



42A13SE0011 2.11458 GEARY

010

RECEIVED

AUG 3 1988

**MINING LANDS SECTION
GEOPHYSICAL REPORT**

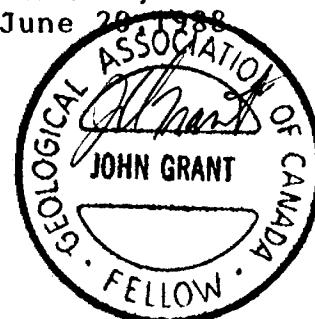
ON

GEARY TOWNSHIP S.W. GRID

FOR

FALCONBRIDGE LIMITED

Prepared by:
J.C. GRANT C.E.T., F.G.A.C.
Exsics Exploration Ltd.
Timmins, Ontario
June 20, 1988





42A13SE0011 2.11458 GEARY

010C

TABLE OF CONTENTS

	Page
INTRODUCTION	1
PERSONNEL	1
LOCATION AND ACCESS	1
CLAIM GROUP	2
GEOPHYSICAL PROGRAM	2
SURVEY PROCEDURE.	2
SURVEY RESULTS.	3
CONCLUSIONS AND RECOMMENDATIONS	5

LIST OF FIGURES

- Figure 1 Location Map
- Figure 2 Road Location Map
- Figure 3 Claim Sketch

APPENDICES

- Appendix A OMNI IV Mag
- Appendix B Max-Min II
- Appendix C Technical Data Statement

Introduction

Falconbridge Limited holds a group of 8 contiguous, unpatented mining claims in the Geary Township Area, Porcupine Mining Division, Timmins, Ontario (Figure 1).

This report will deal with the results of a geophysical program carried out on the entire block during the latter part of May, 1988.

Personnel

People directly involved with the survey, and employed by Exsics Exploration Ltd., were as follows:

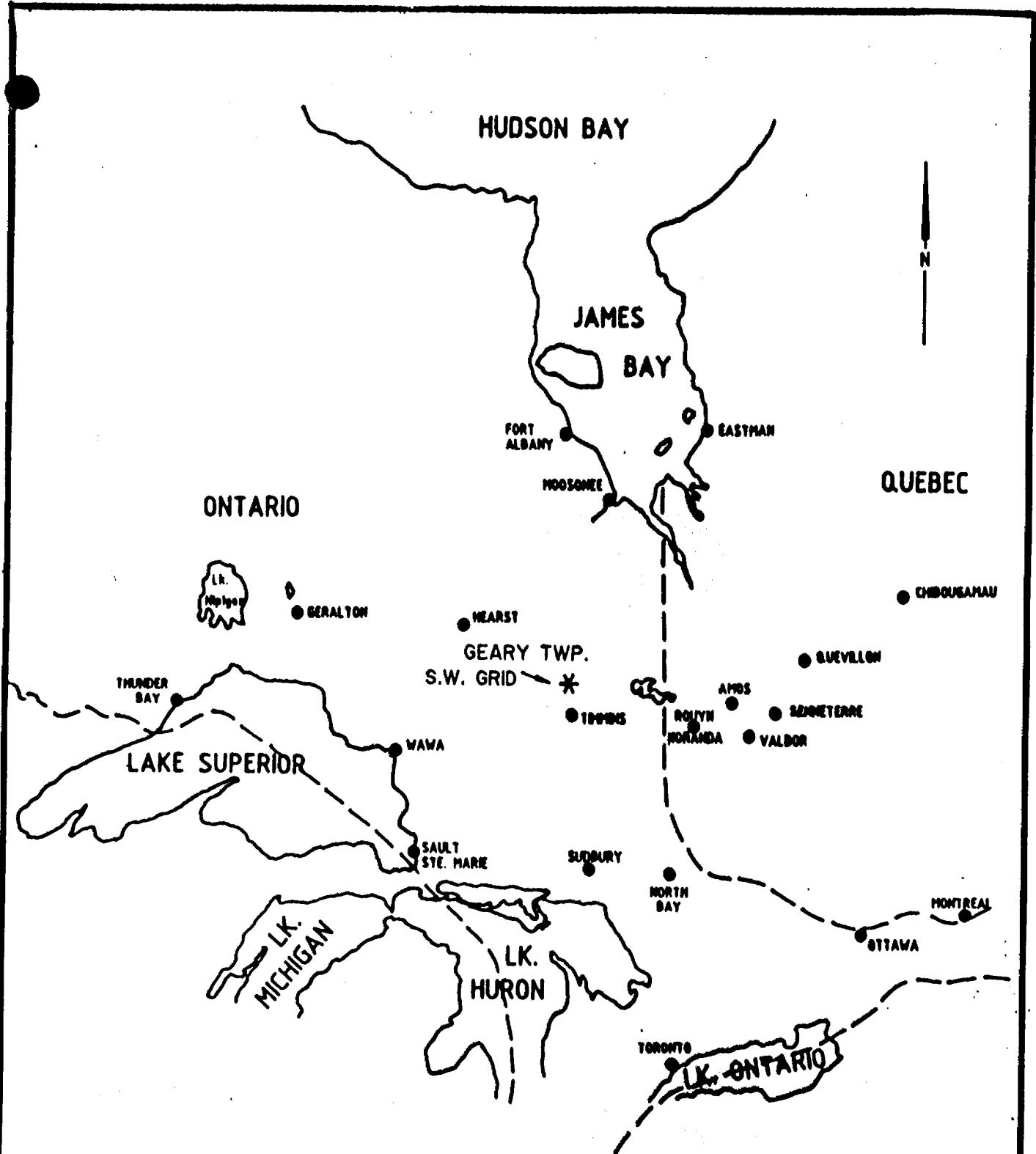
Wayne Pearson	Timmins
Jamie Quesnell	Timmins
Dan Collins	Timmins
Steve Anderson	Timmins

Location and Access

The Geary Township S. W. grid is located approximately 50 km(31 miles) north-west of Timmins, along the western boundary of Geary Township. For more exact location refer to Figure 2.

Access to the property is gained by heading west from Timmins on Hwy. 101 to the Kamiskotia Lake turn-off on Hwy. 576.

From Kamiskotia take the Abitibi Road, north-west for 30 km (18.6 miles), which will bring you to the western section of the grid, crossing the base-line at 440 ME.



