REPORT ON

A

GEOMAGNETIC SURVEY

OF

THE NEW ATHONA MINES PROPERTY

AFTON & SCHOLES TOWNSHIPS, TEMAGAMI AREA, ONTARIO

FOR

THE DIRECTORS

Haileybury, Ontario
July 17, 1956

E. L. MacVeigh, B.A., M.S.

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CONTENTS

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SUMMARY

In the Fall of 1955 New Athona Mines Limited acquired a group of thirty-six (36) claims in the Townships of Afton and Scholes, situated in the west end of the Temagami Mining Area, Ontario. This staking followed the discovery by Noranda Mines of a mineralized iron formation which is copper bearing over a width of about 100 feet. The New Athona claims adjoin north of the Noranda property. In the Spring of 1956 a magnetometer survey was conducted over the New Athona claims. This work outlined the general geology of the property and indicated an interesting section in the southeast part which deserves exploration. At the time of the magnetometer survey some surface trenching and blasting was conducted by the company on iron formation found near the south boundary. This work revealed the presence of widespread pyritization in the iron with the presence of some chalcopyrite.

The geological structure in the southeast part of the New Athona property shows the presence of a large drag fold. The nose of this fold which is outlined by an abrupt bending in the iron formation is crossed by several faults which may be of importance in localizing sulphide mineralization. These faults for the most part trend northeast-southwest. In addition there is a large regional fault striking northwest-southeast through Greenrod and Eagle Rock Lake which is indicated to have a vertical displacement of several hundred feet.

It is recommended that the property be prospected in the neighbourhood of the iron formation and the greenstone rock areas as light overburden may conceal better mineral occurrence than made to date. It is also recommended that thee (three) diamond drill holes

be put down to investigate the possibility of ore findings in the greenstone area adjoining north of the iron formation and two fault locations of interest. These diamond drill holes are shown on the accompanying geomagnetic map of the property.

PROPERTY AND ACCESS

The New Athona property herein reported consists of thirty-six (36) claims located at the west boundary of Scholes Township and the east boundary of Afton Township in the Temagami Mining Area, Ontario. The Afton Township claims are recorded in the Sudbury Mining Division as follows:

S.91123 to S.91126 inclusive

The Scholes Township Claims are recorded in the Temiskaming Mining Division as follows:

T.37200 to T.37231 inclusive

The property may be reached by eighteen (18) miles of air-flight from Temagami Station located on the Ontario Northland Railway and the No. 11 Highway. It may also be reached by twenty-nine (29) miles of car drive north from River Valley, Ontario, and thence two and a half (2 1/2) miles east by trail to Eagle Rock Lake on which the company's camp is situated. The copper producing mine of Temagami Mining Company is nine (9) miles northeast of the New Athona claims.

GEOLOGY AND MINERAL DEPOSITS

The country rock of the New Athona property is composed of Keewatin greenstones and rhyolite and cobalt sediments. The

Keewatin is the basement rock of the area and is found to dip at steep angles where observed. This is overlain by cobalt sediments which are in general flat lying. Cobalt sediments cover most of the north half of the New Athona property with the Keewatin rocks exposed only in the south portion. The Keewatin and Cobalt rocks are intruded by feldspar-porphyry, diorite, and Nipissing diabase sill. The feldspar-porphyry occurs inside the nose of the folded iron formation at the south boundary of the claims. The Nipissing diabase sill blankets much of the rock in the Scholes Area. On the New Athona property it is inclined about 30° to the east. The diabase sill covers part of the interesting area in the southeast part of the New Athona ground. Here it is estimated that the sill does not exceed a thickness of two to three hundred feet. Such a depth would not prevent underlying exploration if a deposit of interest was found in the adjoining rocks.

SURVEY PROCEDURE

The geomagnetic survey was carried out using a Sharpe Schmidt Type Magnetometer with a sensitivity of 20.5 gammas per scale division. Picket lines were spaced at 400' distances along an east-west base line system, the picket lines being run north and south from the base lines. Stations were established at 100' intervals along the picket lines, base lines, and east-west boundaries of the property and readings taken at each station. A total of forty-one (41) miles of line were cut, chained, and picketed, including boundaries and base lines and 2,380 stations were read and recorded. The Main Control Station is located between lines 4000E and 4400E on the No. 2 Base Line. This is in claim T.37218. The readings on the map are all corrected by hourly check-backs. Two map sheets accompany this report showing the geomagnetic contours with a contour interval of 100 gammas.

