



REPORT
ON THE
GEOPHYSICAL SURVEYS
ON THE PROPERTY OF
FROBEX LTD.
MacDIARMID AND REID TOWNSHIPS, ONT.

INTRODUCTION

Magnetometer and electromagnetic surveys were carried out on the property of Frobex Ltd. in MacDiarmid and Reid townships, Timmins area. The following report and accompanying maps describe the results of these surveys.

PROPERTY AND LOCATION

The property consists of 44 claims situated in the northwest corner of MacDiarmid township and the southwest corner of Reid township, Porcupine Mining Division, Ontario, as shown on the accompanying maps. The claims have been registered with the Ontario Department of Mines as follows:

P 67769 to P 67772 in Reid township
P 67775 to P 67777 " " "
P 67780 to P 67782 " " "
P 67881 to P 67885 " " "
P 67714 to P 67731 " MacDiarmid township
P 67734 " " "
P 67737 " " "
P 67740 to P 67748 " " "

GEOLOGY

The property is largely covered with a fairly thick deposit of glacial clay. As a result, the geology must be interpreted from the information on the area which in itself is fairly scant due to the scarcity of rock outcrops. The geology of the area is covered in the Annual Report of the Department of Mines, Vol. LIII, Part IV, 1944, and by Map 2046, published by the Ontario Department of Mines.

The only outcrops shown in MacDiarmid township are in the westerly portion where Keewatin volcanics, consisting of rhyolite and andesite, have been intruded by

gabbro. There has also been a fairly widespread intrusion of quartz diabase dykes in the area and several of these outcrop in the west portion of MacDiarmid township. They have a maximum width of 150 feet and strike persistently N 10-20°W.*

Map 2046 shows some geology in the extreme northwest corner of MacDiarmid township which would be on the Frobex property. This shows the rocks to be andesite and rhyolite with the contact striking slightly north of west. Outcrop areas in this vicinity are shown on the geophysical maps.

Structural trends are difficult to determine due to the lack of evidence but the suggestion is that there is a major syncline trending northwest-southeast with a plunge to the southeast. The general trend of the assumed contact between the gabbro and the Keewatin volcanics in Robb township is also northwest-southeast.

GEOPHYSICAL SURVEY RESULTS AND INTERPRETATION

An electromagnetic survey was carried out over the entire property along lines cut in a north-south direction

* Reported in L111, Part IV, Annual Report, Ontario Department of Mines, 1944.

at 400 foot intervals, as shown on the accompanying maps. A magnetometer survey was carried out over designated areas as shown on a separate map accompanying this report. A Sharpe A-2 magnetometer was used in the magnetic survey and the electromagnetic survey was carried out using a Ronka Mark IV horizontal loop unit with a 300 foot coil interval.

The magnetic and electromagnetic results are shown on separate maps on a scale of 400 feet to the inch.

An examination of the electromagnetic map shows all conductive zones restricted to the portion of the property in MacDiarmid township. In this area there are quite a number of conductive zones and the major ones have been lettered A, B, C and D for reference purposes. They are all in the area shown on Map 2046 as being underlain by volcanic rocks.

"A" ZONE consists of two conductors, one of which extends off the property and it is quite possible these represent faulted or fold sections of the same zone. The profiles represent a broad weak zone and one tends to suspect conductive overburden or bedrock topography.

There are outcrops immediately to the south which may be of some assistance in determining their importance. The ratio is 1 or less representing a weak conductive zone unless the overburden is deep.

"B" ZONE is a weak zone trending northeast and parallels a creek. This does not follow the regional trend of the rocks and would appear to represent overburden conditions associated with the creek rather than a conductive zone in the underlying rocks.

"C" ZONE is a narrow well defined conductor with a trend slightly north of east. It has a minimum length of 1,200 feet and the probable continuation to the west shows on lines 27W and 30W. There are also indications of the structure extending to the northeast but as discontinuous lenses. The conductivity is quite good with a ratio of almost 3 on line 12W. There does not appear to be any magnetic association with this zone and it should represent either sulphides or graphite in the underlying rocks.

