	27-SEP-21 10:27:56AM	Overburden	Switch to spruce swamp
WR_0610	532449	5721739	27-SEP-21 10:39:13AM	Tuff - Mafic	MV, more moderately altered, pBiotite = mod, pAnthophyllite = pGarnet = weak, foliation = moderate, variable but dominantly = 125/70, large, monotonous MV exposure, no tonalite or seds observed
WR_0611	532468	5721724	27-SEP-21 10:46:24AM	Tuff - Mafic	Altered MV
WR_0612	532419	5721608	27-SEP-21 10:49:45AM	Overburden	Low ground, spruce & lab tea
WR_0613	532422	5721585	27-SEP-21 10:52:59AM	Tonalite	Tiny subcrop in low ledge running 070 degrees; probably biotite tonalite; step up to spruce/pine woods
WR_0614	532394	5721529	27-SEP-21 11:02:21AM	Sandstone	"Sandstone", sandy clastic, minor biotite
WR_0615	532399	5721540	27-SEP-21 11:20:45AM	Conglomerate	Amazing outcrop showing re-emergence of the "conglomerate" unit. Shown here to be some kind of storm bed depositing the sub-rounded to angular quartz clasts (chert fragments). Possibly there are chert layers (grey, somewhat glassy quartz, looks ~identical to quartz in cobbles, but contains some feldspar (suggesting peg affinity). These quartz veins are seemingly bedding parallel; and are cut by the base of the conglomerate, suggesting tops to the south; however, folding complicates these relationships
WR_0616	532847	5721646	27-SEP-21 1:54:05PM	Clastic Sediments (Undifferentiated)	Seds & moderately foliated white biotite tonalite or granite
WR_0617	533678	5721332	27-SEP-21 2:38:51PM	Wacke	Block of wacke, ~5 m across in contact with fine-medium grain white granite (or "tonalite"). Wacke unremarkable
WR_0618	533911	5720953	27-SEP-21 3:07:44PM	Clastic Sediments (Undifferentiated)	Seds bedded = strong foliated = 133/35 (!), paralleling watercourse here. Some rust staining suggesting sulphides, pGarnet = mod (possibly in mafic interbeds?)
WR_0619	533839	5720846	27-SEP-21 3:12:55PM	Overburden	stunted spruce bog
WR_0620	533943	5720548	27-SEP-21 3:19:24PM	Overburden	Good trail
WR_0621	534054	5719861	27-SEP-21 3:33:58PM	Overburden	Big spruce bog, stunted trees
WR_0622	533909	5719677	27-SEP-21 3:38:20PM	Overburden	trailhead
WR_0623	534068	5719255	27-SEP-21 3:48:01PM	Granite	Swampy until here (variable swamps). Here; large, rounded knobs of m-coarse pink biotite granite
WR_0624	534053	5719040	27-SEP-21 3:56:19PM	Overburden	Within the "target area"; this area rising ground, not swampy but very ragged/rugged forest, lab tea and small spruce only
WR_0625	533988	5719003	27-SEP-21 4:04:15PM	Overburden	Higher ground… all till… descending to low spruce and lab tea again
WR_0626	533841	5718643	27-SEP-21 4:15:22PM	Diorite	Tree pull; uniform angular float blocks of a coarse-grained diorite, very distinctive, presumably sub-cropping around here, non-magnetic
WR_0627	533831	5718646	27-SEP-21 4:18:21PM	Diorite	angular float blocks of a coarse-grained diorite
WR_0628	533843	5718606	27-SEP-21 4:20:05PM	Diorite	angular float blocks of a coarse-grained diorite; in-situ blocks
WR_0629	533525	5718539	27-SEP-21 4:36:45PM	Pillow Basalt	Large outcrop, cliff rising from the swamp, moving ~030 degrees, pillow MV, with strong pEpidote = pGarnet along selvages, moderate = foliation = bedding = 173/37 (!); similar float dip as seen to the N near the batholith margin
WR_0630	533471	5718402	27-SEP-21 4:47:54PM	Massive Basalt	Dark green massive flow, least altered, some bull vQ stringers = mod, good direction associated with the quartz vein, quartz rods = 31 > 281, on vQ = fo = mod = 106/64
WR_0631	533438	5718342	27-SEP-21 4:55:23PM	Massive Basalt	Massive, bland greenstone

