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**2017 GEOLOGICAL ASSESMENT REPORT  
ON THE  
CLEMENT PROPERTY**

CLEMENT AND MACBETH TOWNSHIPS  
SUDBURY MINING DIVISION, ONTARIO, CANADA

**RANDY STEWART BSc**

213 Kingsmount Blvd,  
Sudbury, ON  
P3E 1L1

**BRIAN WRIGHT**

92 Main St,  
Markstay, ON  
P0M 2G0

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## TABLE OF CONTENTS

EXECUTIVE SUMMARY .....	4
1.0 INTRODUCTION .....	6
2.0 PROPERTY DETAILS .....	6
2.1 Location and Access.....	6
2.2 Topography and Vegetation.....	6
2.3 Claims.....	7
3.0 PREVIOUS WORK .....	8
4.0 GEOLOGY .....	17
4.1 Regional Geology.....	17
4.2 Property Geology .....	21
4.2.1 Alteration and Mineralization.....	23
5.0 2017 PROGRAM .....	27
5.1 Methods.....	27
6.0 RESULTS AND CONCLUSIONS .....	27
7.0 RECOMMENDATIONS .....	29
8.0 REFERENCES.....	34

## LIST OF FIGURES

Figure 1: Location of the Clement Property in Ontario, Canada .....	7
Figure 2: Tenure of the Clement Property, MacBeth and Clement Townships, Ontario..	9
Figure 3: Anomaly Areas of Special Interest.....	16
Figure 4: Regional Geology.....	18
Figure 5: Property Geology.....	22
Figure 6: CL11-03 Cross Section .....	28
Figure 7: Gold Zone Projection with VTEM and Mag Anomalies.....	29
Figure 8: CL11-04 and CL11-05 Cross Sections .....	32

## LIST OF TABLES

Table 1: Claim Summary of the Clement Property.....	8
Table 2: GeoTech Ltd. VTEM Anomalies.....	15
Table 3: Anomaly Areas of Special Interest .....	16
Table 4: 2011 Diamond Drill Holes .....	17
Table 5: Sample Descriptions .....	31

## LIST OF PHOTOS

Photo 1: Historical Adit (Location 554238E, 5186273N).....	10
Photo 2: Chert-Magnetite Iron Formation .....	19
Photo 3: Felsic Lapilli/Crystal Ash Tuff.....	24
Photo 4: Intermediate to Felsic Metavolcanic Breccia.....	25
Photo 5: Intermediate to Felsic Metavolcanic Breccia .....	26
Photo 6: Laminated/Bedded Arkose.....	26
Photo 7: Sulphide Mineralized Feldspar Porphyritic Intermediate to Felsic Metavolcanic .....	30

**APPENDICES**

Appendix I            Statement of Qualifications

**MAPS**

Geology of the Clement Property (Arcand Lake Grid) (1:5,000)        .....Back Pocket

Geological Legend of the Clement Property        .....Back Pocket

Geology of the Clement Property (1:5,000) .....Back Pocket



## **EXECUTIVE SUMMARY**

This is a technical report for assessment purposes on the recently completed 2017 line cutting, geological mapping and sampling program on the Clement property in Clement and MacBeth Townships. All work was performed by Randy Stewart, BSc and Brian Wright, technologist.

The Clement property is located 130 km northeast of Sudbury, Ontario within Clement and MacBeth Townships in the Sudbury Mining Division. The property is bounded by UTM NAD83 coordinates 17U 550434E to 555243E and 5188816N to 5185595N. The property consists of 5 contiguous unpatented mining claims containing 75 units and covers an area of approximately 1,200 Ha.

In the summer of 2017, a program of line cutting, geological mapping and sampling was completed on the Clement property. The 2017 program entailed 10.45 kms of line cutting performed between May 10<sup>th</sup> and June 3<sup>rd</sup>. The 22-day geological grid mapping and sampling program occurred between June 14<sup>th</sup> and October 4<sup>th</sup>, 2017.

The 2017 program's focus was to delineate the eastern and surficial expression of the gold zone outlined in the 2011 diamond drill hole CL11-03.

The 2017 program has outlined several significant areas of interest that warrant future work.

1. Gold Zone Extension: The recent grid mapping program has identified a possible eastern surficial expression of the gold zone alteration envelope in sample WP1652.
2. The Adit Quartz Vein: The 2017 program has identified a historic adit on a quartz vein hosted in sheared Nipissing gabbro.

3. Stringer Sulphide Pits: East of Arcand Lake the iron formation is interbedded with black aphanitic massive carbonaceous argillite that is locally sulphide mineralized with several historic pits.

Also, the program has outlined several structures that form the Nipissing gabbro contacts and has better defined the metavolcanic/metasedimentary sequence in the grid area.

A total of 12 samples were collected in the 2017 program. The analytical results for these samples will be reported in a separate assessment report.

## **1.0 INTRODUCTION**

The Clement property is located 130 km northeast of Sudbury, Ontario within Clement and MacBeth townships in the Sudbury Mining Division. The property is bounded by UTM NAD83 coordinates 17U 550434E to 555243E and 5188816N to 5185595N. The property consists of 5 contiguous staked mining claims containing 75 units covering an area of approximately 1,200 Ha.

The 2017 program entailed 10.45 kms of line cutting performed between May 10<sup>th</sup> and June 3<sup>rd</sup>. The 22-day geological grid mapping and sampling program occurred between June 14<sup>th</sup> and October 4<sup>th</sup>, 2017. This work forms the basis of this report.

## **2.0 PROPERTY DETAILS**

### **2.1 Location and Access**

The property is located 130 km northeast of Sudbury, Ontario within Clement and MacBeth Townships in the Sudbury Mining Division (Figure 1). The property is bounded by UTM NAD83 coordinates 17U 550434E to 555243E and 5188816N to 5185595N.

Excellent year-round access to the property is provided by Highway 17 East from Sudbury to the town of Warren and then north onto highways 539, 539a and 805.

A full range of services and supplies are provided in the city of Sudbury located 130 km to the southwest. Local accommodations can be found at lodges located along Highway 805.

### **2.2 Topography and Vegetation**

The local terrain is typical of the Precambrian Shield, with low rolling hills and marshy areas. Vegetation on higher ground consists of a variety of hardwoods such as poplar and birch, with coniferous trees that include spruce, balsam and pine. In the lower ground, typically more wet in character, black spruce, tamarack, alder and cedar predominate. Water for exploration purposes is available from beaver ponds, marshes, small streams and lakes. Snowfall generally

begins in November and extends into late March, early April. Lakes are usually passable with adequate ice thickness from late December through to late March. Between 50 and 100 mm of monthly rainfall is normal from April to October. The mean temperature is  $-13^{\circ}\text{C}$  in January and  $19^{\circ}\text{C}$  in July.



Figure 1: Location of the Clement Property in Ontario, Canada

### 2.3 Claims

The property is located 130 km northeast of Sudbury, Ontario within Clement and MacBeth Townships in the Sudbury Mining Division. The property is bounded by UTM NAD83 coordinates 17U 550434E to 555243E and 5188816N to 5185595N. The property consists of 5 contiguous staked mining claims containing 75 units and covers an area of approximately 1,200

Ha (Table 1, Figure 2). The claims are held by Brian James Wright (60%), client number 210254 and Randy Irwin Stewart (40%), client number 408174.

Table 1: Claim Summary of the Clement Property.

Township	Claim Number	Recording Date	Due Date	Work Required	Total Applied	Total Reserve	Units	Ha
CLEMENT	4206133	2006-Jun-30	2018-Jun-30	\$4,800	\$48,000	\$0	12	192
CLEMENT	4206164	2006-Jun-30	2018-Jun-30	\$6,400	\$64,000	\$0	16	256
MACBETH	4206167	2006-Jun-30	2017-Oct-31	\$6,400	\$57,600	\$0	16	256
MACBETH	4206196	2006-Jun-30	2017-Oct-31	\$6,000	\$54,000	\$1,000	15	240
MACBETH	4229379	2010-May-12	2017-Oct-31	\$6,400	\$32,000	\$0	16	256
<b>Totals</b>				<b>\$30,000</b>	<b>\$255,600</b>	<b>\$1,000</b>	<b>75</b>	<b>1200</b>

### 3.0 PREVIOUS WORK

**1897:** Gold was first discovered in weathered iron formation on the northernmost peninsula of Emerald Lake in Afton Township.

**1901:** Miller visited an adit east of Arcand Lake then known as the Turcotte mine. The adit was in a 5-foot quartz vein that returned anomalous Cu values. The 2017 program located the adit at 554238E, 5186273N (Photo 1).

**1935-1941:** The Consolidated Mining and Smelting Company of Canada Limited carried out extensive surface and underground exploration and development on the gold discovered in Afton Township. This became the Golden Rose /New Golden Rose Mine and produced a total of 45,360 ounces of gold and 8,296 ounces of silver from 144,237 tons milled for a recovery grade of 0.31 oz./t Au. Gold is present in pyrite within quartz-carbonate veins in Archean magnetite-chert iron formation (Meyn,1977).

