

Report on a Geophysical Survey

63 2633

on a property in Nairn Twp.

Province of Ontario

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INTRODUCTION

The following report is an interpretation of the results of a magnetometer and E.M. survey conducted by Mr. Alex Clark over a group of 20 claims located in Nairn Township, Province of Ontario. The writer did not visit the ground or supervise the survey, but only interpreted the results supplied.

PROPERTY, LOCATION AND ACCESS

The property is located in the S.W. 1/4 of Nairn Township. The claim numbers are S. 231922 to S. 231941 inclusive.

Access is by means of a road crossing the west portion from Highway 17, 3 1/2 miles southwest of the Town of Nairn.

TOPOGRAPHY AND FEATURES

The ground is flat lying on the west and extremely hilly on the east. Bush is typical of the Precambrian shield, being second growth conifers, birch and poplar.

Several creeks cross the property and three lakes are present, while the Spanish River crosses the west boundary.

GEOLOGY

The bedrock consists of Precambrian sediments and mafic intrusive rocks.

The geological sequence is shown as follows:

Cenozoic:

- Recent - much
- Pleistocene - sand gravel, clay



010



Precedence:

Keweenaw (?)

Dabase

Post Sedimentary Intrusive Rocks:

Nickel Irruptive - Gabbro Diorite Breccia

Basic Intrusive Rocks

Sedimentary Rocks:

Upper Quartzite

Upper Argillite

Upper Conglomerate

Middle Quartzite

Middle Greywacke

Lower Conglomerate

Lower Argillite

Lower Quartzite

Detailed Geology is shown in the Geological Report #35 of Nairn and Lorne Townships by R. M. Ginn, 1963, and Map 2062 published by the Ontario Department of Mines.

Three showings are indicated on Map 2062 numbered 2, 6, and 7, for Cu and Ni, 2 and 6 of which are on the property.

SURVEY

The survey was conducted over a grid of 200' x 100' with intermediate stations over anomalous areas. The grid was cut in a north-south direction.

The E.M. survey was conducted using a Crane J.E.M. dual frequency unit in a shoot back configuration; 200-foot spacing results were plotted in a graphical profile.



The magnetometer survey was conducted using a Sharpe M.F.I. fluxgate magnetometer on the same grid. All readings were corrected.

### RESULTS

The E.M. survey revealed two zones of major interest coinciding with the known showings, and some areas of minor interest. Strong crossovers were apparent at Zones A and B, weak ones indicated at C and D.

The magnetometer revealed eight anomalous conditions as indicated by figures A, B, C, D, E, F, G, and H.

Condition F mag. coincides with E.M. conductor B<sub>EM</sub> and G mag. coincides with C<sub>EM</sub>, as does D mag. and D<sub>EM</sub>.

Further study in depth might reveal other relationships that are not apparent on the preliminary examinations.

### RECOMMENDATIONS

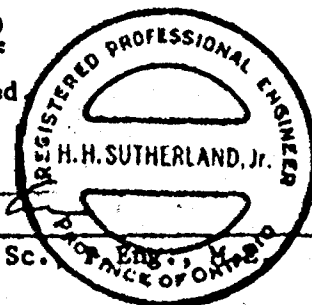
The anomalous conditions at EM - A, B, C, and D, and those at F, G, and D should be further investigated by detailed geophysical and geochemical surveys. Diamond drilling might also be utilized at A and B<sub>EM</sub>.

The results are encouraging at the above-mentioned areas, as two relate to known showings and three of the four show strong coincidence. Further work is justified. Estimated cost of further exploration should be as follows:

Detail Geophysics and Geochem. -	\$2,500.00
Drilling -	<u>5,000.00</u>
Total Estimate -	<u>\$7,500.00</u>

Respectfully submitted

  
H.H. Sutherland, B.A.Sc.



