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.

REPORT ON THE GRADIENT IP SURVEY

Sheppard Property

Quarry Zone

Aylmer Township

District of Sudbury

Ontario

L.D.S. Winter
BASc., MSc (App)
6th of June, 2018

List of Tables

List of Figures

1. Introduction

The writer was requested by Mr. Tom Sheppard to prepare a report on a Gradient IP Survey on the Quarry Zone area of the Sheppard property. The work consisted of a Gradient Induced Polarization (IP) survey at Area B, Figure 2, with a total of 4.9 line km on 7 east-west lines being completed. The work was done on May 28, 29 and 30th, 2018. The Aylmer Township Property is located approximately 53 kms by road north of Capreol, Ontario. (Figure 1). The work was a follow up to earlier work carried out on the property. The following report describes the property, the geology, previous exploration in the area and the work done and the results obtained from the May 2018 work.

Metric units and Canadian dollars are used throughout the report.

2. Property Description and Location

The Property is located in central Aylmer Township at 46 degrees – 2.37' N latitude, 80 degrees – 2.4' W longitude (UTM co-ordinates, Zone 17, NAD 83; 517500mE, 5190 000m N) approximately 53 kms north of Capreol, by road, within the Sudbury Mining Division and the District of Sudbury, Ontario.

The property is comprised of 5 contiguous legacy active mining claims containing a total of 42 units and covering approximately 672 ha as listed in Table 1 and as shown in Figure 2. The claims are held in the name of Tom Sheppard (Client number 193779) 100%.

Table 1 – Sheppard Property Legacy Claims

Township	Number	Due Date	Units	Area (ha)
		*		
Aylmer	4203306	2019, May 24	6	96
Aylmer	4216908	2018, Dec. 2	12	192
Aylmer	4216909	2019, Aug. 16	6	96
Aylmer	4216910	2019, Aug. 16	12	192
Aylmer	4219155	2019, Aug. 2	6	96
Total:	**5**		**42**	**672**

These claims have now been converted to 42 claims (cells) under the recently implemented Mining Lands Administrative System (MLAS) with the 42 claims as shown in Figure 2A. Numbers being listed in Table 2 (Sheppard Property Claims).

Table 2A – Current Property MLAS Claims (Cells)

128088	229424	335723	139625	210393	210379
335724	153875	153874	251454	148107	122139
285807	285806	170521	244102	251455	166645
285808	137966	239390	177357	231953	340910
345447	125981	227286	298639	148108	318737
186047	178762	318738	178761	149476	225325
318739	178764	178763	166537	252842	302083

3. Accessibility, Climinate, Local Resources Infrastructure and Physiography

Access to the Property from Sudbury is north to Hanmer and then Capreol. From Capreol, highway 545 leads north approximately 10 kms to the Portelance Road and then in turn to the Poupore Road and the property as shown in Figure 1. From Hanmer the distance to the property by road is 63 kms.

The Sudbury area has a cold continental climate with an average annual precipitation in the order of 85 centimeters per year and with the annual temperature being in the range from +30 degrees C to -40 degrees C. Snow accumulations are generally present for a 5 month period between November and March with the occasional storm in early April. In general, the climate conditions permit exploration work to be carried out at all times during the year. In some cases, the winter season is more preferable for carrying out geophysical and drilling work in that it provides access to swampy areas.

The city of Sudbury approximately 80 kilometers south of the project by road, is a well established mining area and can provide all of the services and skilled personnel required for any type of exploration work and mining facilities that may be developed on the property.

The topographic relief of the property is in the order of 30 to 40 meters with the general elevation of the property being approximately 300 meters above mean sea level. For the most part, the property is forested with small areas being muskeg. Approximately 90% of the area is covered by glacial deposits and approximately 10% is considered to be bedrock exposures which generally occur in a north-south trend reflecting the general trend of the underlying structures.

The Wanapitei River flows south-southeast along the eastern edge of the property and Sam Martin Lake lies along the northwestern side.

