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REPORT ON THE

AIRBORNE ELECTROMAGNETIC SURVEY

OF

THE D. E. GALE PROPERTY

IN THE

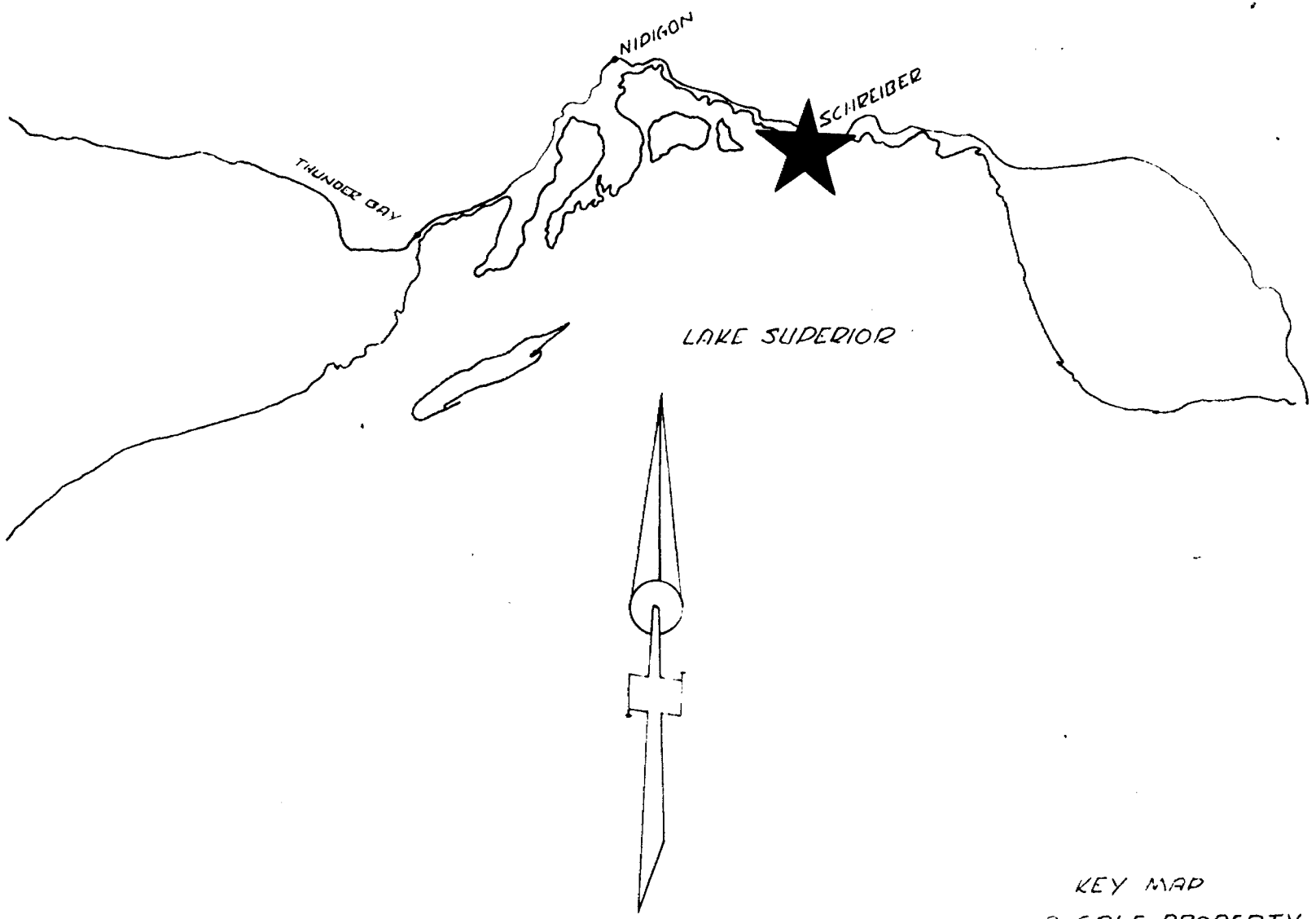
SCHREIBER AREA

NORTHWESTERN ONTARIO

NTS 42-D-14

SUMMARY

A galvanic electromagnetic survey comprising 40 miles of continuous recording was flown over 74 of the claims of the D. E. Gale property in the Schreiber area on October 20, 1970. In addition, 24 line miles of survey extended beyond the boundaries of the Gale group. Several weakly anomalous indications were obtained which require limited ground follow-up.



