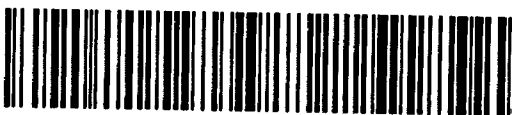


63



42A14SE0335 63.1381 MANN

010



42A14SE0335 63.1381 MANN

010C

JONSMITH MINES LIMITED
REPORT ON
A GEOMAGNETIC AND ELECTRO-
MAGNETIC SURVEY COVERING
PART OF THE COMPANY'S
MINING PROPERTY IN MANN TOWN-
SHIP, COCHRANE AREA,
ONTARIO.

FOR

THE DIRECTORS

Nov. 24, 1964.
Haileybury, Ontario.

E.L. MacVeigh B.A., M.S.

.....

CONTENTS

1. Foreward
2. Property & Access
3. Geology
4. Mineral Deposits
5. Geophysical Survey Results
6. Summary & Recommendations
7. Certification.

- MAPS:
- a) Geomagnetic Map of part of Jonsmith Property. Scale 1" = 400'
 - b) Electromagnetic Map of part of Jonsmith Property. Scale 1" = 400'
 - c) Geological Map of part of Jonsmith Property. Scale 1" = 400'
 - d) Picket Line Grid Tie-in. Scale 1" = 400'.

FOREWORD

In the Spring of 1964 Jonsmith Mines Limited acquired by staking 94 mining claims in the southeast part of Mann Township, Cochrane Area, Ontario. This staking followed important discoveries of copper, zinc and silver ore by the Texas Gulf Sulphur Company in Kidd Township located 19 miles to the southwest. The site of the Jonsmith property in Mann Township includes the location of the former Cunigold Mines Limited, where the presence of copper, nickel and gold values were reported in previous work. The Cunigold operation consisted chiefly of shallow rock trenches and short diamond drill holes.

In the summer of 1964 Jonsmith Mines Limited line-out an area of approximately 40 claims on which the writer conducted a geomagnetic and electromagnetic survey. Accompanying this report are geomagnetic and electromagnetic maps on a scale of 1" = 400 ft. A geological plan is also included showing some of the rock outcropping in the area covered.

PROPERTY AND ACCESS

Mann Township is Government surveyed and the claims comprise approximately 3,760 acres located in Concessions 1, 2, and 3, Lots 1 to 8 inclusive. The claims

are recorded in the Foreopine Mining Division as follows:

Nos. P.61325 - P.61348 Incl.24 Claims
Nos. P.68490 - P.68547 Incl.58 Claims
Nos. P.71643 - P.71654 Incl.12 Claims
Total <u>94 Claims</u>

There are two routes to the property which is located 16 miles due south of Cochrane. The route used during the recent Jonsmith work was by way of No. 11 Highway turning west on a country road 3 miles north of Nellie Lake. The distance to the Jonsmith camp from No. 11 Highway is 8 miles. Swamp conditions along this route during the summer months required the use of a swamp-buggy for transportation. A second access to the property is by way of the dam at High Falls on the Frederick House River, 15 miles north of Connaught. The road to High Falls may be car driven winter and summer and after crossing the dam a trail leads two miles northeast to the Jonsmith camp in Claim P.61335.

The west half of the Jonsmith property which is the area surveyed by the writer, is largely overburdened. The overburden is estimated to exceed not more than 40 feet in most places. Rock outcrops occur in the vicinity of the north half of Lot 6, Range II. The ground is generally low relief with a heavy undergrowth and occasional stands of second growth poplar, spruce and birch.

GEOLOGY

The location of some rock outcroppings in Mann Township is shown on a compilation map by Dr. J. Satterly made in 1953 and available from the Ontario Department of Mines. Geomagnetic contours by the Geological Survey of Canada are also shown on this sheet. The general geology shows a country rock of Keewatin volcanic flows of both acid and basic types striking in a general east-west direction. Pyroclastic sediments are also known to be interbedded with the lava flows. Basic intrusives composed of gabbro and peridotite intrude the Keewatin country rock in a sill-like manner and may be classed as Halloyburian in age. These basic intrusives dip flatly to the north in the northern part of the township. In the south part of the township they are indicated to be steeply dipping to the north. Later acid intrusives, probably of Algonan age, occur chiefly as dikes of syenite and syenite porphyry.