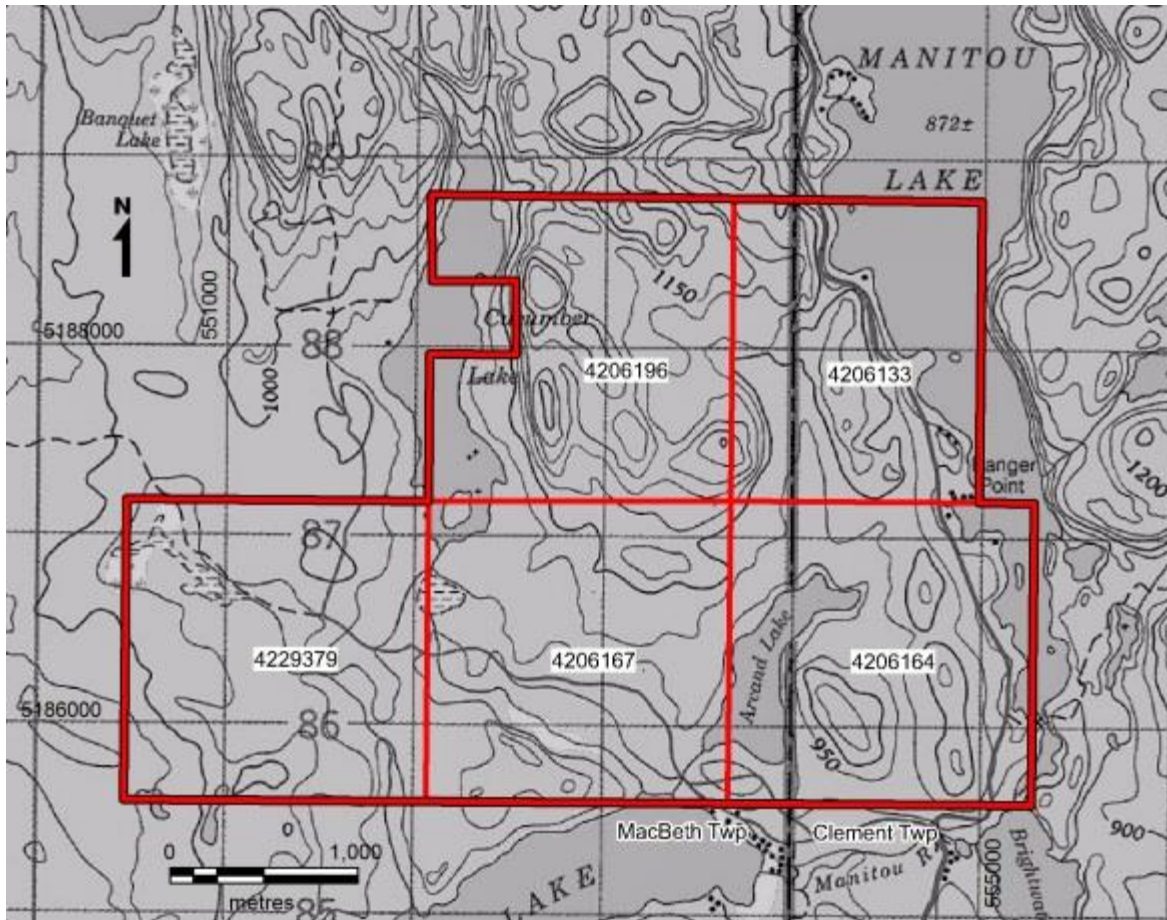


Figure 2: Tenure of the Clement Property, MacBeth and Clement Townships, Ontario.

**1958 – 1959: W.H. Nichol** optioned his group of seventeen claims to Little Long Lac Gold Mines Ltd. The claims were located on the eastern side of Cucumber Lake, on the eastern side of Arcand Lake and on Manitou Lake just east of the northern tip of Arcand Lake. Eight trenches and five diamond drill holes (210 feet) tested a quartz vein over a 210-foot strike length (the A showing) hosted in porphyritic andesite on the shore of Cucumber Lake. One trench sample returned 1.76 oz./t Au. This showing is now located on the present Anderson claim 4258541 adjacent to the Clement property. At the northern tip of Arcand Lake, five diamond drill holes totaling 1007 feet tested the iron formation. Another 82-foot hole was drilled south to north. This hole tested the iron formation but the exact location is not known. Trenching the B showing in iron formation was performed near the south- eastern tip of Cucumber Lake.





Photo 1: Historical Adit (Location 554238E, 5186273N)

A sample of siliceous iron formation returned 0.28 oz./t Au. Trenching was also performed on their C showing at the south-eastern corner of Arcand Lake. Two holes were drilled close to the western shore of Lake Manitou totaling 685 feet testing the Nipissing/Gowganda contact. These holes encountered localized chalcopyrite and pyrrhotite mineralization in both the sediments and the gabbro but returned no significant values.

**1968: Kennco Explorations (Canada) Ltd.** performed airborne magnetic and electromagnetic surveys over the southwest corner of Clement Township and the southern third of Macbeth Township in search for copper in the Nipissing gabbro. No follow-up work was reported.

**1974-1976: Pelican Mines Ltd.** performed geological mapping, ground magnetics and EM surveys and four diamond drill holes totaling 1403 feet. The drilling concentrated on the iron formation and returned no significant values. The surveys were performed between the creek running out of the southern tip of Cucumber Lake and extending to the western edge of Arcand Lake. A grab sample from a large piece of quartz float and underlain by the large olivine diabase dike returned a gold content of 0.15 oz./t Au (now located on claim 4206167).

**1975: M. Green and Associates Ltd. (Hames, C.M.)** performed a ground magnetic survey encompassing Arcand Lake to the western shore of Lake Manitou. The magnetic survey outlined the iron formation previously recognized by Nichol at the south shore in the northern bend of Arcand Lake. The magnetic survey also outlined a mafic dike in the middle of the southern portion of the claim group and corresponds to an outcrop mapped by Meyn in 1977. Also, a quartz vein and trenching was noted on the large hill just east of Arcand Lake (most likely the Adit quartz vein).

**1977: H.D. Meyn** of the OGS mapped the townships of Afton, Scholes, Macbeth and Clement Townships.

**1976 -1995:** Temagami Land Caution, no work performed.



**1996: Brian Wright**, in the staking rush that followed the lifting of the Temagami Land Caution, staked the first claims that would become the present day Clement property.

**1998: Nipissing Exploration Services Limited** cut 22.6 km of grid lines and performed a ground magnetic survey over claims that mirrored M. Green and Associates Ltd. Arcand Lake claims (present claim 4206164). The survey outlined the previously known iron formation and a NE trending mafic dike. Just south of the iron formation prospecting uncovered pits of mineralized quartz veining. Anomalous gold values were mentioned but no assays were reported.

**1998: Temex Resources** performed a ground magnetic and VLF-EM survey on the southern portions of present claims 4229379 and 4206167. The survey outlined two northwest trending diabase dikes.

**1998-2000: Steve and Ted Anderson** performed work on their claims surrounding Cucumber Lake including the quartz veins of the Nichol (A) showing (present claim 4258541). The work performed was a ground magnetic and VLF survey and sampling of the old Nichol (A) showing trenches. This sampling returned 23.45 g/t Au in quartz and anomalous values in the host metavolcanics. The magnetic survey outlined a north-west trending diabase dike.

**2008: GoldTrain Resources/GoldWright Explorations Inc.** (Brian Wright option) completed 13 kms of line cutting, ground magnetic and VLF surveys, and geological mapping around the northern tip of Arcand Lake. A total of 28 samples were assayed for gold however no significant results were obtained.

**2010: GoldTrain Resources** contracted Geotech Ltd. to carry out a helicopter-borne VTEM and aeromagnetic survey over the Clement property. Several significant VTEM anomalies (Table 2) and magnetic signatures were identified. An EMIT Maxwell Plate Modelling of selected VTEM anomalies outlined 3 areas of interest (Figure 3 and Table 3). Between March 23 and March 26, 2010, GoldTrain undertook a bedrock stripping, sampling and geological mapping program of the C anomaly area. Huronian cover rocks

impeded any explanation of the anomaly. Between May and July 2010, a 35-day reconnaissance geological mapping and sampling program was also undertaken. A total of 28 grab and 19 channel samples were collected. No significant values were returned.

**2011: GoldTrain Resources** completed five diamond drill holes totaling 564.5 m (Table 4) on several of the VTEM conductors modelled by Geotech Ltd. (Table 3). Holes CL11-01 and CL11-02 intersected disseminated and stringer sulphide mineralization consisting of pyrite, pyrrhotite, and chalcopyrite. Hole CL11-03 outlined a newly discovered gold zone in altered mafic volcanics (0.4 g/t over 9 m including 2.95 g/t over 0.5 m and 1.06 g/t over 0.5 m). Holes CL11-04 and CL11-05 outlined massive sulphide and chert horizons with locally anomalous Cu, Zn, Au and Ag.

**2014: Randy Stewart and Brian Wright** completed a reconnaissance geological mapping, prospecting and sampling program. The 2014 program outlined a major N-S structure not previously recognized and following the trend of Arcand Lake. Sampling concentrated on alteration, mineralization and select VTEM target locations. The most notable sample (WP568) is a rusty quartz vein with 0.5% disseminated sulphides. The 80cm wide vein is hosted within a gossanous and siliceous intermediate to felsic metavolcanic (locally feldspar porphyritic) with 1-2% blebby, finely disseminated and fracture filling sulphides. The vein has a 345-degree strike and a vertical dip. Also of note was sulphide mineralization in a mafic dike now known as the Ditch Showing (sample WP465). A total of 19 samples were collected and analytical results are still pending.

**2015: Randy Stewart and Brian Wright** completed a reconnaissance geological mapping, prospecting and sampling program.

The 2015 program:

- 1) increased the understanding of the volcanic stratigraphy by the recognition of a metavolcanic breccia at the north-west corner of claim 4229379 and a felsic to intermediate lapilli/crystal ash tuff located at sample WP886.

- 2) defined and subdivided the southern Archean metasedimentary package to allow for contacts to be drawn.
- 3) outlined a NE-SW trending mafic dike on claim 4206164, aided by historical geophysical surveys and one outcrop on Meyn's 1977 map.
- 4) remapped the Quartz Vein showing of 2014. The 80-cm wide rusty quartz vein (with 0.5% disseminated sulphides) is hosted within a gossanous and siliceous intermediate to felsic feldspar porphyritic metavolcanic with 1-5% blebby, finely disseminated and fracture filling sulphides (samples WP567, WP568 and WP877). The vein has a 345-degree strike and a vertical dip. This program has shown that this bears a striking resemblance to the Anderson/Nichol (A) showing (trench sample of 23.45 g/t Au) on the shore of Cucumber Lake.

