Ontario

We are committed to providing accessible customer service.
If you need accessible formats or communications supports, please contact us.

Nous tenons à améliorer l’accessibilité des services à la clientèle.
Si vous avez besoin de formats accessibles ou d’aide à la communication, veuillez nous contacter.

CANADIAN EXPLORATION SERVICES LTD

DAVID VALLILLEE

Q3037 – Cantbee-1 Property
Magnetometer Survey

C Jason Ploeger, P.Geo.
Kajal P. Makwana

June 21, 2022

DAVID VALLILLEE

Abstract

CXS was contracted to perform a magnetometer survey over a portion of the Cantbee-1 Property. The crew accessed the site on June 9th, 2022.

A total length of 2 kilometres was covered with 168 magnetometer samples taken at a 12.5-meter interval. Two unconstrained magnetometer signatures occur in the north survey area, and a weak magnetometer bullseye signature occurs on the southern survey area.

ERIC MARION

Q3037 – Cantbee-1Property
Magnetometer Survey

C Jason Ploeger, P.Geo.
Kajal P. Makwana

June 21, 2022

TABLE OF CONTENTS

LIST OF APPENDICES

LIST OF TABLES AND FIGURES

1. SURVEY DETAILS

1.1 PROJECT NAME

This project is known as the **Cantbee-1 Property**.

1.2 CLIENT

David G Vallillee

392 York St.
Sudbury, Ontario
P3E 2A7

1.3 OVERVIEW

CXS was contracted to perform a magnetometer survey over a portion of the Cantbee-1 Property. The crew accessed the site on June 9th, 2022.

A total length of 2 kilometres was covered with 168 magnetometer samples taken at a 12.5-meter interval. Two unconstrained magnetometer signatures occur on the north survey area, and a weak magnetometer bullseye signature occurs on the southern survey area.

1.4 OBJECTIVE

The objective of the Survey was to ground-truth an airborne anomaly from an OGS magnetic map.

1.5 SURVEY & PHYSICAL ACTIVITIES UNDERTAKEN

Survey/Physical Activity	Dates	Total Days in Field	Total Line Kilometers
Magnetometer	June 9th, 2022	1	2

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 Cantbee-1 Property.

A total length of 2 kilometres was covered with 168 magnetometer samples taken at

a 12.5-meter interval. Two unconstrained magnetometer signatures occur on the north survey area, and a weak magnetometer bullseye signature occurs on the southern survey area.

1.7 Co-ordinate System

Projection: UTM zone 17N
Datum: NAD83
UTM Co-ordinates near the center of the grid: 582000 Easting and 5360950 Northing

2. SURVEY LOCATION DETAILS

2.1 LOCATION

The Cantbee-1Property is located approximately 28.7 kilometres north-northeast of Kirkland Lake, Ontario. The Survey on the property covers a portion of mining claims 568186 and 568188, all located in Thackeray Township, within the Larder Lake Mining Division.