On the Jonsmith property, which is located in the southeastern part of Mann Township no attempt was made by the writer to complete the geological mapping. However a plan from the former Canigold operation provided the generalized outline of the rock outcroppings in the central parts of the property. These outcrop areas as shown on the accompanying map are 25 to 50 percent rock exposure.

The rocks identified on the Jonasith ground show the presence of rhyolite and rhyolite breccia striking east-west in Lots 6 and 7, Range 11. The rhyolite is intruded for an observed length of 5,000 feet by gabbro and peridotite. These intrusives are closely associated and no contact could be found between them on good exposure, and hence they may be differentiates of the same sill-like mass. The rhyolite and the basic intrusives appear to be conformable and to dip to the north at about 70°.

Intruding the rhyolite and the basic intrusives is an older gabbro type dike approximately 50 feet wide, striking northwest-southeast in the west part of the outcrop area. Where this dike crosses the rhyolite it appears to give a strong magnetic anomaly.

Intruding all the above rocks is a feldspar porphyry dike showing a width of 50 feet and striking in a northeast-southwest direction. This is assumed to be Algonan // in age. Some rock fractures parallel to this direction show barren quartz veins.

The overall geological structure would indicate that the rhyolite formation was intruded conformably by first a peridotite sill, closely followed by the gabbro which appears to cross the peridotite zone in the central part of the outcrop area. Many inclusions of rhyolite occur along the contacts of both the peridotite and gabbro. Some of these inclusions are quite large showing dimensions up to 50 feet.

The continuity of the rock strike and the formations appears to be interrupted by some north-south cross structure between picket lines 20W. and 24W. This is also indicated by electromagnetic conductors.

MINERAL DEPOSITS

The rhyolite, peridotite and gabbro rocks show concentrations of pyrrhotite and pyrite and minor chalcopyrite associated with rock fracturing and in localized shearing. The presence of ultra basic rocks suggests that copper and nickel concentrations might be found. The only other mineral evidence which might be important is the presence of asbestos fibre in the peridotite. This is abundantly developed in some peridotite outcrops in the eastern part of the property beyond the surveyed area. The fibre appears to be quite short and grade is unknown.

The site of the former Cunigold operation on present Jonsmith Claim P.61334 shows massive and disseminated pyrrhotite and pyrite in peridotite. This sulphide occurrence shows a northeast-southwest direction and occurs along the edge of a feldspar porphyry dike. The occurrence is 10 feet wide at the proposed shaft site but cross trenching by Jonsmith in the summer of 1964 did not show important copper concentrations along strike. According to a report for the Cunigold Mining Syndicate Limited by P. Gordon Smith Ph.D., four diamond drill holes were put down to this location in

the Fall of 1944. These holes showed small disseminated sulphide bodies. The largest section with appreciable copper showing 23½ feet averaged 0.76 percent copper and 0.08 percent nickel. Material of this grade was not observed by the writer on the surface dump of the shallow shaft preparation.

The most abundant mineralization observed on the Jonsmith property is in a graphitic zone in rhyolite formation along the south contact of the peridotite between Picket Lines 44W. and 56W. This zone is traceable on surface for 1200 feet on the Jonsmith property and shows widths up to 100 feet where patches of sulphide occurrence are marked by rust and gossan. The strike which is slightly south of east is also marked by abundant carbon occurrence in the form of flakes and masses of graphite. Some trenching was carried out on this zone by the Cunigold operation. Minor amounts of chalcopyrite occur with the pyrrhotite and pyrite.

A similar type of sulphide occurrence with graphite in rhyolite shows on the edge of an outcrop at 830N on Picket Line 16W. A grab sample of the showing returned 0.24 percent nickel and 0.15 percent copper from the very limited exposure.

