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CANADIAN EXPLORATION SERVICES LTD

Melba Mining Company Limited.

Q2993 – Grenfell Property
Magnetometer Survey

C Jason Ploeger, P.Geo.

April 1st, 2022

MELBA MINING COMPANY LIMITED

Abstract

CXS was contracted by Melba Mining Company Limited. to perform a magnetometer survey over the Grenfell Property near Kenogami, Ontario.

A total of 1.65 line kilometers of magnetometer was read over the Grenfell Property on March 16, 2022. The magnetic signature indicates the presence of multiple geological units present.

Melba Mining Company Limited

Q2993 – Grenfell Property
Magnetometer Survey

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1. SURVEY DETAILS

1.1 PROJECT NAME

This project is known as the **Grenfell Property**.

1.2 CLIENT

MELBA MINING COMPANY LIMITED

255 Kenogami Lane
Grenfell Township, Ontario
P0K 1T0

1.3 OVERVIEW

CXS was contracted to perform a magnetometer survey over a portion of the Grenfell Property. The crew accessed the site on March 16, 2022.

A total of 1.65 line kilometers of magnetometer was read over the Grenfell Property on March 16, 2022. The magnetic signature indicates the presence of multiple geological units present.

1.4 OBJECTIVE

The objective of the magnetometer survey was to explore the area for magnetic signatures.

1.5 SURVEY & PHYSICAL ACTIVITIES UNDERTAKEN

Survey/Physical Activity	Dates	Total Days in Field	Total Line Kilometers
Magnetometer	March 16, 2022	1	1.65

Table 1: Survey and Physical Activity Details

1.6 SUMMARY OF RESULTS, CONCLUSIONS & RECOMMENDATIONS

CXS was contracted to perform a magnetometer survey over a portion of the Grenfell Property. The crew accessed the site on March 16, 2022.

A total of 1.65 line kilometers of magnetometer was read over the Grenfell Property on March 16, 2022. The magnetic signature indicates the presence of multiple geological units present.

A historical compilation, prospecting and extension of the survey to the north-east is recommended.

1.7 CO-ORDINATE SYSTEM

Projection: UTM zone 17N
Datum: NAD83
UTM Coordinates near center of grid: 560100 Easting and 5328900 Northing

2. SURVEY LOCATION DETAILS

2.1 LOCATION

The Grenfell Property is located approximately 1.0 kilometers east of Kenogami, Ontario. The property covers a portion of mining claims 548769 and 548770 located in Grenfell Township within the Larder Lake Mining Division.

