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**GEOPHYSICAL REPORT**

FOR

***McLAREN RESOURCES INC.***

ON THE

***McCOOL PROPERTY***

McCOOL TOWNSHIP

LARDER LAKE MINING DIVISION

NORTHEASTERN, ONTARIO

JCGrant

Prepared by: J. C. Grant,

January 31ST, 2022

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<u>LIST OF FIGURES</u>

**OWNERSHIP & HISTORY**

-1960: Texas Gulf Sulfur Co. completed an electromagnetic survey of the area.

-1961: Canadian Johns-Manville Co. Ltd. completed magnetic surveys in the area.

-1972: Alexander Red Lake Mines Ltd. completed magnetic, VLF electromagnetic, and geological surveys of the Gunnex claims.

-1973: Northern Atlas Explorers Ltd. acquired the Gunnex claims electromagnetic survey, and diamond drilled 2 holes totaling 778 feet

-1981: Placer Development Ltd. optioned claims in the area from Belore Mines Ltd. and Huronian Mines Ltd. (a Belore Mines subsidiary) and completed magnetic, VLF electromagnetic, and geological surveys (The Northern Miner, April 29, 1982).

-1982: Placer Development completed magnetic, VLF electromagnetic, and geological surveys and diamond drilled 9 holes totaling 1,637 m

-1983: Huronian Mines, Belore Mines, and Placer Development (project operator) completed additional magnetic, VLF and IP electromagnetic, and geological surveys and reverse circulation drilled at least 41 holes totaling 1,462.4 m

-1984: Placer Development diamond drilled at least 24 holes totaling 5814.1 m in the area.

-1985: During 1983-1985, about 31,000 feet of diamond drilling is reported to have been completed by Belore Mines, Huronian Mines, and Placer Development (operator) (Canadian Mines Handbook 1986-87).

-1988: During 1983-1988, about 40,000 feet of diamond drilling is reported to have been completed by Belore Mines, Huronian Mines, and Placer Dome Inc. (Canadian Mines Handbook 1988-89).

The McCool gold property is ideally located immediately north of Highway 101 and abuts the Golden Highway Gold Project of Moneta Gold Inc. ("Moneta") to the south. Moneta continues to intersect good grade gold mineralization on their property and continues to expand their gold resource in several areas of the property. The expanded McCool gold property also lies immediately east of the Fenn-Gib gold deposit where operator Mayfair Gold Corp. ("Mayfair") has announced significant gold intersections from recent infill and step-out drilling on their property.

The original 275 ha McCool gold property, along with McLaren's 775 ha Kerrs gold property, were acquired from Newmont Corporation ("Newmont") in mid-2020

**INTRODUCTION:**

The services of Exsics Exploration Limited were retained by the Company, McLaren Resources Inc., to complete a line cutting, Total field magnetic and Induced Polarization, (IP), survey across a portion of their claim holdings located in the south-central section of McCool Township, Larder Lake Mining Division in northeastern Ontario.

This first phase exploration program will focus on a select portion of the Centre Hill Fault which is host to significant gold mineralization on the McCool property. The Centre Hill Fault is interpreted to be a splay off of the major Destor-Porcupine Deformation Zone which is host to many gold deposits in the area. Upon completion of the line-cutting and IP surveys, McLaren anticipates the drilling of up to 10 diamond drill holes which will be designed to further evaluate and trace the significant gold mineralization known to exist on the property along the Centre Hill Fault from the work of previous owners undertaken during the period 1982-1987. Refer to History section.

**PROPERTY LOCATION AND ACCESS:**

The McCool Property is located in the central west and south section of McCool Township of the Larder Lake Mining Division in Northeastern Ontario. More specifically it is situated approximately 31 kilometers east of the Town of Matheson and lies to the immediate north of Highway 101 east with Perry Lake lying about 3 kilometers to the south. The Town of Matheson is about 65 kilometers east of the City of Timmins. Figures 1 and 2.

Access to the property during the survey period was relatively easy. Highway 101 travels east from the Town of Matheson and runs to the immediate south of the McCool Property which is situated to the immediate north of Perry Lake.

There is a good gravel road that generally runs northeast from the Highway just east of Perry Lake that branches into two good access roads. The western road provided good access to the southwest corner of the grid and the eastern road provided good access to the southeast corner of the grid. Refer to Figure 3 for the location of the roads and grid.

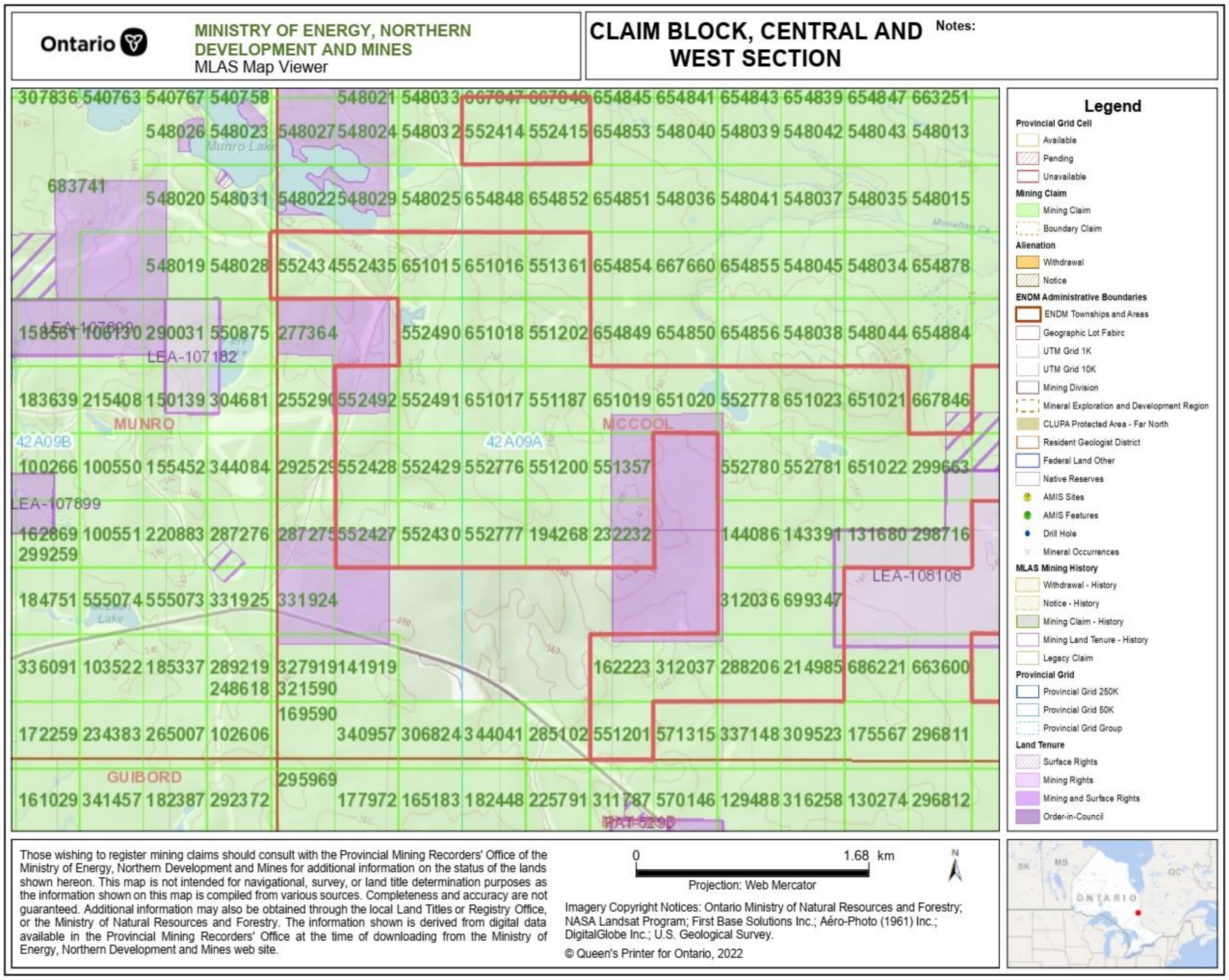

Hudson Bay
James Bay
CANADA
MANITOBA
QUEBEC
ONTARIO
N
McLarren's
McCool Project
USA
USA
USA
L Superior
Lake Michigan
Lake Huron
L Ontario
L Erie
Fort Severn
Peawanuck
Big Trout Lake
Attawapiskat
Sandy Lake
Lansdowne House
Moosonee
Pikangikum
Red Lake
Armstrong
Sioux Lookout
Kapuskasing
Cochrane
Kenora
Dryden
Geraldton
Iroquois Falls
Timmins
Kirkland Lake
Marathon
Fort Frances
Thunder Bay
Wawa
Chapleau
New Liskeard
Greater/Grand Sudbury
North Bay
Hawkesbury
Sault Ste Marie
Elliot Lake
Espanola
Pembroke
Ottawa
Little Current
Huntsville
Bancroft
Brockville
Parry Sound
Kingston
Owen Sound
Orillia
Belleville
Peterborough
Port Elgin
Barrie
Oshawa
Toronto
Goderich
Kitchener
St Catharines
Welland
Hamilton
Sarnia
London
St Thomas
Chatham-Kent
Windsor
LEGEND
National capital
Provincial capital
Other populated places
International boundary
Provincial boundary
Scale
100 0 100 200 300
km km


**CLAIM BLOCK:**

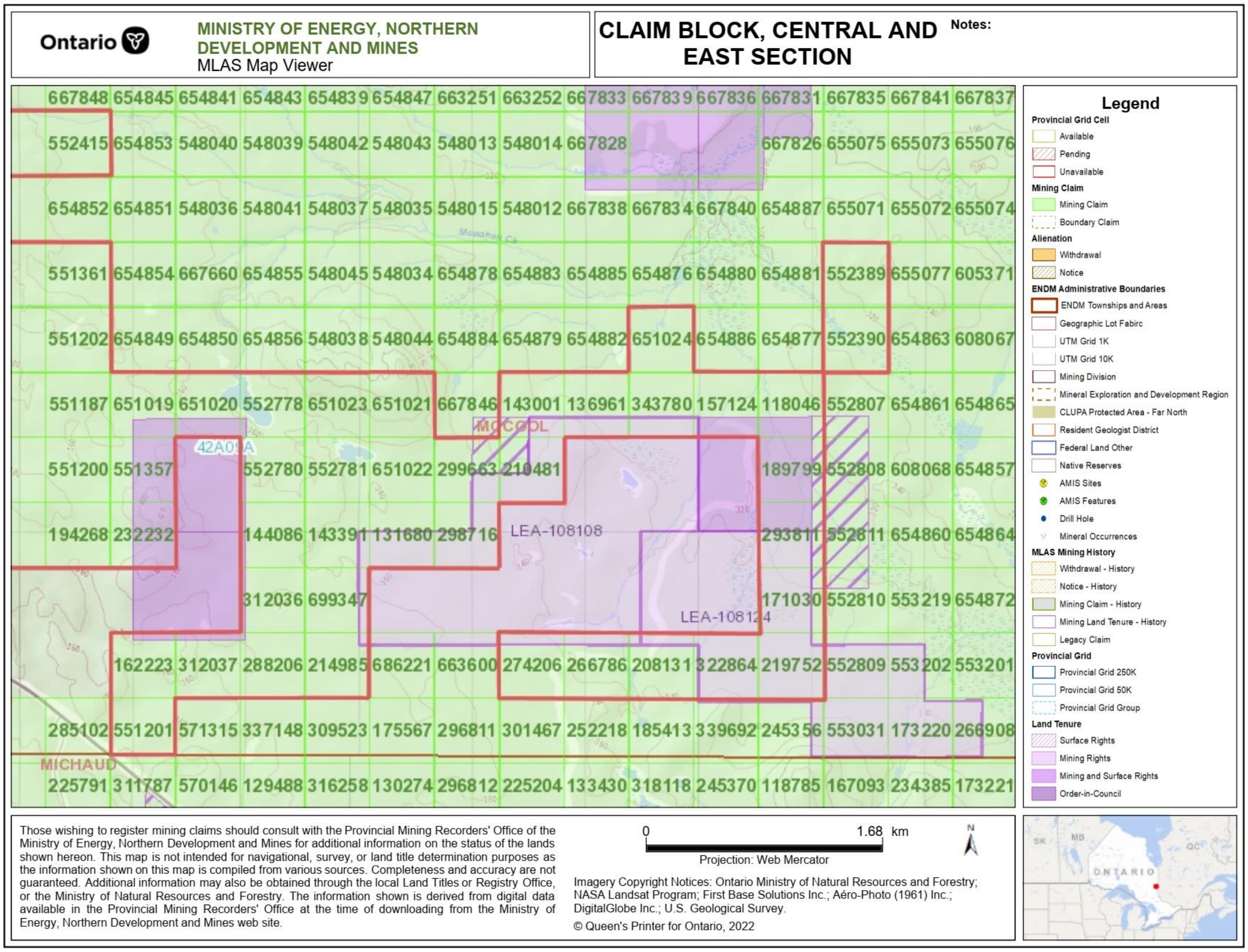
The claim numbers that make up the McCool Property can be found on Figures 3, West and Central Claim Block and Figure 3A, Central and East Claim Block.

