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*J. J. J.*

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OCT 15 1976

GEOLOGICAL REPORT  
on  
CADOT-BURROWS PROPERTY  
Shining Tree Project  
of  
THE HANNA MINING COMPANY

PROJECTS UNIT

by

John F. Muhic

June 24, 1976

**CABOT-BURROWS PROPERTY**  
**GEOLOGIC REPORT**

**INTRODUCTION**

In 1975 The Hanna Mining Company contracted the Kenting Earth Sciences Ltd. of Ottawa, Ontario to fly an airborne EM and magnetometer survey in the Shining Tree area. As a result of the airborne geophysical survey, 18 claims were staked on the boundary of Cabot and Burrows Townships in the District of Sudbury, to cover two airborne anomalies.

A geological survey, an electromagnetic survey, and a magnetic survey were conducted on a grid of picket lines during the summer of 1976. Portions of the property covered by lakes will have to await freeze-up before the geophysical surveys can be completed.

The project was supervised by John Muhic and assisted by Andreas Lichtblau and Elliott Burden under the direction of Nelson Hogg, District Geologist for The Hanna Mining Co.

Application was made under the Ontario government's Mineral Exploration Assistance Program to obtain assistance in the amount of one-third of expenditures on the property up to a maximum of \$85,485.

**LOCATION AND ACCESS**

The property crosses the boundary between Cabot and Burrows Twp. in the Larder Lake Mining Div. Eleven claims are located in Cabot Twp. and seven claims in Burrows Twp.

The property is reached by following the Grassy Lake Rd. for 24 miles north of Hwy. 560. The western portion of the property is reached by a bush road running west from the Grassy Lake Rd.

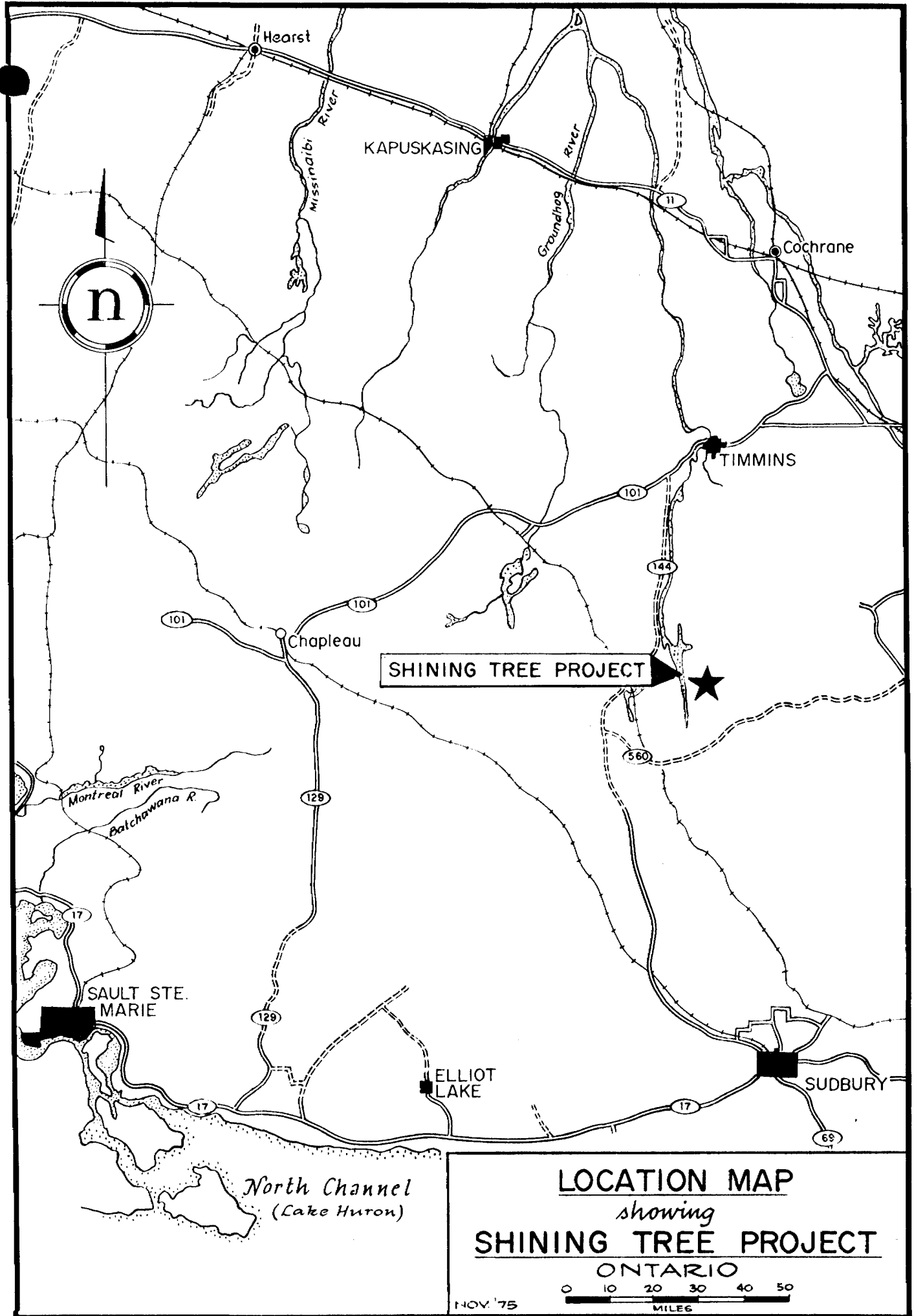
**OWNERSHIP**

The 18 unpatented mining claims are held by The Hanna Mining Co., Room 805, 69 Yonge St., Toronto. Claim numbers L-442806-816 are in Cabot Twp. and claim numbers L-442799-805 are in Burrows Twp.

The Hanna Mining Co. is responsible for submitting assessment work on the claims.

**LINE CUTTING**

The base lines and tie line were cut by Hanna personnel. Base line 00 was cut at a bearing of  $78^{\circ}30'$  to take advantage of a bush road running through the centre of the property. Tie line 00 was cut perpendicular to base line 00. Base line 16 south was cut at  $065^{\circ}$  to follow the trend of the airborne anomalies.



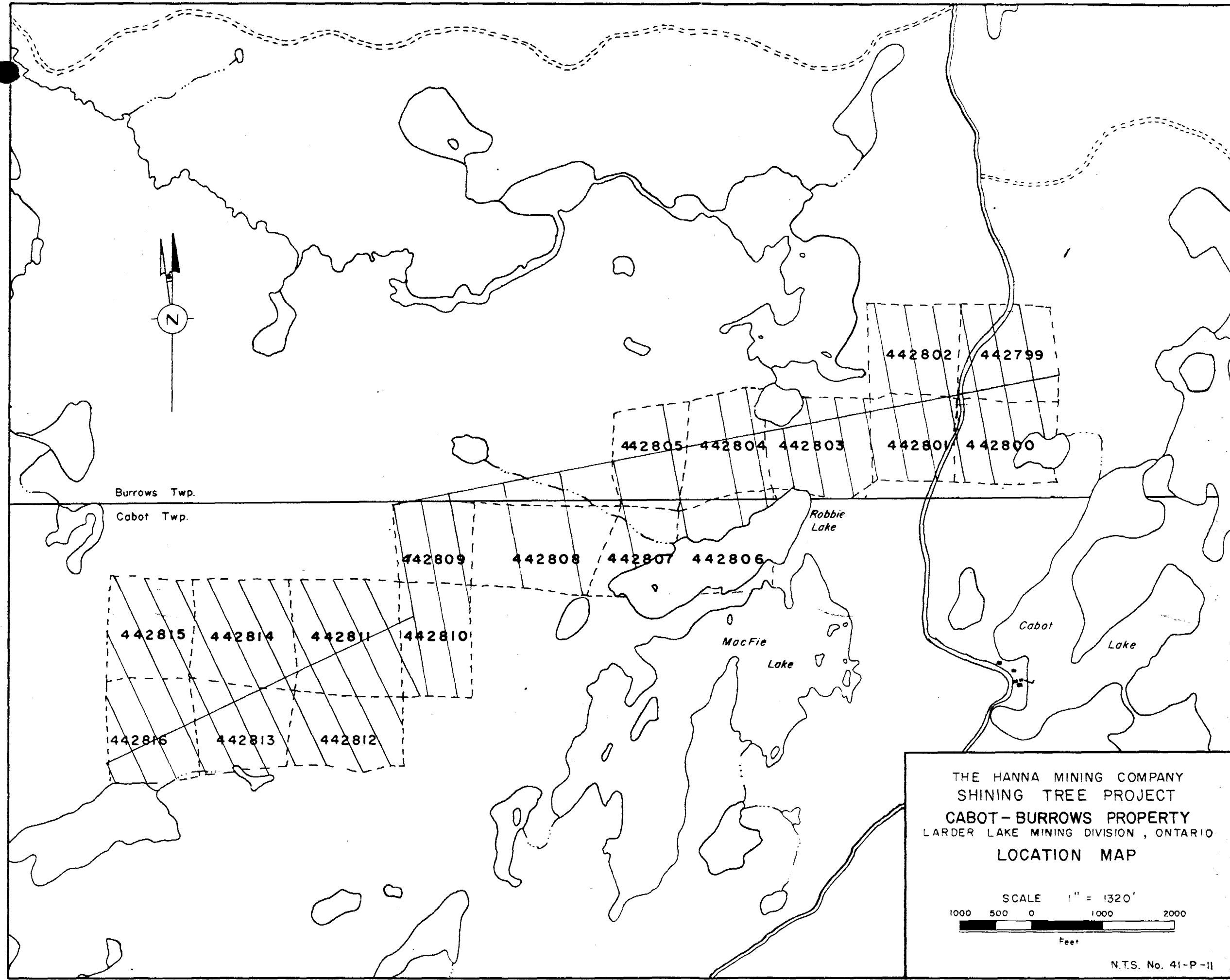
SHINING TREE PROJECT

**LOCATION MAP**  
*showing*  
**SHINING TREE PROJECT**

ONTARIO



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Burrows Twp.  
Cabot Twp.

THE HANNA MINING COMPANY  
SHINING TREE PROJECT  
CABOT - BURROWS PROPERTY  
LARDER LAKE MINING DIVISION, ONTARIO  
LOCATION MAP

SCALE 1" = 1320'

1000 500 0 1000 2000  
Feet

N.T.S. No. 41-P-II

Picket lines were cut at 400-foot intervals perpendicular to the base lines over most of the property. A section in the centre of the property contains lines at an 800 foot spacing.

The picket lines were cut under contract by David Vallillee, 84 Ridgeway Cresc., Waterloo, Ontario and by Dan Hopkins, R.R.#1, Haileybury, Ontario.

A total of 8.23 miles of base line and tie line and 12.05 miles of picket line were cut. The line cutting was completed between May 15 and May 30, 1976.

All the geological and geophysical surveys were conducted using the same grid.

#### FORMER WORK

As far as can be ascertained there has been no previous exploration work done on the property.

#### GEOLOGICAL MAPPING

The property was mapped by John Muhic between May 19 and May 31. The geology is tied to the picket lines.

Results are plotted at a scale of 1 in. = 200 ft. on two standard-sized sheets of 86" X 44". Copies are enclosed with the report.

#### GENERAL GEOLOGY

Cabot Twp. was mapped by Carter<sup>1</sup> (1976) in 1975 on a scale of 1" equals 1/4 mile. The area is underlain by a series of early to late Precambrian rocks covered by Pleistocene and Recent deposits.

The Archean rocks consist of northeast striking basaltic, intermediate, and rhyolitic flows and pyroclastics. Lensoid masses of diorite and gabbro parallel the trend of the metavolcanics. A pluton of porphyritic granite occupies the western boundary of Cabot Twp. A smaller pluton is found at Clear Lake.

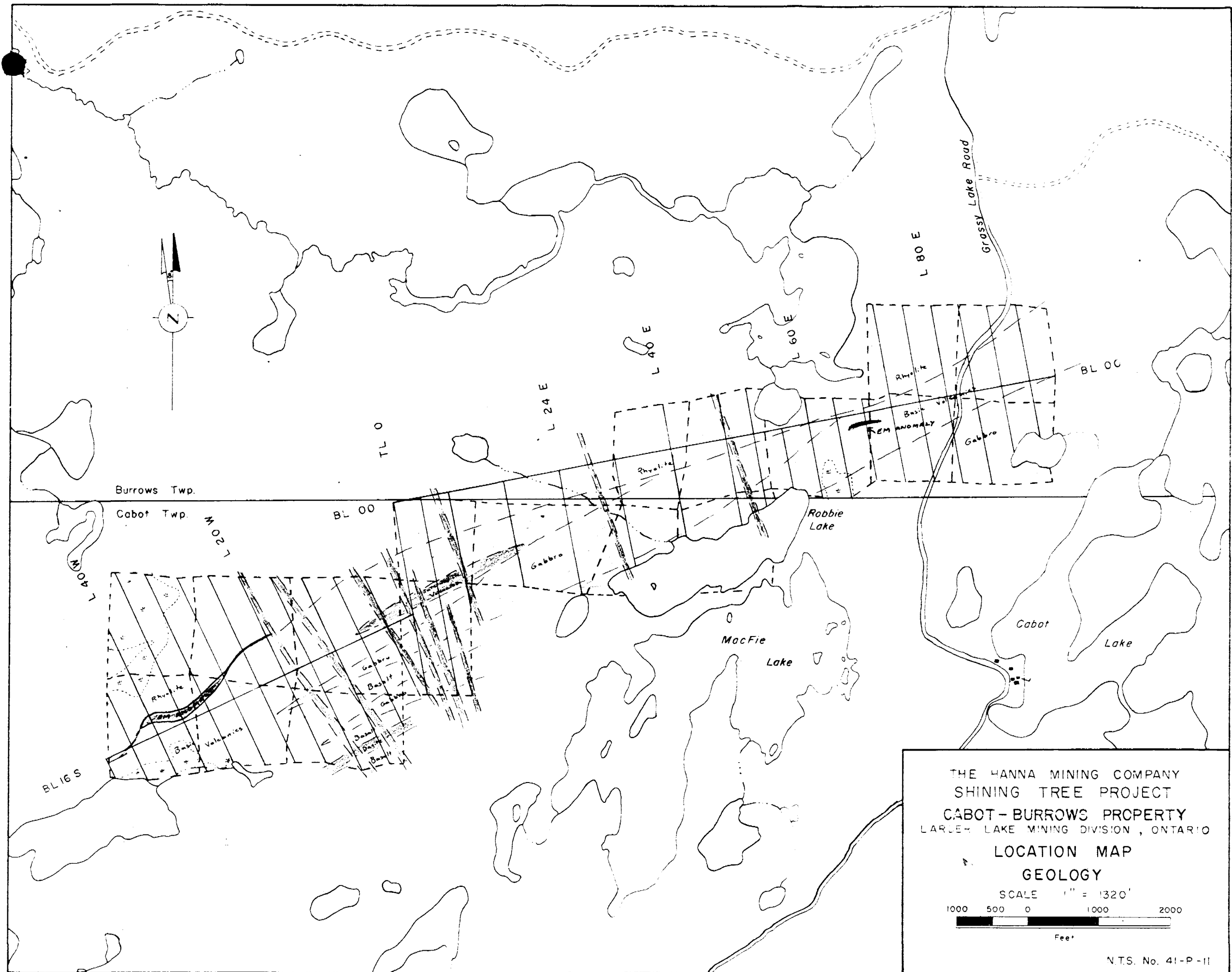
A series of late Precambrian diabase dykes intrude the Archean rocks. The most prominent is a north-northwest trending set.

Pleistocene deposits consisting primarily of sand cover extensive portions of the area.

#### GEOLOGY OF THE PROPERTY

Geological interpretation was severely hampered by the extensive overburden of outwash sand which covers 90% of the property. The only outcrops on the property are located in a small area west of Robbie Lake. Mapping revealed a sequence of basic to felsic volcanics striking approximately 068° and dipping 80° to the south.

The basic volcanics consist of dark green, chloritized and carbonatized pillow lavas with tops facing south.



Intermediate volcanics are light green, massive and homogeneous with no apparent structural features. The rocks are chloritized and contain a trace of pyrite.

No outcrops of rhyolite were observed on the property itself, although several large boulders and outcrops are exposed just west of the property. The rhyolite occurs as a pyroclastic breccia with fragments ranging up to 5" by 12" in size. It contains abundant quartz eyes and is highly sericitized. According to Carter<sup>1</sup> rhyolite occupies the northern part of the property and thus is stratigraphically below the basic volcanics. Carter<sup>1</sup> believes the rhyolite is the top of a second of three cycles of vulcanism having basalt at the base and rhyolite at the top.

The volcanic sequence is intruded by sill-like gabbroic masses. Two such sills were observed on the property. The gabbro is very coarse grained, dark green, chloritized and carbonatized. In places the gabbro exhibits a diabasic texture but it can be distinguished from the diabase dykes by its low magnetic relief.

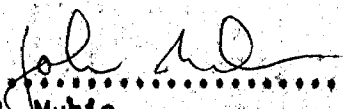
Late Precambrian diabase dykes trending northwest and dipping steeply west intrude the volcanics and gabbro. Their width is approximately 100 feet. The rocks are black, fresh looking and magnetic.

The Pleistocene consists of a thick layer of outwash sands covering most of the property. The sand is fine, light brown and generally devoid of clay minerals or pebbles.

The geology was reduced to a scale of 1 inch equals 1/4 mile and a copy is bound into the report.

#### REFERENCES

- <sup>1</sup>Carter, M.W. 1976: Cabot Twp, District of Sudbury; Ont. Div. Mines, Prelim. Map P.1104, Geol. Ser., scale 1:15,840 or 1 inch to 1/4 mile. Geology 1975.

  
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John P. Muhic  
June 24, 1976



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PROJECTS UNIT

CABOT-BURROWS PROPERTY  
Shining Tree Project  
THE HANNA MINING COMPANY  
REPORT OF  
MAGNETOMETER SURVEY

by

John Mahic

June 14, 1976



CABOT-BURROWS PROPERTY  
REPORT OF MAGNETOMETER SURVEY

INTRODUCTION

In 1975 The Hanna Mining Company contracted the Kenting Earth Sciences Ltd. of Ottawa, Ontario to fly an airborne EM and magnetometer survey in the Shining Tree area. As a result of the airborne geophysical survey, 18 claims were staked on the boundary of Cabot and Burrows Townships, in the District of Sudbury, to cover two airborne anomalies.

A geological survey, an electromagnetic survey, and a magnetic survey were conducted on a grid of picket lines during the summer of 1976. Portions of the property covered by lakes will have to await freeze-up before the geophysical surveys can be completed.

The project was supervised by John Muhic and assisted by Andreas Lichtblau and Elliott Burden under the direction of Nelson Hogg, District Geologist for The Hanna Mining Co.

Application was made under the Ontario government's Mineral Exploration Assistance Program to obtain assistance in the amount of one-third of expenditures on the property up to a maximum of \$85,485.

LOCATION AND ACCESS

The property crosses the boundary between Cabot and Burrows Twp. in the Larder Lake Mining Div. Eleven claims are located in Cabot Twp. and seven claims in Burrows Twp.

The property is reached by following the Grassy Lake Rd. for 24 miles north of Hwy. 560. The western portion of the property is reached by a bush road running west from the Grassy Lake Rd.