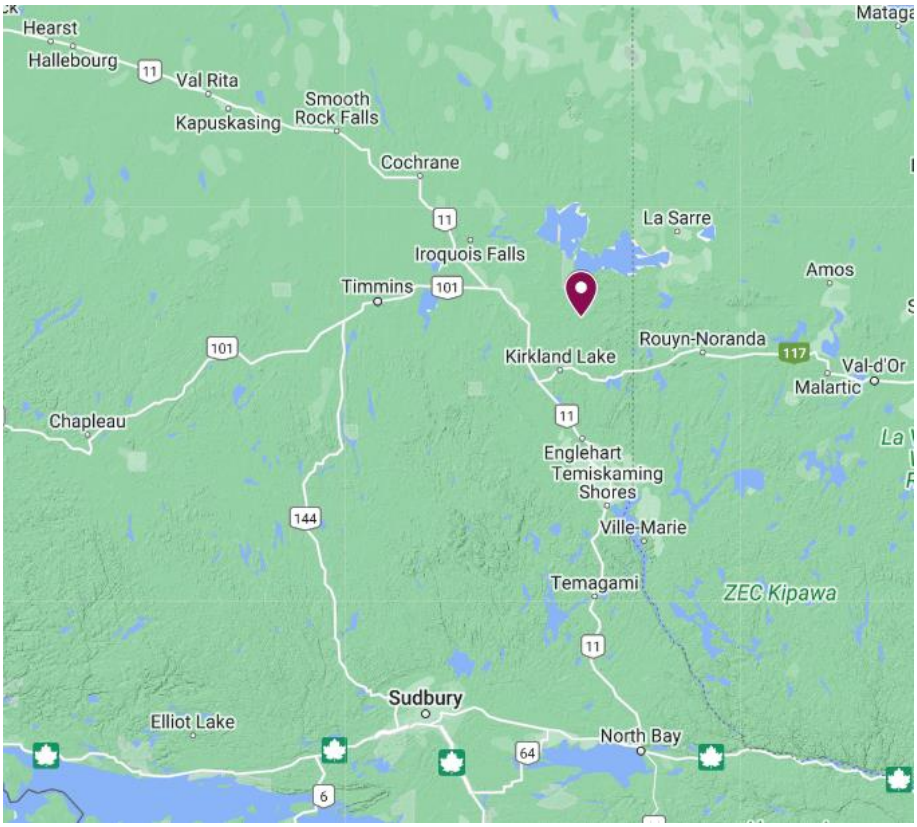


Figure 1: Location of the Cantbee-1 Property

2.2 ACCESS

Access to the property was attained with a 4x4 truck and ATV via the Ghost Lake Road. The Ghost Lake Road is located approximately 36.5km north of Highway 672

from its junction with Highway 66. At this point, the Ghost Lake Road was travelled 1.3km where an ATV had to be used due to a washout. The Ghost Lake Road was travelled an additional 6.3km where a series of old forestry access roads were travelled for an additional 4.5km.

2.3 MINING CLAIMS

The survey area covers a portion of mining claims, 568186 and 568188 all located in Thackeray Township, within the Larder Lake Mining Division.

Cell Number	Provincial Grid Cell ID	Ownership of Land	Township
568186	32D05E098	David G Vallillee	Thackeray
568188	32D04K021	David G Vallillee	Thackeray

Table 2: Mining Lands and Cells Information

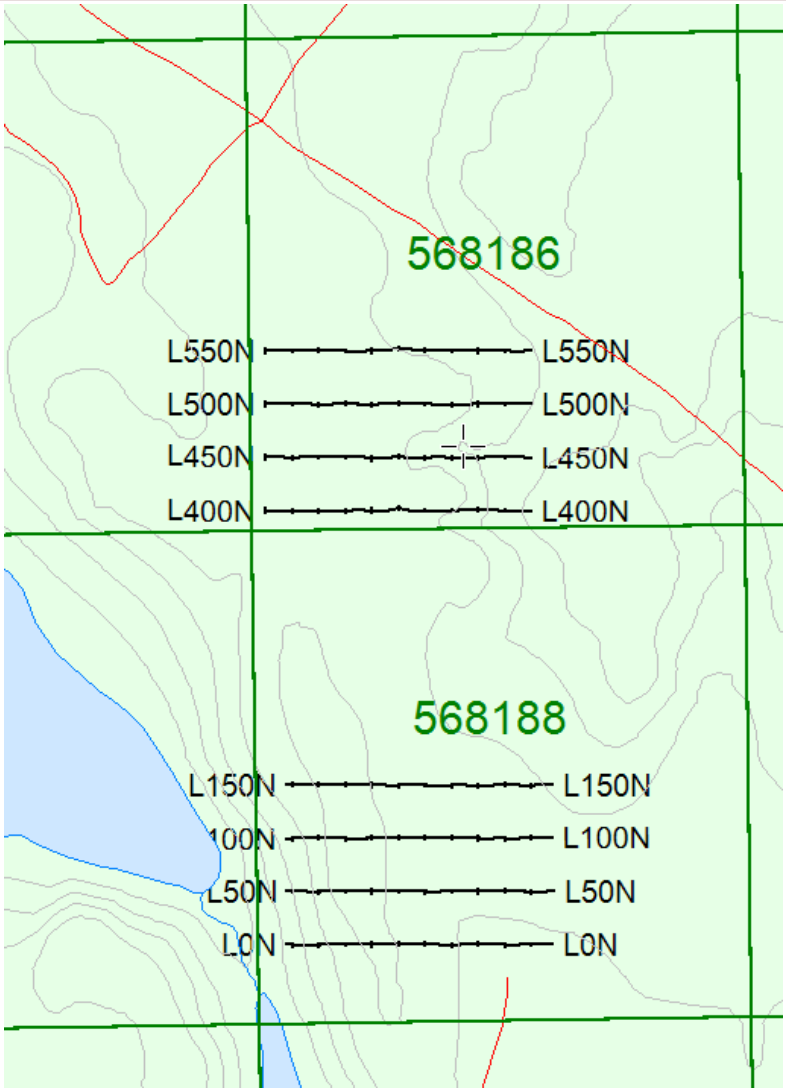


Figure 2: Claim Map with the Cantbee-1 Property Traverse

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).

