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ASSESSMENT REPORT
AIRBORNE MAGNETIC SURVEY
ON THE STURGEON LAKE PROPERTY

PATRICIA MINING DIVISION

**South Block (SIX MILE LAKE AREA,
FOUR BAY LAKE AREA, SQUASH LAKE AREA, SESEGANAGA LAKE
AREA)**

NTS 52J/02, 52G/15

FOR

MIDEX RESOURCES LTD.

PREPARED BY:

M. Spaho P. Geo.

SPAHO MINERAL EXPLORATION AND CONSULTING INC.

December 14th, 2022

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SUMMARY

This Assessment Report on the Sturgeon Lake Property, describes the property and its mineral titles, summarizes the history of exploration results on the Property, presents the geology and the mineralization found therein, discusses the airborne magnetic survey undertaken by Midex Resources Ltd., and provides recommendations for further exploration of the Sturgeon Lake Property.

The Sturgeon Lake property is located in Patricia Mine Division, approximately 200 to 230 km. northwest of Thunder Bay, Ontario and about 5 to 10 km east of Savant Lake. The Sturgeon property consists of 939 contiguous unpatented mining claims, and covering approximately 21,350 ha (over 213 km²)

The first gold-bearing quartz veins were discovered on Sturgeon Lake in the summer 1898 and a number of claims were staked. Intermittent exploration for gold was carried out during the next few years. During the period 1905 to 1941, the St. Anthony Mine produced 63,310 ounces of gold and 16,341 ounces of silver.

A surge of exploration activity began in 1969-1970 following the discovery of a base metal sulfide deposit in October 1969, by Mattagami Lake Mines Ltd, in the south end of Sturgeon Lake.

During the late 1970`s and 1980`s, several areas in and around the Sturgeon Lake Property were explored for gold mineralization and base metals by prospecting, hand and mechanical trenching, various types of geophysical surveys and limited diamond drilling.

The Sturgeon Lake area is a part of the Wabigoon subprovince of the Superior Province. The rocks are Precambrian in age and are partly covered by Pleistocene and Recent deposits, with the dominant morphology being bedrock knobs mantled by hummocky ground moraine.

Mafic to intermediate metavolcanics compose the dominant lithology of the property. These rocks occur at several stratigraphic levels and generally compose the lower part of individual volcanic cycles.

Felsic to intermediate metavolcanics occur at several stratigraphic intervals. These rocks consist predominantly of pyroclastic and redeposited fragmental rocks.

Clastic metasediments comprise sandstone, graywacke, mudstone and conglomerate, whereas Chemical metasediments comprise interbedded chert with quartz-magnetite beds, and mudstone with sulfide beds and graphitic ironstones.

The mafic intrusive rocks in the area comprise gabbro and diorite sills, dikes, and irregular masses, that have intruded the volcanic and sedimentary sequence.

The Sturgeon Lake metavolcanic-metasedimentary sequence is bounded in the east and west by batholithic granitic complexes.

Two major synclinal structures dominate the Sturgeon Lake area. Numerous faults and lineaments transect the area.

There are several gold occurrences on and proximal to the Sturgeon Lake Property. In general, gold is hosted by quartz veins, masses, or segregations. The quartz veins tend to occur at contacts between volcanic extrusive units and mafic to felsic intrusive units and can also be associated with granitic intrusions. Gold is also associated with quartz-carbonate veins with traces of sulfide mineralization in larger (metre scale) high strain zones.

The Sturgeon Property had previously been covered by several government and private airborne magnetic surveys, generally as part of an airborne EM survey. Line spacing on the northern portion of the property from historic surveys was at a nominal 200 metres spacing. In order to define more subtle magnetic features, Midex contracted Precision GeoSurveys to fly two blocks of magnetic only fixed wing surveys at a nominal 75 metre line spacing. During the period from November 25 to December 13, 2021, Questor Aviation Ltd. operated a Piper PA-31 Navajo equipped with a rear “stinger” enclosing a cesium vapour magnetometer and a fluxgate magnetometer. The overall survey operation and data processing was managed by Precision GeoSurveys Inc. Tracking to the nominal line spacing layout, using up to date GPS navigation systems showed great improvement from historical surveys, resulting in much greater resolution of magnetic features.

A total of 4199 km line was flown over two blocks with a combined area of 285.3 km², including a 131km line extension added to the South block at the start of the survey.

For the purposes of this survey, airborne magnetic data were collected to aid in refining geological interpretation and mineral exploration on the property and in the area. The data received greatly increases the resolution of previous survey information and has located several anomalies of interest.

SMEC makes the following recommendations for the further exploration of Sturgeon Lake Property:

A geological and structural compilation incorporating the magnetic data from this survey as well as historical data should be completed across the entire property. Initial steps should include using this survey to extract stratigraphic form lines from vertical gradient data and interpretation of lithological packages from total magnetic data. This should be followed by a compilation of historic geophysical information over a larger area, along with government geological data to develop a 2D geological model of the Sturgeon Lake Property and area.

INTRODUCTION

Spaho Mineral Exploration Consulting Inc. (“SMEC”) was requested by Mr. David R. Jamieson, President and Director of Midex Resources Ltd., to provide an assessment report for the recently completed high-resolution fixed wing magnetic survey on the Sturgeon Lake Property (“Property”) in Ontario.

This Assessment Report on the Sturgeon Lake Property, describes the property and its mineral titles, summarizes the history of exploration results on the Property, presents the geology and the mineralization found therein, discusses the exploration program undertaken by SMEC and provides recommendations for further exploration of the Sturgeon Lake Property.

The documentation reviewed, and other sources of information, are listed at the end of this report in the section titled References. All the geological information and other data were reviewed from historical reports and gathered during 2021 field visits to the Property.

A high-resolution fixed wing magnetic survey was flown by Questor Aviation Ltd. for Precision GeoSurveys Inc. over the Sturgeon Lake Property survey blocks between November 25th and December 13th, 2021.

The flight crew was based out of Sioux Lookout, Ontario, with a magnetometer base station location and hanger facilities provided by the Sioux Lookout airport.

The information, conclusions, opinions, and assumptions that are expressed in this report, are those of the author.

Units of measurement used in this report conform to the SI (metric) system. However, the Imperial System is occasionally used to describe historical results. All currency in this report is in Canadian dollars unless otherwise noted.

PROPERTY DESCRIPTION AND LOCATION

Location, Climate, Local Resources, Infrastructure, and Physiography

The Sturgeon Lake property is in Patricia Mine Division, approximately 200 to 230 km. northwest of Thunder Bay, Ontario and about 5 to 10 km east of Savant Lake town (Figure 3-1). The majority of the claims are situated in the Northeast Arm area of Sturgeon Lake within NTS map sheet 52J/02 in the Squash Lake, Beckington Lake, Fourbay Lake, Seseganaga Lake, Fog Lake, Boucher and Chevrier areas.

Access to the property is by boat or truck in the summer or truck and snowmobile in the winter. Highway 599 passes along the west side of Sturgeon Lake. The CNR railway line is located north of the property. Road access is by the Rusty Myers Road and Vista Lake Road including generally inactive logging road spurs. Much of the property has good boat and float plane access.

The property has low rolling relief with a maximum change of 60 m. from the base elevation of the lake. The property has moderate outcrop exposure as bedrock knobs mantled by thin ground moraine. The north part of the property has minor esker and kame deposits. Vegetation typical northern Ontario bush with cedar and mixed conifer forest cover with aspen and birch margins to numerous bogs and swamps.

The service and supply center is the city of Thunder Bay. Basic food supplies and general items can be obtained from the small town and communities of Savant Lake, Ignace, and Sioux Lookout.

The climate is typically continental in nature, where temperatures range from 10 to 30 degrees Celsius from June through October. Temperatures during the winter months of November through May range from 0 to -40 Celsius. Lakes freeze during winter months allowing snowmobile access.

Land Tenure

The Sturgeon Lake property consists of 528 contiguous unpatented mining claims and covers approximately 23,500 ha (over 235 km²) (Figure 4). A complete list of claims is provided in Appendix I.

Midex is 100% owner of the claims constituting the Property except for the following: Midex acquired via three-year option agreements, an interest in 3 claims in the Beckington Lake Area (641016, 641017, and 643558) totaling 36 cell units held by Solstice Gold Corp., and 5 claims in the Squash Lake Area (555501, 555502, 555503, 555504, 555507, and 555508) totaling 5 cell units held by E. Barkauskas and S. Johnson.

The Sturgeon Lake Property claim list provided in Appendix I was derived by reviewing client reports on the Ontario Ministry of Northern Development and Mines (**MNDM**) website to obtain assessment credits and expiry dates (<https://www.mci.mndm.gov.on.ca/claims>).

SMEC has not researched property title or mineral rights for the Property and express no opinion as to the ownership status of the Property.

Environmental and Permitting

To the knowledge of SMEC, there are no significant factors or risks that might affect access to the Property or claim on title, or the right or ability to perform work on the Property, or to obtain permits. There are no known environmental liabilities to which the Property is subject to.

No permits are required to undertake airborne magnetic surveys, however, consultations by Midex with Lac Seul First Nation and Ojibway Nation of Saugeen were ongoing in good faith during 2021 and 2022 in order to provide information regarding expected low-impact activities on the claims, including prospecting, mapping, till sampling and airborne geophysical surveys.

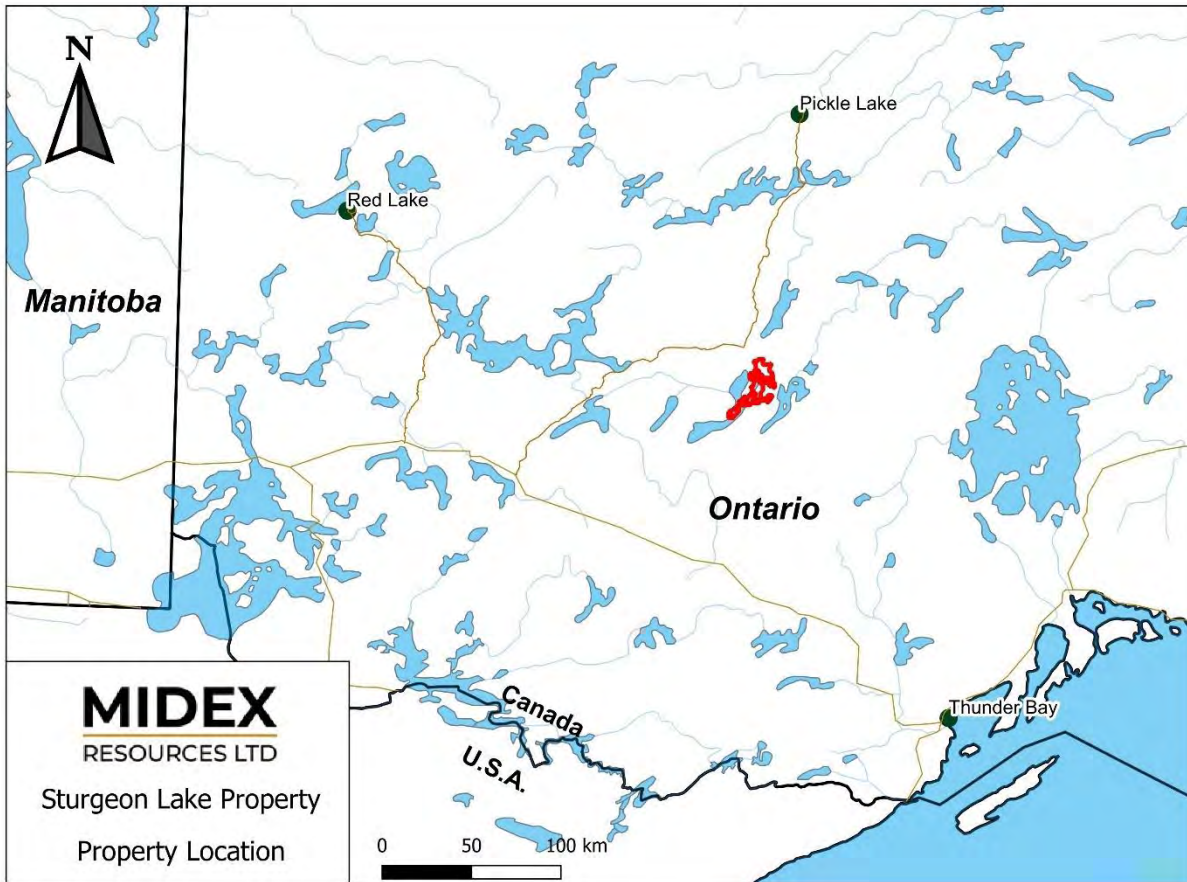


Figure 1: Location of the Sturgeon Lake Property, Ontario.

HISTORY

The following is paraphrased from a several government documents which reported on gold occurrences in the Sturgeon Lake area. For the purposes of this document only the most significant historic work on mineral occurrences on the property will be discussed.

The first gold-bearing quartz veins were discovered on Sturgeon Lake, in the summer of 1898 followed by a several staking actions. Intermittent exploration for gold was carried out during the next few years. During the period 1905 to 1941, the St. Anthony Mine produced 63,310 ounces of gold and 16,341 ounces of silver.

A surge of exploration activity began in 1969-1970 following the discovery of a volcanogenic base metal deposit near the south end of Sturgeon Lake in October 1969, by Mattagami Lake Mines Ltd. Continued exploration led to the discovery of other base metal deposits in the area (Mattabi base metal district) by Corporation Falconbridge Copper and Noranda Mines Ltd. A renewed interest in both base metals and gold in 1970's led to the re-staking of several gold and base metal occurrences discovered during the early days of exploration in the area (Trowell 1983). Several areas in and around the Property were explored for gold mineralization and base metals by prospecting, geophysical survey and limited diamond drilling. With the end of base metal mining at Mattabi in 1991, exploration for gold and base metals became sporadic. In 2009, 50 claims in the Property area were acquired by Paragon Minerals Corporation, which conducted prospecting, geological mapping and limited trenching.

Previous geological studies include E.S. Moore (1911) who produced the first geological map of the northern portion of Sturgeon Lake after visiting the area in 1909. Moore's map is useful for locating some of the older and or obscure workings in the area. Moore also recognized the widespread alteration system hosting quartz veins within the granites at the St. Anthony Mine area.

T.L. Gledhill (1924) examined several of the mining properties in northern part of the area, including the St. Anthony Mine.

A.R. Graham (1930) mapped the Sturgeon Lake greenstone belt from the CN are line in the north to the CN Watcomb spur line in the south. Wagon roads from these rail lines provided access to Sturgeon Lake and the barges and steamboats that moved supplies on the lake for mining, logging and tourism. Graham visited the St. Anthony, Davidson Carr, Bennett Pacaud and Davidson Jarvis properties.

N.F. Trowell mapped the Sturgeon Lake area from 1970 to 1983, spurred by the base metal discoveries at Mattabi. The current geological maps are based on the geological subdivisions (four assemblages, each which may include several volcanic cycles) established by Trowell and form the basis for the stratigraphic and structural interpretation of the area. Most of the gold and base metal occurrences were visited and documented by Trowell.

Additional work by Davis et al. (1988), Robinson (1992), and Williams (1993) was done in conjunction with N.F. Trowell and examined relative stratigraphic ages, alteration, deformation and gold occurrences throughout the Sturgeon Lake greenstone belt.

A significant amount of historical work has been performed on and proximal to the Sturgeon Lake Property and some of the key areas are summarized below:

Davidson Carr: This occurrence was developed to approximately 50 metres on two levels between 1928 and 1929 on a gold-bearing vein up to 1 metre wide, striking 040 degrees. Analysis of surface showings shows gold values between 0.01 and 2 ounces per ton, with most samples assaying less than 0.1 opt. Diamond drilling at the Davidson Carr and Y Island occurrences in 1987 by Armstrong and Best returned several high gold values over narrow widths, but assays were generally anomalous only. Prospecting by Paragon Minerals Corporation in 2010 identified gold-bearing quartz veins 350 and 500 metres west of the shaft area with assays up to 5.14 g/t gold from grab samples. Located within the magnetic survey coverage, approximately 650 metres west of Midex property boundary (Midex cell 599412) and 650 metres south of Midex *Solstice Gold* option (Solstice Gold cell 641016).

Mine Lake: A 375-metre-long band of felsic material at the contact between mafic volcanics and gabbroic rocks hosts a 2 to 3 metres wide zone of gold-bearing quartz veins striking north and dipping steeply east. Located west of the magnetic survey coverage.

Northern Light: This occurrence was developed mainly by shaft and surface trenches between 1901 and 1926. Tonnage milled was likely less than 50 tons. The main feature appears to be a 10 to 20 cm quartz vein striking 050 and dipping 50 degrees to the south. Grab samples taken by government geologists from the vein and one muck pile assayed 0.30 and 5.37 opt gold, respectively. Located west of the magnetic survey coverage

Northeast Arm Creek: Union Miniere Exploration and Mining Corp (UMEX) explored the area for base metals and drilled a hole (B-16) just north of the Vista Lake Road in 1985. Mafic flows likely affected by biotite alteration hosts gold values ranging from 0.018 opt over 5 feet, to 0.072 opt (length not specified). Located within the magnetic survey coverage, approximately 400 metres south of the Midex property boundary (Midex cell 599375)

Ouilette: Early descriptions by Moore (1911) noted an occurrence of visible gold in quartz stringers and veins of highly variable widths in schistose diorite exposed by several large pits and trenches. The location of the Ouilette occurrence is problematic, due to mixed naming conventions and confusion with both the Mine Lake and Richelieu occurrences. Prospecting in 2010 by Paragon Mineral Corporation located gold occurrences west of Mine Lake referred to as the Stewart-Contact Zone which are likely part of the original Ouilette property. Gold assays up to 55.6 g/t were returned from

Paragons sampling of narrow north trending 10-40 cm quartz veins hosted in mafic volcanics in an area of historic shafts, adits and blast pits. Located west of the magnetic survey coverage.

Powell: Early descriptions by Moore (1911) indicate that a 30 to 40 cm, north trending vein carrying visible gold was developed by two deep pits (which appear to have been deepened by later workers). Sherritt Gordon Mines carried out comprehensive surface exploration in 1981 and 1982. Grab samples from a 30 cm quartz vein assayed from 0.18 to 0.64 opt gold. Sherritt Gordon concluded that: 1) both northeast and southeast trending gold-bearing quartz veins systems are present; 2) fault-related shearing hosts the veins; 3) stripping of overburden and detailed mapping is required to assess the occurrence; 4) quartz veins visible on surface are narrow and hosted by mafic volcanics. Diamond drilling (six holes) by Villeneuve Resources Ltd. in 1988, returned a core intercept of four feet of 0.87 opt gold. Surface sampling of historic pits by Paragon Minerals Corporation returned gold assays up to 276.0 g/t. Located just west of the magnetic survey coverage

Richelieu (Koval): The veins had been known since 1899, however development took place between 1934 and 1935 with a two compartment 87.5 deep metre shaft and levels at 38 and 76 metres. Two gold-bearing quartz veins near a quartz porphyry/mafic volcanic contact strike 010 to 025 degrees and dip 60 degrees to the west, with widths ranging from 4 cm to 2.4 metres, averaging 0.6 metres. A bulk sample taken in 1935 from the 36-metre level averaged 0.5 opt over 2.8-foot width. Tourmaline is associated with higher gold values. A grab sample of vein material containing chalcopyrite and tourmaline taken in 1981 by government geologists assayed 2.99 opt gold. Located west of the magnetic survey coverage

Y Island: Several small pits and trenches in sheared mafic volcanics. Quartz veins are steeply dipping, less than 15cm wide and strike from 060 to 065 degrees. In 1981 Sherritt Gordon examined many of the trenches with selected grab samples assaying between 0.04 and 3.8 opt gold (northwest vein) and between 0.12 to 2.16 opt gold (northeast vein). Sampling by Paragon Mineral Corporation in 2010 returned gold assays of 49.8 g/t gold from trenches on the east side of Y island, and gold assays of up to 44 g/t from the west side of Y island. Located within the magnetic survey coverage, approximately 500 metres north of the Midex property boundary (Midex cell 599411).

North Johnson: 007 Precious Metals Inc./Golden Mile Resources drilled the North Johnson occurrence located in the northeast arm of Sturgeon Lake with 5 drill holes totalling 622 metres. DDH J-90-02 intersected a mineralized quartz vein that assayed 0.75 oz/t over 1.68 metres. Additional

channel sampling and diamond drilling was done by AuXin in 2013. Seven drill holes totalling 591 metres returned several encouraging gold intersections, including 20.14 g/t over 3.0 meter core length.

King Bay/East Bay/Belmore Bay: Numerous gold showings are located on the shorelines of these generally east-west trending bays in the central area of Sturgeon Lake and are too numerous to document for the purposes of this report. Very little recent work has been done the majority of these gold occurrences. Significant drilling outside the property boundaries has been conducted from the ice of King Bay as well as the north shore of King Bay.

REGIONAL GEOLOGICAL SETTING

The Sturgeon Lake area is a part of the Wabigoon Subprovince of the Superior Province. The rocks are Precambrian in age and are partly covered by Pleistocene and Recent deposits (Trowell 1983).

From Sanborn-Barrie and Skulski (2005): *The Sturgeon Lake greenstone belt is a composite supracrustal belt with a rich mineral endowment that lies at the interface between juvenile oceanic rocks of the Neoproterozoic western Wabigoon terrane, to the west, and ancient continental rocks of the Winnipeg River terrane, to the east. It contains vestiges of Mesoproterozoic cover sequences, Neoproterozoic volcanic rocks that span 2775-2920 Ma, and a collage of synvolcanic to post-tectonic plutons.*

In 2005, Sanborn-Barrie presented the tectonostratigraphy of the Sturgeon Lake area using the tectonic assemblage concept (Assemblages listed from oldest to youngest):

Vanessa Lake Assemblage

Jutten Assemblage

Fourbay Lake Assemblage

Handy Lake Assemblage

South Sturgeon Lake Assemblage

Quest Lake Assemblage

Central Sturgeon Lake Assemblage

Warclub Assemblage

Ament Bay Assemblage

GEOLOGICAL SETTING AND SAMPLE LOCATIONS

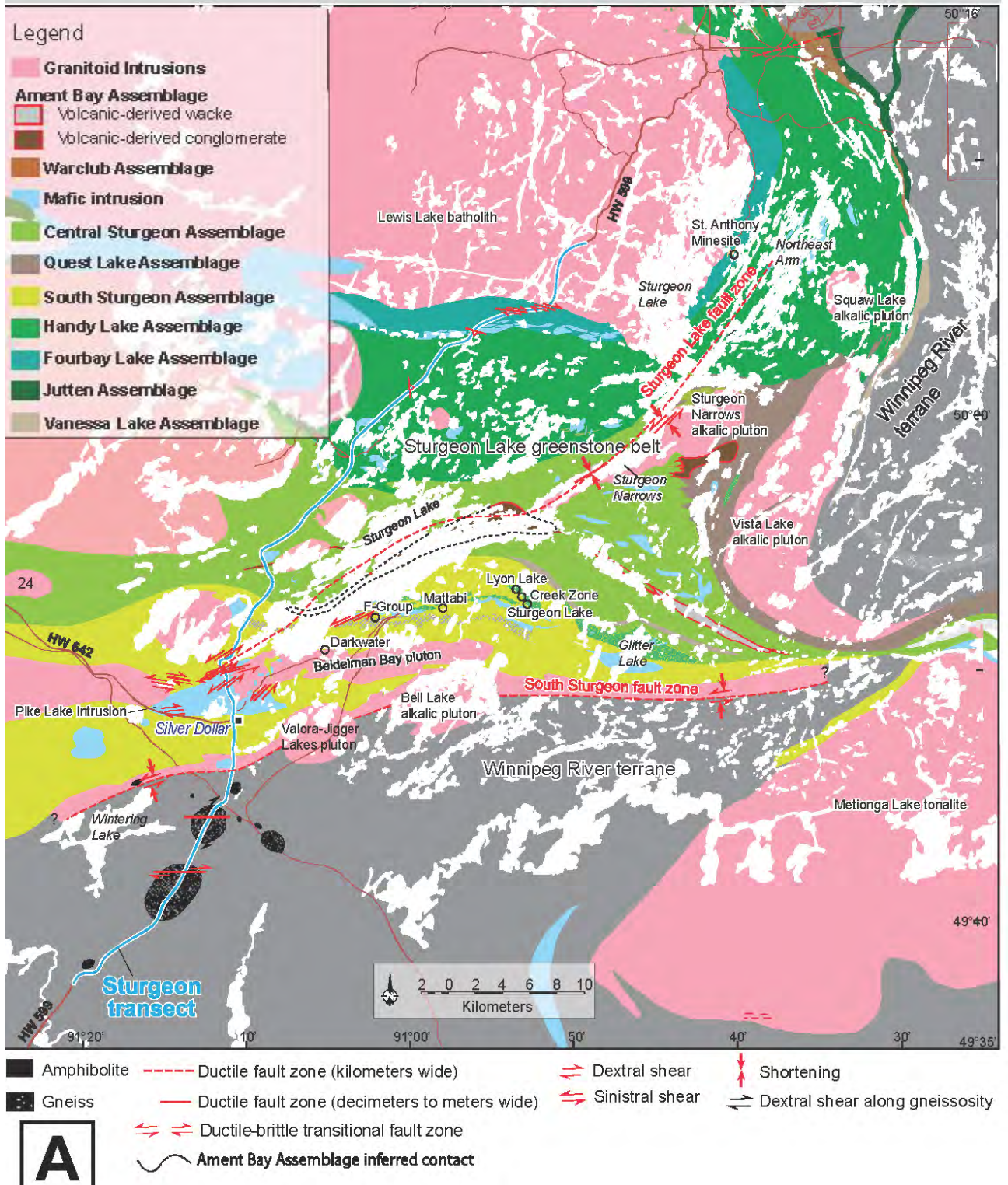


Figure 2: Regional Geology Sturgeon Lake Greenstone Belt (adapted from Sanborn-Barrie and Skulski, 2005)

The following is summarized from Sanborn-Barrie and Skulski (2005):

The oldest supracrustal rocks (2912-2925 Ma) currently identified are the **Vanessa Lake assemblage**, forming the eastern margin of the Sturgeon Lake greenstone belt. This assemblage is only a few hundred metres wide, consisting of dacitic pyroclastic tuffs and quartz-rich clastic sedimentary rocks and appear to young to the west.

The **Jutten assemblage** is a narrow panel of garnet-bearing basaltic rocks, apparently in conformable contact with older quartzose arenite of the Vanessa Lake assemblage.