The No. 1 sheet covers roughly the north half of the property and the No. 2 sheet the south half.

INTERPRETATION OF RESULTS

The accompanying geomagnetic maps on a scale of one inch equals 200 feet show the areas of varying magnetic intensity in different colours. The areas represented by minus readings are coloured in yellow. Between 0 and 2000 games the areas are coloured in green. From 2000 to 3000 gammas the areas are represented by blue. Intensities above 3000 gammas are shown in purple. The colours do not represent rock distribution but the higher intensities shown in purple include most of the iron formation and some diabase.

No. 1 sheet showing the north half of the property is practically all green with very little magnetic relief. This section is flat lying Cobalt formation. The contour lines on sheet No. 2 showing the south half of the property outline in magnetic relief the greenstone, the iron formation, and the Nipissing diabase sill. The blue area extending over the west half of the south sheet is very likely largely underlain by greenstone formation. The purple areas at the west boundary of the property in Afton Township are caused by the proximity of outcrops of the Nipissing diabase still immediately to the west. This is also the interpretation for the purple area in the southwest corner of the property. The purple areas along the south boundary of Map Sheet No. 2 where the intensity exceeds 3000 gamas and builds up to 4000 or 5000 gammas indicate iron formation. This iron formation is shown to be offwet prominently by faulting in claims nos. T.37202 and T.37201. In the south part of claim T.37204 where the continuity of the east-west purple anomaly is interrupted there may be

two possible interpretations. (1) The iron formation may be offset by faulting and the intervening rock may be greenstone or rhyolite as shown in some of the trenching already carried out in this section. (2) It is not unusual however that magnetite zones in cherty banded iron are found to be discontinuous and such may be the situation at this location.

In the southeast part of Sheet No. 2 the blue area is largely underlain by the Nipissing diabase sill. The attitude of this sill, as seen on surface outcrop, is a dip of about 30° to the east. This area is intersected by a strong regional fault which trends through the length of Greenrod Lake and Eagle Rock Lake and underlies the creek connecting these two. Geological observations show that this faulting has raised the ground east of the creek vertically for several hundred feet. The fact that the diabase does not extend very far to the west in this part of the property indicates that its thickness is not very great at the east boundary, probably not exceeding two or three hundred feet.

No magnetic anomalies were found which would have a direct bearing on mineral occurrence, such as a large body of pyrrhotite Pyrrhotite occurrence near the iron formation would probably be masked by the higher intensity of the magnetite.

RECOMMENDATIONS

It is recommended that the south part of the property be prospected, particularly in the neighbourhood of the iron formation rocks and the greenstone rocks. Widespread mineralization is indicated in this area and the removal of light overburden may reveal more interesting occurrences than have been found to date.

In claim T.37203 two trenches have investigated what is believed to be the projection of the same northeast-southwest shear. The southwest shear in this break is located in rhyolite, while the northeast exposure is found in iron formation probably quite near the north contact. The continuation of this zone to the northeast in the greenstone is considered to be interesting exploration and a diamond drill hole No. 1 has been recommended to explore this possibility. To the east in claim T.37202 a prominent displacement of the iron occurs near the nose of the drag fold. A second similar fault is indicated in claim T.37201 which has a parallel direction. It is recommended that the first mentioned fault be investigated by diamond drill hole No. 2 for the possibility of a mineralized zone lying off the nose of the folding. The heaviest mineralization observed on the property is in an old adit in claim T.37200. This location has been blasted in recent work showing mineralization extending to the overburdened area which is the creek bottom between Greenrod and Eagle Rock Lakes. The creek bottom is the location of a regional fault striking northwest-southeast and is shown by observarions along the creek to have a vertical displacement of probably several hundred feet. On the west side of the creek an outcrop of the diabase sill occurs dipping 30° to the east. On the east side of the fault, at the adit location, the rocks are Keewatin and are capped further to the east by the diabase sill. The presence of the heavy mineralization at the adit may mean that more important sulphides might be found associated with the fault location just west of the adit. It would be good exploration to cross the fault with a diamond drill and it is recommended that diamond drill hole No. 3 be drilled here.

