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REPORT ON THE  
COMBINED AIRBORNE GEOPHYSICAL SURVEY  
ON THE PROPERTY OF  
MR. RENAULD GARNEAU  
FRIPP TOWNSHIP, ONTARIO

RECEIVED

SEP 14 1988

BY

MINING LANDS SECTION

H. FERDERBER GEOPHYSICS LTD.

July, 1988  
Val d'Or, Quebec

L. Ahern, B.Sc.  
Geologist

REPORT ON THE COMBINED AIRBORNE GEOPHYSICAL SURVEY  
ON THE PROPERTY OF MR. RENAULD GARNEAU  
IN FRIPP TOWNSHIP, ONTARIO

INTRODUCTION

On July 15th, 1988 a combined airborne geophysical survey was completed on the property of Mr. Renauld Garneau in Fripp Township, Ontario. Magnetic and VLF-electromagnetic data was collected by the airborne division of H. Ferderber Geophysics Ltd. The survey was flown from a base at Timmins, Ontario. A total of 43.5 miles of data was collected, along north-south flight lines.

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.

PROPERTY DESCRIPTION, LOCATION AND ACCESS

The property of Mr. Renald Garneau is composed of one block of 25 claims in Fripp Township, Ontario. The claims cover approximately 400 hectares, and are registered with the Office of the Mining Recorder at Timmins, Ontario. They are listed in Appendix 1.

The property is located approximately 16 miles south-southwest of the city of Timmins, 5 miles west-northwest of Serpentine Mountain, and 7 miles southeast of the town of Wawaitin Falls. A secondary highway extends south from South Porcupine and passes within 2.5 miles of the eastern boundary of the claim block.

The property covers 90% of Quartz Lake, as well as a short section of Bruce Creek and Spitrock River. The physiography of the claim group is essentially that of a low lying area, having low relief. Just east of the claim block is Footem Lake, and the property is readily accessible by water. Approximately 80% of the property is forested.

Supplies, services, and qualified manpower is readily available locally in the Timmins area.

GEOLOGY

The property of Mr. Renald Garneau is located in the extreme southwestern corner of the Abitibi Volcanic Belt of the Superior Province of the Canadian Shield. The Abitibi Volcanic Belt extends for nearly 350 miles in an east-west direction from Timmins to Chibougamau. It is host to a variety of precious and base metal deposits including the Timmins, Kirkland Lake, Noranda, Val d'Or, and Chibougamau mining camps.

The Abitibi Volcanic Belt is composed of a complex assemblage of interbedded volcanic and sedimentary rocks intruded by a variety of intrusives from ultrabasic to granitic in composition. The rocks are Archean in age and have been metamorphosed to the greenschist facies. Numerous late Precambrian diabase dykes cut formations of the belt. The rocks generally strike east-west, have a vertical dip and are highly folded and faulted. Geological interpretation of the Abitibi Volcanic Belt is complicated by both the wide scattering of outcrops and the complex structural relationships.

The Ontario Department of Mines Geological Compilation Series, Timmins-Kirkland Lake Sheet, Map 2205, outlines the geology underlying the property. According to Map 2205, the property of Mr. Renald Garneau is underlain by a complex series of northwesterly striking bands of felsic, mafic, and ultramafic flows squeezed between two large felsic intrusives located to the northeast and southwest.

From southwest to northeast across the property, the following bands of Early Precambrian northwesterly to southeasterly striking units are encountered:

- metasediments of greywacke and argillite composition
- a north-northwesterly striking fault
- mafic flows and pyroclastic rocks
- felsic intrusive of granodiorite and quartz monzonite composition
- mafic flows and pyroclastic rocks
- metasediments of greywacke and argillite composition

As well, numerous short northerly striking Early Precambrian diabase dykes occur within the property boundaries. A major late Precambrian diabase dyke crosses the property from west to east, and is offset by two north-northwesterly striking fault zones.

A copper and nickel occurrence is situated on the eastern shores of Quartz Lake, and a copper and lead occurrence is located along the shores of the Splitrock River within the boundaries of Mr. Renald Garneau's property. In Price Township, northwest of the property, a gold occurrence with low values is located west of Grassy River. It occurs in Timiskaming greywacke and slate units containing iron formation horizons. In McArthur Township, southeast of the property, a second gold occurrence is located 1/5 mile south of McArthur Lake. Gold was obtained by panning decomposed rock from pits sunk in a feldspar porphyry dyke.

The major structural features in the area is the western end of the west-east striking Destor-Porcupine Fault, located approximately 10 miles to the north. Numerous gold deposits are associated with this zone and its related structures. Foremost among these are the deposits of the Timmins-Porcupine camp (ie. McIntyre Mine, Hollinger Mine, Ross Mine and Croesus Mine).