December 16, 1969  
Toronto, Ontario

SPECIAL PROVISION  
ASSESSMENT WORK DETAILS

Type of Survey Electromagnetic  
A separate form is required for each type of survey

Chief Line Cutter or Contractor Alex Clark Apt 2301-77 Howard St Toronto  
Name Address

Party Chief Alex Clark same  
Name Address

Consultant H.H. Sutherland P. Eng. 12 Richmond St. E. Toronto  
Name Address

COVERING DATES Line Cutting Nov 20 to Dec 9, 1969

Field Geology or Geophysics Dec 6 to 15, 1969

Office Dec 14 to 17, 1969

INSTRUMENT DATA Make, Model and Type Crone J.E.M. vert loop shootback

Scale Constant or Sensitivity 1 degree 1111  
*Or provide copy of instrument data from Manufacturer's brochure.*

Total Number of Stations Within Claim Group 1900 Number of Miles of Line cut Within Claim Group 38.5

ASSESSMENT WORK CREDITS REQUESTED Geological Survey  Days per Claim

Geophysical Survey 20 Days per Claim

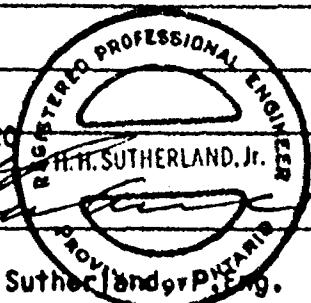
MINING CLAIMS TRAVERSED

S251922 to 251941 incl

TOTAL 20

DATE Dec 17, 1969 SIGNED H.H. Sutherland Jr.

H.H. Sutherland Jr. P. Eng.



Special provision credits do not apply to Radiometric Surveys.

SPECIAL PROVISION  
ASSESSMENT WORK DETAILS

Type of Survey Magnetometer  
A separate form is required for each type of survey

Chief Line Cutter or Contractor Alex Clark Apt. 2301-77 Howard St. Toronto  
Name Address

Party Chief Alex Clark "  
Name Address

Consultant H.H. Sutherland P. Eng. 12 Richmond St E Toronto.  
Name Address

COVERING DATES Line Cutting Nov 20 to Dec 9 1969

Field Geology or Geophysics Dec 6 to dec 15 1969.

Office Dec 14 to 17, 1969

INSTRUMENT DATA Make, Model and Type Sharpe M.F. 1 fluxgate

Scale Constant or Sensitivity 10 gammas  
*Or provide copy of instrument data from Manufacturer's brochure.*

Total Number of Stations Within Claim Group 1000<sup>+or 7</sup> Number of Miles of Line cut Within Claim Group 38.9

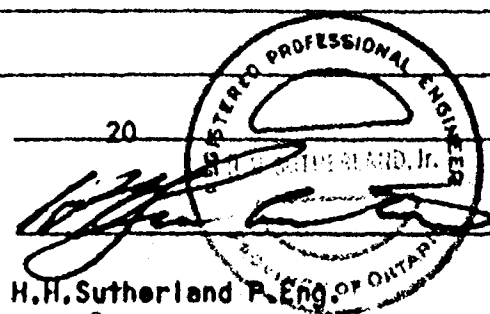
ASSESSMENT WORK CREDITS REQUESTED Geological Survey 0 Days per Claim

Geophysical Survey 40 Days per Claim

MINING CLAIMS TRAVERSED  
s. 231922 to S231941 incl.

TOTAL 20

DATE Dec 17, 1969 SIGNED H.H. Sutherland P. Eng.



Special provision credits do not apply to Radiometric Surveys.

Operation of Crone J. E. M. Vertical loop shoot-back method  
Chief to the North - Helper to the South - Readings consecutively.  
200 foot spreads - readings every 100 feet except in anomalous conditions,  
hence every 50 feet. We can conclude that this is standard procedure.

Thank you.

*Alex H. Clark Jr.*



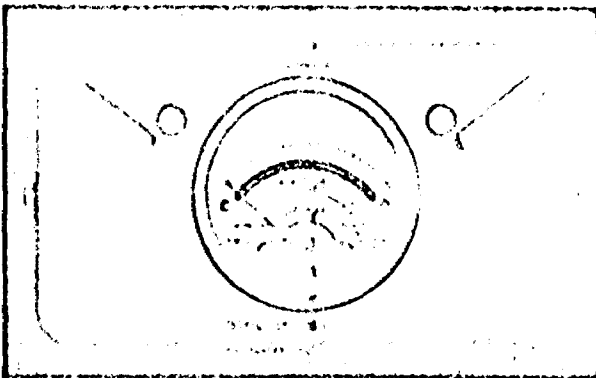
SCINTREX

## FLUXGATE MAGNETOMETER

The MF-1 Fluxgate Magnetometers and their extended sensitivity series, the MF-1-100's are designed primarily for the oil and mineral exploration industries. They incorporate advanced transistorized circuitry and extensive temperature compensation with light weight and a self-leveling mechanism. Although the basic MF-1 and MF-1-100 are intended primarily for accurate ground surveys in the mining industry, modifications are available for base station recording, for vertical gradient measurements, for measuring susceptibilities, determining remanence of rock samples and for storm monitoring on aeromagnetic surveys.

