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BLACK RAVEN PROJECT

**WORK REPORT OF THE
SUMMER 2018 MAGNETIC SURVEY ON
THE BLACK RAVEN PROJECT,
HEMLO AREA, ONTARIO
For
HEMLO EXPLORERS INC.**

NTS Map sheet 42D/16

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1.0 -SUMMARY-

During May of 2018 a high-resolution helicopter-borne magnetic survey was carried out by Scott Hogg & Associates Ltd. for Canadian Orebodies Inc. (now Hemlo Explorers Inc.) on their Black Raven claim group (part of the 'Pic Project' along with the Wire Lake Project), see Figure 3.

The magnetic survey was flown at 50m line spacing with east-west and north-south flight lines and was centered on the Beggs Lake Stock, a quartz monzonite to granodiorite to tonalite intrusion where new gold discoveries had been made in 2017 up to **109gpt Au**. The survey better defined north-to-northeast-trending structures within the Stock which are associated with gold mineralization, as well as the contacts of the Stock and folded stratigraphy outside the Stock, especially iron formation horizons. The southern contact of the Goodchild Serpentinite to the north was also better defined, as well as the outline of the Beggs Lake Fault, a west-northwest-east-southeast-trending fault north of the Beggs Lake Stock and parallel to the northern contact of the Stock.

2.0 -INTRODUCTION-

Canadian Orebodies Inc. (now Hemlo Explorers Inc.) acquired the original Black Raven Property in April 2017, which has since expanded. The main target mineral is gold based on previous discoveries on the property and due to the property's proximity to the world-class Hemlo gold deposit. Several Zinc occurrences have also been discovered on the property. Following a successful 2017 field season in which gold discoveries up to **109gpt Au** (the ABC Occurrence) were made within the Beggs Lake Stock, a magnetic quartz monzonite-granodiorite-tonalite intrusion, a high-resolution magnetic survey was flown over a swath of ground centered on the Stock.

2.1 PROPERTY DESCRIPTION, PERMIT, LOCATION AND ACCESS

Hemlo Explorers Inc.'s Black Raven Project is located northeast of Lake Superior in northeastern Ontario. The property is situated approximately 20 kilometres northeast of the town of Marathon and approximately 30 kilometres northwest of the Hemlo Gold Mine (see Figure 5).

The Black Raven Property is comprised of 1185 cell-claims, including 225 Boundary Cell Mining Claims and 960 Single Cell Mining Claims. See Figure 3.

The Ministry of Energy, Northern Development and Mines (MENDM) has issued Exploration Permit Numbers: PR-20-000032 & PR-20-000033 for the Black Raven Property.

2.2 CLIMATE, RESOURCES, LOCAL INFRASTRUCTURE AND PHYSIOGRAPHY

The Black Raven Project is located within the Canadian Shield, which is a major physiographic division of Canada. The property is situated in an area of swamps, small lakes, and moderate to steep hills, with scattered to locally moderate outcrop. Elevation across the project area ranges from 275 to 450 m.

The Property is covered with a thick secondary growth of birch, balsam fir, black spruce, red cedar and some jack pine and poplar. The underbrush can be very dense with intergrowths of maple, alder and hazel.

The Black Raven Property is situated approximately 20 km northeast of the town of Marathon, Ontario (population ~3300), and 30 km northwest of the producing gold mine at Hemlo. Access for the 2020 exploration program was by helicopter based out of the Marathon Airport.

Marathon is approximately 350 km east of Thunder Bay, Ontario located approximately 4 kilometres southwest the Trans-Canada Highway 17. Thunder Bay is serviced by many airlines, with daily flights to major cities in Canada such as Toronto and Winnipeg, allowing easy connections to other Canadian cities and international destinations.

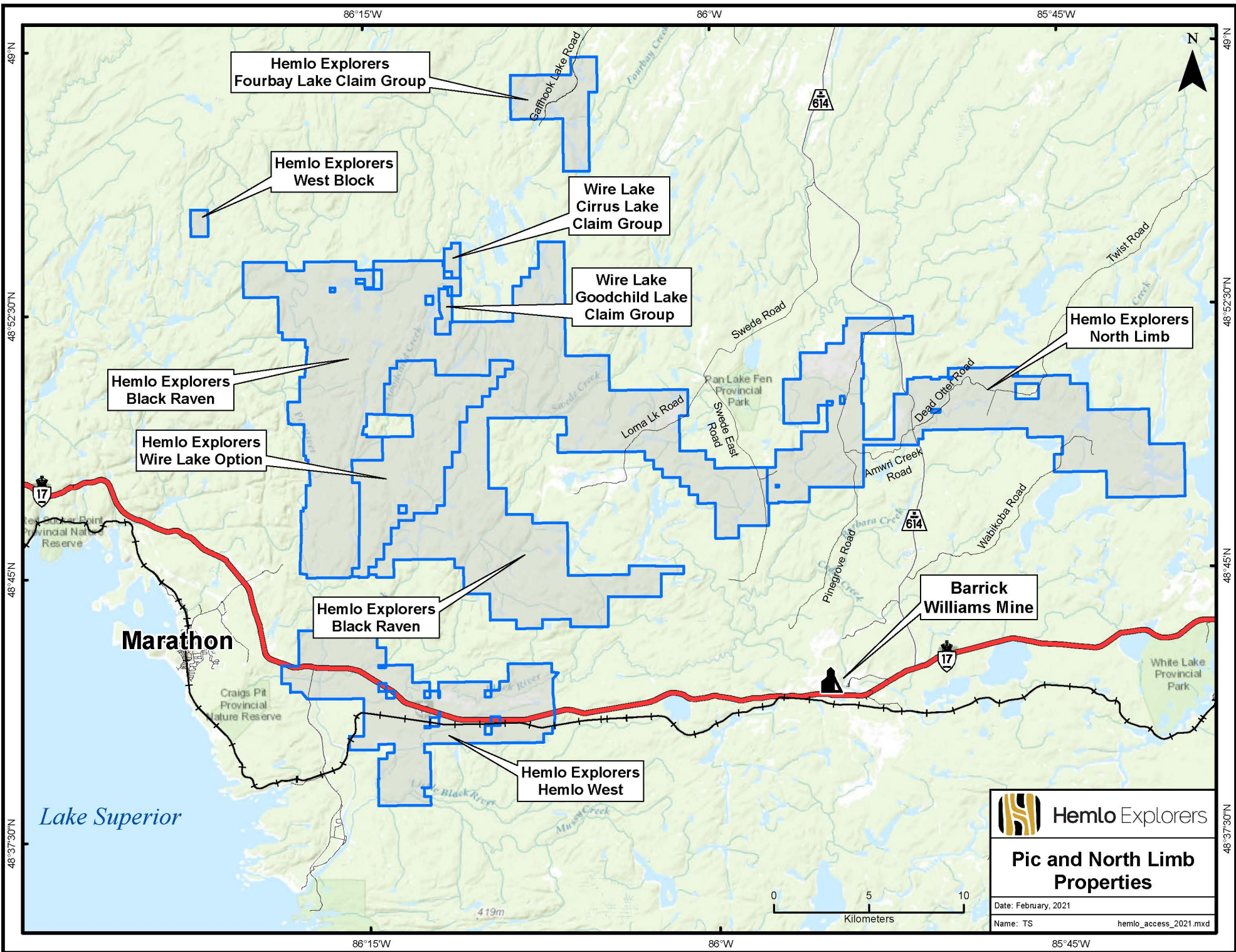
Climate in the area is typical of Northern Ontario, with cold winters and warm summers. Average January minimum temperatures range from -18°C to -32°C, and average July temperatures are between 24°C and 32°C. Exploration work can be carried out (subject to snow and freezing) for most of the year. Certain mapping, mechanized stripping, and soil sampling activities are best performed in snow-free conditions, whereas drilling can occur any time of the year.


2.3 PERSONNEL

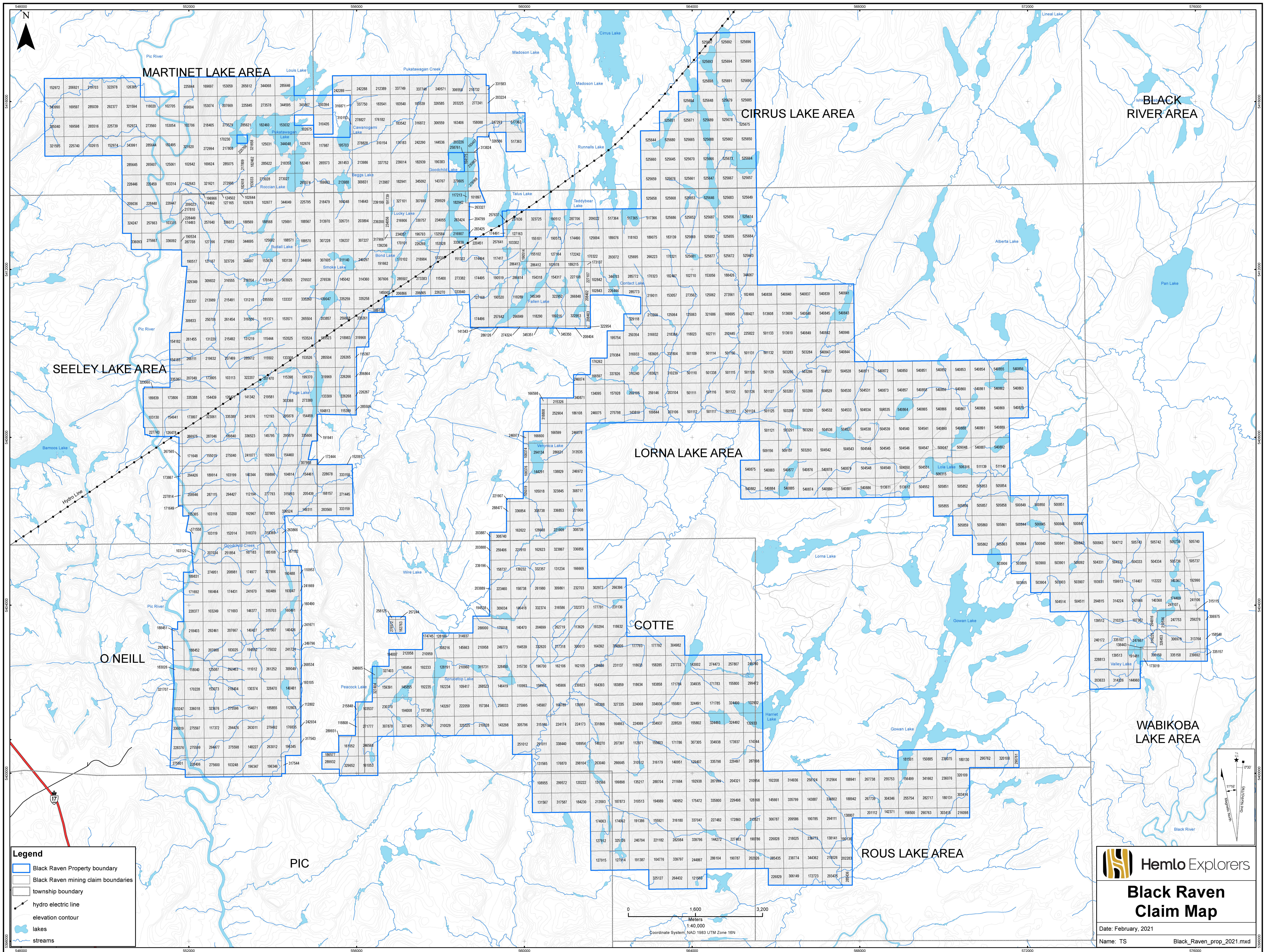
The May 2018 magnetic survey was carried out by Scott Hogg and Associates Ltd., using a helicopter from Expedition Helicopters of Cochrane, Ontario.



| | |
|---|------------------------|
|  | Hemlo Explorers |
| Black Raven Property General Location Map | |
| Date: February, 2021 | Name: TS |
| File: ontloc_2021_BRaven | |



 **Hemlo Explorers**
Pic and North Limb Properties
Date: February, 2021
Name: TS hemlo_access_2021.mxd



3.0 -GEOLOGY-

3.1 REGIONAL GEOLOGY

The following description of the regional geology is adapted from an Economic Geology paper by Lin (2001), which was utilized in the Technical Report on the Lunny Lake Area by B.J. Price Geological Consultants Inc. in 2008.

The Black Raven Project is situated within the eastern portion of the Wawa Sub-province, a division of the Superior Structural Province and Precambrian Canadian Shield. The Wawa Sub-province consists of a sequence of Archean sedimentary and felsic, intermediate and mafic volcanic rocks ranging in age from ~2720 million years (Ma) to ~2688 Ma. The supracrustal rocks of the Wawa Sub-province have been metamorphosed, with metamorphic grade increasing from upper greenschist facies west of Lake Superior, to middle amphibolite facies east of Lake Superior, the latter portion of the Sub-province that includes the Hemlo deposit area (see Figure 4).

The greenstone belt is intruded by granodioritic to tonalitic plutons and dikes. Major intrusions include the Pukaskwa Intrusive Complex, the Black-Pic Batholith, the Heron Bay pluton, the Cedar Lake pluton, and the Gowan Lake pluton. A marginal gneissic phase of the Pukaskwa complex yielded a U-Pb zircon age of ~2719 Ma, whereas an internal phase of the complex, the Heron Bay pluton and the Cedar Lake pluton, yielded U-Pb zircon ages of ~2688 Ma. The Cedar Creek stock has been dated at ~2684 Ma, and the Gowan Lake pluton and two other plutons at ~2679 to 2677 Ma.

3.2 LOCAL AND PROPERTY GEOLOGY

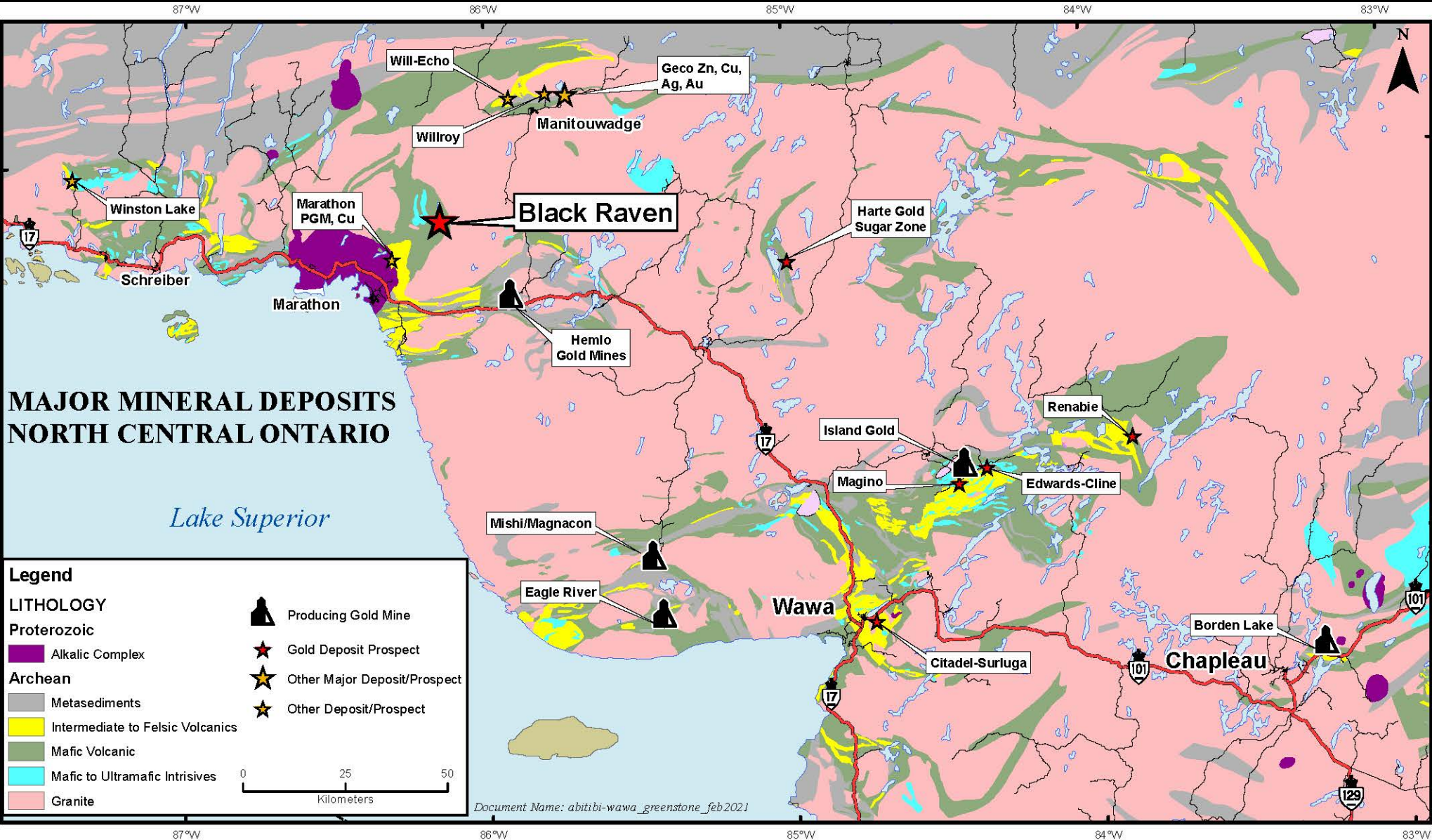
The regional and property geology of the Black Raven Property have been summarized by Labreque, 2011 from various sources, for Entourage Metals Ltd., as written below.

