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RioTinto

Rio Tinto Exploration Canada Inc.

2022 UAV Magnetic and Geological Surveys on the Fitzpatrick Property

Gaudette Township
NTS 41K/16
Sault Ste. Marie Mining Division
Ontario, Canada

Jessica Riemer B.Sc., P.Geo.
Christophe Hyde M.Sc.
Lindsay McClenaghan M.Sc., P.Geo.

March 31, 2023

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Summary

This report presents the results of a UAV Orthophoto Survey and UAV magnetic survey conducted by MWH Geo-Surveys Ltd. on the Fitzpatrick property in September and October 2022. The survey was commissioned by Rio Tinto Exploration Canada Inc to get higher resolution magnetic data over the property. The objective was to highlight magnetic features and gain a better understanding of geological units present on the property.

The work for the UAV Orthophoto survey was preformed September 9th- 10th, 2022 work was then paused and recommenced October 5th finishing on October 6th, 2022. The work for the UAV magnetic survey was performed October 6th - 8th, 2022.

This report also describes field work mapping and sampling conducted August 15th-19th 2022. Fitzpatrick claims were visited for 2 days during this trip from August 15th to 16th, 2022. The work was completed by KoBold Metals Canada and Frequency Geophysics Inc. The field work was commissioned to verify the known showing and to check the magnetic feature on the east side of the property. The assay results from the rock samples confirm the presence of weak Ni-Cu sulphide mineralization at the showing. Additional structural and geological mapping are recommended to understand the broader scale controls on the location and geometry of the mineralized zone.

The linear magnetic features are interpreted to be dykes, some of the irregular geomorphological features on the property require follow up. Geological mapping and sampling are recommended to locate additional prospective areas to follow up with ground electromagnetic surveys. There are no immediate drill targets of interest.

Introduction

The Fitzpatrick property is comprised of 32 claims, 15 claims were acquired by Rio Tinto Exploration Canada Inc. (RTECI) in 2020 and 17 were acquired in 2022. Rio Tinto has mineral title for 88% of the survey area in the Gaudette Township to explore for Ni- Cu-PGE sulphide mineralization. The other 12% of the survey area overlaps with patent title non-mining land tenure with mineral and surface rights. The work presented in this report includes the UAV magnetic survey and UAV Orthophoto completed by MWH Geo-Surveys, for RTECI on 30 of the 32 claims at Fitzpatrick. The report also includes geological survey and sampling work completed over a subset of these claims.

All coordinates are UTM projection, zone 16N, in WGS84 Datum.

Location and Access

The Fitzpatrick property is located approximately 45km North-east of Sault Ste Marie, Ontario in the Gaudette Township (Figure 1). The survey area is accessible by light vehicle heading North on Highway 17 for approximately 8.6km, at highway 556 turn right toward the Northeast for 26.7 km, then at ON-532 turn left toward North for 18.4km and finally turning right onto an unnamed forestry road into the Fitzpatrick property.

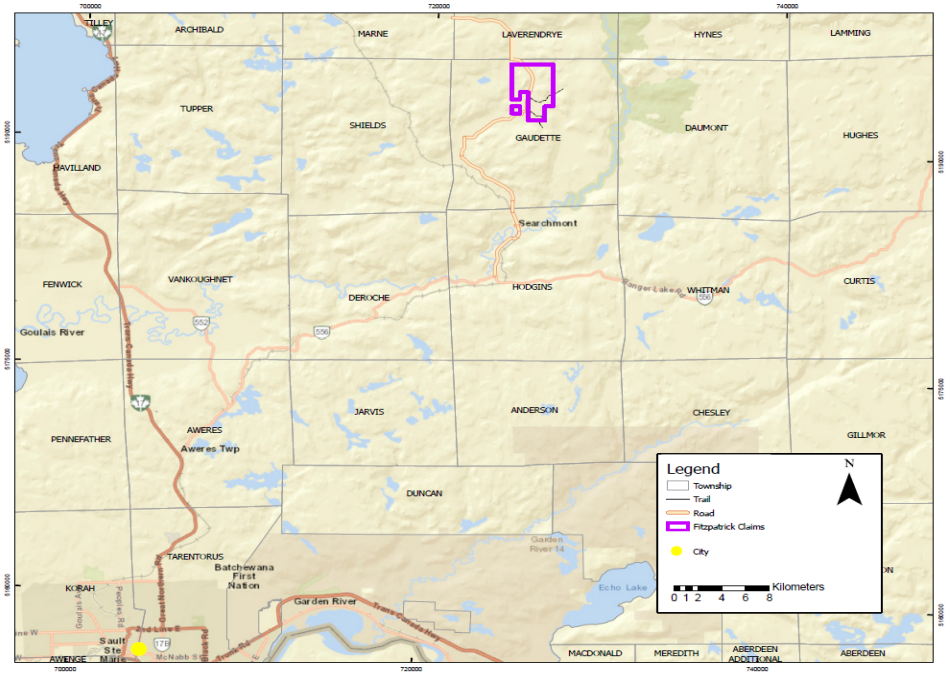

Figure 1: Project area map showing regional location to nearest towns. (From the ~1:4k Street basemap,2007)

Property Status

The Fitzpatrick property currently consists of 31 contiguous claims and 1 not contiguous claim in the Gaudette township. The work presented in this report includes the UAV Orthophoto and UAV magnetic survey completed by MWH Geo-Surveys, for RTECI on 30 of the 32 claims at Fitzpatrick amounting to 662 Ha. The 30 claims are listed in Table 1 and shown in plan map in Figure 2. These claims are mostly located on Crown land, with approximately 12% of the survey area covering patent title non-mining land tenure that is not accessible for exploration at this time.

Table 1: List of claims on which the magnetic survey was completed

Claim Number	Provincial Grid Cell Number	Type	Holder	Township	2022 Work Performed	Ha.
584633	41K16H275	Single Cell Mining Claim	RTECI	Fitzpatrick	Geophysical Survey Traverse	22.08
584634	41K16H276	Single Cell Mining Claim	RTECI	Fitzpatrick	Geophysical Survey Traverse	22.08
584635	41K16H255	Single Cell Mining Claim	RTECI	Fitzpatrick	Geophysical Survey	22.08
584636	41K16H295	Single Cell Mining Claim	RTECI	Fitzpatrick	Geophysical Survey Mapping	22.08
584637	41K16H236	Single Cell Mining Claim	RTECI	Fitzpatrick	Geophysical Survey	22.08
584638	41K16H294	Single Cell Mining Claim	RTECI	Fitzpatrick	Geophysical Survey Traverse	22.08
584639	41K16H314	Single Cell Mining Claim	RTECI	Fitzpatrick	Geophysical Survey Traverse	22.08
584640	41K16H254	Single Cell Mining Claim	RTECI	Fitzpatrick	Geophysical Survey	22.08
584641	41K16H234	Single Cell Mining Claim	RTECI	Fitzpatrick	Geophysical Survey	22.08
584642	41K16H235	Single Cell Mining Claim	RTECI	Fitzpatrick	Geophysical Survey	22.08
584643	41K16H316	Single Cell Mining Claim	RTECI	Fitzpatrick	Geophysical Survey Traverse	22.08

584644	41K16H256	Single Cell Mining Claim	RTECI	Fitzpatrick	Geophysical Survey	22.08
584645	41K16H315	Single Cell Mining Claim	RTECI	Fitzpatrick	Geophysical Survey Mapping	22.08
584646	41K16H274	Single Cell Mining Claim	RTECI	Fitzpatrick	Geophysical Survey Mapping	22.08
584647	41K16H296	Single Cell Mining Claim	RTECI	Fitzpatrick	Geophysical Survey Mapping	22.08
721604	41K16H292	Single Cell Mining Claim	RTECI	Fitzpatrick	Geophysical Survey	22.08
721605	41K16H212	Single Cell Mining Claim	RTECI	Fitzpatrick	Geophysical Survey	22.08
721606	41K16H215	Single Cell Mining Claim	RTECI	Fitzpatrick	Geophysical Survey	22.08
721607	41K16H216	Single Cell Mining Claim	RTECI	Fitzpatrick	Geophysical Survey	22.08
721608	41K16H272	Single Cell Mining Claim	RTECI	Fitzpatrick	Geophysical Survey	22.08
721609	41K16H252	Single Cell Mining Claim	RTECI	Fitzpatrick	Geophysical Survey	22.08
721610	41K16H233	Single Cell Mining Claim	RTECI	Fitzpatrick	Geophysical Survey	22.08
721611	41K16H273	Single Cell Mining Claim	RTECI	Fitzpatrick	Geophysical Survey	22.08
721612	41K16H213	Single Cell Mining Claim	RTECI	Fitzpatrick	Geophysical Survey	22.08
721613	41K16H214	Single Cell Mining Claim	RTECI	Fitzpatrick	Geophysical Survey	22.08
721614	41K16H232	Single Cell Mining Claim	RTECI	Fitzpatrick	Geophysical Survey	22.08
721615	41K16H253	Single Cell Mining Claim	RTECI	Fitzpatrick	Geophysical Survey	22.08
721616	41K16H332	Single Cell Mining Claim	RTECI	Fitzpatrick	Geophysical Survey	22.09
721619	41K16H334	Single Cell Mining Claim	RTECI	Fitzpatrick	Geophysical Survey	22.09
721620	41K16H335	Single Cell Mining Claim	RTECI	Fitzpatrick	Geophysical Survey	22.09

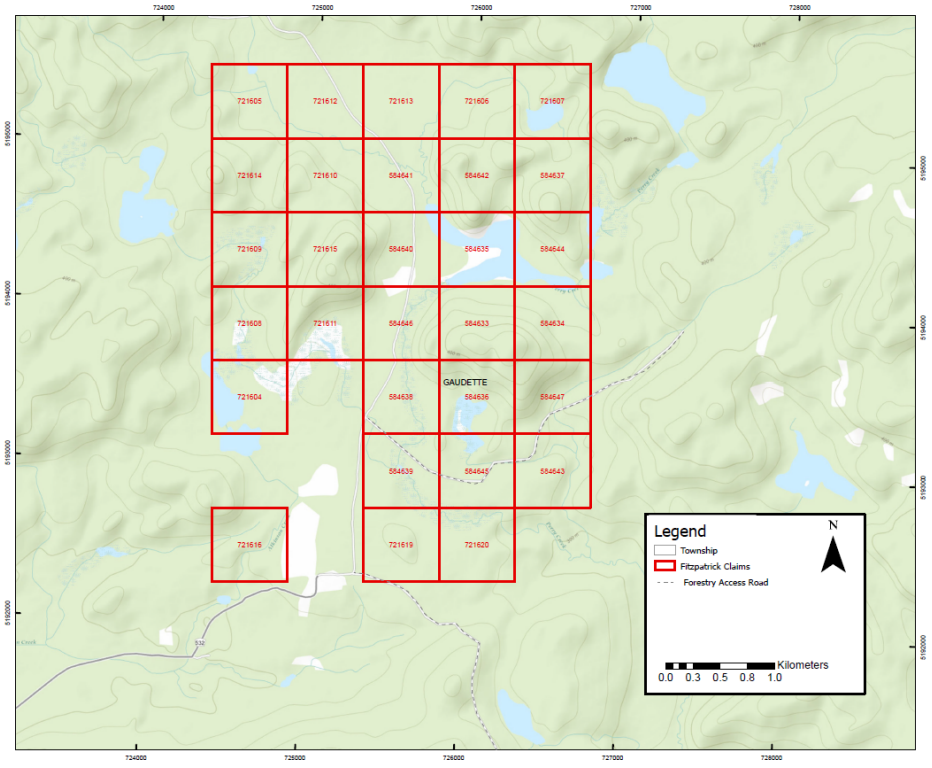

Figure 2: Map of the Fitzpatrick property claims and the local forestry access road. (From the ~1:4k Topo basemap,2007)

