



42G01NW2002 2.20013 CASSELMAN

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**REPORT ON
GEOPHYSICAL WORK**

**CASSELMAN 4
CASSELMAN TOWNSHIP**

NTS: 42-G/1

PROJ # 8291

**FOR
FALCONBRIDGE LIMITED**

2. 20013

OCTOBER 1998

**D. LONDROY
TIMMINS GEOPHYSICS LTD**

SUMMARY AND RECOMMENDATIONS

HLEM and magnetic surveys were carried out over the Casselman 4 property for Falconbridge Limited in July, 1998.

The HLEM survey detected two conductors which strikes east northeast. Anomaly 'A' represents good conductivity which is associated with a linear high magnetic anomaly along the southern edge of the survey area. The conductivity and high magnetics are no doubt related to an iron formation. Both the conductivity and magnetic high should be tested by diamond drilling between 100 West and 200 East where the conductivity is the highest.

Anomaly 'B' represents a short zone of poor conductivity with no magnetic correlation. This anomaly is a questionable bedrock conductor which would be better defined by an induced polarization survey.



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CASSELMAN

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INTRODUCTION

Magnetic and horizontal loop electromagnetic (HLEM) surveys were carried out on the Casselman 4 property for Falconbridge Limited. This property is one of six which were surveyed during July of 1998 in the townships of Fenton, Staples, Casselman and Nansen.

The property is located approximately 32 kilometres south of the town of Kapuskasing (Figure 1(a)) in the northeast corner of Casselman Township, Porcupine Mining Division. The area can be accessed by two dirt roads, the Swanson road which runs south from Highway 11 at Kapuskasing and the Chain of Lakes Road which runs southwest from Highway 11 at Moonbeam; the two roads join in southern Casselman Township.

The surveys covered part of one mining claim (Figure 1(b)), numbered 1226732, which consists of sixteen, 40 acre claim units (Table 1).

The HLEM survey was carried out by B. Pigeon and J. derWeduwen and the magnetic survey was run by the author of this report.

CLAIM #	# of UNITS	DESCRIPTION	TOWNSHIP
1226732	16		Casselman

Table 1 : Property Description

GENERAL GEOLOGY

The Casselman 4 property is located within the Saganash greenstone belt which consists of Archean volcanics and sediments which have been metamorphosed to an amphibolite grade. The belt extends for approximately 55 kilometres from the southern part of Seaton Township in the southwest to the southern part of Nansen Township in the northeast; the width of the belt is approximately 8 kilometres.

In 1947, a limited geological survey was carried out by the government (Hogg, 1948) in Fenton Township,

