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# **TERRY LINK**

## **Magnetometer and VLF EM Surveys Over the**

### **BROWNING PROPERTY**

#### **Cairo Township, Ontario**

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## 1. SURVEY DETAILS

### 1.1 PROJECT NAME

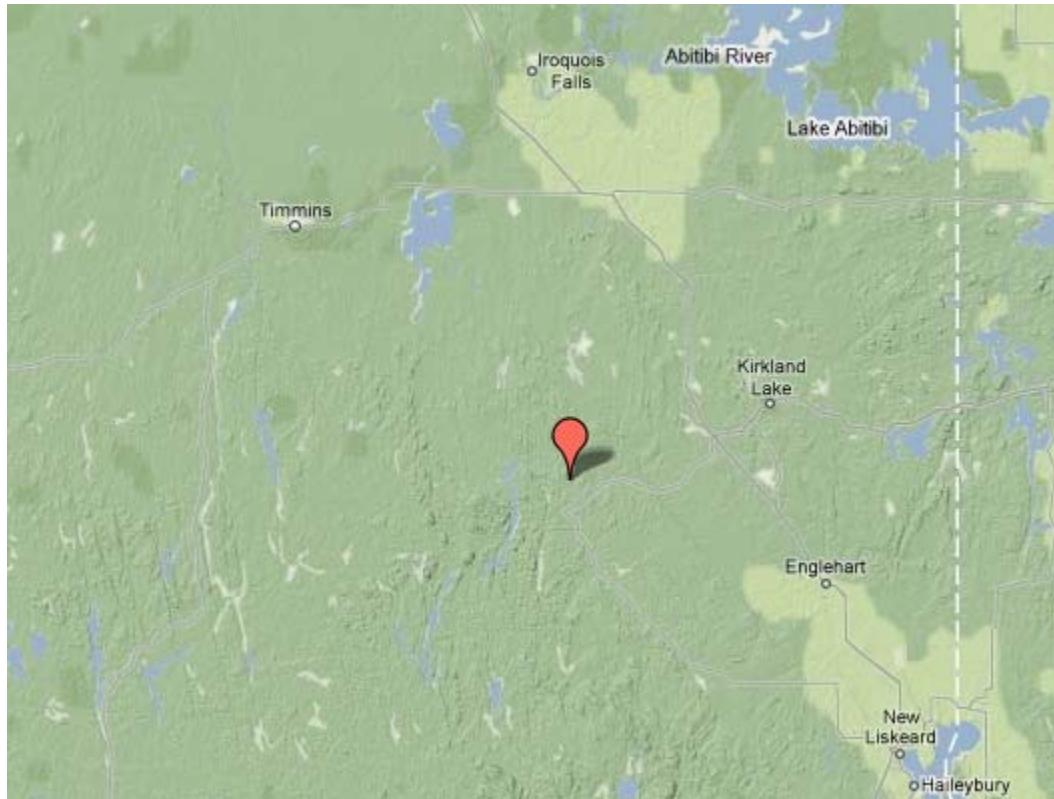
This project is known as the **Browning Property**.

### 1.2 CLIENT

Terry Link  
P.O. Box 561  
Kirkland Lake, ON  
P2N 3J5

### 1.3 LOCATION

The Browning Property is located in Cairo Township approximately 43 km west-southwest of Kirkland Lake, Ontario. The survey area covers a portion of mining claim 4240377 within the Larder Lake Mining Division.