GEOPHYSICAL SURVEY RESULTS

a) Geomagnetic Survey

The geomagnetic survey was conducted with a Sharpe A2 magnetometer using a sensitivity of 30 gammas per scale division. A line cutting grid was laid out from a base line extending 10,400 feet east from the west boundary of the Jonesmith ground in Concession II. The zero origin is at the east end of the base line. From this point west picket lines were run north and south of the base line at distances of 400 feet. Stations were established at 100 foot intervals north and south of the base line on all picket lines and east-west lines including tie-lines and south claim boundaries. Two thousand one hundred and eighty-four magnetic stations were read and recorded with some additional fill-in readings at 25 foot distances. Accompanying this report is a geomagnetic contour map on a scale of 400 feet to 1 inch.

The magnetometer results outline the location of the basic and ultra basic rocks which appear as two prominent features extending into the map area from the east. The south of these peridotite-gabbro associations extends in an east-west direction to the central part of the map where it terminates abruptly near Lot Line 6-7. Two prominent electromagnetic conductors are found associated with this basic rock occurrence and show a number of high magnetic readings which can be identified as pyrrhotite concentrations. The type of pyrrhotite on the property is highly magnetic.

In the western part of the outcrop area a gabbro type dike with a marked nodular surface weathering shows as

a high magnetic anomaly where it intrudes rhyolite formation. This anomaly is traceable across the southeast boundary of the survey area but to the northwest appears to terminate at the edge of the peridotite outcrop. The western half of the surveyed area shows only low magnetic relief where a dike such as the above could be easily outlined. The evidence suggests that the peridotite and the dike are terminated to the west by a large offset which would displace them out of the map area. Another interpretation is that the dike is a differentiate of the ultra basic rocks and the whole plunges to the east and terminates to the west.

The high magnetic anomaly extending into the property from the northeast corner of the map area appears to be a parallel and similar zone to that of the basic rocks exposed in the south anomaly. This also terminates abruptly to the west.

The dip indications are that the basic rocks, which are sill-type intrusives, are dipping steeply to the north. This is shown by some of the contouring and also by the presence of magnetic lows on the south side of two magnetic highs.

b) Electromagnetic Survey

The electromagnetic survey was conducted over the same picket line grid as the magnetometer work using the Ronka Horizontal Loop Method with a frequency of 760 cps. and a cable separation of 200'. A total of 1759 E.M. stations were

read and recorded. The accompanying electromagnetic map is on a scale of 400' to 1 inch. The deeper negative in-phase readings, as long as they are not exceeded by the out-of-phase, are indications of sub-surface conductors such as graphite, pyrite, pyrrhotite and other conductive sulphide minerals. Massive sulphides will give a much more significant reading than sulphides of the disseminated type which are only conductors in appreciable amounts.

The results of the electromagnetic survey show the presence of two highly conductive zones. These are marginal to the south magnetic anomaly identified with basic rock intrusives. One conductor was traced for a length of 3,300 feet in an east-west direction along the south contact of the basic rock zone, and a second strong conductor was traced for a length of 2,500 feet along the north contact of the same basic rock formation. Both these conductors strike in an east-west direction and are separated by a north-south distance of 1,300 feet.

The south conductor is exposed on rock outcrop for 1500 feet in its western part. Here it is revealed to be a fractured and locally sheared rhyolite breccia containing highly magnetic pyrrhotite, graphite and sparse pyrite and chalcopyrite. In the exposed area this south conductor zone shows widths of mineralized rhyolite up to 150 feet with mineralization present as isolated patches of pyrrhotite. A heavy occurrence of hard graphite is

frequently found with the highest sulphide content. By visual estimate it is doubtful if the whole width of the zone would exceed 1 or 2 percent sulphides. The eastern 1900 feet of the south conductor is entirely overburdened showing widths up to 300 feet with high conductor readings. The conductor readings in the south zone terminate abruptly to the east between Lines 20W and 24W. To the west the conductor readings fade out near Line 56W.