KEY MAP

O. GALE PROPERTY

SCHREIBER ONT.

SCALE 1" = 35 MI.

NOV. 4, 1970

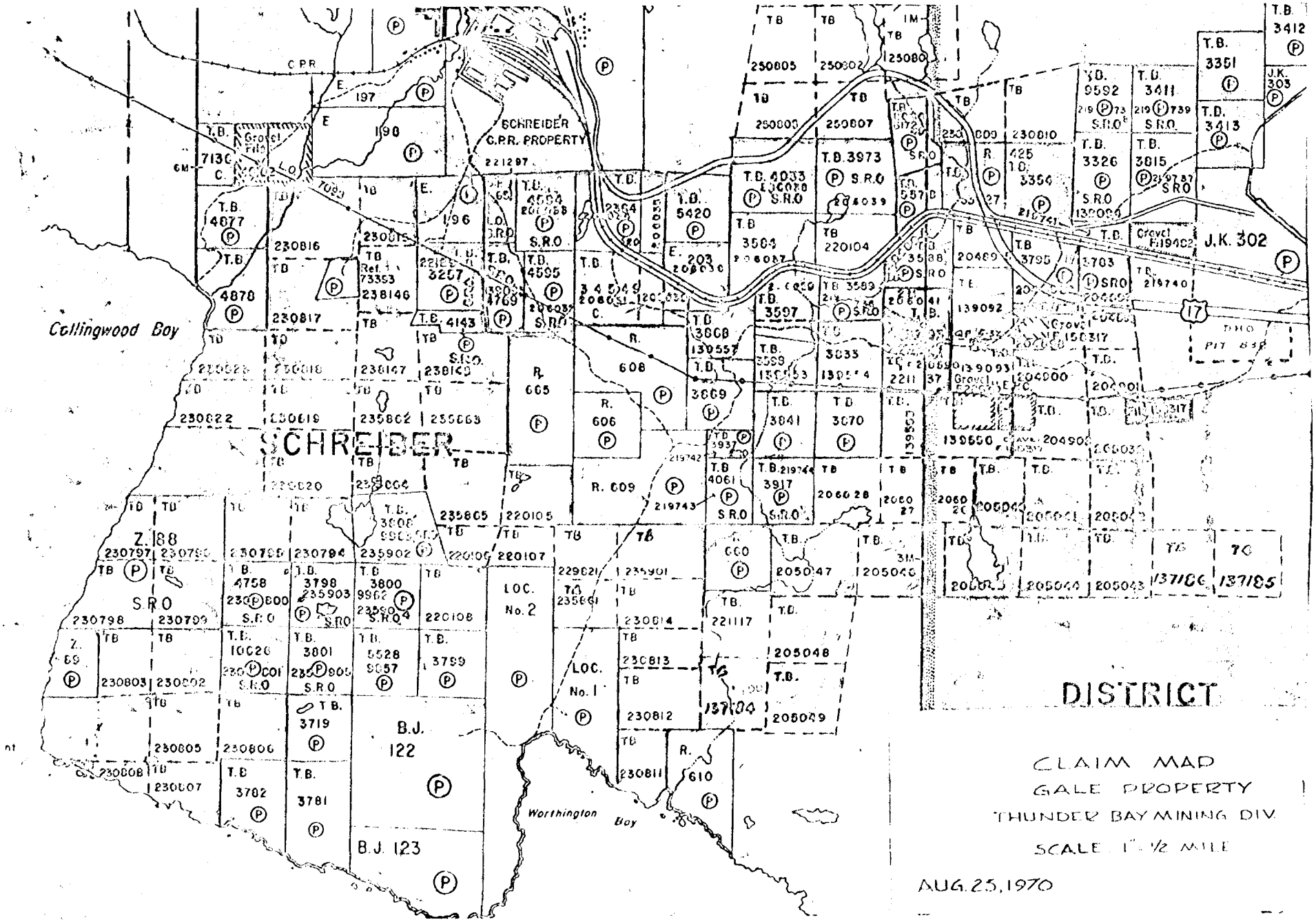
CLAIM HOLDINGS

The mining claims owned by D. E. Gale which were covered by this survey are listed as follows:

TB 139553 to TB 139557 inclusive
TB 206026 to TB 206041 inclusive
TB 219736
TB 219742 to TB 219744 inclusive
TB 220104 to TB 220108 inclusive
TB 221137
TB 221297
TB 221298
TB 229821
TB 230794 to TB 230803 inclusive 809
TB 230805 to TB 230808 inclusive
TB 230811 to TB 230820 inclusive
TB 230822
TB 230823
TB 235861 to TB 235865 inclusive
TB 235901 to TB 235905 inclusive
TB 238140 to TB 238148 inclusive

GENERAL GEOLOGY

The Gale property is underlain generally by volcanic formations striking in a northwesterly direction intruded by younger granitic and syenitic bodies. Extensive faulting occurs on the property with the major fault directions being northwest and north-northeast.


SCHREIBER
SCHREIBER C.P.R. PROPERTY
Collingwood Bay
Worthington Bay
C.P.R.
B.J. 122
B.J. 123
LOC. No. 2
LOC. No. 1
J.K. 302
DISTRICT
CLAIM MAP
GALE PROPERTY
THUNDER BAY MINING DIV.
SCALE 1" = ½ MILE
AUG. 25, 1970

THE GALVANIC ELECTROMAGNETIC SYSTEM

Commonly known as the longwire technique or a variety of the grounded cable Turam method, the galvanic method utilizes alternating current introduced to the subsurface through electrodes located outside the survey area. The current source is a 1000 Hz, gasoline-powered generator and 18 gauge, enamel-coated, copper wire joins the electrode-generator system. The wire is normally laid around the perimeter of the survey area parallel to the predominant strike of the underlying rock formations. Flight lines are flown at one-eighth mile intervals, perpendicular to the line joining two electrodes and also perpendicular to the geological strike direction. The nominal terrain clearance is 300 feet and locations are spotted from aerial photographs and marked on the continuous paper strip recording.

The electromagnetic field resulting from the galvanic current is horizontal, and thus, the amplitude of the horizontal field is measured. In airborne applications, a horizontal component from the field due to the wire exists which adds the galvanic component. Measurements are made with a Foldy 1000 Hz narrow band receiver which is manufactured by F & J Electronics of Thunder Bay. This receiver is capable