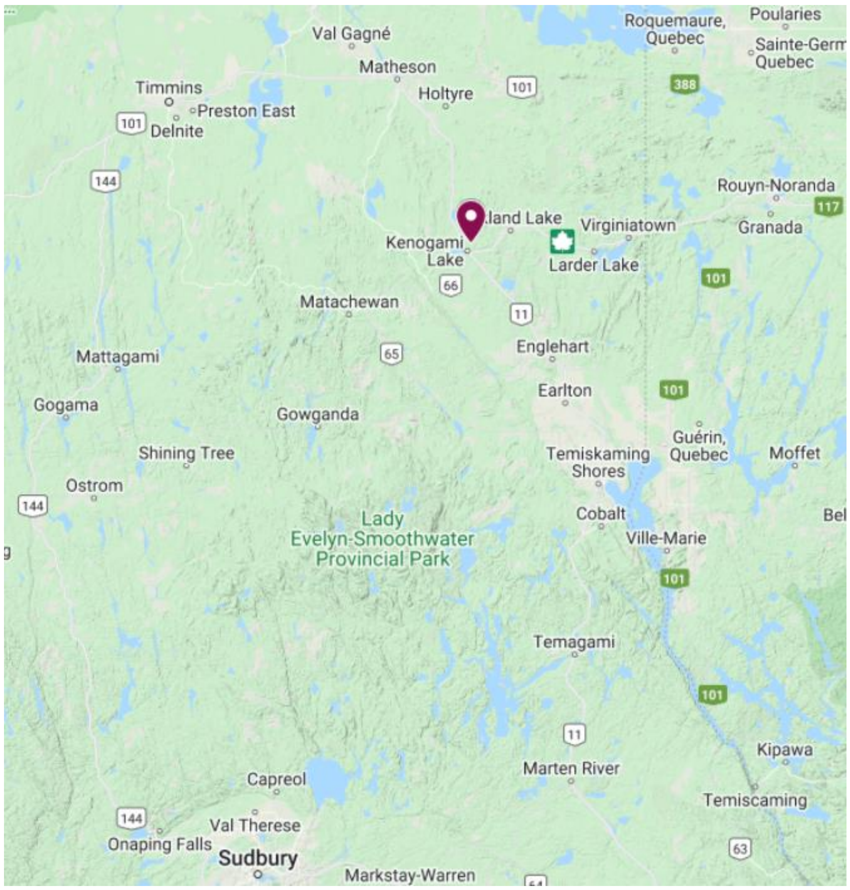


Figure 1: Location of the Grenfell Property

2.2 ACCESS

Access to the Grenfell Property was attained with a 4x4 truck and snowmachine via Kenogami. From Kenogami, Malnerich Road was travelled 750m by snowmachine to the pipeline, from here the pipeline was travelled 250m to the survey area.

2.3 MINING CLAIMS

The survey on the property covers a portion of mining claim 548769 located in Grenfell Township within the Larder Lake Mining Division.

Cell Number	Provincial Grid Cell ID	Ownership of Land	Township
548769	42A01G270	Patrick Culhane	Grenfell

Table 2: Mining Lands and Cells Information

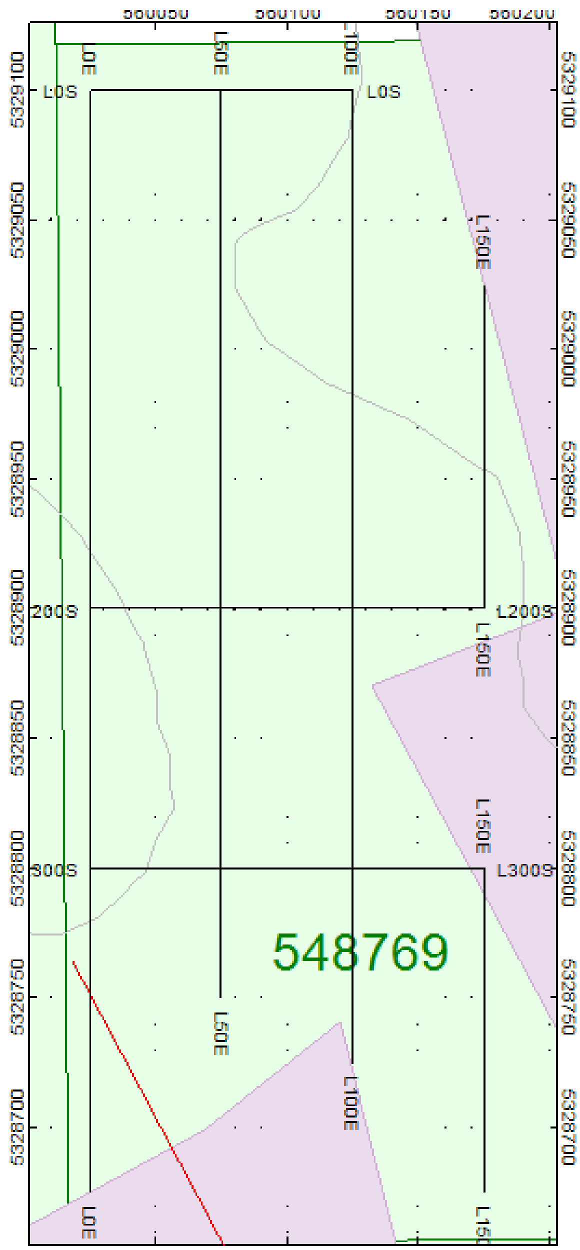


Figure 2: Claim Map with the Grenfell Property Traverse

2.4 Property History

There have been many historical exploration projects carried out over the years all over the survey area. The following list describes details of the previous geoscience work which was collected by the Mines and Minerals division and provided by OGSEarth (MNDM & OGSEarth, 2022).

- **1983: Orcana Resources Ltd. (File 42A01NE0280, 42A01NE0283)**
  Drilling and Geological
  In 1983 Ocrcana reported mapping the geology and drilling some overburden holes over a portion of the survey area.