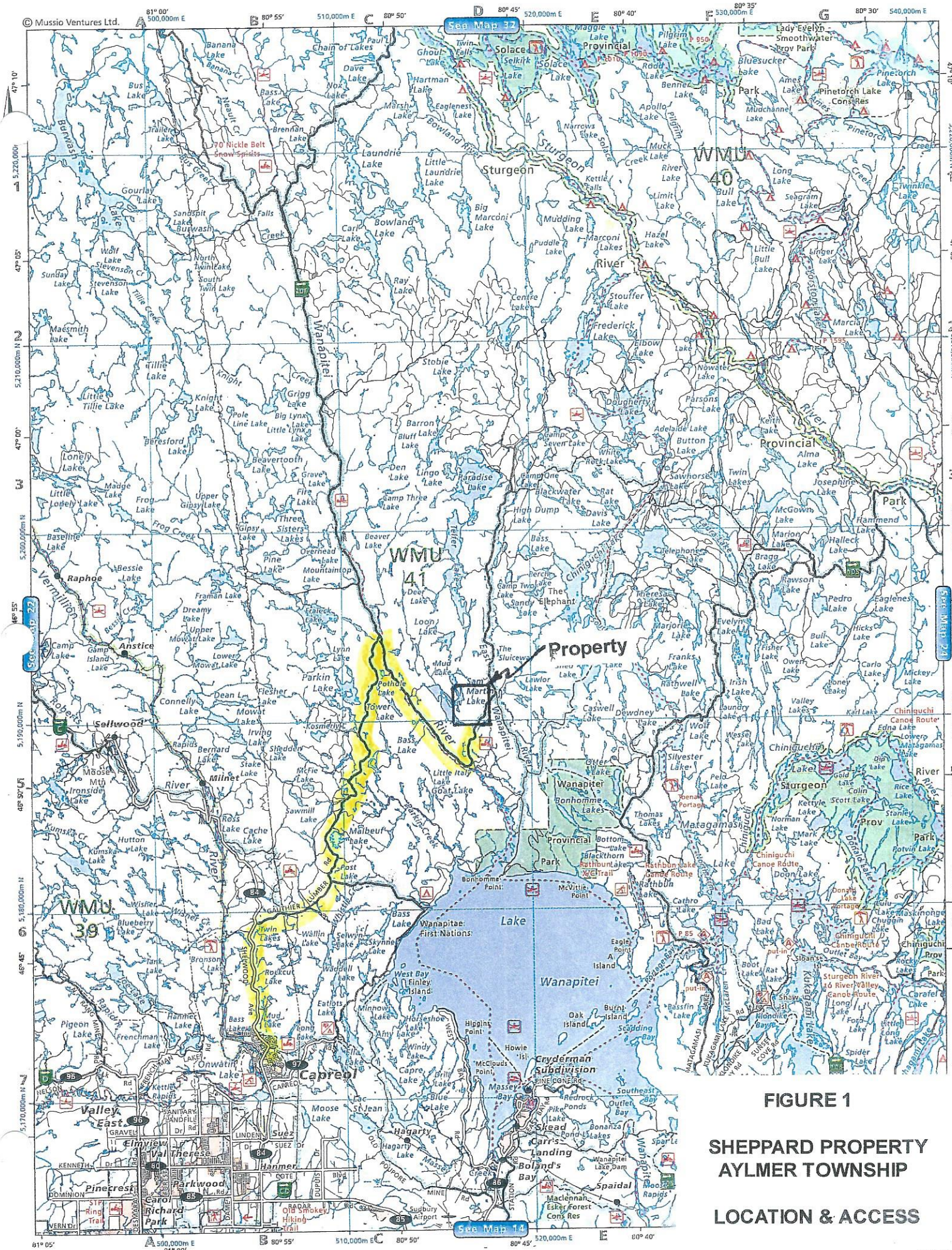


FIGURE 1

SHEPPARD PROPERTY
AYLMER TOWNSHIP

LOCATION & ACCESS

Scale: 1:250 000 June 2018

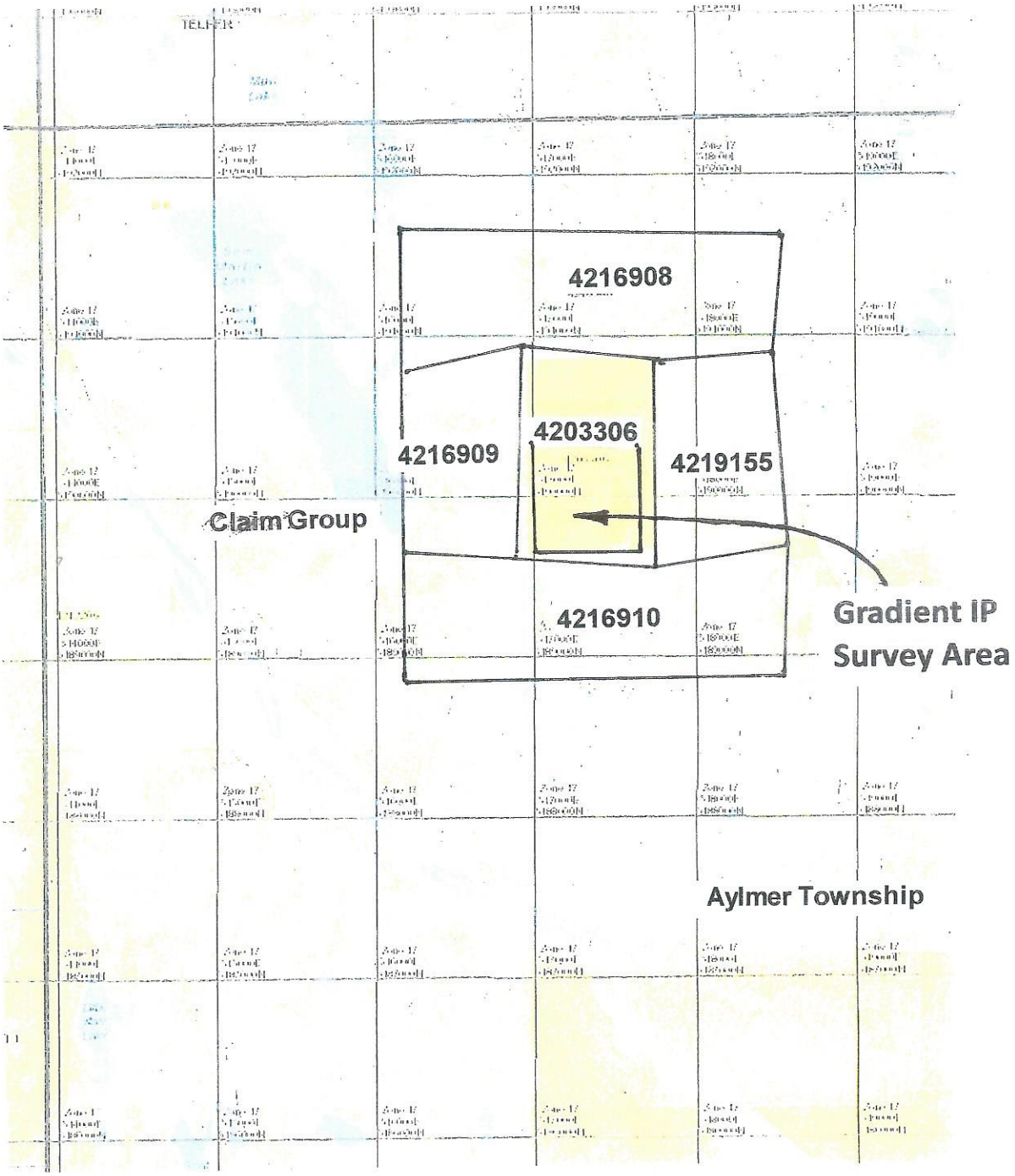


FIGURE 2

SHEPPARD PROPERTY
AYLMER TOWNSHIP

LEGACY CLAIM MAP

NAD 83 Zone 17

Scale: 1:40 000 June 2018

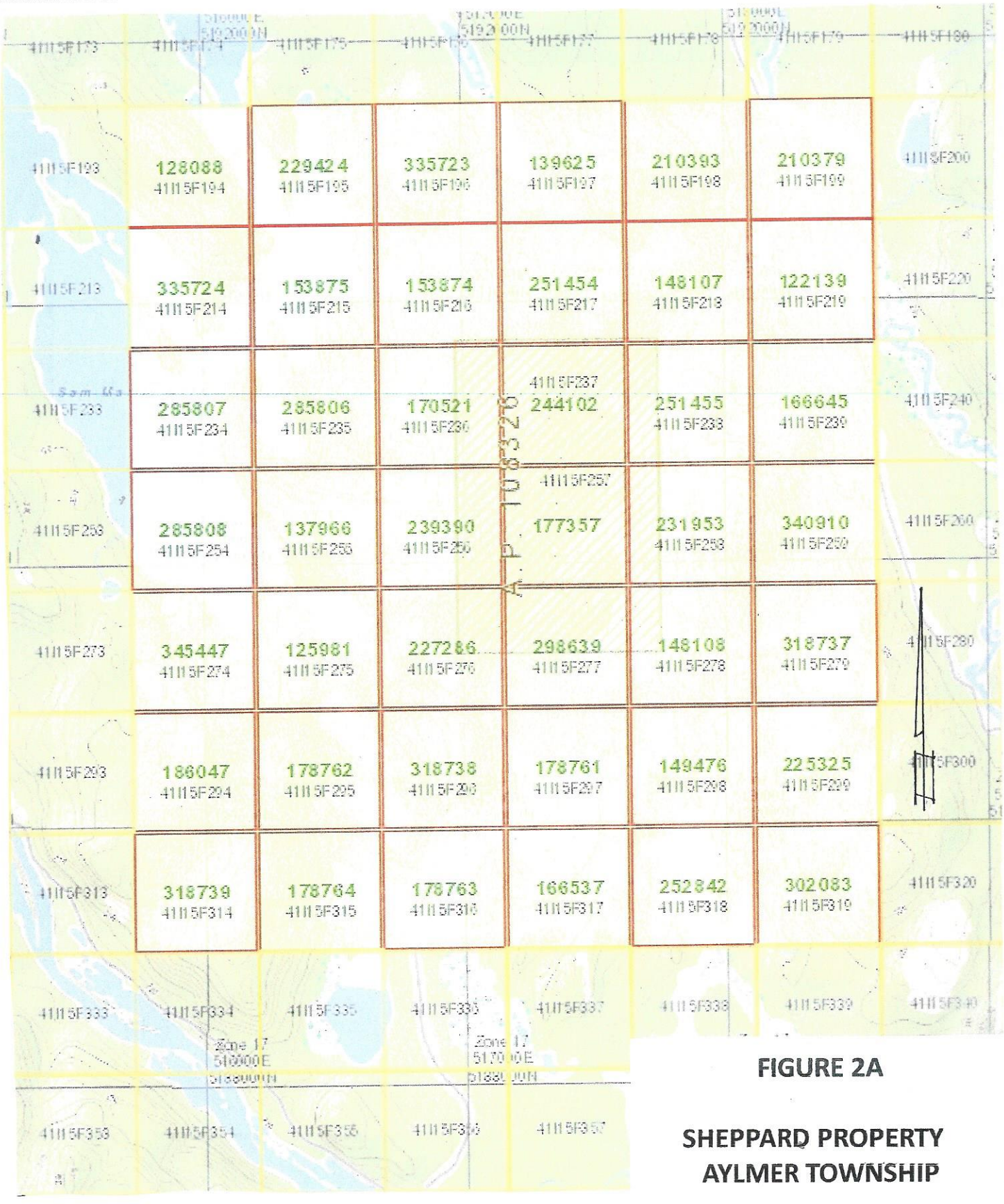


FIGURE 2A

SHEPPARD PROPERTY
AYLMER TOWNSHIP

CLAIM MAP - MLAS CELLS

Scale: 1: 20 000 June 2018

4. History

In 1950 H. Barry discovered copper mineralization in the matrix of a breccia and across a width of 2 m. A chip sample taken in 1949 had assayed 2.07% Cu. Three drill holes for a combined length of 182.7 m were drilled in 1952. A 4.1 m intersection adjacent to the showing was estimated to run 0.5% Cu.

Kennco Exploration, in 1958, carried out airborne EM and Magnetic surveys, however, no bedrock conductors were identified. Three pits were excavated and 2 packsack diamond drill holes were put down. Scattered Pyrite and traces of Chalcopyrite were present in the first hole but no sulphides were identified in the second hole.

R.C. Dennie drilled a 61 m hole in 1964 with pyrite being reported in the core.