The **Fourbay Lake assemblage** (2775 Ma) occurs along the northwest margin of the belt, composed of strongly foliate to gneissic low K tholeiitic basaltic rocks. This assemblage is cut by numerous gabbroic intrusions, as well as marginal phases of the 2735 Ma Lewis Lake Batholith.

The **Handy Lake assemblage** faces south and east and conformably overlies the Fourbay Lake assemblage. The base of the assemblage is magnesian and Fe-rich tholeiitic basaltic rocks. The middle part of the assemblage is a distinct sequence of calc-alkaline and tholeiitic basalt. The contact between the base and middle parts of the assemblage is marked by a discrete magnetic anomaly that coincides with sulphidic cherty horizons. The upper Handy Lake assemblage consists of calc-alkaline intermediate to felsic pyroclastic units. Quartz-feldspar, dykes and sills of plagioclase phyric diorite and gabbro, as well as tonalite cut the assemblage.

The **South Sturgeon assemblage** is a 9 km thick bimodal sequence of basalt and rhyolite, interpreted as a 30 km wide caldera complex (Morton et al. 1991) which host at least five Zn-Cu-Pb-Ag VMS deposits. The mineralized caldera succession consists of felsic pyroclastic units, dacite domes and andesitic flows, capped by epiclastic rocks. Quartz diorite to tonalitic rock of the synvolcanic Beidelman Bay intrusion and the synvolcanic Pike Lake intrusion (2732 Ma) cut the South Sturgeon assemblage.

The **Quest Lake assemblage** is composed of lithic and feldspathic wackes with local pebble conglomerate. Foliated quartz feldspar dykes aged at 2720 crosscuts the assemblage.

The **Central Sturgeon Lake assemblage** is a mixed tholeiitic and calc-alkaline sequence overlying the Handy Lake assemblage and the South Sturgeon assemblage depending on location.

The **Warclub assemblage** is exposed as a narrow panel of highly strained polymictic conglomerate on the east side of the greenstone belt and correlate with 2704-2711 Ma metasedimentary and minor interbedded tuffs elsewhere in the Wabigoon Subprovince.

The **Ament Bay assemblage** are conglomeratic and crossbedded wacke units that overlie the Central Sturgeon assemblage. Suggested age for these rocks is a maximum age of 2698 Ma.

The Lewis Lake batholith and the Beidelman Bay intrusion are synvolcanic tonalitic intrusions with U-Pb ages of 2735 and 2733 Ma.

The Sturgeon Lake greenstone belt is bound to the east by variable age plutonic rocks of the Winnipeg River terrane, which are dominated by granitoid rocks. A suite of alkalic to subalkalic potassic intrusive rocks cuts the Sturgeon Lake belt and include the Sturgeon narrows, Squash Lake, Bell Lake and Vista Lake complexes. Post-tectonic granitic plutons include the Goodman Lake pluton and the Valora-Jigger Lakes pluton.

Structure and Metamorphism

Metamorphic grade in the belt ranges from greenschist facies in much of the belt to amphibolite facies near Quest and Vista Lake and in proximity to alkalic complexes.

The Sturgeon Lake greenstone belt has been variably affected by two penetrative regional deformation events (D_1 and D_2). D_1 structures are dominant and trend northerly throughout eastern Sturgeon Lake. In the Northeast Arm of Sturgeon Lake, the distribution of volcanic units and bedding orientations define tight to close map-scale folds. D_2 deformation is a penetrative east-northeast fabric in northern Sturgeon Lake with F_2 folds plunging 30 to 65 degrees to the east-northeast (Sanborn-Barrie and Skulski, 2005).

PROPERTY GEOLOGY

The Midex Sturgeon Lake Property is underlain mainly by the Handy Lake assemblage, with the eastern portion of the Property underlain by thin panels of polymictic conglomerates of the Warclub assemblage, metasediments and intermediate volcanics of the Vanessa Lake assemblage, and basaltic rocks of the Jutten assemblage in contact with the Jutten batholith of the Winnipeg River terrane.

The following descriptions have been summarized from Trowell with some adaptation based on 2021 field work.

HANDY LAKE ASSEMBLAGE METAVOLCANICS. These rocks are classified on two-fold subdivisions: mafic to intermediate rocks, and felsic to intermediate rocks.

Mafic to intermediate metavolcanics tend to be the dominant lithology of the area. These rocks occur at several stratigraphic levels and generally compose the lower part of individual volcanic cycles. They generally weather to various shades of green and gray. The metavolcanics are variably strained, ranging in texture from massive to strongly foliated. High strain zones present as fine-grained chlorite schists. Typical textures include: massive flows, porphyritic flows, pillowed flows, autoclastic/pillow breccias; pyroclastic units are rare.

Felsic to intermediate metavolcanics occur at several stratigraphic intervals within the area's volcanic assemblages. Felsic rocks are generally pyroclastic and redeposited fragmental rocks. They are dominantly tuff and lapilli tuff and contain local accumulation of tuff-breccia and pyroclastic breccia. These rocks are variably strained, with textures ranging from massive to strongly foliated. High strain zones present as quartz-sericite schist and phyllite. The fresh and weathered surfaces are green, gray, yellow, and pale brown to pink.

METASEDIMENTS

Clastic Metasediments in the area are typically metamorphosed sandstone, wacke, mudstone and conglomerate. Quartz to lithic wacke is the dominant lithology, but arkosic wackes do occur in a few metasedimentary sequences. Debris flow deposits and conglomerate of the turbidite association form lensoid accumulations within the various metasedimentary sequences. Clastic metasediment exposures are generally poorly sorted, unstratified, and rarely graded.

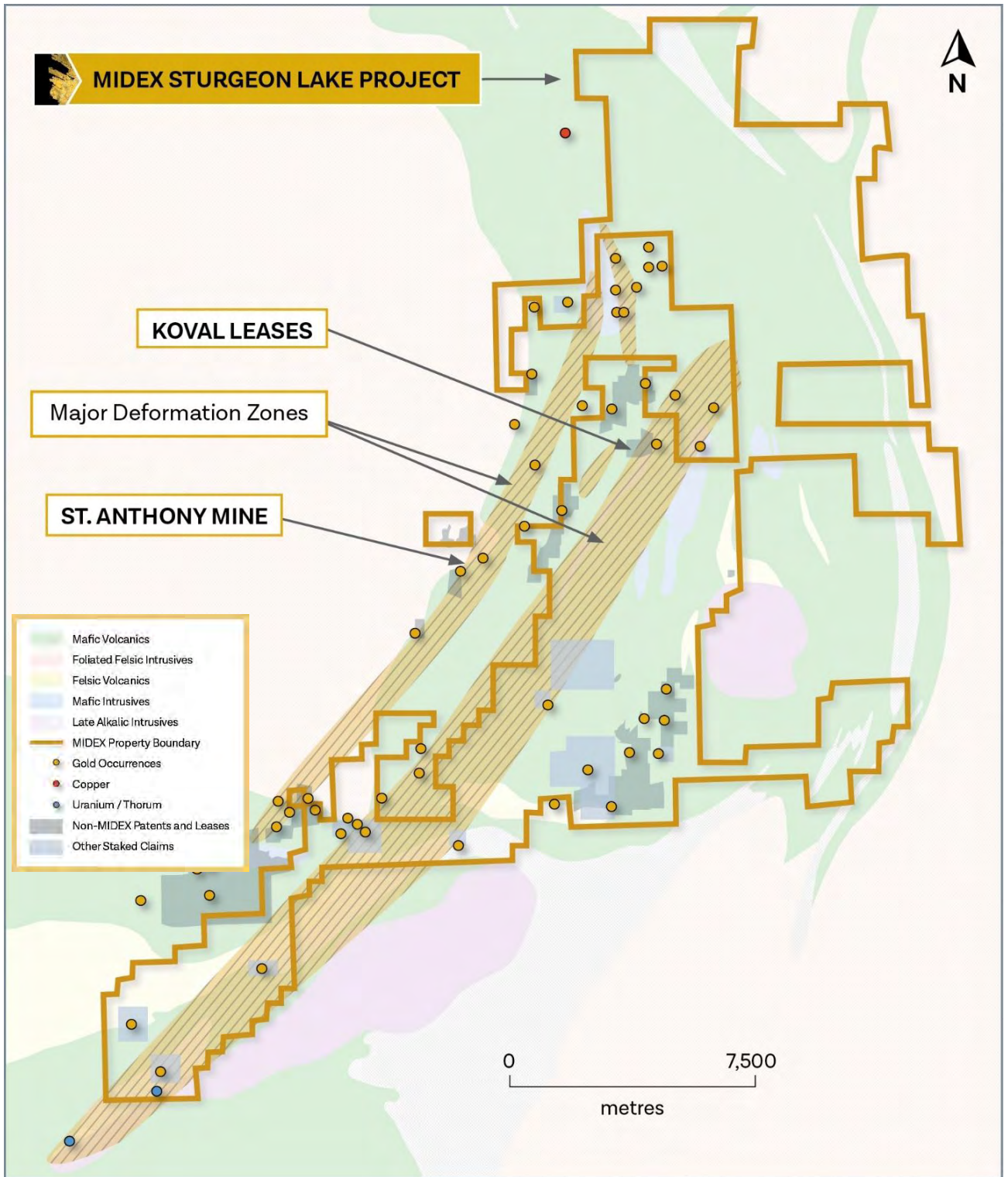


Figure 3: Geology and Occurrences in the Sturgeon Lake area.

Chemical Metasediments are comprised of interbedded chert with quartz-magnetite, and variably sulphidic mudstones and graphitic ironstones. Carbonate minerals are common in the ironstone units. Hornblende is present within the eastward extension of the quartz-magnetite ironstone units of the South Sturgeon Lake Assemblage.

MAFIC INTUSIVE ROCKS

The mafic intrusive rocks in the area include gabbro and diorite sills, dikes, and irregular masses, that have intruded the volcanic and sedimentary sequence. The intrusive mafic rocks generally have a medium grained, massive texture, and contact relationships with the associated volcanic rocks are generally sharp, with the intrusive rocks often sheared at the contacts. The mafic intrusions for the most part appear to be synvolcanic.

GRANITIC COMPLEXES

Eastern Granitic Complex bounds the Sturgeon Lake metavolcanic-metasedimentary sequence in the east. The Eastern Granitic Complex is a batholithic granitic complex of the Winnipeg River terrane, the border phases of which underlie the eastern part of the property. The foliation in the granitic rocks is concordant with that in the adjacent metavolcanics and metasediments, and the contact appears to be in part fault controlled. The granitic complex is composite in nature with several intrusive phases.

Western Granitic Complex appears at the west and northwest side of the property and extends beyond it and is dominated by the Lewis Lake batholith. The foliation in the granitic rocks is slightly discordant to that in the adjacent metavolcanic assemblage. Along the east shore of the North Arm of Sturgeon Lake, contacts between the granitic and volcanic rocks vary from abrupt to transitional. The western granitic complex is composite in nature with several intrusive phases, where the early phases are well-foliated to gneisses, biotite, granodiorite and trondhjemite.

St. Anthony pluton appears to be a discrete body of granodiorite to trondhjemite that has intruded the mafic volcanic assemblage. It has its main exposure on and west of Couture Lake, where St. Anthony mine occurs within it. The rocks of the pluton weather pink, white and brown and are generally pink to gray on the fresh surface. They are leucocratic, medium grained, equigranular to locally slightly porphyritic, and massive to locally weakly foliated.

QUATERNARY

Glacial striae, eskers and esker-outwash, and glacial fluting trend southwest to south-southwest. Most of the area is covered by a thin layer of ground moraine (silty sand till). Minor morainic ridges lie in

the area, where they trend approximately southeast to east. Eskers and esker-outwash complexes are locally present within the area. They are generally of limited extent, semi-continuous and exhibit low, positive relief, surrounded by larger aprons of fine-to medium grained sandy outwash deposits.

Recent swamp or muskeg deposits are common, though generally of limited extent.

STRUCTURAL GEOLOGY

Folds/Faults

A major open fold dominates the north portion of the Sturgeon Lake property, as the tightly folded and refolded fabric of lithologies swing from a northeast trend on the southern portion of the property to a northwest trend on the north portion of the property. The two major fold generations in the Sturgeon Lake greenstone belt are the result of two penetrative regional deformation events (D_1 and D_2). D_1 structures are dominant and trend northerly throughout eastern Sturgeon Lake. In the Northeast Arm of Sturgeon Lake, the distribution of volcanic units and bedding orientations define tight to close map-scale folds. D_2 deformation is a penetrative east-northeast fabric in northern Sturgeon Lake with F_2 folds plunging 30 to 65 degrees to the east-northeast.

Numerous faults and lineaments transect the area. Pervasive shearing associated with movement along the Sturgeon Narrows cataclastic zone extends from the top of the Northeast Arm of Sturgeon Lake, southeast through Sturgeon Narrows. Many of the shear zones are located proximal to small porphyritic subvolcanic intermediate to mafic units that have intruded chloritic mafic volcanic flows.

Foliation, Schistosity

Metavolcanics and metasediments have a moderately to well developed metamorphic foliation. Schistosity occurs as a penetrative planar structure, specially along the Northeast Arm, defining narrow shear zones or faults. Foliation is generally subparallel to primary structures such as flow contact and bedding.

MINERALIZATION

There are numerous gold occurrences on the Sturgeon Lake Property and around it, nearly all of which have been discovered by prospecting and explored by limited trenching and short diamond drill holes. The North Block survey area has seen less exploration than the southern portion of the Sturgeon Lake Property, possibly due to more difficult access in the early days of the camp. In general, exposed gold occurrences have as their primary host quartz veins, masses, or segregations. The quartz veins

generally occur in association with sheared contacts parallel to regional D1 deformation but also with a component of D2 fabrics controlling some veining and mineralization.

A number of high strain zones, including the Sturgeon Narrows cataclastic zone have been prospected for gold, with marginal success. These structures do present local areas of strong alteration, quartz flooding, sulphide mineralization and anomalous gold values that require additional exploration.

AIRBORNE GEOPHYSICAL SURVEY

During the period from November 25 to December 13, 2021, Precision GeoSurveys Inc. performed an Airborne Geophysical survey for Midex on the Sturgeon Lake Property. The survey covered two blocks of the property, with different flight line orientations, denoted as the North and South block. An assessment report on the North block of this survey was filed for assessment in January of 2022. This report provides the information and maps for the South block (Appendix 1).

The Sturgeon Lake North block was flown at 75 m line spacing at a heading of 090°/270°; tie lines were flown at 750 m line spacing at a heading of 000°/180°.

The Sturgeon Lake South block was flown at 75 m line spacing at a heading of 000°/180°; tie lines were flown at 750 m line spacing at a heading of 090°/270°.

A total of 4199 km line was flown over two blocks with a combined area of 285.3 km², including a 131km line extension added to the South block at the start of the survey. The work was performed on mining claims: 555501, 555502, 555503, 555504, 559607, 559608, 599006, 599028, 599029, 599030,599031,599032,599033,599034,599035,599036,599037,599038,599039,599040,599041,599042,599043,599044,599045,599046,599428,599432,599575,599576,599578,599579,599580,599583,599584,599585,599587,599588,599591,599600,599603,599606,599609,599610,599612,599620,599621,599622,607816,607819,607822,607830,607836,607838,607839,607848,607854,607861,607990,615718,684001,684002,684003,684004,684005,684006,684007,684008,684009,684010,684011,684012,684013,684014,684015,684016,684017,684018,684019,684020,684021,684022,684023,684024,684025,684026,684027,684028,684029,684030,684031,684032,684033,684034,684035,684036,684037,684038,684039,684040,684041,684042,733472,733473,733476,733541,733542,733543,733548,733549,733552,733553,735936,738442,738443,738444,738445,738446,738447,738448,738449,738450,738451,738452,738453,738556,738557,738558,738559,738560,738561,739112,739113,739114, and 739115.

For the purposes of this survey, airborne magnetic data were collected to improve the resolution of historical airborne information and aid geological interpretation of lithologies and structure and aid future geological mapping and other exploration programs on the Sturgeon Lake Property.

All geophysical and subsidiary equipment were installed on the survey aircraft by Precision GeoSurveys and Questor Aviation to collect high resolution magnetic data. For this survey, the magnetometer was carried in an approved tail “stinger” configuration to enhance flight safety and improve data quality.

The survey was flown with a Scintrex CS-3 split-beam cesium vapor magnetometer mounted on the back of the fixed wing aircraft in an approved non-magnetic and non-conductive “stinger” configuration to measure total magnetic intensity. The magnetometer sensor was orientated at 45 degrees with respect to the horizontal to couple with local magnetic field at the Sturgeon Lake survey blocks.

The Sturgeon Lake geophysical data are presented as digital databases, maps, and a logistics report in Appendix II. Maps produced from the geophysical survey are provided in Appendix III.

INTERPRETATIONS AND CONCLUSIONS

The survey has provided detailed, high quality magnetic data that will enable lithological and structural interpretations to be updated and support further exploration of the Sturgeon Lake greenstone belt.

RECOMMENDATIONS

SMEC makes the following recommendations for the further exploration of Sturgeon Lake Property:

- A geological and structural compilation incorporating the magnetic data from this survey as well as historical data should be completed across the entire property. Initial steps should include using this survey to extract stratigraphic form lines from vertical gradient data and developing major lithological packages from total magnetic overlays on government geological maps. This work should also incorporate historic geophysical information, along with government geological data to develop a 2D geological model of the Sturgeon Lake Property.
- Detailed geological mapping and prospecting and till sampling are recommended to continue on the Northeast Arm of Sturgeon Lake. Because of the limited access in some areas of the property, prospecting can be performed using small boats or canoes, along the lakes that cut the areas northwest-southeast.

REFERENCES

Evans, G., (2009). Technical Report on the St. Anthony and Best/King Bay Properties, In the Beckington Lake, Squash Lake and Fourbay Areas of Patricia Mining Division, Ontario.

Kuryliw, Chester J., (1984). Report on a VLF-EM Survey. Sturgeon Lake, Rainbow Island, Iron Duke and 590678 Claim Groups, District of Patricia Ontario.

Lithosystems Ltd., (1982) Summary of 1982 Field Surveys, Sturgeon Lake Project (Ouilette Gold Prospect) Area of Beckington lake Patricia Mining Division Ontario, Prepared for Mid-North engineering systems Ltd. And Candore Explorations Ltd.

Sanborn-Barrie, M. (1989) Geology of the Savant Lake area. *In* Summary of Field Work and Other Activities 1989. Ontario Geological Survey.

Sanborn-Barrie, M; Skulski, T. (2005) Geology, Sturgeon Lake greenstone belt, western Superior Province, Ontario; Geological Survey of Canada.

Trowell, N.F. (1974*a*) Geology of the Bell Lake – Sturgeon Lake area. Ontario Division of Mines, Geoscience Report 114, Maps 2268 and 2269.

Trowell, N.F. (1983) Geology of the Sturgeon Lake area, districts of Thunder Bay and Kenora; Ontario Geological Survey, Report 221, Maps 2456, 2457, 2458.

Trowell, N.F. (1983) Geology of the Squash Lake-Sturgeon Lake Area, District of Thunder Bay; Ontario Geological Survey, Report 227.

Van Enk, R. (1985). Stornaway Resources Ltd., McEdwards Lake Property, N.W. Ontario, Report on Diamond Drilling (ME-2, ME-3, ME-4). Report #52J02SE9258.

Sparrow, B; Copeland D (2012) Geological Mapping and Prospecting on the Gold Star Property. Prepared for Paragon Mineral Corporation.

Yule, G. (2013) North Johnson Property, Diamond Drill Program. Prepared for AuXmin Resources Ltd.

Ministry of Natural Resources, Ontario. Assessments Reports of historical drilling in Sturgeon Lake Property: 52J02NE0063, 52J02NE0078, 52J01NW0007, 52J02NE0064, 52J02NE0066, 52J02NE0067, 52J02NE0033, 52J01NW0005, 52J02NE0072, 52J02NE0073 , 52G15NW0091, 52G15NW0090, 52G15NW0003, 52G15NW0002, 52G15NW9269.

CERTIFICATE OF QUALIFIED PERSON

I, Mehmet Spaho, as the author of this report entitled: “**ASSESSMENT REPORT, AIRBORNE MAGNETIC SURVEY ON THE STURGEON LAKE PROPERTY**”, prepared for Midex Resources Ltd., do hereby certify that:

1. I am an independent Consulting Geologist and principal of Spaho Mineral Exploration and Consulting Inc. of Suite 309, 10 Allanhurst Dr., Toronto, ON, M9A 4J5.

2. I am graduate of Polytechnic University of Tirana, Albania, in 1981 with a Bachelor degree in Geological Engineering.

3. I am registered as a Practising member of the Association of Professional Geoscientist of Ontario (No. 2101) and use the title Professional Geoscientist (P. Geo).

4. I have worked as a geologist for a total of 40 years since my graduation. My relevant experience for the purpose of the Technical Report is:

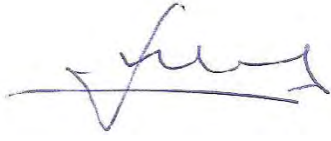
- Twenty-three years experience as an Economic and Mapping Geologist in Albania in mineral exploration for precious and base metals, including resource estimation.
- Fifteen years experience as a Consulting Geologist across Ontario with different exploration mining companies.

5. I am responsible for all sections and content of the Assessment Report.

6. I do not hold securities or other interest, either directly or indirectly, in the property or an adjacent property and I am independent of the Midex Resources Ltd.

7. As the date of this certificate, to the best of my knowledge, information and belief, the report contains all scientific and technical information that is required to make the report not misleading.

Dated this 15th day of December, 2022

A handwritten signature in blue ink, appearing to read 'Mehmet Spaho P. Geo.', written over a horizontal line.

Mehmet Spaho P. Geo.

Appendix I: List of Claims

Claim Number	Township/Area	Work Required	Work Applied	Total Reserve	Issue Date	Anniversary Date	Extension Date	Claim Due Date	Holder	Option Agreement Vendor
739108	SIX MILE LAKE AREA	1600	0	0	2022-07-11	2022-08-14	2023-05-14	2023-05-14	(100) Midex Resources Ltd.	
739110	SIX MILE LAKE AREA	800	0	0	2022-07-11	2022-08-14	2023-05-14	2023-05-14	(100) Midex Resources Ltd.	
739111	SIX MILE LAKE AREA	800	0	0	2022-07-11	2022-08-14	2023-05-14	2023-05-14	(100) Midex Resources Ltd.	
739112	SQUASH LAKE AREA	1200	0	0	2022-07-11	2022-08-13	2023-05-13	2023-05-13	(100) Midex Resources Ltd.	
739113	SQUASH LAKE AREA	2000	0	0	2022-07-11	2022-08-13	2023-05-13	2023-05-13	(100) Midex Resources Ltd.	
739114	SQUASH LAKE AREA	1200	0	0	2022-07-11	2022-08-13	2023-05-13	2023-05-13	(100) Midex Resources Ltd.	
739115	SESEGANAGA LAKE AREA,SQUASH LAKE AREA	800	0	0	2022-07-11	2022-08-13	2023-05-14	2023-05-14	(100) Midex Resources Ltd.	
741529	SIX MILE LAKE AREA	3200	0	0	2022-08-04	2024-03-08		2024-03-08	(100) Midex Resources Ltd.	

Appendix II: Geophysical Report

AIRBORNE GEOPHYSICAL SURVEY REPORT



Sturgeon Lake Survey Blocks

Sioux Lookout, Ontario

MIDEX Resources

Precision GeoSurveys Inc.

BC Permit to Practice 1002615
www.precisiongeosurveys.com
Hangar 42, Langley Airport
21330 - 56th Ave., Langley, BC
Canada V2Y 0E5
604-484-9402

Shawn Walker, M.Sc., P.Geo.
December 2021
Job# 21205

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List of Sturgeon Lake North Block Plates

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Plate 2: North Block – Digital Terrain Model (DTM)

Plate 3: North Block – Total Magnetic Intensity with Actual Flight Lines (TMI_wFL)

Plate 4: North Block – Total Magnetic Intensity (TMI)

Plate 5: North Block – Residual Magnetic Intensity (RMI)

Plate 6: North Block – Reduced to Magnetic Pole (RTP) of RMI

Plate 7: North Block – Calculated Horizontal Gradient (CHG) of RMI

Plate 8: North Block – Calculated Vertical Gradient (CVG) of RMI

List of Sturgeon Lake South Block Plates

Plate 1: South Block – Actual Flight Lines (FL)

Plate 2: South Block – Digital Terrain Model (DTM)

Plate 3: South Block – Total Magnetic Intensity with Actual Flight Lines (TMI_wFL)

Plate 4: South Block – Total Magnetic Intensity (TMI)

Plate 5: South Block – Residual Magnetic Intensity (RMI)

Plate 6: South Block – Reduced to Magnetic Pole (RTP) of RMI

Plate 7: South Block – Calculated Horizontal Gradient (CHG) of RMI

Plate 8: South Block – Calculated Vertical Gradient (CVG) of RMI

1.0 Introduction

This report outlines the geophysical survey operations and data processing procedures taken during the high resolution fixed wing magnetic survey flown over the Sturgeon Lake survey blocks for MIDEX Resources. The survey blocks are located in western Ontario (Figure 1) and were flown from November 25 to December 13, 2021.

