

# GM 47204

REPORT ON THE COMBINED AIRBORNE GEOPHYSICAL SURVEY

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REPORT ON THE COMBINED AIRBORNE GEOPHYSICAL SURVEY,  
ON THE PROPERTY OF LA FOSSE PLATINUM GROUP,  
VILLEBON, MARRIAS, SABOURIN, GRANET,  
AND FREVILLE TOWNSHIPS, QUEBEC

BY

H. FERDERBER GEOPHYSICS LTD.

Ministère de l'Énergie et des Ressources  
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ÉNERGIE ET RESSOURCES  
SECTEUR MINES

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**REPORT ON THE COMBINED AIRBORNE GEOPHYSICAL SURVEY,  
ON THE PROPERTY OF LA FOSSE PLATINUM GROUP,  
VILLEBON, MARRIAS, SABOURIN, GRANET,  
AND FREVILLE TOWNSHIPS, QUEBEC.**

INTRODUCTION

During January and February, 1988 a combined airborne geophysical survey was completed on the property of La Fosse Platinum Group in Villebon, Marrias, Sabourin, Granet, and Freville Townships, Quebec. Magnetic and VLF-electromagnetic data was collected by the airborne division of H. Ferderber Geophysics Ltd. The survey was flown from a base at Val D'Or, Quebec. A total of 1458.07 miles of data was collected, along East-West lines in Blocks 5, 6, and the bottom three-quarters of Block 2, and along North-South lines in Blocks 1, 3, 4, and the top one-quarter of Block 2.

The magnetic survey provides information which helps define the underlying geological structures and identifies any potential economic concentrations which may contain variations in accessory magnetic minerals. The VLF-electromagnetic survey outlines conductive zones which may represent shear zones and/or metallic sulphide deposits containing gold mineralization.

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PROPERTY DESCRIPTION, LOCATION AND ACCESS

The La Fosse Platinum Group property comprises 529 claims in six blocks within Villebon, Marrias, Sabourin, Granet, and Freville Townships, Abitibi/Temiskaming County, Quebec, Canada (NTS 31N/14, 31N/13). The claims cover approximately <sup>14,324</sup>~~8,464~~ hectares. The location of the six claim blocks are shown on Figure 1, and are numbered as follows:

Block 1 is comprised of three claims in the northeast part of Villebon Township and covers approximately <sup>120</sup>~~48~~ hectares. Access is readily obtained from Highway 117 one-half kilometer to the east. This small block of claims is approximately eight kilometers south-southeast of the village of Louvicourt, and 40 kilometers southeast of the city of Val D'Or. The topography is low and swampy.

Block 2 is the largest claim block covering 239 claims and approximately <sup>7,490</sup>~~3,825~~ hectares in the central part of Villebon Township. Access is via Highway 117, and then by numerous bush roads crossing the claim block. Lac Villebon, Lac Cooper, R. Lowther, Lac Morin, and Lac No. 3 are all located

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within this block, and the village of Barriere is 1 kilometer east of the property. The general topography is low and swampy.

Block 3 is an 'L-shaped' group of ~~78~~<sup>66</sup> claims covering approximately ~~1,216~~<sup>1,056</sup> hectares in the northwestern part of Freville Township. The northern boundary is approximately 1 kilometer southeast of the village of Scierie, and approximately 26 kilometers south of the town of Louvicourt. The property can be reached by a gravel road which exits east off Highway 117, about 3/4 km south of the north gate of La Verendrye Park. The topography is low to moderate.

Block 1, 2, and 3 are located in Abitibi County and block 4, 5 and 6 are located in Temiscamingue County.

