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REPORT ON
Combined Magnetic and Electromagnetic Survey
For Amax Exploration Ind.
Neelon Township, Sudbury Mining Division
by
Shield Geophysics Limited

Timmins, Ontario,
September 23, 1969.

J. E. Steers, F.G.A.C.,
Consulting Geologist.



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INTRODUCTION

A magnetic and electromagnetic survey were carried out over a group of 7 contiguous, unpatented mining claims located in Neelon Township, Sudbury Mining Division. The claims are numbered as follows: 154002, 154003, 154004, 154005, 154006, 154007, 154008.

Transit controlled picket lines were established at 200 foot intervals over the entire property during the period September 1st - 9th inclusive. The geophysical surveys were carried out between September 10 and 18th inclusive.

LOCATION AND ACCESS

The property is located in Neelon Township, Sudbury Mining Division and consists of the NW ¼ of Lot 1, NE ¼ of Lot 2, Concession 3, SW ¼ Lot 1, Concession 4; and the E ¼ of Lot 2, Concession IV.

The property is readily accessible from highway 17 which is located in the southwest corner of the group.

GENERAL GEOLOGY

Ontario Department of Mines Geological Report #9 (1962) and its accompanying map #2017 indicate that the property is underlain almost entirely by gabbro cut by two east-west diabase dykes. The presence of bedded quartzite in the northern, southwestern and eastern parts of the claims is also indicated. Linear features marked on the map are described in the text (p.21) as being sometimes underlain by trap dykes.

INSTRUMENTS USED AND SURVEY METHOD

The entire electromagnetic survey was carried out using

a Crone "Redem" VLF unit. Two approximately orthogonal transmitting stations located at Curther Maine and Balboa, Panama were utilized. The operating frequencies are 17.8 kilocycles per second and 24.0 kilocycles per second respectively.

The dip angle of the resultant magnetic field components are plotted on the accompanying map. The quadrant designations used indicate the direction in which the axis of the receiver coil is oriented.

Approximately 1288 stations were established.

The entire magnetic survey was carried out using a Scintrex MF-1, fluxgate magnetometer. Approximately 1288 stations were established since readings were taken at fifty foot intervals.

SURVEY RESULTS

(a) Magnetic Survey

General background magnetic values appear to be in the order of 700 gammas with a maximum relief of approximately 4000 gammas.

Three strong, isolated magnetic "lows" occurring at 11 S, line 8 E; 9 S, line 4 E and 1 S, and 1 N on line DE are probably due to man-made sources.

Two strong, isolated magnetic lows on line DE to the north may also be due to man-made sources.

In general there appears to be two prominent linear anomalous systems on the property.

Four apparently vertical, linear features with a generally easterly strike transect the property.

At least six separate linear "finger like" bodies having

a generally northeasterly strike, a vertical dip and limited strike length are evident on the property.

It is probable that all of these features are dyke-like intrusions of gabbroic composition.

(b) Electromagnetic Survey

Numerous conductor axes were located in the map area.

Several of these are probably due to clay-overburden edges, topographic effects and man-made sources. Only the zones thought to be significant will be discussed. These zones have been lettered "A" to "H" inclusive.

Zone "A" is an arcuate zone and appears to have a direct magnetic correlation. Although comparatively weak, the crossover strength is consistent along the strike length.

Zone "B" has an easterly strike, limited strike length, and an apparent magnetic association. The zone is particularly strong on line B E.

"C-1", "C-2"

These zones apparently crosscut the magnetic grain and are probably related. They have an northeasterly strike and are probably related to the regional northeasterly striking faults.

Zone "D" has an easterly strike, limited strike length and a vague magnetic association. Although weak the cross-overs are definite and the zone is thought to be a bedrock conductor.

Zone "E" has an arcuate shape, a vague magnetic association and limited strike length. For at least part of its length the

zone occurs in an outcrop area.

Zone "F" is a highly questionable zone having a considerably different strike direction than most of the conductive zones. No magnetic correlation is evident. This zone should be checked on a low priority basis.