These three overburdened areas are considered to have a good chance structurally for mineral occurrence. It is recommended that one diamond drill hole be put down to each of these to test the possibilities.

Hole No. 1 at Picket Line 3600E plus 2400S. This hole is designed to explore the north contact of the iron formation and to cross-section the greenstone which is north of the iron contact. This hole should cross the projection of a sheer zone already indicated in two trenches. The hole is directed south at an angle of 45° and should be carried to a depth of 500 feet or until the iron formation is intersected. The attitude of the iron formation varies but would appear to have a very steep dip of about 80° to 85° south.

Hole No. 2 at Picket Line 4800E plus 2700S plus 130W. This hole is directed to cut a northeast-southwest fault which is shown by the geomagnetic map to offset the iron formation near the nose of the indicated fold. This hole should be drilled S65°E at an angle of 45° for a length of 500 feet.

The most abundant mineralization observed on the property is at the adit 150' east of the creek connecting Greenrod and Eagle Rock Lake. To the west of this occurrence overburden is present in the creek bottom and diamon drilling would be necessary to explore the fault and adjoining rock. It is recommended that a diamond drill hole be directed N50°E at a collar location Picket Line 6000E plus 294S. This hole would be collared in diabase on the west side of the creek and would pass through the fault intersecting the mineralized greenstone shown to be present east of the creek.

Respectfully submitted by

(sgd.)

E. L. MacVeigh, B.A., M.S.

Haileybury, Ontario
July 17th, 1956

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Respectfully submitted by

E. L. MacVeigh, B.A., M.S.

Haileybury, Ontario
July 17th, 1956

SURVEY DATA & ASSESSMENT WORK DISTRIBUTION

Details of the Magnetometer Survey

The survey was begun April 1st, 1956 and completed May 18th, 1956. A total of 41 miles of lines were cut, chained, and picketed, including boundaries and base lines and 2,380 magnetic stations established at which magnetic readings were taken.

The following is a break-down of the actual man-days required to complete the survey.

(a) Linecutting, 5 men April 1st, 1956 to May 18th, 1956
F. Farstead, H. Farstead, D. Farstead,
Bourkes, Ontario
C. Wahl, F. McCarthy
Kirkland Lake, Ontario
180 days x 4 — 720 days

(b) Instrument Operators & Assistants
F. Blake, W. Hammerstrom & Assistants
Haileybury, Ontario
120 days x 4 — 480 days

(c) Consultants - field
E. L. MacVeigh, Haileybury, Ontario
G. F. Greenacre, South Porcupine, Ontario
W. Hammerstrom, Haileybury, Ontario
24 days x 4 — 96 days

(d) Office & Draughting
E. L. MacVeigh, Haileybury, Ontario
G. F. Greenacre & Assistants, South Porcupine, Ontario
W. Hammerstrom, Haileybury, Ontario
M. P. MacVeigh, Haileybury, Ontario
40 days x 4 — 160 days

1456 days

Assessment Work Distribution

On each of the following thirty-six (36) claims:
Afton Township - S.91123 to S.91126 inclusive
Scholes Township - T.37200 to T.37231 inclusive
36 claims x 40 days — 1440 days

(Sgd.)
E. L. MacVeigh

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E. L. MacVeigh

E. L. MACVEIGH
Consulting Geologist

Box 425
Haileybury, Ont.

ENGINEER'S CERTIFICATE RE REPORT DATED JULY 17TH, 1956 CONCERNING A MAGNETOMETER SURVEY ON THE NEW ATHONA MINES PROPERTY IN AFTON AND SCHOLES TOWNSHIPS, TEMAGAMI AREA, ONTARIO.

I, EDWIN LESTER MACVEIGH, of Haileybury in the Province of Ontario, hereby certify:-

1. THAT I am a Consulting Geologist and reside at Haileybury, Ontario.

2. THAT I am a graduate of the University of Illinois and have been practicing my profession as a Geologist for 24 years in Northern Ontario and Quebec.