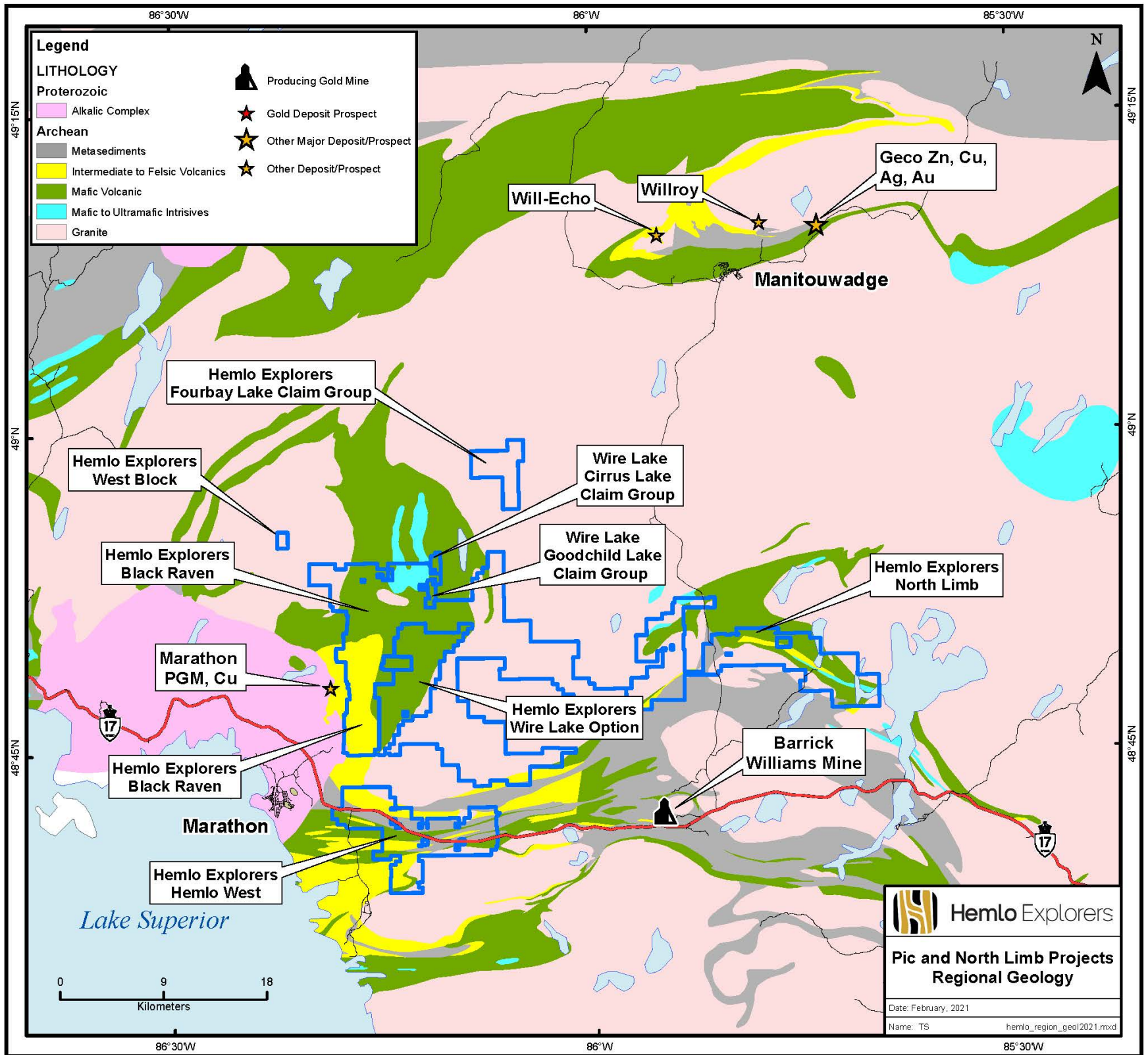
The Black Raven Property is situated within the northwestern margin of the eastern portion of the Schreiber-Hemlo greenstone belt of the eastern Wawa Subprovince (Williams et al. 1991). It occurs within the north-south trending Cirrus lobe of the greenstone belt which is bordered to the north, east and northwest by the joined tonalitic to granodioritic Black-Pic Batholith and to the southwest by the late-Proterozoic, syenitic to gabbroic Coldwell Alkaline Complex. The Cirrus Lake lobe is comprised of mafic metavolcanic flows, interflow metasedimentary rocks, and felsic metavolcanic rocks intruded by a large, U-shaped, mafic-ultramafic serpentinitized unit and the oval shaped, intermediate Beggs Lake Stock. The composite, intensely magnetic serpentinitized Goodchild Lake unit forms an obvious, unique anomaly on regional airborne magnetic maps (MacTavish 2000). See Figure 5.

The oval, 3.2 km long, 1.1 km wide Beggs Lake Stock is located directly south of the Goodchild Lake serpentinitized unit and forms an elongate, oval shaped anomaly with a visible magnetic rim and a subtly magnetic core. The northern portion of the property around Smoke Lake is underlain by the Beggs Lake Stock, the northern-most area by the serpentinitized Goodchild Lake unit and its associated gabbros, and the remainder by mafic metavolcanic flows, subvolcanic gabbro dikes and sills, and a variety of narrow, interflow iron formations and mudstone units. The Beggs Lake stock consists of monzonite, equigranular biotite granodiorite, biotite tonalite, and localized hornblende-quartz-monzonite.

The zone of contact with the contiguous lithologies is commonly carbonatized, cut by quartz-carbonate veinlets, and contains disseminated pyrite (Schnieder's and Smyk 1997). The serpentinitized Goodchild Lake unit is principally made of intensely serpentinitized dunite within a discontinuous envelope of coarse-grained gabbro. The locally carbonatized and epidotized, pillowed to massive, locally variolitic and/or

amygdaloidal, mafic metavolcanic flows often contain disseminated pyrite and pyrrhotite. Foliated, subvolcanic gabbro dikes and sills of a variety of thicknesses are also common. Thin, weakly to moderately deformed, foliated, Archean-age intermediate biotite lamprophyre dikes are typical as are significantly thicker, northwest-and-northeast trending Proterozoic-age diabase dikes. Both east and north-trending penetrative fabrics are developed within all of these lithotypes excluding the diabase. All rock types, excluding the Beggs Lake Stock and the Proterozoic diabase dikes, have experienced amphibolite-grade regional metamorphism. Intense contact metamorphism has overprinted regional metamorphism within the supracrustal rocks surrounding the Beggs Lake Stock (MacTavish, 2003).





4.0 -EXPLORATION HISTORY-

4.1 BLACK RAVEN CELL-CLAIMS

Prior to Hemlo Explorers' involvement, the Black Raven Cell-Claim Group had been moderately explored. Much of the historical work has focused on the Smoke Lake area in the vicinity of the high-grade Super G showing, located on the north shore of Smoke Lake.

Other areas of historical work include the Page Lake area in the vicinity of the historical Zn/Au Knut Kuhner Showing and recent exploration work carried out by Hemlo Explorers Inc in the vicinity of the Beggs Lake Stock and Contact Lake area.

4.2 DETAILED DESCRIPTION OF HISTORICAL WORK

Information below is modified from the Freewest Resources Canada Inc. Phase II Prospecting Report by MacTavish (2003), up to and including 2001, with several additions, including a number of assessment report references. The exploration history from 2002 onwards is summarized from the above report and various other reports as cited. The exploration history from 2018 to 2020 is included as it is referenced in the Discussion of Results.

1930 and 1931: J.E. Thomson of the Ontario Department of Mines completed reconnaissance mapping over a large area including the Cirrus Lobe (Thomson, 1931). He noted the presence of a pit located a short distance south of Cawanogami Lake within the northeastern corner of the present property. No record of who excavated the pit is within the public record.

1951 to 1953: A group of 9 claims staked east of Cawanogami and Beggs Lake by Moses Fisher in 1951 included the northeastern corner of the present property. Fisher excavated several trenches and pits somewhere on this property later that year and discovered the Cawanogami Lake Asbestos Occurrence. He added another 9 claims to the property in 1953 and then optioned it to MacLeod Cockshutt Gold Mines Limited, who dropped it soon after without completing any work. Canadian Johns-Manville Co. Ltd. then optioned the claims and completed linecutting, reconnaissance mapping, and a magnetometer survey (Eveleigh, 1953).

1953: MacLeod Cockshutt Gold Mines Limited completed airborne magnetometer and scintillometer surveys over the Goodchild Lake Serpentinite during July 1953 (Canadian Aero Service Ltd., 1953).

1953 and 1954: A group of 30 claims was staked in 1953 for Kenogamisis Gold Mines Limited near Louis, Pukatawagan, Fisher, and Beggs Lakes. The claims were optioned by MacLeod Cockshutt Gold Mines Limited sometime in 1953. Ground magnetometer and HEM surveys and 6 diamond drill holes, totalling 939 ft. (286.2m), were completed in 1954. The drilling was completed near the northeast corner of the property (Macleod-Cockshutt Gold, 1954).

1953 and 1954: A group of 18 claims was staked in 1953 by Violamac Mines Limited to cover the Goodchild Lake Prospect (Violamac Prospect). Work completed included geological mapping, trenching, prospecting and 5 diamond drill holes, totalling 2002 ft. (610.2 m). Four sulphide showings were defined within silicified diorite (?) over a strike length of approximately 2300 feet (700 m). Surface mineralization occurs as thin stringers and seams of pyrite, pyrrhotite, and chalcopyrite over widths of <8 to 100 ft. (2.4 to 30.5 m). Values of up to **2% Cu, 0.5% Ni, and 2.0 ounces per ton Ag** were reported (Jeffs, 1954, 1955).

1959: The Mining Corporation of Canada contracted an airborne magnetometer and EM survey over the Goodchild Lake-Pic River area.

1963: The area of the Cirrus Lobe was mapped by V.G. Milne of the Ontario Department of Mines (Milne, 1967).

1967 to 1969: The Violamac Prospect was covered by a block of 54 claims staked by Mexico Exploration (Canada) Limited during 1967.

Work completed during 1968 included geological mapping, soil geochemistry, and ground magnetometer, HLEM, and self-potential (SP) surveys. SP surveys were conducted on grids covering the southern contact area of the serpentinite body, and 572 soil samples were collected on these grids and analyzed for copper and nickel. Self-potential anomalies were identified in the Violamac prospect area, north of Beggs Lake and north of Cawanogami Lake. These areas were associated with copper in soil anomalies, and the Violamac prospect was also associated with nickel in soil anomalies. Another noticeable copper in soil anomaly was located east of Beggs Lake, and a number of nickel in soil anomalies were located along the southern contact of the Goodchild Lake Intrusive (Buser, 1968).

In 1969, 11 diamond drill holes were completed, totalling 4251 ft. (1295.7 m). Disseminated to semi-massive pods of pyrrhotite and pyrite, with minor chalcopyrite were intersected; however, no significant metal values were encountered. 2 holes were drilled in the Violamac area; 1 hole was drilled east of Beggs Lake; 2 holes were drilled north of Beggs Lake; and six holes were drilled north of Cawanogami Lake in two clusters (Buser, 1969).

1971: Knut Kuhner discovered Zn-Au mineralization about 0.75 km southwest of Page Lake (4 km south of the Smoke Lake Property) in 1971. He staked a group of claims around the occurrence and optioned them to Kerr Addison Mines Ltd. The company promptly staked a large block of claims around the original property and proceeded to complete linecutting, geological mapping, IP and resistivity surveys, and 9 diamond drill holes, totalling 254 m. Four of the holes tested the occurrence, with one intersecting **1.10% Zn**/7.60 m, which included a 1.50 m interval grading **4.50 gpt Au**. (Kerr Addison Mines Ltd., 1971).

1978 and 1979, 1990, 1996: The Geological Survey of Canada (GSC) completed extensive lake sediment geochemical surveys covering much of the Schreiber-Hemlo Greenstone Belt during the late 1970s. The original samples were re-analysed for Au and a multi-element package (Friske et al. 1991) in 1990. The re-analyses defined anomalous Au-in lake sediment values in 4 lakes occurring in an east-west trend located to the south, southeast and southwest of Goodchild Lake.

Three of the anomalous sites are within the confines of the present Smoke Lake Property with gold values of **21, 18 and 13 ppb Au**. These comprise the highest Au values obtained from the entire survey and are associated with elevated levels of Ag, Zn, Cd Cr, and Ni. A detailed follow-up of these anomalies was completed by the GSC (Friske 1997) in 1996. Lake sediment core samples were collected from the 4 anomalous lakes as well as several smaller lakes that were not initially sampled. This follow-up survey defined an additional 5 lakes exhibiting anomalous gold values, clearly demonstrating the potential for widespread gold mineralization within the catchment basin that comprises a major portion of the Smoke Lake property.

1982 to 1983: A 20 claim property centred on Page Lake was staked in 1982 by Gowganda Resources Ltd., and an IP survey was conducted in 1983 (Meikle, 1983). The property included the Kuhner Zn-Au Occurrence and was optioned in 1984 by Homestake Mineral Development Company.

1983: Canadian-United Metals Inc. conducted a short prospecting and reconnaissance program on the Goodchild Creek Property, re-excavating a historical trench dug in 1938. No significant gold values were discovered, so it was concluded that the excavated trench was likely not one that had previously yielded gold values up to **0.4 oz/t.** (Caulfield and Ikona, 1983)

1983: Colby Resources Corporation conducted a mapping, prospecting, sampling and geophysical surveying program (Mag and HEM) on the Hemlo Gold area property in the vicinity of Page Lake. Grab samples of quartz-tourmaline veins, tuff, banded iron formation and volcanoclastic rocks returned anomalous Au up to **498ppb Au** from a sample which included 4 narrow quartz-tourmaline veins. Results of the H.E.M. survey indicated conductors in the vicinity of the metavolcanic/metasedimentary contact, the cause of which was presumed to be graphite and/or sulphides. Geological mapping revealed that the property represents a volcanic pile, with older rhyolitic units in the south and younger mafic volcanics in the north, separated by a metasedimentary formation which represents a hiatus in volcanic activity. Banded iron formations representing siliceous exhalatives, and ultramafic and/or tholeiitic flow rocks were also noted (Coster and Maser, 1983).

1983 to 1994: Carlson Mines Ltd. Staked the 214 claim Wire Lake Property, located about 4 km south of the Smoke Lake Property, in 1983 during the Hemlo gold rush. When the first report of work was filed in 1986 the property consisted of 407 claims; however, by 2000 it had decreased to 253 contiguous claims. An Aerodat helicopter-borne EM, magnetic and VLF-EM survey was flown over the property in 1984. Surface exploration began in 1985 and included geological mapping, prospecting, stream sediment and humus geochemistry, and VLF-EM surveys on flagged grids. Gold was discovered by surface sampling of pyritic quartz veins south of Wire Lake during the initial program. One of the samples contained **15.91 gpt Au** and **23.30 gpt Ag.** (Brereton and Willoughby, 1986). Subsequent exploration programs completed between 1986 and 1994 included geological mapping, humus geochemistry, IP, resistivity, and VLF-EM surveys, another airborne geophysics survey, stripping and trenching, linecutting, and diamond drilling. This work shows that the Wire Lake Property hosts numerous northwest-trending shear zones containing significant but erratic gold mineralization. Several mineralized zones (South Lake, Lucky Seven, Candlestick, and North Hill) are apparently related to a 2.5 km-long lineament known as the Wire Lake Shear zone. Gold is associated with quartz, carbonate and stockwork vein systems within intensely altered metavolcanic and metasedimentary rocks (Jensen, 1994). 60 holes totalling 6927.5m were drilled from 1987 to 1990, and from 1993 to 1994 28 holes totalling 5242.6m were drilled (Siriunas, 1995).

Alteration consists of silicification, chloritization, pyritization, carbonatization, and sericitization as well as potassic alteration assemblages. Some of the better drill intercepts include **7.07 gpt Au/2.10 m (0.21 opt Au/6.90 ft.)** and **1.50 gpt Au/28.50 m (0.04 opt Au/93.50 ft.)** (Siriunas, 1994). The original company was succeeded by Black Gregor Exploration Ltd, Gregor Goldfields Corp., and Aavdex Corporation. All Terrane Track Sales and Service acquired the property in 2000. The mineral rights are now owned by Canadian Orebodies.

1984 to 1985: During 1984 and 1985 Homestake completed linecutting, geological mapping, a magnetometer survey (Staargard, 1984), IP and resistivity surveys (Flanagan, 1985), and a diamond drilling program. The five-hole diamond drilling program seemingly targeting lithological contacts, primarily volcano-sedimentary contacts, west of Page Lake. Values of up to **145ppb Au** and up to **2213ppm Zn** in core were returned from hole 84-CEW3 (Homestake Mineral Development Co., 1984). The property was optioned to Noranda Exploration Co. Ltd. in 1986 after Homestake dropped its option.

1984: MPH Consulting Limited completed an Airborne Magnetic and VLF-EM Survey by Aerodat Limited (Aerodat Ltd., 1984).

1984: Teeshin Resources conducted work on the Hemlo West (Pic River) Property (formerly the Goodchild Creek Property), east of the Pic River and north of Goodchild Creek, including grid magnetometer and V.L.F. ground geophysical surveys, as well as diamond drilling. Drilling intersected sulphide-chert formations with relatively high background levels of silver, copper and zinc, as well as gold values up to **0.008opt/5 feet** and **0.011opt/6 feet** in black mudstone (Kaye, 1984).

1985 to 1991: In 1985, Noranda Exploration Company Ltd. staked a group of 16 claims in the Seeley Lake area in the vicinity of Page Lake in November; 4 more claims were added in October of 1986. In November of 1986, a humus geochemical survey was conducted on a portion of the claim group and identified an anomalous Zn-Au trend along a 1.7km strike length, with values in soil up to **9705ppm Zn** and up to **135ppb Au** (Cooper, 1987).

From 1987 to 1988, Noranda conducted geological mapping, soil and humus geochemistry surveys, and VLF-EM and magnetometer surveys (Gingerich, 1988) in the Page Lake Area. This work included the discovery of the Page Lake Au occurrence containing up to **6 gpt Au**. There is no record of diamond drilling or a description of the Page Lake Au Occurrence in the Noranda assessment data.

The 1987 program included mapping, rock sampling and soil sampling conducted on 14 of 20 contiguous claims centered on Page Lake. 165 grab samples and 770 humus samples were collected. Grab samples returned up to **3.1gpt Au** and up to **6400ppm Zn**. Local gold in humus anomalies up to **180ppb Au** were identified, over iron formation in the eastern claims and a green mica alteration zone in the northern claims (D'Silva, 1987).

The 1988 program included an A (humus) and B horizon soil survey on 8 new claims west of the power line northwest of Page Lake. Humus returned up to **29ppb Au**, consistently high Zn (>**100ppm**) values up to **500ppm**, and up to **33ppm As**. B horizon returned up to **20ppb Au**, up to **570ppm Zn** and up to **165ppm**. Up to **0.34gpt Au** was returned from graphitic argillite and up to **50ppm Cu**, **230ppm Zn** was returned from rusty volcanics with 1% pyrite and 2% pyrrhotite (Petersen, 1988).

Additional claims were added to the property during 1988 and 1989 to bring the total to 85 contiguous claims. A litho-geochemical survey centred to the west and north of Page Lake outlined a Na-depletion, Mg-enrichment trend along the sedimentary-metavolcanic contact west of Page Lake. (Wilson, 1989). HLEM and magnetometer surveys were completed on the southern claims in 1991 (Walmsley and Degagne, 1991).

