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**REPORT ON AN AIRTEM HELICOPTER-BORNE  
GEOPHYSICAL SURVEY  
BOULDER PROJECT,  
HEARST, ONTARIO**



**Project Name: Boulder**

**Project Number: 2022-09-27**

**Client:**  **NOBLE  
MINERAL  
EXPLORATION INC.**

**Contractor:**  **BECI**  
exploration consulting

**Date: January 31, 2023**

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## EXECUTIVE SUMMARY

An AirTEM survey consisting of magnetic and electromagnetic measurements has been flown over the Boulder Property located 6 km south of Hearst, Ontario and consisting of several mineral claims owned by Noble Mineral Exploration Inc., in the search for copper-rich mineralization that could be related to a high-grade boulder uncovered within the survey boundary.

The Boulder Property is located about 6 km southwest of the town of Hearst, Ontario and covers a number of private homes and farm fields. Access is south from Highway 11 on Highway 583 to the town of Jogues.

Several years ago, a local prospector dug out a boulder from his field while digging a water pit adjacent to a local river. The boulder (140 kg in weight) returned very high values for copper as well as other elements (i.e., 71.8% Cu, 252 g/t Ag, 3.79 g/t Au and 6.65 g/t PGE). There is no outcrop in the area and the property has not been mapped in detail. The boulder has been dismissed as a possible meteorite fragment.

The AirTEM survey has identified a major north-south magnetic feature that shows weak conductivity. The survey is also highly affected by numerous powerlines that are located along the many roadways and connect to the houses, farms, and out-buildings.

The trends identified on the Boulder Property have not been confirmed by drilling. A series of trenches could attempt to reach bedrock. Reverse circulation drilling could also help identify the major geological units. Some of the EM responses are infrastructure and others could be weakly conductive overburden. Conductor picks should be reviewed within the context of any previous geology to correlate conductor trends to favorable geology before a system drill program can be recommended.

## 1.0 INTRODUCTION

### 1.1 CONTRACTOR

This report presents the details of a helicopter time domain electromagnetic and magnetic survey using the AirTEM™ system developed by Triumph Instruments carried out by Balch Exploration Consulting Inc. (“BECI”, the “Contractor”) having its head office at 11500 Fifth Line, Rockwood, Ontario, Canada, N0B 2K0.

### 1.2 CLIENT

Noble Mineral Exploration (“NME”, or the “Client”) having its head office at 120 Adelaide St. W, Suite 2500, Toronto, Ontario, Canada, M5H 1T1.

### 1.3 SURVEY OBJECTIVES

The objective of this survey is to identify EM responses that could represent the source of a copper-rich boulder found within the survey boundary.

In Lowther Township (20 km south of Hearst), rare earth elements were discovered as early as 1939 in a pegmatite including cesium, lithium, niobium, rubidium (over 5,000 ppm) and tantalum.

In Shetland Township (due east of Lowther), pegmatites were also discovered

## 2.0 PREVIOUS EXPLORATION

Exploration south of Hearst, Ontario has been minimal with no drilling reported in the Ontario Government’s drillhole database (e.g., MLAS geology). There is no history of mining in the area although limited amounts of gold, iron, kaolin, lithium and silca have been discovered in the region.

In 2019 a metallic boulder was assayed by the Ontario Geological Survey and returned 71.8% Cu, 3.5% Pb, 1.09% Zn and precious metals. During the fall of 2021 Noble conducted a basal till sampling program from two fence lines of hand auger holes located within 100 m and 1 km of the boulder location. This work produced 35 gold grains that defined a northwest to southeast trending dispersion train. The gold grains were reshaped but also included modified and pristine suggesting a local source.

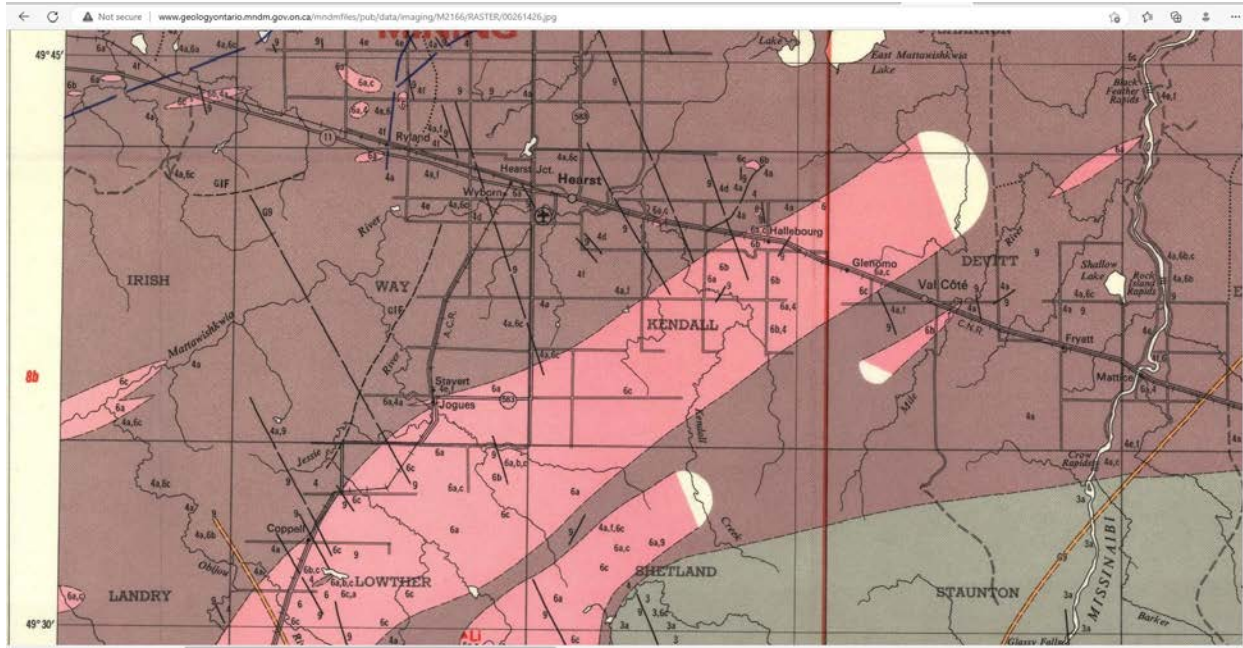


Figure 1 - Geology of the Hearst area (Ontario Mineral Map 2148).

### 3.0 GEOLOGY AND MINERALIZATION

The geology in Hearst Township (Figure 1) is only regionally mapped and consists of an undifferentiated metasedimentary metavolcanic complex with some felsic intrusive rocks. The small town of Jogues is located very close to a contact between the metasediments and felsic intrusives and is mapped locally as 4a (biotite-quartz-feldspar gneiss) and 6a (massive granitic rocks).

No mineralization has been previously identified within the survey area.

### 4.0 SURVEY AREA

#### 4.1 LOCATION

The survey block is centered 10 km south-southwest of Hearst, Ontario. The Property is within the NTS topographic sheet 042G-12, Hearst. Figure 2 shows the location of the survey blocks.