Previous Work

Table 2: List of previous work conducted on Fitzpatrick property

Year	Company/ Prospector	Work Conducted
1962	B.D.Brett	Described and examined the Fitzpatrick Ni showing. Report describing an amphibolite lens 73m long and 4.6m wide containing pyrrhotite, pentlandite and chalcopyrite. A breccia zone was also documented, 3x1m in size hosting pyrrhotite mineralization on fractures. The best assay values reported were 0.72% Ni and 0.1% Cu. AFRI_FID:41K16SW0007.
1963-1964	Band-Ore Gold Mines Ltd./Wallace D Stroud	Sampled excavations at the Fitpatrick Ni showing and carried out blasting to form a second pit 55 meters south of the original pit. He noted that mineralization is associated with fractures and shearing. The best sample from the northern pit assayed 0.99% Ni and 6.96% Cu. AFRI_FID:41K16SE0010.
1965	Band-Ore Gold Mines Ltd./Wallace D Stroud	Drilled five drillholes at the base of the cliff below the pits. The best assay was 0.26% Ni over 2.74 meters. The deepest hole was 174m. He mentions the difficulty intersecting the mineralized feature down dip due to steep and rough terrain. The drillholes may have been drilling down along the formation and subparallel to the measured structures dipping east in the pits. Some anomalous Ni values were noted ~200 meters SE and present the possibility that a fault has displaced mineralization to the south. AFRI_FID:41K16SE0010.
1966	James L Kloosterman	5 drill holes were drilled the deepest hole was 34.47 meters in the eastern part of the current RTECI property. It is unclear from the report what was the intended target. Four drillholes intersecting meta volcanic, sedimentary, and altered quartzite lithologies. One hole intersected medium grained quartz diorite. Drill logs do not mention mineralization or sample results, but they do indicate that the core is stored on site. AFRI_FID:41K16SW0377
1970	Prospectors based out of Sault Ste. Marie	Performed overburden stripping and trenching between the two original pits and south of the pits at the Ni showing. No assay data appears in the work report. AFRI_FID:41K16SW0372.
2001	Emerald Geological Services/ John Londry and Bruce MacLachlan	Prospecting and sampling returning assays up to 2% Ni, 0.45% Cu, 574 ppb Pt and 188 ppb Pd. AFRI_FID:41K16SE2001.
2003	Emerald Geological Services/ John Londry and Bruce MacLachlan	Reported a "B" horizon soil geochemical survey to determine if PGE bearing rocks can be traced along strike to the NE of known occurrence. Assay values indicated elevated levels of Cu, Ni, Zn and Mg in three clusters within the survey area. AFRI_FID:41K16SE2001
2018	RTECI	Geological mapping, prospecting, and sampling with best assay resulting in 3.43% Cu, 2% Ni and 0.3g/t Pd from an amphibole rich ultramafic unit. Confirmation of the 75m zone of mineralization striking N-S in steep terrain. Measurements indicate the structure is dipping east moderately. Mineralization is hosted in a sheared breccia zone associated with veining. AFRI_FID:20000020406

Regional and Property Geology

The Fitzpatrick property is located in the Superior Province in the Abitibi greenstone belt. The greenstone belt is comprised of metavolcanic and metasedimentary rocks that are Archean in age. The greenstone rocks are interpreted to be lower to middle greenschist facies that are intruded by granites with contact aureoles that are upper amphibolite facies.

Detailed mapping of the property dose not exist. According to the Ontario Geological Survey map 2419 published in 1979 the whole of the Gaudette Township is comprised of felsic intrusive and metamorphic rocks with one diabase dyke striking NE-SW. Mapping on the property performed by RTECI in 2018 encountered gabbro, meta gabbro, felsic gneiss, mafic gneiss, diorite, and granite. The mineralized pits were interpreted by RTECI as mafic and ultramafic rocks with blebs, disseminations veins and shears containing pyrrhotite, chalcopyrite and pentlandite.

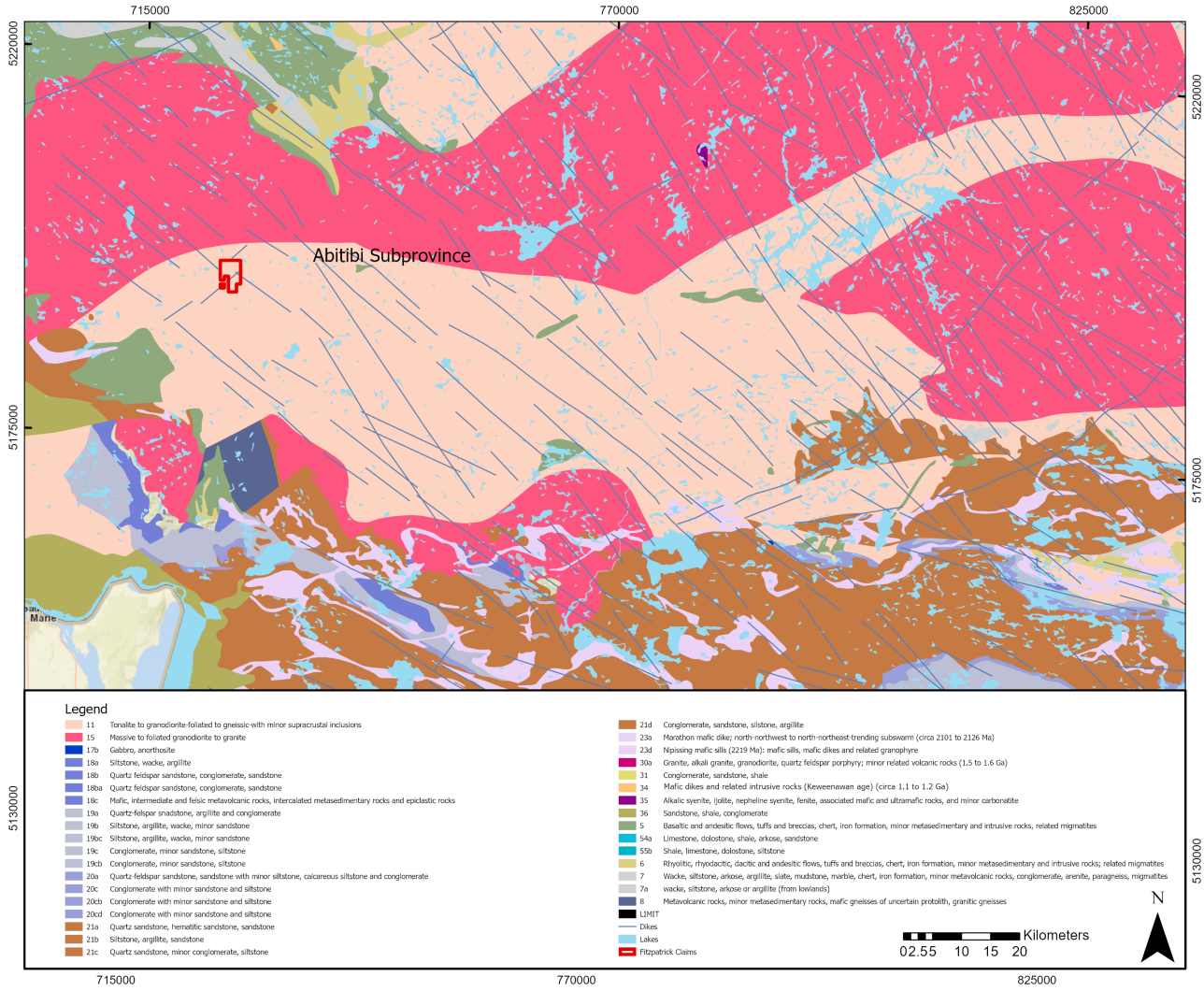

Figure 3: Geological map showing the RTECI project area in red (from the 1:250k OGS digital map, 2011).

Field Reconnaissance

Fitzpatrick claims were visited by geologist Ian Fieldhouse and field geotechnician Eric Lassko on August 15th to 16th, 2022. The field work was conducted to verify the showing and to check the magnetic feature of the east side of the property. The showing was verified as Gabbro – Ultramafic with 1% sulfide observed in hand sample. The east magnetic featured was logged as Gabbro (potential to be a dyke) with 1-2% sulphide observed in hand sample. Other outcrops were observed during the traverses including mafic gneiss and quartzite.

Table 3: Geological descriptions with GPS coordinates, sample numbers and station IDs.

Station ID	Sample ID	Northing_ UTM16N_ NAD83	Easting_ UTM16N _NAD83	Lithology	Comments	MagSus (x10^{-3}SI)
IFWP0226	-	5193193.4	725867.9	Mafic Gneiss	medium grained mafic gneiss that is well foliated	-
IFWP0227	-	5193285.7	725881	quartzite	weakly foliated quartzite	-

IFWP0229	K0003559	5193423.8	725917.7	Gabbro	dark green, black equigranular medium grained gabbro	0.96
IFWP0230	K0003560	5193762.5	725669.7	Gabbro/ Ultramafic	dark black equigranular medium grained gabbro. Sheared sample taken in pit 1mm sulfide veinlet. 1% sulfide observed.	0.79
IFWP0231	K0003561	5193763.9	725671	Gabbro/ Ultramafic	dark black equigranular medium grained gabbro. Sample taken from pit. 1% sulfide observed.	0.63
IFWP0233	K0003562	5193584.3	726447.1	Gabbro	dark grey equigranular medium grained gabbro. No fabric observed. Potentially a Dyke with 1% sulfide observed	0.87
IFWP0234	K0003564	5193588.2	726444.8	Gabbro	dark grey equigranular medium grained gabbro. No fabric observed. Potentially a Dyke with 2% sulfide observed	0.78

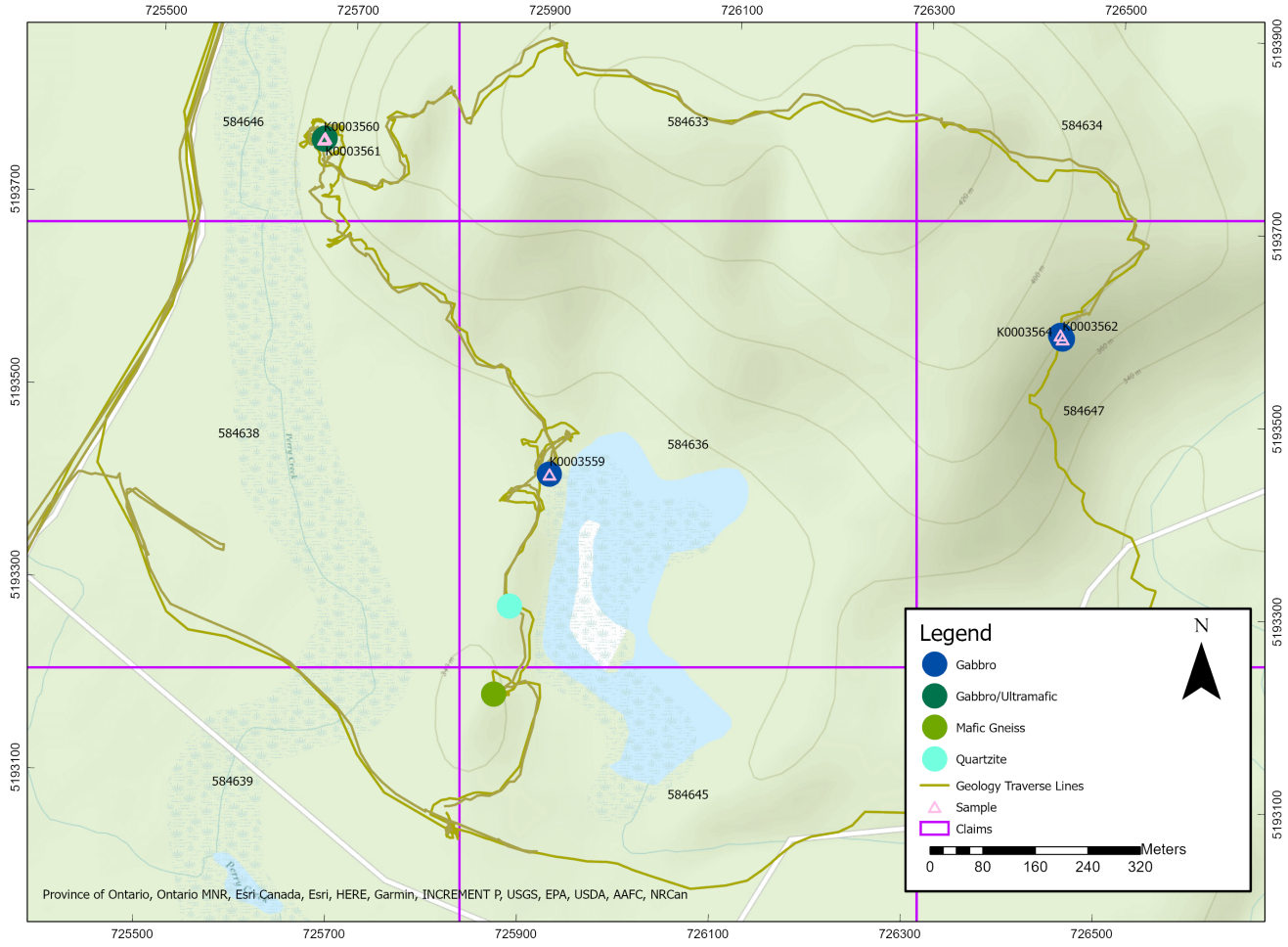

Figure 4: Map of outcrops, geological traverses, and sample locations on the Fitzpatrick Property.