15 samples were taken during the program and analytical results are still pending.

**2016: Trelawney Mining and Exploration/ IAM Gold** completed a 2-day re-logging and sampling program of diamond drill hole CL11-03. This program did not locate any new gold zones outside the already known gold zone in diamond drill hole CL11-03.

Table 2: GeoTech Ltd. VTEM Anomalies

Easting	Northing	Elev	DEM	Lines	Anom	AnCon SF	AnCon BF	AnTau SF	AnTau BF	Strike	Dip
552392.2	5185995.7	343.9	272.1	1020	A	0.37	27.16	0.02	1.46	*	*
552546.1	5185942.3	362.8	291	1030	A	0.92	44.98	0.05	2.42	*	*
552692.8	5185802.8	367.9	294.4	1040	A	1.79	3.32	0.1	0.18	*	*
552843.5	5185686.9	362.9	292.7	1050	A	1.15	0.98	0.06	0.05	*	*
552993.9	5187292.3	397.6	325.1	1060	A	8.91	49.44	0.48	2.66	*	*
553141.2	5187386.4	438	361.2	1070	A	13.82	72.92	0.74	3.92	*	*
553139.8	5187229.7	414.6	331	1070	B	25.07	95.92	1.35	5.16	*	*
553295.8	5187187.8	403.7	327	1080	A	46.69	76.97	2.51	4.14	270	85
553298.6	5187494.1	444.4	369.9	1080	B	12.29	66.68	0.66	3.58	*	*
553441.7	5187576.9	411.5	332.2	1090	A	11.8	79.73	0.63	4.29	*	*
553441.7	5187436.1	428	353.2	1090	B	14.7	78.1	0.79	4.2	*	*
553440.2	5187171.9	409.1	328.6	1090	C	38.37	82.73	2.06	4.45	*	*
553598	5186991	382.9	308.9	1100	A	28.98	73.43	1.56	3.95	*	*
553596.3	5187122.6	398.5	327.5	1100	B	16.43	67.57	0.88	3.63	*	*
553596.1	5187678.2	420	343.1	1100	C	24.11	68.8	1.3	3.7	*	*
553740.5	5187666.3	428.5	347.7	1110	A	35.65	80.38	1.92	4.32	*	*
553742.9	5187016.9	377.4	297.8	1110	B	43.34	57.11	2.33	3.07	270	83
553899.2	5187002.5	369.6	287.9	1120	A	10.52	17.28	0.57	0.93	*	*
553893.5	5187672	381.9	302.8	1120	B	49.84	71.61	2.68	3.85	270	90
554044.3	5187672.2	365.6	288.6	1130	A	36.85	66.21	1.98	3.56	270	81
554195.9	5187660	391.2	317.3	1140	A	1.63	17.29	0.09	0.93	270	89
554793.9	5187196.4	350.3	278.1	1180	A	4.24	79.46	0.23	4.27	*	*
554794.3	5187537.9	351.8	281	1180	B	22.51	89.87	1.21	4.83	*	*
554794	5187636.5	349	275.7	1180	C	15.15	25.4	0.81	1.37	*	*
554943.2	5187262.4	348.9	276.1	1191	A	32.36	80.41	1.74	4.32	*	*
554942.8	5187354.6	351.2	275.7	1191	B	47.03	122.1	2.53	6.56	*	*
554941.6	5187522.5	347.7	275.4	1191	C	14.41	39.39	0.77	2.12	*	*
555102.9	5186992.1	363.6	277.1	1201	A	10.13	15.51	0.54	0.83	*	*
555241.9	5186061.8	356.3	274.3	1210	A	7.71	7.23	0.41	0.39	*	*
557642.4	5187759.6	423.9	347.9	1370	A	10.05	7.16	0.54	0.39	*	*
558391.5	5187421	458.8	382.7	1420	A	0.37	0.56	0.02	0.03	*	*
559142.5	5185615.3	383.1	295.6	1470	A	4.93	16.53	0.27	0.89	*	*
553279.1	5186957.6	401	323	2920	A	6.7	95.57	0.36	5.14	*	*
553755.6	5186954.8	376.1	288.3	2920	B	41.77	58.07	2.25	3.12	*	*
555104.4	5186957.8	358.1	278	2920	C	5.52	16.69	0.3	0.9	*	*
559180.7	5185657.3	405.8	297.9	2930	A	0.39	1.51	0.02	0.08	*	*

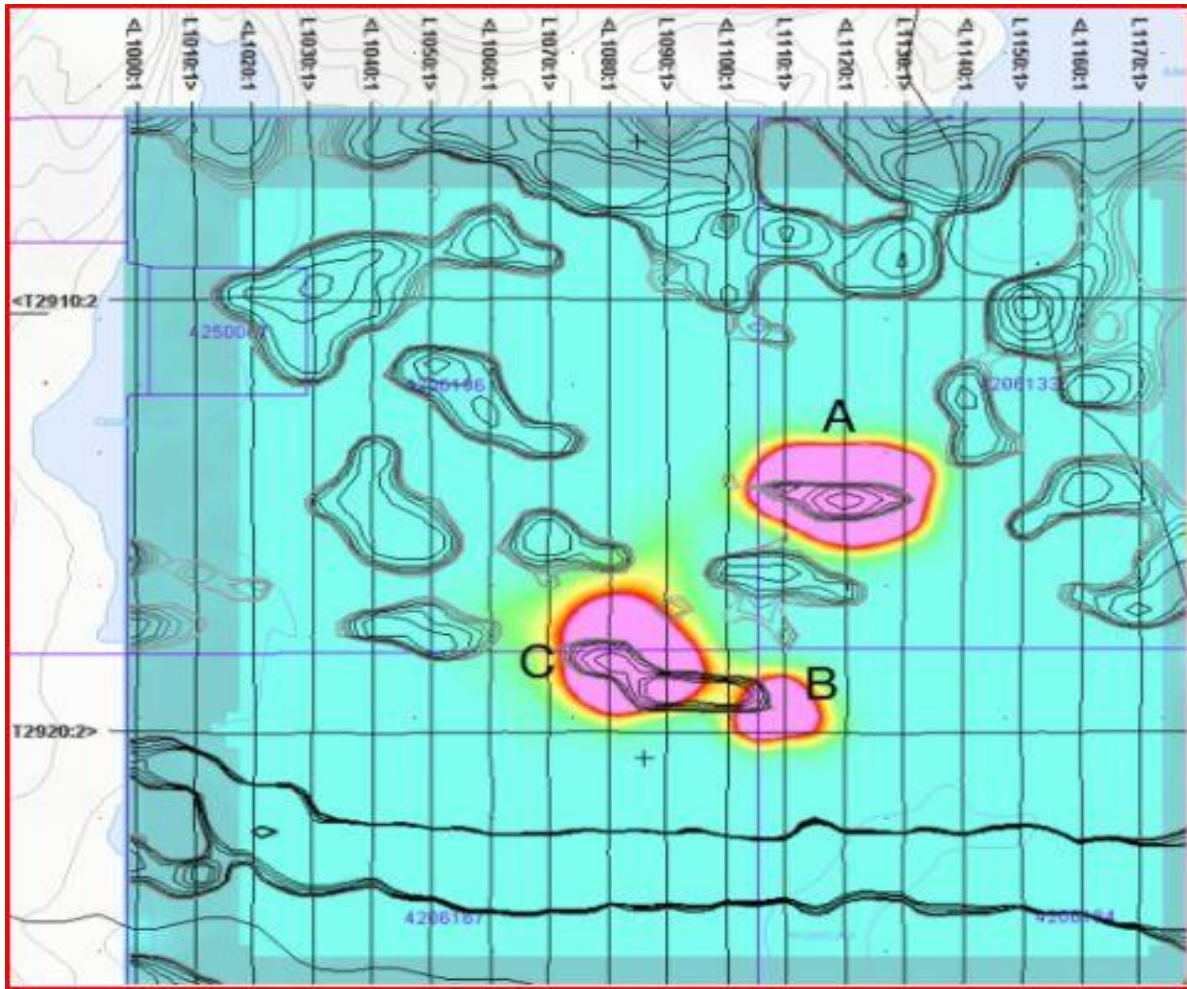


Figure 3: Anomaly Areas of Special Interest

Table 3: Anomaly Areas of Special Interest

Target	Line	Depth to Top	Recommendation	Action Taken
A	1130	20m	2 holes	none
A	1120	23m	2 holes	Diamond Drill Holes: CL11-04, CL11-05
A	1110	65m	1 hole	none
B	1110	40m	1 hole	Diamond Drill Hole: CL11-03
C	1080	50m	1 hole	Outcrop Stripping and Diamond Drill Holes: CL11-01, CL11-02

Table 4: 2011 Diamond Drill Holes

Hole	Easting	Northing	Azimuth	Dip	Depth (m)	Claim
CL11-01	553296	5187145	12.5	-45	75.0	4206167
CL11-02	553296	5187145	12.5	-75	174.0	4206167
CL11-03	553762	5187059	195	-60	135.0	4206164
CL11-04	553890	5187700	180	-45	79.5	4206133
CL11-05	553883	5187745	180	-45	100.0	4206133

## 4.0 GEOLOGY

### 4.1 Regional Geology

Regionally, the Clement property is located within the Temagami greenstone belt part of the Western Abitibi Sub province (Figure 4). The greenstone belt is an Archean window within the Cobalt embayment of the Southern Province (Jackson and Fyon, 1991). The area is underlain by a sequence of Early Precambrian metavolcanic and metasedimentary rocks locally interbedded with chert-magnetite (Photo 2) and sulphide iron formation. The iron formation has been traced in outcrop and historical diamond drilling from the north-east corner of claim 4229379 to just east of Arcand Lake where it becomes covered by Nipissing gabbro. Airborne magnetic surveys suggest the iron formation continues to the east and is coincident with the iron formation in Vogt township. The entire sequence has been classified as the Porcupine Assemblage (2690-2685 Ma +/- 5 Ma) from age dating by Ayer et al., 2006. The Porcupine Assemblage is host to Lake Shore Gold's (Tahoe Resources Inc.) Timmins West Mine situated in Bristol and Carscallen Townships. The mine has a total of 1,230,972 contained ounces of gold with a grade of 5.2 g/t Au.