In 1965 L.L. Billoki carried out an IP survey following which, two drill holes for a total of 277 m were completed. Up to 10% pyrite and 2% chalcopyrite across 3 meters was intersected.

Kerr Addison Mines Limited completed ground VLF-EM and magnetometer surveys in 1979.

In 1991 Falconbridge flew a GEOTEM fixed – wing airborne EM survey that covered part of the current property. No apparent anomalies were identified.

Roger Poulin of Sudbury investigated the property area for possible decorative stone in 2002. No assays were reported.

F. Delabbio in 2008, 2009, 2010, and 2011 carried out mapping, trenching, sampling and prospecting in historic claim 4203306 and adjacent areas with copper values of 1.8% Cu and 0.25% Cu being reported. VLF and vertical loop ground EM surveys indicated the presence of possible conductors. (The Quarry Area)

During the summer and fall of 2017, two (2) soil geochemical surveys were carried out in the northern part of the Property (Winter, 2017a, Winter, 2017c) and the Quarry Zone area was mapped and sampled (Winter, 2017b).

5. Regional Geology

The Sheppard property area lies within the Precambrian Shield of Northern Ontario, within the Southern Geological Province between the Superior Geological Province to the north and the Grenville Geological Province to the south.

In summary, three major lithological components are present in the Southern Province:

- An Archean basement made up of metavolcanics and metasedimentary rocks, granitoid intrusives and mafic intrusive rocks,
- Huronian metasedimentary rocks containing minor intercalated mafic volcanic rocks, overlie the Archean basement and,
- Post Huronian intrusive rocks including Nipissing diabase sills and post Nipissing diabase dykes and sills, small felsic intrusive bodies and lamprophyre dykes.

The major geological provinces and structures within the region are outlined in Table 3 and can be seen in Figure 3, Regional Geology.

Table 3 – Table of Geological Formations – Sheppard Property Area

Period	Province or Complex	Dominant Lithology	Age - Ma
Mid-Proterozoic	Grenville	Variable and highly metamorphosed	1200 - 1000
Mid-Proterozoic	Keweenawan	Mafic Volcanics	1225
Early Proterozoic	Sudbury Igneous Complex & Whitewater Sediments		1850
Early Proterozoic	Nipissing Diabase	Gabbro and Diabase Intrusions	2115
Early Proterozoic	Huronian Supergroup	Clastic Sediments	2450 - 2115
Archean	Superior	Granite and Metavolcanics	>2500

The Huronian metasedimentary rocks lie unconformably above the Archean basement. They are part of the Huronian Supergroup, portions of which extend across the region from Sault Ste. Marie in the west to the Cobalt area near the Quebec border in the east. The Huronian sediments are interpreted to have been deposited during a period

of marine transgression from south to north, commencing with sandstones, conglomerates and argillites with local intercalated mafic volcanics followed by more mature clastic sediments and marine evaporates. The sediments are thought to have been deposited from the northwest towards the southeast, with the clastic material derived from gradual uplift of the foreland to the north. The unconformity with the basement rocks is sharply defined in some places and at others is represented by several meters of regolith.

The Huronian Supergroup has been divided into four groups, each containing several formations (Table 4).

Table 4 – Stratigraphy of the Huronian Supergroup – Sault Ste. Marie – Sudbury – Cobalt Region – Sheppard Property Area

Formation	Description
COBALT GROUP	
BAR RIVER FORMATION	Orthoquartzite, siltstone
GORDON RIVER FORMATION	Siltstone
LORRAIN FORMATION	Arkose, orthoquartzite
GOWGANDA FORMATION	Polymictic Conglomerate, quartzite, siltstone, argillite
QUIRKE LAKE GROUP	
SERPENT FORMATION	Orthoquartzite
ESPANOLA FORMATION	Greywacke, limestone
BRUCE FORMATION	Limestone, siltstone
HOUGH LAKE GROUP	
MISSISSAGI FORMATION	Orthoquartzite
PECORS FORMATION	Greywacke, argillite, quartzite
RAMSAY LAKE FORMATION	Polymictic conglomerate
ELLIOT LAKE GROUP	
MCKIM FORMATION	Greywacke, argillite, quartzite Polymictic conglomerate
MATINENDA FORMATION	Arkosic quartzite
LIVINGSTONE CREEK FORMATION	Fieldspathic quartzite and conglomerates

The primary intrusive event affecting the region was the intrusion of the Nipissing diabase sills and dykes which are dated at 2120 Ma. The sills and dykes were folded during the Penokean Orogency and metamorphosed to greenschist facies. The Nipissing diabase is primarily found as intrusions in the Huronian sediments, however, they also occur in the underlying Archean rocks.

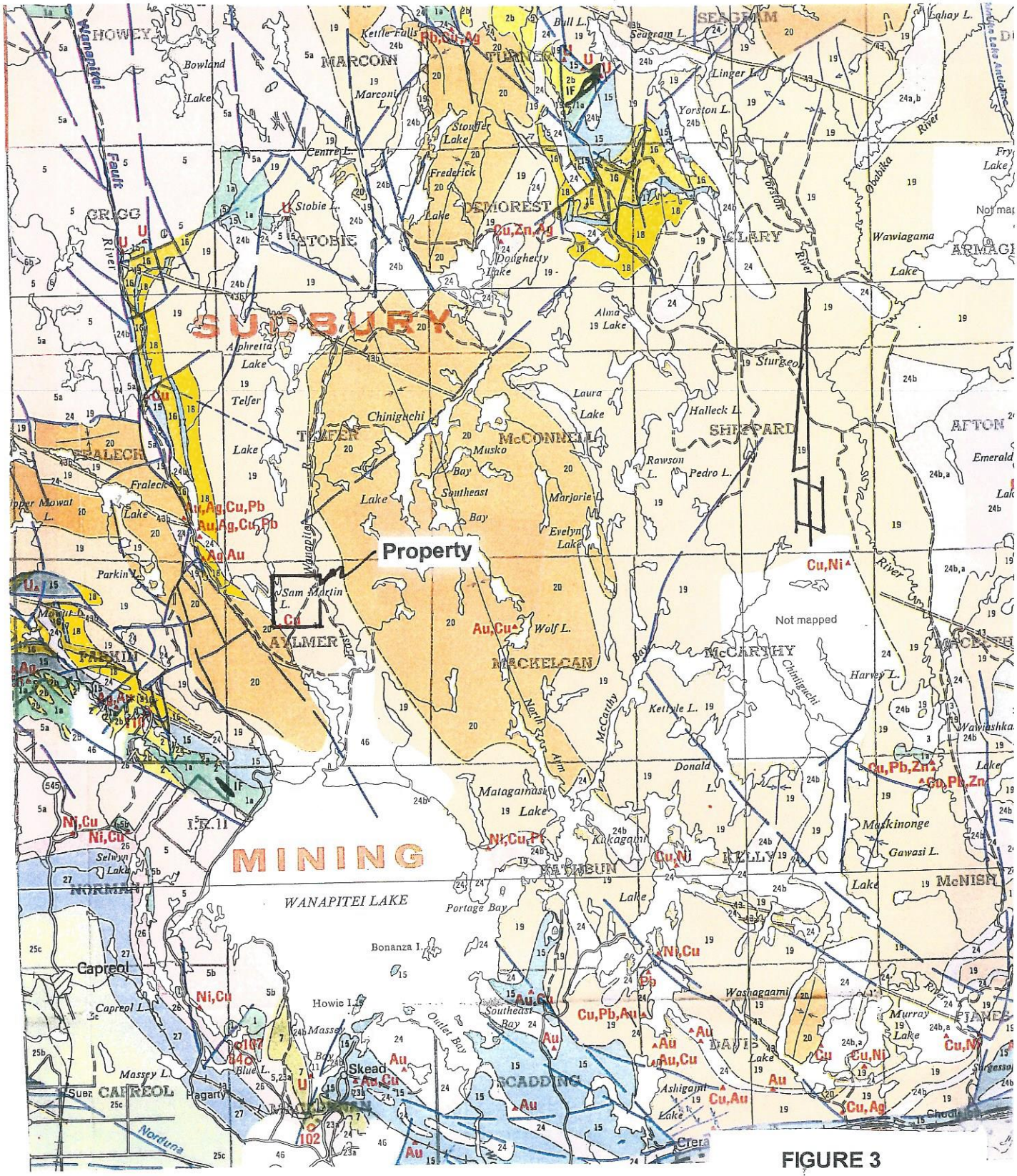


FIGURE 3

SHEPPARD PROPERTY
AYLMER TOWNSHIP

REGIONAL GEOLOGY

After OGS Map 2361

Scale: 1:250 000 **June 2018**

LEGEND FOR FIGURE 3

HURONIAN SUPERGROUP[h]