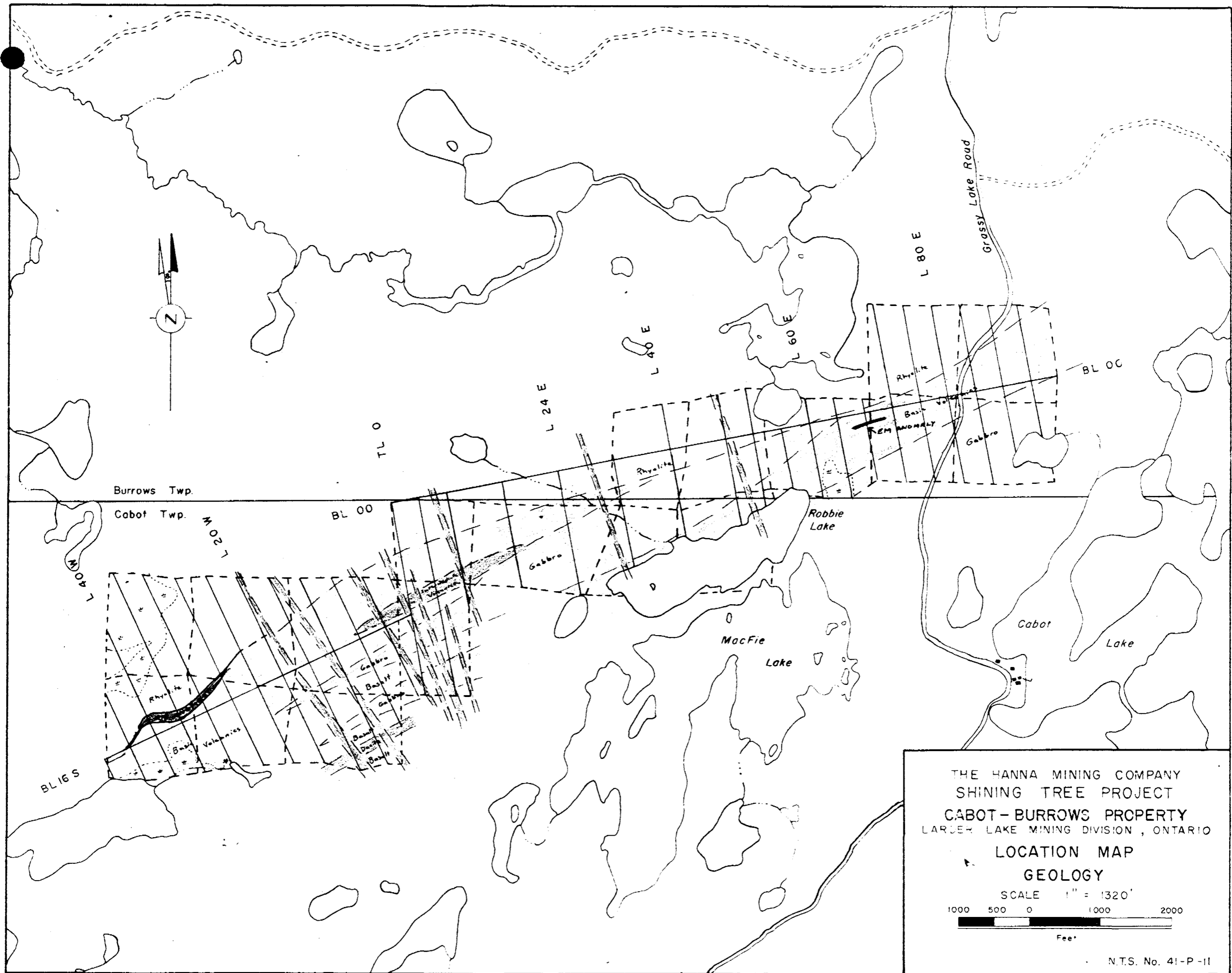
OWNERSHIP

Eighteen unpatented mining claims are held by The Hanna Mining Co., Room 805, 69 Yonge St., Toronto. Claim numbers L-442806-816 are in Cabot Twp. and claim numbers L-442799-805 are in Burrows Twp.

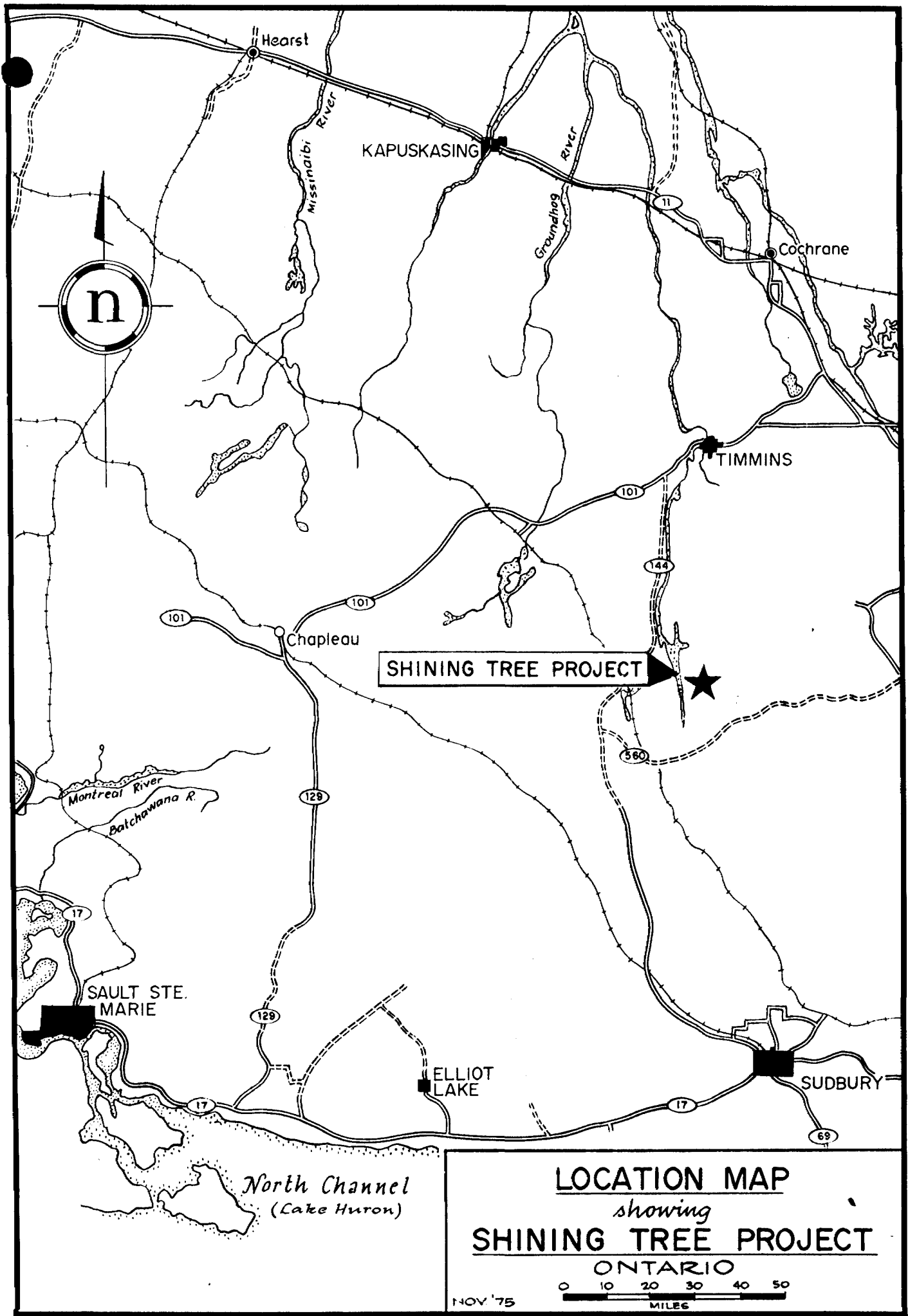
The Hanna Mining Co. is responsible for submitting assessment work on the claims.

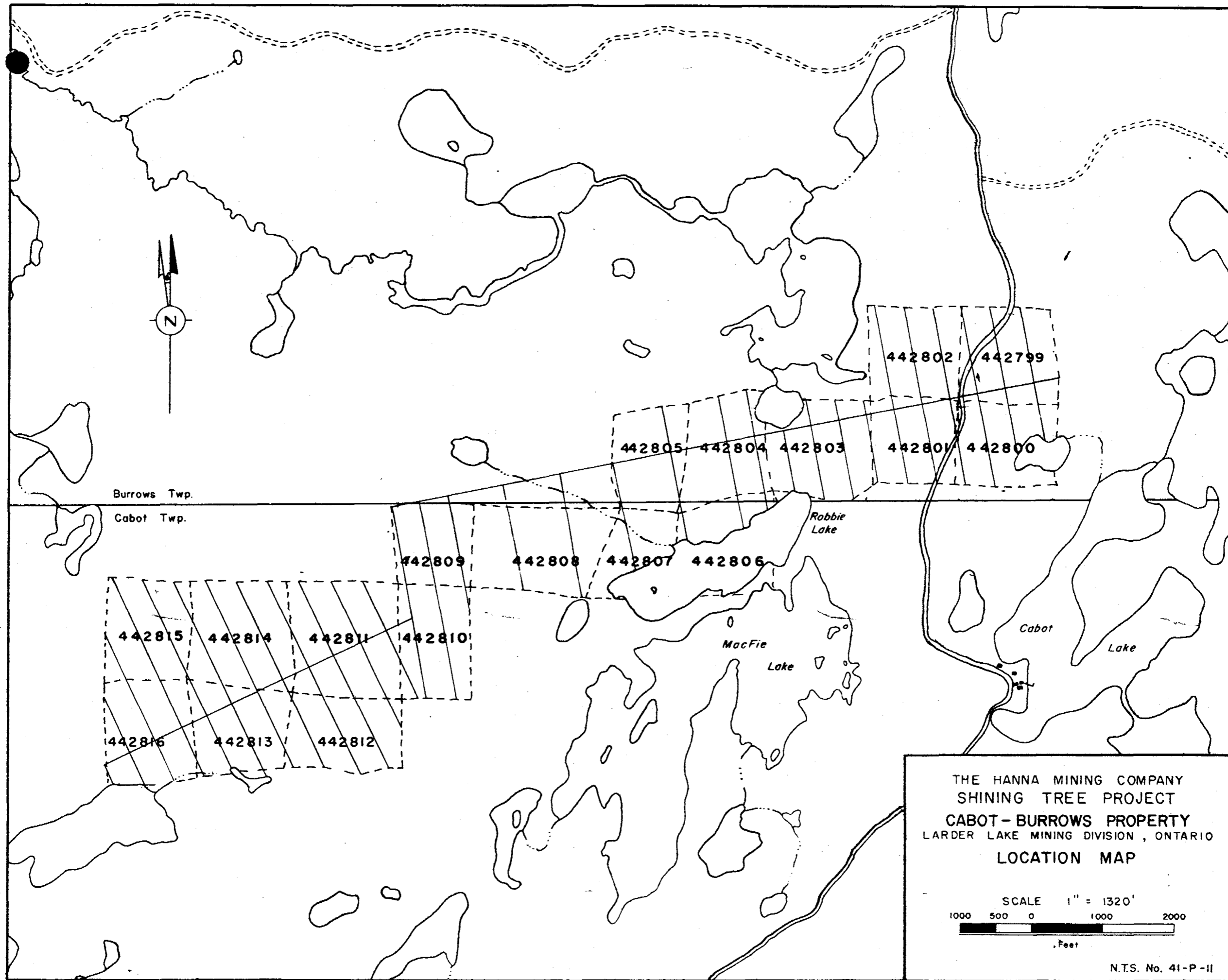
LINE CUTTING

The base lines and tie line were cut by Hanna personnel. Base line 00 was cut at a bearing of  $78^{\circ}30'$  to take advantage of a bush road running through the centre of the property. Tie line 00 was cut perpendicular to base line 00. Base line 16 south was cut at  $065^{\circ}$  to follow the trend of the airborne anomalies.

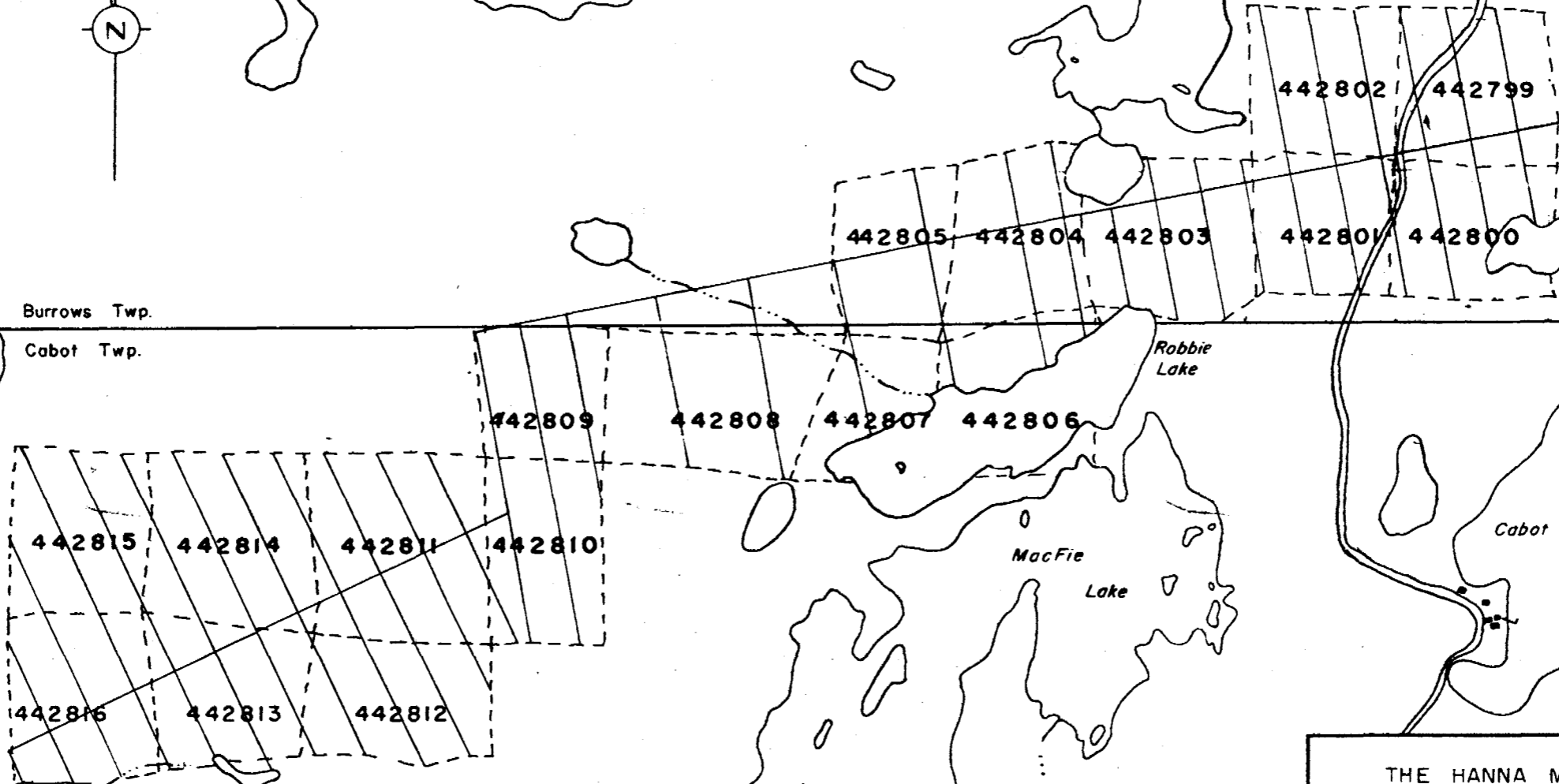


THE HANNA MINING COMPANY  
 SHINING TREE PROJECT  
 CABOT-BURROWS PROPERTY  
 LARGER LAKE MINING DIVISION, ONTARIO  
 LOCATION MAP  
 GEOLOGY  
 SCALE 1" = 1320'  
 1000 500 0 1000 2000  
 Feet  
 N.T.S. No. 41-P-11





Burrows Twp.  
Cabot Twp.



Robbie Lake

MacFie Lake

Cabot Lake

THE HANNA MINING COMPANY  
SHINING TREE PROJECT  
CABOT-BURROWS PROPERTY  
LARDER LAKE MINING DIVISION, ONTARIO  
LOCATION MAP

SCALE 1" = 1320'

1000 500 0 1000 2000  
Feet

N.T.S. No. 41-P-II

Picket lines were cut at 400-foot intervals perpendicular to the base lines over most of the property. A section in the centre of the property contains lines at an 800-foot spacing.

The picket lines were cut under contract by David V. Lillie, 84 Ridgeway Cresc., Waterloo, Ontario and by Dan Hopkins, R.R.#1, Halleybury, Ontario.

A total of 3.28 miles of base line and tie line and 12.05 miles of picket line were cut. The line cutting was completed between May 15 and May 30, 1976.

All the geological and geophysical surveys were conducted using the same grid.

#### FORMER WORK

As far as can be ascertained there has been no previous exploration work done on the property.

#### GENERAL GEOLOGY

The property is underlain by a series of basic to rhyolitic volcanics. The southern half of the property is underlain by basic pillow lavas with tops to the south. The northern part of the property consists of rhyolitic breccia.

The volcanics are intruded by conformable gabbroic sills.

All the rocks on the property are in turn intruded by younger north-northwest trending, steeply dipping diabase dykes.

Extensive and apparently deep overburden of outwash sands covers over 90% of the property.

A 1 inch to 1/4 mile geologic sketch is bound into the report.

#### GEOPHYSICAL SURVEY

The magnetometer survey was conducted by Andreas Lichtblau between June 6 and June 14, 1976. A total of 284 base stations over 3.05 miles of base line and tie line were established. 1,360 stations were read over 12.28 miles of picket line. The results were interpreted by John Muhic.

Portions of the property over Robbie Lake and two smaller lakes will have to be completed after freeze-up.

#### INSTRUMENT

The survey was conducted using a Scintrex MF-2 Fluxgate magnetometer with a sensitivity of 20 gammas per scale division on the most sensitive scale.

readings underneath power lines. A built-in interroom system permits easy communication at any coil separation. Tilt meters in both coils co-ordinate the angle of tilt for both operators when topographic effects need to be eliminated.

#### METHOD OF SURVEY

The Apex system was used in a horizontal loop mode. Both operators traverse along the same picket line at a fixed spacing, connected by a reference cable. When a station is reached, the transmitter is turned on and the receiver operator notes the in-phase and quadrature readings. The readings are plotted at the mid-point between two coils. Topographic effects are eliminated by tilting both the transmitter and receiver coils to maintain a coplanar configuration.

Initially a 400 foot coil spacing was used but no anomalous readings were obtained. This prompted a decision to use the 600 foot coil spacing in order to penetrate the deep sand deposits. The property was surveyed at 100 foot intervals employing a frequency of 888 Hz and 222 Hz.

The readings are plotted and profiled on two standard 86" X 44" sheets. Copies of the maps are included with the report.

#### RESULTS AND CONCLUSIONS

A weak EM anomaly extending from L44W to line 20W was delineated in the western portion of the property. The ratio of In-phase to Quadrature is typically 6:0 in the 888 Hz frequency and 5:2 in the 222 Hz frequency. The conductor is 100 feet at its thickest part and dips steeply to the south. The weak response of the conductor and the fact that it could not be detected using the 400 foot coil spacing would indicate that the conductor is very deep.

The conductor lies in the interpreted rhyolite breccia unit - an environment which is favourable for massive sulphide type deposits.

A single line anomaly was detected on L68E. A bay in the lake north of the property prevented the completion of the anomalous profile with a 600 foot cable. Consequently a 400 foot coil spacing was used to delineate the conductor.

The conductor has a negligible width. The ratio of In-phase / Quadrature is 6/8 on the 888 Hz frequency and 3/4 in the 222 Hz frequency.

Neither of the two EM anomalies have coincident magnetic anomalies.

#### RECOMMENDATIONS

The weak conductor in the western part of the property definitely warrants a diamond drill hole on the basis of its width and strike length and the favourable geologic setting.

The anomaly on L68E, because of its small width and length is considered a lower priority drill target.