Geochemistry

A total of 18 rock samples were sent to ALS Canada Ltd in November 2022. These samples were submitted with 3 blanks, 2 standards, and 2 duplicates for QAQC purposes. Five of the samples were collected from the Fitzpatrick claims (Table 4, Figure 4). All samples were analyzed for Complete Characterization (CPP-

PKG01) with additional Low level PGM-FA ICPMS (PGM-MS23L), and specific gravity. The best assay was from sample K0003560 with 0.14% Ni and 0.06% Cu from a gabbro collected from the showing.

Table 4: All samples on Fitzpatrick with select assay values for elements of interest

Sample ID	S.G.	MgO (%)	S (%)	Cr (ppm)	Cu (ppm)	Ni (ppm)	Au (ppb)	Pt (ppb)	Pd (ppb)
K0003559	3.02	6.06	0.02	154	184	62	2	7.9	4.7
K0003560	2.97	12	0.39	1195	595	1410	4	2.2	1.7
K0003561	2.99	11.8	0.08	1145	135	551	1	0.3	<0.2
K0003562	3.03	6.56	0.05	245	157	124	2	5	3.3
K0003564	3.02	6.62	0.03	204	163	125	1	4.5	3.4

UAV Magnetic and Orthophoto Survey

The unmanned airborne survey (UAV) Orthophoto was preformed between September 9th and 10th 2022 work was then paused and recommenced October 5th finishing on October 6th, 2022. The work for the UAV magnetic survey was performed between October 6th and 8th, 2022. This work was completed by MWH Geo-Surveys Ltd. Line spacing was 50 metres and 154.4line kilometres were flown bearing north-south with tielines flown east-west. Although noise levels are low, estimated to be below 0.1 nT, there are observed jumps along magnetic profiles where lines were spliced from flying on different days or times. These jumps are typically lower than 5 nT but can be up to 30 nT.

The orthophoto survey was conducted with a Wingtra One PPK VTOL mapping drone (MWH Geo-Surveys, 2022). Ground control targets were laid out and the positions surveyed before the photo mapping (MWH Geo-Surveys, 2022). The ground control targets were post processed to the MILS UFCORS control site in Sault Ste Marie, ON (MWH Geo-Surveys, 2022). The resolution of the digital surface model (DSM) as estimated by the orthophoto survey is 3cm (see Appendix B).

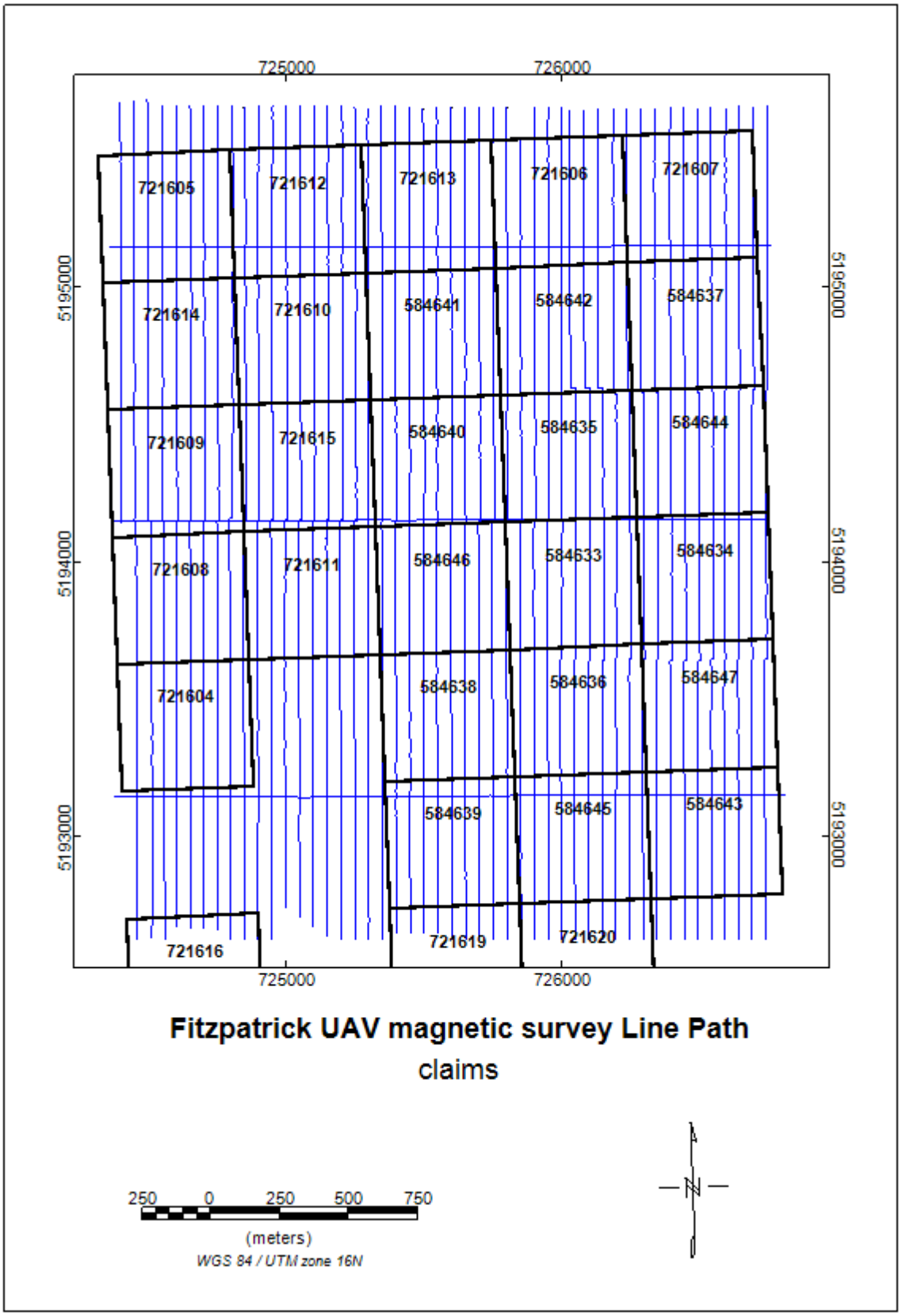

Figure 5: UAV Magnetic Survey Line path over Fitzpatrick prospect claims.

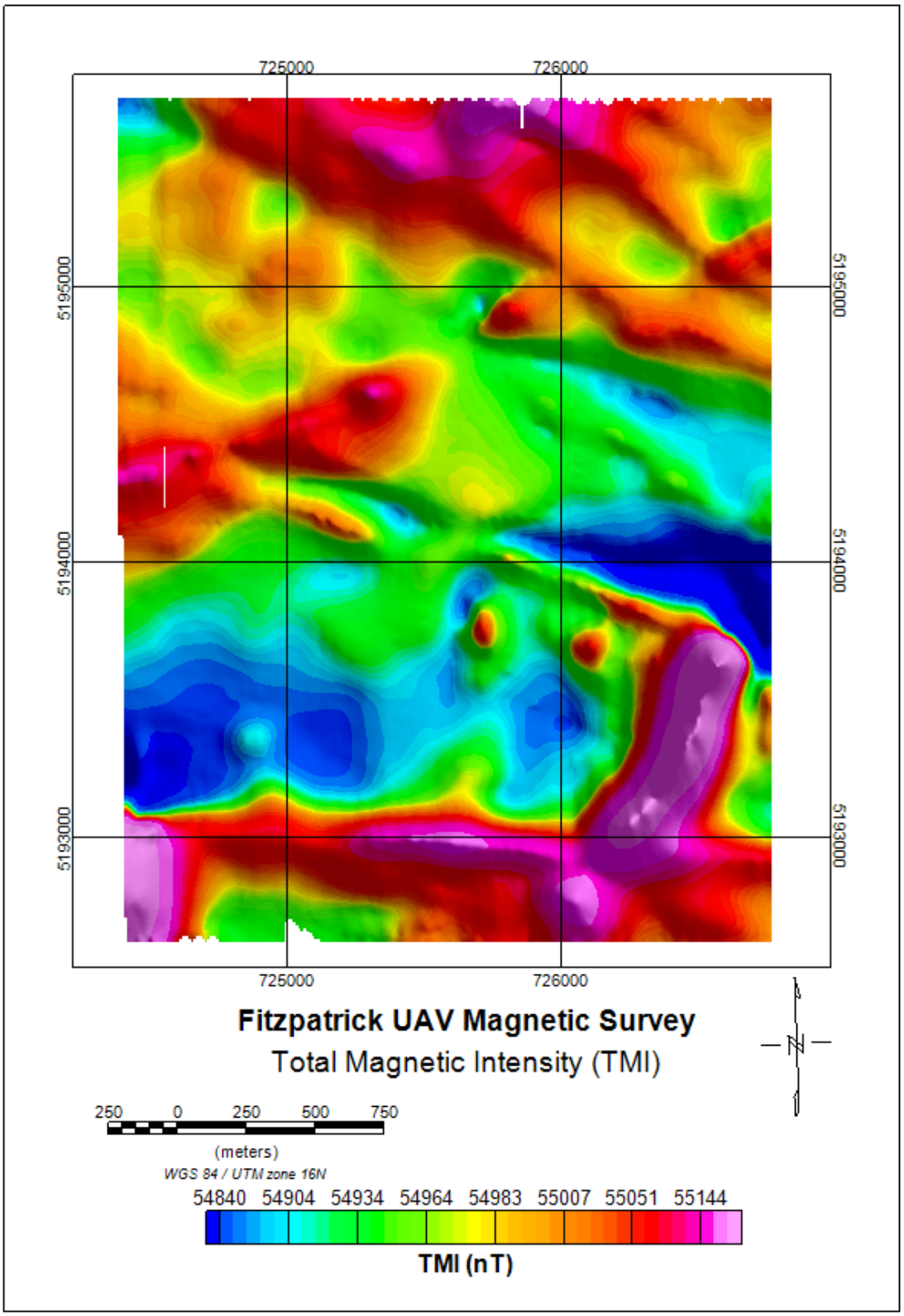

Figure 6: Total Magnetic Intensity (TMI) from UAV magnetic survey over Fitzpatrick Prospect.