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 F. Longpre, 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 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 or 0.05 gamma to 10 readings per second at a 0.1 gamma absolute accuracy. For this survey 4 readings per second were measured at a sensitivity of 0.04 gammas. The analog output is on 3 channels, from 1 to 10,000 gammas full scale.

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 of 1%. The primary transmitting station of Cutler, Maine, (NAA), frequency 24.0 KHz was employed in 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 digital printout. Flight path recovery was aided using a Panasonic Colour Video Monitor-S1300 and Video Cassette Recorder AG-2500.

#### 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 were flown at spacings of 300 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 airphoto mosaics at a scale of one inch to 1320 feet (1:15,840). The outline of the claim blocks 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 and 100 gamma intervals and presented on Map MG-1.

The VLF-EM was transferred from the Totem 2AG memory to printed form. A base value was determined for the VLF-EM profiled data. These values were used to correct for variations in transmitter strength and the corrected changes in the total field strengths were plotted on Map EM-1. The positive values were contoured at intervals of 2%. The conductor axes were determined and labelled 1, 2, 3, etc. No priority was attached to the labelling system.

SURVEY RESULTS AND INTERPRETATIONMagnetic Survey

The results of the magnetic survey indicated that the property of Mr. Renald Garneau is underlain by rocks with a moderate to high magnetic susceptibility. Overall, values range from approximately 500 gammas above background in the north to values in excess of 1400 gammas in the central and southern portions of the claim block. The property is underlain by bands of north-northwesterly striking metasediments, felsic intrusives, and mafic intrusives and pyroclastic rocks. These would account for the moderate magnetic signature outlined in the north and southeastern corner of the claim block.

An easterly to westerly trending elliptical-shaped magnetic high has values up to and in excess of 1400 gammas above background values, and is located just south of the baseline. It narrows slightly to the south, and then forms two irregularly shaped magnetic highs in the southwestern and south-central part of the claim block. This very strong magnetic high appears to be the result of the major Late Precambrian diabase dyke which

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extends from Kenogaming Twp. in the southwest to Warden Twp. in the northeast. As it crosses the property, it appears to be faulted and offset to the south by two northwesterly trending fault zones which accounts for the breaks in the magnetic contour pattern.

The magnetic susceptibility of the rocks in the southeastern corner of the property gradually diminishes to 750 gammas above background values. This area appears to be underlain by northeasterly striking mafic flows and pyroclastic rocks.

#### VLF-Electromagnetic Survey

Three conductive zones were outlined on the property by the airborne VLF-electromagnetic survey.

Conductor 1 is west-northwesterly striking two-line conductor located along the northern boundary of the property. It overlies an area of low to moderate magnetic susceptibility, and cuts the magnetic contour pattern at right angles. This conductor may be the result of a change in topography, or may represent a local shear striking across the the metasediments and mafic flows.

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Conductor 2 is a northeasterly striking single-line conductor located along the central part of the eastern property boundary. It overlies the edge of Footem Lake, and its strength and location are probably the result of lake shore effect.

Conductor 3 is a easterly striking two-line conductor located in the southeastern corner of the claim block. It overlies the shoulder of a magnetic high, and cuts the magnetic contour pattern at right angles. This conductor may be the result of a localized shear zone within the major northwesterly trending fault zone.

#### Conclusions and Recommendations

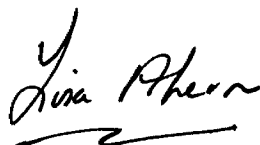
The results of the combined airborne magnetic and VLF-electromagnetic surveys were successful in helping outline the geology and in delineating three conductive zones underlying Mr. Renald Garneau's property. The magnetic signature of the property is dominated by a faulted, easterly to westerly striking diabase dyke which crosses the centre. The hosting northwesterly striking bands of metasediments, felsic intrusives, and mafic intrusives and pyroclastic rocks have a low to moderate magnetic susceptibility. Two of the three conductive zones may be the result of bedrock features (shears).

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Further exploration work should be conducted over the property in the vicinities of the possible bedrock conductors. Ground magnetic and horizontal loop-electromagnetic surveys should be performed to better define the underlying geology and to delineate and classify conductive zones. Potentially interesting geological targets and geophysical anomalies could then be tested by diamond drilling.

Respectfully submitted,

H. FERDERBER GEOPHYSICS LTD.

A handwritten signature in cursive script, reading "L.L. Ahern". The signature is written in dark ink and is positioned above a horizontal line that serves as a separator between the signature and the typed name below.