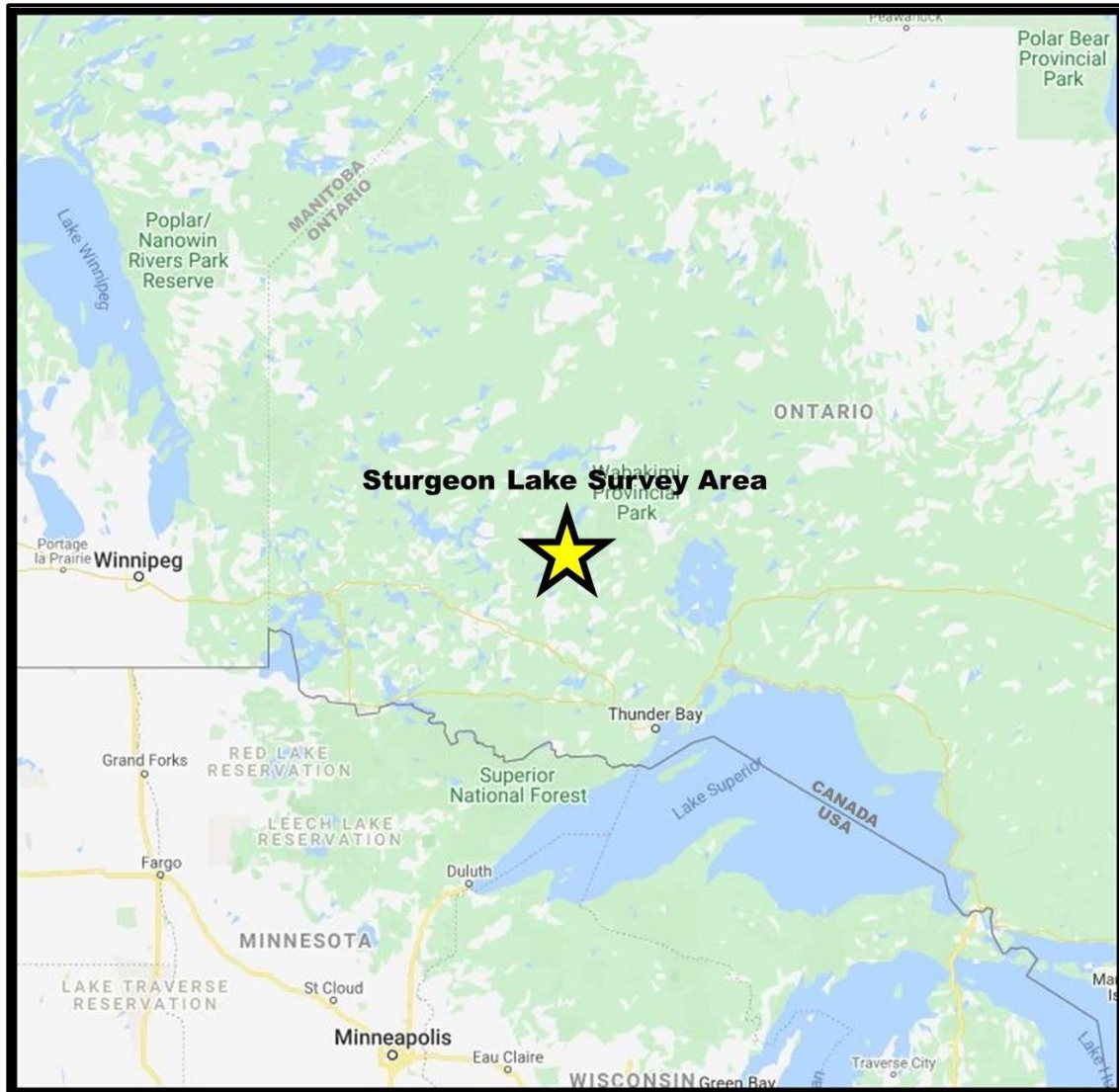


Figure 1: Sturgeon Lake survey area located in western Ontario.

1.1 Survey Area

The Sturgeon Lake survey blocks are centered approximately 215 km northwest of Thunder Bay, Ontario (Figure 2).



Figure 2: Sturgeon Lake survey blocks northwest of Thunder Bay, Ontario.

The Sturgeon Lake North block was flown at 75 m line spacing at a heading of 090°/270°; tie lines were flown at 750 m line spacing at a heading of 000°/180° (Figure 3).



Figure 3: Plan View – Sturgeon Lake North block with actual flight lines in yellow and survey block boundary in red.

The Sturgeon Lake South block was flown at 75 m line spacing at a heading of 000°/180°; tie lines were flown at 750 m line spacing at a heading of 090°/270° (Figure 4).

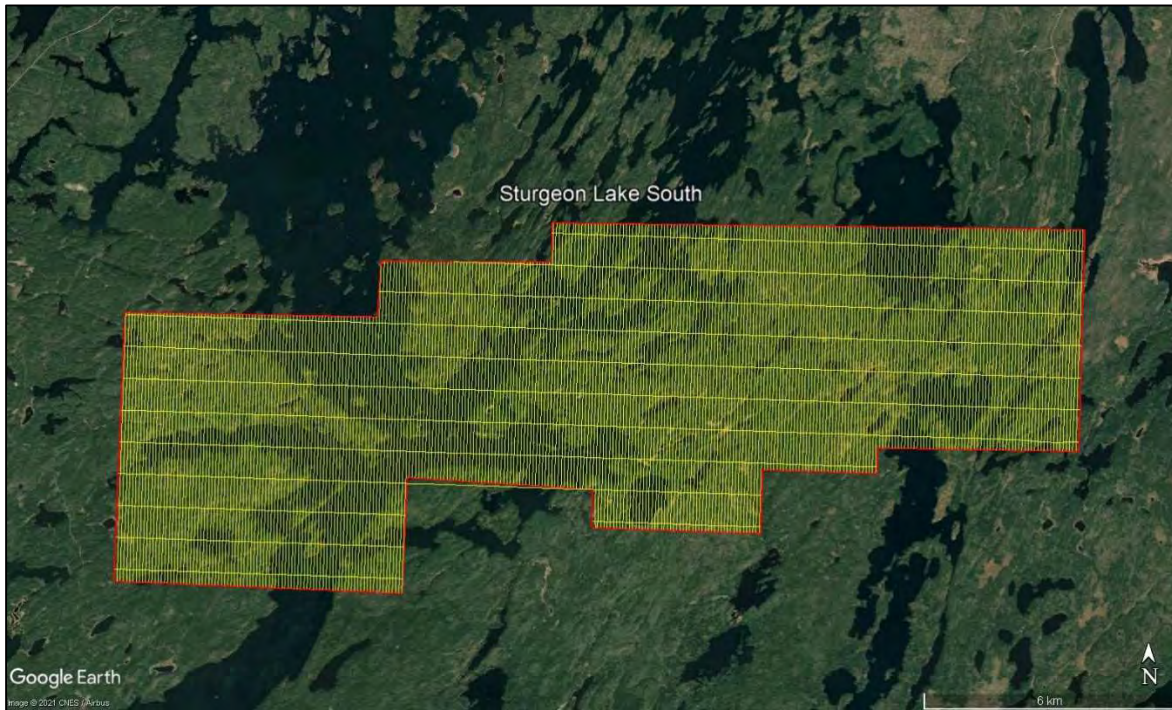


Figure 4: Plan View – Sturgeon Lake South block with actual flight lines in yellow and survey block boundary in red.

1.2 Survey Specifications

The geodetic system used for the geophysical survey was WGS 84 in UTM Zone 15N. A total of 4199 line km was flown over two blocks with a combined area of 285.3 km² (Table 1), including a 131 line km extension added to the South block at the start of the survey. Polygon coordinates for the Sturgeon Lake survey blocks are specified in Appendix A.

Survey Block	Area (km ²)	Line Type	No. of Lines Planned	No. of Lines Completed	Line Spacing (m)	Line Orientation (UTM grid)	Total Planned Line km	Total Actual km Flown
North	147.3	Survey	222	222	75	090°/270°	1970	1968
		Tie	16	16	750	000°/180°	201	201
		Total:	238	238			2171	2169
South	138.0	Survey	302	302	75	000°/180°	1722	1837
		Tie	12	12	750	090°/270°	175	193
		Total:	314	314			1897	2030
Total	285.3		552	552			4068	4199

Table 1: Sturgeon Lake flight line specifications.

2.0 Geophysical Data

Geophysical data are collected in a variety of ways and are used for many purposes including aiding in the determination of geology, mineral deposits, oil and gas accumulations, geotechnical investigations, contaminated land sites, and UXO (unexploded ordnance) detection.

For the purposes of this survey, airborne magnetic data were collected to serve in geological mapping and exploration for mineral deposits.

2.1 Magnetic Data

Magnetic surveying is the most common airborne geophysical technology used for both mineral and hydrocarbon exploration. Aeromagnetic surveys measure and record the total intensity of the magnetic field at the magnetometer sensor, which is a combination of the desired geomagnetic field as well as influences from the constantly varying solar wind and the aircraft's magnetic field. By subtracting temporal and aircraft magnetic effects, the resulting aeromagnetic maps show the spatial distribution and relative abundance of magnetic minerals - most commonly the iron oxide mineral magnetite - in the upper levels of Earth's crust, which in turn are related to lithology, structure, and alteration of bedrock. Survey specifications, instrumentation, and interpretation procedures depend on the objectives of the survey. Magnetic surveys are typically performed for:

- Geological Mapping - to aid in mapping lithology, structure, and alteration.
- Depth to Basement Mapping - for exploration in sedimentary basins or mineralization associated with the basement surface.

3.0 Aircraft and Equipment

All geophysical and subsidiary equipment were carefully installed on the survey aircraft by Precision GeoSurveys to collect high resolution magnetic data. For this survey, the survey magnetometer was carried in an approved tail "stinger" configuration to enhance flight safety and improve data quality.

3.1 Aircraft

Precision GeoSurveys flew the survey using a Piper PA-31 Navajo, registration C-FOOO, operated by Questor Aviation Ltd.

3.2 Geophysical Equipment

The survey aircraft (Figure 5) was equipped with a data acquisition system, GPS navigation system, pilot guidance unit (PGU), radar altimeter, cesium vapor magnetometer, and fluxgate

magnetometer. In addition, a magnetic base station was used to record temporal variations of the Earth's magnetic field. Specifications for the survey equipment are provided in Appendix B.

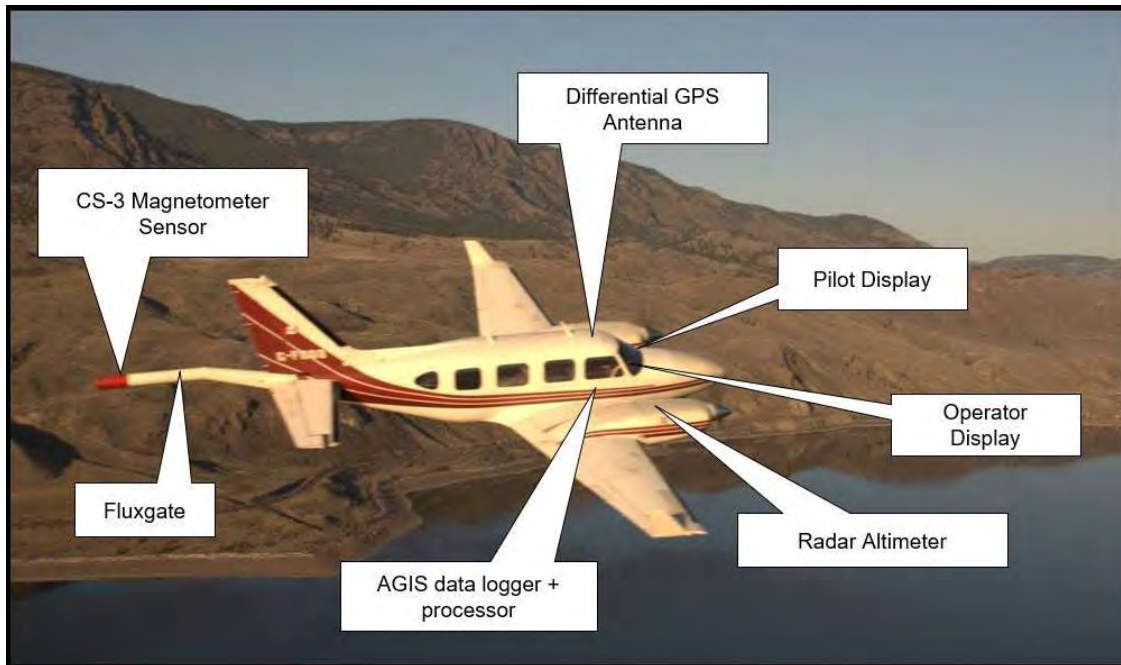


Figure 5: Piper Navajo equipped with geophysical equipment.

3.2.1 AGIS

The Airborne Geophysical Information System (AGIS) (Figure 6), manufactured by Nuvia Dynamics Inc. (previously Pico Envirotec Inc.), is the main computer used in integrated data recording, data synchronizing, providing real-time quality control data for the geophysical operator display, and the generation of navigation information for the pilot and operator display systems.



Figure 6: AGIS data acquisition system.

AGIS-XP uses the Microsoft Windows operating system and geophysical parameters are based on Nuvia's Airborne Geophysical Information System (AGIS) software. Depending on survey specifications, information such as magnetic field, electromagnetic response, total gamma count, counts of various radioelements (K, U, Th, etc.), cosmic radiation, barometric pressure, atmospheric humidity, temperature, aircraft attitude, navigation parameters, and GPS status can all be monitored on the AGIS on-board display (Figure 7).

While in flight, raw magnetic response, magnetic fourth difference, compensated and uncompensated magnetic data, radiometric spectra, aircraft position, survey altitude, cross track error, and other parameters are recorded and can be viewed by the geophysical operator for immediate QC (quality control), in accordance with survey specifications and available sensors. Additional software allows for post or real time magnetic compensation and calibration.

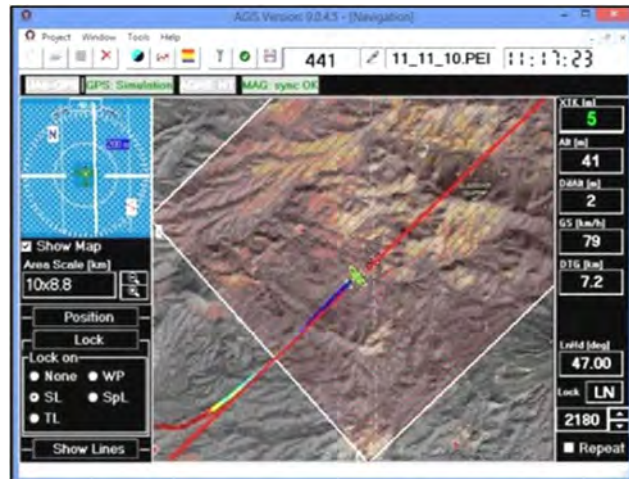


Figure 7: AGIS operator display showing real time flight line recording and navigation parameters. Additional windows display real-time geophysical data to operator.

3.2.2 GPS Navigation System

A Hemisphere R330 GPS receiver (Figure 8) and a Novatel GPS antenna on the tail of the aircraft integrated with the AGIS navigation system and pilot display (PGU) provide accurate navigational information and position control. The R330 GPS receiver supports fast updates at a rate of up to 20 Hz (20 times per second); delivering sub-meter positioning accuracy in three dimensions. It receives GNSS (GPS/GLONASS) L1 and L2 signals.

The receiver supports differential correction methods including L-Band, RTK, SBAS, and Beacon. The R330 employs innovative Hemisphere GPS Eclipse SureTrack technology, which allows it to model the phase on satellites that the airborne unit is currently tracking. With SureTrack technology, dropouts are reduced and speed of the signal reacquisitions is increased; enhancing accurate positioning when base corrections are not available.



Figure 8: Hemisphere R330 GPS receiver.

3.2.3 Pilot Guidance Unit

Steering and elevation (ground clearance) information is continuously provided to the pilot by the Pilot Guidance Unit (PGU). The graphical display (Figure 9) is mounted on top of the aircraft's instrument panel, remotely from the data acquisition system. The PGU is the primary navigation aid to assist the pilot in keeping the aircraft on the planned flight path, heading, speed, and at the desired ground clearance.



Figure 9: PGU screen displaying navigation information.

PGU information is displayed on a full VGA 600 x 800 pixel 7 inch (17.8 cm) LCD display. The CPU for the PGU is contained in a PC-104 console and uses Microsoft Windows operating system control, with input from the GPS antenna on the aircraft, laser altimeter, and AGIS.

3.2.4 Magnetometer

The survey was flown with a Scintrex CS-3 split-beam cesium vapor magnetometer mounted on the back of the fixed wing aircraft in an approved non-magnetic and non-conductive “stinger” configuration to measure total magnetic intensity. The magnetometer sensor (Figure 10) was orientated at 45 degrees with respect to the horizontal to couple with local magnetic field at the Sturgeon Lake survey blocks.



Figure 10: View of CS-3 cesium vapor magnetometer.

3.2.5 Fluxgate Magnetometer

As the survey aircraft flies along a survey line, small attitude changes (pitch, roll, and yaw) are measured by a triaxial fluxgate magnetometer (Figure 11) with respect to the inclination and declination of Earth’s magnetic field. The fluxgate consists of three magnetic sensors - X, Y, and Z - operating independently and simultaneously. Each sensor has an analog output corresponding to the component of the ambient magnetic field along its axis. Response of the sensors is proportional to the cosine of the angle between the applied field and the sensor’s sensitive axis. Fluxgate data are used for magnetic compensation and attitude corrections.



Figure 11: Billingsley TFM100G2 triaxial fluxgate magnetometer.

3.2.6 Magnetic Base Station

Temporal variations of Earth’s magnetic field, particularly diurnal, are monitored and recorded by a GEM GSM-19T base station magnetometer. It was operated at all times while airborne data were being collected. The base station was located in an area with low magnetic gradient, away from

electric power transmission lines and moving ferrous objects, such as motor vehicles, that could affect the survey data integrity.

GEM GSM-19T magnetometers (Figure 12) are integrated with GPS time synchronization and use proton precession technology with absolute accuracy of ± 0.20 nT and sensitivity of 0.15 nT at 1 Hz. Base station magnetic data were recorded on internal solid-state memory and downloaded onto a field laptop computer using a serial cable and GEMLink 5.4 software. Profile plots of the base station readings were generated, updated, and reviewed at the end of each survey day.



Figure 12: GEM GSM-19T proton precession magnetometer.

4.0 Survey Operations

The survey was flown from November 25 to December 13, 2021 in cold winter conditions with occasional snow, low clouds, and high winds. The experience of the pilot ensured that data quality objectives were met, and that safety of the flight crew was never compromised given the potential risks involved in airborne geophysical surveying. Field processing and quality control checks were performed daily.

4.1 Operations Base and Crew

The base of operation for the Sturgeon Lake survey was at Sioux Lookout airport, 90 km east of the survey blocks. Precision's geophysical crew consisted of Four members (Table 2):

Crew Member	Position
Paul Burnett	Fixed wing survey pilot
Matthew Somes	Geophysical operator
Shawn Walker, M.Sc., P.Geo.	Geophysicist - data processor, mapping, and reporting
Puraz Shirzad, B.A.	GIS technician - mapping

Table 2: List of survey crew members.

4.2 Magnetic Base Station Specifications

Changes in Earth's magnetic field over time, such as diurnal variations, magnetic pulsations, and geomagnetic storms, were measured and recorded by two stationary GEM GSM-19T proton precession magnetometers. The magnetic base station was installed at Sioux Lookout airport, west of the survey blocks in an area (Table 3; Figures 13 and 14) of low magnetic noise away from metallic items such as ferromagnetic objects, vehicles, and power lines that could affect the base station measurements and ultimately the survey data.

Station Name	Easting/Northing	Latitude/Longitude	Datum/Projection
GEM 1 S/N 8052735	578251 m E 5552604 m N	91° 54' 19.38" N 50° 07' 13.86" W	WGS 84, Zone 15N

Table 3: Magnetic base station location.

Magnetic readings were reviewed at regular intervals to ensure that no airborne data were collected during periods of high magnetic activity (greater than 10 nT change per five minutes).



Figure 13: GEM 1 magnetic base station at Sioux Lookout airport.

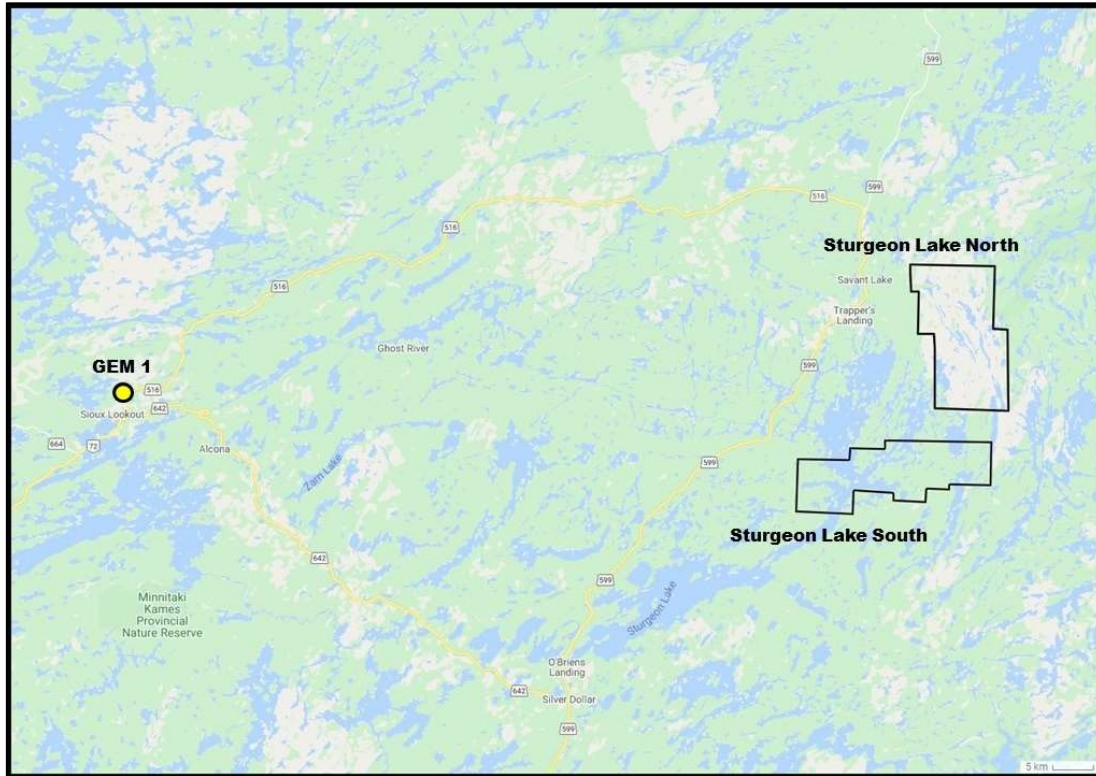


Figure 14: Location of GEM 1 magnetic base station at the Sioux Lookout airport.

4.3 Field Processing and Quality Control

Survey data were transferred from the aircraft's data acquisition system onto a USB memory stick and copied onto a field data processing laptop on a daily basis. The raw data files in PEI binary format were converted into Geosoft GDB database format. Using Geosoft Oasis Montaj 9.10.0.23, the data were inspected to ensure compliance with contract specifications (Table 4; Figures 15 to 17).

Parameter	Specification	Tolerance
Position	Line Spacing	Flight line deviation within 10 m L/R from ideal flight path. No exceedance for more than 1 km.
	Height	Nominal flight height of 80 m above ground level (AGL) with tolerance of 10 m. No exceedance for more than 1 km, provided deviation is not due to tall trees, topography, mitigation of wildlife/livestock harassment, cultural features, powerlines, or other obstacles beyond the pilot's control.
	GPS	GPS signals from four or more satellites must be received at all times, except where signal loss is due to topography. No exceedance for more than 1 km.
Magnetics	Temporal/Diurnal Variations	Non-linear temporal magnetic variations within 10 nT of a linear chord of length five (5) minutes.
	Normalized 4 th Difference	Magnetic data within 0.02 nT peak to peak. No exceedance for distances greater than 1 km or more, provided noise is not due to geological or cultural features.

Table 4: Contract survey specifications.

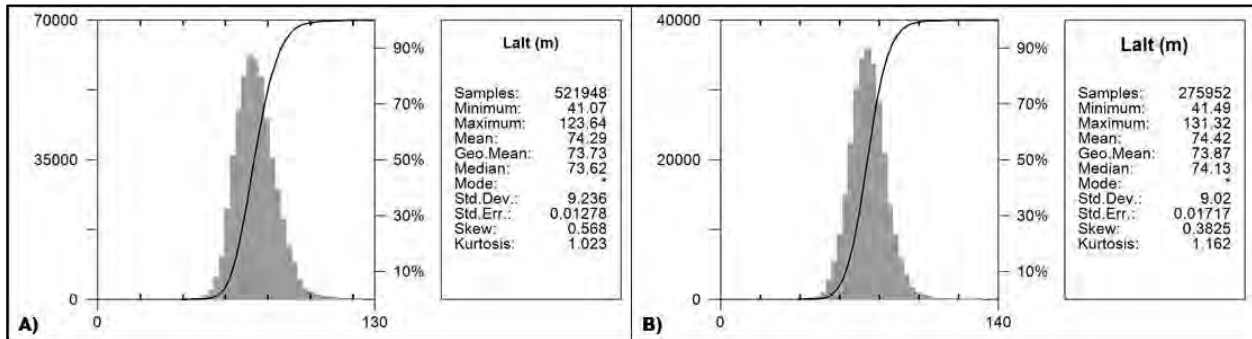


Figure 15: Histogram showing survey elevation vertically above ground. A) North block, B) South block.

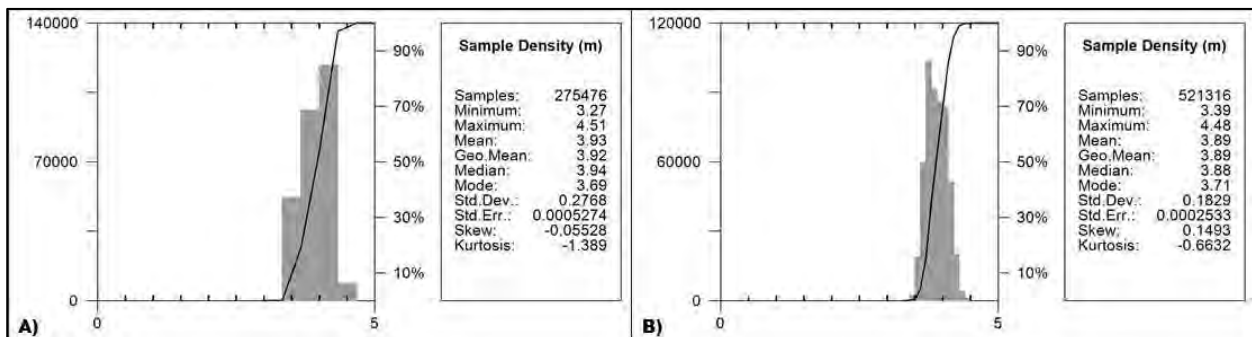


Figure 16: Histogram showing magnetic sample density. Horizontal distance in meters between adjacent measurement locations; magnetic sample frequency 10 Hz. A) North block, B) South block.