1986 to 1988: A 54 claim group, including the Violamac Prospect, was staked by Paul Skalesky in 1986. A Terraquest airborne magnetometer and VLF-EM survey was completed over the property in 1988 and detected numerous VLF-EM conductors. One 1.8 km long anomaly parallels the Violamac Prospect between 50 and 75 m to the northeast and may represent a down-dip expression of the mineralized zone (Terraquest Ltd., 1988).

1989: Noranda Exploration Co. Ltd. completed a detailed, helicopter-borne DIGHEM EM and magnetometer survey over a large area encompassing the eastern Schreiber-Hemlo greenstone belt, including the Cirrus Lobe (McConnell, 1989).

1989 and 1990: Russel Renner staked a small group of 11 claims that included the north half of Roccian Lake and the southwestern portion of Pukatawagan Lake. Noranda Exploration Co. Ltd. optioned the property and staked 15 additional claims to the southwest.

Over the next 2 years Noranda completed geological mapping, soil and rock geochemistry, magnetometer and HLEM surveys, and 3 diamond drill holes, totally 258.5m. One of the holes targeted the

Renner/Roccian Lake Cu Occurrence located 500 m west of Roccian Lake, which on surface graded up to **1.10% Cu** and **0.12% Zn**. The other 2 holes tested HLEM anomalies, but no assay results are available. (Degagne, 1990).

1991 to 1993: D.B. McKay of the Ontario Geological Survey examined, sampled, described, and sometimes mapped 71 mineral occurrences, and researched and compiled a further 18 occurrences within a 50-km radius of the town of Manitouwadge (McKay 1994).

1993 and 1994: Reconnaissance field investigations of the GSC lake bottom sediment anomalies by Hemlo Gold Mines Inc. during 1993 led to the discovery of the high-grade Smoke Lake Float boulders on the northeastern shoreline of Smoke Lake. These boulders occur 120 metres southeast of the Smoke Lake Occurrence discovered by OGS during 1996 and consist of numerous angular blocks of white, coarse to fine-grained quartz containing fine-grained pyrite and fine visible gold. Grab samples graded **139.9 gpt Au (4.10 opt)**, **30.3 gpt Au (0.88 opt)**, **10.0 gpt Au (0.29 opt)** and **6.6 gpt Au (0.19 opt)**. After this was discovered Hemlo Gold immediately staked a single 16-unit claim and completed limited prospecting and a soil geochemical survey on a flagged grid.

Positive results from the soil survey led to the staking of 2 additional claims and the completion of linecutting, prospecting, geological mapping, and soil sampling during 1994. An attempt to hand-strip the Smoke Lake Float occurrence to bedrock was unsuccessful. A total of 69 rock samples were collected as part of the property-wide prospecting and reconnaissance mapping program (Thomson 1995). A second soil survey comprising 256 soil samples collected at 25 m intervals along grid lines cut at 100 and 200 m intervals, was completed in the immediate vicinity of Smoke Lake. Numerous spot-high, Au-in-soil values of up to **210, 350 and 600 ppb Au** were obtained.

1996 and 1997: The staff of the Schreiber-Hemlo Resident Geologist's office of the Ontario Geological Survey (OGS) conducted a one-day examination on the Smoke Lake property in 1996 to investigate possible source areas for the gold-in lake sediment anomalies. They discovered a narrow, steeply dipping, northwest-trending quartz vein crosscutting carbonatized mafic volcanic rocks near the north shore of Smoke Lake. Disseminated pyrite occurs in the vein selvages and in the altered wall rocks. A single grab sample of the quartz vein, dubbed the Smoke Lake Occurrence assayed **26.7 gpt Au (0.78 opt)** (Schnieders et al. 1996).

An additional short visit by the OGS in 1997 uncovered another occurrence approximately 1 km east-northeast of Smoke Lake, proximal to the contact between the Beggs Lake syenite stock and outlying mafic metavolcanic rocks. Two grab samples of carbonatized, pyritized syenodiorite (?) with a quartz veinlet stockwork collected from the Contact Occurrence assayed **1.03 gpt Au (0.03 opt)** and **0.68 gpt Au (0.02 opt)**, respectively.

1997 to 2000: During 1997 Peter Moses staked the 2 claims comprising the Goodchild Property as defined by Freewest and included the Violamac Cu-Ni-Ag Occurrence located near Goodchild Lake within the northeastern portion of the property. Prospecting and soil sampling during 1997 led to the discovery of the Main Moses and South Moses gold occurrences (Moses, 1998¹). The Main Moses Occurrence consists of a coarse-grained Fe-carbonate vein system within strongly sheared and carbonatized mafic metavolcanic rocks. The zone was exposed by 6 surface trenches over 207 m in 1999 and samples taken from the zone graded from **0.30 to 8.60 gpt Au** (Moses, 1999). The South Moses Occurrence was exposed by a trench in 1998 and consists of folded, sulphide-bearing quartz veins within mafic metavolcanic rocks that graded up to **1.60 gpt Au** (Moses, 1998²).

Further prospecting and soil sampling were completed during 1998 and 1999 and led to the discovery of 3 more occurrences: the BG Pt Occurrence, located approximately 115 m northwest of the South Moses

Occurrence, occurs within a gabbro dike and grades up to **517 ppb Pt** and **101 ppb Au** (Moses, 1998²); the MZ Occurrence, located 780 m south-southeast of the South Moses Occurrence on the eastern shore of a small lake, consists of an altered, well-mineralized monzonite outcrop and numerous boulders containing between **0.47** and **2.50 gpt Au**; and the Crusher Occurrence, located 600 m east-southeast of the MZ Occurrence and 110 m northeast of a small lake, consists of well-mineralized talus boulders of pink, fine-grained felsite/aplite that assayed up to **430 ppb Au** (Moses, 1999).

Teck-Cominco Limited optioned the property late in 1999 and during 2000 completed linecutting, geological mapping and sampling, channel sampling of the Main Moses Occurrence, and an Induced Polarization (IP) survey. A total of 97 rock samples were collected during reconnaissance mapping, prospecting, and channel sampling. Samples collected from the trenches at the Main Moses Occurrence graded up to **5.50 gpt Au (0.16 opt)**; whereas sampling of the South Moses and MZ occurrences returned up to **0.25** and **0.145 gpt Au**, respectively. Teck-Cominco also discovered 2 previously unknown, contact proximal, disseminated pyrite zones within the Beggs Lake Stock that contained strongly anomalous to low-grade Au values.

The first is located 100m west of the South Moses Occurrence, has been traced for 125 m and grades up to **0.33 gpt Au**. The second is located 300 m north-northeast of the MZ Occurrence, grades up to **120 ppb Au**, and may correspond to the present UGM Occurrence. Paakki (2001) recognized that at least three styles of mineralization were present within the property, including 1) sheared, pyritic, Fe-carbonate altered mafic metavolcanic rocks (Main Moses and South Moses); 2) disseminated pyrite and quartz veining within granodiorite, monzonite and syenite along the contact of the Beggs Lake stock (UGM, J & J); and 3) disseminated and fracture-controlled chalcopyrite and pyrrhotite in cherty footwall rocks at the base of the Goodchild Lake Serpentinite (Violamac Cu-Ni). Teck-Cominco optioned the property to Saxony Explorations Ltd. who subsequently optioned it to Jonpol Explorations Inc. in 2001.

1998 to 2003: Four claims, totalling 51 units, were staked near Smoke Lake during 1998 for prospectors J.E. Bond, D.M. Michano, P.A. Moses, R.P. Renner, and K.G. Fenwick. Prospecting during 1998 by Peter Moses and Russell Renner discovered several high-grade float boulders within a stream valley east of Smoke Lake. These boulders consist of disseminated pyrite within angular to sub-round, metre-sized blocks of pink to dark grey, altered, equigranular, fine-grained monzonite crosscut by quartz and quartz-carbonate veinlets. Grab samples returned high-grade assays of up to **20.60 gpt Au (0.60 opt)**. The owners completed a program of prospecting, stripping, blasting, trenching, soil sampling, and rock sampling in 1999 and discovered 1 high grade Au float boulder, 2 bedrock Au occurrences, and 7 Zn+/-Cu+/-Ag+/-Co occurrences throughout the property.

Two samples taken from the float boulder (which may be the Syenite 1 boulder discovered by Peter Moses in 1997) graded **3.90** and **21.05 gpt Au**. The most significant of the various bedrock Au and base metals occurrences discovered during 1999 include: The East Budall Occurrence located 150 m northeast of Budall Lake (**3.02 gpt Au** from a 15-cm thick quartz vein); the Budall Lake Occurrence on the eastern shoreline of Budall Lake (**1.97% Zn** and **2810 ppm Cu**); and the Moosehorn Lake Occurrence occurring within iron formation on the western shoreline of Moosehorn Lake (**5.78% Zn**, **12.4 ppm Ag**, and **528 ppm Cu**). The 5 remaining occurrences were within various iron formation units and contained up to **7170 ppm Zn**, **5260 ppm Cu**, and **3.80 ppm Ag** (Michano, 2000). Additional prospecting was completed and 2 claims, totalling 32 units, were added to the property in 2001. The prospecting discovered several boulders containing anomalous amounts of Au and one high grade float boulder all in the immediate vicinity of Bond Lake (Moses, 2001).

The high-grade boulder (Syenite #2) is located 60 m west of Bond Lake and assayed **14.52 gpt Au**.

The property was optioned to Freewest Resources Canada Inc. in late April 2002. Freewest added 7 more claims to the property (an additional 73 units), completed 2 phases of prospecting, a till sampling program, linecutting, ground magnetometer and IP surveys, geological mapping, backhoe trenching, channel sampling, and detailed trench mapping. The highlight of the Phase 1 exploration was the discovery of a high-grade, granodiorite float boulder (Crocker Float) crosscut by a stockwork of quartz veins and veinlets approximately 270 m north of Smoke Lake. This boulder graded **321.90 gpt Au, 70.70 ppm Ag, 2050 ppm Bi, 989 ppm Te, and 1940 ppm Cu**. Phase 1 prospecting also discovered the Beggs Lake Occurrence (**1.09 gpt Au**), the RC South Occurrence (**2.76% Zn, 6.92 ppm Ag**), and several auriferous float boulders, in the vicinity of the Syenite #1 and #2 boulders, that graded between **1.01 and 7.57 gpt Au**. Freewest were also operators for Jonpol Explorations Limited on the Goodchild Property, situated adjacent to the Smoke Lake Property to the northeast and adjoining the west shore of Goodchild Lake. Jonpol had optioned the property from Saxony Explorations Ltd. in 2001. Saxony had optioned the property from Teck Cominco Limited, who had originally optioned the ground from Peter Moses of Marathon, Ontario in 1999.

During Phase II 8 new Au occurrences were discovered on the Smoke Lake Property and 5 new Au occurrences were discovered on the Goodchild Property. Some more auriferous boulders were also found in the boulder train, and some possible source areas for the train were discovered on the Goodchild Property. Also, a total of 300 channel samples from the Smoke Lake Property and 351 from the Goodchild Property were collected, for a total of 651. The trenching program uncovered the gold-rich Super G vein hosted in mafic metavolcanics on the northeast shore of Smoke Lake. One grab sample there assayed **846.6 gpt Au** and channel samples assayed up to **33.06 gpt/1.85m** (MacTavish, 2003). Freewest drilled 3 holes on the Smoke Lake Property in October. Two of them tested the Super G occurrence and one tested the Double Deuce occurrence within the Beggs Lake Stock, where sampling had yielded gold values up to **9.08 gpt**. The first two holes intersected VMS style mineralization (samples graded up to **7321 ppm Zn** and **627 ppm Cu**, as well as **127 ppb Au**) as well as the probable continuation of the Super G vein below surface (**10.57 gpt/0.29 m**). The third hole intersected altered monzonite with quartz stringers and veins from 23 to 135 m, with the best sample assaying **471 ppb Au/0.2 m** (Hawke, 2003³).

Jonpol began drilling in November 2002 and ended in January 2003. They drilled 3 holes beneath the high-grade (**100.9 gpt**) Lucky occurrence within the Beggs Lake Stock and intersected altered monzonite and syenite dikes which returned assays of up to **2.88 gpt Au/1.14m**.

Another hole tested the UGM occurrence (up to **2.71 gpt Au**) and returned assays of up to **3.94 gpt Au/0.42 m** and **1.29 gpt Au/2.2 m**, in a 90-metre section of altered and mineralized monzonite. The fifth hole tested an IP anomaly and intersected VMS style mineralization which returned assays of up to **888 ppm Cu/1.0 m** and **8180 ppm Zn/0.42 m** (Hawke, 2003¹).

Jonpol drilled 5 diamond drill holes on the Goodchild Property during September and October of 2003. Four holes tested IP targets and one tested the MZ gold occurrence. One hole testing an IP target and a historical occurrence returned **1.13 gpt Au/1 m**, the best result of the program. The hole testing the MZ occurrence was drilled to hopefully intersect the contact between the monzonite and surrounding metavolcanics, but failed to reach the contact and yielded low gold values (Hawke, 2003²).

1999: Battle Mountain Canada Ltd. conducted a summer exploration program in the Page Lake area from July to October, consisting of rock sampling and linecutting, with a total of 275 rocks collected and 1.7km of line cut. The property consisted of 29 claims of 44 claim units. Rocks were assayed for gold and returned up to **4.2gpt Au** from iron formation. Many other samples of iron formation returned Au results in the hundreds to low thousands ppb (Battle Mountain Canada Ltd., 1999¹). Between July and September, a whole rock and soil sampling program was also conducted on the property, resulting in 158

whole rock samples and 123 soil samples. Soil samples were collected on cut lines at several locations returning up to **815ppb Au** and up to **662ppm Zn** (Battle Mountain Canada Ltd., 1999²).

2004: CanAlaska Ventures Ltd., having previously optioned the ground from Freewest Resources, conducted a program of detailed soil sampling, geological mapping and prospecting on the Smoke Lake Property from late August to mid-September, with the main purpose of locating source areas for the Crocker Float and the Smoke Lake Float boulders. Up to **632 ppb Au** was obtained from soil sampling and re-sampling of the Super G vein returned a value of **100 gpt Au** (MacLachlan and Londry, 2004).

From late October to mid-November, CanAlaska followed up these results with a DDH program consisting of six holes. The highest assay from drilling was **8092 ppb Au/0.8m**, in a hole testing the possible strike extension of the Super G vein to the north, as well as soil anomalies, an IP trend and possible NE structure. Another hole testing the possible strike extension of the Smoke Lake Occurrence (on the north shore of Smoke Lake), as well as soil anomalies, IP and mag features, and a NE trending structure, returned a highest assay of **1587 ppb Au/1.0 m** (MacLachlan et al., 2004).

2004 to 2006: Prospectors Duncan Michano, Brian Gionet and Jamie Moses conducted a prospecting and trenching program on the Page Lake Property to follow up on the historical Kurt Kuhner showing, and to locate hematized quartz veins similar to that of the Super G showing at Smoke Lake. The main trench southwest of Page Lake contained green mica sericite schist and samples that assayed up to **23 gpt Au** from a quartz-flooded sample, as well as **6.20% Zn** and **34.8 gpt Ag**. There were Mo anomalies throughout the trench. A pit 100m NW of the main trench yielded a sample which assayed **160 ppb Au, 42.6 gpt Ag, 30.7 ppm As, 179 ppm Bi, 3650 ppm Mo, 2770 ppm Pb, 15.35 ppm Te, and 464 ppm Zn**, from an 8cm wide quartz vein (Michano, 2004).

In **2005**, more work was done to the southwest and northeast along strike of the main trench, as well as in the northwest of the property to follow up on work done by Hemlo Gold. The best mineralization was discovered southwest of the main trench, assaying up to **298 ppb Au** (Michano, 2005).

In **2006**, two claims were added to the Page Lake Property, resulting in the creation of the King Lake Property, owned by the previously mentioned prospectors as well as Russell Renner and James Bond. The intent of the 2006 program was to follow up on work done in the 2005 field season; however, a new showing was discovered southwest of King Lake, south of Page Lake, and it was decided to set up a camp there to carry out further work in the area. Samples taken from subsequent trenching at the main showing assayed up to **281ppb Au, 2255ppm Cu and 23,696ppm Zn** (Michano and Renner, 2006).

2006: Benton Resources conducted a prospecting and geological reconnaissance program on the Goodchild Lake Property. This property covered portions of the current Black Raven / Pic property but work at this time was conducted to the north at the Cu-Ni Beggs-Currie showing (1930s) and the Phantom showing (discovered by Freewest Resources in 2000). The showings were mapped in detail. Samples taken earlier in 2006 at the Beggs-Currie showing had returned **6.72% Ni, 0.127% Co & 0.326ppm Pd** and **12.6% Ni & 0.295% Co**, within intrusion breccia close to the contact of the ultramafic body. The Phantom showing is a sulphide occurrence hosted in pyroxenite and associated with a 070-degree shear zone. The best field result obtained from this showing was **1.27%Ni, 0.216% Cu, 0.385ppm Pd & 0.227ppm Pt**. The Goodchild ultramafic was found to consist primarily of olivine and chromite cumulate rock. Timing of the intrusion relative to the enclosing volcanosedimentary assemblage was not determined (Giovenazzo, 2007).

2007: Geotech Ltd. carried out a VTEM survey over the Goodchild Lake Property for Benton Resources. It covered 142.1 km² and 957-line kilometers. A number of EM anomalies were identified (Sims & Venter, 2007).

2007: In the fall of 2007, Benton Resources prospected and mapped where VTEM anomalies had been outlined earlier in the year. Seven of eleven anomalies were ground truthed. 14 whole rock, 113 grab and 77 soil samples were collected on the property (Arnold, 2007). Anomalies included the Phantom and Beggs-Currie showings mentioned above, but six of the anomalies are located on the current Pic Property:

GC-03: This anomaly is located proximal to the northern property boundary and to the contact of the intrusion between its two north-south trending limbs. It was found to be underlain by chloritic mafic volcanics, and weakly to moderately sheared ultramafics, altered with serpentine/talc and hematite, with locally up to 10-15% pyrrhotite/pyrite/chalcopyrite along silica flooded shear planes.

GC-04: This anomaly is located west of anomaly GC-03, also not far from the contact of the intrusion but more internal than GC-03. Geological mapping of this area determined that the conductor is underlain by locally spinifex textured, moderately serpentinized and talc-altered peridotite. Some mafic volcanics with local trace-2% pyrrhotite were observed as well.

GC-05: This anomaly is located between Beggs and Cawanogami Lakes, at the contact of the intrusion. It was not mapped by Benton; however, some linecutting and prospecting was conducted in the area, which returned values up to 0.25% Ni.