June 24, 1976

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John F. Muhic



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CABOT-BURROWS PROPERTY

PROJECTS UNIT

Shining Tree Project

THE HANNA MINING COMPANY

REPORT OF ELECTROMAGNETIC SURVEY

by

John P. Muhic

June 24, 1976

CABOT-BURROWS PROPERTY  
REPORT OF ELECTROMAGNETIC SURVEY

INTRODUCTION

In 1975 The Hanna Mining Company contracted the Kenting Earth Sciences Ltd. of Ottawa, Ontario to fly an airborne EM and magnetometer survey in the Shining Tree area. As a result of the airborne geophysical survey, 18 claims were staked on the boundary of Cabot and Burrows Townships, in the District of Sudbury, to cover two airborne anomalies.

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The property is reached by following the Grassy Lake Rd. for 24 miles north of Hwy. 860. The western portion of the property is reached by a bush road running west from the Grassy Lake Rd.

OWNERSHIP

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LINE CUTTING

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A total of 3.28 miles of base line and tie line and 12.05 miles of picket line were cut. The line cutting was completed between May 15 and May 30, 1976.

All the geological and geophysical surveys were conducted using the same grid.

#### FORMER WORK

As far as can be ascertained there has been no previous exploration work done on the property.

#### GENERAL GEOLOGY

The property is underlain by a series of basic to rhyolitic volcanics. The southern half of the property is underlain by basic pillow lavas with tops to the south. The northern part of the property consists of rhyolitic breccia.

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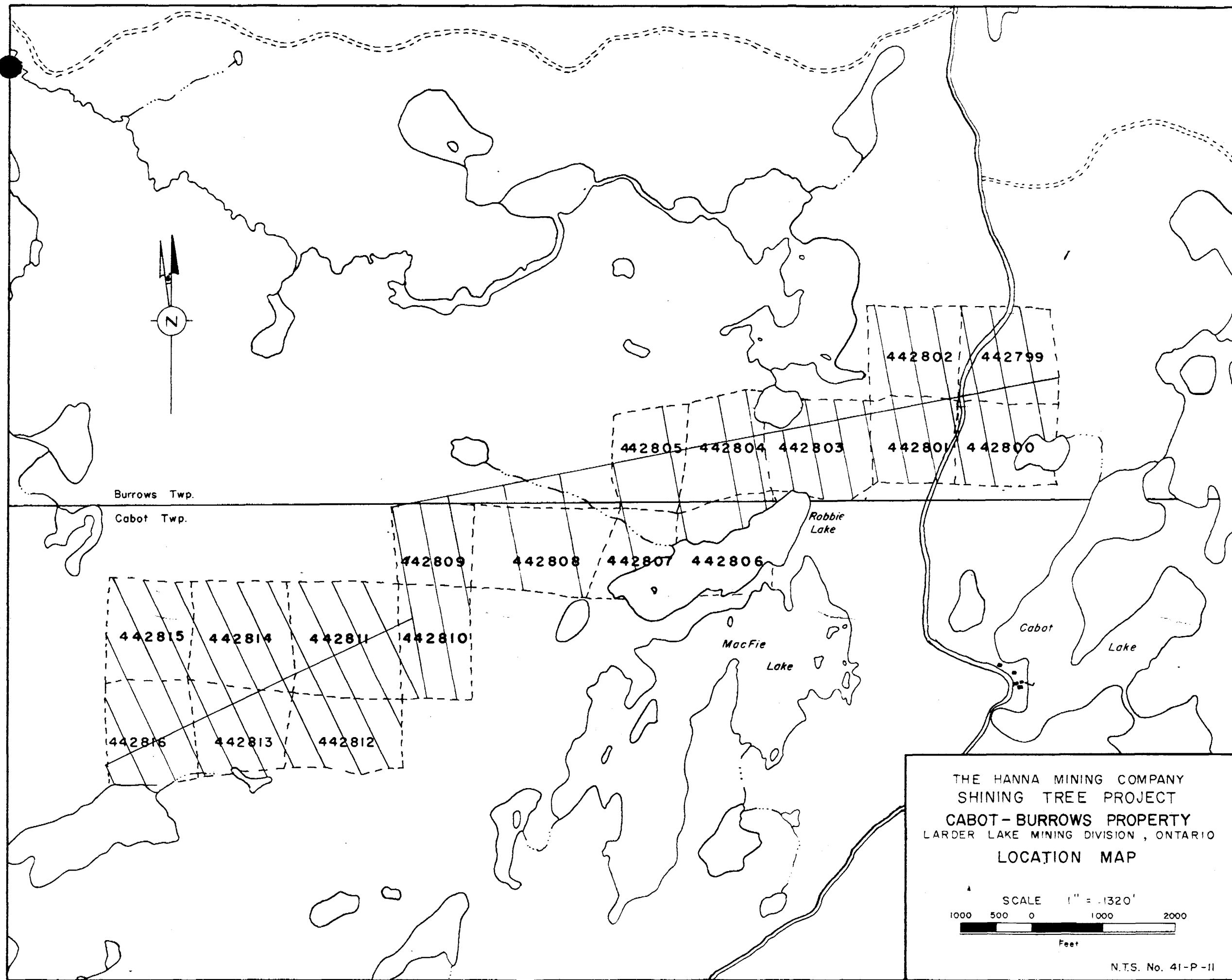
#### GEOPHYSICAL SURVEY

The EM survey was conducted by Andreas Lichtblau and Elliott Burden under the supervision of John Matic between May 24 and June 1, 1976.

A total of 482 stations over 12.51 miles of picket lines were read. Portions of the property over Robbie Lake and two smaller lakes cannot be surveyed until freeze-up.

#### INSTRUMENT

The survey was conducted using the new Apex Parametrics Max-Min 11 system. The unit was used in a horizontal loop mode which can have a coil separation up to 800 feet. It features automatic, direct readout of the In-phase and Quadrature components of the secondary field in percent on 3 1/2" size meters with a  $\pm 1\%$  to  $\pm 1\%$  reading repeatability. Operating frequencies include 222, 444, 888, and 1777 Hz. with a 0.2 Hz normal receiver bandwidth. The system is reputed to be able to take valid



Burrows Twp.  
Cabot Twp.

442802 442799  
442805 442804 442803 442801 442800

442809 442808 442807 442806

442815 442814 442811 442810  
442816 442813 442812

Robbie Lake

MacFie Lake

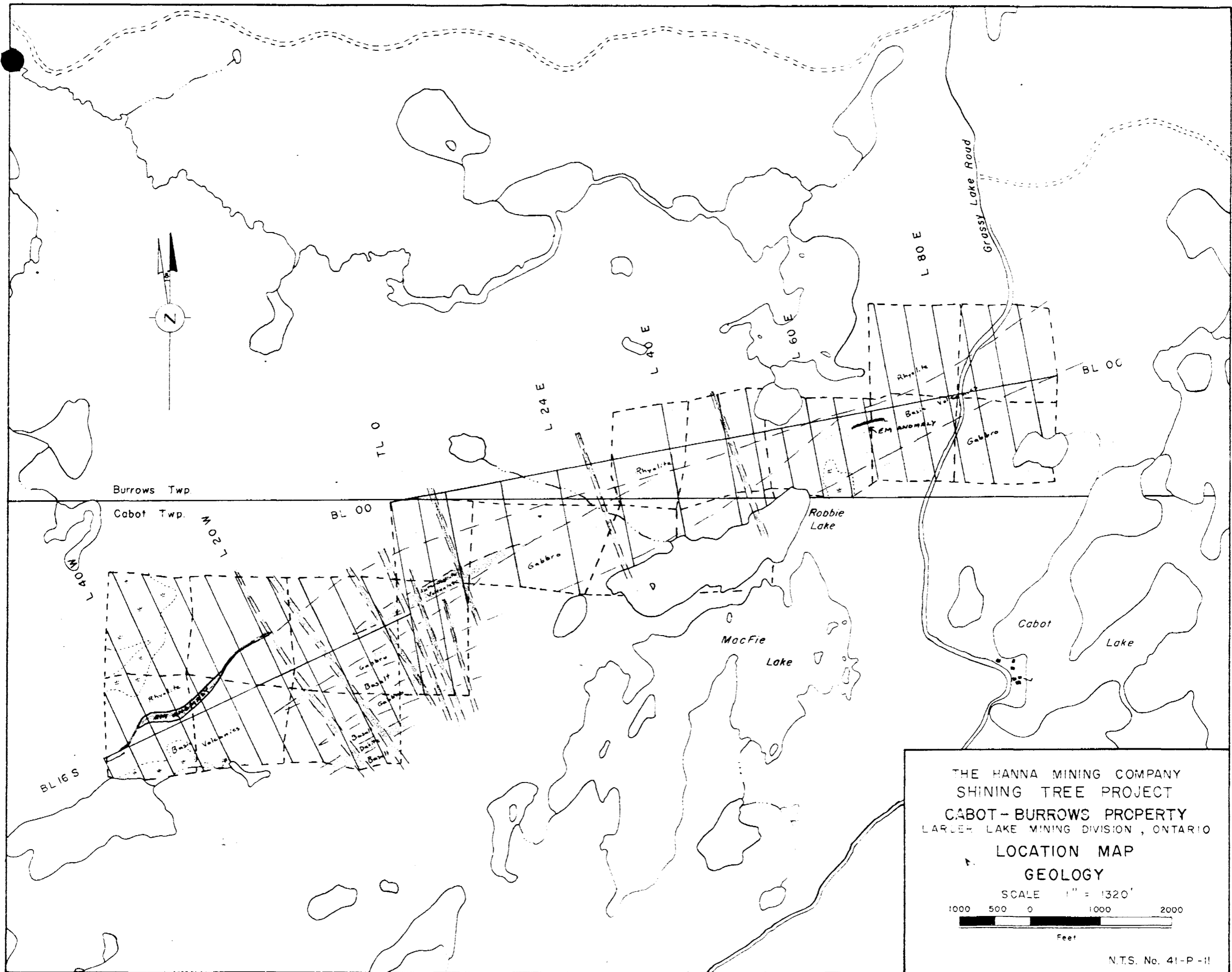
Cabot

Lake

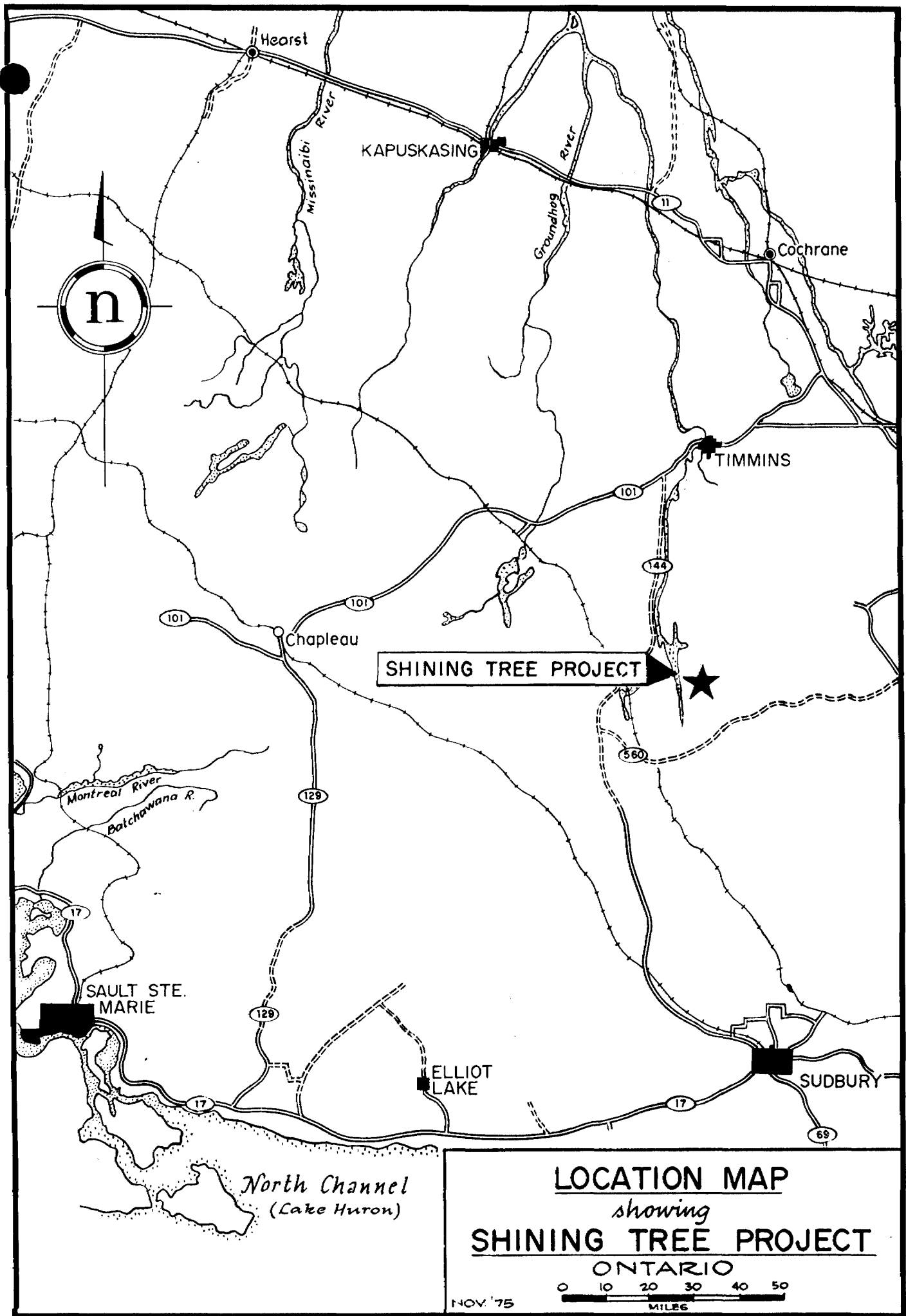
THE HANNA MINING COMPANY  
SHINING TREE PROJECT  
CABOT-BURROWS PROPERTY  
LARDER LAKE MINING DIVISION, ONTARIO  
LOCATION MAP

SCALE 1" = 1320'  
1000 500 0 1000 2000  
Feet

N.T.S. No. 41-P-II



THE HANNA MINING COMPANY  
 SHINING TREE PROJECT  
 CABOT-BURROWS PROPERTY  
 LARLER LAKE MINING DIVISION, ONTARIO  
**LOCATION MAP**  
**GEOLOGY**  
 SCALE 1" = 1320'  
 1000 500 0 1000 2000  
 Feet  
 N.T.S. No. 41-P-11



SHINING TREE PROJECT

**LOCATION MAP**  
*showing*  
**SHINING TREE PROJECT**

ONTARIO



NOV '75

METHOD OF SURVEY

Base stations were established along the base line and tie line of the grid at 100 foot intervals. This was done by reading the base stations a few at a time, checking back constantly to an already established base station and then carrying the survey ahead.

The picket line grid was then run in closed loops, checking in at the base stations on the base line at regular periods. The readings were taken at 50 foot intervals except in anomalous areas where 25-foot readings were taken.

The readings were plotted on 2 standard 36" X 44" sheets and contoured. Copies are enclosed with the report.

RESULTS AND CONCLUSIONS

The magnetometer survey distinguished the northwest trending diabase dykes, but failed to distinguish the different geologic units under the extensive sand overburden. The magnetic relief over most of the property is relatively weak, reaching a maximum of 60.60 gammas.

The magnetic relief of the diabase dykes diminishes to the northwest, probably due to the increasing depth of the sand overburden.

No magnetic anomalies were recorded over the EM conductors.

June 24, 1976

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*John F. Muhic*  
John F. Muhic



41P14SW0074 2.2220 BURROWS

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DIAMOND DRILLING REPORT

on

CABOT-BURROWS PROPERTY

Shining Tree Project

of

THE HANNA MINING COMPANY

by

John F. Muhic

November 16, 1976

DIAMOND DRILLING REPORT

on

CABOT-BURROWS PROPERTY

SHINING TREE PROJECT

INTRODUCTION

During 1975, The Hanna Mining Co. acquired 18 claims on the boundary of Cabot and Burrows Twp. in the Larder Lake Mining Division. A program of geological and geophysical surveying during the summer of 1976 delineated two electromagnetic anomalies on the property. Separate reports have been written describing the geological, magnetic and electromagnetic surveys. This report covers the results of the diamond drilling program conducted in September and October, 1976.

The following are attached to this report:

- 1) Map showing the location of the property.
- 2) Map showing the claim group and claim numbers.
- 3) Map showing the geology of claim group at 1" to  $\frac{1}{4}$ -mile.
- 4) Copies of the diamond drill hole logs.
- 5) Copies of the assay certificates from Swastika Laboratories.
- 6) Two maps at 1" to 200' showing drill hole locations.
- 7) Cross Section of each diamond drill hole.

LOCATION AND ACCESS

The property crosses the boundary of Cabot and Burrows Twps. in the Larder Lake Mining Division. Eleven claims are located in Cabot Twp. and seven claims are located in Burrows Twp.

The property can be reached by following the Grassy Lake Rd. for 24 miles north of Hwy.560. The western portion is accessible by a bush road running west from the Grassy Lake Rd.

OWNERSHIP

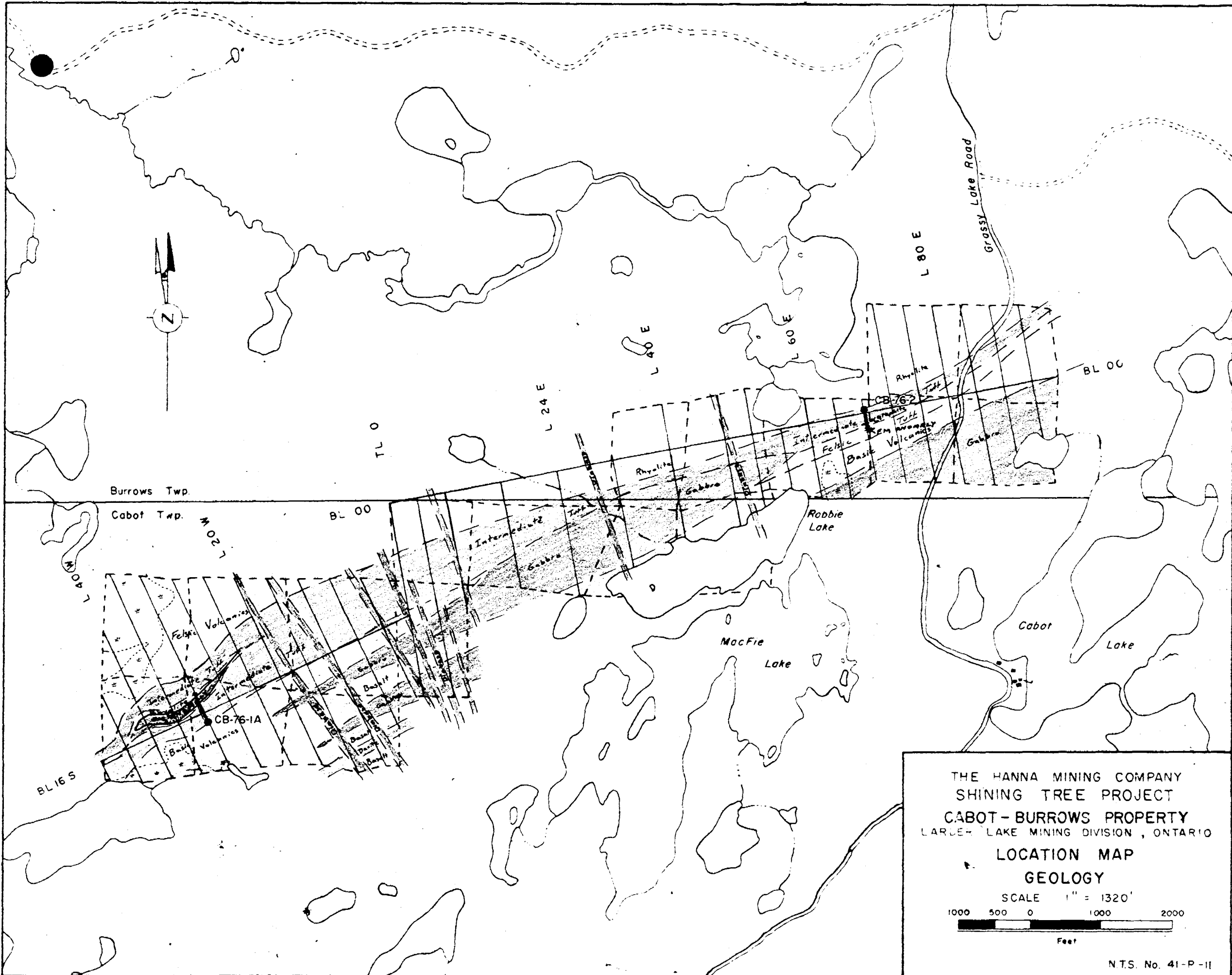
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GEOLOGY

The regional geology and the detailed geology of the property are treated in a separate report. The property is underlain by Archean volcanic rocks intruded by gabbroic sills and diabase dykes. The volcanics consist of rhyolitic to basic tuffs and lavas. Two lenticular sills of gabbro intrude the volcanic rocks. Northwest trending diabase dykes cut all the rocks on the property. The contact between felsic and intermediate volcanics is marked by graphitic and argillaceous bands.