	EXSICS EXPLORATION LTD. P.O. Box 1000, P.M.-TX1 Suite 10, Hastings Bldg., Thessalon Ont. Telephone: 705-267-6151		
CLIENT: FALCONBRIDGE LTD.			
PROPERTY: GEARY TWP. S.W. GRID			
TITLE:			
LOCATION MAP			
Date: JUNE 1988	Scale: 1" = 125 miles	NTS:	Fig. 1
Drawn:	Interp:	Job No. EE-152	

Claim Group

Claim numbers are as follows:

1032138

1032139

1059249

1059250

1059251

1059252

1059253

1059254

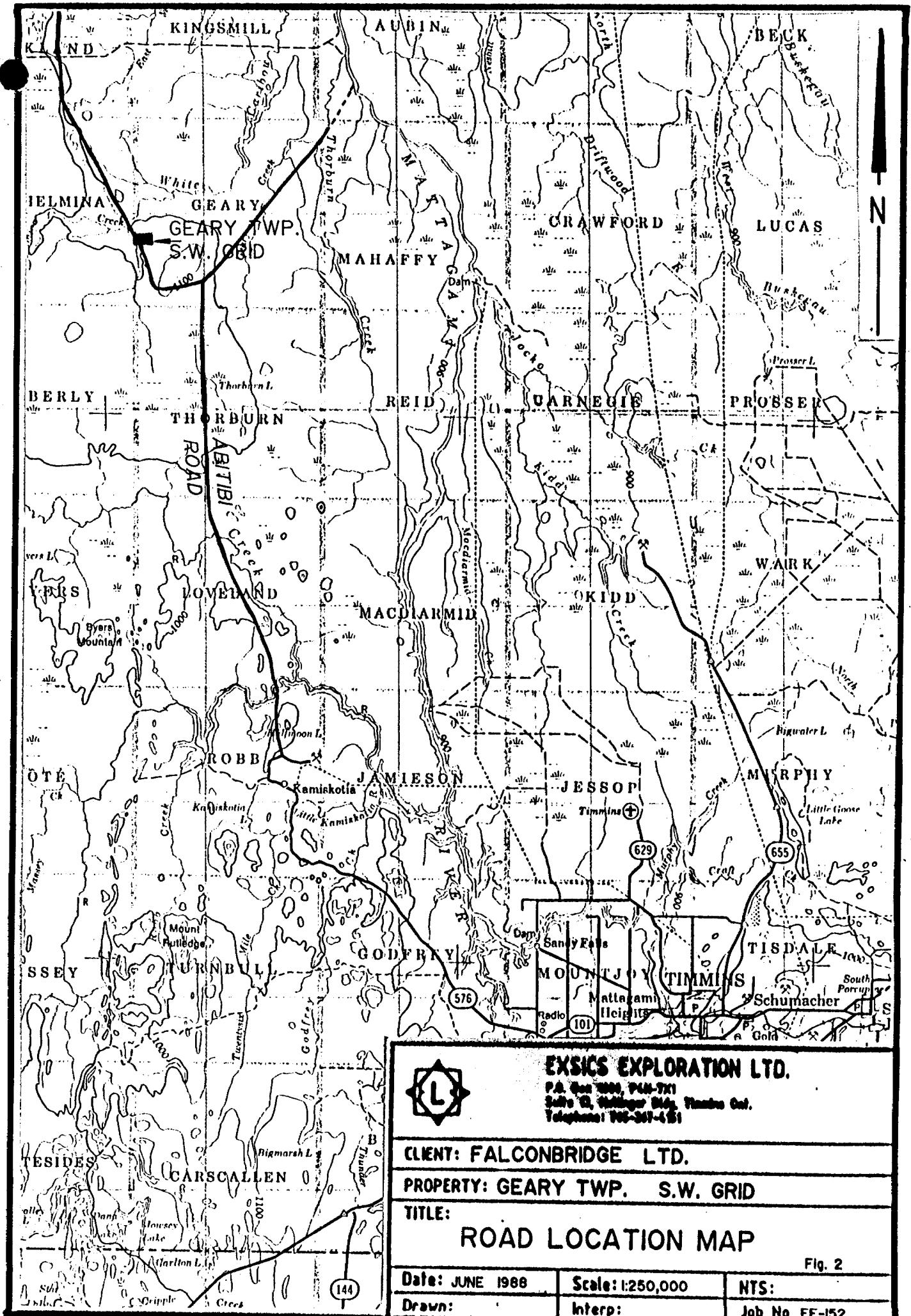
Geophysical Program

This program completed by Exsics Exploration Limited during the month of May 1988, consisted of a total field magnetic survey and two frequency Horizontal Loop EM (Max Min II), Survey. All of the grid lines were read at 20 meter intervals.