GC-06: This anomaly is located on the northwest side of Cawanogami Lake and was not ground truthed.

GC-07: This anomaly is located west of anomaly GC-04, at a flexure in the western contact of the western limb of the intrusion. It was found to be underlain by gabbro, with dunite/orthopyroxenite to the east and mafic volcanics to the west. These rocks were transected by northeast-southwest narrow shears, were all carbonate altered, and disseminated pyrite/pyrrhotite was observed in the mafic and ultramafic rocks, while 1-2% pyrrhotite/pyrite and trace-1% chalcopyrite was observed in the gabbroic unit.

GC-11: This anomaly is located on the north shore of Pukatawagan Lake and was not ground truthed.

2008: Benton Resources Ltd. conducted a twelve hole, 2053m Phase I diamond drill program on the Goodchild Property to test the Beggs-Currie and Phantom showings as well as airborne VTEM and magnetic anomalies and the brecciated contact of the Goodchild ultramafic complex. Assays returned only background nickel values. Only hole GC08-05 was located on the current Pic Property, north of Pukatawagan Lake and intersected graphitic argillite at 79.4m (Byrnes, 2008).

2009: Benton Resources Ltd. conducted an eight hole, 1601m Phase II diamond drill program on the Goodchild Property to further test VTEM anomalies identified on the property. Assays returned mostly background nickel with weakly anomalous copper values. Holes GC-09-15, GC-09-17 and GC-09-20 were located on the current Pic Property. Hole 15 was drilled to test a VTEM anomaly northeast of Goodchild Lake and intersected fine disseminated pyrrhotite within serpentinite at 321.4m and graphitic argillite at 331m. Hole 17 was drilled to test VTEM and Mag anomalies and intersected graphitic argillite at 55.2m and 95.2m. Hole 20 was drilled to test priority one VTEM anomalies and intersected several graphitic argillite units (Byrnes, 2009).

2011: Entourage Metals Ltd. acquired the Black Raven Property on February 28th, 2011. It consisted of the Smoke Lake Property, a couple of claims adjoining it to the north covering part of the Goodchild Lake Serpentinite, and a block of claims adjoining it to the south.

All claims were under option from J. Bond, D. Michano, R. Renner, J. Moses B. Gionet, M. Dorval and K. Fenwick. Entourage conducted a Phase I exploration program between May 1st and July 29th, involving line cutting, reconnaissance sampling of historical trenches, prospecting, and a grid-based soil survey. 19

reconnaissance channel samples, 38 grab samples and at least 1000 soil samples were taken. Several grab samples returned anomalous levels of Au and a trench sample from the Super G vein confirmed high grade. There were also several gold anomalies in the soil samples collected (Labrecque, 2011).

2011 and 2012: Entourage Metals Ltd. conducted a diamond drill program on the Black Raven Property, based on the results of their earlier soil survey and geophysical data. The purpose was generally to test for the strike extension of the Super G vein and mineralization at the contact between the Beggs Lake stock and the surrounding metavolcanics. Eight holes (BR-11-01 to BR-12-08) were drilled in late 2011 and early 2012, followed by five holes (BR-12-15 to BR-12-19).

Holes BR-11-01 to BR-11-06 tested the Super G vein and returned up to **44.57gpt Au** / 2.38m from hole BR-11-04. Veins sampled up-hole returned up to **5.43gpt Au** / 0.6m from hole BR-11-03.

Hole BR-12-07 tested the southern contact of the Beggs Lake Stock and returned **1.39gpt Au** / 2m from a zone of quartz stringers at the contact within the Stock, and a sulphide-rich zone of ‘metasomatic layering’ at the contact returned **0.53% Zn** / 1m. According to an Entourage April 26th, 2012 press release, this hole tested the Tracy Lee Prospect identified by Freewest Resources, targeting a **0.87gpt Au** soil anomaly, an IP anomaly and a magnetic lineament.

Hole BR-12-08 tested the northern contact of the Beggs Lake Stock and a zone of anomalous gold was identified within the Stock, associated with a mafic and lamprophyre dyke swarm. According to an Entourage August 1st, 2012 press release, the hole was designed to target elevated gold in soil anomalies between **30 and 50ppb**. Anomalous gold values and hydrothermal alteration were identified over 76m, including **0.42gpt Au** / 2m.

Five further holes (BR-12-15 to BR-12-19) were subsequently drilled to test the Super G Vein. These returned up to **12.2gpt Au** / 0.3m from hole BR-12-18, and the possible down-dip expression of the Mark Vein (west of the Super G Vein on surface) returned up to **4.62gpt Au** / 0.65m from hole BR-12-16. A mineralized zone in hole BR-12-18 returned **14.1gpt Au** / 0.38m, up-hole from the Super G Vein.

(Labrecque and Florek, 2012).

2016: From October 16th to 22nd a small prospecting program was carried out on the Sprucetop Lake Property on behalf of Canadian Orebodies Inc., by Bruce MacLachlan of Emerald Geological Services and assistant Rogan Hennie. Sampling was carried out at several locations along and near a prominent northwest trending fault and numerous points of interest were documented (MacLachlan, 2016).

2017: Canadian Orebodies Inc. carried out an extensive prospecting, mapping, soil sampling and Line-cutting program on the Black Raven Property between June and October 2017. The prospecting program resulted in the discovery of a number of gold occurrences and zones near the northern contact of the Beggs Lake Stock, including the ABC Occurrence (**109 gpt Au**), Gold Shore Occurrence (**11.6 gpt Au**), Tibia Occurrence (**14.7 gpt Au**), Sunglasses Occurrence (**895 ppb Au**), North Ridge Zone (**1.3 gpt Au**), Forty-Five Zone (**536 ppb Au**), Alpha Boulder (**980 ppb Au**), Turbo Q Zone (**637 ppb Au**), Super 7 Zone (**492 ppb Au**), Revival Occurrence (**526 ppb Au**) and other zones and occurrences that were less anomalous.

Most of the new Au anomalies were returned from quartz stringers/veins in locally silicified and pyritic monzonite/granodiorite. In addition, while following the strike extension of the interpreted Beggs Lake Fault, thought to be spatially related to Au mineralization, the Contact Occurrence (**11.9 gpt Au**) was discovered ~8km southeast of the Beggs Lake Stock, consisting of quartz veins in mafic volcanics within a NNE-trending stream in a magnetic high southeast of Contact Lake. Additionally, some prospecting was

carried out near Page Lake to follow up on historical work which had identified the Page Lake Iron Formation (up to **3.1 gpt Au**), the Kurt Kuhner base metal/gold showing (**1.1% Zn**/7.6 meters in core, including **4.5gpt Au**/1.5 meters), and a gold in soil anomaly of **1100 ppb Au** southeast of Page Lake.

Results of up to **3.16 gpt Au** were returned from banded iron formation from the Page Lake Iron Formation, which was found to be more laterally extensive than previously thought. The Southeast Bond Lake Occurrence (**423 ppb Au**) was also discovered 150m southeast of Bond Lake in sheared mafic volcanics with up to 2% pyrite, and the Crusher South Occurrence (**867 ppb Au**) was discovered 230m south-southwest of the Crusher Occurrence discovered by Freewest Resources in 2002. It consisted of vuggy quartz in mafic volcanics with up to 5% pyrite.

Linecutting was carried out between September 28th, 29th and October 11th, 12th in the northwestern portion of the Beggs Lake Stock (the Roccian East Grid), to facilitate prospecting and soil sampling in the vicinity of the high-grade ABC Occurrence and the northern contact of the Stock. Soil sampling was conducted on part of the Grid between September 28th and October 1st. A total of 164 “B” horizon samples were collected along five northeast trending grid lines and along the southeast trending baseline. Notable results included **180 ppb Au** near the northern end of L200E, up to **35 ppb Au** in the immediate vicinity of the ABC Occurrence, up to **32 ppb Au** on line 100E between 100S and 150S, and up to **15 ppb Au** on Line 500E between 125S and 150S. Geological mapping was also carried out along the northern contact of the Beggs Lake Stock, on the Roccian East Grid and north of the Beggs Lake Stock, which better defined the northern contact of the Stock, the mafic volcanics to the north, and the serpentinite further north (MacLachlan and MacConnell, 2017).

A field mapping and prospecting program, an IP program, and a drilling program were also carried out on the Wire Lake property to the south during the summer and fall of 2017. 22 holes totalling 3069m were drilled, returning **2.6gpt Au** / 18.7m including 0.5m of **57.1gpt Au** from the Candlestick-North Hill Zone; **1.4gpt Au** / 32.4m from the Wire Lake Gold Zone; and **1.1gpt Au** / 31.7m from the Wire Lake Gold Zone. A new zone (Kakeeway Zone) was also discovered to the south of the main Wire Lake trend (MacConnell & Mackie, 2018, August 21st, September 11th, September 27th & December 13th, 2017 press releases).

2018: Canadian Orebodies Inc. carried out an extensive prospecting, mapping and soil sampling program on the Black Raven Property between June and October 2018, as well as a high-resolution magnetic survey in the Beggs Lake area (the subject of the current report). Several new gold discoveries were made during the 2018 field program including a new gold occurrence located 190 metres north of Lucky Lake which returned gold values up to **16.4gpt** as well as a new gold occurrence located approximately 200 metres north of Beggs Lake which returned gold values up to **15.3gpt**. Several anomalous samples up to **8.3gpt Au** and up to **227gpt Ag** correspond to the newly discovered “GC” vein which is located approximately 125 metres northeast of the ABC Gold Occurrence discovered during the 2017 field program.

A new copper showing was found late in the field season near major northwest and northeast trending structures located approximately 5.5 kilometres southeast of the company’s Wire Lake Camp, within the Gowan Lake Pluton within the Black Pic Batholith. Sampling of altered, brecciated syenite with chalcopyrite returned grades up to **9560ppm Cu**.

Grades of up to **3.51% Zn** (Mag Lake NW Iron Formation) and **352ppm W** (Super 7 Extension Zone) were obtained as well.

Two small orientation soil sampling surveys were carried out across the Contact Lake Gold Occurrence and immediately south of the Super G Gold Occurrence at Smoke Lake. At Contact Lake “A” horizon

were collected at each station as well as “B” horizon where possible. Original results from A & B horizon were all above background up to **774 ppb Au**. At Smoke Lake “A” horizon only were collected at each station, resulting in assays of up to **1240 ppb Au**. However, selective resampling did not replicate these high results in either survey. North of the Contact Lake Gold Occurrence a new gold discovery was made at the ‘Contact East Iron Formation,’ returning up to **428ppb Au**.

Geological mapping was carried out at many locations across the Black Raven Property to provide a better understanding of the underlying stratigraphy and associated structures (MacLachlan et al., 2020¹).

A diamond drill program was conducted on the Black Raven Property during October 2018. The drill program was carried out at the Super G Occurrence located at Smoke Lake, the North Ridge Au zone located east of Beggs Lake and the Contact Lake Gold Occurrence located southeast of Contact Lake. Results from the drill program included the following:

Smoke Lake:

Five diamond drill holes totalling 785.3 metres were drilled in the Smoke Lake area to target the Super G vein. The results of the 2018 drilling suggested that the Super G vein is part of the much larger mineralized system referred to as the Smoke Lake Gold System (SLGS). From the integration of the historic and the 2018 drilling results, the SLGS is interpreted as an anastomosed network of mineralized structures in which gold mineralization is associated with mm-wide to cm-wide quartz stringers and veins with haloes of disseminated sulfides.

Narrow higher-grade zones enveloped by lower grade mineralization were observed in the main mineralized structures composing the SLGS. The SLGS has been so far defined by drilling over a strike length of >400 metres and to a vertical depth of 130 metres. The vein system remains open in both directions along strike and to depth. Surface mapping of gold mineralization in the area also suggests that additional mineralized structures are likely present in the hanging wall and footwall of the of the SLGS.

The SLGS was targeted based on the previous work of Freewest Resources Canada Ltd. in 2003 and diamond drilling by Entourage Metals Ltd. in 2011-12. Both exploration programs encountered multiple zones of mineralization in the area and the best diamond drilling intersections were obtained in the Super G vein, which returned assay results of **44.5 g/t Au** (uncut) over a drilled width of 2.4 metres (BR-11-04¹) and **19.2 g/t Au** over 2.0 metres (BR-11-01¹). From the 2018 drilling, the high-grade intersection in BR-2018-002 suggests an up-plunge continuity of the zone of high-grade mineralization between BR-11-01 and BR-11-04, whereas BR-2018-003 shows that the zone of mineralization remains open down-plunge.

North Ridge:

The North Ridge target consists of a quartz-tourmaline vein system hosted within the Beggs Lake Stock. Anomalous gold values (grabs include values up to **5.8 g/t Au**) +/- chalcopyrite and molybdenum have been observed over a strike length of 200 plus metres and 28 metres in width. Two diamond drill holes BR-2018-006 and 007 (216 metres) were drilled to further evaluate the area. Hole BR-2018-007 revealed a broad gold anomaly in bedrock that corresponds to the vertical projection of the vein system discovered at surface. In hole BR-2018-007, intermittent anomalous gold values (in excess of **100ppb gold**) detected between 19.0 to 103.0 metres correspond to an intersection of **81 ppb gold** over 84 metres (Hutteri, 2019).

Contact Lake:

The Contact Lake Prospect is in the northeast portion of the project area approximately 8 kilometres northeast of the Wire Lake Gold Zone and 7 kilometres east of the Super G Vein. The mineralized zone

observed in outcrop consists of several ~E-W parallel quartz veins over an apparent 2 to 3 metre width in which selective grab samples contained up to **11.9 g/t Au**. One hole, CL-2018-001 was drilled to 117m to test the vertical extension of the mineralized zone, but no significant results were obtained in the hole (Hutteri, 2019).

A field mapping and prospecting program was also carried out on the Wire Lake property in conjunction with the Black Raven exploration program. Assays of up to **27.3gpt Au** and **7.84gpt Au** were obtained from the Fallen Lake area in the northern part of the Wire Lake property, later referred to as the Camp 27 and Porphyry Lake areas, respectively. Assays up to **6.36gpt Au** were obtained west of the Wire Lake Gold Zone (MacConnell & MacLachlan, 2019). This was followed up by a 5-hole, 1093m drill program, targeting the Kakeaway, IP West (identified by a 2017 IP survey) and Lucky 7 Zones. Only hole WL-2018-26, targeting the Lucky 7 Zone, returned significant results, including **0.87gpt Au / 19.54m** (MacLachlan et al., 2020²).

2019: In February of 2019, a ten-hole, 1305m diamond drill program was conducted on the ice at Smoke Lake to follow up on previous drilling targeting the Smoke Lake Gold System. Up to **5.4gpt Au / 10.4m**, including **12.0gpt Au / 4.3m** was returned from hole BR-2019-013, which was a new near-surface discovery. Within the same hole the Super G structure returned **6.4gpt Au / 2m**, including **15.9gpt Au / 0.8m**. Zinc enrichment up to **1.28% Zn** in hole BR-2019-16 was discovered at the contacts of volcanic units, suggesting VMS-style mineralization (Canadian Orebodies press release June 2019).

A field program was also carried out from summer to fall of 2019 in the “Harvey 2 Fault” (southeast of Contact Lake within the Gowan Lake Pluton/Black Pic Batholith), Contact Lake, Beggs Lake, “Harvey 1 Fault” (southeast of Wire Lake within the Gowan Lake pluton/Black Pic Batholith), Porphyry Lake and Camp 27 Lake areas, the latter two areas located in the northern part of the Wire Lake claim group. Orientation soil sampling (A and B horizon) was carried out in the Contact Lake, Beggs Lake, Porphyry Lake and Camp 27 Lake areas. Outcrop washing was carried out at the Contact East Iron Formation and the North Ridge Zone east of Beggs Lake. Mapping was carried out in the Porphyry Lake area. Lake sediment sampling and channel sampling were carried out at Camp 27 Lake. The most significant results were obtained in the Porphyry Lake and Camp 27 Lake areas, with grab samples up to **12.4gpt Au** and up to **0.91% Zn** obtained in the Porphyry Lake area, as well as A horizon samples up to **104ppb Au** and B horizon samples up to **42ppb Au**. Grab samples in the Camp 27 Lake area returned up to **454ppb Au** from a boulder of sericite schist, and up to **318ppb Au** from a quartz vein within a newly discovered north-south-trending shear zone, the North Shore Zone. Lake sediment sampling returned up to **54ppb Au** (MacLachlan, 2020^{1,2}).

2020: During the summer of 2020, a prospecting and soil sampling program was carried out in the Bond Lake North and Beggs Lake areas. The purpose was mainly to investigate northeast-trending structures within the Beggs Lake Stock and outside the Stock where these structures extend into the surrounding mafic volcanics. Prospecting and humus soil sampling were conducted across a northeast-trending structure west of Lucky Lake, up-ice from high-grade float near Bond Lake corresponding to FreeWest Resources’ ‘Beaver Pond Boulder Train.’ Values up to **496ppb Au** were obtained from grab samples of quartz veins in monzonite at the southern interpreted contact of the Beggs Lake Stock, and humus samples returned values up to **569ppb Au** in low ground west of Lucky Lake, on the east margin of the target magnetic low structure. In the Beggs Lake area, values up to **1.08gpt Au** were obtained from quartz veins in a small monzonite body north of the main Stock, apparently surrounded by mafic volcanics. Two lines of humus samples from 2019 were extended across the metavolcanic-serpentinite contact, returning insignificant results. Two lines of SGH soil samples were sampled in the swamp west of Beggs Lake, resulting in two anomalies, one south of the ABC Occurrence (**109gpt Au** from 2017) and one southeast of a gold-bearing northeast-trending ridge of ‘mixed’ monzonite and mafic material that returned up to **237ppb Au** from 2017 to 2018.

A sampling program was also conducted on hole CL-2018-001 which had tested the Contact Lake Gold Occurrence in 2018. Low gold anomalies up to **109ppb Au** were obtained, with the entire hole averaging **24ppb Au** / 112.3m (MacLachlan, 2021).

5.0 -2018 MAGNETIC SURVEY PROGRAM-

5.1 INTRODUCTION

A Heli-GT Three-Axis Magnetic Gradient Survey was carried out by Scott Hogg & Associates Ltd. for Canadian Orebodies Inc. (now Hemlo Explorers Inc.) from May 11th to 16th, 2018, using a 350BA+ AStar helicopter from Expedition Helicopters of Cochrane, Ontario. The survey was based out of the Marathon airport. East-west and north-south lines were flown over the same survey area, 400km each for a total of 800km, at 50m spacing of lines. The instrument used was a Heli-GT bird towed 25m below the helicopter, containing all the geophysical sensors as well as an altimeter and GPS antennae. The survey was carried out over a portion of the Black Raven property centered on the Beggs Lake Stock, a 3 by 1km felsic intrusion.