Waypoint	Easting	Northing	Timestamp	Rock Type	Description
WR_0632	533885	5718153	27-SEP-21 5:16:01PM	Overburden	No sign of outcrop, and forest is deteriorating in a stunted perched bog; going to start heading back now. Lab tea jungle up here
WR_0633	534010	5718438	27-SEP-21 5:28:57PM	Massive Basalt	Block of fine-grained dark green rock (MV probably?) in a m-grain pale pink biotite, granite, MV block is well banded = 279/27; granite dike can be seen intruding underneath the banding in the outcrop
WR_0634	533950	5718558	27-SEP-21 5:36:24PM	Granite	Tiny subcrop, pink medium-grained granite
WR_0635	534040	5718817	27-SEP-21 5:44:31PM	Granite	Large knob of coarse-grained bright pink along foliation, biotite granite
WR_0636	534095	5718914	27-SEP-21 5:53:50PM	Mafic Volcanics (Undifferentiated)	Uncertain protolith in a moderate-sized outcrop (~4 x 6 m). Banded with alteration along foliation (actinolite?); groundmass is feldspar phenocrystic, reminiscent of the feldspar crystal tuff, banding = foliation = strong = 149/45, no granite observed at the outcrop
WR_0637	533892	5720953	27-SEP-21 6:50:12PM	Clastic Sediments (Undifferentiated)	seds
WR_0638	533873	5720987	27-SEP-21 6:52:25PM	Clastic Sediments (Undifferentiated)	seds

Appendix 3 – Grab Samples

Waypoint	ID	Easting	Northing	Area	Description	Au*	Ag	Cu	Pb	Zn
13	169091	531431	5715348	Good Site Lake Area	Sample, mainly sugary quartz veins, minor felted chlorite wallrock black chlorite & green actinolite needles in quartz, ~0.8% fine pyrite mostly along vein margin, concentrated with some dull white-brown chlorite. Decent-looking, NO ANKERITE	0.0025	-	-	-	-
14	169092	531437	5715340	Good Site Lake Area	Sample of the quartz vein, including ~5% anastomosing seams of black-brown chlorite & pale brown ankerite (or calcite…). ~1% pyrite, although much of it is rusty; this is INTERNAL to the sugary QV, giving it almost a crack-seal appearance	0.0025	-	-	-	-
18	169093	531405	5715321	Good Site Lake Area	"Composite" sample from a couple vein sections, reddish QV, some chlorite seams, pyrite, minor wallrock	0.0025	-	-	-	-
210	169094	527342	5722379	Whitefish West	Sample of quartz & kspar, py, po, vein & wallrock (30 : 70); silicified	0.007	0.2	143	2.8	49
210	169095	527342	5722379	Whitefish West	Sample of wallrock (~2% po); & the "cherty" band; more chlorite alteration, sulphides lacking in cherty band	0.012	0.2	79.8	4.2	70
235	169097	527800	5721224	Whitefish West	Sample of the moderately silicified green rock, ~1% fine pyrrhotite	0.006	< 0.1	73.2	3.1	35
237	169099	527770	5721276	Whitefish West	Composite sample across shear with veins; minor sulphide	0.006	< 0.1	51.2	3.2	57
327	169100	528494	5719773	Whitefish West	Bland sample; silicified, brownish biotite alt, fine pyrrhotite and a sulphide (garlicky…?); small rusty straining from shear zone	0.0025	< 0.1	40.6	2.3	56
369	169101	532958	5721460	Whitefish East	Chip sample of ~50:50 vein & wallrock material. Not much sulphide noted but veins are quite rusty. Difficult to sample so sample is "composite" from the many stringers	0.0025	0.1	13.4	5.7	48
372	169102	532807	5721440	Whitefish East	Sample of altered rock… garnets & actinolite, rep of whole rock or thin section??	0.0025	< 0.1	40.4	4.1	69
389	169103	532307	5721572	Whitefish East	Composite sample from across the 6 m BIF horizon. Minor po?	0.128	0.1	46.8	16.1	13
448	169104	531427	5719209	Whitefish East	Sample of deep gossan from thickest part of the gossan horizon; no fresh sulphides	0.005	0.4	272	3.1	41
527	169105	532229	5720858	Whitefish East	Sample of ~massive, thinly banded pyrite	0.025	0.9	208	2.1	58
572	169106	532662	5721133	Whitefish East (Pied Percee)	Banded sample of chert and a heavy, non-magnetic, very fine grained "matte black" phase, gossanous coating; sample Is ~70% black phase	0.011	0.6	150	89.8	640
572	169107	532465	5721128	Whitefish East (Pied Percee)	Thin-bedded, highly-gossanous fragment with sulphides obviously rotting out; but no pyrite? ~80% black quartz/chert	0.007	0.3	126	31.1	141
572	169108	532628	5721138	Whitefish East (Pied Percee)	Thin-bedded chert & a black gossanous, very fine mineral ~70% of sample; seems to be rotting out, could be very finely divided sphalerite?	0.015	0.5	32.4	9.6	19
572	169109	532601	5721145	Whitefish East	Sample of ~100% heavy, matte black, very fine-grained phase	0.007	0.2	49.8	45.5	269

