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REPORT ON
GEOLOGICAL AND MAGNETOMETER SURVEYS
CAIRNGLEN EXPLORATIONS LTD.
NAIRN TOWNSHIP
SUDBURY MINING DIVISION, ONTARIO
BY
B. M. ARNOTT, P. ENG.

Toronto, Ontario

October 19, 1969



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SUMMARY

During the summer of 1969 an exploration program consisting of geological and magnetometer surveys and of the examination of old copper - nickel showings was carried out on the Cairnglen property in Nairn Township, Ontario.

From the results of the geological examination the conclusion is reached that the sulphide occurrences are low grade and locally restricted to a few feet in extent, with no discernible structural patterns.

The magnetometer survey substantiates the above conclusion and does not indicate that larger deposits are covered by overburdened areas. Additional work is not recommended.

INTRODUCTION

Cairnglen Explorations Limited is the owner of a block of 16 contiguous unpatented mining claims situated in Nairn Township, District of Sudbury, Ontario.

During the summer of 1969 an exploration program was carried out on this property. The work consisted of line cutting, magnetometer and geological surveys and of examinations of all exposed sulphide showings.

The following report describes the results of this work.

PROPERTY

The property which Cairnglen Explorations has purchased consists of 16 unpatented mining claims situated in Nairn Township, Sudbury Mining Division and shown on the Ontario Department of Mines Plant No. M883, entitled "The Township of Nairn".

These claims were pretagged and their numbers, date of recording and description follows:

<u>No.</u>	<u>Date of Recording</u>	<u>Description</u>
S. 208584	September 8, 1969	N. E. pt. of S. pt., Lot 3, Conc. 3
S. 208585	September 8, 1969	S. E. pt. of S. pt., Lot 3, Conc. 3
S. 208586	September 8, 1969	S. W. pt. of S. pt., Lot 3, Conc. 3
S. 208587	September 8, 1969	N. W. pt. of S. pt., Lot 3, Conc. 3
S. 152572	May 27, 1968	S. E. pt. of S. pt., Lot 4, Conc. 3
S. 152573	May 27, 1968	N. E. pt. of N. pt., Lot 4 Conc. 2
S. 155701	January 17, 1969	S. W. pt. of N. pt., Lot 2, Conc. 3
S. 155702	January 17, 1969	N. W. pt. of S. pt., Lot 2, Conc. 3

<u>No.</u>	<u>Date of Recording</u>	<u>Description</u>
S. 155706	January 17, 1969	N. E. pt. of N. pt., Lot 3, Conc. 2
S. 155707	January 17, 1969	N. W. pt. of N. pt., Lot 3, Conc. 2
S. 155697	January 17, 1969	S. W. 1/4 of N 1/2, Lot 3, Conc. 3
S. 155698	January 17, 1969	S. E. 1/4 of N 1/2, Lot 3, Conc. 3
S. 154172	January 17, 1969	S. E. 1/4 of S 1/2, Lot 5, Conc. 3
S. 154173	January 17, 1969	S. W. 1/4 of S 1/2, Lot 4, Conc. 3
S. 154175	January 17, 1969	N. E. pt. of N. pt., Lot 5, Conc. 2
S. 154176	January 17, 1969	N. W. pt. of N. pt., Lot 4, Conc. 2

LOCATION AND ACCESS

The property lies in the eastern part of Nairn Township, on the northwest side of Wabagishik Lake. The village of Nairn, on Highway No. 17 and on the Sault Ste. Marie line of the C. P. R. lies about one mile north of the property.

From Nairn a good trail to Wabagishik Lake traverses the east part of the claim group. A branching trail leads to the northwest part of the property. The terrain is rough, with steep ridges rising to about 250 feet.

HISTORY

Sulphides were found on the claims many years ago and several shallow pits were put down on widely scattered gossan zones.

A few years ago the ground was staked for its uranium chances and it is reported that a scintillometer survey was carried out over areas underlain by conglomerate. Presumably the results of the work were negative.

Early last spring a limited amount of drilling and blasting was done on one of the rusty zones. There are no records of any other geophysical prospecting or systematic work having been done.

REFERENCES

1. Ontario Department of Mines, Geological Report No. 35, Nairn and Lorne Townships, with accompanying Map No. 2062.
2. Ontario Department of Mines, "Española Sheet", No. P105.

LINE CUTTING

A base line 8000 feet in length was cut in an eastwest direction. Cross lines were cut at 400 foot intervals and there was a total of 16 miles of lines.

GEOLOGICAL SURVEY

General

Enclosed is a map on a scale of one inch equals 200 feet showing the rock outcrops on the claim group. The field work was carried out from August 25 to September 9.

As can be seen from the accompanying map a large part of the property is exposed rock. Probably about 75% of the area consists of outcrop. The topography is precipitous with steep ridges trending north-east and rising to about 250 feet.

The bedrock consists of Pre-Cambrian sedimentary and mafic intrusive rocks. The sediments strike approximately northeast and dip south. In many respects they are similar to the Bruce group of the Blind River area.

The sediments have been metamorphosed along their contacts with sills and dikes of gabbroic rock. The latest intrusion is olivene diabase dikes.

Boulder Conglomerate

Claims 154172, 154173 and 152572 are largely underlain by boulder conglomerate, with smaller outcrops elsewhere on the property. The conglomerate has a rusty weathered surface and contains boulders up to one foot in diameter which are dominantly of granite. The matrix is a gritty buff coloured graywacke.

Quartzite

Only a few small outcrops of quartzite occur and they are in the west and south parts of the property. It is a well bedded rock with beds ranging in thickness from one to six feet.

Near line 800E at about 1900S the quartzite contains pyrite and has a highly rusted surface. Two old pits have been blasted into this outcrop, but no sulphides other than pyrite was observed.

Graywacke

The graywacke is a dark, fine-grained well bedded rock consisting of a granular mixture of quartz and feldspar in a silty argillaceous matrix. Being less resistant to erosion it does not form the prominent ridges characteristic of the boulder conglomerates and metagabbro.

Metagabbro

Metagabbro underlies about 40^o of the mapped area occurring as concordant masses within the sedimentary rocks. The rock is medium to coarse-grained and on the weathered surface is characterized by a speckled black and white texture. It is highly resistant to erosion and forms high ridges with little soil cover.

This metagabbro is the host rock for the known commercial type sulphide occurrences. In the vicinity of the known mineralized occurrences the rock exposure is so complete that it can be seen that the sulphide concentrations are localized to a few feet in diameter.

Olivene diabase

Olivene diabase dikes are the youngest rocks in the area. They are readily eroded and the occurrences were found as small outcrops in linear valleys trending northeast. Three such dikes have been plotted on the mapped area.

Faulting

Although no faults were definitely recognized in the mapped area, there is reason to believe that numerous faults do occur. The field evidence consists of shearing, scarps and brecciation. Since these features occur parallel to the bedding there is no interruption of the stratigraphy and therefore they have not been plotted as faults. The most prominent of the indicated faults can be traced as a steep scarp across the centre of the property on claims 154175, 154176, 152572, 208586, 208585 and 155702.

Sulphide zones

Apart from one pyritic occurrence in quartzite, all the known sulphide showings occur in the metagabbro sills. Pyrrhotite and chalcopyrite were noted in old pits at the following locations:- 2600E., 2400N., 850E., 2100N., 1800E., 300N and 800E., 700N. In addition to these occurrences a number of rusty patches in gabbro were noted on the traverses. All these showing lie in virtually bare outcrop areas. It is readily apparent that the sulphides are restricted to scattered patches a few feet in diameter and there is no discernible pattern to the rusty patches. Only selected specimens of the mineralized material would give assays of economic interest.

MAGNETOMETER SURVEY

General

A magnetometer survey was carried out using a McPhar M700, vertical field, flux gate principle instrument. Readings were taken at 100 foot intervals on lines spaced at 400 feet. The field work was carried out from June 3 to June 12, 1969.

The results are plotted on the accompanying map on a scale of one inch equals 200 feet.