### (a) MF-1

The MF-1 Fluxgate Magnetometer is a vertical component magnetometer designed for accurate ground surveys in



the mining industry. Advanced transistorized circuitry and extensive temperature compensation is the core of its accuracy, comparable to precision tripod mounted Schmidt type magnetometers. It is a hand held instrument and needs only coarse levelling and no orientation. Features such as direct reading of gamma values and the possibility of accurate zero settings at base stations ensure simplicity of operation and high field economy. The readability is 5 gammas on the 1000 gamma range.

### (b) MF-1-G

The MF-1-G Fluxgate Magnetometer has the same electronics and specifications as the MF-1. The difference lies in that the sensor is detached and enclosed in a small cylindrical tube thus permitting the sensor (geoprobe) to be oriented and tilted in any desired direction. Since a 25 foot connecting cable joins the sensor to the instrument housing, the geoprobe may be placed away from local spurious magnetic disturbances in the vicinity of the electronics housing. Thus this magnetometer may be used for the study of the magnetic properties of rocks, remanence etc.

### (c) MF-1-GS

The MF-1-GS Magnetometer again has the same electronics and specifications as the MF-1 but has two sensors, the attached self-leveling sensor of the MF-1 as well as the detached geoprobe of the MF-1-G. Thus this magnetometer may be employed on rapid ground magnetometer surveys and also used for vertical gradient measurements and to measure the magnetic properties of rocks.

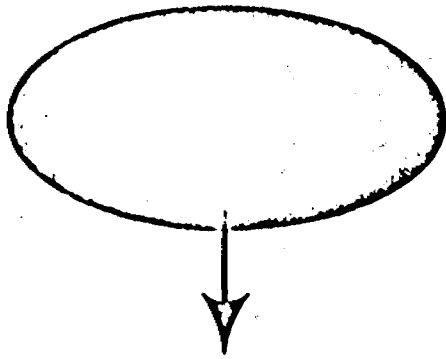
<b>Ranges:</b>	Plus or minus — 1,000 gammas f. sc. 3,000    " 10,000   " 30,000   " 100,000  "
	Sensitivity 20 gammas/div. 50       " 200      " 500      " 2,000     "
<b>Meter:</b>	Taut-band suspension 1000 gammas scale 1 7/8" long — 50 div. 3000 gammas scale 1 11/16" long — 60 div.
<b>Accuracy:</b>	1000 to 10,000 gamma ranges $\pm$ 0.5% of full scale 30,000 and 100,000 gamma ranges $\pm$ 1% of full scale
<b>Operating Temperature:</b>	—40°C to +40°C —40°F to +100°F
<b>Temperature Stability:</b>	Less than 2 gammas per °C (1 gamma / °F)
<b>Noise Level:</b>	Total 1 gamma P-P
<b>Long Term Stability:</b>	$\pm$ 1 gamma for 24 hours at constant temperature
<b>Bucking Adjustments:</b> (Latitude)	10,000 to 75,000 gammas by 9 steps of approximately 8,000 gammas and fine control by 10 turn potentiometer. Convertible for southern hemisphere or $\pm$ 30,000 gammas equatorial.
<b>Recording Output:</b>	1.7 ma per oersted for 1000 to 100,000 gamma ranges with maximum termination of 15,000 ohms.
<b>Response:</b>	DC to 5 cps (3db down)
<b>Connector:</b>	Amphenol 91-MC3F1
<b>Batteries:</b>	12 x 1.5V flashlight batteries "C" cell type) (AC Power supply available)
<b>Consumption:</b>	50 milliamperes
<b>Dimensions:</b>	Instrument — 6 1/2" x 3 1/2" x 12 1/2" 165 x 90 x 320 mm Battery pack — 4" x 2" x 7" 100 x 50 x 180 mm Shipping Container — 10" dia x 16" 254 mm dia. x 410 mm
<b>Weights:</b>	Instrument — 5 lbs. 12 oz.    2.6 kg. Battery Pack — 2 lbs. 4 oz.   1.0 kg. Shipping — 13 lbs.           6.0 kg.