- **1995-2000: Barry McCombe (File 42A01NE0307, 42A01NE0312, 42A01NE2027, 42A01NE2031 and 42A01NE2035)**
  Geophysical, Physical and Other
  Between 1995 and 2000 McCombe performed various magnetometer/gradiometer surveys along with mapping the geology of a portion of the survey area. Some overburden stripping was also performed.

- **1997: Kinross Gold Corp. (Files 42A01NE0316)**
  Physical
  In 1997 Kinross reported some mechanical stripping and sampling was performed.

2.5 General Regional/Local Geological Settings

General Geology:

Taken from Ploeger (2000) - The south part of Grenfell Twp was mapped by Thomson (1950) and the entire township by Grant (1964). A report on the McCombe group was published following a property visit by Guindon (Meyer et al, 1995). According to these earlier publications, the area is underlain by massive and pillowed flows of probable Mg-tholeiitic Kinojevis Group affinity. Coarse grained massive flow units are often gabbroic textured. The overall strike of the mafic assemblage in the vicinity of the claims is reported at 330 degrees with dips and tops facing steeply east. Regional metamorphism has altered the flows to greenschist facies.

2.6 Target of Interest

The target of the survey was to determine if any magnetic variations may occur in the geologic units. This would indicate the precense of alteration, structures or intrusions.

3. SURVEY WORK UNDERTAKEN

3.1 Summary

CXS was contracted to perform a magnetometer survey over a portion of the Grenfell Property. The crew accessed the site on March 16, 2022.

A total of 1.65 line kilometers of magnetometer was read over the Grenfell Property on March 16, 2022. The magnetic signature indicates the presence of multiple geological units present.

3.2 Survey Grid

The traversed lines were established using a GPS in conjunction with the execution of the survey. The GPS operator would establish sample locations while remaining approximately 25m in front of the magnetometer operator. GPS waypoints and magnetic samples were taken every 25m along these controlled traverses. The GPS used was a Garmin GPSMAP 62s with an external antenna for added accuracy.

3.3 Survey Log

Date	Description	Line	Min Extent	Max Extent	Total Survey (m)
March 16, 2022	Mobilize to Kenogami, locate survey area and perform magnetometer survey.	0E	362.5S	0N	362.5
		50E	325S	0N	325
		100E	312.5S	0N	3125.5
		150E	75S	200S	125
		150E	300S	425S	125
		0N	0E	100E	100
		200S	0E	150E	150
		300S	0E	150E	150

Table 3: Survey Log

3.4 Personnel

Jason Ploeger of Larder Lake, Ontario conducted the magnetic data collection with Dylan Aitchison of Larder Lake, Ontario being responsible for GPS control and waypoint collection.

3.5 SAFETY

Canadian Exploration Services prides itself in creating and maintaining a safe work environment for its employees. Each crew member is briefed on the jobsite location, equipment safety, standard operating procedures along with our health and safety manual. An emergency response plan is generated relating to the specific job and with the jobsite predominantly in the field, which is unpredictable, morning safety briefings are essential. Topics are generally chosen based off jobsite characteristics of the area, time of year and crew experience.

3.6 SURVEY SPECIFICATIONS

The survey was conducted with a GSM-19 v7 Overhauser magnetometer with a second GSM-19 magnetometer for a base station mode for diurnal correction.

A total of 1.65 line kilometers of magnetometer was read over the Grenfell Property on March 16, 2022. This consisted of 142 magnetometer samples taken at a 12.5m sample interval.