GEOPHYSICS

The property was covered by a magnetic survey and an APEX Max-Min 11 electromagnetic survey. The electromagnetic survey delineated two anomalous zones in deep overburden with a 600 foot coil separation. Two holes were drilled to investigate the anomalies.



THE HANNA MINING COMPANY  
 SHINING TREE PROJECT  
 CABOT-BURROWS PROPERTY  
 LARLER LAKE MINING DIVISION, ONTARIO  
**LOCATION MAP**  
**GEOLOGY**  
 SCALE 1" = 1320'  
 1000 500 0 1000 2000  
 Feet  
 N.T.S. No. 41-P-II



DIAMOND DRILLING

Two drill holes were laid out to test the APEX electromagnetic anomalies. The first hole had to be abandoned when the rods were seized by quicksand at a depth of 190 feet. The hole was then relocated 50 feet south on the same picket line and was successful in reaching bedrock. The overburden consists of a fine lacustrine sand to a depth of 170 feet, underlain by a layer of grey clay to bedrock at 215 feet.

The second hole was collared in sand which extends to a depth of 65 feet and is underlain by coarse gravel to bedrock at 182 feet. Progress throughout the drilling program was slower than expected due to caving and silting of the diamond drill holes.

The drilling was completed between September 20, 1976 and October 19, 1976 by Heath and Sherwood Drilling, Kirkland Lake, Ontario. A total of 1341 feet were drilled, including the abandoned hole. Statistical information is tabulated below:

Hole #	Location Claim #	Line	Station	Bearing	Inclina- tion	Total Length	Overburden Length
CB-76-1	442813	32+00W	17+00S	N25°W	-60°	190	190
CB-76-1A	442813	32+00W	17+50S	N25°W	-55°	697	272
CB-76-2	442803	68+00E	0+40N	S12°E	-59°	454	302

Hole No. CB-76-2 was drilled down dip because of misleading geophysical results. Due to the steep dip of the rocks and the appreciable degree of flattening in the hole, a decision was made to continue drilling rather than restart the hole in the opposite direction.

RESULTS

Detailed drill logs and cross sections showing the geology and assay results are appended to this report.

Hole CB-76-1A intersected two 55-foot thick zones of graphitic argillite separated by 60 feet of massive, white rhyolite. The graphitic zones coincided with the indicated electromagnetic conductor. To the north of the second graphitic zone lies a 47-foot section of rhyolite, in turn overlain by an intermediate tuff that contains occasional specks and blebs of zincblende and chalcopyrite. Two 5 - 6 foot sections of core assayed Nil Au, 0.18% Zn and 0.04% Cu.

Hole CB-76-2 intersected intermediate tuff, argillite and felsic tuff. The argillite contained graphitic sections up to 10 feet wide, but did not coincide with the EM anomaly. A 6.5 foot section of the argillite containing up to 5% disseminated sulphides assayed .005 oz Au/ton and 0.50% Zn.

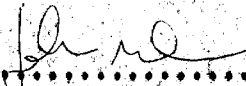
Three sections from 10 to 15 feet wide containing pure graphitic seams up to 1/4-inch wide in felsic and intermediate tuff coincide with the electromagnetic anomaly.

The assaying was done by Swastika Laboratories Ltd.

CONCLUSIONS

From the results of the diamond drilling program it is evident that the EM anomalies were caused by graphite. In view of the low assay results no further exploration work on the property is recommended.


Nov.16,1976

  
.....  
John F. Muhic

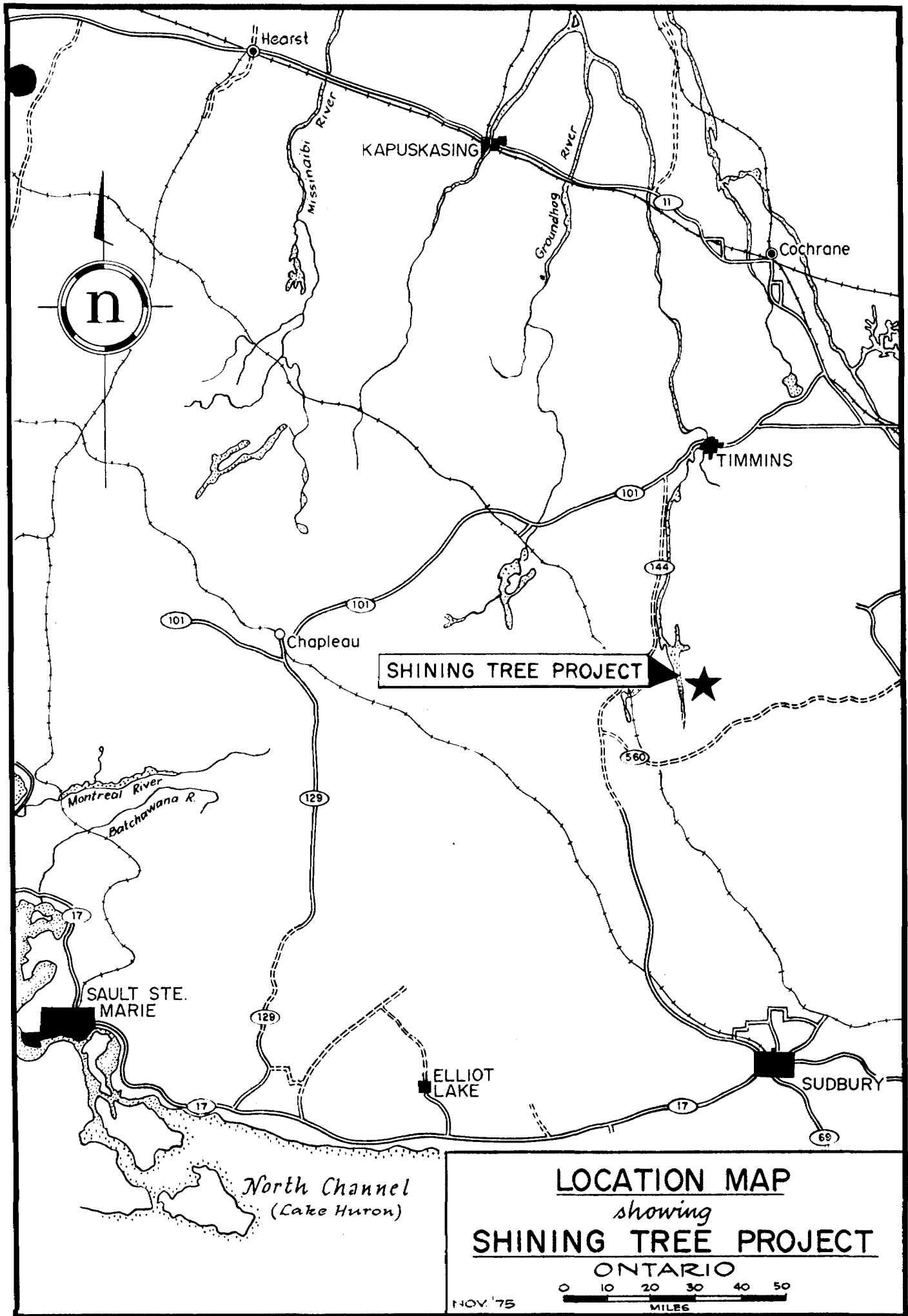
CERTIFICATE

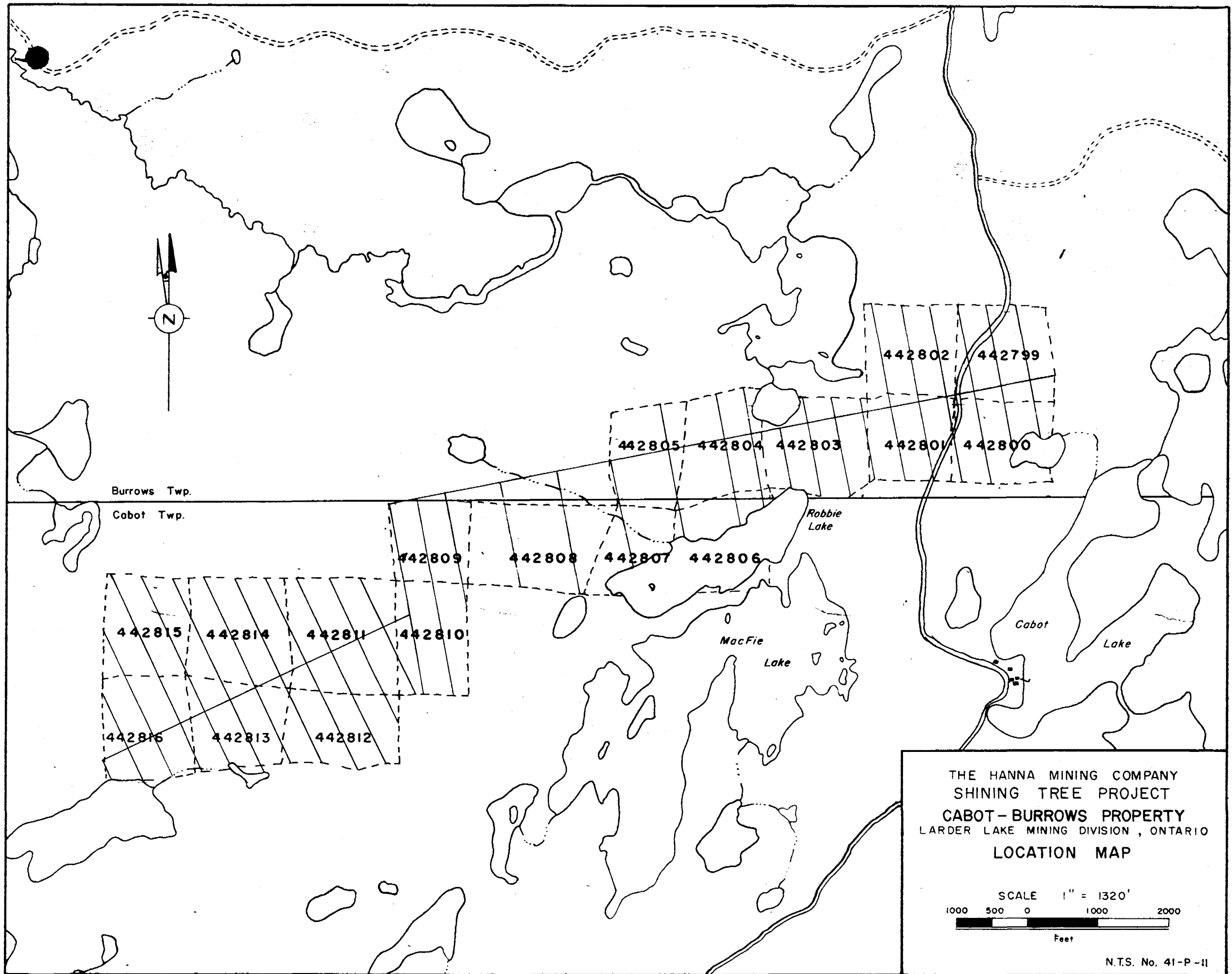
I, John F. Muhic, of the city of Toronto, in the Province of Ontario, hereby certify that:

1. I am a graduate in geology with the degree of B. Sc. from the University of Toronto, 1975.
2. That I am a full-time employee of The Hanna Mining Company, Room 805, 69 Yonge Street, Toronto, Ontario.
3. That the accompanying report is based on my personal knowledge of work done on the property, supplemented by information from published government reports.
4. That I have no direct or indirect interest in the property.

.....  
  
John F. Muhic,  
Geologist

November 15, 1976



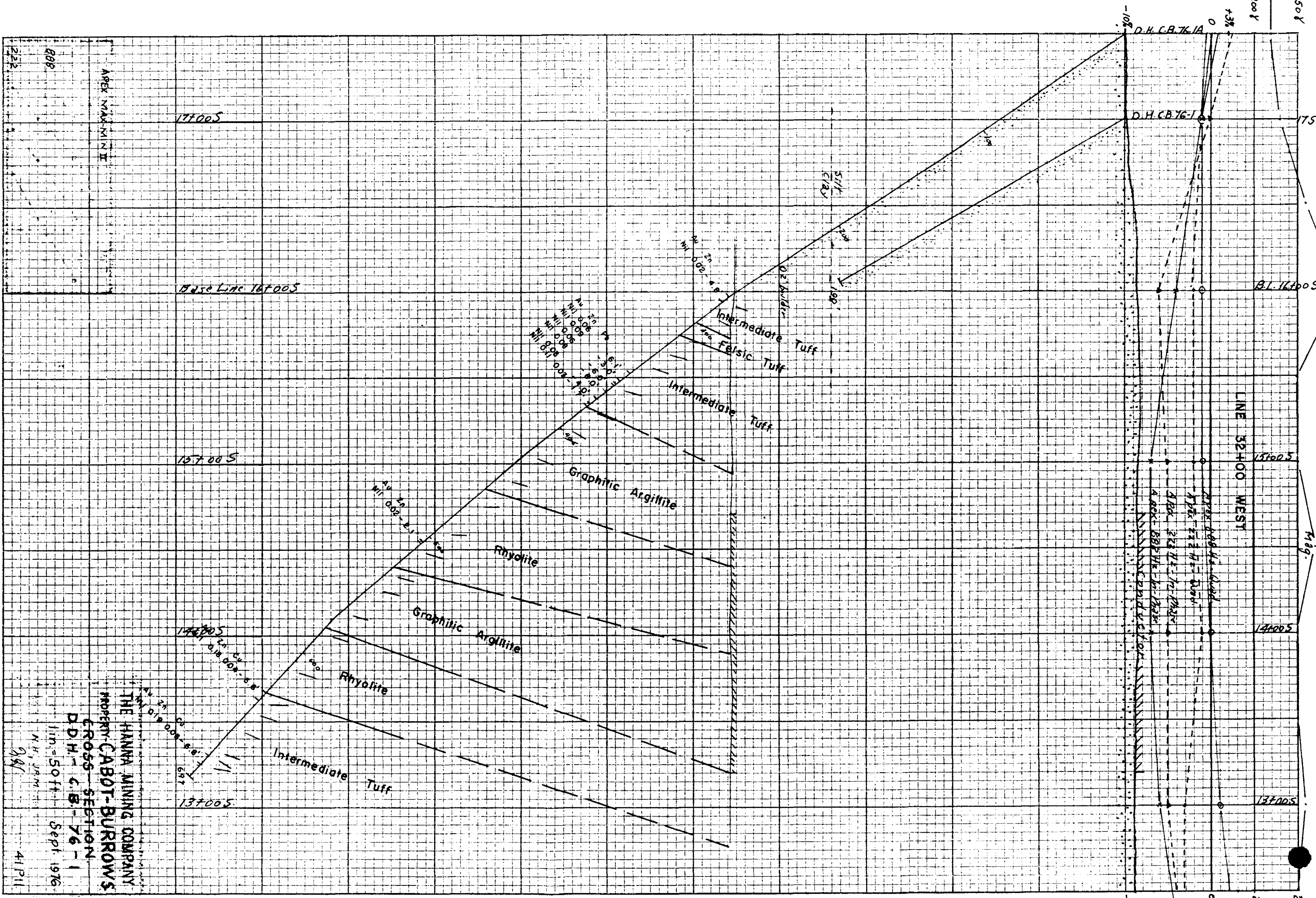


THE HANNA MINING COMPANY  
SHINING TREE PROJECT  
CABOT-BURROWS PROPERTY  
LARDER LAKE MINING DIVISION, ONTARIO  
LOCATION MAP

SCALE 1" = 1320'

1000 500 0 1000 2000  
Feet

N.T.S. No. 41-P-II



APEX MAX-MIN II

177005

Base Line 18+00 S

157005

146005

137005

250  
200  
150

250  
200  
150

LINE 32+00 WEST

D.H.C.B. 76-1

D.H.C.B. 76-1A

BL 16+00 S

157005

146005

137005

100  
200  
300  
400  
500  
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700  
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900  
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10000

Intermediate Tuff  
Felsic Tuff  
Intermediate Tuff

Graphitic Argillite  
Rhyolite

Graphitic Argillite  
Rhyolite

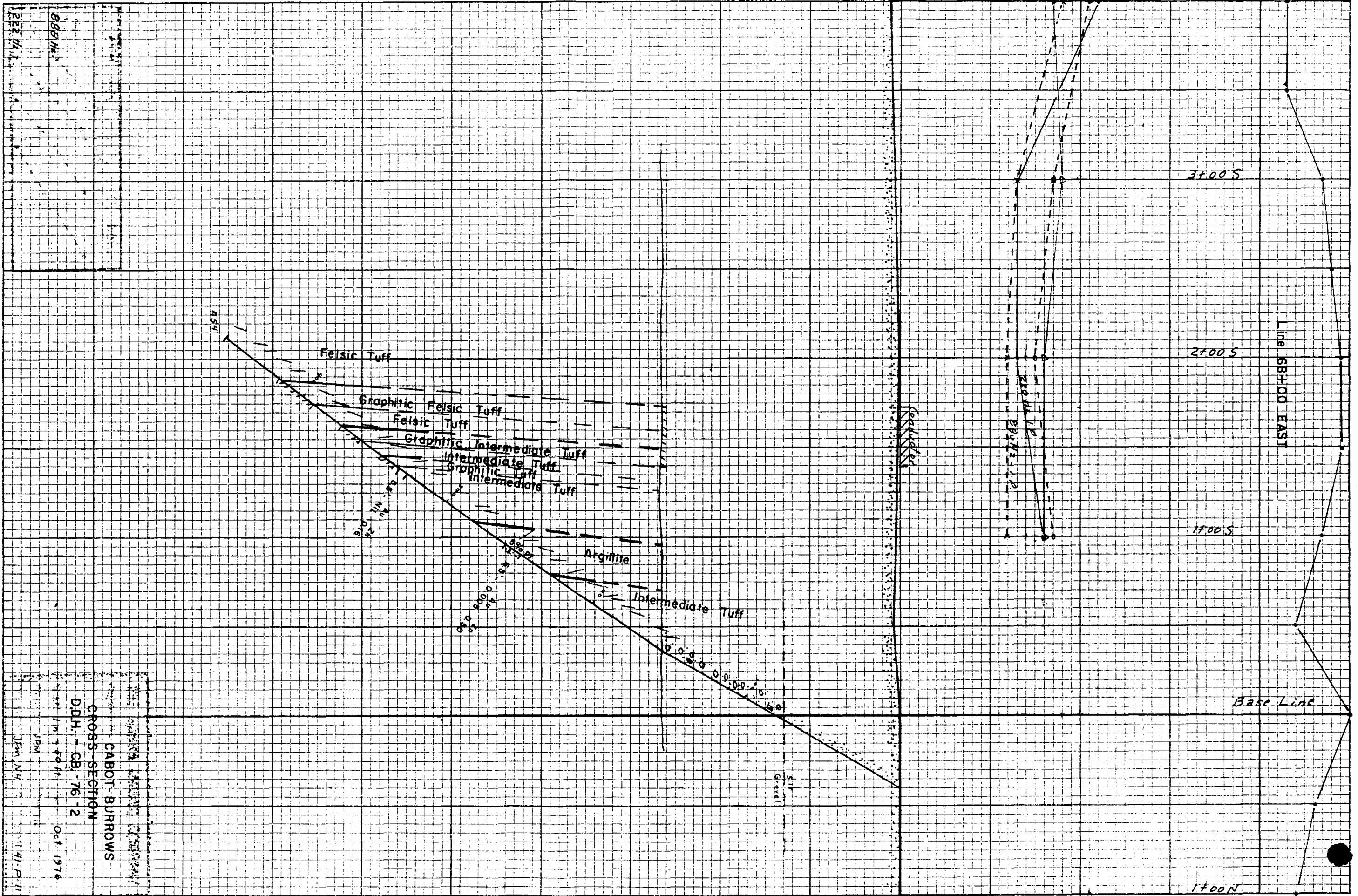
Intermediate Tuff

THE HANNA MINING COMPANY  
PROPERTY CABOT-BURROWS

CROSS SECTION  
D.H.-C.B.-76-1

Sept 1976

41P11



SBH-00  
 1000  
 2000  
 3000  
 4000

CROSS SECTION  
 CABOT-BURROWS  
 D.D.H. - CB-76-2  
 1000  
 2000  
 3000  
 4000  
 100  
 200  
 300  
 400  
 500  
 Oct. 1976  
 41-P-11



Swastika, Ont., POK 1T0, .....Oct...25, 197619.....