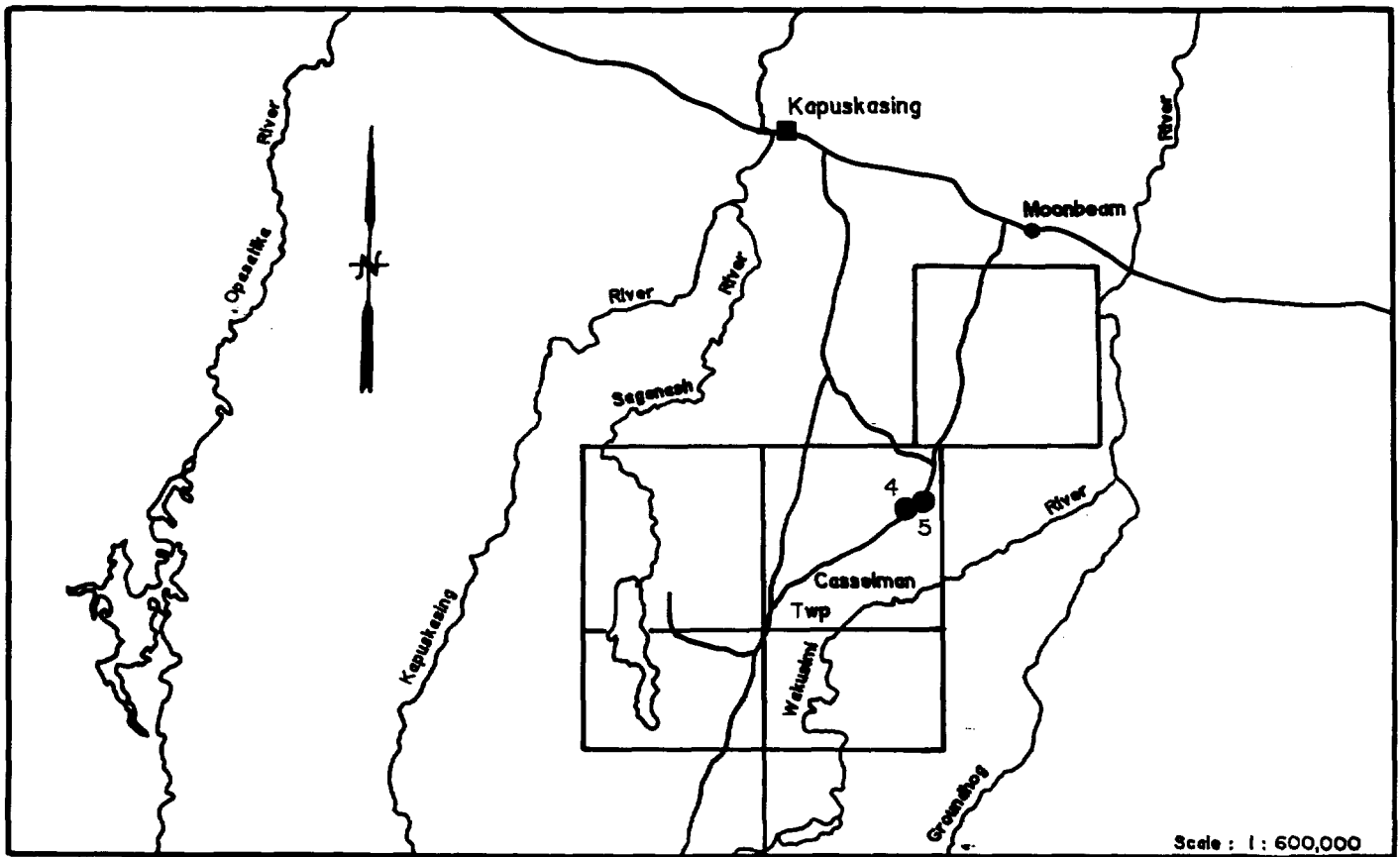


Figure 1 (a) : Location Map

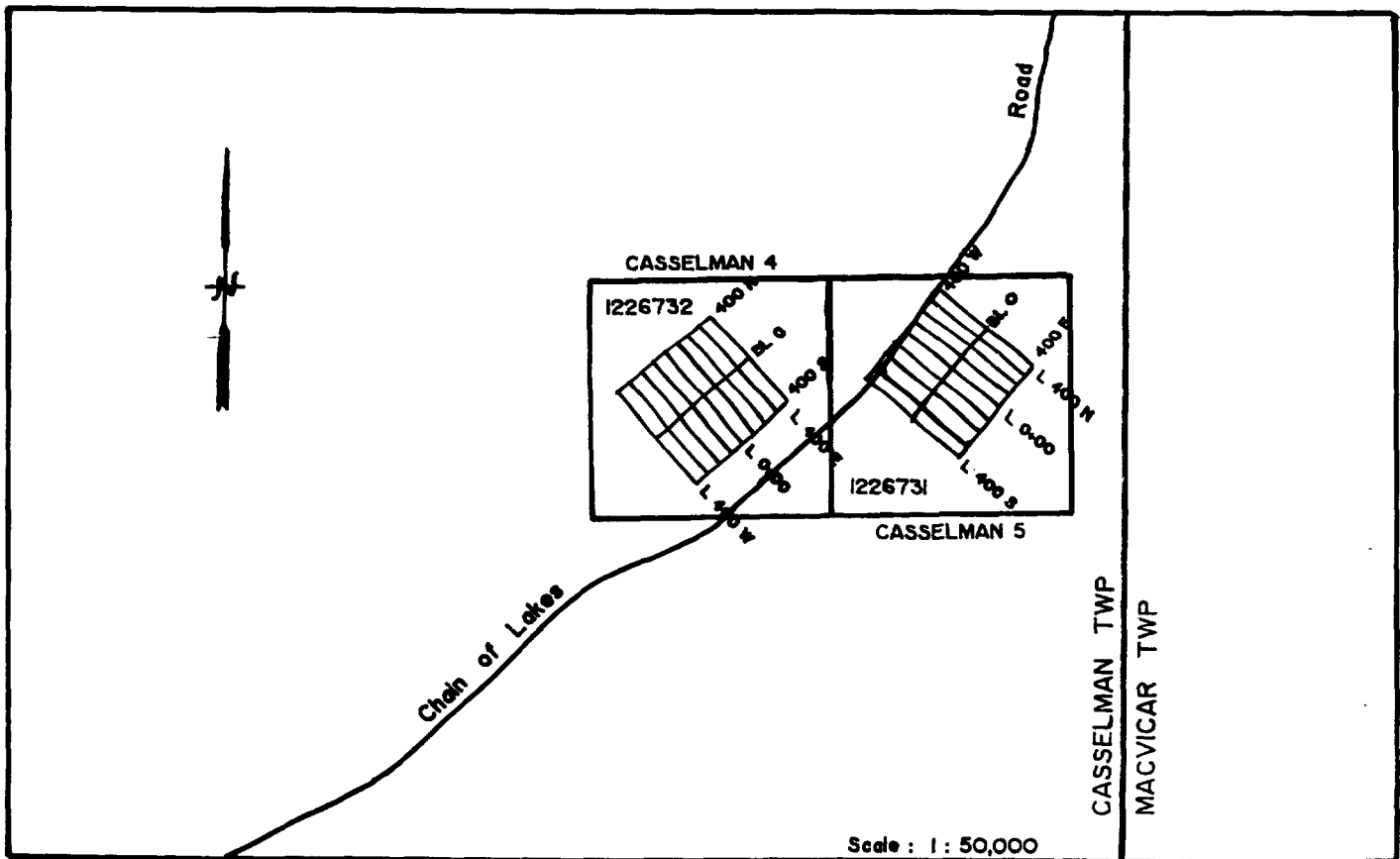


Figure 1 (b) : Claim Map

following the discovery of iron formations by employees of the Spruce Falls Power and Paper Company. In 1958, seven townships in the belt, including Casselman Township, were mapped by the Ontario Department of Mines (McMurchy, 1960). The geology of Casselman Township is also presented on the Ontario geological compilation series map 2166 at a scale of 1 inch to 4 miles.

PREVIOUS WORK

The first known exploration work in the Saganash belt was conducted in 1946 and 1947 by the Bonnie Prince Syndicate, to investigate outcrops of iron formation in Fenton Township.

In 1958, a government airborne survey was flown over the area along north-south lines spaced every 800 metres. This survey was run concurrently with the geological mapping by McMurchy (McMurchy, 1960).

The only extensive exploration program for base metals in the area was carried out by Mattagami Lake Mines in the 1970's. In 1976 a Questor Input EM survey was flown for Mattagami along northwest-southeast lines spaced approximately every 200 metres. This survey was followed by ground magnetic and horizontal loop EM surveys to detail airborne anomalies. The magnetic survey was run with the Scintrex MF-2 fluxgate magnetometer and the HLEM surveys were run with the Geonics EM-17 using a coil separation of 200 or 300 feet and a frequency of 1600 Hertz. The sample interval in these surveys was 100 feet, 50 feet in anomalous areas, along lines spaced every 400 feet. A total of 21 diamond drill holes were sunk to test EM anomalies; the source of the anomalies was mainly iron formation.

In 1988, McKinnon Prospecting held claim blocks which covered 50% of Casselman Township and 5% of Slack Township. A combined airborne magnetic and VLF-EM survey was flown over the property along northeast-southwest lines spaced every 440 feet; no followup work was reported.

Minor gold exploration was carried in the 1950's, and in 1991 to investigate anomalous gold values in some of the Mattagami drill holes.

There has been no previous work carried out on the Casselman 4 property.

SURVEY DESCRIPTIONS

An eight metre base line at an orientation of 50° Az was established in the middle of claim 1226732. Orthogonal grid lines were cut every 100 metres and tie lines were cut at the northwest and southeast edges of the grid; all of the lines were picketed every 20 metres (Figure 1(b)).

The magnetic readings were taken every 10 metres with a Scintrex IGS-2/MP-4. This instrument is a proton precession magnetometer which measures the earth's total magnetic field to an accuracy of 0.1 gammas. Diurnal variations were monitored every 10 seconds with a Scintrex MP-3 base station magnetometer, located to the northwest of the property on the Swanson Road. A total of 970 readings were taken along 9.6 kilometres of line.

The horizontal loop EM survey was carried out with the Apex Parametrics MaxMin I-5. This instrument measures the in-phase and quadrature components of the secondary field as a percentage of the primary field; the depth of penetration is approximately half of the coil separation. Readings were taken every 20 metres along all of the grid lines using a coil separation of 160 metres and frequencies of 444 and 1777 Hertz. A total of 297 stations were read along 7.5 kilometres of line.

HLEM RESULTS

The results of the HLEM survey are presented on maps 1 and 2 at a scale of 1:5000; the profile scale is 1cm = 20% for both frequencies. The 444 Hertz results are also presented in Figure 2 a scale of 1:10000. There was only two conductors detected in the survey and are labelled anomaly 'A' and 'B' on the maps.

Anomaly 'A' strikes east northeast along the southern edge of the survey area. The conductivity of the source is 20 mhos on Lines 100 West to 200 East, however, it decreases to the west and east (Table 2). The width and dip of the conductor can not be determined because the south shoulder is incomplete.

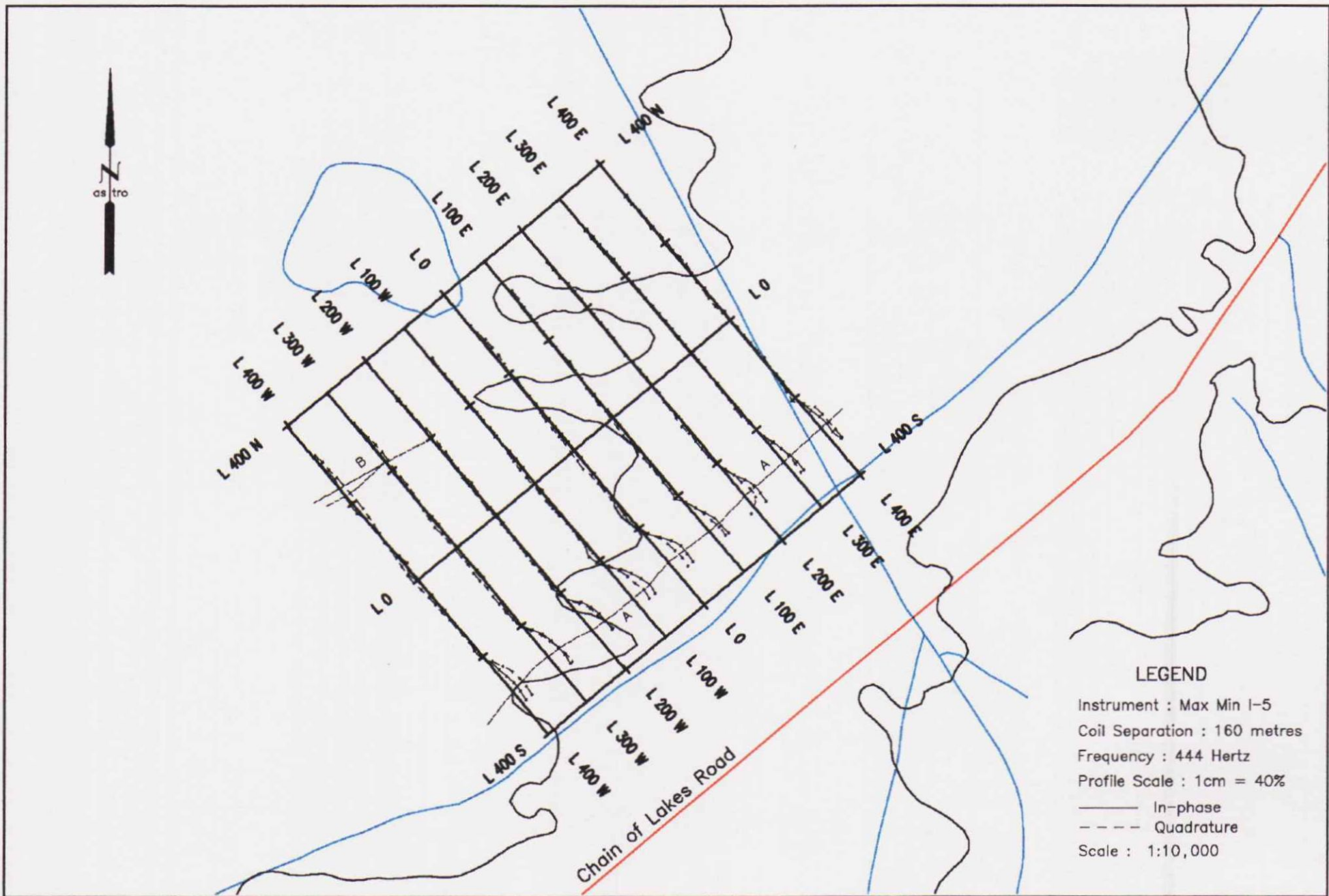


Figure 2 : HLEM Survey, 444 Hertz, Casselman 4 Grid

LINE	ANOMALY CENTER	ANOMALY WIDTH (m)	IP (%)	Q (%)	DEPTH (m)	CONDUCTIVITY THICKNESS (mhos)	COMMENTS
400 W	290 S	?	-5	-12	<16	4	
300 W	280 S	?	-11	-13	32	9	
200 W	295 S	?	-13	-15	27	10	
100 W	280 S	?	-17	-12	38	21	
0 E	290 S	?	-16	-12	37	20	
100 E	295 S	?	-12	-9	48	20	
200 E	285 S	?	-11	-8	53	20	
300 E	280 S	?	-8	-7	58	10	
400 E	280 S	?	-6	-9	34	5	

Table 2: Anomaly 'A' Interpretation, 444 Hz, 160 metre coil separation.