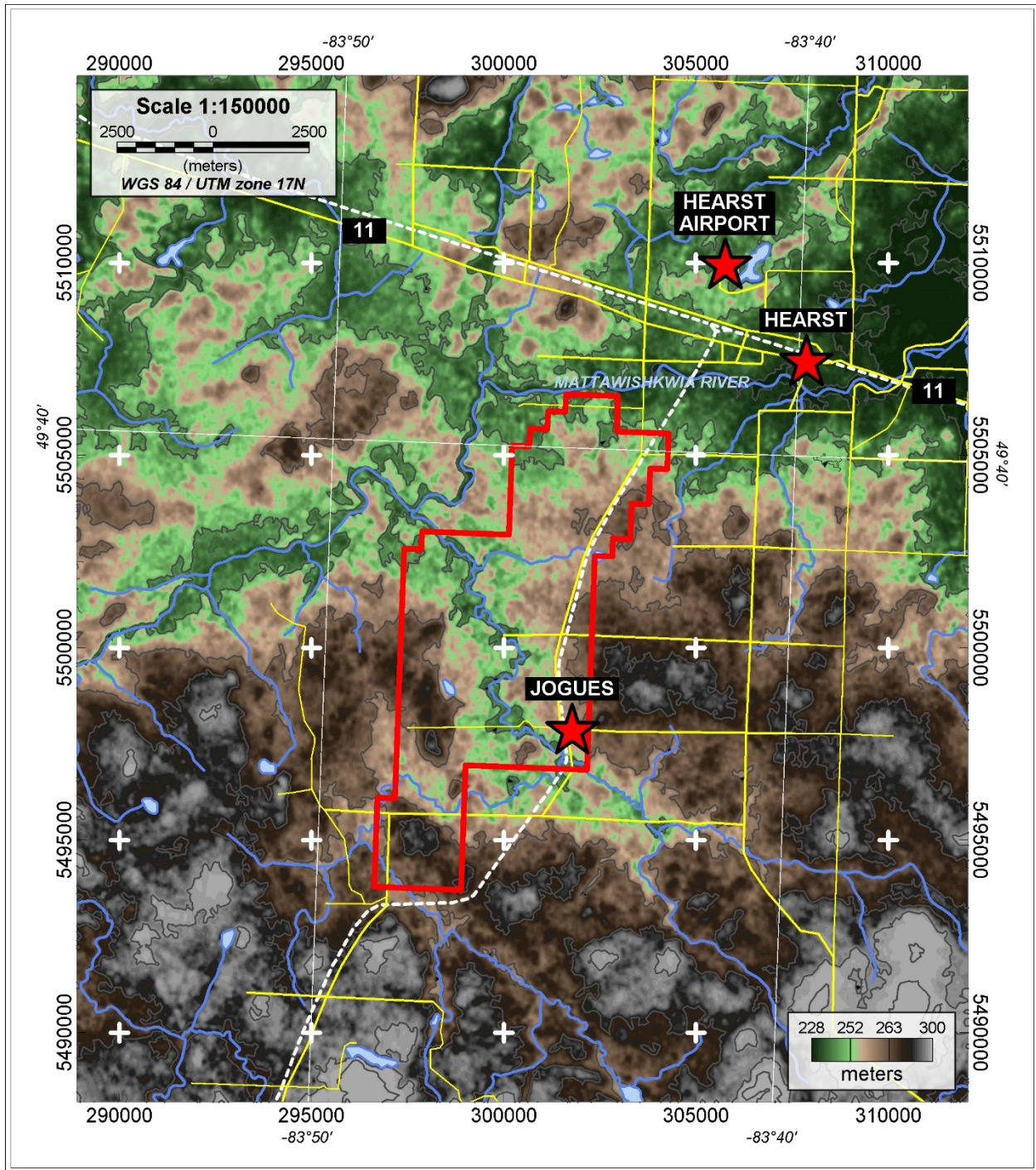


Figure 2 – Survey area showing the approximate outline of the survey in red.

## 4.2 ACCESS

The survey block can be access directly by Highway 583, south from Highway 11 on the east side of Hearst to the small town of Jogues.

## 4.3 INFRASTRUCTURE

There is considerable infrastructure within the survey block including roads, local transmission lines, houses and farms. The closest community is Jogues which is located within the southeast limit of the survey block.

## 4.4 CLIMATE

The average daily temperature varies from a high of +22°C during July to a low of -20°C during January. During the survey, the weather was cold (-5°C to -10°C). Annual snowfall is approximately 128 cm over 115 snow days and annual rainfall is 4.6 cm. During the survey there was snow and light to strong winds.

## 4.5 TOPOGRAPHY

The topography is generally flat with no outcrop and a few local rivers. Total topographic variation is ~30 m, from 240 m to 270 m with a mean elevation of 255 m (see Figure 2).

## 4.6 MINERAL AND MINING CLAIMS

The mineral claims are shown in Figure 3. The Client mineral claims are shown in black and listed in Appendix B and appear as 100% owned by Noble Mineral Exploration Inc.

## 4.7 FLIGHT AND TIE LINES

The flight lines are shown in Figure 4 and summarized in Table 1.

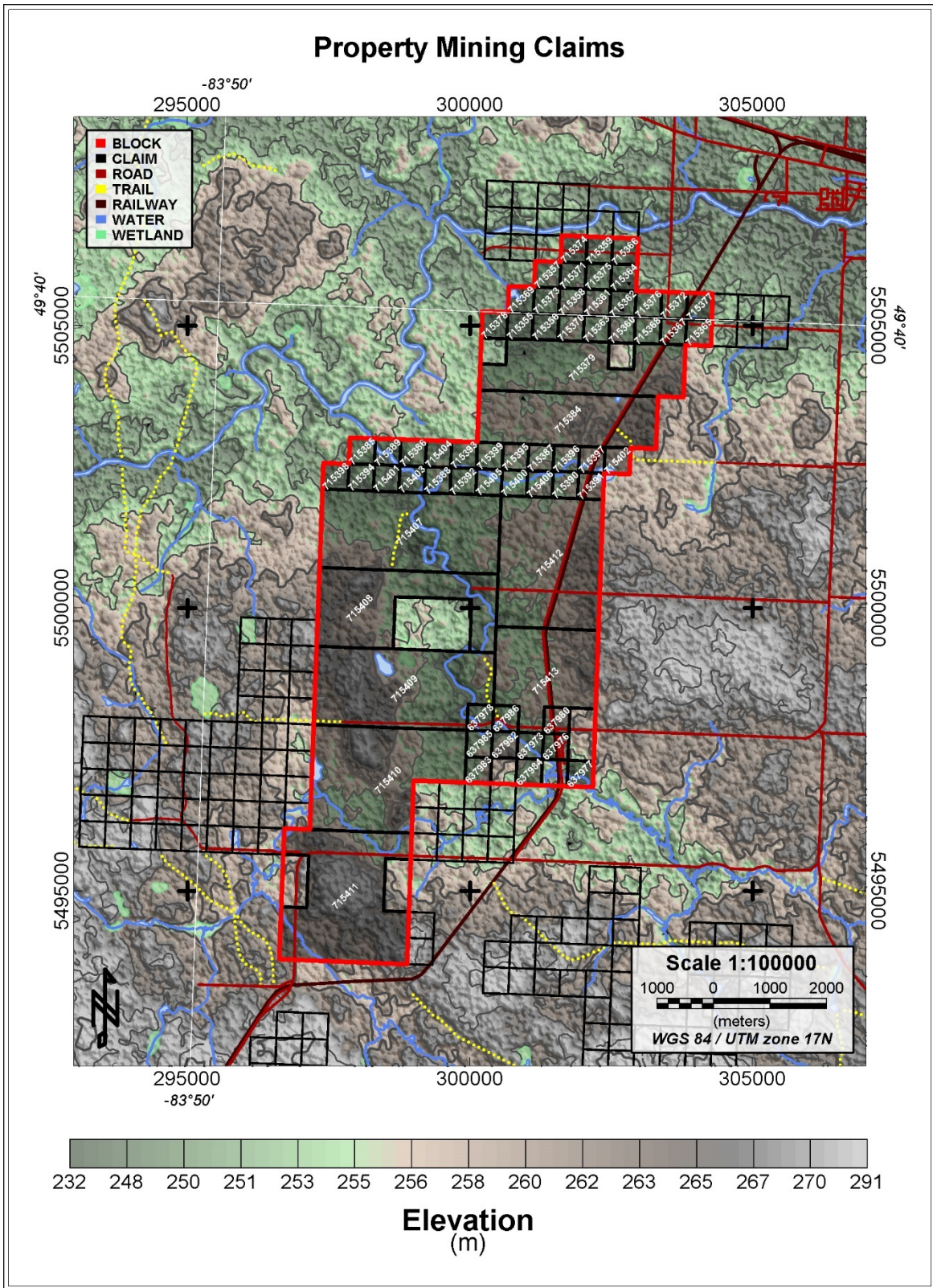


Figure 3 – The mineral claims within the survey block.

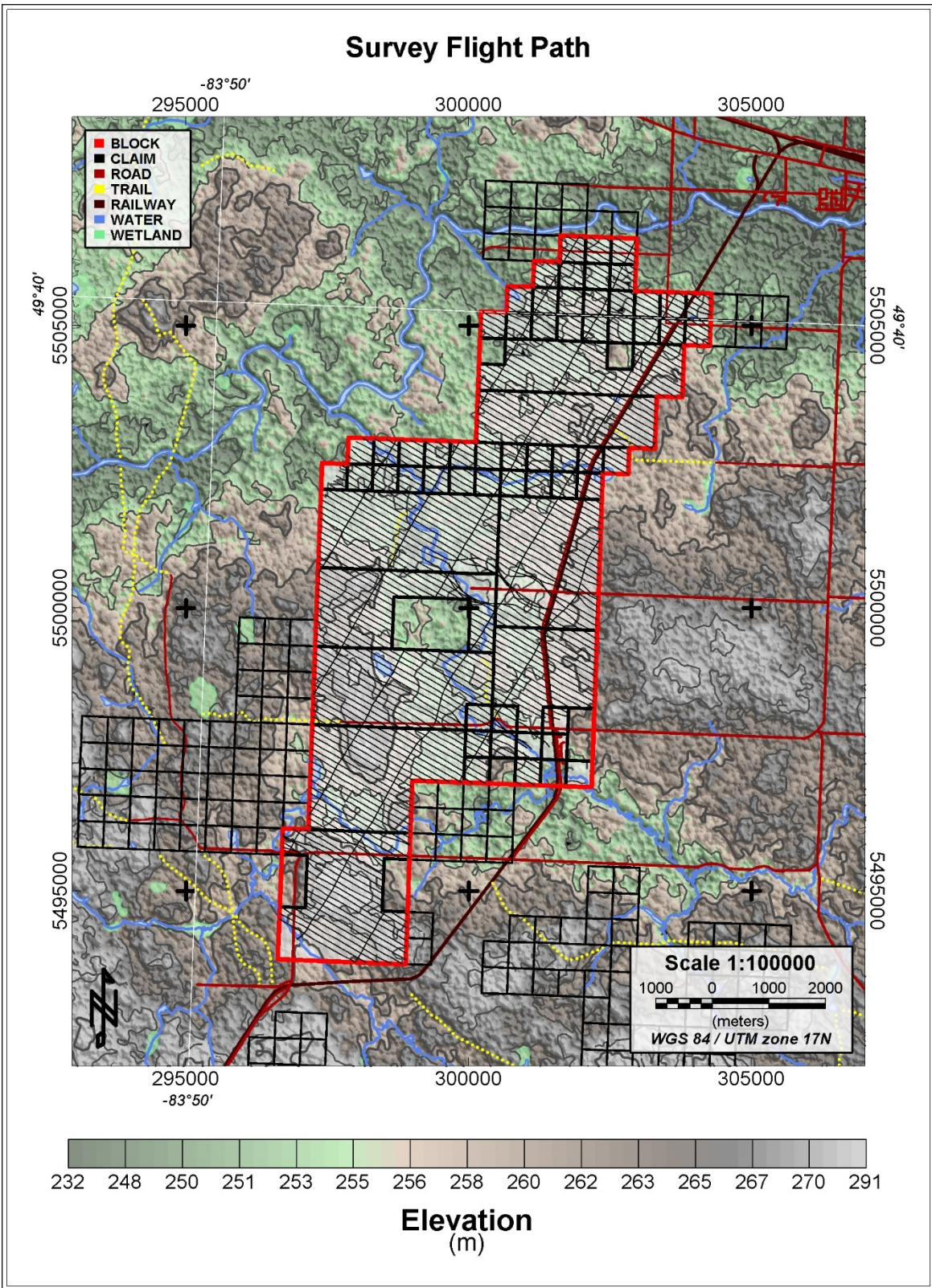


Figure 4 – Actual flight and tie lines within the survey block.