3. THAT I have no direct, indirect or anticipated interest in the mining claims mentioned in this report, or in the securities of New Athona Mines Limited.

4. THAT the report is based on a personal examination of the New Athona Property in Scholes Township during the magnetometer survey which was supervised by the writer and also a property examination on July 14th during which recent surface trenching was examined and appraised. The information in the report is hence complete up to the date of writing, July 17th, 1956.

DATED this 17th day of July 1956.

(Sgd.)
.....
E. L. MacVeigh, B.A.,M.S.

TELEPHONES { OFFICE. NO. 22
RESIDENCE. NO. 8

E. L. MacVEIGH
CONSULTING GEOLOGIST

FILE:

BOX 425
HAILEYBURY, ONT.

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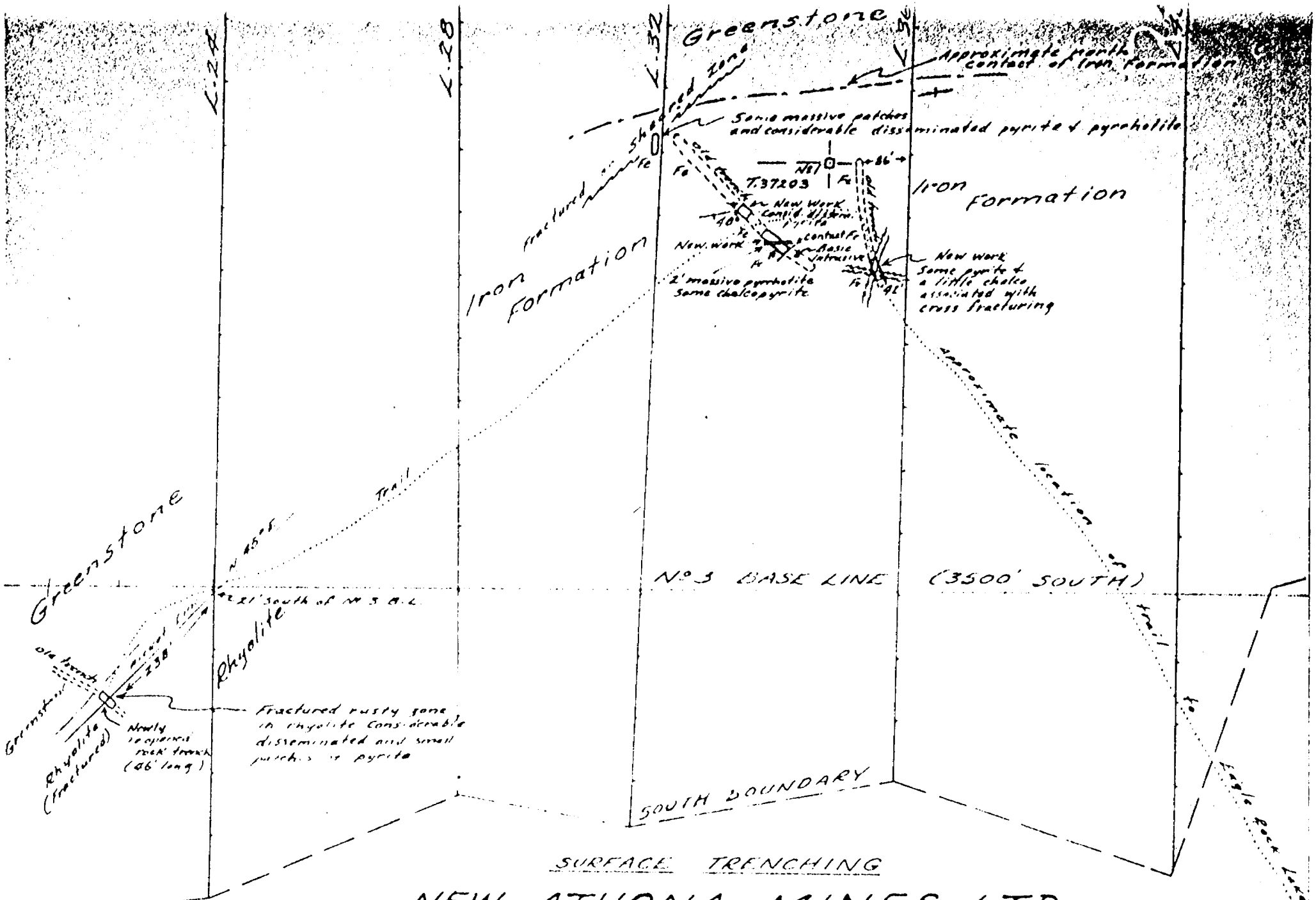