Anomaly 'B' strikes east northeast between 230 North on Line 400 West and 220 North on Line 300 West. This anomaly is only a quadrature response in the low frequency results, indicating a shallow depth and very poor conductivity (Table 3). It is located within a uniform magnetic field, however, it is on strike to a high magnetic anomaly which is located between Lines 200 West and 100 East; this suggests that the anomaly may have a bedrock source, even though the conductivity is so poor.

LINE	ANOMALY CENTER	ANOMALY WIDTH (m)	IP (%)	Q (%)	DEPTH (m)	CONDUCTIVITY THICKNESS (mhos)	COMMENTS
400 W	230 N	narrow	?	-5	<16	<2	
300 W	220 N	20	?	-4	<16	<2	

Table 3: Anomaly 'B' Interpretation, 444 Hz, 160 metre coil separation.

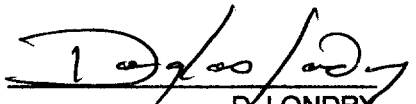
MAGNETIC RESULTS

The magnetic results are posted and contoured every 25 nT on Map 1 at a scale of 1:5000. The results are also presented in Figure 2 at a scale of 1:10,000.

The property can be divided into three magnetic domains. The first is a linear high magnetic anomaly which strikes east northeast along the southern edge of the property, directly to the south of conductivity mapped by EM anomaly 'A'; both of these responses are, no doubt, related to iron formation. The second domain is an area of uniform low magnetic field which extends from 300 South to approximately 100 North and likely represents a low susceptibility unit such as sediments or felsic volcanics. The third domain, to the north of 100 North, has a slightly higher background than the second, in the order of 50 nT and may represent mafic volcanics. Linear high magnetic anomalies within this area have shorter strike lengths and lower amplitude than the anomaly to the south but also likely represent iron formation; the short lengths may be faulted or folded segments of the same unit.

DATE

Nov. 12/98


D. LONDRY
TIMMINS GEOPHYSICS LTD

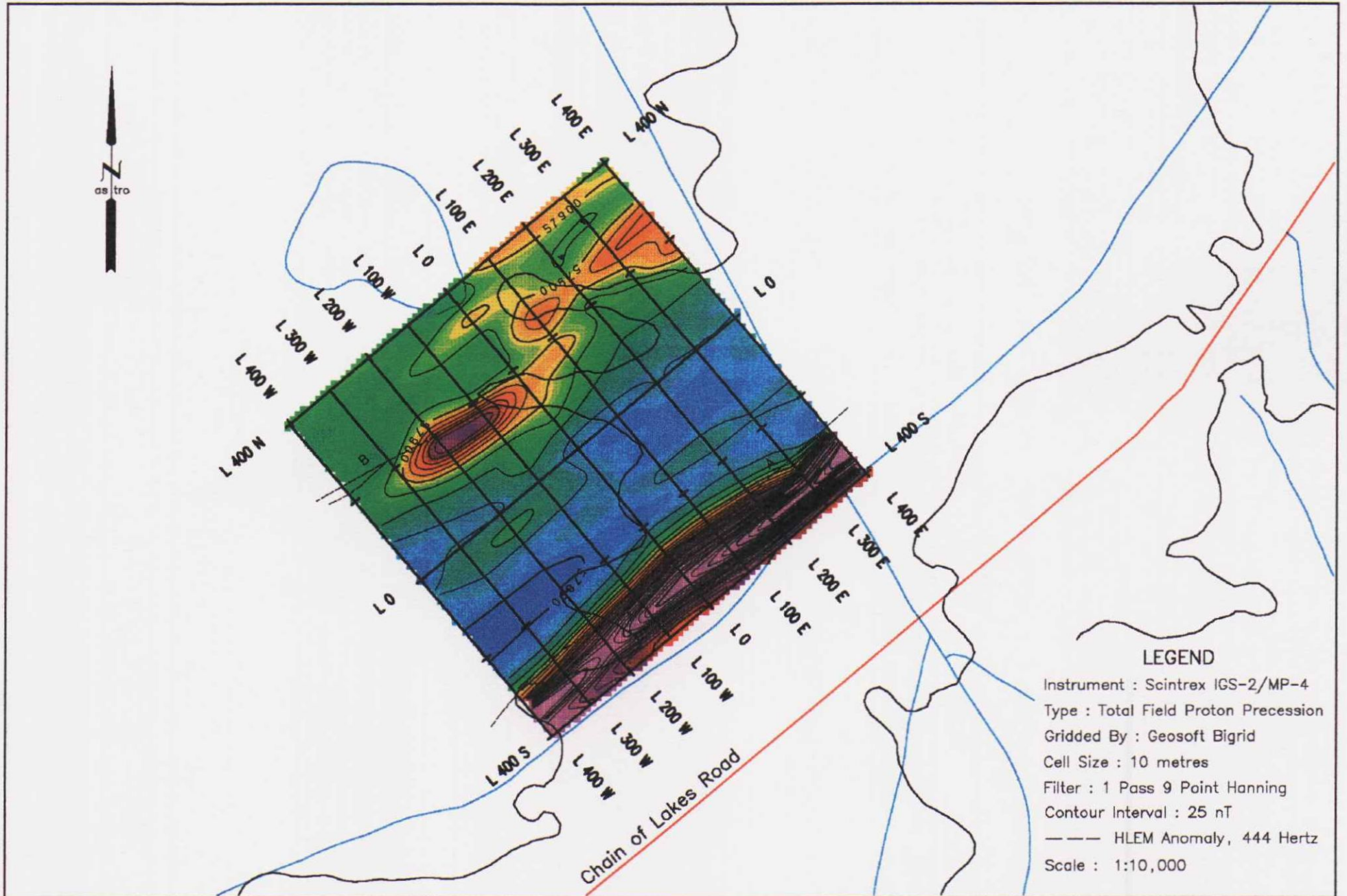


Figure 3 : Colour Image of Total Magnetic Field, Casselman 4 Grid

REFERENCES

Bennett G., Brown D.D., George P.T. and Leahy E.J.

1967: Hearst-Kapuskasing Sheet; Ontario Division of Mines, Geological Compilation Series,
Map 2166, scale 1" = 4 miles.

Hogg, N.

1948: Geology of Portion of Fenton Township, District of Cochrane; Ontario Department of Mines,
Preliminary Report, P.R. 1948-1

McMurphy, R.C.

1960: Geology of the Saganash Lake, Wakusimi River Area; Ontario Department of Mines, Annual
Report, Volume LXIX, Part 3

Thurston P.C., Sage R.P. and Siragusa G.M.

1975: Chapleau-Foleyet Sheet; Ontario Division of Mines, Geological Compilation Series,
Map 2221, scale 1" = 4 miles.



42G01NW2002 2.20013 CASSELMAN 900

f subsection 65(2) and 66(3) of the Mining Act. Under section 8 of the Mining Act, assesment work and correspond with the mining land holder. Questions about this Northern Development and Mines, 3rd Floor, 933 Ramsey Lake Road, Sudbury,

2.20013

Instructions: - For work performed on Crown Lands before recording a claim, use form 0240.
 - Please type or print in ink.

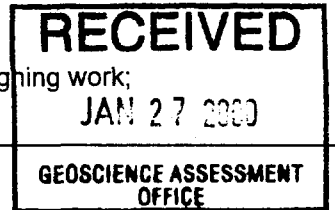
1. Recorded holder(s) (Attach a list if necessary)

Name Falconbridge Limited	Client Number 130679
Address P.O. Box 1140, Kidd Creek Minesite Drop 702	Telephone Number (705) 264-5200 Ext. 8242
Timmins, Ontario P4N 7H9	Fax Number
Name	Client Number
Address	Telephone Number
	Fax Number

2. Type of work performed: Check (✓) and report on only ONE of the following groups for this declaration.

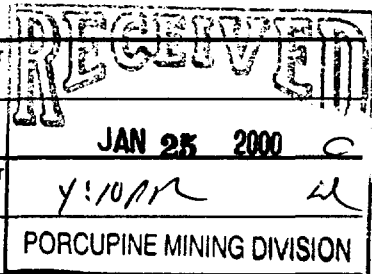
<input checked="" type="checkbox"/> Geotechnical: prospecting, surveys, assays and work under section 18 (regs)	<input type="checkbox"/> Physical: drilling stripping, trenching and associated assays	<input type="checkbox"/> Rehabilitation
Work Type Linecutting, Magnetic Survey, HLEM Survey	Office Use	
	Commodity	
	Total \$ Value of Work Claimed	<i>\$6428</i>
Dates Work Performed From 24 June 98 To 08 October 98 Day Month Year Day Month Year	NTS Reference	
Global Positioning System Data (if available)	Township/Area Casselman	Mining Division <i>Porcupine</i>
	M or G-Plan Number	Resident Geologist District <i>Timmins</i>

Please remember to: - obtain a work permit from the Ministry of Natural Resources as required;
 - provide proper notice to surface rights holders before starting work;
 - complete and attach a Statement of Costs, form 0212;
 - provide a map showing contiguous mining lands that are linked for assigning work;
 - include two copies of your technical report.