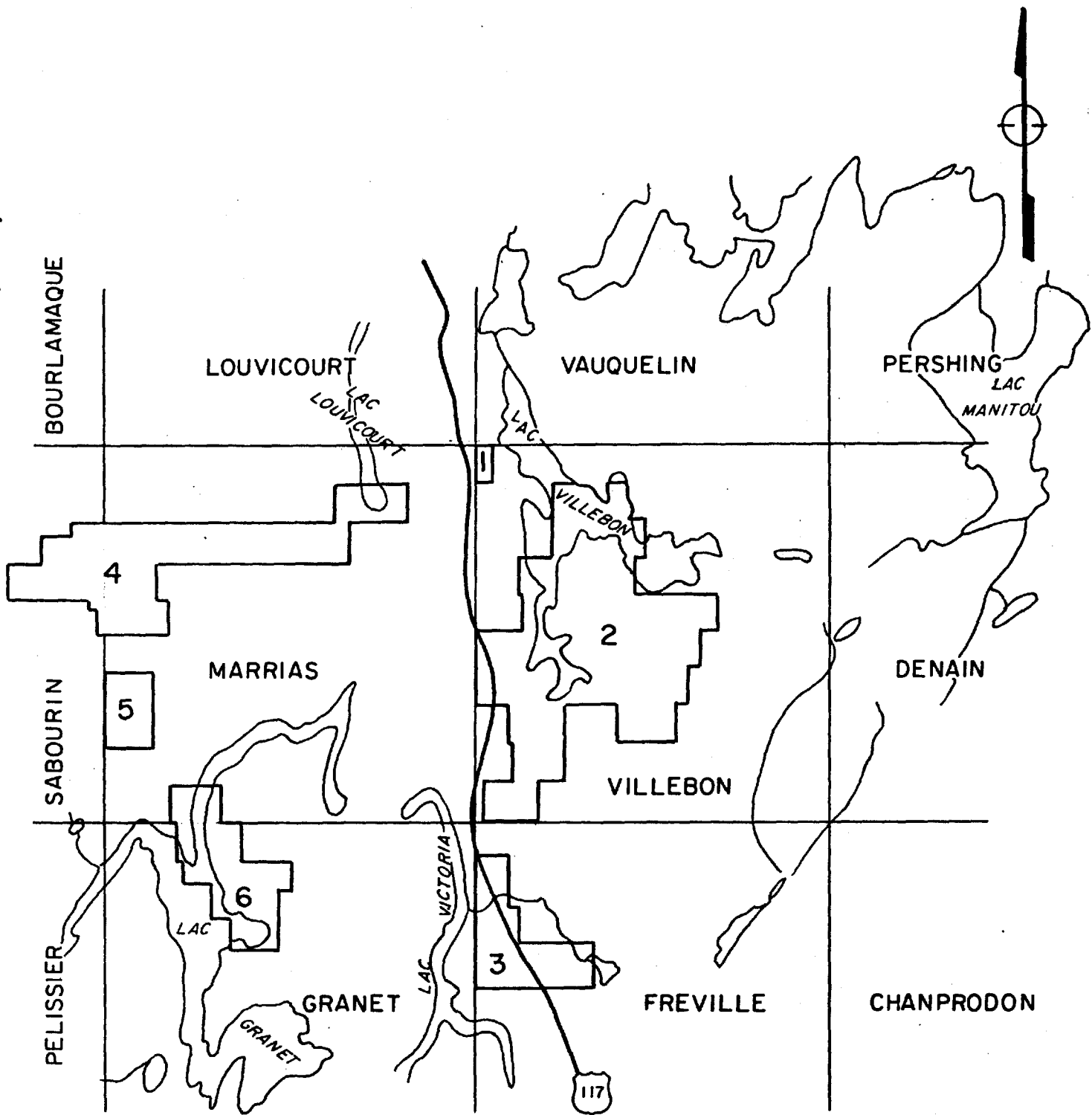
Block 4 is the second largest block of 125 claims covering approximately ~~2000~~<sup>3638</sup> hectares. It passes across the northern section of Marrias Township and continues into Sabourin Township to the west. This block lies 3-19 kilometers west of Highway 117, and is readily accessed by several bush roads exiting west off of Highway 117. The town of Louvicourt is approximately 12 kilometers north-northeast of the block and Lac Louvicourt lies within the northeastern part of the claim block. Ruisseau Vaillancourt passes through the centre of the block from north to south. The topography is low and swampy.

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Block 5, located along the western border of Marrias Township, comprises sixteen claims covering approximately ~~256~~<sup>612</sup> hectares. Several bush roads cross this block, originating approximately 15km east from Highway 117. This block is approximately 22 kilometers southwest of the town of Louvicourt; the topography is low and swampy.

Block 6 totals ~~68~~<sup>76</sup> claims covering approximately ~~1000~~<sup>1408</sup> hectares in the southwestern part of Marrias Township and the northwestern part of Granet Township. A secondary road runs west from Highway 117 into the southern part of this block, and bush roads allow access to the rest of the block. The topography is low and swampy in the north, and becomes more moderate to the south. This claim block borders Lac Granet along the southern and western borders, and Lac Camille-Roy along the eastern border. Riviere Marrias divides this block from north to south. Block 6 is approximately 12 kilometers west of the village of Barriere, and approximately 27 kilometers southwest of Louvicourt.

The claims are registered with the Quebec Department of Energy & Resources at Val D'Or, Quebec and are listed in Appendix 1.



Scale : 1 : 250 000

FIG. 1 : LOCATION SKETCH, with claim blocks no1 to 6

Supplies, services and manpower are readily available in the Val D'or area.

#### GENERAL GEOLOGY

The property is located in the southern part of the Abitibi volcanic belt of the Superior structural province of the Canadian Shield. The Precambrian volcanic, sedimentary and intrusive rocks of the area are Archean in age, except for late diabase dykes.

The volcanic Keewatin-type flows are the oldest rocks. They range in composition from basalts to rhyolites and are interbedded with numerous horizons of tuffs and agglomerates. Temiscaming-type sedimentary rocks are also found intercalated within the volcanic unit. They are mainly composed of greywacke and arkosic greywacke. A thick sequence of sedimentary rocks, metamorphosed to quartz-biotite schists occurs south of the volcanic assemblage.

Numerous intrusive rocks invade the sedimentary and the volcanic rocks. They range in composition from pyroxenite to granite, and are found as bodies of various sizes and shapes.

The most extensive of these intrusions are swarms of dioritic sills and large plutons of granodiorite such as the Bourlamaque Batholith.

The Archean rocks of the area have been metamorphosed to the greenschist facies and are affected by a regional schistosity striking roughly east-west and steeply dipping.

The Cadillac Break is by far the most extensive deformation structure of the area. It strikes in a general east-southeast direction and marks the contact between the large volcanic sequences to the north and the sedimentary rocks to the south.

Unconsolidated materials of glacial and post-glacial origins cover more than 95% of the area. They include peat, varved clays, sand plains, eskers, moraines and erratics.

The general area, and more specifically the Val D'Or camp, has been a prolific gold producer with mines like Sigma and Lamaque that opened in the early thirties and are still in operation. New gold discoveries have also been made recently such as Belmoral, and New Pascalis and others are to come.

PROPERTY GEOLOGY

The northern and western part of the property is covered by recent maps of the Compilation Series issued by the Ministry of Natural Resources of Quebec in 1979-1981 (31N/14). However, no geological maps (except for very large scale) have ever been produced for almost one-third of the property, to the south and west.

The volcanic rocks and their related sedimentary rocks make up an isolated basin of the Abitibi volcanic belt located south of the Cadillac Break. Vogel (1969-70) has named this volcano-sedimentary group, overlain to the north by the Trivio Clastic Sedimentary Group, overlain to the west by the Pontiac Metasedimentary Rocks, and truncated to the east and south by the Grenvillian Rochester Migmatic garnet gneisses, the Villebon Group.