**SCINTREX LIMITED**

79 Martin Ross Avenue. Downsview, Ontario, Canada





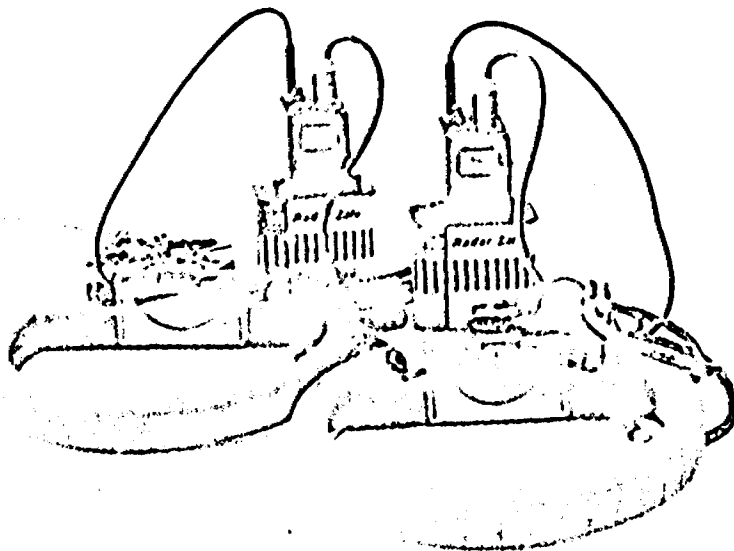
## CRONE GEOPHYSICS LIMITED

979 LAKESHORE ROAD E.  
PORT CREDIT, ONTARIO  
CANADA

Phone: 274-3704

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Since this method was developed 10 years ago by Duncan Crone it has become one of the most extensively used ground EM methods in Canada and the United States. In this period the JEM has been the basic ground EM equipment that in conjunction with other exploration methods has discovered over 110,000,000 tons of ore.