The actual claim numbers covered by the current ground program can be found as Figure 3B which shows the grid location on the claim block.

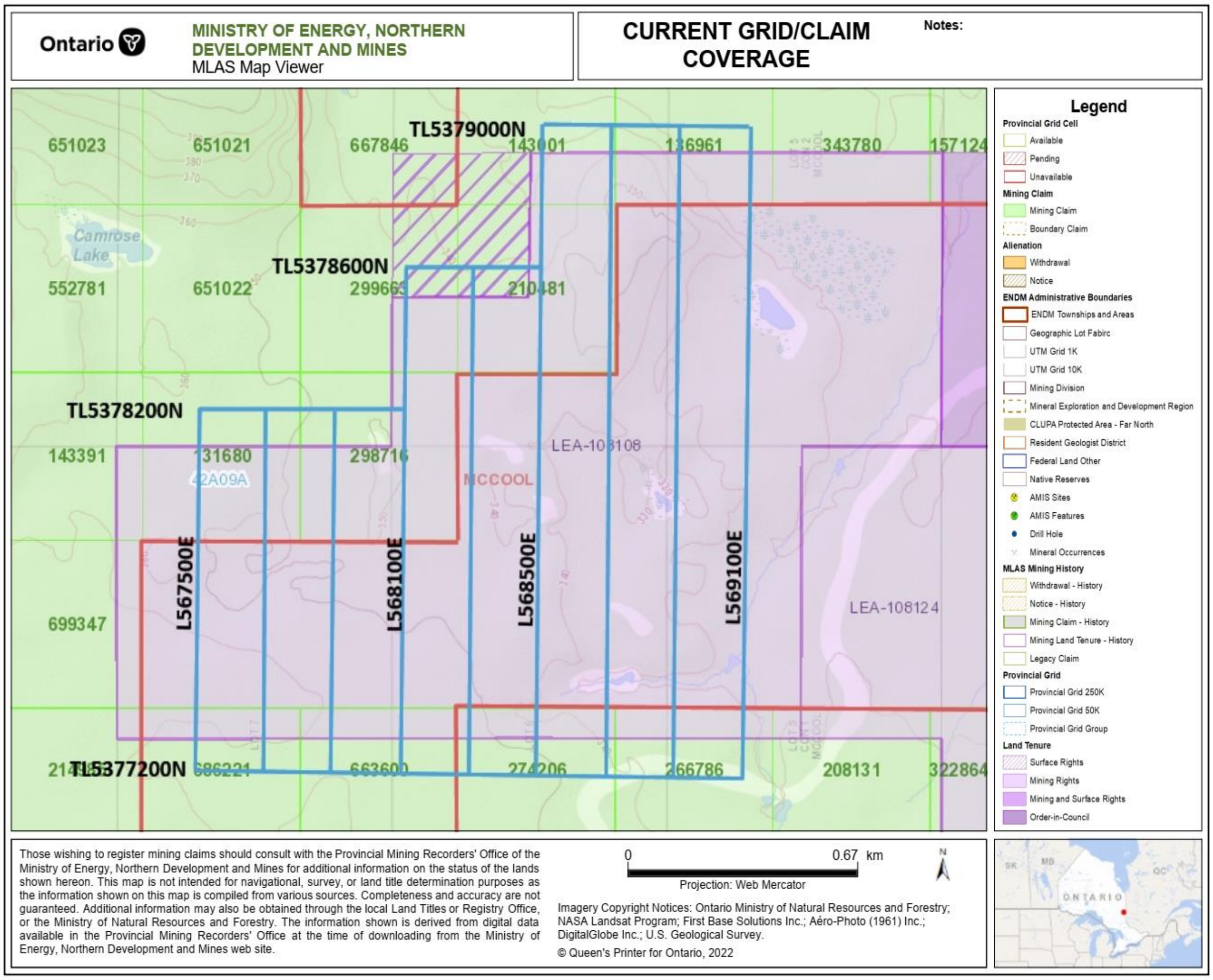
## WEST AND CENTRAL CLAIM BLOCK MAP, FIGURE 3



## CENTRAL AND EASTERN CLAIM BLOCK MAP, FIGURE 3A



**CURRENT GRID MAP CLAIM MAP, FIGURE 3B**




**PERSONNEL**:

The field crew directly responsible for the collection of the raw field data were as follows:

**MAGNETIC SURVEY CREW**

| | |
|---|---|
| K. Wilson | Timmins, Ontario |
| E. Guillmette | Timmins, Ontario |

**IP SURVEY CREW**

| | |
|---|---|
| J. Francoeur, senior operator, | Timmins, Ontraio |
| D. Poirier, senior operator, | Timmins, Ontario |
| J. Hamelin, assistant, | Timmins, Ontario |
| G. Martin, assistant, | Timmins, Ontario |
| S. Duhan, assistant, | Timmins, Ontario |
| I. Dougar, assistant, | Montreal, Quebec |
| R. Bradshaw, assistant, | Timmins, Ontario |
| J. Cividino, assistant, | Timmins, Ontario |
| D. Clement, assistant, | Timmins, Ontario |

The field program, plotting and interpretations were completed under the direct supervision of J. C. Grant, Geophysisct for Exsics Exploration Limited.

**GROUND PROGRAM:**

The ground program was completed in 2 phases. The first phase consisted of establishing a detailed metric grid across the property from a control UTM point established by the Client, McLaren Resources.

Once the grid was completed it was then covered by a total field magnetic survey that wqas done using the GSW Gem mag unit. Specifications for the system can be found as Appendix A of this report. The following parameters were kept constant throughout the survey.

| | |
|---|---|
| Line spacing | 200 meters |
| Reading intervals | 12.5 meters |
| Diurnal monitoring | Base station recorder, sample rate 30 second intervals |
| Reference field | 55500nT |
| Datun subtracted | 54500nT |

In all a total of 14.0 kilometers of magnetic surveys were completed across the property between the end of December 2021 and the 9$^{th}$ of January 2022.

A color copy of the contoured plan map for the magnetic survey at a scale of 1:2500 is included in the back portion of this report.

The IP survey was completed across the grid between November 15$^{th}$ and December 15th. The delay in completing the IP program was due to early heavy snowfall. The IP survey was done at 200-meter intervals using the Instrumentation G.D.D. 10-kilowatt transmitter and the 32-channel receiver. Specifications for this system can be found as Appendix B of this report. The following parameters were kept constant throughout the survey.

| | |
|---|---|
| Line spacing | 200 meters wherever possible |
| Station intervals | 25 meters |
| IP system and array | Time Domain, Pole-Dipole array |

| | |
|---|---|
| Number of electrodes | 16 stainless steel |
| Electrode spacing | 25 meters |
| Delay time | 240Ms |
| Transmitter cycle; | 2 seconds on 2 seconds off |
| Parameters measured | Chargeability in Milli volts/volt, Resistivity in ohms/meter |

The collected data for each survey line was plotted as individual pseudo-sections showing the color contoured results for the chargeability, resistivity, and a calculated Metal factor. The sections were done at a scale of 1:2500 and are included in the back of this report.

**FIGURE 4 GRID LINE MAP**

## GENERAL GEOLOGY

Dec 07, 2005 (C Salo) - Bedrock in the occurrence area is largely glacial drift covered. Bedrock consists mainly of east southeast striking, steeply dipping, and south facing weakly metamorphosed (greenschist or lower metamorphic grade, except marginal to felsic intrusive bodies, where contact metamorphic aureoles may be developed) ultramafic to felsic subaqueously deposited volcanic and interflow sedimentary rocks of the (Archean) Stoughton-Roquemaure Group.

Intrusive rocks in the area include the McCool Hill Complex, a large (dimensions on the order of 12 km in strike length and 500 m in average width) layered mafic-ultramafic sill of bulk tholeiitic basalt composition (which occurs about 800 m north of and up stratigraphy from the occurrence), small felsic syenitic stocks, a distinctive (and often anomalously auriferous) porphyritic biotite syenite dike, and narrow (generally less than 1 m in width) biotite lamprophyre dikes.

The Bonnacord occurrence is on the south limb of the southeast striking and northwest plunging McCool Hill Syncline, is about 1,100 m southwest of the synclinal axes, and is near or within the syncline's closure. The occurrence is spatially associated with the interpreted (Johnstone 1987) location of the Centre Hill Fault, a regional scale stratigraphy subparallel fault the surface trace of which is oriented subparallel to other elements of the Porcupine-Destor Fault Zone (PDFZ) in the area.

Johnstone (1987) described the Centre Hill Fault as a strike slip fault across which is developed in southeast McCool Township approximately 3 km of apparent sinestral offset.

Johnstone (1987) further postulates that the Centre Hill Fault may represent a relatively young structure which was formed from the same tectonic processes which caused strike slip motion within the pre-existing PDFZ

### Mineralization Comments

Dec 07, 2005 (C Salo) - Diamond drilling at the Bonnacord occurrence has intersected anomalous (assaying greater than 0.01 ounce of gold per ton) gold tenors within:

a) visible (coarse grained native) gold bearing quartz vein material.

b) brecciated chloritic foliated basalt, which is mineralized with pyrite, chalcopyrite, and sphalerite.

c) visible gold bearing quartz-(carbonate) vein material hosted by a variety of rock types (including what is generally considered to be relatively late-stage biotite lamprophyre dike material) which may contain or have marginal halos of pyrite, chalcopyrite, pyrrhotite, sphalerite, arsenopyrite, or telluride minerals.

d) variably fuchsitic pyrite, pyrrhotite, and chalcopyrite bearing laminated graphitic tuff, interflow chert, and greywacke.

e) variably fuchsitic native gold bearing cherty interflow material marginal to porphyritic syenitic dike material.

f) variably sheared and/or fault gouged basalt/porphyry within lithologic contact areas; and

g) a distinctive variably potassium metasomatized (as manifested by sericite and potassium feldspar development), epidotized, and fuchsite altered 6-7 m wide zoned plagioclase feldspar phyric biotite syenite dike.