Discussion of Results

As can be seen from the accompanying map, the magnetic results show scattered anomalous extremes. Intermediate readings were made surrounding each of these magnetic highs. This additional work has not been plotted on the enclosed map, but the field work indicated very clearly that the anomalous readings are purely local in extent. These conclusions are substantiated by geological observations. The excellent rock exposures

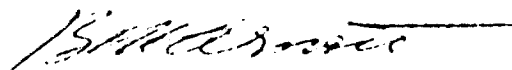
show that each rusty patch produces a high magnetometer reading. This mineralization is purely local and there is no discernible pattern to the occurrences.

CONCLUSIONS

1. Copper-nickel sulphide occurrences are restricted to the sill of metagabbro, particularly in the northeast part of the property.

2. Rock exposure is excellent in the vicinity of the know sulphide occurrences and it is readily apparent that these occurrences have limited lateral extent and no discernible structural pattern. Only selected specimens from these sulphide zones carry interesting values in copper and nickel.

3. Magnetometer work supports the geological observations that the sulphide occurrences are local in extent. No significant anomalies occur in the linear valleys that are believed to be caused by faulting.



B. M. Arnott, P. Eng.

Toronto, Ontario

October 20, 1969

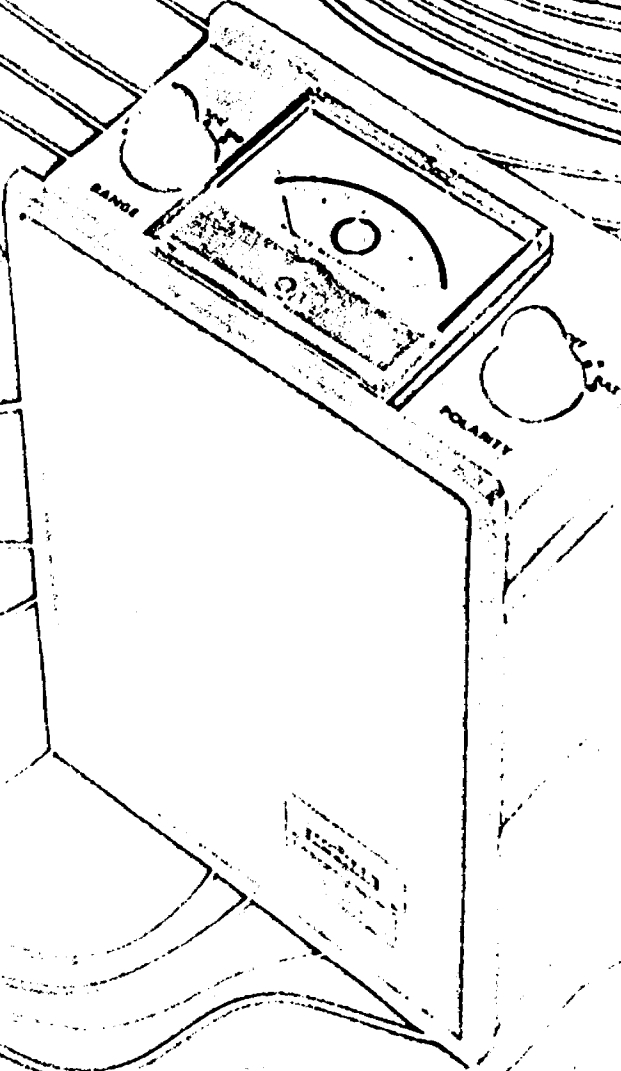
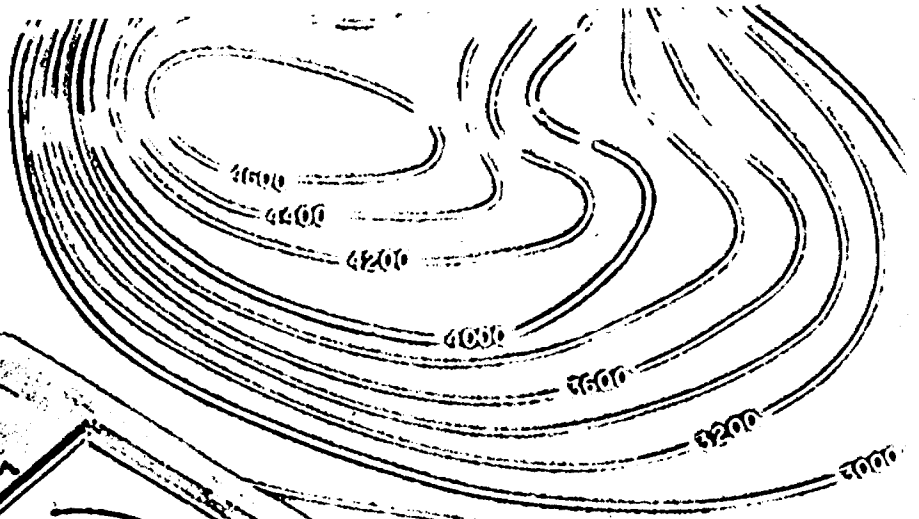




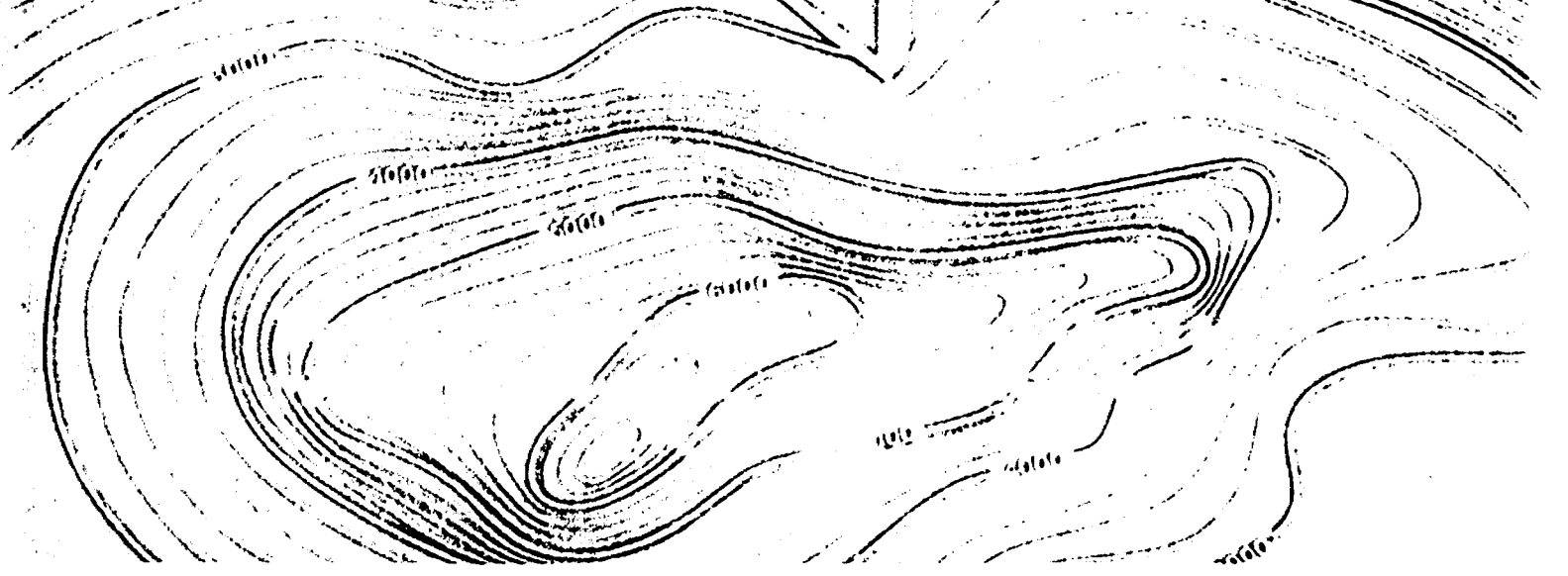
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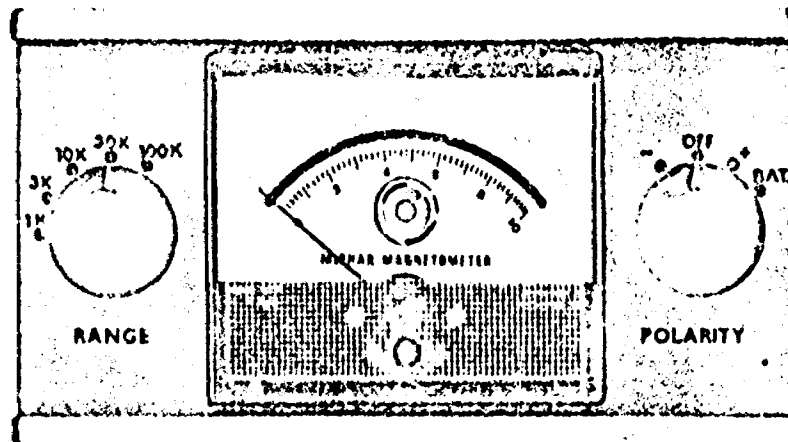
MCPHAR
M700