Survey Procedure

Magnetic Survey

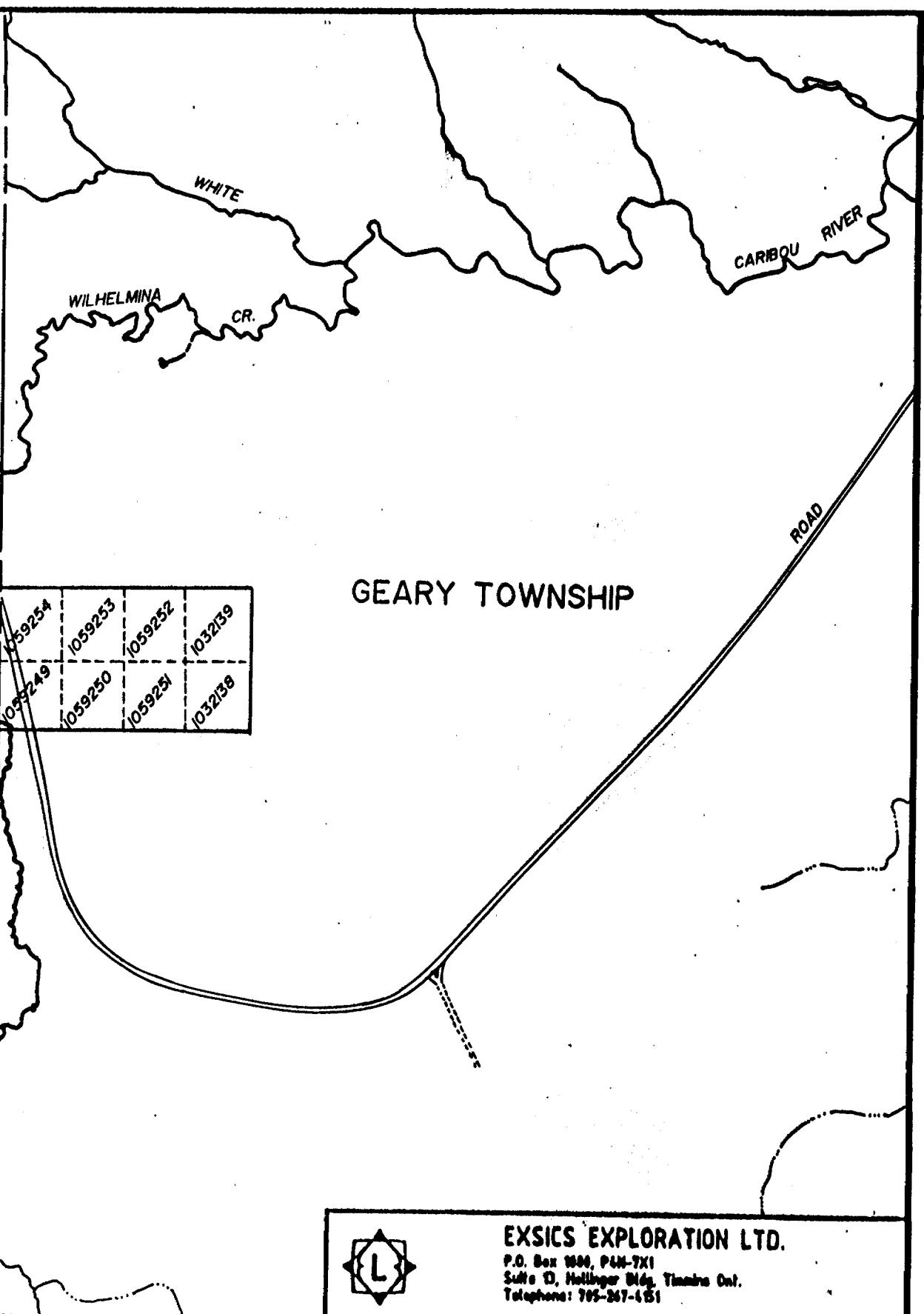
The magnetic survey was completed on 13.94 km (8.66 miles) of grid lines using an EDA OMNI IV Portable Proton Magnetometer. A total of 714 readings were recorded across the grid. The specifications of the OMNI IV magnetometer can be found as Appendix A of this report.



WILHELMINA TWP.

1059254	1059253	1059252	1032159
1059249	1059250	1059251	1032158

GEARY TOWNSHIP



THORNBURN TWP.



EXSICS EXPLORATION LTD.
P.O. Box 1604, P.M.B.-7X1
Suite 1D, Hollinger Blkdg, Timmins Ont.
Telephone: 705-267-4551

CLIENT: FALCONBRIDGE LTD.

PROPERTY: GEARY TWP. S.W. GRID

TITLE:

CLAIM GROUP SKETCH

Fig. 3

Date: JUNE 1988

Scale: 1"-1/2 mile

NTS:

Drawn:

Interp:

Job No. EE-152

The collected data was then plotted on a base map using a scale of 1:2500. A base level of 58000 gammas has been removed from each reading for simplicity in plotting. The data was then contoured at 100 gamma intervals.

The base maps are included in the back pocket of this report.

Horizontal Loop EM Survey

The HEM survey was completed on 13.94 km (8.66 miles) of grid lines using the Max Min II system manufactured by Apex Parametrics. A total of 2856 readings were recorded.

The survey itself consisted of recording two frequencies, a high (1777 hz) and a low (444hz), at each 20 meter picket. A coil separation of 150 meters was used throughout the entire survey resulting in a theoretical search depth of 75-80 meters. The recorded value for this HEM survey is the midpoint between the two operators.

This survey results in a negative positioned over the conductor axis with positive peaks approximately 75 meters on each side of the negative. The shoulder with the higher positive peak represents the down dip side of the conductor.

The collected data for each of the two frequencies consisted of an in-phase and quadrature value.

This data was then plotted on a base map, 1 map for each frequency, at a scale of 1:2500. The in-phase values were plotted on the right side of the line and out of phase (quadrature) plotted on the left. The values were then profiled at a scale of 1 cm to 20% with negative values profiled to the left of the line and positive values to the right.

A map for the 1777 frequency and 1 map for the 444 frequency can be found in the back pocket of this report.

Magnetometer

A base station magnetometer was used, with readings being taken every 30 seconds, to account for any diurnal change which may have occurred throughout the period of the survey.

The base station was established at BLO and L200 ME and had a reference field of 58278 gammas.

The field magnetometers were linked with the base station at the end of each day to provide corrections for any diurnal change which may have occurred during that day.

Survey Results

The HEM survey was successful in locating a main conductive zone striking across most of the block, at about 100 degrees. This feature appears to extend off the grid to the west, and strike to the east as far as L1400 ME. It runs for 500 MN to 140 MN.

The depth to source for this zone is approximately 26-44 meters with a conductivity of 3-10 mhos.

Airborne anomalies 530 C, 550 A and 580 A are coincidental with this feature.

A broad magnetic high runs parallel and north of this structure which may be indicative of a composition of magnetite and pyrite in a rich iron formation.

This zone appears offset in the area of 1500ME which is probably the result of a weak cross-structure indicated by the magnetics.

A zone north of and parallel to this was located, also extending off the grid to the west, but only as far east as 1300 ME, striking from 700 MN to 660 MN.

This zone is flanked to the north by a magnetic high and to the south by a low. It is also coincidental with EM airborne anomalies 520 I and 530 B.

A weaker zone to the south was found, running from 10ME to 1300ME, possibly extending off the grid to the west and striking from 260 MS to 200MS. It has a depth to source of approximately 38 meters and a conductivity of 3 mhos.