3. Person or companies who prepared the technical report (Attach a list if necessary)

Name Doug Londry, Timmins Geophysics Ltd.	Telephone Number (705) 523-5479
Address 547 Loach's Road, Sudbury Ontario, P3E 2R3	Fax Number (705) 523-5479
Name	Telephone Number
Address	Fax Number
Name	Telephone Number
Address	Fax Number



4. Certification by Recorded Holder or Agent

I, Michael Collison (Print Name), do hereby certify that I have personal knowledge of the facts set forth in this Declaration of Assessment Work having caused the work to be performed or witnessed the same during or after its completion and, to the best of my knowledge, the annexed report is true.

Signature of Recorded Holder or Agent <i>[Signature]</i>	Date <i>01/25/00</i>
Agent's Address P.O. Box 1140, Kidd Creek Minesite Drop 702, Timmins P4N 7H9	Telephone Number (705) 264-5200 Ext. 8242
	Fax Number (705) 267-8874 Ext. 8242

apr 24/2000

5. **Work to be recorded and distributed.** Work can only be assigned to claims that are contiguous (adjoining) to the mining land where work was performed, at the time work was performed. A map showing the contiguous link must accompany this form. W0060.00024

Mining Claim Number. Or if work was done on other eligible mining land, show in this column the location number indicated on the claim map.	Number of Claim Units. For other mining land, list hectares.	Value of work performed on this claim or other mining land.	Value of work applied to this claim.	Value of work assigned to other mining claims.	Bank. Value of work to be distributed at a future date
eg TB 7827	16 ha	\$26,825	N/A	\$24,000	\$2,825
eg 1234567	12	0	\$24,000	0	0
eg 1234568	2	\$ 8,892	\$ 4,000	0	\$4,892
1 1226732	16	6428	6400	0	28
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
Column Totals	16	6428	6400	0	28

I, Michael Collison, do hereby certify that the above work credits are eligible under subsection 7 (1) of the Assessment Work Regulation 6/96 for assignment to contiguous claims or for application to the claim where the work was done.
(Print Full Name)

Signature of Recorded Holder of Agent Authorized in Writing Date 01/25/00

6. **Instruction for cutting back credits that are not approved.**

2. 20013

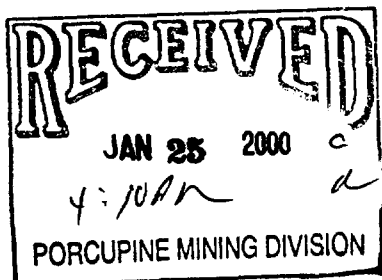
Some of the credits claimed in this declaration may be cut back. Please check (✓) in the boxes below to show how you wish to prioritize the deletion of credits:

- 1. Credits are to be cut back from the Bank first, followed by option 2 or 3 or 4 as indicated.
- 2. Credits are to be cut back starting with the claims listed last, working backwards; or
- 3. Credits are to be cut back equally over all claims listed in this declaration; or
- 4. Credits are to be cut back as prioritized on the attached appendix or as follows (describe):

Note: If you have not indicated how your credits are to be deleted, credits will be cut back from the Bank first, followed by option number 2 if necessary.

For Office Use Only

Received Stamp



Deemed Approved Date	Date Notification Sent
Date Approved	Total Value of Credit Approved
Approved for Recording by Mining Recorder (Signature)	



W0060.00024

Personal information collected on this form is obtained under the authority of subsection 6 (1) of the Assessment Work Regulation 6/96. Under section 8 of the Mining Act, this information is a public record. This information will be used to review the assessment work and correspond with the mining land holder. Questions about this collection should be directed to a Provincial Mining Recorder, Ministry of Northern Development and Mines, 3rd Floor, 933 Ramsey Lake Road, Sudbury, Ontario, P3E 6B5.

Table with 4 columns: Work Type, Units of work, Cost Per Unit of work, Total Cost. Rows include Linecutting, Magnetic Survey, HLEM Survey, Report Charge, Grid planning, transportation costs, and Total Value of Assessment Work (\$6428).

2.20013

Calculations of Filing Discounts:

- 1. Work filed within two years of performance is claimed at 100% of the above Total Value of Assessment Work.
2. If work is filed after two years and up to five years after performance, it can only be claimed at 50% of the Total Value of Assessment Work.

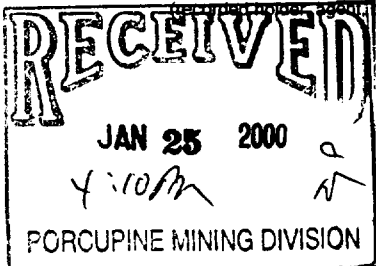
TOTAL VALUE OF ASSESSMENT WORK x 0.50 = Total \$ value of worked claimed.

Note: - Work older than 5 years is not eligible for credit. - A recorded holder may be required to verify expenditures claimed in this statement of costs within 45 days of a request for verification and/or correction/clarification.

Certification verifying costs:

I, Michael Collison, do hereby certify, that the amounts shown are as accurate as may reasonably be determined and the costs were incurred while conducting assessment work on the lands indicated on the accompanying

Declaration of Work form as Agent / Project Geologist I am authorized to make this certification.



Signature [Handwritten Signature] Date 01/25/00

Geoscience Assessment Office
933 Ramsey Lake Road
6th Floor
Sudbury, Ontario
P3E 6B5

Telephone: (888) 415-9845
Fax: (877) 670-1555

March 1, 2000

Mike Collison
FALCONBRIDGE LIMITED
P.O. Box 1140
Kidd Creek Minesite Drop 702
Timmins, Ontario
P4N 7H9

Visit our website at:
www.gov.on.ca/MNDM/MINES/LANDS/mlsmnpge.htm

Dear Sir or Madam:

Submission Number: 2.20013

Status

Subject: Transaction Number(s): W0060.00024 Approval

We have reviewed your Assessment Work submission with the above noted Transaction Number(s). The attached summary page(s) indicate the results of the review. **WE RECOMMEND YOU READ THIS SUMMARY FOR THE DETAILS PERTAINING TO YOUR ASSESSMENT WORK.**

If the status for a transaction is a 45 Day Notice, the summary will outline the reasons for the notice, and any steps you can take to remedy deficiencies. The 90-day deemed approval provision, subsection 6(7) of the Assessment Work Regulation, will no longer be in effect for assessment work which has received a 45 Day Notice. Allowable changes to your credit distribution can be made by contacting the Geoscience Assessment Office within this 45 Day period, otherwise assessment credit will be cut back and distributed as outlined in Section #6 of the Declaration of Assessment work form.

Please note any revisions must be submitted in DUPLICATE to the Geoscience Assessment Office, by the response date on the summary.

If you have any questions regarding this correspondence, please contact STEVE BENETEAU by e-mail at steve.beneteau@ndm.gov.on.ca or by telephone at (705) 670-5855.

Yours sincerely,



ORIGINAL SIGNED BY
Blair Kite
Supervisor, Geoscience Assessment Office
Mining Lands Section

Work Report Assessment Results

Submission Number: 2.20013

Date Correspondence Sent: March 01, 2000

Assessor: STEVE BENETEAU

Transaction Number	First Claim Number	Township(s) / Area(s)	Status	Approval Date
W0060.00024	1226732	CASSELMAN	Approval	March 01, 2000

Section:

14 Geophysical EM
14 Geophysical MAG

Correspondence to:

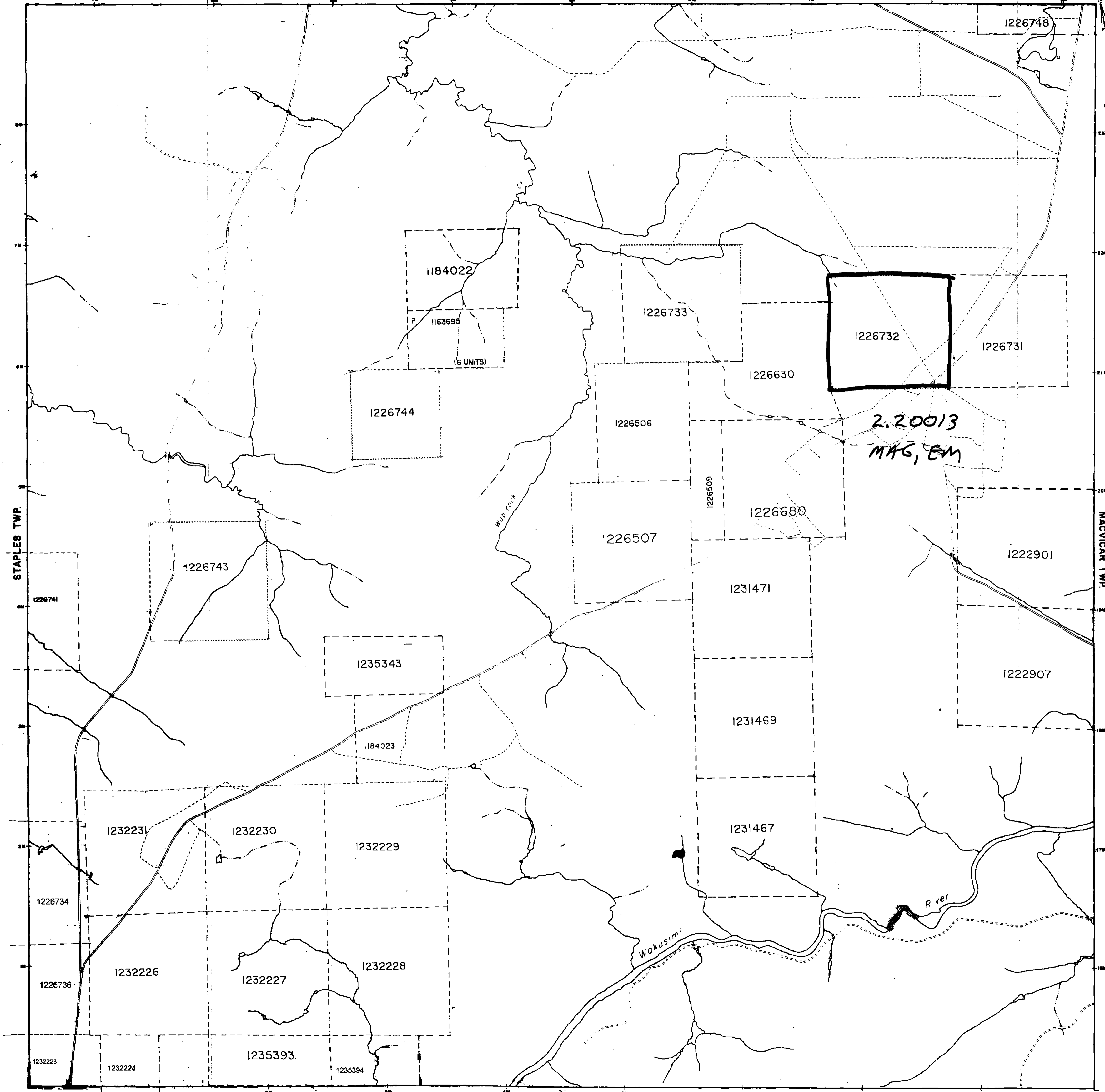
Resident Geologist
South Porcupine, ON

Assessment Files Library
Sudbury, ON

Recorded Holder(s) and/or Agent(s):

Mike Collison
FALCONBRIDGE LIMITED
Timmins, Ontario

SWANSON TWP.



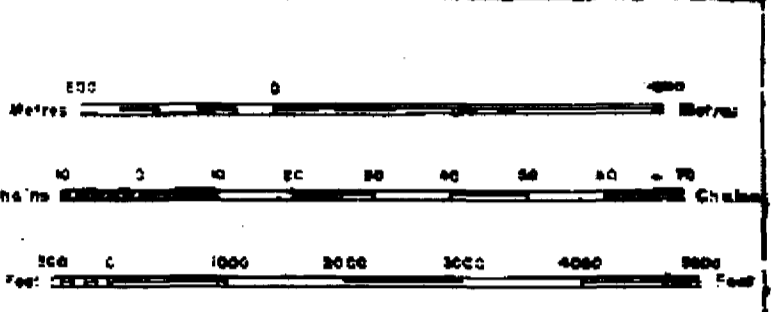
LEGEND

HIGHWAY AND ROUTE NO.	
OTHER ROADS	
TRAILS	
SURVEYED LINES	
TOWNSHIPS, BASE LINES, ETC.	
LOTS, MINING CLAIMS, PARCELS, ETC.	
UNSURVEYED LINES	
LOT LINES	
PARCEL BOUNDARY	
MINING CLAIMS ETC.	
RAILWAY AND RIGHT OF WAY	
UTILITY LINES	
NON-PERENNIAL STREAM	
FLOODING OR FLOODING RIGHTS	
SUBDIVISION OR COMPOSITE PLAN	
RESERVATIONS	
ORIGINAL SHORELINE	
MARSH OR MUSKEG	
MINES	
TRAVERSE MONUMENT	

DISPOSITION OF CROWN LANDS

TYPE OF DOCUMENT	SYMBOL
PATENT SURFACE & MINING RIGHTS	
" SURFACE RIGHTS ONLY	
" MINING RIGHTS ONLY	
LEASE SURFACE & MINING RIGHTS	
" SURFACE RIGHTS ONLY	
" MINING RIGHTS ONLY	
LICENCE OF OCCUPATION	
ORDER-IN-COUNCIL	
RESERVATION	
CANCELLED	
SAND & GRAVEL	

LAND USE PERMITS FOR COMMERCIAL TOURISM, OUTPOST CAMPS
 NOTE: MINING RIGHTS IN PARCELS PATENTED PRIOR TO 1847, 1854, 1870 TO ORIGINAL PATENTEES BY THE PUBLIC LANDS ACT, R.S.O. 1970, CAP. 300, SEC. 43, SUBSEC. 1



NOTES

STAPLES TWP.

MACVICAR TWP.