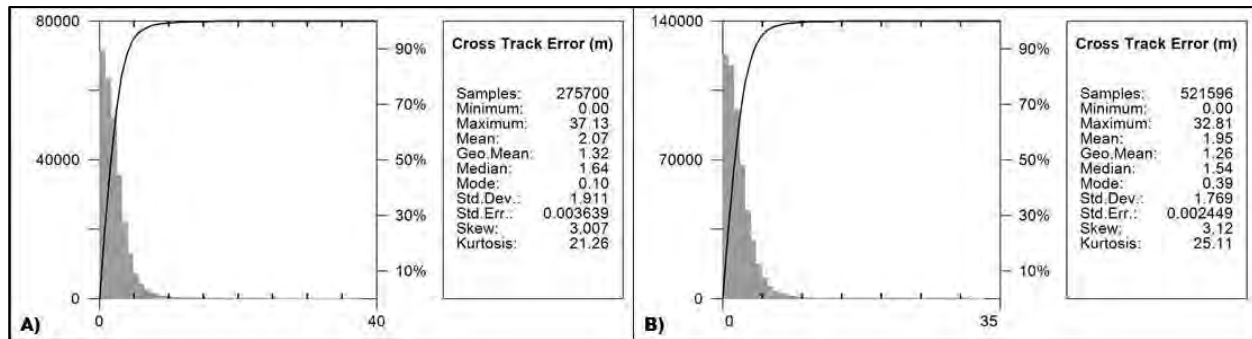


Figure 17: Histogram showing cross track error. A) North block, B) South block.

5.0 Data Acquisition Equipment Checks

Airborne equipment tests and calibrations were conducted for the magnetometer. For the airborne magnetometer, lag, compensation, and heading error test flights were flown.

5.1 Lag Test

A lag test was performed to determine the difference in time the digital reading was recorded for the magnetometer and laser altimeter with the position fix time that the fiducial of the reading was obtained by the GPS system resulting from a combination of system lag and different locations of the various sensors and the GPS antenna. The test was flown in the four orthogonal survey headings in two directions over identifiable features at survey speed and height. The resulting data (Table 5) were used to correct for time and position.

Instrument	Source	Lag Fiducial	Correction (sec)
Magnetometer	Logging equipment	11	1.1

Table 5: Survey lag correction values. Magnetic data at 10 Hz.

5.2 Magnetometer Tests

The magnetometer was tested and calibrated with a series of dedicated flights specifically for removing undesired effects of aircraft movement, speed, and heading direction.

5.2.1 Compensation Flight Test

During aeromagnetic surveying, a small but significant amount of noise is introduced to the magnetic data by the aircraft itself, as the magnetometer is within the aircraft's magnetic field. Changes in aircraft attitude combined with the permanent magnetization of certain aircraft parts (in particular the engine and other ferrous magnetic objects) contribute to this noise. The aircraft was degaussed using proprietary technology prior to starting the survey and the remaining magnetic noise was removed by a process called magnetic compensation.

A magnetic compensation flight was completed (Table 6) for this survey. The process consists of a series of prescribed maneuvers ($\pm 10^\circ$ roll, $\pm 10^\circ$ pitch, and $\pm 10^\circ$ yaw) where the aircraft flies in the four orthogonal headings required ($000^\circ/090^\circ/180^\circ/270^\circ$ in the case of this survey) at a sufficient altitude (typically $> 2,500$ m AGL) in an area of low magnetic gradient where Earth's magnetic field becomes nearly uniform at the scale of the compensation flight. In each heading direction, three specified roll, pitch, and yaw maneuvers (total 36) are performed by the pilot at constant elevation so that any magnetic variation recorded by the airborne magnetometer can be attributed to aircraft movement. These maneuvers are determined by the airborne fluxgate magnetometer and provide the data that are required to calculate the necessary parameters for compensating the magnetic data to remove aircraft noise from survey data.

Pre-Compensation					Post-Compensation				
Heading	Roll	Pitch	Yaw	Total	Heading	Roll	Pitch	Yaw	Total
000°	0.7549	2.7159	0.4869	3.9577	000°	0.0907	1.3222	0.0551	1.4680
090°	0.1798	2.5190	0.4858	3.1846	090°	0.1031	0.0560	0.0672	0.2263
180°	0.1891	0.8582	0.1805	1.2278	180°	1.4091	0.0680	0.0781	1.5552
270°	0.7549	2.7159	0.4869	3.9577	270°	0.0902	0.0559	0.0471	0.1932
FOM (nT) = 12.3492					FOM (nT) = 3.4427				

Table 6: Results of compensation flight flown on November 12, 2021.

5.2.2 Heading Correction Test

To determine heading errors and other offsets, a cloverleaf pattern flight test was conducted at high altitude to minimize the effect of natural magnetic gradient. The cloverleaf test was flown in the same orthogonal headings as the survey and tie lines ($000^\circ/090^\circ/180^\circ/270^\circ$ in the case of this survey) at >2500 m AGL in an area with low magnetic gradient. For all four directions the survey helicopter must pass over the same point, at the same elevation, with the aircraft in straight and level flight. The difference in magnetic values obtained in reciprocal headings is the heading error. Heading correction values derived from the test flight are summarized in Table 7.

Heading	Correction (nT)
000°	2.26
090°	-4.88
180°	4.49
270°	-1.87
Total	0.00

Table 7: Magnetic sensor heading corrections flown on December 13, 2021.

6.0 Data Processing

After all data were collected, several procedures were undertaken to ensure that all data met a high standard of quality. Magnetic data recorded by the AGIS were converted into Geosoft and ASCII file formats. Further processing (Figure 18) was carried out using Geosoft Oasis Montaj 9.10.0.23 geophysical processing software along with proprietary processing algorithms.

6.1 Position Corrections

In order to collect high resolution geophysical data, the location at which the data were measured and recorded must be accurate.

6.1.1 Lag Correction

A correction for lag error was applied to the geophysical data recorded at each individual sensor to compensate for the combination of lag in the recording system and the sensing instrument flying in a different location from the GPS antenna, as determined during the lag test. Validity of the lag corrections was confirmed by the absence of grid corrugations in adjoining reciprocal lines.

6.2 Magnetic Processing

Raw magnetic data, as collected by the airborne instruments, were corrected for aircraft influence, flight maneuvers, temporal variations, lag, and heading. The data were examined for magnetic noise and spikes, which were removed as required. The background magnetic field, International Geomagnetic Reference Field (IGRF) of the Earth, was removed and survey and tie line data of the resulting residual magnetic field were then leveled.

6.2.1 Flight Compensation

Data obtained from the compensation flight test were applied to the raw magnetic data as the first step of data processing. A computer program called PEIComp was used to create a model from the compensation flight test for each survey to remove the noise induced by the aircraft and its movement; this model was applied to data from each survey flight.

6.2.2 Temporal Magnetic Variation

The intensity of Earth's magnetic field varies with location and time. The time variable, known as diurnal or more correctly temporal variation, is removed from the recorded airborne data to provide the desired magnetic field at a specified location. Magnetic data from base station GEM 1 were used for correcting the airborne magnetic survey data. The data were edited, plotted, and merged into a Geosoft database (.GDB) on a daily basis.

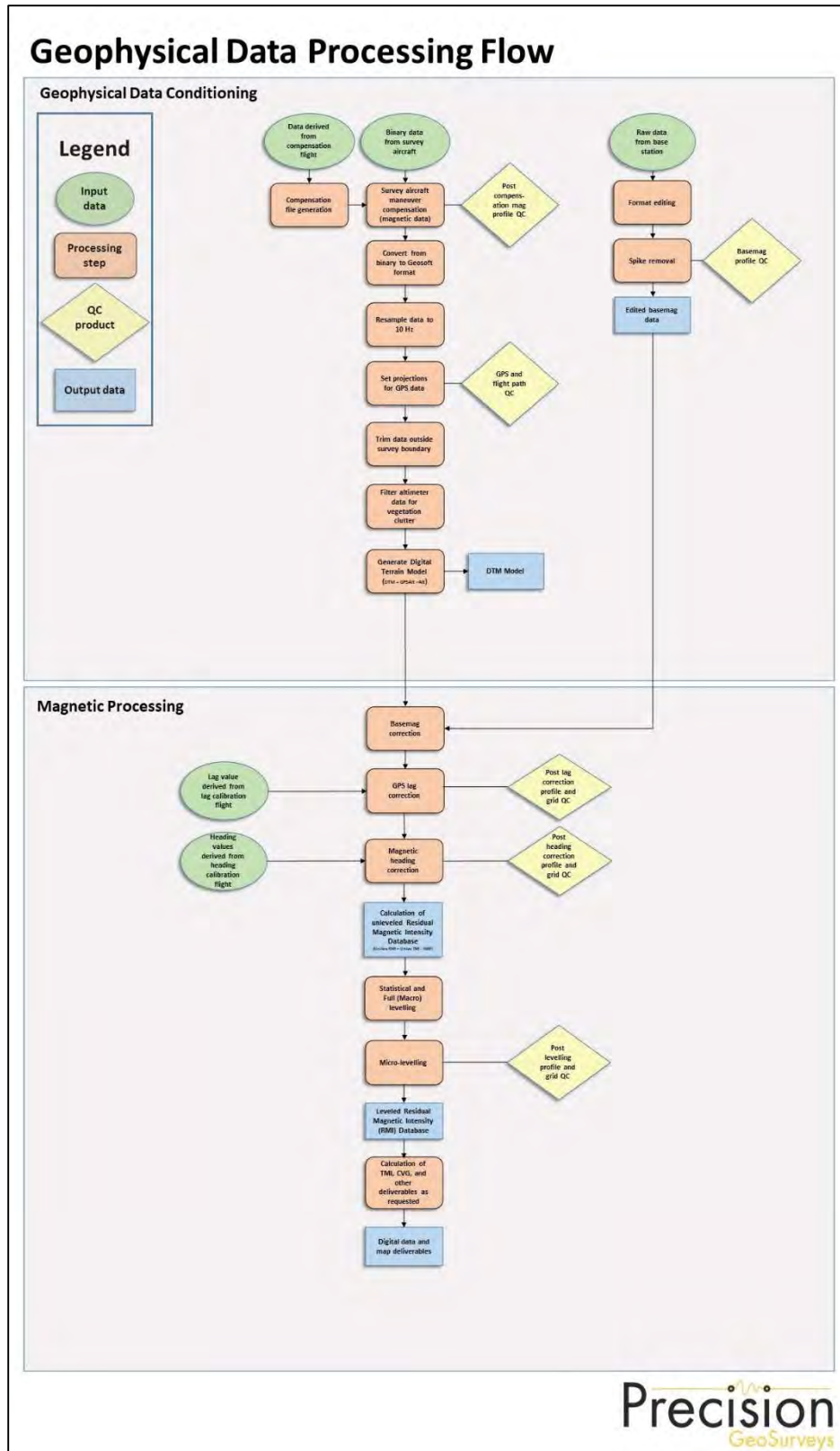


Figure 18: Magnetic data processing flow.

Base station measurements from GEM 1 were averaged to establish a magnetic reference datum of 56409.17 nT. Magnetic deviations relative to the reference datum were used to establish variations of the Earth's local magnetic field during the time it took to complete the survey. The airborne magnetic data were then corrected for temporal variations by subtracting base station deviations from data collected on the aircraft, effectively removing effects of diurnal and other temporal variations.

6.2.3 Heading Correction

For each survey heading, changes in the apparent magnetic field due to instrumental heading error are measured and recorded. Heading corrections determined from the heading test are used to construct a heading table (.TBL) file. The values in the table were applied to the survey data to correct for these errors.

6.2.4 IGRF Removal

The International Geomagnetic Reference Field (IGRF) model is the empirical representation of Earth's dynamic magnetic field (main core field without external sources) collected and disseminated from satellite data and from magnetic observatories around the world. The IGRF has historically been revised and updated every five years by a group of modellers associated with the International Association of Geomagnetism and Aeronomy (IAGA).

The initial unlevelled Residual Magnetic Intensity (RMI) was calculated by taking the difference between the 13th generation IGRF (IGRF-13, released in December 2019) and the non-levelled Total Magnetic Intensity (TMI) to create a more valid model of individual near-surface magnetic anomalies. This model is independent of time to allow for other magnetic data (previous or future) to be more easily incorporated into each survey database.

6.2.5 Leveling and Micro-leveling

Small inconsistencies in flight height and line location result in variabilities in magnetic intensity measured at the intersection points of survey lines and tie lines. Using the initial Residual Magnetic Intensity (RMI) data (TMI with the IGRF removed), RMI data from survey and tie lines were leveled to each other. Two types of leveling were applied to the corrected data: conventional leveling and micro-leveling. There were two components to conventional leveling: statistical leveling to level tie lines and full leveling to level survey lines. The statistical leveling method corrected the SL/TL intersection errors that follow a specific pattern or trend. Through the error channel, an algorithm calculated a least-squares trend line and derived a trend error curve, which was then added to the channel to be leveled. The second component was full leveling. This adjusted the magnetic value of the survey lines so that all lines matched the trended tie lines at each intersection point.

Following statistical leveling, micro-leveling was applied to corrected conventional leveled data. This iterative grid-based process removed low amplitude components of flight line noise that still remained after tie line and survey line leveling and resulted in fully leveled RMI data. The IGRF was then added back onto the RMI to allow for the production of a leveled TMI grid and map.

6.2.6 Reduction to Magnetic Pole

Reduced to Magnetic Pole (RTP) data were determined from the leveled Residual Magnetic Intensity (RMI) data. The RTP filter was applied in the Fourier domain and rotates the observed magnetic field inclination and declination to what the field would look like at the north magnetic pole to allow a direct comparison of anomaly shapes and patterns independent of magnetic latitude.

Inclination and declination were calculated by using December 8, 2021, which was the final day surveying the South block and the first day surveying the North block. The derived values were used in the following formula:

$$RTP(\theta) = \frac{[\sin(I) - I \cdot \cos(I) \cdot \cos(D - \theta)]^2}{[\sin^2(I_a) + \cos^2(I_a) \cdot \cos^2(D - \theta)] \cdot [\sin^2(I) + \cos^2(I) \cdot \cos^2(D - \theta)]}$$

where: I is geomagnetic inclination in $^\circ$ from horizontal

D is geomagnetic declination in $^\circ$ azimuth from magnetic north

I_a is the inclination for amplitude correction (never less than I). Default is $\pm 20^\circ$. If $|I_a|$ is specified to be less than $|I|$, it is set to I

6.2.7 Calculation of Horizontal Gradient

Calculated Horizontal Gradient (CHG) is the magnitude of the total horizontal gradient. It is used to estimate contact locations of magnetic bodies at shallow depths, reveal anomaly texture, and highlight anomaly-pattern discontinuities while suppressing long wavelength features and temporal influences

If M is the magnetic field, then the CHG is calculated as:

$$CHG(x, y) = \sqrt{\left(\frac{\partial M}{\partial x}\right)^2 + \left(\frac{\partial M}{\partial y}\right)^2}$$

6.2.8 Calculation of Vertical Derivative

Calculated Vertical Gradient (CVG) is the first order vertical derivative of the leveled Residual Magnetic Intensity (RMI) data. It is the vertical rate of change in the magnetic field per unit

distance. The vertical gradient is used to enhance shorter wavelength signals; therefore, edges of magnetic anomalies are highlighted, and deep geologic sources in the data are suppressed.

The first vertical derivative calculated from the RMI was designated as Calculated Vertical Gradient of RMI, or CVG. The first vertical derivative of RTP was designated as First Vertical Derivative of RTP, or 1VD.

The filter, L , used to produce the n^{th} vertical derivative is described by:

$$L(r) = r^n$$

where: r is the radial component in the wavenumber domain

7.0 Deliverables

The Sturgeon Lake geophysical data are presented as digital databases, maps, and a logistics report.

7.1 Digital Data

Digital files have been provided in three formats, the first is a .GDB file for use in Geosoft Oasis Montaj, the second format is a text (.XYZ) file, and the third format is an excel comma separated (.CSV) file. Full descriptions of the digital data and contents are included in the report (Appendix C).

Sturgeon Lake survey blocks digital data were represented as grids as listed below:

- Digital Terrain Model (DTM)
- Total Magnetic Intensity (TMI)
- Residual Magnetic Intensity (RMI) – removal of IGRF from TMI
- Reduced to Magnetic Pole (RTP) – reduced to magnetic pole of RMI
- Calculated Horizontal Gradient (CHG) – total magnitude of the horizontal gradients of RMI
- Calculated Vertical Gradient (CVG) – first order vertical derivative of RMI

7.1.1 Grids

Digital data were gridded and displayed using the following Geosoft parameters:

- Gridding method: minimum curvature
- Grid cell sizes: 15 m
- Low-pass desampling factor: 2
- Tolerance: 0.001
- % pass tolerance: 99.99

- Maximum iterations: 100

Gradient magnetic grids were drawn with a wet-look colour shade and all other magnetic and radiometric grids were drawn with a conventional RGB colour shade. More description of colour scales are described in Appendix C.

7.2 KMZ

Gridded digital data were exported into .KMZ files which can be displayed using Google Earth. The grids can be draped onto topography and rendered to give a 3D view.

7.3 Maps

Digital maps were created for the Sturgeon Lake survey blocks. The following map products were prepared:

Overview Maps (colour images with elevation contour lines and topographic features):

- Actual flight lines
- DTM

Magnetic Maps (colour images with elevation contour lines):

- TMI, with actual flight lines and topographic features
- TMI
- RMI
- RTP
- CHG of RMI
- CVG of RMI

All survey maps were prepared in WGS 84 and UTM Zone 15N.

7.4 Report

A .PDF copy of the logistics report is included along with digital data and maps. The report provides information on acquisition, processing, and presentation of the Sturgeon Lake survey data.

8.0 Conclusions and Recommendations

The Sturgeon Lake airborne geophysical survey resulted in the collection of 4199 line km of high quality magnetic data over two survey blocks. The data have been processed and plotted on maps to represent the geomagnetic features of the survey area.

Geophysical data processing, particularly leveling and data interpolation routines, may tend to smooth the original data so that resolution is reduced. In addition, gridding algorithms are not always able to properly calculate grids where flight height between adjacent flight lines varied due to cultural obstacles or steep terrain, where geological structures are acute to flight lines, where line spacing exceeds the size of the causative anomaly, or near grid margins as in “edge effects.” Therefore, subtle geophysical features in gridded and derivative-enhanced products or near the survey margins may introduce artifacts and must be evaluated with discretion.

The airborne geophysical data were acquired to map the geophysical characteristics of the survey area, which are in turn related to the distribution and concentration of magnetic minerals in the Earth. Geophysical data are rarely a direct indication of mineral deposits and therefore interpretation and careful integration with existing and new geological, geochemical, and other geophysical data are recommended to maximize value from the survey investment.

Respectfully submitted,
Precision GeoSurveys Inc.

Shawn Walker, P.Geo.
December 2021

Appendix A

Sturgeon Lake Polygon Coordinates

Sturgeon Lake North Block Boundary – WGS 84 Zone 15N

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.24464	90.62575	669282	5568529
50.25334	90.62573	669253	5569496
50.25178	90.48953	678966	5569641
50.18639	90.49123	679090	5562368
50.18606	90.46794	680753	5562386
50.10157	90.46726	681121	5552996
50.10423	90.58604	672618	5553010
50.12875	90.58633	672509	5555735
50.16597	90.58674	672346	5559872
50.18167	90.58718	672258	5561617
50.18144	90.61410	670337	5561529
50.22487	90.61306	670257	5566359
50.22485	90.62539	669377	5566330

Sturgeon Lake South Block Boundary – WGS 84 Zone 15N

Latitude (deg N)	Longitude (deg W)	Easting (m)	Northing (m)
50.05110	90.72632	662767	5546788
50.06287	90.72505	662819	5548100
50.06281	90.66851	666865	5548218
50.07105	90.66873	666821	5549134
50.07098	90.65226	667999	5549163
50.06975	90.49252	679434	5549398
50.02285	90.49455	679463	5544179
50.02356	90.56102	674700	5544100
50.01816	90.56129	674700	5543500
50.01895	90.59895	672000	5543500
50.00547	90.59962	672000	5542000
50.00661	90.65539	668000	5542000
50.01470	90.65500	668000	5542900
50.01714	90.71629	663601	5543035
49.99264	90.71786	663572	5540309
49.99501	90.81307	656740	5540367
50.05191	90.80967	656799	5546700

Appendix B

Equipment Specifications

- GEM GSM-19T Proton Precession Magnetometer (Magnetic Base Station)
- Hemisphere R330 GPS Receiver
- Scintrex CS-3 Survey Magnetometer
- Billingsley TFM100G2 Ultra Miniature Triaxial Fluxgate Magnetometer
- Nuvia Dynamics AGIS data recorder system (for navigation and geophysical data acquisition)

GEM GSM-19T Proton Precession Magnetometer (Magnetic Base Station)

Sensitivity	0.15 nT @ 1 Hz
Resolution	0.01 nT (gamma), magnetic field and gradient
Absolute Accuracy	±0.2 nT @ 1 Hz
Operating Range	20,000 nT to 120,000 nT
Gradient Tolerance	Over 7,000 nT/m
Operating Ranges	Temperature: -40°C to +50°C Battery Voltage: 10.0 V minimum to 15 V maximum Humidity: up to 90% relative, non-condensing
Storage Temperature	-50°C to +50°C
Dimensions	Console: 223 x 69 x 40 mm Sensor Staff: 4 x 450 mm sections Sensor: 170 x 71 mm dia. Weight: console 2.1 kg, sensor and staff assembly 2.2 kg
Integrated GPS	Yes

Hemisphere R330 GPS Receiver

GPS Sensor	Receiver Type	L1 and L2 RTK with carrier phase	
	Channels	12 L1CA GPS 12 L1P GPS 12 L2P GPS 12 L2C GPS 12 L1 GLONASS (with subscription code) 12 L2 GLONASS (with subscription code) 3 SBAS or 3 additional L1CA GPS	
	Update Rate	10 Hz standard, 20 Hz available	
	Cold Start Time	<60 s	
	Warm Start Time 1	30 s (valid ephemeris)	
	Warm Start Time 2	30 s (almanac and RTC)	
	Hot Start Time	10 s typical (valid ephemeris and RTC)	
	Reacquisition	<1 s	
	Differential Options	SBAS, Autonomous, External RTCM, RTK, OmniSTAR (HP/XP)	
	Horizontal Accuracy		RMS (67%)
RTK ^{1,2}		10 mm + 1 ppm	20 mm + 2 ppm
OmniSTAR HP ^{1,3}		0.1 m	0.2 m
SBAS (WAAS) ¹		0.3 m	0.6 m
Autonomous, no SA ¹		1.2 m	2.5 m
L-Band Sensor	Channel	Single channel	
	Frequency Range	1530 MHz to 1560 MHz	
	Satellite Selection	Manual or Automatic (based on location)	
	Startup and Satellite Reacquisition Time	15 seconds typical	
Communications	Serial Ports	2 full duplex RS232	
	Baud Rates	4800 – 115200	
	USB Ports	1 Communications, 1 Flash Drive data storage	
	Correction I/O Protocol	Hemisphere GPS proprietary, RTCM v2.3 (DGPS), RTCM v3 (RTK), CMR, CMR+NMEA 0183, Hemisphere GPS binary	
	Timing Output	1 PPS (HCMOS, active high, rising edge sync, 10 k Ω , 10 pF load)	
	Event Marker Input	HCMOS, active low, falling edge sync, 10 k Ω	
Environmental	Operating Temperature	-40°C to +70°C	
	Storage Temperature	-40°C to +85°C	
	Humidity	95% non-condensing	
Power GPS Sensor	Input Voltage Range	8 to 36 VDC	
	Consumption, RTK	<3.5 W (0.30 A @ 12 VDC typical)	
	Consumption, OmniSTAR	<4.3 W (0.36 A @ 12 VDC typical)	

¹ Depends on multipath environment, number of satellites in view, satellite geometry and ionospheric activity.² Depends also on baseline length.³ Requires a subscription from OmniSTAR.