To the east, a weak zone was located. It strikes from 11400ME to 11600ME at 260 MN. It is flanked to the north by magnetic highs and is coincidental with EM Airborne anomalies 585 A and 590 S.

This zone appears to divide, with a 40 meter shift to the south on 11600 ME. This may be the result of stringer type material within or extending from the main zone.

Conclusions and Recommendations

The conductors located would appear to be legitimate bedrock responses well defined within the search depth of the survey.

Magnetic highs extending across the grid may be an indication of magnetite and pyrite rich iron formation, however they should not be dismissed as such without further testing.

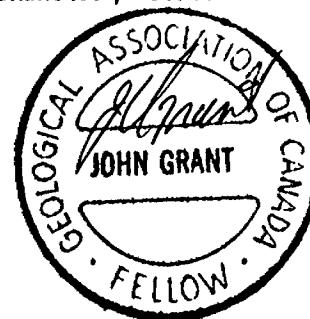
Because of this magnetic feature, and the HEM responses related to it, further work should be considered, particularly in the eastern section of the block where responses seem to be stronger and appear coincidental with a number of airborne EM anomalies.

CERTIFICATE OF QUALIFICATIONS

I, John Charles Grant do hereby certify:

1. that I am a geophysicist and reside at Lot 2 Martineau Avenue, Kamiskotia Lake, Timmins, Ontario.
2. that I am a Fellow of the Geological Association of Canada.
3. that I am a member of the Certified Engineering Technologist Association.
4. that I graduated from Cambrian College of Applied Arts and Technology, Sudbury Campus in 1975 with an Honour's diploma in Geology Technology.
5. that I have practised my profession continuously for 12 years.
6. that my report on FALCONBRIDGE LTD.. on the Geary Township Property S.W. Grid is based on work carried out under my supervision.
4. I hold no specific or special interest in the described property. I have been retained as a Consulting Geophysicist for "the property".

Dated this 20th day of June 1988
at Timmins, Ontario

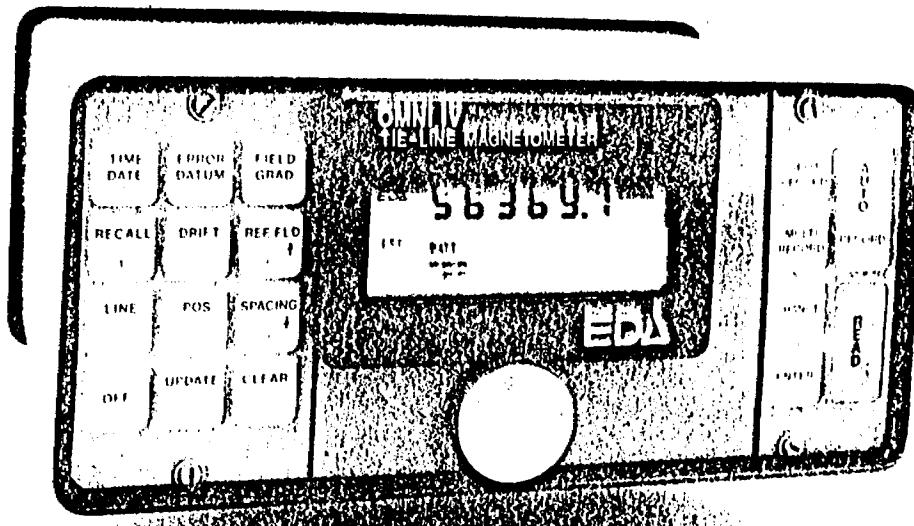


APPENDECES

APPENDIX A

OMNI IV "Tie-Line" Magnetometer

EDA



OMNI IV's Major Benefits

- Four Magnetometers In One
- Self Correcting for Diurnal Variations
- Reduced Instrumentation Requirements
- 25% Weight Reduction
- User Friendly Keypad Operation
- Universal Computer Interface
- Comprehensive Software Packages



Specifications

Dynamic Range	18,000 to 110,000 gammas. Roll-over display feature suppresses first significant digit upon exceeding 100,000 gammas.
Tuning Method	Tuning value is calculated accurately utilizing a specially developed tuning algorithm
Automatic Fine Tuning	± 15% relative to ambient field strength of last stored value
Display Resolution	0.1 gamma
Processing Sensitivity	± 0.02 gamma
Statistical Error Resolution	0.01 gamma
Absolute Accuracy	± 1 gamma at 50,000 gammas at 23°C ± 2 gamma over total temperature range
Standard Memory Capacity	1,200 data blocks or sets of readings
Total Field or Gradient	100 data blocks or sets of readings
Tele-Line Points	5,000 data blocks or sets of readings
Base Station	Custom-designed, ruggedized liquid crystal display with an operating temperature range from -40°C to +55°C. The display contains six numeric digits, decimal point, battery status monitor, signal decay rate and signal amplitude monitor and function descriptors.
Display	2400 baud, 8 data bits, 2 stop bits, no parity
RS 232 Serial I/O Interface	6,000 gammas per meter (field proven)
Gradient Tolerance	A. Diagnostic testing (data and programmable memory) B. Self Test (hardware)
Test Mode	Optimized miniature design. Magnetic cleanliness is consistent with the specified absolute accuracy.
Sensor	0.5 meter sensor separation (standard), normalized to gammas/meter. Optional 1.0 meter sensor separation available. Horizontal sensors optional.
Gradient Sensors	Remains flexible in temperature range specified, includes strain-relief connector
Sensor Cable	Programmable from 5 seconds up to 60 minutes in 1 second increments
Cycling Time (Base Station Model)	-40°C to +55°C; 0-100% relative humidity; weatherproof Non-magnetic rechargeable sealed lead-acid battery cartridge or belt; rechargeable NiCad or Disposable battery cartridge or belt; or 12V DC power source option for base station operation.
Operating Environmental Range	2,000 to 5,000 readings, for sealed lead acid power supply, depending upon ambient temperature and rate of readings
Power Supply	
Battery Cartridge/Belt Life	
Weights and Dimensions	
Instrument Console Only	2.8 kg, 238 x 150 x 250mm
NiCad or Alkaline Battery Cartridge	1.2 kg, 235 x 105 x 90mm
NiCad or Alkaline Battery Belt	1.2 kg, 540 x 100 x 40mm
Lead-Acid Battery Cartridge	1.8 kg, 235 x 105 x 90mm
Lead-Acid Battery Belt	1.8 kg, 540 x 100 x 40mm
Sensor	1.2 kg, 56mm diameter x 200mm
Gradient Sensor (0.5m separation-standard)	2.1 kg, 56mm diameter x 790mm
Gradient Sensor (1.0m separation-optional)	2.2 kg, 56mm diameter x 1300mm
Standard System Complement	Instrument console; sensor; 3-meter cable, aluminum sectional sensor staff, power supply, harness assembly, operations manual.
Base Station Option	Standard system plus 30 meter cable
Gradiometer Option	Standard system plus 0.5 meter sensor

