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**CANADIAN EXPLORATION SERVICES LTD**

**TIGER GOLD EXPLORATION  
CORPORATION**

**Q2154 – Harker Heritage Property - Area 2-3-4  
VLF Survey**

**C Jason Ploeger, P.Geo – December 1, 2016**

# Tiger Gold Exploration Corporation

## **Abstract**

CXS was contracted to perform VLF reconnaissance survey to assist in tying historic surveys together and locate potential new target areas. A total of 10.95 kilometres of traverses were performed over the Harker Heritage Property Area 2-3-4.

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## 1. SURVEY DETAILS

### 1.1 PROJECT NAME

This project is known as the **Harker Heritage Property – Area 2-3-4**.

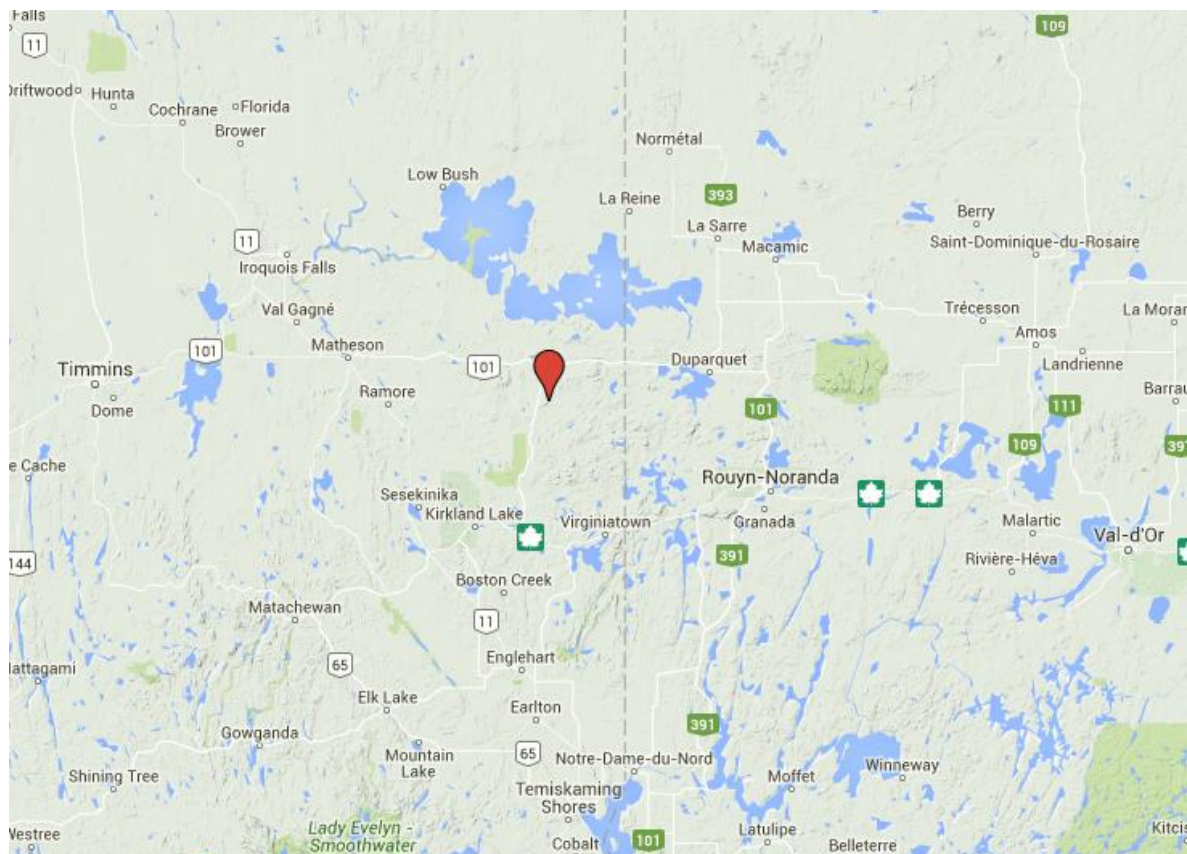
### 1.2 CLIENT

TIGER GOLD EXPLORATION CORPORATION,

103 Government Road.  
Kirkland Lake, Ontario  
P2N 1A9

### 1.3 LOCATION

The Harker Heritage Property is located approximately 50 km northeast of Kirkland Lake, Ontario. The property consists of 375 mining claims comprising of over 850 units spanning Clifford, Elliott, Harker, Holloway, Tannahill and Marriott Townships within the Larder Lake Mining Division.