Survey Block	Area (km <sup>2</sup> )	Type	Lines	Spacing (m)	Direction (deg)	Height (m)	Planned (km)	Actual (km)
Boulder	81.6	Flight	136	100	300°/1200°	40	816.0	838.0
		Tie	6	1000	30°/210°	40	81.6	70.2
		<b>Totals</b>					<b>897.6</b>	<b>908.3</b>

**Table 1 – Summary of flight and tie line specifications.**

#### 4.8 DATUM AND PROJECTION

The survey was flown using the WGS-84 Datum. The Datum used to produce this report as well as the map products, grids and database is WGS-84. The projection is UTM, ZONE 17 N. All references to UTM coordinates in this report are based on the WGS-84 Datum.

#### 4.9 FUEL CACHING

Fuel was provided by the Hearst Municipal Airport (YHF) in bulk. The airport is located 2km north of Hearst on a paved road.

### 5.0 SURVEY SYSTEM

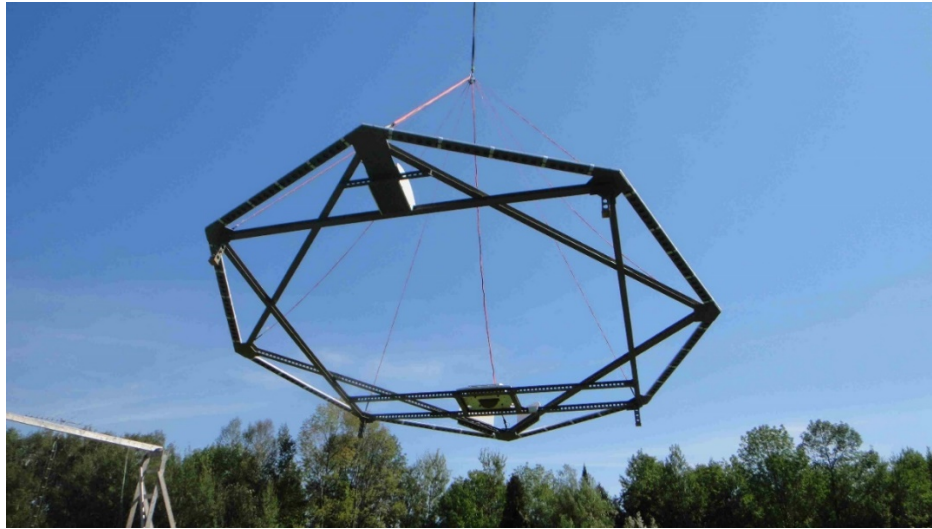
The survey system is comprised of an electromagnetic airframe and magnetic sensor housing connected to the helicopter via a tow cable and related and ancillary electronics and sensors inside the helicopter to control navigation, power, and survey height. Combined, this system measures the response from conductive sources in the surface and sub-surface, including sub-surface conductors containing minerals such as pyrrhotite and pyrite and the magnetic response from features containing minerals such as magnetite. The positions of these responses are measured using a differential GPS antenna and receiver. Flight height is measured by radar altimeter.

#### 5.1 ELECTROMAGNETIC SYSTEM

The electromagnetic system (Figure 5) was developed by Triumph Instruments (Triumph) and is known as AirTEM™, a helicopter time domain electromagnetic (HTEM) system that is designed for mineral exploration, oil & gas exploration, and geologic mapping. AirTEM™ is based on the concept of a concentric transmitter and receiver geometry originally developed by Wally Boyko.

The AirTEM™ (TS-150) system features an 8.54 m diameter transmitter weighing approximately 500 Kg and producing up to 150,000 Am<sup>2</sup> in transmitted power. The system records the full waveform and “X”,

“Y” and “Z” coil measurements for improved interpretation of complex conductor responses. Measurements of the total magnetic field are also provided.



**Figure 5 – The Triumph AirTEM™ TS-150 HTEM System.**

#### **Features**

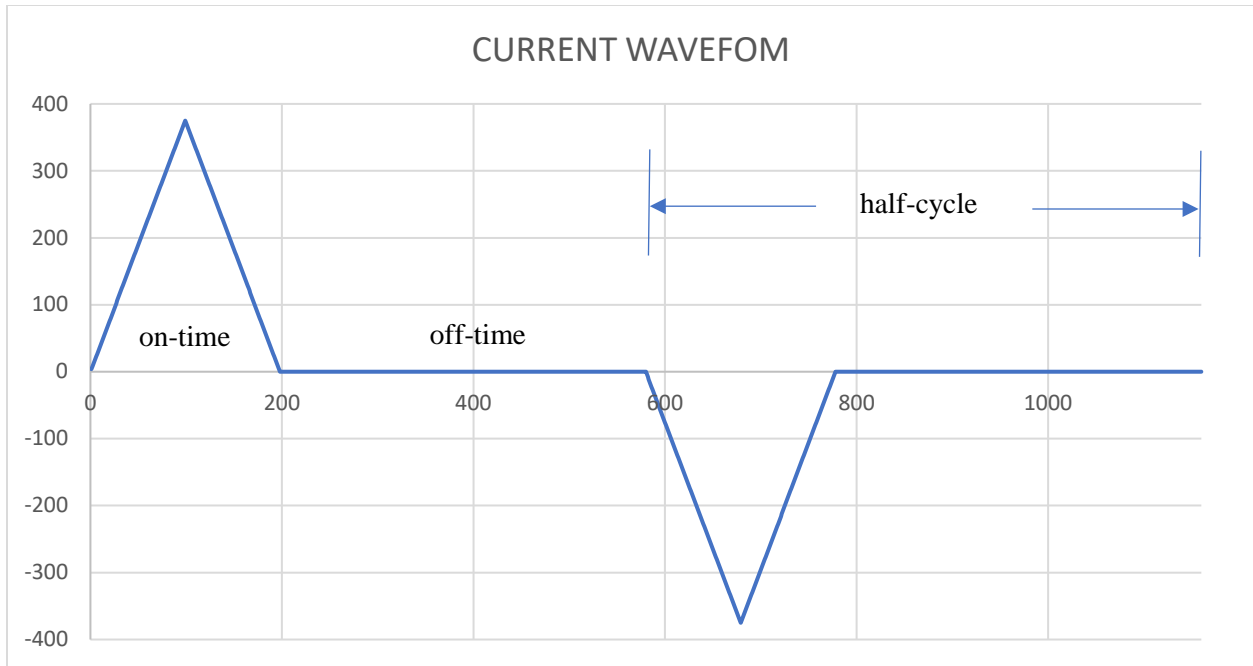
- Rigid concentric geometry
- Full waveform recording
- Software selectable base frequency
- Software selectable on-time period
- dB/dt off-time and on-time profiles
- Total magnetic field

#### **Advantages**

- Excellent early off-time response
- On-time conductance discrimination
- Excellent performance in rugged terrain
- Direct drilling of targets
- Improved nomogram correlation
- Interpretation software readily available

## **5.2 SYSTEM WAVEFORM**

The AirTEM™ system uses a bipolar linear triangular pulse as shown in Figure 6. The on-time pulse is 33% of the half-cycle. The up-going and down-going portions of the pulse are 95% symmetric with the down-going pulse being slightly shorter in time duration.



**Figure 6 – The transmitter full cycle waveform is bi-polar and triangular with 95% on-time linearity.**

### 5.3 BASE FREQUENCY

This survey was flown using a 90 Hz base frequency. At this frequency the bi-polar waveform produces half-cycles 180 times per second. The total half cycle period is the inverse of 180 Hz or 5,556  $\mu$ s. For a one third duty cycle the on-time pulse is 1,850  $\mu$ s in duration and the off-time pulse is 3,704  $\mu$ s.

The data is stacked to a 10 Hz output sample rate. Each stack is the average of 18 half-cycles, 9 positives and 9 negatives. The negative half-cycles are rectified before being added to the positive cycles. The rectified and stacked half-cycles are stored at the 10 Hz sample rate.