EDA Instruments Inc.
4 Thorncriffe Park Drive
Toronto, Ontario
Canada M4H 1H1
Telex: 06 23222 EDA TOR
Cable: Instruments Toronto
(416) 425 7800

In U.S.A.
EDA Instruments Inc.
5151 Ward Road
Wheat Ridge, Colorado
U.S.A. 80033
(303) 422 9112

Printed In Canada

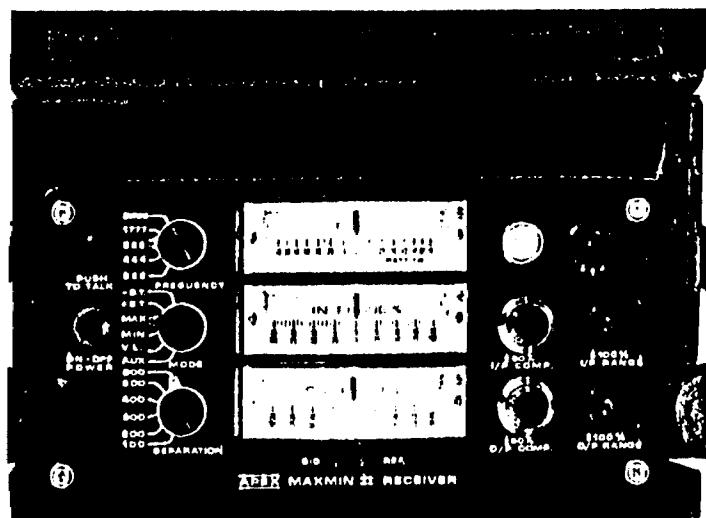
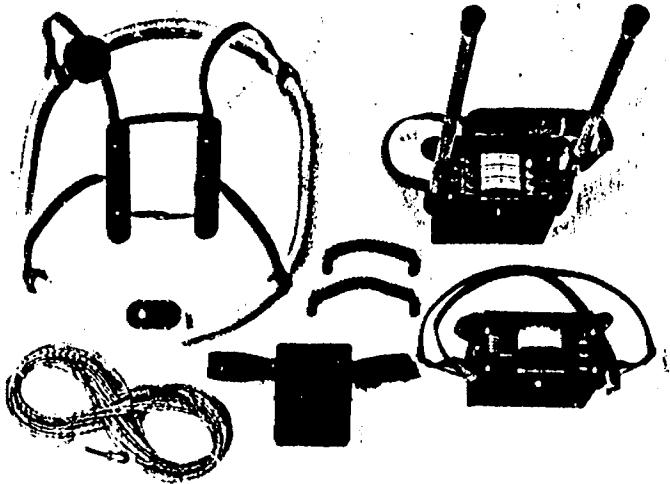
APPENDIX B

APEX

MAXMIN II PORTABLE EM

- Five frequencies: 222, 444, 888, 1777 and 3555 Hz.
- Maximum coupled (horizontal-loop) operation with reference cable.
- Minimum coupled operation with reference cable.
- Vertical-loop operation without reference cable.
- Coil separations: 25, 50, 100, 150, 200 and 250 m (with cable) or 100, 200, 300, 400, 600 and 800 ft.
- Reliable data from depths of up to 180m (600 ft).
- Built-in voice communication circuitry with cable.
- Tilt meters to control coil orientation.





SPECIFICATIONS :

Frequencies: 222, 444, 888, 1777 and 3555 Hz.

Modes of Operation: MAX: Transmitter coil plane and receiver coil plane horizontal (Max-coupled; Horizontal-loop mode). Used with reference cable. MIN: Transmitter coil plane horizontal and receiver coil plane vertical (Min-coupled mode). Used with reference cable. V.L.: Transmitter coil plane vertical and receiver coil plane horizontal (Vertical-loop mode). Used without reference cable, in parallel lines.

Coil Separations: 25, 50, 100, 150, 200 & 250m (MMI) or 100, 200, 300, 400, 600 and 800 ft. (MMIF). Coil separations in V.L. mode not restricted to fixed values.

Parameters Read:

- In-Phase and Quadrature components of the secondary field in MAX and MIN modes.
- Tilt-angle of the total field in V.L. mode.

Readouts:

- Automatic, direct readout on 90mm (3.5") edgewise meters in MAX and MIN modes. No nulling or compensation necessary.
- Tilt angle and null in 90mm edge-wise meters in V.L. mode.

Scale Ranges:

In-Phase:	±20%, ±100% by push-button switch.
Quadrature:	±20%, ±100% by push-button switch.
Tilt:	±75% slope.
Null (V.L.):	Sensitivity adjustable by separation switch.

Readability: In-Phase and Quadrature: 0.26 % to 0.5 % ; Tilt: 1 %.

Repeatability: ±0.25% to ±1% normally, depending on conditions, frequencies and coil separation used.

Transmitter Output:

- 222Hz : 220 Atm²
- 444Hz : 200 Atm²
- 888Hz : 120 Atm²
- 1777Hz : 60 Atm²
- 3555Hz : 30 Atm²

Receiver Batteries: 9V trans. radio type batteries (4). Life: approx. 35hrs. continuous duty (alkaline, 0.5 Ah), less in cold weather.

Transmitter Batteries: 12V 8 Ah Gel-type rechargeable battery. (Charger supplied).

Reference Cable: Light weight 2-conductor teflon cable for minimum friction. Unshielded. All reference cables optional at extra cost. Please specify.

Voice Link: Built-in intercom system for voice communication between receiver and transmitter operators in MAX and MIN modes, via reference cable.