***Figure 1: Location of Browning Property***

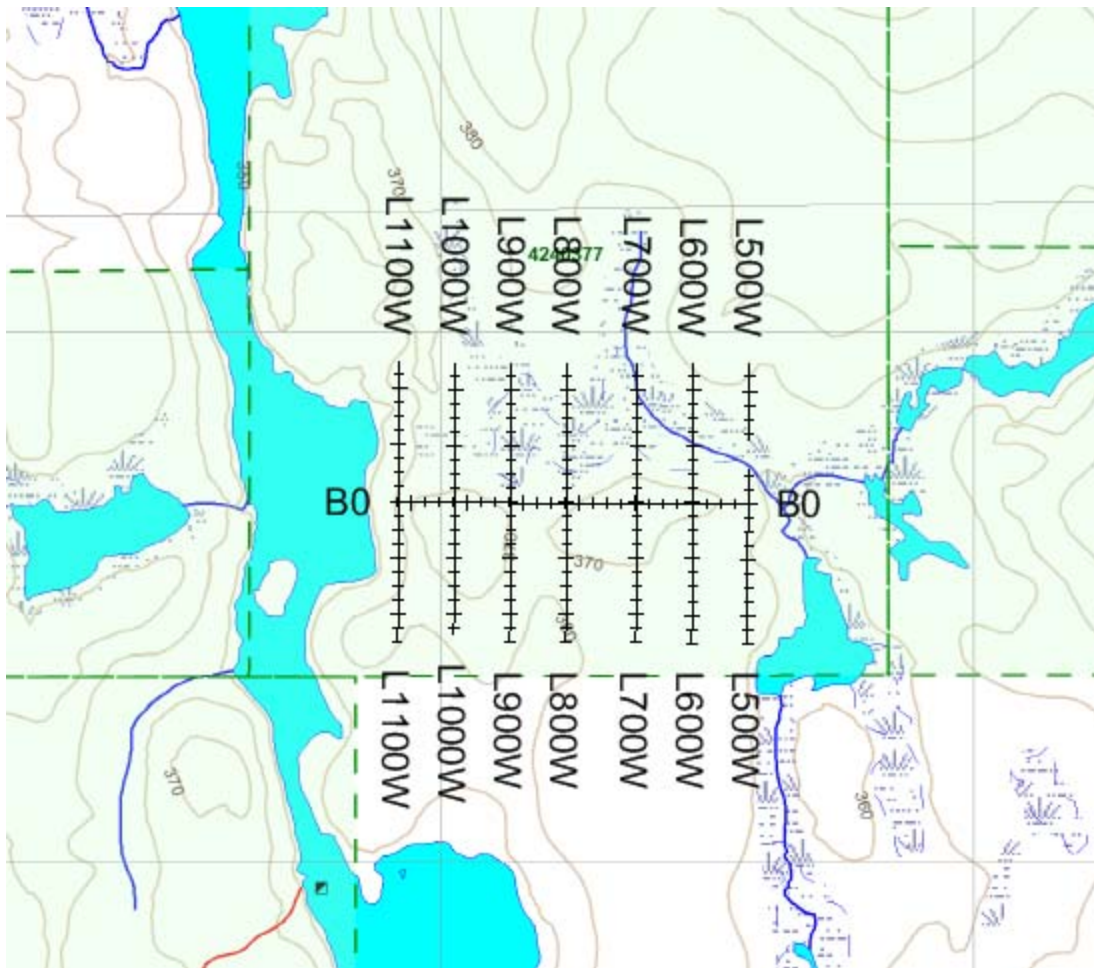
### 1.4 ACCESS

Access to the property was attained with a 4x4 truck and ATV via the Matachewan First Nations

Road which heads north of highway 66 approximately 5 kilometers east of Matachewan. The Matachewan First Nations Road was travelled for approximately 5 kilometers where the ATV was unloaded. From this point the ATV was used for the final 4 kilometers east along a forestry access road to the survey area.

**1.5 SURVEY GRID**

The south grid consists of 4.1 kilometers of recently established grid lines. The lines are spaced at 100 meter increments with stations picketed at 25m intervals. The baseline runs at 90°N for a total length of 600m.



**Figure 2: Claim Map with Browning Grid**

## 2. SURVEY WORK UNDERTAKEN

### 2.1 SURVEY LOG

Date	Description	Line	Min Extent	Max Extent	Total Survey (m)
29 March 2010	Locate grid and begin survey.	1100W	250S	250N	500
		1000W	250S	250N	500
		900W	250S	250N	500
		800W	250S	250N	500
		700W	250S	250N	500
		600W	250S	250N	500
		500W	250S	250N	500
		0N	1100W	500W	600

***Table 1: Survey log***

### 2.2 PERSONNEL

Keith Lavalley of Manitouwadge, Ontario, conducted all of the data collection on March 29, 2010.

### 2.3 SURVEY SPECIFICATIONS

The survey was conducted with a GSM-19 v7 Overhauser magnetometer in walkmag mode. Samples were collected every second with the position extrapolated using the time to go 12.5m. VLF samples were taken at 12.5m sample intervals. A second GSM-19 was employed as a base station for diurnal correction.

A total of 4.1 line kilometers of magnetic and VLF EM survey was conducted on March 29, 2010. This consisted of 4596 magnetometer and 328 VLF EM samples.

### 3. OVERVIEW OF SURVEY RESULTS

#### 3.1 SUMMARY INTERPRETATION

Two magnetic features stand out through the survey area. The first and most prominent magnetic feature appears to be a linear magnetically depressed crossing east west through the survey area. This feature appears to be approximately 100m wide and appears within a generally uniform magnetic environment. This may indicate the path of a shear type structure with magnetite depletion within it.