L.L. Ahern, B.Sc.

Geologist.

APPENDIX 1 - CLAIM LIST

|           |           |
|-----------|-----------|
| P 997392  | P 1029737 |
| 997393    | 1029738   |
| 997394    | 1029739   |
| 997395    | 1029740   |
| 997396    | 1029741   |
| 997397    | 1029742   |
| 997398    | 1029743   |
| 997399    | 1029744   |
| 997400    | 1029745   |
| P 1029733 | 1029746   |
| 1029734   | 1029747   |
| 1029735   | 1029748   |
| 1029736   |           |





TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT
FACTS SHOWN HERE NEED NOT BE REPEATED IN REPORT
TECHNICAL REPORT MUST CONTAIN INTERPRETATION, CONCLUSIONS ETC.

Type of Survey(s) Airborne magnetic and VLF-electromagnetic

Township or Area Fripp Township

Claim Holder(s) Renauld Garneau

Survey Company H. Ferderber Geophysics Ltd.

Author of Report L. Ahern

Address of Author 169 Perreault Ave, Val d'Or, Quebec

Covering Dates of Survey July 15, 1988 (linecutting to office)

Total Miles of Line Cut Flown 43.5

MINING CLAIMS TRAVERSED
List numerically

P 997392 et. al. (prefix) (number)
(see attached list)

SPECIAL PROVISIONS
CREDITS REQUESTED

DAYS per claim

ENTER 40 days (includes line cutting) for first survey.

ENTER 20 days for each additional survey using same grid.

- Geophysical
-Electromagnetic
-Magnetometer
-Radiometric
-Other
Geological
Geochemical

AIRBORNE CREDITS (Special provision credits do not apply to airborne surveys)

Magnetometer 30 Electromagnetic 30 Radiometric (enter days per claim)

DATE: July 25, 1988 SIGNATURE: L. Ahern Author of Report or Agent

Res. Geol. Qualifications 2.11208

Previous Surveys

Table with 4 columns: File No., Type, Date, Claim Holder

TOTAL CLAIMS 25

If space insufficient, attach list

OFFICE USE ONLY

SELF POTENTIAL

Instrument \_\_\_\_\_ Range \_\_\_\_\_

Survey Method \_\_\_\_\_

Corrections made \_\_\_\_\_

RADIOMETRIC

Instrument \_\_\_\_\_

Values measured \_\_\_\_\_

Energy windows (levels) \_\_\_\_\_

Height of instrument \_\_\_\_\_ Background Count \_\_\_\_\_

Size of detector \_\_\_\_\_

Overburden \_\_\_\_\_

(type, depth -- include outcrop map)

OTHERS (SEISMIC, DRILL WELL LOGGING ETC.)

Type of survey \_\_\_\_\_

Instrument \_\_\_\_\_

Accuracy \_\_\_\_\_

Parameters measured \_\_\_\_\_

Additional information (for understanding results) \_\_\_\_\_

AIRBORNE SURVEYS

Type of survey(s) Airborne magnetic and VLF-electromagnetic

Instrument(s) GEM GSM-11 Herz Totem 2A

Accuracy 0.04 gamma and 1% (specify for each type of survey)

Aircraft used Cessna 172 (specify for each type of survey)

Sensor altitude 300 feet

Navigation and flight path recovery method Navigation was visual on airphoto mosaics. Flight path recovery was obtained with a RCA colour video camera Panasonic Colour Video Monitor

Aircraft altitude 300 feet Line Spacing 440

Miles flown over total area 43.5 Over claims only 18.9

APPENDIX 1 - CLAIM LIST

|           |           |
|-----------|-----------|
| P 997392  | P 1029737 |
| 997393    | 1029738   |
| 997394    | 1029739   |
| 997395    | 1029740   |
| 997396    | 1029741   |
| 997397    | 1029742   |
| 997398    | 1029743   |
| 997399    | 1029744   |
| 997400    | 1029745   |
| P 1029733 | 1029746   |
| 1029734   | 1029747   |
| 1029735   | 1029748   |
| 1029736   |           |



Mining Act

|   |  |
|---|--|
| Type of Survey(s)<br><b>Airborne Magnetic and VLF-Electromagnetic</b>   | Township or Area<br><b>Fripp Township</b>  |
| Claim Holder(s)<br><b>Renauld Garneau</b>   | Prospector's Licence No.<br><b>M-24188</b>                                       |
| Address<br><b>158 Dufrense St., Val d'Or, Quebec J9P 4S9</b>  |  |
| Survey Company<br><b>H. Ferderber Geophysics Ltd.</b>   | Date of Survey (from & to)<br><b>15 Day   07 Mo.   88   15 Day   07 Mo.   88</b> |
| Name and Address of Author (of Geo-Technical report)<br><b>L. Ahern, 169 Perreault Avenue, Val d'Or, Quebec</b> |  |
| Total Miles of line Crossed<br><b>43.5</b>  |  |