Indicator Lights: Built-in signal and reference warning lights to indicate erroneous readings.

Temperature Range: -40°C to +80°C (-40°F to +140°F).

Receiver Weight: 6kg (13 lbs.)

Transmitter Weight: 13kg (28 lbs.)

Shipping Weight: Typically 60kg (135 lbs.), depending on quantities of reference cable and batteries included. Shipped in two field/shipping cases.

Specifications subject to change without notification

APEX

PARAMETRICS LIMITED
200 STEELCASE RD. E., MARKHAM, ONT., CANADA, L3R 1G2

Phone: (416) 495-1612

Cables: APEXPARA TORONTO

Telex: 06-966773 NORDVIK TOR

A P P E N D I X C



Ministry of
Northern Development
and Mines

Geophysical-Geological-Geochemical
Technical Data Statement

File _____

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) Magnetic and Electromagnetic

Township or Area Geary Township

Claim Holder(s) Falconbridge Ltd.

Geary Twp. SW Grid

Survey Company EXSICS Exploration Ltd.

Author of Report J. C. Grant

Address of Author Hollinger Bldg. Timmins, On

Covering Dates of Survey April 88 - June 88
(line cutting to office)

Total Miles of Line Cut 18.71 km or 11.64 mi.

SPECIAL PROVISIONS
CREDITS REQUESTED

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

ENTER 20 days for each
additional survey using
same grid.

Geophysical DAYS
 per claim

- Electromagnetic 40

- Magnetometer 20

- Radiometric

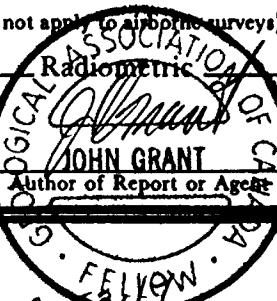
- Other

Geological

Geochemical

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

Magnetometer Electromagnetic Radiometric
(enter days per claim)

DATE: _____ SIGNATURE: 

Res. Geol. _____ Qualifications _____

Previous Surveys

File No.	Type	Date	Claim Holder
.....
.....
.....
.....
.....

MINING CLAIMS TRAVERSED
List numerically

1032138
(prefix) (number)

1032139

1059249

1059250

1059251

1059252

1059253

1059254

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.....

TOTAL CLAIMS 8

If space insufficient, attach list

GEOPHYSICAL TECHNICAL DATA

GROUND SURVEYS – If more than one survey, specify data for each type of survey

Number of Stations 714 Number of Readings mag. 714 min 2856
 Station interval 20 meters Line spacing 100 meters
 Profile scale 1cm = 20 %
 Contour interval 100 gammas

MAGNETIC

Instrument EDA Omni IV
 Accuracy – Scale constant ± 0.1 gamma
 Diurnal correction method Base Station
 Base Station check-in interval (hours) 30 seconds
 Base Station location and value BLO - 2100E - 58,278

ELECTROMAGNETIC

Instrument Apex - Max-Min II
 Coil configuration coplanar - horizontal Loop
 Coil separation 150 meters
 Accuracy 0.5%
 Method: Fixed transmitter Shoot back In line Parallel line
 Frequency 444 Hz 1777 Hz (specify V.L.F. station)
 Parameters measured In - Phase and Quadrature

GRAVITY

Instrument _____
 Scale constant _____
 Corrections made _____
 Base station value and location _____
 Elevation accuracy _____

INDUCED POLARIZATION

RESISTIVITY

Instrument _____
 Method Time Domain Frequency Domain
 Parameters – On time _____ Frequency _____
 – Off time _____ Range _____
 – Delay time _____
 – Integration time _____
 Power _____
 Electrode array _____
 Electrode spacing _____
 Type of electrode _____

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) _____

Instrument(s) _____

(specify for each type of survey)

Accuracy _____

(specify for each type of survey)

Aircraft used _____

Sensor altitude _____

Navigation and flight path recovery method _____

Aircraft altitude _____ Line Spacing _____

Miles flown over total area _____ Over claims only _____

GEOCHEMICAL SURVEY – PROCEDURE RECORD

Numbers of claims from which samples taken _____

Total Number of Samples _____

Type of Sample _____
(Nature of Material)

Average Sample Weight.

Method of Collection.

Soil Horizon Sampled.

Horizon Development.

Sample Depth.

Terrain.

Drainage Development.

Estimated Range of Overburden Thickness.

ANALYTICAL METHODS

Values expressed in: per cent
 p. p. m.
 p. p. b.

Cu, Pb, Zn, Ni, Co, Ag, Mo, As, -(circle)

Others _____

Field Analysis (_____ tests)

Extraction Method _____

Analytical Method _____

Reagents Used _____

Field Laboratory Analysis

No. (_____ tests)

Extraction Method _____

Analytical Method _____

Reagents Used _____

Commercial Laboratory (_____ tests)

Name of Laboratory _____

Extraction Method _____

Analytical Method _____

Reagents Used _____

SAMPLE PREPARATION (Includes drying, screening, crushing, ashing)

Mesh size of fraction used for analysis.

General _____

General _____



Ministry of
Natural
Resources

Report of Work
(Geophysical, Geological,
Geochemical and Expenditures)

DOCUMENT No.
W8806-174

Instructions: — Please type or print.

— If number of mining claims traversed exceeds space on this form, attach a list.

Aug 12

Type of Survey(s)

1100 X 1000' MAGNETIC SURVEY

Claim Holder(s)

FALCONBRIDGE LIMITED

Address

571 MONETA AVENUE, Timmins, Ont.

Survey Company

EXSICS EXPLORATION LIMITED

Name and Address of Author (of Geo-Technical report)

EDWARD C. GRANT P.O. BOX 1880, TIMMINS, ONT.

Credits Requested per Each Claim in Columns at right

Special Provisions

For first survey:

Enter 40 days. (This includes line cutting)

Geophysical	Days per Claim
- Electromagnetic	20
- Magnetometer	40
- Radiometric	
- Other	
Geological	
Geochemical	

Man Days
Complete reverse side and enter total(s) here

Geophysical	Days per Claim
- Electromagnetic	
- Magnetometer	
- Radiometric	
- Other	
Geological	
Geochemical	

Airborne Credits

Note: Special provisions credits do not apply to Airborne Surveys.