COBALT GROUP

BAR RIVER FORMATION

22 — *22 Quartz sandstone, hematitic siltstone, and sandstone.*

GORDON LAKE FORMATION

21 — *21 Siltstone, argillite, sandstone.*

LORRAIN FORMATION

20 — *20 Quartz sandstone, micaceous and aluminous quartz sandstone, quartz-feldspar sandstone, and minor conglomerate, and siltstone.*

GOWGANDA FORMATION

19 — *19 Conglomerate, sandstone, siltstone, and argillite.*

QUIRKE LAKE GROUP

SERPENT FORMATION

18 — *18 Quartz-feldspar sandstone with minor siltstone, calcareous siltstone, and conglomerate.*

ESPANOLA FORMATION

17 — *17 Limestone, dolostone, siltstone, and sandstone.*

BRUCE FORMATION

16 — *16 Conglomerate with minor sandstone and siltstone.*

HOUGH LAKE GROUP

MISSISSAGI FORMATION

15 — *15 Quartz-feldspar sandstone with minor siltstone, argillite, and conglomerate.*

PECORS FORMATION

14 — *14 Siltstone, argillite, and greywacke with minor quartz-feldspar sandstone.*

RAMSAY LAKE FORMATION

13 — *13 Conglomerate with minor sandstone and siltstone.*

ELLIOT LAKE GROUP

McKIM FORMATION

12 — *12 Siltstone, greywacke, and argillite with minor quartz-feldspar sandstone.*

MATINENDA FORMATION

11 — *11 Quartz-feldspar sandstone with minor conglomerate and siltstone.*

VOLCANIC ROCKS[i]

SALMAY LAKE FORMATION

10 — *10 Mafic metavolcanics with minor intermediate and felsic metavolcanics, mafic intrusions and intercalated metasediments.*

COPPER CLIFF FORMATION

9 — *9 Felsic and intermediate metavolcanics with minor felsic intrusions and intercalated metasediments.*

STOBIE FORMATION

8 — *8 Mafic metavolcanics and intrusions with abundant intercalated metasediments including greywacke, siltstone, pyritic metasediments and quartz-feldspar sandstone.*

ELSIE MOUNTAIN FORMATION

7 — *7 Mafic metavolcanics and intrusions with minor intercalated metasediments and felsic pyroclastics and felsic intrusions.*

The major structural event that deformed the Huronian sediments was the Penokean Orogeny, which affected the region between about 1850 Ma and 1750 Ma. The deformation caused by the Penokean Orogeny resulted in folding and thrust faulting of the Huronian sediments. The Murray fault system and Onaping fault systems are composed predominantly of strike-slip faults that were formed sometime after the Grenville Orogeny (post 1000 Ma).

6. PROPERTY GEOLOGY AND MINERALIZATION

The Gowganda Formation is the basal formation of the Cobalt Group and underlies the Sheppard Property. This formation is compsed of conglomerates, sandstones, quartzites, siltstones and argillites. Structurally, the property lies on the western limb of a syncline trending north - north west. A small Nipissing gabbro intrusive has been mapped in the central part of the property.

Alteration appears to be dominantly albitic (pink) with chloritization and carbonatization. The greywackes appear to be very fine grained, chloritized and albitized.

Mineralization in the central part of the property area consist of a number of showings mainly composed of coarse breccias with quartz and or carbonate as the matrix plus variable amounts of pyrites, cholcoprytes and in some cases bornite. A dark green-black chlorite accompanies some of the quartz veining and mineralization. Much of the pyrite occurs as coarse, disseminated cubes, some of which show up as cubic shaped cavities filled with limonite. In some of the showings, gold values are reported, associated with the copper mineralization.

Some of the breccia bodies appear to be more or less "stratiform", however, others are crosscutting. One such body is approximately 50m long, north-south, and cross-cuts the greywacke bedding trending 330 degrees / 30 degrees NE

On a property in Scadding township to the southeast, similar mineralization shows a crude zoning of hydrothermal alteration in breccia near gold mineralization. The pattern of alteration from proximal to distal includes:

- Green chloritic breccia with quartz + ankerite + sulphide stringers and/or matrix material.
- Pink albitic + hematitic breccia with coarse dolomite + quartz stringers and/or matrix material.

The Sheppard property is for the most part covered with a coarse glacial till with the depth of overburden ranging from a few centimeters over outcrop areas to several meters within the large swampy area. In the area outcrop ridges trending north-south are the dominant topographic feature. Small north-south valleys lie

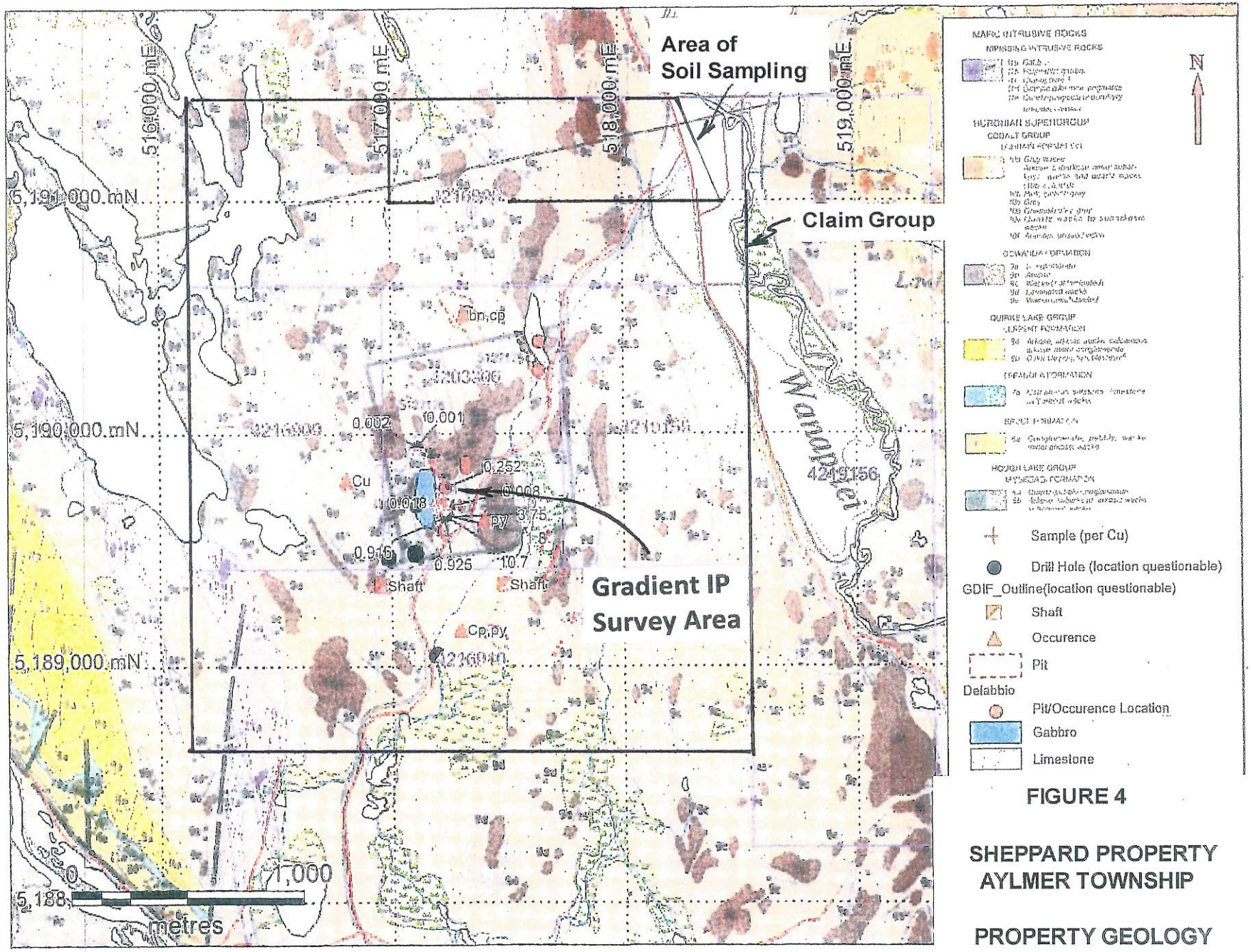


FIGURE 4

SHEPPARD PROPERTY
AYLMER TOWNSHIP

PROPERTY GEOLOGY

After Smith 2014

Scale: 1:50 000 **June 2018**

between the ridges and contain swampy type vegetation and in some cases running water.