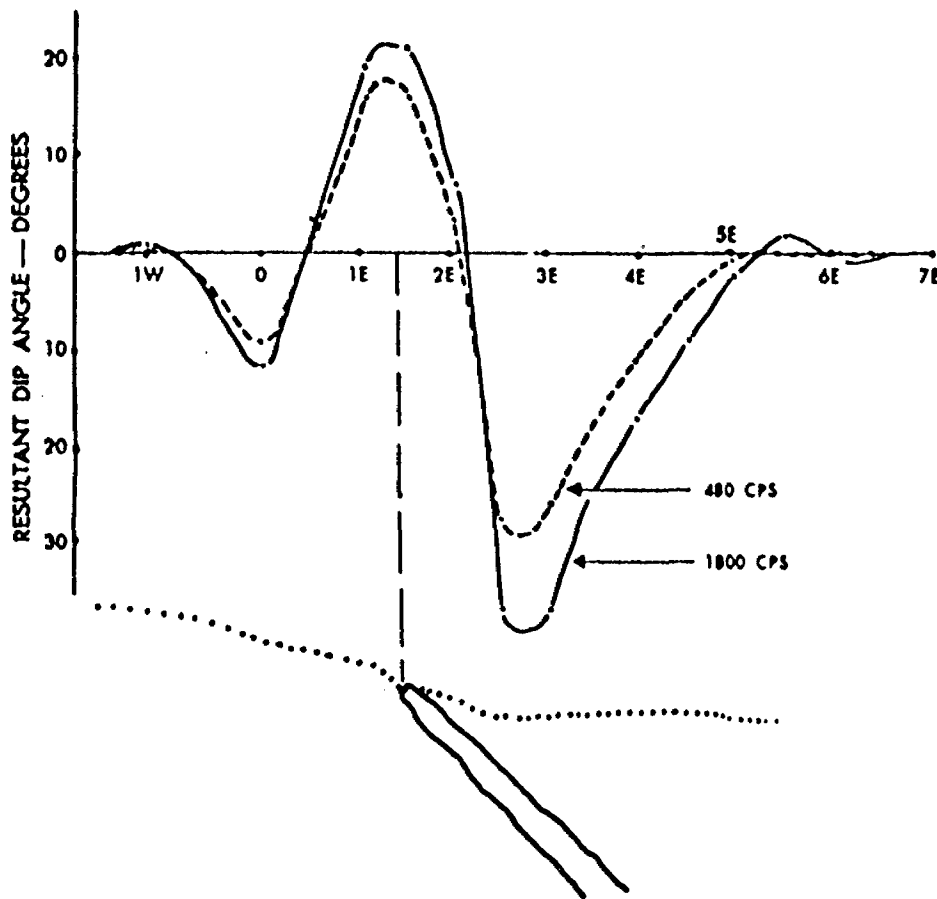


- accurate dip and conductivity analysis
- depth penetration in the order of 150'
- simple, reliable instrumentation and operation
- can be used with the Crone method or as a vertical loop unit

This is a two man operation each carrying a unit capable of transmitting and receiving. They are spaced 200' or 300' apart and travel along the same line. Both transmit and receive, the two dip angles thus obtained are then added together. If the resultant is "O" no conductors are present, otherwise a pattern is obtained dependant on the depth, dip and strike of the conductor.

\* Canadian Patent # 631,506 and U.S. # 309,911

Example of a JEM traverse over a dipping conductor located in Denbigh, Ontario.



### SPECIFICATIONS

- |                        |                                     |               |
|------------------------|-------------------------------------|---------------|
| 1) Standard Unit       | — Massive Sulphide Exploration      | 480/1800 CPS  |
| 2) High Frequency Unit | — Disseminated Sulphide Exploration | 1800/3600 CPS |

**READOUT** — Dip angle from inclinometer  $\pm \frac{1}{2}^\circ$

**NULL INDICATOR** — Audio through crystal earphones

**WEIGHT** — Per man each transceiver unit — 15 lb.  
Shipping weight including 2 spare batteries — 55 lb.

**RANGE** — non-conductive overburden  $1^\circ$  wide null at 300'  
non-conductive overburden  $15^\circ$  wide null at 500'

**BATTERY POWER** — Normal 12 volt — TW-2 Burgess; 732 Eveready, M-919 Mallory  
Hi Power 18 volt — 3 of 6 volt F4BP Burgess and Adaptor  
**BATTERY LIFE** — 2 weeks to 1 month  
**RECEIVER** — 1.4 volt mercury RM1R — life 1 year