	Days per Claim
Electromagnetic	
Magnetometer	
Radiometric	

Expenditures (excludes power stripping)

Type of Work Performed	RECEIVED
Performed on Claim(s)	JUN 28 1988

Calculation of Expenditure Days Credits

Total Expenditures	\$	÷ 15 =	Total Days Credits

Instructions

Total Days Credits may be apportioned at 1500 ft per claim holder's choice. Enter number of days credits per claim selected in columns at right.

Date	Received by Manager Agent (Signature)
JUN 23 1988	<i>John D. Grant</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 work or witnessed same during and/or after its completion and the annexed report is true.

Name and Postal Address of Person Certifying

EDWARD C. GRANT

Box 1880, Timmins, Ontario

Date Certified

Aug 19 1988

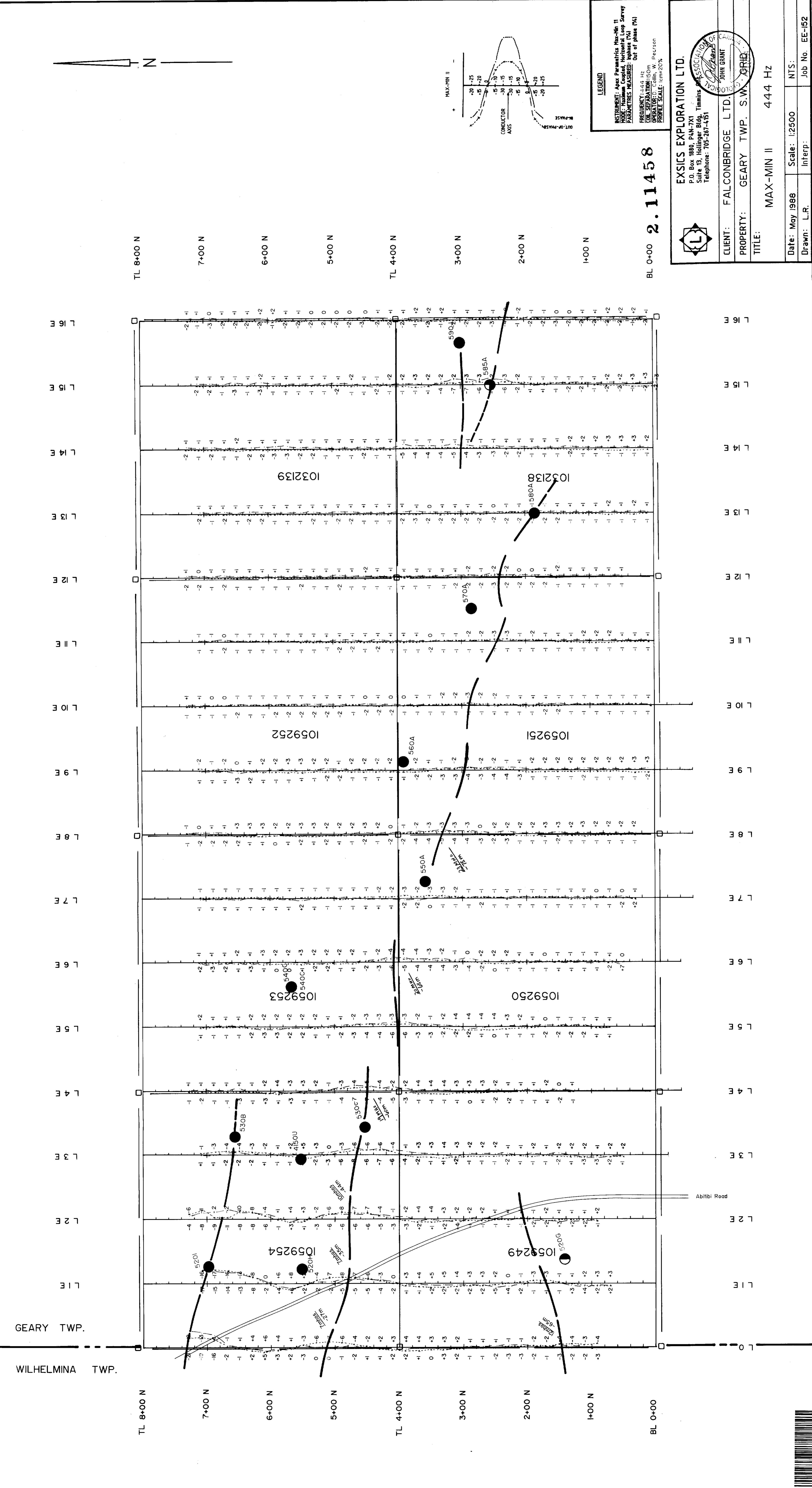
Certified by (Signature)