"D" ZONE is a fairly strong zone situated near the south boundary and it extends off the property to the

south. It has a length of about 900 feet on the property and strikes northwest. It shows a probable width of 40 feet on line 9E and probably a greater width on 12E. There is an old drill set-up near the zone so information is probably available on this zone. There is a small magnetic anomaly that would appear to be associated with the conductive zone.

There are several other weak discontinuous conductors indicated in the survey, some of which are probably caused by the overburden conditions. Investigation of the main conductors will no doubt supply information as to the importance of these zones.

In the extreme southwest corner of the property there are wide zones of positive readings. This condition is sometimes indicative of conductors trending in the same direction as the survey lines. It would thus be advisable to survey a few east-west lines in this area in case there is a north-south zone.

All other electromagnetic responses encountered are not due to conductive bodies.

The magnetic readings were restricted to certain

areas but they do indicate two more or less parallel north trending anomalies. These probably represent diabase dykes which are known to exist in the area. The only magnetic association with conductive zones is zone "D" and zone "A" appears to lie on the flank of a small magnetic anomaly.

SURVEY METHODS AND INSTRUMENT DATA

The geophysical surveys were carried out along a network of lines previously cut in a north-south direction and spaced at 400 foot intervals.

The electromagnetic survey was carried out using the Ronka Mark IV horizontal loop equipment with a 300 foot coil interval. In the horizontal loop type of survey both the in-phase and out-of-phase components of the secondary field are measured, whose special characteristics make possible a fairly accurate evaluation of the conductivity. A conductor caused by sulphide mineralization will produce a curve going from positive readings through zero to negative and back again to positive. Both the in-phase and out-of-phase readings show the same general

curve. The ratio between the in-phase and out-of-phase readings over a conductor is an indication of the conductivity of the body. A good conductor would cause a greater deviation of the in-phase component than the out-of-phase component. The opposite is true of a poor conductor.

In some areas secondary currents are induced in swamps and lakes. These anomalies can usually be distinguished from a regular conductor as they cause a response of the out-of-phase component with little or no deviation of the in-phase component.

The magnetic readings were taken with a Sharpe A-2 magnetometer measuring the variations of the vertical component of the earth's magnetic field. Readings were plotted as gammas on the accompanying maps after correction for diurnal variation.

CONCLUSIONS AND RECOMMENDATIONS

The electromagnetic survey indicated several conductive zones of which the major ones are referred to as A, B, C and D. Zones "C" and "D" are the best conductive zones and almost certainly represent either graphite or sulphides in the underlying rocks. Zone "D" has a magnetic association and has apparently been drilled so this information may be of assistance in determining the importance

of these two conductors.

Zone "A" is a broad weak zone and examination of the rock outcrops to the south may be of assistance in assessing this conductor.

Zone "B" appears to be related to the creek and does not appear to be worthy of investigation at this time. Similarly, the other conductive responses can be re-assessed following the investigation of the main zone.

It is recommended that some east-west lines be surveyed in the southwest corner of the property to determine if a conductive zone exists here.

Respectfully submitted,

PROSPECTING GEOPHYSICS LTD.



H.J. Bergmann, P. Eng.

Montreal, Que.,
Sept. 25, 1964.

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ON
GEOPHYSICAL SURVEYS
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INTRODUCTION

The following report is an Appendix to the writer's report of September 25, covering detail surveys on the property of Frobex Ltd. in MacDiarmid and Reid townships, Timmins area. Since that time a vertical loop survey has been carried out over "A" and "B" zones which were not regarded too highly in the original survey. The vertical loop has a greater effective penetration and thus may tend to give a clearer picture with heavy overburden.

Some east-west lines were surveyed in the southwest corner of the property to determine if there was any significance to the positive readings obtained in the

previous survey. This was also covered by the vertical loop survey.