The north conductor terminates abruptly to the west between Lines 20 and 24 and is traceable to the east side of the grid on Line 0. This north conductor is assumed to be of the same type as the south conductor because of an outcrop at 800N on Line 1600W, which shows sulphide in rhyolite, including pyrrholite, pyrite and sparse chalcopyrite. Aside from this outcrop the north conductor is entirely overburdened showing a regular width of about 200 feet of medium conductor readings. This conductor could probably be traced further east by additional work.

The fact that the two conductors terminate at about the same longitude line may mean that they are related to the same north-south cross structure. Surface evidence shows that both conductors occur in rhyolite formation. Stresses related to the north-south structure may have fractured the more competent rhyolite formation. Conductor sources such as sulphide mineralization may have spread from the north-south fracturing into the east-west rhyolite bands.

The south anomaly shows a gradual diminishing in size and conductivity until it dies out to the west. The north conductor continues to the east side of the map area and is open to further investigation.

SUMMARY AND RECOMMENDATIONS

The Electromagnetic Survey has shown the presence of two strong conductors striking in an east-west direction on the Jonsmith property. These conductors are traceable for 1200 feet and 2200 feet and are indicated to be in favorable rhyolite formation mineralized with pyrite, pyrrhotite and chalcopyrite with the presence of nickel as determined by assay. Graphite is present with the sulphide minerals.

The north of the two conductors, which is the one traceable for 2200 feet, is incompletely outlined and probably continues east of the picket line grid. It is recommended that five additional north-south lines be established at 400 foot distances to the east of line 00 covering the strike of this conductor. The lines should be extended from the Base Line to the Concession Line for a total line mileage of approximately 2 miles.

On the accompanying geological map are shown four recommended diamond drill hole locations each 500 feet long to be drilled at an angle of -45° .

Drill holes No. 1 and 3 are directed to investigate the north conductor for the presence of copper ore occurrence.

IonSmith - Namu Twp.

Accompanying nickel or zinc values are also a possibility.

Diamond drill holes No. 2 and No.4 are directed west to explore the north-south geological cross-structure with which the two electromagnetic conductors appear to be associated.

<u>Hole</u>	<u>Collar Location</u>	<u>Boring</u>	<u>Angle</u>	<u>Length</u>
1	1600'W + 1150'N	S. on Line	-45°	500'
2	1935'W + 920'N	Due West	-45°	500'
3	0800'W + 1400'N	S. on Line	-45°	500'
4	1600'W + 0530'S	Due West	-45°	500'