According to Map CG31N/14-0402, Block 1 is composed predominantly of Archean Metasediments of greywacke, schist, argillite, shale and arkose composition striking northwest to southeast and dipping steeply to the northeast. A large diabase dyke cuts the claim from east to west, just to the north of the centre line of the claim block. Outcrops are rare, and no

mineralization has been located on this claim block to date.

Block 2 is generally underlain by basalts in the north, greywackes and schist in the west, and intruded by a dioritic stock in the south. The northern part of the claim block is predominantly basalt but becomes basalt with tourmaline towards the south. The western contact with the greywacke/schist is north-south, but a discontinuous fault northwest of the claim block offsets the north-south contact of basalt and greywacke/schist, to the east. Numerous late stage diabase dykes in the northern part of this claim block generally strike south-southwest to north-northeast direction. In the north, smaller secondary diorite sills and feeders intrude the basalts in northwest to southeast elongated plugs. The volcanic sequence is intruded in the south by the Vogel dioritic stock which occupies the southern half of the Villebon basin. Its elongated shape appears to have been controlled by the regional anticline with faulting along the axial plane. This oval stock causes the basalts in the north to thin and wrap around the plug. The contact with the dioritic stock is northeast to southwest.

East and south of Cooper Lake, the lithological units strike northeast, and dip steeply eastward or stand vertical. Their

tops face west. The prevailing rock units are basalts intercalated with meta-diorite to gabbro sills.

Diamond drilling east of NO. 3 Lake has intersected four copper and nickel occurrences which range from 0.1.3% Ni over 9.9 meters to 1.10 Ni and 0.88% Cu over 7.5 meters. Northeast of NO.3 Lake in Lot 26 of Range VI, diamond drilling of a strong northwest to southeast HEM anomaly has intersected one copper occurrence of 0.98% CU over 0.9 meters (Marleau, 1981).

Gold mineralization within Block 2 is located east and south of Cooper Lake. Minor tuffaceous and sedimentary members are interlayered within the volcanic flows. A band of ultramafic sphinifex made up of 28 flows outcrop along the Cooper Lake inlet and reappears along the east shore of the lake; it terminates in Range V to form a steeply north plunging anticline.

Mineralization is contained within four main zones underlying the property. Zone "A" or the Amphibolized Gabbro Zone close to Range line 1V-V near-by Cooper Lake constitutes the original discoveries outlined by Gustave and Toussaint Cere in 1937 (Ceres Claims, 1937). Assay values range from 0.484 oz Au over 3.0 feet

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to 0.18 oz Au over 3.0 feet. Zone "B", also called the Bonville-Villbon zone, corresponds to north-northeast striking mineralized faults within the thick andesite-basalt flow underlying the amphibolized gabbro of Zone "A". Zone "B" contains two mineralized shoots which are comprised of 12 veins, averaging 0.244 in 31 chip and channel samples. Zone "C" lies in lot 36 just north of Range line IV-V, within a series of quartz stringers containing sphalerite, chalcopyrite, and galena. Grab samples returned gold values ranging from 0.03 to 0.74 oz Au. Zone "D" or the Twin Fault Zone was discovered on lot 37, just north of Range line IV-V. It consists of a conformable quartz vein lying in strongly amphibolitized tuffs. The highest gold assay reported was 0.165 oz/ton over 1.5 feet (Marleau, 1981).

Block 3 is an L-Shaped claim block which follows the contacts and the shape of the Villebon Dioritic Stock. It is surrounded by amphibolites and basalts, and then truncated in the south by the Grenvillian gneisses and pegmatites. Within the dioritic stock, outcrops are rare due to a low swampy terrain. Basalts and amphibolites outcrop along a bush road which runs west from Highway 117 in the southern part of Block 3. Within

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these outcrops, the basalts seem to strike north-northwest and dip vertically or steeply to the east. Locally, northwest bands of peridotites outcrop within the basalts. No known gold occurrences have been discovered.

According to map GS31N/14-401, Block 4 is underlain by schists and greywackes, striking northwest to southeast and dipping from 45-70 degrees to the north. South and west of Lac Louvicourt and just south of Block 4 is a west-northwest to east-southeast fault zone, which extends into Block 4. Diamond drilling through this shear in Lot 42 of Range VIII, encountered nickel values varying from 0.21% Ni over 7.5 meters to 0.33% Ni over 4.0 meters. The geology of the western two-thirds of Block 4 is only available from a large scale Map GS31N. According to Map GS31N, this claim block is predominantly underlain by metasediments of argillite and biotitic argillite, and cut by a major diabase dyke from west to east. Ultramafic lavas intercalated in the metasediments form a band from west-northwest to east-southeast. Within Block 4, there are no known gold or silver occurrences.

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According to a large scale map GS31N, Block 5 is largely composed of intercalated ultramafic lavas striking north-south and passing through the centre of the claim block. Hosting the ultramafic lavas are Archean metasedimentary rocks of greywacke, argillite, arkose, siltstone, and shale composition.

Map GS31N indicates that Block 6 is underlain by metasediments of biotitic argillite composition and interfingered with granitic to dioritic intrusives, originating from a large granitic pluton covering most of the Jordon/Pelissier Townships to the west. Block 6 is cut by a northwest to southeast intercalated ultramafic lavas. One nickel & copper occurrence is located on the northeastern shore of Lac Granet. Detailed geological mapping of the eastern border of Block 6 (MAP GS31N/14-0201) indicates a large granitic, pegmatitic and aplitic pluton in the southeast. The contact with the pluton in the southeast and the interbedded schists and greywackes runs northwest to southeast through the claim block. A band of andesites with tourmaline strikes northwesterly and starts at the eastern border of the claim block. Outcrops are rare.