**New
Temperature
Specs.**



M700



DESCRIPTION:

The new McPhar M-700 Magnetometer is a vertical field flux gate magnetometer of exceptionally fine quality, featuring ruggedness and stability never before available in any type of field magnetometer. The instrument is self-levelling and a self-nulling circuit permits rapid, accurate measurements of variations in the earth's magnetic field from a meter, without adjustments or calculations.

The self-levelling feature of this electronic magnetometer eliminates the need for bulky tripods and time consuming fine levelling procedures. Further, the instrument is relatively insensitive to orientation. Since the instrument can be adjusted electronically to cancel vertical magnetic fields from plus 100,000 gammas to minus 100,000 gammas there is no need for auxiliary magnets or complicated latitude adjustments.

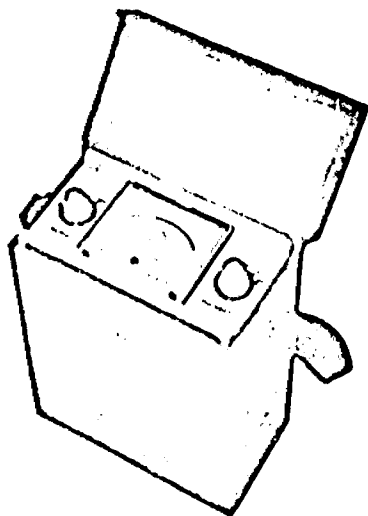
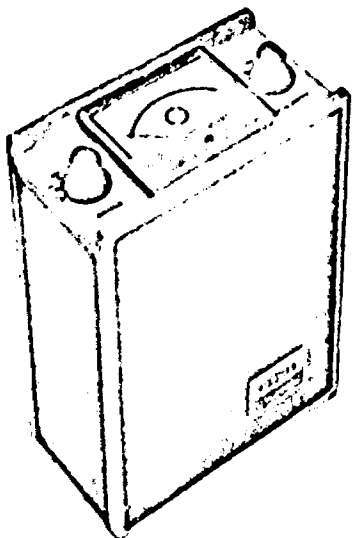
The operation of the M-700 Magnetometer is very simple. The reading on the meter is set to zero at the chosen base station. This can be done to an accuracy of 5 gammas. As successive stations are occupied, the instrument is held roughly level, and the increase or decrease in the vertical component of the earth's magnetic field is read directly from the meter. Five ranges are available and on the most sensitive range the accuracy is ± 5 gammas.

The M-700 Magnetometer is a field engineered instrument incorporating the latest advances in semi-conductor components. It has many hidden features such as the taut band meter suspension (no bearings), taut band sensing head suspension, inherently stable electronic circuits and components which require no temperature compensation, plug in circuit panel construction, etc.

Although basically designed as a hand held field magnetometer, the M-700 accessory socket greatly extends the versatility of the instrument, as outlined in the specifications.



SPECIFICATIONS



TEMPERATURE STABILITY — All magnetometers are temperature tested, prior to shipment. For general purposes, the temperature drift in the M700 is so small that it may be neglected.

Improvements have been achieved such that the maximum total temperature drift is less than 50 gammas over the entire range from -35°C to $+55^{\circ}\text{C}$. (Batteries not allowed to freeze.) See sample temperature chart.

The magnetometer itself will operate between -40 and $+60$ degrees centigrade with no loss in sensitivity.

MEASUREMENT RANGES — Zero to $\pm 100,000$ gammas in five ranges.

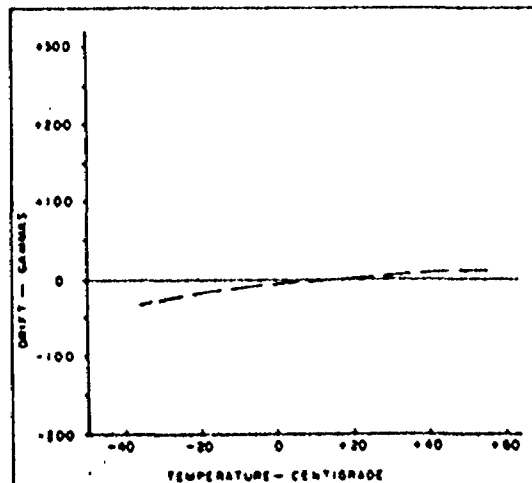
RANGE SWITCH POSITION	FULL SCALE IN GAMMAS	GAMMAS PER SCALE DIVISION
1K	1,000	20
3K	3,000	50
10K	10,000	200
30K	30,000	500
100K	100,000	2,000

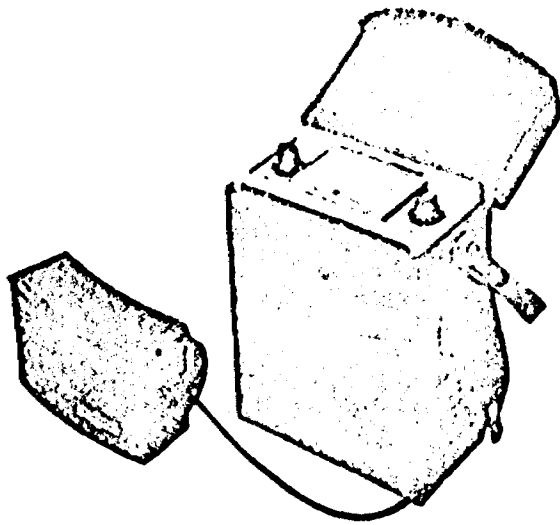
MEASUREMENT POLARITY — The above ranges can be reversed in polarity as a simple function of the on-off switch.

LATITUDE ADJUSTMENT — A ten revolution precision potentiometer permits cancelling the earth's field up to $\pm 100,000$ gammas. The control has a positive locking lever, removing hazard of accidentally dislodging the setting.

SELF-LEVELLING SENSING HEAD — The unique self-levelling Sensing Head of this magnetometer is inserted into the instrument as a plug-in unit. This feature increases the versatility of the magnetometer making it possible to use different types of external sensing heads without modification to the magnetometer. External sensing heads are simply plugged into the accessory plug via a connecting cable. (See accessory list.)

ORIENTATION ERROR — The orientation error is fixed at the factory to less than 25 gammas for 180 degrees orientation change in a horizontal field of 15,000 gammas.





BATTERY SUPPLY — Two internally mounted transistor type batteries operate the magnetometer. A built-in voltage regulator permits unaffected operation to 65% of initial battery voltage. A battery check switch position indicates the battery voltage directly on the meter scale. Any two of the following batteries may be used: Eveready 276, Burgess D6, Mallory M1603. The batteries weigh 14 ounces each. For below freezing operation, the internal batteries may be moved to an external battery case that can be worn under the operators clothing. If desired, an external battery case is available to accommodate 12 "C" size flashlight batteries.

DIMENSIONS — 4 x 7 x 10½ inches.

WEIGHT — 6½ pounds, less batteries and carrying case.