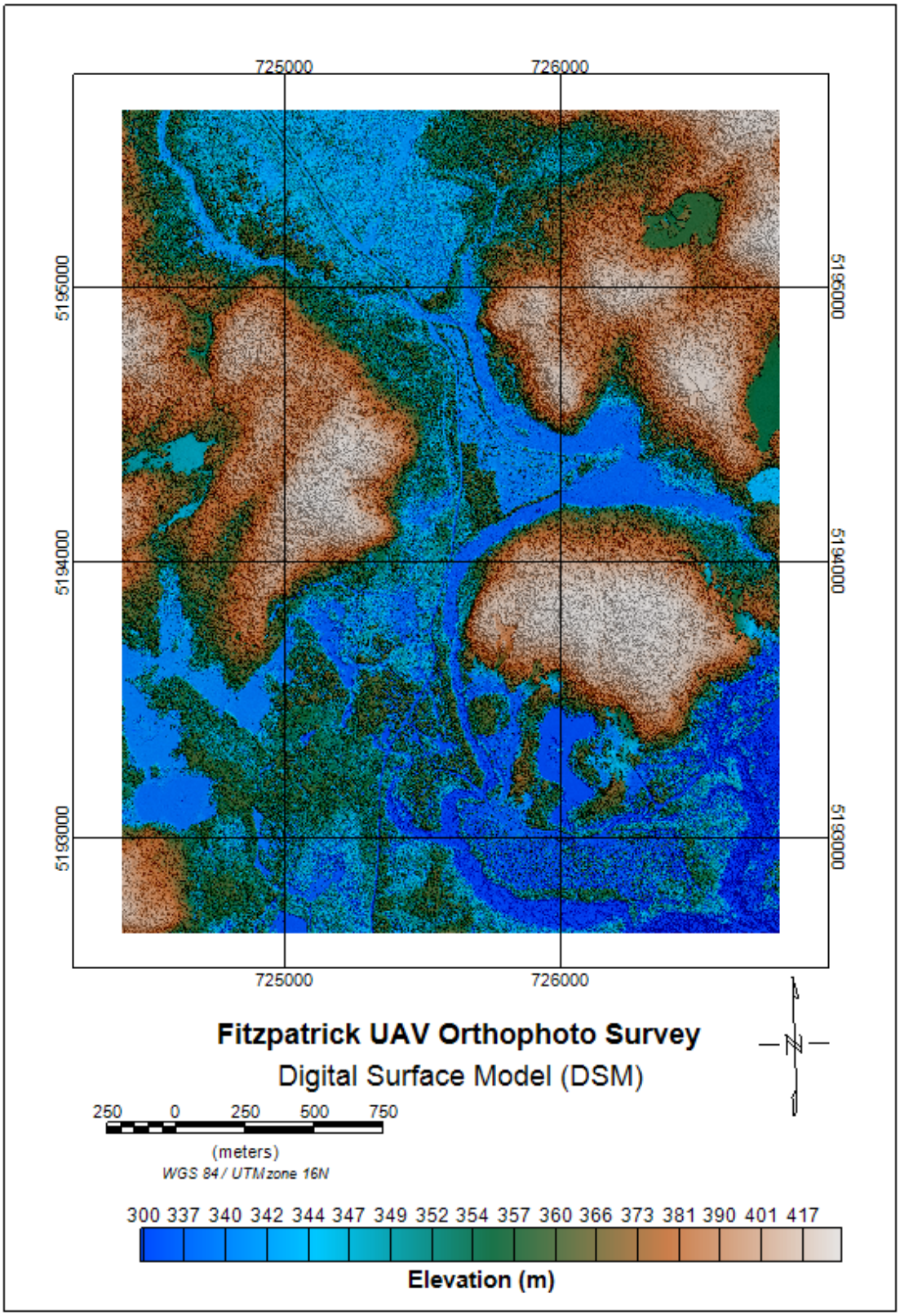

Figure 7: Digital Surface Model (DSM) from UAV orthophoto survey over Fitzpatrick Prospect.

Interpretation of the Magnetic data

A prospecting field trip completed in 2018 (McClenaghan, L. 2018) confirmed the presence of mineralized ultramafic outcrops (see Figure 7). The rocks units occur on the edge of a circular magnetic high (labelled "1"). Similar relatively small magnetic highs with trends ranging from NS to NNE-SSW (labelled 2 and 3) may indicate similar rocks. A dominant linear magnetic high, also with NNE-SSW trend is labelled as feature 4 (see Figure 7) and may be a worthy prospecting target. Presumably, the southern extent of this 900m long feature has been eroded away, but its northern extent occurs on the edge of a topographic high and this region may be a better candidate for finding an outcrop explaining the anomaly. The cluster of outcrops around label 5 are divided into a southern half of gabbro outcrops and a northern half of mafic and felsic gneisses. Again, these outcrops are located on a local topographic high and within a N to NNE trending magnetic low. Magnetic susceptibility measurements on both the ultramafic and gabbro outcrops (McClenaghan, L. 2018) indicate low values and it appears so far that magnetics may not be the best geophysical tool to directly identify further ultramafic (or gabbroic) units. The black outline in Figure 7 is defined partially by the magnetics (mag low to the north, mag high to the east and magnetic breaks to the west) and partially by the topography where there is a distinctive high in the northern half which may have been eroded away in its southern half. The outline may represent a zone where N to NNE trending intrusions may occur.

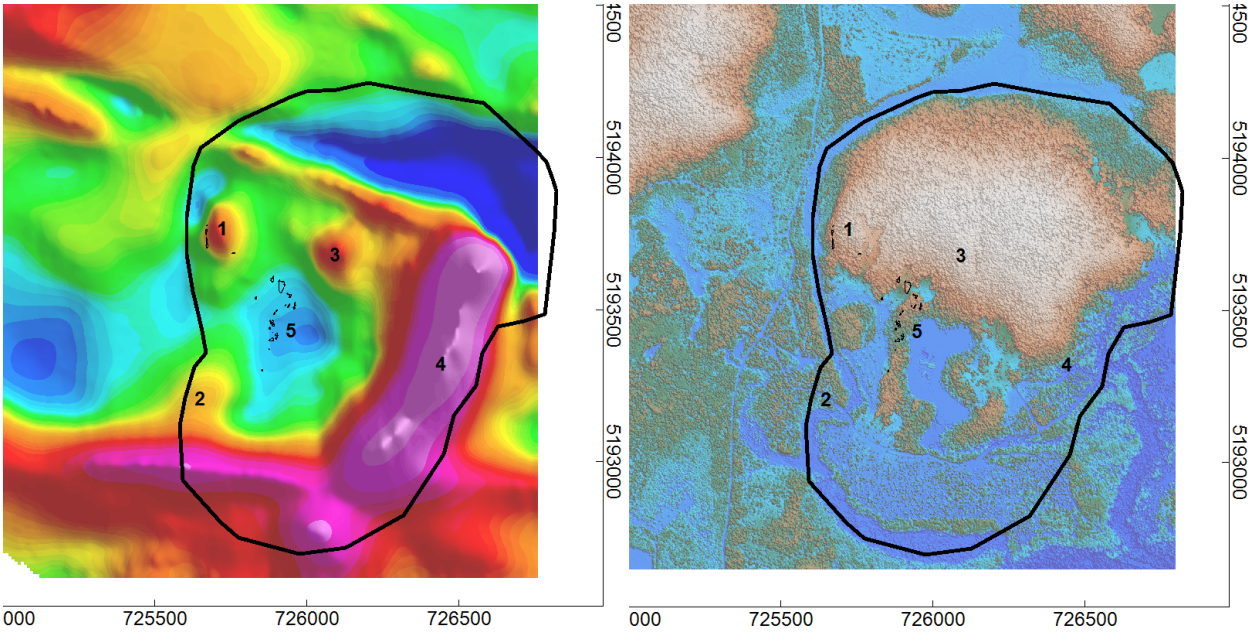

Figure 8: Left panel: TMI-. Right Panel: DSM. Black outline represents potential outline of intrusive complex defined by the TMI and the DSM. Small black outlines denote outcrops of ultramafic units (near label 1) and gabbro (southern portion of label 5 cluster) and gneisses (northern portion of label 5 cluster). Labels 2 and 3 identify magnetic highs that appear to be similar to magnetic feature – label 1. Feature with label 4 is also of interest as it appears to have a similar orientation to 1, 2 and 3.

Recommendation for Further Work

There are no immediate drill targets of interest. To test this prospect further, field work should focus on detailed geological mapping and sampling surveys to better understand the structural and geological setting of the mineral occurrence. Areas where there is disruption in the linear features might be of interest to follow up. Some of the irregular geomorphological features should also be investigated. The possibility presented by Wallace D Stroud (1965) that a fault has displaced mineralization to the south, should be explored. A mineralization model should be developed from a detailed outcrop map, a structural and geological interpretation of the UAV orthophoto magnetic survey combined with the soil geochemistry results presented by Emerald Geological Services (2003) to develop a targeting strategy.

References

Environmental Systems Research Institute. 2007. Esri World Street Map, ESRI, Base map, scale ~1:4k

Environmental Systems Research Institute. 2007. Esri World Topo Map, ESRI, Base map, scale ~1:4k

Jolly, W.T. 1974. Regional Metamorphic Zonation as an Aid in Study of Archean Terrains, Abitibi Region, Ontario; Can. Min. J., Vol.12, p.499-508.

Giblin, P.E., et al. 1979. Sault Ste. Marie—Elliot Lake, geological compilation series, Algoma, Manitoulin and Sudbury districts; Ontario Geological Survey, Map 2419, scale 1:253 440.

McClenaghan, L. 2018. 2018 Geological Survey and Sampling Work, Fitzpatrick Property, Rio Tinto Exploration Canada Inc, Assessment report, p.1-14.

Ontario Geological Survey 2011. 1:250 000 scale bedrock geology of Ontario; Ontario Geological Survey, Miscellaneous Release–Data 126

Statement of Qualifications

I, Lindsay McClenaghan certify that:

I am a full-time employee of Rio Tinto Exploration Canada Inc.

I graduated with Bachelor of Science Honours Specialization in Geology degree from the University of Western, Ontario, in 2008, and Master of Science degree in Geological Sciences from the University of British Columbia, BC, in 2013.

I am a registered Professional Geoscientist in the province of Ontario and have 12 years of experience working in mineral exploration. I authored this assessment report entitled: 2022 UAV Magnetic and Geological Surveys on the Fitzpatrick Property, managed the activities on the project, including field work and sampling process.

To the best of my knowledge, all costs reported in this Assessment Report were incurred to perform the work described in this 2022 UAV Magnetic and Geological Surveys on the Fitzpatrick Property report.

Signed,

L. McClenaghan

Dated this 31st of March 2023

Lindsay McClenaghan, P. Geo.
Principal Geoscientist
Rio Tinto Exploration Canada Inc.

Appendix A: Exploration Costs

Table A1: UAV Geophysics Survey Assessment Costs

Cost Type	Service Provider	Actual Cost
Orthophoto & Magnetic Survey	MWH Geo-Surveys Ltd.	$19,016
Field Accommodations (Meals, Vehicle rental, Equipment)	The Water Tower Inn	$1,636.27
Fuel	Shell Canada Products	$90.17
Personnel	KoBold Metals and Frequency Geophysics Inc.	$3,156.64
Geochemical Assays	ALS Canada Ltd.	$1,204.37
	Total	**$25,102**

Table A2: Claim units and associated cost

Claim Number	Area of Mag Survey (km^2)	Percentage of Survey (%)	Total UAV Surveys	Field Work Type	Samples Assayed	Cost of Assays	Field Work Cost	Percentage of field work (%)
584633	0.22	2.9	$687	Traverse	-	-	$542.56	8.9
584634	0.22	2.9	$687	Traverse	-	-	$542.56	8.9
584635	0.22	2.9	$687	-	-	-	-	-
584636	0.22	2.9	$687	Mapping	1	$240.87	$542.56	12.9
584637	0.22	2.9	$687	-	-	-	-	-
584638	0.22	2.9	$687	Traverse	-	-	$542.56	8.9
584639	0.22	2.9	$687	Traverse	-	-	$542.56	8.9
584640	0.22	2.9	$687	-	-	-	-	-
584641	0.22	2.9	$687	-	-	-	-	-
584642	0.22	2.9	$687	-	-	-	-	-
584643	0.22	2.9	$687	Traverse	-	-	$542.57	8.9
584644	0.22	2.9	$687	-	-	-	-	-
584645	0.22	2.9	$687	Mapping	-	-	$542.57	8.9
584646	0.22	2.9	$687	Mapping	2	$481.75	$542.57	16.8
584647	0.22	2.9	$687	Mapping	2	$481.75	$542.57	16.9
721604	0.22	2.9	$687	-	-	-	-	-
721605	0.21	2.7	$640	-	-	-	-	-

721606	0.22	2.9	$687	-	-	-	-	-
721607	0.22	2.9	$687	-	-	-	-	-
721608	0.21	2.8	$663	-	-	-	-	-
721609	0.22	2.9	$687	-	-	-	-	-
721610	0.22	2.9	$687	-	-	-	-	-
721611	0.22	2.9	$687	-	-	-	-	-
721612	0.22	2.9	$687	-	-	-	-	-
721613	0.22	2.9	$687	-	-	-	-	-
721614	0.22	2.9	$687	-	-	-	-	-
721615	0.22	2.9	$687	-	-	-	-	-
721616	0.05	0.6	$142	-	-	-	-	-
721619	0.07	0	$17	-	-	-	-	-
721620	0.13	1.6	$379	-	-	-	-	-
Outside of Property	1.53	19.8	$4,695	-	-	-	-	-
Total	7.7	100	$23,711	-	5	$1,204.37	$4,883.08	100
Total Assessment Value			$19,016			$1,204.37	$4,883.08	

Appendix B: 2022 UAV Mag Logistics Report

MWH Geo-Surveys Ltd.

Logistical Summary
Fitzpatrick Project, ON, Canada

For Rio Tinto Exploration Company

MWH Geo-Surveys Ltd.
Sept-Oct 2022

Contents

116- 5100 Anderson Way, Suite 388, Vernon BC V1T 0C4 - (250) 542-9897

Magnetic Survey

Beginning Sept 10 and ending Oct 7, 2022 MWH Geo-Surveys Ltd. carried out a UAV Magnetic and UAV Orthophoto survey located approximately 10 km north of Searchmont, Ontario at the request of for Rio Tinto Exploration.