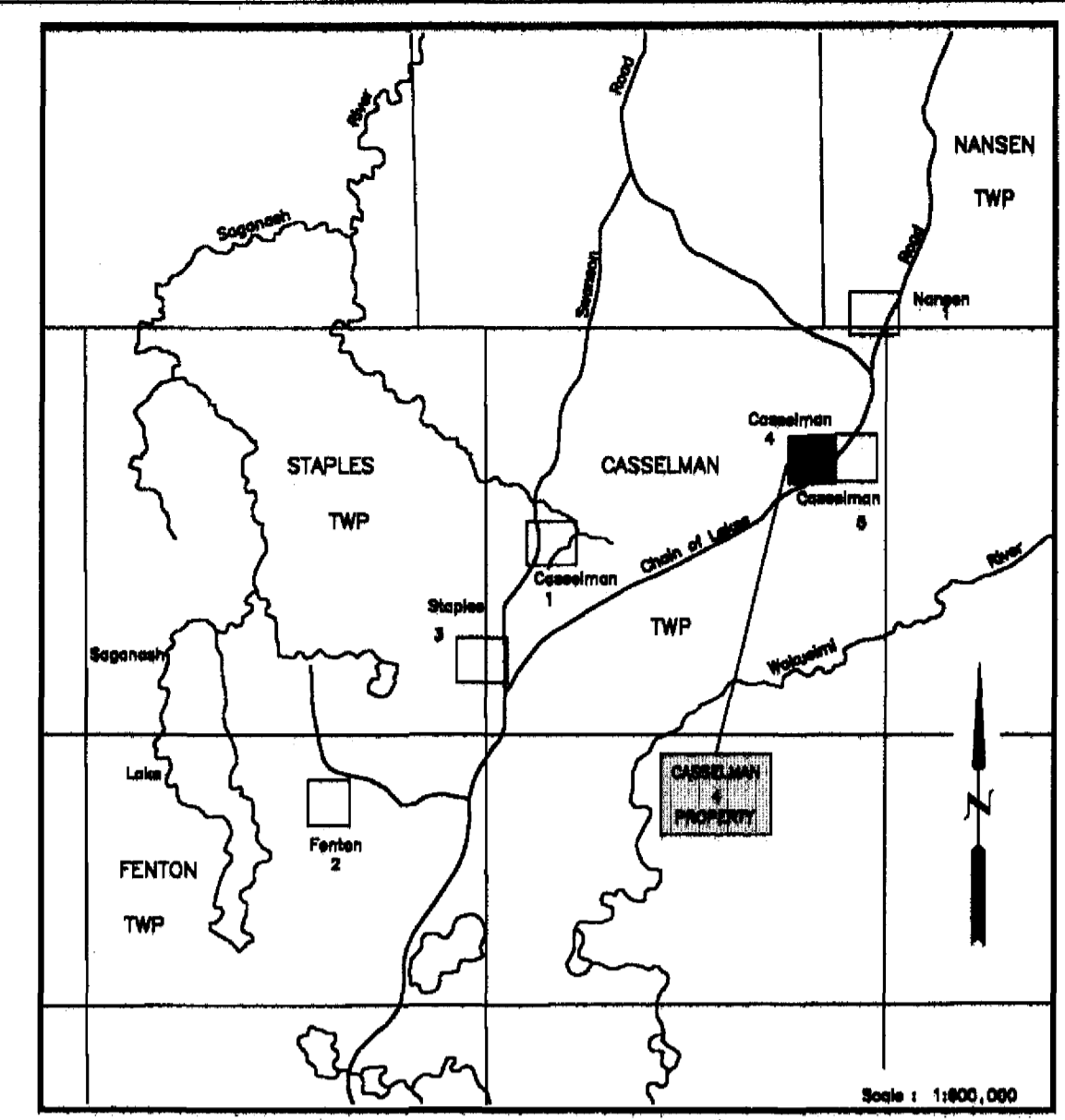
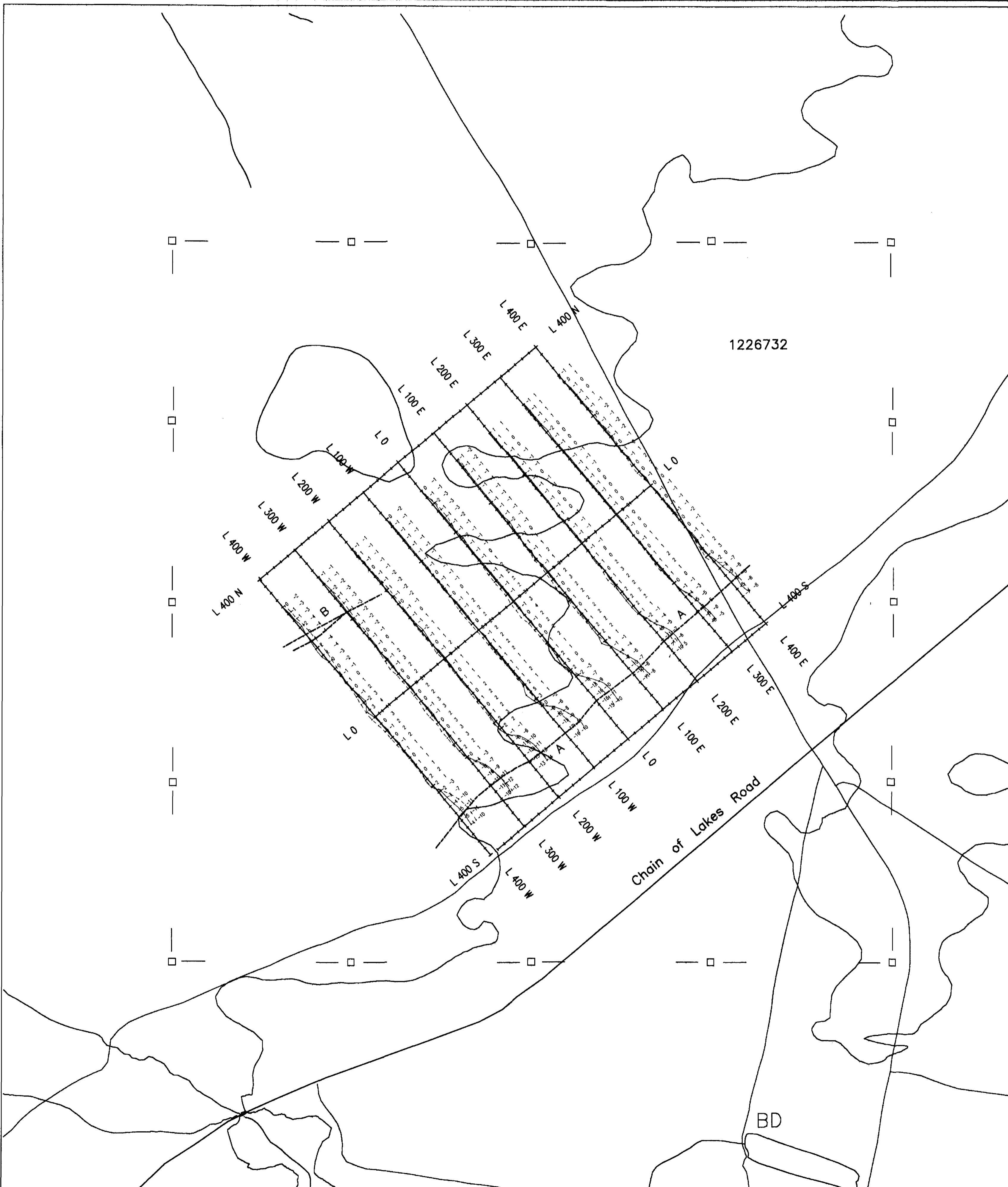
SLACK TWP.

THE INFORMATION THAT APPEARS ON THIS MAP HAS BEEN COMPILED FROM VARIOUS SOURCES, AND ACCURACY IS NOT GUARANTEED. THOSE WISHING TO STAKE MINING CLAIMS SHOULD CONSULT WITH THE MINING RECORDER, MINISTRY OF NORTHERN DEVELOPMENT AND MINES, FOR ADDITIONAL INFORMATION ON THE STATUS OF THE LANDS SHOWN HEREON.

TOWNSHIP
CASSELMAN
 N.E.S. ADMINISTRATIVE DISTRICT
KAPUSKASING
 MINING DIVISION
PORCUPINE
 LAND TITLES / REGISTRY DIVISION
COCHRANE

Ontario Ministry of Natural Resources Ministry of Northern Development and Mines

Date: OCTOBER 1998 / Number: **G-862**

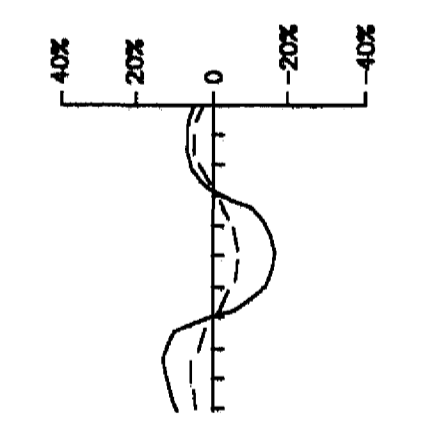


INDEX MAP



LEGEND

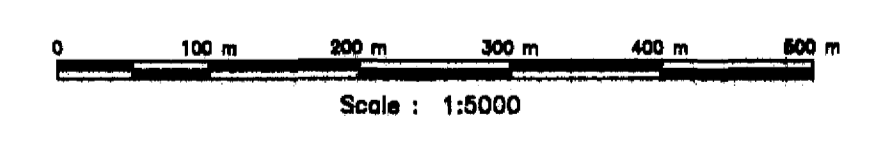
Instrument : Apex Parametrics MaxMin I-5
 Coil Separation : 160 metres
 Frequency : 444 Hertz
 Profile Scale : 1cm = 20%