2 OVERVIEW OF SURVEY RESULTS

3.1 SUMMARY

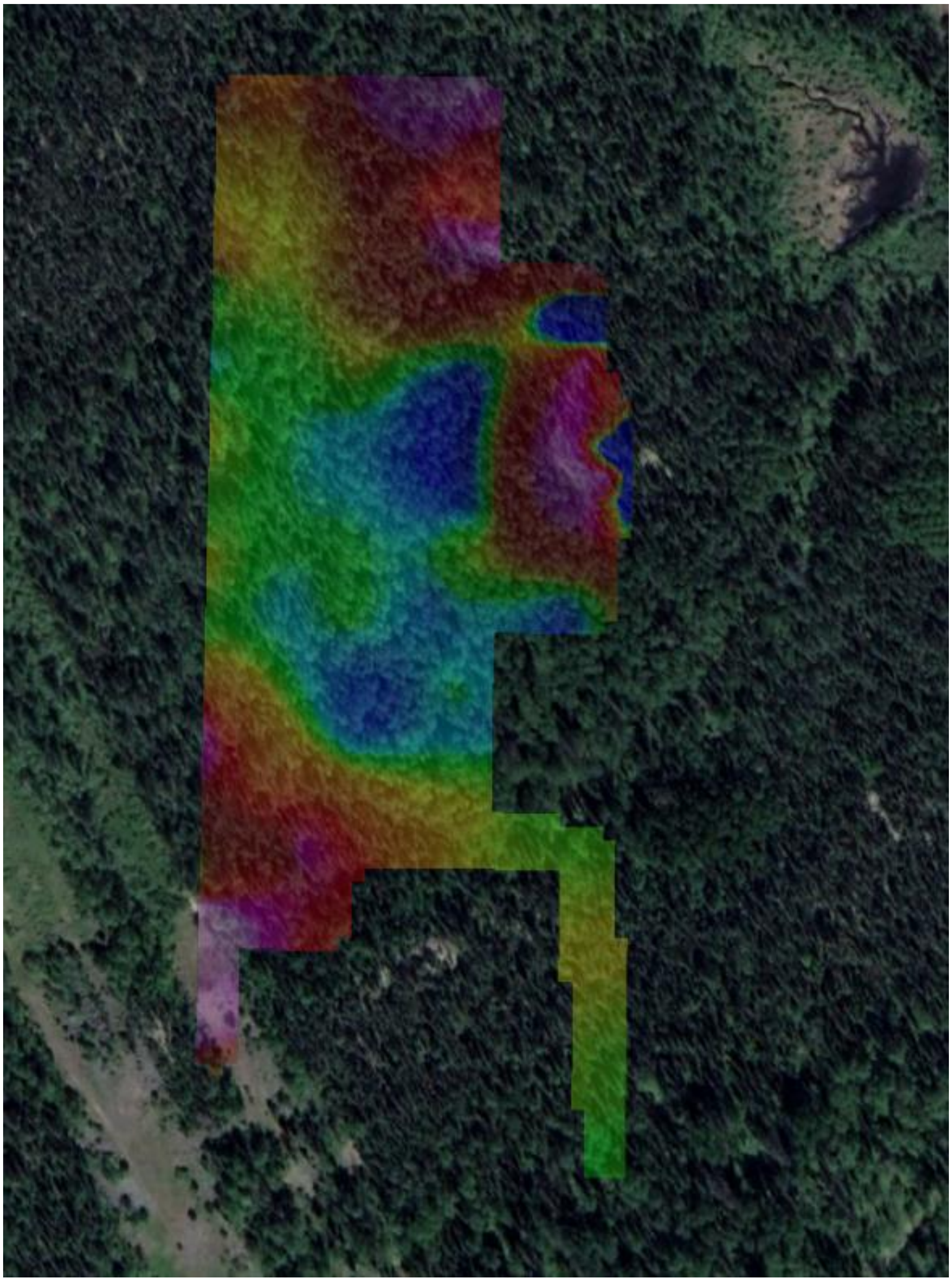


Figure 3: Magnetometer Plan Map on Google Earth

The only culture observed was a gas pipeline that crossed the southwest corner of the traverse area. Due to the proximity to the pipeline it was determined that a VLF survey would fail, therefore it VLF was not performed. This affected the dataset by elevating the magnetic signature in the southwest corner of the survey area. During the time of the survey there was 3-4 feet of snow on the ground and a lite drizzle.

The survey indicates the existence of two magnetic units with the north-east unit representing a stronger magnetic signature. The response over line 150E indicted strong gradients, which most likely represents a gabbro. This may be repeated in the southwest; however, the presence of the pipeline makes this difficult to determine.

The central magnetic signature appears to exhibit a lower magnetic signature with less magnetic gradient. This most likely represent a mafic volcanic.

It is recommended that the historical data available be compiled to help determine the source of the response in the north-east. The area should also be prospected to better understand the underlying geology.

It is also recommended that the survey be extended to the northeast as property to better constrain the anomalous unit.