OPERATIONS and SCHEDULING:

Survey Personnel: The personnel involved on this project were:

- Mark Bedford
- Kaolin Pickett
- Marshall MacNabb
- Remote Pilot in Command
- UAV flight crew
- Data Processing

The following is the project timeline:

Date	Status	Kms Flown	Flights	Flight Hours
09-Sept-22	Orthophoto Production	NA	6	5.8
10-Sept-22	Orthophoto Production	NA	3	4.2
11-Sept-22	Travel	NA	NA	NA
05-Oct-22	Orthophoto Production	NA	5	
06-Oct-22	Orthophoto/Mag Production	45	12	5.1
07-Oct-22	Mag Production	82.8	17	8.7
08-Oct-22	Mag Production/Demob	26.1	6	2.7
Total		**153.9**	**49**	**26.5**

UAV ORTHOPHOTO FIELD PROCEDURES

The orthophoto survey was conducted with a Wingtra One PPK VTOL mapping drone. Ground control targets were laid out and the positions surveyed before the photo mapping. The ground control targets were post processed to the MILS UFCORS control site in Sault Ste Marie, MI. The positional information for MILS is noted below:

CORS_ID	MILS
PID	DL5979
STATE/COUNTY	MI/CHIPPEWA
COUNTRY	USA
USGS QUAD	SAULT STE. MARIE SOUTH (2017)
NAD 83(2011) POSITION	46 29 13.02145(N) 084 21 51.96252(W)
NAD 83(2011) ELLIP HT	187.376 (meters)

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Prior to take off and during the entire duration of every flight a static GNSS base station was recording data to enable precise post processing of the UAV camera location. The combination of surveyed ground targets and the PPK positioning of the mapping drone and camera yields a high-resolution digital surface model. Photos were collected using the 42 mega-pixel WingtraOne Sony RX1R II camera. Images were processed in Pix4D software and the resultant surface models and orthophotos were produced and exported at various resolutions. Absolute accuracy is projected to be better than 5cm.

UAV MAGNETIC FIELD PROCEDURES:

A total of approximately 154.4 line kilometers of UAV magnetics were flown bearing either north or south at a spacing of approximately 50 meters; east-west tielines were flown at a spacing of approximately 1000 meters. All acquisition was flown at an elevation of approximately 58 meters above ground level (AGL) with a tolerance of +/- 3 meters.

Access to all flight staging sites was by truck. A portable generator was used to run the navigational planning and control software on a field PC and to charge the flight batteries.

Our UAV mag system uses a Geometrics MagArrow Cesium Magnetometer flown under a Watts Innovation Prism X8 axial quadcopter. The MagArrow sensor takes 1000 readings per second and is flown at a maximum speed of 8m/second. The sensor is suspended on a 2.5m lanyard to remove it from the electromagnetic noise of the UAV. Data is down sampled after collection to 10Hz. Technical information on the airborne sensor is attached as an appendix. The MagArrow readings are diurnally corrected via a Geometrics G858 base mag, cycling at 10 readings per second.

DATA REDUCTION and MAPPING:

Base and aerial magnetic data was downloaded and diurnally corrected each day. Geophysics-Minerals (GM) received and processed a combined total of 154.4 Line-Kilometers of data, after final edits, approximately 150.5 Line-Kilometers of data were delivered. The processing results were used to map the Total Magnetic Intensity (TMI) field and calculate the Reduced to Pole (RTP). All data points are shown in Figure 2. Magenta points resulted from the editing and are used for final mapping. Green points were removed from the received dataset and not used for final mapping.

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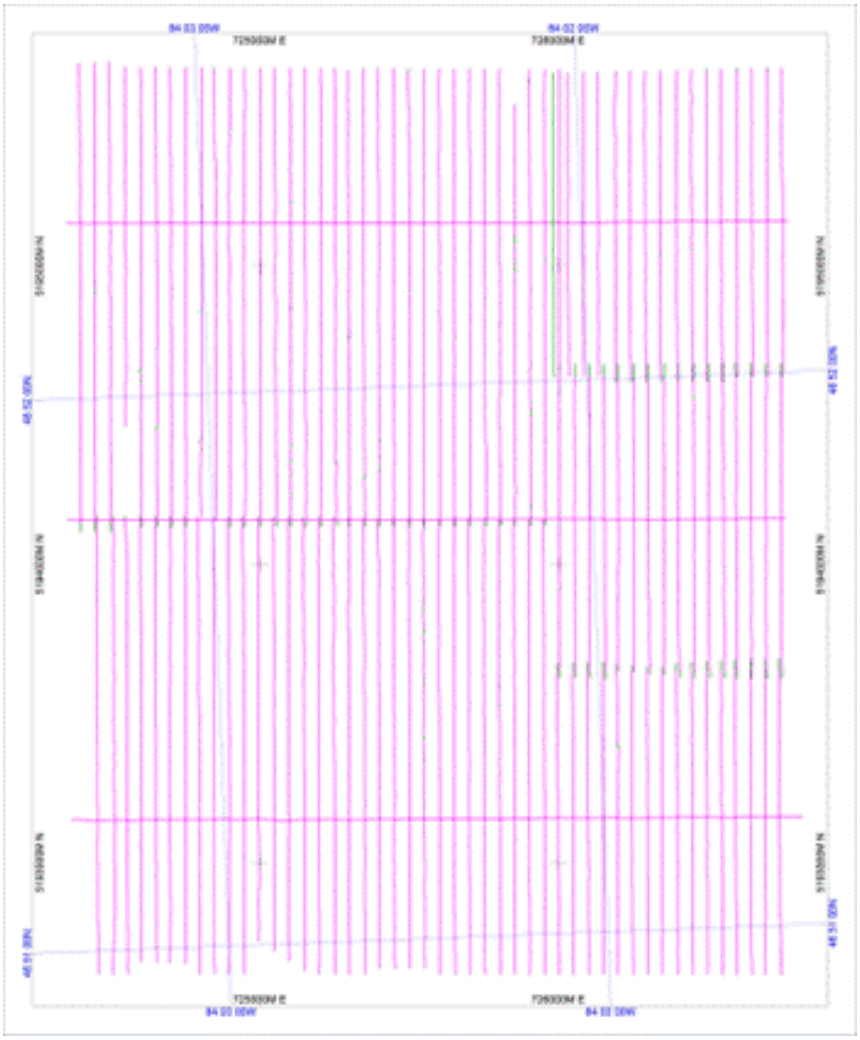

Figure 2 - Rio Tinto Exploration, Fitzpatrick Survey - Ontario, Canada UAV Aeromagnetic data acquisition. Magenta points used for final mapping; Green points removed from survey dataset.

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DATA EDITING:

Flightlines were flown bearing either south or north with tielines flown east or west. The purpose of the editing was to isolate the points along flightlines and remove points associated with five occurrences:

1) "Transit" lines which connect the ends of flightlines with takeoff and landing locations.
2) "Loops" which connect ends of adjacent flightlines.
3) "Hovers" which occur at takeoff and landing where there is little or no lateral travel.
4) "Re-flights" when a line is reflown and duplication is acquired; only one flight must be selected.
5) "Spikes" when a single reading is anomalously much greater or lower than adjacent points. A point was rejected if its value was 5 nT greater or less than the average value of its four adjacent points; that is the two points recorded approximately 0.2 seconds (approximately 1.4 meters) before and after it.

International Geomagnetic Reference Field (IGRF) Correction:

The IGRF is a mathematical representation of the smoothly varying earth's magnetic field. The aeromagnetic acquisition records a magnetic value which is the sum of the IGRF and the magnetic anomalies caused by the local geology. Therefore, to isolate the anomalies, the IGRF must be calculated for each acquired data point and subtracted from it. The value of the IGRF for a point depends on the time and location of acquisition: date, time of day, latitude, longitude and elevation (above sea level).

Using the 13th generation IGRF adopted in December 2019 by IAGA Working Group, the method used here calculates the IGRF value for each data point at its time and location of acquisition. This value of the IGRF for the particular point is then subtracted from the Diurnally Corrected Magnetic Value producing the IGRF correction, sometimes called the IGRF anomaly. The Final TMI was calculated by then adding a constant to the IGRF correction of 55,107 nanoTesla. This is the approximate average value of the IGRF for the entire survey.

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Total Magnetic Intensity (TMI):

The final TMI values were gridded at a grid interval of 20 meters. Data were of high quality and so contoured at a 10 nT increment. Data resolution is considered to be 2 nT.

Reduction-to-Pole (RTP):

The TMI grid was then used to calculate the RTP grid using an Inclination= 72.1° and Declination= -7.7°. The RTP was applied then 55,050 nT were added; this value is the approximate average difference between the TMI and calculated RTP grids. Contouring was at 10 nT as with the TMI map.

The RTP data enhancement map results from a mathematical operator which corrects for position offset of the skewing of an induced magnetic anomaly due to the earth's magnetic field's inclination and declination. The reduction-to-pole mathematically transforms the total magnetic intensity (TMI) field at its observed inclination (I) and declination (D) to that of the north magnetic pole (i.e., I=90°, D=0°); thereby centering the magnetic anomaly directly over the causative body and so assisting the interpretation process. For example, the anomaly signature for a body located in an area of high (steep) magnetic inclination such as south-central Ontario (I ≈ 72°N) is illustrated in Figure 3.

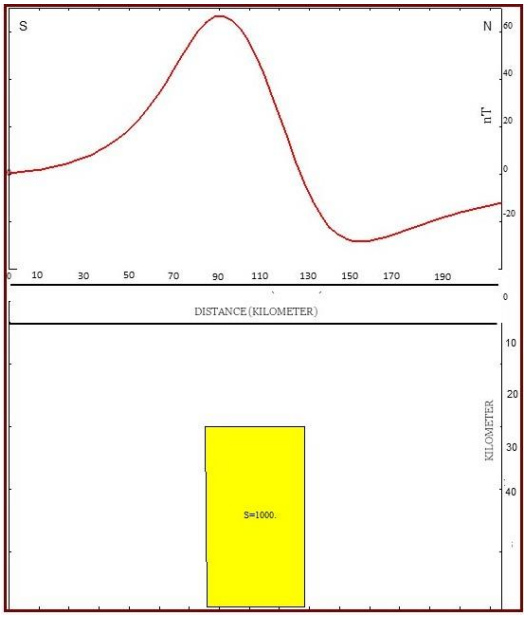

Figure 3 Magnetic inclination effect due to a body located at 72° Inclination along a 0° azimuth south-north traverse.

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The RTP operator is applied to the TMI grid to adjust the steeply dipping inclination effect to the vertical 90° inclination angle of the magnetic north pole as illustrated in Figure 4. The asymmetry of the anomaly signature shown in Figure 3. has been exaggerated to highlight the effect of the correction.

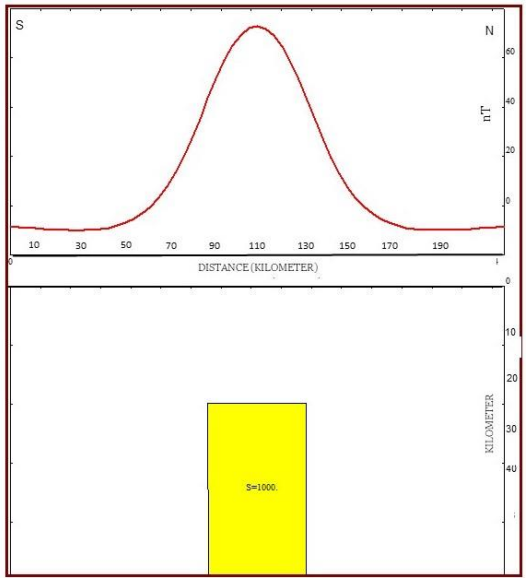

Figure 4 Magnetic inclination effect due to a body located at the magnetic north pole along a 0° azimuth south-north traverse.

First Vertical Derivative (1VD) of Reduction-to-Pole (RTP)

The 1VD data enhancement map results from a mathematical operator which calculates the rate of change in magnetic intensity in the vertical direction, ($\partial M / \partial z$). This process produces a residual map where longer wavelength anomalies have been removed thus accentuating short wavelength anomalies. These shorter wavelength anomalies result from relatively shallow geologic structures and bodies. Additionally, the mapped zero (0) contour can be indicative of vertical or near vertical geologic boundaries or contacts. Contour interval is 0.25 nT/m.