**REGIONAL GEOLOGY MAP, FIGURE 5**

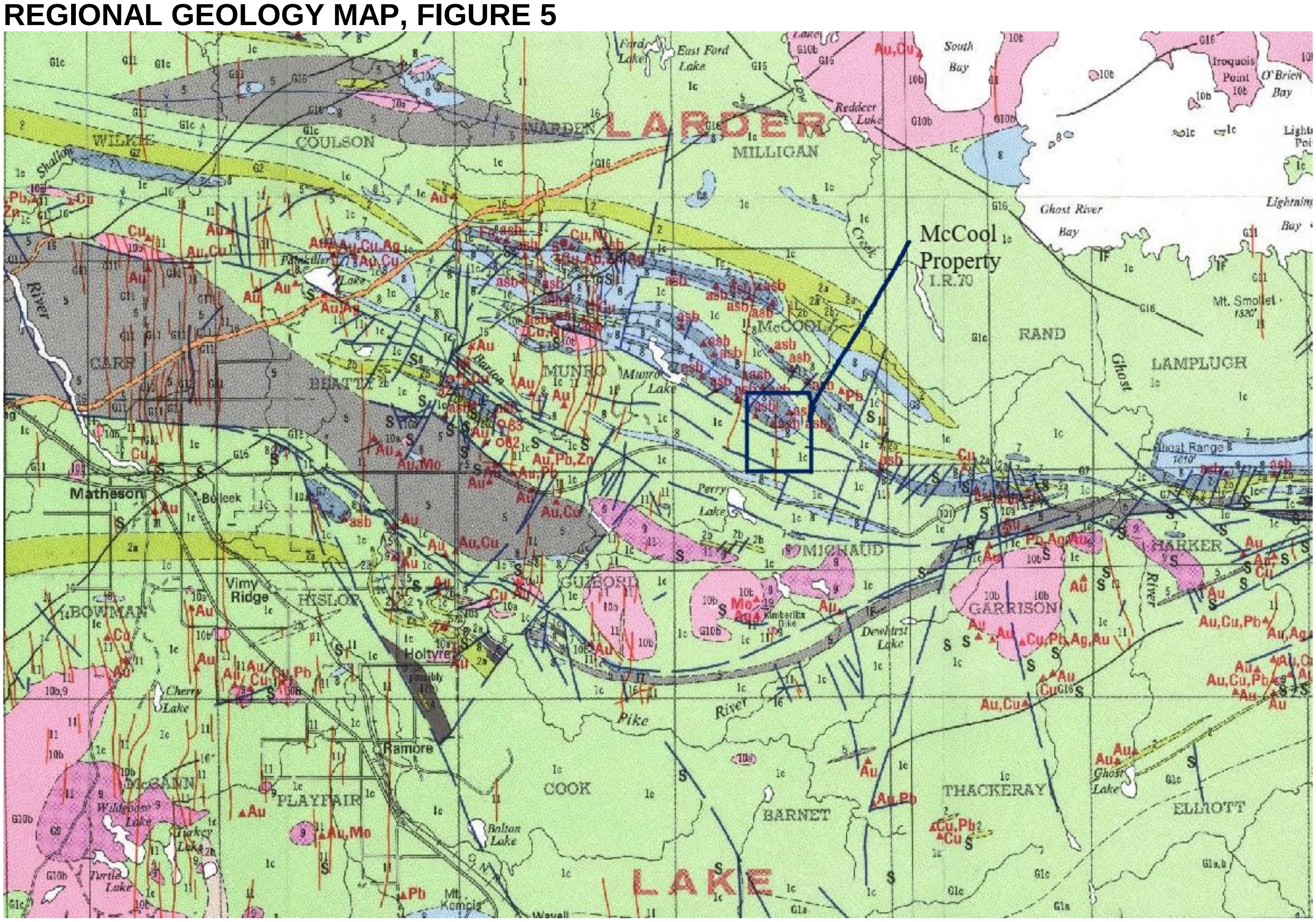
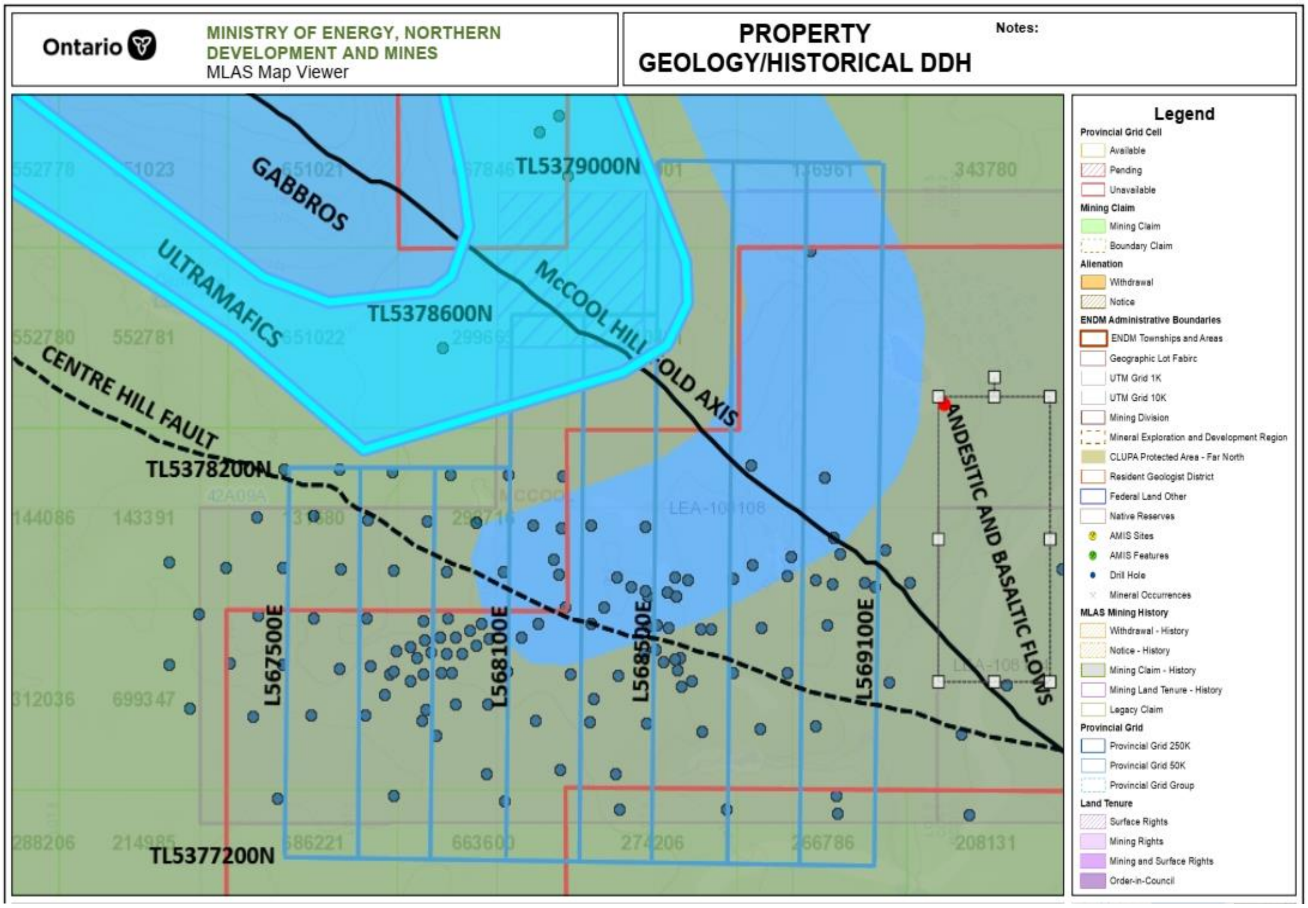


**FIGURE 6, PROPERTY GEOLOGY MAP/ HISTORICAL DRILL HOLES**




## MAGNETIC SURVEY RESULTS:

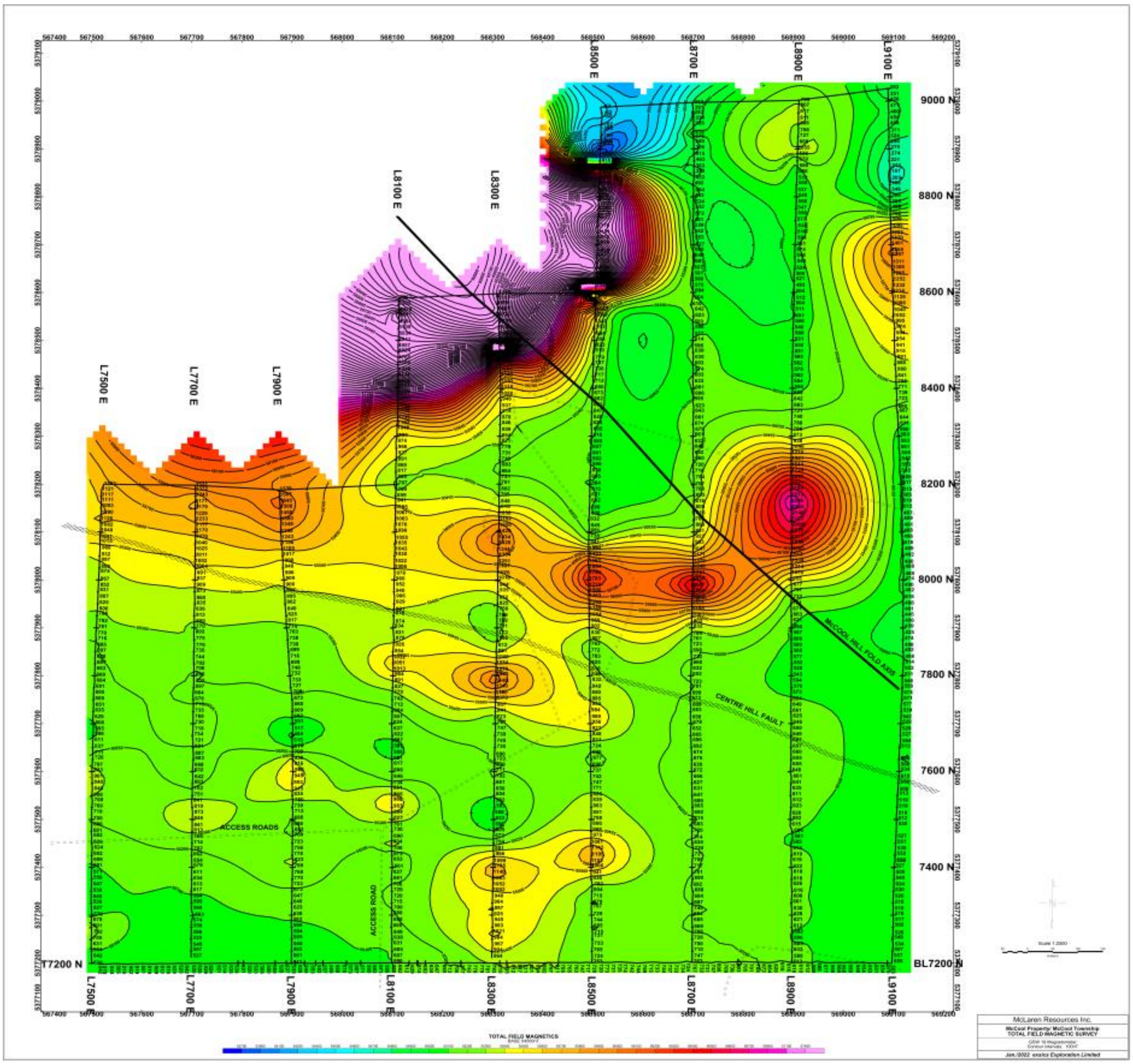
The magnetic survey was completed across all of the crosslines as well as the 7200MN tie line which represents the southern boundary of the grid. The most predominant magnetic feature on the grid is the strong magnetic high unit that covers all of the northwest section of the grid area. This unit most probably correlates to the ultramafic intrusive unit that strikes into the grid from the northwest. Refer to Figures 5 and 6.

The second magnetic structure is the magnetic high that strikes east southeast from line 8300ME to line 8700ME and then continues in a northeast direction across line 8900ME and then again on the eastern edge of the grid on line 9100ME at 8700MN and then continues northwest across the northern end of line 8900ME and off of the grid to the north. This narrow magnetic unit most probably correlates to the mafic to ultramafic intrusive unit as shown in Figure 6 that has the suspected McCool Hill fold axis cutting through it. A section of this magnetic unit that cuts across lines 8100ME to 8700ME appears to lie to the immediate north of the Centre Hill fault.

Another magnetic unit of interest lies to the immediate south of the Centre Hill fault and cuts across lines 8100ME to 8500ME. It may represent a portion of the larger magnetic structure to the north that has been misplaced by the fault.

A final area of interest would be the subtle magnetic high unit that strikes across the southern end of lines 8300ME and 8500ME. The zone lies within the mafic to intermediate geological unit and it appears to dip to the south-southeast.