Scintrex CS-3 Magnetometer

Operating Principal	Self-oscillating split-beam Cesium Vapor (non-radioactive ^{133}Cs)
Operating Range	15,000 nT to 105,000 nT
Gradient Tolerance	40,000 nT/m
Operating Zones	15° to 75° and 105° to 165°
Hemisphere Switching	a) Automatic b) Electronic control actuated by the control voltage levels (TTL/CMOS) c) Manual
Sensitivity	0.0006 nT $\sqrt{\text{Hz}}$ rms
Noise Envelope	Typically 0.002 nT peak to peak, 0.1 to 1 Hz bandwidth
Heading Error	± 0.20 nT (inside the optical axis to the field direction angle range 15° to 75° and 105° to 165°)
Absolute Accuracy	<2.5 nT throughout range
Output	a) Continuous signal at the Larmor frequency which is proportional to the magnetic field (proportionality constant 3.49857 Hz/nT) sine wave signal amplitude modulated on the power supply voltage b) Square wave signal at the I/O connector, TTL/CMOS compatible
Information Bandwidth	Only limited by the magnetometer processor used
Sensor Head	Diameter: 63 mm (2.5") Length: 160 mm (6.3") Weight: 1.15 kg (2.6 lb)
Sensor Electronics	Diameter: 63 mm (2.5") Length: 350 mm (13.8") Weight: 1.5 kg (3.3 lb)
Cable, Sensor to Sensor Electronics	3 m (9' 8"), lengths up to 5 m (16' 4") available
Operating Temperature	-40°C to +50°C
Humidity	Up to 100%, splash proof
Supply Power	24 to 35 VDC
Supply Current	Approx. 1.5 A at start up, decreasing to 0.5 A at 20°C
Power Up Time	Less than 15 minutes at -30°C

Billingsley TFM100G2 Ultra Miniature Triaxial Fluxgate Magnetometer

Axial Alignment	Orthogonality better than $\pm 1^\circ$
Input Voltage Options	15 to 34 VDC @ 30 mA
Field Measurement Range Options	$\pm 100 \mu\text{T} = \pm 10 \text{ V}$
Accuracy	$\pm 0.75\%$ of full scale (0.5% typical)
Linearity	$\pm 0.015\%$ of full scale
Sensitivity	100 $\mu\text{V/nT}$
Scale Factor Temperature Shift	0.007% full scale/ $^\circ\text{C}$
Noise	$\leq 12 \text{ pT rms}/\sqrt{\text{Hz}}$ @ 1 Hz
Output Ripple	3 mV peak to peak @ 2 nd harmonic
Analog Output at Zero Field	$\pm 0.025 \text{ V}$
Zero Shift with Temperature	$\pm 0.6 \text{ nT}/^\circ\text{C}$
Susceptibility to Perming	$\pm 8 \text{ nT}$ shift with $\pm 5 \text{ Gs}$ applied
Output Impedance	$332 \Omega \pm 5\%$
Frequency Response	3 dB @ $> 500 \text{ Hz}$ (to $> 4 \text{ kHz}$ wide band)
Over Load Recovery	$\pm 5 \text{ Gs}$ slew $< 2 \text{ ms}$
Random Vibration	$> 20 \text{ G rms}$ 20 Hz to 2 kHz
Temperature Range	-55°C to $+85^\circ\text{C}$
Acceleration	$> 60 \text{ G}$
Weight	100 g
Size	3.51 cm x 3.23 cm x 8.26 cm
Connector	Chassis mounted 9 pin male "D" type

Nuvia Dynamics AGIS data recorder system

(for navigation and geophysical data acquisition)

Functions	Airborne Geophysical Information System (AGIS) with integrated Global Positioning System Receiver (GPS) and all necessary navigation guidance software. Inputs for geophysical sensors - portable gamma ray spectrometer GRS-10/AGRS, MMS4 Magnetometer, Totem 2A EM, A/D converter, temperature probe, humidity probe, barometric pressure probe, and laser altimeter. Output for the multi-parameter PGU (Pilot Guidance Unit)
Display	Touch screen with display of 800 x 600 pixels; customized keypad and operator keyboard. Multi-screen options for real-time viewing of all data inputs, fiducial points, flight line tracking, and GPS channels by operator.
GPS Navigation	12 channel, WAAS/SBAS-enabled
Data Sampling	Sensor dependent
Data Synchronization	Synchronized to GPS position
Data File	PEI Binary data format
Storage	80 GB
Supplied Software	PEIView: Allows fast data Quality Control (QC) Data Format: Geosoft GBN and ASCII output PEIConv: For survey preparation and survey plot after data acquisition
Software	Calibration: High voltage adjustment, linearity correction coefficients calculation, and communication test support Real Time Data Collection: Automatic Gain real time control on natural isotopes and PC based test and calibration software suite
Power Requirements	24 to 32 VDC
Temperature	Operating: -10°C to +55°C; storage: -20°C to +70°C

Appendix C

Digital File Descriptions

- Magnetic Database
- Grids
- Maps

Magnetic Database:

Abbreviations used in the GDB/XYZ files listed below:

CHANNEL	UNITS	DESCRIPTION
X_WGS84	m	UTM Easting – WGS84 Zone 15N
Y_WGS84	m	UTM Northing – WGS84 Zone 15N
Lat_deg	Decimal degree	Latitude – WGS84
Lon_deg	Decimal degree	Longitude – WGS84
Date	yyyy/mm/dd	Dates of the survey flight(s) – Local
FLT		Flight number (s)
Line		Line numbers
STL		Number of satellite(s)
GPSfix		1 = non-differential 2 = WAAS/SBAS differential
Heading	degree	Heading of aircraft
GPStime	HH:MM:SS	GPS time (UTC)
Geos_m	m	Geoidal separation
XTE_m	m	Cross track error
Galt	m	GPS height – WGS84 Zone 15N (ASL)
Lalt	m	Altimeter readings (AGL)
DTM	m	Digital Terrain Model
Sample_Density	m	Horizontal distance in meters between adjacent measurement locations; sample frequency is 10 Hz
Speed_km_hr	km/hr	Ground speed of aircraft in km/hr
basemag	nT	Base station temporal variation data
IGRF	nT	International Geomagnetic Reference Field, IGRF-13
Declin	Decimal degree	Calculated declination of magnetic field
Inclin	Decimal degree	Calculated inclination of magnetic field
XFg_Step	step	X - fluxgate
YFg_Step	step	Y - fluxgate
ZFg_Step	step	Z - fluxgate
Mag_Head	nT	Total Magnetic Intensity - temporal variation, lag, and heading corrected
TMI	nT	Total Magnetic Intensity - micro-leveled
RMI	nT	Residual Magnetic Intensity - micro-leveled

Grids:

Sturgeon Lake North Block, WGS 84 Datum, Zone 15N, inclination at 45° and declination at 045°

File Name	Description	Cell Size	Colour Scale	Colour Shade
21205_SturgeonLakeNorth_DTM_15m.grd	Digital Terrain Model gridded at 15 m cell size	15	Linear	RGB
21205_SturgeonLakeNorth_TMI_15m.grd	Total Magnetic Intensity gridded at 15 m cell size	15	Histogram-equalized	RGB
21205_SturgeonLakeNorth_RMI_15m.grd	Residual Magnetic Intensity gridded at 15 m cell size	15	Histogram-equalized	RGB
21205_SturgeonLakeNorth_RTP_15m.grd	Reduced to Magnetic Pole of RMI gridded at 15 m cell size	15	Histogram-equalized	RGB
21205_SturgeonLakeNorth_CHG_15m.grd	Calculated Horizontal Gradient of RMI gridded at 15 m cell size	15	Histogram-equalized	HSV
21205_SturgeonLakeNorth_CVG_15m.grd	Calculated Vertical Gradient of RMI gridded at 15 m cell size	15	Histogram-equalized	HSV

*Grids are exported as Geotiffs (.tiff)

Sturgeon Lake South Block, WGS 84 Datum, Zone 15N, inclination at 45° and declination at 045°

File Name	Description	Cell Size	Colour Scale	Colour Shade
21205_SturgeonLakeSouth_DTM_15m.grd	Digital Terrain Model gridded at 15 m cell size	15	Linear	RGB
21205_SturgeonLakeSouth_TMI_15m.grd	Total Magnetic Intensity gridded at 15 m cell size	15	Histogram-equalized	RGB
21205_SturgeonLakeSouth_RMI_15m.grd	Residual Magnetic Intensity gridded at 15 m cell size	15	Histogram-equalized	RGB
21205_SturgeonLakeSouth_RTP_15m.grd	Reduced to Magnetic Pole of RMI gridded at 15 m cell size	15	Histogram-equalized	RGB
21205_SturgeonLakeSouth_CHG_15m.grd	Calculated Horizontal Gradient of RMI gridded at 15 m cell size	15	Histogram-equalized	HSV
21205_SturgeonLakeSouth_CVG_15m.grd	Calculated Vertical Gradient of RMI gridded at 15 m cell size	15	Histogram-equalized	HSV

*Grids are exported as Geotiffs (.tiff)

Maps:

Sturgeon Lake North, WGS 84 Zone 15N, inclination at 45° and declination at 045°
(jpegs, pdfs, and georeferenced pdf)

Plate Num	Plate Name	File Name	Description	Cell Size	Colour Scale	Colour Shade
1	FL	21205_SturgeonLakeNorth_ActualFlightLines	Plotted actual flown flight lines	15		
2	DTM	21205_SturgeonLakeNorth_DTM_15m	Digital Terrain Model gridded at 15 m cell size	15	Linear	RGB
3	TMI_wFL	21205_SturgeonLakeNorth_TMI_wFL_15m	Total Magnetic Intensity gridded at 15 m cell size with actual flown flight lines	15	Histogram-equalized	RGB
4	TMI	21205_SturgeonLakeNorth_TMI_15m	Total Magnetic Intensity gridded at 15 m cell size	15	Histogram-equalized	RGB
5	RMI	21205_SturgeonLakeNorth_RMI_15m	Residual Magnetic Intensity gridded at 15 m cell size	15	Histogram-equalized	RGB
6	RTP	21205_SturgeonLakeNorth_RTP_15m	Reduced to Magnetic Pole of RMI gridded at 15 m cell size	15	Histogram-equalized	RGB
7	CHG	21205_SturgeonLakeNorth_CHG_15m	Calculated Horizontal Gradient of RMI gridded at 15 m cell size	15	Histogram-equalized	HSV
8	CVG	21205_SturgeonLakeNorth_CVG_15m	Calculated Vertical Gradient of RMI gridded at 15 m cell size	15	Histogram-equalized	HSV

Sturgeon Lake South, WGS 84 Zone 15N, inclination at 45° and declination at 045°
(jpegs, pdfs, and georeferenced pdf)

Plate Num	Plate Name	File Name	Description	Cell Size	Colour Scale	Colour Shade
1	FL	21205_SturgeonLakeSouth_Actual FlightLines	Plotted actual flown flight lines			
2	DTM	21205_SturgeonLakeSouth_DTM_15m	Digital Terrain Model gridded at 15 m cell size	15	Linear	RGB
3	TMI_w FL	21205_SturgeonLakeSouth_TMI_w FL_15m	Total Magnetic Intensity gridded at 15 m cell size with actual flown flight lines	15	Histogram-equalized	RGB
4	TMI	21205_SturgeonLakeSouth_TMI_15m	Total Magnetic Intensity gridded at 15 m cell size	15	Histogram-equalized	RGB
5	RMI	21205_SturgeonLakeSouth_RMI_15m	Residual Magnetic Intensity gridded at 15 m cell size	15	Histogram-equalized	RGB
6	RTP	21205_SturgeonLakeSouth_RTP_15m	Reduced to Magnetic Pole of RMI gridded at 15 m cell size	15	Histogram-equalized	RGB
7	CHG	21205_SturgeonLakeSouth_CHG_15m	Calculated Horizontal Gradient of RMI gridded at 15 m cell size	15	Histogram-equalized	HSV
8	CVG	21205_SturgeonLakeSouth_CVG_15m	Calculated Vertical Gradient of RMI gridded at 15 m cell size	15	Histogram-equalized	HSV

Plates

Sturgeon Lake North Survey Block (Print and Digital)

- Plate 1: North Block – Actual Flight Lines (FL)
- Plate 2: North Block – Digital Terrain Model (DTM)
- Plate 3: North Block – Total Magnetic Intensity with Actual Flight Lines (TMI_wFL)
- Plate 4: North Block – Total Magnetic Intensity (TMI)
- Plate 5: North Block – Residual Magnetic Intensity (RMI)
- Plate 6: North Block – Reduced to Magnetic Pole (RTP) of RMI
- Plate 7: North Block – Calculated Horizontal Gradient (CHG) of RMI
- Plate 8: North Block – Calculated Vertical Gradient (CVG) of RMI

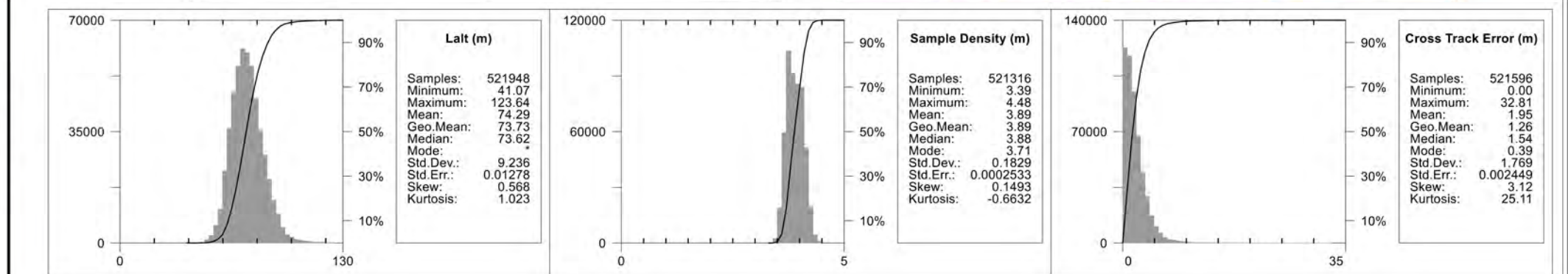
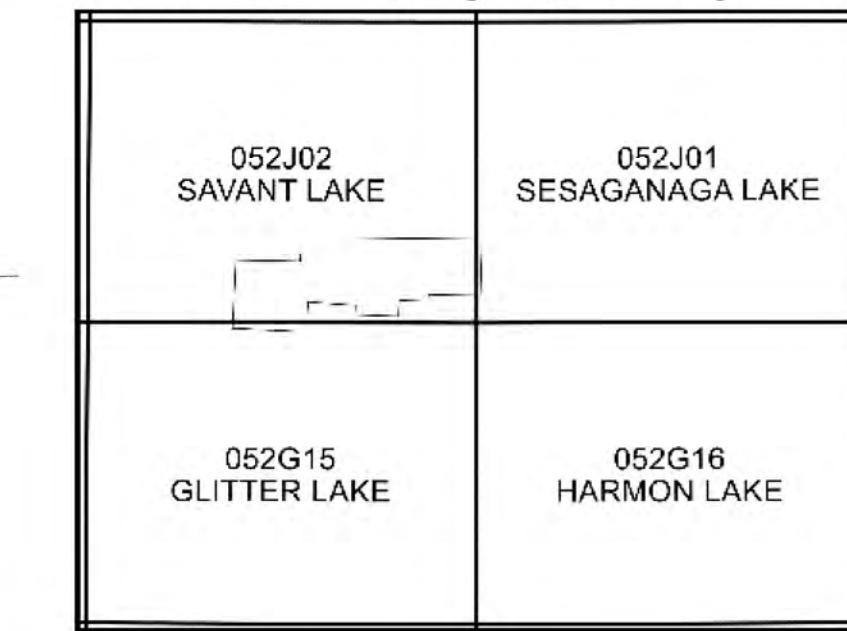
Plates

Sturgeon Lake South Survey Blocks (Print and Digital)

- Plate 1: South Block – Actual Flight Lines (FL)
- Plate 2: South Block – Digital Terrain Model (DTM)
- Plate 3: South Block – Total Magnetic Intensity with Actual Flight Lines (TMI_wFL)
- Plate 4: South Block – Total Magnetic Intensity (TMI)
- Plate 5: South Block – Residual Magnetic Intensity (RMI)
- Plate 6: South Block – Reduced to Magnetic Pole (RTP) of RMI
- Plate 7: South Block – Calculated Horizontal Gradient (CHG) of RMI
- Plate 8: South Block – Calculated Vertical Gradient (CVG) of RMI

Appendix III: Maps

National Topographic System



MAP PROJECTION
 Projection: Universal Transverse Mercator Zone 15N
 Datum: WGS 84
 Local Datum Transform: World

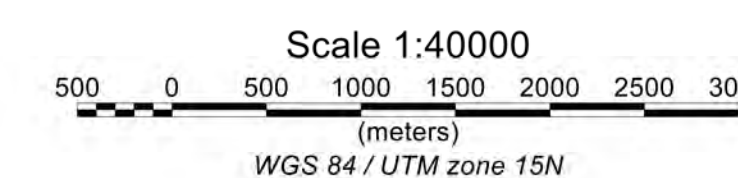
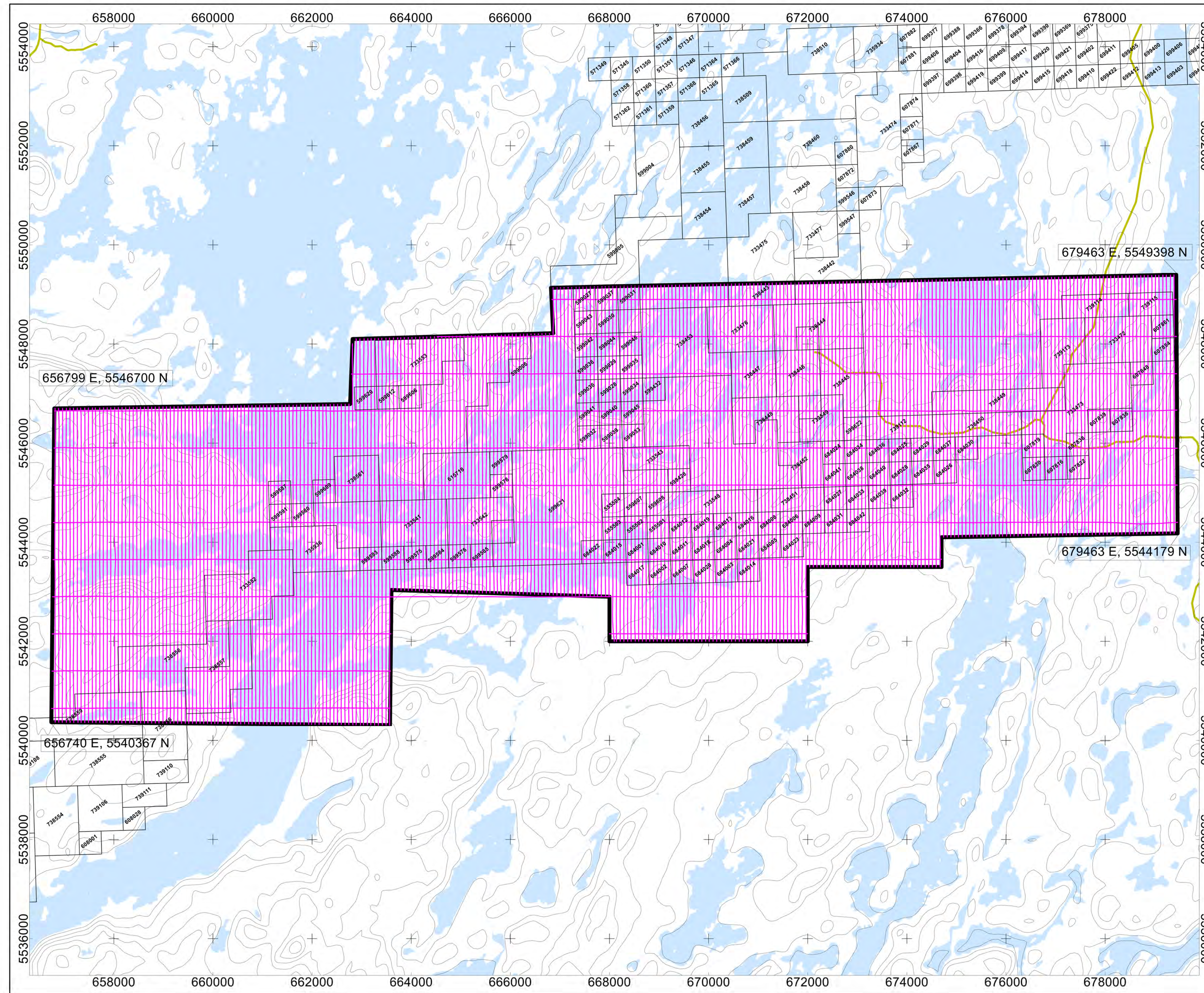
STURGEON LAKE - SOUTH BLOCK SURVEY SPECIFICATIONS
 Survey Dates: November 25 to December 8, 2021
 Survey Base: Sioux Lookout, ON
 Aircraft Type: Piper Navajo
 Registration: C-FOOO
 Survey Technology: Magnetic Survey
 Total Line km: 2030 km
 Mean Flight Height: 74.3 meters
 Survey Line Spacing: 75 meters
 Survey Line Direction: 000°/180°
 Tie Line Spacing: 750 meters
 Tie Line Direction: 090°/270°

AIRBORNE SURVEY SYSTEM
 Magnetometer Sensor: Scintrex CS-3 Cesium
 Configuration: Stinger with 3 axis compensation
 Sample Rate: 20 Hz
 Sensitivity: 0.0006 nT/√Hz rms

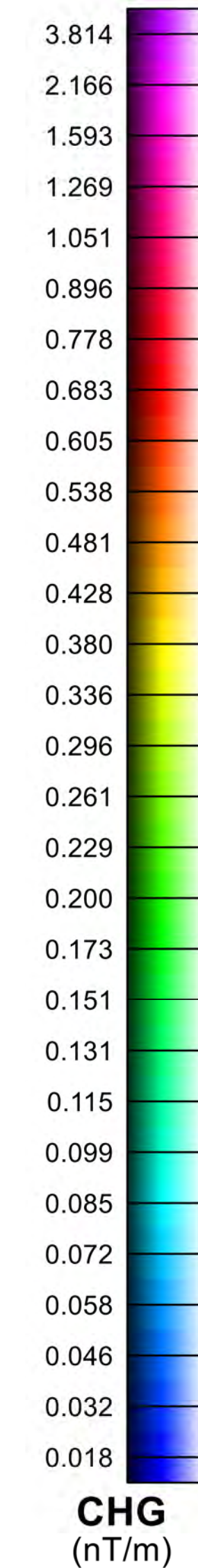
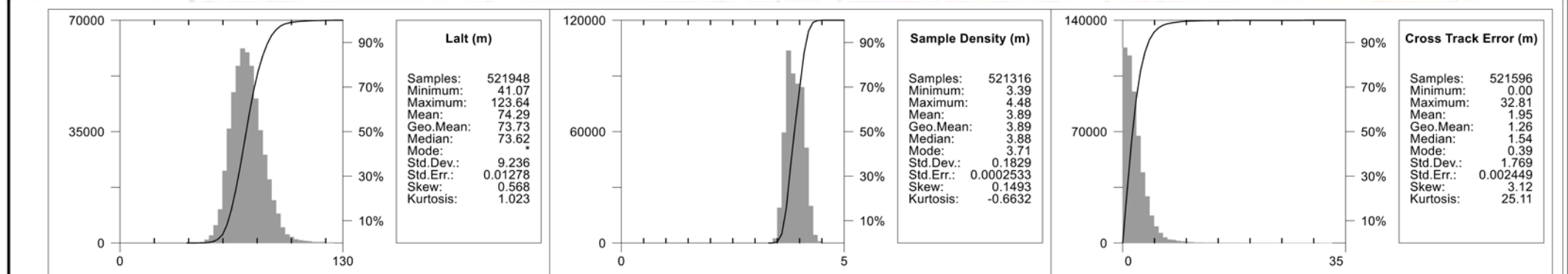
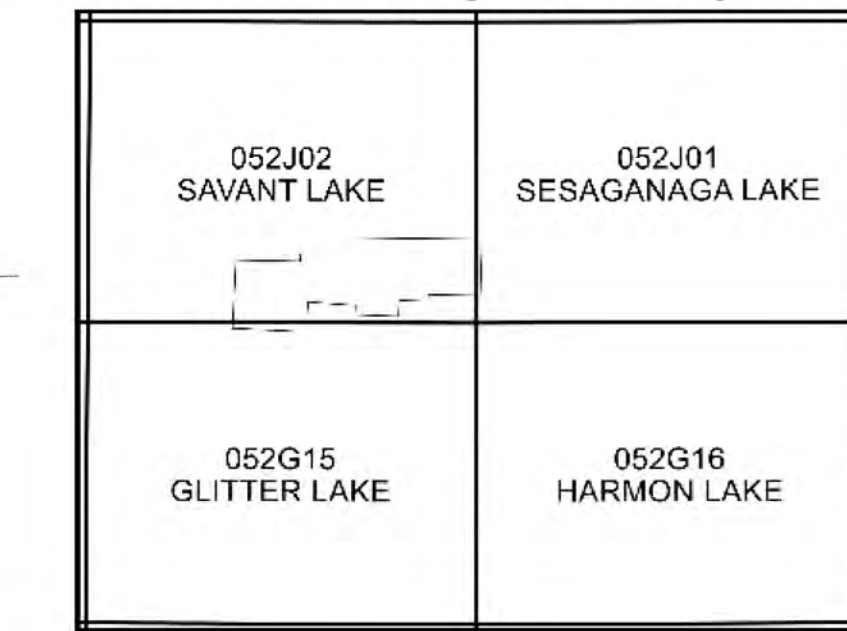
Legend

- Water Bodies.....
- Roads.....
- Elevation Contours, 10 m Intervals.....
- Sturgeon Lake - South Block Boundary.....
- Actual Flight Lines.....

TOPOGRAPHIC REFERENCE
 National Topographic Data Base (NTDB), Canada. Ottawa, ON: Government of Canada, Natural Resources Canada, Center for Topographic Information.
 URL <http://ftp.geogratis.gc.ca/pub/nrcan_mcan/vector/ntdb_bndt/>[2007]



National Topographic System



MAP PROJECTION

Projection: Universal Transverse Mercator Zone 15N
 Datum: WGS 84
 Local Datum Transform: World

STURGEON LAKE - SOUTH BLOCK SURVEY SPECIFICATIONS

Survey Dates: November 25 to December 8, 2021
 Survey Base: Sioux Lookout, ON
 Aircraft Type: Piper Navajo
 Registration: C-FOOO
 Survey Technology: Magnetic Survey
 Total Line km: 2030 km
 Mean Flight Height: 74.3 meters
 Survey Line Spacing: 75 meters
 Survey Line Direction: 000°/180°
 Tie Line Spacing: 750 meters
 Tie Line Direction: 090°/270°

AIRBORNE SURVEY SYSTEM

Magnetometer Sensor: Scintrex CS-3 Cesium
 Configuration: Stinger with 3 axis compensation
 Sample Rate: 20 Hz
 Sensitivity: 0.0006 nT/√Hz rms

Legend

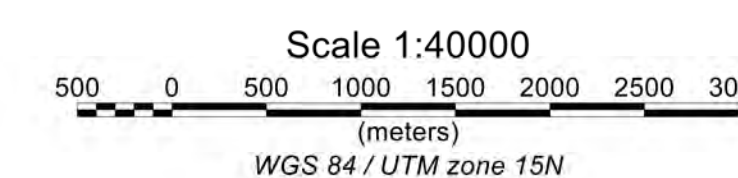
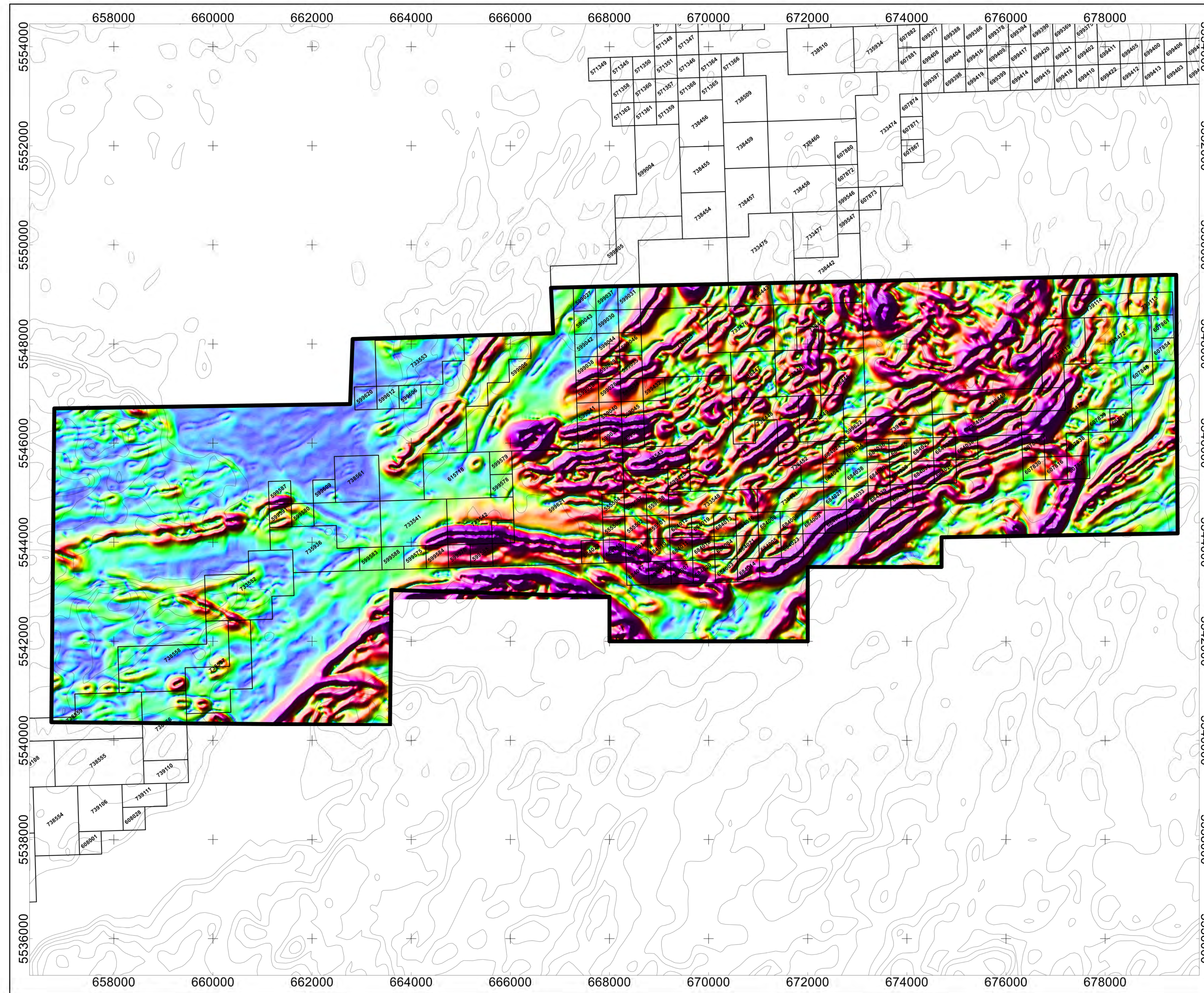
Elevation Contours, 10 m Intervals.....
 Sturgeon Lake - South Block Boundary.....