The 1VD data enhancement map and grid delivered are the result of a standard vertical derivative calculation with a limited amplitude display range. The areas where the 1VD values lie within the range of -0.25 and 0.25 nT/m were set to null. This very low amplitude data range is considered data noise hampering interpretation. However, a zero (0) contour may be reasonably interpreted where the amplitudes are higher and the distance between the -0.25 and 0.25 nT/m contours is narrow.

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Mapping Parameters:

Full maps are in Adobe PDF format
Geotiff images are in GCP format
Grid files for the 3 maps are provided in Geosoft Binary format (grd) and in ASCII format: Row-Major (rmg) and projection information (prj)

Scale: 1 : 5,000
Projection: UTM zone 16N (EPSG 32616)
Datum: WGS84
Magnetic Field Units: nanoTesla or nanoTesla/meter
Distance Units: meters
Geographic Units: degrees north and east
Contour increment: 10.0 nanoTesla or 0.25 nT/m
Grid increment: 20 meters
Null value: 99999

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DATA DELIVERABLES:

Note on filename abbreviations:

TMI – Total Magnetic Intensity
RTP – Reduced to Pole
1VD – First Vertical Derivative
Limited – An interval of the values has been nulled

Note on images:

The following images were produced from the grid files. The grids were created from the survey data delivered herein using an optimum grid increment. It is not recommended to regird because loss of resolution will occur. If a finer grid increment is sought, it is recommended to grid the delivered data.

Maps:

GM_MWH_RTX_FITZPATRICK_ON_UAV_Mag_TMI_20221114.pdf
GM_MWH_RTX_FITZPATRICK_ON_UAV_Mag_RTP_20221114.pdf
GM_MWH_RTX_FITZPATRICK_ON_UAV_Mag_RTP_1VD_Limited_20221114.pdf

Geotiffs:

GM_MWH_RTX_FITZPATRICK_ON_UAV_Mag_TMI_20221114.tif
GM_MWH_RTX_FITZPATRICK_ON_UAV_Mag_RTP_20221114.tif
GM_MWH_RTX_FITZPATRICK_ON_UAV_Mag_RTP_1VD_Limited_20221114.tif

Grids: Geosoft binary (grd), row-major (rmg) formats & projection information (prj)

GM_MWH_RTX_FITZPATRICK_ON_UAV_Mag_TMI_20221114.grd
GM_MWH_RTX_FITZPATRICK_ON_UAV_Mag_TMI_20221114.prj
GM_MWH_RTX_FITZPATRICK_ON_UAV_Mag_TMI_20221114_rmg.asc
GM_MWH_RTX_FITZPATRICK_ON_UAV_Mag_RTP_20221114.grd
GM_MWH_RTX_FITZPATRICK_ON_UAV_Mag_RTP_20221114.prj
GM_MWH_RTX_FITZPATRICK_ON_UAV_Mag_RTP_20221114_rmg.asc
GM_MWH_RTX_FITZPATRICK_ON_UAV_Mag_RTP_1VD_Limited_20221114.grd
GM_MWH_RTX_FITZPATRICK_ON_UAV_Mag_RTP_1VD_Limited_20221114.prj
GM_MWH_RTX_FITZPATRICK_ON_UAV_Mag_RTP_1VD_Limited_20221114_rmg.asc

Note on data files:

Data are being delivered in a generic format (ASCII) generally considered compatible with mapping software.

Data:

GM_MWH_RTX_FITZPATRICK_ON_UAV_Mag_Data_20221114_csv.zip
GM_MWH_RTX_FITZPATRICK_ON_UAV_Mag_delivery_comments_20221114.txt

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In the ASCII comma separated value (csv) formatted files of the edited data, the Line numbers begin with 1 then increment by 1 from east to west; the TieLine numbers begin with 101 then increment by 1 from south to north. The Lines are sorted by line Number then by Northing, south to north for each line. The Tielines are sorted by line Number then by Easting, west to east for each line.

Additionally, file header records define the following:

Projection: UTM zone 16N (EPSG 32616)
Datum: WGS84
Magnetic Field Units: nanoTesla
Distance Units: meters
Geographic Units: degrees north and east
Directional Units: degrees east of north
Date Units: day-month-year
Time Units: hour,minute,second hhmmss.sss

Note: Date and Time are Local
Note: The Final TMI was calculated by subtracting the IGRF value from the diurnally corrected magnetics then adding a constant of 55,107 nT, the approximate average IGRF value for the survey.

The first 3 records of the csv portion of the Data file are:

Line,X,Y,Lat,Long,Date,Time,Alt,AGL,Adjusted Diurnally Corrected Mag,IGRF value, IGRF correction,Final Total Magnetic Intensity (TMI),LineDirection,Mag,FiltMag, BaseDatum,BaseVal,FiltBaseVal,DiurnalCorrection,DiurnallyCorrectedMag, UTMZone,GroundHt,Flight,Segment,Counter,Track,TrackAdj

1,726747.326,5192627.475,46.8485306,-84.0257962,7-Oct-22,143602.2,374.2,60.8,55002.4136, 55102.1038,-99.6902,55007.3098,0,55017.9123,55017.9523,55150,55166.45,55166.3787, 16.3787,55001.5736,16N,313.44,12,78,227039,2.4,178

1,726747.298,5192628.008,46.8485354,-84.0257963,7-Oct-22,143602.3,374.2,60.7,55002.4361, 55102.1056,-99.6695,55007.3305,0,55017.9613,55017.9552,55150,55166.44,55166.3791, 16.3791,55001.5761,16N,313.51,12,78,227040,1.8,178

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Appendix

- Data Heading Index
- Magnetometer Specifications

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Core Data Delivery	Line #	Line number. May contain multiple segments to build a complete line across the survey area
	X	UTM Easting WGS84 from UAV GPS
	Y	UTM Northing WGS84 from UAV GPS
	Lat	Latitude in Decimal Degrees from UAV GPS
	Long	Longitude in Decimal Degrees from UAV GPS
	Date	Data collection date in local time zone (dd-MMM-yy)
	Time	Data collection time in local time zone (hhmmss.s)
	Alt	Sensor Altitude based on UAV GPS
	AGL	Sensor Height above ground based on UAV GPS
	Adjusted Diurnally Corrected Mag	Rover data after application of Diurnal correction and Heading Error Calculation
	IGRF Value	IGRF calculated by IGC
	IGRF Correction	IGRF correction calculated by IGC
	Final Total Magnetic Intensity (TMI)	Calculated by subtracting the IGRF value from the Adjusted Magnetics field, then adding a constant of the approximate average IGRF value for the survey
Data Calculation Steps	LineDirection	Direction of flight rounded to near degree
	Mag	Raw magnetometer reading off Mag Arrow
	FiltMag	Rover data after filtering to remove EM noise of UAV and downsampling from 1000Hz to 10Hz
	Base Datum	Base Datum
	Base Val	Base magnetometer value after interpolation to match rover time sampling
	Filt Base Val	Base magnetometer with a Savitzky-Golay Filter to remove any significant data spikes
Extra Internal Information	DiurnalCorrection	Calculated diurnal correction
	DiurnallyCorrectedMag	Rover data after application of Diurnal correction
	UTMZone	WGS84 UTM zone
	GroundHt	Ground height from DSM at the sensor XY coordinates
	Flight	Flight Number per day
	Segment	Number to track line segments
	Counter	Index number for data orginazation
	Track	Compass direction of sensor
	TrackAdj	Compass direction of sensor adjusted to orient with line direction

MagArrow
UAS Deployable Magnetometer

GEOMETRICS
Simplify your search

Survey large areas of inaccessible terrain 10x faster than a typical magnetic survey

The MagArrow by Geometrics is our first ever UAS deployable magnetometer, and it sets a new standard for UAS magnetic surveys. The MagArrow is engineered to address the limitations of both large manned and small helicopter surveys. To meet these special survey conditions, the MagArrow was built with reliability, efficiency, and ease of use in mind.

The vessel is made of an aerodynamic, light-weight carbon fiber shell. Internally the system contains an MFAM miniature magnetometer, GPS, IMU sensors, an SD card, and battery connectors. The MFAM sensors in the MagArrow are our most groundbreaking sensors yet, capable of highly precise measurements in an extremely lightweight and tiny package. Our system ships complete with a full featured data logger.

The MagArrow can be attached easily to a wide variety of enterprise UAS. The 1000 Hz sample rate synchronized to the on-board GPS allows the system to function independently of the UAS and the UAS software. With such a fast sample rate, surveys can be completed at speeds up to 10 m/s with samples collected every 1 cm.

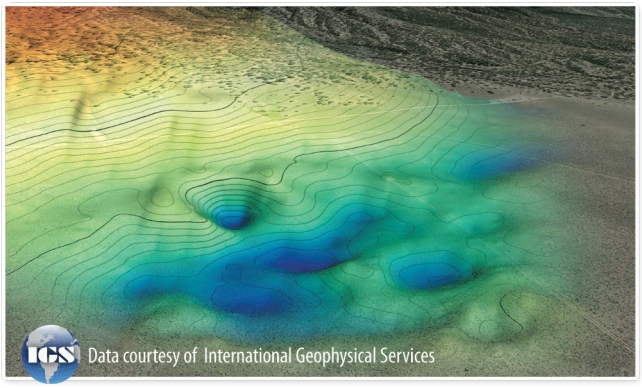
Operation in the field is simple. Survey details are programmed into the user's UAS software of choice. The MagArrow is turned on, and once airborne, preprogrammed GPS waypoints carry the MagArrow in altitude stable survey lines. Once work is completed, data from the MagArrow can be wirelessly downloaded to a computer.

The MagArrow is a robust yet flexible system that can adapt to changing field conditions and new user workflows. How will you use the MagArrow?

FEATURES & BENEFITS

- **Lightweight** – Weighs only 1 kg, allowing a flight time 20% longer* than a 2.5 kg-payload UAS.
- **UAV Agnostic** – Can be easily attached to your existing enterprise UAS.
- **Self-Contained** – GPS, storage, and WiFi on board. No connection to UAS needed.
- **Super-Fast Sampling Rate** – Fly faster, up to 10 m/s with samples every 1 cm. Filter out UAS motor noise.
- **Long Battery Life** – 2 hours of battery life will outlast multiple UAS flights. Hot swappable.
- **High Quality Data** – Peace of mind.

*DJI Matrice 600 Pro



"The UAS-enabled MagArrow also fills the gap between pilot-on-board aeromagnetic surveys and ground magnetic surveys where the areal size of the survey is too small to justify a pilot-on-board aeromagnetic survey, or the need for low altitude flight operations makes a pilot-on-board survey too risky or too costly."

— Ron Bell of International Geophysical Services, MagArrow user.

POWERFULLY BUILT, SIMPLY EXECUTED

For simplicity in the field, the MagArrow has no external connections, instead containing the GPS, WiFi, and memory on board. Battery packs are hot swappable. All operations are accessed through the web-browser interface. Internal IMU sensors allow for a complete suite of data compensation algorithms to be applied, if desired, to remove platform-induced field variations.

Operating Principle: Laser pumped cesium vapor (Cs133 non-radioactive) total field scalar magnetometer.

Operating Range: 20,000 to 100,000 nT.

Gradient Tolerance: 10,000nT/m.

Operating Zones: Configured for operation anywhere in the world without dead zones.

Dead Zone: None.

Noise/Sensitivity: 0.005nT/ $\sqrt{Hz}_{rms}$ typical; (SX (export) version: <0.02 nT/$\sqrt{Hz}_{rms}$)

Sample Rate: 1000 Hz. synchronized to GPS 1PPS.

Bandwidth: 400Hz.

Heading Error: ± 5 nT over entire 360° equatorial and polar spins typical.

Output: WiFi data download over 2.4GHz WiFi access point.

GPS: Commercial grade with typical 1 m accuracy.

USB Port: Port for USB flash drive. Used for field upgrades.

Data Logger: Built in Data Logger.

Data Storage: 32 Gbyte Micro SD card, U3 speed class. Not field-accessible. Contact sales for higher capacities.

Data Download: Over WiFi 2.4GHz using user-supplied browser-capable device. 10 minutes of data requires 1 minute to download.

IMU: Bosch BMI160 Accel/Gyro - 200 Hz sample rate. Insentek Compass - 100 Hz Sample rate.

Total Weight: 1 kg without batteries.

Length: 1 m.

BATTERY

Battery Connection: 2x XT60 connectors for 206 type batteries.

Battery Recommendations: Non-magnetic 1800 mAh or 2200 mAh lithium polymer, 3cell, 11.1v. Hot swappable.

ENVIRONMENTAL

Operating Temperature: -10°C to +40°C (+14°F to +104°F).