**FIGURE 7, TOTAL FIELD MAGNETIC SURVEY**



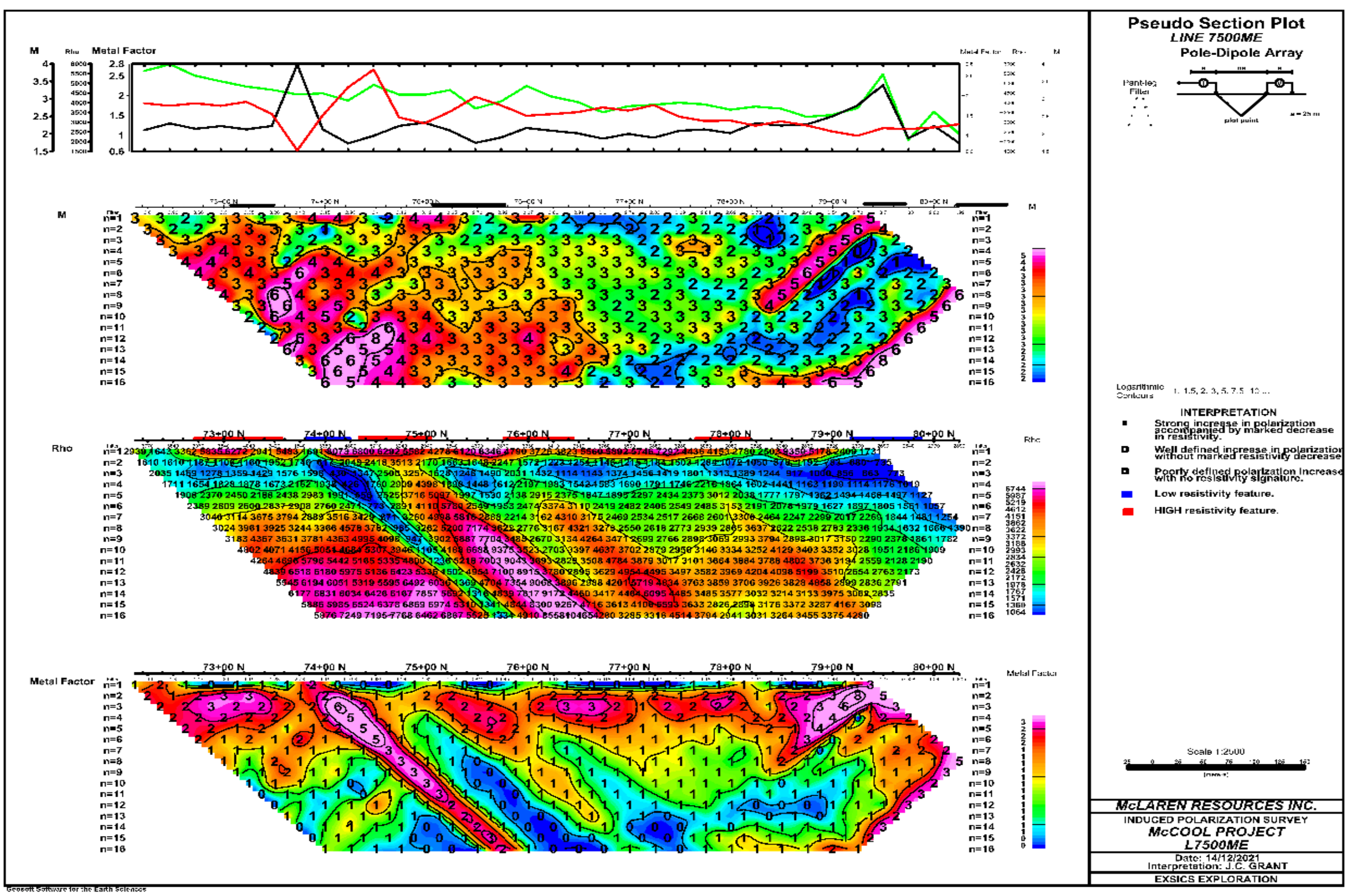
**<u>IP SURVEY RESULTS</u>**:

The IP survey was completed across all of the cross lines. The survey was successful in outlining several conductive zones across the grid area. The results for each of the IP lines will be discussed separately below, along with a colour section of each line.

**LINE 7500ME:**

The IP survey outlined a zone at the extreme north end of the grid line. It is represented by a modest chargeability high associated with a modest resistivity low lying on the northern flank of a modest resistivity high. This zone appears to correlate with a modest magnetic high unit also evident at the northern end of the line that most probably correlates to the southwest edge of the ultramafic unit.

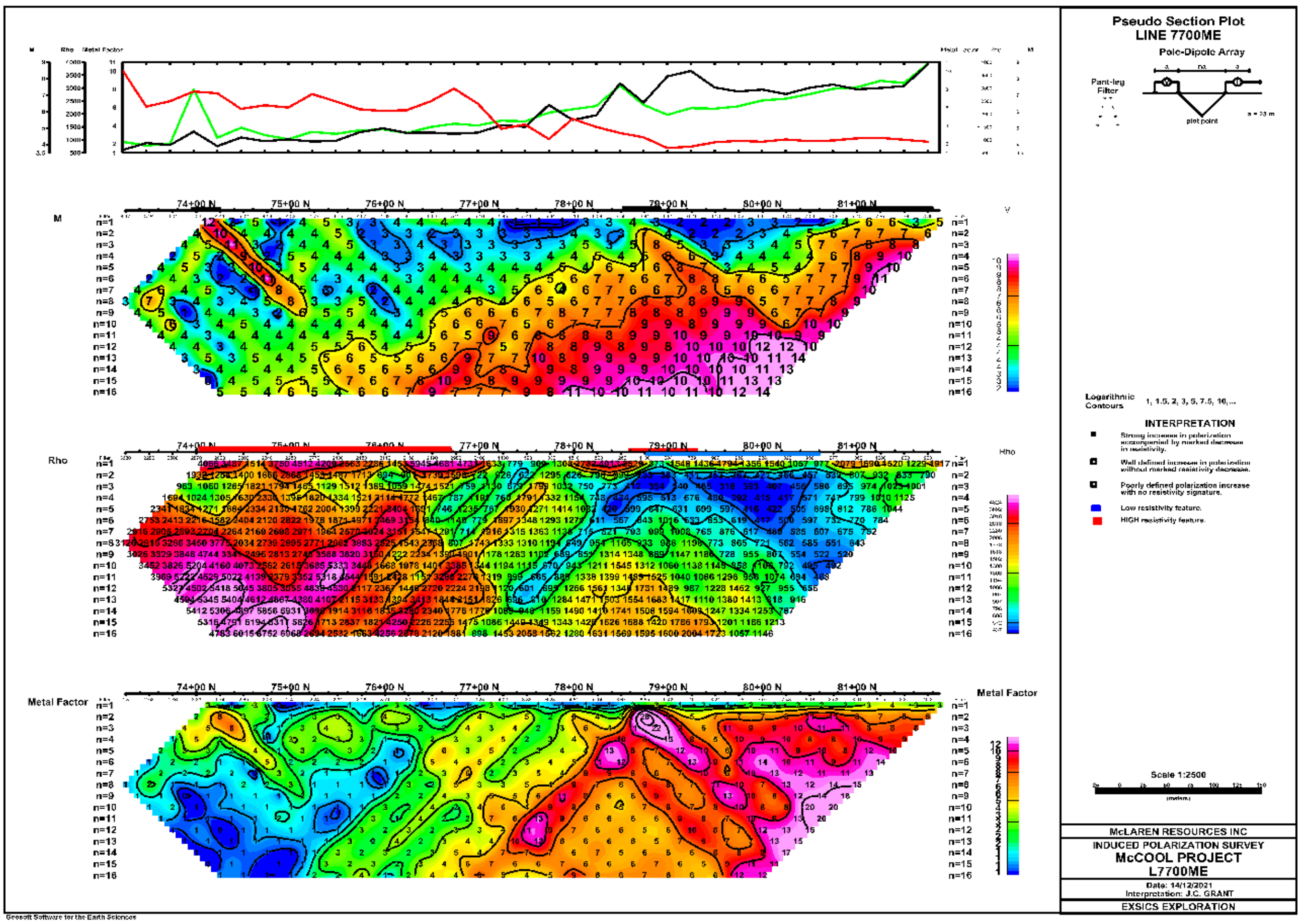
There is a modest and potentially deep narrow zone situated between 7500MN and 7600MN that correlates to a good narrow resistivity high. The zone is also flanked by a narrow resistivity low to the south. This zone lies on the southern edge of a modest magnetic high that appears to continue off of the grid to the west.



**LINE 7700ME**:

The IP survey outlined an IP zone situated at the northern end of the line.The zone is a moderate anomaly that is associated with a modest and shallow resistivity high that lies on the north limb of a good broad resistivity low. The zone seems to broaden with depth. The zone correlates to the magnetic high unit at the northern section of the line which may represent the ultramafic intrusive. The resistivity low may be an indication of the interpreted Centre Hill fault.

There is a very narrow chargeability response at 7400MN which at this writing may relate to possible casing.



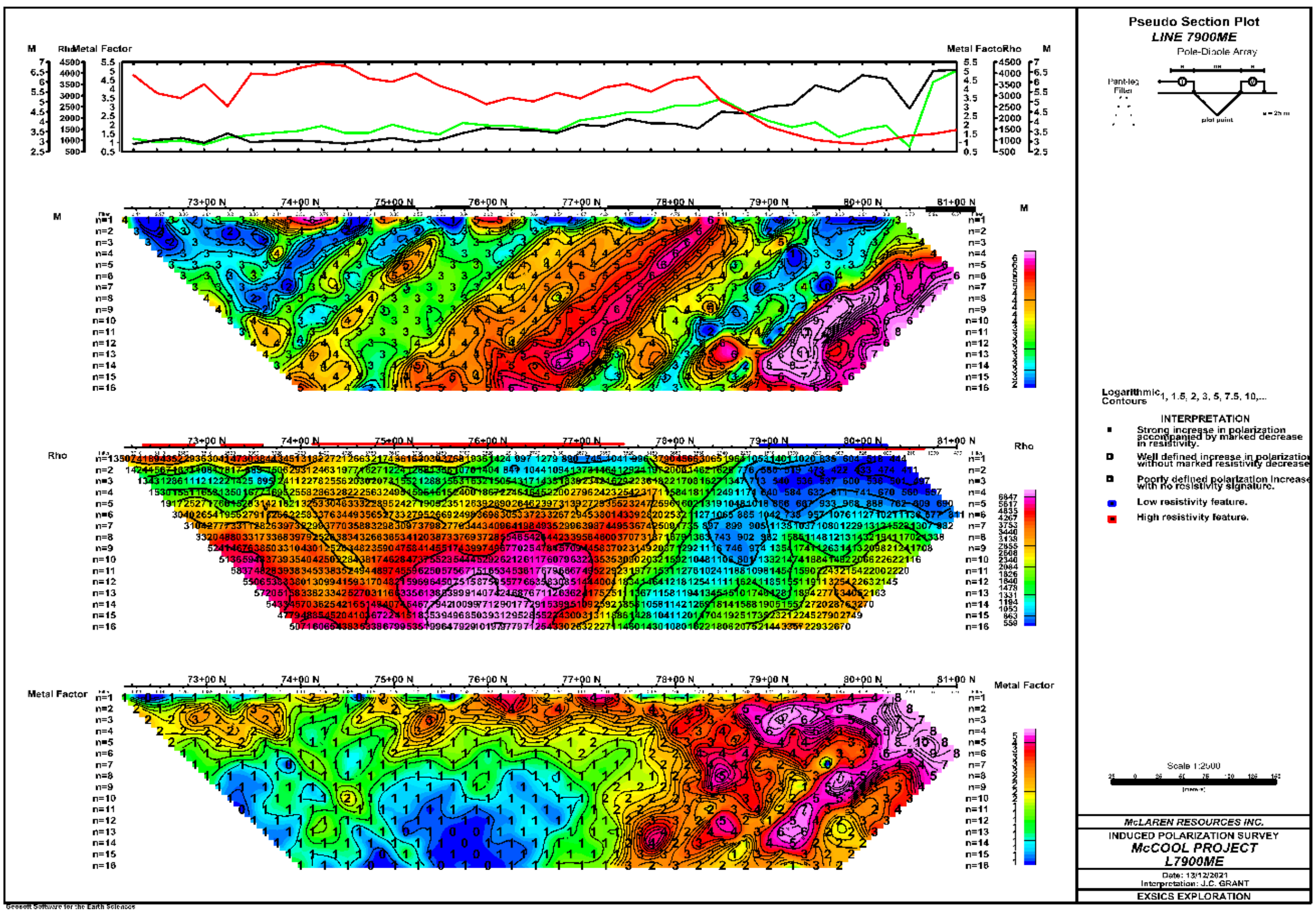

**LINE 7900ME:**

The IP survey was successful in outlining several zones across this line. There is a modertae to strong zone at the north end of the line that is associated with a shallow resistivity low and a deeper rooted resistivity high. The zone lies on the north flank of a good broad resisitivity low . There may be a deep narrow parallel zone associated with this IP anomaly that lies just to the souht and shows up at depth.

This IP zone correlates to the broad resitivity low and appears to correlate to the southern edge of the magnetic high unit and the interpreted location of the Centre Hill fault. The main zone is relatively shallow and correlates to a good magnetic high at the north end of the line.

There is another modertae IP zone between 7700MN and 7850Mn that is also relatively shallow. The zone correlates to a good broad resistivity high that continues at depth. This zone is associated with a very modest magnetic high unit.

There are two narrow chargeability highs between 7475Mn and 7525MN and 7550MN and 7590MN. Both zones lie within a broad and modest resisitivty high that appears to have been cross cut by a narrow resitivity low. The northern zone correlates to a modest magnetic high unit that strikes as far as line 8100ME and the southern zone lies at the southern edge of the same magnetic unit.

