

42A12NE0561 2.12608 LOVELAND

010

REPORT ON
GEOPHYSICAL WORK
ON
LOVELAND PROPERTY
LOVELAND TOWNSHIP
FOR
FALCONBRIDGE LIMITED

NTS: 42-A/12

PROJ #8182

PREPARED BY

1989

MINING LANDS SECTION

JUNE 1989

S. TAYLOR
TIMMINS GEOPHYSICS LTD.

SUMMARY AND RECOMMENDATIONS

Magnetometer and HLEM surveys were carried out for Falconbridge Limited over twenty-two contiguous claims in Loveland Township during May 1989.

The magnetometer survey mapped three north-south diabase dikes and a northwest trending contact, which could be either stratigraphic or fault related. Three isolated magnetic highs, which could represent ultramafic units, were also located.

The HLEM survey mapped five very weak anomalies. All five outline conductors with very low conductivity, and their association with either Enid creek or bedrock topography indicates they probably all have surficial sources. The northwest striking anomalies may coincide with contacts between rock units.

The geophysics surveys do not indicate any drill targets. Previous work has indicated nickel occurrences on the property, and if geology warrants further investigation, an IP survey could be used to look for disseminated zones, or a HLEM survey could be used to search deeper for a massive target, particularly in the area of the isolated magnetic highs.



42A12NE0561 2.12608 LOVELAND

010C

ii

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INTRODUCTION

In May 1969, magnetic and horizontal loop EM surveys were carried out for Thorsbridge Limited over twenty-two contiguous claims in Loveland Township.

The claims straddle Snid Creek in the southeast corner of the township, approximately 28 kilometres northwest of the city of Timmins, in the Porcupine Mining Division.

The claims are numbered as follows: P1037149

P1037154 - P107172 inclusive

P1114468 - P1114469

The property was accessed from the Abitibi Camp 50 Road. The field crew consisted of A. Van der Bruggen and D. Nicholson.

PREVIOUS WORK

Interest in the area began with the discovery of sulphide staining along Snid Creek. Assays were low and after further prospecting a nickel-bearing staining zone was located.

In 1977, the Thorsbridge group drilled 9 holes on what is now claim 1037154. The best results showed 1.5% Ni and .70% Cu over 1.5 feet of nearly massive

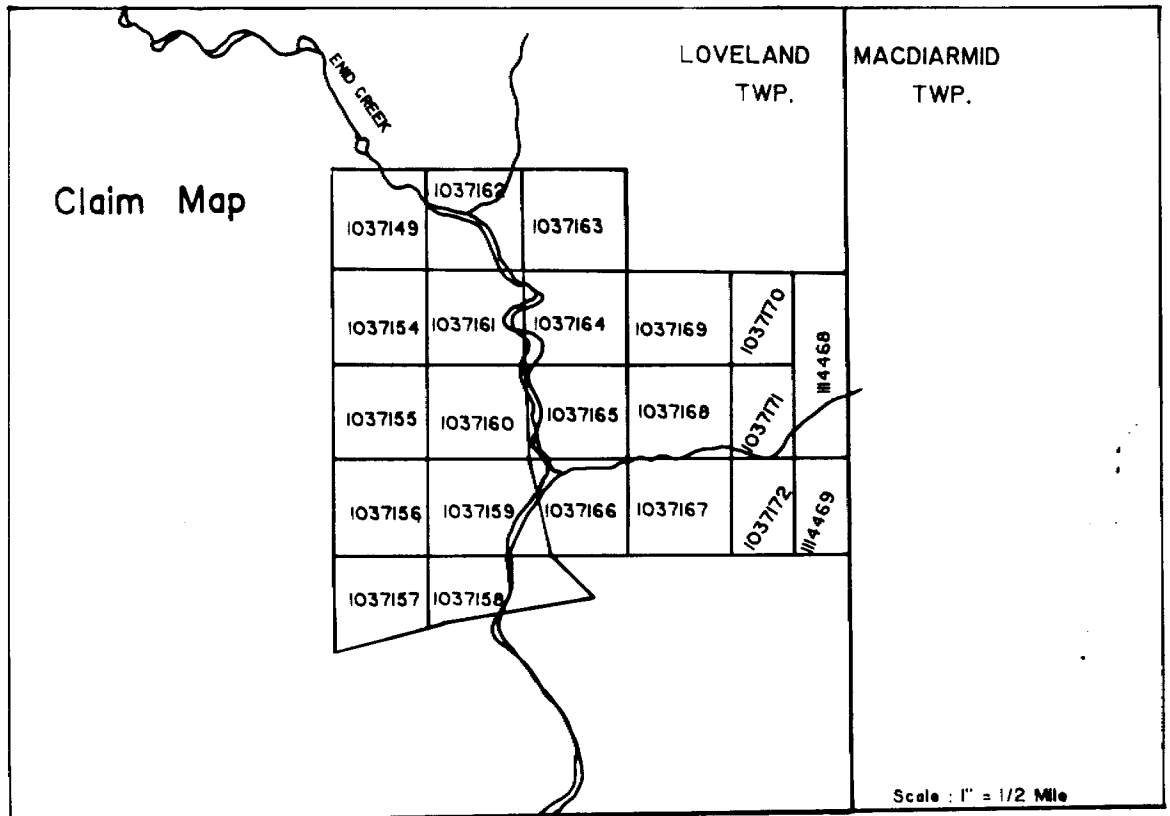
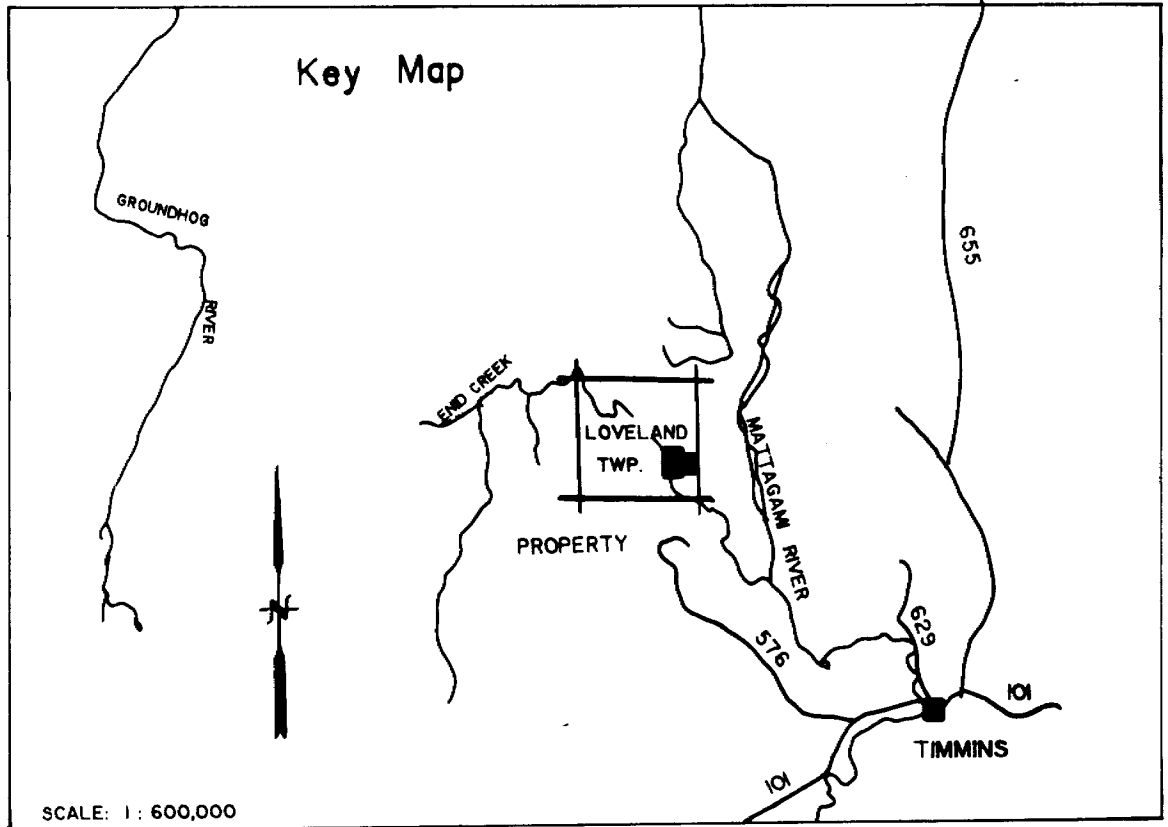