Waypoint	ID	Easting	Northing	Area	Description	Au*	Ag	Cu	Pb	Zn
				(Pied Percee)						
572	169110	532601	5721145	Whitefish East (Pied Percee)	Magnetic sample, maybe 10% disseminated magnetite, remainder is a medium-grained transparent yellow-green phase, probably a silicate (cleavage looks right); possibly could be sphalerite?	0.005	0.1	20.1	3.2	32

*All assays in ppm

Appendix 4 – Assay Certificates

Quality Analysis ... *Innovative Technologies*

Report No.: **A21-19976**
Report Date: **05-Nov-21**
Date Submitted: **21-Oct-21**
Your Reference: **Birth Lake North**

Sundog Geology
231 Algoma St. S
Thunder Bay ON P7B 3C3
Canada

ATTN: John Fingas

CERTIFICATE OF ANALYSIS

18 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)	2021-10-30 14:02:33

REPORT **A21-19976**

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.

SCC Accredited LAB Accrédité CCN TM

LabID: 673

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.: **A21-19976**
Report Date: **05-Nov-21**
Date Submitted: **21-Oct-21**
Your Reference: **Birth Lake North**

Sundog Geology
231 Algoma St. S
Thunder Bay ON P7B 3C3
Canada

ATTN: John Fingas

CERTIFICATE OF ANALYSIS

18 Rock samples were submitted for analysis.

The following analytical package(s) were requested:		Testing Date:
UT-1M	QOP Ultratrace-1 (Aqua Regia ICPMS)	2021-11-04 16:16:31

REPORT **A21-19976**

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.

SCC Accredited LAB Accrédité CCN TM

LabID: 266

CERTIFIED BY:

Emmanuel Eseme , Ph.D.
Quality Control Coordinator

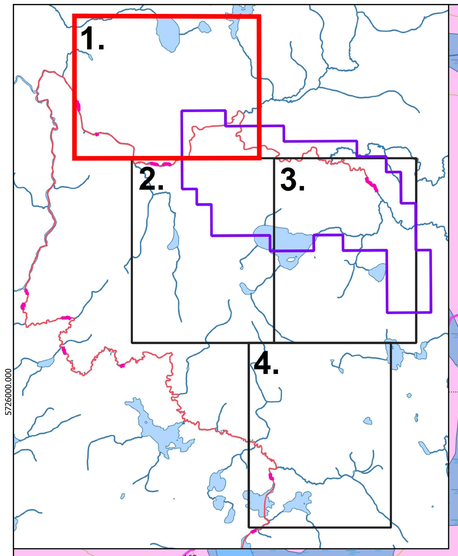
ACTIVATION LABORATORIES LTD.
41 Bittern Street, Ancaster, Ontario, Canada, L9G 4V5
TELEPHONE +905 648-9611 or +1.888.228.5227 FAX +1.905.648.9613
E-MAIL Ancaster@actlabs.com ACTLABS GROUP WEBSITE www.actlabs.com