7. Background

There is a broad regional structural zone in the order of 14 to 15 kms wide that extends from the Grenville Front, northwest from Dana, Janes, Davis and Scadding townships and that then turns to trend more north-north westly through the eastern part of Wanapitei Lake and the area to the east of the lake. From here the zone continues through the eastern part of Fraleck and Aylmer townships. The western limit of the structural zone is the upper Wanapitei Fault which follows the Wanapitei River. The Sheppard Property lies approximately 1 km east of this major fault in Aylmer township. (Figure 4 and after OGS Map 2361)

Gates (1991) in Open File Report 5771, Sudbury Mineral Occurrence Study, describes in the order of 30 mineral showings or occurrences that for the most part lie within the indicated structural zone and of these, in the order of 25 are charactered by soda metasomatism as expressed by albitization. The associated mineralization varies from quartz veins with pyrite and chalcopyrite to breccia bodies mineralized with quartz, pyrite and chalcopyrite. Also, arsenopyrite is not uncommon.

Iron carbonate alteration and silicification are usually present and all zones appear to be structurally controlled. The Sheppard property in Aylmer township is not described by Gates (1991), however, it falls within the indicated structural zone and shows the same features of soda metasomatism etc. as for the majority of the occurrences described in OFR 5771.

A paper given by Martinsson (2011), at the Iron Oxide Copper Gold (IOCG) Workshop in Antatagasta, Chile in 2011, provides a review of IOCG deposits in the northern part of the Fennoscandia Shield and of particular interest are the "Au-type IOCG Deposits" described as having the following typical features;

-Albite, sericite, carbonate, biotite, quartz and tourmaline alteration.

-Au, Co, Cu, As, Ni, Bi, Te, Mo, Zn, U metal association and one deposit, Suurikuusikko with 18.2 Mt @ 5.1 ppm Au is structurally controlled and mineralization occurs in brecciated and albite – carbonate altered schist and mafic volcanic rocks with disseminated sulphides. The gold is hosted in arsenopyrite (71%) and pyrite (22%). It is considered that the Fennoscandian IOCG – Type gold deposits, those described by Gates (1991) and the Sheppard mineralization are all of the same type, ie. Au-type, IOCG deposits.

8. 2017 Work Programs and Results

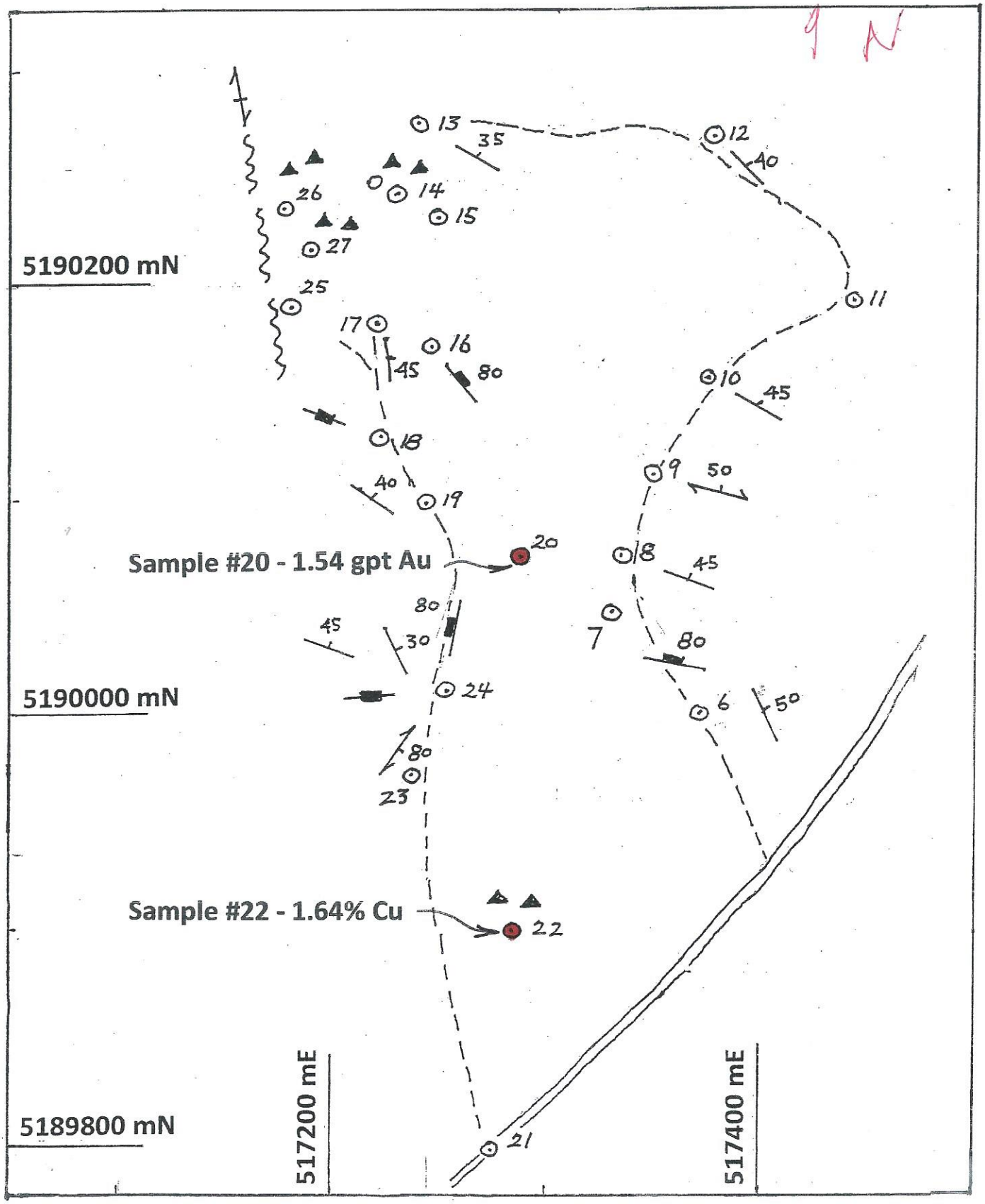
The 2017 field program on the Sheppard property was carried out in 3 stages between the 11th and the 7th of November, 2017. Stage I was a B-horizon soil sampling survey in the northeastern part of historical claim 4216908 between the 11th and 18th of July. Stage II was a geological mapping and sampling program in the southern part of historical claim 4203306 and Stage III was follow-up soil sampling adjacent to the area surveyed in Stage I in historical claim 4216908.

In Stage I, 56 B-horizon soil samples were collected along 4 east-west lines for a total of 2.8 line-km and in Stage III, 108 soil samples were collected along 3.8 line-km of east-west lines for a total of 164 samples. All samples were analyzed by ALS Minerals using their AuME-TL43 (Multielement) package.

In late July 2017, the Quarry Zone area measuring approximately 1000 m north-south by 1000 m east-west was geologically mapped and sampled so as to better define the geological and litho geochemical characteristics of this area which is approximately the southern half of historical claim 4203306. Of particular interest, because of their relevance to the IOCG model, were the breccias, structure, known copper and gold mineralization and types and extent of alteration. As well, the nature and attitude of the underlying greywackes of the Gowganda formation were recorded. A total of 27 sites were visited with 23 being mapped and 18 rock samples were collected and sent to ALS Minerals for gold and multielement analysis.Over a 3 day period, the 11th, 13th and 18th of July 2017, an area measuring approximately 1000 m north-south by 1000 m east-west was geologically mapped and sampled so as to better define the geological and litho geochemical characteristics of this area which is approximately the southern half of claim 4203306. Of particular interest, because of their relevance to the Au-type IOCG model, were the breccias, structure, mineralization and types and extent of alteration. As well, the nature and attitude of the underlying greywackes of the Gowganda formation were recorded. A total of 27 sites were visited with 23 being mapped and 18 rock samples were collected and sent to ALS Minerals for gold and multielement analysis. Figure 5

The two B-horizon soil sampling programs within historical claim 4216908 of the Aylmer Property covered an area approximately 1500m east-west by 600m north-south with 6.6 line-km being sampled along 8 east-west lines and with 164 samples being collected and analyzed.