Humidity: Non-condensing.

ACCESSORIES

Standard: Carrying case, AC power adapter and USB drive containing operation manual and software.

Warranty: 1 year.

Specifications subject to change without notice. MagArrow_v2 (1019)

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Appendix C: Certificate of Analysis

ALS Canada Ltd.
2103 Dollarton Hwy
North Vancouver BC V7H 0A7
Phone: +1 604 984 0221 Fax: +1 604 984 0218
www.alsglobal.com/geochemistry

To: 2683304 ONTARIO INC. - MCR
666 BURRARD STREET, 25TH FLOOR
VANCOUVER BC V6C 2X8

Finalized Date: 8-FEB-2023
Account: MCRONINC

CERTIFICATE SD22345304

Project: MCR Regional

This report is for 25 samples of Rock submitted to our lab in Sudbury, ON, Canada on 25-NOV-2022.

The following have access to data associated with this certificate:

KIEL ARNDT	SAVANNAH BLAKE	JOHN CHAPMAN
LUKE FAIRCHILD	IAN FIELDHOUSE	RORY FRENCH
MONIQUE HOLT	IRIS HWANG	JENNA KAINIC
ROCHELLE LI	PETER MARTIN	ALETA MAWUENYEGAH
BILL PAGE	YUEM PARK	ACCOUNTING TEAM

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
PUL-QC	Pulverizing QC Test
LOG-23	Pulp Login - Rcvd with Barcode
CRU-31	Fine crushing - 70% <2mm
LOG-21	Sample logging - ClientBarCode
SPL-21	Split sample - riffle splitter
PUL-32	Pulverize 1000g to 85% < 75 um
CRU-QC	Crushing QC Test

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
ME-ICP06	Whole Rock Package - ICP-AES	ICP-AES
C-IR07	Total Carbon (IR Spectroscopy)	LECO
S-IR08	Total Sulphur (IR Spectroscopy)	LECO
ME-MS81	Lithium Borate Fusion ICP-MS	ICP-MS
ME-MS42	Up to 34 elements by ICP-MS	ICP-MS
OA-GRA05	Loss on Ignition at 1000C	WST-SEQ
TOT-ICP06	Total Calculation for ICP06	
ME-4ACD81	Base Metals by 4-acid dig.	ICP-AES
OA-GRA08	Specific Gravity - Bulk Sample	WST-SEQ
PGM-MS23L	Low level PGM - FA ICPMS	ICP-MS

This is the Final Report and supersedes any preliminary report with this certificate number.Results apply to samples as submitted.All pages of this report have been checked and approved for release.
***** See Appendix Page for comments regarding this certificate *****

Signature:
Saa Traxler, Director, North Vancouver Operations

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VANCOUVER BC V6C 2X8

Finalized Date: 8-FEB-2023
Account: MCRONINC

Project: MCR Regional

CERTIFICATE OF ANALYSIS SD22345304

Sample Description	Method / Analyte / Units / LOD	WEI-21 Recvd Wt. kg 0.02	OA-GRA08 S.G. Unity 0.01	CRU-QC Pass2mm % 0.01	PUL-QC Pass75um % 0.01	ME-ICP06 SiO2 % 0.01	ME-ICP06 Al2O3 % 0.01	ME-ICP06 Fe2O3 % 0.01	ME-ICP06 CaO % 0.01	ME-ICP06 MgO % 0.01	ME-ICP06 Na2O % 0.01	ME-ICP06 K2O % 0.01	ME-ICP06 Cr2O3 % 0.002	ME-ICP06 TiO2 % 0.01	ME-ICP06 MnO % 0.01	ME-ICP06 P2O5 % 0.01
K0003557		1.52	2.61	70.6	97.5	98.8	0.02	1.42	0.02	0.01	0.08	0.01	0.007	<0.01	0.01	<0.01
K0003558		2.23	2.59		96.0	99.5	0.01	1.24	0.06	0.03	0.09	0.02	0.006	<0.01	0.01	<0.01
K0003559		1.25	3.02			49.4	13.70	15.90	9.54	6.06	2.14	0.68	0.020	1.33	0.23	0.13
K0003560		1.80	2.97			50.2	11.10	13.80	6.20	12.00	1.94	1.20	0.152	0.81	0.16	0.06
K0003561		1.32	2.99			49.2	11.10	13.80	7.34	11.80	1.37	1.62	0.147	0.88	0.20	0.06
K0003562		1.61	3.03			48.2	14.35	14.10	9.55	6.56	1.68	1.14	0.031	1.25	0.20	0.13
K0003563		0.07				51.1	15.25	11.05	8.85	8.87	2.11	1.56	0.337	0.98	0.18	0.33
K0003564		1.66	3.02			48.0	15.25	14.05	10.05	6.62	1.72	1.14	0.026	1.16	0.20	0.11
K0003565		1.53	3.01			50.2	14.10	14.35	9.50	6.66	2.42	1.02	0.021	1.04	0.22	0.10
K0003566		2.35	3.01			49.5	14.60	14.75	8.89	6.05	1.84	0.77	0.019	1.36	0.21	0.14
K0003567		0.07				50.5	14.70	10.75	8.49	8.81	2.18	1.62	0.325	1.01	0.18	0.34
K0003568		2.59	2.99			51.5	13.25	14.70	9.24	5.39	2.22	0.98	0.009	1.31	0.21	0.16
K0003569		1.73	3.01			48.9	7.54	13.20	8.23	16.25	1.58	0.42	0.144	1.11	0.23	0.15
K0003570		1.76	3.05			49.5	13.25	16.65	8.91	5.23	2.42	0.83	0.012	1.60	0.25	0.20
K0003571		1.98	3.05			50.7	13.20	17.95	8.61	3.96	2.29	0.75	0.006	1.95	0.23	0.32
K0003572		1.64	3.04		95.0	50.5	12.95	18.15	8.51	4.01	2.24	0.72	0.006	1.98	0.23	0.32
K0003573		2.09	3.08		97.1	47.3	12.45	17.25	9.24	5.03	2.00	0.62	0.008	1.86	0.24	0.19
K0003574		1.68	2.91			49.5	12.80	15.85	6.39	5.69	3.94	0.14	0.009	1.57	0.18	0.17
K0003575		1.40	2.94			44.6	12.90	15.30	9.32	4.82	2.34	0.92	0.017	4.33	0.21	0.89
K0003576		0.98	2.93			44.4	12.90	15.15	9.21	4.88	2.30	0.92	0.018	4.26	0.20	0.88
K0003577		1.72	2.95			44.8	13.00	15.45	9.44	4.84	2.36	0.95	0.018	4.33	0.22	0.89
K0003578		1.86	2.75			61.5	15.70	6.96	0.75	4.09	4.26	3.14	0.005	0.71	0.06	0.32
K0003579		1.55	2.64			70.1	13.50	3.31	0.50	0.91	5.56	1.33	0.009	0.34	0.02	0.06
K0003580		1.73	2.67			69.2	12.30	4.27	0.53	1.52	3.50	2.16	0.010	0.42	0.03	0.08
K0003581		2.00	2.62			99.5	0.04	1.37	0.02	0.01	0.09	0.02	0.007	<0.01	0.01	0.01

***** See Appendix Page for comments regarding this certificate *****

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To: 2683304 ONTARIO INC. - MCR
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Finalized Date: 8-FEB-2023
Account: MCRONINC

Project: MCR Regional

CERTIFICATE OF ANALYSIS SD22345304

Sample Description	Method	ME-ICP06	ME-ICP06	OA-GRA05	TOT-ICP06	C-IR07	S-IR08	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81
	Analyte	SrO	BaO	LOI	Total	C	S	Ba	Ce	Cr	Cs	Dy	Er	Eu	Ga	Gd
	Units	%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
	LOD	0.01	0.01	0.01	0.01	0.01	0.01	0.5	0.1	5	0.01	0.05	0.03	0.02	0.1	0.05
K0003557		<0.01	<0.01	-0.11	100.27	0.03	<0.01	4.7	3.4	45	0.06	0.05	<0.03	0.03	0.4	0.15
K0003558		<0.01	<0.01	0.05	101.02	0.04	<0.01	4.0	1.8	41	0.09	<0.05	<0.03	0.03	0.3	0.11
K0003559		0.01	0.02	1.95	101.11	0.03	0.02	166.5	27.8	154	0.65	5.99	3.63	1.32	19.2	4.90
K0003560		0.01	0.02	2.39	100.04	0.02	0.39	133.5	10.5	1195	2.42	1.93	1.14	0.53	17.4	1.69
K0003561		0.01	0.03	1.56	99.12	0.03	0.08	241	12.2	1145	3.64	1.91	1.13	0.77	16.6	2.02
K0003562		0.03	0.04	1.92	99.18	0.05	0.05	325	22.1	245	1.54	4.77	3.08	1.16	18.2	4.56
K0003563		0.05	0.05	0.07	100.79	0.06	0.09	466	42.2	2650	4.27	3.65	2.32	1.40	18.4	4.44
K0003564		0.03	0.04	2.20	100.60	0.04	0.03	326	21.4	204	1.77	4.89	3.19	1.08	19.9	4.34
K0003565		0.02	0.02	1.21	100.88	0.03	0.04	184.5	23.2	170	1.12	4.83	3.03	1.02	17.6	3.78
K0003566		0.03	0.03	2.20	100.39	0.03	0.08	292	24.1	136	0.55	5.45	3.54	1.23	20.1	4.86
K0003567		0.06	0.05	0.09	99.11	0.06	0.10	462	42.4	2450	4.01	3.20	1.99	1.26	18.3	4.18
K0003568		0.02	0.02	0.63	99.64	0.04	0.08	205	33.3	72	1.27	5.12	3.11	1.37	19.2	5.03
K0003569		0.02	0.01	2.14	99.92	0.04	0.04	84.7	44.4	1050	1.03	2.97	1.33	1.47	13.2	3.97
K0003570		0.02	0.03	0.74	99.64	0.03	0.08	280	30.1	86	2.62	6.83	4.30	1.55	20.1	6.26
K0003571		0.02	0.03	1.78	101.80	0.04	0.14	256	48.5	45	0.92	9.13	5.89	2.25	22.9	8.88
K0003572		0.02	0.03	1.71	101.38	0.04	0.14	251	49.6	45	0.94	9.32	5.92	2.22	23.9	8.86
K0003573		0.03	0.02	1.79	98.03	0.05	0.13	177.5	30.3	63	0.77	6.49	4.14	1.49	21.3	6.09
K0003574		0.02	<0.01	1.79	98.05	0.06	0.05	37.8	32.2	74	0.12	6.67	4.22	1.56	22.0	6.38
K0003575		0.03	0.04	3.12	98.84	0.55	0.05	326	105.5	140	1.70	15.35	8.68	3.99	27.3	16.50
K0003576		0.03	0.04	3.26	98.45	0.56	0.05	311	101.5	138	1.63	15.00	8.54	3.76	27.7	16.15
K0003577		0.03	0.04	3.07	99.44	0.56	0.06	340	102.5	144	1.72	15.05	8.70	3.92	26.6	16.20
K0003578		0.02	0.10	1.95	99.57	0.06	0.01	934	14.2	39	2.07	1.12	0.61	0.82	23.8	1.64
K0003579		0.02	0.03	3.78	99.47	0.47	1.55	298	19.9	69	0.55	1.39	0.85	0.65	20.5	1.47
K0003580		0.02	0.07	5.51	99.62	1.49	2.18	626	14.0	74	0.69	1.58	1.06	0.61	21.3	1.28
K0003581		<0.01	<0.01	-0.05	101.03	0.03	0.02	4.3	0.2	50	0.07	<0.05	<0.03	<0.02	0.2	<0.05

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Finalized Date: 8-FEB-2023
Account: MCRONINC