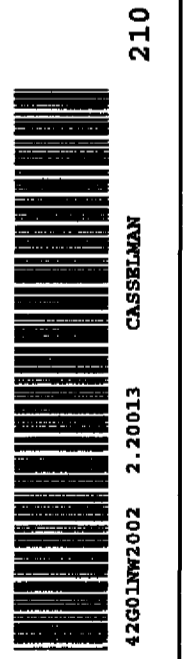
In-phase
 Quadrature

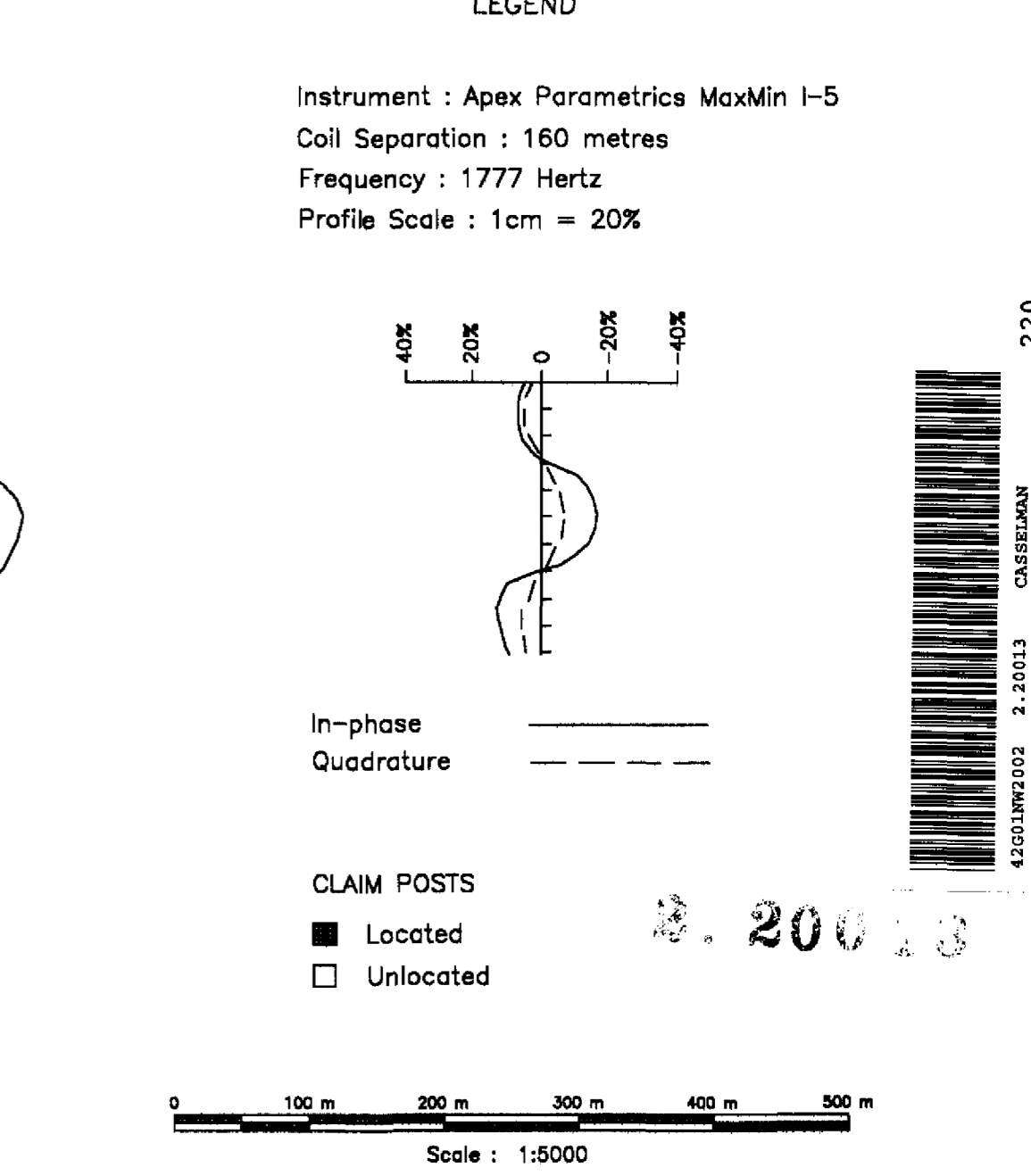
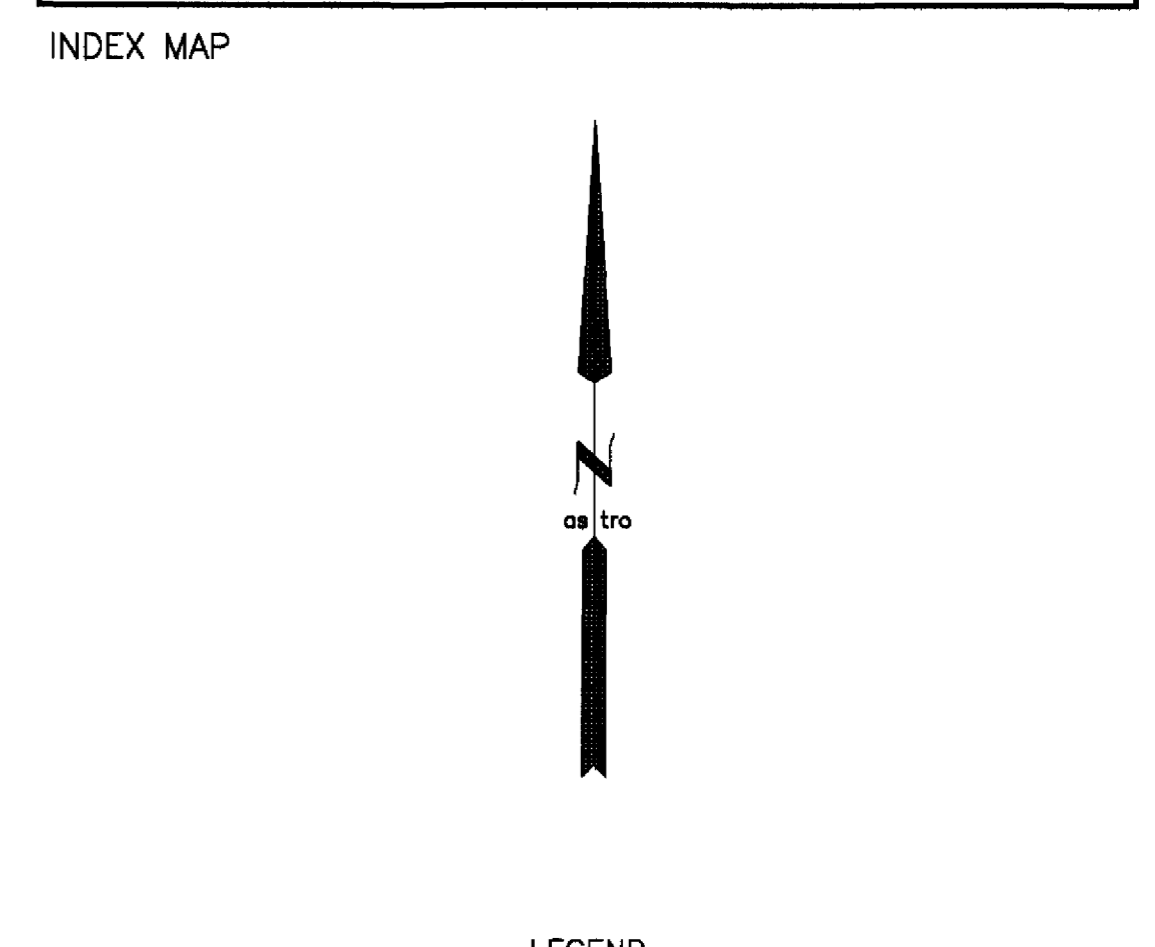
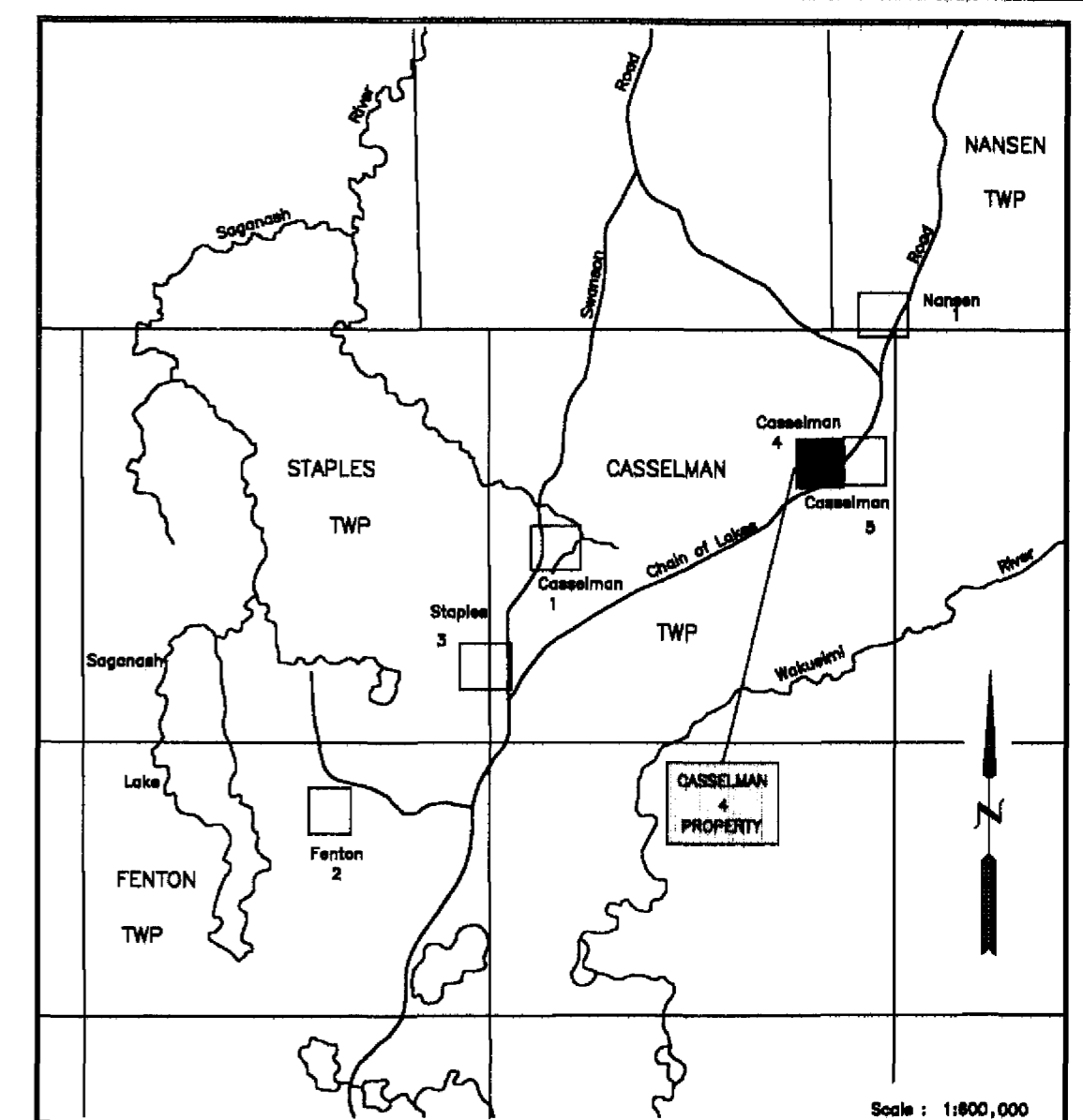
CLAIM POSTS
 ■ Located
 □ Unlocated