DATA REFERENCE

Calculated Horizontal Gradient (CHG) is the magnitude of the horizontal gradient of Residual Magnetic Intensity (RMI). Refer to report for details. CHG is represented as a grid and drawn with a histogram-equalized colour shade; sun illumination inclination at 45° and declination at 315°.

TOPOGRAPHIC REFERENCE

National Topographic Data Base (NTDB), Canada. Ottawa, ON: Government of Canada, Natural Resources Canada, Center for Topographic Information.
 URL <http://ftp.geogratis.gc.ca/pub/nrcan_mcan/vector/ntdb_bndt>[2007]



Job #21205
 December 17, 2021

MIDEX Resources

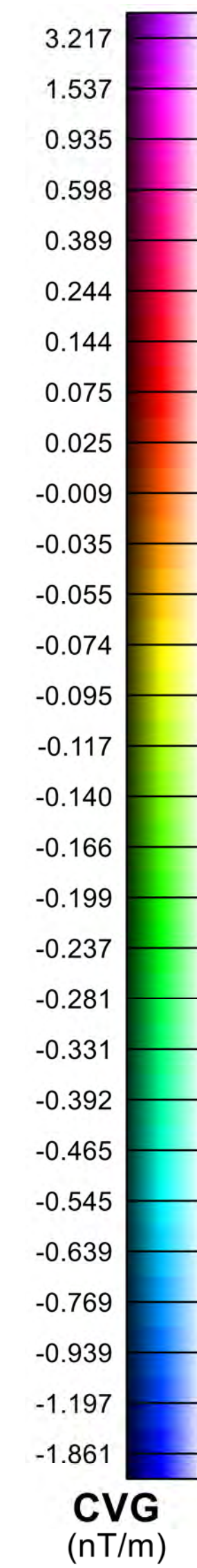
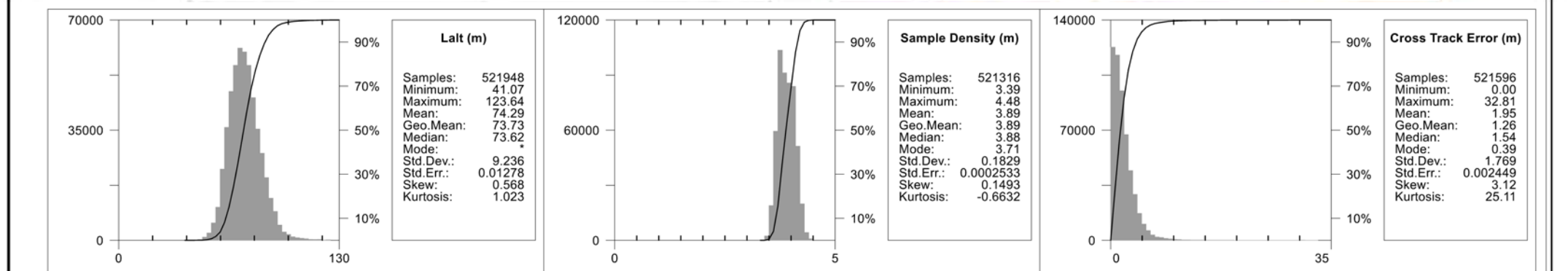
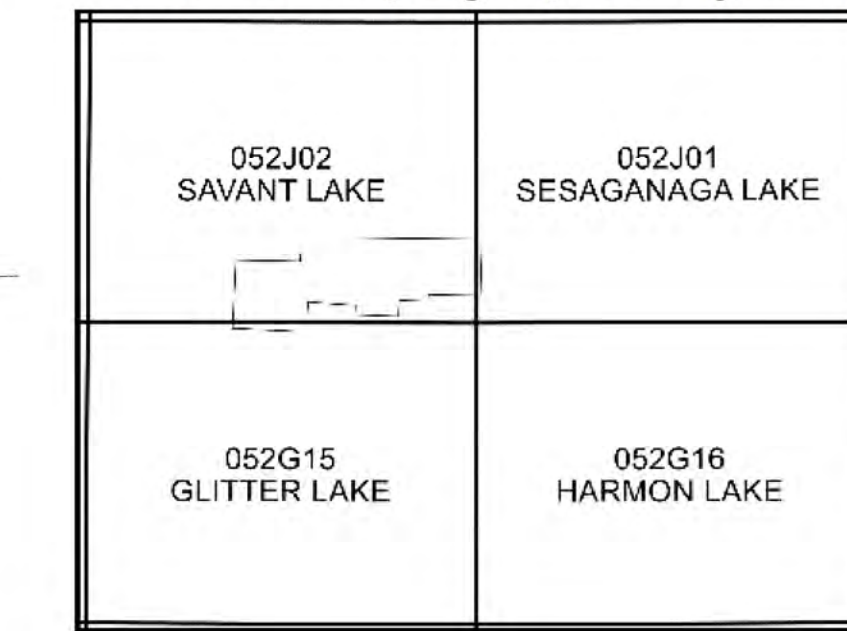
Sturgeon Lake - South Block

Magnetic Map
 Calculated Horizontal Gradient



Plate 7S
 CHG

National Topographic System



MAP PROJECTION

Projection: Universal Transverse Mercator Zone 15N
 Datum: WGS 84
 Local Datum Transform: World

STURGEON LAKE - SOUTH BLOCK SURVEY SPECIFICATIONS

Survey Dates: November 25 to December 8, 2021
 Survey Base: Sioux Lookout, ON
 Aircraft Type: Piper Navajo
 Registration: C-FOOO
 Survey Technology: Magnetic Survey
 Total Line km: 2030 km
 Mean Flight Height: 74.3 meters
 Survey Line Spacing: 75 meters
 Survey Line Direction: 000°/180°
 Tie Line Spacing: 750 meters
 Tie Line Direction: 090°/270°

AIRBORNE SURVEY SYSTEM

Magnetometer Sensor: Scintrex CS-3 Cesium
 Configuration: Stinger with 3 axis compensation
 Sample Rate: 20 Hz
 Sensitivity: 0.0006 nT/√Hz rms

Legend

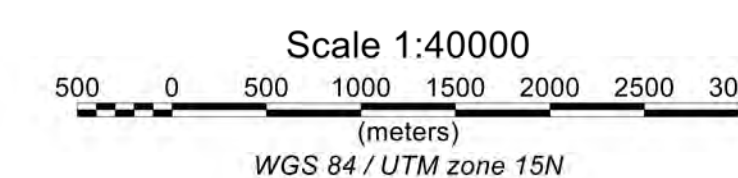
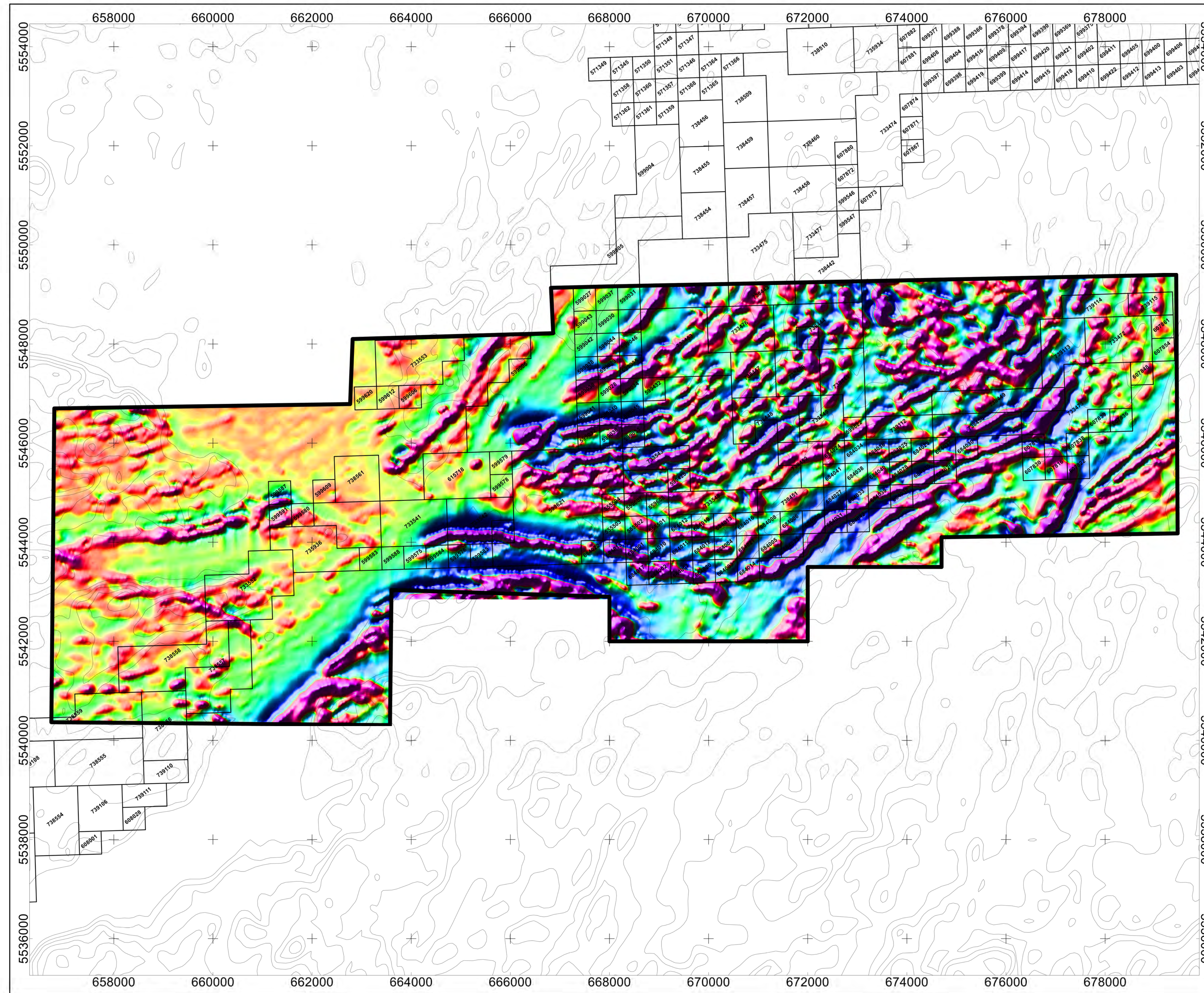
- Elevation Contours, 10 m Intervals.....
- Sturgeon Lake - South Block Boundary.....

DATA REFERENCE

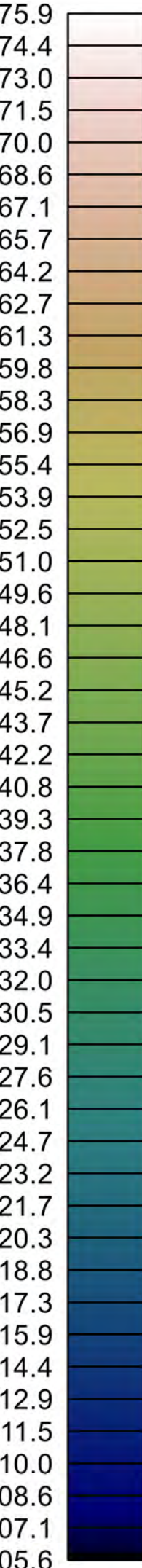
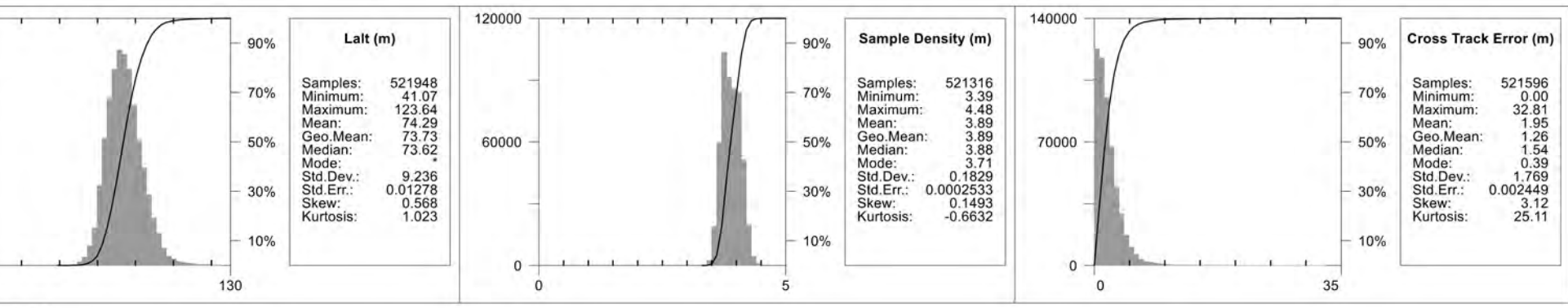
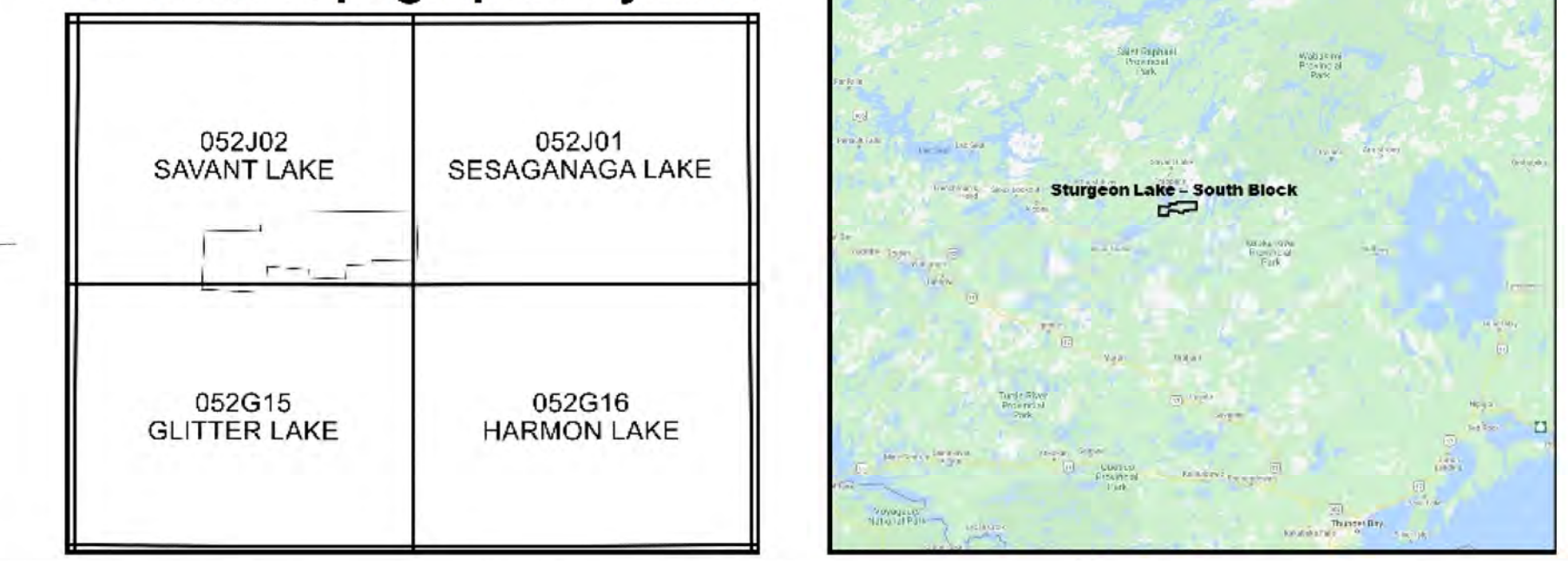
Calculated Vertical Gradient (CVG) is the first vertical derivative of Residual Magnetic Intensity (RMI). Refer to report for details. CVG is represented as a grid and drawn with a histogram-equalized colour shade; sun illumination inclination at 45° and declination at 315°.

TOPOGRAPHIC REFERENCE

National Topographic Data Base (NTDB), Canada. Ottawa, ON: Government of Canada, Natural Resources Canada, Center for Topographic Information.
 URL <http://ftp.geogratis.gc.ca/pub/nrcan_mcan/vector/ntdb_bndt>[2007]



National Topographic System



MAP PROJECTION

Projection: Universal Transverse Mercator Zone 15N
 Datum: WGS 84
 Local Datum Transform: World

STURGEON LAKE - SOUTH BLOCK SURVEY SPECIFICATIONS

Survey Dates:	November 25 to December 8, 2021
Survey Base:	Sioux Lookout, ON
Aircraft Type:	Piper Navajo
Registration:	C-FOOO
Survey Technology:	Magnetic Survey
Total Line km:	2030 km
Mean Flight Height:	74.3 meters
Survey Line Spacing:	75 meters
Survey Line Direction:	000°/180°
Tie Line Spacing:	750 meters
Tie Line Direction:	090°/270°

AIRBORNE SURVEY SYSTEM

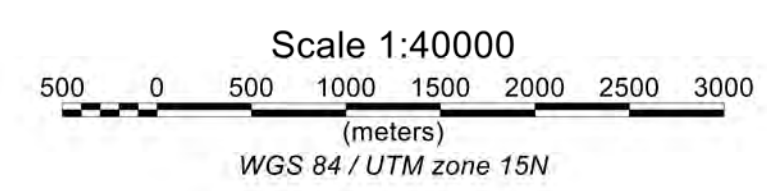
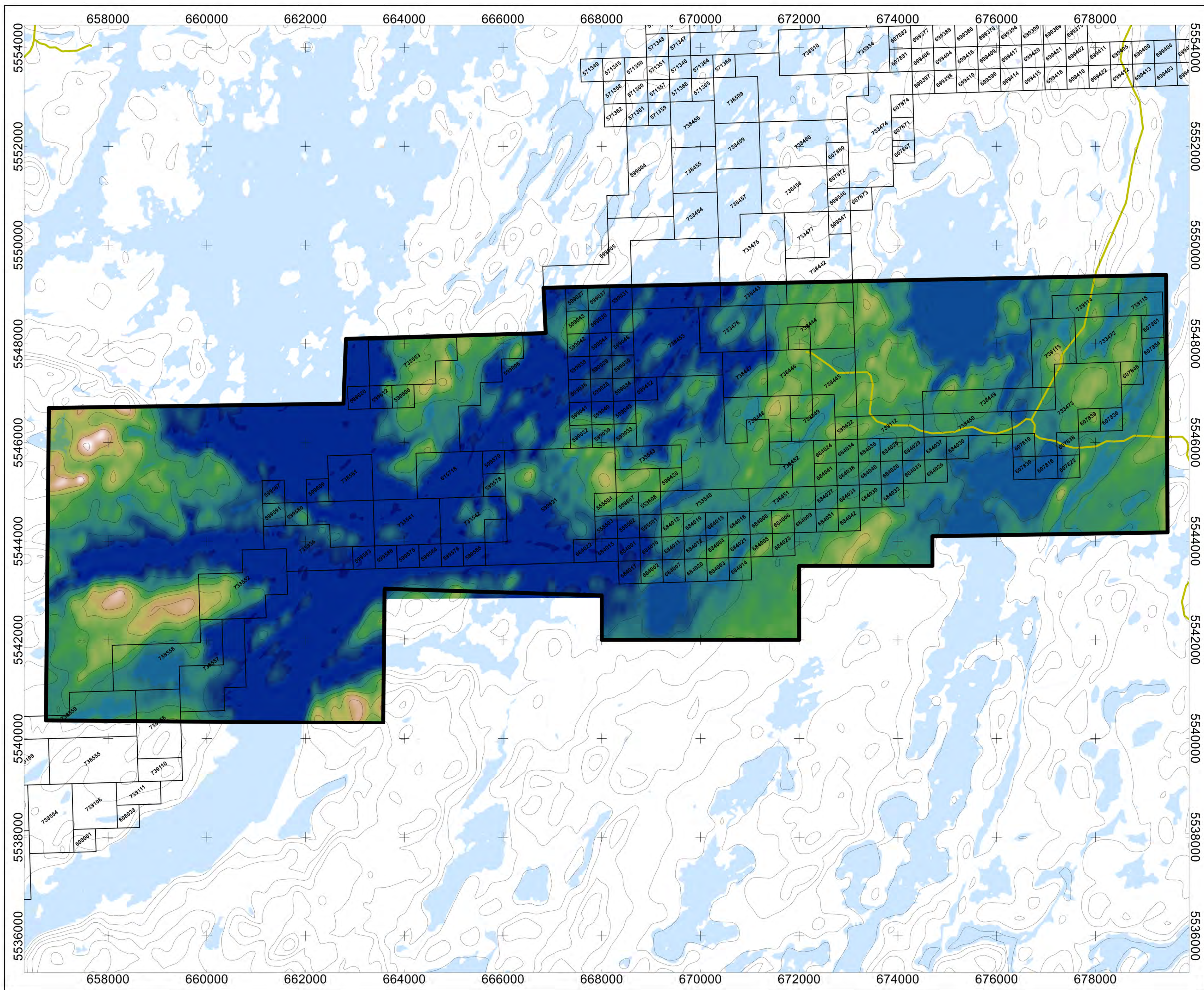
Magnetometer Sensor:	Scintrex CS-3 Cesium
Configuration:	Stinger with 3 axis compensation
Sample Rate:	20 Hz
Sensitivity:	0.0006 nT/√Hz rms

Legend

- Water Bodies.....
- Roads.....
- Elevation Contours, 10 m Intervals.....
- Sturgeon Lake - South Block Boundary.....