Figure : 1 Location Map

In 1964, Bollinger Mines Limited conducted airborne magnetic and EM surveys, followed by geological mapping and magnetic and Turam EM surveys. During 1967, on claim 1037154, six holes (all within 300 feet) were drilled vertically into the area of the showing. These are in the same area as the Tilmac drilling. From 1965 to 1968, holes L1 through L16 were drilled: four were in the area of the showing, and six holes were north of Enid Creek.

In 1969, Bollinger Mines Limited conducted a magnetic survey over a thirteen claim group which straddles the Loveland-MacDiarmid Township Line. One hole, LD 3-1-71, was drilled in 1971 on a claim in MacDiarmid Township.

In 1970, Bollinger Mines Limited conducted airborne magnetic and EM surveys over the thirteen claims mentioned above. No anomalies were found in Loveland Township.

In 1978, Texasgulf Canada Limited conducted a magnetometer survey on east-west lines over the four claims presently numbered 1037149, 1037154, 1037161 and 1037162. The only zone of interest was previously drilled by Tilmac and Bollinger. No new zones were located, and the property was dropped.

In 1980, Gulf Minerals Canada Ltd. conducted an airborne magnetic and EM survey. The claims west of Enid Creek were covered; no good conductors were detected.

YEAR	COMPANY	GEOPHYSICS	DRILL HOLES	ASSESSMENT FILE
1966	ROY. MCDONALD'S (BARCEL) LTD.	AMAG, EM		T-1959
1971	LEXINGTON CANADA LIMITED	MAG		T-1870
1971	BRANDON MINES LIMITED	AMAG, EM		T-881
1971-72	BRANDON MINES LIMITED	MAG		T-1959
1981-82	BRANDON MINES LIMITED	AMAG, EM MAG, TORAM	B01-9 G1-16	T-734 T-734
1982	CLYDE DALE		A1-A3	T-840

TABLE 1: Summary of Previous Work

SURVEY DESCRIPTION

An east-west baseline was established and north-south survey lines were out at 100 metre intervals. Lines were picketed every 20 metres.

The horizontal loop EM survey was carried out with an Apex Parametrics MaxMin 1. This instrument measures the in-phase and quadrature components of the secondary field as a percentage of the primary field. Readings were taken every 20 metres at frequencies of 444 and 1777 Hz. A 160 metre coil separation

was used.

The magnetic readings were taken every 20 metres with a Scintrex IGS-2/MP-1. This instrument is a total field proton precession magnetometer with an accuracy of 0.1 gammas. The diurnal drift was monitored every 10 seconds with a Scintrex MI-3 base station magnetometer.

HLEM RESULTS

The HLEM results are plotted on maps 1 and 2 at a scale of 1:5000. The profile scale is 1 cm = 20% for both 441 and 1 cm = 40% for 1777 Hz results.

The major features of the map are high positive quadrature readings which can be followed across several lines. These features map high bedrock topography.

The only anomalies on the property are found at the edges of bedrock ridges in the northeast corner of the property, or along the edge of Enid Creek. The strike direction varies from northeast to northwest. All anomalies show very low in-phase to quadrature ratios, and indicate very low conductivity thickness. Their association with either bedrock high or the creekbed suggests surficial sources. The northwest trending anomalies may possibly map contacts. Hole L-10, drilled by Hollinger, may have tested the northernmost anomaly. Gabbro containing graphite along shear planes was intersected.

MAGNETIC RESULTS

The magnetic results are plotted on Map 3 at a scale of 1:5000. A colour image of these results is given in Figure 2, at a scale of 1 : 15,000.

The major features are three north-south linear highs which are typical diabase dike responses. A northwest striking contact between low magnetic susceptibility rocks to the northeast and higher susceptibility rocks to the southwest is also mapped. This contact could either be stratigraphic or fault related. There is relatively little relief within the units, except for three isolated magnetic high of short strike length. These are centred at 360 North on 300 East, at 580 North on Lines 800 and 900 East and at 440 North on Line 1100 East. The source of these highs are unknown; if they map ultramafic bodies, they may be of economic interest.