# SWASTIKA LABORATORIES LIMITED

## Certificate of Analysis

No. 46384

We have assayed two samples of split core

Received Oct. 22, 1976 and submitted by The Hanna Mining Company

with the following results:

Sample No.	Gold Ozs/ton	Zinc %
1782	0.005	0.50
1783	Nil	0.16

SWASTIKA LABORATORIES LIMITED,

per: *D. C. Kerr-Lawson*





Swastika, Ont., POK 1T0, ...Oct. 12, 1976...19.....

# SWASTIKA LABORATORIES LIMITED

## Certificate of Analysis

No. 46364

We have assayed ten samples of split core

Received Oct. 8, 1976 and submitted by The Hanna Mining Company

with the following results:

*CASOT - BURROWS*  
*DDH - CB-76-1A*

Sample No.	Gold Ozs/ton	Zinc %	Copper %	Lead %
1497	Nil	0.02		
1498	Nil	0.06		
1499	Nil	0.09		
1500	Nil	0.06		
1776	Nil	0.08		
1777	Nil	0.03		
1778	Nil	0.11		0.03
1779	Nil	0.02		
1780	Nil	0.18	0.04	
1781	Nil	0.19	0.03	

SWASTIKA LABORATORIES LIMITED,

per: *J. C. [Signature]*



Ministry of I

GEOPHYSICAL - GEO  
TECHNICAL I



41P14SW0074 2.2220 BURROWS

900

by hand  
OCT 15 1976

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.

PROJECTS UNIT

Type of Survey(s) Geological  
 Township or Area Cabot Twp. & Burrows Twp.  
 Claim Holder(s) The Hanna Mining Company  
#805, 69 Yonge St., Toronto, Ontario.  
 Survey Company The Hanna Mining Co.  
 Author of Report John F. Muhic  
 Address of Author #805 - 69 Yonge St, Toronto, Ontario  
 Covering Dates of Survey May 9, 1976 - June 24, 1976  
 (linecutting to office)  
 Total Miles of Line Cut 15.28 miles

MINING CLAIMS TRAVERSED  
List numerically

L	442799	✓
(prefix)	(number)	
L	442800	✓
L	442801	✓
L	442802	✓
L	442803	✓
L	442804	✓
L	442805	✓
L	442806	✓
L	442807	✓
L	442808	✓
L	442809	✓
L	442810	✓
L	442811	✓
L	442812	✓
L	442813	✓
L	442814	✓
L	442815	✓
L	442816	✓

If space insufficient, attach list

**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 \_\_\_\_\_  
 --Magnetometer \_\_\_\_\_  
 --Radiometric \_\_\_\_\_  
 --Other \_\_\_\_\_  
 Geological 40 *dm*  
 Geochemical \_\_\_\_\_

**AIRBORNE CREDITS** (Special provision credits do not apply to airborne surveys)  
 Magnetometer \_\_\_\_\_ Electromagnetic \_\_\_\_\_ Radiometric \_\_\_\_\_  
 (enter days per claim)

DATE: Oct. 1, 1976 SIGNATURE: *John F. Muhic*  
 Author of Report or Agent

2.20818 also

Res. Geol. \_\_\_\_\_ Qualifications On this file -

Previous Surveys

File No.	Type	Date	Claim Holder

TOTAL CLAIMS 18

OFFICE USE ONLY

GEOPHYSICAL TECHNICAL DATA

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

Number of Stations \_\_\_\_\_ Number of Readings \_\_\_\_\_

Station interval \_\_\_\_\_ Line spacing \_\_\_\_\_

Profile scale \_\_\_\_\_

Contour interval \_\_\_\_\_

MAGNETIC

Instrument \_\_\_\_\_

Accuracy - Scale constant \_\_\_\_\_

Diurnal correction method \_\_\_\_\_

Base Station check-in interval (hours) \_\_\_\_\_

Base Station location and value \_\_\_\_\_

ELECTROMAGNETIC

Instrument \_\_\_\_\_

Coil configuration \_\_\_\_\_

Coil separation \_\_\_\_\_

Accuracy \_\_\_\_\_

Method:  Fixed transmitter  Shoot back  In line  Parallel line

Frequency \_\_\_\_\_  
(specify V.L.F. station)

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

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 \_\_\_\_\_

**GEOPHYSICAL - GEOLOGICAL - GEOCHEMICAL  
TECHNICAL DATA STATEMENT**

**RECEIVED**  
*by hand*  
OCT 15 1976

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.

PROJECTS UNIT

Type of Survey Electromagnetic  
Township or Area Cabot Twp. & Burrows Twp.  
Claim holder(s) The Hanna Mining Company  
#805, 69 Yonge St., Toronto, Ontario  
Author of Report John F. Muhic  
Address #805, 69 Yonge St., Toronto, Ontario  
Covering Dates of Survey May 9, 1976 - June 24, 1976  
(linecutting to office)  
Total Miles of Line cut 15.28 miles

MINING CLAIMS TRAVERSED		
List numerically		
L	442799	1/4
(prefix)	(number)	
L	442800	1/3
L	442801	1/4
L	442802	1/4
L	442803	1/3
L	442804	1/3
L	442805	1/2
L	<u>442806</u>	
L	442807	3/4
L	442808	1/2
L	442809	1/4
L	442810	1/4
L	442811	1/4
L	442812	1/4
L	442813	1/3
L	442814	1/4
L	442815	1/4
L	442816	1/4
<p><i>Circled claim Not covered area of claims N.C. = 5 1/4 18 x 20 = 360 ÷ (18 + 5) = 15 3/8 or 16 days</i></p>		
TOTAL CLAIMS		18

If space insufficient, attach list

SPECIAL PROVISIONS CREDITS REQUESTED	DAYS per claim
Geophysical	
--Electromagnetic	<u>20</u>
--Magnetometer	
--Radiometric	
--Other	
Geological	
Geochemical	

ENTER 40 days (includes line cutting) for first survey.  
ENTER 20 days for each additional survey using same grid.

**AIRBORNE CREDITS** (Special provision credits do not apply to airborne surveys)  
Magnetometer Electromagnetic Radiometric \_\_\_\_\_  
(enter days per claim)

DATE: Oct. 1, 1976 SIGNATURE: *John F. Muhic*  
Author of Report or Agent

PROJECTS SECTION L.D. 2.20816 also  
Res. Geol. \_\_\_\_\_ Qualifications on this file -  
Previous Surveys 63.3424 not for assessment  
credits

Checked by \_\_\_\_\_ date \_\_\_\_\_

GEOLOGICAL BRANCH \_\_\_\_\_

Approved by \_\_\_\_\_ date \_\_\_\_\_

GEOLOGICAL BRANCH \_\_\_\_\_

Approved by \_\_\_\_\_ date \_\_\_\_\_

OFFICE USE ONLY

Show instrument technical data in each space for type of survey submitted or indicate "not applicable"

### GEOPHYSICAL TECHNICAL DATA

#### GROUND SURVEYS

Number of Stations 482 Number of Readings 482  
Station interval 100 feet  
Line spacing 400 feet  
Profile scale or Contour intervals 1" = 10%  
(specify for each type of survey)

#### MAGNETIC

Instrument \_\_\_\_\_  
Accuracy - Scale constant \_\_\_\_\_  
Diurnal correction method \_\_\_\_\_  
Base station location \_\_\_\_\_

#### ELECTROMAGNETIC

Instrument APEX PARAMETRICS MAX-MIN 11  
Coil configuration Horizontal Loop  
Coil separation 600 feet  
Accuracy + 1%  
Method:  Fixed transmitter  Shoot back  In line  Parallel line  
Frequency 888 Hz, 222 Hz  
(specify V.L.F. station)  
Parameters measured Field strength in percent

#### GRAVITY

Instrument \_\_\_\_\_  
Scale constant \_\_\_\_\_  
Corrections made \_\_\_\_\_  
Base station value and location \_\_\_\_\_

Elevation accuracy \_\_\_\_\_

#### INDUCED POLARIZATION -- RESISTIVITY

Instrument \_\_\_\_\_  
Time domain \_\_\_\_\_ Frequency domain \_\_\_\_\_  
Frequency \_\_\_\_\_ Range \_\_\_\_\_  
Power \_\_\_\_\_  
Electrode array \_\_\_\_\_  
Electrode spacing \_\_\_\_\_  
Type of electrode \_\_\_\_\_

**GEOPHYSICAL - GEOLOGICAL - GEOCHEMICAL  
TECHNICAL DATA STATEMENT**

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.

RECEIVED  
*by hand*  
OCT 15 1976

PROJECTS UNIT.

Type of Survey Magnetometer  
Township or Area Cabot Twp. & Burrows Twp.  
Claim holder(s) The Hanna Mining Company  
#805, 69 Yonge St., Toronto, Ontario.  
Author of Report John F. Muhic  
Address #805, 69 Yonge St., Toronto, Ont.  
Covering Dates of Survey May 9, 1976 - June 24, 1976  
(linecutting to office)  
Total Miles of Line cut 15.28

MINING CLAIMS TRAVERSED	
List numerically	
L (prefix)	442799 ✓ (number)
L	442800 1/4
L	442801 ✓
L	442802 ✓
L	442803 1/4
L	442804 1/3
L	442805 1/2
L	442806 2/3
L	442807 1/3
L	442808 1/2
L	442809 ✓
L	442810 ✓
L	442811 ✓
L	442812 ✓
L	442813 ✓
L	442814 ✓
L	442815 ✓
L	442816 ✓
<p><i>Area of claims not covered = 3 1/6 20x18 = 360 - (4+3) = 17 days</i></p>	
TOTAL CLAIMS <u>18</u>	

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

AIRBORNE CREDITS (Special provision credits do not apply to airborne surveys)  
Magnetometer \_\_\_\_\_ Electromagnetic \_\_\_\_\_ Radiometric \_\_\_\_\_  
(enter days per claim)

DATE: Oct. 1/1976 SIGNATURE: John Muhic  
Author of Report or Agent

PROJECTS SECTION 2. 2081 & also  
Res. Geol. \_\_\_\_\_ Qualifications on this file  
Previous Surveys \_\_\_\_\_

Checked by \_\_\_\_\_ date \_\_\_\_\_

GEOLOGICAL BRANCH \_\_\_\_\_

Approved by \_\_\_\_\_ date \_\_\_\_\_

GEOLOGICAL BRANCH \_\_\_\_\_

Approved by \_\_\_\_\_ date \_\_\_\_\_

OFFICE USE ONLY

If space insufficient, attach list

Show instrument technical data in each space for type of survey submitted or indicate "not applicable"

### GEOPHYSICAL TECHNICAL DATA

#### GROUND SURVEYS

Number of Stations 234 Base Stations \_\_\_\_\_ Number of Readings 1360 picket line stations.  
 Station interval 50 feet 25' in anomalous areas \_\_\_\_\_  
 Line spacing 400' \_\_\_\_\_  
 Profile scale or Contour intervals 100 gammas \_\_\_\_\_  
 (specify for each type of survey)

#### MAGNETIC

Instrument SCINTREX MF2 \_\_\_\_\_  
 Accuracy - Scale constant 20 gammas/scale division on the most sensitive scale \_\_\_\_\_  
 Diurnal correction method CLOSED LOOP \_\_\_\_\_  
 Base station location and value: 00+00 340 gammas \_\_\_\_\_  
 Base Station check-in interval(hours): Approx. 3/4 hour. \_\_\_\_\_

#### ELECTROMAGNETIC

Instrument \_\_\_\_\_  
 Coil configuration \_\_\_\_\_  
 Coil separation \_\_\_\_\_  
 Accuracy \_\_\_\_\_  
 Method:  Fixed transmitter  Shoot back  In line  Parallel line  
 Frequency \_\_\_\_\_  
 (specify V.L.F. station)

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

#### GRAVITY

Instrument \_\_\_\_\_  
 Scale constant \_\_\_\_\_  
 Corrections made \_\_\_\_\_  
 \_\_\_\_\_  
 Base station value and location \_\_\_\_\_  
 \_\_\_\_\_

Elevation accuracy \_\_\_\_\_

#### INDUCED POLARIZATION -- RESISTIVITY

Instrument \_\_\_\_\_  
 Time domain \_\_\_\_\_ Frequency domain \_\_\_\_\_  
 Frequency \_\_\_\_\_ Range \_\_\_\_\_  
 Power \_\_\_\_\_  
 Electrode array \_\_\_\_\_  
 Electrode spacing \_\_\_\_\_  
 Type of electrode \_\_\_\_\_

NURSEY TWP. M.1031

THE TOWNSHIP OF 2-2220  
**BURROWS**

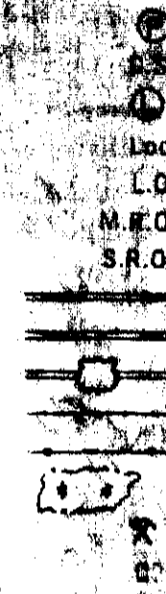
DISTRICT OF SUDBURY

LARDER LAKE MINING DIVISION

SCALE: 1-INCH = 40 CHAINS

**LEGEND**

- PATENTED LAND
- CROWN LAND SALE
- LEASES
- LOCATED LAND
- LICENSE OF OCCUPATION -
- MINING RIGHTS ONLY
- SURFACE RIGHTS ONLY
- ROADS
- IMPROVED ROADS
- KING'S HIGHWAYS
- RAILWAYS
- POWER LINES
- MARSH OR MUSKEG
- MINES
- CANCELLED



**NOTES**

400' surface rights reservation around all lakes and rivers.

Flooding rights to elev. 113' on Sinclair's Lake to H.E.P.C. L.O. 7191. File 362 vol. 4.

Flooding rights between elev. 1070 and the high water mark on Burrows Creek to H.E.P.C. L.O. 7192. File 3688.

Mining Rights Only for mining claims staked after Sept. 13, 1957 within area shown thus . Surface Rights withdrawn for reforestation under sec. 36 (d) of the Mining Act. File 16070

DATE OF ISSUE  
**OCT 18 1976**  
SURVEYS AND MAPPING  
BRANCH

PLAN NO. **M. 691**

ONTARIO  
MINISTRY OF NATURAL RESOURCES  
SURVEYS AND MAPPING BRANCH

MATTAGAMI TWP. M. 858

KEMP TWP. M. 966

CABOT TWP. M. 695



41P14SW0074 2.2220 BURROWS



Burrows Twp. - M.691

THE TOWNSHIP OF 2.2220

# CABOT

DISTRICT OF SUDBURY

LARDER LAKE 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	X
CANCELLED	C.

### NOTES

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

Flooding rights on Mattagami Lake to contour elev. 1070' to Northern Ont. Power Co. Ltd. L.O. 7199. File: 36881.

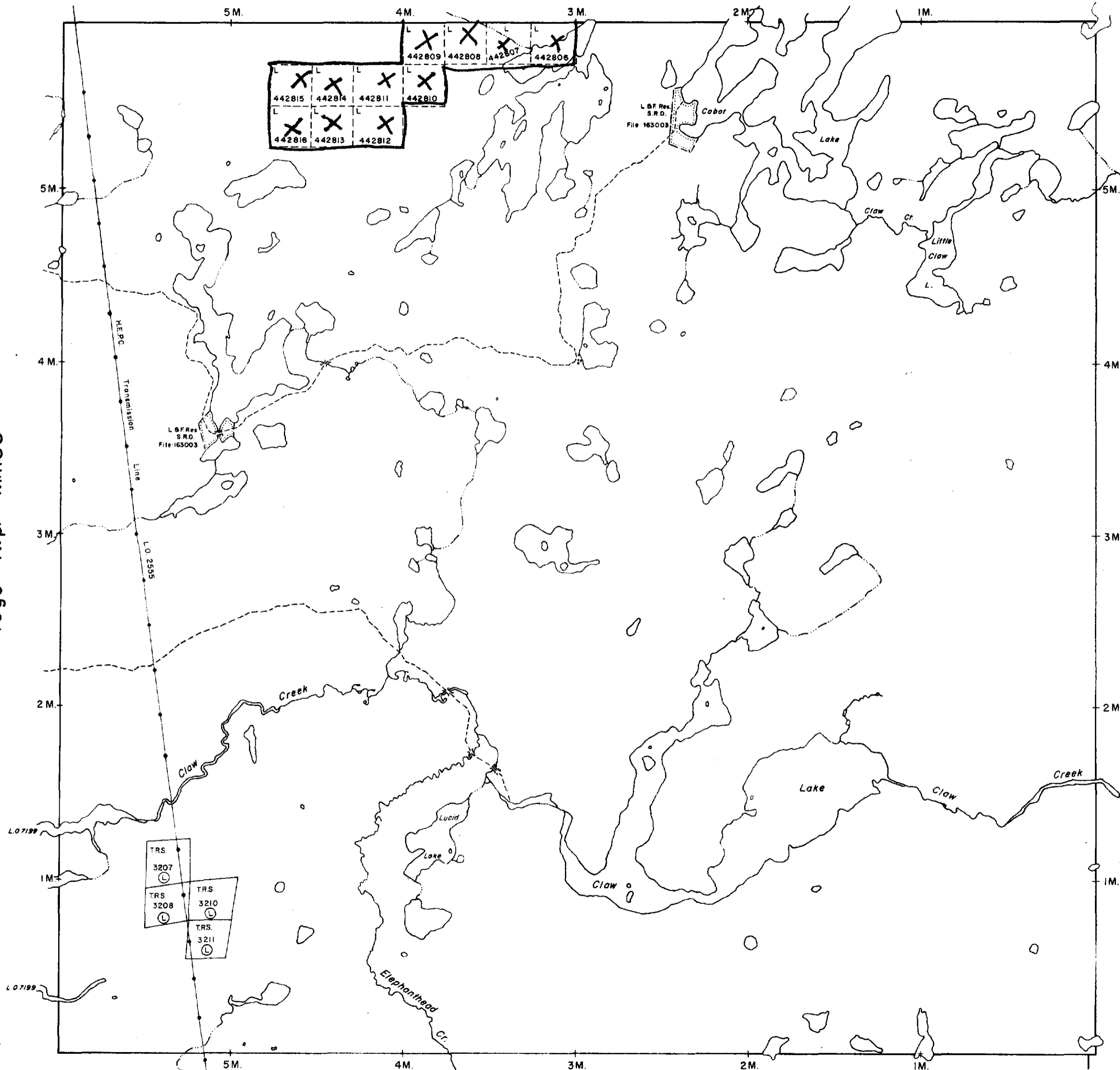
DATE OF ISSUE  
OCT 18 1975  
SURVEYS AND MAPPING  
BRANCH