APPENDIX A

STATEMENT OF QUALIFICATIONS

I, C. Jason Ploeger, hereby declare that:

1. I am a professional geophysicist with residence in Larder Lake, Ontario and am presently employed as a Geophysicist and Geophysical Manager of Canadian Exploration Services Ltd. of Larder Lake, Ontario.

2. I am a Practicing Member of the Association of Professional Geoscientists, with membership number 2172.

3. I graduated with a Bachelor of Science degree in geophysics from the University of Western Ontario, in London Ontario, in 1999.

4. I have practiced my profession continuously since graduation in Africa, Bulgaria, Canada, Mexico and Mongolia.

5. I am a member of the Ontario Prospectors Association, a Director of the Northern Prospectors Association and a member of the Society of Exploration Geophysicists.

6. I do not have nor expect an interest in the properties and securities of **Melba Mining Company Limited.**

7. I am responsible for the final processing and validation of the survey results and the compilation of the presentation of this report. The statements made in this report represent my professional opinion based on my consideration of the information available to me at the time of writing this report.

PROFESSIONAL GEOSCIENTIST
C. JASON PLOEGER
PRACTISING MEMBER
2172
ONTARIO

C. Jason Ploeger, P.Geo., B.Sc.
Geophysical Manager
Canadian Exploration Services Ltd.

April 1, 2022

APPENDIX B

THEORETICAL BASIS AND SURVEY PROCEDURES

TOTAL FIELD MAGNETIC SURVEY

Base station corrected Total Field Magnetic surveying is conducted using at least two synchronized magnetometers of identical type. One magnetometer unit is set in a fixed position in a region of stable geomagnetic gradient, and away from possible cultural effects (i.e. moving vehicles) to monitor and correct for daily diurnal drift. This magnetometer, given the term 'base station', stores the time, date and total field measurement at fixed time intervals over the survey day. The second, remote mobile unit stores the coordinates, time, date, and the total field measurements simultaneously. The procedure consists of taking total magnetic measurements of the Earth's field at stations, along individual profiles, including Tie and Base lines. A 2 meter staff is used to mount the sensor, in order to optimally minimize localized near-surface geologic noise. At the end of a survey day, the mobile and base-station units are linked, via RS-232 ports, for diurnal drift and other magnetic activity (ionospheric and sferic) corrections using internal software.

For the gradiometer application, two identical sensors are mounted vertically at the ends of a rigid fiberglass tube. The centers of the coils are spaced a fixed distance apart (0.5 to 1.0m). The two coils are then read simultaneously, which alleviates the need to correct the gradient readings for diurnal variations, to measure the gradient of the total magnetic field.

VLF EM SURVEY

The frequency domain VLF electromagnetic survey is designed to measure both the vertical and horizontal in-phase (IP) and Quadrature (OP) components of the anomalous field from electrically conductive zones. The sources for VLF EM surveys are several powerful radio transmitters located around the world which generate EM radiation in the low frequency band of 15-25kHZ. The signals created by these long-range communications and navigational systems may be used for surveying up to several thousand kilometers away from the transmitter. The quality of the incoming VLF signal can be monitored using the field strength. A field strength above 5pT will produce excellent quality results. Anything lower indicates a weak signal strength, and possibly lower data quality. A very low signal strength (<1pT) may indicate the radio station is down.

The EM field is planar and horizontal at large distances from the EM source. The two components, electric (E) and magnetic (H), created by the source field are orthogonal to each other. E lies in a vertical plane while H lies at right angles to the direction of propagation in a horizontal plane. In order to ensure good coupling, the strike of possible conductors should lie in the direction of the transmitter to allow the H vector to pass through the anomaly, in turn, creating a secondary EM field.

The VLF EM receiver has two orthogonal aerials which are tuned to the frequency of the transmitting station. The direction of the source station is located by rotating the sensor around a vertical axis until a null position is found. The VLF EM survey procedure consists of taking measurements at stations along each line on the grid. The receiver is rotated about a horizontal axis, right angles to the traverse and the tilt recorded at the null position.

APPENDIX C

GSM 19

Specifications

Overhauser Performance

Resolution: 0.01 nT
Relative Sensitivity: 0.02 nT
Absolute Accuracy: 0.2nT
Range: 20,000 to 120,000 nT
Gradient Tolerance: Over 10,000nT/m
Operating Temperature: -40°C to +60°C

Operation Modes

Manual: Coordinates, time, date and reading stored automatically at min. 3 second interval.
Base Station: Time, date and reading stored at 3 to 60 second intervals.
Walking Mag: Time, date and reading stored at coordinates of fiducial.
Remote Control: Optional remote control using RS-232 interface.
Input/Output: RS-232 or analog (optional) output using 6-pin weatherproof connector.