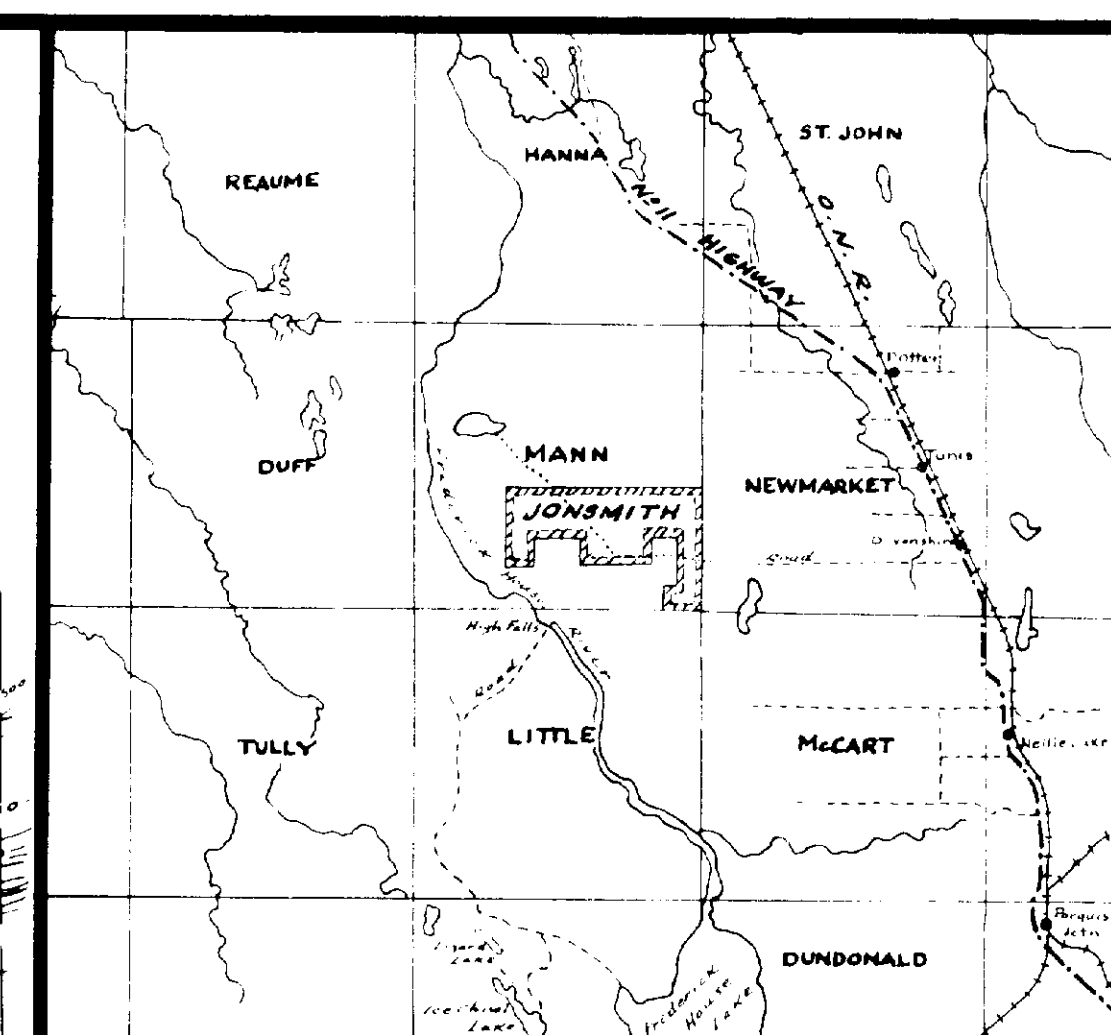
The above drilling totals 2,000 feet. An allowance should be made for an additional 2,000 feet of follow-up drilling or a total recommended preliminary program of 4,000 feet. The over all cost of the drilling may be estimated at \$5.00 per foot, or \$20,000.00.

The cost of two miles of geophysical surveying will depend on the presence of camp, time of year, etc.