PLAN NO.- M.695

ONTARIO  
MINISTRY OF NATURAL RESOURCES  
SURVEYS AND MAPPING BRANCH

Togo Twp - M.1158

Kelvin Twp - M.964



Connaught Twp. - M.730



41P14S0074 2.2220 BURROWS

**LEGEND**

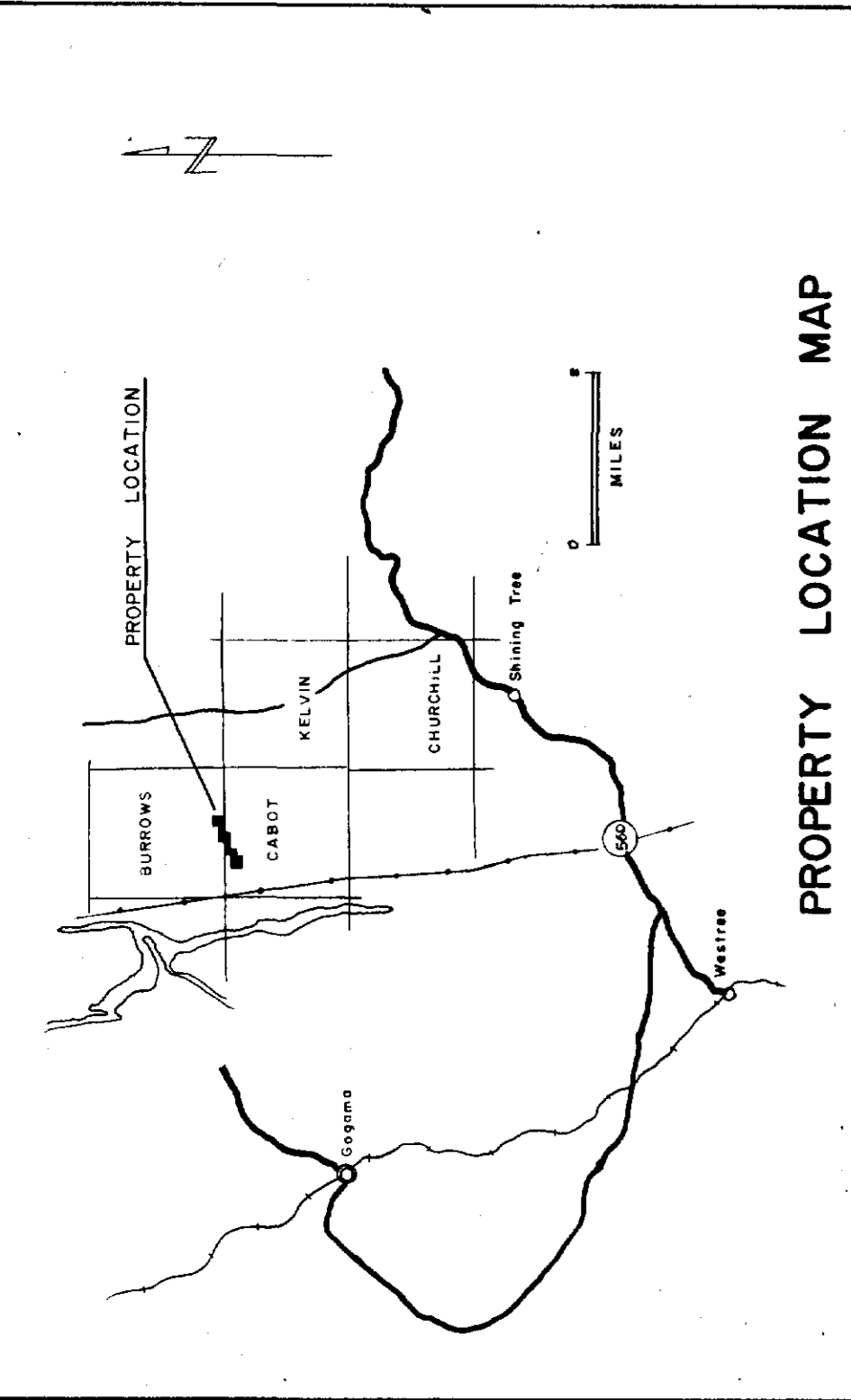
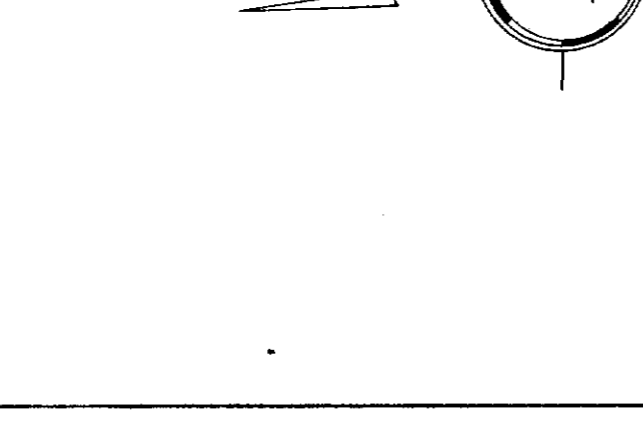
Diabase intrusive  
Gabbro intrusive  
Acid volcanics  
Intermediate volcanics  
Basaltic volcanics

**ABBREVIATIONS**

br brecciated  
fng fine grained  
mdg medium grained  
csg coarse grained  
msv massive  
pl'd pillowed  
cb carbonate  
chl chlorite  
py pyrite  
q.e. quartz eyes  
q.v. quartz vein  
ser sericite

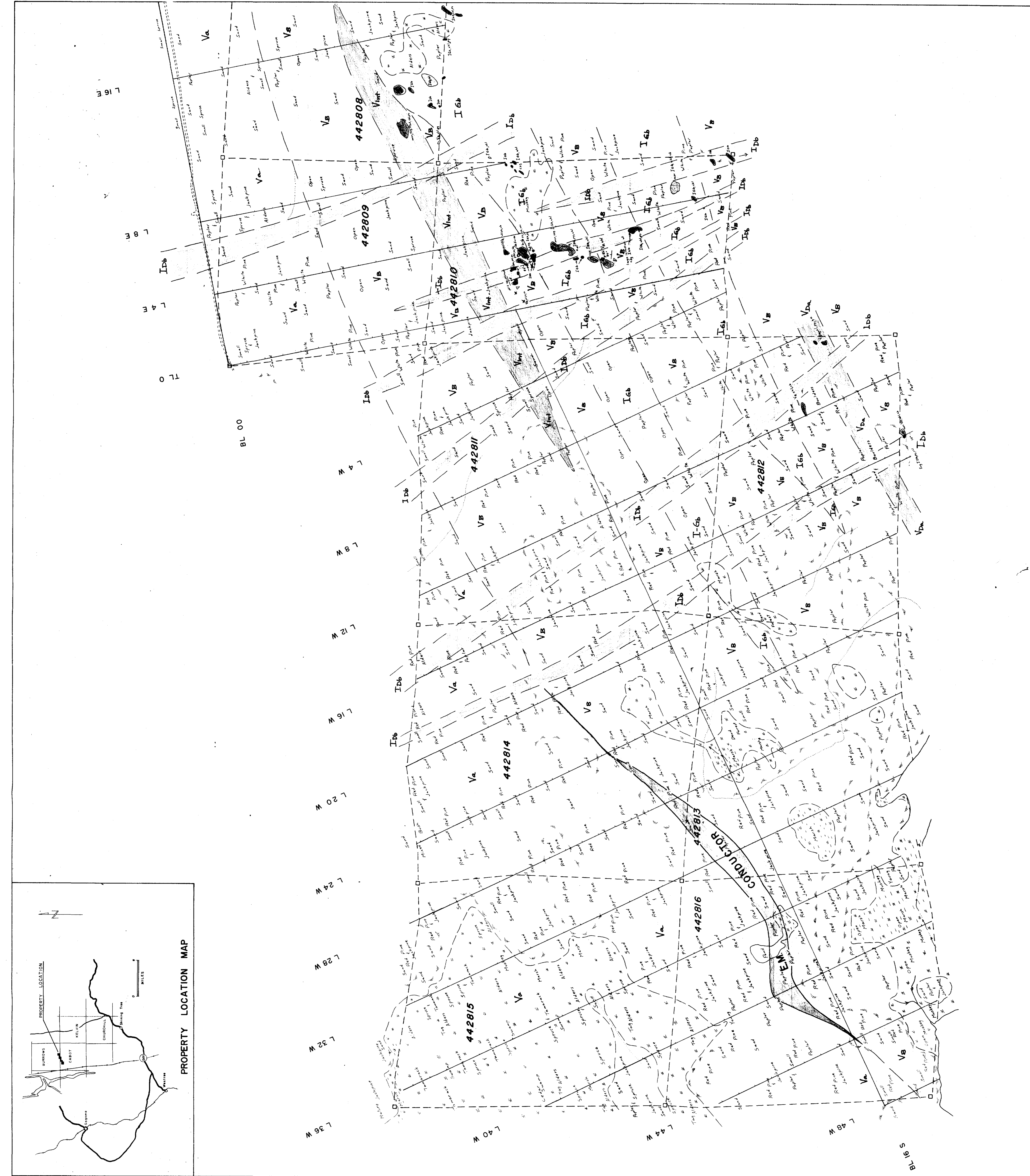
**SYMBOLS**

Boundary of high ground  
Flooded ground or bog  
Marsh or swamp  
Boundary of marsh, swamp  
Creek-flow direction  
Motor road  
Trail or bush road  
Claim post, claim line  
Drill hole-vertical, inclined  
Geological boundary-defined, approximate  
Strike and dip of bedding-vertical, inclined  
Strike and dip of foliation-vertical, inclined  
Direction of flow top from shapes of pillows  
Glacial striae-bearing and direction  
Rock outcrop-small, large



Scale: 1" = 200'

Work by J.A.A.  
Date June 12, 1954  
Revised N.T.S. No. 41-P-11

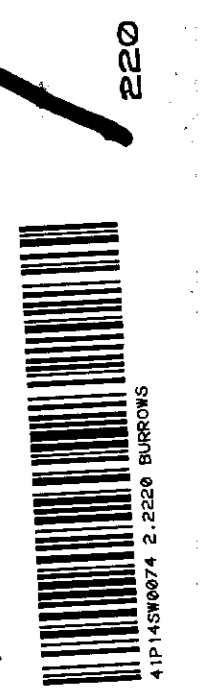


THE HANNA MINING COMPANY  
SHINING TREE PROJECT  
CABOT - BURROWS PROPERTY  
LARDER LAKE MINING DIVISION  
ONTARIO

**GEOLOGIC MAP**

SCALE 1" = 200'

200 0 200 400 600  
Feet



**LEGEND**

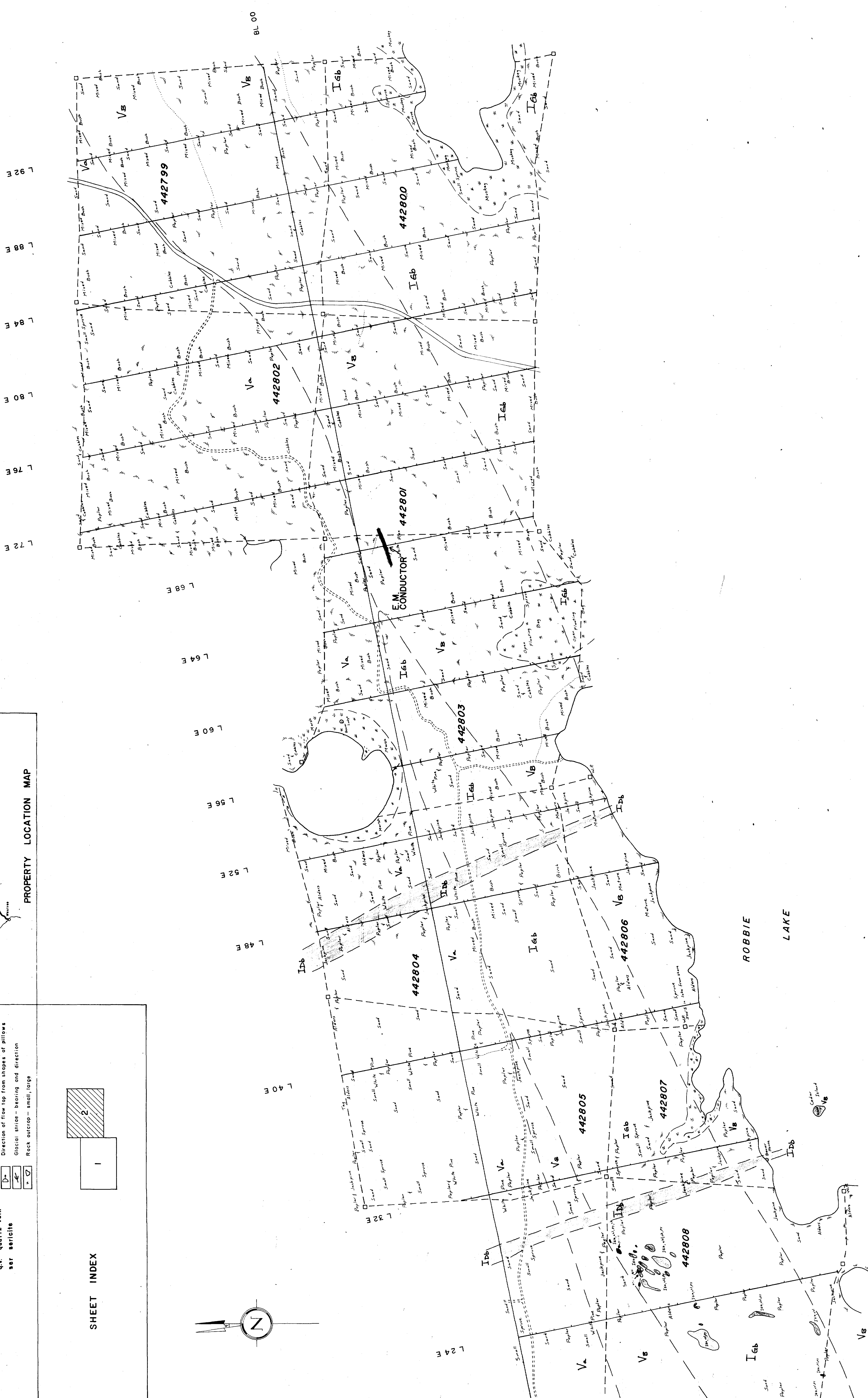
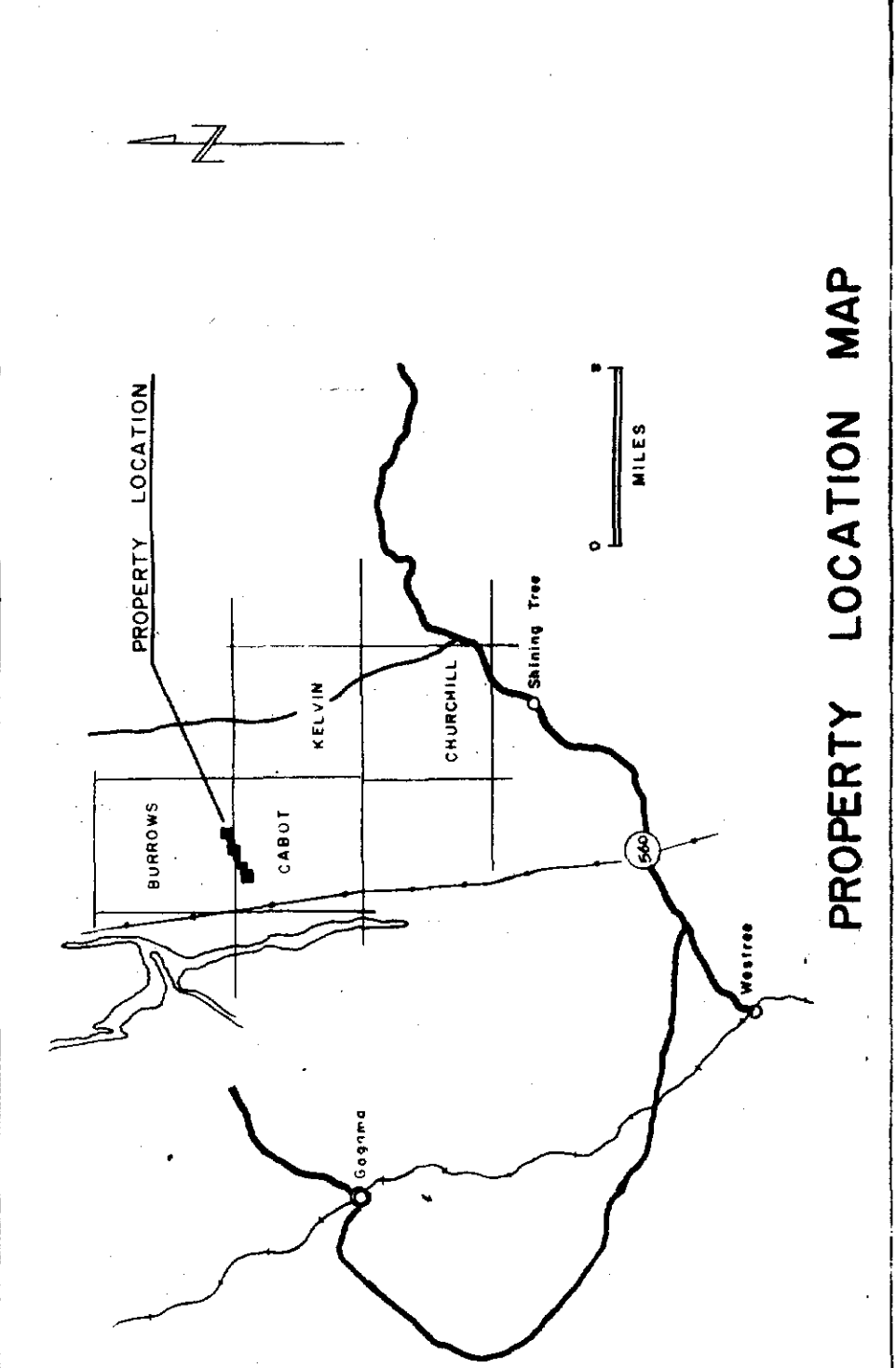
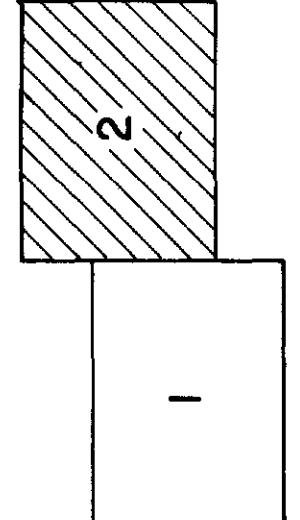
- Ibs Diabase intrusive
- Ieb Gabbro intrusive
- Va Acid volcanics
- Vm Intermediate volcanics
- Vs Dacite
- Vb Basic volcanics

- bx brecciated
- fg fine grained
- mdg medium grained
- csq coarse grained
- msv massive
- plid pillowed
- cb carbonate
- chl chlorite
- py pyrite
- qs quartz eyes
- qv quartz vein
- ser sericite