2. 200 13

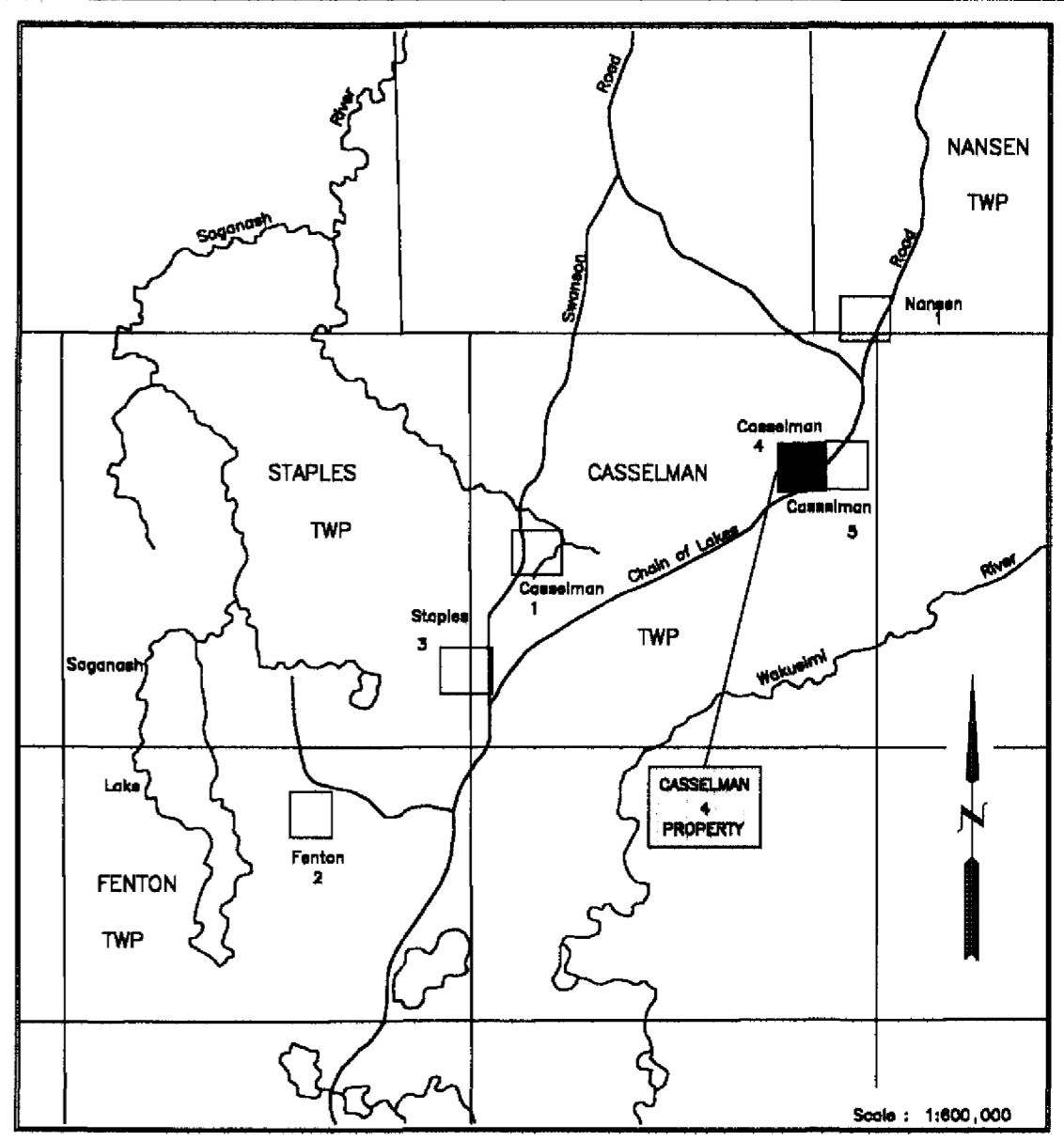
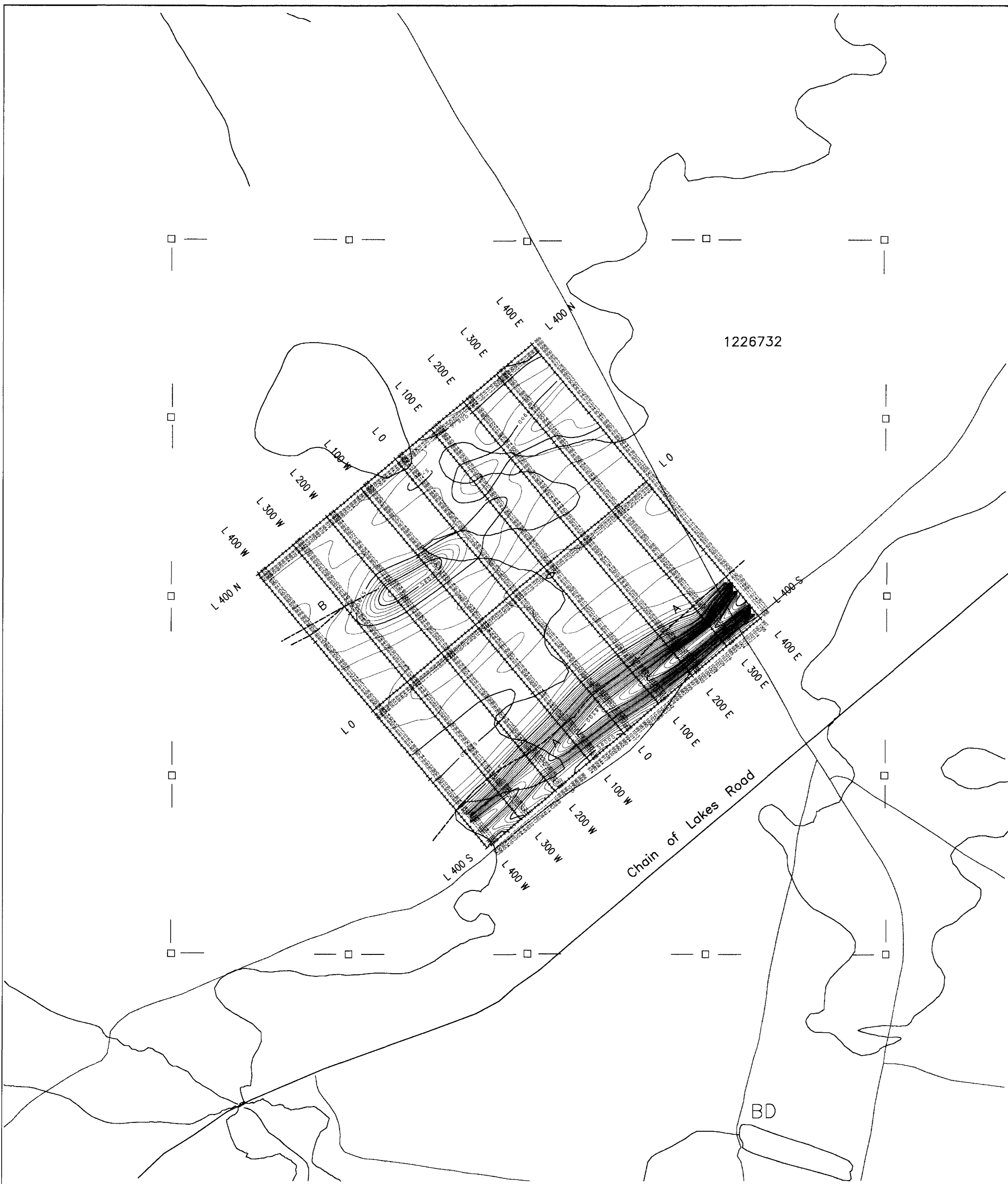


FALCONBRIDGE LIMITED	
HLEM SURVEY (444 Hz)	
CASSELMAN 4	
CASSELMAN TOWNSHIP	
File : CAS4HL.XYZ	Date : July, 1998
NTS : 42-6/1	Proj# : 8291
WORK BY : Timmins Geophysics Ltd.	





FALCONBRIDGE LIMITED	
HLEM SURVEY (1777 Hz)	
CASSELMAN 4	
CASSELMAN TOWNSHIP	
File : CAS4HL.XYZ	Date : July, 1998
NTS : 42-G/1	Proj# : 8291
WORK BY : Timmins Geophysics Ltd.	



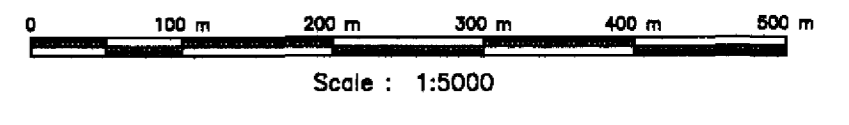
INDEX MAP



LEGEND

Instrument : Scintrex IGS-2/MP-4
 Type : Total Field Proton Precession
 Datum Level : 57000 nT
 Contour Interval : 20 nT
 Gridded By : Geosoft Bigrid
 Cell Size : 10.0 metres
 Filter : 1 Pass 9 Point Hanning
 --- EM Anomaly, 444 Hertz

CLAIM POSTS
 ■ Located
 □ Unlocated



FALCONBRIDGE LIMITED	
MAGNETIC SURVEY	
CASSELMAN 4	
CASSELMAN TOWNSHIP	
File : CAS4.XYZ	Date : July, 1998
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