In turn, the Porcupine Assemblage is overlain unconformably by Early Proterozoic Huronian Supergroup sedimentary rocks of the Gowganda Formation. The Huronian Supergroup was deposited between 2.45 and 2.22 Ga, and reflects the initiation and development of a continental margin from an early transform margin (marked by left-lateral strike-slip activity), to a passive margin, facing a newly formed Paleoproterozoic ocean (Long, 2009). The Gowganda

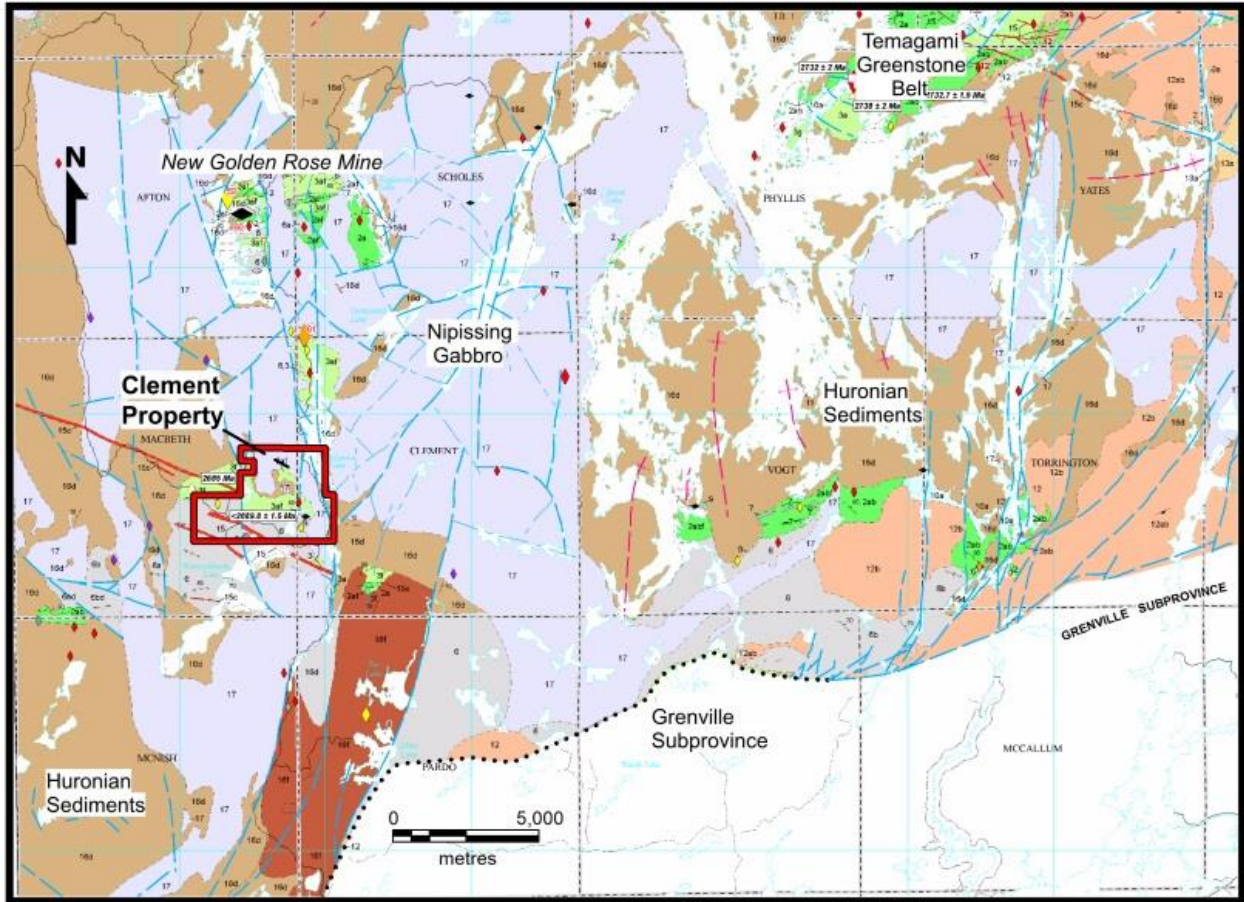


Figure 4: Regional Geology (after Ayer et al., 2006)

Formation is characterized by a heterogeneous sequence of framework and matrix supported conglomerate (including diamictites), sandstone, siltstone and mudstone with marked vertical and lateral facies changes. Regionally, matrix-supported conglomerates and laminated mudstones with dropstones are more abundant at the base of the sequence (Long, 2009). The conglomerate units have been interpreted as being glaciogenic in origin (e.g. Junnila and Young 1995, Fralick and Miall 1989), likely deposited in a marine environment adjacent to an ice shelf.

The Nipissing gabbro (after Jobin-Bevans, 2009) intrudes the supracrustal rocks of the Huronian Supergroup, as well as the underlying Archean granite-greenstone basement rocks. U-Pb geochronology has yielded crystallization ages of approximately 2200 Ma (2219 Ma, Corfu and





Photo 2: Chert-Magnetite Iron Formation



Andrews 1986; 2212 Ma, Conrod 1989; 2210 Ma, Noble and Lightfoot 1992). Most of Nipissing gabbro intrusions are less than 1000 m thick and occur as roughly horizontal sheets, as undulating sills (basins and arches) or as subvertical dikes (Hriskevich 1968; Jambor 1971; Conrod 1988, 1989). Disseminated to massive Cu-Ni-PGE sulphide mineralization, in these types of intrusions, is concentrated within the basin or limb portions, whereas pods of dominantly massive pyrrhotite occur within the arches. Much of the mineralization is associated with an orthopyroxene gabbro unit which is, in general, greater than 100 m in thickness (Lightfoot and Naldrett 1996; Jobin-Bevans et al. 1998, 1999). Arcuate and open-ring exposures of Nipissing gabbro, described by Buchan et al. (1989) as cone sheets, comprise a third form of intrusion. These forms are distinguished by structural features in surrounding sedimentary rocks that suggest the gabbro intrusions were emplaced as shallow (< 50°), inward-dipping, cone-shaped bodies that are tens of metres to several hundred metres thick (Jambor 1971; Lovell and Caine 1970; Jobin-Bevans et al. 1998). These types of intrusions contain disseminated and blebby sulphides hosted in orthopyroxene gabbro, occurring within a few hundred metres of the basal contact of the intrusions. The fourth type of intrusion, the lopolithic-like form (i.e., saucer-shaped), is rare and is interpreted to represent deeper “feeder” systems to the stratigraphically higher sill, dike and cone-sheet type of intrusions. These deeper exposures, which are fault bound on a regional scale, are thought to have been exposed through uplift along the bounding fault lines (Dressler 1979; Innes and Colvine 1984; Jobin-Bevans et al. 1998). In the lopolithic-like form, disseminated, semi-massive and massive sulphide mineralization is hosted by orthopyroxene gabbro within tens of metres of the footwall sedimentary rocks, and within topographic irregularities along the footwall contact. Rocks from the intrusions are dominantly tholeiitic and sub-alkalic, with evolved rock types and differentiated intrusions trending toward calc-alkalic affinities (Lightfoot and Naldrett 1996). Based on geochemical characteristics and outcrop patterns, the Nipissing Gabbro represents the intrusive portion of an eroded continental flood basalt. Magmas apparently cut through Archean basement rocks and sedimentary rocks of the Huronian Supergroup as dikes, then spread laterally through the Huronian rocks as sills (Lightfoot et al. 1986, 1987; Lightfoot and Naldrett 1996).

Late olivine diabase and diabase dikes (Sudbury dike swarm 1238 +/- 4 Ma) following NW-SE structures are the youngest rocks in the area (Osmani, 1991). Also,

several major structural trends are defined by north-south trending faults that include the Cucumber Lake Fault, Manitou Lake Fault (Meyn, 1977) and the recently identified Arcand Lake Faults. The property also lies on the southern edge of the Temagami (Wanapetoi) magnetic anomaly that represents a mirror image of the prolific Sudbury structure.

## 4.2 Property Geology

The entire Archean metavolcanic/metasedimentary sequence of rocks on the property has an approximate trend of 275 to 280 degrees and a dip of 70 to 75 degrees northward. The most pronounced feature on the property is an E-W trending band of intermittent beds of Archean iron formation (Figure 5). The iron formation has been traced in outcrop and historical diamond drilling from the north-east corner of claim 4229379 to just east of Arcand Lake where it becomes covered by Nipissing gabbro. The iron formation is a banded sequence of chert and magnetite (Photo 2) with localized pyrite, pyrrhotite and trace chalcopyrite. East of Arcand Lake the iron formation is interbedded with black aphanitic massive carbonaceous argillite that is locally sulphide mineralized (Stringer Sulphide Pits). Also, small bands of chert-magnetite-actinolite iron formation (skarn association?) with localized pyrite, pyrrhotite and trace chalcopyrite, quite recognizable in GoldTrain's airborne magnetic survey, has been mapped west of the outcrop stripping performed by GoldTrain and to the east of diamond drill hole CL11-03.

The main iron formation is interbedded and bounded to the north by Archean mafic to intermediate metavolcanics. These rocks consist of fine grained laminated to lapilli tuffs and possible massive flows. To the west the iron formation grades into felsic to intermediate lapilli, crystal and lithic fragmental tuffs (Photo 3) and feldspar porphyritic flows and possible intrusives (locally quartz porphyritic). Occurring to the north of this is a band of intermediate to felsic metavolcanic breccia (Photo 4 and Photo 5).