***Figure 1: Location of the Harker Heritage Property***

## **1.4 ACCESS**

Access to the property was attained with a 4x4 truck via highway 672 and highway 101. Numerous forestry access roads and trails were travelled by snowmobile to access the various parts of the property.

Area 2 is located within Elliott Township. Access to this area was directly off highway 672 approximately 30 kilometers north of its intersection with highway 66. From here a snowmachine was used to access the survey region.

Area 3 and 4 are located within Elliott Township. Access to these areas was via highway 672. Approximately 31.6 kilometers north of the intersection highway 66 the property crosses the highway. At this location, the truck was parked and a snowmachine was used for the remainder of the access.

## **1.5 SURVEY AREA**

The survey area was designed to be a reconnaissance survey through the claim group. The traversed lines were established using a GPS in conjunction with the execution of the survey and were based on topography and a path of least resistance.

The traverse for Area 2 covers a portion of mining claims 4210175, 4203545, 3013919 and 4266596 which is located in Elliott Township within the Larder Lake Mining Division.

The traverse for Area 3 covers a portion of mining claim 3013919, 4225037, 4209405 which are located in Elliott Township within the Larder Lake Mining Division.

The traverse for Area 4 covers a portion of mining claim 4257139 which is located in Elliott Township within the Larder Lake Mining Division

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## 2. SURVEY WORK UNDERTAKEN

### 2.1 SURVEY LOG

Date	Description	Total Survey (km)
February 29, 2016	Begin VLF EM survey over area 2.	3.7
March 1, 2016	Locate and perform VLF EM survey over areas 2, 3 and 4.	7.25

**Table 1: Survey Log**

### 2.2 PERSONNEL

Bruce Lavalley and Claudia Moraga both of Britt, Ontario operated the VLF EM systems along with the performing the GPS navigation.