Credits Requested for Each Claim in Columns at right

Mining Claims Traversed (List in numerical sequence)

| Special Provisions  | Geophysical       | Days per Claim |
|---|-------------------|----------------|
| For first survey:<br>Enter 40 days. (This includes line cutting)                | - Electromagnetic |                |
|   | - Magnetometer    |                |
| For each additional survey:<br>using the same grid:<br>Enter 20 days (for each) | - Radiometric     |                |
|   | - Other           |                |
|   | Geological        |                |
|   | Geochemical       |                |

| Man Days   | Geophysical       | Days per Claim |
|--|-------------------|----------------|
| Complete reverse side and enter total(s) here<br><b>RECEIVED</b><br><b>SEP 14 1988</b> | - Electromagnetic |                |
|  | - Magnetometer    |                |
|  | - Radiometric     |                |
|  | - Other           |                |
|  | Geological        |                |
|  | Geochemical       |                |

| Airborne Credits   | Geophysical     | Days per Claim |
|--|-----------------|----------------|
| Note: Special provisions credits do not apply to Airborne Surveys. | Electromagnetic | 30             |
|  | Magnetometer    | 30             |
|  | Radiometric     |                |

| Mining Claim |         | Expend. Days Cr. | Mining Claim |         | E D |
|--------------|---------|------------------|--------------|---------|-----|
| Prefix       | Number  |                  | Prefix       | Number  |     |
| P            | 997392  |                  | P            | 1029747 |     |
|              | 997393  |                  |              | 1029748 |     |
|              | 997394  |                  |              |         |     |
|              | 997395  |                  |              |         |     |
|              | 997396  |                  |              |         |     |
|              | 997397  |                  |              |         |     |
|              | 997398  |                  |              |         |     |
|              | 997399  |                  |              |         |     |
|              | 997400  |                  |              |         |     |
|              | 1029733 |                  |              |         |     |
|              | 1029734 |                  |              |         |     |
|              | 1029735 |                  |              |         |     |
|              | 1029736 |                  |              |         |     |
|              | 1029737 |                  |              |         |     |
|              | 1029738 |                  |              |         |     |
|              | 1029739 |                  |              |         |     |
|              | 1029740 |                  |              |         |     |
|              | 1029741 |                  |              |         |     |
|              | 1029742 |                  |              |         |     |
|              | 1029743 |                  |              |         |     |
|              | 1029744 |                  |              |         |     |
|              | 1029745 |                  |              |         |     |
|              | 1029746 |                  |              |         |     |

Expenditures (excludes power) **MINING LANDS SECTION**

|  |                                |
|--|--------------------------------|
| Type of Work Performed   | <b>ASSESSMENT FILES OFFICE</b> |
| Performed on Claim(s)  | <b>OCT 24 1988</b>             |
| Calculation of Expenditure Days Credits  | <b>RECEIVED</b>                |
| Total Expenditures   | Total Days Credits             |
| \$ <input type="text"/>  | ÷ 15 = <input type="text"/>    |
| Instructions<br>Total Days Credits may be apportioned at the claim holder's choice. Enter number of days credits per claim selected in columns at right. |                                |

|             |                                      |
|-------------|--------------------------------------|
| Date        | Recorded Holder or Agent (Signature) |
| August 2/88 | <i>Harry Ferderber</i>               |

| For Office Use Only     |                           |                 |  |
|-------------------------|---------------------------|-----------------|--|
| Total Days Cr. Recorded | Date Recorded             | Mining Recorder |  |
| 1500                    | Aug. 8/88                 | <i>S. White</i> |  |
|                         | Date Approved as Recorded | Branch Director |  |
|                         | <i>1708 88</i>            | <i>W. Brown</i> |  |

Certification Verifying Report of Work

I hereby certify that I have a personal and intimate knowledge of the facts set forth in the Report of Work annexed hereto, having performed the or witnessed same during and/or after its completion and the annexed report is true.

|   |  |                |                          |
|---|--|----------------|--------------------------|
| Name and Postal Address of Person Certifying                    |  | Date Certified | Certified by (Signature) |
| Harry Ferderber, 169 Perreault Avenue, Val d'Or, Quebec J9P 2H1 |  | August 2/88    | <i>Harry Ferderber</i>   |