A list of the Cell-Claims is presented in Appendix I (Table I), The Statement of Costs is presented in Appendix II, Map Sheets in Appendix III display various magnetic data, and the Heli-GT Three-Axis Magnetic Gradiometer Survey Report can be found in Appendix IV.

5.2 RESULTS

The airborne magnetic survey better defined the contacts of the Beggs Lake Stock and the Goodchild Serpentine, as well as north-south to northeast-southwest-trending structures or corridors known to be related to gold mineralization, such as the Super 7 (**492ppb Au**, 2017) and North Ridge Zones (**5.8gpt Au, 81ppb** / 84m in core, 2017, 2018, see Exploration History) in the center of the Stock. It also better-defined folded stratigraphy outside the Beggs Lake Stock, particularly iron formation horizons such as those in the vicinity of Smoke Lake; west-northwest-east-southeast-trending faults, in particular the Beggs Lake Fault north of the Stock and sub-parallel to its northern contact; and northeast-southwest-trending diabase dykes, some of which display reversed magnetic polarity. Subtle differences exist between the survey data-oriented east-west and the survey data oriented north-south, as expected. The east-west survey lines defined north-south structures and lithology better, while north-south survey lines resulted in better definition for east-west features. See Map Sheets.

At least two prominent northeast-trending magnetic lows were outlined within the Beggs Lake Stock. The most prominent occurs in the center of the Stock and is coincident with the Super 7 Zone and a diabase dyke of reverse magnetic polarity. While the dyke dominates the magnetic signature, it is possible that faulting and silica alteration also contribute to the magnetic low. The dyke would have preferentially intruded along fault planes such as this. The North Ridge / 45 Zones are located approximately 200 and 140m west, respectively, of the Super 7 Zone, hugging the western margin of a north-northeast-south-southwest-trending magnetic high.

The second northeast-trending prominent magnetic low is located west of Lucky Lake. Diabase has also been observed in this area, however; altered monzonite that returned up to **984ppb Au** was also discovered at the western margin of the magnetic low in 2018, so there is a possibility that some of the magnetic low signature is due to an alteration zone along a northeast-trending fault. Several 2020 humus samples returning anomalous values up to **569ppb Au** are also associated with this magnetic low.

6.0 -DISCUSSION OF RESULTS AND RECOMMENDATIONS-

6.1 DISCUSSION OF RESULTS

The 2018 high-resolution magnetic survey over the Beggs-Smoke Lake area was successful in better defining north-south to northeast-southwest structures related to gold mineralization, as well as the contact of the Beggs Lake Stock. It also better-defined folded stratigraphy, especially iron formation horizons, outside the Beggs Lake Stock, as well as the contact of the Goodchild Serpentinite to the north and the west-northwest-east-southeast-trending Beggs Lake Fault which is also located north of the Beggs Lake Stock and sub-parallel to its northern contact.

Northeast-trending structures may be related to regional northeast-oriented folding, possibly corresponding to Muir (2003)'s D³ to D⁴ progressive deformation events defined by northwest to west-northwest-directed transpression, transitioning from ductile to brittle-ductile. The Beggs Lake Stock is unaltered relative to the surrounding country rock, and thus would seem to have intruded late in regional deformation, though not so late that it was unaffected by compression that resulted in axial-planar-parallel faults in both the Stock and the mafic volcanics to the south (Smoke Lake area), providing conduits for late gold mineralization. It is unclear the extent to which fluids derived from the Stock itself may have played a role in gold mineralization, or if the gold-bearing fractures observed in the Stock are also related to cooling of the Stock. Whatever the case, these structures both within the Stock and outside in the Smoke Lake area remain viable targets.

Milne (1967, p. 19) appears to be the first to recognize that the Beggs Lake Stock intruded into the nose of a northeast-oriented antiform, although at the time the gold potential of the area was not known. The antiform, highlighted by horizons of iron formation, is somewhat 'boxy' in shape and spans from west of Budall and Roccian Lakes to an area south of Goodchild Lake, before folding back to the north in the Fallen Lake area. These iron formation horizons appear at Smoke Lake and are associated with elevated Zinc values, including **1.28%** / 1.0m in core (Hemlo Explorers June 11 2019 press release). Large-scale folded iron formation horizons on the property, underexplored, no doubt present some gold potential on their own, particularly in fold noses or 'kinks', and where intersected by gold-bearing faults such as at Smoke Lake.

The role of the west-northwest-east-southeast-trending Beggs Lake Fault is unclear in terms of gold mineralization. It is parallel to the northern contact of the Beggs Lake Stock, which raises the question of whether or not it pre-dated the Stock and partially controlled the orientation of the intrusion. However, the Stock also intruded into stratigraphy at that same orientation, so the stratigraphy may be more of a controlling factor. East-southeast shearing has been noted in the sediments north of the Stock, but so far, no gold mineralization has been found to be associated with this shearing. Milne (1967, p. 38-41) thought that west-northwest-east-southeast-trending to northwest-southeast-trending structures were associated with regional folding/compression, being almost parallel to one orientation of conjugate 'shear joints' as well as one orientation of 'tension joints.' If so, just as regional fold noses, limbs, and axial planar fracturing appear to have served as conduits for late gold mineralization, perhaps these faults could have as well, as the system transitioned from ductile to brittle-ductile.

No gold mineralization has been found to be associated with the Goodchild Serpentinite north of the Beggs Lake Stock. The intrusion has the appearance of being folded about a north-south axis, but it is not certain if this is actually the case, and the timing relative to the Beggs Lake Stock is unknown. If it predates the Stock it should have some gold potential.

6.2 - RECOMMENDATIONS -

- Targeted humus sampling within the Beggs Lake Stock, including infill sampling west of Lucky Lake.
- Trenching (followed by drilling if warranted) within the Beggs Lake Stock at several targets located during 2017, 2018, 2019 & 2020 as well as historical targets.
- Diamond drilling at SGH gold anomalies west of Beggs Lake and at humus anomalies west of Lucky Lake returned from the 2020 field season.
- Further prospecting within the Goodchild Serpentinite where gold-bearing structures to the south would project along strike to the north.
- Prospecting iron formation horizons from the Budall to Goodchild Lake areas, especially near 'kinks', fold noses and cross-faults.

7.0 -STATEMENT OF QUALIFICATIONS-

I, Bruce A. MacLachlan P. Geo (Limited), residing at 222 Emerald St., Timmins, Ontario, do hereby certify that:

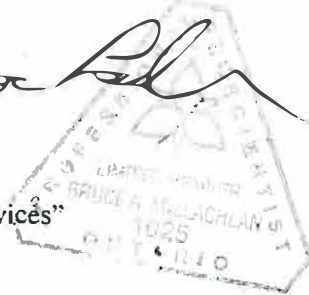
- 1) Hemlo Explorers Inc. currently contracts me as a consulting Geological Technician and Prospector.
- 2) I am a P. Geo (Limited), registered in the province of Ontario (APGO No. 1025).
- 3) I have continuously practiced my profession as a Geological Technician and Prospector for over 38 years. I have prepared reports, conducted, supervised and managed exploration programs for several major and junior mining companies including Noranda Exploration Company Limited, CanAlaska Uranium Ltd., Noront Resources Ltd., Bold Ventures Inc., GoldON Resources Ltd., Portofino Resources Inc., Frontline Gold Corp. and others.
- 4) I am author of this report titled 'Work Report of the 2018 Magnetic Survey on the Black Raven Project, Hemlo Area, Ontario for Hemlo Explorers Inc.'
- 5) I have worked extensively across the Property.
- 6) I have been involved with the mineral Property that forms the subject of this report since Canadian Orebodies acquired the property in 2017.

Dated at Timmins, Ontario, this 26th day of March 2021.

"Bruce A. MacLachlan" P. Geo (Limited) APGO No. 1025
(Signed and Sealed)



Bruce A. MacLachlan
2099840 Ontario Inc.
"Emerald Geological Services"



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APPENDIX I

List of Mining Cells-Claims (Table 1)

APPENDIX II

Statement of Expenditures

STATEMENT of EXPENDITURES

The following is a breakdown of expenditures related to the 2018 Airborne Magnetic Survey on the Black Raven Lake Property.

Airborne Magnetic Survey:

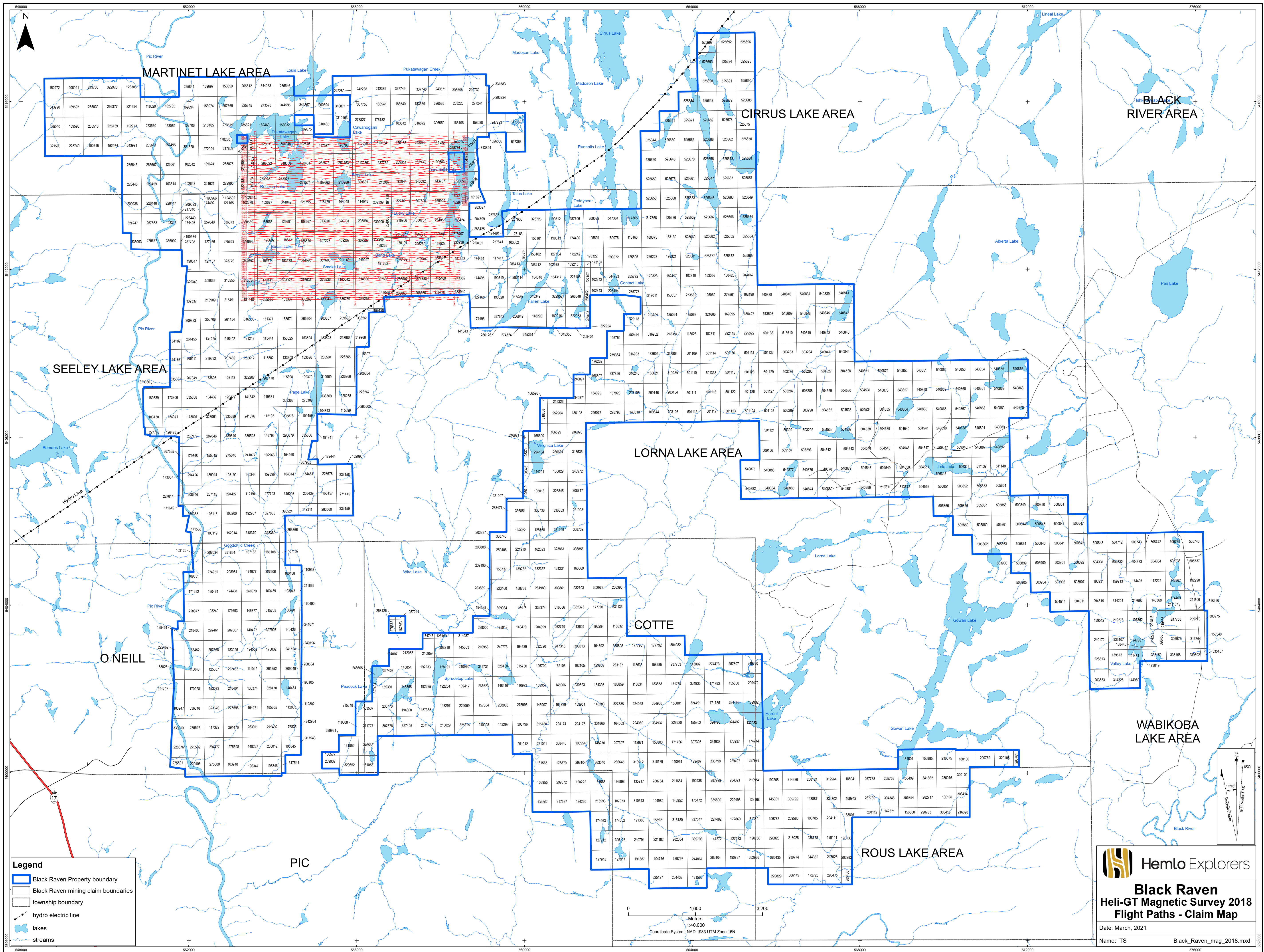
| | |
|--|---------------------|
| Airborne Magnetic Survey (<50% of total cost due to filing >than 2 years) | \$ 28,900.00 |
| <u>Prepare maps etc.</u> | |
| Drafting & digitizing | \$ 333.00 |
| <u>Report Writing</u> | |
| Report Writing | <u>\$ 1,425.00</u> |
| TOTAL EXPENDITURES | \$ 30,658.00 |

| Cell No. | Airborne No. of Cells | Expenditure per Cell |
|----------|-----------------------|----------------------|
| 102676 | 1 | \$ 266.00 |
| 102677 | 1 | \$ 266.00 |
| 102678 | 1 | \$ 266.00 |
| 114499 | 1 | \$ 266.00 |
| 114643 | 1 | \$ 266.00 |
| 115400 | 1 | \$ 266.00 |
| 117987 | 1 | \$ 266.00 |
| 125031 | 1 | \$ 266.00 |
| 125691 | 1 | \$ 266.00 |
| 125692 | 1 | \$ 266.00 |
| 131218 | 1 | \$ 266.00 |
| 132584 | 1 | \$ 266.00 |
| 133310 | 1 | \$ 266.00 |
| 133337 | 1 | \$ 266.00 |
| 139047 | 1 | \$ 266.00 |
| 139236 | 1 | \$ 266.00 |
| 139237 | 1 | \$ 266.00 |
| 143767 | 1 | \$ 266.00 |
| 144536 | 1 | \$ 266.00 |
| 145042 | 1 | \$ 266.00 |
| 145043 | 1 | \$ 266.00 |
| 151322 | 1 | \$ 266.00 |
| 153033 | 1 | \$ 266.00 |
| 153528 | 1 | \$ 266.00 |
| 153674 | 1 | \$ 266.00 |
| 164048 | 1 | \$ 266.00 |
| 169663 | 1 | \$ 266.00 |
| 170101 | 1 | \$ 266.00 |
| 170102 | 1 | \$ 266.00 |
| 170141 | 1 | \$ 266.00 |
| 176183 | 1 | \$ 266.00 |
| 182461 | 1 | \$ 266.00 |
| 182462 | 1 | \$ 266.00 |
| 182941 | 1 | \$ 266.00 |
| 182942 | 1 | \$ 266.00 |
| 183138 | 1 | \$ 266.00 |
| 188567 | 1 | \$ 266.00 |
| 188568 | 1 | \$ 266.00 |
| 188569 | 1 | \$ 266.00 |
| 188570 | 1 | \$ 266.00 |
| 188571 | 1 | \$ 266.00 |
| 191662 | 1 | \$ 266.00 |
| 191739 | 1 | \$ 266.00 |
| 195703 | 1 | \$ 266.00 |
| 196793 | 1 | \$ 266.00 |
| 203226 | 1 | \$ 266.00 |
| 203894 | 1 | \$ 266.00 |
| 206865 | 1 | \$ 266.00 |
| 206866 | 1 | \$ 266.00 |
| 211140 | 1 | \$ 266.00 |
| 212390 | 1 | \$ 266.00 |
| 213986 | 1 | \$ 266.00 |
| 213987 | 1 | \$ 266.00 |
| 213988 | 1 | \$ 266.00 |
| 216906 | 1 | \$ 266.00 |
| 216907 | 1 | \$ 266.00 |
| 218353 | 1 | \$ 266.00 |

| | | |
|--------------|------------|---------------------|
| 218479 | 1 | \$ 266.00 |
| 218984 | 1 | \$ 266.00 |
| 225795 | 1 | \$ 266.00 |
| 226269 | 1 | \$ 266.00 |
| 226270 | 1 | \$ 266.00 |
| 234055 | 1 | \$ 266.00 |
| 234056 | 1 | \$ 266.00 |
| 234057 | 1 | \$ 266.00 |
| 239199 | 1 | \$ 266.00 |
| 239200 | 1 | \$ 266.00 |
| 240297 | 1 | \$ 266.00 |
| 242290 | 1 | \$ 266.00 |
| 258761 | 1 | \$ 266.00 |
| 259929 | 1 | \$ 266.00 |
| 261453 | 1 | \$ 266.00 |
| 265573 | 1 | \$ 266.00 |
| 265574 | 1 | \$ 266.00 |
| 273027 | 1 | \$ 266.00 |
| 273028 | 1 | \$ 266.00 |
| 273382 | 1 | \$ 266.00 |
| 273383 | 1 | \$ 266.00 |
| 276536 | 1 | \$ 266.00 |
| 276537 | 1 | \$ 266.00 |
| 278828 | 1 | \$ 266.00 |
| 279605 | 1 | \$ 266.00 |
| 283424 | 1 | \$ 266.00 |
| 285507 | 1 | \$ 266.00 |
| 285550 | 1 | \$ 266.00 |
| 285622 | 1 | \$ 266.00 |
| 303925 | 1 | \$ 266.00 |
| 307227 | 1 | \$ 266.00 |
| 307228 | 1 | \$ 266.00 |
| 307605 | 1 | \$ 266.00 |
| 307606 | 1 | \$ 266.00 |
| 307690 | 1 | \$ 266.00 |
| 309831 | 1 | \$ 266.00 |
| 310154 | 1 | \$ 266.00 |
| 313970 | 1 | \$ 266.00 |
| 314360 | 1 | \$ 266.00 |
| 316554 | 1 | \$ 266.00 |
| 317906 | 1 | \$ 266.00 |
| 321658 | 1 | \$ 266.00 |
| 326731 | 1 | \$ 266.00 |
| 327101 | 1 | \$ 266.00 |
| 330757 | 1 | \$ 266.00 |
| 333939 | 1 | \$ 266.00 |
| 333940 | 1 | \$ 266.00 |
| 335258 | 1 | \$ 266.00 |
| 335259 | 1 | \$ 266.00 |
| 335260 | 1 | \$ 266.00 |
| 337751 | 1 | \$ 266.00 |
| 337752 | 1 | \$ 266.00 |
| 344048 | 1 | \$ 266.00 |
| 344049 | 1 | \$ 266.00 |
| 344695 | 1 | \$ 266.00 |
| 344696 | 1 | \$ 266.00 |
| 344697 | 1 | \$ 266.00 |
| 345092 | 1 | \$ 334.00 |
| Total | 115 | \$ 30,658.00 |