This magnetically low area is broken by a magnetically elevated linear feature passing through the survey area in a north-south trend. This magnetically high feature appears to trend similar to the Matachewan diabase dikes swarms in the region and most likely represents this. The fact that it breaks the magnetic low feature indicates that it is a younger feature.

The VLF survey indicates two noticeable trends. The first of which strikes north east through 800W, 50N and 700W, 175N. This appears to continue on the other side of the magnetic low feature at 175S on line 1100W.

The other VLF EM signature appears on 600W at 175S and can be seen with a weak response on line 700W.

**APPENDIX A****STATEMENT OF QUALIFICATIONS**

I, C. Jason Ploeger, hereby declare that:

1. I am a geophysicist (non-professional) with residence in Larder Lake, Ontario and am presently employed as geophysical manager of Larder Geophysics Ltd. of Larder Lake, Ontario.
2. I graduated with a Bachelor of Science degree in geophysics from the University of Western Ontario, in London Ontario, in 1999.
3. I have practiced my profession continuously since graduation in Africa, Bulgaria, Canada, Mexico and Mongolia.
4. I am a member of the Ontario Prospectors Association, Director of the Northern Prospectors Association and a member of the Society of Exploration Geophysicists.
5. I do not have an interest in the properties and securities of **Terry Link**.
6. 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.

Larder Lake, ON  
March 2010



C. Jason Ploeger, B.Sc. (geophysics)  
Geophysical Manager of Larder Geophysics Ltd.

## 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 spheric) 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 Electromagnetic

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 kilometres 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 aeriels 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  $\pm 200\%$  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  $\pm 10^\circ$  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.

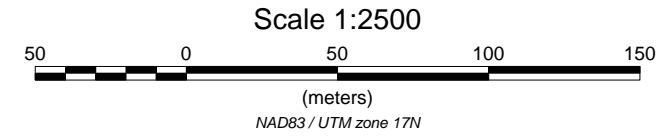
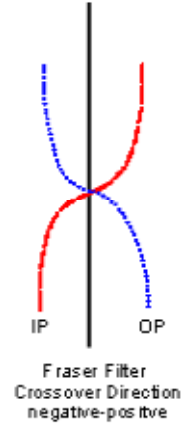
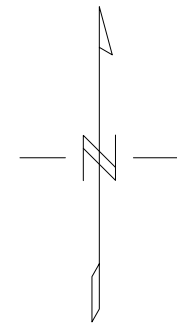
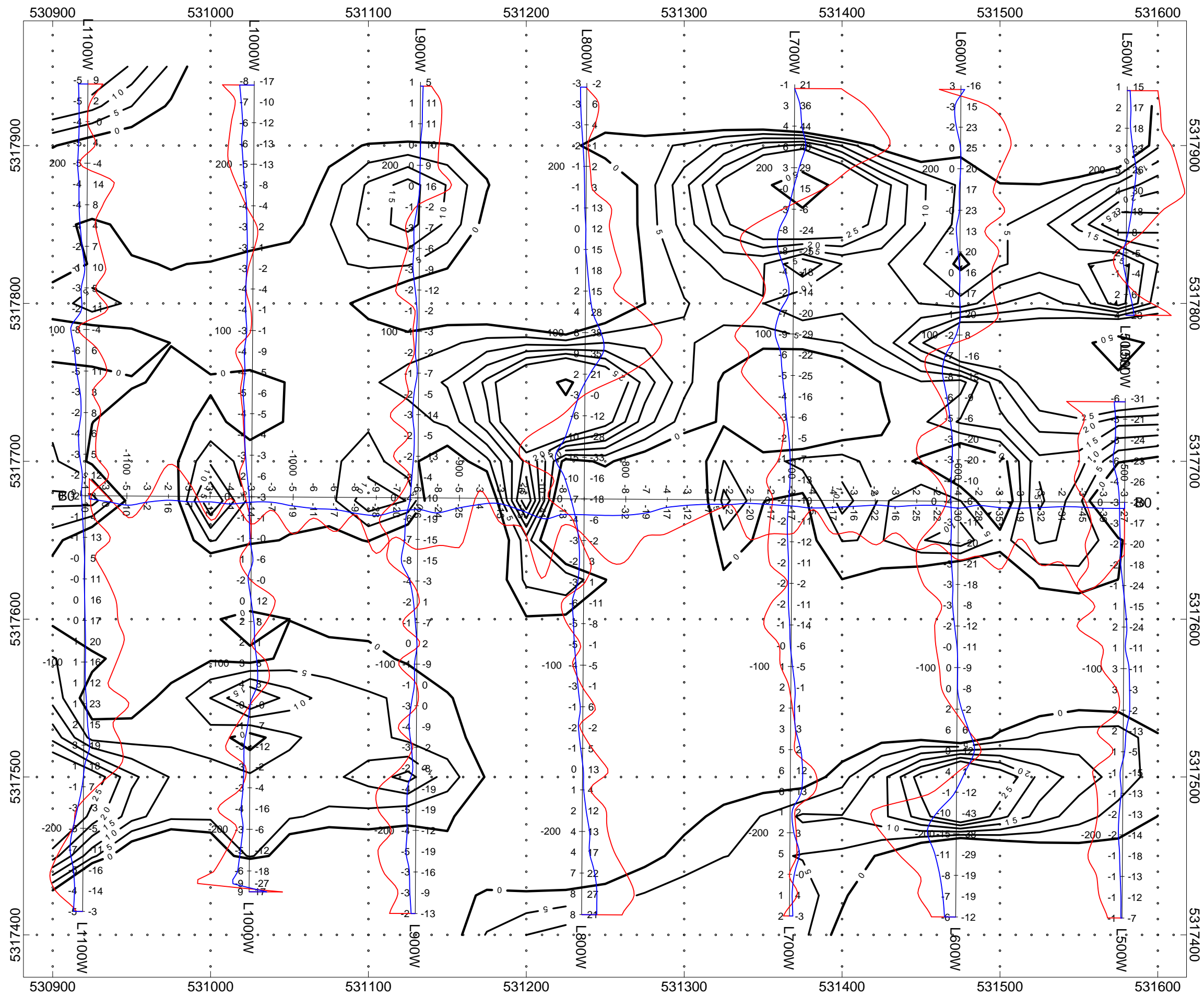
## APPENDIX D