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
169091	< 5																						
169092	< 5																						
169093	< 5																						
169094	7	0.2	2.58	1.7	3.5	< 20	22.0	0.3	0.65	0.1	13.1	53	143	8.71	9	< 0.01	0.47	9	0.78	631	1.1	0.054	35.2
169095	12	0.2	3.17	18.5	6.8	< 20	51.5	0.3	0.52	< 0.1	18.8	103	79.8	10.8	13	< 0.01	0.78	15	1.41	781	1.0	0.056	64.6
169097	6	< 0.1	1.19	1.1	2.1	< 20	57.7	0.5	1.04	< 0.1	20.5	192	73.2	3.27	6	< 0.01	0.49	12	1.06	663	0.7	0.123	165
169099	6	< 0.1	1.66	2.4	< 0.5	< 20	296	0.1	0.62	< 0.1	9.4	63	51.2	3.82	5	< 0.01	1.02	9	0.92	813	0.9	0.081	114
169100	< 5	< 0.1	2.76	0.7	< 0.5	< 20	109	0.1	0.45	< 0.1	14.4	52	40.6	7.40	12	< 0.01	1.64	15	1.18	651	1.0	0.109	38.1
169101	< 5	0.1	2.22	1.4	0.8	< 20	228	0.3	0.76	< 0.1	8.6	74	13.4	3.36	8	0.01	1.05	20	0.99	713	1.4	0.054	27.5
169102	< 5	< 0.1	3.69	0.8	1.4	< 20	358	0.2	0.13	< 0.1	21.9	140	40.4	6.46	12	< 0.01	1.65	22	1.69	485	1.6	0.102	85.8
169103	128	0.1	0.08	1.6	115	< 20	9.6	1.4	0.41	0.1	1.4	8	46.8	12.8	< 1	0.01	0.02	2	0.11	304	0.7	0.018	2.0
169104	5	0.4	0.59	< 0.5	3.7	< 20	50.1	0.1	0.28	< 0.1	1.6	22	272	7.85	6	< 0.01	0.18	9	0.30	194	2.7	0.085	1.4
169105	25	0.9	1.52	2.7	20.0	< 20	4.9	1.1	0.21	0.3	12.8	17	208	13.9	7	< 0.01	0.37	10	0.43	711	1.3	0.017	11.9
169106	11	0.6	1.62	27.3	1.1	< 20	87.6	1.3	0.07	1.9	10.0	44	150	4.78	11	< 0.01	1.34	4	0.85	700	2.8	0.073	14.2
169107	7	0.3	1.39	8.6	1.6	< 20	133	0.4	0.66	0.8	3.5	23	126	6.73	7	0.02	0.60	7	0.36	1340	2.6	0.069	6.0
169108	15	0.5	1.02	10.1	8.8	< 20	27.8	0.9	0.86	0.2	1.4	18	32.4	8.07	5	0.01	0.41	2	0.22	2250	4.0	0.088	2.1
169109	7	0.2	2.26	3.8	2.3	< 20	62.9	0.2	0.08	0.1	10.6	117	49.8	6.86	12	< 0.01	1.85	18	1.54	528	3.1	0.151	32.5
169110	5	0.1	0.43	4.9	2.9	< 20	103	0.1	0.82	0.1	1.7	12	20.1	8.57	< 1	< 0.01	0.15	4	0.32	834	0.6	0.044	4.6

Analyte Symbol	P	Pb	S	Sb	Sc	Se	Sr	Te	Th	Ti	Tl	V	W	Zn
Unit Symbol	%	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm
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
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
169091														
169092														
169093														
169094	0.037	2.8	< 1	0.1	4.4	1.0	15	< 0.2	3.0	0.116	0.3	44	0.8	49
169095	0.046	4.2	< 1	0.1	8.5	< 0.5	38	< 0.2	4.9	0.177	0.7	84	1.3	70
169097	0.037	3.1	< 1	0.1	4.2	< 0.5	27	< 0.2	3.0	0.237	0.2	40	0.8	35
169099	0.038	3.2	< 1	< 0.1	3.1	< 0.5	39	< 0.2	3.3	0.211	0.3	52	0.3	57
169100	0.060	2.3	< 1	< 0.1	6.1	< 0.5	21	< 0.2	4.0	0.209	0.4	63	0.5	56
169101	0.035	5.7	< 1	< 0.1	8.8	< 0.5	24	< 0.2	7.0	0.183	0.4	62	1.1	48
169102	0.046	4.1	< 1	< 0.1	14.2	< 0.5	11	< 0.2	8.3	0.244	0.5	116	0.2	69
169103	0.067	16.1	< 1	< 0.1	0.4	< 0.5	17	0.2	0.2	0.005	< 0.1	5	0.4	13
169104	0.055	3.1	< 1	< 0.1	4.8	7.1	8	1.3	4.3	0.165	< 0.1	60	0.2	41
169105	0.039	2.1	4	< 0.1	2.5	9.1	3	1.3	3.2	0.088	0.1	29	0.4	58
169106	0.029	89.8	< 1	0.2	8.6	2.8	6	0.9	10.5	0.210	3.4	62	0.9	640
169107	0.019	31.1	< 1	0.4	3.0	3.0	8	1.0	3.2	0.064	1.7	22	0.6	141
169108	0.029	9.6	< 1	0.2	3.1	2.1	20	0.4	1.0	0.112	0.7	33	0.2	19
169109	0.034	45.5	< 1	< 0.1	12.1	0.8	11	< 0.2	6.1	0.238	1.1	88	1.0	269
169110	0.126	3.2	< 1	0.2	1.3	0.5	57	< 0.2	0.3	0.027	0.1	13	0.4	32