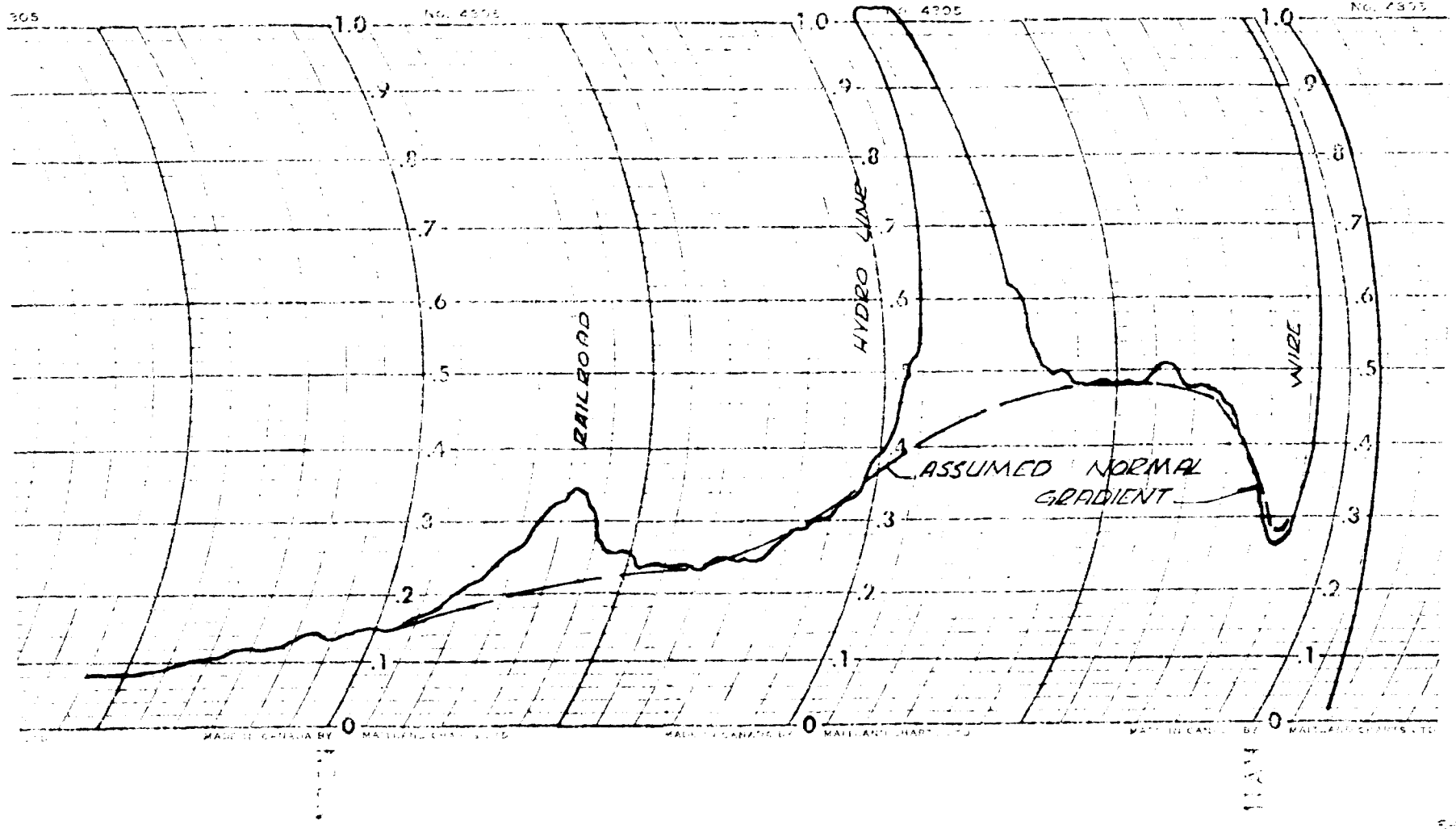
of measuring electromagnetic fields in the intensity range of 10^{-12} gauss to 10^{-6} gauss. The field intensities which are normally present in galvanic electromagnetic work are of the order of 10^{-7} gauss field strength.