### LIST OF MAPS (IN MAP POCKET)

Posted contoured TFM plan map (1:2500)

- 1) TERRY LINK-BROWNING-MAG-CONT
- 2) TERRY LINK-BROWNING-VLF-NML

**TOTAL MAPS=2**



# TERRY LINK

## Browning Property Cairo Township, Ontario

VLF IN PHASE/OUT PHASE PROFILE  
VLF FILTERED CONTOURED PLAN MAP  
25.2kHz NML - LaMOURE, NORTH DAKOTA USA

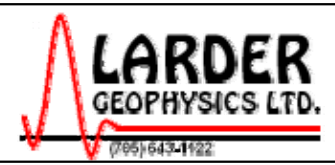
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Out Phase: Posted Left/Top (Blue)

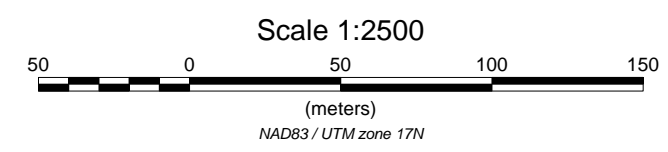
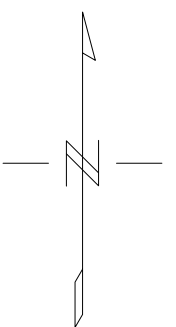
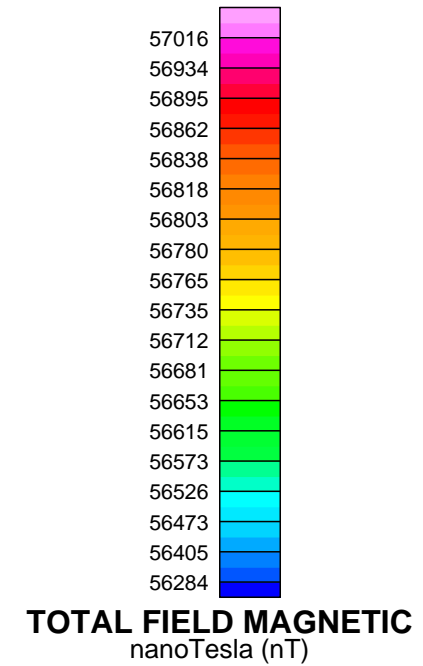
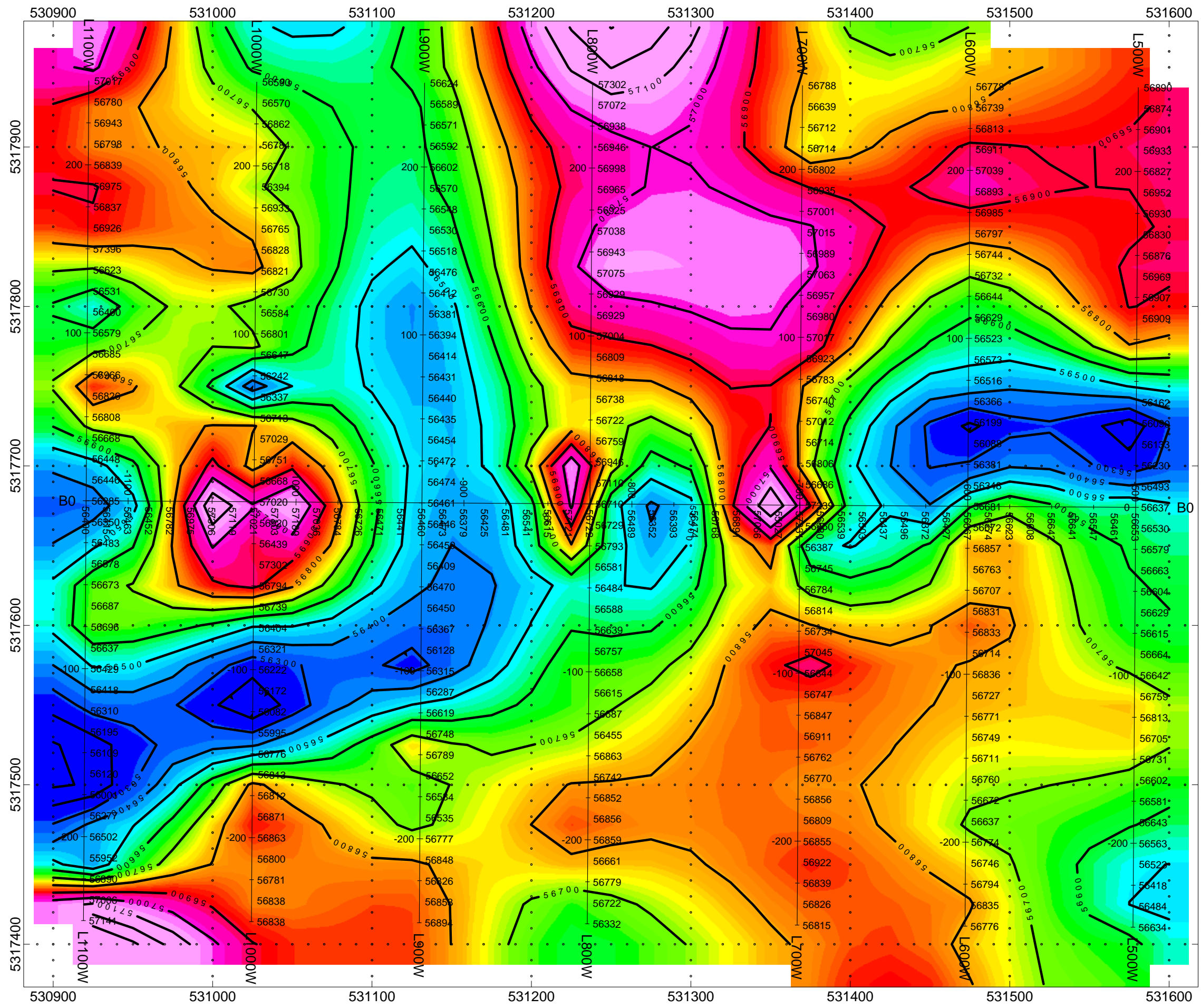
Vertical Profile Scales: 2%/mm  
Contour Interval: 0, 5, 10, 15, 20, 25, 50, 100

Station Separation: 12.5 meters  
Posting Level: 0

GSM-19 OVERHAUSER MAGNETOMETER/VLF v7

Receiver Operated By: Keith Lavalley  
Processed by: C Jason Ploeger, B.Sc.  
Map Drawn By: Lisa LaRocque  
March 30, 2010





**TERRY LINK**

**BROWNING PROPERTY**  
Cairo Township, Ontario

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TOTAL FIELD MAGNETIC CONTOURED PLAN MAP  
Base Station Corrected

Posting Level: 0nT  
Field Inclination/Declination: 74degN/12degW  
Station Separation: Walk mag 1sec interval  
Total Field Magnetic Contours: 100nT

GSM-19 OVERHAUSER MAGNETOMETER/VLF v7

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Magnetometer Operated by: Keith Lavalley  
Processed by: C Jason Ploeger, B.Sc.  
Map Drawn By: Lisa LaRocque  
Drawn On: March 30, 2010



**LARDER**  
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0905-648-1422

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Drawing : TERRY LINK-BROWNING-MAG-CONT