LEATHER CASE — The sturdy leather carrying case has a side flap to permit nulling the background field without removing the instrument from the case. The side flap also accommodates the accessory plug for external batteries, etc., leaving the top lid free to be closed when operating during rainfall or through snow laden bush.

SPECIAL FEATURES

SIDE PANEL — A sliding side panel exposes the latitude adjustment control, accessory switch and the accessory socket.

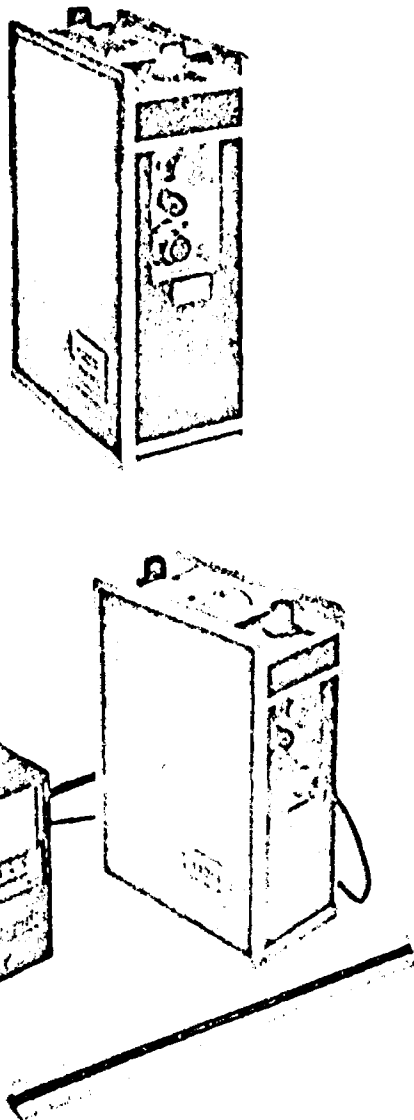
ACCESSORY SOCKET — This feature allows many more applications of the magnetometer without requiring any modification of the instrument. Only some of these are mentioned here:

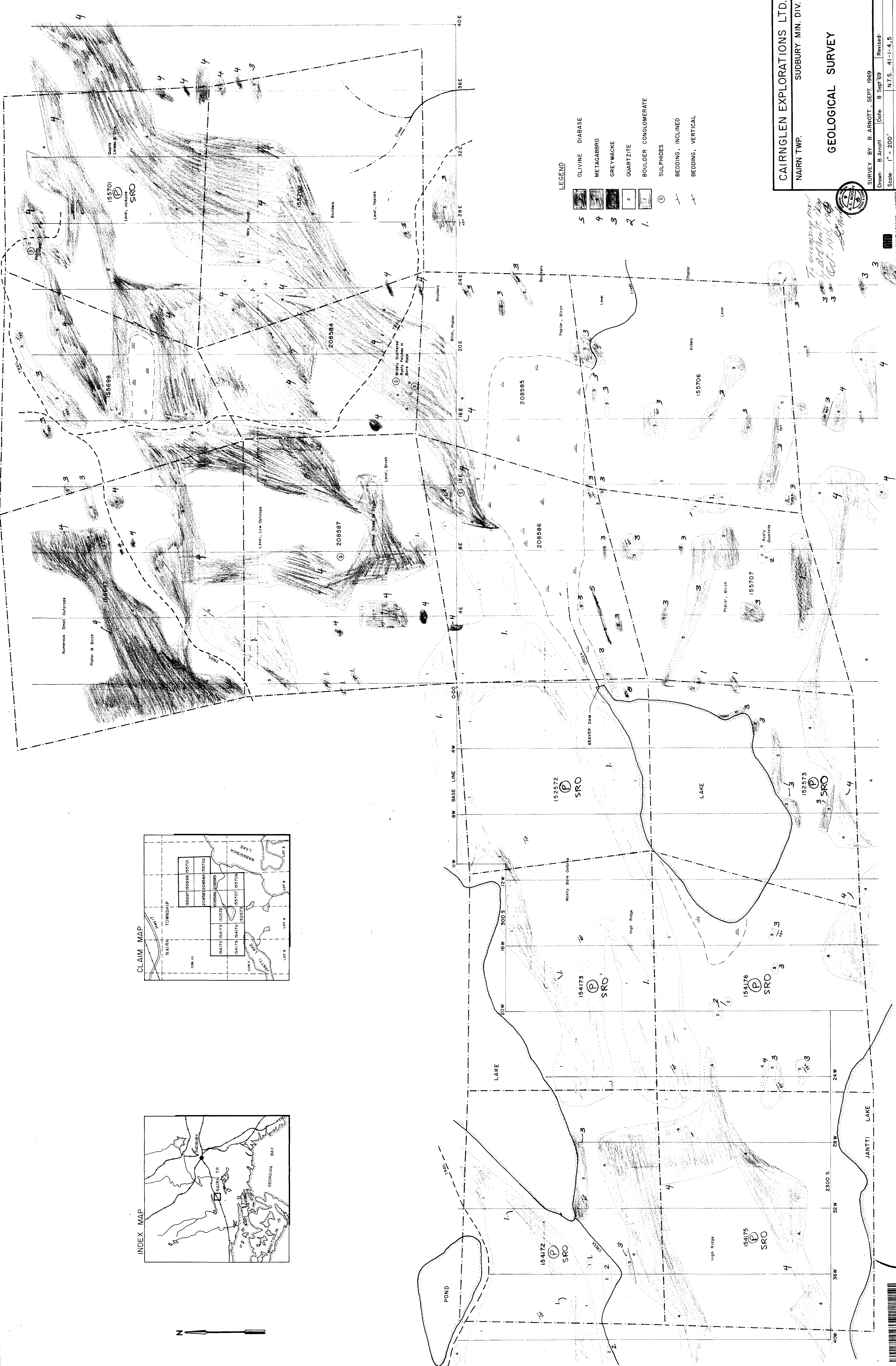
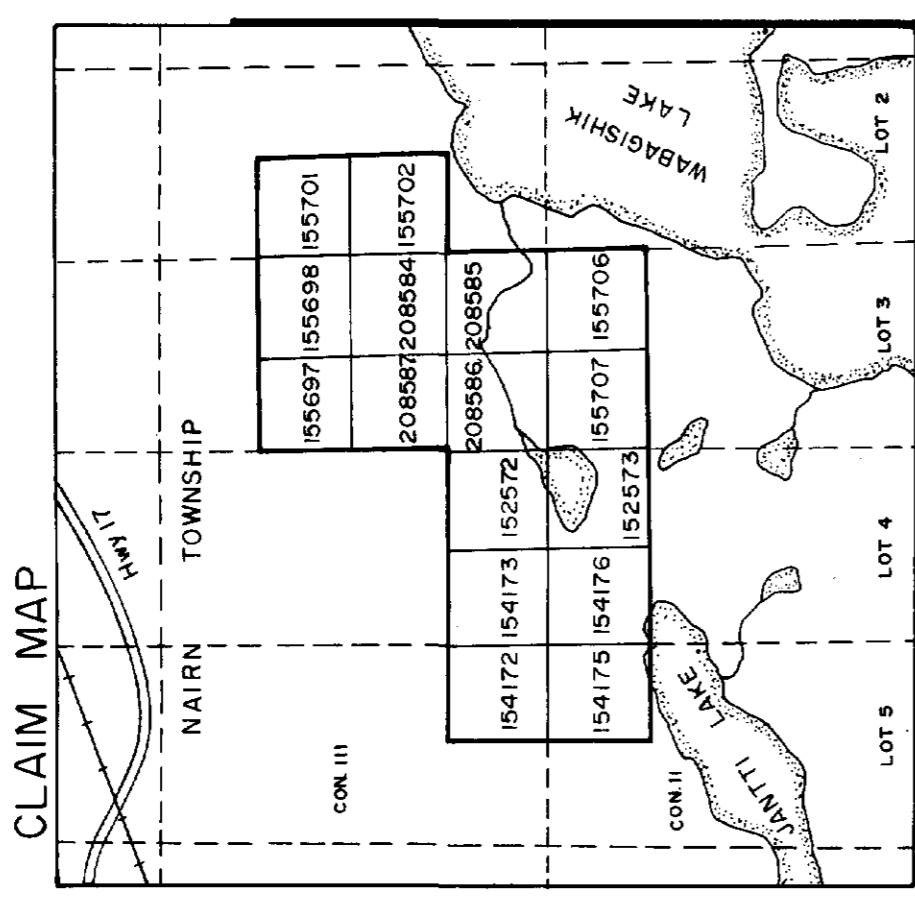
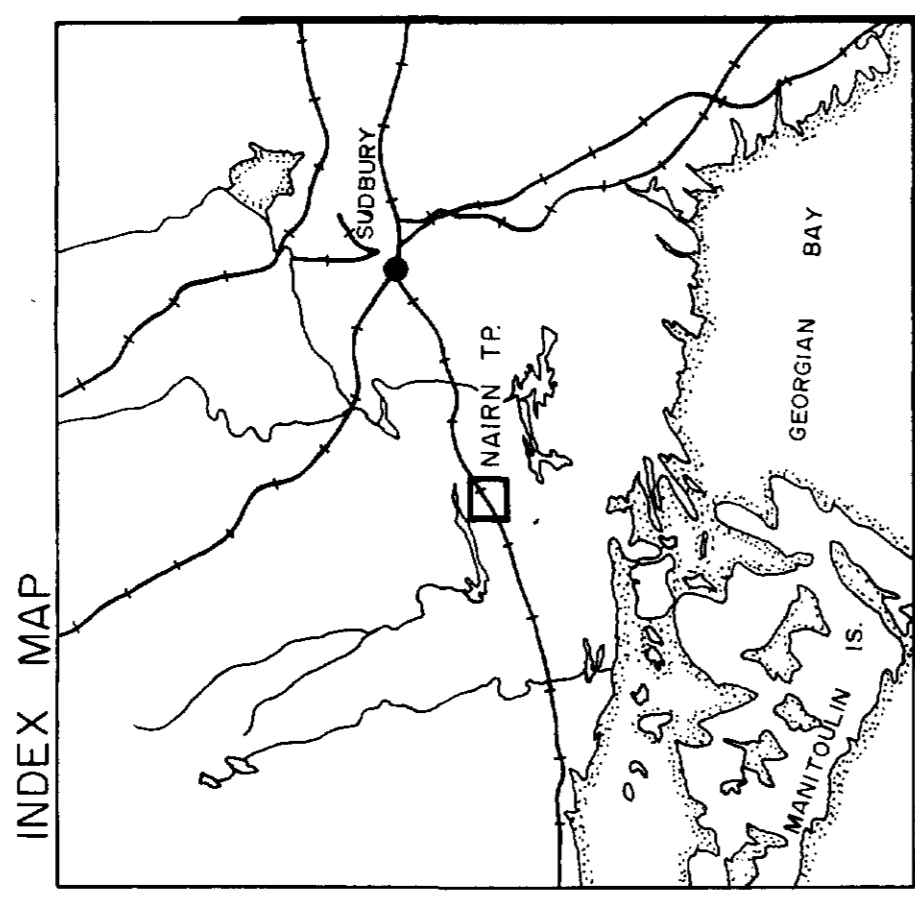
- with external batteries for below freezing temperatures.
- with external heavy duty battery and recorder for long term base station monitoring. Any current type recorder with a sensitivity of one milliamperes for full scale deflection or better can be used as well as any potential type recorder with a sensitivity of one volt for full scale deflection or better. The picture shows one of the miniature type recorders combined with the magnetometer.
- with external gyro stabilized sensing head and recorder for air-borne or mobile recording.
- with external horizontal sensing head as a horizontal field magnetometer.
- many other uses with accessories available from McPhar.