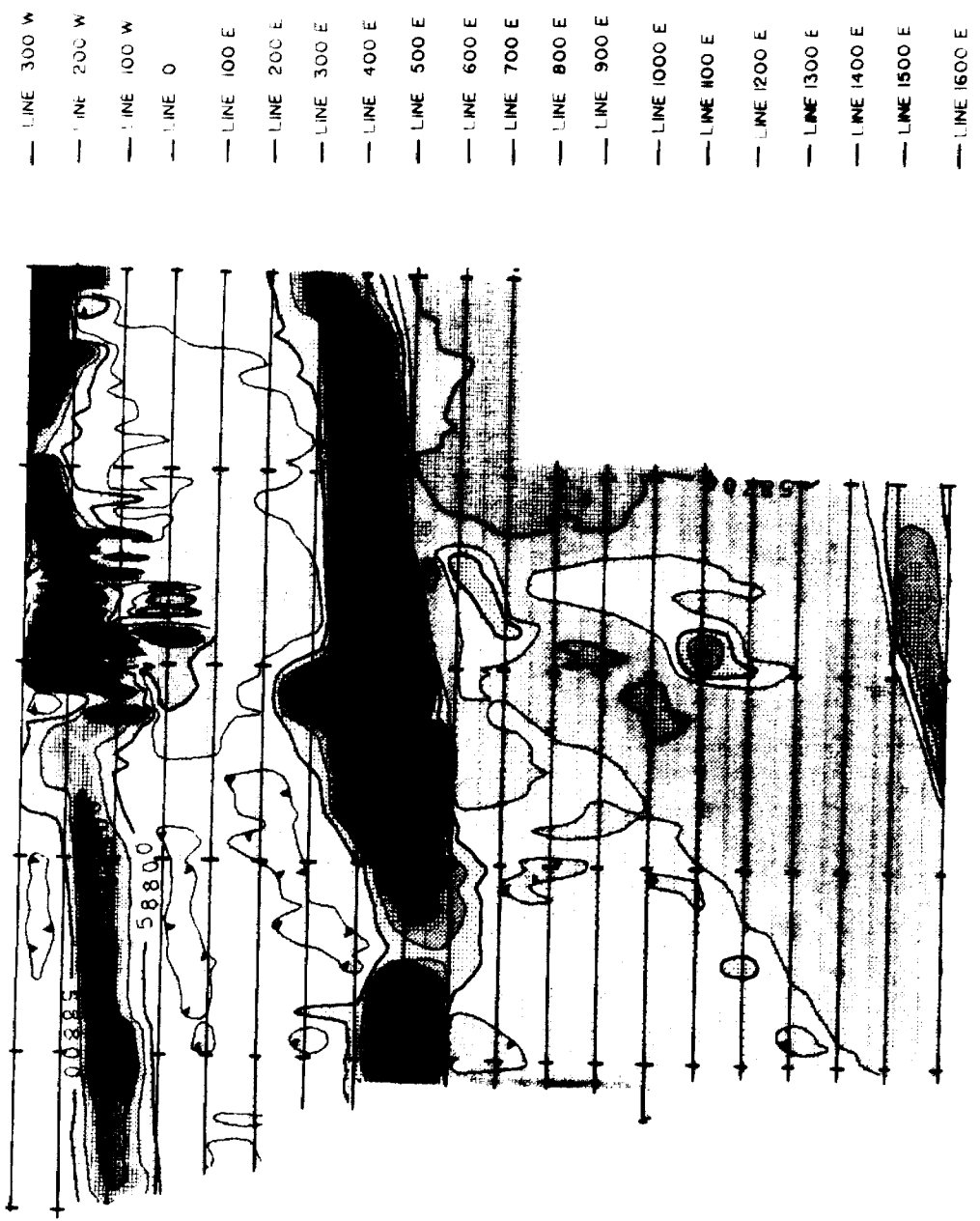
S. Taylor

S. TAYLOR

TIMMINS GEOPHYSICS LTD.

APPENDIX A

1200 N —
 800 N —
 400 N —
 0 —
 400 S —
 800 S —



FALCONBRIDGE LIMITED	
MAGNETIC SURVEY	
LOVELAND PROPERTY	
NTS: 42-A/12	PROJ: #8182
Scale: 1:15000	Date: MAY 1989

APPENDIX A



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) GEOPHYSICAL
Township or Area LOVELAND
Claim Holder(s) Falconbridge Limited
P.O.Box 1140, 571moneta Ave. Timmins P4N 7H9
Survey Company Timmins Geophysics Ltd.
Author of Report Sharon Taylor
Address of Author P.O.Box 1783, South Porcupine, Ont. P0N 1H0
Covering Dates of Survey May 1, 1989 - June 29, 1989
(linecutting to office)
Total Miles of Line Cut 38.7 km

<u>SPECIAL PROVISIONS</u> <u>CREDITS REQUESTED</u>	<u>DAYS</u> <u>per claim</u>
ENTER 40 days (includes line cutting) for first survey.	Geophysical - Electromagnetic <u>20</u>
ENTER 20 days for each additional survey using same grid.	- Magnetometer <u>40</u>
	- Radiometric _____
	- Other _____
	Geological _____
	Geochemical _____

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

Magnetometer _____ Electromagnetic _____ Radiometric _____
(enter days per claim)

DATE: _____ SIGNATURE: _____
Author of Report or Agent

Res. Geol. _____ Qualifications _____

Previous Surveys

File No.	Type	Date	Claim Holder

MINING CLAIMS TRAVERSED	
List numerically	
P	1037149
(prefix)	(number)
	1037154
	1037155
	1037156
	1037157
	1037158
	1037159
	1037160
	1037161
	1037162
	1037163
	1037164
	1037165
	1037166
	1037167
	1037168
	1037169
	1037170
	1037172
	1114468
	1114469
TOTAL CLAIMS	22

If space insufficient, attach list

GEOPHYSICAL TECHNICAL DATA

GROUNDED SURVEYS - If more than one survey, specify data for each type of survey

Number of Stations 1484 Number of Readings Hlem 1233
Mag 1539
Station interval 20m Line spacing 100m
Profile scale HLEM 1 cm = 20% (444 Hz) 1 cm = 40% (1777 Hz)
Contour interval MAG 50 gammas

MAGNETIC

Instrument Scintrex IGS-2/MP-4
Accuracy - Scale constant + .1 gamma
Diurnal correction method Scintrex MP-3 Base Station Magnetometer
Base Station check-in interval (hours) 10 seconds
Base Station location and value Line 0 East, 680 South
Base value 58806 gammas

ELECTROMAGNETIC

Instrument Apex Parametrics MaxMin II
Coil configuration Horizontal Loop
Coil separation 160 m
Accuracy 1%
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 components of secondary field measured as percent
of primary field.

GRAVITY

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

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 _____



Ontario

Ministry of
Northern Development
and Mines

Ministère du
Développement du Nord
et des Mines

August 22, 1989

Mining Recorder
Ministry of Northern Development and Mines
60 Wilson Avenue
Timmins, Ontario
P4N 2S7

Mining Lands Section
880 Bay Street, 3rd Floor
Toronto, Ontario
M5S 1Z8

Telephone: (416) 965-4888

Your File: W8906-299
Our File: 2.12608

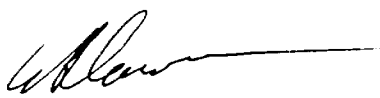
Dear Sir:

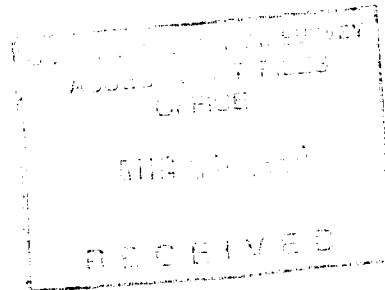
Re: Notice of Intent dated July 21, 1989 Geophysical (Electromagnetic and Magnetometer) Survey submitted on Mining Claims P 1037154 et al in Loveland Township.

The assessment work credits, as listed with the above-mentioned Notice of Intent, have been approved as of the above date.

Please inform the recorded holder of these mining claims and so indicate on your records.

Yours sincerely,


W.R. Cowan
Provincial Manager, Mining Lands
Mines & Minerals Division
RM
RM:eb
Enclosure



cc: Mr. G.H. Ferguson
Mining and Lands Commissioner
Toronto, Ontario

Resident Geologist
Timmins, Ontario

Falconbridge Ltd.
P.O. Box 1140, 571 Moneta Ave.
Timmins, Ontario
P4N 7H9

D. Londry
P.O. Box 1783, 111 Bruce Ave.
South Porcupine, Ontario
P0N 1H0



Recorded Holder
FALCONBRIDGE LIMITED

Township or Area
LOVELAND TOWNSHIP.

Type of survey and number of Assessment days credit per claim	Mining Claims Assessed
Geophysical	P 1037154 to 157 incl. 1037159-160 1037163 to 172 incl.
Electromagnetic <u>20</u> days	
Magnetometer <u>40</u> days	
Radiometric _____ days	
Induced polarization _____ days	
Other _____ days	
Section 77 (19) See "Mining Claims Assessed" column	
Geological _____ days	
Geochemical _____ days	
<input type="checkbox"/> Man days <input type="checkbox"/> Airborne <input type="checkbox"/> <input checked="" type="checkbox"/> Special provision <input checked="" type="checkbox"/> Ground <input checked="" type="checkbox"/> <input type="checkbox"/> Credits have been reduced because of partial coverage of claims. <input type="checkbox"/> Credits have been reduced because of corrections to work dates and figures of applicant.	