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 923 (AQUA REGIA) Meas		1.9	2.68	7.4			58.9	24.9	0.40	0.4	20.6	38	4470	5.98	8		0.35	36	1.47	886	0.9		33.3
OREAS 923 (AQUA REGIA) Cert		1.62	2.80	7.07			54	21.8	0.326	0.40	22.2	39.4	4248	5.91	8.01		0.322	30.0	1.43	850	0.84		32.7
OREAS 907 (Aqua Regia) Meas		1.3	1.08	38.6	101		239	23.2	0.27	0.5	44.1	8	6760	8.19	16		0.31	37	0.18	331	5.5	0.089	5.0
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 263 (Aqua Regia) Meas		0.3	1.58	32.3			180	0.6	0.98	0.3	25.2	49	80.4	3.51	4	0.19	0.31		0.62	486	0.7	0.076	67.4
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 153b (Aqua Regia) Meas		1.5	2.34	85.9	309		20.6	1.8	1.33	0.2	13.9	16	7260	3.78	9	0.07	0.36	4	1.58	238	155	0.162	10.8
OREAS 153b (Aqua Regia) Cert		1.40	2.28	80.0	320		22.8	1.81	1.32	0.240	14.9	16.2	6700	3.60	8.06	0.0660	0.365	3.79	1.47	240	156	0.148	11.1
Oreas 623 (Aqua Regia) Meas		19.3	1.65	84.2	809			17.8	1.01	53.4	211	19	> 10000	13.1	13	0.73	0.16	18	1.11	564	9.3	0.065	15.7
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 237 (Fire Assay) Meas	2310																						
Oreas 237 (Fire Assay) Cert	2210																						
Oreas E1336 (Fire Assay) Meas	527																						
Oreas E1336 (Fire Assay) Cert	510																						
169101 Orig	< 5																						
169101 Dup	< 5																						
169104 Orig		0.4	0.58	0.7	4.5	< 20	51.1	0.1	0.28	< 0.1	1.6	22	272	7.83	6	< 0.01	0.17	9	0.31	194	2.8	0.085	1.3
169104 Dup		0.4	0.59	< 0.5	2.9	< 20	49.0	0.2	0.28	< 0.1	1.6	22	272	7.88	6	< 0.01	0.18	9	0.30	194	2.7	0.085	1.4
Method Blank		< 0.1	< 0.01	0.9	< 0.5	< 20	3.0	< 0.1	< 0.01	< 0.1	< 0.1	1	0.4	< 0.01	< 1	< 0.01	< 0.01	< 1	< 0.01	< 1	< 0.1	0.006	0.3
Method Blank	< 5																						
Method Blank		< 0.1	< 0.01	0.6	1.3	< 20	2.7	< 0.1	< 0.01	< 0.1	< 0.1	2	< 0.2	< 0.01	< 1	0.01	< 0.01	< 1	< 0.01	< 1	< 0.1	0.006	< 0.1

Appendix 5 – Map of 2020 Prospecting Traverses



526000.000

528000.000

5726000.000

5724000.000

Traverse 4
September 17, 2021

Traverse 5
September 18, 2021

Traverse 7
September 21, 2021

Traverse 9
September 22, 2021

Traverse 8
September 21, 2021

WHITEFISH RIVER
PROPERTY BOUNDARY

WHITEFISH
RIVER

Portage Route
September 22, 2021

729036

729037

729038

0 200 400 600 800 1,000 m

LEGEND

Mineralization
- Showing
- Epidote Alteration
- Aluminosilicate Alteration

Land Status
- Claims
- Whitefish Lake Property

Fieldwork
- Grab Sample
- Traverse

Topography
- river
- lake
- wetland
- contour
- logging road

Structure
- Axial Plane
- Banding - Gabbroic
- Banding - Pegmatite
- Bedding - Volcanics
- Dike – Gabbro/Diorite
- Dike – Granite
- Dike – Pegmatite
- Dike - Lamprophyre
- Foliation
- Vein
- Massive Sulphides
- Structure (interpreted)