CONSTRUCTION — Ruggedness and ease of maintenance has been applied throughout. A strong, rigid aluminum frame case construction houses the electronics which is built up on plug-in fibreglass panels. The plug-in units are a valuable feature that facilitate quick and easy maintenance without requiring to dismantle the instrument should service ever be required.

READOUT METER — A large 3 inch rectangular taut band meter with red and black calibrated scales and parallax mirror make readings easier and more accurate.

ACCESSORIES — Some of the accessories available from McPhar are: external battery case to accommodate either the internal batteries or flashlight cells, external battery and recorder cable, external sensing head cable. External sensing heads are available for airborne use, for horizontal field measurement, fixed type, etc.





- LEGEND**
- 5 OLIVINE DIABASE
 - 4 METAGABBRO
 - 3 GREYWACKE
 - 2 QUARTZITE
 - 1 BOULDER CONGLOMERATE
 - ⑤ SULPHIDES
 - BEDDING, INCLINED
 - BEDDING, VERTICAL

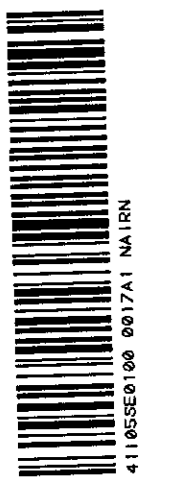
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SUDBURY MIN. DIV.