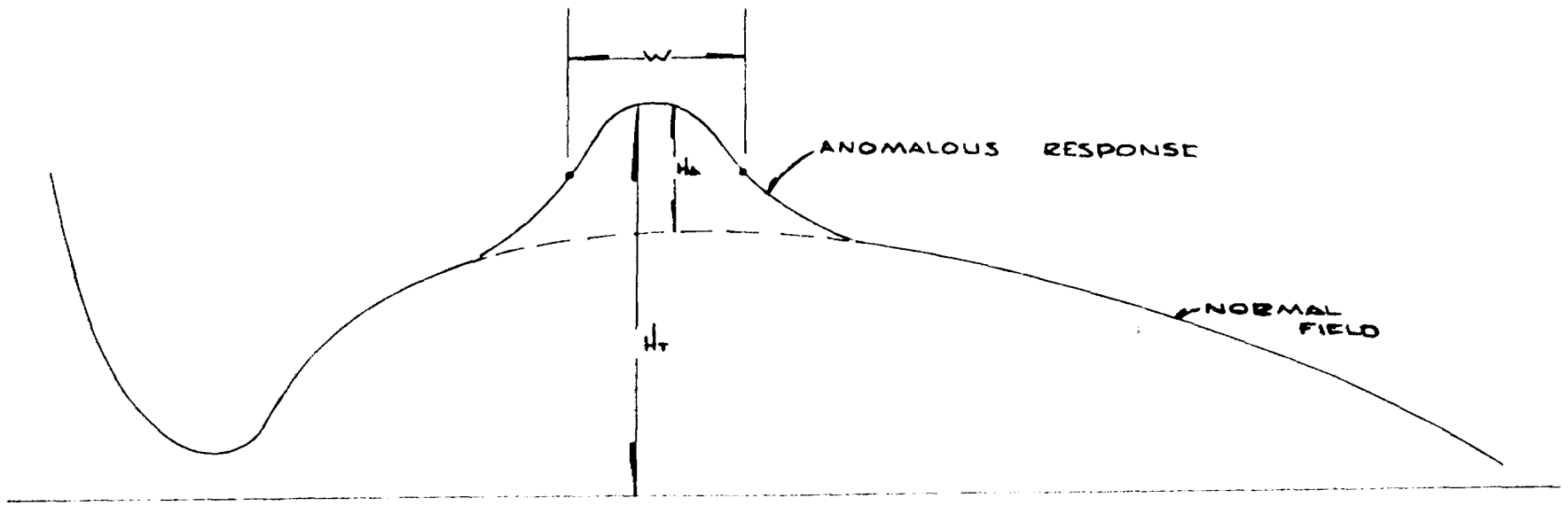
INTERPRETATION

Since the measured horizontal field contains components due to the galvanic current in the wire, the resultant background field is non-uniform. A typical example of this is presented in figure 1. Because the primary field is non-uniform, the apparent strength of any anomaly is related to the background at that point and anomalies are normalized by forming a convenient ratio "R" of peak anomalous signal to peak total signal as shown in figure 2. Theory predicts that the magnitude of this ratio should give a relative indication of the product of conductivity and cross sectional area of the causative conductor. Values of "R" greater than 0.2 are generally considered significant although lesser values are often meaningful.

In addition to the ratio, an estimate of depth and/or width of a conductor may be obtained from the half width "W" which is also shown in figure 2. For a reasonably concentrated conductor, the depth from the aircraft to the

FIGURE 1


RAILROAD
HYDRO LINE
WIRE
ASSUMED NORMAL GRADIENT
1.0
.9
.8
.7
.6
.5
.4
.3
.2
.1
0



RATIO $R = \frac{H_a}{H_T}$

FIG. 2

conductor is approximately equal to one-half the value of "h" while for more irregular or wider bodies the depth is less than this.

Figure 2 also illustrates how the ratio "R" and the half width "w" are incorporated into symbolic form as being descriptive of the anomaly.

RESULTS OF THE GALE SURVEY

The data are plotted on the enclosed map in the manner outlined above. The efficiency of the survey was somewhat reduced by the proximity of the railway and power lines in the area. Galvanic current appears to have concentrated in these structures and particularly in the proximity of the electrodes good anomalous response was obtained from them as exemplified by figure 1. The horizontal scale for this figure is 1 inch equals 1320 feet. Anomalies which appear to have originated from these sources have not been shown on the map for convenience.

In addition, several anomalies of weak to moderate response are indicated.

RECOMMENDATIONS

It is recommended, in light of their number and wide-spread locations, that attempts to locate and verify the indicated anomalies be carried out in a reconnaissance manner with a V.L.F. electromagnetic technique. The flight lines should be recovered as closely as possible on the ground where anomalies are indicated. The V. L. F. method should prove suitable for these purposes in view of the general light overburden cover and relatively high resistivity of the host rocks.