### 2.3 SURVEY SPECIFICATIONS

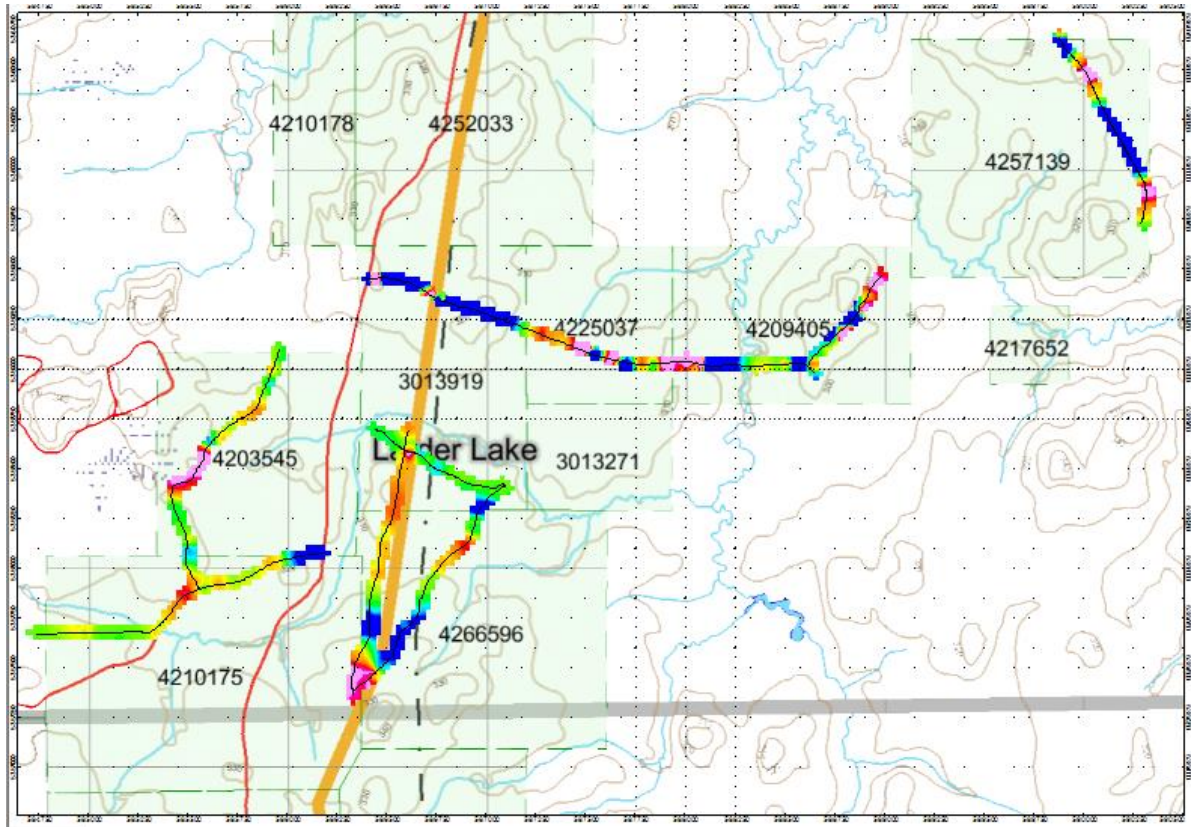
The survey was conducted with a GSM-19 v7 VLF.

A total of 10.95 line kilometers of VLF EM was read over the Harker Heritage Property between February 29<sup>th</sup> and March 1<sup>st</sup>, 2016. This consisted of 438 VLF EM samples taken at an approximate 25 metre sample interval.



### 3. OVERVIEW OF SURVEY RESULTS

#### 3.1 SUMMARY



***Figure 2: VLF EM In-Phase Readings***

The purpose of the VLF survey was as a reconnaissance a survey and to assist in tying historic surveys together and locate potential new target areas. A total of 10.95 kilometres of traverses were performed over areas 2, 3 and 4. With the randomness of the survey path the operator paced approximately 25 meters. At each VLF measurement, the operator faced north during the measurement as to keep the measurements consistent.

Some culture was noted during the traverses. This included the highway 672 corridor. Traverses did not cross this corridor; however, they did originate the traverses from it. A high voltage power transmission line crosses the central region of this area. This is identified by the orange line in Figure 2.

Area 2-3-4 appear to exhibit intense VLF EM signatures outside of the cultural continuation. An unconstrained response can be seen on claim 4203545. This appears as a multipoint increase in the inphase data. The trend of this response cannot be determined because of the single traverse over it. I would recommend a small grid be established along with a VLF EM survey be performed.



The traverses over claims 4225037, 4209405 and 4257139 exhibited numerous VLF EM responses. Again, the single traverse direction does not indicate the extent of this anomaly. I would recommend extending the EM to cover these entire claim blocks.

I would also recommend compiling the historic information on the property and comparing it to the results of this survey. From these areas, a correlation of trends may become evident. A focus should be made on indicated claims with grids being cut and more geophysics being performed.

## 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 Practising 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 **Tiger Gold Exploration Corporation.**
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.