APPENDIX III

Map Sheets



Legend

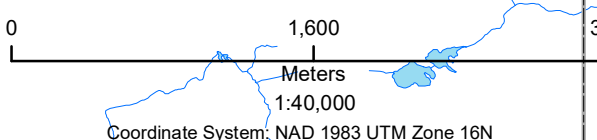
- Black Raven Property boundary
- Black Raven mining claim boundaries
- township boundary
- hydro electric line
- lakes
- streams

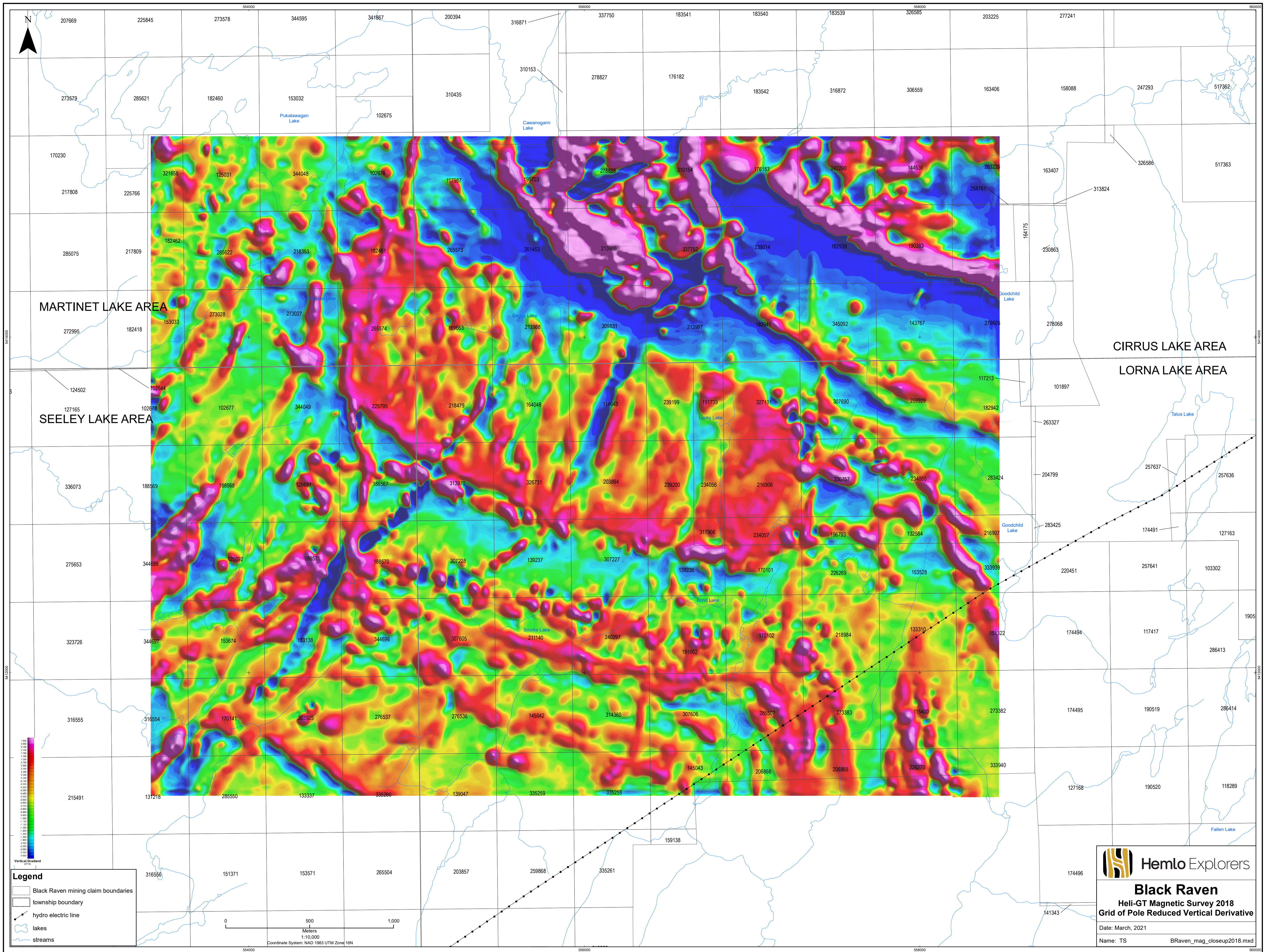
Hemlo Explorers

Black Raven
Heli-GT Magnetic Survey 2018
Flight Paths - Claim Map

Date: March, 2021

Name: TS Black_Raven_mag_2018.mxd



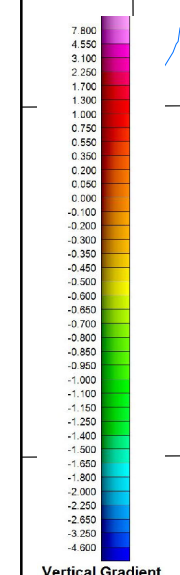


MARTINET LAKE AREA

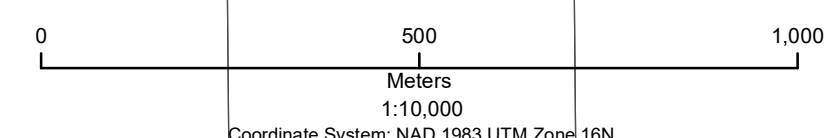
SEELEY LAKE AREA

CIRRUS LAKE AREA

LORNA LAKE AREA



- Legend**
- Black Raven mining claim boundaries
 - township boundary
 - hydro electric line
 - lakes
 - streams

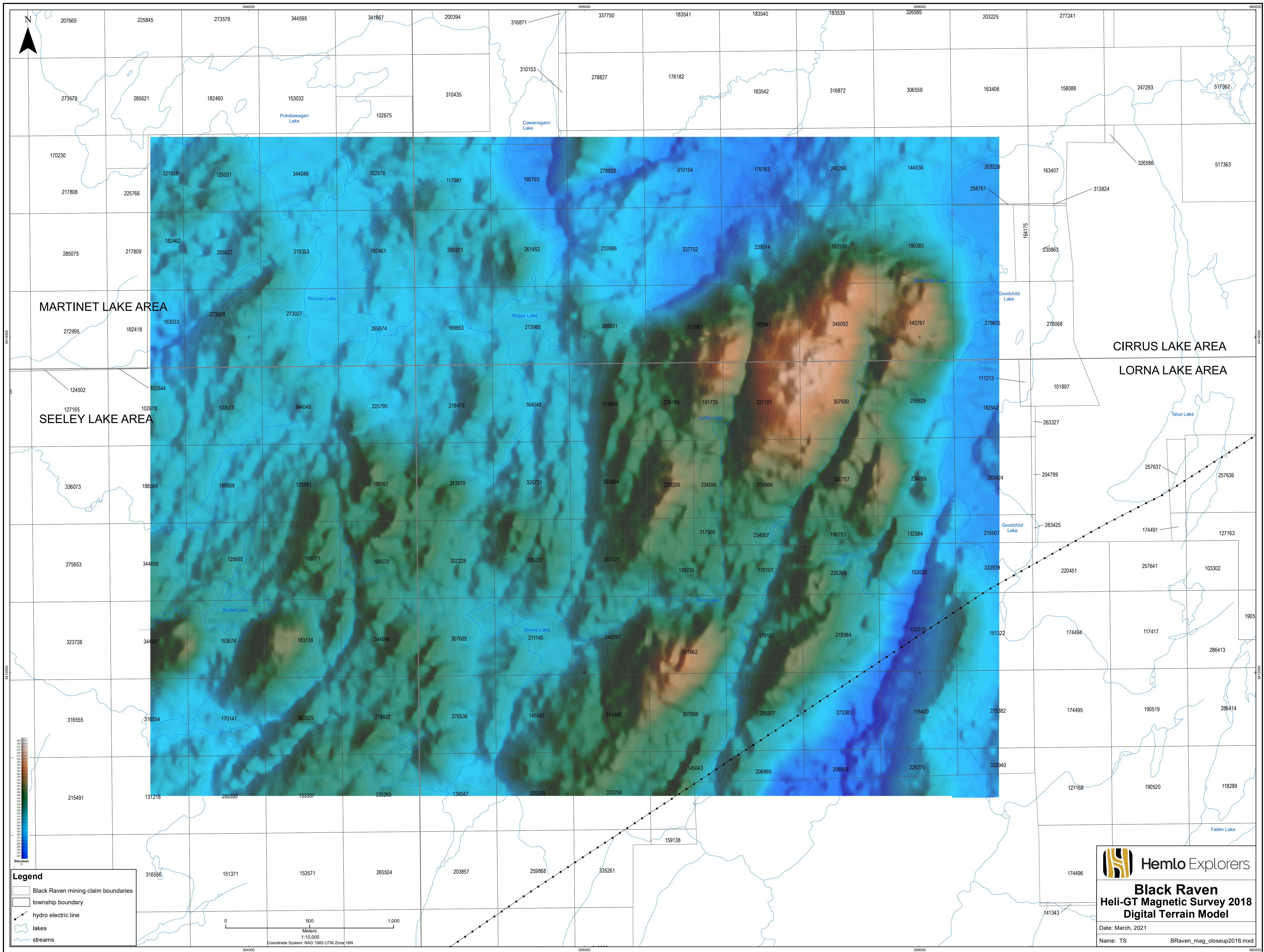


Coordinate System: NAD 1983 UTM Zone 16N

Hemlo Explorers

Black Raven
Heli-GT Magnetic Survey 2018
Grid of Pole Reduced Vertical Derivative

Date: March, 2021
Name: TS BRaven_mag_closeup2018.mxd

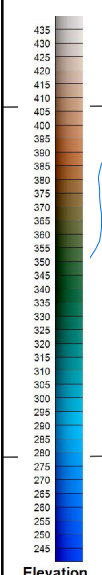


MARTINET LAKE AREA

SEELEY LAKE AREA

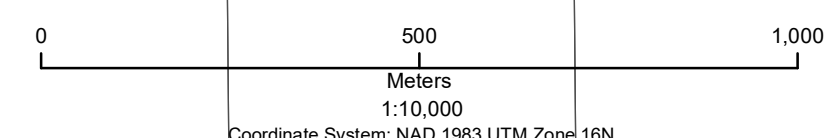
CIRRUS LAKE AREA

LORNA LAKE AREA



Legend

- Black Raven mining claim boundaries
- township boundary
- hydro electric line
- lakes
- streams



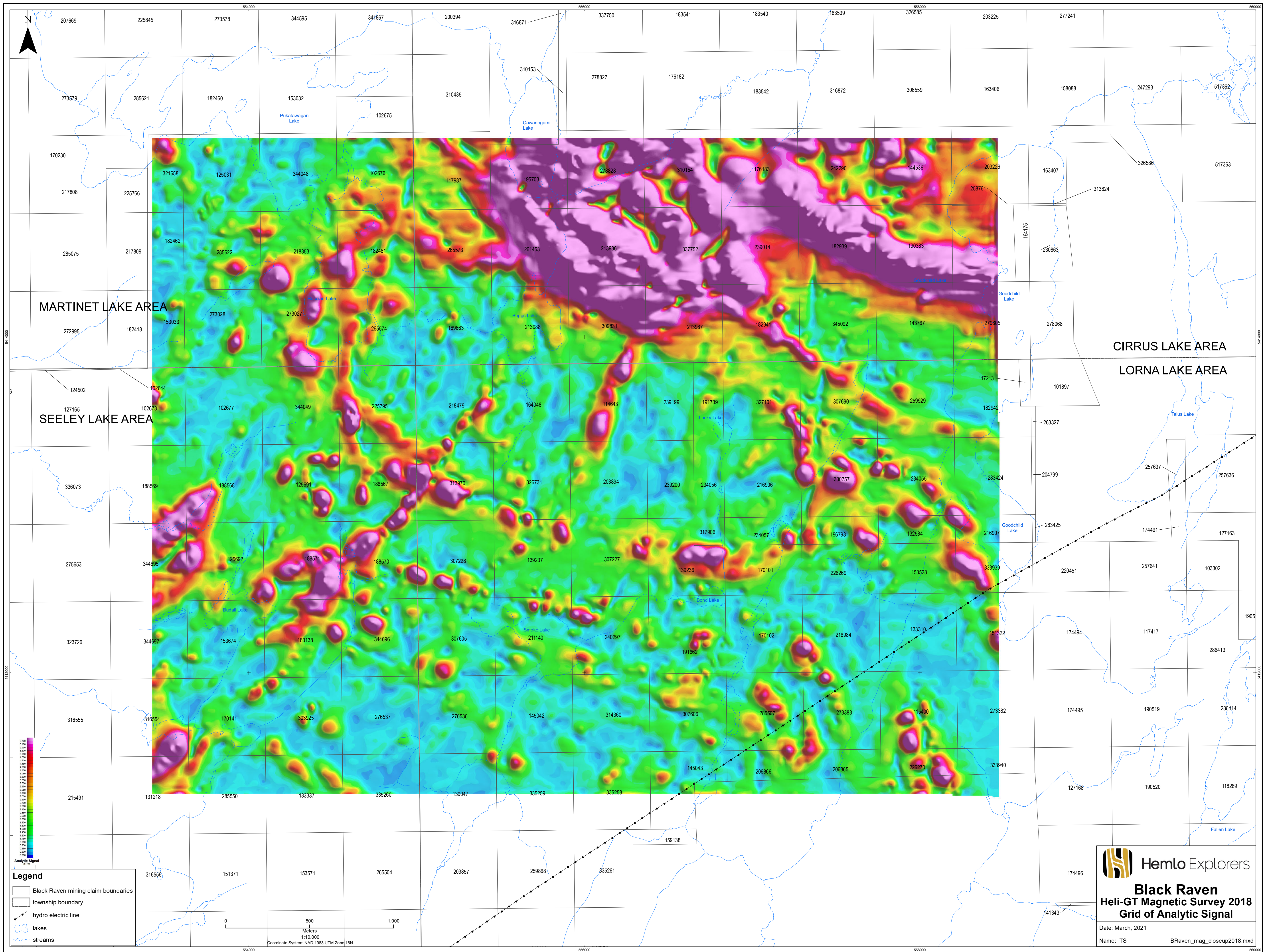
Hemlo Explorers

Black Raven
Heli-GT Magnetic Survey 2018
Digital Terrain Model

Date: March, 2021

Name: TS BRaven_mag_closeup2018.mxd

Coordinate System: NAD 1983 UTM Zone 16N



MARTINET LAKE AREA

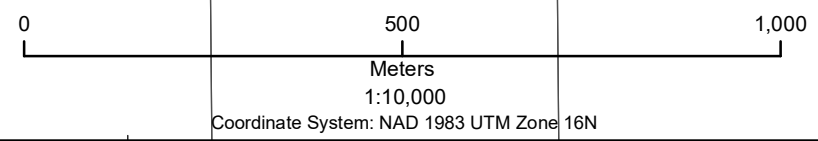
SEELEY LAKE AREA

CIRRUS LAKE AREA

LORNA LAKE AREA

Legend

- Black Raven mining claim boundaries
- township boundary
- hydro electric line
- ~ lakes
- ~ streams