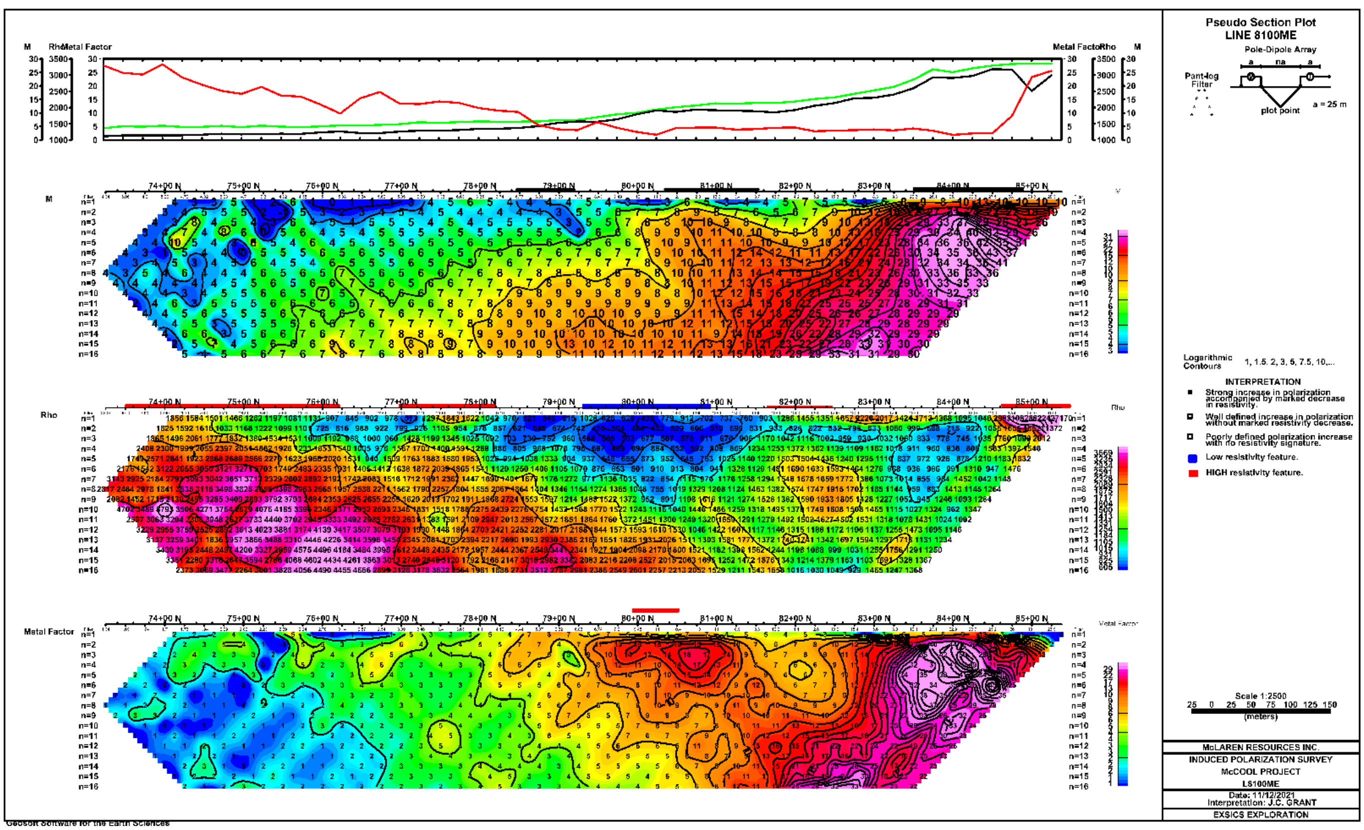


**LINE 8100ME:**

The IP survey outlined several zones across the central and northern section of the grid line. The most predominant zone lies between 8350MN and 8500MNand it is represented by a good strong chargeability high which is associated with a modest near surface resistivity low. There is a resisitvity high building on the north flank of the zone as well. The zone is relatively shallow but extends at depth. The zone also correlates directly with the southern edge of a very strong magnetic unit which correlates to the ultramafic intrusive that covers this portion of the grid.

A second IP zone lies between 8040MN and 8150MN that is associated with a shallow resistivity low and a narrow resistivity high at depth. The zone appears to be relatively shallow as well. The zone correlates with a good magnetic high unit that strikes across the grid lines in an east-west direction and is thought to represent the Mafic to Ultramafic unit interpreted to be in the vicinity.

There is a final IP deep rooted zone lying between 7850MN and 7925MN that correlates to a modest and deep resistivity high. The zone appears to continue to depth. The zone correlates to the western tip of the moderate magnetic high unit that lies to the soutth of the suspected Centre Hill fault and in fact the northern section of the IP zone may butt uo against the fault.



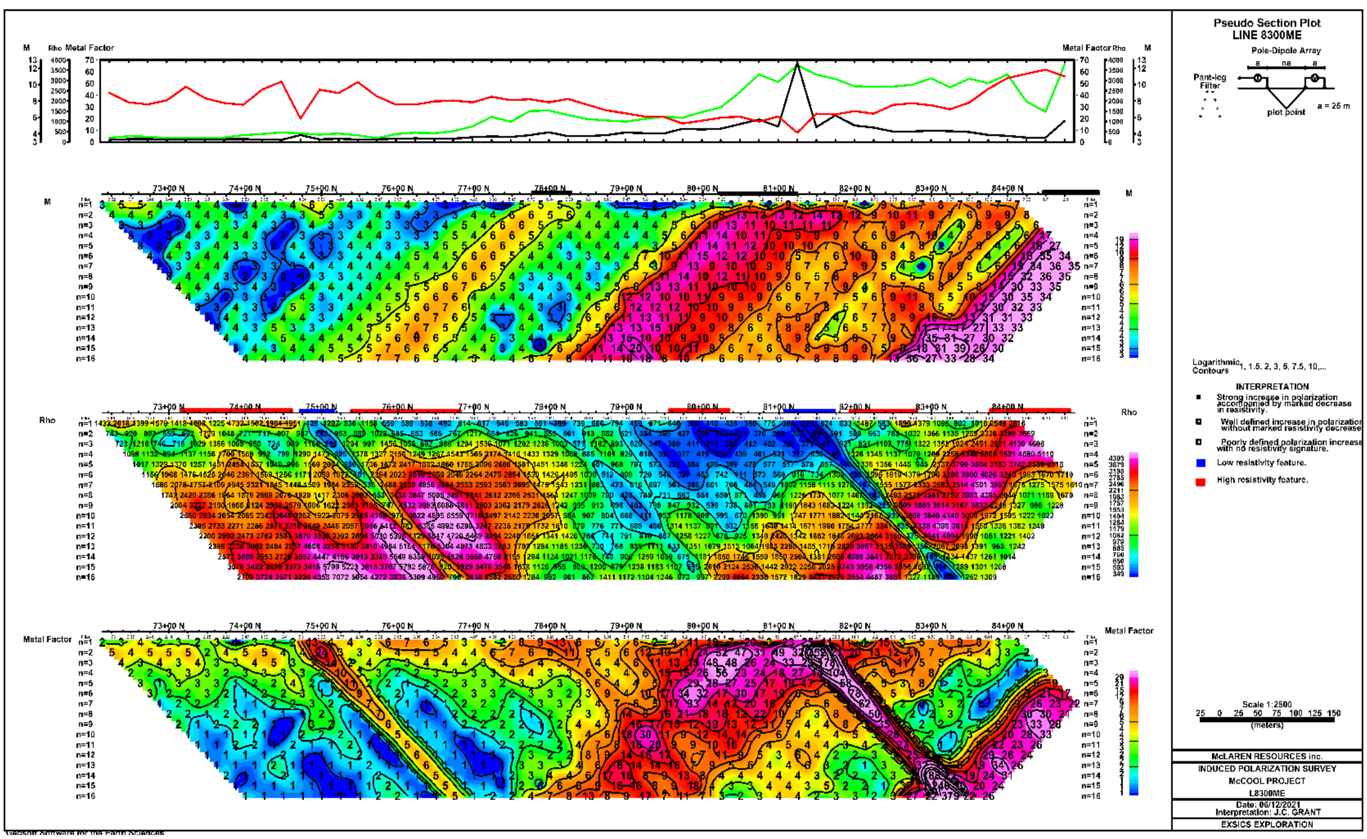
**LINE 8300ME:**

The IP survey outlined tree zones across the central and northern sections of the grid line. The most predominant zone lies at the northern end of the line and continues off of the grid to the north. It is represented by a strong chargeability that appears to be near surface and correlates to the srong magnetic high which has been interpreted to represent the ultramafic intrusive in the same are. The zone correlates to a good strong resistivity high that has been cross cut by a narrow

resistivity low that correlates to the western tip of the magnetic unit stiking east.

The second zone lies between 8000MN and 8125MN and it is a near surface zone represented by a strong chargeability associated with a broad resistivity low which has been cross cut by several narrow and weak resistivity highs. This zone correlates directly with the good magnetic high unit that strikes east across lines 8300ME to 8700ME.

The final zone is a modest and narrow chargeability high situated between 7775MN and 7840MN. This zone correlates to a good resistivity high that is cross cut by a narrow resistivity low. The zone correlates dirtectly with the centre of a good magnetic high unit that strikes slightly northwest to south east from line 8100ME to 8500ME.

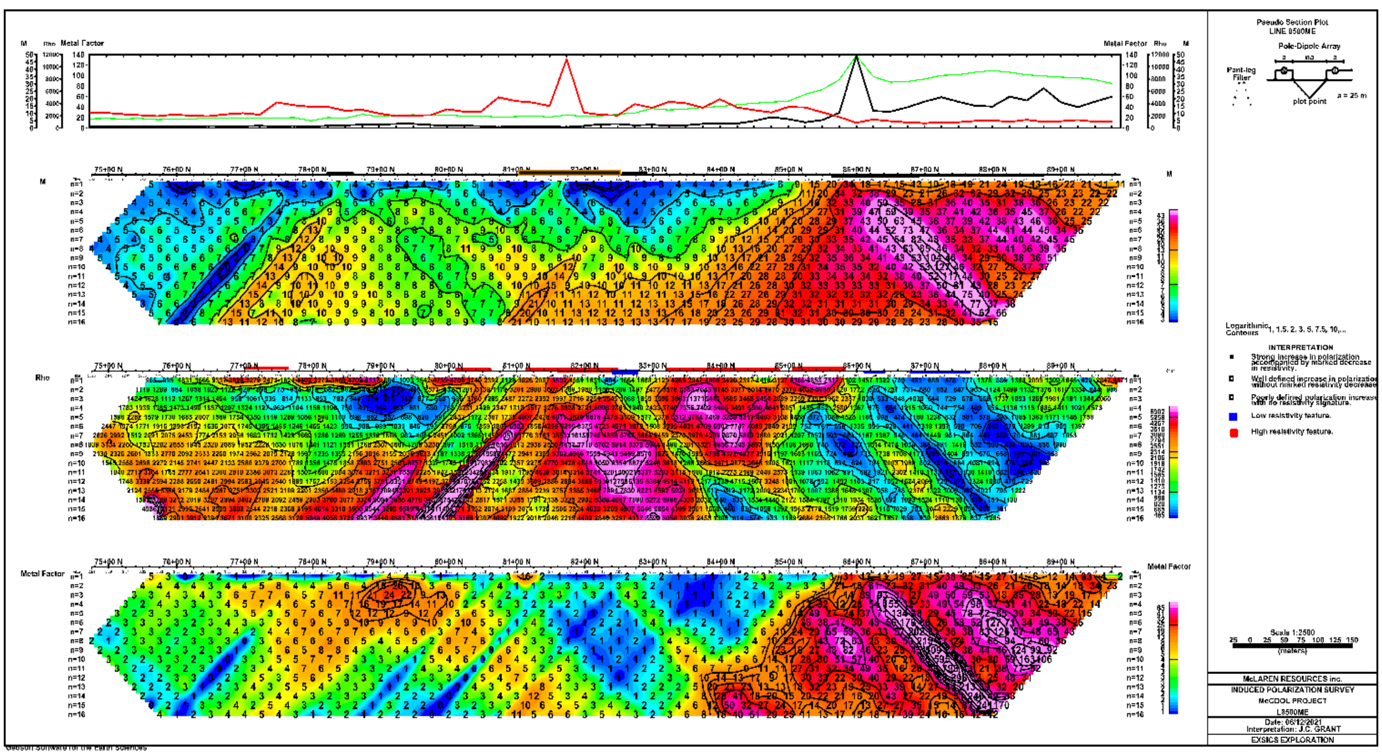


**LINE 8500ME:**

The IP survey outlined several zones across the grid line. The most predominant zone lies between 8600MN and 8875MN and may represent two parallel zones with the broader unit. The zones correlate to modest resistivity highs that are flanked by narrow resistivity lows. The entire zone correlates directly with the suspected ultramafic intrusive that covers most of the north section of the line.