INSTRUMENTATION AND SURVEY METHODS

The survey was completed using a 1972 Cessna 172, fixed-wing aircraft, call letters CF-EWK, owned and operated by H. Ferderber Geophysics Ltd. The pilot and navigator/operator were Y. Saucier and M. Caron, respectively, of Val d'Or. Geophysical sensors were mounted in modified wing tips. The geophysical, navigation and data acquisition systems are described below.

Magnetometer

The magnetometer used was a GEM Systems GSM-11, high sensitivity airborne proton (Overhauser) magnetometer. The instrument continuously measures the Earth's magnetic field at a 0.01 gamma sensitivity for 1 reading per second to 10 readings per second at a 0.1 gamma absolute accuracy. For the survey 4 readings per second at an accuracy of 0.04 gammas were read. The analog output is on 3 channels, from 1 to 10,000 gammas full scale.

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VLF-EM System

A Herz Totem 2A VLF-EM system was used to measure the changes in the total field and in the vertical quadrature field on two frequencies simultaneously, with an accuracy to 1%. The primary transmitting stations of Cutler, Maine (NAA), frequency 24.0 KHz (for the north-south lines) and Annapolis, Maryland (NSS), 21.4 KHz (east-west lines) were employed for the survey.

Radar Altimeter

The ground clearance was measured with a King 10/10 A radar altimeter. The survey was flown at a mean clearance of 300 feet with the altimeter producing an accuracy of 5% (15 feet) at this altitude.

Tracking Camera and Video Centre

A RCA TC-200 colour video camera and Galaxy 200 video centre was used to record the flight path on standard VHS type video tapes. Manual fiducials were indicated on the picture frames for reference with the digital printout. Flight path recovery was aided using a Panasonic Colour Video Monitor-S1300 and Video Cassette Recorder Ag-2500.

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Data Acquisition System

A Picodas Group Inc. PDAS 1100 data acquisition system featuring seven analog inputs with two frequency inputs and external interfacing was used. A Termiflex Corp. ST/32 Keyboard control unit and Sharp Corp. LCD display unit are connected to the data acquisition system. At present this system stores the altimeter VLF-1 inphase, VLF-1 quadrature, VLF-2 inphase, VLF-2 quadrature, magnetic field (coarse), magnetic field (fine), and the fourth difference (noise), and fiducials on 3.5 inch floppy disk drive. The data is then printed out in digital and profile form.

The survey was conducted on north-south lines at an aircraft altitude of 300 feet. The lines were flown at spacings of 328 and 660 feet at a speed of approximately 90 miles per hour. Navigation was visual using airphoto mosaics, at a scale of one inch to 1320 feet, manual fiducials and the flight path recovery system as references.

DATA PRESENTATION

Flight lines, fiducial points and geophysical responses were reproduced from the topographic maps at a scale of 1 inch: 1/4 mile. The outline of the claim block and claim map are shown on each map sheet.

The aeromagnetic data was corrected for diurnal variations by using a base line as reference. The data was then reduced to a base level of 58,000 gammas, contoured at 25, 100, 1000 and 10000 gamma intervals and presented on Maps MG-1 through MG-6.

A base value was determined for the VLF-EM data and the change in the total field strength as a percentage of the base value was calculated. The values were plotted on maps EM-1 through EM-6. The positive values were contoured at intervals of 2%. The conductor axes were determined and labelled 1A, 2A, 3A etc. No priority was attached to the labelling system.

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SURVEY RESULTS AND INTERPRETATIONMagnetic Survey**BLOCK 1 Map MG-1 North-South Flight Lines**

A prominent moderate magnetic anomalous zone trending west-northwest traverses the central part of this small claim block. It has magnetic values up to 500 gammas above background and lies over a northeasterly trending diabase dyke. The shoulders of this anomalous magnetic zone have steep magnetic gradients and lie in the vicinity of assumed contacts with the hosting basalts.

**BETWEEN BLOCK 1 & 2 Map MG-1, North-South Flight Lines**

Northwest of Lac Villebon, between Block 1 & 2, lies an area of moderate to high magnetic anomalies (300-1000 gammas). The pattern is irregular and complex, probably indicating an area of complex faulting and shearing. The overall trend of this area is approximately northwest to southeast. The area extends into the northwest part of Block 2, but anomalous values are low to moderate in intensity. Within the northwest part of Block 2, isolated magnetic highs (400 gammas) probably represent zones of

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magnetic minerals within the basalts. The magnetic highs anomalies appear to overlie gabbroic-dioritic dykes. Lower magnetic values over this zone are caused by rocks of lower magnetic susceptibility probably felsic to intermediate metavolcanic rocks. The distortion in the magnetic contour pattern suggests large scale folding and/or faulting.

BLOCK 2      Map MG-1      North-South Flight Lines  
              Map MG-5,6      East-West Flight Lines

A prominent discontinuous low to moderate magnetic anomalous zone is located in the north-central part of Block 2 and crosses through Range IV, V, VI, and VII. It strikes northwesterly in range VI and VII, and then curves to strike northeasterly in Range IV and V. It has magnetic values up to an in excess of 600 gammas above background values, and lies over rocks that are assumed to be dioritic sills and feeders hosted with basalts.

East of the central magnetic anomaly is a north to south striking moderately high anomalous zone, located south of Lac Villebon and parallel to R. Lowther in Range VI and VII. It roughly lies in the vicinity of the presumed location of the north/south contact between the basaltic units, to the east, and the schists and greywacke units, to the west. Magnetic values

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vary from 200 to more than 300 gammas above background, and the shoulders of this anomalous zone are relatively steep. Pyrite, pyrrhotite, magnetite, and graphite mineralization has been intersected in diamond drill holes which have penetrated the basaltic/greywacke-schist contact.