Special credits under section 77 (16) for the following mining claims

<u>40 days Magnetometer</u> <u>15 days Electromagnetic</u>	<u>30 days Magnetometer</u> <u>10 days Electromagnetic</u>
P 1037149 1037161-162	P 1037158

No credits have been allowed for the following mining claims

not sufficiently covered by the survey insufficient technical data filed

The Mining Recorder may reduce the above credits if necessary in order that the total number of approved assessment days recorded on each claim does not exceed the maximum allowed as follows: Geophysical - 80; Geological - 40; Geochemical - 40; Section 77(19) - 60.



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Type of Survey(s) GEOPHYSICAL
 Township or Area LOVELAND
 Claim Holder(s) Falconbridge Limited
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 Survey Company Timmins Geophysics Ltd.
 Author of Report Sharon Taylor
 Address of Author P.O.Box 1783, South Porcupine, Ont. P0N 1H0
 Covering Dates of Survey May 1, 1989 - June 29, 1989
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	1037167
	1037168
	1037169
	1037170
	1037172
	1114468
	1114469
	1037171
TOTAL CLAIMS	<u>22</u>

If space insufficient, attach list

<u>SPECIAL PROVISIONS</u> <u>CREDITS REQUESTED</u>	<u>DAYS</u> <u>per claim</u>
ENTER 40 days (includes line cutting) for first survey.	Geophysical -Electromagnetic <u>20</u>
ENTER 20 days for each additional survey using same grid.	-Magnetometer <u>40</u>
	-Radiometric _____
	-Other _____
	Geological _____
	Geochemical _____

AIRBORNE CREDITS (Special provision credits do not apply to airborne surveys)
 Magnetometer _____ Electromagnetic _____ Radiometric _____
(enter days per claim)
 DATE: July 12, 1989 SIGNATURE: [Signature]
Author of Report or Agent

Res. Geol. _____ Qualifications _____

<u>Previous Surveys</u>			
File No.	Type	Date	Claim Holder

OFFICE USE ONLY

GEOPHYSICAL TECHNICAL DATA

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

Number of Stations 1484 Number of Readings Hlem 1233 Mag 1539
Station interval 20m Line spacing 100m
Profile scale HLEM 1 cm = 20% (444 Hz) 1 cm = 40% (1777 Hz)
Contour interval MAG 50 gammas

MAGNETIC

Instrument Scintrex IGS-2/MP-4
Accuracy - Scale constant + .1 gamma
Diurnal correction method Scintrex MP-3 Base Station Magnetometer
Base Station check-in interval (hours) 10 seconds
Base Station location and value Line 0 East, 680 South
Base value 58806 gammas

ELECTROMAGNETIC

Instrument Apex Parametrics MaxMin II
Coil configuration Horizontal Loop
Coil separation 160 m
Accuracy 1%
Method: [] Fixed transmitter [] Shoot back [x] In line [] Parallel line
Frequency 444 Hz - 1777 Hz (specify V.L.F. station)
Parameters measured In-phase and quadrature components of secondary field measured as percent of primary field.

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 _____

SAMPLE PREPARATION

(Includes drying, screening, crushing, ashing)

Mesh size of fraction used for analysis _____

General _____

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 _____

General _____



FALCONBRIDGE

Falconbridge Limited

571 Moneta Ave. Box 1140
Timmins, Ontario P4N 7H9
Telephone: (705) 267-1155
Rapifax: (705) 264-6080

July 13, 1989

Mining Lands Section
Mineral Development and Lands Branch
880 Bay Street
3rd Floor
Toronto, Ontario
M5S 1Z8

Dear Sir/Ms:

Enclosed please find two copies of a geophysical report for work performed on 22 claims in Loveland township, Porcupine division. I hope that you will find everything in order.

R. Pommer
R Pommer

/rp

Encl.

RECEIVED
JUL 13 1989
MINING LANDS SECTION

Thorburn Twp. (M.601)

THE TOWNSHIP OF
OF
LOVELAND

DISTRICT OF
COCHRANE

PORCUPINE
MINING DIVISION

SCALE: 1-INCH = 40 CHAINS

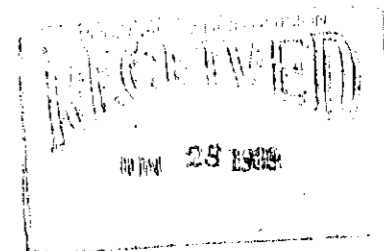
LEGEND

- | | |
|-----------------------|-----------|
| PATENTED LAND | Ⓟ |
| CROWN LAND SALE | C.S. |
| LEASES | Ⓛ |
| 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 | C |

NOTES

400' Surface Rights Reservation along the shores of all lakes and rivers.

This township lies within the Municipality of CITY of TIMMINS.