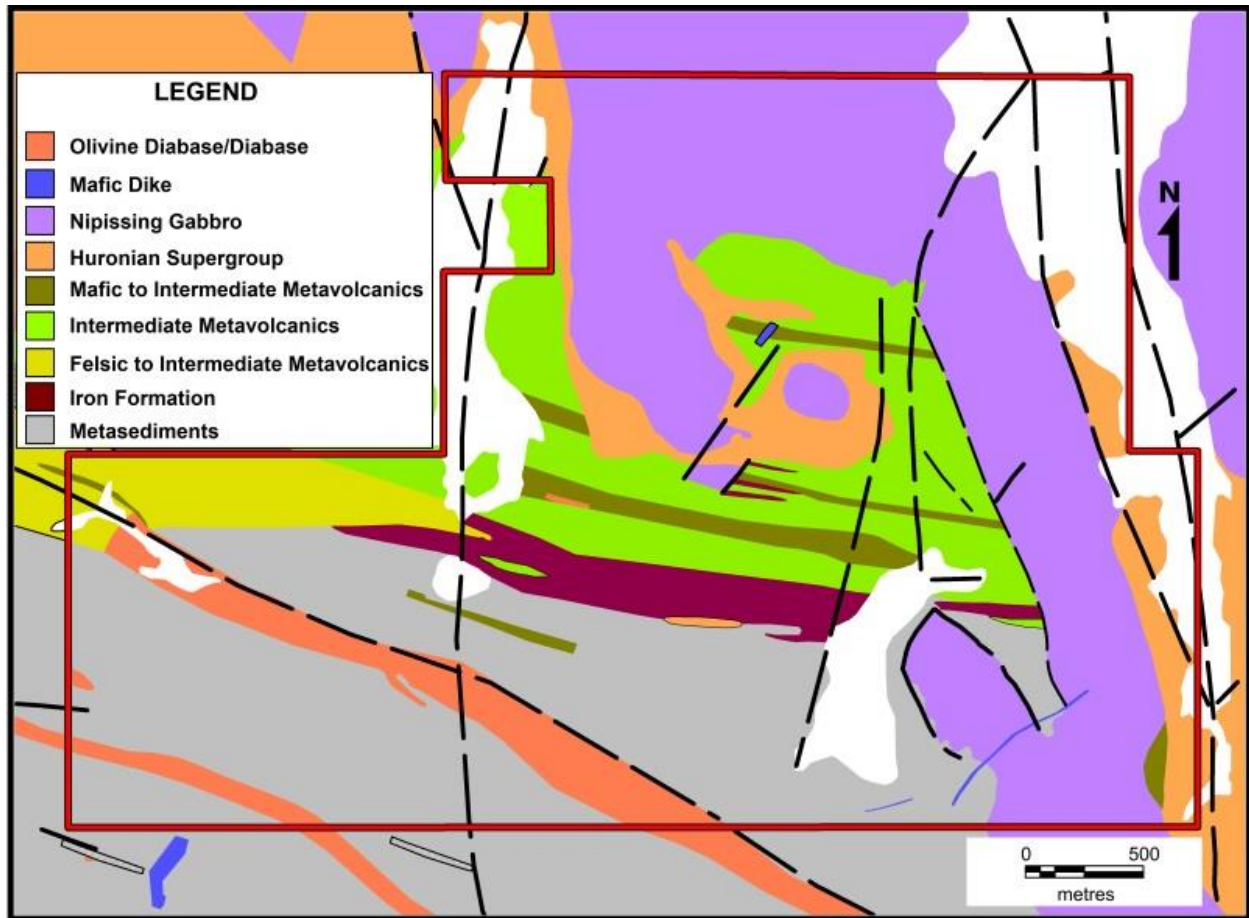


Figure 5: Property Geology

To the south the iron formation is bounded by Archean metasediments consisting predominately of interbedded and locally laminated greywacke, arkose (Photo 6), arkosic wacke and conglomerate.

The Archean rock sequence is unconformably overlain by flat lying sedimentary rocks of the Gowganda Formation. The Gowganda Formation consist of conglomerate, arkose/quartzite and greywacke/lithic wacke. The conglomerate is matrix supported and composed of sub rounded to angular pebbles, cobbles and minor boulders set in a fine to medium grained greywacke/lithic wacke. The clasts consist predominately of granitic rocks with lessor amounts of metasediments and metavolcanics. The greywacke/lithic wacke is feldspathic and forms interbeds in and is gradational to the conglomerate. The conglomerate and greywacke/lithic wacke can be difficult

to distinguish between in limited outcrop exposure areas.

The Archean and Huronian rocks are intruded by sheet like sills of Nipissing gabbro. The Nipissing gabbro rocks are massive, medium grained, dark greenish grey, finer grained near the margins with localized pegmatitic phases. The Nipissing gabbro are in sharp contact with the Gowganda Formation rocks with a contact zone ranging from 3 to 7.5 m (10 to 25 feet) wide in which the two rock types are indistinguishably fine grained and black (Meyn, 1977). The gabbro follows the bedding in the Gowganda Formation and is seldom disturbed; disturbance where it occurs, extends only over a distance of 1 to 3 m from the contact. Recrystallization of the sedimentary rocks and contamination of the Nipissing gabbro does take place (Meyn, 1977). In the recent mapping a brecciated contact was observed at 554166E, 5186171N. The mapping has also outlined fault bounded contacts of the Nipissing gabbro.

Following NW-SE structures, the youngest rocks in the area consist of olivine diabase and diabase dikes. Also, NE-SW trending mafic dikes have been mapped on the property. The most significant one of these dikes is host to the Ditch Sulphide Showing on claim 4206164. The dike was outlined by mapping, historical geophysical surveys and one outcrop on Meyn's 1977 map.

The most recognizable major N-S structures on the property are the Cucumber lake fault to the west and the Manitou Lake fault to the east. Also, recent mapping has outlined N-S structures around Arcand Lake and the fault bounded Nipissing gabbro contacts.

#### **4.21 Alteration and Mineralization**

##### **Gold Mineralization**

In 2011, GoldTrain Resources' diamond drill hole CL11-03 tested the VTEM anomaly area B (Figure 3). This hole outlined a new gold discovery (0.4g/t over 9m including 2.95 g/t over 0.5m and 1.06g/t over 0.5m) in altered mafic metavolcanics. The alteration envelope has a down hole length of 26.4m and consists of disseminated pyrite, pyrrhotite and chalcopyrite in





Photo 3: Felsic Lapilli/Crystal Ash Tuff





Photo 4: Intermediate to Felsic Metavolcanic Breccia

pervasive sericite, chlorite and silica alteration and in quartz, carbonate and albite veining (Figure 6). This newly discovered gold zone has only been tested by a single drill hole. The gold zone is wide open both at depth and along strike. Also, along strike there are untested VTEM and magnetic anomalies (Figure 7).

### **VMS Mineralization**

In 2011, GoldTrain Resources' diamond drill holes CL11-04 and CL11-05 tested the VTEM anomaly area A (Figure 3). The drill holes outlined a sericite, chlorite and silica alteration zone with areas of massive sulphides, chert horizons and locally anomalous Cu, Zn, Au and Ag (Figure 8). The zone has a possible true width of 15-16m and is coincident with a recognizable fault zone. The zone remains open at depth and along strike. Also, along strike several untested VTEM and coincident magnetic anomalies exist.





Photo 5: Intermediate to Felsic Metavolcanic Breccia



Photo 6: Laminated/Bedded Arkose

## **5.0 2017 PROGRAM**

### **5.1 Methods**

In the summer of 2017, a program of line cutting, geological mapping and sampling was completed on the Clement property. Between May 10<sup>th</sup> and June 3<sup>rd</sup> a total of 10.45 kms of lines were cut using axes and machetes following the historic trace of the 2008 GoldWright grid. Upon completion the lines were geologically mapped and sampled over a 22-day period between June 14<sup>th</sup> and October 4<sup>th</sup>, 2017.

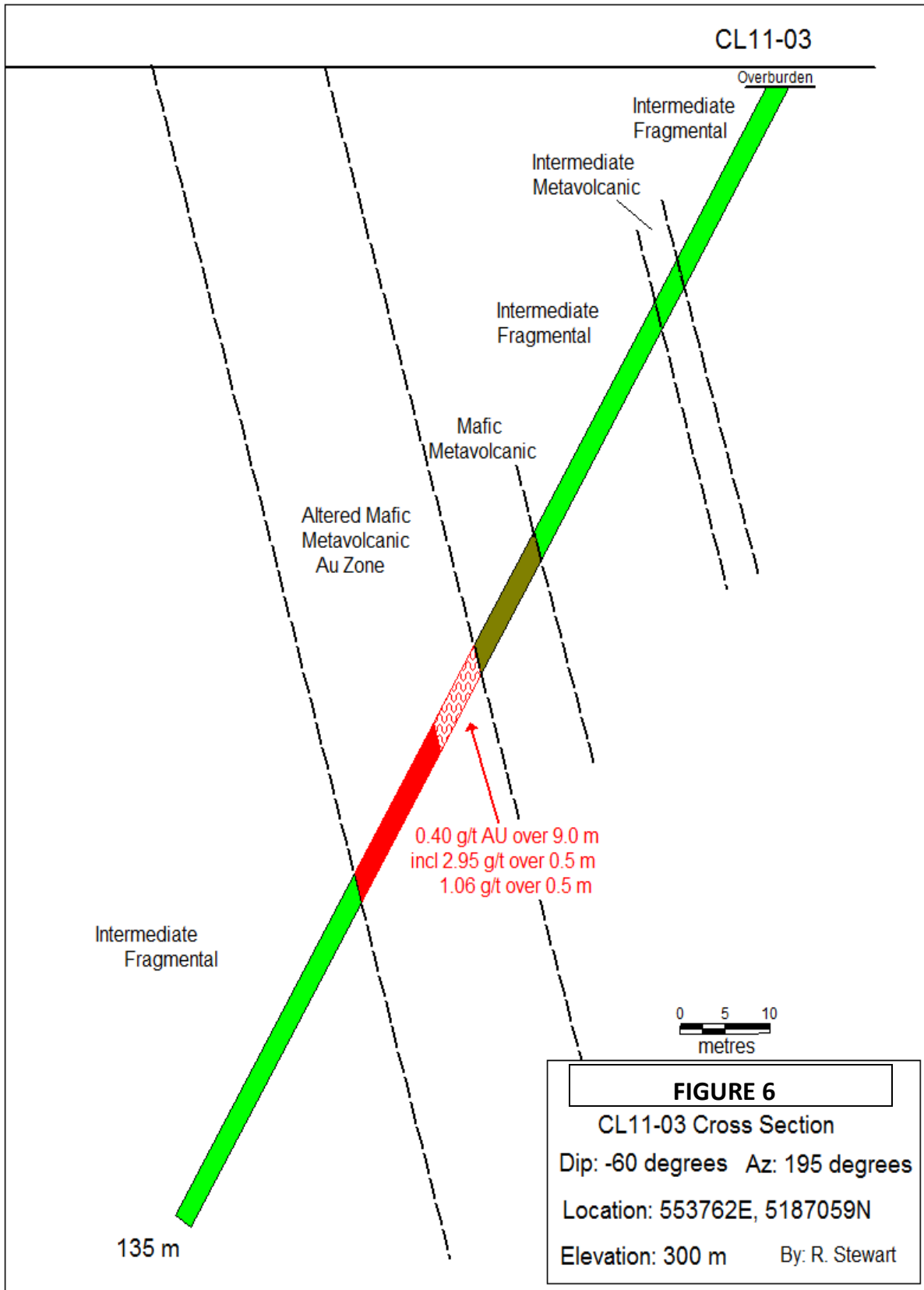
A total of 12 samples were collected. The analytical results for these samples will be reported in a separate assessment report.