SURFACE TRENCHING

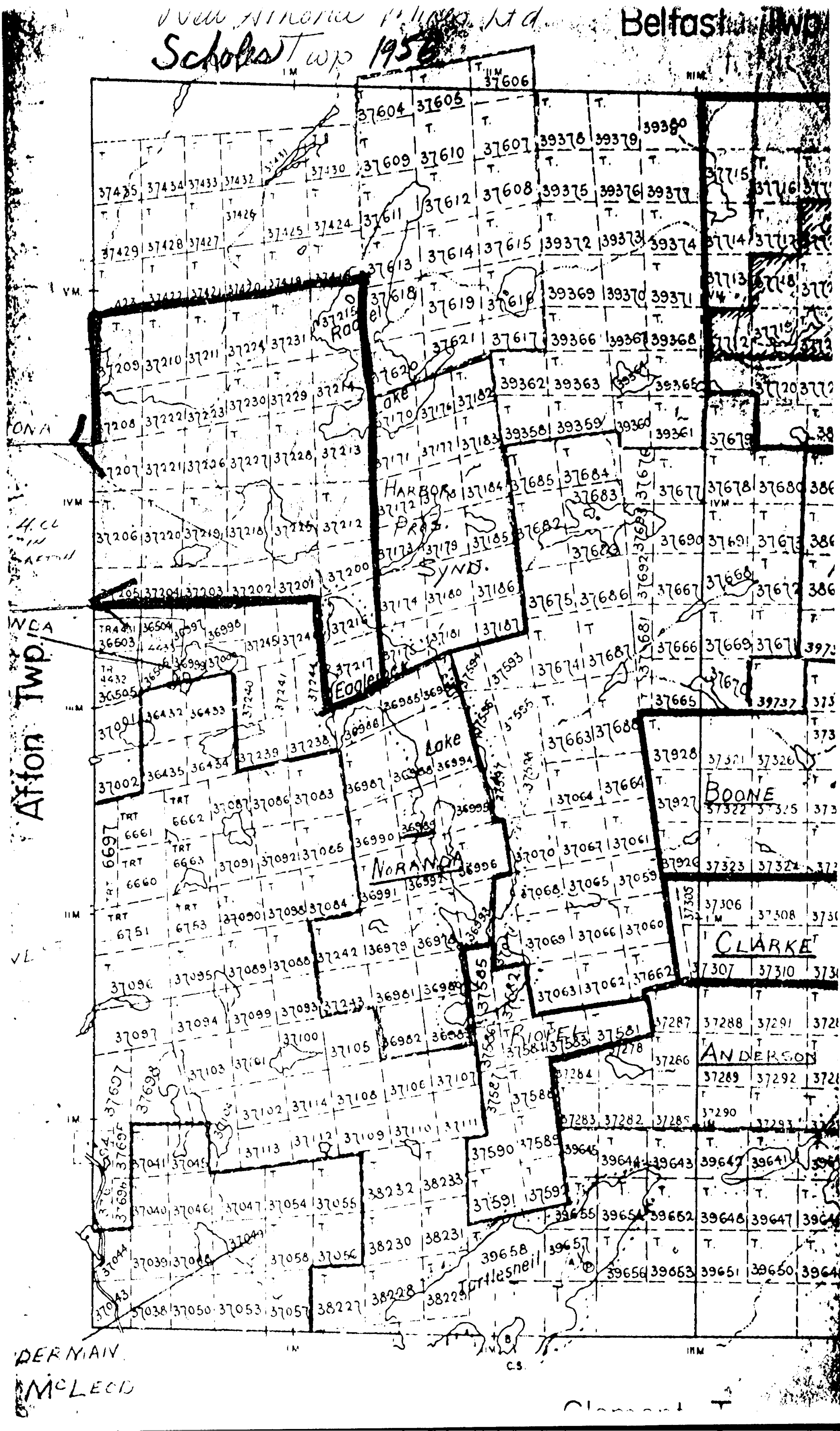
NEW ATHONA MINES LTD.