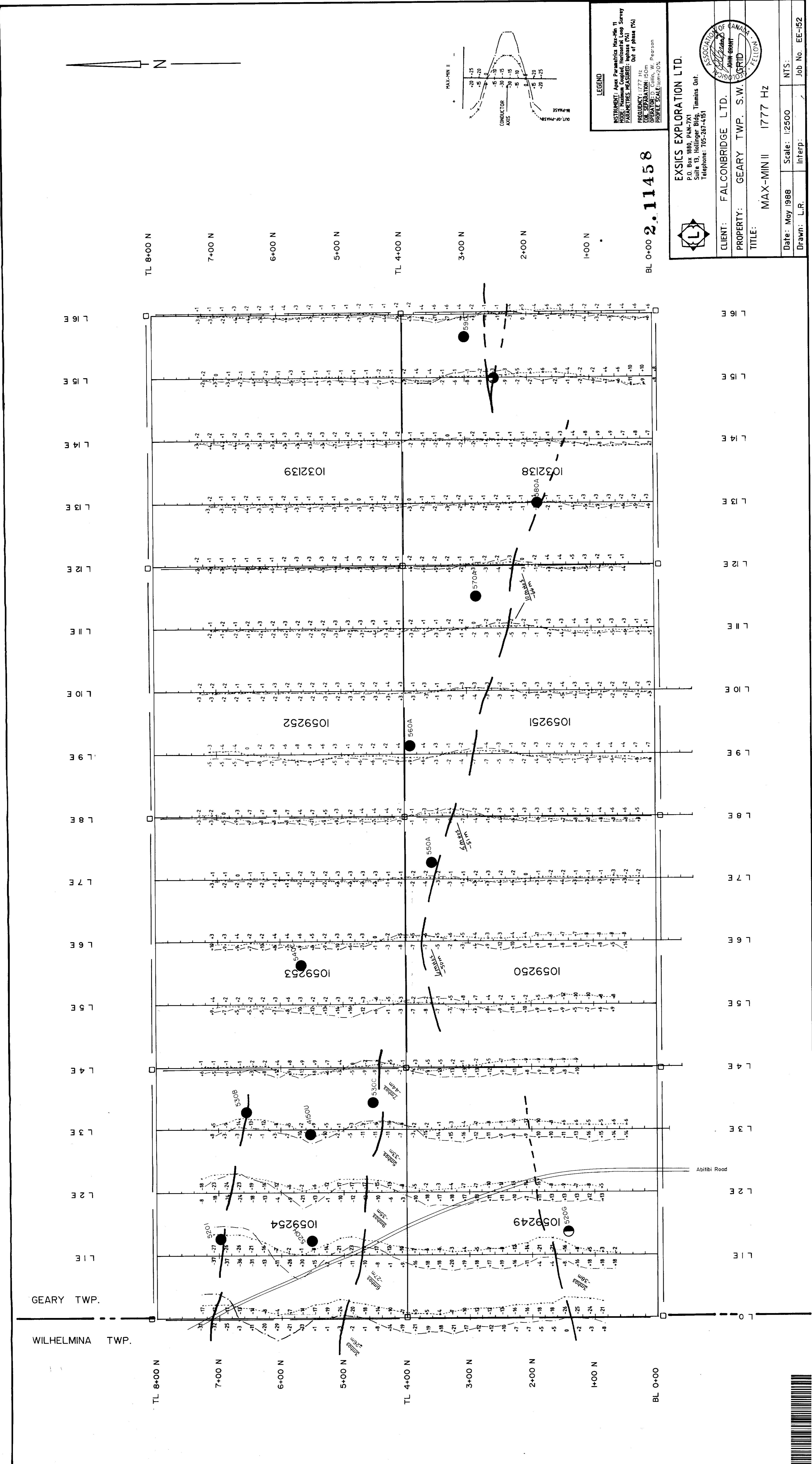
S. Hirsch

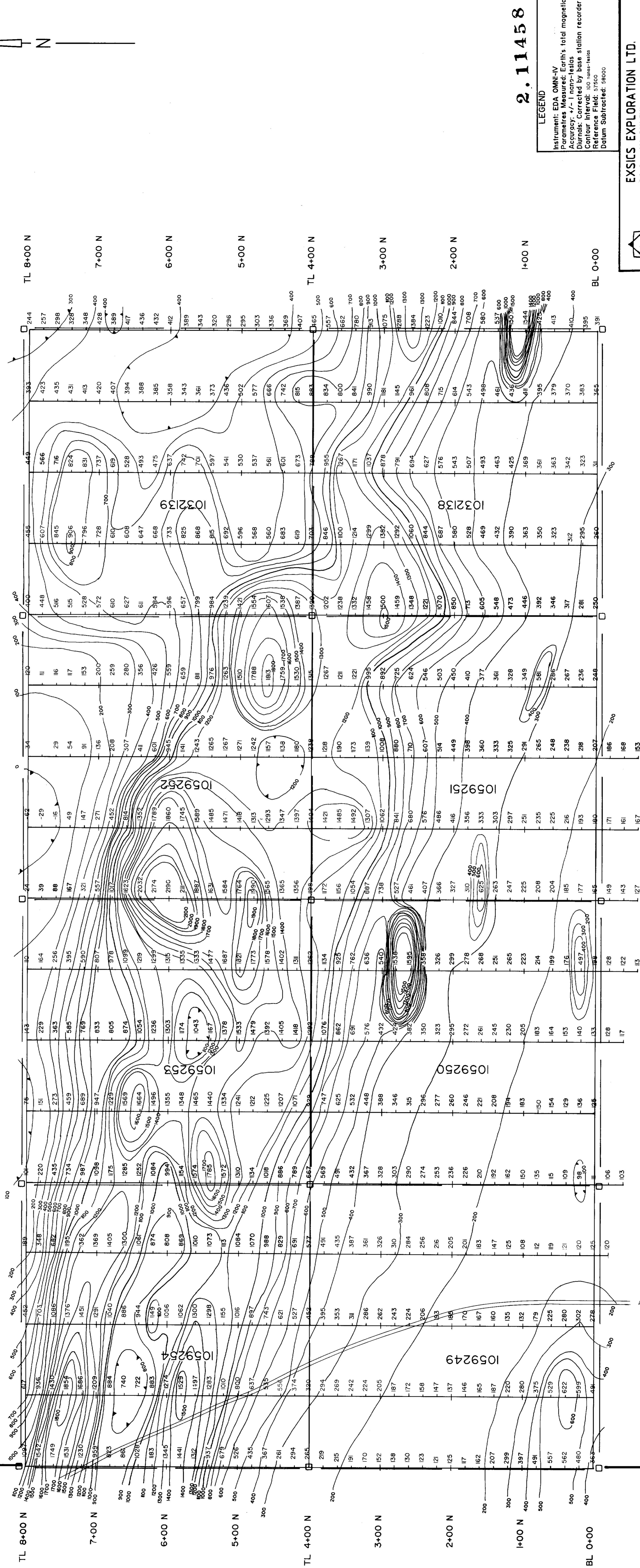
For Office Use Only	
Total Days Cr. Recorded	Date Recorded
480	June 23, 1988
	Date Approved as Recorded
	Aug 19 1988
	Branch Director
	<i>S. Hirsch</i>
	for Manager

Total number of mining claims covered by this report of work.

1







EXSICS EXPLORATION LTD.

P.O. Box 1880, P4N-7X1
Suite 13, Hollinger Bldg, Timmins Ont.
Telephone: 705-267-4151

L CONBRIDGE LTD.

GEARY TWP. S.W. G
CONTINUED

CONTOURED MAGNETOMETER SURVEY

Scale: 1:2500 NT

Interp: Job

202