Included with this report is a map showing the vertical loop survey together with revised maps showing the additional surveys in the southwest corner.

GEOPHYSICAL SURVEY RESULTS AND INTERPRETATION

Vertical Loop Survey

The vertical loop survey was carried out using a 45 foot perimeter transmitting loop and readings were taken with coil spacing at 300 and 600 foot intervals, as shown on the accompanying map. The transmitter set-ups were laid out along the strike of the conductors and the dip angles are plotted as a profile on a scale of 1" = 20°.

In the vertical loop survey, "A" zone shows a continuous length of 900 feet whereas the horizontal loop showed it as two conductors. From the two surveys the dip would appear to be to the south and the strongest portion appears to be in the central portion.

"B" zone checks fairly well in the vertical loop survey although there is a discrepancy of about 100 feet

in some places in the axis of the conductor. The horizontal loop survey showed a further extension to the east that was not picked up in the vertical loop survey. The vertical loop results indicate it to be a fairly good conductor. As mentioned in the previous report, it appears to parallel the creek and may represent a shear or fault zone.

The short conductive zone on lines 54W and 57W also check with the horizontal loop survey. The importance of this will depend on any investigation of "A" and "B" zones.

The vertical loop survey carried out along the east-west lines showed consistent wrong way cross-overs which correspond with the plus readings obtained in the horizontal loop survey. All of this would suggest that there may be a conductive body nearby, possibly off the southwest corner of the property.

Horizontal Loop Survey

A horizontal loop survey was carried out over east-west lines in the southwest corner of the property

and these have been plotted on the original map, a revised copy of which accompanies this report.

The survey did not indicate any north trending conductor but again it showed some plus readings in the southwest corner of the property. It would appear that there is something causing these irregular readings and this must be off the property but nearby.

Magnetometer Survey

The magnetometer survey was extended to cover the southwest corner of the property. This served to extend the north trending magnetic anomaly to the south boundary of the property. In the extreme southwest corner of the property the magnetic readings are about 300 gammas above background but it is not possible to know if this is a small local condition or whether it is related to the irregular electromagnetic responses.

CONCLUSIONS AND RECOMMENDATIONS

On the basis of the vertical loop and horizontal loop surveys, "A" and "B" zones warrant further investigation along with "C" and "D" zones. The importance of the

other responses will largely depend on the results of this investigation.

The irregular responses obtained in both electromagnetic surveys suggest the possibility of a conductive body on the adjacent ground.

Respectfully submitted,
PROSPECTING GEOPHYSICS LTD.

Montreal, Que.
Dec. 15, 1964.