**PRICE** \$2,000.00 including method rights

**RENTAL** \$110.00 per month

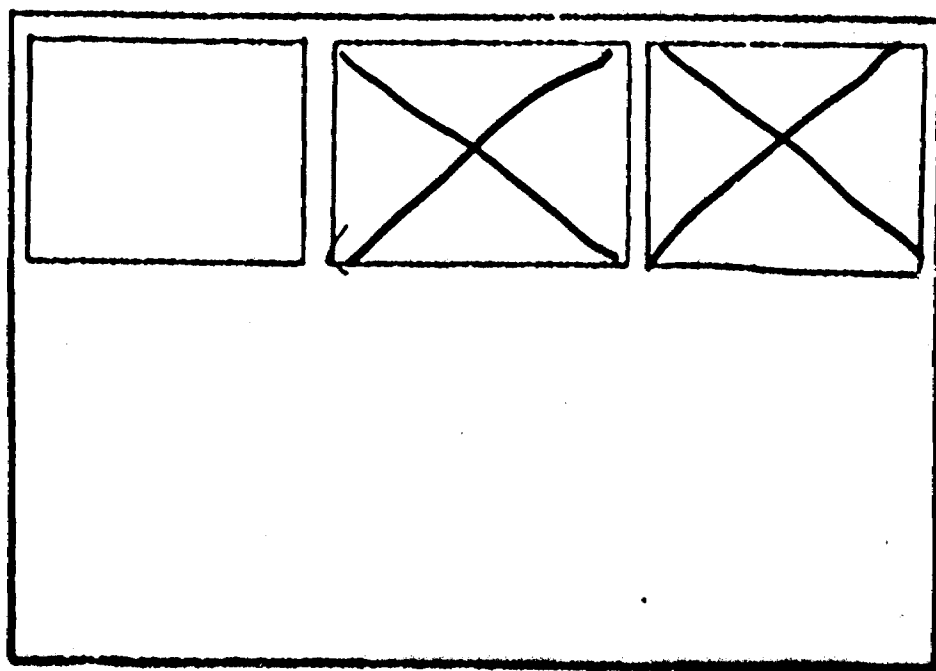


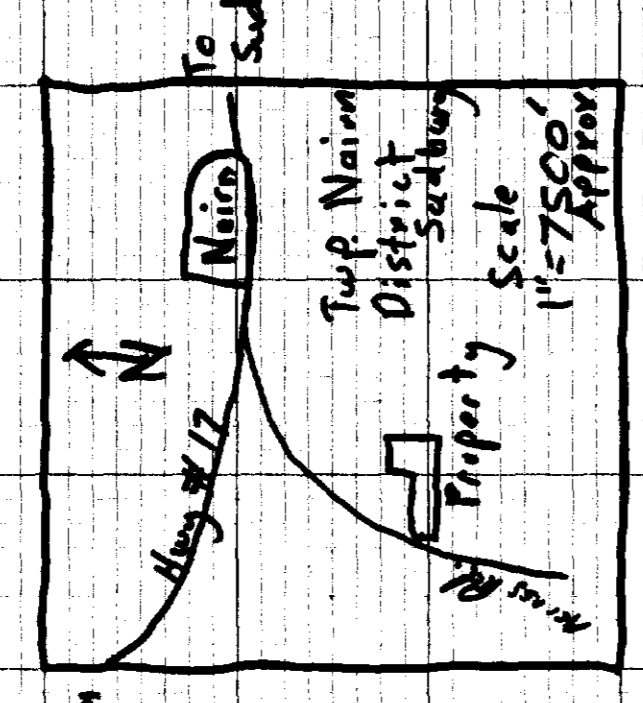
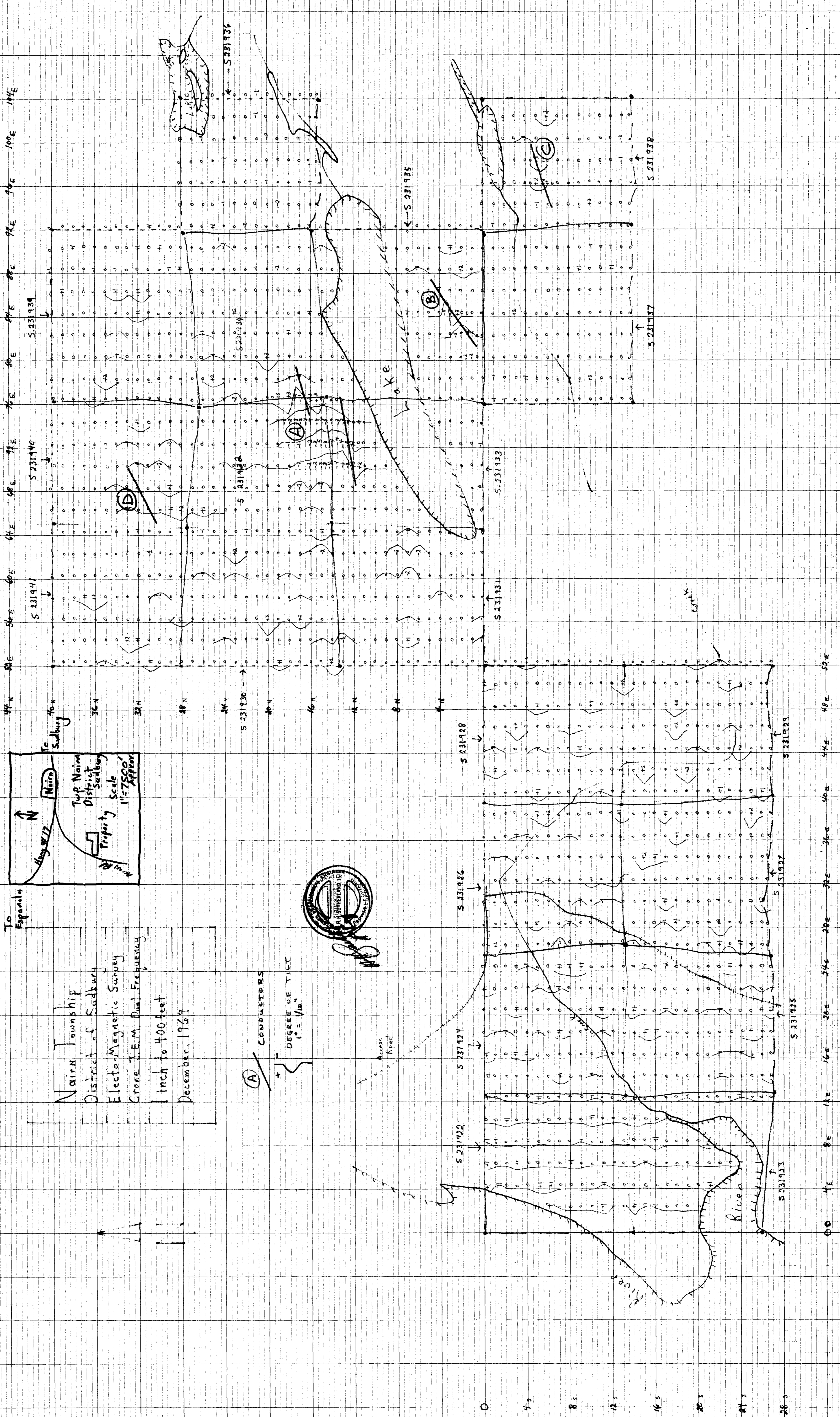
SEE ACCOMPANYING  
MAP(S) IDENTIFIED AS