Zones "G" and "H" have a northeasterly strike, a vague magnetic association and limited strike length. These zones are probably bedrock conductors.

SUMMARY AND CONCLUSIONS

Several intriguing magnetic and electromagnetic anomalies are present on the property.

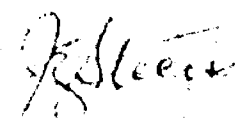
It is probable that the source of most of the anomalies can be established through careful mapping in the area.

The electromagnetic anomalies seem to closely follow the general structure grain in the area and therefore may have economic significance.

If the source of these anomalies cannot be established through mapping it is recommended that an induced polarization survey be carried out on the property.

Further work would be dependent upon the results obtained from the geological and induced polarization surveys.

Respectfully submitted,
SHIELD GEOPHYSICS LIMITED,



J. E. Steers, F.R.A.C.,
Consulting Geologist.

Timmins, Ontario,
September 23, 1969.

APPENDIX

ELECTROMAGNETIC SURVEY

The "Radem" unit is essentially a specially designed radio receiver which receives very low frequency radio signals from transmitters located at various points throughout the world.

The receiving unit is used to measure the direction of the magnetic component of the transmitted field.

The normal VLF magnetic field is horizontal, however, the field is distorted by the presence of a conductive body. The presence of a conductive body can, therefore, be determined by measuring the dip angle of the resultant field at regular intervals.

The instrument is so designed that when in the position of minimum coupling, the arrow on instrument points towards the conductive body. The axis of the body will be located at the zero or "cross-over" point between sets of dip angles which point towards the zero point.

The magnitude of the dip angle and the direction in which the arrow points are recorded at each field station.

The direction of the magnetic component of the field from a VLF transmitting station is horizontal and perpendicular to the line between the operator and the transmitting station.

For best results, a station is selected so that the magnetic field is perpendicular to the suspected strike of possible conductive bodies.

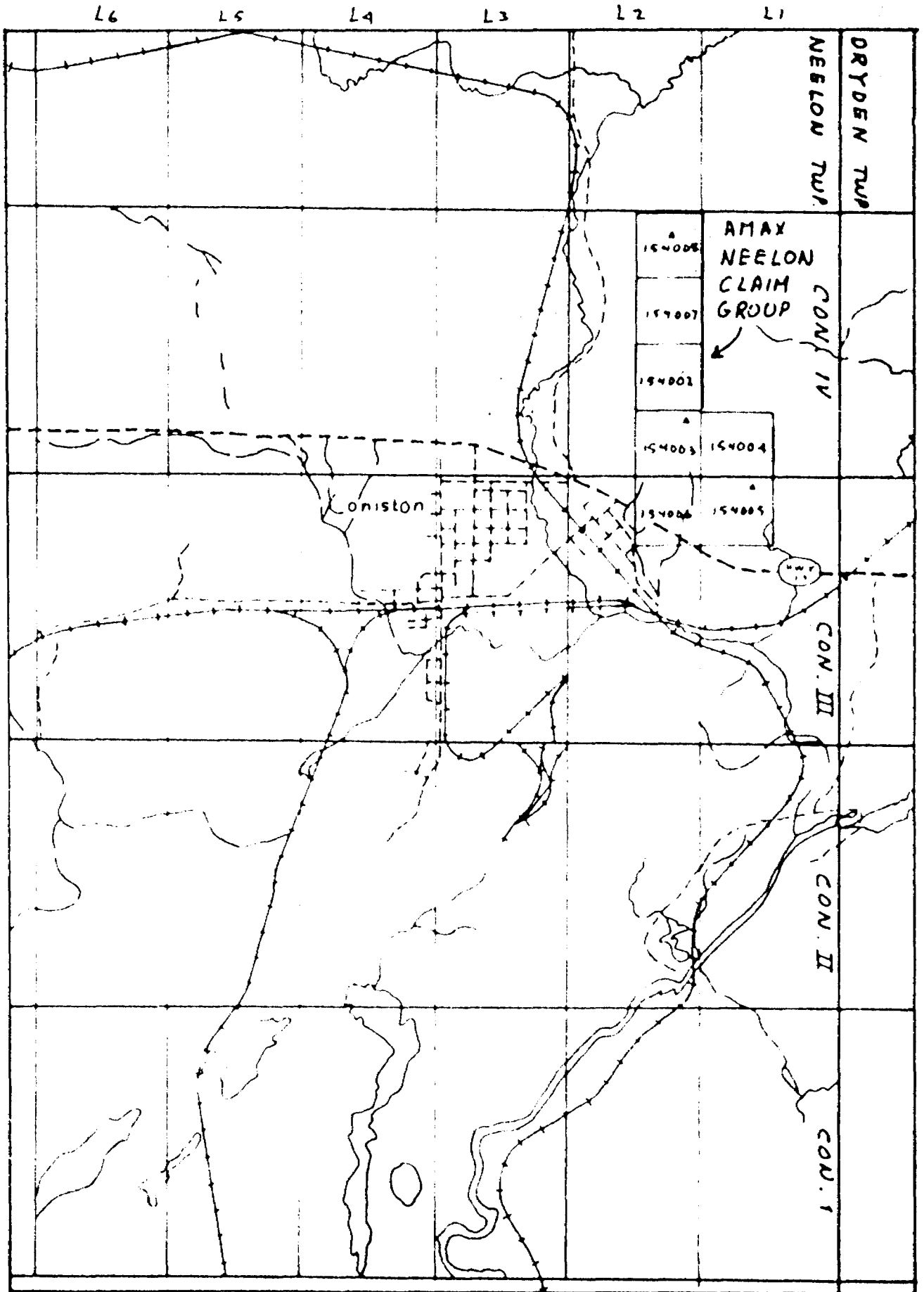
The unit is turned on and the volume control knob adjusted so that the signal is clearly heard. The unit is then held in a