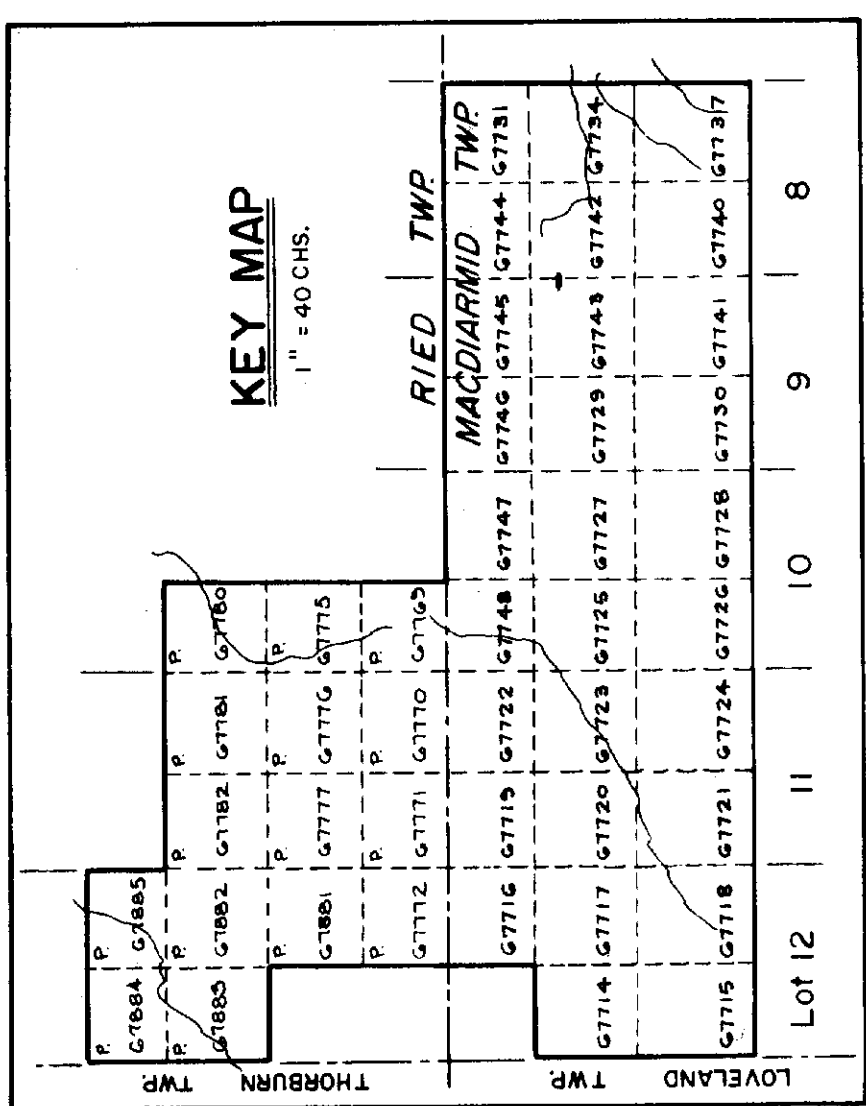

H.J. Bergmann, P. Eng.