The half-cycle is sampled at 105 kHz or one sample every 9.48  $\mu$ s producing 580 half-cycle samples, 193 during the transmitter on-time and 387 during the off-time. During the on-time there are 99 up-going samples and 94 down-going samples.

### 5.4 TIME CHANNELS

The time channels are defined on a logarithmic scale starting at channel 10. Channels 1 through 9 are linearly spaced, have a 5  $\mu$ s width and start 10  $\mu$ s after the end of the on-time pulse. For a 90 Hz base frequency there are 41 off-time channels. The time channels used are listed in Table 2.

<u>Channel</u>	<u>Start time (ms)</u>	<u>Channel</u>	<u>Start time (ms)</u>
1	0.0100	26	0.4199
2	0.0150	27	0.4810
3	0.0200	28	0.5512
4	0.0250	29	0.6320
5	0.0300	30	0.7249
6	0.0350	31	0.8317
7	0.0400	32	0.9545
8	0.0450	33	1.0957
9	0.0500	34	1.2581
10	0.0557	35	1.4448
11	0.0622	36	1.6595
12	0.0698	37	1.9063
13	0.0784	38	2.1901
14	0.0884	39	2.5164
15	0.0998	40	2.8916
16	0.1130	41	<del>3.3230</del>
17	0.1281	42	<del>3.8190</del>
18	0.1455	43	<del>4.3893</del>
19	0.1655	44	<del>5.0451</del>
20	0.1885	45	<del>5.7992</del>
21	0.2150	46	<del>6.6662</del>
22	0.2454	47	<del>7.6631</del>
23	0.2803	48	<del>8.8093</del>
24	0.3205	49	<del>10.1273</del>
25	0.3667	50	<del>11.6427</del>

**Table 2 – Time channels for the TS-150.**

## 5.5 MAGNETIC SYSTEM

The airborne magnetometer system consists of the housing, the sensor and control module and Larmour frequency counter. The counter output rate is 10 Hz in digital RS 232 format. Power is provided to the sensor electronics via a 28 VDC power cable on the tow cable which is terminated to a 5-pin connector at the magnetometer housing. This cable also contains conductors that carry the RS 232 signal.

## 5.6 MAGNETOMETER SENSOR

The magnetometer sensor is a model CS-3 made by Scintrex Limited. It is an optical split-beam cesium magnetometer and consists of a sensor head with a 3-m cable connected to a sensor driver. The output of the sensor driver is a Larmour frequency which is linearly proportional to the earth's magnetic field. The CS-3 is shown in Figure 7 and the sensor specifications are given in Table 3.





**Figure 7 – Scintrex CS-3 magnetometer sensor, cable, and electronics.**

## 5.7 LARMOUR COUNTER

The Larmour frequency is input into a frequency counter made by Triumph Instruments. The counter can convert the magnetic field to a theoretical accuracy of 0.2 pT. The output of the frequency counter is a digital value of the magnetic field with +/- 0.001 nT resolution. This value is transmitted to the EM console at a 10 Hz output rate.

The Larmour counter is not synchronized to the EM transmitter but is synchronized instead to the EM data system. This allows the frequency counter to average down the magnetic field caused by the on-time pulse from the EM transmitter. The noise resulting from lack of synchronization to the EM transmitter is removed using a high-cut frequency filter during processing which also removes the effects of dropouts when the magnetometer sensor loses lock with the magnetic field (common during turnarounds).

## 5.8 SENSOR HOUSING

The magnetometer sensor housing is made from a thin-wall fiberglass tube (see Figure 8). The manufacturer is AeroComp of London, Ontario. Within the housing a two-axis gimbal holds the sensor and can be rotated in both the horizontal and vertical plane. The sensor was set to the point 45° degrees forward with a 25° azimuth for this survey. The housing contains the sensor driver electronics and the Larmour frequency counter.

<b>Operating Principal</b>	Self-oscillation split-beam Cesium Vapor (non-radioactive Cs-133)
<b>Operating Range</b>	15,000 to 105,000 nT
<b>Gradient Tolerance</b>	40,000 nT/meter
<b>Operating Zones</b>	10° to 85° and 95° to 170°
<b>Hemisphere Switching</b>	a) Automatic b) Control voltage c) Manual
<b>Sensitivity</b>	0.0006 nT $\sqrt{\text{Hz}}$ rms
<b>Noise Envelope</b>	Typically, 0.002 nT P-P, 0.1 to 1 Hz bandwidth
<b>Heading Error</b>	+/- 0.25 nT (inside the optical axis to the field direction angle range 15° to 75° and 105° to 165°)
<b>Absolute Accuracy</b>	<2.5 nT throughout range
<b>Output</b>	a) Continuous Larmor frequency proportional to the magnetic field (3.49857 Hz/nT) sine wave signal amplitude modulated on the power supply voltage b) Square wave signal at the I/O connector, TTL/CMOS compatible
<b>Information Bandwidth</b>	Only limited by the magnetometer processor used
<b>Sensor Head</b>	Diameter: 63 mm (2.5") Length: 160 mm (6.3") Weight: 1.15 kg (2.6 lb)
<b>Sensor Electronics</b>	Diameter: 63 mm (2.5") Length: 350 mm (13.8") Weight: 1.5 kg (3.3 lb)
<b>Cable, Sensor to Sensor Electronics</b>	3 m (9' 8"), lengths up to 5 m (16' 4") available
<b>Operating Temperature</b>	-40°C to +50°C
<b>Humidity</b>	Up to 100%, splash proof
<b>Supply Power</b>	24 to 35 Volts DC
<b>Supply Current</b>	Approx. 1.5 A at start up, decreasing to 0.5 A at 20°C
<b>Power Up Time</b>	Less than 15 minutes at -30°C

**Table 3 – Scintrex CS-3 specifications.**



**Figure 8 – Airborne magnetometer housing with tow cable.**

## 5.9 BASE STATION MAGNETOMETER

A GSM-19 base station magnetometer (manufactured by Gem Systems) was used to record variations in the earth's magnetic field and referenced into the master database using a GPS UTC time stamp. This system is based on the Overhauser principle and records the total magnetic field to within  $\pm 0.02$  nT at a one (1) second time interval.

The base station unit was erected at the Hearst Municipal Airport in a geomagnetically quiet location away from the runway (Figure 9). The data was reviewed periodically to ensure a quiet environment.



**Figure 9 – Base station magnetometer used for diurnal corrections.**

## 5.10 NAVIGATION

Navigation was provided by the AgNav Incorporated (AgNav-2 version) GPS navigation system (Figure 10 - left) for real-time locating while surveying. The AgNav unit was connected to a Tee-Jet GPS receiver (Figure 10 – right).

Also used was a Garmin 19x antenna and receiver located on the HTEM airframe. The Garmin 19x, which is capable of sub five-meter accuracy, was sampled at 10 Hz.



**Figure 10 – AgNav main console (left) and Tee-Jet GPS receiver (right).**

## 5.11 RADAR ALTIMETER

The radar altimeter transmitter and receiver antenna were fixed to the rear skids of the helicopter (one antenna on each skid) approximately 36” apart. The coaxial cables were fed through the floor of the helicopter and routed along the floor. Both coaxial cables connected to the controller which was located near the TDEM-2400 control unit. On the output side of the controller (Figure 11 - left) a proprietary 16-bit A/D convertor was connected providing digital input to the TDEM-2400 via RS 232 format. The altimeter signal was also fed into a digital read-out unit (Figure 11 - right) mounted on the dashboard of the helicopter in clear vision of the pilot to provide height above ground navigation.



**Figure 11 – Freeflight radar altimeter controller and digital readout.**

## 5.12 HELICOPTER

The helicopter used (Figure 12) was an AS 350 SD2 with registration C-GYWB, owned and operated by Heli Explore Inc., based in La Sarre, Quebec, and contracted by BECI (together with an experienced pilot) to carry out the survey.



**Figure 12 – The survey used an AS 350 SD2 as shown above.**

## 5.13 PERSONNEL

The following personnel were involved in the survey.

<b>Individual</b>	<b>Position</b>	<b>Description</b>
Pascal Vivier	Pilot	Helicopter pilot
Dan LeBlanc	Operator	Operated/maintained equipment
Stephen Balch	Processing	On-site processing, line-leveling, drift correction, diurnal corrections, tie-line leveling, reporting. Contractor representative
Chris Balch	Mapping	Plotting maps, printing report, folding, and binding
Wayne Holmestead	Geologist	Client representative

**Table 4 – Summary of personnel.**

## 6.0 DATA ACQUISITION

### 6.1 HARDWARE

Data was collected through the main console (the TDS-2400, see Figure 13) which contained both the acquisition system and dc-dc power control module (booster circuit) for the transmitter coil. The TDS-2400 has a hardware controller that sets the timing for the four (4) 24-bit A/D converters that sample at  $9.48 \mu\text{s}$ . The controller also generates and transmits the timing control signals to the transmitter driver located on the airframe.

The main controller also performs synchronization between the transmitter and receiver and all ancillary information (GPS, MAG, EM, RAD ALT). The ancillary information is digitized and stored at a rate of 10 Hz. The resulting data string is transmitted to a laptop computer and stored on an internal hard drive.