TOPOGRAPHIC REFERENCE

National Topographic Data Base (NTDB), Canada. Ottawa, ON: Government of Canada, Natural Resources Canada, Center for Topographic Information.
 URL <http://ftp.geogratis.gc.ca/pub/nrcan_rncan/vector/ntdb_bndt/2007>



Job #21205
 December 17, 2021

MIDEX Resources

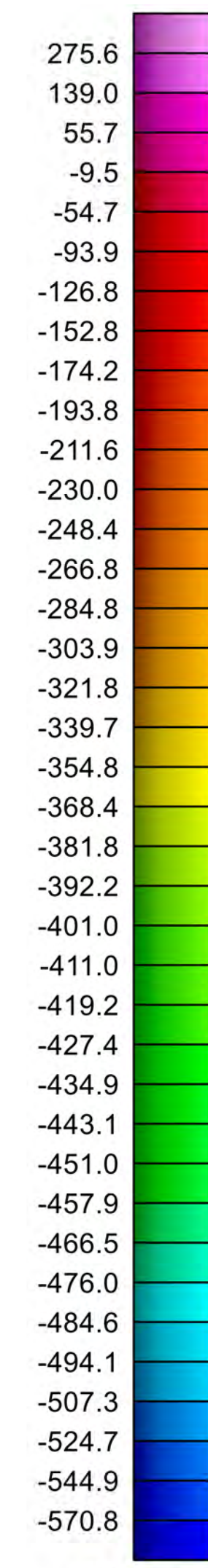
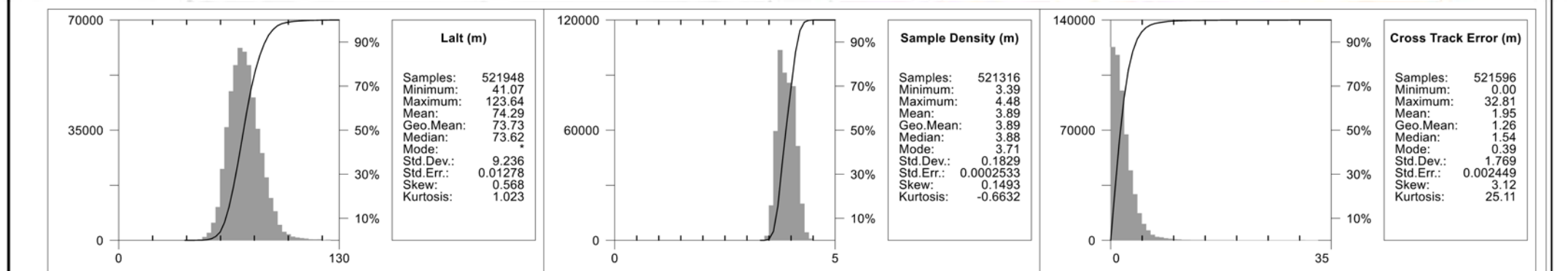
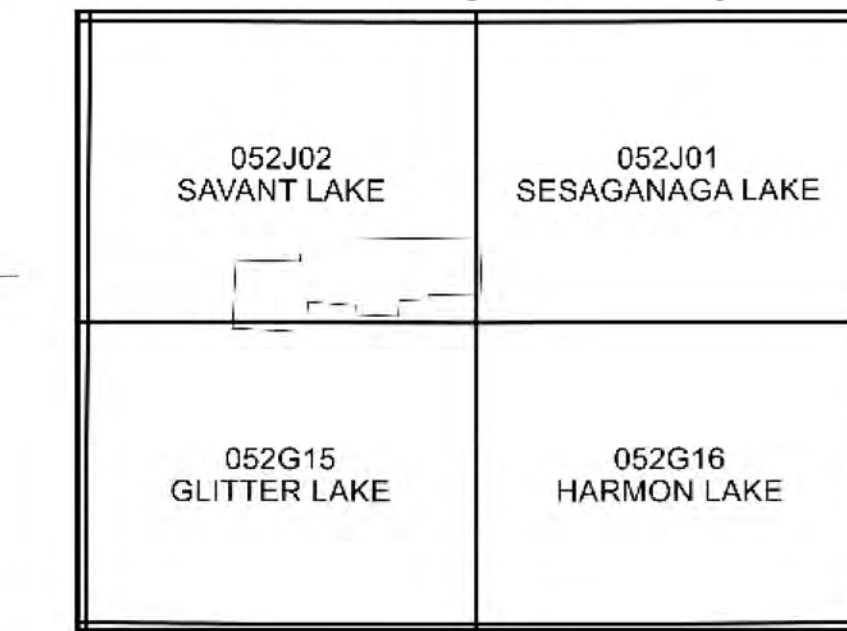
Sturgeon Lake - South Block

Overview Map
 Digital Terrain Model



Plate 2S
 DTM

National Topographic System



MAP PROJECTION
 Projection: Universal Transverse Mercator Zone 15N
 Datum: WGS 84
 Local Datum Transform: World

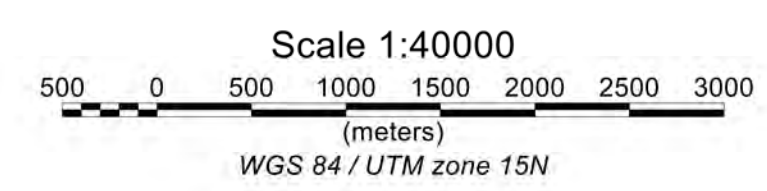
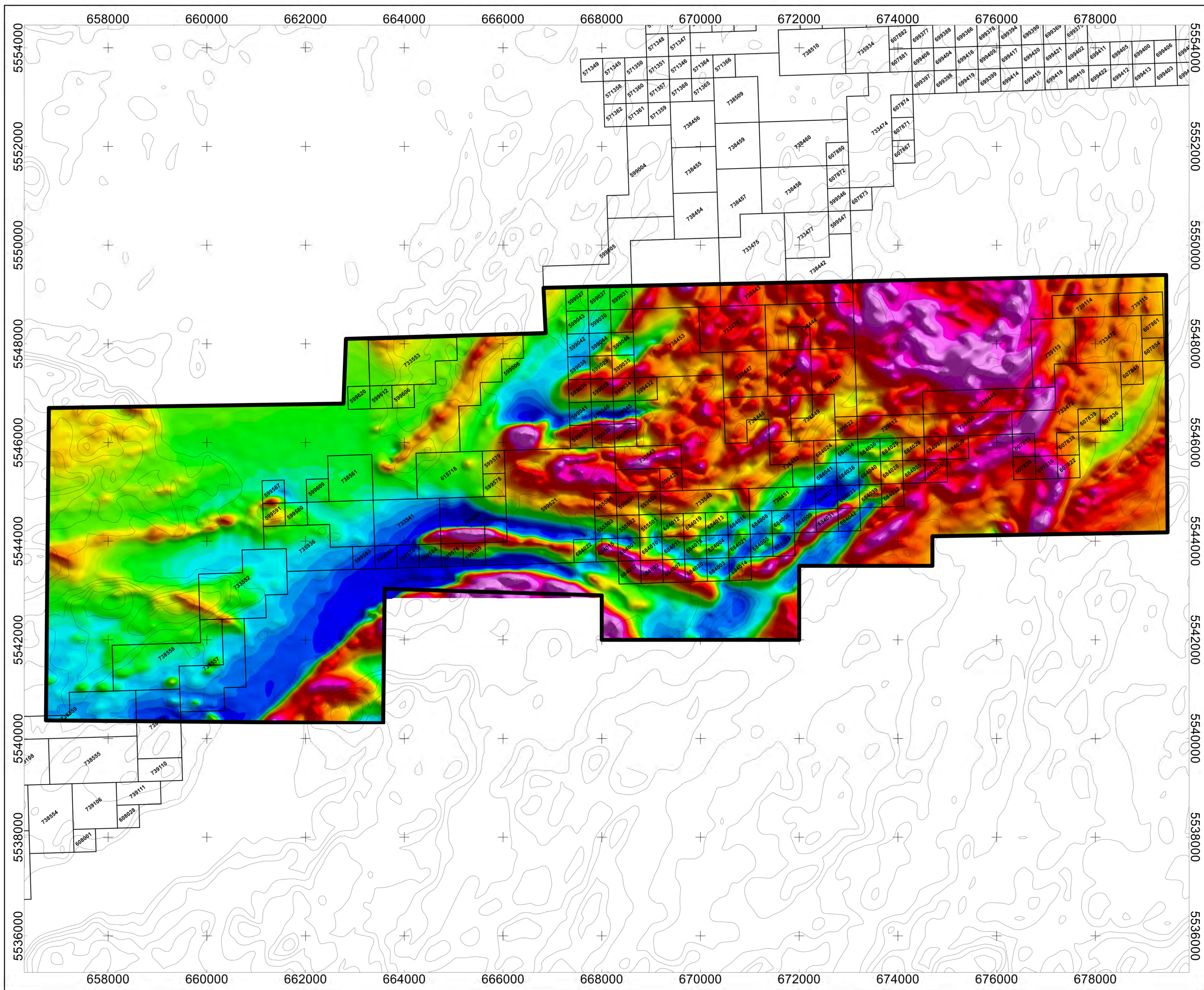
STURGEON LAKE - SOUTH BLOCK SURVEY SPECIFICATIONS
 Survey Dates: November 25 to December 8, 2021
 Survey Base: Sioux Lookout, ON
 Aircraft Type: Piper Navajo
 Registration: C-FOOO
 Survey Technology: Magnetic Survey
 Total Line km: 2030 km
 Mean Flight Height: 74.3 meters
 Survey Line Spacing: 75 meters
 Survey Line Direction: 000°/180°
 Tie Line Spacing: 750 meters
 Tie Line Direction: 090°/270°

AIRBORNE SURVEY SYSTEM
 Magnetometer Sensor: Scintrex CS-3 Cesium
 Configuration: Stinger with 3 axis compensation
 Sample Rate: 20 Hz
 Sensitivity: 0.0006 nT/√Hz rms



DATA REFERENCE
 Residual Magnetic Intensity (RMI) is computed by taking the difference between Total Magnetic Intensity (TMI) and IGRF. Refer to report for details. RMI is represented as a grid and drawn with a histogram-equalized color shade; sun illumination inclination at 45° and declination at 045°.

TOPOGRAPHIC REFERENCE
 National Topographic Data Base (NTDB), Canada. Ottawa, ON: Government of Canada, Natural Resources Canada, Center for Topographic Information.
 URL <http://ftp.geogratis.gc.ca/pub/nrcan_mcan/vector/ntdb_bndt>[2007]



Job #21205
 December 17, 2021

MIDEX Resources

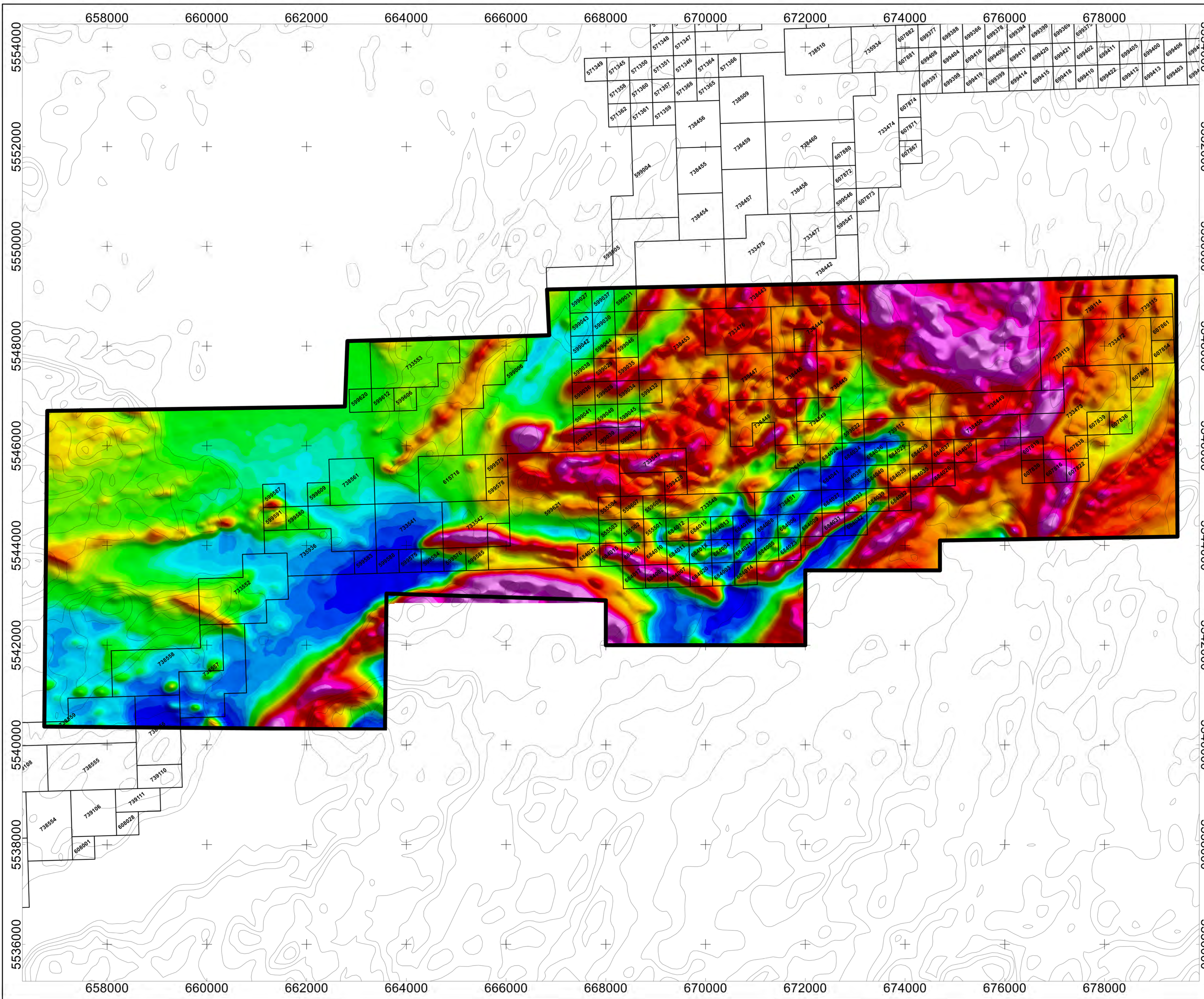
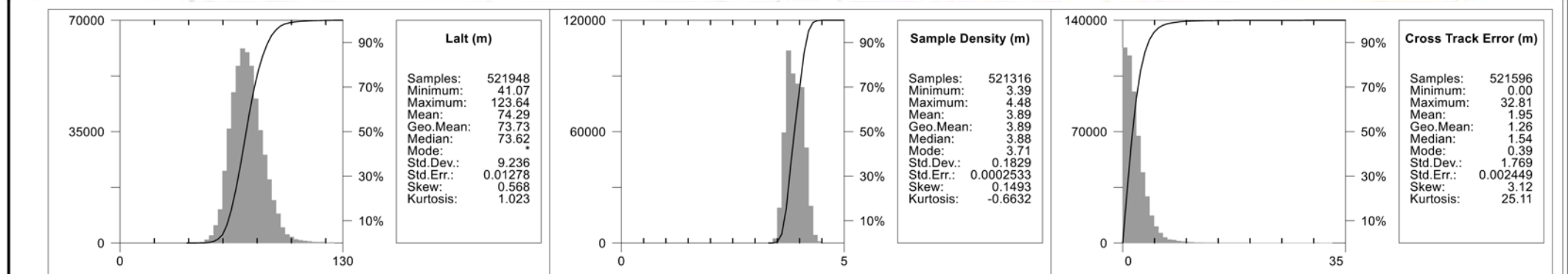
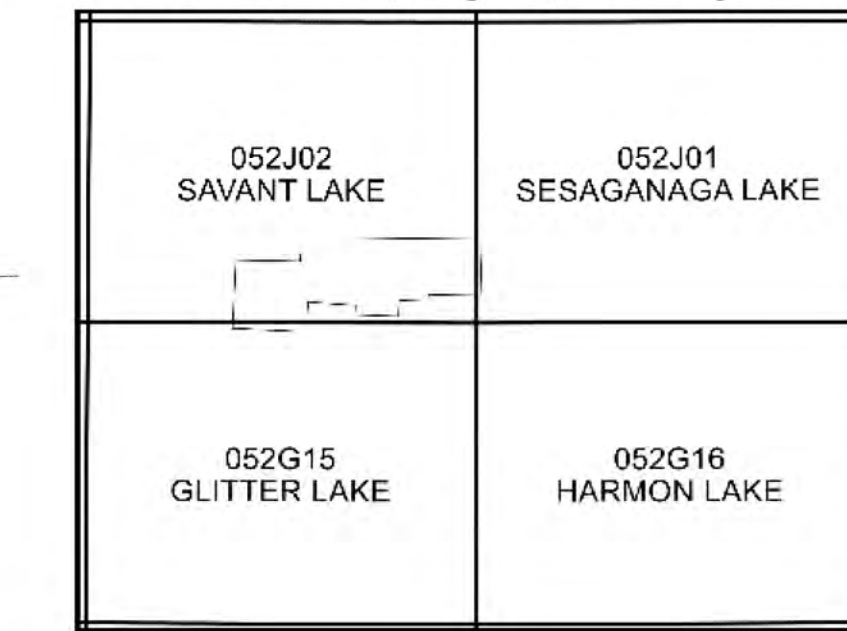
Sturgeon Lake - South Block

Magnetic Map
 Residual Magnetic Intensity



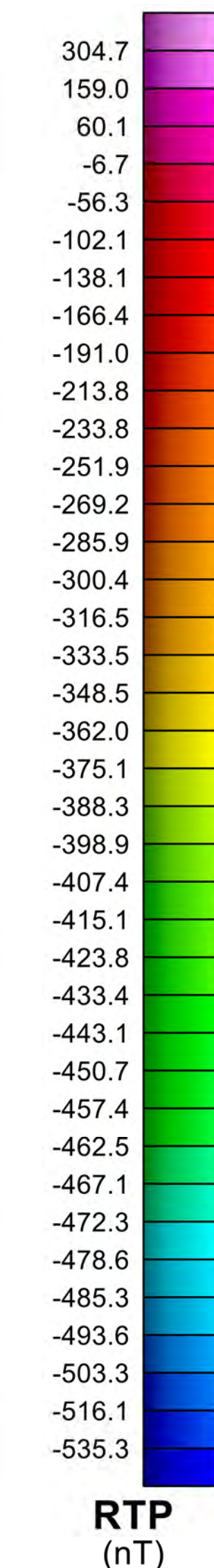
Plate 5S
 RMI

National Topographic System



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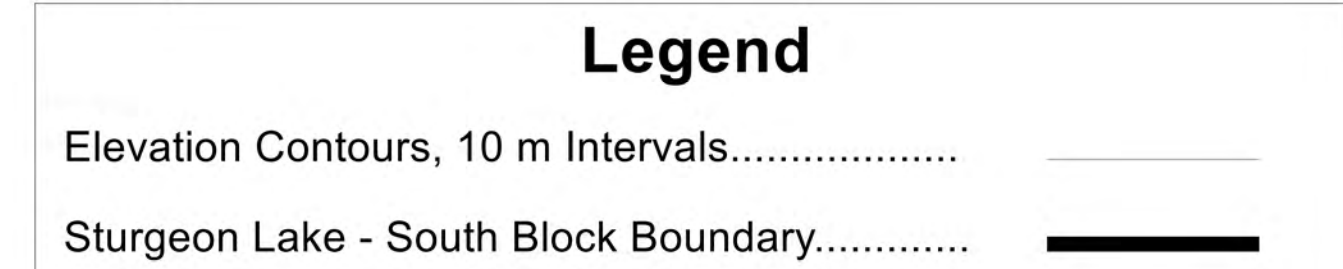
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MAP PROJECTION
 Projection: Universal Transverse Mercator Zone 15N
 Datum: WGS 84
 Local Datum Transform: World

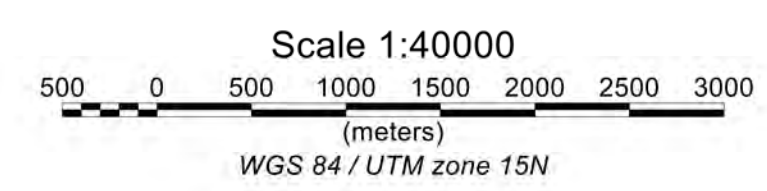
STURGEON LAKE - SOUTH BLOCK SURVEY SPECIFICATIONS
 Survey Dates: November 25 to December 8, 2021
 Survey Base: Sioux Lookout, ON
 Aircraft Type: Piper Navajo
 Registration: C-FOOO
 Survey Technology: Magnetic Survey
 Total Line km: 2030 km
 Mean Flight Height: 74.3 meters
 Survey Line Spacing: 75 meters
 Survey Line Direction: 000°/180°
 Tie Line Spacing: 750 meters
 Tie Line Direction: 090°/270°

AIRBORNE SURVEY SYSTEM
 Magnetometer Sensor: Scintrex CS-3 Cesium
 Configuration: Stinger with 3 axis compensation
 Sample Rate: 20 Hz
 Sensitivity: 0.0006 nT/√Hz rms



DATA REFERENCE
 Reduced to Magnetic Pole (RTP) is computed from Residual Magnetic Intensity (RMI). Refer to report for details. RTP is represented as a grid and drawn with a histogram-equalized colour shade; sun illumination inclination at 45° and declination at 045°.

TOPOGRAPHIC REFERENCE
 National Topographic Data Base (NTDB), Canada. Ottawa, ON: Government of Canada, Natural Resources Canada, Center for Topographic Information.
 URL <http://ftp.geogratis.gc.ca/pub/nrcan_mcan/vector/ntdb_bndt/>[2007]



Job #21205
 December 17, 2021

MIDEX Resources

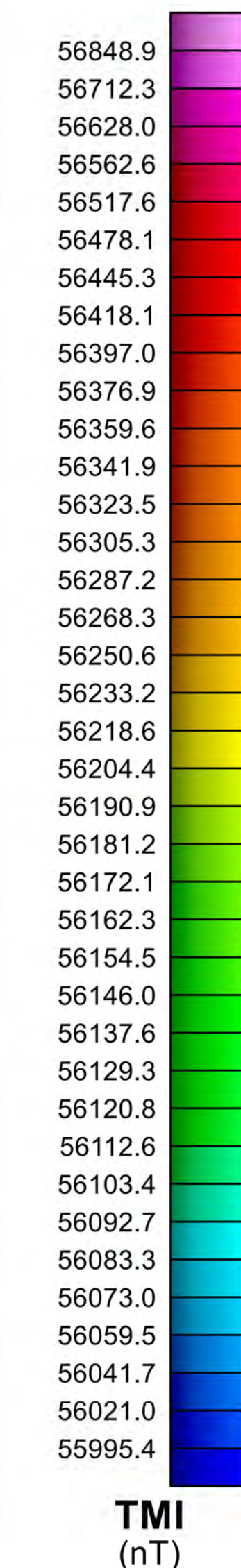
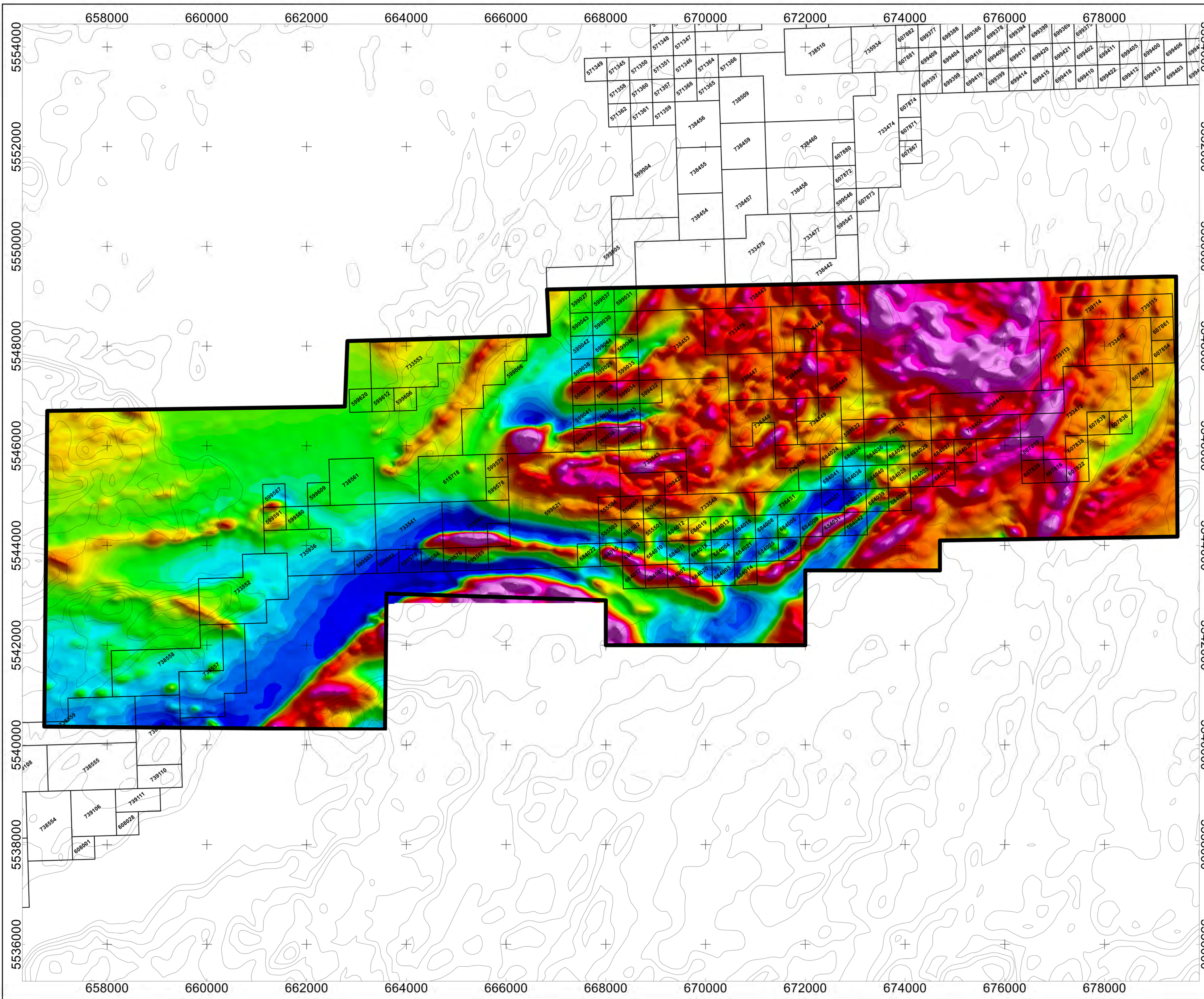
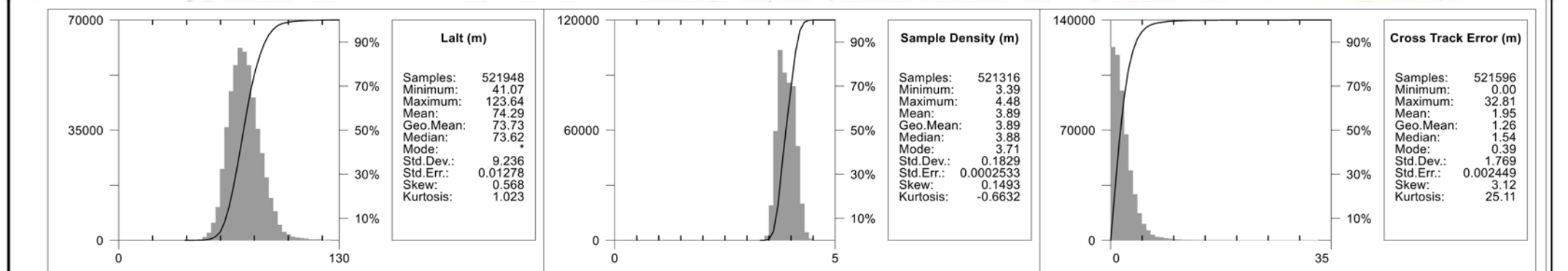
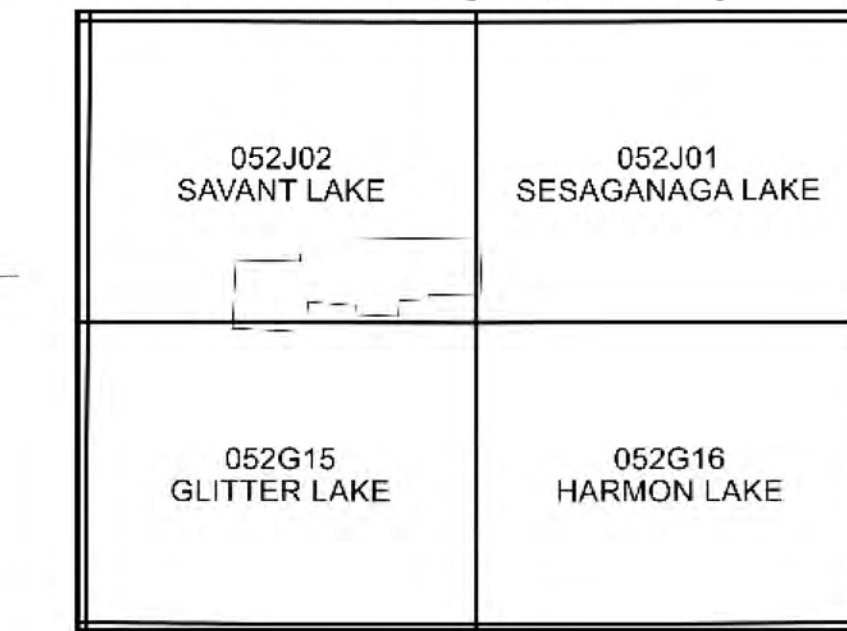
Sturgeon Lake - South Block

Magnetic Map
 Reduced to Magnetic Pole



Plate 6S
 RTP

National Topographic System



MAP PROJECTION
 Projection: Universal Transverse Mercator Zone 15N
 Datum: WGS 84
 Local Datum Transform: World