NAIRN-0016-B1-#1

#2

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





Nairn Township  
 District of Sudbury  
 Electro-Magnetic Survey  
 Crane E.M. Dual Frequency  
 inch to 400 feet  
 December, 1967

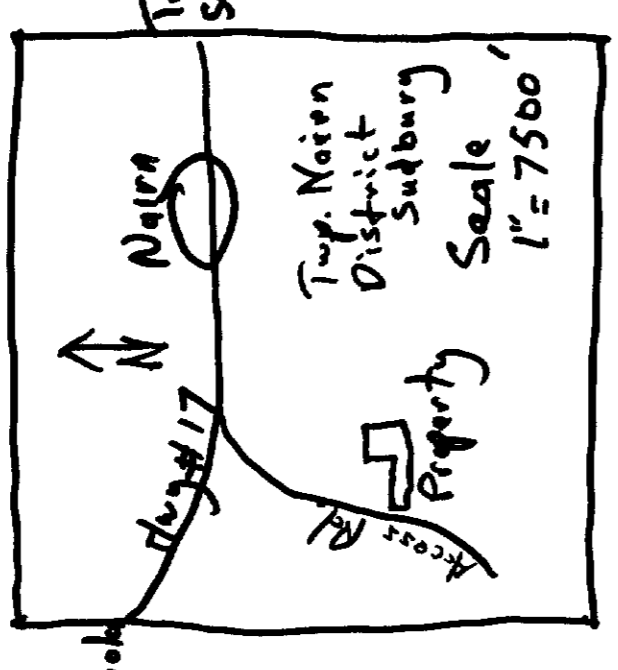
(A) CONDUCTORS  
 DEGREE OF TILT  
 $\theta = \sqrt{D^2 + H^2}$