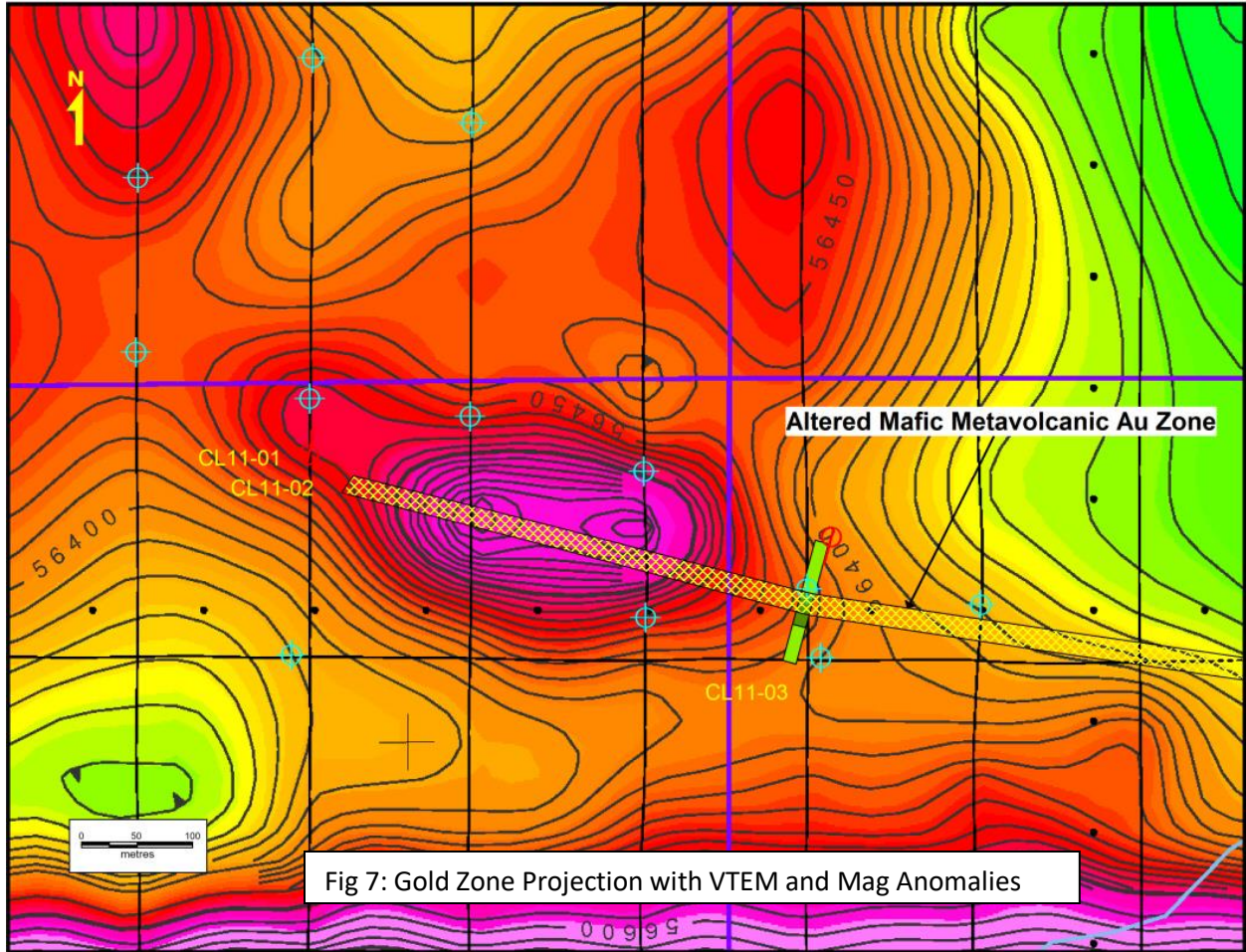
## **6.0 RESULTS and CONCLUSIONS**

The 2017 program has outlined several significant areas of interest that warrant future work.

- 1 Gold Zone Extension: The focus of the 2017 program was to delineate the eastern and surficial expression of the gold zone outlined in diamond drill hole CL11-03. The recent grid mapping program has identified a possible eastern surficial expression of the gold zone alteration envelope in sample WP1652 (554135E, 5186939N). The outcrop is a mafic to intermediate tuff with 1-2% disseminated and stringer pyrrhotite and pyrite. The rock has alteration patches and veinlets of hornblende, chlorite, sericite, quartz and sulphides.
- 2 The Adit Quartz Vein: The 2017 program has identified a historic adit (Photo 1) at 554238E, 5186273N. The quartz vein is hosted in sheared Nipissing Gabbro. The vein is 1.3m thick and strikes at 120 degrees and dips at 30 degrees.
- 3 Stringer Sulphide Pits: East of Arcand Lake the iron formation is interbedded with black aphanitic massive carbonaceous argillite that is locally sulphide mineralized with several historic pits.







Also, the program has outlined several structures that form the Nipissing gabbro contacts and has better defined the metavolcanic/metasedimentary sequence in the grid area.

A total of 12 samples were collected in the 2017 program and are presented in Table 5. The analytical results for these samples will be reported in a separate assessment report.

## 7.0 RECOMMENDATIONS

The following recommendations can be made based on the 2017 program and all previous programs completed on the Clement Property:

- 1) A diamond drill program to test the remaining VTEM anomalies. Drilling should also test the down dip and strike extension of the gold zone (0.4 g/t



Au over 9 m including 2.95 g/t Au over 0.5 m and 1.06 g/t Au over 0.5 m) outlined in CL11-03.

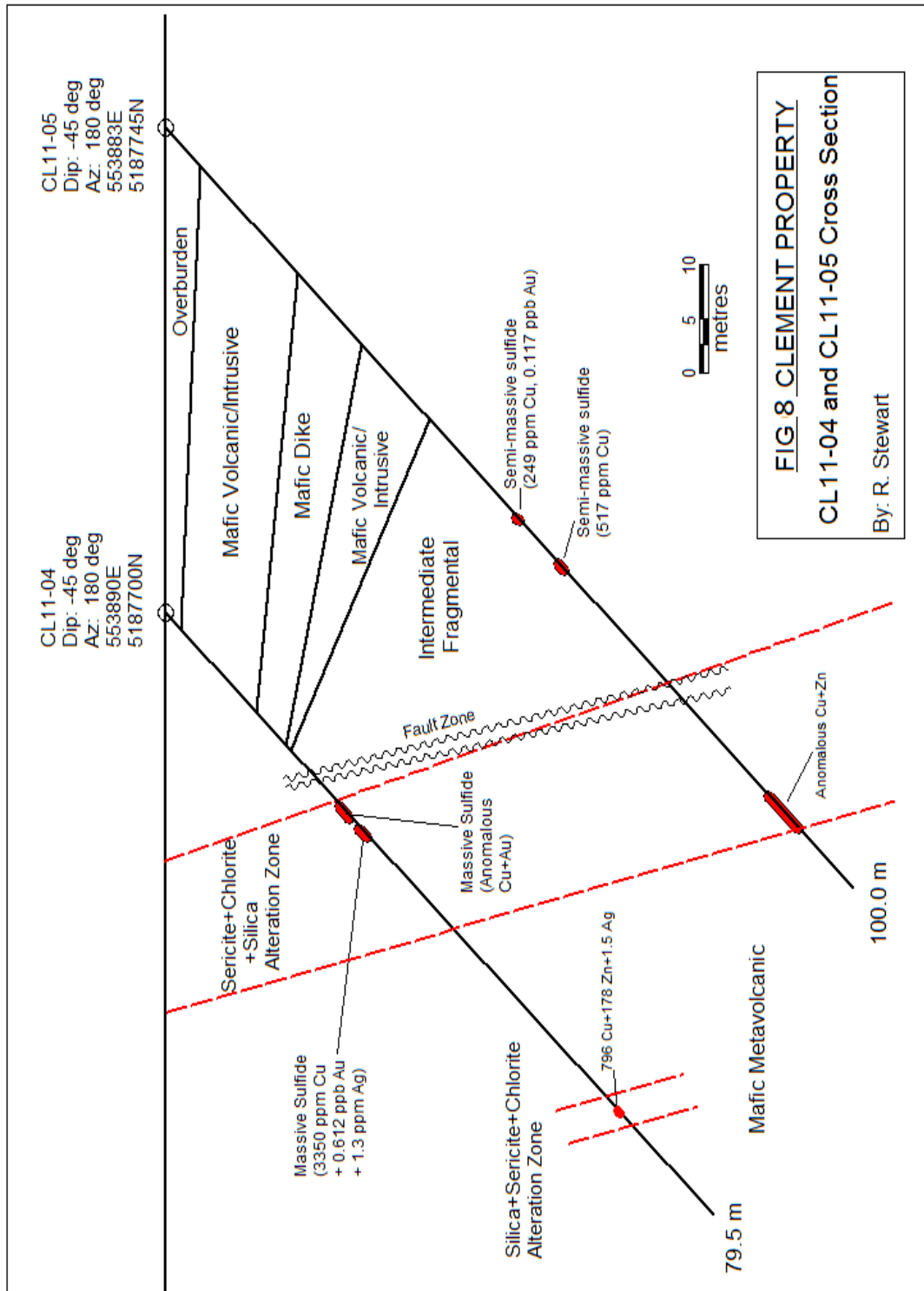
- 2) Line cutting and detailed mapping and lithogeochemical sampling over the rest of the property with special attention being paid to the massive sulphide zone area (CL11-4 and CL11-05).
- 3) Bedrock stripping, detailed mapping and channel sampling of the Quartz Vein showing previously outlined in the 2014 and 2015 programs.
- 4) Bedrock stripping, detailed mapping and channel sampling of the possible eastern extension of the CL11-03 gold zone at WP1652 (554135E, 5186939N)
- 5) IP survey over the 2017 grid