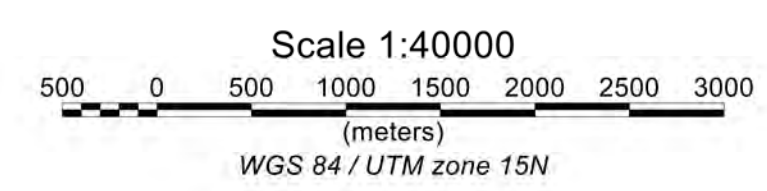
STURGEON LAKE - SOUTH BLOCK SURVEY SPECIFICATIONS
 Survey Dates: November 25 to December 8, 2021
 Survey Base: Sioux Lookout, ON
 Aircraft Type: Piper Navajo
 Registration: C-FOOO
 Survey Technology: Magnetic Survey
 Total Line km: 2030 km
 Mean Flight Height: 74.3 meters
 Survey Line Spacing: 75 meters
 Survey Line Direction: 000°/180°
 Tie Line Spacing: 750 meters
 Tie Line Direction: 090°/270°

AIRBORNE SURVEY SYSTEM
 Magnetometer Sensor: Scintrex CS-3 Cesium
 Configuration: Stinger with 3 axis compensation
 Sample Rate: 20 Hz
 Sensitivity: 0.0006 nT/√Hz rms

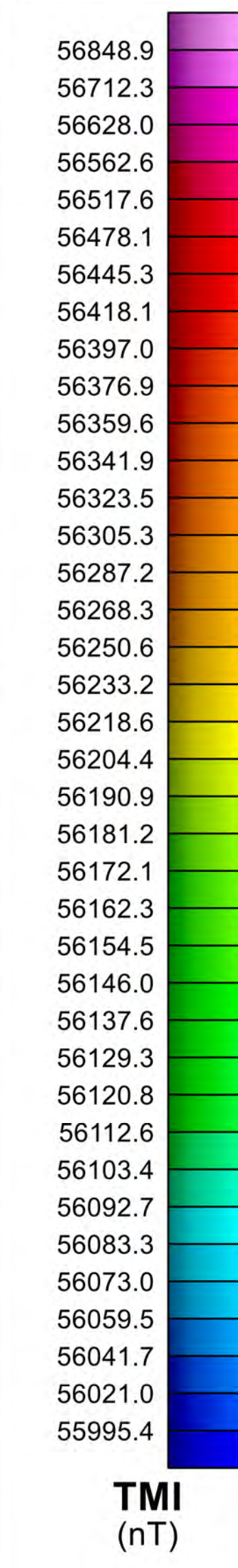
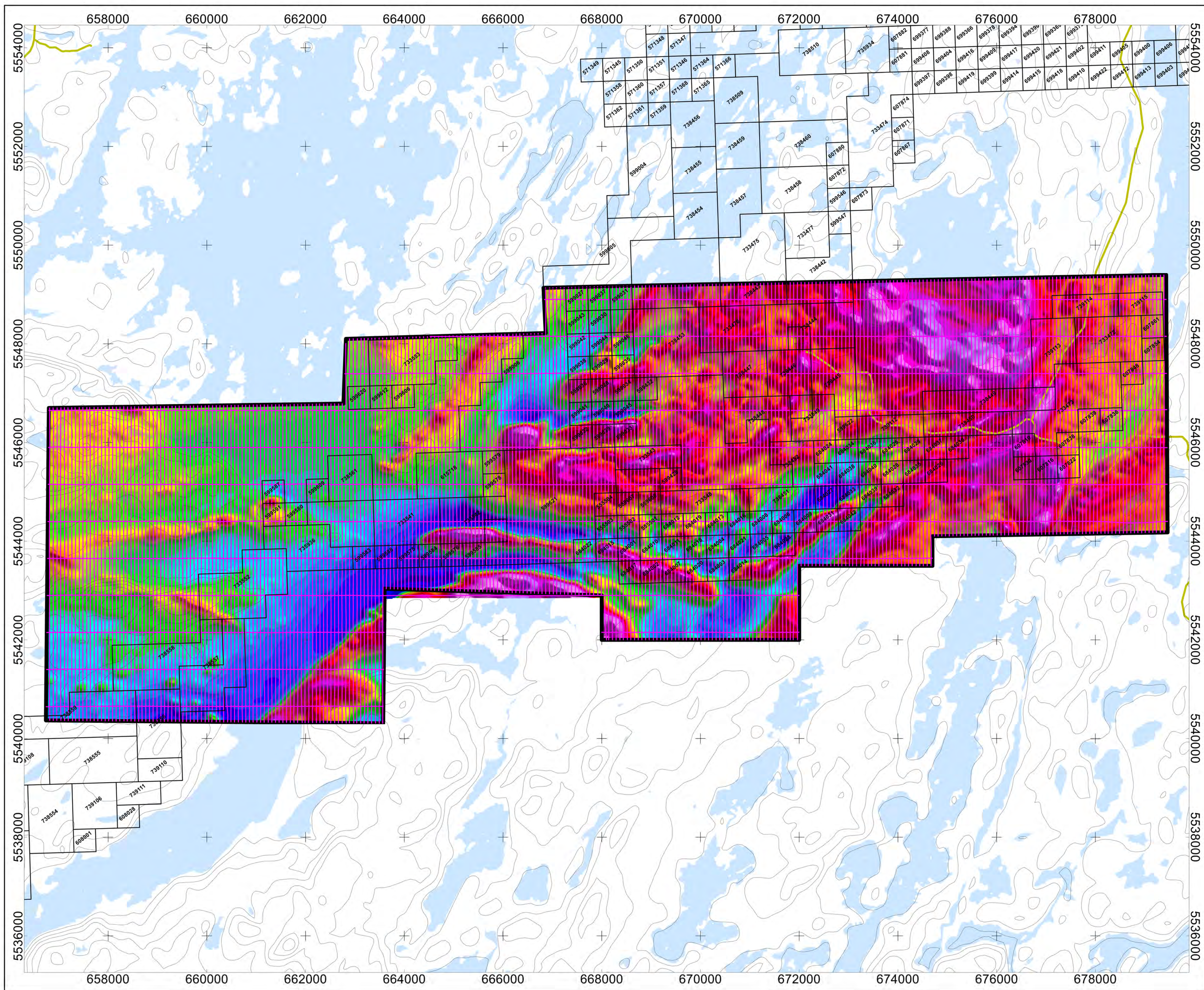
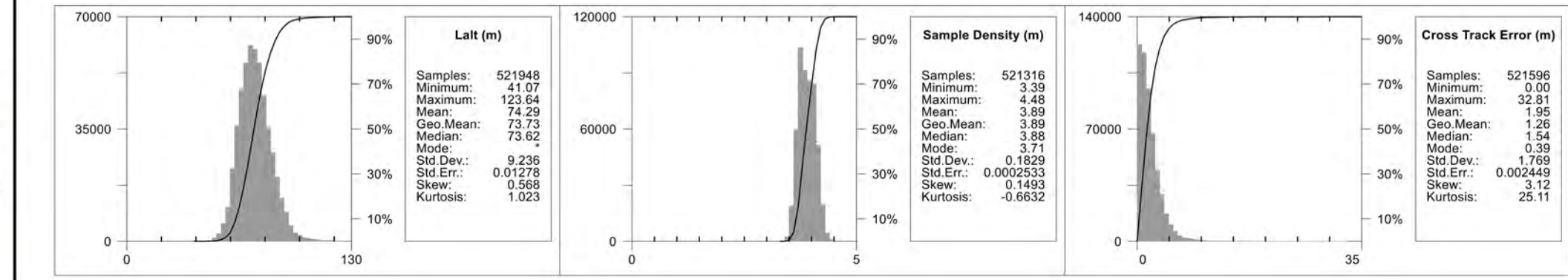
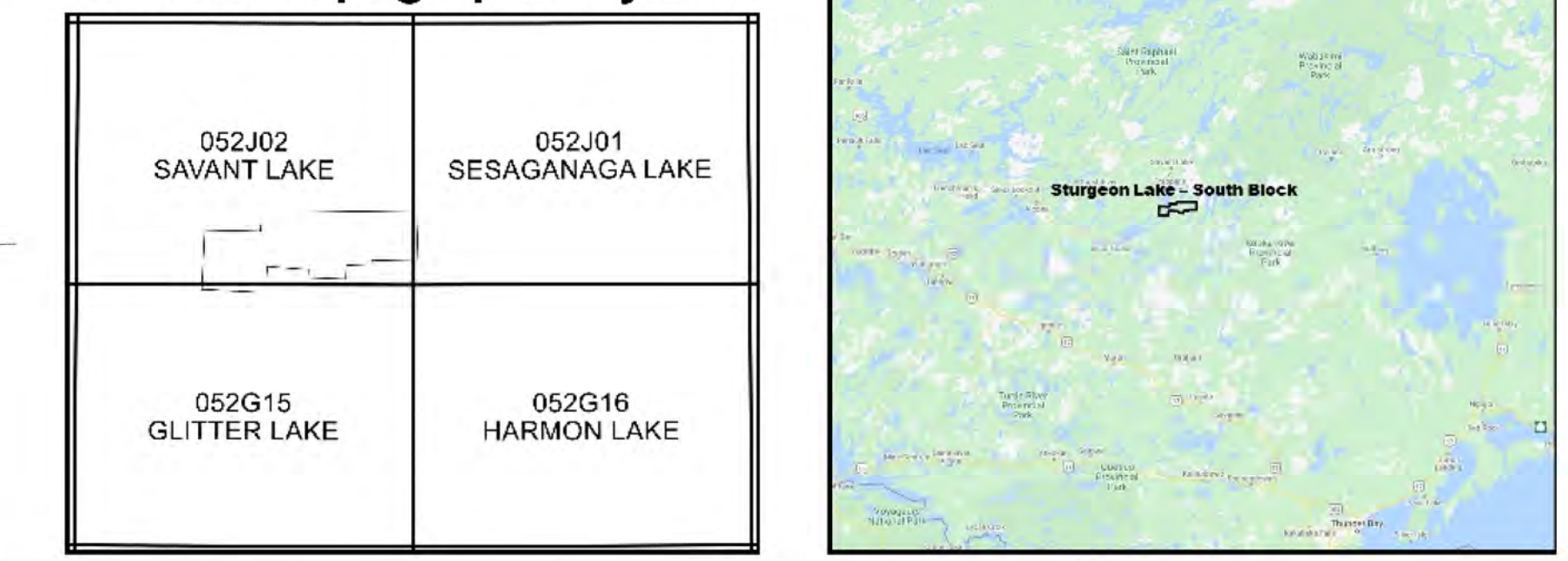
Legend
 Elevation Contours, 10 m Intervals.....
 Sturgeon Lake - South Block Boundary.....

DATA REFERENCE
 Magnetic data have been compensated and corrected for temporal variations, lag, and heading; then leveled to generate the Total Magnetic Intensity (TMI) grid. Refer to report for details. TMI is represented as a grid and drawn with a histogram-equalized color shade; sun illumination inclination at 45° and declination at 045°.

TOPOGRAPHIC REFERENCE
 National Topographic Data Base (NTDB), Canada. Ottawa, ON: Government of Canada, Natural Resources Canada, Center for Topographic Information.
 URL <http://ftp.geogratis.gc.ca/pub/nrcan_mcan/vector/ntdb_bndt/>[2007]



National Topographic System



MAP PROJECTION
 Projection: Universal Transverse Mercator Zone 15N
 Datum: WGS 84
 Local Datum Transform: World

STURGEON LAKE - SOUTH BLOCK SURVEY SPECIFICATIONS
 Survey Dates: November 25 to December 8, 2021
 Survey Base: Sioux Lookout, ON
 Aircraft Type: Piper Navajo
 Registration: C-FOOO
 Survey Technology: Magnetic Survey
 Total Line km: 2030 km
 Mean Flight Height: 74.3 meters
 Survey Line Spacing: 75 meters
 Survey Line Direction: 000°/180°
 Tie Line Spacing: 750 meters
 Tie Line Direction: 090°/270°

AIRBORNE SURVEY SYSTEM
 Magnetometer Sensor: Scintrex CS-3 Cesium
 Configuration: Stinger with 3 axis compensation
 Sample Rate: 20 Hz
 Sensitivity: 0.0006 nT/√Hz rms

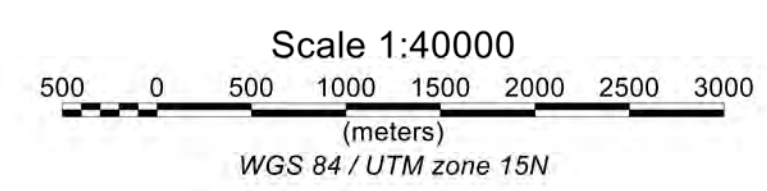
Legend

Water Bodies.....	
Roads.....	
Elevation Contours, 10 m Intervals.....	
Sturgeon Lake - South Block Boundary.....	
Actual Flight Lines.....	

DATA REFERENCE
 Magnetic data have been compensated and corrected for temporal variations, lag, and heading; then leveled to generate the Total Magnetic Intensity (TMI) grid. Refer to report for details. TMI is represented as a grid and drawn with a histogram-equalized color shade; sun illumination inclination at 45° and declination at 045°.

TOPOGRAPHIC REFERENCE
 National Topographic Data Base (NTDB), Canada. Ottawa, ON: Government of Canada, Natural Resources Canada, Center for Topographic Information.
 URL <http://ftp.geogratis.gc.ca/pub/nrcan_mcan/vector/ntdb_bndt/>[2007]

MIDEX Resources
Sturgeon Lake - South Block
 Magnetic Map
 Total Magnetic Intensity with Actual Flight Lines



Work Type or Ass. Cost	Contractor	Invoice #	Date	Task	Amount	Comment
Airborne Survey	Precision Geophysics	9720	16-Aug-21	Flying Airborne Survey	\$ 51,245.93	prorated for South Block/non-Midex coverage
Mob/DeMob	Precision Geophysics			Mob/Demob for Airborne Survey	\$ 2,996.38	prorated for South Block/non-Midex coverage
Report/Maps Geological Consultant	Mehmet Spaho	Dec-21		Adapt report to Airborne survey	\$ 3,000.00	prorated from Dec invoice; 5 days at \$600/day
Report/Maps Geological Consultant	Joerg Kleinboeck	Dec-22	1-Dec-22	GIS/maps (add claim fabric);rpt editing	\$ 2,125.00	2.5 @ \$850/day rept writing/drafting Sturg.Lake project on invoice
Report/Maps Companys Labour	David Jamieson	Midex Salary		Project Design/Supervision; rpt editing	\$ 2,550.00	3 days at \$850/day
				Technical Work Total	\$ 61,917.31	

TOTAL COST OF AIRBORNE SURVEY (INCLUDES MOB/DEMOB AND HST)	\$ 211,133.72	Invoice
AIRBORNE SURVEY ONLY COST (SUBTRACT MOB/DEBMOB)	\$ 180,649.32	No HST included
MOB/DEMOB	\$ 6,194.70	No HST included
TOTAL LINE KMS FLOWN	4199	
AIRBORNE SURVEY ONLY COST PER LINE-KM	\$ 43.02	
MOB/DEMOB COST PER LINE-KM	\$ 1.48	
% OF SURVEY ON SOUTH BLOCK	48.37	%
AIRBORNE SURVEY ONLY COST SOUTH BLOCK	\$ 87,380.08	costs prorated for South Block only
AIRBORNE SURVEY ONLY COST MINUS OVERFLY	\$ 51,245.93	costs prorated for Midex Claims only (56.7%)
MOB/DEMOB COST SOUTH BLOCK	\$ 2,996.38	costs prorated for South Block only
SURVEY DESIGN,REPORT WRITING, MAP EDITS	\$ 7,675.00	South Block reporting costs
AIRBORNE SURVEY ONLY COST SOUTH BLOCK	\$ 51,245.93	
MOB/DEMOB COST SOUTH BLOCK	\$ 2,996.38	
PREP, REPORT WRITING, MAP EDITS FOR SOUTH BLOCK FILING	\$ 7,675.00	
	\$ 61,917.31	
# OF CELLS COVERED BY SOUTH BLOCK SURVEY PRORATED FOR INTERNAL PATENTS OR PARTIAL COVERAGE ON EDGE OF SURVEY	\$ 289.75	
COSTS ALLOCATED PER CELL	\$ 213.69	

TENURE_NUM	% survey coverage of claim	prorated # of cells covered by survey	Cost	rounded	rounding error
555501	100.00	1	\$ 213.69	\$ 214.00	#REF!
555502	100.00	1	\$ 213.69	\$ 214.00	0.31
555503	100.00	1	\$ 213.69	\$ 214.00	0.31
555504	100.00	1	\$ 213.69	\$ 214.00	0.31
559607	100.00	1	\$ 213.69	\$ 214.00	0.31
559608	100.00	1	\$ 213.69	\$ 214.00	0.31
599006	100.00	21	\$ 4,487.49	\$ 4,480.00	-7.49
599027	100.00	1	\$ 213.69	\$ 214.00	0.31
599028	100.00	1	\$ 213.69	\$ 214.00	0.31
599029	100.00	1	\$ 213.69	\$ 214.00	0.31
599030	100.00	1	\$ 213.69	\$ 214.00	0.31
599031	100.00	1	\$ 213.69	\$ 214.00	0.31
599032	100.00	1	\$ 213.69	\$ 214.00	0.31
599033	100.00	1	\$ 213.69	\$ 214.00	0.31
599034	100.00	1	\$ 213.69	\$ 214.00	0.31
599035	100.00	1	\$ 213.69	\$ 214.00	0.31
599036	100.00	1	\$ 213.69	\$ 214.00	0.31
599037	100.00	1	\$ 213.69	\$ 214.00	0.31
599038	100.00	1	\$ 213.69	\$ 214.00	0.31
599039	100.00	1	\$ 213.69	\$ 214.00	0.31
599040	100.00	1	\$ 213.69	\$ 214.00	0.31
599041	100.00	1	\$ 213.69	\$ 214.00	0.31
599042	100.00	1	\$ 213.69	\$ 214.00	0.31
599043	100.00	1	\$ 213.69	\$ 214.00	0.31
599044	100.00	1	\$ 213.69	\$ 214.00	0.31
599045	100.00	1	\$ 213.69	\$ 214.00	0.31
599046	100.00	1	\$ 213.69	\$ 214.00	0.31
599428	100.00	1	\$ 213.69	\$ 214.00	0.31
599432	100.00	1	\$ 213.69	\$ 214.00	0.31
599575	100.00	1	\$ 213.69	\$ 214.00	0.31
599576	100.00	1	\$ 213.69	\$ 214.00	0.31
599578	100.00	1	\$ 213.69	\$ 214.00	0.31
599579	100.00	1	\$ 213.69	\$ 214.00	0.31
599580	100.00	1	\$ 213.69	\$ 214.00	0.31
599583	100.00	1	\$ 213.69	\$ 214.00	0.31
599584	100.00	1	\$ 213.69	\$ 214.00	0.31
599585	100.00	1	\$ 213.69	\$ 214.00	0.31
599587	25.00	0.25	\$ 53.42	\$ 53.00	-0.4225
599588	100.00	1	\$ 213.69	\$ 214.00	0.31
599591	50.00	0.5	\$ 106.85	\$ 106.00	-0.845
599600	100.00	1	\$ 213.69	\$ 214.00	0.31
599603	100.00	1	\$ 213.69	\$ 214.00	0.31
599606	100.00	1	\$ 213.69	\$ 214.00	0.31
599609	100.00	1	\$ 213.69	\$ 214.00	0.31
599610	100.00	1	\$ 213.69	\$ 214.00	0.31
599612	100.00	1	\$ 213.69	\$ 214.00	0.31
599620	100.00	1	\$ 213.69	\$ 214.00	0.31
599621	100.00	22	\$ 4,701.18	\$ 4,700.00	-1.18
599622	100.00	1	\$ 213.69	\$ 214.00	0.31
607816	100.00	1	\$ 213.69	\$ 214.00	0.31
607819	100.00	1	\$ 213.69	\$ 214.00	0.31
607822	100.00	1	\$ 213.69	\$ 214.00	0.31
607830	100.00	1	\$ 213.69	\$ 214.00	0.31
607836	100.00	1	\$ 213.69	\$ 214.00	0.31

TENURE_NUM	% survey coverage of claim	prorated # of cells covered by survey	Cost	rounded	rounding error
607838	100.00	1	\$ 213.69	\$ 214.00	0.31
607839	100.00	1	\$ 213.69	\$ 214.00	0.31
607848	100.00	1	\$ 213.69	\$ 214.00	0.31
607854	100.00	1	\$ 213.69	\$ 214.00	0.31
607861	100.00	1	\$ 213.69	\$ 214.00	0.31
607990	100.00	1	\$ 213.69	\$ 214.00	0.31
615718	100.00	6	\$ 1,282.14	\$ 1,282.00	-0.14
684001	100.00	1	\$ 213.69	\$ 214.00	0.31
684002	100.00	1	\$ 213.69	\$ 214.00	0.31
684003	100.00	1	\$ 213.69	\$ 214.00	0.31
684004	100.00	1	\$ 213.69	\$ 214.00	0.31
684005	100.00	1	\$ 213.69	\$ 214.00	0.31
684006	100.00	1	\$ 213.69	\$ 214.00	0.31
684007	100.00	1	\$ 213.69	\$ 214.00	0.31
684008	100.00	1	\$ 213.69	\$ 214.00	0.31
684009	100.00	1	\$ 213.69	\$ 214.00	0.31
684010	100.00	1	\$ 213.69	\$ 214.00	0.31
684011	100.00	1	\$ 213.69	\$ 214.00	0.31
684012	100.00	1	\$ 213.69	\$ 214.00	0.31
684013	100.00	1	\$ 213.69	\$ 214.00	0.31
684014	100.00	1	\$ 213.69	\$ 214.00	0.31
684015	100.00	1	\$ 213.69	\$ 214.00	0.31
684016	100.00	1	\$ 213.69	\$ 214.00	0.31
684017	100.00	1	\$ 213.69	\$ 214.00	0.31
684018	100.00	1	\$ 213.69	\$ 214.00	0.31
684019	100.00	1	\$ 213.69	\$ 214.00	0.31
684020	100.00	1	\$ 213.69	\$ 214.00	0.31
684021	100.00	1	\$ 213.69	\$ 214.00	0.31
684022	100.00	1	\$ 213.69	\$ 214.00	0.31
684023	100.00	1	\$ 213.69	\$ 214.00	0.31
684024	100.00	1	\$ 213.69	\$ 214.00	0.31
684025	100.00	1	\$ 213.69	\$ 214.00	0.31
684026	100.00	1	\$ 213.69	\$ 214.00	0.31
684027	100.00	1	\$ 213.69	\$ 214.00	0.31
684028	100.00	1	\$ 213.69	\$ 214.00	0.31
684029	100.00	1	\$ 213.69	\$ 214.00	0.31
684030	100.00	1	\$ 213.69	\$ 214.00	0.31
684031	100.00	1	\$ 213.69	\$ 214.00	0.31
684032	100.00	1	\$ 213.69	\$ 214.00	0.31
684033	100.00	1	\$ 213.69	\$ 214.00	0.31
684034	100.00	1	\$ 213.69	\$ 214.00	0.31
684035	100.00	1	\$ 213.69	\$ 214.00	0.31
684036	100.00	1	\$ 213.69	\$ 214.00	0.31
684037	100.00	1	\$ 213.69	\$ 214.00	0.31
684038	100.00	1	\$ 213.69	\$ 214.00	0.31
684039	100.00	1	\$ 213.69	\$ 214.00	0.31
684040	100.00	1	\$ 213.69	\$ 214.00	0.31
684041	100.00	1	\$ 213.69	\$ 214.00	0.31
684042	100.00	1	\$ 213.69	\$ 214.00	0.31
733472	100.00	6	\$ 1,282.14	\$ 1,282.00	-0.14
733473	100.00	10	\$ 2,136.90	\$ 2,135.00	-1.9
733476	100.00	6	\$ 1,282.14	\$ 1,280.00	-2.14
733541	100.00	6	\$ 1,282.14	\$ 1,280.00	-2.14
733542	100.00	5	\$ 1,068.45	\$ 1,068.00	-0.45

TENURE_NUM	% survey coverage of claim	prorated # of cells covered by survey	Cost	rounded	rounding error
733543	100.00	3	\$ 641.07	\$ 641.00	-0.07
733548	50.00	2.5	\$ 534.23	\$ 534.00	-0.225
733549	100.00	3	\$ 641.07	\$ 641.00	-0.07
733552	75.00	6.5	\$ 1,388.99	\$ 1,388.00	-0.985
733553	100.00	3	\$ 641.07	\$ 641.00	-0.07
735936	100.00	6	\$ 1,282.14	\$ 1,282.00	-0.14
738442	75.00	5	\$ 1,068.45	\$ 1,068.00	-0.45
738443	100.00	3	\$ 641.07	\$ 641.00	-0.07
738444	50.00	3.5	\$ 747.92	\$ 747.00	-0.915
738445	75.00	3.5	\$ 747.92	\$ 747.00	-0.915
738446	50.00	2	\$ 427.38	\$ 427.00	-0.38
738447	50.00	2	\$ 427.38	\$ 427.00	-0.38
738448	25.00	1.5	\$ 320.54	\$ 320.00	-0.535
738449	100.00	6	\$ 1,282.14	\$ 1,282.00	-0.14
738450	100.00	4	\$ 854.76	\$ 854.00	-0.76
738451	100.00	3	\$ 641.07	\$ 641.00	-0.07
738452	50.00	1.5	\$ 320.54	\$ 320.00	-0.535
738453	100.00	10	\$ 2,136.90	\$ 2,135.00	-1.9
738556	50.00	3	\$ 641.07	\$ 641.00	-0.07
738557	100.00	7	\$ 1,495.83	\$ 1,495.00	-0.83
738558	50.00	4.5	\$ 961.61	\$ 961.00	-0.605
738559	50.00	4.5	\$ 961.61	\$ 961.00	-0.605
738560	100.00	4	\$ 854.76	\$ 854.00	-0.76
738561	100.00	4	\$ 854.76	\$ 854.00	-0.76
739112	100.00	3	\$ 641.07	\$ 641.00	-0.07
739113	100.00	5	\$ 1,068.45	\$ 1,068.00	-0.45
739114	100.00	3	\$ 641.07	\$ 641.00	-0.07
739115	100.00	2	\$ 427.38	\$ 427.00	-0.38
		289.75	\$ 61,916.68	\$ 61,917.00	