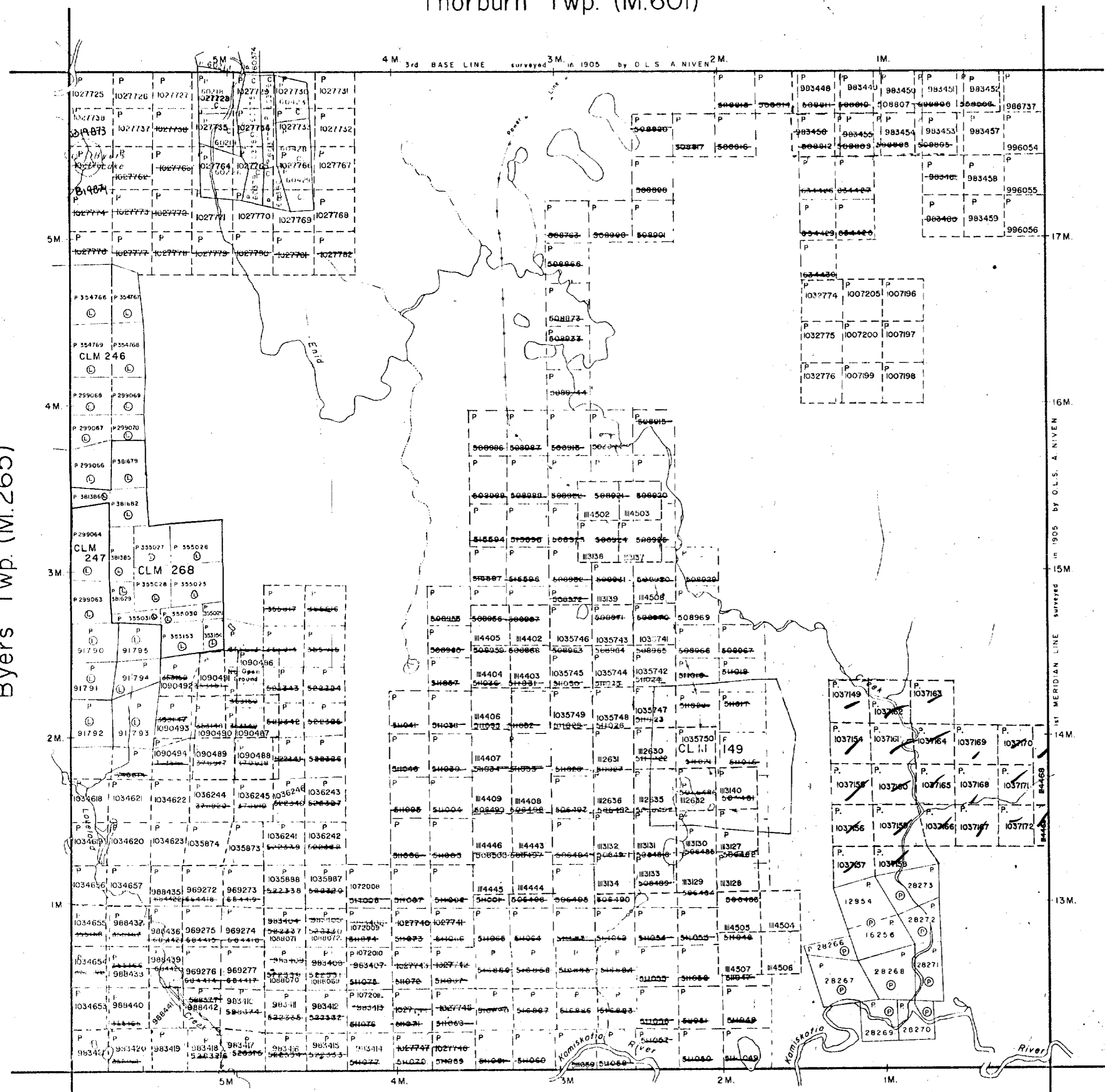
Rec'd Feb 17/83

PLAN NO. **M-293**

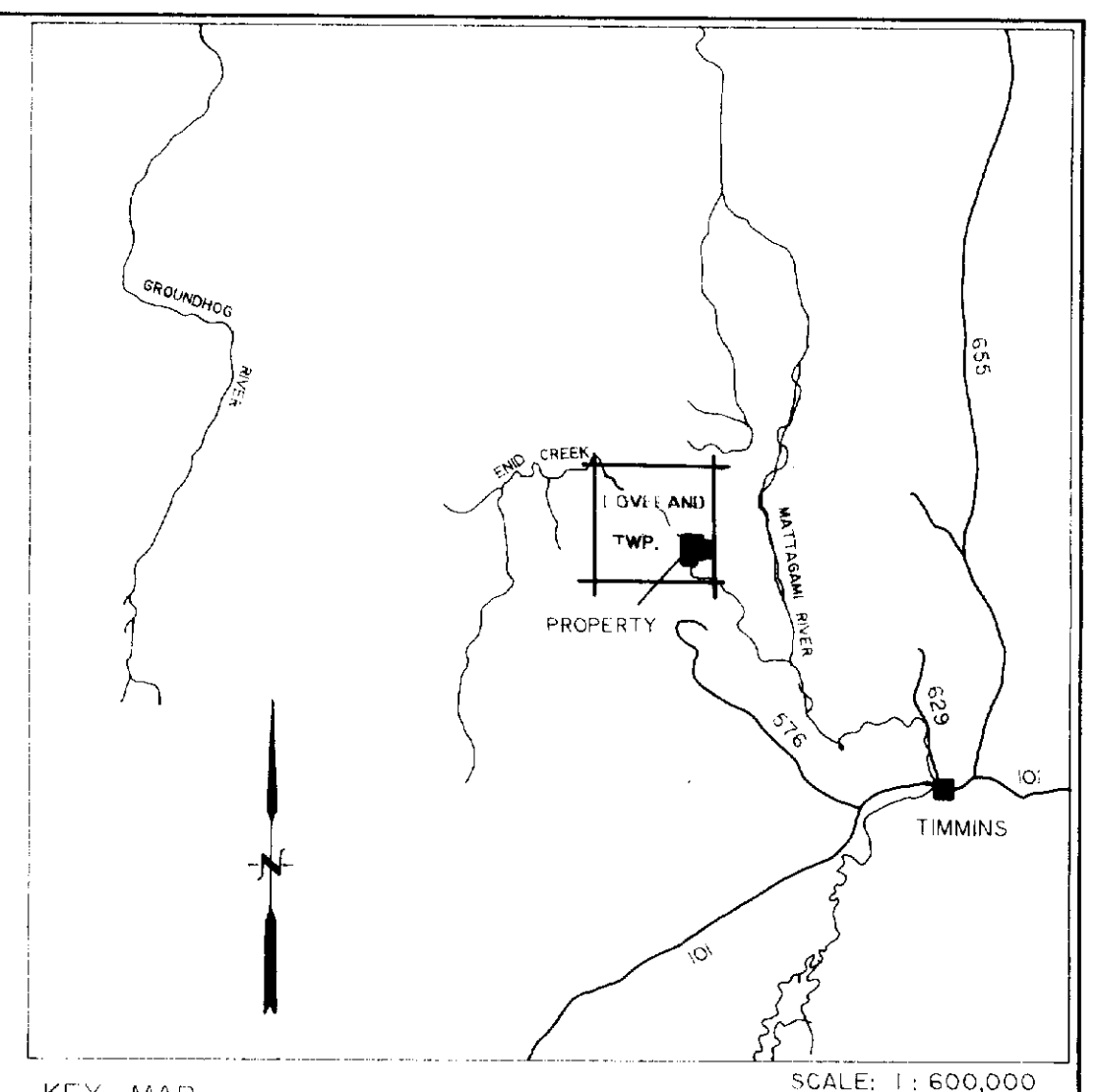