ELECTROMAGNETIC SURVEY
FROBEX LTD.
 RIED & MACDIARMID TOWNSHIPS, ONT.
 - BY -
 PROSPECTING GEOPHYSICS LTD

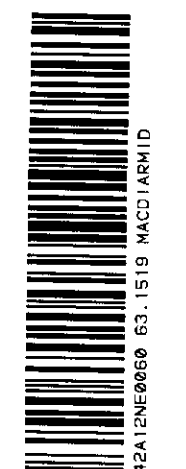
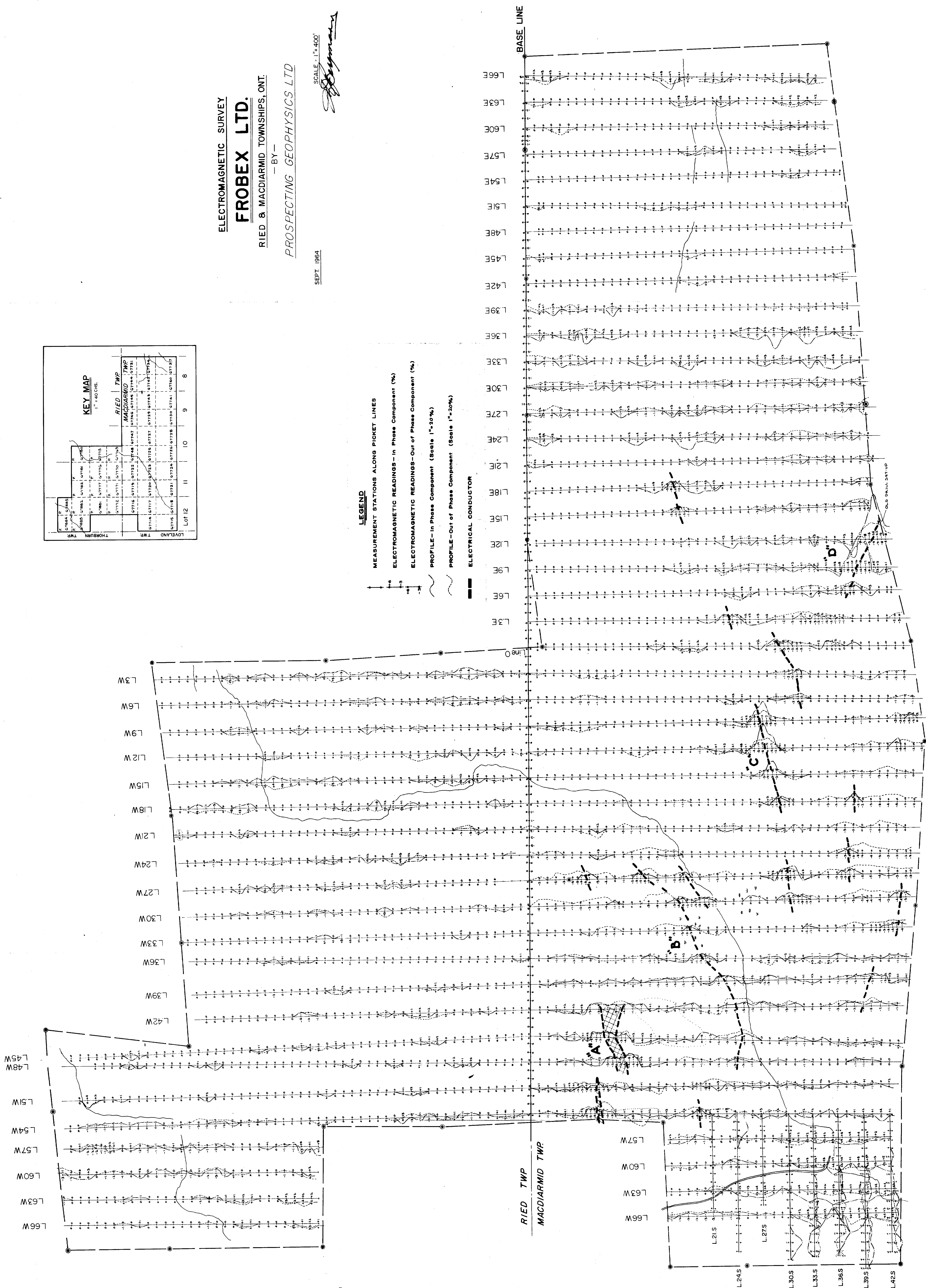
SEPT. 1964

SCALE: 1"=400'