Lithology
- Iron Formation
- Ultramafic Volcanics
- Mafic Volcanics
- Pillow Basalt
- Mafic Tuff
- Intermediate Volcanics
- Dacite
- Dacite
- Granite (Fertile)
- Gabbro
- Intermediate Intrusives
- Tonalite
- Hornblende Syenite
- Granitic Gneiss
- Granite
- Sediments (Undifferentiated)
- Sandstone
- Conglomerate
- Quartz Vein
- Massive Sulphides
- Shear Zone
- Overburden (no outcrop)

300 Prospecting Station ID

Litho Colour (Outcrop / Interpretation)

Sundog Geology

Whitefish Lake Area
Map Block 1

2021 Prospecting

Date: 2022-07-14

Author: J. Fingas

Office: Thunder Bay

Scale: 1:5,000

Projection: UTM NAD83 Zone 15

528000.000

530000.000

5722000.000

5720000.000

5718000.000

WHITEFISH RIVER

Traverse 9
September 22, 2021

PORTAGES

Grab Sample
169094, 169095

Traverse 8
September 21, 2021

Traverse 6
September 19, 2021

729036

729037

729038

Grab Sample
169099

Grab Samples
169096, 169097, 169098

COATHUP LAKE

WHITEFISH RIVER
PROPERTY BOUNDARY

Grab Sample
169100

Traverse 3
September 15, 2021

1.

2.

3.

4.

LEGEND

Mineralization
- Showing
- Epidote Alteration
- Aluminosilicate Alteration

Land Status
- Claims
- Whitefish Lake Property

Fieldwork
- Grab Sample
- Traverse

Topography
- river
- lake
- wetland
- contour
- logging road

Structure
- Axial Plane
- Banding - Gabbroic
- Banding - Pegmatite
- Bedding - Volcanics
- Dike – Gabbro/Diorite
- Dike – Granite
- Dike – Pegmatite
- Dike - Lamprophyre
- Foliation
- Vein
- Massive Sulphides
- Structure (interpreted)

Lithology
- Iron Formation
- Ultramafic Volcanics
- Mafic Volcanics
- Pillow Basalt
- Mafic Tuff
- Intermediate Volcanics
- Dacite
- Dacite
- Granite (Fertile)
- Gabbro
- Intermediate Intrusives
- Tonalite
- Hornblende Syenite
- Granitic Gneiss
- Granite
- Sediments (Undifferentiated)
- Sandstone
- Conglomerate
- Quartz Vein
- Massive Sulphides
- Shear Zone
- Overburden (no outcrop)

300 — Prospecting Station ID
Litho Colour (Outcrop / Interpretation)

0 200 400 600 800 1,000 m

Sundog Geology

Whitefish Lake Area
Map Block 2

2021 Prospecting

Date: 2022-07-14

Author: J. Fingas

Office: Thunder Bay

Scale: 1:5,000

Projection: UTM NAD83 Zone 15

532000.000

534000.000

572000.000

572000.000

571800.000

Portage
September 22, 2021

WHITEFISH
RIVER

729038

729039

729040

729041

729042

729043

PORTAGES

Traverse 10
September 23, 2021

Traverse 11
September 24, 2021

Traverse 12
September 25, 2021

Traverse 13
September 26, 2021

Traverse 14
September 27, 2021

Traverse 3
September 15, 2021

Grab Sample
169103

Grab Sample
169101

Grab Sample
169102

PIED PERCEE
HORIZON

Grab Samples
169106, 169108,
169109

Grab Sample
169107

Grab Sample
169105

Grab Sample
169104

ALUMINOSILICATE
ALTERATION
FOOTRPINT

EPIDOTE ALTERATION
FOOTRPINT

COATHUP
LAKE

WHITEFISH RIVER
PROPERTY BOUNDARY

1.

2.

3.

4.