horizontal position and rotated until an audio null is obtained. The unit is then aligned parallel to the field direction. The receiver is then rotated into the vertical position and rotated about a vertical axis until an audio null is heard. The dip angle is then noted as well as the direction in which the arrow points.

If, when reading a station to the south, a dip angle of 20 degrees is obtained and the arrow points to the east the conductor is located to the east.

MAGNETOMETER SURVEY

A Sharpe M.F.-1 Fluxgate magnetometer was used in the magnetic survey. This instrument measures the vertical component of the earth's magnetic field in gauss. Base stations for determining the magnetic diurnal variations were established along the main base line at 100 foot intervals. Magnetic readings were taken at 50 foot intervals, along the cross line.



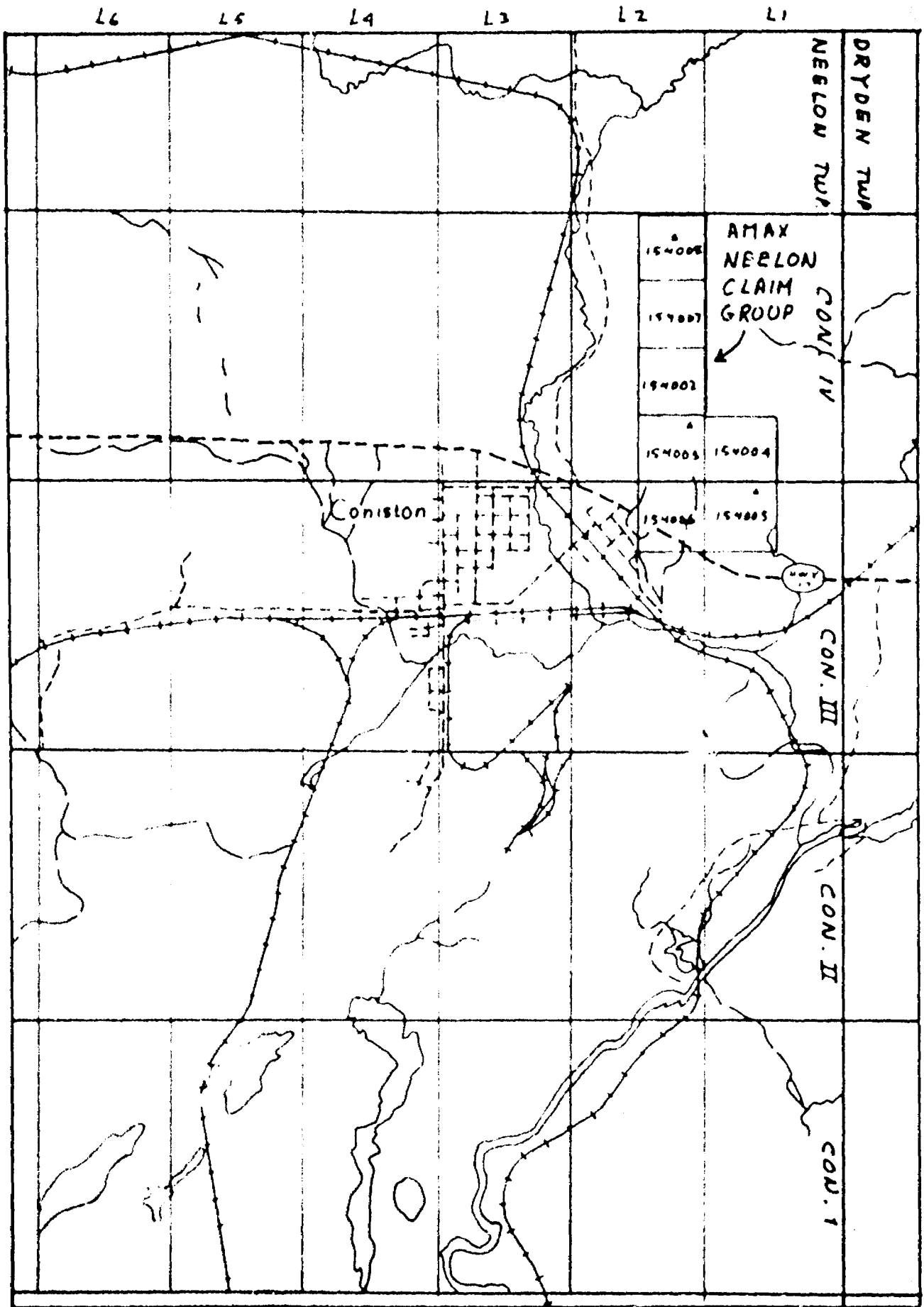
LOCATION MAP - AJAX NEELON TOWNSHIP, 7 CLAIM GROUP (SCALE: 1" = 4 miles)

horizontal position and rotated until an audio null is obtained. The unit is then aligned parallel to the field direction. The receiver is then rotated into the vertical position and rotated about a vertical axis until an audio null is heard. The dip angle is then noted as well as the direction in which the arrow points.

If, when reading a station to the south, a dip angle of 20 degrees is obtained and the arrow points to the east the conductor is located to the east.

MAGNETOMETER SURVEY

A Sharpe R.F.-1 fluxgate magnetometer was used in the magnetic survey. This instrument measures the vertical component of the earth's magnetic field in gammas. Base stations for determining the magnetic diurnal variations were established along the main base line at 100 foot intervals. Magnetic readings were taken at 50 foot intervals, along the cross line.



LOCATION MAP - AMAX NEELON TOWNSHIP, 7 CLAIM GROUP (SCALE: 1" = 4 mile)

GARSON TWP.

VI

V

IV

III

DRYDEN TWP.

II

I

Garson Jct.

Sudbury Jct.

City

N. R.

Coniston

C. P. R.

Romford Cr.

Ramsay Lake

Sudbury

Bobby Lake

Daisy Lake

THE TOWNSHIP OF M-886
NEELON

DISTRICT of SUDBURY
SUDBURY MINING
DIVISION

SCALE: 1 INCH TO 40 CHAINS

Mc KIM

12 11 10 9 8 7 6 5 4 3 2 1

DILL TWP.

19149 19147
19146

5925

S714

S713

1574

S.R.O.

S.R.O.

S.R.O.