Another IP zone lies between 8025MN and 8150MN that correlates to two narrow resistivity highs that continue at depth and appear to be part of a larger and deep rooted resistivity high. The zone alsocorrelates directly with the magnetic high unit striking east west across the same setion of the grid which represents the suspected mafic to ultramafic unit as shown in Figure 6.

A final zone lies between 7800MN and 7900MN and it correlates with a modest resistivity low flanked by two deep rooted resistivity highs. The zone lies on the eastern edge of the magnetic unit that lies along the southern edge of the suspected Centre Hill Fault structure.



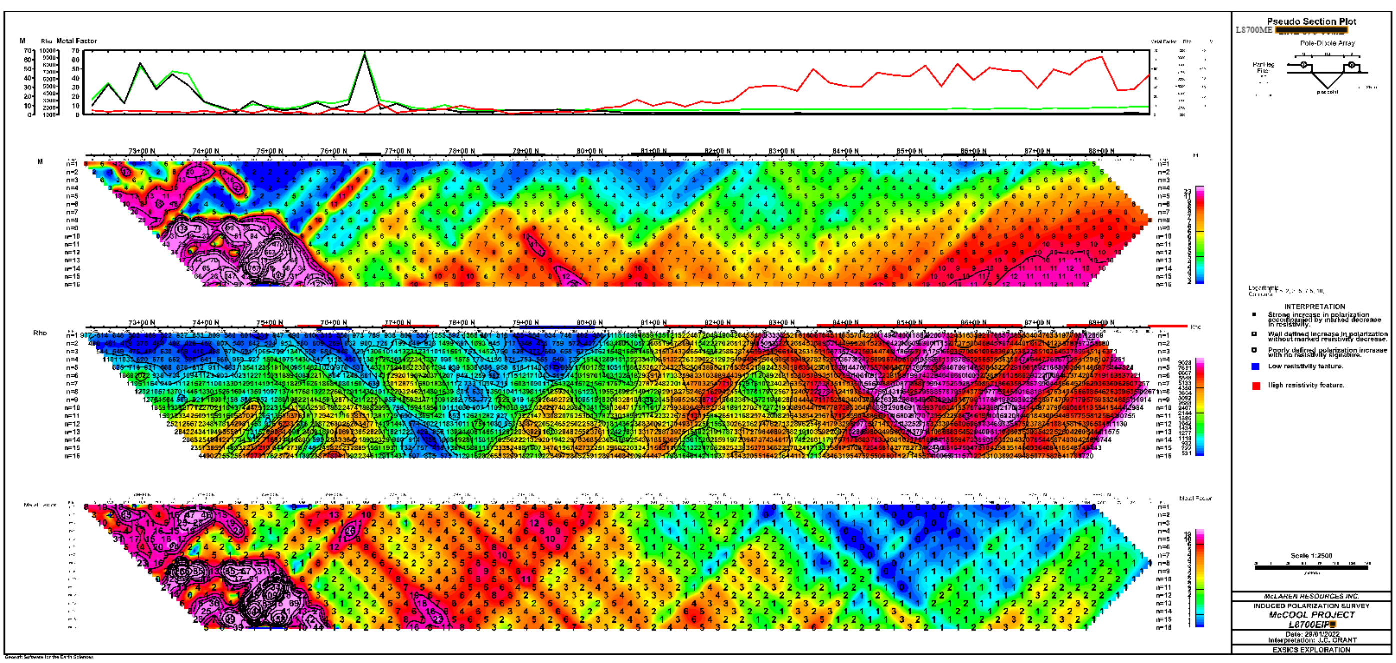
**LINE 8700ME:**

The IP survey outlined a deep rooted chargeability high situated between 8700Mn and the north end of the line that generally correlates to a modest resistivity low flanked by two resistivity highs. This line lies along the eastern limits of the main magnetic high unit that represents the ultramafic intrusive. The zone appears to continue at depth.

A second parallel zone was noted between 8550MN and 8625MN that is represented by a moderate chargeability high that appears to continue at depth. The zone appears to correlate to a narrow resistivity low again flanked by two resistivity highs. The zone also correlates to a modest magnetic high buldge that appears to eminate from the main ultramafic intrusive to the west and north.

There is another modest zone between 8075MN and 8200MN that lies to the immediate west of a narrow resistivity high. The zone lies on the northern edge of the magnetic high unit at the approximate location of the McCool Hill Fold Axis which correlates to a strike direction change in the magnetic high that was striking west to east but is now swining to the northeast and expanding in size.

Another deep rooted zone lies between 7825MN and 7925MN that correlates to a moderate resistivity high lying on the flank of a modest and broad resistivity low. This zone lies to the south of the suspected Centre Hill fault and does not appear to have any definite magnetic correlation. At this writing there does not seem to be an explanation for the noisy chargeabilty spiking at the southern end of this line between 7500MN and the south end of the line.



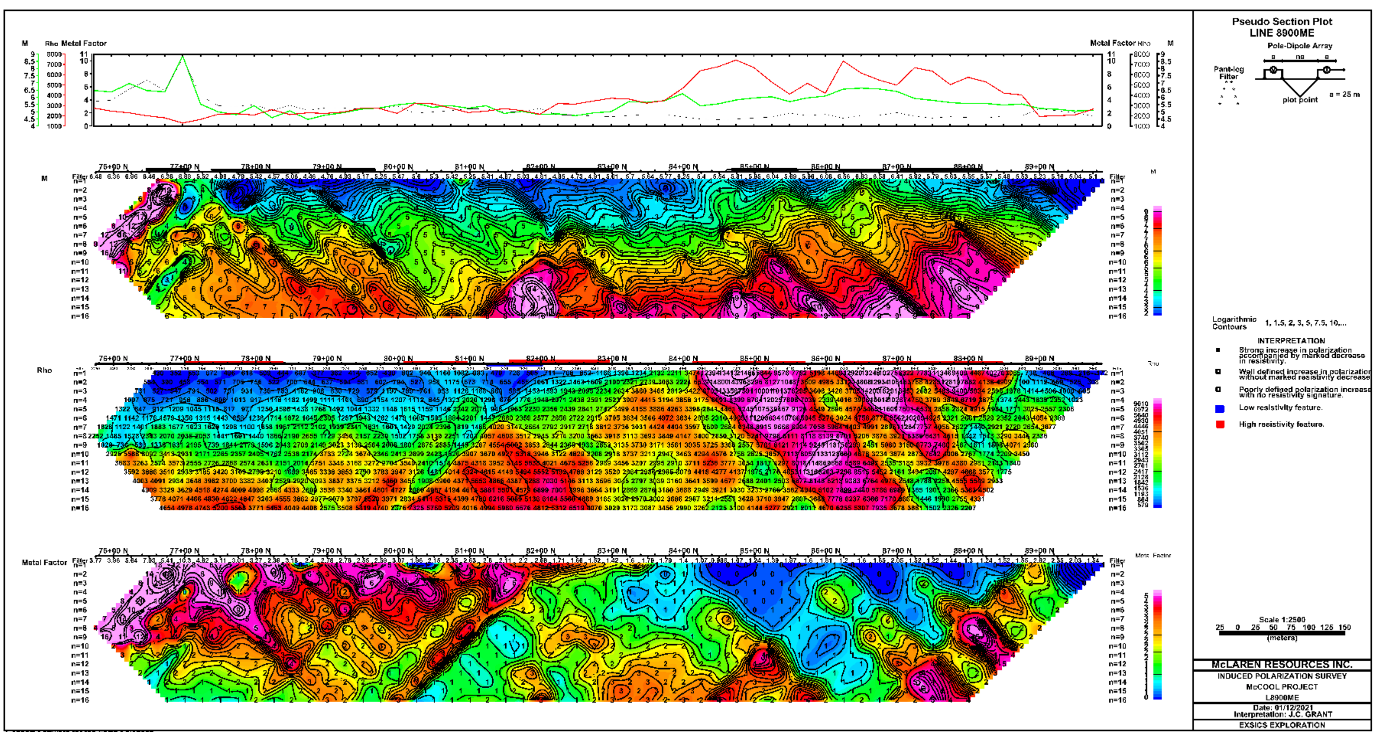
**LINE 8900ME:**

The IP survey outline a number of parralle zone between 8475Mn and 8800MN that appear to correlate to the same broad zone but probably with heavier concentrations of metalics within the main zone. All of the features are deep rooted and appear to continue at depth. The northern section of the zone correlates to a resistivity high near surface but transitions to a resistivity low at depth. The portion od the zone between 8475MN and 8575MN generally correlates to a resistivity high that is cross cut by a narrow resisitvity low. The zones do not appear to have any definite magnetic correlation.

There is another deep rooted zone that lies between 8180MN and 8300MN that is represented by a moderate to strong chargeability high building at depth and is associated with a moderate resisitvity high also building at depth. The zone correlates directly with the western edge of a good magnetic high unit that is striking northeast and probably correlates to the mafic to ultramafic unit thought to be in the same area.

A modest zone lies between 7850MN and 7975MN that is associated with a modest resisitivity high buolding at depth. This zone lies on the extrem southern edge of a good magnetic high and appears to correlate with the mcCool Hill fold axis.

The final zones lie between 7650Mn and 7825MN and appear to represent two possible parallel zones that lie on either side of the suspected Centre Hill Fault zone. The zones correlate to a deep rooted resistivit high but neither zone appear to have any definite magnetic association.



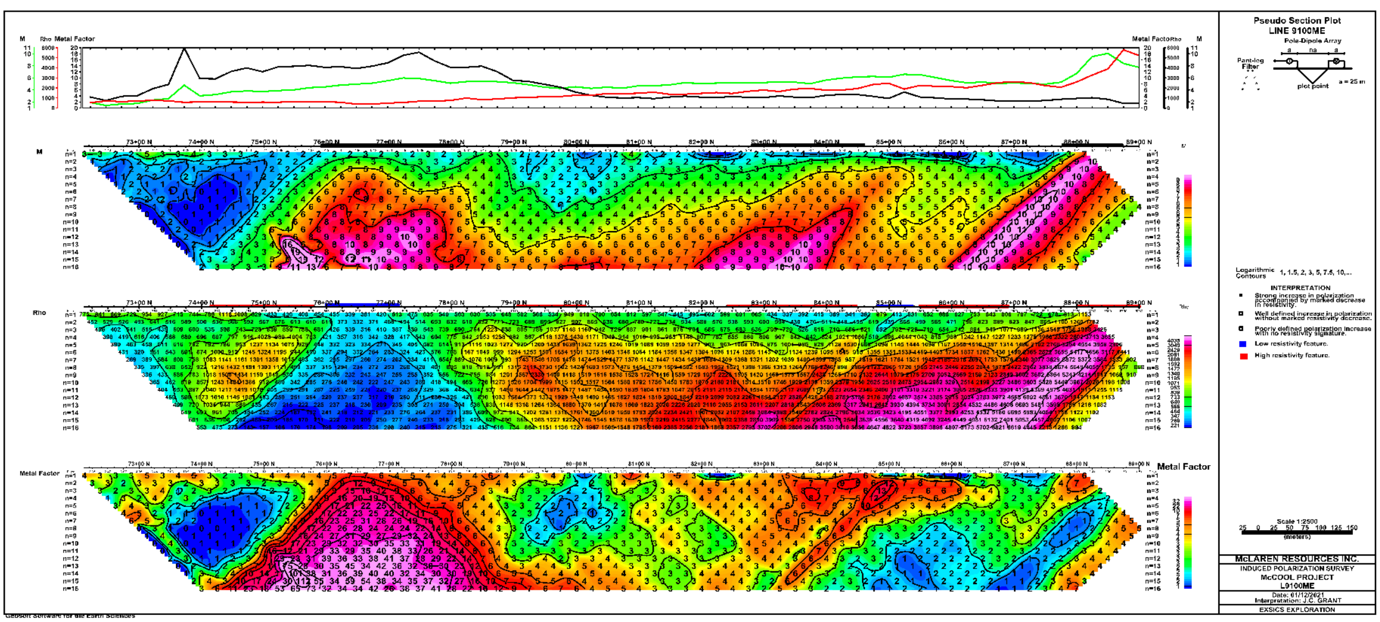
**LINE 9100ME:**

The IP survey outlined multiple zones across this survey line. The first of the zones lies between 8775MN and 8900MN and it represents a good and relatively shallow chargeability zone that correlates directly toagood resisitvity high unit. The zone also correlates to a modest magnetic low zone that appears to strike off of the grid to the east.