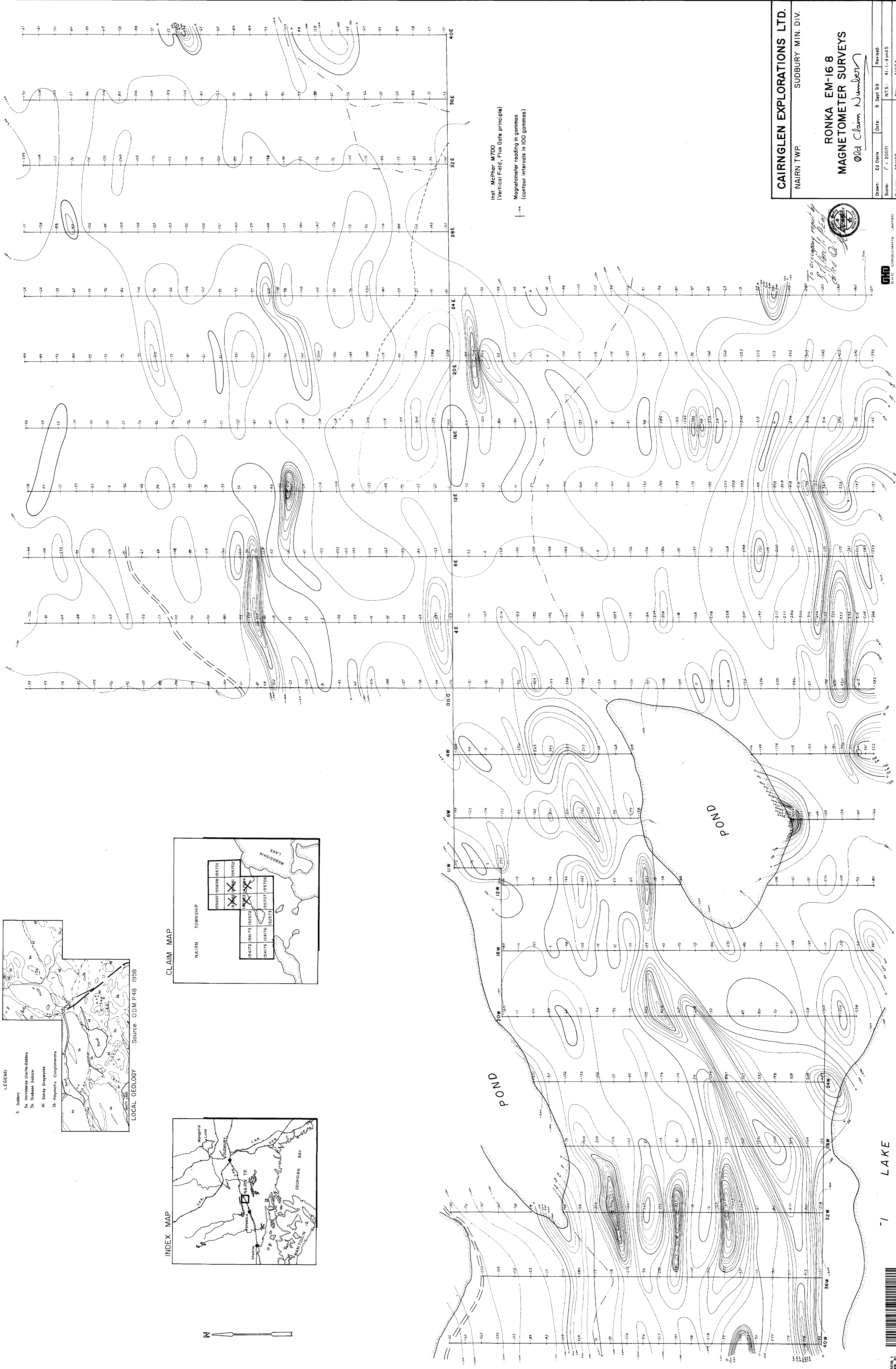
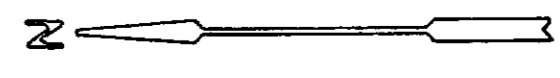
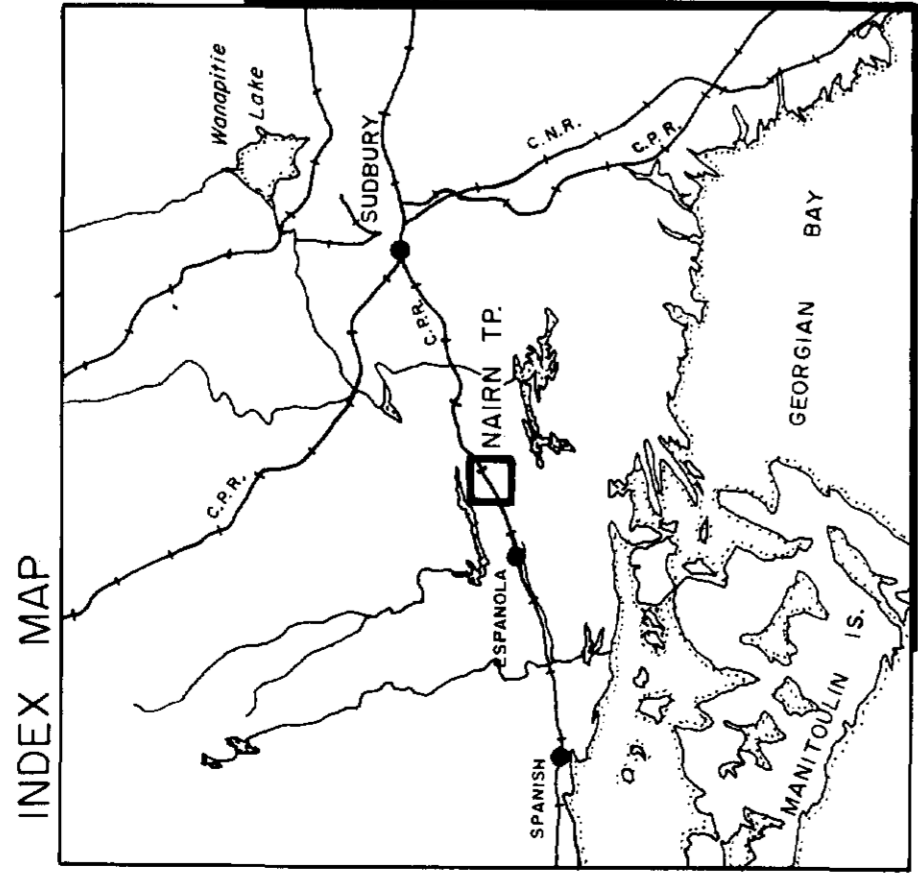
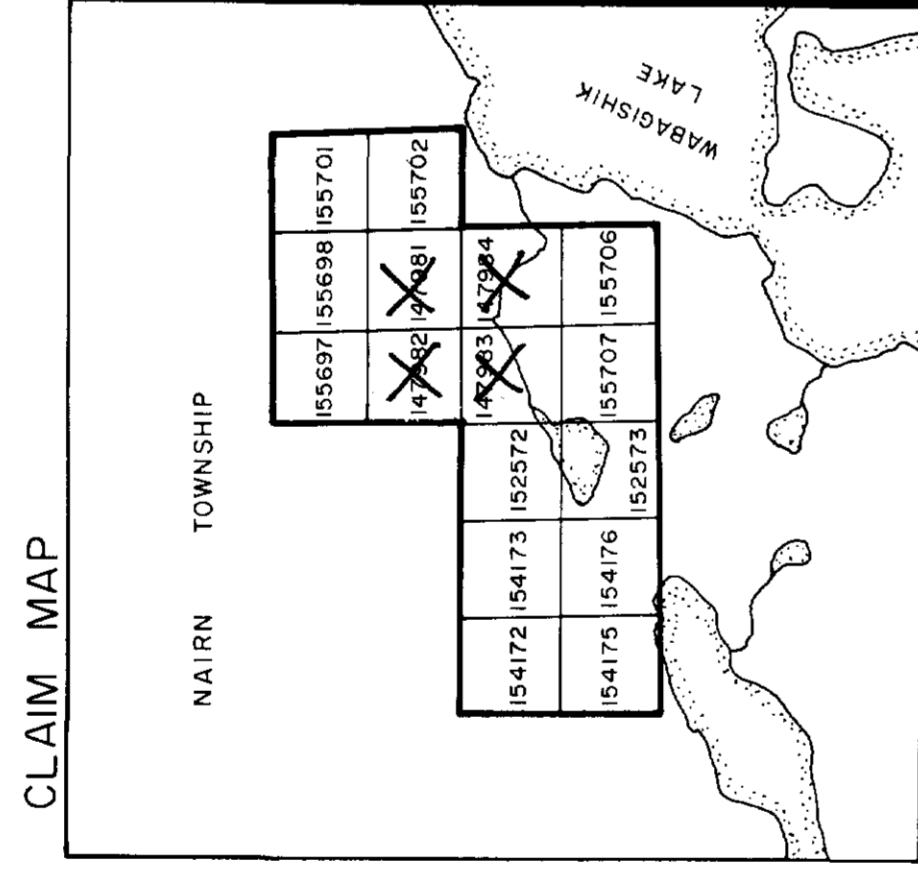
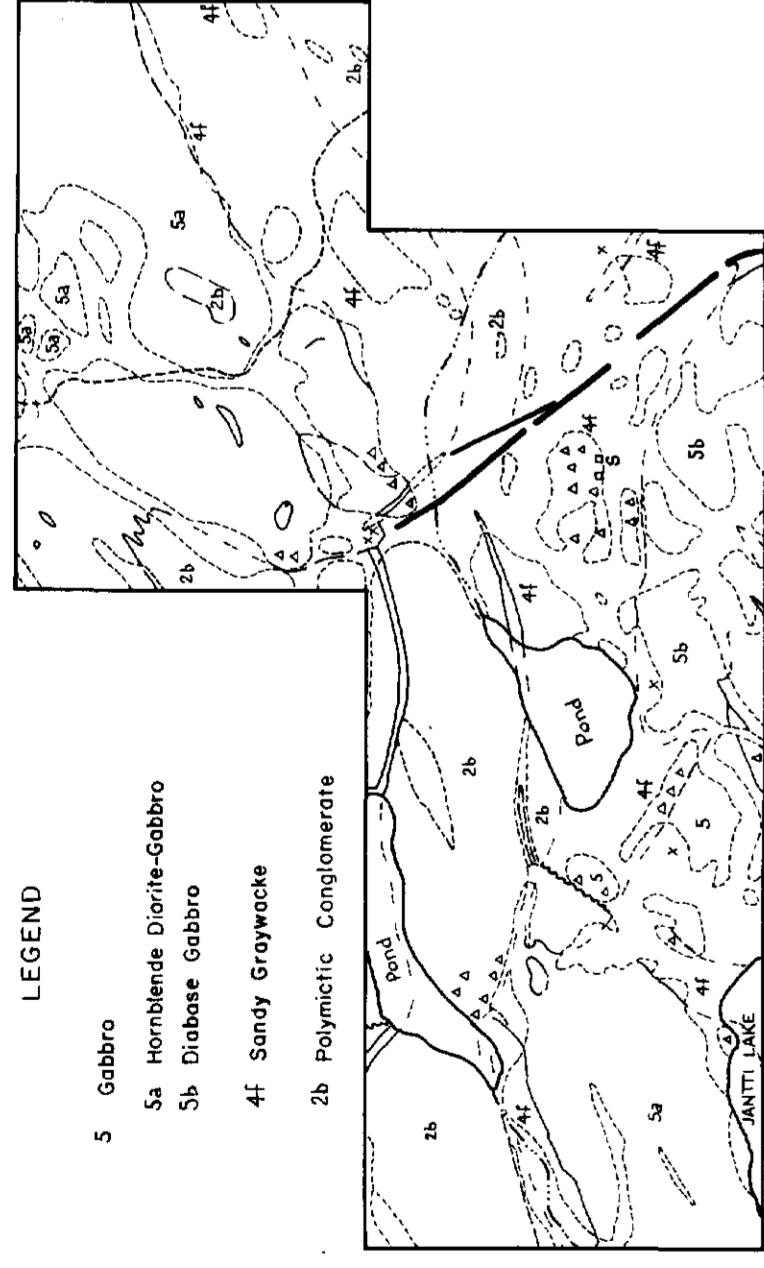
GEOLOGICAL SURVEY