The two soil sampling programs identified 8 zones, of anomalous copper values with associated arsenic values. The zones appear to trend north-south to north-northwest and are associated with conductive/magnetic zones as indicated in the 2012 Geotech Ltd. Airborne Survey. The soil sampling results suggest the potential for economic Cu-Au mineralization, associated with alteration as described by Gates (1991) for the area.



QUARRY ZONE - GEOLOGICAL MAPPING

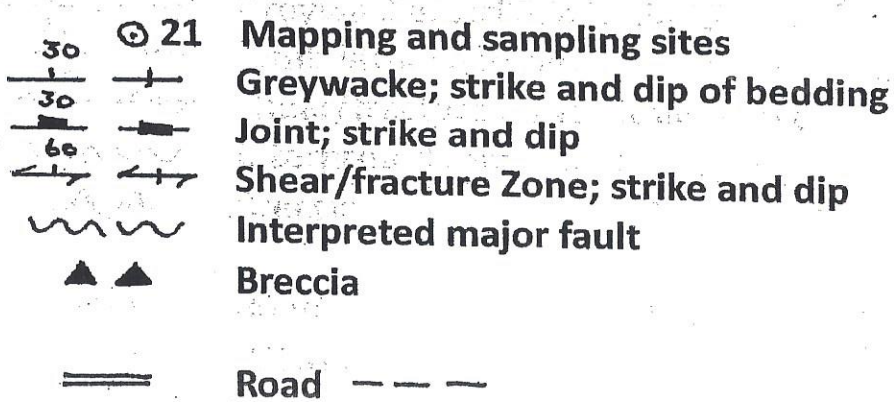
FIGURE 5

Scale" 1: 2500

June 2018

SHEPPARD PROPERTY
AYLMER TOWNSHIP

LEGEND FOR FIGURE 5



Mapping and sampling sites

Greywacke; strike and dip of bedding

Joint; strike and dip

Shear/fracture Zone; strike and dip

Interpreted major fault

Breccia

Road

June 2018

9. Current (2018) Work Program, Results and Interpretation

A Gradient Induced Polarization (IP) survey was carried out over three days May 28, 29 and 30th with 7 lines at 700 m per line, for a total of 4.9 line-km being surveyed. The work was carried out by Dan Patrie Exploration Ltd. an experienced IP contractor. The work was supervised by Mr. Gab Roy, Elliot Lake, an experienced operator, with Jim Patrie and Justin Abramson as assistants. Mr. Roy also prepared the IP Chargeability and Resistivity plots (Figures 7 and 8). The area surveyed is shown in Figure 6 with the grid consisting of 7 lines oriented 700 m long and spaced at 100 m. The current electrodes were placed 400 m north of line 10350 N and 400 m south of line 9850 N (Figure 7). The lines were determined by GPS readings and the 2 receiving electrodes were at a separation along the lines of 50 m (a = 50 m). In Figures 7 and 8 the readings are plotted at the mid-point of the "a" spacing.

The calculated chargeability and resistivity values are shown in Figures 7 and 8 respectively. In Figure 7 three chargeable anomalies, A, B and C are indicated. Background values are considered to be less than 20 mV/V and anomalous values are considered to be greater than 20 mV/V.

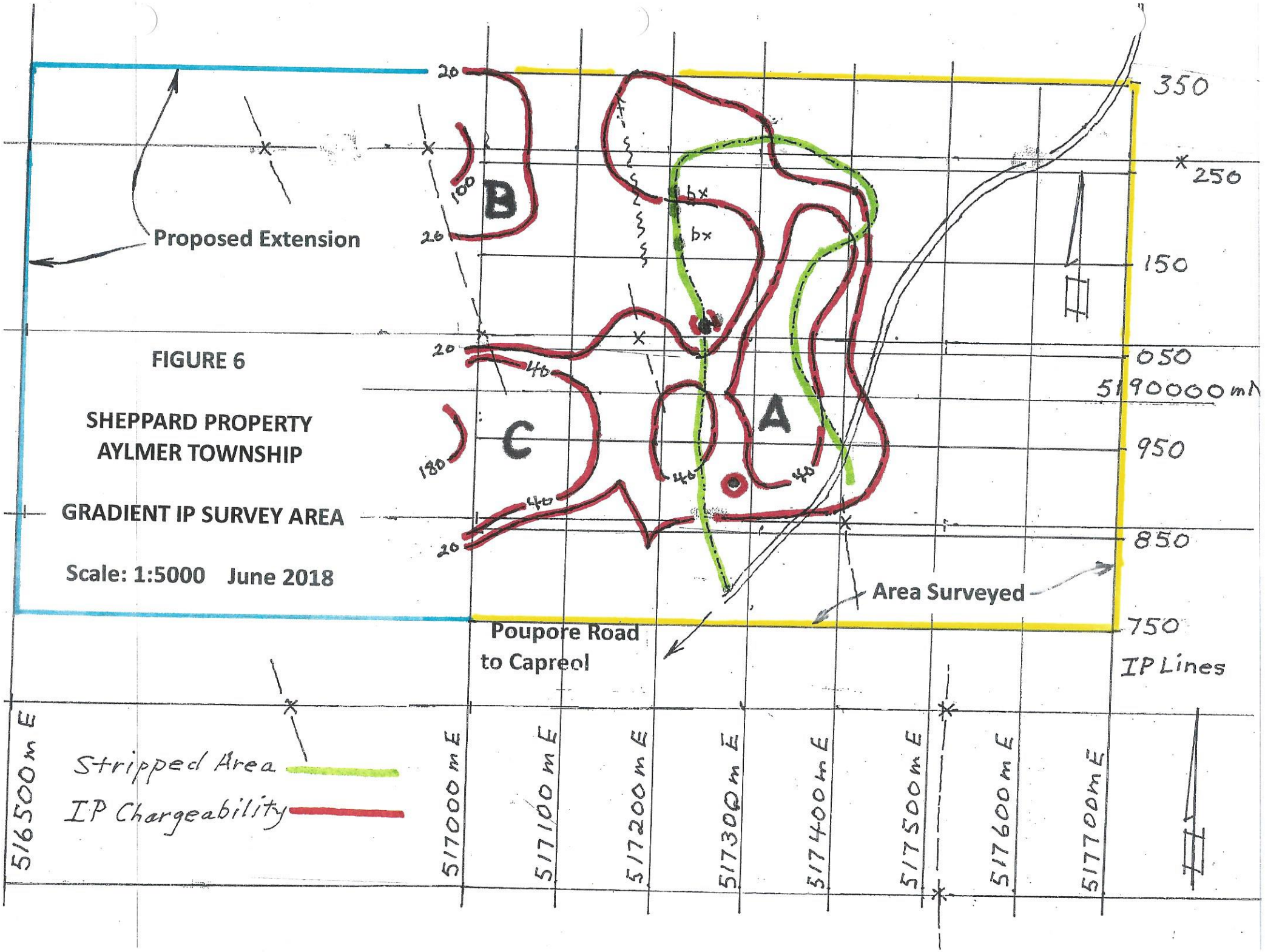
Anomaly A trends north-south, is approximately 350 m long and is in the order of 100 m wide. The maximum chargeability is 80 mV/V – 4X background. To the north, low anomalous values trend off to the north-west for approximately 200 m and on the south-west end of anomaly A, anomalous values about 200 m north-south trend to the west and form Anomaly C.

Anomaly C is open to the west and peak values are greater than 185 mV/V – 9X background.

Anomaly B lies in the north-west corner of the surveyed grid and shows maximum values of over 110 mV/V and is open to the west.

All three anomalies, A B and C show coincident resistivity lows (Figure 8), flanked by higher resistivities in an arcuate pattern to the north, east and south. In the west of the survey area, resistivity values are low.