**Figure 13 – Triumph TDS-2400 EM console and acquisition system.**

## 6.2 SOFTWARE

A rugged laptop computer running the Windows 10 operating system controls the incoming data stream from the TDS-2400. The software on the laptop (AirDAS) is capable of real-time acquisition with no data loss from 25 Hz to 300 Hz for a duty cycle that can vary from 10% to 50% (nominally set at 33%).

During the survey the Operator can monitor the incoming differential GPS data, radar altimeter, magnetometer, and all EM profiles.

After each flight data is copied from the laptop internal hard drive onto a memory stick. While there is no limit on the maximum file size during acquisition, the processing software can only process up to five (5) continuous hours of recorded data. For longer flights the data can be broken into two files.

## 6.3 CALENDAR

The survey took place according to the dates listed in Table 5 below.

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Oct 09	10	11	12	13	14	15
		MOB	MOB	ASSEMBLE	FL-01 FL-02	STANDBY
16	17	18	19	20	21	22
STANDBY	STANDBY	STANDBY	STANDBY	FL-03 FL-04 FL-05	FL-06 FL-07	DEMOB
23	24	25	26	27	28	29

**Table 5 – Time schedule of the survey.**



## 7.0 DATA PROCESSING

Preliminary data processing is performed using BECI proprietary methods. This includes compensation, filtering and line leveling of the HTEM data. This also includes calculation of the vertical magnetic gradient, analytic signal, digital terrain model, bird height, and merging of the base station magnetic data (sampled at 1.0 sec) with the survey data (sampled at 0.1 sec).

### 7.1 NAVIGATION

The helicopter pilot uses “ideal” flight lines as guidance during surveying as displayed on the real-time AgNav system with the aid of a helicopter mounted GPS. A separate GPS mounted to the bird is used to record actual position. The sample rate of the GPS is 10 Hz, the same as the EM, MAG and ancillary data collected in flight.

The GPS unit outputs both latitude, longitude and easting, northing values, all in the WGS-84 Datum, using a UTM Projection. The positional data is not filtered but occasional bad data points are interpolated using a linear algorithm.

### 7.2 TERRAIN CLEARANCE

The radar altimeter is located under the base of the helicopter. The helicopter mounted radar altimeter is used to maintain terrain clearance by the pilot. A digital indicator is mounted on the dashboard of the helicopter. This installation is approved by a licensed helicopter engineer provided by the helicopter operator.

### 7.3 EM DATA PROCESSING

The EM data is processed using BECI proprietary software designed to compensate, filter and level both the off-time and on-time data.

The first step in processing is to determine the transmitter shut-off time and align the time gates to this position. The length of time that the transmitter is on is known as the on-time. The time gates are logarithmically spaced in the off-time and linearly spaced in the on-time.

The second processing step is the calculation of the system background transient. This is done at a suitable flight height, nominally 1,000 feet or higher, beyond the effect of any earth conductivity. During this time EM data is collected for a period of 50 seconds and averaged into a single background transient. This is subtracted from the transients recorded online.

The third step is to assign the flight line numbers to each data point so that the flight can be separated into flight lines within Geosoft.

Line-leveling and drift-correction are achieved on a flight-by-flight basis using the background transients, recorded at the start and end of each flight.

Filtering the data involves a two-step process. Spikes are removed using an algorithm based on the Naudy non-linear filtering algorithm. This is followed by an 11-point Hanning filter that has the effect of smoothing the profiles over an equivalent distance of approximating twice the nominal flight height.

Micro-leveling of the late time channels is also performed before the data file is written to disk. Conductor picks and Tau time constants are determined at this point as well.

B-field processing of the time channels uses a fully integrated on-time in addition to the integrated off-time (i.e. full waveform). The early off-time channels are evaluated for possible primary field leakage (this involves a compensation filter based on linearly derived correlation between the late on-time and early off-time samples). The exact methodology is considered proprietary.

## 7.4 MAGNETIC DATA PROCESSING

The magnetic data (i.e. MAG from the airborne sensor and BMAG from the ground sensor) is collected without a lag time (i.e. synchronous with the HTEM data and UTC time), therefore a lag time correction is not applied. In areas where the MAG sensor has become unlocked (e.g., most often during turnarounds), the total magnetic field values are replaced with a dummy value (“\*\*”) and the data is later interpolated in Geosoft.

The raw ASCII survey data files and BMAG ASCII data files are imported into BECI software and merged using UTC time, common to both files. A quality control check of the BMAG data is made on a day-to-day basis.

Diurnal magnetic corrections are applied to the MAG data using the BMAG data. The base station data (i.e., BMAG) is linearly interpolated from a 1.0 sec sample rate to 0.1 sec to correspond to the flight data after the BMAG has been filtered with a 60 second filter.

Once the diurnal field is subtracted from the MAG data, a heading correction is applied, and the resulting total magnetic intensity (TMI) is micro-leveled.