A large magnetically low anomalous zone is located along the western boundary of Block 2, and its position seems to correspond accurately to the presumed location of the greywacke-schist units.

Located between R. Lowther and the discontinuous moderate magnetic anomaly in the central part of the claim block, is a distinct magnetic low. The area occupied by this low roughly corresponds to the position of the prevailing basalts. The magnetic contour pattern indicates that the basaltic unit thins to the south, and continues uninterrupted into the southwestern part of the claim block. The western shoulder of the low magnetic anomaly is very gradual and probably corresponds to the presumed north/south greywacke-schist contact with the basalts. Along the eastern boundary within Range I and II is a gradual magnetic gradient which forms a distinct magnetic depression south and east of the claim block. This area overlies the presumed Vogel dioritic stock, which occupies the southern half of the Villebon Basin.

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Northeast and southeast of Lac Copper are two very strong magnetic highs, with values up to and in excess of 2000 gammas above background. They form a wide discontinuous northeasterly to southwesterly striking band. The prevailing rock units are meta-andesite and basalt, intercalated with meta-diorite, and gabbro sills thought to be feeders from the adjoining volcanics. Minor tuffaceous and sedimentary members are also interlayered within the volcanic flow, as well as a ultramafic sphinifex marker zone. The mappable lithological units are presumed to strike northeasterly, and the magnetic contour pattern confirms this. The distortion in the magnetic contour pattern suggests several series of complex faulting and/or faulting. Two main types of mineralization have been reported and described by Marleau, 1981. Pyrite, chalcopyrite, galena, and sphaleriate have been found associated with gold mineralization along the shores of Cooper Lake.

#### BLOCK 3 Map MG-4, North-South Flight Lines

The magnetic contour pattern follows the "L-Shaped" pattern of the block, and in general confirms the property geology. A prominent magnetic high with values in excess of 1200 gammas, is located along the northeastern border of the claim block. It

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strikes approximately east-west, and lies over the assumed contact of the amphibolites/basalts with the felsic dioritic pluton to the northeast. This strong band of magnetics decreases in intensity towards the west and north (300-600 gammas), and probably represents a thinning of the basaltic unit and a reduction in the magnetic content from an amphibolite to a more basaltic composition. The southern and western shoulders of the strong magnetic band fall off more gradually in the assumed vicinity of the Superior and Grenvillian structural province contact.

#### BLOCK 4 Map MG-1, MG-2 North-South Flight Lines

The moderate magnetic anomaly within Block 1, extends north-northwest into Block 4 and shows a similar anomalous expression. Magnetic values range from 500-600 gammas, and roughly coincides with a west-northwest trending diabase dyke. Around Lot 20 of Range VIII in Marrias Township, the magnetic contours seem to break possibly indicating a fault which offsets the dyke northwest to Lot 12 where it continues its west-southwest strike to the boundary of the Marrias/Sabourin Township Line.

An intense magnetic high in Lots 3-5 of Range VI, Marrias Township has values up to and in excess of 1500 gammas above background. It's square shape may coincide with a small stock of intrusive mafic rocks.

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A large moderately high anomalous zone is situated in the east central part of Sabourin Township within Block 4. This zone is divided into a northeast and southwest zone by a saddle. The saddle and the shoulders of several magnetic highs define a north-northwesterly linear trend which may represent a fault zone.

**BLOCK 5    Map MG-3    East-West Flight Lines**

A sub-circular magnetic high is located in the southcentral part of this claim block. It is slightly elongated with a northwest to southeast strike, and seems to have values in the same order as the linear magnetic high within Block 6 (575-750 gammas above background); this magnetic high overlies a presumed north-northwest trending band of ultramafic lavas. There is a distinct magnetic depression to the east of the claim block, which roughly overlies Archean metasedimentary rocks intercalated with ultramafic lavas. The shoulders of the central magnetic high fall off more quickly to the west, probably representing a more distinct contact with the Archean metasedimentary rocks to the west.

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**BLOCK 6 Map MG-3 East-West Flight Lines**

Block 6 contains a series of magnetic highs ranging from 400 to more than 800 gammas above background. These form a northwest to southeast band occupying the central part of the claim block and corresponding to the block's shape. This band overlies a presumed band of intercalated ultramafic lavas. The shoulders of the magnetic band fall off evenly on both sides, into two distinct magnetic lows. These lows overlie rocks thought to be granitic in composition.

**Electromagnetic Survey****BLOCK 1, Map EM-1 North-South Flight Lines**

Conductive Zone 1A is a short east to west trending conductor, situated along the eastern edge of the claim block. It lies along the northern shoulder of a magnetic high, and probably represents a shear zone associated within the northern contact of the northeast trending diabase dyke.

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BLOCK 2, Map EM-1 North-South Flight Lines  
Map EM-5,6 East-West Flight Lines

Conductor 2A is a short, northwesterly trending conductor situated in the northwestern part of Block 2. It overlies Lac Villebon and the assumed position of a large basaltic/andesitic rock mass. The strength of this conductor is probably the result of the lake.

Conductor 2B is a short, northwesterly trending conductor situated in the northwestern part of Block 2 and directly south of Conductor 2A. It overlies a peninsula along the southern edge of Lac Villebon, and is probably the result of lake edge effect.

Conductor 2C is a short, north-northeasterly striking conductor located in the northwestern part of the claim block. Its position overlies Lac Villebon, and it is probably the result of lake shore effect.

Conductor 2D is a two line northerly striking conductor which roughly corresponds to the strongest part of a magnetic anomaly having a similar strike. Conductor 2D appears to be the result of a shear within the contact between the diorite intrusive and the hosting basaltic unit.

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Conductor 2E is a short northerly striking conductor located south of Lac Villebon and just east of R. Lowther. It lies near the eastern shoulder of a northerly striking magnetic anomaly, and probably represents a shear zone located within the contact between the basalts and greywacke/schist units.