Operating Parameters

Power Consumption: Only 2Ws per reading. Operates continuously for 45 hours on standby.
Power Source: 12V 2.6Ah sealed lead acid battery standard, other batteries available
Operating Temperature: -50°C to +60°C

Storage Capacity

Manual Operation: 29,000 readings standard, with up to 116,000 optional. With 3 VLF stations: 12,000 standard and up to 48,000 optional.

Base Station: 105,000 readings standard, with up to 419,000 optional (88 hours or 14 days uninterrupted operation with 3 sec. intervals)

Gradiometer: 25,000 readings standard, with up to 100,000 optional. With 3 VLF stations: 12,000, with up to 45,000 optional.

Omnidirectional VLF

Performance Parameters: Resolution 0.5% and range to ±200% of total field. Frequency 15 to 30 kHz.

Measured Parameters: Vertical in-phase & out-of-phase, 2 horizontal components, total field coordinates, date, and time.

Features: Up to 3 stations measured automatically, in-field data review, displays station field strength continuously, and tilt correction for up to ±10° tilts.

Dimensions and Weights: 93 x 143 x 150mm and weighs only 1.0kg.

Dimensions and Weights

Dimensions:
Console: 223 x 69 x 240mm
Sensor: 170 x 71mm diameter cylinder
Weight:
Console: 2.1kg
Sensor and Staff Assembly: 2.0kg

Standard Components

GSM-19 magnetometer console, harness, battery charger, shipping case, sensor with cable, staff, instruction manual, data transfer cable and software.

Taking Advantage of a “Quirk” of Physics

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 measurement. In comparison with proton precession methods, RF signal generation also keeps power consumption to an absolute minimum and reduces 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).

- The unique Overhauser unit blends physics, data quality, operational efficiency, system design and options into an instrumentation package that ... exceeds proton precession and matches costlier optically pumped cesium capabilities

APPENDIX C

GARMIN GPS MAP 64

Physical & Performance:	
Unit dimensions, WxHxD:	2.4" x 6.3" x 1.4" (6.1 x 16.0 x 3.6 cm)
Display size, WxH:	1.43" x 2.15" (3.6 x 5.5 cm); 2.6" diag (6.6 cm)
Display resolution, WxH:	160 x 240 pixels
Display type:	transflective, 65-K color TFT
Weight:	8.1 oz (230 g) with batteries
Battery:	2 AA batteries (not included); NiMH or Lithium recommended
Battery life:	16 hours
Waterproof:	yes (IPX7)
Floats:	no

High-sensitivity receiver:	yes
Interface:	high-speed USB and NMEA 0183 compatible
Maps & Memory:	
Basemap:	yes
Ability to add maps:	yes
Built-in memory:	4 GB
Accepts data cards:	microSD™ card (not included)
Custom POIs (ability to add additional points of interest)	yes
Waypoints/favorites/locations:	5000
Routes:	200
Track log:	10,000 points, 200 saved tracks
Features & Benefits:	
Automatic routing (turn by turn routing on roads):	yes (with optional mapping for detailed roads)
Geocaching-friendly:	yes (paperless)
Custom maps compatible:	yes
Hunt/fish calendar:	yes
Sun and moon information:	yes
Tide tables:	yes
Area calculation:	yes
Picture Viewer	yes

- *Specifications obtained from www.garmin.com*

APPENDIX D

LIST OF MAPS (IN MAP POCKET)