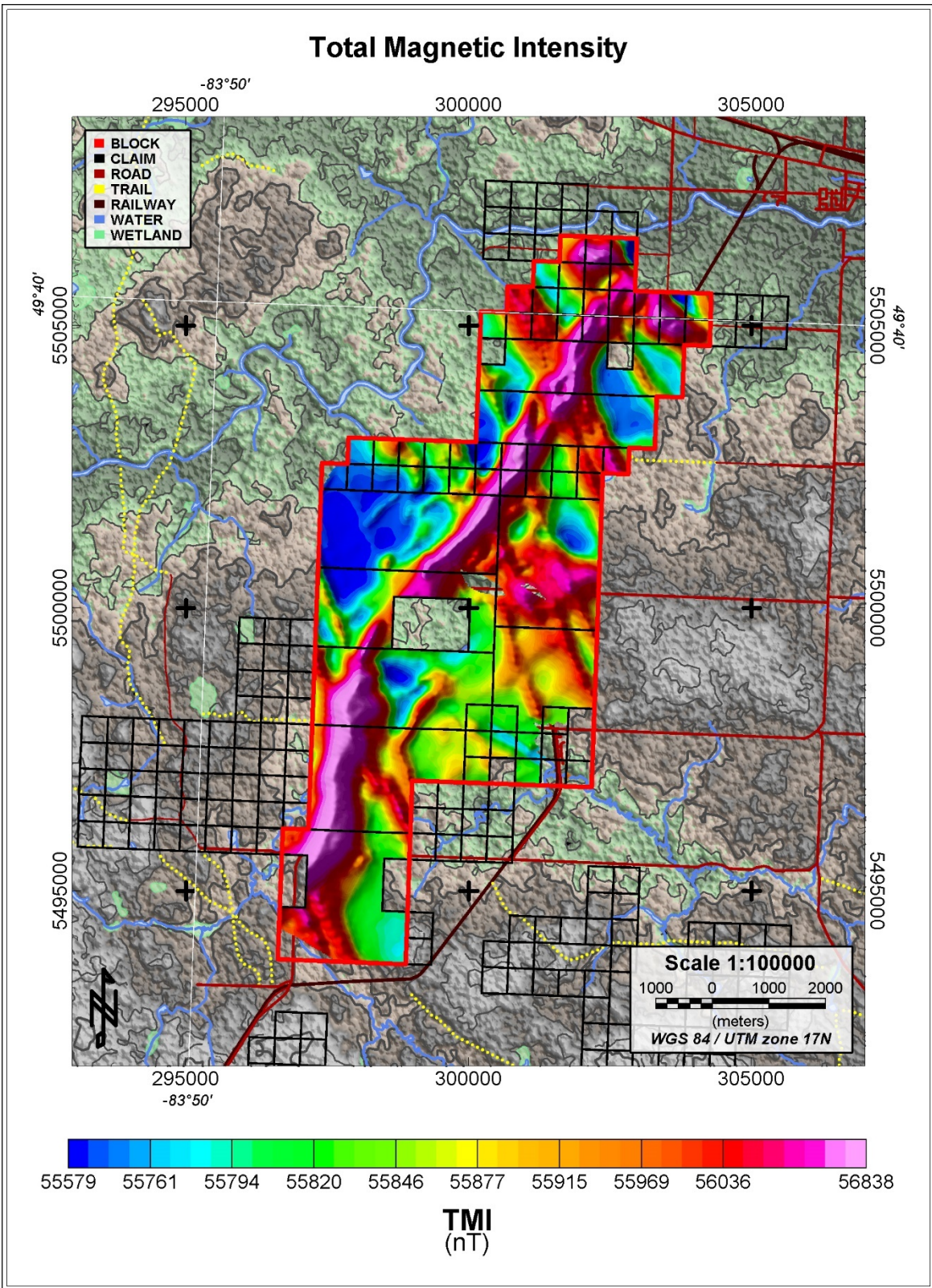
## 8.0 RESULTS AND INTERPRETATION

### 8.1 AIRTEM RESULTS

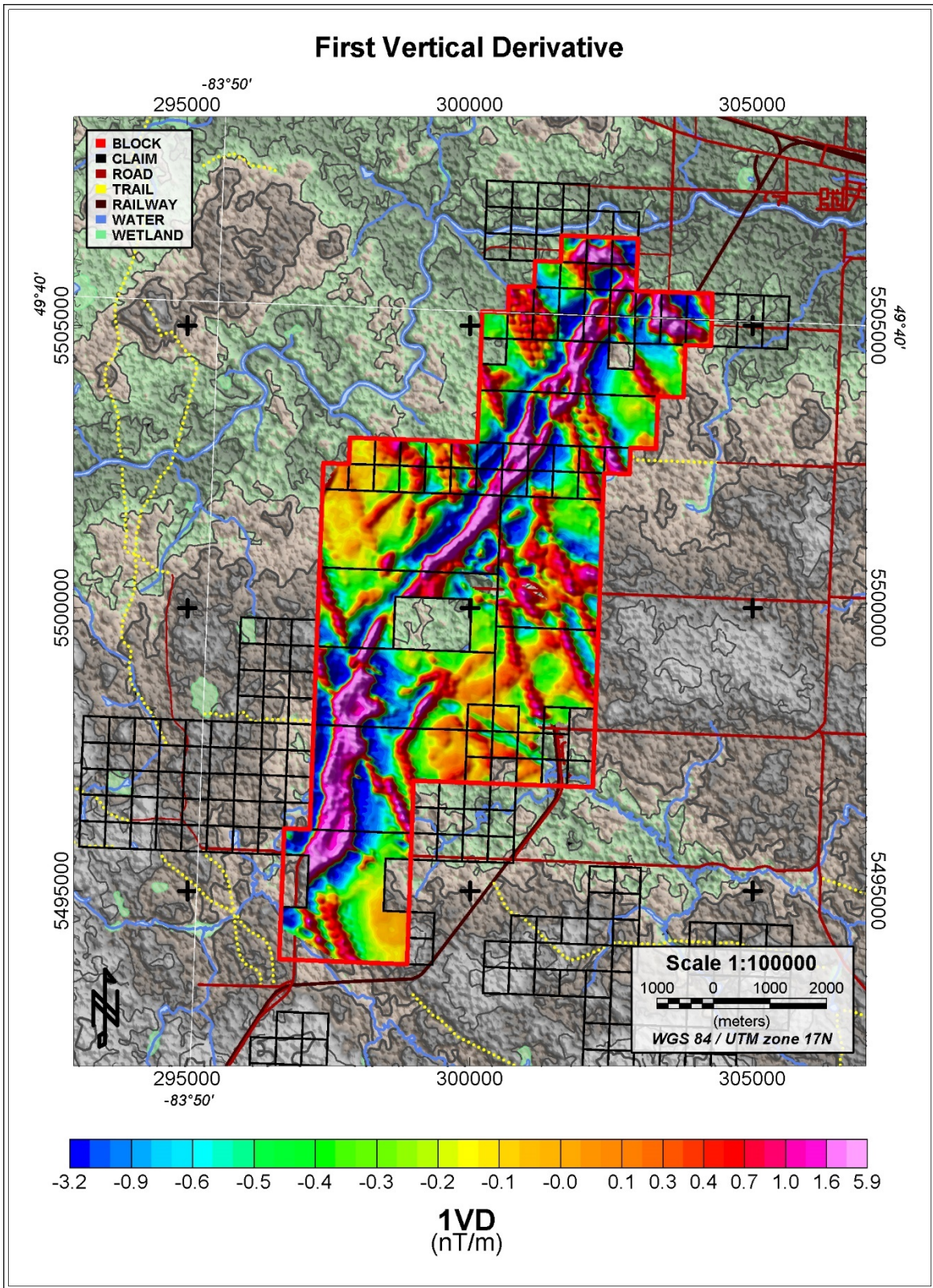
Results of the magnetic survey are presented in the form of the total magnetic intensity (TMI) which is shown in Figure 14 and the 1<sup>st</sup> vertical derivative of the TMI as shown in Figure 15. The magnetic data are dominated by the highly magnetic response of the serpentized ultramafic unit located below Firth Lake.

The anomalous EM response is shown for early off-time (Figure 16), mid off-time (Figure 17), late off-time (Figure 18), and early on-time (Figure 19).

Figure 20 shows the digital terrain model (DTM) for the survey area.



**Figure 14 - Shaded image of the Total Magnetic Intensity (TMI) over the survey block.**



**Figure 15 - Shaded image of the First Vertical Derivative (1VD) over the survey block.**

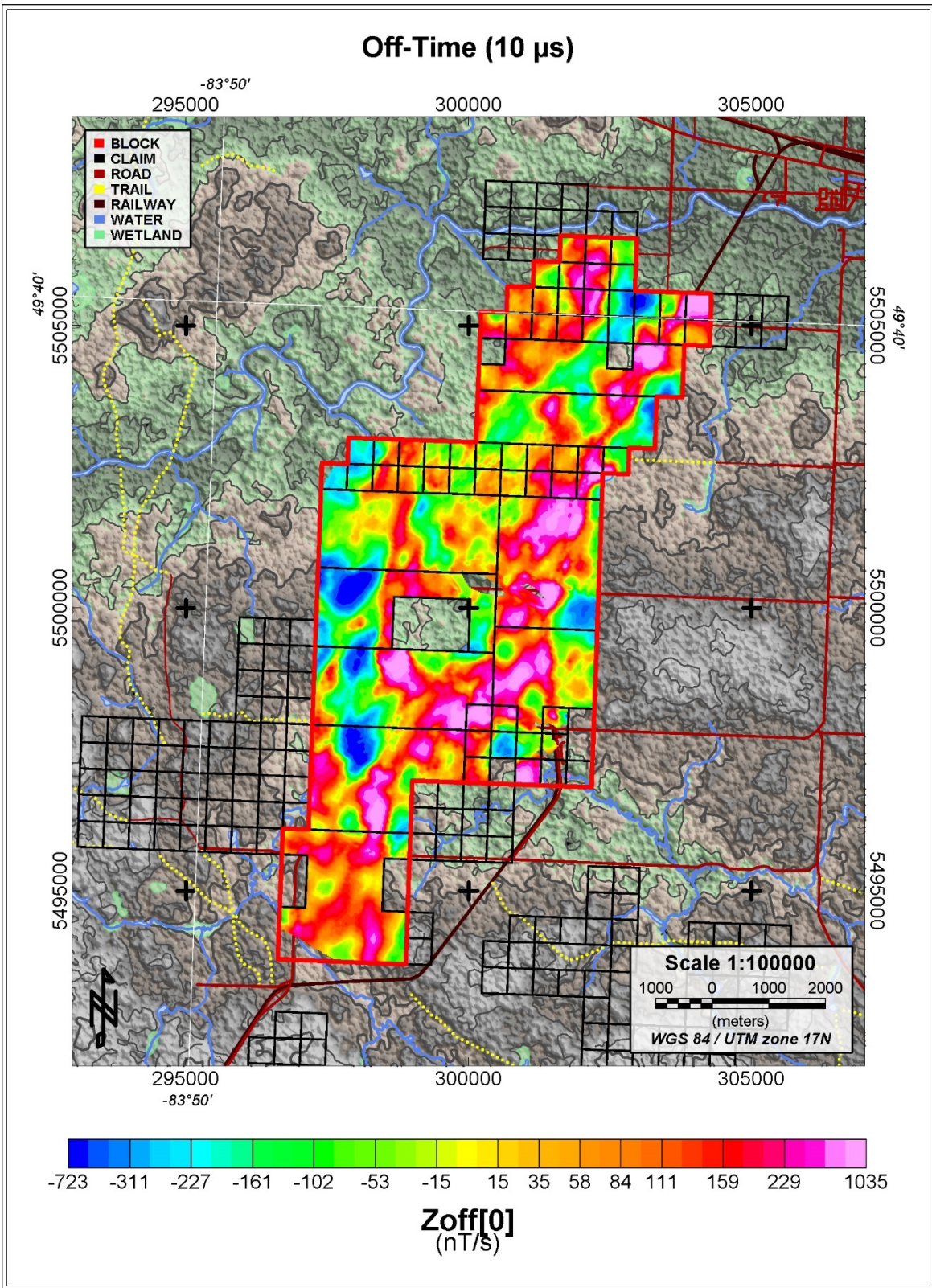


Figure 16 - Image of the Early Off-Time ( $Z_{off}[0]$ ) over the survey block.