- **2004: Falconbridge Limited (File 32D05NW2168)**
  Ground Geophysics
  Electromagnetic, Line cutting, Magnetic/Magnetometer Survey
  In 2004 Falconbridge performed a magnetometer and VLF EM in Thackeray and Elliott Townships.

- **1989-2002: Alex H Perron (File 32D04NW0006 ,32D04NW2032, 32D04NW2033, 32D04NW2034, 32D05NW2032, 32D05NW2033, 32D05NW2034, 32D05NW2043, 32D05NW2131, 32D05NW2055, 32D05NW2042)**
  Ground Geophysical, Physical and Geological
  Electromagnetic Very Low Frequency, Magnetometer / Magnetometer Survey, Open Cutting
  Between 1989 and 2002, Perron performed various magnetometer and VLF EM campaigns. Perron also mapped the geology and performed some stripping and trenching.

Commented [JP1]: Done

2.5 General Regional/Local Geological Settings

General Geology:

This area is underlain by the Precambian volcanic rocks of the Abitibi Greenstone Belt, which extends from east of Rouyn-Noranda, Quebec, to west of Timmins, Ontario. The dominant rock type is intermediate to felsic volcanics of the Blake River, and Kinojevis Groups with massive and pillow flows. Diorite intrusives of Archean age and late Precambrian diabase dikes are common. Kimberlite pipes are also noted in this area.

Commented [JP2]: Done

2.6 Target of Interest

Targetting for the Survey was an area of interest provided by the client. This represented an airborne magnetic anomaly noted on OGS Map.

Commented [JP3]: Done

3. SURVEY WORK UNDERTAKEN

3.1 SUMMARY

CXS was contracted to perform a magnetometer survey over a portion of the Cantbee-1 Property. The crew accessed the site on June 9th, 2022.

A total length of 2 kilometres was covered with 168 magnetometer samples taken at a 12.5-meter interval. Two unconstrained magnetometer signatures occur in the north survey area, and a weak magnetometer bullseye signature occurs in the southern survey area.

3.2 SURVEY GRID

The traversed lines were established using a GPS in conjunction with the execution of the Survey. The GPS operator would select sample locations while remaining approximately 25m in front of the magnetometer operator. GPS waypoints and magnetic samples were taken every 12.5m 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)
June 9th, 2022	Mobilize, locate survey area and perform magnetometer survey.	0N	0	250E	250
		50N	0	250E	250
		100N	0	250E	250
		150N	0	250E	250
		400N	0	250	250
		450N	0	250	250
		500N	0	250	250
		550N	0	250	250
	Total Kilometers				**2.0 Line kms**

Table 3: Survey Log

3.4 PERSONNEL

Claudia Moraga of Dobie, ON, conducted all the magnetic data collection with Bruce Lavalley of Dobie, ON, 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 job site location, equipment safety, and 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 on Jobsite characteristics of the area, time of year and crew experience.

2.2 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 length of 2 kilometres was covered with 168 magnetometer samples taken at a 12.5-meter interval.