Conductors 2F and 2G, located in the central part of the claim block, are short northeasterly and northwesterly striking conductors, respectively. Their positions corresponds to the centrally located discontinuous magnetic anomaly, and may be the result of shear zones associated along the presumed contact zone between the northwesterly striking dioritic intrusive and the hosting basalts.

Conductor 2H is a short northeasterly striking conductor located northeast of Cooper Lake. It cuts the southwestern flanks of a strong magnetic anomaly at an oblique angle, may be the result of a shear within this area of complex faulting and folding.

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Conductor 2I is a short easterly striking conductor located along the east central part of the claim block. It cuts the shoulder of a very strong magnetic anomaly at ninety degrees. It probably represents a shear within the meta-andesites and basalts, which are intercalated with meta-diorite and gabbro sills.

Conductor 2J is composed of two short east-northeasterly striking conductors located along the west central part of the claim block. It overlies an area presumed to be underlain by greywackes and schists, and may be the result of a shear within these units.

Conductor 2K is a short northeasterly striking conductor located along the southwestern shore of Lac No.3. Its position and strength are probably the result of lake shore effect.

Conductor 2L is composed of two short east-northeasterly striking conductors located along the south-central border of the claim block. It roughly corresponds to a northeasterly striking trough separating two strong magnetic anomalies. This conductor may represent a shear within the presumed basaltic units intercalated with meta-diorite and gabbro sills, south and east of Cooper Lake.

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Conductor 2M is composed of two north-northeasterly striking conductors which overlie a magnetic low located between two north-northeasterly striking very strong magnetic highs. Conductor 2M may represent a shear within the faulted and folded basalts of the Cooper Lake area.

Conductor 2N is composed of a northeasterly striking conductor located along the southwestern boundary of the claim block and along the western shores of Lac No.6. Its position and strength are probably due to lake shore effect.

Conductor 2O is a short easterly striking conductor located along the eastern boundary in Range VI of Claim Block 2. It corresponds to an area of low magnetic susceptibility, and overlies an area presumed to be underlain by basalts. It may be the result of a shear within this unit.

#### BLOCK 3 Map EM-4 North-South Flight Lines

Conductor 3A strikes south-southeasterly across the northeastern part of Claim Block 3. It lies in an area having a relatively flat magnetic gradient and low magnetic values. Conductor 3A overlies a creek, near the assumed position of the dioritic/basaltic contact. It may be caused by topography or by a shear within the presumed geological contact.

Conductor 3B has a northwesterly strike and is located along the west central boundary of Block 3. It overlies the western shoulder of the magnetic band striking north-northwest, and may

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correspond to a shear along the assumed geological contact between the basalts and metasedimentary rocks.

Conductor 3C has a west-northwest strike and is located within the central part of Block 3. It is situated along Highway 117 and a set of power lines. The conductor's position also corresponds to the strongest part of the magnetic anomaly, having a similar strike. Conductor 3C appears to be caused by a shear zone in basaltic intrusive rocks.

Conductor 3D is composed of two short sub-parallel westerly striking conductors in the west central part of the claim block. The conductors lie near the presumed location of the geological contact between the Grenville Province gneisses, to the south, and the Superior Province basalts, to the north. Conductor 3D may be the result of a shear zone within the geological contact.

Conductor 3E is a west-northwesterly striking moderately strong conductor located in the southeastern corner of the claim block. It lies along the most southerly shoulder of a magnetic high, and may be caused by conductive overburden or a shear within the geological contact between the Grenville Province gneisses and the Superior Province basalts.

Conductor 3F is a long northerly striking conductor located in the extreme northwestern part of the claim block. It overlies the presumed location of the geological contact between the basalts to the east and the greywacke/schists to the west. Conductor 3F may be the result of a shear within the geological contact.

Conductor 3G is a short northwesterly striking conductor located in the northern part of the claim block. It overlies the eastern shoulder of a magnetic band striking north-northwest, and may correspond to a shear located within the assumed geological contact between the Vogel diorite stock and the basaltic unit to the west.

**BLOCK 4 Map EM-1,2 North-South Flight Lines**

Conductor 4A is a discontinuous low to moderate conductor with a northwest to southeast strike. It is located in an area of low magnetics and along the southern shores of Lac Louvicourt, and may be the result of lake edge effect.

Conductor 4B is located in Lot 8 of Range II in Marrias Township. It is a short fork-shaped conductor, with very high values on the north limb (18) and a northeasterly strike. Values on the southern limb are lower (10), and have a west-northwesterly strike. It lies in an area having a relatively flat magnetic gradient with low magnetic values. It may be caused by conductive overburden or a shear within a geological contact.

Conductor 4C is located in Range III, Claim 463581-1 of Sabourin Township. It is a short northeasterly striking conductor, and lies along the assumed northern contact of the east/west striking diabase dyke. Conductor 4C may represent a shear within the contact with the metasedimentary rocks.

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Conductor 4D is located in claim 463581-4 of Sabourin Township. It has an east-west strike, and overlies the magnetic saddle between two magnetic high anomalies. This conductor may represent a structural break.

Conductor 4E is a discontinuous conductor with relatively low to moderate values within claims 463701-2 and 463702-2 of Sabourin Township. Its northwesterly strike corresponds to a depression between two high anomalous northwesterly striking magnetic zones. The position of this conductor may outline the location of a structural break, or the western contact of the presumed northwesterly trending ultramafic band hosted by metasedimentary rocks.

Conductor 4F is located within the northwestern corner of the Sabourin claims. It strikes to the northwest, and overlies an anomalously low magnetic zone. The magnetic contours of this zone are highly contorted, probably indicating an area of shearing and faulting. This conductor may represent a structural break.