LT. 162

LT. 101

150

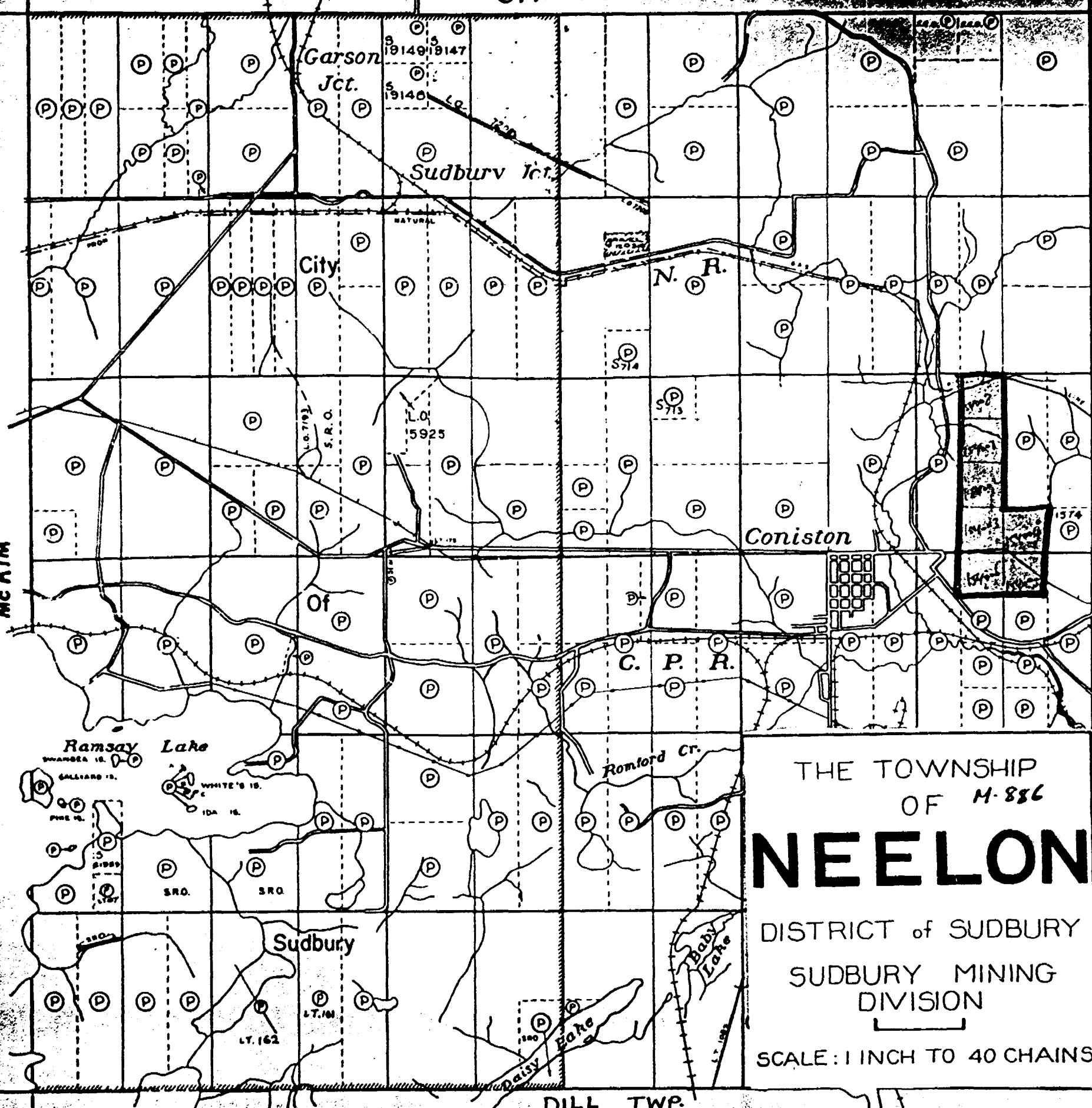
LT. 102

NATURAL

LT. 713
S.R.O.

SWANSEA IS.
GALLIARD IS.
PINE IS.
BIBB
LYE

WHITE'S IS.
IDA IS.