**ABBREVIATIONS**

- Boundary of high ground
- Flooded ground or bog
- Muskeg or swamp
- Boundary of muskeg, swamp
- Creek - flow direction
- Motor road
- Trail or bush road
- Claim post, claim line
- Drill hole - vertical, inclined
- Geological boundary - defined, approximate
- Sinks and dip of bedding - vertical, inclined
- Sinks and dip of foliation or schistosity - vertical, inclined
- Direction of flow top from shapes of pillows
- Glacial strike - bearing and direction
- Rock outcrop - small, large
- Rock sample

**SHEET INDEX**



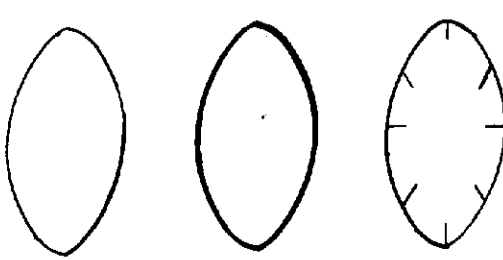
THE HANNA MINING COMPANY  
SHINING TREE PROJECT  
CABOT - BURROWS PROPERTY  
LARDER LAKE MINING DIVISION  
ONTARIO

**GEOLOGIC MAP**

SCALE 1" = 200'  
0 200 400 600  
Feet

Work by: J. A. ...  
Interpretation by: J. A. ...  
Date: ...  
Revised: ...  
N.T.S. No. 41-P-11

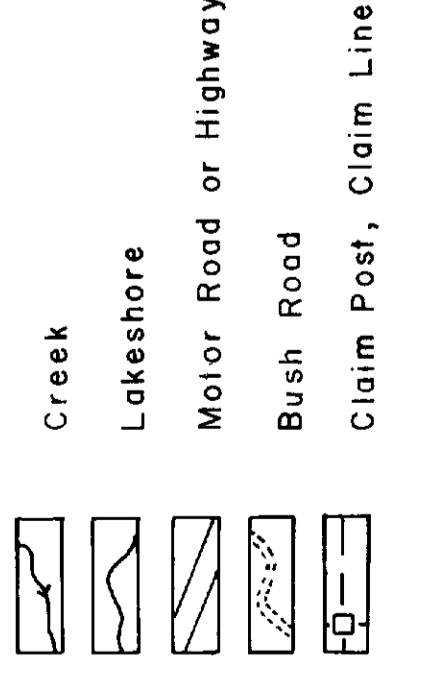
**LEGEND**



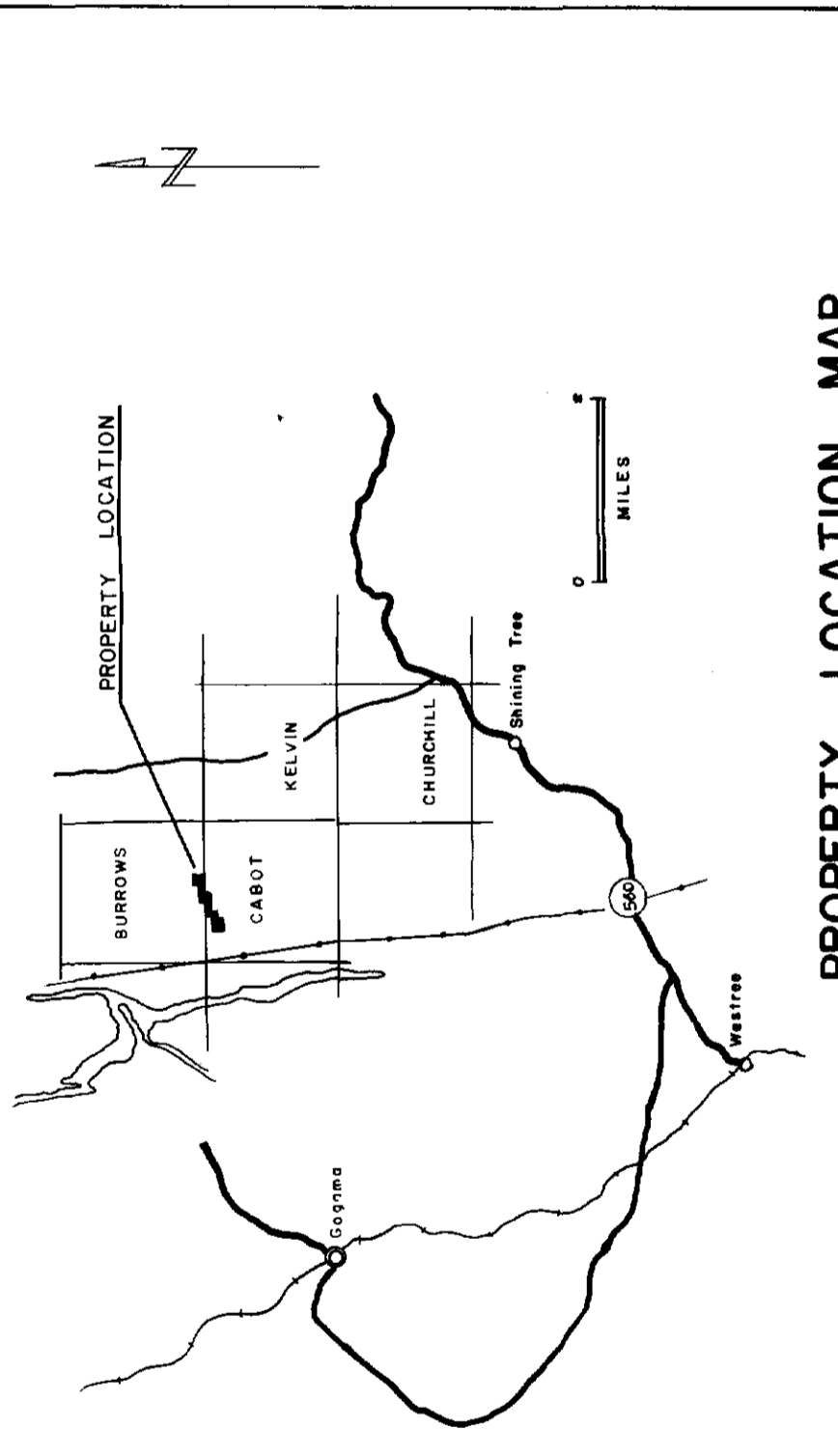
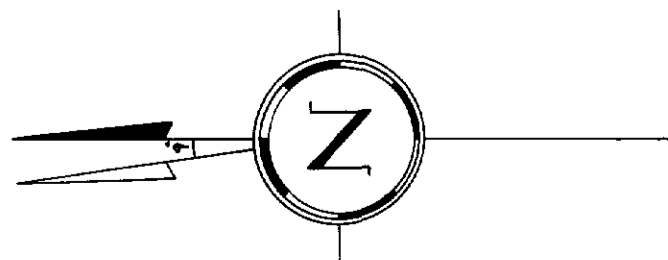
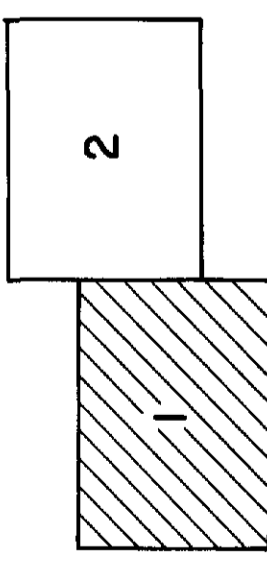
**INSTRUMENT:**

Scintrex MF-2 Fluxgate Magnetometer

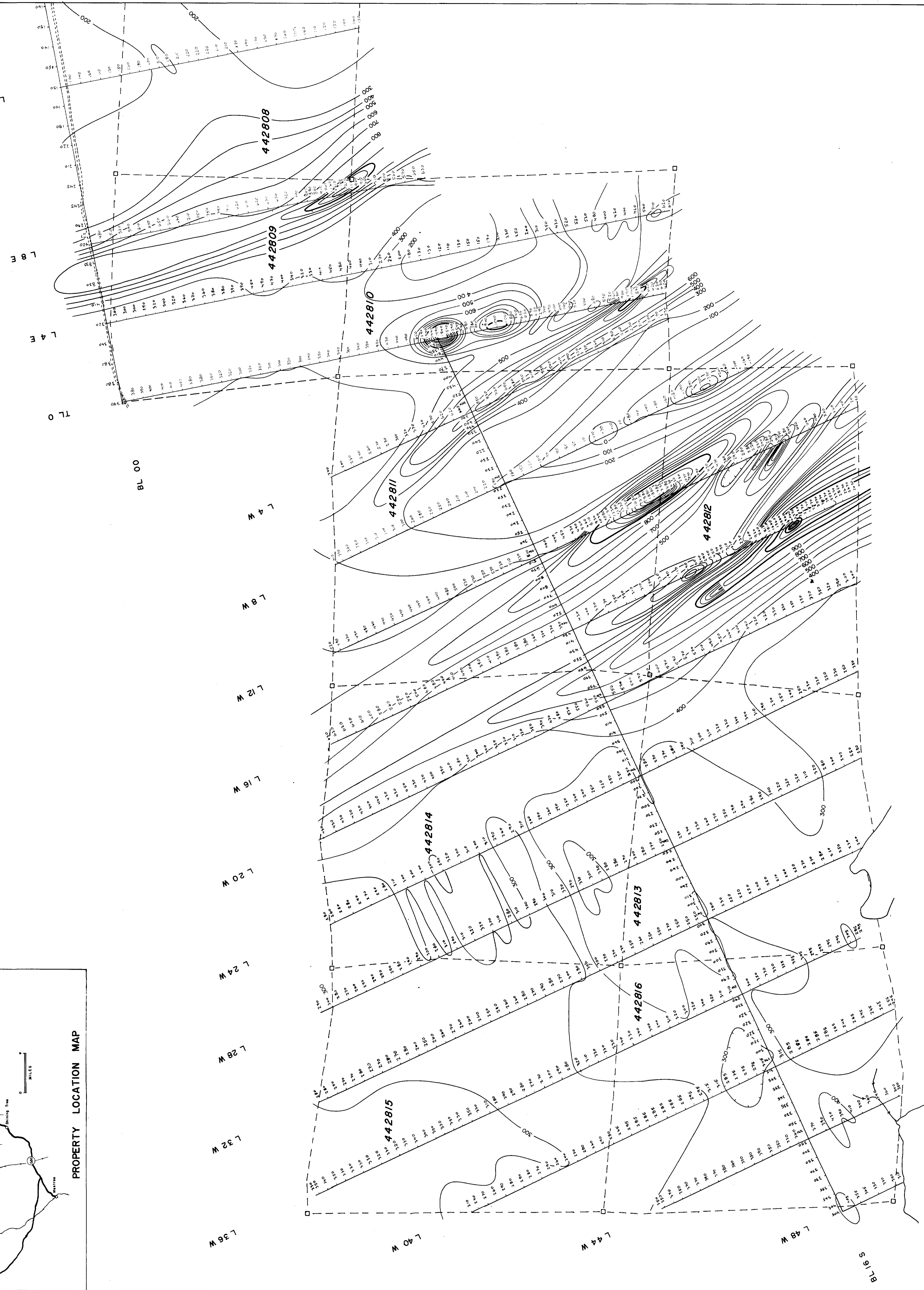
**SYMBOLS**



**SHEET INDEX**



**PROPERTY LOCATION MAP**



THE HANNA MINING COMPANY  
SHINING TREE PROJECT  
CABOT - BURROWS PROPERTY  
LARGER LAKE MINING DIVISION  
ONTARIO

**MAGNETIC MAP**

SCALE 1" = 200'  
0 200 400 600  
Feet

Work by	Interpretation by	Revised
Date	Date	N.T.S. No. 41-P-11



LEGEND

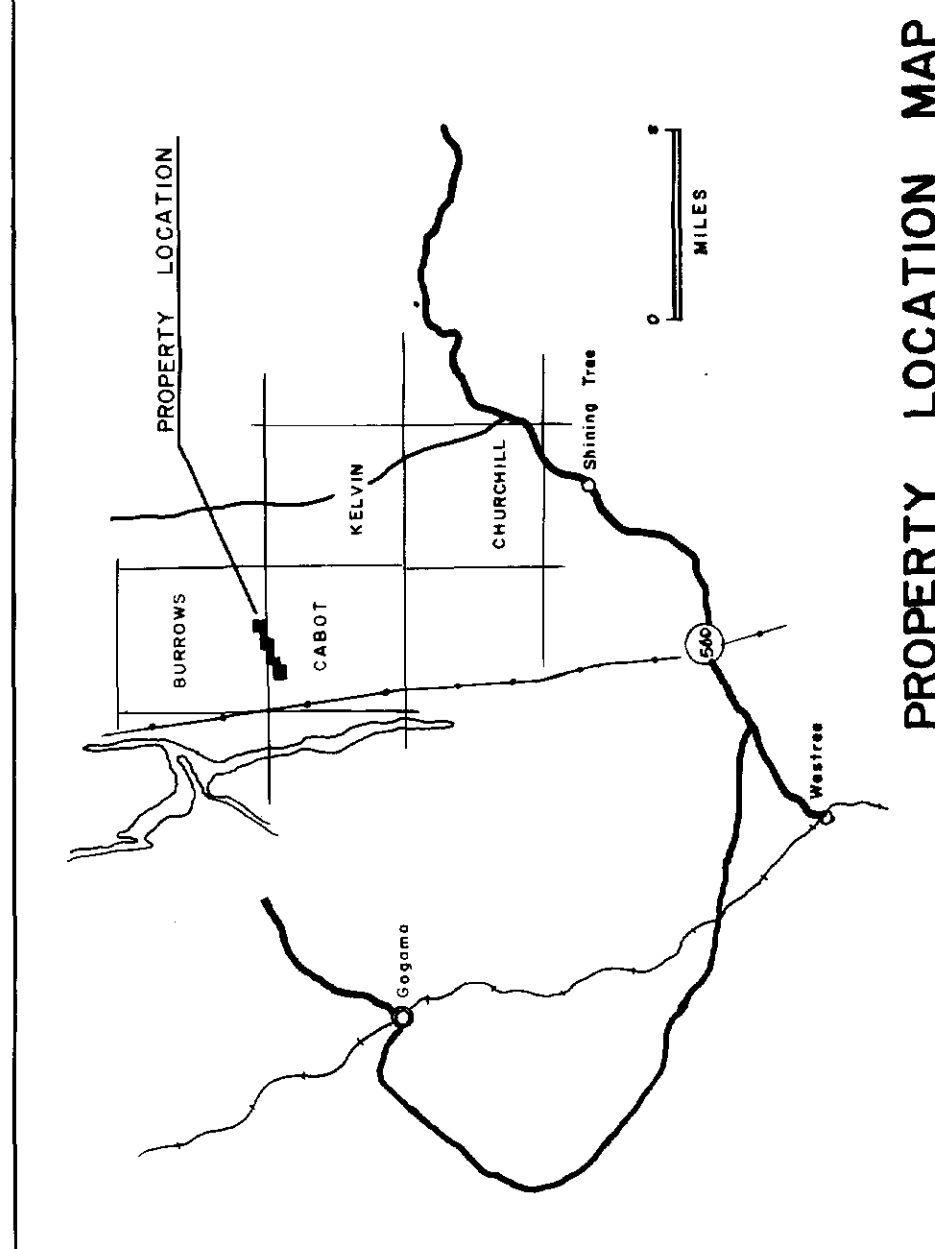
- Hundred Gamma Contour
- Thousand Gamma Contour
- Closed Magnetic Loz

INSTRUMENT

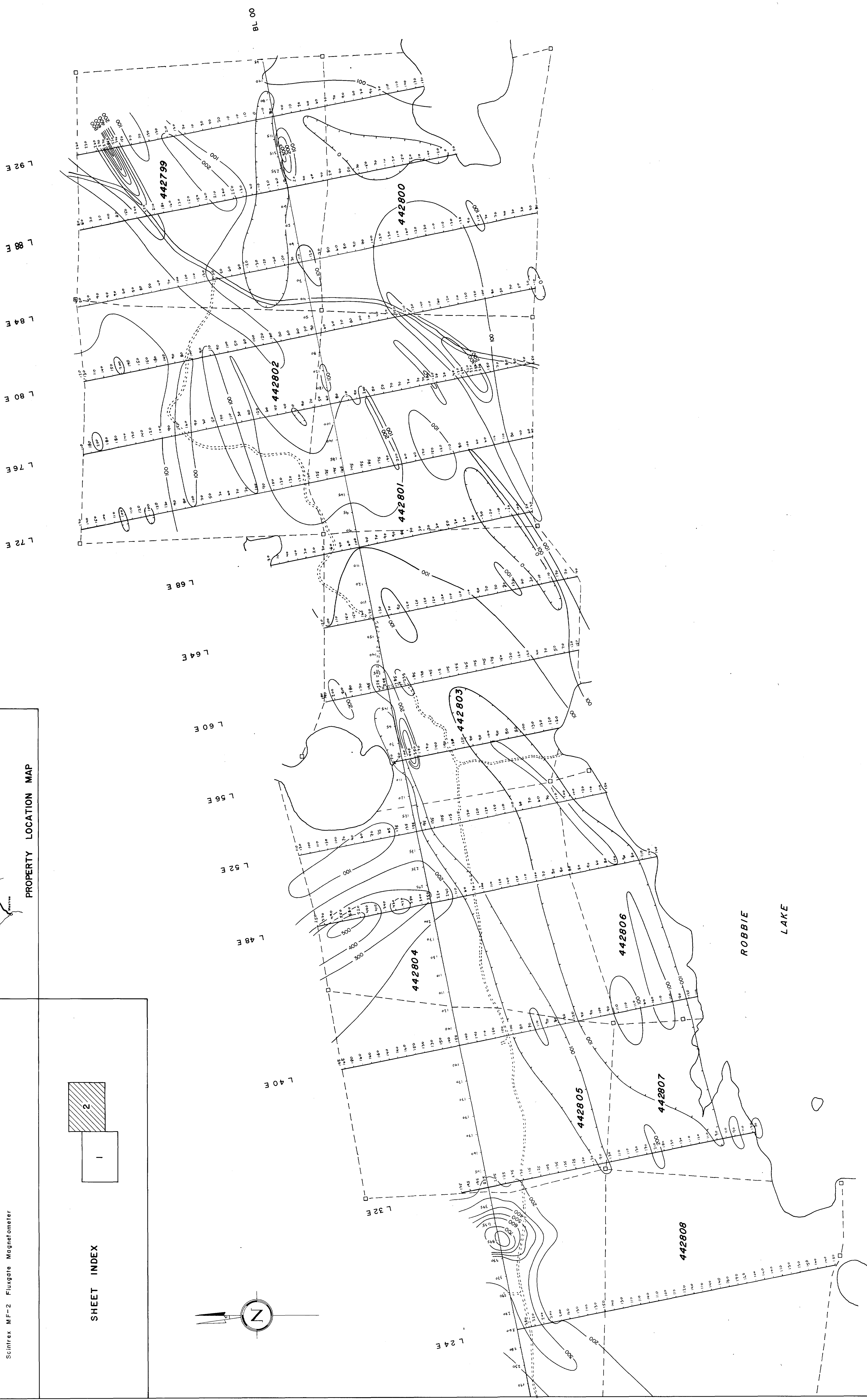
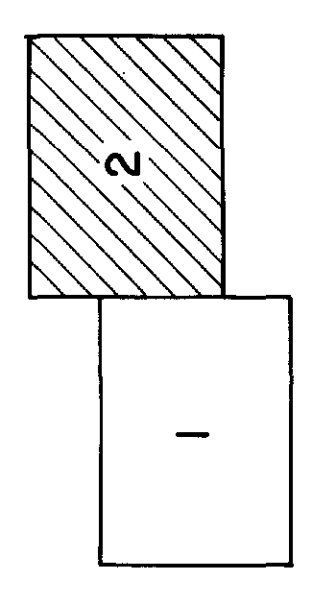
Scintrex MF-2 Fluxgate Magnetometer