SCHOLES TWP - TEMAGAMI AREA - ONT.

SCALE: 1 INCH = 200 FEET 1" = 200 FT. July /56

41116NW0026 0018A1 AFTON

900

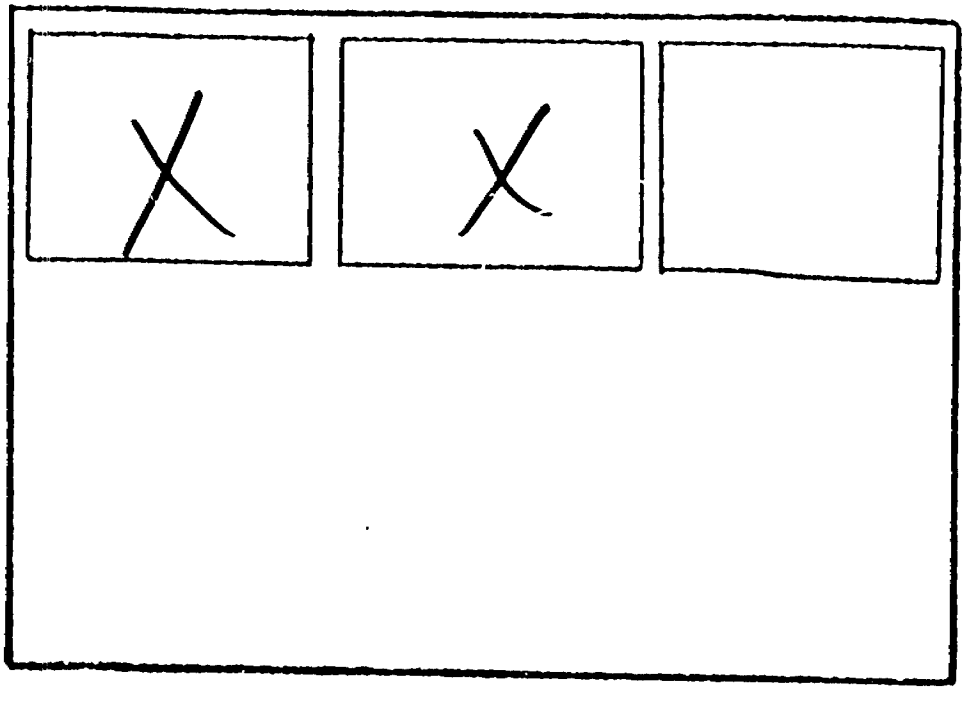


SEE ACCOMPANYING MAP(S) IDENTIFIED AS

AFTON-0018-A1 #1

#2

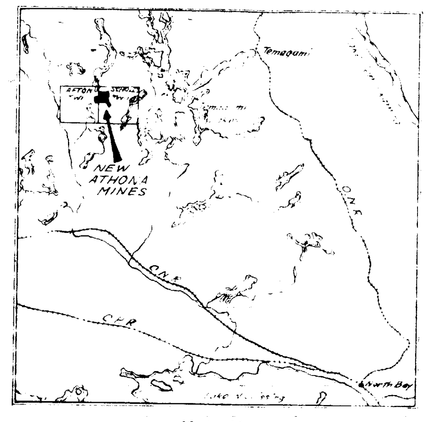
LOCATED IN THE MAP CHANNEL IN THE FOLLOWING SEQUENCE (X)



NEW ATHONA MINES, LIMITED.

TOWNSHIPS OF SCHOLES & AFTON.
TEMISKAMING MINING DIVISION.
ONTARIO.

Scale :- 1 inch = 200 feet



Key Map.
Scale - 1 inch = 12½ Miles.