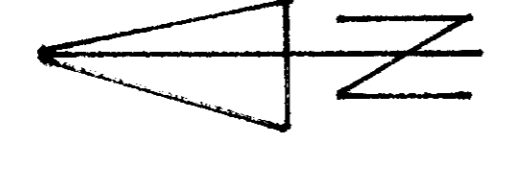
E000

NAIRN-0016-81-71

44N 52E 56E 60E 64E 68E 72E 76E 80E 84E 88E 92E 96E 100E 104E



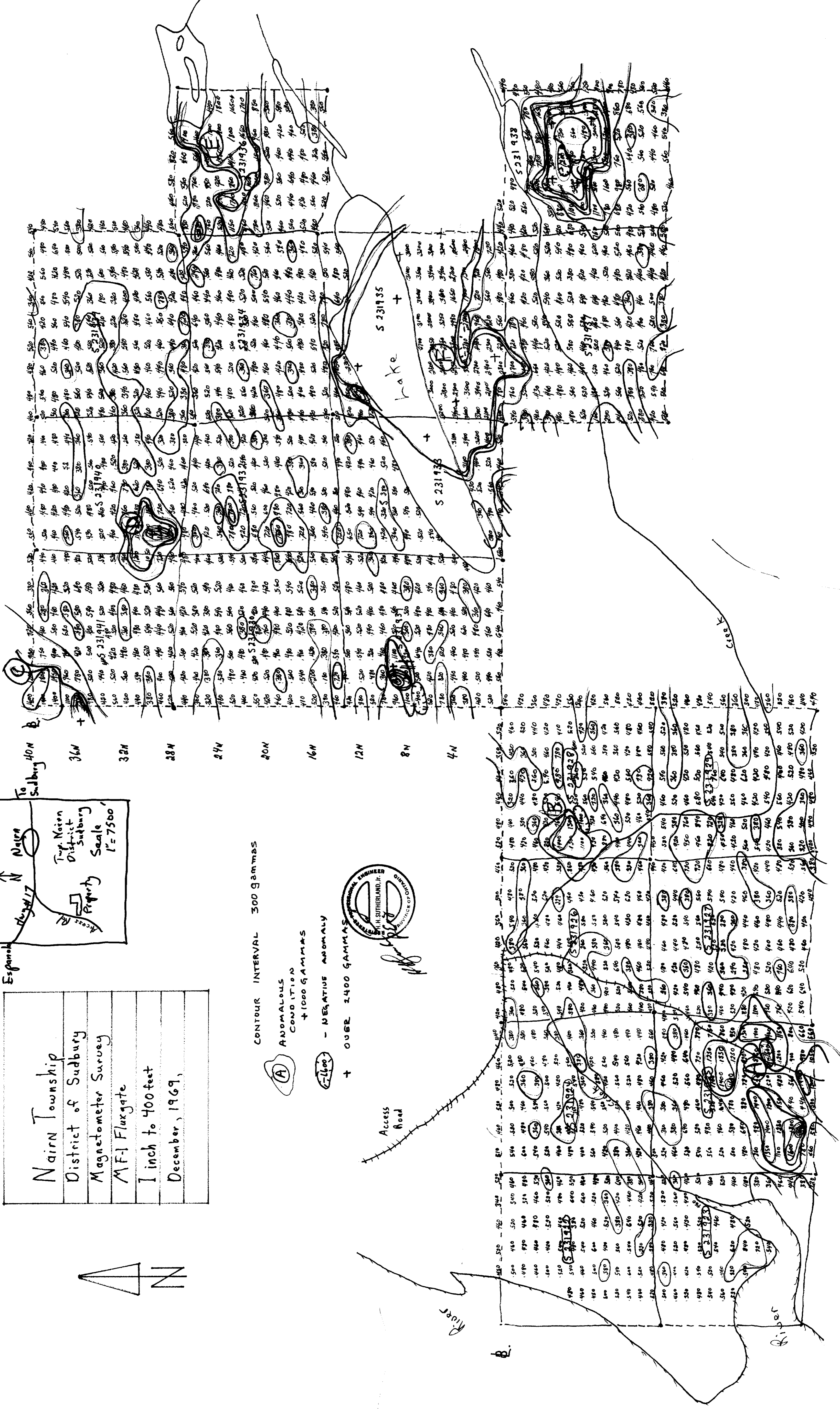
Nairn Township  
District of Sudbury  
Magnetometer Survey  
M.F.-1 Fluxgate  
1 inch to 400 feet  
December, 1969.



CONTOUR INTERVAL 300 GAMMAS

(A) ANOMALOUS  
CONDITION  
+1000 GAMMAS

(B) -1100  
- NEGATIVE ANOMALY  
+ OVER 2400 GAMMAS



0 4s 8s 12s 16s 20s 24s 28s

00 4E 8E 12E 16E 20E 24E 28E 32E 36E 40E 44E 48E 52E