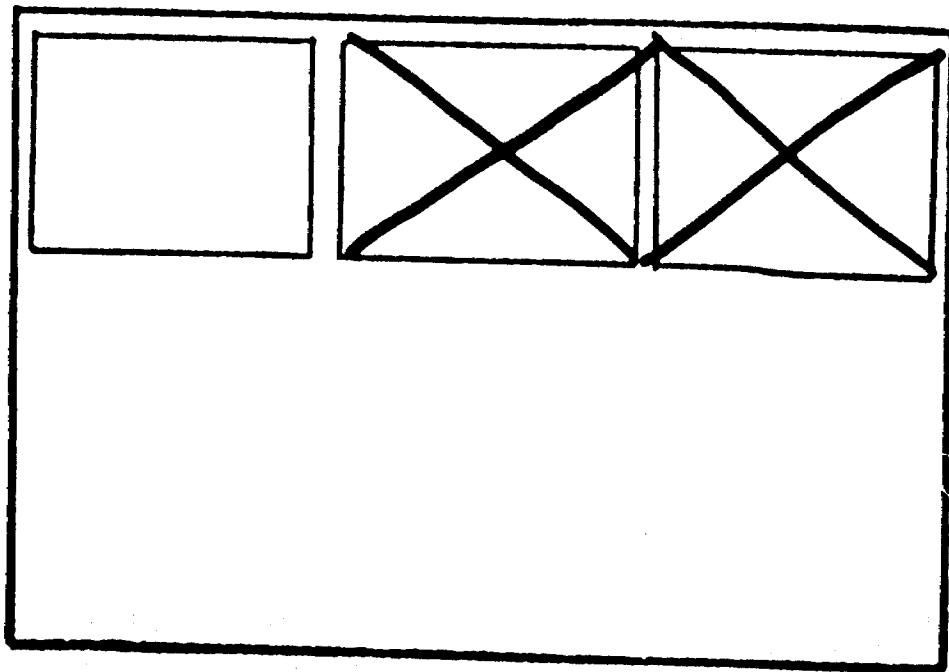


SEE ACCOMPANYING
MAP(S) IDENTIFIED AS

NEELON-0012-B1 #1

NEELON-0012-B1 #2

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



AMAX EXPLORATION INC.
NEELON OPTION