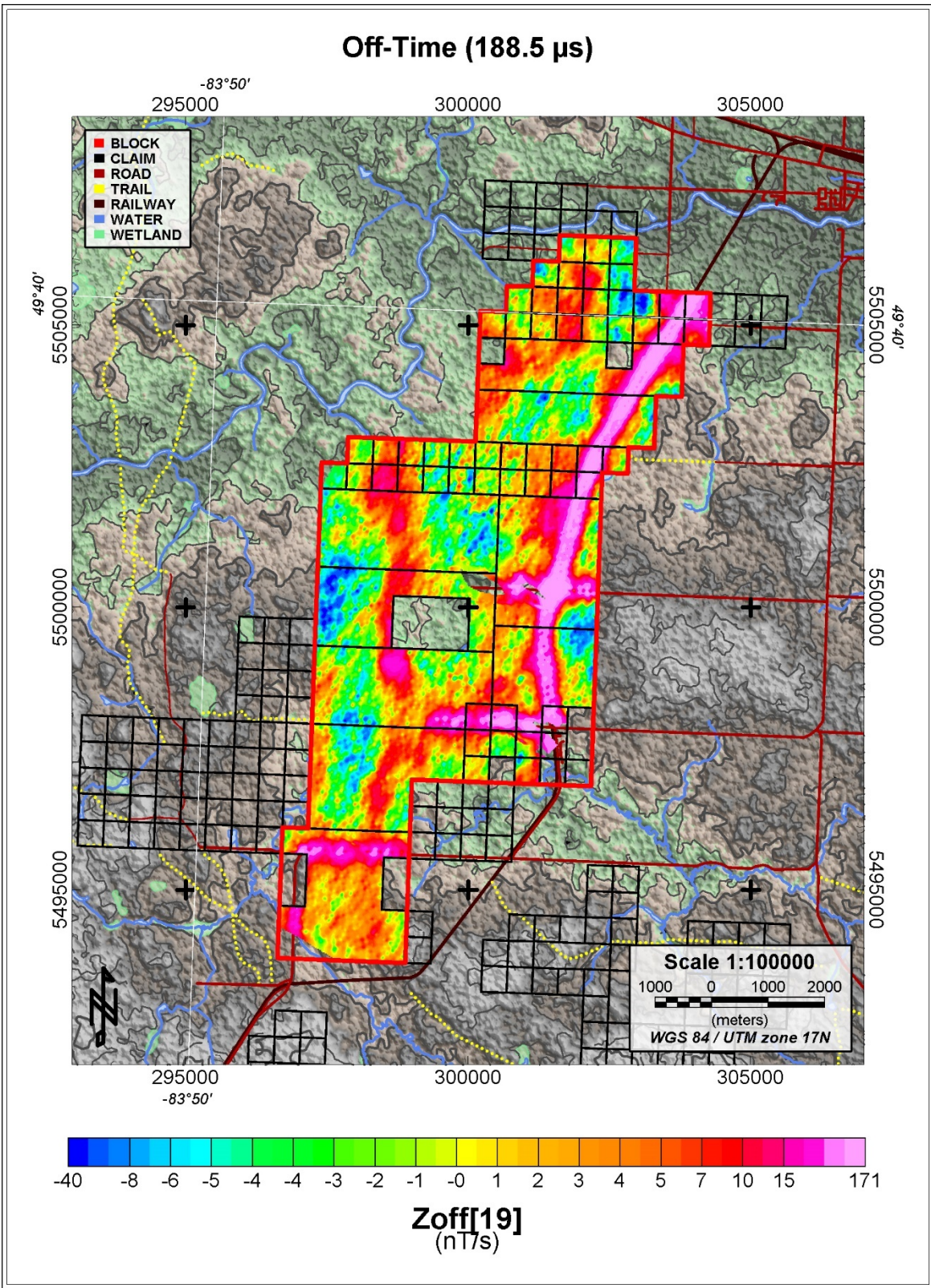


Figure 17 - Image of the Mid Off-Time (Zoff[19]) over the survey block.

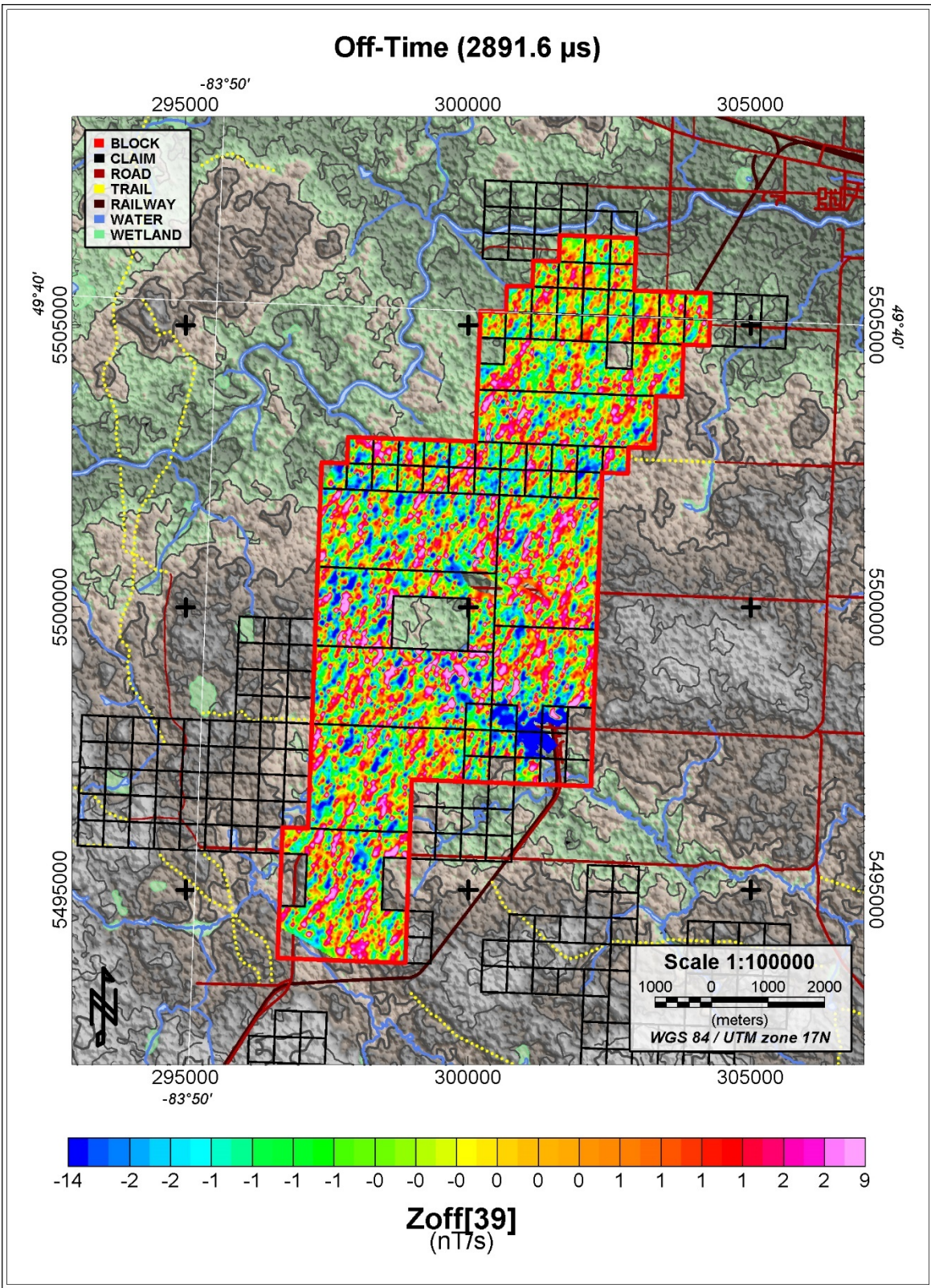


Figure 18 - Image of the Late Off-Time (Zoff[39]) over the survey block.



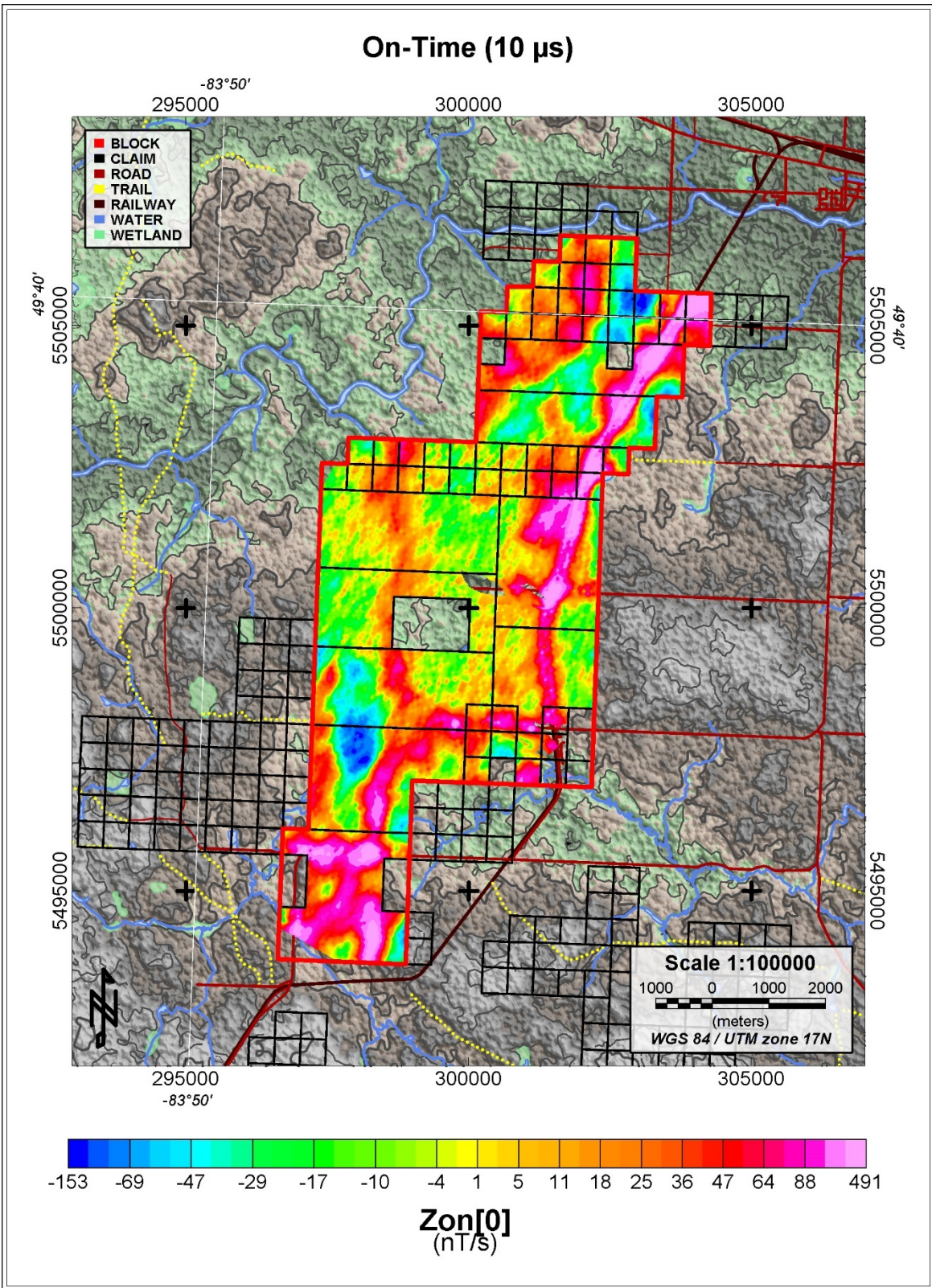


Figure 19 - Image of the Early On-Time (Zon[0]) over the survey block.