Photo 7: Sulphide Mineralized Feldspar Porphyritic Intermediate to Felsic Metavolcanic

Table 5: Sample Descriptions

Sample	Easting	Northing	Rock Type	Description
WP796	554337	5186786	Inter-Mafic Tuff	2015 Sample. Lam/bedded tuff
WP1392	553888	5186843	Mafic Volc	Buff grey to purple, f-mg, loc fp, loc alb? +epi alt patches, 0.5% diss sulph, non-mag
WP1404	553898	5186757	Mafic Tuff	F-mg, grey green, loc alt/felsic patches of amph+alb? +/- kspar (tiger stripes), loc fp, mass to tuffaceous
WP1480	553995	5186874	Inter-Felsic Lap Tuff	Stretched felsic lapillis, rusty weathering
WP1587	554144	5186586	Arg	Black aphanitic argillite, 2-3% diss sulphides, old pit
WP1606	554241	5187062	Int-Felsic Volc	Massive, dark grey with purple tinge, fg, poss fp felsic patches, mafic gash vein filling x-cutting fabric, small calcitic fr fillings, tr diss sulph
WP1618	554114	5187139	Mafic Volc	Large mafic volc bld, 1-2% po in alb? +amph veinlets and clots, diss cubic 1mm py, mass, dark black, poss fp
WP1651	554189	5186852	Int-Mafic Lap Tuff/Bx	10cm subang to rounded elongate felsic clasts, abnt epi and large hblnd crystals in matrix, poss amph rich gash veinlets
WP1652	554135	5186939	Mafic-Int Tuff	1-2% diss/str po+py, alt patches/veinlets of hblnd+chl+ser+sil+sulphides, rusty weathered crust, dark grey to mottled grey-white, fg, poss bedded, mafic (hblnd) rich matrix with fspar patches. Part of Gold Zone alt envelope?
WP1687	554404	5186534	Arg/IF	Dark black, aph, 1-2% diss sulph, mag rich arg/IF
WP1690	554263	5186508	Arg/GW	Lam/bedded, sil/cherty, non-mag, 1-2% diss cubic to tear drop sulphides, loc qtz-sulph veinlets
WP1737	554189	5186534	IF	Banded mag+chert IF
WP1799	554336	5186221	QV	Eastern ext of Adit QV, 1.3m thick, striking 120 deg, dipping 30 deg



- 6) Detailed mapping and sampling of the Adit Quartz Vein
- 7) Detailed mapping and sampling of the Stringer Sulphide Pits within the eastern extension of the iron formation on the Arcand Lake grid

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## **Appendix I**

### **Statement of Qualifications**

I, Randy I. Stewart, B.Sc. of 213 Kingsmount Boulevard, Sudbury, Ontario, P3E 1L1, do hereby certify that:

I graduated from the Mining Engineering Technician program at Cambrian College of Applied Arts and Technology, Sudbury, Ontario, in 2002.

I graduated with a Bachelor of Science Degree (Honours) in geology in 1991 from the University of Waterloo, Waterloo, Ontario.

I have been actively involved in Mining and Exploration since 1986.

Randy Irwin Stewart

October 05, 2017  
Sudbury, Ontario

## **Statement of Qualifications**

I, Brian James Wright, of 92 Main Street, Markstay, Ontario, P0M 2G0, do hereby certify that:

I am a Geological Technologist receiving my education from Haileybury School of Mines.

I have been actively involved in Mining and Exploration for 28 years.

Brian James Wright




October 05, 2017  
Markstay, Ontario

## 2017 Clement Daily Log

2017	Personnel	Task	Claim	Objectives
May 10 to June 3	Randy Stewart and Brian Wright	Line Cutting	Both	
14-Jun	Randy Stewart and Brian Wright	Mapping and Sampling	4206133	Grid Mapping
15-Jun	Randy Stewart and Brian Wright	Mapping and Sampling	4206133	Grid Mapping
23-Jun	Randy Stewart and Brian Wright	Mapping and Sampling	4206164	Grid Mapping
24-Jun	Randy Stewart and Brian Wright	Mapping and Sampling	4206164	Grid Mapping
25-Jun	Randy Stewart and Brian Wright	Mapping and Sampling	4206164	Grid Mapping
05-Jul	Randy Stewart and Brian Wright	Mapping and Sampling	4206164	Grid Mapping
06-Jul	Randy Stewart and Brian Wright	Mapping and Sampling	4206164	Grid Mapping
11-Jul	Randy Stewart and Brian Wright	Mapping and Sampling	4206164	Grid Mapping
12-Jul	Randy Stewart and Brian Wright	Mapping and Sampling	4206164	Grid Mapping
30-Jul	Randy Stewart and Brian Wright	Mapping and Sampling	4206164	Grid Mapping
31-Jul	Randy Stewart and Brian Wright	Mapping and Sampling	4206164	Grid Mapping
01-Aug	Randy Stewart and Brian Wright	Mapping and Sampling	4206164	Grid Mapping
07-Aug	Randy Stewart and Brian Wright	Mapping and Sampling	4206164	Grid Mapping
08-Aug	Randy Stewart and Brian Wright	Mapping and Sampling	4206164	Grid Mapping
28-Aug	Randy Stewart and Brian Wright	Mapping and Sampling	4206164	Grid Mapping
29-Aug	Randy Stewart and Brian Wright	Mapping and Sampling	4206164	Grid Mapping
14-Sep	Randy Stewart and Brian Wright	Mapping and Sampling	4206164	Grid Mapping
15-Sep	Randy Stewart and Brian Wright	Mapping and Sampling	4206164	Grid Mapping
25-Sep	Randy Stewart and Brian Wright	Mapping and Sampling	4206164	Grid Mapping
26-Sep	Randy Stewart and Brian Wright	Mapping and Sampling	4206164	Grid Mapping
03-Oct	Randy Stewart and Brian Wright	Mapping and Sampling	4206164	Grid Mapping
04-Oct	Randy Stewart and Brian Wright	Mapping and Sampling	4206164	Grid Mapping
20-Oct	Randy Stewart	Report Writing	4206164	
21-Oct	Randy Stewart	Report Writing	4206164	
22-Oct	Randy Stewart	Report Writing	4206164	
23-Oct	Randy Stewart	Report Writing	4206164	




## MAPS

**CLEMENT LEGEND**

-  Olivine Diabase  
(Sudbury Dike Swarm 1238+/- 4 Ma)
-  Mafic Dike
-  Nipissing Gabbro (2200 Ma)

**Huronian Supergroup  
(2450-2220 Ma)**

*Cobalt Group  
Gowganda Formation*

-  Greywacke/Lithic Wacke
-  Arkose/Quartzite
-  Conglomerate

**Archean**

*Porcupine Assemblage (2690-2685 Ma +/- 5 Ma)*

Metavolcanics

-  Mafic to Intermediate
-  Intermediate
-  Intermediate to Felsic Volcanic Breccia
-  Felsic to Intermediate

Metasediments

-  Iron Formation
-  Argillite
-  Conglomerate
-  Arkose, Quartzite
-  Greywacke, Arkosic Wacke

 Age Dates (Ayer 2006)  
(approximate locations)

 2011 Diamond Drill Hole  
(Goldtrain Resources)

 Outcrop Stripping  
(GoldTrain Resources)

 Historical Pits

 Sample Location

 Foliation

 Bedding

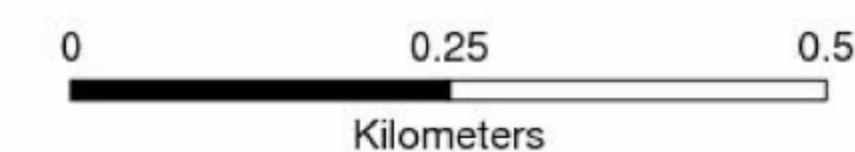
 Jointing

 HELITEM Anomaly

Abbreviations

no o/c = no outcrop	QV = quartz vein
qtz = quartz	cpy = chalcopyrite
py = pyrite	sulph = sulphides
po = pyrrhotite	sil = silicified/sileous
mntite = magnetite	fp = feldspar porphyritic
qfp = quartz feldspar porphyritic	alt = alteration
frag = fragmental	lap = lapilli tuff
lam = laminated	mag = magnetic
SZ = shear zone	