The next zone lies between 8275MN and 8460MN. The zone is represented by a good chargeability high which is building at depth and the zone correlates to a modest resisitivity hgih lying to the immediate west of a narrow resisitivity low. The zone lies on the eastern edge of the braod magnetic high to the immediate west.

There is another modest zone that lies between 8000MN and 8100MN that is some what questionable at this writing and should be followed up further based on drilling results.

The final area of interest is the broad and modest chargeability high that lies between 7600MN and 7800MN. This zone correlates to a good resisitivyt low sggesting the zone is quite conductive. The zone is flanked by two chargeability highs and appears to correlate with the merging of the Centre Hill fault and the McCool Hill Fold Axis. There does not appear to be any magnetic correlation with the zone.




## CONCLUSIONS AND RECOMMENDATIONS:

The Magnetic portion of the ground program was successful in locating and outlining the suspected geological characteristics of the underlying geology. The main magnetic high unit which represents the ultramafic intrusive is well defined and also host one of the main IP zones.

The second magnetic zone outlined by the survey is the east west magnetic high that represents the mafic to ultramafic unit and it can be traced from 7500ME to 8700ME in a west to east direction and then appears to be folded to the northeast and continues across line 8900ME with portions appearing on line 9100ME at 8700MN and again weakly on line 8900ME at 9000MN. This magnetic unit is host to a moderate to strong IP zone that generally follows the strike direction of the magnetic high and appears to have been offset by the fold axis between lines 8700ME and 8900ME. The zone continues across line 9100ME and off of the grid to the east. The zone also appears to continue off of the grid to the west. Ideally the IP zone and correlating magnetic high unit would be a prime target for a follow up drill program.

The next structure IP zone is the trend that strikes from line 7900ME at 8000MN to at least 8500ME at 7800MN. The eastern section of the zone appears to have been offset by the Centre Hill fault and may extend as far as line 8700ME at 7900MN. This zone is also a moderate IP target that should be considered for follow up drilling.

The two parallel IP zones that strike across lines 8700Mn to 9100MN that lie between 7700MN and 7800MN appear to have been crosscut by the Fault zone. There does not appear to be any direct magnetic association with the zones, but both continue off of the grid to the east. The zones should be considered for follow up drilling should the main zones return encouraging results.

Follow up IP surveys should also be considered along strike to the east and west of the existing grid to fully define the IP zone that strikes across the grid and lies between 8100MN on the western extension 8300MN on the eastern extension.

The drill logs for the historical drill holes should also be reviewed in the vicinity of this main structure before spotting future drill holes.

Refer to Figure 8 which represents the total field magnetic plan map with the interpreted IP zones.

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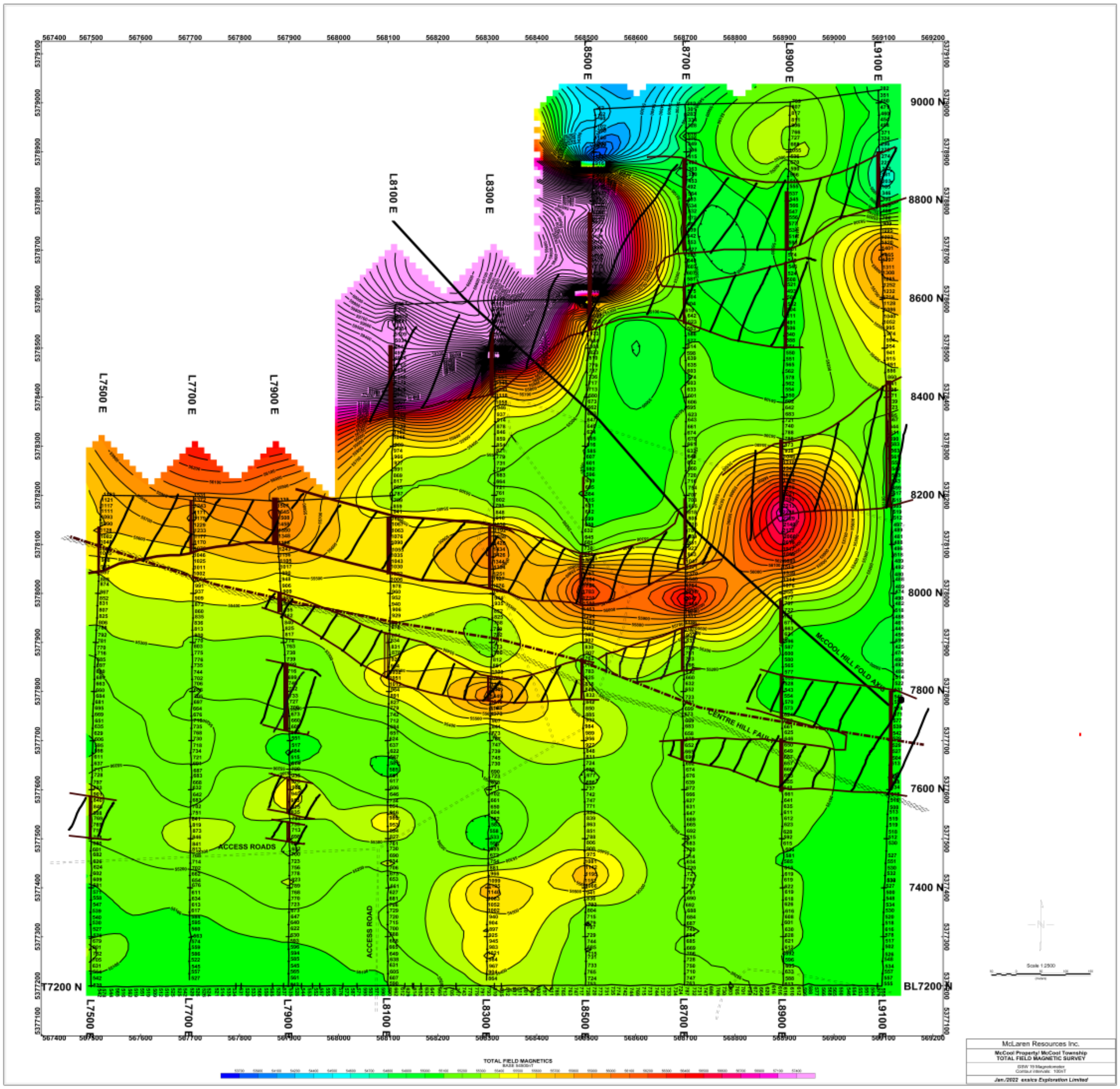
**FIGURE 8, TOTAL FIELD MAGNETIC SURVEY WITH IP ZONES**




Respectfully submitted

*JC Grant*

J.C. Grant, CET, FGAC

January 31st, 2022

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## CERTIFICATION

I, John Charles Grant, of 108 Kay Crescent, in the City of Timmins, Province of Ontario, hereby certify that:

1). I am a graduate of Cambrian College of Applied Arts and Technology, 1975, Sudbury Ontario Campus, with a 3 year Honors Diploma in Geological and Geophysical Technology.

2). I have worked subsequently as an Exploration Geophysicist for Teck Exploration Limited, (5 years, 1975 to 1980), and currently as Exploration Manager and Chief Geophysicist for Exsics Exploration Limited, since May, 1980.

3). I am a member in good standing of the Certified Engineering Technologist Association, (CET), since 1984.

4). I am in good standing as a Fellow of the Geological Association of Canada, (FGAC), since 1986.

5). I have been actively engaged in my profession since the 15th day of May, 1975, in all aspects of ground exploration programs including the planning and execution of field programs, project supervision, data compilation, interpretations and reports.

6). I have no specific or special interest nor do I expect to receive any such interest in the herein described property. I have been retained by the property holders and or their Agents as a Geological and Geophysical Consultant and Contract Manager.

John Charles Grant, CET., FGAC.

GEOLOGICAL ASSOCIATION OF CANADA
JOHN GRANT
FELLOW

APPENDIX A

# IP RECEIVER

## Model GRx8-32

## Instruction Manual

INSTRUMENTATION GDD INC.

860 boul. de la Chaudière, suite 200
Québec (QC), Canada, G1X 4B7
Tel.: +1 (418) 877-4249
Fax: +1 (418) 877-4054
E-Mail: gdd@gdd.ca
Web site: www.gdd.ca

# 13. Specifications

## 13.1 General specifications

| | |
|---|---|
| Number of channels: | 8, 10, 16, 24 or 32 |
| Size (receiver only): | 41 x 33 x 17 cm (16 x 13 x 7 in) |
| Weight (receiver only): | 7 kg (15 lbs) |
| Enclosure: | Heavy-duty Pelican case,<br>environmentally sealed |
| Communication options: | RS-232 (serial) and Bluetooth<br>to communicate with a PDA<br>USB for data download |
| Power supply: | 14.4V 13.5Ah rechargeable<br>Lithium-Ion internal battery<br>14.4V 5.5Ah rechargeable<br>Lithium-Ion external battery pack |
| Temperature range: | -40 to +60°C (-49 to +140°F) |
| Humidity range: | Waterproof |

## 13.2 Technical specifications

| | |
|---|---|
| Survey capabilities: | Resistivity and Time domain IP |
| Twenty chargeability windows: | Arithmetic, logarithmic,<br>semi-logarithmic, Cole-Cole and<br>user defined |
| Synchronization: | Automatic re-synchronization<br>Process on primary voltage<br>Signal<br>GPS time synchronization |
| Noise reduction: | Automatic stacking number |
| Computation: | Apparent resistivity,<br>chargeability, standard<br>deviation, and % of symmetrical Vp |
| Ground Resistance: | Up to 1.5 MΩ |
| Signal waveform: | Time domain (ON+, OFF, ON-, OFF) |
| Time base: | 0.5, 1, 2, 4, 8 and 16 seconds |

| | |
|---|---|
| Input impedance: | 5 GΩ at 0.125 Hz and 130 MΩ at 7 Hz |
| Primary voltage range: | ±10 uV to ±15 V for any channel |
| Input Common-Mode Voltage range with respect to reference in dipole-dipole configuration: | ±15 V |
| Protection: | 500V (on each channel) |
| Input: | True differential for common-mode rejection in dipole configuration |
| Voltage measurement (Vp): | Resolution 1µV<br>Accuracy ≤ 0.15% |
| Chargeability measurement (M): | Resolution 1µV/V<br>Accuracy ≤ 0.4% |
| (SP) offset adjustment: | Automatic compensation through linear drift correction per steps of 150µ, with resolution of 1µV |
| Filter: | Eight-pole Bessel low-pass 15 Hz,<br>Notch filter 50 Hz and 60 Hz |

Reads up to 32 ch. simultaneously in poles or dipoles

PDA menu-driven software / simple to use

32 channels configuration allows 3D Survey:
4 lines X 8 channels – 2 lines X 16 channels –
1 line X 32 channels

Real-time data and automatic data stacking

Screen-graphics: decay curves, apparent resistivity, chargeability, Vp, pseudosection

20 programmable chargeability windows

One 24 bits A/D converter per channel

Internal test generator (Self-test mode)

# IP Transmitter

**Model TxII**
**5000W-2400V-15A**

## Instruction Manual

INSTRUMENTATION GDD INC.