0 200 400 600 800 1,000 m

LEGEND

Mineralization
- Showing
- Epidote Alteration
- Aluminosilicate Alteration

Land Status
- Claims
- Whitefish Lake Property

Fieldwork
- Grab Sample
- Traverse

Topography
- river
- lake
- wetland
- contour
- logging road

Structure
- Axial Plane
- Banding - Gabbroic
- Banding - Pegmatite
- Bedding - Volcanics
- Dike – Gabbro/Diorite
- Dike – Granite
- Dike – Pegmatite
- Dike - Lamprophyre
- Foliation
- Vein
- Massive Sulphides
- Structure (interpreted)

Lithology
- Iron Formation
- Ultramafic Volcanics
- Mafic Volcanics
- Pillow Basalt
- Mafic Tuff
- Intermediate Volcanics
- Dacite
- Dacite
- Granite (Fertile)
- Gabbro
- Intermediate Intrusives
- Tonalite
- Hornblende Syenite
- Granitic Gneiss
- Granite
- Sediments (Undifferentiated)
- Sandstone
- Conglomerate
- Quartz Vein
- Massive Sulphides
- Shear Zone
- Overburden (no outcrop)

300 — Prospecting Station ID
Litho Colour (Outcrop / Interpretation)

Sundog Geology

Whitefish Lake Area Map Block 3

2021 Prospecting

Date: 2022-07-14

Author: J. Fingas

Office: Thunder Bay

Scale: 1:5,000

Projection: UTM NAD83 Zone 15

530000.000

532000.000

5716000.000

5714000.000

5712000.000

ALUMINOSILICATE ALTERATION FOOTRPINT

Traverse 2
September 14, 2021

Grab Samples
169091, 169092,
169093

Traverse 1
September 13, 2021

BERENS RIVER

PORTAGES

1.

2.

3.

4.

Sundog Geology

Date:	2022-07-14
Author:	J. Fingas
Office:	Thunder Bay
Scale:	1:5,000
Projection:	UTM NAD83 Zone 15

Whitefish Lake Area
Map Block 4

2021 Prospecting

LEGEND

Mineralization
- Showing
- Epidote Alteration
- Aluminosilicate Alteration

Land Status
- Claims
- Whitefish Lake Property

Fieldwork
- Grab Sample
- Traverse

Topography
- river
- lake
- wetland
- contour
- logging road

Structure
- Axial Plane
- Banding - Gabbroic
- Banding - Pegmatite
- Bedding - Volcanics
- Dike – Gabbro/Diorite
- Dike – Granite
- Dike – Pegmatite
- Dike - Lamprophyre
- Foliation
- Vein
- Massive Sulphides
- Structure (interpreted)

Lithology
- Iron Formation
- Ultramafic Volcanics
- Mafic Volcanics
- Pillow Basalt
- Mafic Tuff
- Intermediate Volcanics
- Dacite
- Dacite
- Granite (Fertile)
- Gabbro
- Intermediate Intrusives
- Tonalite
- Hornblende Syenite
- Granitic Gneiss
- Granite
- Sediments (Undifferentiated)
- Sandstone
- Conglomerate
- Quartz Vein
- Massive Sulphides
- Shear Zone
- Overburden (no outcrop)

300 – Prospecting Station ID

Litho Colour (Outcrop / Interpretation)

0 200 400 600 800 1,000 m

BASIS FOR ASSESSMENT ASSIGNMENT

Total expenditures for 2021 totalled $9,734.35; this amount does not include HST

Total expenditure was split into three separate amounts: 1) Assay Amount, 2) Propsecting Time Amount, 3) Expenses Amount

Assay amount was assigned based on the claim on which individual samples were taken.

Assay Amount Total = **$845.85**

In order to assign assessment, prospecting time & expenses were assigned to claims based on the proportion of mapping stations present on that claim

Time vs. expenses were assigned evenly, but separated out to make adjustments simple.