3 OVERVIEW OF SURVEY RESULTS

3.1 SUMMARY

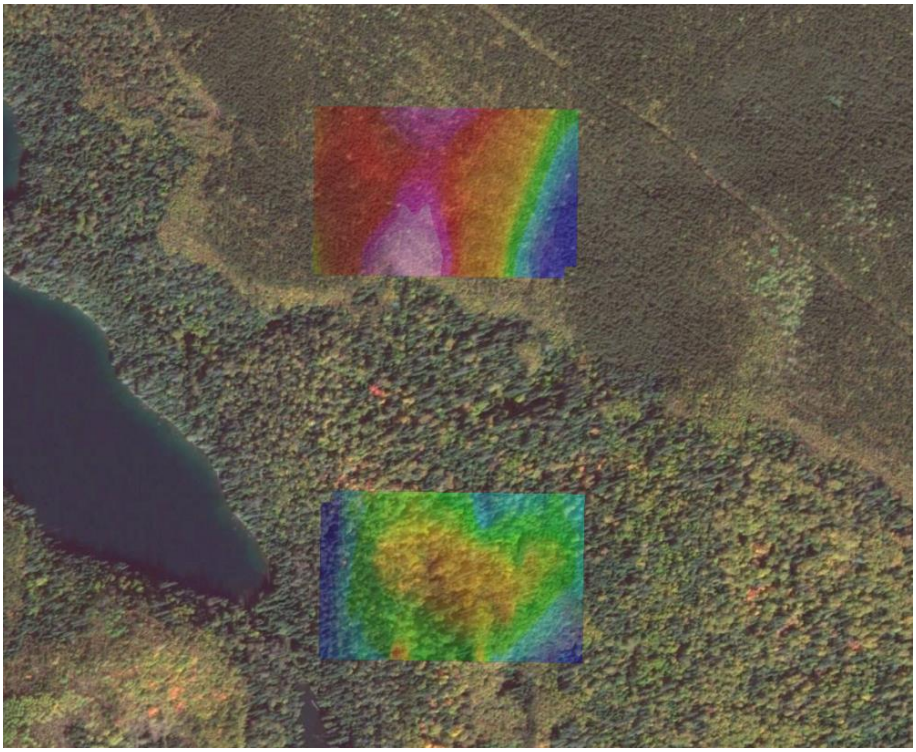


Figure 3: Magnetometer Plan Map on Google Earth

No culture was noted through the traverse areas.

The survey area is small and, therefore, difficult to interpret in a regional context.

The North survey area characterizes itself as a series of two elevated magnetic regions. These anomalies are both unconstrained and may be related to a more linear feature with a structural/alteration feature representing the decrease in magnetic signature between the two anomalies.

The South anomaly represents more of a weakly magnetic bullseye feature. The strongest part of the anomaly appears to be constrained. Extending north-south and east from this bullseye appears to be a weaker trend indicating that this target may also be related to these trends.

It is recommended that additional magnetometer surveys be conducted between these two survey areas and extending to the north, east and south to further constrain the targets.

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 interest in the properties of **David Vallillee.**

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.

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

June 21st, 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 co-ordinates, 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.

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 co-ordinates 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 co-ordinates, 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 re-ceiver:	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