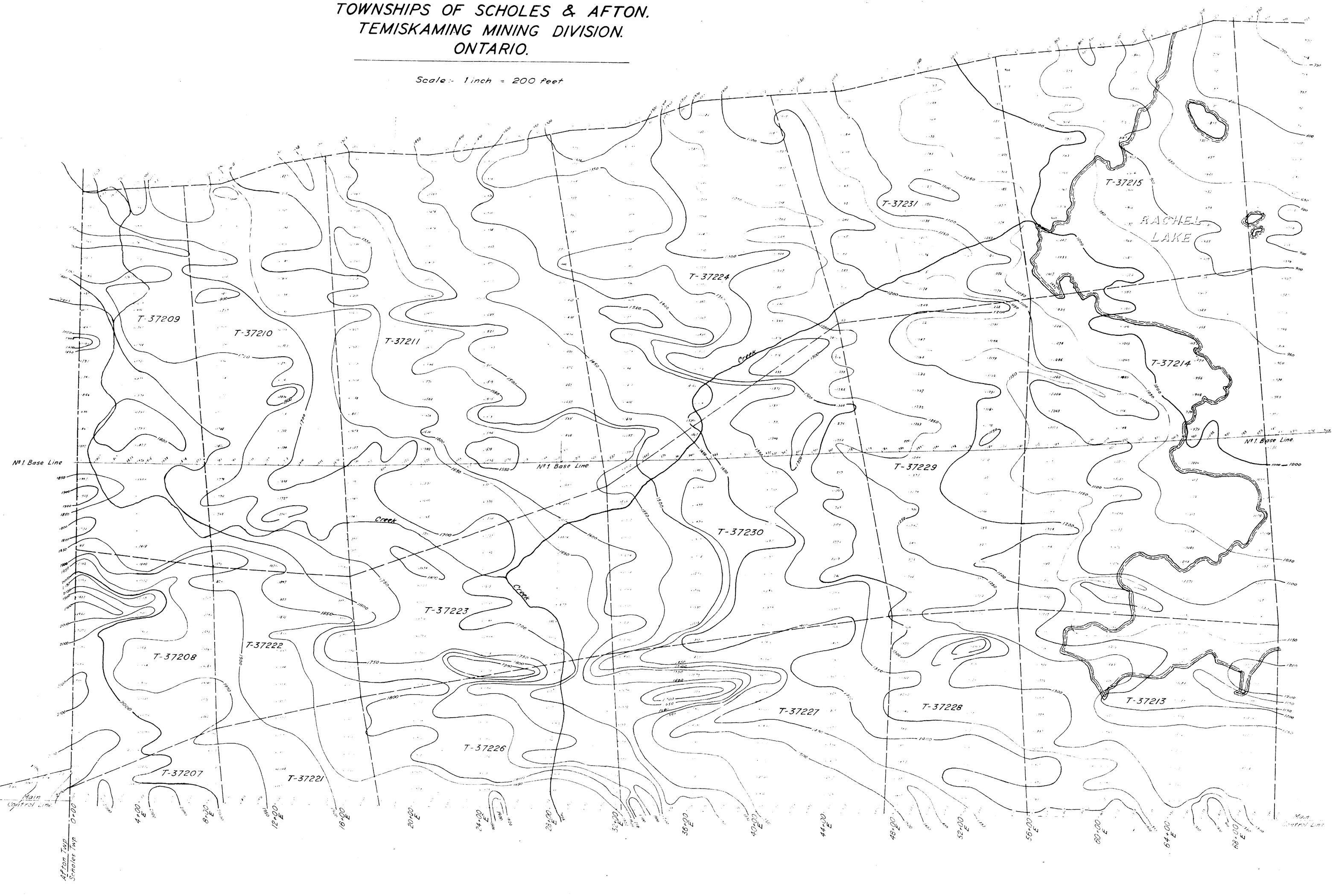
N
Approx.

Magnetometer Data
Scale Constant = 20.5 gamma per Scale Division.
Normal Correction = Minus 2000 gamma

LEGEND

- Low Ground and Swamp.
- 1000 Contours of equal vertical intensity.
- Contours of relatively low magnetic intensity.
- 1728 Magnetometer Reading.
- Main Control Station.