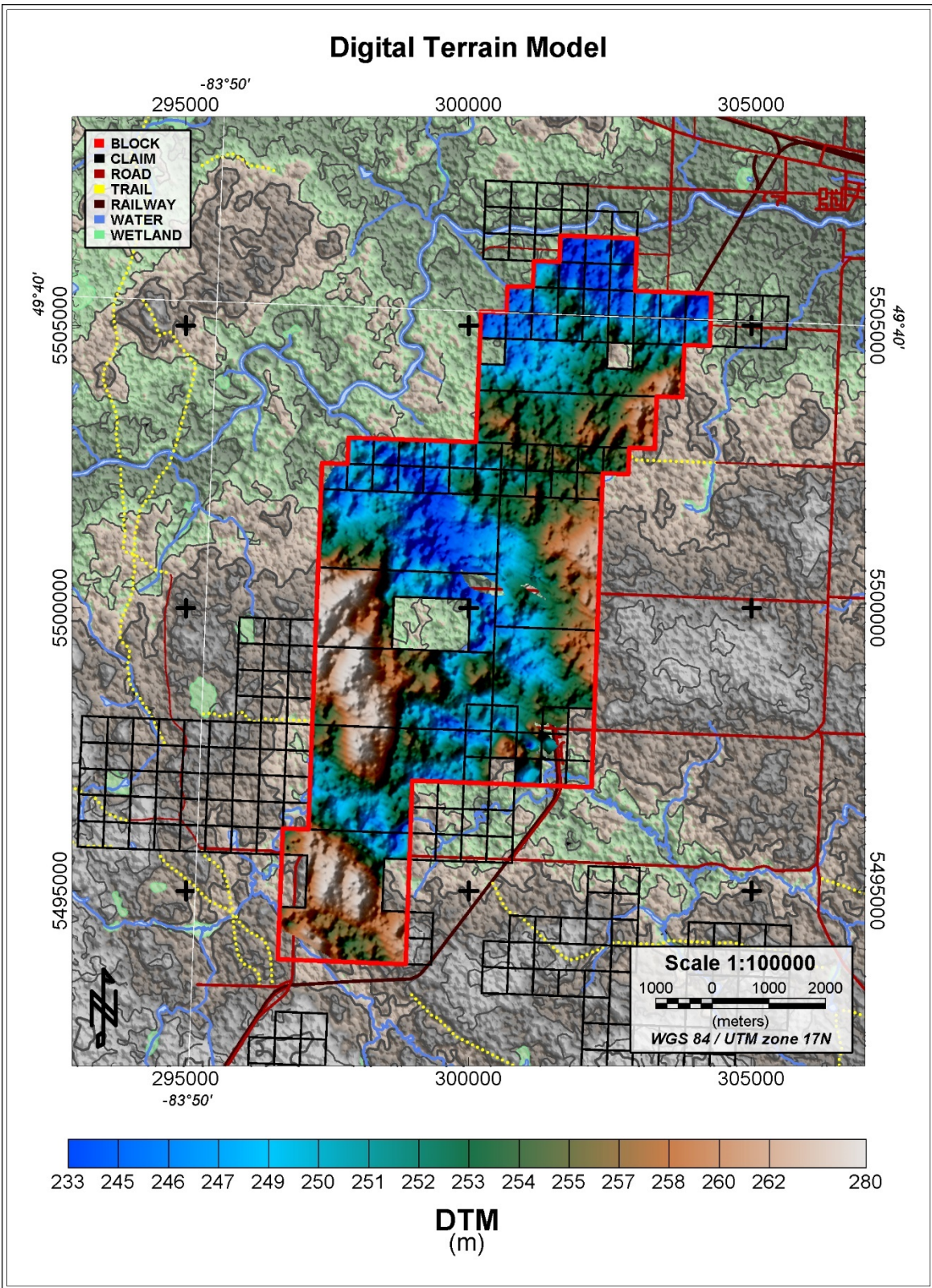


Figure 20 – Shaded image of the Digital Terrain Model (DTM) over the survey block

## 9.0 QUALIFICATIONS

I, Stephen Balch, do hereby state the following to be true:

1. I am a professional geoscientist (P.Ge.) in good standing, registered with the Association of Geoscientists of Ontario (#2250),
2. I am a graduate of University of Western Ontario with a degree in Honors Geophysics (1985),
3. I am a practicing exploration geophysicist with more than 37 years experience,
4. I reside at 11500 Fifth Line, Rockwood, Ontario, N0B 2K0,
5. I own directly or indirectly approximately 300,000 shares of Noble Mineral Exploration Inc. which I hold for investment purposes,
6. I have no direct interest in the Boulder Property,
7. I prepared this report based on my general experience and my detailed involvement with the survey and the data, and I am solely responsible for its contents.

Dated at Rockwood, Ontario on the 31<sup>st</sup> day of January 2023.



-----  
Stephen Balch, P.Ge.  
Geophysicist  
Balch Exploration Consulting Inc.

## 10.0 REFERENCES

Neil MacIsaac, 1978; Report on the geophysics surveys performed on Lowther 1-77, Lowther Township, Porcupine Mining Division, Noranda Exploration Co., Ltd.

1968; Map 2148, Ontario Mineral Map, Ontario Department of Mines.

Noble Mineral Exploration, 2022; Nagagami and Boulder Projects, Hearst, Ontario, Corporate Powerpoint Presentation.

## APPENDIX A – OUTLINE OF SURVEY POLYGONS

Table 6 shows the polygon corners in meters easting and northing, WGS-84 and UTM ZONE 17N.

**Table 6 – Corner coordinates for the survey block.**

<b>Boulder</b>
<b>Easting (m), Northing (m)</b>
301619, 5506591
302971, 5506542
302938, 5505615
304290, 5505566
304257, 5504640
303806, 5504657
303772, 5503730
303321, 5503747
303288, 5502820
302837, 5502837
302820, 5502373
302369, 5502390
302166, 5496832
299005, 5496948
298885, 5493706
296626, 5493790
296712, 5496106
297164, 5496089
297406, 5502573
297857, 5502556
297874, 5503019
300130, 5502936
300215, 5505252
300666, 5505235
300683, 5505698
301134, 5505681
301151, 5506145
301602, 5506128

# APPENDIX B – LIST OF MINING CLAIMS AND DATES

**Table 7 – Mining claim numbers.**

Claim - Due Date	
637973	- 2023/02/17
637976	- 2023/02/17
637977	- 2023/02/17
637978	- 2023/02/17
637980	- 2023/02/17
637982	- 2023/02/17
637983	- 2023/02/17
637984	- 2023/02/17
637985	- 2023/02/17
637986	- 2023/02/17
715355	- 2024/03/22
715356	- 2024/03/22
715357	- 2024/03/22
715358	- 2024/03/22
715359	- 2024/03/22
715360	- 2024/03/22
715361	- 2024/03/22
715362	- 2024/03/22
715363	- 2024/03/22
715364	- 2024/03/22
715365	- 2024/03/22
715366	- 2024/03/22
715367	- 2024/03/22
715368	- 2024/03/22
715369	- 2024/03/22
715370	- 2024/03/22
715371	- 2024/03/22
715372	- 2024/03/22
715373	- 2024/03/22
715374	- 2024/03/22
715375	- 2024/03/22
715376	- 2024/03/22
715377	- 2024/03/22
715378	- 2024/03/22
715379	- 2024/03/22
715384	- 2024/03/22
715385	- 2024/03/22
715386	- 2024/03/22
715387	- 2024/03/22
715388	- 2024/03/22
715389	- 2024/03/22
715390	- 2024/03/22
715391	- 2024/03/22
715392	- 2024/03/22
715393	- 2024/03/22
715394	- 2024/03/22
715395	- 2024/03/22
715396	- 2024/03/22
715397	- 2024/03/22
715398	- 2024/03/22
715399	- 2024/03/22
715400	- 2024/03/22
715401	- 2024/03/22
715402	- 2024/03/22
715403	- 2024/03/22
715404	- 2024/03/22
715405	- 2024/03/22
715406	- 2024/03/22
715407	- 2024/03/22
715408	- 2024/03/22
715409	- 2024/03/22
715410	- 2024/03/22
715411	- 2024/03/22
715412	- 2024/03/22
715413	- 2024/03/22