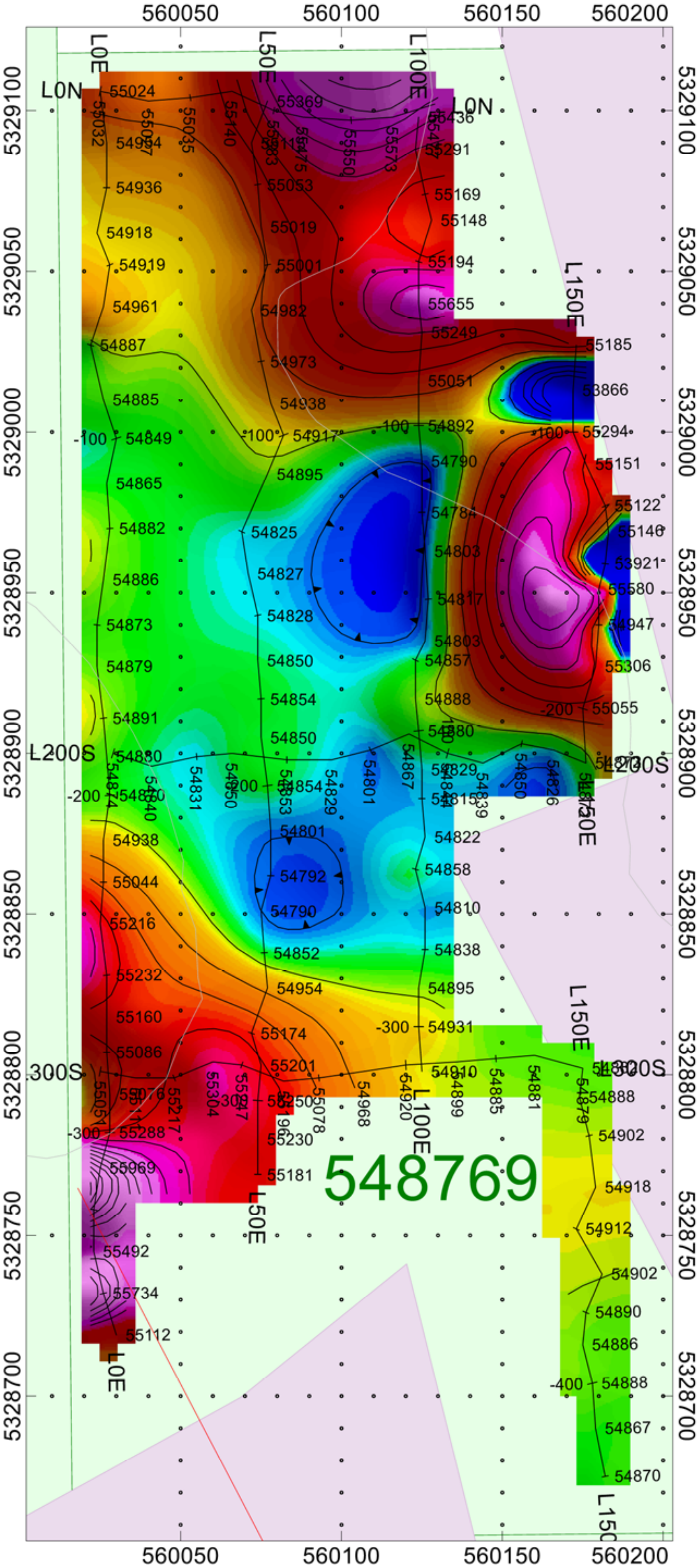
Magnetometer Plan Map (1:2000)

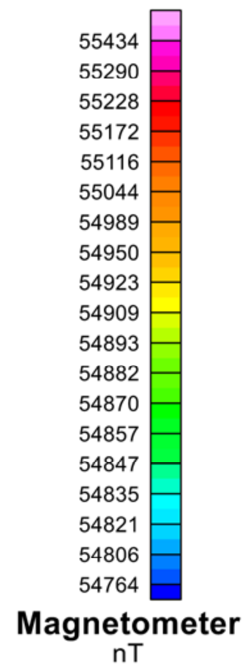
1) Q2993-Melba-Grenfell-Mag-Cont

Claim Map with Magnetic Traverses (1:2000)

2) Q2993- Melba-Grenfell-Traverses

TOTAL MAPS = 2





Scale 1:2000

25 0 25 50 75

(meters)