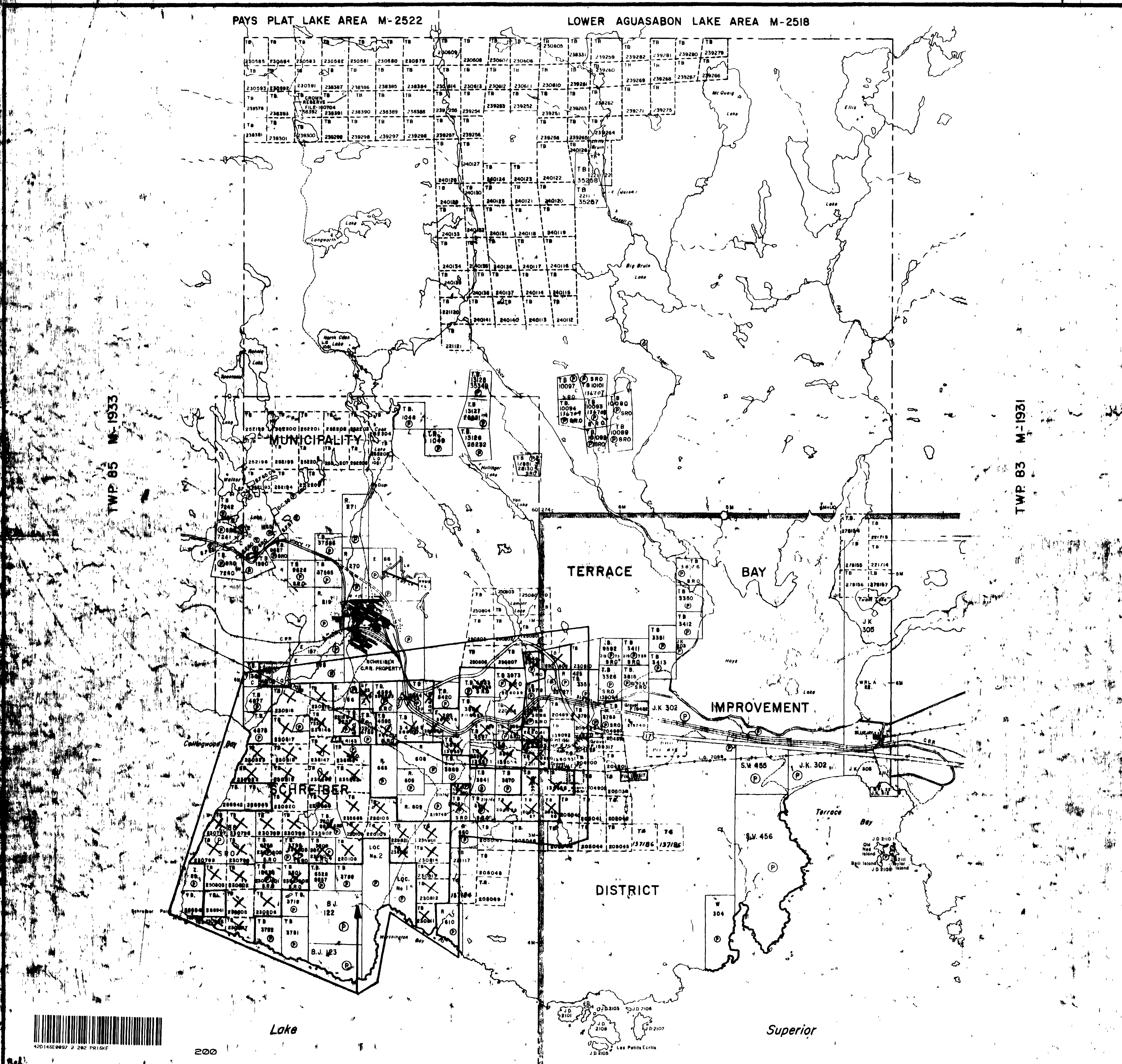
Respectfully submitted,

K. H. Poulsen

K. H. POULSEN, B. Sc.

THUNDER BAY, ONTARIO
OCTOBER 30, 1970

OJA LIMITED
EXPLORATION MANAGEMENT



THE TOWNSHIP
Claim Map
84

DISTRICT OF
THUNDER BAY

THUNDER BAY
MINING DIVISION

SCALE: 1-INCH - 40 CHAINS

LEGEND

- PATENTED LAND — P
- CROWN LAND SALE — C.S.
- LEASES — L
- LOCATED LAND — Loc.
- LICENSE OF OCCUPATION — L.O.
- MINING RIGHTS ONLY — M.R.O.
- SURFACE RIGHTS ONLY — S.R.O.
- ROADS
- IMPROVED ROADS
- KING'S HIGHWAYS
- RAILWAYS
- POWER LINES
- MARSH OR MUSKEG
- MINES
- CANCELLED

NOTES

400' Reservation around all lakes & rivers of surface rights.

Reserve Flooding Rights to contour 905' G.S.C. on Aguasabon River & Big Duck Creek for H.E.P.C. of Ontario. File: 132730.

Land under Lake Superior withdrawn from staking by O.C. - 30 April 1912.

Terrace Bay Improvement District extends to the International Boundary.

DATE OF ISSUE
DEC 21 1970
ONT. DEPT. OF MINES AND NORTHERN AFFAIRS

PLAN NO. M-1932

ONTARIO
DEPARTMENT OF MINES
AND NORTHERN AFFAIRS

SCHREIBER

SCHREIBER BEACH

COLLINGWOOD BAY

HWY 17

SCHREIBER POINT

WORTHINGTON BAY

MAGNETIC

LEGEND

Flight Line

Wire Line

Claim Boundary

(3) Amplitude Ratio

Anomaly ½ Width

LAKE SUPERIOR

AIRBORNE

GALVANIC ELECTROMAGNETIC SURVEY

D. GALE PROPERTY

SCHREIBER ONTARIO

OCT 27, 1970

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2.202