Larder Lake, ON  
December 1, 2016

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## APPENDIX B

### THEORETICAL BASIS AND SURVEY PROCEDURES

#### 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 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.

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## 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 C**

**GARMIN GPS MAP 62S**



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:	9.2 oz (260.1 g) with batteries
Battery:	2 AA batteries (not included); NiMH or Lithium recommended
Battery life:	20 hours
Waterproof:	yes (IPX7)
Floats:	no
High-sensitivity receiver:	yes

Interface:	high-speed USB and NMEA 0183 compatible
<b>Maps &amp; Memory:</b>	
Basemap:	yes
Preloaded maps:	no
Ability to add maps:	yes
Built-in memory:	1.7 GB
Accepts data cards:	microSD™ card (not included)
Waypoints/favorites/locations:	2000
Routes:	200
Track log:	10,000 points, 200 saved tracks
<b>Features &amp; Benefits:</b>	
Automatic routing (turn by turn routing on roads):	yes (with optional mapping for detailed roads)
Electronic compass:	yes (tilt-compensated, 3-axis)
Touchscreen:	no
Barometric altimeter:	yes
Camera:	no
<u>Geocaching-friendly:</u>	yes (paperless)
<u>Custom maps compatible:</u>	yes
Photo navigation (navigate to geotagged photos):	yes
Outdoor GPS games:	no
Hunt/fish calendar:	yes
Sun and moon information:	yes

Tide tables:	yes
Area calculation:	yes
Custom POIs (ability to add additional points of interest):	yes
Unit-to-unit transfer (shares data wirelessly with similar units):	yes
Picture viewer:	yes
Garmin Connect™ compatible (online community where you analyze, categorize and share data):	yes

- *Specifications obtained from [www.garmin.com](http://www.garmin.com)*

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**APPENDIX D**

**LIST OF MAPS (IN MAP POCKET)**

VLF EM Plan Map (1:10000)