PRICE TWP. M.307

THE TOWNSHIP OF

FRIPP

DISTRICT OF  
TIMISKAMING

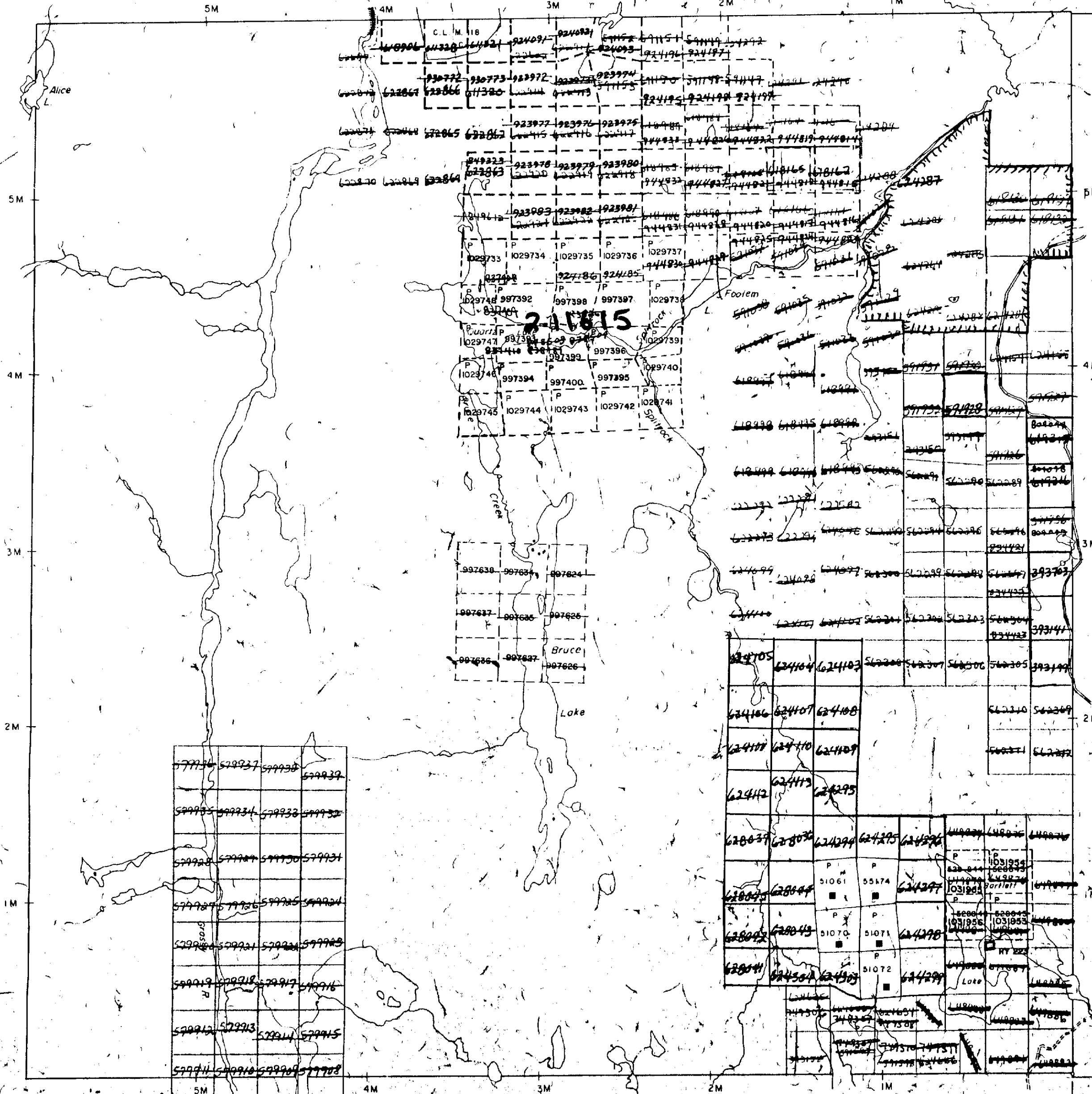
PORCUPINE  
MINING DIVISION

SCALE: 1-INCH 40 CHAINS

RECEIVED  
SEP 2 1988

MCKEOWN TWP. M.299

MCARTHUR TWP. M.298



**DISPOSITION OF CROWN LANDS**

|                                   |   |
|-----------------------------------|---|
| PATENT, SURFACE AND MINING RIGHTS | ● |
| " SURFACE RIGHTS ONLY             | ○ |
| " MINING RIGHTS ONLY              | ○ |
| LEASE, SURFACE AND MINING RIGHTS  | ■ |
| " SURFACE RIGHTS ONLY             | ■ |
| " MINING RIGHTS ONLY              | ■ |
| LICENCE OF OCCUPATION             | ▼ |
| ROADS                             | — |
| IMPROVED ROADS                    | — |
| KING'S HIGHWAYS                   | — |
| RAILWAYS                          | — |
| POWER LINES                       | — |
| MARSH OR MUSKEG                   | — |
| MINES                             | — |
| CANCELLED                         | — |

**NOTES**

400' surface rights reservation along the shores of all lakes and rivers.