In summary, three Gradient IP chargeability anomalies, A, B and C, with coincident resistivity lows have been identified. It is considered that these three anomalies represent 3 zones, well mineralized with sulphides, and that they represent drill targets of economic potential based on the copper and gold showings within the Quarry Zone which is coincident with Anomaly A (Figures 5 and 6).


Proposed Extension
FIGURE 6
SHEPPARD PROPERTY
AYLMER TOWNSHIP
GRADIENT IP SURVEY AREA
Scale: 1:5000 June 2018
Poupore Road
to Capreol
Area Surveyed
IP Lines
Stripped Area
IP Chargeability
A
B
C
bx
20
100
26
40
180
350
250
150
050
950
850
750
5190000mN
516500mE
517000mE
517100mE
517200mE
517300mE
517400mE
517500mE
517600mE
517700mE

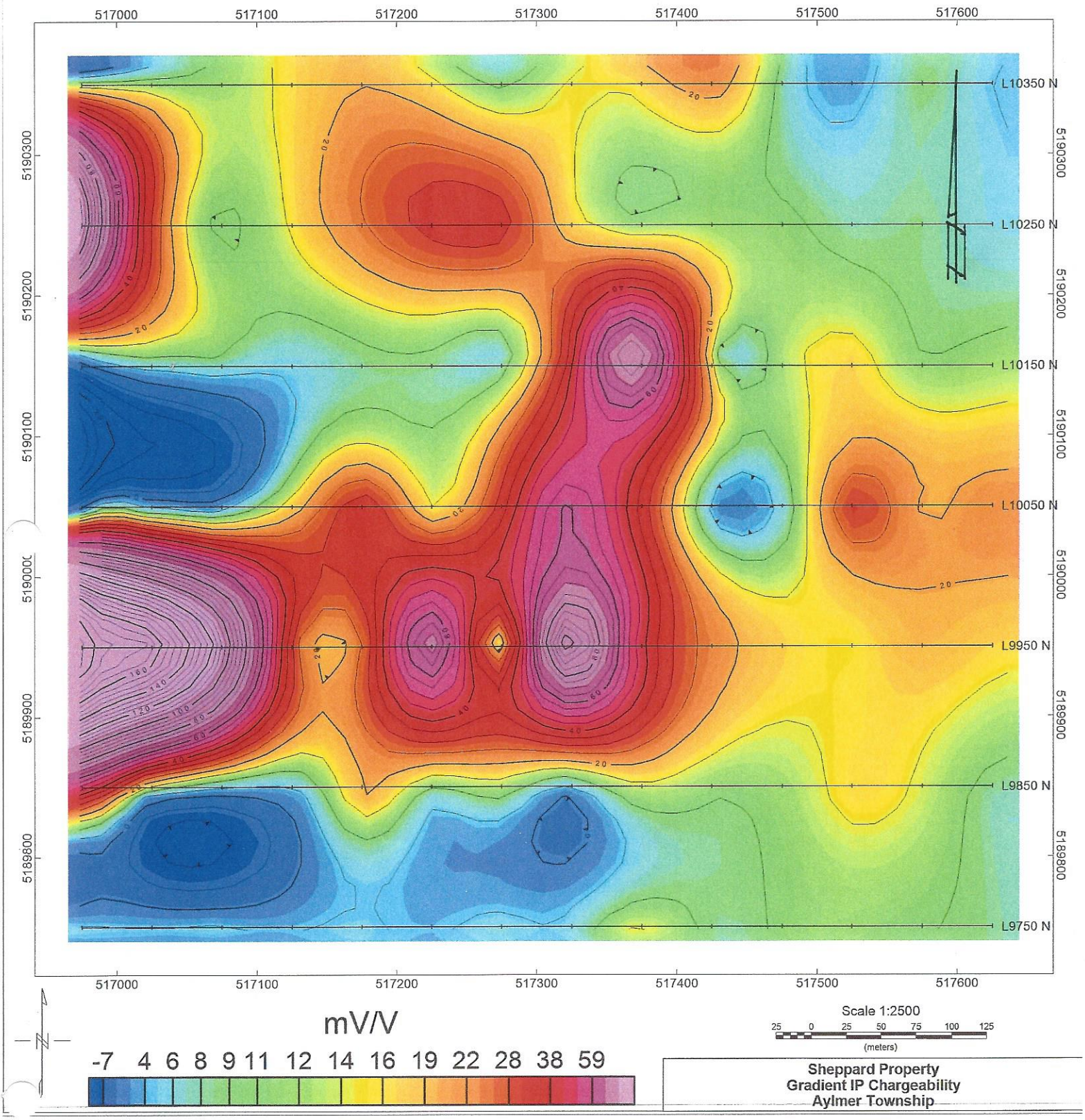


FIGURE 7 June 2018

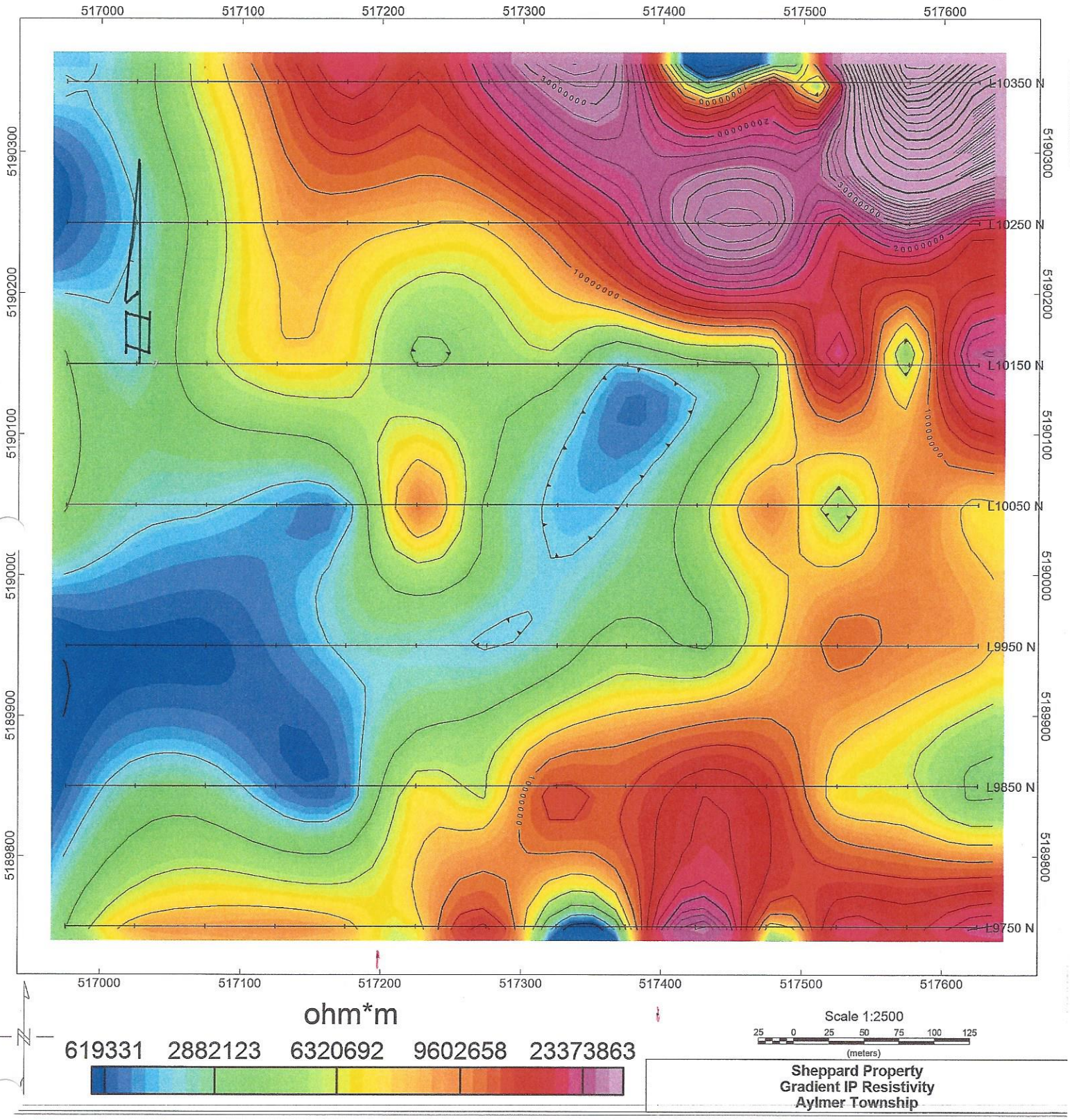


FIGURE 8 June 2018

10. Summary and Recommendations

Based on the positive results from this initial survey, and in particular the chargeability values reporting in Anomalies B and C which are both open to the west, it is recommended that the IP coverage on the 7 lines of the grid be extended 500 m to the west to UTM co-ordinate 516500 m E.