SYMBOLS

- Creek
- Lakeshore
- Motor Road or Highway
- Bush Road
- Claim Post, Claim Line



SHEET INDEX

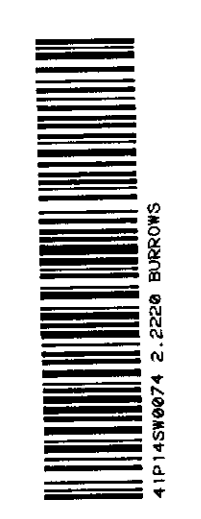


THE HANNA MINING COMPANY  
SHINING TREE PROJECT  
CABOT - BURROWS PROPERTY  
LARDER LAKE MINING DIVISION  
ONTARIO

**MAGNETIC MAP**

SCALE 1" = 200'

Work by: [Signature]  
Date: June 25, 1976  
Revised: [Signature]  
M.T.S. No. 41 P-11

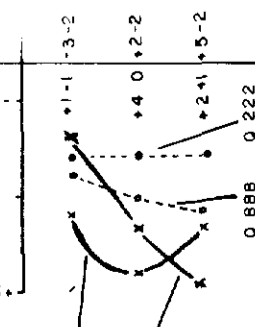


**LEGEND**

888 Hz APEX 222 Hz  
 In-Phase Quadrature  
 -1 +1

**INSTRUMENT**  
 APEX Parametrics Max min II  
 Coil Spacing 600 feet

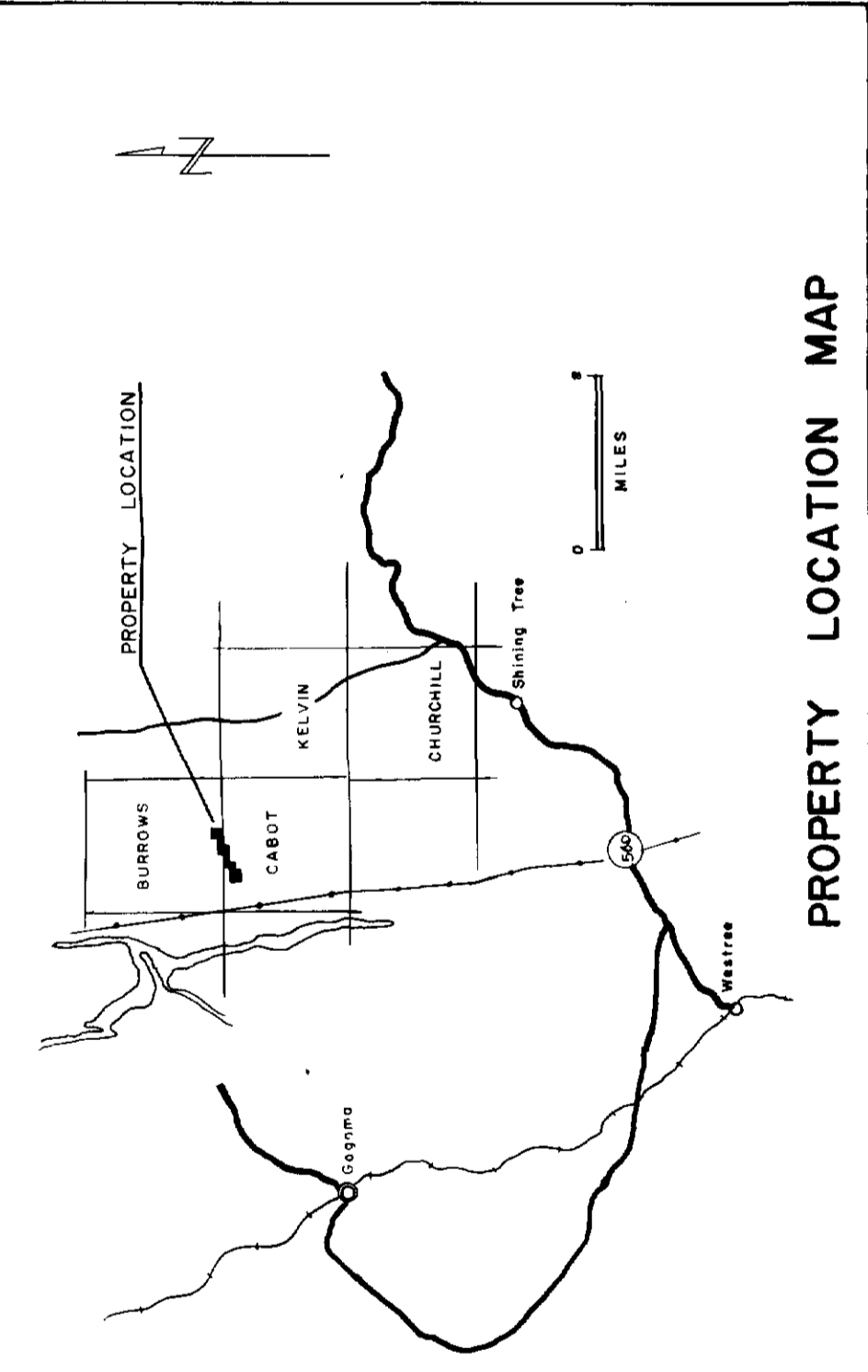
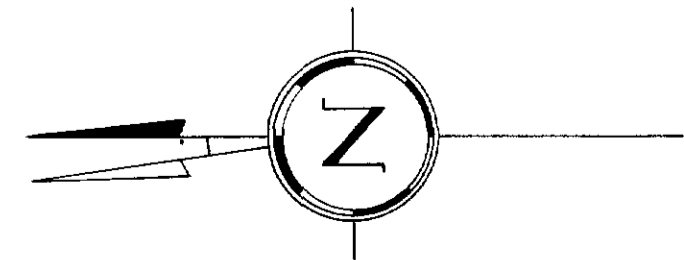
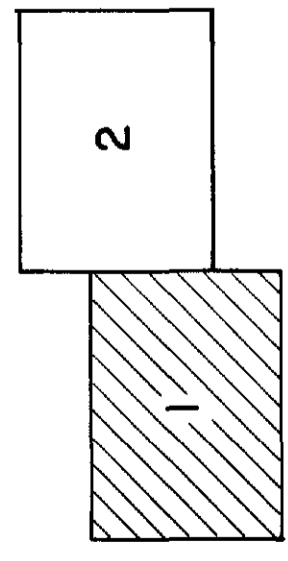
APEX MAX MIN II PROFILE



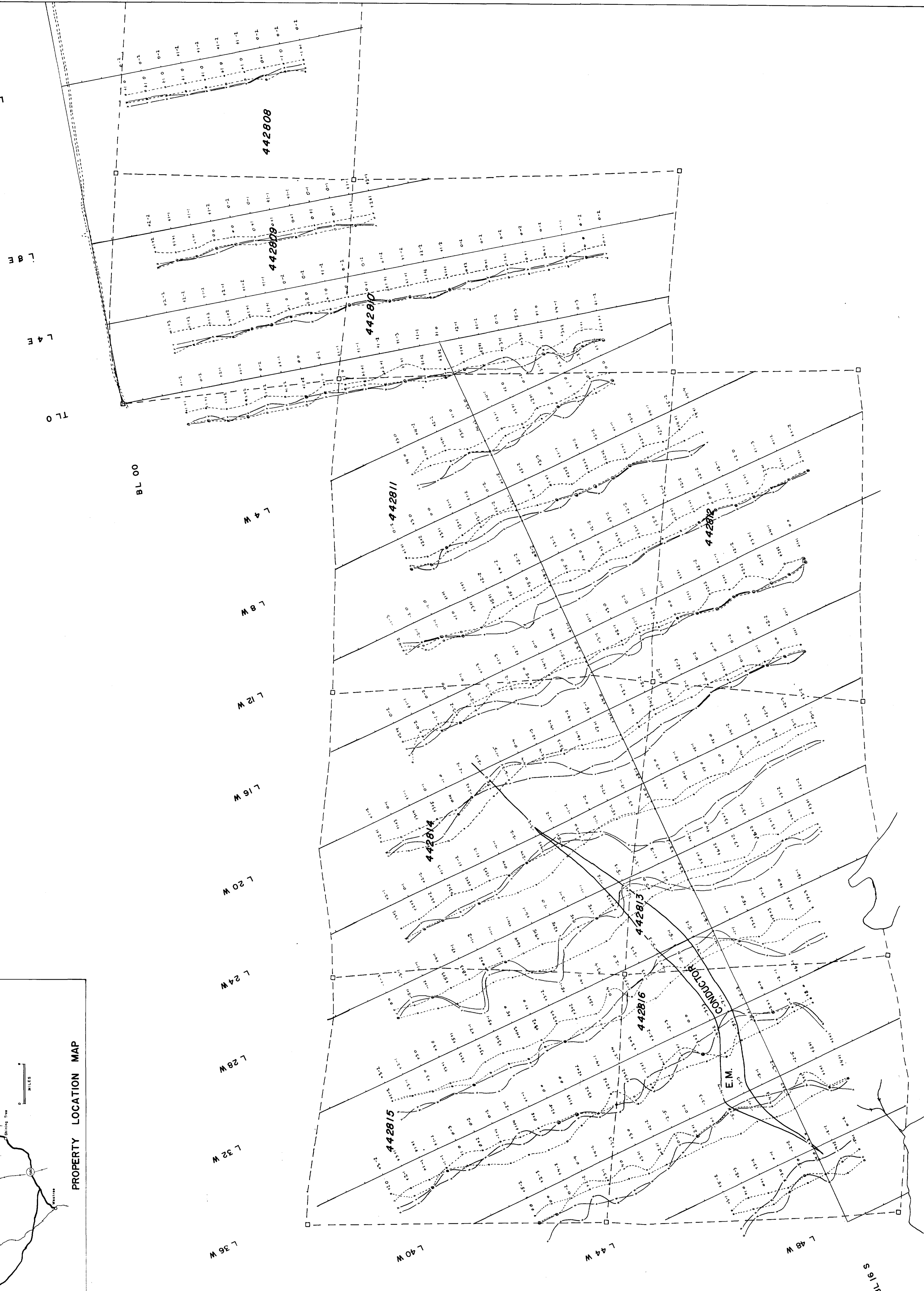
**SYMBOLS**

- Creek
- Lakeshore
- Motor Road or Highway
- Bush Road
- Claim Post, Claim Line

**SHEET INDEX**



PROPERTY LOCATION MAP



THE HANNA MINING COMPANY  
 SHINING TREE PROJECT  
 CABOT - BURROWS PROPERTY  
 LARDER LAKE MINING DIVISION  
 ONTARIO

**ELECTROMAGNETIC MAP**



Work by	Interpretation by	Revised
Date	June 1974	N.T.S. No. 41-P-11

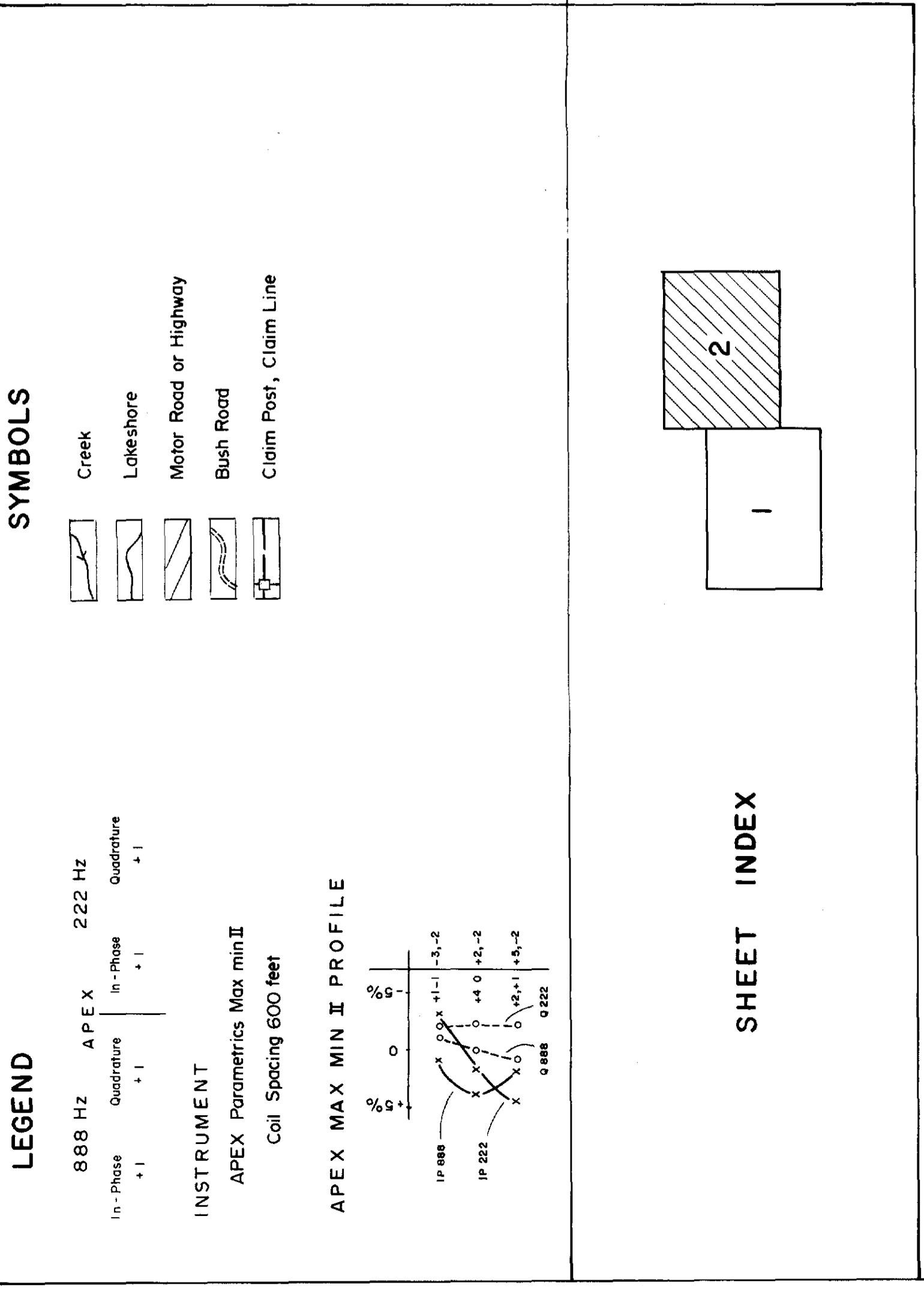
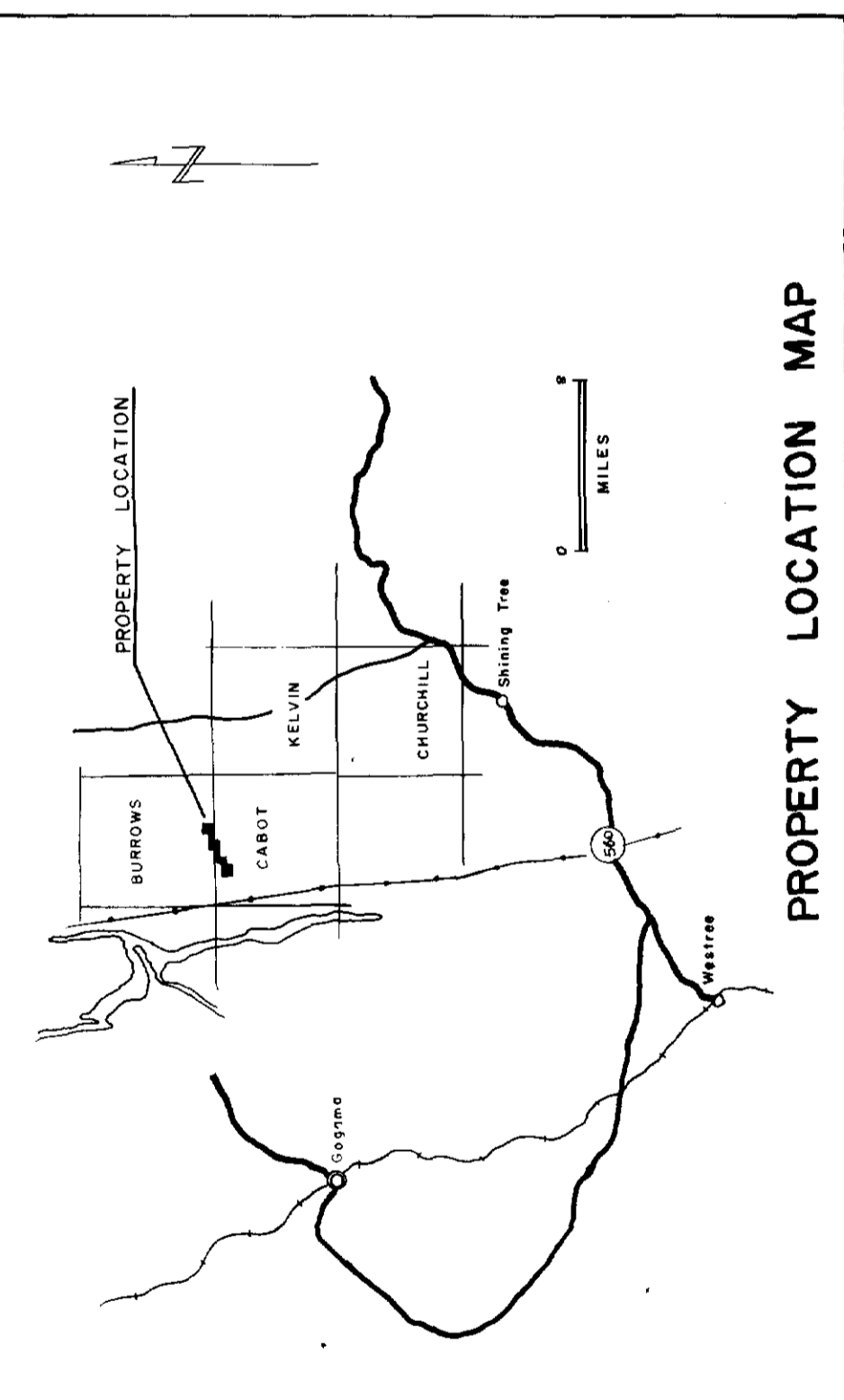
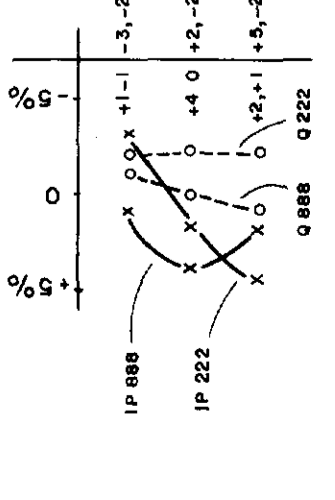
**LEGEND**

888 HZ APEX 222 HZ  
10' Spacing 10' Spacing  
Coil Spacing 600 feet

**SYMBOLS**  
Creek  
Lowshore  
Motor Road or Highway  
Bash Road  
Claim Post, Claim Line

**INSTRUMENT**  
APEX Parametrics Max min II  
Coil Spacing 600 feet

**APEX MAX MIN II PROFILE**



THE HANNA MINING COMPANY  
SHINING TREE PROJECT  
**CABOT - BURROWS PROPERTY**  
LARDER LAKE MINING DIVISION  
ONTARIO

**ELECTROMAGNETIC MAP**

SCALE 1" = 200'  
0 200 400 600  
Feet

Work by: [Signature]  
Date: [Date]  
Interpretation by: [Signature]  
Date: [Date]  
Revised: [Date]  
NTS No. 41-P-11