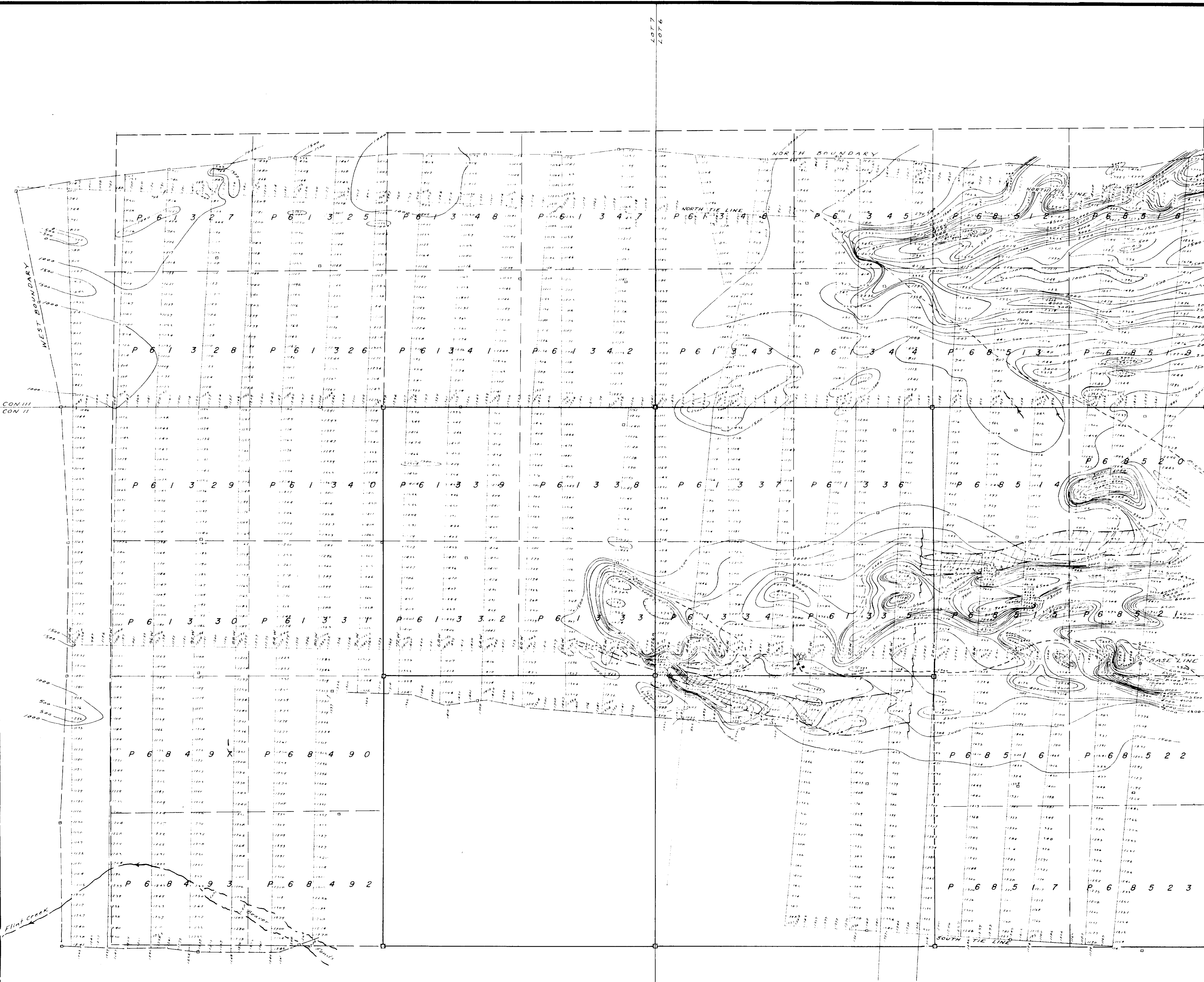
Respectfully submitted by,

B.L. MacVeigh B.A., M.S.

November 24, 1964,
Halleybury, Ontario.



INDEX MAP
SCALE 1"=4 MILES



- SYMBOLS**
- Bush road
 - Concession and lot boundary
 - Claim boundary (staking)
 - Small creek
 - Swamp
 - Lower edge of rise in elevation
 - Outcrop boundary
 - Trench or pit
 - Fault, irregular or assumed
 - Strike and dip of formation
 - Base and picket lines
 - Building or tent on frame
 - Claim corner (as staked)
 - Trail
 - Diamond drill hole
 - Mineralized zone (E.M. conductor)
 - Contact, defined
 - Contact, assumed
 - Main control station
 - Magnetometer reading
 - Contour line of equal vertical magnetic intensity

LEGEND

- Minus 0 gammas
- 0 to 1000 gammas
- 1000 to 1500 gammas
- 1500 to 3000 gammas
- 3000 to 5000 gammas
- 5000 plus gammas

MAGNETOMETER DATA
 SCALE CONSTANT: 20.0 gammas per scale division
 NORMAL CORRECTION: 0 gammas
 CONTOUR INTERVAL: 500 gammas

**West Block
 GEOMAGNETIC MAP**

OF PART OF

JONSMITH MINES LTD.