The estimated cost of this extension would be as follows:

1. 7 lines @ 500 m @ $1,500 per line km	$5,250.00
2. Mob and De-mob	1,000.00
3. Data	500.00
Subtotal:	$6,750.00
H.S.T. @ 13%	$880.00
Total:	$7,630.00

11. Gradient IP Survey Expenditures (2018)

1. 7 lines Gradient IP @ 700 m/line; 4.9 lines-km@ $1500/line-km	$7,350.00
2. Mob and De-mob, Meals, Accommodation	1,000.00
3. Data processing, maps etc.	500.00
Subtotal:	$8,850.00
HST @ 13%	$1,150.00
Total Expenditures:	**$10,000.50**

L.D.S. Winter, BASc, MSc(App)
6th of June, 2018

12. References

Dressler, B.O., 1980
Geology of the Wanapitei Lake Area, District of Sudbury, Ontario Geological Survey, Open File 5287

Gates, B.I., 1991
Sudbury Mineral Occurrence Study; Ontario Geological Survey, Open File Report 5771, 235 p.

Myer, W., 1995
Exploration Potential in the Sudbury Area; in Ontario Canada Explore the Opportunities, Mines and Minerals Division, Ontario Ministry of Northern Development and Mines, p. 16.

Schandl, E.S., Gorton, M.P. and Davis, D.W., 1994
Albitization of 1700 + 2 Ma in the Sudbury – Wanapitei Lake area, Ontario; implications for deep-seated alkali magmatism in the Southern Province; Can. J. Earth Sci., vol. 31, pp. 597-607

Smith, D., 2014
Site Visit, Delabbio Property, Aylmer Township, Ontario, Canada, 10 p., 3 Fig.

Winter, L.D.S., 2017 (a)
Soil Geochemical Survey, Sheppard Property, Aylmer Township, District of Sudbury, Ontario; 15 p., 6 Figures, 1 Appendix

Winter, L.D.S., 2017 (b)
Geological Mapping and Sampling Program, Sheppard Property, Aylmer Township, District of Sudbury, Ontario, 14 p., 9 Figures, 1 Appendix

Winter, L.D.S. 2017 (c)
Phase II Soil Geochemical Survey, Sheppard Property, Aylmer Township, District of Sudbury, Ontario, 15 p. 9 Fig., 1 Appendix

L.D.S. Winter
1849 Oriole Drive, Sudbury, ON P3E 2W5
(705) 560-6967
(705) 560-6997 (fax)
Email: winbourne@bellnet.ca

CERTIFICATE OF AUTHOR

1. I am currently an independent consulting geologist.

2. I graduated with a degree in Mining Engineering (B.A.Sc) from the University of Toronto in 1957. In addition, obtained a Master of Science (Applied) (M.Sc. App.) from McGill University, Montreal, QC.

3. I am a Member of the Geological Association of Canada, a Life Member of the Canadian Institute of Mining, a Life Member of the Prospectors and Developers Association of Canada

4. I have worked as a geologist for over 50 years since my graduation from University.

5. I am the author responsible for the preparation of the Report on the Gradient IP Quarry Zone, Sheppard Property, Aylmer Township, District of Sudbury, Ontario" and dated 6th of June, 2018.

Dated this 6th day of June, 2018

L.D.S. Winter,

APPENDIX I

INDUCED POLARIZATION (IP)

EQUIPMENT INFORMATION

SCINTREX
A DIVISION OF LRS

ELECTRICAL METHODS

IPR-12

Induced Polarization

WWW.SCINTREXLTD.COM

Setting the Standards

IPR-12 SPECIFICATIONS

The IPR-12 IP receiver has been successfully used for many years as a mineral exploration tool, specifically for gold exploration.

Induced polarization can also be used as a method for mapping hydrocarbon plumes and geotechnical applications.

Inputs:	1 to 8 dipoles are measured simultaneously.
Input Impedance:	16 MΩ
SP Bucking:	±10 volt range. Automatic linear correction operating on a cycle by cycle basis.
Input Voltage (Vp) Range:	50 µV to 14 V
Chargeability (M) Range:	0 to 300 mV/V
Tau Range:	60 microseconds to 2000 seconds.
Reading Resolution of Vp, SP and M:	Vp - 10 µV; SP - 1 mV; M - 0.01 mV/V
Absolute Accuracy of Vp, Sp and M:	Better than 1%
Common Mode Rejection:	At input more than 100dB.
Vp Integration Time:	10% to 80% of the current on time.
IP Transient Program:	Pulse selectable at 1,2,4,8,16 or 32 seconds. Programmable windows also available. 50% duty cycle.
Transmitter Timing:	On/off times of 1,2,4,8,16 or 32 seconds.
External Circuit Test:	All dipoles measured individually in sequence. Range 0 to 2 MΩ with 0.1 kΩ resolution. Circuit resistances displayed and recorded.
Filtering:	RF filter, 10 Hz 6 pole low pass filter, statistical noise spike removal.
Internal Test Generator:	1200 mV of SP; 807 mV of Vp and 30.28 mV/V of M.
Analog Meter:	For monitoring input signals; switchable to any dipole via keyboard.
Memory Capacity:	Stores approximately 400 dipoles of information when 8 dipoles are measured simultaneously.
Power Supply:	Rechargeable Ni-Cad D cells. More than 20 hours service at +25°C. (77°F), more than 8 hours at -30°C (-22°F)
Operating Temperature:	-30°C to +50°C (-22°F to 122°F)
Dimensions and Weights:	Console: 355 x 270 x 165 mm (14" x 10.6" x 6.5")
	Charger: 120 x 95 x 55 mm (4.7" x 3.7" x 2")
	Console: 5.8 kg (12.8 lbs.)
	Batteries: 1.3 kg (2.8 lbs.)
	Charger: 1.1 kg (2.4 lbs.)

OPTIONS

Transmitters
Software Packages
Training Program

ISO 9001:2000 registered company. All specifications are subject to change without notice.

Specification Sheet Part Number 745711 Revision 0

SCINTREX

CANADA
Scintrex
222 Snidercroft Road
Concord, Ontario L4K 2K1
Telephone: +1 905 669 2280
Fax: +1 905 669 6403
e-mail: scintrex@scintrexltd.com
Website: www.scintrex.com

MICRO g LACOSTE

USA
Micro-g LaCoste
1401 Horizon Avenue
Lafayette, CO 80026
Telephone: +1 303 828 3499
Fax: +1 303 828 3288
e-mail: info@microglacoste.com
Website: www.microglacoste.com

WALCER GEOPHYSICS LTD.

TRANSMITTERS
MOTOR GENERATORS
GEOREELS
SPEEDWINDERS
ELECTRODES
WIRE

RENTALS
MAINTENANCE

CONTACT US

Walcer Model TX KW10

Voltage Input
125V line to neutral
400 Hz / 3 phase
Powered by MG12, MG6 and MG12A

Output
100 - 3200V in 10 steps
0.05 - 20 Amps
Tested to 10.5 kVA

Switching
1 sec., 2 sec., 4 sec., 8 sec.

Metering
LED for line voltage
and output current

Size
63cm. x 54cm. x 25cm.

Weight
44 kg.

Contact Webmaster at webmaster@walcergeophysics.com

WALCER GEOPHYSICS LTD.

TRANSMITTERS
MOTOR GENERATORS
GEOREELS
SPEEDWINDERS
ELECTRODES
WIRE

RENTALS
MAINTENANCE

CONTACT US

Gasoline Tank
External - to minimize
shipping problems with airlines

MG-12A

Output
Self Excite / Regulated
120 / 220V AC
20 KVA Max
400 Hz / 3 phase

Generator
Bendix Aircraft Type
Very durable
Forced Air Cooled

Engine
24 HP Honda
Electric Start

Size
79cm. x 61cm. x 48cm.

Weight
89 kg.

Contact Webmaster at webmaster@walcergeophysics.com