SURVEY BY B. ARNOTT, SEPT. 1969
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 Scale: 1" = 200' N.T.S. 41-1-4, 5
 Drawing: 69/206 File: 41034



*To accompany report
 by B. Arnett, Sept. 1969
 Oct. 1973*

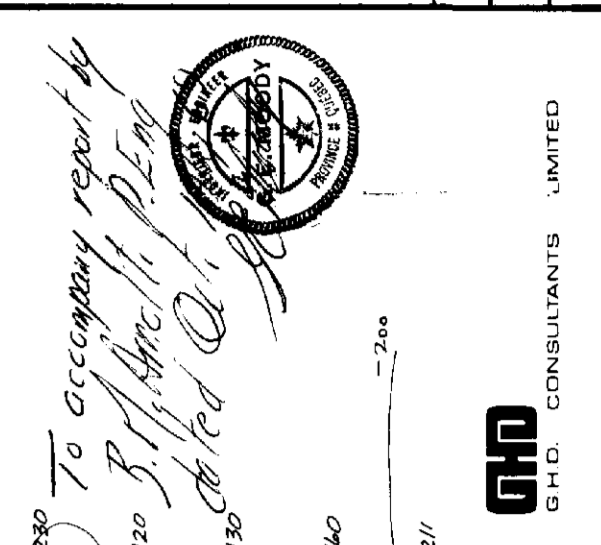


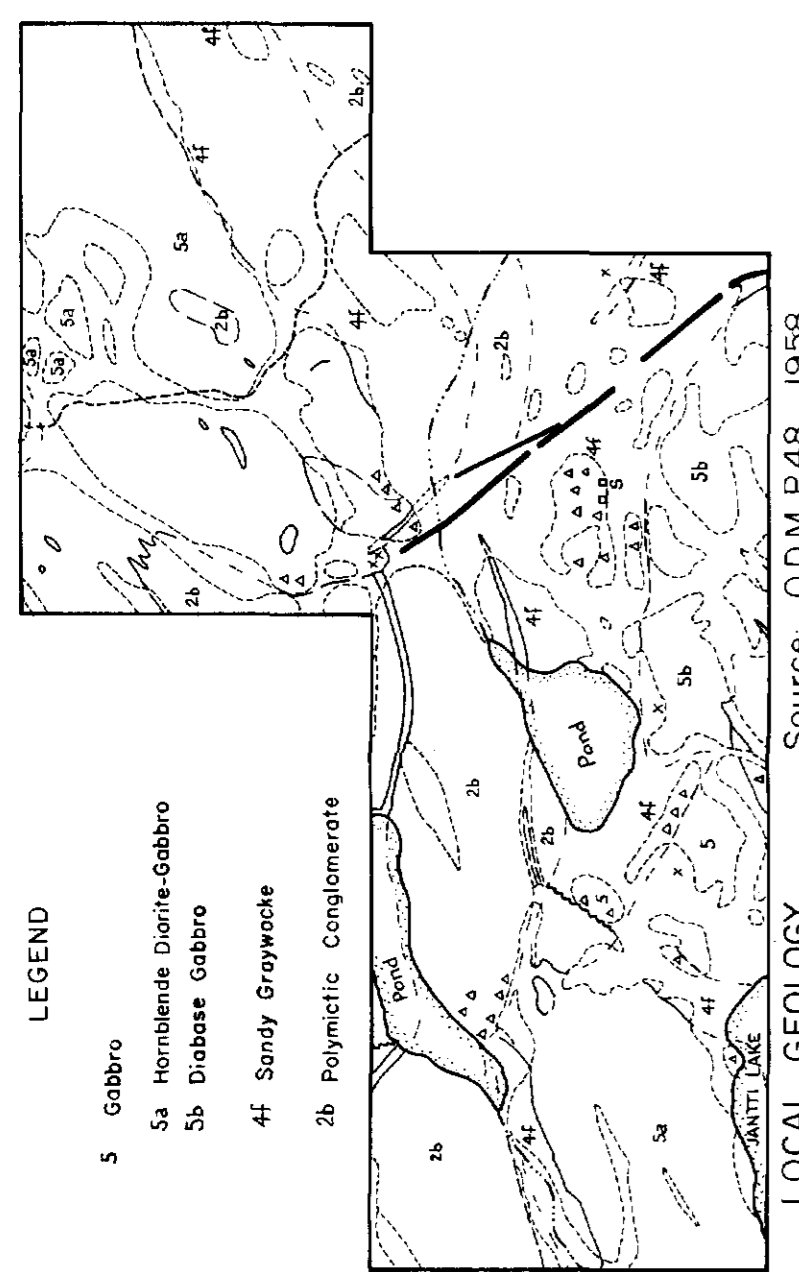


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NAIRN TWP. SUBURY MIN. DIV.