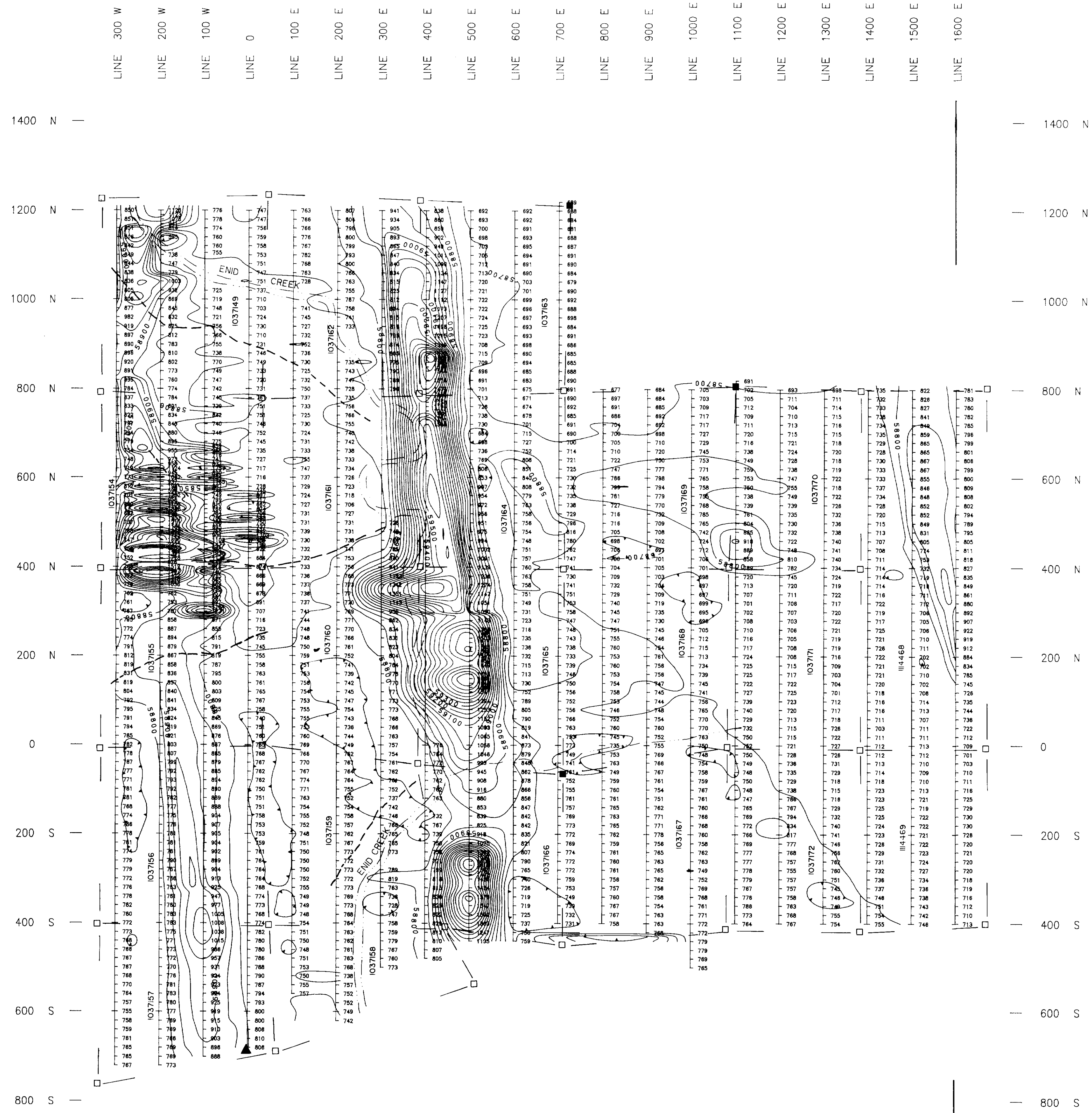
ONTARIO
MINISTRY OF NATURAL RESOURCES
SURVEYS AND MAPPING BRANCH