MANN TWP-COCHRANE AREA - ONTARIO

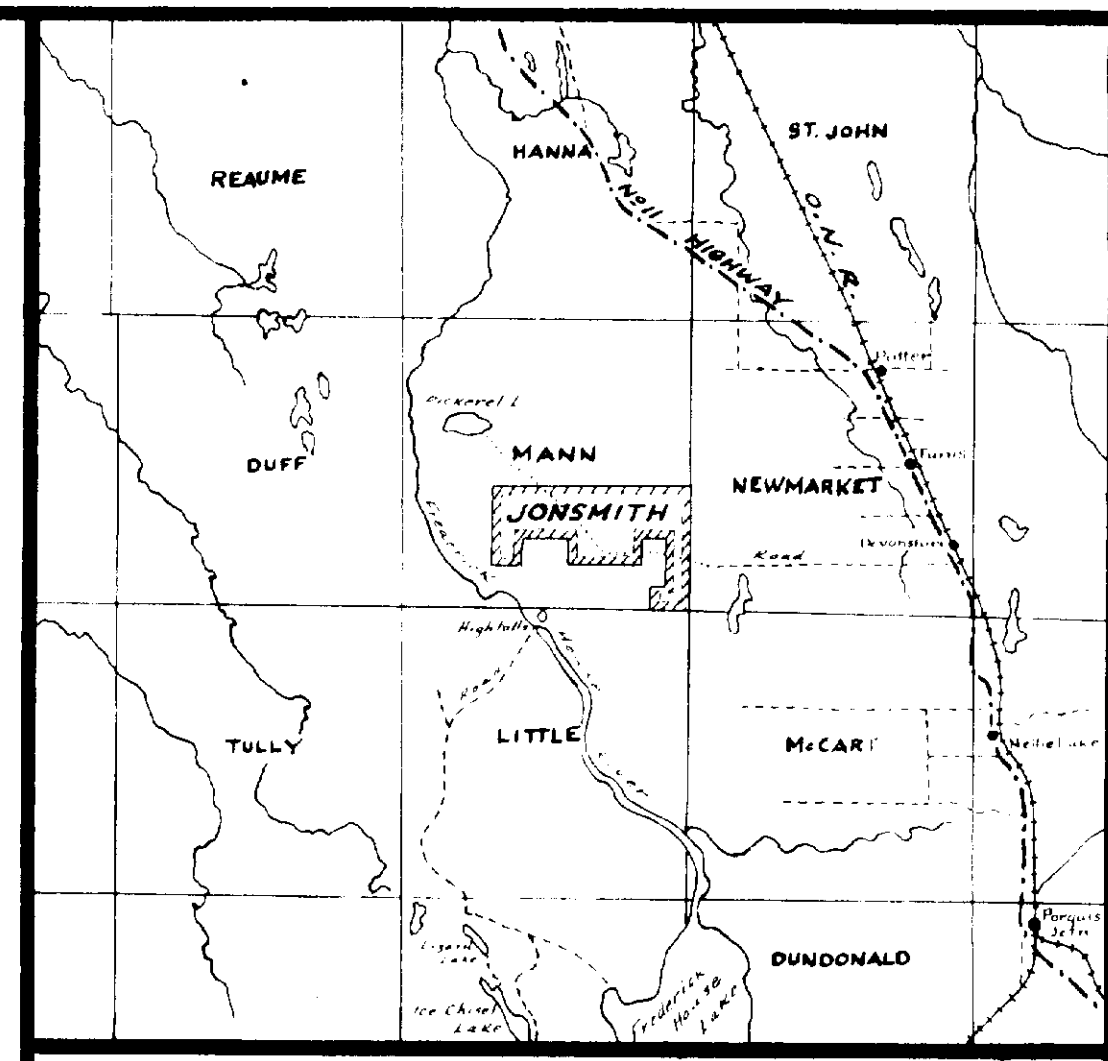
Scale: 1 inch = 400 feet

MacVeigh

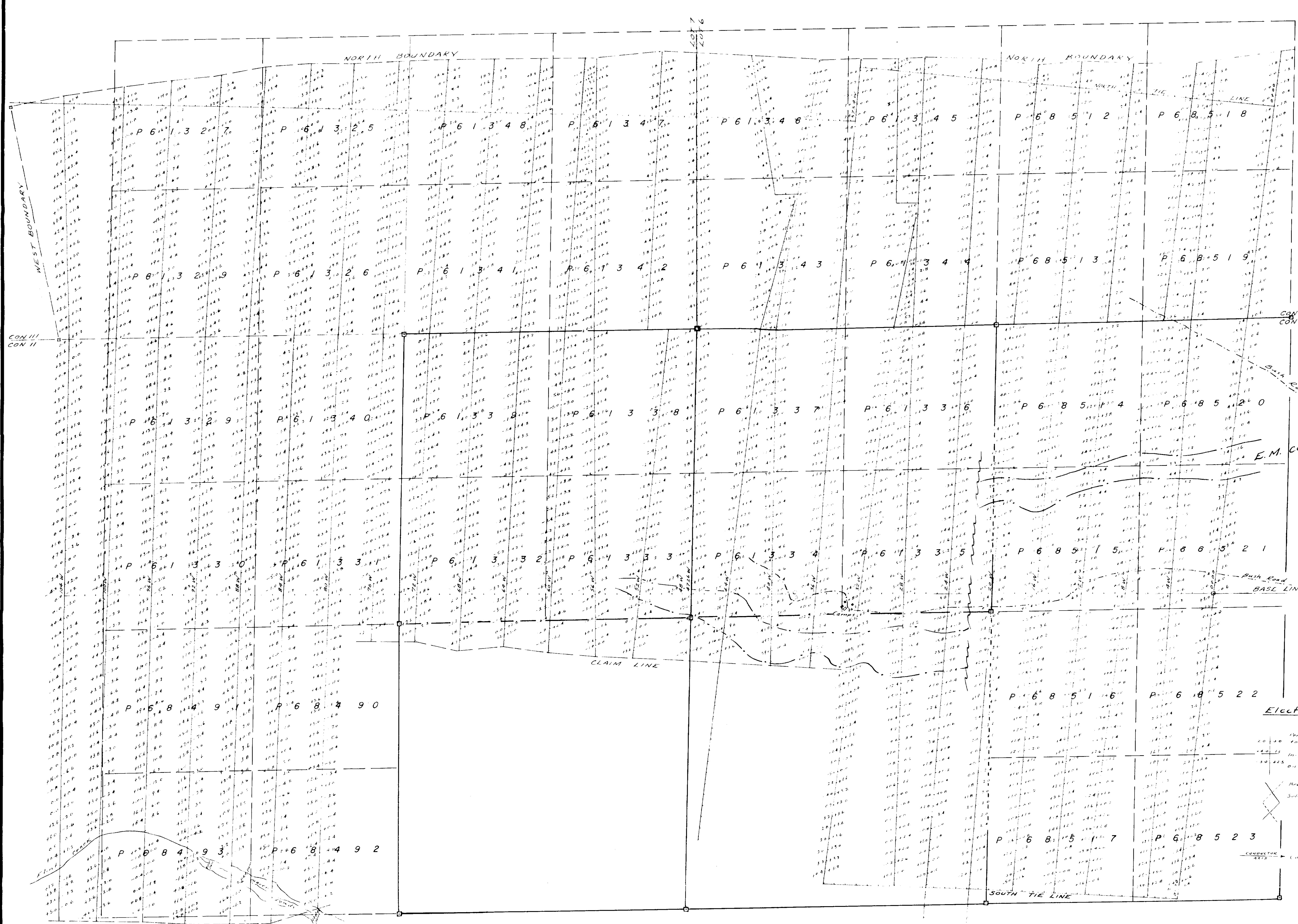
TO ACCOMPANY REPORT BY E.L. MACVEIGH, B.A., M.S.

63-1381





INDEX MAP
SCALE: 1/4 MILES



Electromagnetic Symbols

1000 Percent of compensating voltage change due to conduction
 1000 In-phase readings plotted to left of line
 1000 Out of phase readings plotted to right of line
 Broken line - profile of out of phase readings
 Solid line - profile of in phase readings
 Profile scale 1" = 10'
 Negative values to left of line
 Positive values to right of line

CONDUCTOR 2515

ERROR :- Lot 6 and 7 line plotted N 1° E. (Should be N. Ast.)

West Block.
ELECTROMAGNETIC SURVEY
 (RONKA)
 OF PART OF
JONSMITH MINES LTD.
 MANN TWP-COCHRANE AREA-ONTARIO
 Scale 1 inch = 400 feet
 TO ACCOMPANY REPORT BY E.L. MACLEIGH, B.A.M.S.
 63-1381
 October 1964