Prospecting Time Total = **$7,700.00**

$1,188.50

			Cost / sample	TOTAL	ADJUSTED	EXPECTED
The total number of grab samples is:						
Au Only:	3		**$32.20**	$96.60	$48.30	**$48.30**
Au + ICP	15		**$49.95**	$749.25	$374.63	**$374.63**
			Cost / station			
The total number of mapping stations is:	626	Time	**$12.30**	$7,700.00	$3,850.00	**$7,700.00**
		Expenses	**$1.90**	$1,188.50	$594.25	**$594.25**
			TOTAL	$9,734.35	$4,867.18	$8,717.18

Where mapping stations or samples fell on staked claims, these expenses were applied directly to the claim (the "self-amount")

Regional work performed off of the claims was summed (the "self-amount" for "OFF CLAIMS"). This work was then distributed evenly between the claim , subject to the the proportionate area of each claim (i.e. a 10 ha claim would receive two times more of the pooled credits than a 5 ha claim)

The "total amount" of each claim is the summation of the [(selfamount) + (OFF CLAIMS POOLED AMOUNT)*(area proportion)]

Finally, a "total adjusted" was calculated by halving all credits since the work was performed on Crown Land. It is expected that full credit will be granted for Prospecting Time; this alternate number is included for referenced in the "Assessment with Prospecting Credit" column; however the "Assessment to Apply" figure is the one applied during submittal

Claim No	Area (m2)	Area (proportion)	Claim Type	CLIENT NO	Au Only Assays				Au + ICP Assays				Prospecting Expenditures				Prospecting Time				Assessment to Apply ($CAD)	Assessment with Prospecting Credit (2x) ($CAD)
					# of assays	$ self-amount	$ total amount	$ total adjusted	# of assays	$ self-amount	$ total amount	$ total adjusted	# of stations	$ amount	$ total amount	$ total adjusted	# of stations	$ amount	$ total amount	$ total adjusted		
(OFF CLAIMS)	N/A		-	-	3	$96.60	N/A		6	$ 299.70	N/A		384	$729.05	N/A		384	$4,723.32	N/A			
729036	3,806,981	0.17	Multi-cell Mining Claim	409591	0	$0.00	$ 16.24	$ 8.12	0	$ -	$ 50.38	$ 25.19	19	$36.07	$158.63	$79.31	19	$233.71	$1,027.72	$513.86	$ 626.49	$1,140.35
729037	3,406,480	0.15	Multi-cell Mining Claim	409591	0	$0.00	$ 14.53	$ 7.27	0	$ -	$ 45.08	$ 22.54	9	$17.09	$126.75	$63.38	9	$110.70	$821.19	$410.59	$ 503.78	$914.37
729038	4,408,529	0.19	Multi-cell Mining Claim	409591	0	$0.00	$ 18.80	$ 9.40	1	$ 49.95	$ 108.29	$ 54.15	1	$1.90	$143.82	$71.91	1	$12.30	$931.78	$465.89	$ 601.35	$1,067.24
729040	2,004,414	0.09	Multi-cell Mining Claim	409591	0	$0.00	$ 8.55	$ 4.28	1	$ 49.95	$ 76.48	$ 38.24	39	$74.04	$138.57	$69.29	39	$479.71	$897.77	$448.89	$ 560.68	$1,009.57
729039	1,603,195	0.07	Multi-cell Mining Claim	409591	0	$0.00	$ 6.84	$ 3.42	0	$ -	$ 21.22	$ 10.61	43	$81.64	$133.25	$66.62	43	$528.91	$863.29	$431.65	$ 512.30	$943.94
729041	2,003,945	0.09	Multi-cell Mining Claim	409591	0	$0.00	$ 8.55	$ 4.27	2	$ 99.90	$ 126.42	$ 63.21	73	$138.60	$203.11	$101.55	73	$897.92	$1,315.88	$657.94	$ 826.98	$1,484.92
729043	2,807,045	0.12	Multi-cell Mining Claim	409591	0	$0.00	$ 11.97	$ 5.99	0	$ -	$ 37.15	$ 18.57	15	$28.48	$118.84	$59.42	15	$184.50	$769.97	$384.98	$ 468.97	$853.95
729042	2,605,758	0.12	Multi-cell Mining Claim	409591	0	$0.00	$ 11.12	$ 5.56	5	$ 249.75	$ 284.23	$ 142.12	43	$81.64	$165.52	$82.76	43	$528.91	$1,072.39	$536.20	$ 766.63	$1,302.83
TOTALS	22,646,347				0		**$ 96.60**	**$ 48.30**	9	**$ 749.25**	**$ 749.25**	**$ 374.63**	242	$1,188.50	**$1,188.50**	**$594.25**	242	$7,700.00	**$7,700.00**	**$3,850.00**	**$ 4,867.18**	**$ 8,717.18**