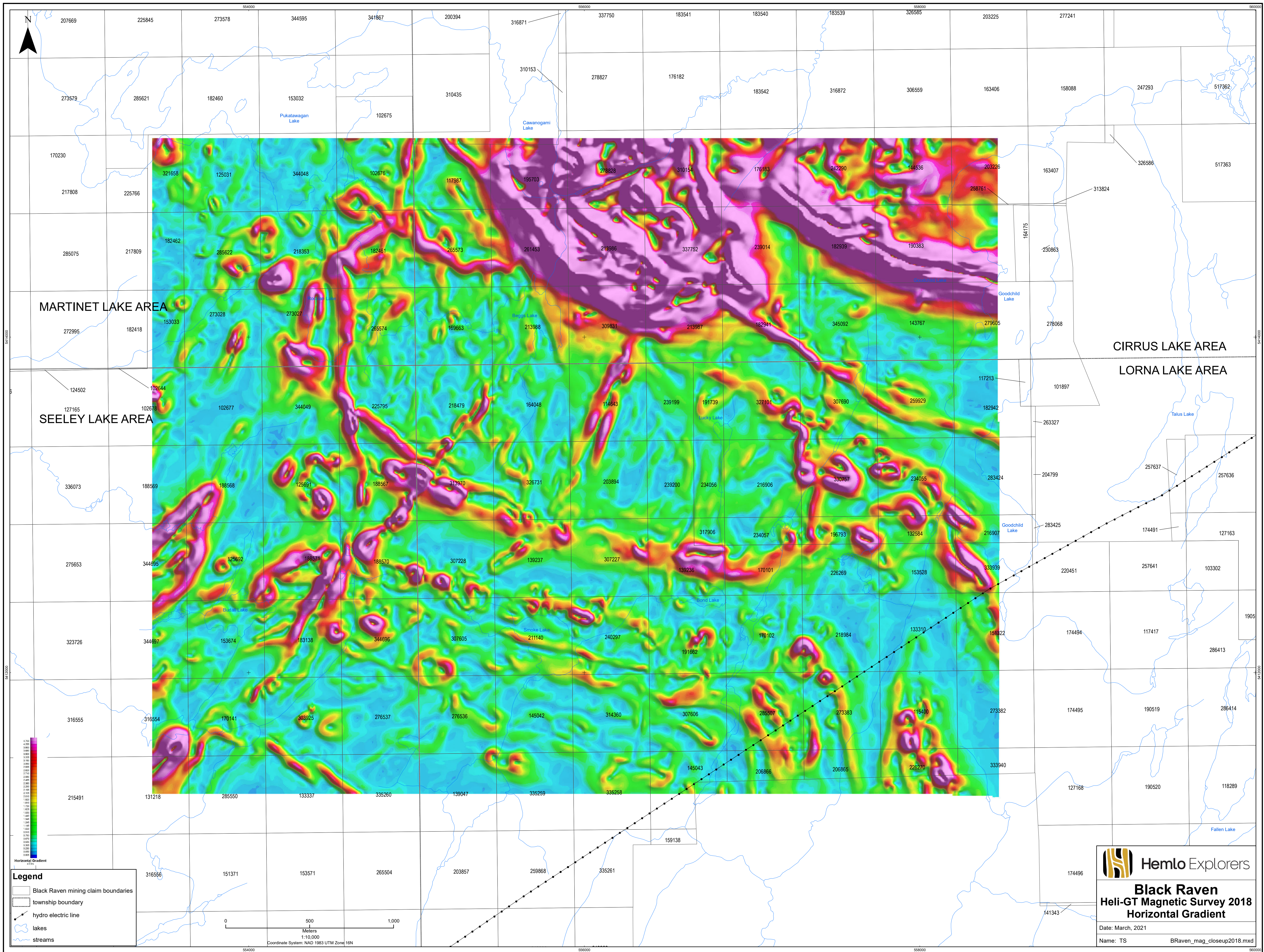


Hemlo Explorers

Black Raven
Heli-GT Magnetic Survey 2018
Grid of Analytic Signal

Date: March, 2021

Name: TS BRaven_mag_closeup2018.mxd

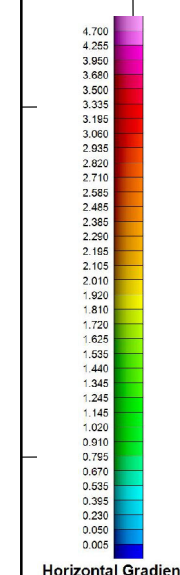


MARTINET LAKE AREA

SEELEY LAKE AREA

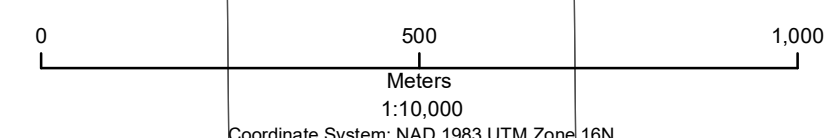
CIRRUS LAKE AREA

LORNA LAKE AREA



Legend

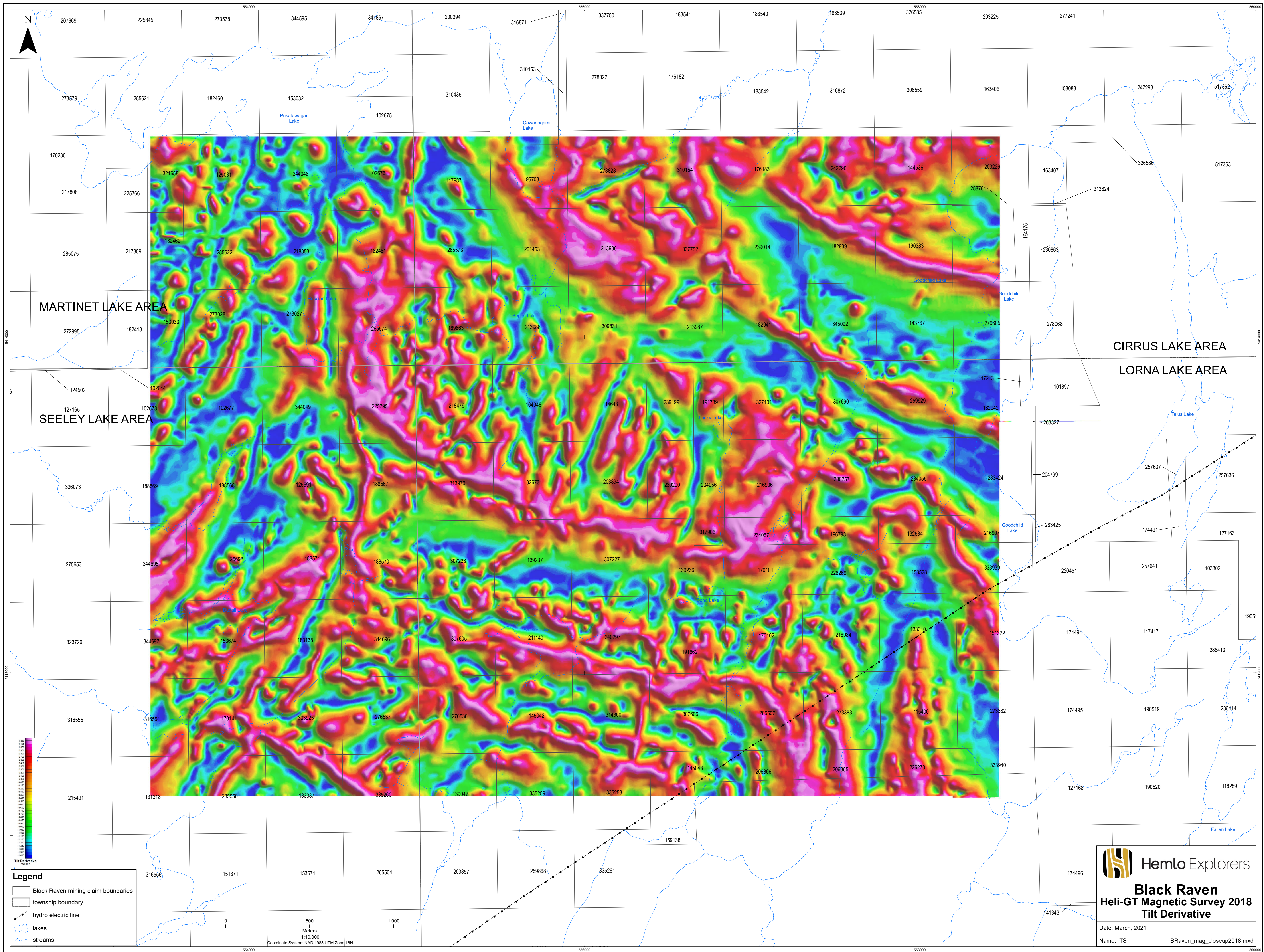
- Black Raven mining claim boundaries
- township boundary
- hydro electric line
- lakes
- streams



Coordinate System: NAD 1983 UTM Zone 16N

Black Raven
Heli-GT Magnetic Survey 2018
Horizontal Gradient

Date: March, 2021
 Name: TS BRaven_mag_closeup2018.mxd

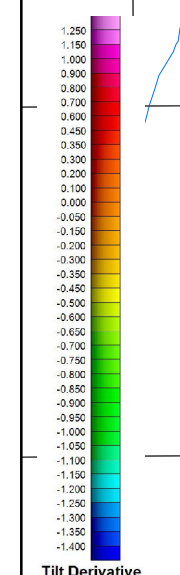


MARTINET LAKE AREA

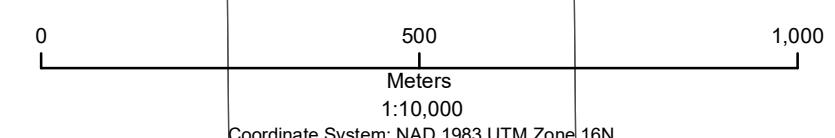
SEELEY LAKE AREA

CIRRUS LAKE AREA

LORNA LAKE AREA



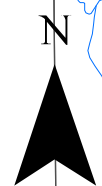
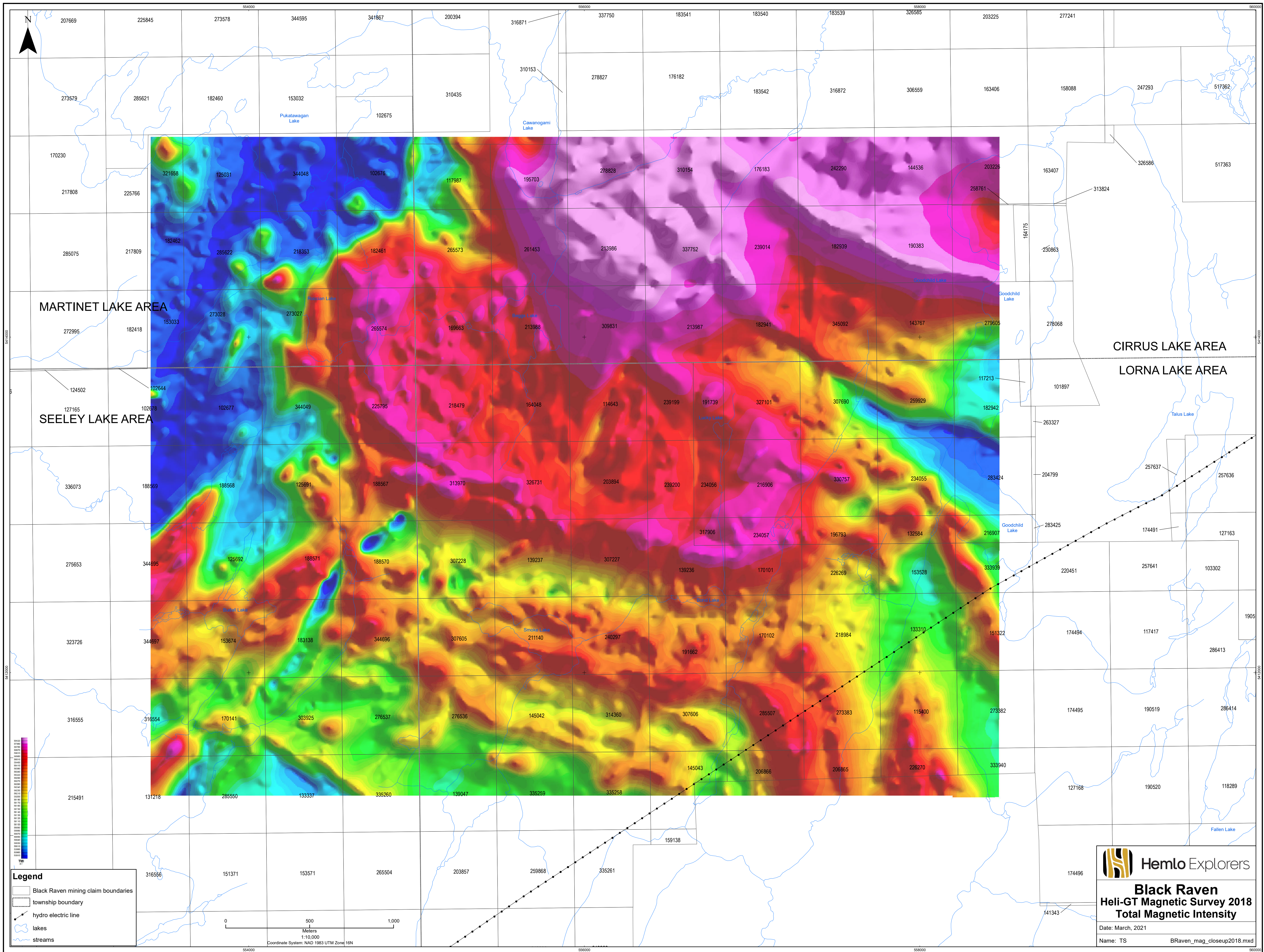
- Legend**
- Black Raven mining claim boundaries
 - township boundary
 - hydro electric line
 - lakes
 - streams



Hemlo Explorers

Black Raven
Heli-GT Magnetic Survey 2018
Tilt Derivative

Date: March, 2021
Name: TS BRaven_mag_closeup2018.mxd

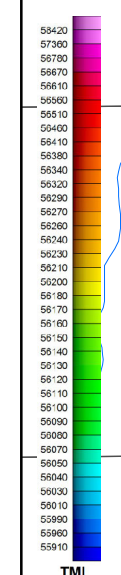


MARTINET LAKE AREA

SEELEY LAKE AREA

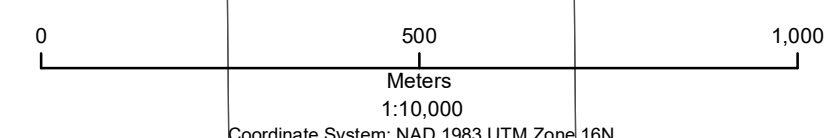
CIRRUS LAKE AREA

LORNA LAKE AREA



Legend

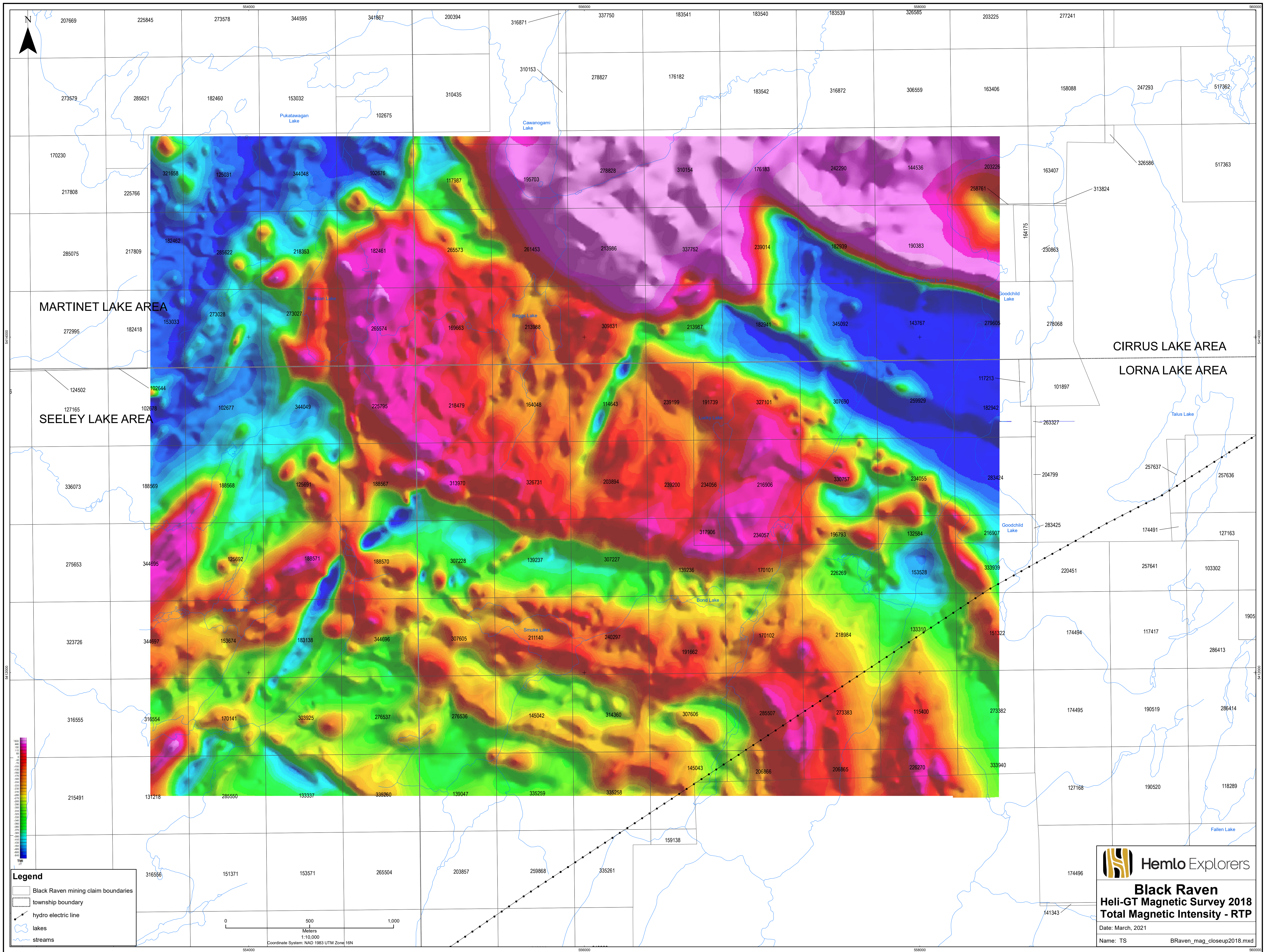
- Black Raven mining claim boundaries
- township boundary
- hydro electric line
- lakes
- streams



Coordinate System: NAD 1983 UTM Zone 16N

Black Raven
Heli-GT Magnetic Survey 2018
Total Magnetic Intensity

Date: March, 2021
 Name: TS BRaven_mag_closeup2018.mxd

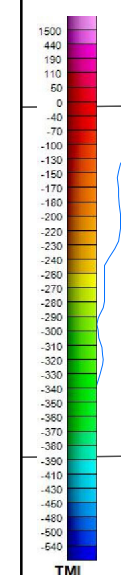


MARTINET LAKE AREA

SEELEY LAKE AREA

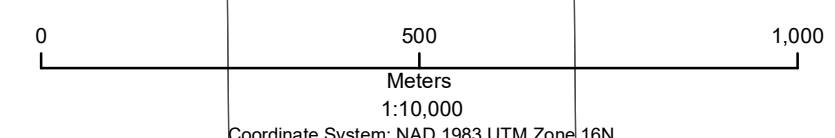
CIRRUS LAKE AREA

LORNA LAKE AREA



Legend

- Black Raven mining claim boundaries
- township boundary
- hydro electric line
- lakes
- streams



Coordinate System: NAD 1983 UTM Zone 16N

Hemlo Explorers

Black Raven
Heli-GT Magnetic Survey 2018
Total Magnetic Intensity - RTP

Date: March, 2021
 Name: TS BRaven_mag_closeup2018.mxd

APPENDIX IV

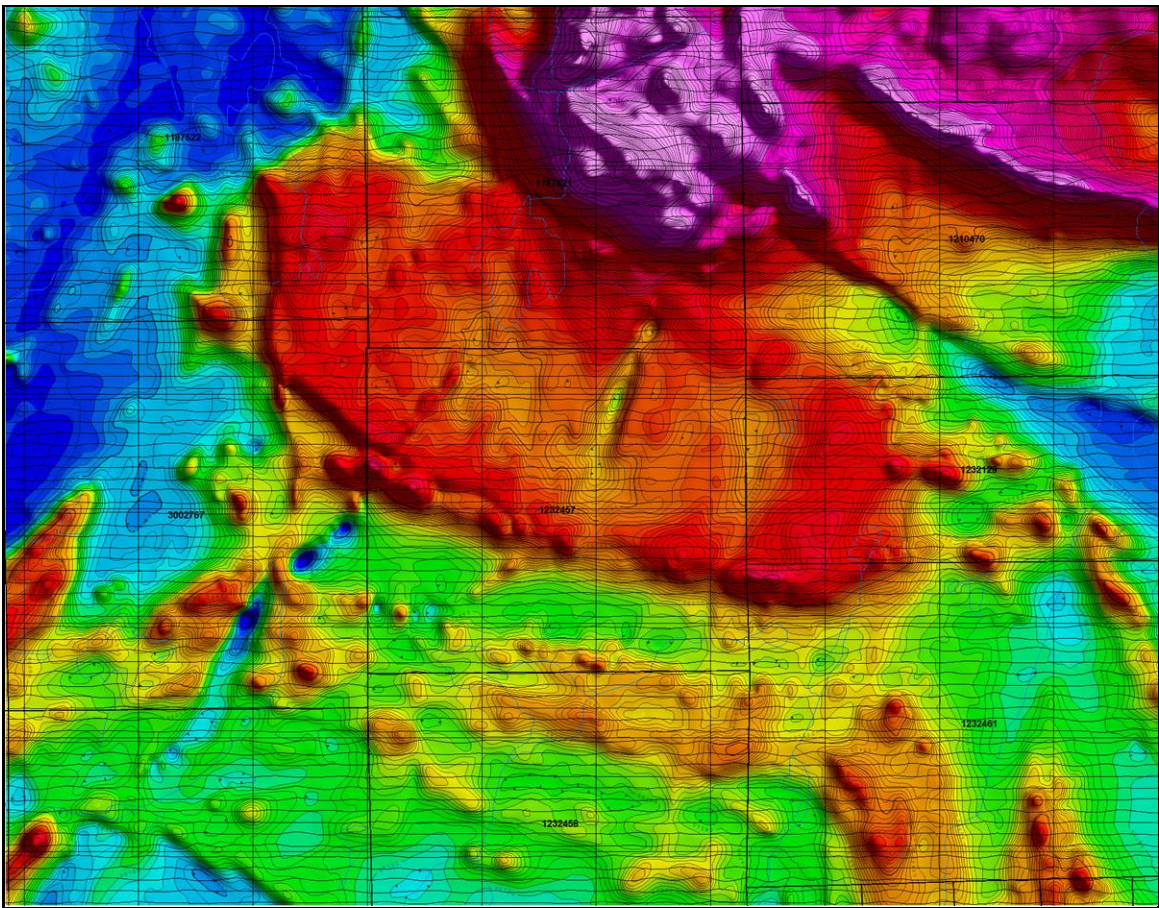
Heli-GT Three-Axis Magnetic Gradiometer Survey

Canadian Ore Bodies Inc.