NEELON TOWNSHIP, ONTARIO

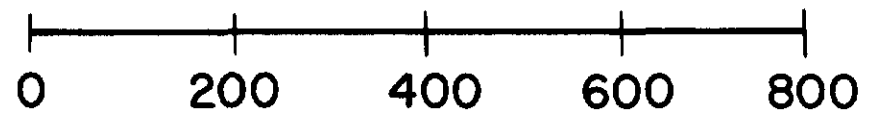
VERTICAL FORCE MAGNETIC SURVEY

by Shield Geophysics Limited

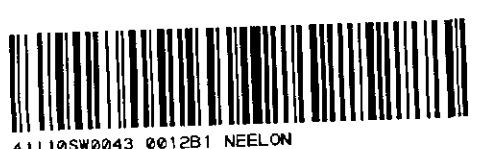
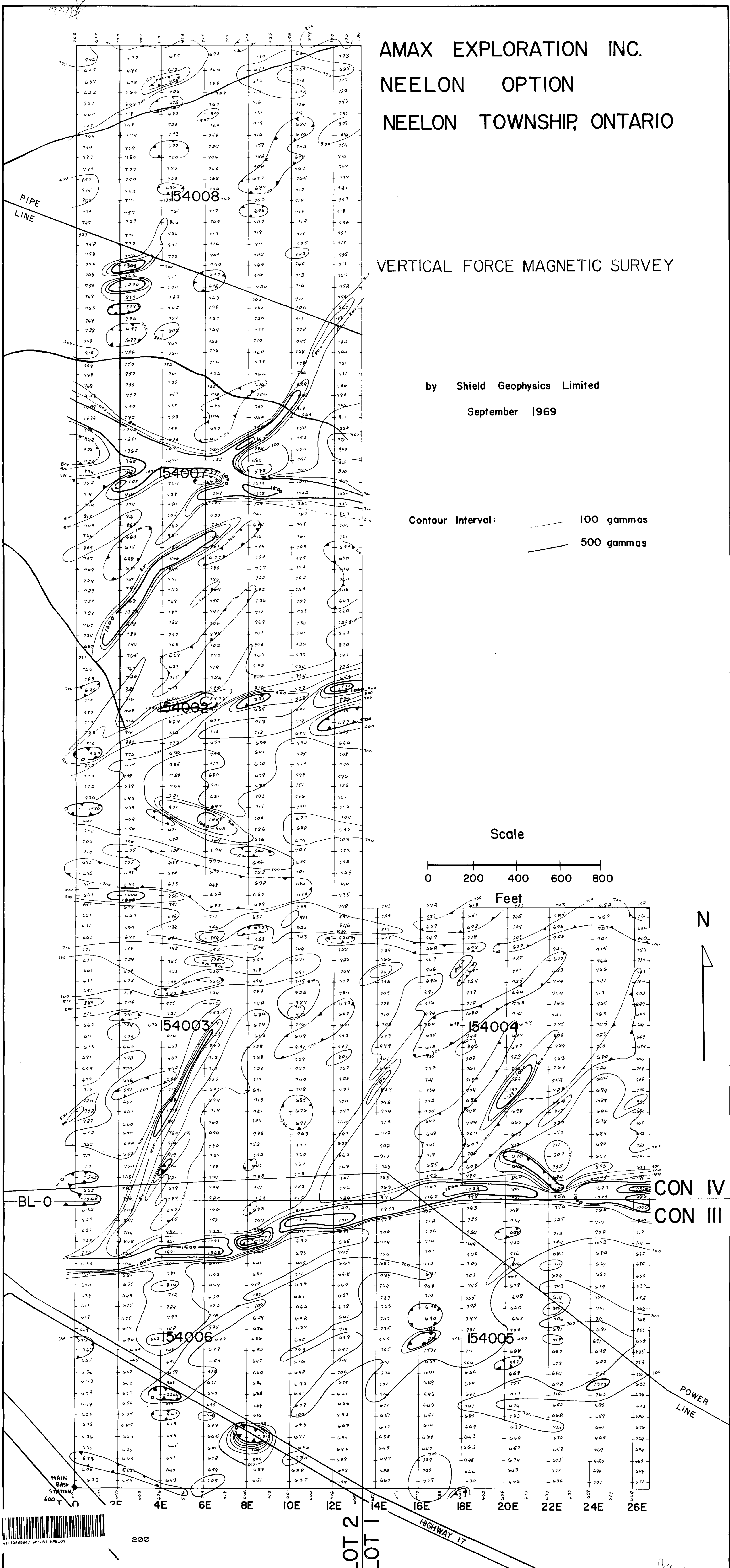
September 1969