NAD83 / UTM zone 17N

MELBA MINING COMPANY LIMITED

GRENFELL PROPERTY
Grenfell Township, Ontario

TOTAL FIELD MAGNETIC CONTOURED PLAN MAP
Base Station Corrected

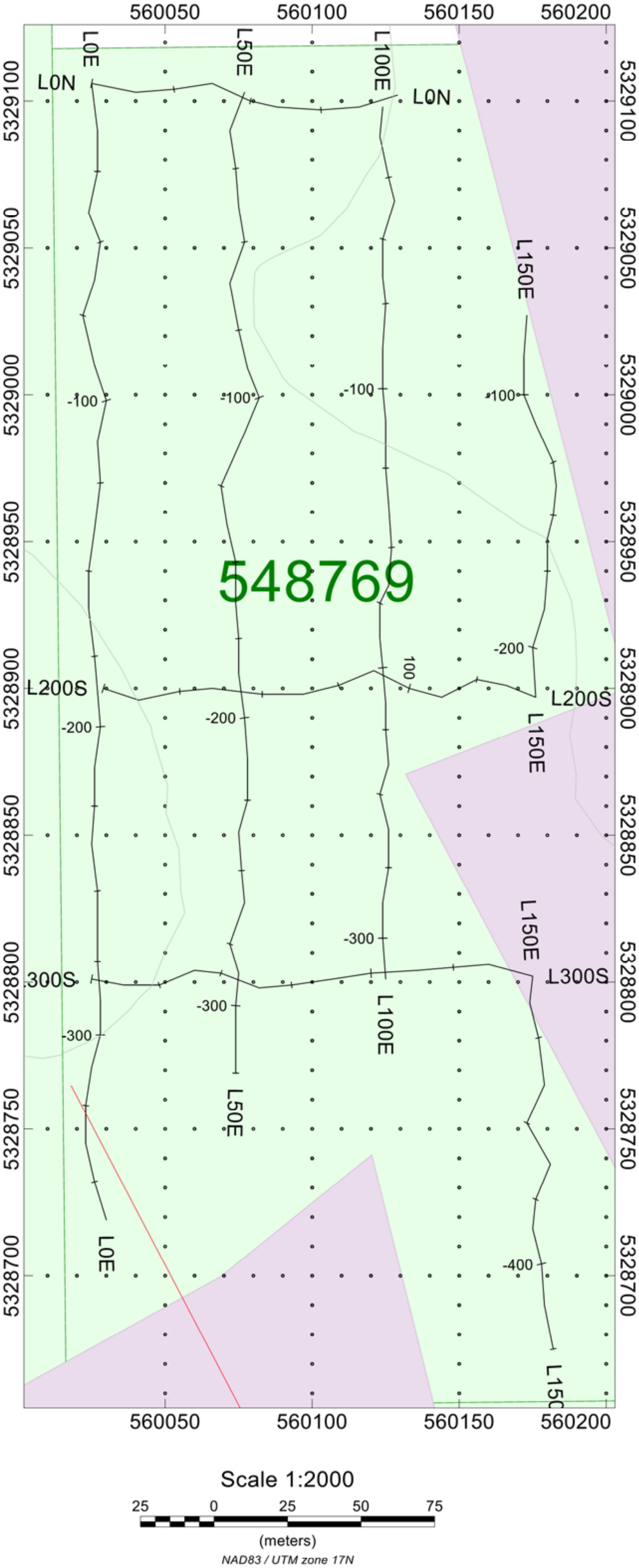
Posting Level: 0nT
Field Inclination/Declination: 72.5degN/9.6degW
Station Seperation: 12.5 meters
Total Field Magnetic Contours: 100nT

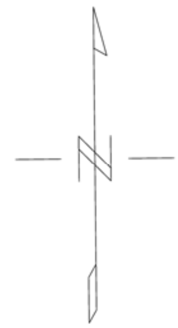
GSM-19 OVERHAUSER MAGNETOMETER v7

Receiver Operated By: Jason Ploeger
GPS Operated By: Dylan Aitchison
Processed by: C Jason Ploeger, P.Geo.
Map Drawn By: C Jason Ploeger, P.Geo.
April 2022

CXS
CANADIAN EXPLORATION SERVICES LTD

Drawing: Q2993-Melba-Grenfell-Mag-Cont





MELBA MINING COMPANY LIMITED

GRENFELL PROPERTY
Grenfell Township, Ontario

Traverse Plan Map

Receiver Operated By: Jason Ploeger
GPS Operated By: Dylan Aitchison
Processed by: C Jason Ploeger, P.Geo.
Map Drawn By: C Jason Ploeger, P.Geo.
April 2022

CANADIAN EXPLORATION SERVICES LTD

Drawing: Q2993-Melba-Grenfell-Traverse