	-12,000	—	-8,000 Gamma
	-8,000	—	-4,000 "
	-4,000	—	0 "
	0	—	2,000 "
	2,000	—	4,000 "
	4,000	—	6,000 "
	6,000	—	8,000 "
	8,000	—	10,000 "
	10,000	—	+ Off Scale "

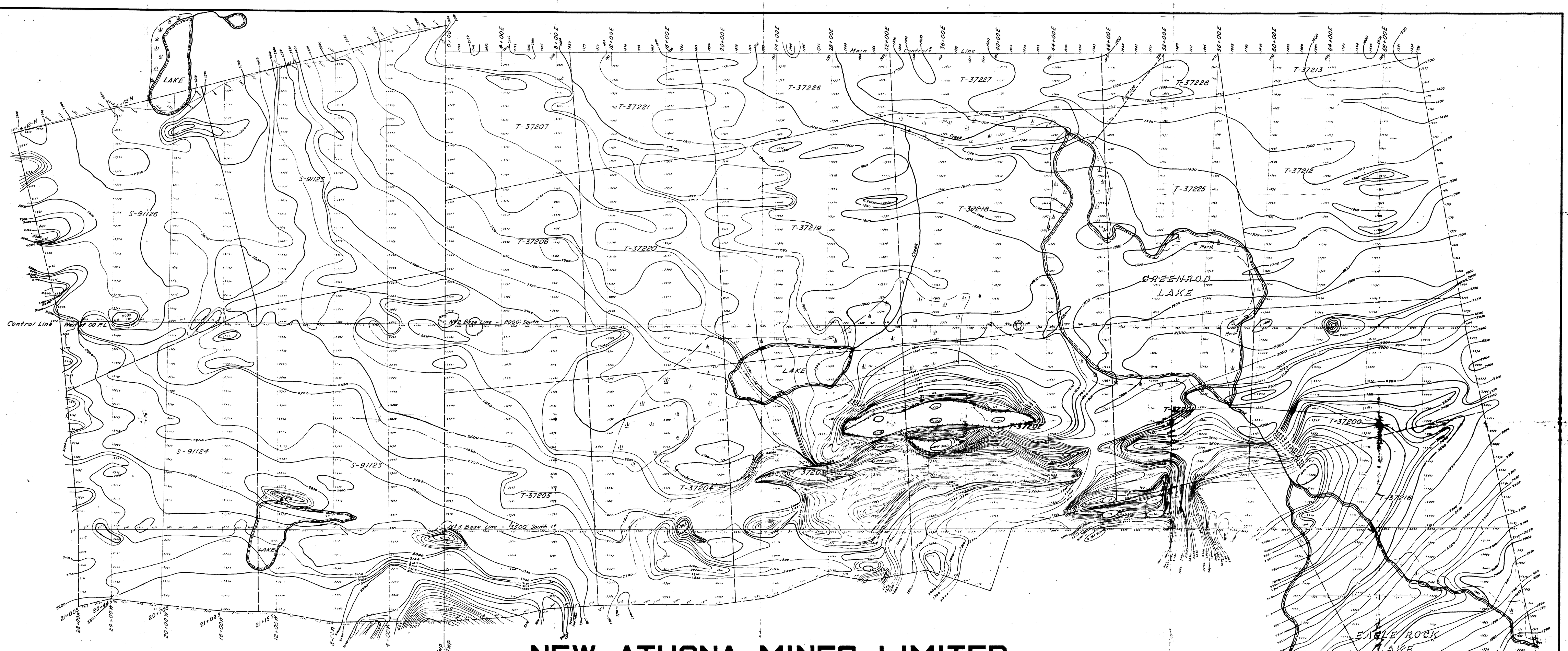


MAGNETOMETER SURVEY
To accompany
GEOMAGNETIC REPORT
By
E. L. MacVeigh, B.A.M.S.

Sheet N° 1.

AFTON-0018-A1 #1

E.L.MacVeigh



NEW ATHONA MINES, LIMITED.

TOWNSHIPS OF SCHOLES & AFTON.
TEMISKAMING MINING DIVISION.
ONTARIO.

Scale:- 1 inch = 200 feet

Sheet No 2

Note:- Legend is shown on Sheet No 1.

MAGNETOMETER SURVEY
To accompany
GEOMAGNETIC REPORT
By
E. L. MacVeigh B.A., M.S.

AFTON-00 & A1 #2