Areas withdrawn from staking under Section 43 of the Mining Act (R.S.O. 1970.)

| Order NR | File | Date | Disposition |
|----------|------|------|-------------|
| 100      | 100  | 100  | 100         |

Site Preparation MNR  
May 2/83  
By 223 (L.U. PENDING APPLICATION UNDER THE PUBLIC LANDS ACT.)

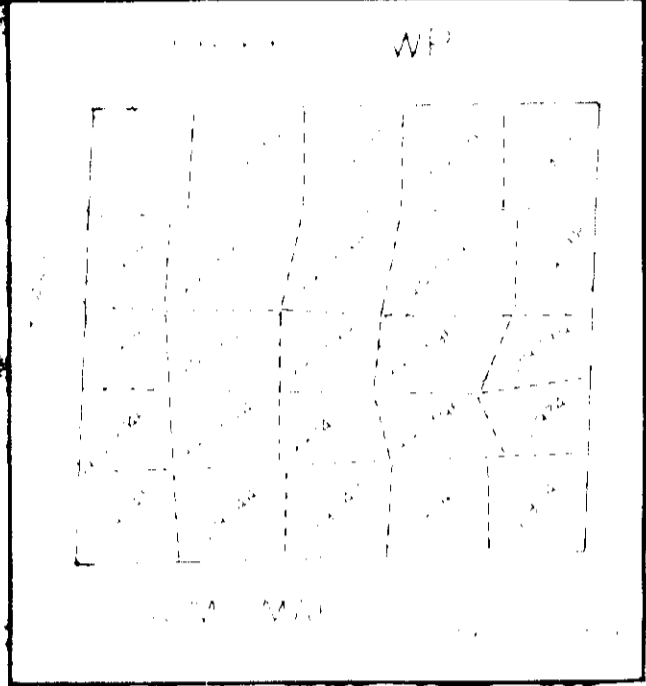
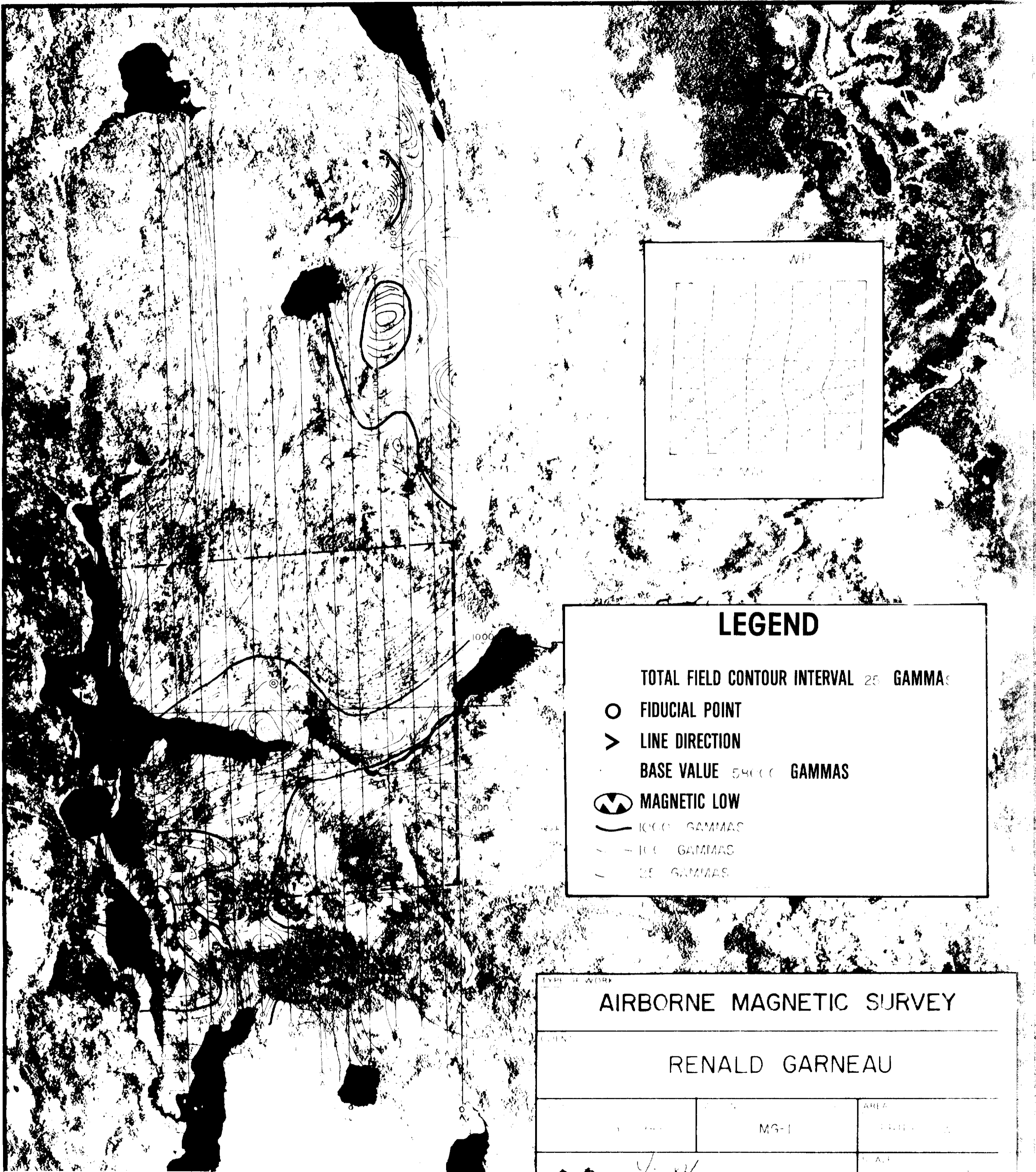
Received  
May 2/83