Conductor 4G is located within the southwestern corner of the Sabourin claims. It has a strong northwesterly strike, and roughly overlies an anomalously low magnetic zone. This zone lies within a northwesterly trending trough between two anomalous magnetic highs. Conductor 4G may also represent a structural break.

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Conductor 4H is located in Lot 1 of Range VI, Marrias Township. It has a east-west strike and overlies a small lake. The conductor may be the result of the lake edge effect.

Conductor 4I lies along the southern border of Lot 8 of Range VI of Marrias Township. It has a northwest to southeast strike, and overlies the presumed eastern contact of intercalated ultramafic lavas in a metasedimentary host. The conductor corresponds to the strike of the southern shoulder of a strong magnetic high (1600 gammas above background) and probably represents shears zones associated within the presumed eastern contact of intercalated ultramafic lavas with Archean metasedimentary rocks.

Conductor 4J is a two-line conductor located in the northwestern corner of the claim block. Its position and strike roughly corresponds to the shoulder of a magnetic high, and may be caused by a shear within the assumed northern contact of the east/west striking diabase dyke.

**BLOCK 5    Map EM-3    East-West Flight Lines**

Conductor 5A has a discontinuous north-south strike, and is located in the north central part of Block 5. It lies in an area having a relatively flat magnetic gradient and low magnetic values along the assumed eastern contact between the north-south striking intercalated lavas and the Archean metasedimentary rocks.

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Conductor 5B is a short north-northwesterly striking conductor which lies along the southeastern boundary of Block 5, in an area having a relatively flat magnetic gradient, on the southeastern shoulder of a magnetic high. It is located near the Riviere des Outaouais, and is probably the result of changes in topographical relief, following a possible linear bedrock trend.

Conductor 5C is located in the southeast corner of Block 5. It strikes north-northeast along the shoulder of a magnetic high located within Block 5. It lies in an area having a relatively flat magnetic gradient, and is probably the result of topography.

#### BLOCK 6    Map EM-3    East-West Flight Lines

Conductor 6A is a strong short north-south striking conductor, located in the north-central part of the claim block. It roughly overlies a saddle (magnetic depression) between a long mainly continuous northwesterly trending magnetic high and a circular high magnetic anomaly on the northern boundary of the claim block. Conductor 6A probably represents a structural break.

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Conductor 6B and 6C are short moderately strong conductors located in the northwest part of Block 6. Conductor 6B has a strike along the southern shoulder of a magnetic high, located in the northwest corner of the claim block. This conductor probably represents a structural break or a northeasterly striking fault within the presumed northwesterly trending intercalated ultramafic unit. Conductor 6C cuts the northern shoulder of the long continuous northwest magnetic anomaly. It is probably the result of a local shear zone within the northwest trending intercalated ultramafic lavas.

Conductor 6D is a short north-south striking conductor located along the northwestern boundary of the claim block. It roughly corresponds to the western shoulder of the long continuous north-northwesterly trending magnetic anomaly. The conductor probably represents a shear along the contact between the intercalated ultramafic lavas and the hosting Archean metasedimentary rocks.

Conductor 6E is a north-south striking conductor located just south of the Marrias/Granet Township line in the Eastern part of Block 6. Its position is near the eastern shoulder of the long continuous north-northwest trending magnetic anomaly.

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It probably represents a shear along the presumed contact between the intercalated ultramafic lavas and the hosting Archean metasedimentary rocks.

Conductor 6F is composed of three short north-northwesterly striking conductors located in the central part of Block 6. They overlie the shores of Riviere Marrias, and are probably the result of lake edge effect.

Conductor 6G is an east-west striking conductor located along the east central boundary of Block 6. It lies in a magnetic low anomalous zone, and the conductor may be caused by conductive overburden.

Conductor 6H is composed of two short discontinuous north-northwest striking conductors. They overlie the central part of the long magnetic north-northwest striking anomaly, and lie within 1/4 mile of the eastern shores of Lac Granet. As well, a copper/nickel occurrence is located 0.4 kilometers east of conductor 6H. Conductor 6H appears to be the result of lake edge effect or possibly caused by conductive overburden.

Conductor 6I strikes north-northwest across the south central part of Block 6, in the central part a magnetic anomaly. It is situated about 0.5 kilometers west of a copper, nickel

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occurrence on the eastern shores of Lac. Granet. This conductor may be caused by conductive overburden.

Conductor 6J is a short north-south striking conductor located along the southeastern boundary of Block 6. Two short conductors immediately north and south of conductor 6J form a discontinuous north-south band. This band lies along the western edge of a swampy area, and overlies an area of very low magnetics and low magnetic gradient. Conductor 6J appears to be caused by conductive overburden or topography.

#### CONCLUSION AND RECOMMENDATIONS

The airborne VLF-electromagnetic and magnetic surveys were successful in helping outline the property geology and in delineating forty-two conductive zones underlying the La Fosse Platinum Group property in six claim blocks within Villebon, Marrias, Sabourin, Granet, and Freville Townships, Quebec.

The eastern three claim blocks are strongly influenced by the elliptical dioritic Vogel Stock located in the southeastern part of the property. The influence of this stock diminishes towards the north and west, which results in fewer conductive zones located within the three western claim blocks.

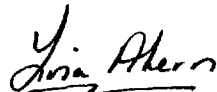
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Thirty-three of the forty-six conductive zones outlined by the VLF-EM survey are possibly the result of bedrock features (shears). The structural and lithologic complexity of the property particularly in Claim Blocks 1, 2, and 3, as indicated by the magnetic data, suggests that these claims are located in a particularly good geologic environment for gold and/or base metal mineralization.