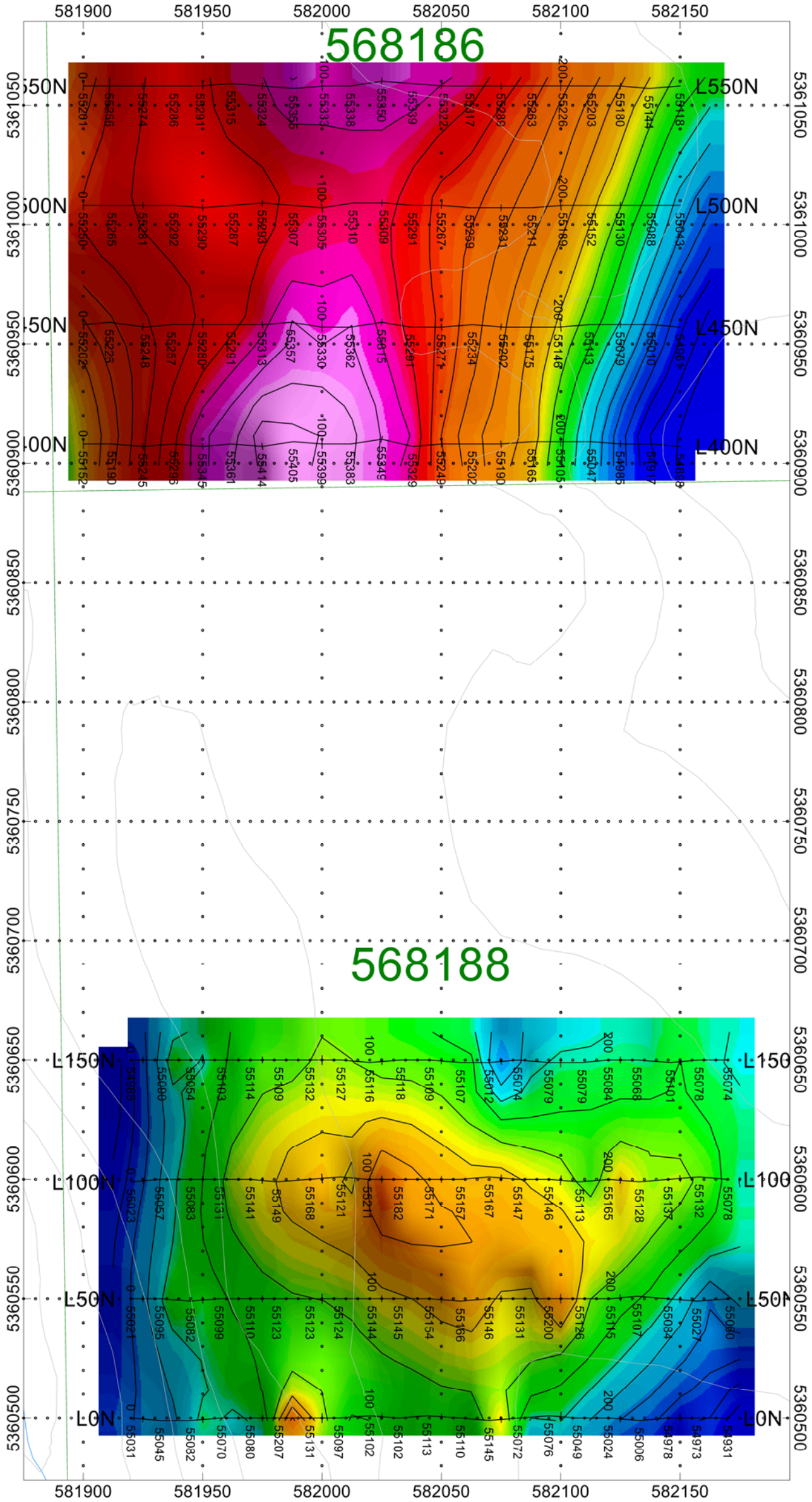
LIST OF MAPS (IN MAP POCKET)

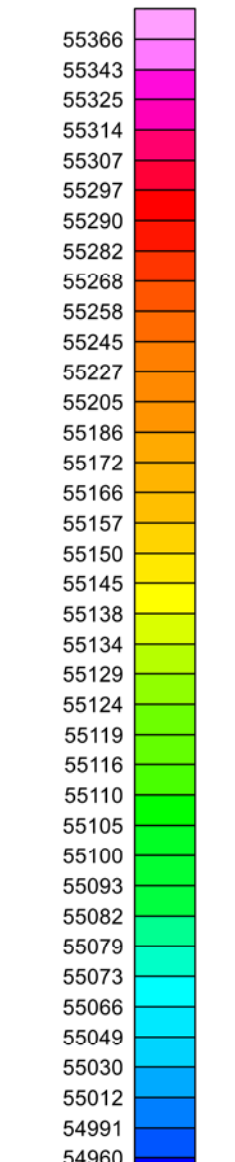
Magnetometer Plan Map (1:2000)

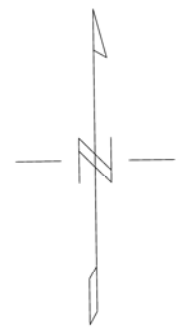
1) Q3037-Vallillee-Cantbee-1-Mag-Cont

TOTAL MAPS = 1

877.504.2345 | info@cxsltd.com | www.cxsltd.com







DAVID VALLILLEE

CANTBEE 1 PROPERTY
Thackeray Township, Ontario

TOTAL FIELD MAGNETIC CONTOURED PLAN MAP
Base Station Corrected

Posting Level: 0nT
Field Inclination/Declination: 72.5degN/11.2degW
Station Seperation: 12.5 meters
Total Field Magnetic Contours: 25nT

GSM-19 OVERHAUSER MAGNETOMETER v7

Receiver Operated By: Claudia Moraga
GPS Operated By: Bruce Lavalley
Processed by: C Jason Ploeger, P.Geo.
Map Drawn By: C Jason Ploeger, P.Geo.
June 2022

CANADIAN EXPLORATION SERVICES LTD

Drawing: Q3037-Vallillee-Cantbee1-Mag-Cont