Heli-GT, 3 Axis Magnetic Gradient Survey

Stover Property Northern Ontario

Operations and Processing Report



BY

SCOTT HOGG & ASSOCIATES LTD

May 2018

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1 INTRODUCTION

In May 2018 Canadian Ore Bodies Inc. contracted Scott Hogg & Associates Ltd. to carry out a helicopter-towed aeromagnetic three-axis gradient survey over their Hemlo property in Northern Ontario. During the period May 11th to 16th, 2018, a total of 800 km of data was collected. Details of the airborne survey and compilation are documented in this report.

2 LOCATION

The property is located approximately 20 kilometres north-east of the town of Marathon, Ontario. See Figure 1.

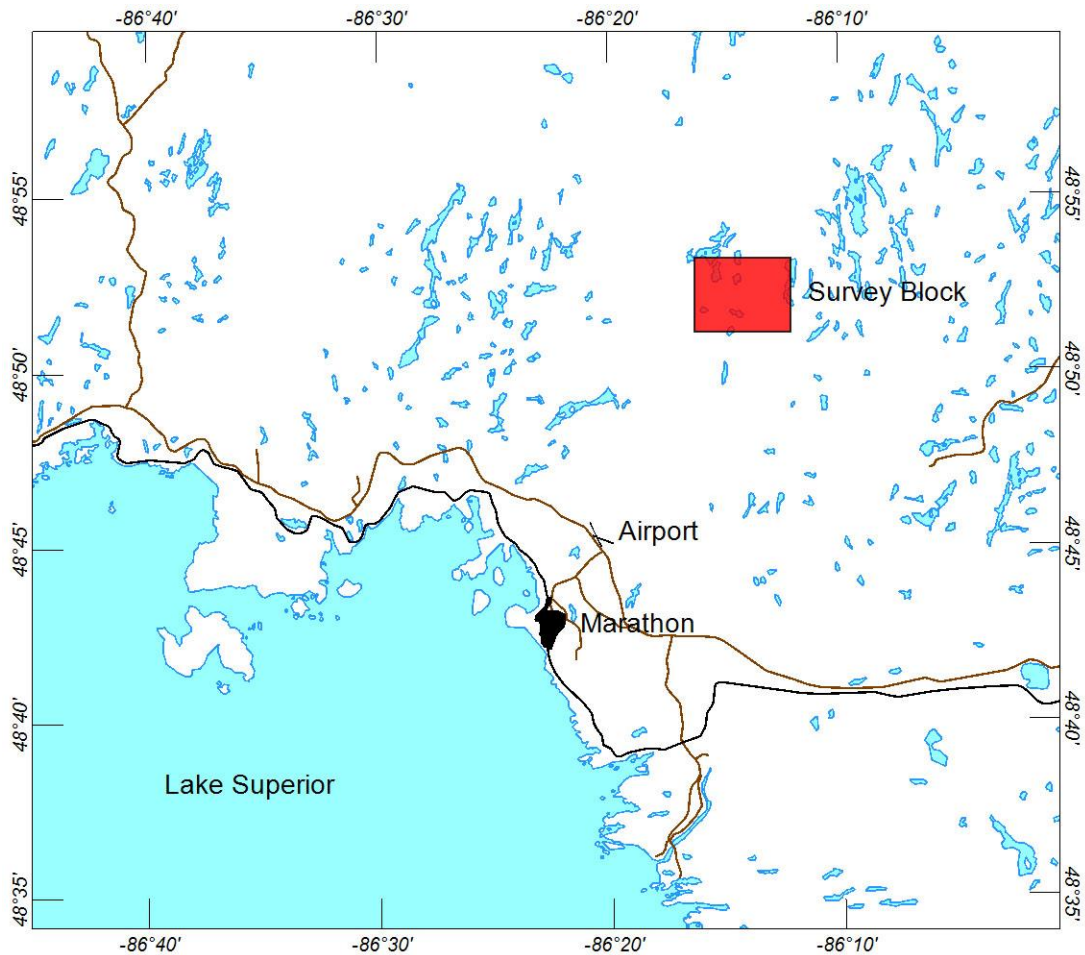


Figure 1 - Location Map.

3 AIRBORNE SURVEY

The airborne survey operation was based out of the arathon airport. The survey was flown in both a north-south direction and an east-west direction. The survey carried out between May 11th and 16th, 2018 and comprised 800 line kilometers (400 kilometers for each line direction).

3.1 Flight Specifications

| | |
|-----------------------------|-------------------------|
| Traverse Line Direction | 0° – 180° 90° – 270° |
| Traverse Line Spacing | 50 m |
| Control Line Direction | n/a |
| Control Line Spacing | n/a |
| Terrain Clearance (sensors) | 30 m * |
| Total Survey Production | 800 km |

* Due to rugged terrain and tall trees, a 30m terrain clearance was not always possible. Actual terrain clearance was left to the pilot's discretion.

3.2 Helicopter

| | |
|-----------------------------|------------------------|
| Helicopter Owner / Operator | Expedition Helicopters |
| Helicopter Model | AStar 350BA+ |
| Helicopter Registration | C-FODI |

3.3 Personnel

The following personnel were involved in the survey:

Field

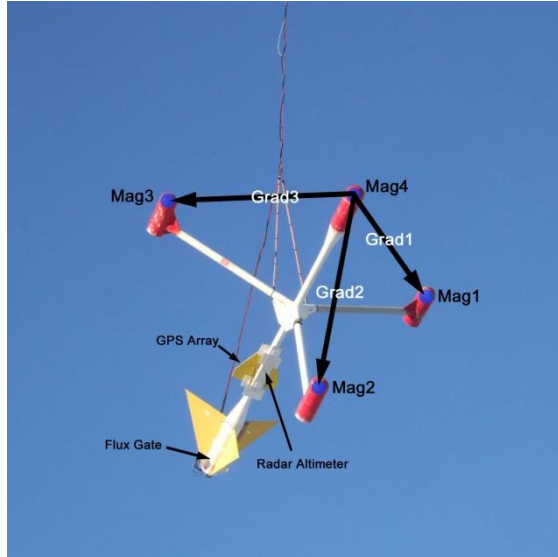
| | |
|---------------------------|-----------------|
| Field Geophysicist | Steve Munro |
| Survey Systems Technician | Frazer Hogg |
| Pilot | Nick Greenfield |

Office

| | |
|---------------------------|-------------|
| Compilation and Reporting | Steve Munro |
| Project Management | Scott Hogg |

4 GEOPHYSICAL SYSTEM

The airborne geophysical Heli-GT system consists of a towed bird that contains all of the geophysical sensors as well as altimeter and GPS antennae. A computer based recording and navigation system is located in the helicopter.



The Heli-GT bird is towed 25 m below the helicopter. The basic orthogonal magnetic gradients G1, G2 and G3 are measured on 3 metre baselines. A radar altimeter and 4 GPS antennae are mounted on the towed bird. In the helicopter a touch screen computer tablet logs the data and directs navigation.

4.1 Bird

All of the geophysical and ancillary equipment is housed in a towed bird designed by Scott Hogg & Associates Ltd. The bird is manufactured from non-magnetic FRP and breaks down for ease of transportation.

4.2 Magnetic sensors

Four Scintrex CS-3 cesium sensors are arranged in an orthogonal array with 3 m sensor separation from the nose sensor to those at the end of each arm. The output from each sensor was processed by a KSM KMAG4 unit to resolve the magnetometer output to a resolution of about 0.005 nT at a rate of ten samples per second. The Heli-GT bird was flown at a nominal altitude of 30m.

4.3 Radar Altimeter

A Terra TRA 3500 / TR 140 radar altimeter was used to measure bird height above ground. The range of operation was from 0 to 2500 ft.

4.4 Fluxgate Magnetometer

A Billingsley TFM100G2 3-axis fluxgate magnetometer was used to record the orientation of the bird with respect to the earth's magnetic field. The range of each component of the fluxgate was +/- 100,000 nT.

4.5 Analog to Digital ADC

The analog output of the radar altimeter and fluxgate magnetometer were digitized with a KVS KANA8 eight-channel differential ADC. The device provides 24 bit resolution and was operated at 10 Hz.

4.6 GPS System

GPS positional information was recorded using an array of four 12-channel receivers mounted on the Heli-GT bird. In addition to the measurement of Latitude, Longitude and Altitude a calculation of bird pitch, roll and yaw was calculated from differences between antennae.

4.7 Navigation and Recording System

The navigation and recording system used was developed by Scott Hogg & Associates. Both navigation and data recording are carried out using a tablet computer mounted in the helicopter cockpit. The tablet's touch screen provides an operator with an interface for monitoring the geophysical and ancillary instrumentation, as well as presenting graphic navigation information for the pilot.

The PPS pulse from the GPS system was recorded and tied to each of the sensors with an accuracy of about +/- 0.05 seconds.

Data recorded included the following:

| | |
|-------------------------|-------|
| Magnetic sensors: | 10 Hz |
| Fluxgate sensors: | 10 Hz |
| Radar Altimeter: | 10 Hz |
| GPS X / Y / Z: | 5 Hz |
| GPS Pitch / roll / yaw: | 5 Hz |

4.8 Base Station

A magnetic and GPS base station was established at the base of operations. A GEM SSM19TW proton magnetometer recorded the diurnal magnetic variation at 1 Hz with a resolution of 0.1 nT. A Ublox EVK-M8 GPS receiver provided a GPS time reference and recorded a differential correction file.

5 DATA COMPILATION

5.1 Basic Processing

The data collected during flight, in the air and from the base station, was aligned with reference to GPS time. Each of the four magnetometer channels was compensated. The basic magnetic gradients; G1, G2 and G3, measured from the nose sensor to each of the radial sensors were calculated. Any noise spikes, if present, were identified and removed.

A low-pass filter was applied to the base station data to eliminate short wavelength artifacts. A median value was removed from the base station profile to create a diurnal correction profile, which was subtracted from the *mag4* profile. The base station corrected total field profile was stored as *mag_diurn*. The diurnally-corrected profile was lagged by a single record to align the data with the GPS coordinate data and stored as *mag_lag*.

5.2 Gradient Processing

The recorded pitch, roll and yaw of the bird were used to mathematically rotate the measured basic gradients to G-north, G-east and G-down.

The GPS altitude of the bird was used to calculate a smooth drape surface. This is a smooth theoretical surface above the terrain that the bird would follow under ideal conditions. There would be only smooth altitude changes, line to line and along the flight line. The difference between the GPS altitude of this smooth drape surface and the actual GPS altitude of the bird was combined with the measured vertical gradient to calculate an altitude correction. The altitude correction was applied to *mag_lag* and the resulting profile was stored as *mag_alt_cor*.

5.3 Magnetic Levelling

The nose sensor magnetic profile, corrected for altitude and diurnal variation (i.e. *mag_alt_cor*), was used as the input for the control line levelling. The north-south lines and the east-west lines were levelled separately. Selected lines from the north-south database were selected to be used as control lines to level the east-west data. The intersections between traverse and control lines were calculated and the differences between the magnetic values measured. Ignoring unreliable differences in locations of steep magnetic gradient, a correction was calculated to eliminate the measured differences at the intersections. This correction profile was a piecewise linear function between intersections. The control line leveled profile was stored as *mag_TL_lev*. A final microlevel correction was calculated and applied. The final magnetic profile data was stored as *mag_fin*. Selected, levelled lines from the east-west data were then used as control lines to level the north-south data to the east-west levelled datum. The above process was repeated.

5.4 Gradient Tensor Gridding (GT-GRID)

GT-Grid is a proprietary gridding program developed by Scott Hogg & Associates that uses total magnetic field data as well as horizontal gradient data to produce a total magnetic field grid. The total magnetic field grid produced by GT-Grid simultaneously honours the total field as well as the measured horizontal gradient profile data.

The final, leveled total field magnetic channel (*mag_fin*) and the G-east (*Ge*) and G-north (*Gn*) gradient channels, for each survey direction, were used by the GT-GRID process to calculate a total field magnetic grid for the block. The GT-GRID total field grid was created using a 10m cell size.

5.5 Pole-Reduced Vertical Magnetic Gradient

The vertical gradient accentuates shorter wavelengths and attenuates longer wavelengths. As a result the map enhances the anomalies associated with small near surface magnetic sources while suppressing large-scale regional variations. The vertical gradient presentation provides added visual detail, particularly for small anomalies superimposed on or adjacent to larger anomalies.

The anomaly shape associated with a vertically dipping magnetic source varies with the inclination of the earth's magnetic field. At the north and south magnetic pole, the inclination is vertical and the anomaly is positive, symmetrical and centered directly over the source. At the equator, with a horizontal inducing field, the anomaly is negative, symmetrical and centered directly over the source. Between 0 and 90 degrees of inclination the anomaly is asymmetric, with a positive and negative component, and is not centered over the source. The pole reduction process reshapes the anomaly measured at intermediate inclinations to resemble the shape that would have been measured at vertical inclination. Thus a steeply dipping source, without remanent magnetization, would be transformed to a simple positive peak above the source.

The measured or calculated vertical magnetic gradients are also sensitive to the inclination of the earth's magnetic field. In the same manner as the total field, the asymmetry and peak displacement, arising from an inclined field, is removed by the pole reduction process. The horizontal width of the vertical gradient anomaly is about one half of that of the total field anomaly. If the width of the magnetic source is significant, greater than the sensor height above the source, the zero contour of the pole reduced vertical gradient reflects the location of the magnetic contact and the response peak will lie directly above a steeply dipping source.

Using an FFT filter, a pole-reduced first vertical derivative grid was created from both the north-south and east-west GT-TMI Grids.

5.6 Digital Terrain Model

The digital terrain model was calculated by subtracting the radar altimeter profile from the GPS altitude. Slight errors in GPS altitude were corrected by microlevelling. The digital terrain was gridded for each survey direction using a bi-directional Akima interpolation.

6 DIGITAL DATA ARCHIVE

All of the maps, grid and profile data have been provided in digital form.

6.1 Profile Data

The profile data for each survey block is in the Geosoft "gdb" format and includes the following channels.

| Channel | Units | Content |
|-------------|---------|---|
| gpstime | seconds | GPS time |
| x | metres | UTM easting NAD83, Zone 16N |
| y | metres | UTM northing NAD83, Zone 16N |
| lon | degrees | GPS Longitude WGS84 |
| lat | degrees | GPS Latitude WGS84 |
| GPSalt | metres | GPS altitude NAD83, Zone 16N |
| radalt | metres | radar altimeter (bird height) |
| DTM | Metres | levelled Digital Terrain elevation |
| fx | nT | Fluxgate axis x (forward) |
| fy | nT | Fluxgate axis y (port) |
| fz | nT | Fluxgate axis z (up) |
| heading | degrees | Bird heading |
| pitch | degrees | Bird pitch |
| roll | degrees | Bird roll |
| basemag | nT | Base station magnetometer |
| mag1_raw | nT | Raw upper port magnetometer |
| mag2_raw | nT | Raw down magnetometer |
| mag3_raw | nT | Raw upper starboard magnetometer |
| mag4_raw | nT | Raw nose magnetometer |
| mag1_comp | nT | Compensated upper port magnetometer |
| mag2_comp | nT | Compensated down magnetometer |
| mag3_comp | nT | Compensated upper starboard magnetometer |
| mag4_comp | nT | Compensated nose magnetometer |
| G1 | nT/m | Magnetic gradient: mag4 to mag1 |
| G2 | nT/m | Magnetic gradient: mag4 to mag2 |
| G3 | nT/m | Magnetic gradient: mag4 to mag3 |
| mag_diurn | nT | Base station corrected mag (applied to mag4) |
| mag_lag | nT | Lag adjusted mag profile |
| mag_alt_cor | nT | Altitude corrected mag (applied to Mag_Diurn) |
| mag_TL_lev | nT | Tie line network leveled mag |
| mag_fin | nT | Final microlevelled mag |
| Ge | nT/m | Measured magnetic East gradient |
| Gn | nT/m | Measured magnetic North gradient |
| Gv | nT/m | Measured magnetic Vertical gradient |

6.2 Gridded Data

The grids, projected in NAD83 UTM Zone 16n coordinates, are in Geosoft format. The cell size in all grids is 10 metres. The following is a description of the grid set provided.

| Grid Name | Units | Description |
|--------------------|--------------|--|
| Hemlo_XX_DTM | metres | Levelled digital terrain model |
| Hemlo_XX_GT_TMI | nT | Total magnetic field GT-Grid |
| Hemlo_XX_GT-CVGRTP | nT/m | Calculated vertical derivative GT-Grid reduced to pole |

Where XX is NS for the north-south data and EW for the east-west data
GeoTIFF image files (at a resolution of 200 dpi) are included for each grid type.

6.3 Map Files

The following Geosoft format map files have been provided for each line direction. The maps are presented at a scale of 1:10,000, in a NAD83, UTM Zone 16n projection.

- Flight path and Topography
- Digital Elevation
- GT Total Magnetic Field
- GT Calculated Vertical Derivative (Reduced to Pole)

JPEG images (at a resolution of 200 dpi) for each map are also included.

Respectfully submitted,

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