Further work is warranted on the property especially in the areas of the possible bedrock conductors. An exploration program of ground geophysics, overburden sampling, and geological mapping should be completed over all the property. A combined vertical gradient/total field magnetic survey and horizontal loop electromagnetic survey should be preformed, followed by an induced polarization survey over selected conductors. Potentially interesting geological targets and geophysical anomalies should then be tested by diamond drilling.

Respectfully submitted,

H. FERDERBER GEOPHYSICS LTD.



L.L. Ahern, B.Sc.  
Geologist.

APPENDIX 1 CLAIM LISTBlock 1 (3 claims)

## Villebon Township

464069 - 1  
464068 - 1,2

Block 2 (239 claims)

## Villebon Township

306828 - 1,2	460564 - 1,2
364660 - 1,2,3	460565 - 1,2
371020 - 1,2	460566 - 1,2
371021 - 3,4	460567 - 1,2
372580 - 1,2	460568 - 1,2
372581 - 1,2	460569 - 1,2
374001 - 1,2	460570 - 1,2
374015 - 1,2	460593 - 1,2
374429 - 1,2	460594 - 1,2
	460595 - 1,2
452567 - 1,2	460596 - 2
452568 - 1,2	460597 - 1,2
452569 - 1,2	460598 - 1,2
452570 - 1,2	460599 - 1,2
452571 - 1,2	460600 - 1,2
452572 - 1,2	460601 - 1,2
460407 - 1,2	460602 - 1,2
460408 - 1,2	460603 - 1,2
460409 - 1,2	460604 - 1,2
460410 - 1,2	460605 - 1,2
460535 - 1,2	460606 - 1,2
460536 - 1,2	460607 - 1,2
460537 - 1,2	460608 - 1
460538 - 1,2,3	460624 - 1,2,3
460539 - 1,2	460625 - 1,2
460540 - 1,2	460626 - 1,2
460541 - 1,2	460627 - 1,2
460542 - 1,2	460628 - 1,3,4,5
460543 - 1,2	460629 - 1,2,3,4,5
460544 - 1,2	460630 - 1,2,3,4,5

460631 - 1,2	464066 - 1,2,3,4,5
460632 - 1,2	464067 - 1,3
460633 - 1,2	
460634 - 1,2	464069 - 2
460635 - 1,2	464070 - 1,2
460636 - 1,2	464071 - 1,2,3,4,5
460637 - 1,2	464072 - 1
460638 - 1,2	464073 - 1,2,3,4,5
460639 - 1,2	464074 - 1,2,3,4,5
460640 - 1	464075 - 1,2,3,4,5
460641 - 1,2	464076 - 1,2,4,5
460642 - 1,2	464077 - 1,2,3,4,5
460643 - 1,2	464179 - 1,2,3,4,5
460644 - 1,2	464180 - 1,2,3,4,5
462918 - 1,2	464181 - 1,2
462919 - 1,2	464182 - 1,2
462920 - 1,2	464183 - 1,2,3
463576 - 1,2	464184 - 1
463577 - 1,2	466930 - 1,2
463578 - 1,2	466931 - 1,2
464064 - 1,2,3,4,5	466934 - 1,2
464065 - 1,2,3,4,5	466435 - 1,2

**Block 3 (66 claims)****Freville Township**

455448 - 1,2,3,4,5	460706 - 1,2,3,4,5
455449 - 1,2,3,4,5	460707 - 1,2,3,4,5
455450 - 1,2,3,4,5	460708 - 1,2,3,4,5
455451 - 1,2,3,4,5	460709 - 1,2,3,4,5
455452 - 1,2,3,4,5	460712 - 1,2,3,4,5
455472 - 1,	460713 - 1,2,3,4,5
460705 - 1,2,3,4,5	460714 - 1,2,3,4,5

**Block 4 (125 claims)****Sabourin Township**

463579 - 1,2,3,4,5	463701 - 1,2,3,4,5
463580 - 1,2,3,4,5	463702 - 1,2,3,4,5
463581 - 1,2,3,4,5	463703 - 1,2,3,4,5
463582 - 1,2,3,4,5	463704 - 1,2,3,4,5
463583 - 1,2,3,4,5	463794 - 1,2,3,4,5
463700 - 1,2,3,4,5	

**Marrias Township**

460571 - 1,2	460589 - 1,2
460572 - 1,2	460596 - 1
460573 - 1,2	460608 - 2
460574 - 1,2	460609 - 1,2
460575 - 1,2	460610 - 1,2
460576 - 1,2	460611 - 1,2
460577 - 1,2	460612 - 1,2
460578 - 1,2	460613 - 1,2
460579 - 1,2	460614 - 1,2
460580 - 1,2	460615 - 1,2
460581 - 1,2	460616 - 1,2
460582 - 1,2	460617 - 1,2
460583 - 1,2	460618 - 1,2
460584 - 1,2	460619 - 1,2
460585 - 1,2	460620 - 1,2
460586 - 1,2	460621 - 1,2
460587 - 1,2	460622 - 1,2
460588 - 1,2	460623 - 1,2

**Block 5 (16 claims)****Marrias Township**

460719 - 1,2	460723 - 1,2
460720 - 1,2	460724 - 1,2
460721 - 1,2	460725 - 1,2
460722 - 1,2	460726 - 1,2

**Block 6 (76 claims)****Marrias Township**

460715 - 1,2	460717 - 1,2
460716 - 1,2	460718 - 1,2

**Granet Township**

460667 - 1,2,3,4,5	460674 - 1,2,3,4,5
460668 - 1,2,3,4,5	460675 - 1,2,3,4,5
460669 - 1,2,3,4,5	460676 - 1,2,3,4,5
460670 - 1,2,3,4,5	460677 - 1,2,3,4,5
460671 - 1,2,3,4,5	460678 - 1,2,3,4,5
460672 - 1,2,3,4,5	460679 - 1,2,3,4,5
460673 - 1,2,3,4,5	460680 - 1,2,3