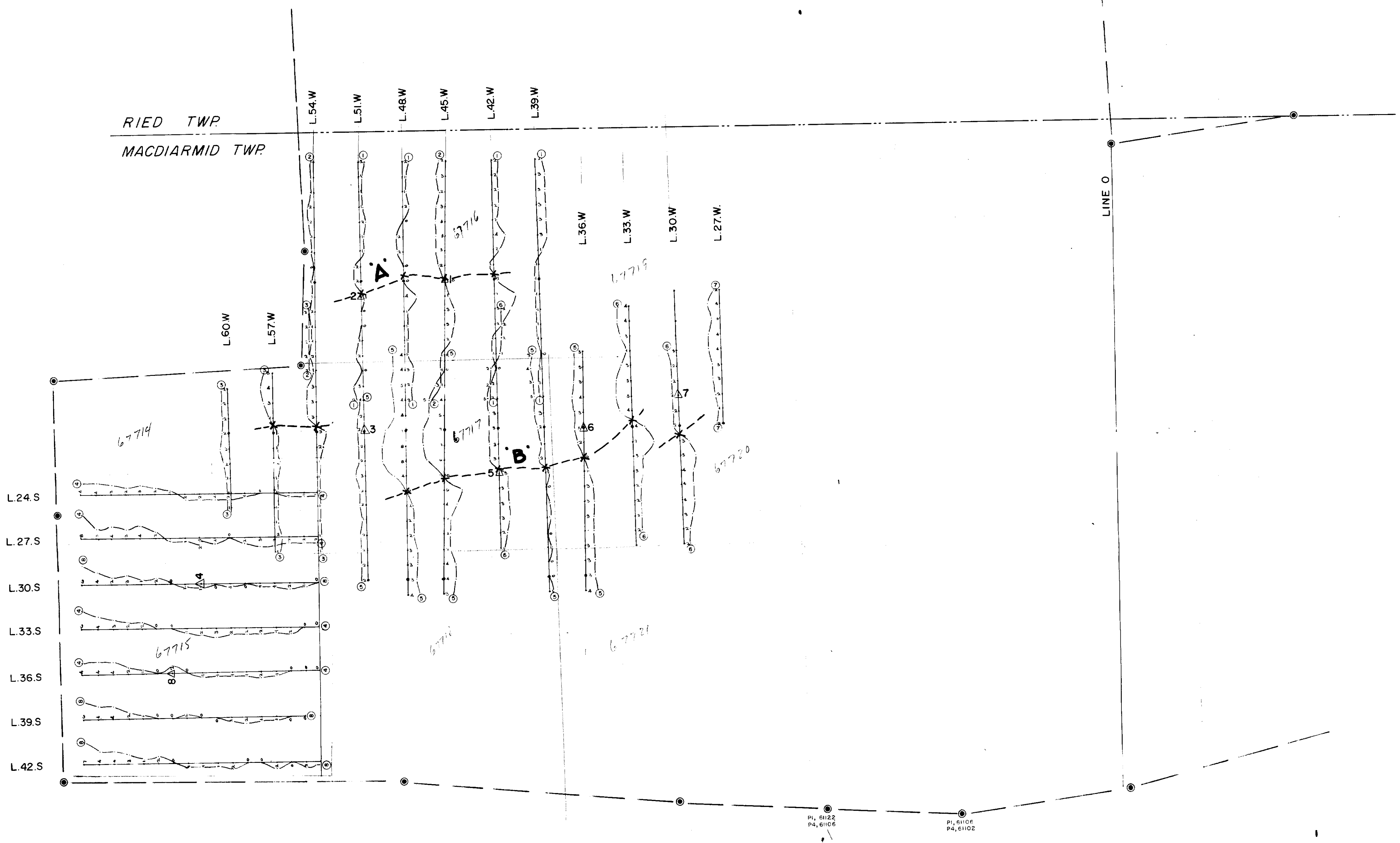
Rayman



LEGEND
 MEASUREMENT STATIONS ALONG PICKET LINES
 ELECTROMAGNETIC READINGS - In Phase Component (%)
 ELECTROMAGNETIC READINGS - Out of Phase Component (%)
 PROFILE - In Phase Component (Scale 1"=20%)
 PROFILE - Out of Phase Component (Scale 1"=20%)
 ELECTRICAL CONDUCTOR

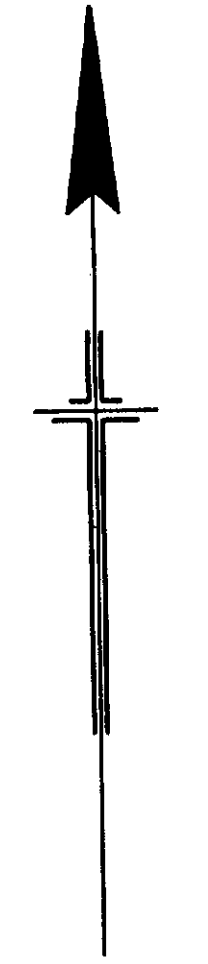


RIED TWP.
MACDIARMID TWP.



LEGEND

- 3 Δ Transmitter set-up and number
- Profile scale - 1"=20'
- Profile of EM readings from Transmitter set-up No. 3
- Electrical Conductor



—VERTICAL LOOP—
ELECTROMAGNETIC SURVEY

—on parts of the property of—

FROBEX LTD.

RIED & MACDIARMID TOWNSHIPS, ONT.

—by—

PROSPECTING GEOPHYSICS LTD.

DEC. 1964

SCALE - 1"=400'