Byers Twp. (M.265)

Macdormid Twp. (M.294)



obb Twp. (M.309)



KEY MAP SCALE: 1:600,000

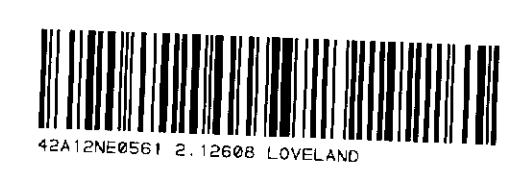
Instrument : Scintrex IGS-2/MP-4
 Type : Total Field Proton Precession
 Datum Level : 58000 gammas
 Contour Interval : 50 gammas

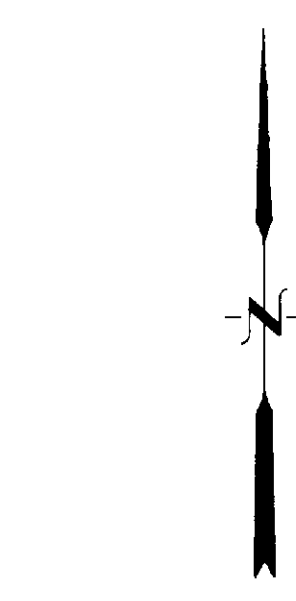
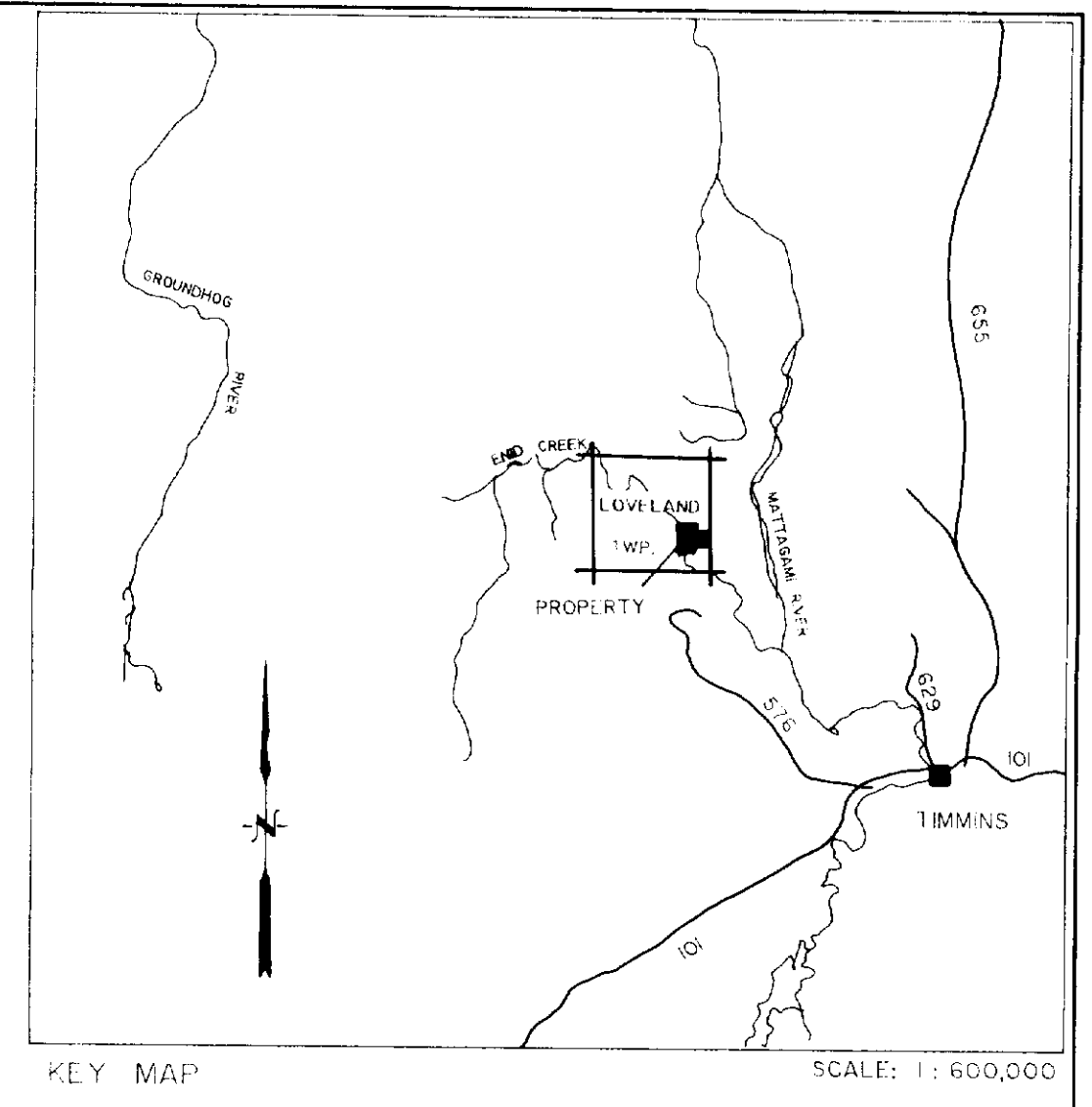
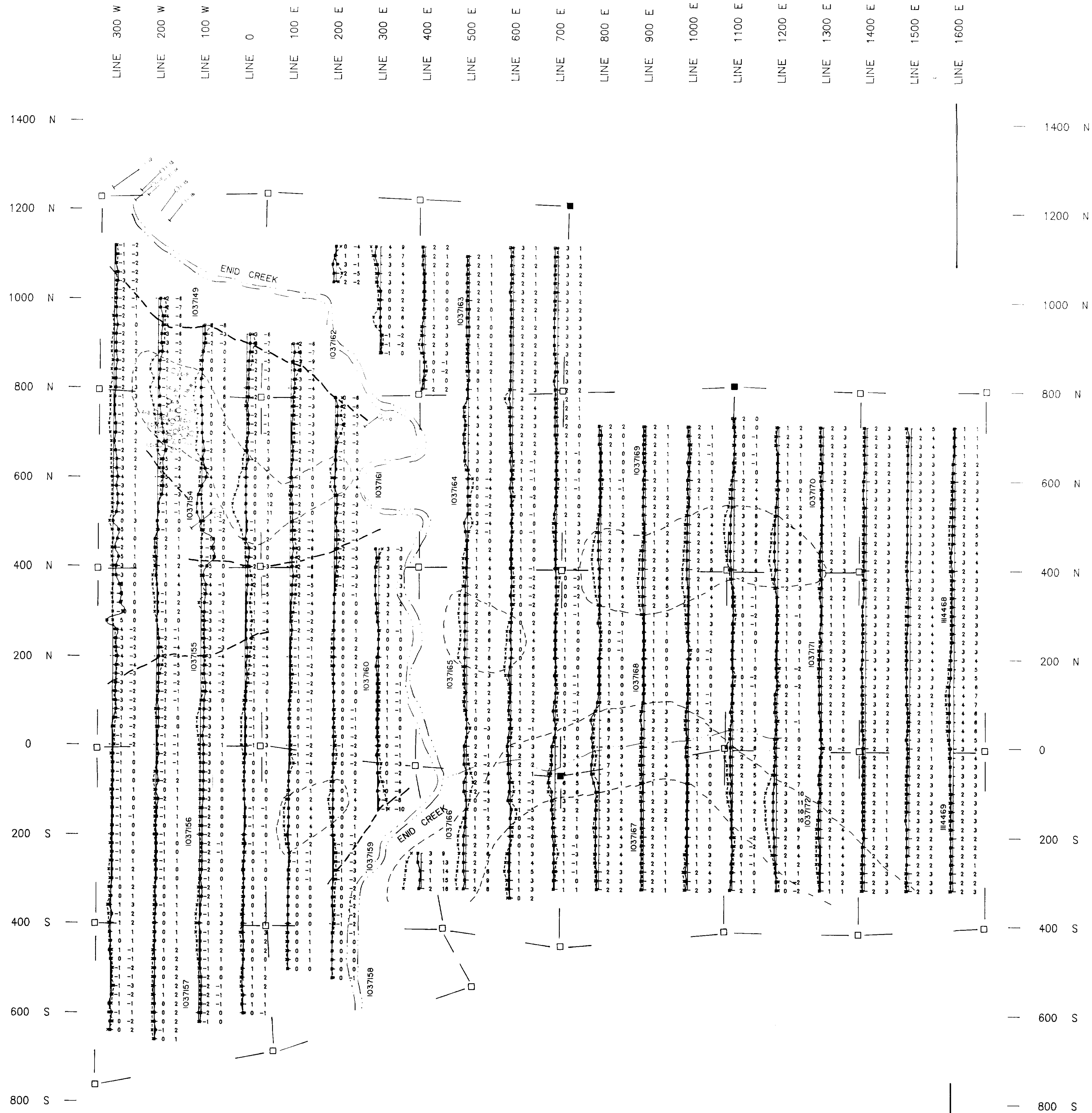
- Claimposts: ■ Located
- Approximated
- ▲ Base Station
- - - Anomaly (144 Hz)
- Creek