Contour Interval:
 100 gammas
 500 gammas

Scale



Feet



200

NEELON-0012-B1 #1

AMAX EXPLORATION INC.
NEELON OPTION
NEELON TOWNSHIP, ONTARIO

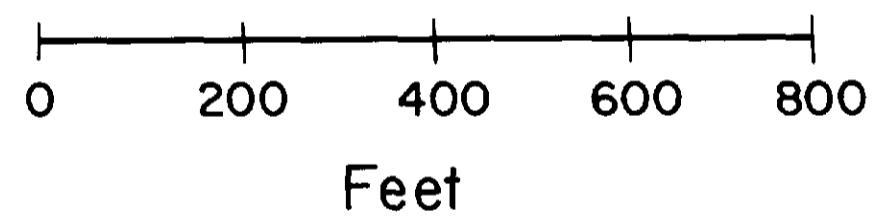
*NS dips - Callor Main
EW dips Ballou.*

RADEM ELECTROMAGNETIC SURVEYS

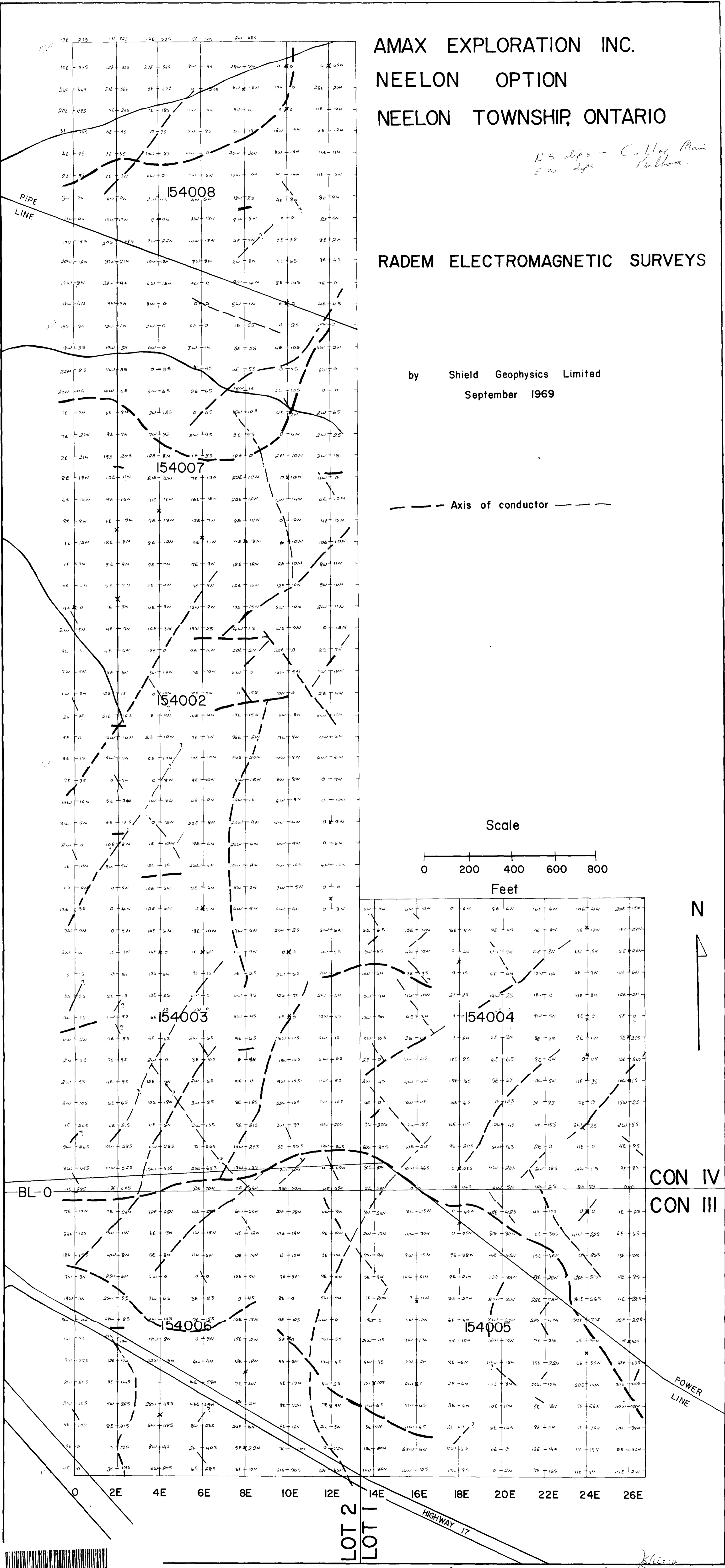
by Shield Geophysics Limited
September 1969

--- Axis of conductor ---

Scale



Feet



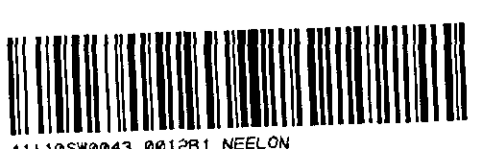
CON IV
CON III

POWER LINE

LOT 2
LOT 1

HIGHWAY 17

NEELON-0012-B1 #2



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