**CLEMENT LEGEND**

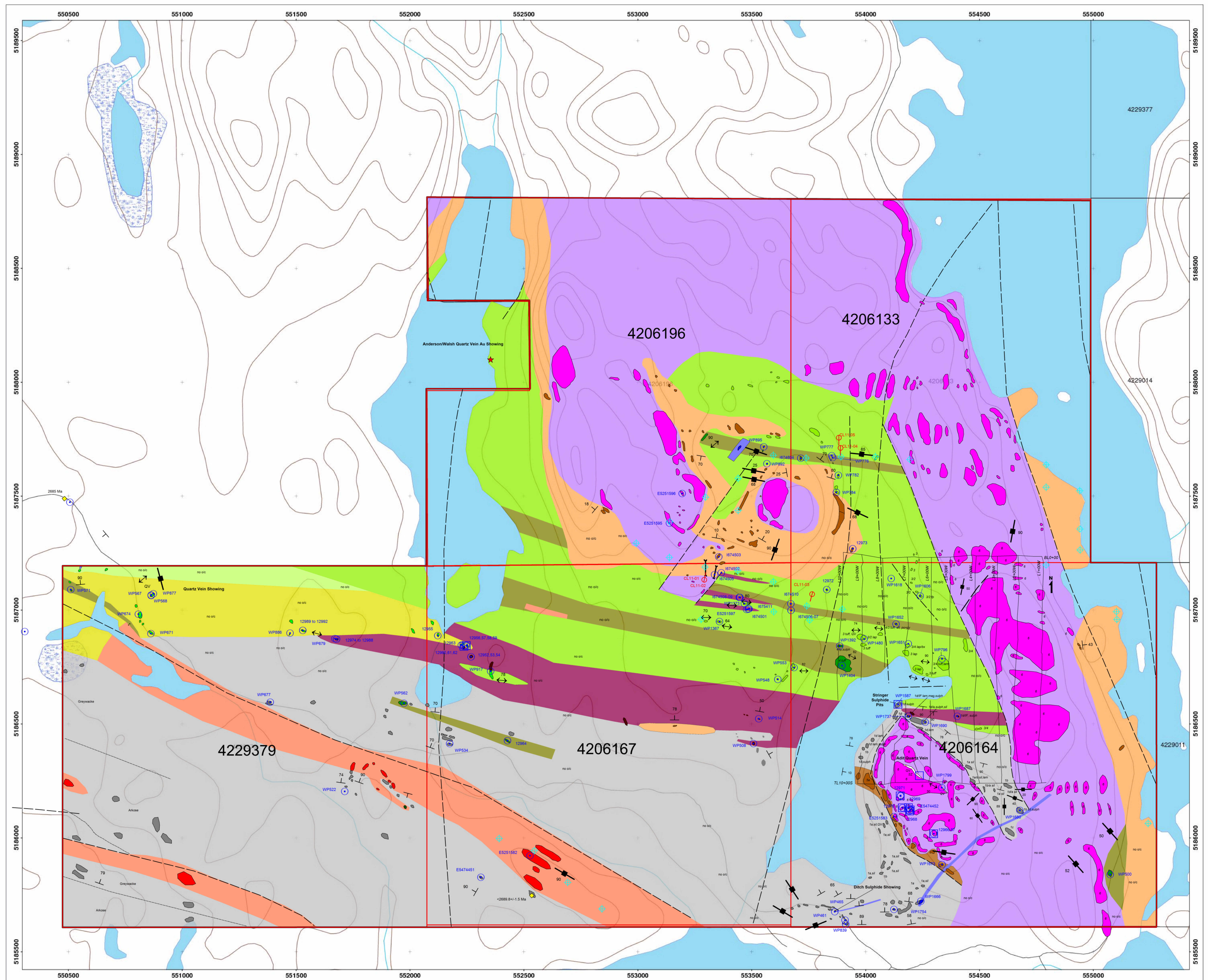
- Olivine Diabase (Sudbury Dike Swarm 1238 +/- 4 Ma)
- Mafic Dike
- Nipissing Gabbro (2200 Ma)
- Huronian Supergroup (2450-2220 Ma)**
  - Cobalt Group**
  - Gowganda Formation**
  - Greywacke/Lithic Wacke
  - Arkose/Quartzite
  - Conglomerate
- Archean**
  - Porcupine Assemblage (2690-2685 Ma +/- 5 Ma)**
  - Metavolcanics**
  - Mafic to Intermediate
  - Intermediate
  - Intermediate to Felsic Volcanic Breccia
  - Felsic to Intermediate
- Metasediments**
- Iron Formation
- Argillite
- Conglomerate
- Arkose, Quartzite
- Greywacke, Arkosic Wacke
- ◆ Age Dates (Ayer 2006) (approximate locations)
- ⊕ 2011 Diamond Drill Hole (GoldTrain Resources)
- ↖ Outcrop Stripping (GoldTrain Resources)
- Historical Pits
- ⊙ Sample Location
- ↔ Foliation
- ⊥ Bedding
- Jointing
- ⊕ HELITEM Anomaly

- Abbreviations**
- |                                   |                           |
|-----------------------------------|---------------------------|
| no o/c = no outcrop               | QV = quartz vein          |
| qtz = quartz                      | cpy = chalcopyrite        |
| py = pyrite                       | sulph = sulphides         |
| po = pyrrhotite                   | sil = silicified/sileous  |
| mntite = magnetite                | fp = feldspar porphyritic |
| qfp = quartz feldspar porphyritic | alt = alteration          |
| frag = fragmental                 | lap = lapilli tuff        |
| lam = laminated                   | mag = magnetic            |
| SZ = shear zone                   |                           |

**Geology of the Clement Property**

MacBeth and Clement Townships, Ontario  
Sudbury Mining Division

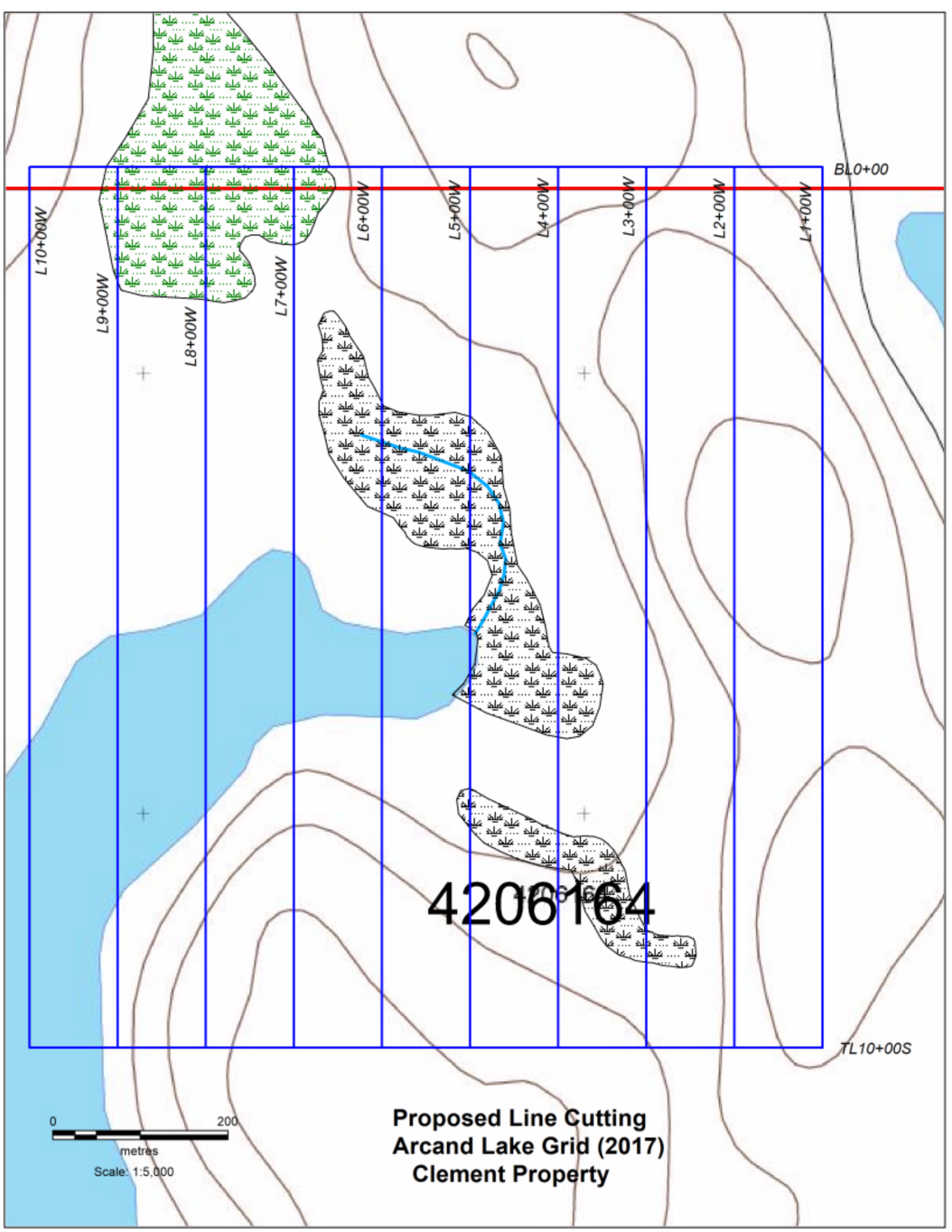
Drawn By: Randy Stewart (2017)  
Scale 1:5,000  
UTM Zone 17, NAD 83  
NTS 41 1/9W











BL0+00

L10+00W

L9+00W

M00+87

L7+00W

L6+00W

L5+00W

L4+00W

L3+00W

L2+00W

L1+00W

4206164

TL10+00S



Scale: 1:5,000

**Proposed Line Cutting  
Arcand Lake Grid (2017)  
Clement Property**