2.12606

LOVELAND TWP. MACDIARMID TWP.

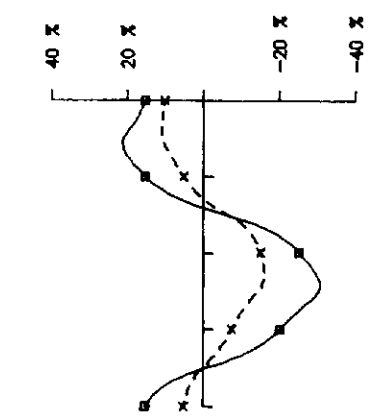
FALCONBRIDGE LIMITED	
MAGNETIC SURVEY	
LOVELAND PROPERTY	
NTS: 42-A/12	PROJ: #8182
SCALE : 1: 5000	DATE : MAY 1989
FILE : LOVE.MAG	<i>Shawn Taylor</i>
WORK BY :	Timmins Geophysics Ltd.





- DDH (Approximated)
- - - Bedrock High
- Creek
- - - Anomaly
- Claimposts: ■ Located
- Approximated

Instrument : Apex Parametrics MaxMin I
 Coil Separation : 160 meters
 Frequency : 444 Hz
 Profile Scale : 1cm = 20%



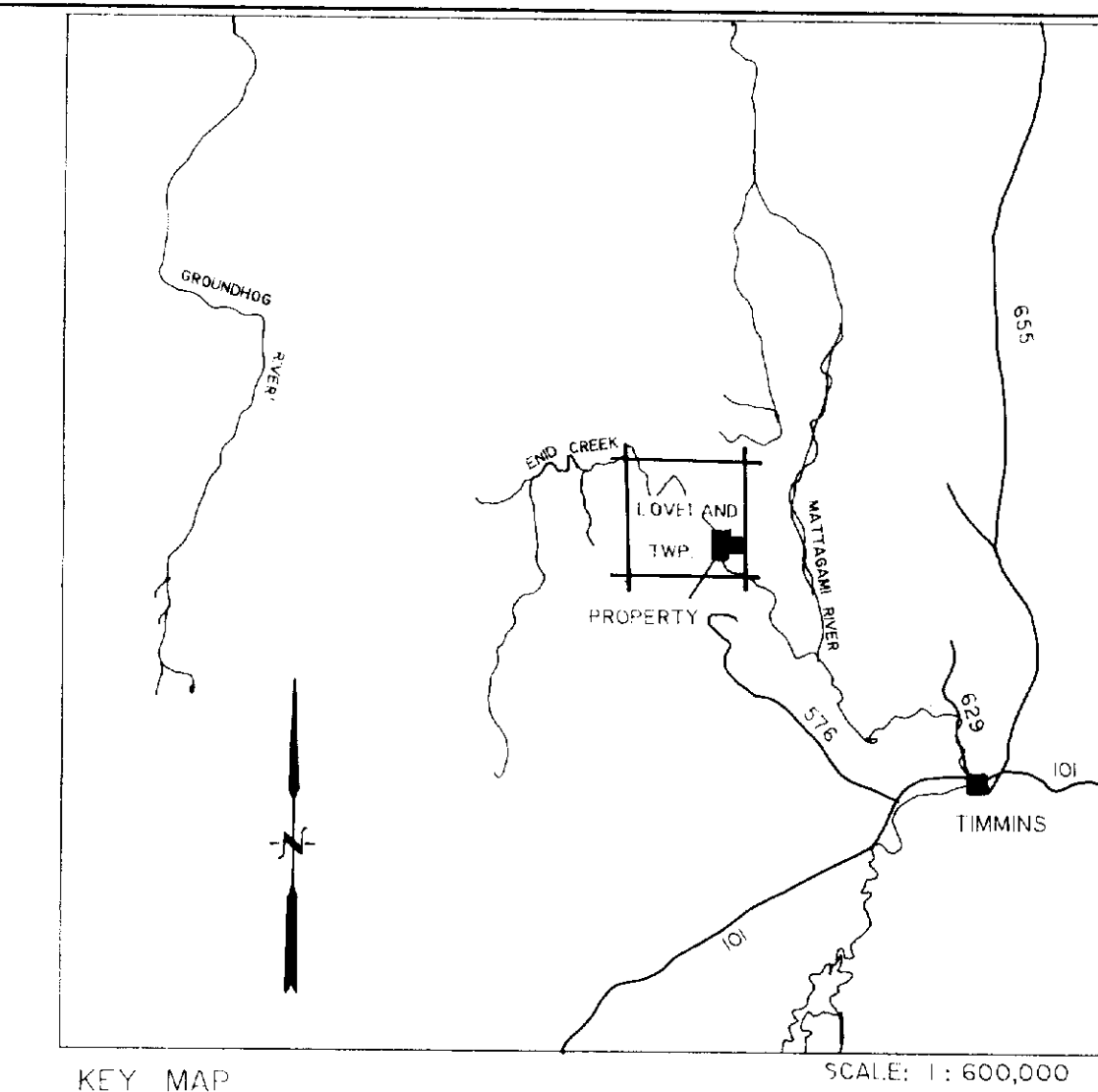
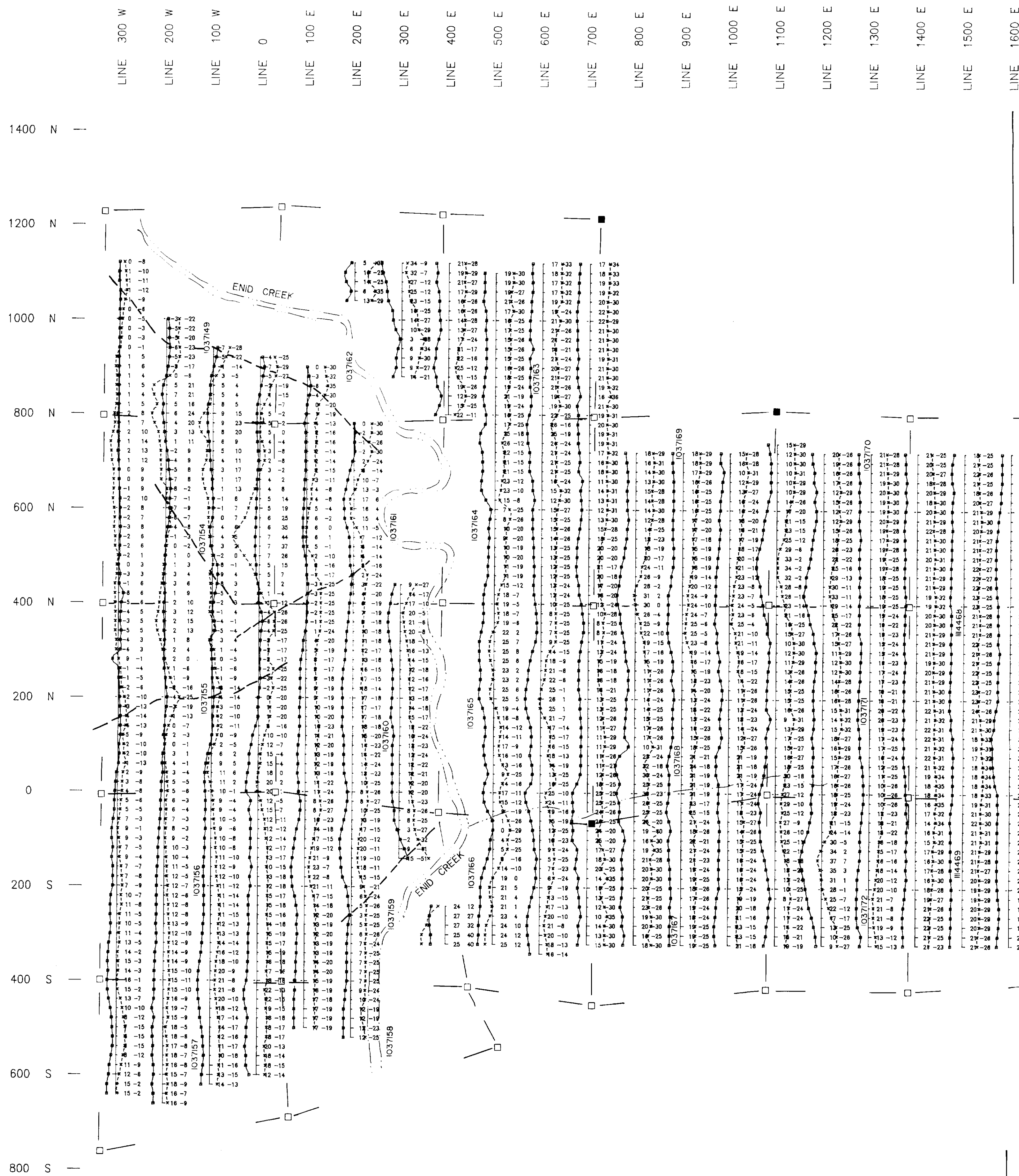
2.12608

- In-phase ———
- Quadrature - - - - -

LOVELAND TWP. MACDIARMID TWP.

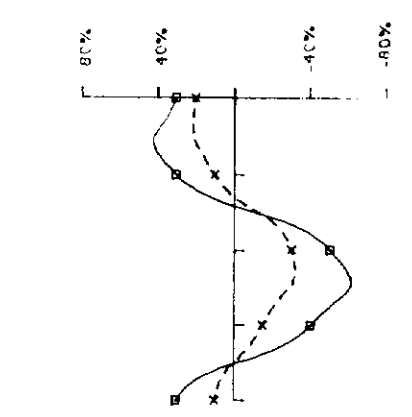
FALCONBRIDGE LIMITED	
HLEM SURVEY	
LOVELAND PROPERTY	
NTS: 42-A/12	PROJ: #8182
SCALE : 1: 5000	DATE : May 1989
FILE : LOVE.HL	<i>Shawn Taylor</i>
WORK BY :	Timmins Geophysics Ltd.





--- Creek
 - - - Anomaly
 ■ Claimposts: Located
 □ Claimposts: Approximated

Instrument : Apex Parametrics MaxMin I
 Coil Separation : 160 meters
 Frequency : 1777 Hz
 Profile Scale : 1cm = 40%



2.12608

In-phase ———
 Quadrature - - -

LOVELAND TWP. MACDIARMID TWP.

FALCONBRIDGE LIMITED	
HLEM SURVEY	
LOVELAND PROPERTY	
NTS: 42-A/12	PROJ: #8182
SCALE : 1: 5000	DATE : May 1989
FILE : LOVE.HL	<i>Sharon Taylor</i>
WORK BY :	Timmins Geophysics Ltd.