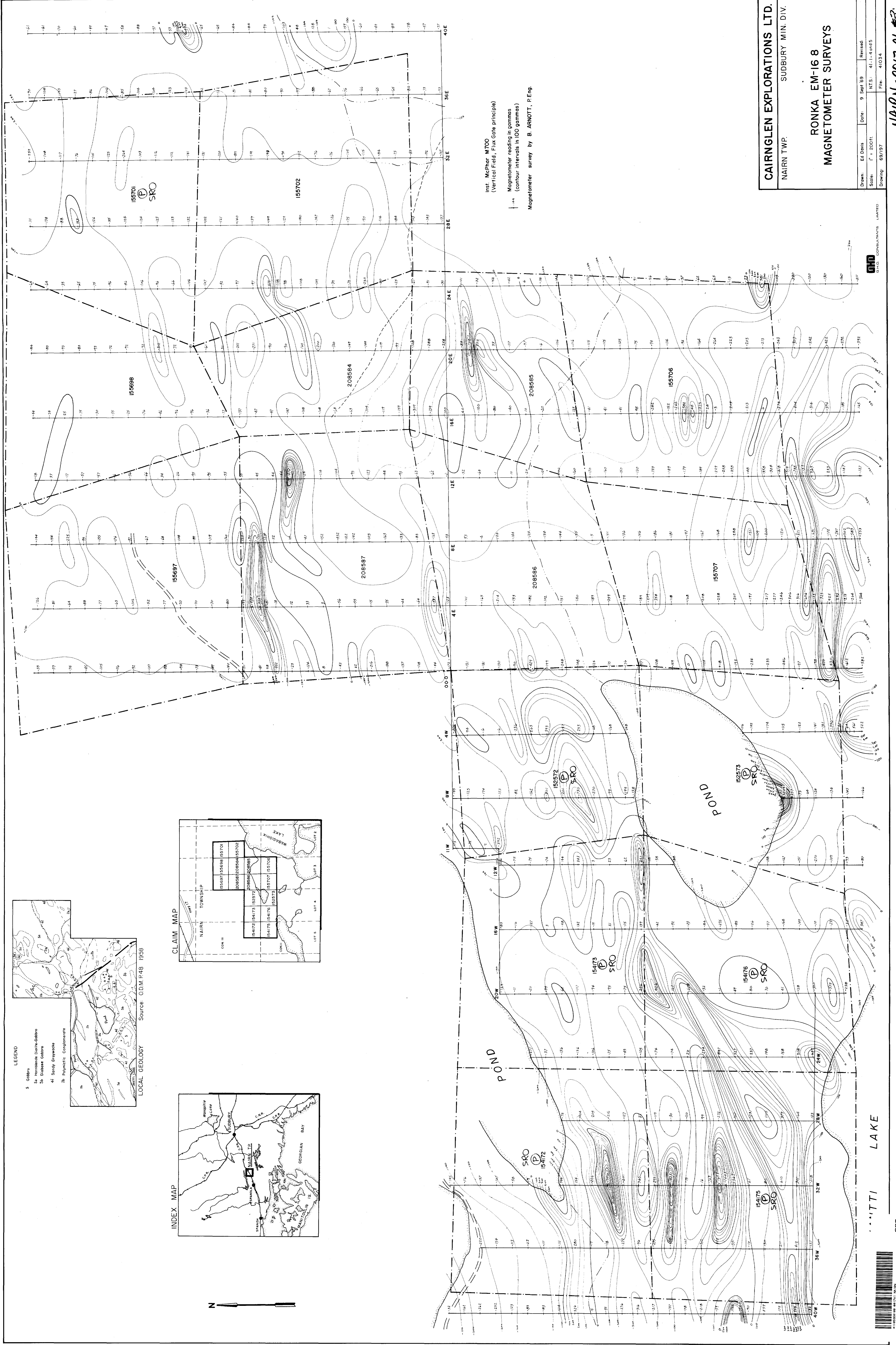
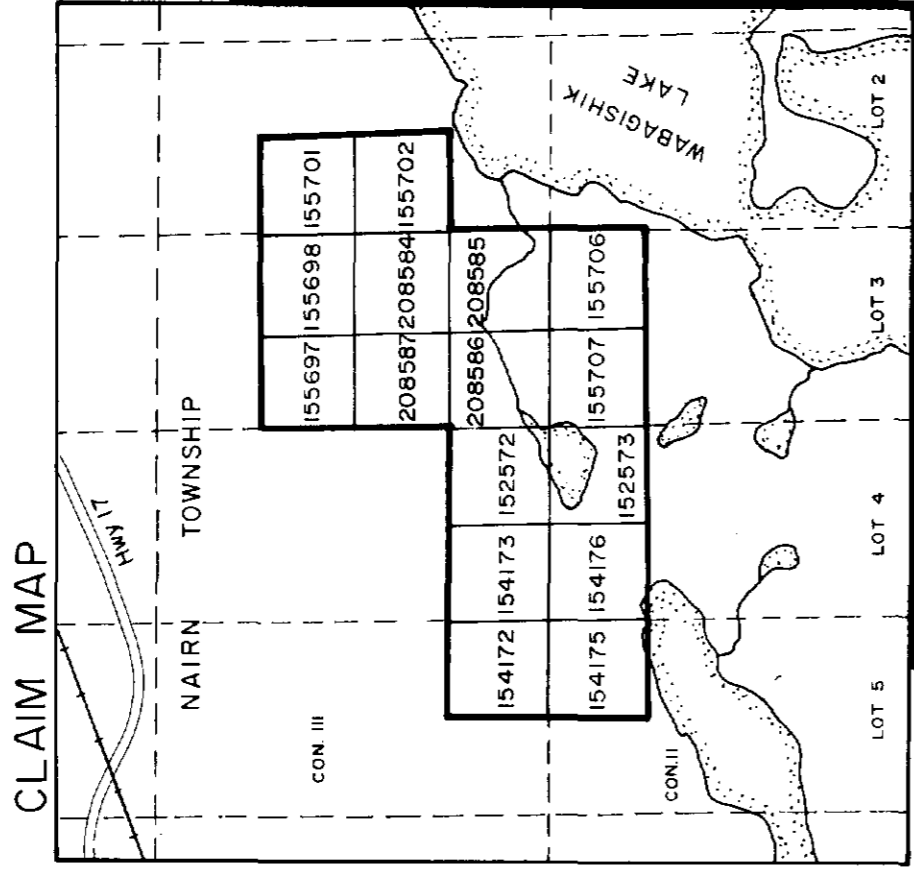
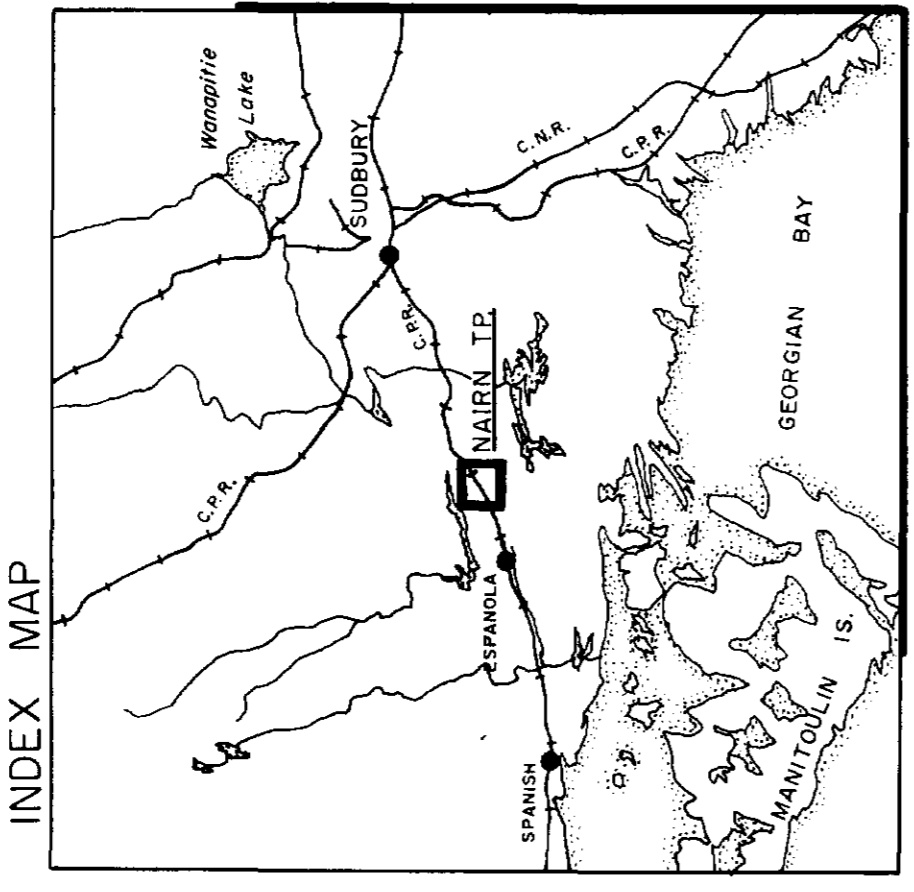
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MAGNETOMETER SURVEYS
Old Claim Numbers

Drawn: EG Davis Date: 9 Sept 89 Revised:
Scale: 1" = 200ft. N.T.S.: 41-1-4 and 5
Drawing: 69/137 File: 41034





- LEGEND**
- 5 Cobble
 - 5a Medium to Dark Cobble
 - 5b Dark Cobble
 - 4 Sandy Gravel
 - 3 Polyhedral Conglomerate



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RONKA EM-16 8
MAGNETOMETER SURVEYS

Drawn: E.D. Davis Date: 9 Sept 89 Revised:
Scale: 1" = 200ft. N.T.S.: 41-1-4 and 5
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