860 boul. de la Chaudière, suite 200
Québec (Qc), Canada, G1X 4B7
Tel.: +1 (418) 877-4249
Fax: +1 (418) 877-4054
E-Mail: gdd@gdd.ca
Web site: www.gdd.ca

# 9. SPECIFICATIONS

| | |
|---|---|
| **Size :** | TxII-5000W with a blue carrying case: 34 x 52 x 76 cm<br>TxII-5000W only: 26 x 45 x 55 cm |
| **Weight :** | TxII-5000W with a blue carrying case: ~ 58 kg<br>TxII-5000W only: ~ 40 kg |
| **Operating Temperature :** | -40°C to 65°C (-40°F to 150°F) |
| **Time Base:** | 2 s ON+, 2 s OFF, 2 s ON-<br>DC, 1, 2, 4, 8 or 16 s |
| **Output current :** | 0.030A to 15A (normal operation)<br>0.0A to 15A (cancel open loop)<br>Maximum of 7.5A in DC mode |
| **Rated Output Voltage :** | 150V to 2400V<br>Up to 4800V in a master/slave configuration |
| **LCD Display :** | Output current, 0.001A resolution<br>Output power<br>Ground resistance (when the transmitter is turned off) |
| **Power source :** | 220-240V / 50-60Hz |

# APPENDIX B

v7.0

# Overhauser

Magnetometer / Gradiometer / VLF (GSM-19 v7.0)

**GEM's unique Overhauser system combines data quality, survey efficiency and options into an instrument that matches costlier optically pumped Caesium devices.**

**And the latest v7.0 technology upgrades provide even more value:**

**Data export in standard XYZ (i.e. line-oriented) format for easy use in standard commercial software programs**

**Programmable export format for full control over output**

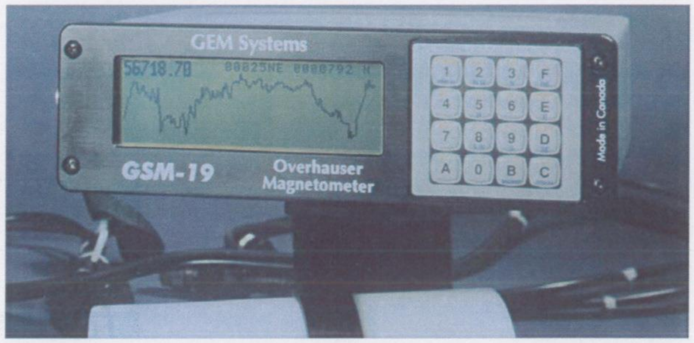
**GPS elevation values provide input for geophysical modeling**

**Enhanced GPS positioning resolution**
**<1.5m standard GPS for high resolution surveying**
**<1.0m OmniStar GPS**
**<0.7m for newly introduced CDGPS**

**Multi-sensor capability for advanced surveys to resolve target geometry**

**Picket marketing / annotation for capturing related surveying information on-the-go**

**And all of these technologies come complete with the most attractive savings and warranty in the business!**




Overhauser (GSM-19) console with sensor and cable. Can also be configured with additional sensor for gradiometer (simultaneous) readings.

The GSM-19 v7.0 Overhauser instrument is the total field magnetometer / gradiometer of choice in today's earth science environment -- representing a unique blend of physics, data quality, operational efficiency, system design and options that clearly differentiate it from other quantum magnetometers.

With data quality exceeding standard proton precession and comparable to costlier optically pumped cesium units, the GSM-19 is a standard (or emerging standard) in many fields, including:

- Mineral exploration (ground and airborne base station)
- Environmental and engineering
- Pipeline mapping
- Unexploded Ordnance Detection
- Archeology
- Magnetic observatory measurements
- Volcanology and earthquake prediction

## Taking Advantage of the Overhauser Effect

Overhauser effect magnetometers are essentially proton precession devices -- except that they produce an order-of-magnitude greater sensitivity. These "supercharged" quantum magnetometers also deliver high absolute accuracy, rapid cycling (up to 5 readings / second), and exceptionally low power consumption.

The Overhauser effect occurs when a special liquid (with unpaired electrons) is combined with hydrogen atoms and then exposed to secondary polarization from a radio frequency (RF) magnetic field.

The unpaired electrons transfer their stronger polarization to hydrogen atoms, thereby generating a strong precession signal -- that is ideal for very high-sensitivity total field measurements.

In comparison with proton precession methods, RF signal generation also keeps power consumption to an absolute minimum and eliminates noise (i.e. generating RF frequencies are well out of the bandwidth of the precession signal).

In addition, polarization and signal measurement can occur simultaneously -- which enables faster, sequential measurements. This, in turn, facilitates advanced statistical averaging over the sampling period and/or increased cycling rates (i.e. sampling speeds).

Other advantages are described in the section called, "GEM's Commercial Overhauser System" that appears later in this brochure.

## Key System Components

Key components that differentiate the GSM-19 from other systems on the market include the sensor and data acquisition console. Specifications for components are provided on the right side of this page.

### Sensor Technology

GEM's sensors represent a proprietary innovation that combines advances in electronics design and quantum magnetometer chemistry.

Electronically, the detection assembly includes dual pick-up coils connected in series opposition to suppress far-source electrical interference, such as atmospheric noise. Chemically, the sensor head houses a proprietary hydrogen-rich liquid solvent with free electrons (free radicals) added to increase the signal intensity under RF polarization.

From a physical perspective, the sensor is a small size, light-weight assembly that houses the Overhauser detection system and fluid. A rugged plastic housing protects the internal components during operation and transport.

All sensor components are designed from carefully screened non-magnetic materials to assist in maximization of signal-to-noise. Heading errors are also minimized by ensuring that there are no magnetic inclusions or other defects that could result in variable readings for different orientations of the sensor.

Optional omni-directional sensors are available for operating in regions where the magnetic field is near-horizontal (i.e. equatorial regions). These sensors maximize signal strength regardless of field direction.

### About GEM Advanced Magnetometers

GEM Systems, Inc. delivers the world's only magnetometers and gradiometers with built-in GPS for accurately-positioned ground, airborne and stationary data acquisition. The company serves customers in many fields including mineral exploration, hydrocarbon exploration, environmental and engineering, Unexploded Ordnance Detection, archeology, earthquake hazard prediction and observatory research.

Key products include the QuickTracker™ Proton Precession, Overhauser and SuperSenser™ Optically-Pumped Potassium instruments. Each system offers unique benefits in terms of sensitivity, sampling, and acquisition of high-quality data. These core benefits are complemented by GPS technologies that provide metre to sub-metre positioning.

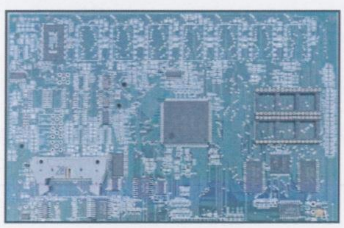
With customers in more than 50 countries globally and more than 20 years of continuous technology R&D, GEM is known as the only geophysical instrument manufacturer that focuses exclusively on magnetic technology advancement.

"Our World is Magnetic"

### Data Acquisition Console Technology

Console technology comprises an external keypad / display interface with internal firmware for frequency counting, system control and data storage / retrieval. For operator convenience, the display provides both monochrome text as well as real-time profile data with an easy-to-use interactive menu for performing all survey functions.

The firmware provides the convenience of upgrades over the Internet via the GEMLinkW software. The benefit is that instrumentation can be enhanced with the latest technology without returning the system to GEM -- resulting in both timely implementation of updates and reduced shipping / servicing costs.



## Specifications

### Performance

| | |
|---|---|
| Sensitivity: | < 0.015 nT / √Hz @ 1 Hz |
| Resolution: | 0.01 nT |
| Absolute Accuracy: | +/- 0.1 nT |
| Range: | 10,000 to 120,000 nT |
| Gradient Tolerance: | > 10,000 nT/m |
| Samples at: | 60+, 5, 3, 2, 1, 0.5, 0.2 sec |
| Operating Temperature: | -40C to +55C |

### Operating Modes

Manual: Coordinates, time, date and reading stored automatically at minimum 3 second interval.

Base Station: Time, date and reading stored at 3 to 60 second intervals.

Remote Control: Optional remote control using RS-232 interface.

Input / Output: RS-232 or analog (optional) output using 6-pin weatherproof connector.

### Storage - 16 MB (# of Readings)

| | |
|---|---|
| Mobile: | 738,769 |
| Base Station: | 2,708,821 |
| Gradiometer: | 625,112 |
| Walking Mag: | 1,354,410 |

### Dimensions

| | |
|---|---|
| Console: | 223 x 69 x 240 mm |
| Sensor: | 175 x 75mm diameter cylinder |

### Weights

| | |
|---|---|
| Console with Belt: | 2.1 kg |
| Sensor and Staff Assembly: | 1.0 kg |

### Standard Components

GSM-19 console, GEMLinkW software, batteries, harness, charger, sensor with cable, RS-232 cable, staff, instruction manual and shipping case.

### Optional VLF

Frequency Range: Up to 3 stations between 15 to 30.0 kHz

Parameters: Vertical in-phase and out-of-phase components as % of total field. 2 components of horizontal field amplitude and total field strength in pT.

Resolution: 0.1% of total field


**GEM Systems, Inc.**
**52 West Beaver Creek Road, 14**
**Richmond Hill, ON**
**Canada L4B 1L9**
**Tel: 905-764-8008**
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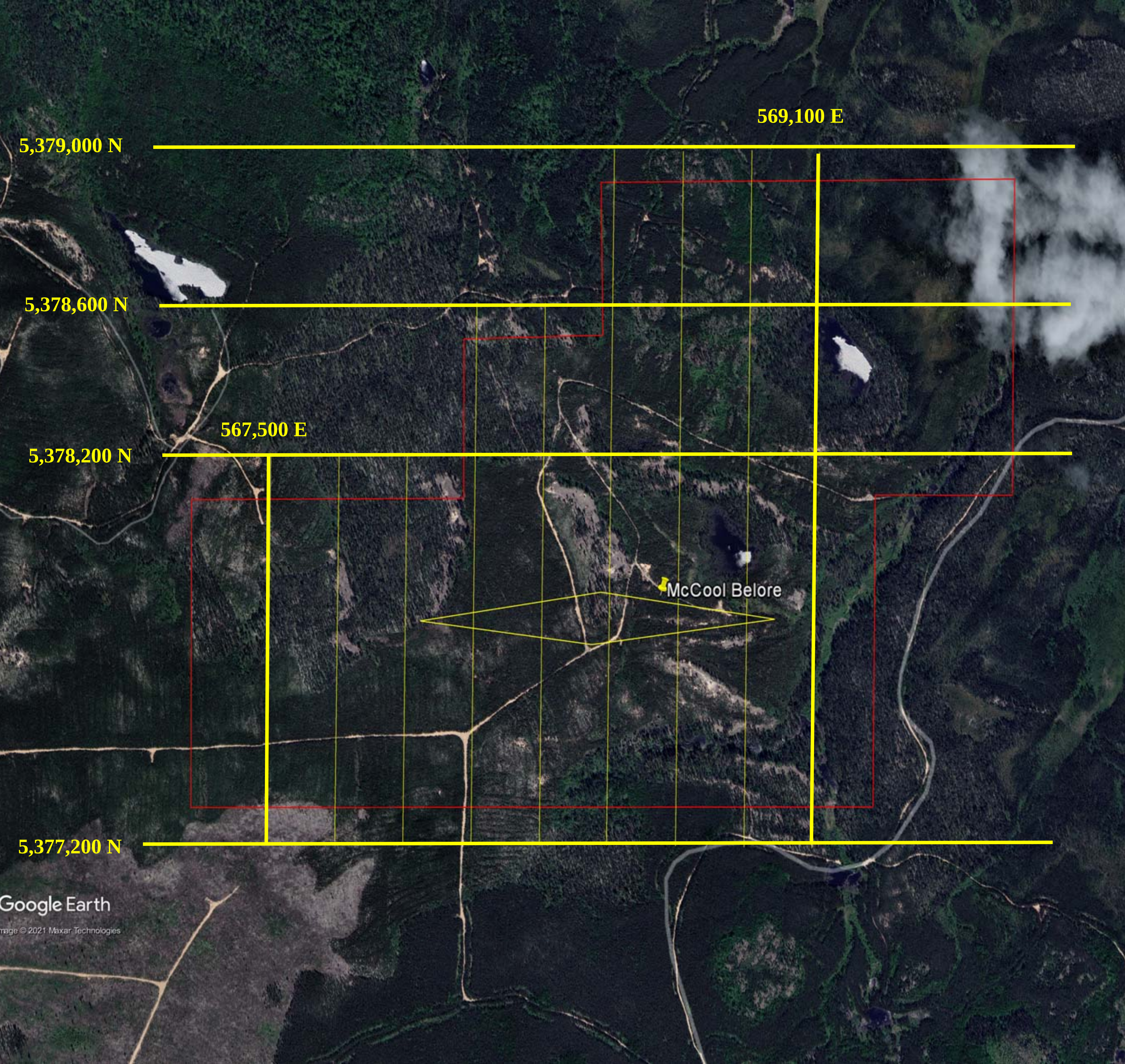
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