Project: MCR Regional

CERTIFICATE OF ANALYSIS SD22345304

Sample Description	Method	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81
	Analyte	Ge	Hf	Ho	La	Lu	Nb	Nd	Pr	Rb	Sm	Sn	Sr	Ta	Tb	Th
	Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
	LOD	0.5	0.05	0.01	0.1	0.01	0.05	0.1	0.02	0.2	0.03	0.5	0.1	0.1	0.01	0.05
K0003557		0.9	<0.05	0.03	1.5	0.01	4.18	1.8	0.44	0.4	0.24	1.4	1.9	<0.1	0.03	0.23
K0003558		0.9	0.07	0.02	0.8	0.02	2.16	0.9	0.24	0.4	0.17	<0.5	2.1	<0.1	0.03	0.14
K0003559		1.9	3.25	1.17	12.7	0.59	7.37	15.7	3.81	33.7	5.51	1.3	165.0	0.4	0.78	1.88
K0003560		1.2	1.29	0.36	4.8	0.14	1.62	7.6	1.62	64.4	1.97	<0.5	64.0	0.1	0.34	0.83
K0003561		1.7	1.31	0.36	5.7	0.15	1.71	7.2	1.67	83.1	1.68	0.7	111.5	0.1	0.35	0.78
K0003562		1.5	2.83	1.06	10.5	0.40	5.81	13.5	3.28	69.4	3.30	1.4	272	0.3	0.75	1.46
K0003563		1.8	2.32	0.66	20.4	0.29	7.60	23.4	5.46	91.5	5.33	2.5	545	0.4	0.56	6.62
K0003564		1.6	2.91	1.09	10.3	0.40	5.86	14.3	3.02	73.9	3.72	0.8	283	0.3	0.69	1.51
K0003565		1.7	3.00	1.03	11.2	0.41	5.73	13.3	3.08	73.8	3.40	0.7	246	0.3	0.75	1.85
K0003566		1.6	3.07	1.27	12.0	0.52	6.28	15.2	3.40	26.8	3.97	1.3	257	0.4	0.84	1.80
K0003567		1.6	2.32	0.68	22.3	0.25	6.84	23.9	5.49	80.9	4.98	1.9	494	0.4	0.59	6.43
K0003568		1.6	3.11	1.05	17.0	0.46	7.86	19.2	4.36	41.0	4.46	1.0	201	0.5	0.82	3.53
K0003569		1.7	2.93	0.57	21.5	0.17	10.35	22.7	5.50	21.2	4.69	1.2	163.0	0.7	0.55	2.82
K0003570		1.6	3.86	1.46	13.9	0.63	7.47	18.6	4.08	50.9	5.03	1.4	208	0.4	1.08	2.25
K0003571		1.7	5.72	2.00	23.0	0.87	11.65	28.4	6.53	23.3	7.25	2.1	228	0.7	1.49	3.19
K0003572		1.8	5.92	2.15	23.3	0.86	11.80	29.9	6.53	22.7	7.71	1.9	222	0.8	1.58	3.20
K0003573		1.9	3.84	1.40	14.5	0.62	7.53	19.0	4.05	19.3	4.91	1.4	272	0.6	1.08	2.01
K0003574		2.0	4.03	1.47	14.7	0.63	9.32	20.1	4.32	3.6	5.23	1.6	201	0.5	1.13	2.40
K0003575		1.7	13.45	3.28	48.3	1.24	37.8	64.6	14.40	35.2	15.60	4.3	277	2.3	2.71	6.02
K0003576		1.7	13.30	3.25	45.8	1.24	36.6	61.7	13.70	33.6	15.60	4.1	271	2.3	2.60	5.92
K0003577		1.7	13.50	3.28	46.8	1.16	35.2	61.4	13.85	36.2	15.70	4.1	278	2.3	2.60	6.02
K0003578		0.7	4.44	0.20	7.7	0.12	5.72	9.6	2.13	91.6	2.30	1.1	201	0.2	0.20	5.50
K0003579		1.3	3.62	0.30	9.9	0.19	8.69	8.7	2.30	43.3	1.78	3.3	221	1.0	0.25	6.42
K0003580		1.4	4.08	0.37	5.0	0.18	6.15	6.8	1.80	67.2	1.52	4.3	178.5	0.4	0.24	4.67
K0003581		1.2	<0.05	0.01	0.1	<0.01	0.85	0.1	0.02	0.6	<0.03	1.7	1.8	<0.1	0.01	<0.05

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Finalized Date: 8-FEB-2023
Account: MCRONINC

Project: MCR Regional

CERTIFICATE OF ANALYSIS SD22345304

Sample Description	Method	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS42	ME-MS42	ME-MS42	ME-MS42	ME-MS42	ME-MS42	ME-MS42	ME-MS42
	Analyte	Tm	U	V	W	Y	Yb	Zr	As	Bi	Hg	In	Re	Sb	Se	Te
	Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
	LOD	0.01	0.05	5	0.5	0.1	0.03	1	0.1	0.01	0.005	0.005	0.001	0.05	0.2	0.01
K0003557		0.03	0.05	<5	0.8	0.4	0.03	1	0.9	0.01	<0.005	<0.005	<0.001	<0.05	<0.2	<0.01
K0003558		0.01	<0.05	<5	0.8	0.2	<0.03	1	0.9	0.01	<0.005	<0.005	<0.001	<0.05	<0.2	<0.01
K0003559		0.50	0.49	380	0.5	30.7	3.31	128	0.3	0.01	<0.005	0.012	0.002	<0.05	0.2	0.01
K0003560		0.13	0.26	190	1.1	9.2	0.91	46	0.7	0.24	<0.005	0.011	0.002	<0.05	1.2	0.08
K0003561		0.16	0.23	220	1.1	10.0	1.06	46	0.1	0.11	<0.005	0.009	<0.001	<0.05	0.3	0.03
K0003562		0.52	0.34	332	<0.5	30.0	3.25	109	0.6	<0.01	<0.005	0.009	0.001	<0.05	0.4	0.01
K0003563		0.26	1.27	286	1.3	18.3	1.86	97	0.7	0.08	<0.005	0.006	0.001	0.10	0.5	0.12
K0003564		0.46	0.35	323	0.5	27.3	2.92	110	0.2	<0.01	<0.005	0.011	0.001	<0.05	0.4	0.02
K0003565		0.46	0.46	319	0.9	28.3	2.85	109	0.5	0.02	<0.005	0.011	0.001	<0.05	0.3	0.02
K0003566		0.53	0.45	356	1.6	31.1	3.25	115	0.3	0.01	<0.005	0.010	0.002	<0.05	0.5	0.02
K0003567		0.30	1.56	324	2.1	19.6	1.84	83	0.8	0.08	<0.005	0.007	0.002	0.10	0.5	0.11
K0003568		0.47	0.99	387	2.3	30.3	2.94	113	0.4	0.03	<0.005	0.023	0.001	<0.05	0.4	<0.01
K0003569		0.20	0.91	173	2.3	14.1	1.18	113	0.2	0.06	<0.005	0.008	0.001	<0.05	0.2	<0.01
K0003570		0.65	0.59	382	3.7	38.2	4.12	140	0.2	0.03	<0.005	0.025	0.002	<0.05	0.4	<0.01
K0003571		0.91	0.81	422	2.1	56.3	5.65	223	0.2	0.08	<0.005	0.018	0.003	<0.05	0.6	0.01
K0003572		0.90	0.84	440	2.4	56.2	5.73	226	0.4	0.07	<0.005	0.016	0.002	<0.05	0.7	0.01
K0003573		0.67	0.54	611	2.0	40.0	4.15	149	0.7	0.08	<0.005	0.014	0.003	<0.05	0.4	0.02
K0003574		0.66	0.61	431	3.3	40.2	3.94	146	0.5	0.05	0.008	0.017	0.002	<0.05	0.4	<0.01
K0003575		1.32	1.66	427	1.7	88.1	8.25	575	1.9	0.01	0.006	0.059	0.001	0.41	0.3	<0.01
K0003576		1.30	1.62	408	1.3	83.8	8.26	552	2.4	0.01	0.006	0.057	0.001	0.56	0.8	<0.01
K0003577		1.27	1.64	414	1.2	86.6	7.99	552	2.1	0.01	0.013	0.060	0.001	0.36	0.5	<0.01
K0003578		0.11	1.61	118	2.6	6.2	0.71	163	0.3	0.08	<0.005	0.007	0.001	<0.05	<0.2	<0.01
K0003579		0.15	5.20	50	3.1	7.7	0.96	127	0.4	0.40	0.010	0.122	0.005	<0.05	1.7	0.08
K0003580		0.18	1.32	66	3.0	9.1	1.16	145	0.6	0.54	0.005	0.217	0.003	<0.05	2.2	0.07
K0003581		<0.01	<0.05	<5	1.0	0.1	<0.03	1	0.7	0.01	<0.005	<0.005	<0.001	<0.05	<0.2	<0.01

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Finalized Date: 8-FEB-2023
Account: MCRONINC

Project: MCR Regional

CERTIFICATE OF ANALYSIS SD22345304

Sample Description	Method	ME-MS42	ME-4ACD81	ME-4ACD81	ME-4ACD81	ME-4ACD81	ME-4ACD81	ME-4ACD81	ME-4ACD81	ME-4ACD81	ME-4ACD81	ME-4ACD81	PGM-MS23L	PGM-MS23L	PGM-MS23L
	Analyte	Tl	Ag	Cd	Co	Cu	Li	Mo	Ni	Pb	Sc	Zn	Au	Pt	Pd
	Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppb	ppb
	LOD	0.02	0.5	0.5	1	1	10	1	1	2	1	2	1	0.1	0.2
K0003557		<0.02	<0.5	<0.5	1	2	<10	3	2	<2	<1	6	1	<0.1	<0.2
K0003558		<0.02	<0.5	<0.5	<1	2	<10	3	2	<2	<1	8	1	<0.1	<0.2
K0003559		0.07	<0.5	0.7	48	184	20	1	62	4	42	122	2	7.9	4.7
K0003560		0.34	0.7	0.8	89	595	40	<1	1410	3	23	153	4	2.2	1.7
K0003561		0.42	<0.5	0.8	62	135	50	<1	551	5	23	160	1	0.3	<0.2
K0003562		0.32	<0.5	0.6	50	157	20	<1	124	7	36	115	2	5.0	3.3
K0003563		0.08	<0.5	0.5	52	281	10	1	544	10	25	99	45	529	239
K0003564		0.38	<0.5	0.7	49	163	20	<1	125	6	35	118	1	4.5	3.4
K0003565		0.05	<0.5	0.6	49	216	10	<1	87	8	38	111	4	18.4	17.0
K0003566		0.05	<0.5	0.6	46	157	20	<1	79	8	38	126	2	6.8	4.3
K0003567		0.07	0.5	0.5	52	280	10	1	543	9	27	98	46	534	235
K0003568		0.25	<0.5	0.6	52	44	10	1	44	4	41	117	<1	<0.1	<0.2
K0003569		0.14	<0.5	0.6	80	201	20	<1	932	2	18	119	1	3.0	2.3
K0003570		0.29	0.8	1.2	47	143	30	3	62	15	38	149	1	0.6	<0.2
K0003571		0.12	0.5	1.1	39	135	10	1	39	10	34	110	2	0.8	2.6
K0003572		0.10	<0.5	1.0	38	137	10	1	39	8	35	114	1	<0.1	<0.2
K0003573		0.11	0.5	0.9	47	218	10	1	48	7	40	129	1	<0.1	<0.2
K0003574		<0.02	<0.5	0.8	38	197	10	1	39	4	39	85	1	1.5	0.3
K0003575		0.05	1.3	1.3	44	391	10	3	82	8	34	161	2	3.3	2.7
K0003576		0.06	1.5	1.2	44	385	10	3	83	8	33	153	2	3.6	2.3
K0003577		0.07	1.4	1.3	45	386	10	3	86	5	34	168	2	3.6	2.4
K0003578		0.29	<0.5	<0.5	16	3	30	2	35	3	9	53	1	<0.1	<0.2
K0003579		0.12	<0.5	0.7	24	141	10	35	61	34	7	213	<1	0.2	<0.2
K0003580		0.27	<0.5	4.9	31	211	10	5	70	26	9	1405	<1	0.4	0.2
K0003581		<0.02	<0.5	<0.5	1	2	<10	3	2	<2	<1	8	<1	<0.1	<0.2

***** See Appendix Page for comments regarding this certificate *****

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Finalized Date: 8-FEB-2023
Account: MCRONINC

Project: MCR Regional

CERTIFICATE OF ANALYSIS SD22345304

CERTIFICATE COMMENTS

LABORATORY ADDRESSES

Processed at ALS Sudbury located at 1351-B Kelly Lake Road, Unit #1, Sudbury, ON, Canada.

Applies to Method:			
CRU-31	CRU-QC	LOG-21	LOG-23
OA-GRA08	PUL-32	PUL-QC	SPL-21
WEI-21			

Processed at ALS Vancouver located at 2103 Dollarton Hwy, North Vancouver, BC, Canada.

Applies to Method:			
C-IR07	ME-4ACD81	ME-ICP06	ME-MS42
ME-MS81	OA-GRA05	PGM-MS23L	S-IR08
TOT-ICP06			