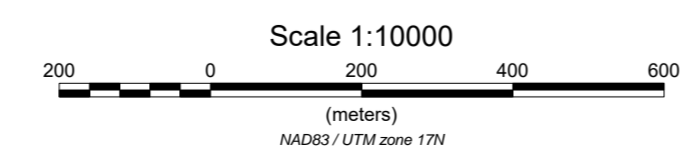
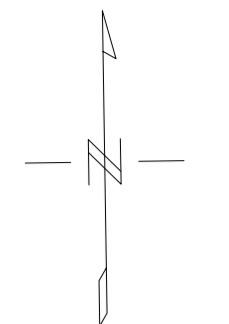
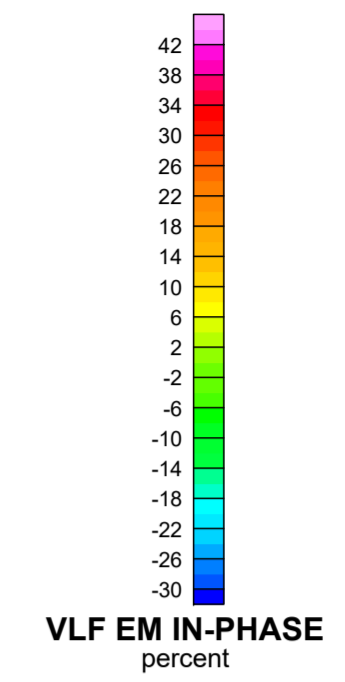
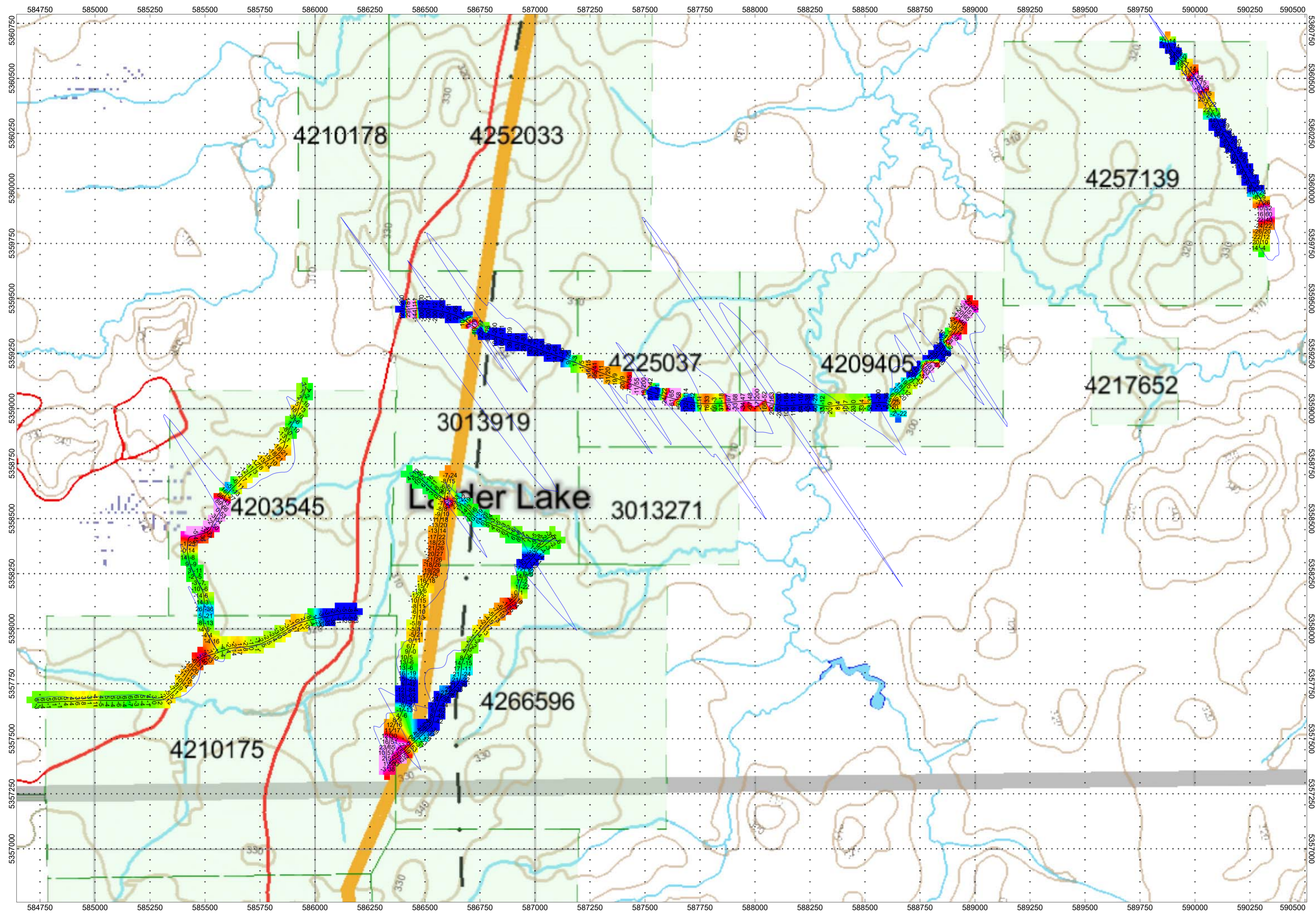
- 1) Q2154-TIGER-HARKER HERITAGE-AREA 2-3-4-VLF

**TOTAL MAPS = 1**

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







**TIGER GOLD  
EXPLORATION CORPORATION**

**HARKER HERITAGE PROPERTY  
Areas 2, 3 and 4  
Elliott Township, Ontario**

VLF IN PHASE/OUT PHASE PROFILE  
24.0kHz NAA - CUTLER USA  
25.2kHz NML - LaMOUR USA

In Phase: Posted Right/Bottom (Red)  
Out Phase: Posted Left/Top (Blue)


Vertical Profile Scales: 2 %/mm

Station Separation: 25 meters  
Posting Level: 0

GSM-19 VLF v7

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Operated By: Bruce Lavalley  
Processed by: C Jason Ploeger, B.Sc.  
Map Drawn By: C Jason Ploeger, B.Sc.  
December 2016



Drawing: Q2154-TIGER-HARKER HERITAGE-AREA-2-3-4-VLF