PLAN NO. M.281

ONTARIO  
MINISTRY OF NATURAL RESOURCES  
SURVEYS AND MAPPING BRANCH



MUSGROVE TWP. M.304



### LEGEND

TOTAL FIELD CONTOUR INTERVAL 25 GAMMAS

○ FIDUCIAL POINT

> LINE DIRECTION


BASE VALUE 58000 GAMMAS

⊖ MAGNETIC LOW

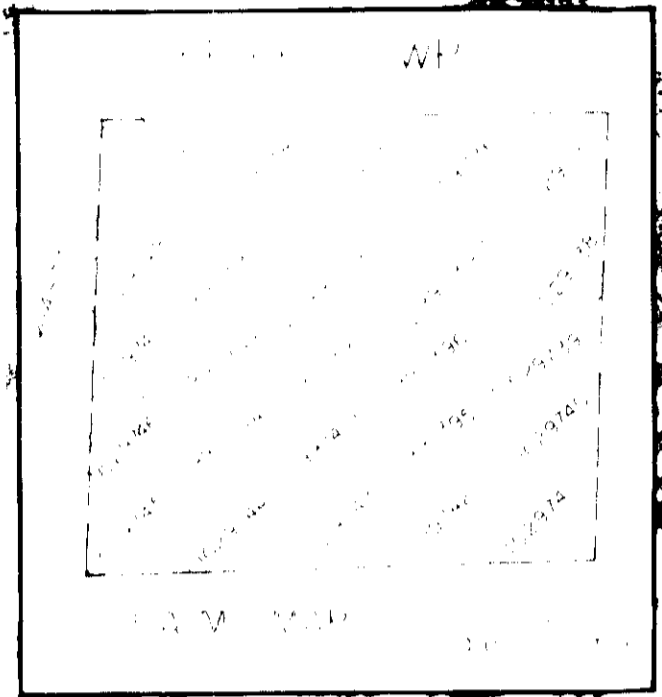
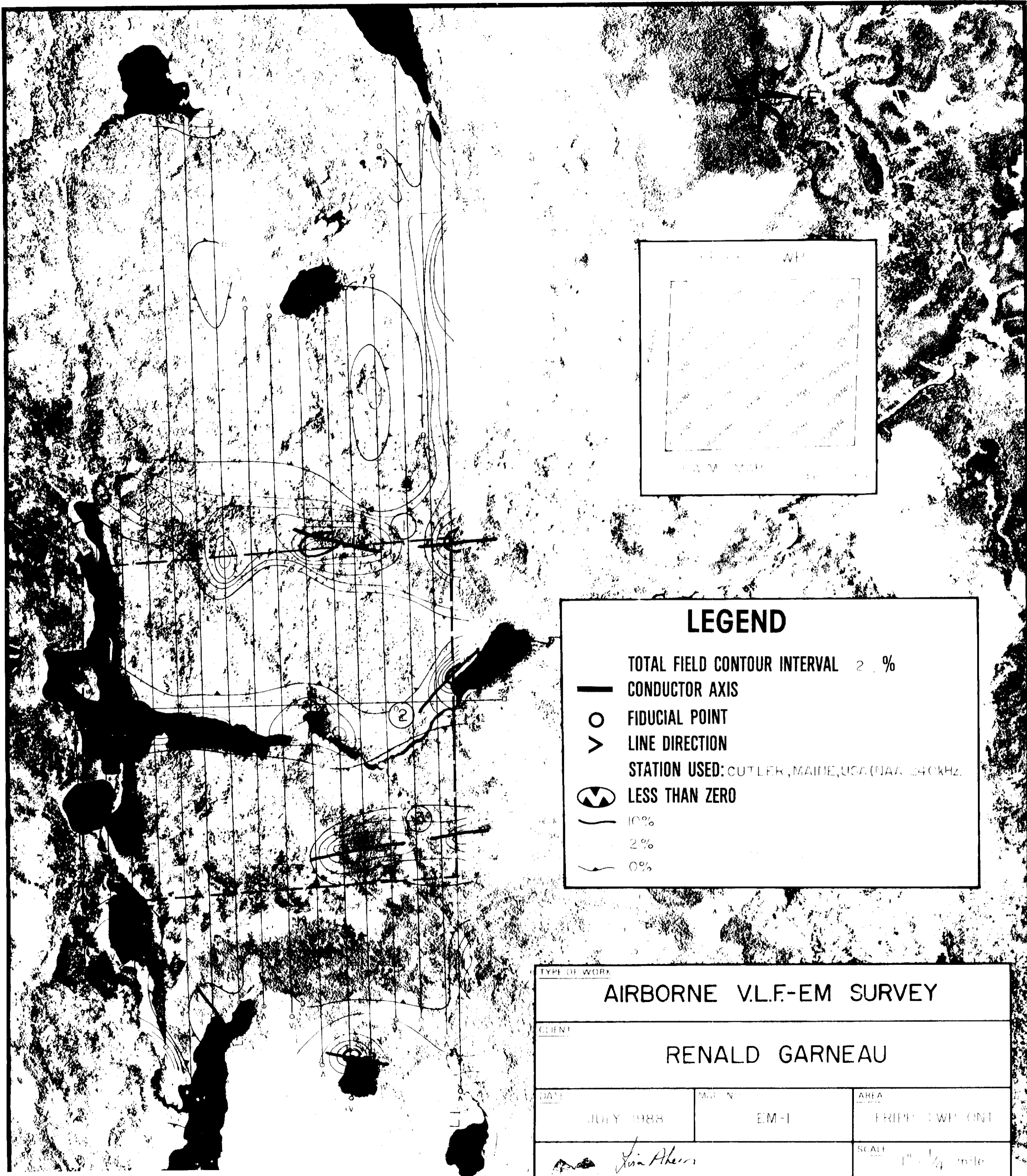
— 1000 GAMMAS

— 100 GAMMAS








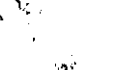
— 25 GAMMAS


|   |          |              |
|---|----------|--------------|
| TYPE OF WORK  |          |              |
| AIRBORNE MAGNETIC SURVEY  |          |              |
| CLIENT  |          |              |
| RENALD GARNEAU  |          |              |
|   | MAGNETIC | AREA         |
|   | MG-1     | 1000         |
| <br><i>John P. H. Ferderber</i><br>H. Ferderber Geophysics Ltd |          | SCALE        |
|   |          | DRAWN BY     |
|   |          | <i>W. J.</i> |





### LEGEND

 TOTAL FIELD CONTOUR INTERVAL 2 %  
 CONDUCTOR AXIS  
 FIDUCIAL POINT  
 LINE DIRECTION  
 STATION USED: CUTLER, MAINE, USA (NAF 240KHZ)  
 LESS THAN ZERO  
 10%  
 2%  
 0%

|   |        |                 |
|---|--------|-----------------|
| TYPE OF WORK  |        |                 |
| AIRBORNE V.L.F.-EM SURVEY   |        |                 |
| CLIENT  |        |                 |
| RENALD GARNEAU  |        |                 |
| DATE  | METHOD | AREA            |
| JULY 1988   | EM-I   | FRIPP - SWP ONT |
| <br><i>Lia Akers</i><br>H. Ferderber Geophysics Ltd. |        | SCALE           |
|   |        | 1" = 1/4 mile   |
|   |        | DRAWN BY        |
|   |        | <i>W.M.</i>     |

