



41P12SW0120 2.319 CHESTER

010

**RONKA EM16**  
**Electromagnetic Survey**  
**DARWIN MINES LIMITED**  
**Chester Township Property, Ontario**

by

**William Russell Miller**

**Summary**

A Ronka EM16 Electromagnetic survey has been completed on Darwin's Chester Township, Ontario ten unpatented mining claims numbered 5220896 to 5220905 inclusive.

Several ESE trending vertical conductors, with their effective centres of conductivity about 100 feet deep are located on the southern portion of the property.

In the northern part of the property in Bagoverd Lake several strong vertical conductors have been located which may trend ENE, although on the N.E. claim an ESE trend is possible. A prospect showing is recorded in this area by Laird (O D M annual report 1932).

Check I. P. surveying and diamond drilling is warranted in light of the strength on geological locations of the resultant conductors.

## Introduction

### Property:

The property consists of 10 contiguous mining claims located in Chester Township, Ontario and more particularly described as mining claims numbered S220896 to S220905 inclusive.

### Location:

The claim group is situated in the north west quarter of Chester Township, Sudbury Mining Division, Ontario, on part of the south arm of Bagaverd Lake, and immediately south and south-west thereof.

### Access:

The property lies about 70 miles south-west of Timmins and about 100 miles north of Sudbury, 3 miles west of the new highway No. 144. The flagstop of Makwa on the main Toronto-Vancouver C N R line, is 12 miles to the east. The property is easily accessible by a bush road from No. 144 highway.

### Resources:

Water The area has an abundant water supply with Bagaverd Lake to the north and Clam Lake to the southwest of the property.

Electricity The local powerline to supply the town of Gogama is 3 miles to the east and the main E.H.V. is 35 miles to the east.

Manpower The main mining centres of Timmins and Sudbury supply the local labour pool. Mining supplies have the same facilities.

Timber Wood supplies are abundant on the property and several major lumber companies operate within a 50 mile radius.

### History:

A prospect showing is recorded on Ontario Department of Mines Map No 41 d to accompany report by H. C. Laird in Vol. XLI, Part 3, Department of Mines Annual Report 1932 and is believed to be included on this property just south and east of the south arm of Bagaverd Lake. Prospecting Geophysics Limited performed a standard EM Survey for previous owners of this property in 1965, the anomalous zones of which have been recorded by the writer on the accompanying Ronke survey maps. At the present time, there are neither surface nor underground plant or equipment on the property.

### General Geology:

The long known greenstone belt which runs from Oseway Township about 20 miles to the west to Connaught Township about 20 miles to the east, is now recognized to be ancient island arc, related to the Kenoran orogeny which extended from about 2500 to 2700 million years ago. The widening out at Chester Township appears to be a centre of volcanic activity. The younger granite described by

Laird would now be described as a late or post tectonic granite. Laird noted a quartz porphyritic phase. Island arcs mark mantle downflow areas and have been described in the recent literature (Leake, Oliver and Sykes 1968). The late tectonic granites under appropriate conditions are host to the major low grade copper-molybdenum deposits. Early NNW faults have controlled dyke emplacement and are known to be mineralized at Weeduck Lake a mile or so to the south east and at Mill Pond and Arcthusa Lake again, two to three miles to the south east.

#### Equipment and Technique:

Any electromagnetic equipment is based on measuring how such conductors in the ground affect an electromagnetic signal. A transmitter and receiver are therefore required. The penetration, or depth to which conductors can be detected, is a function of the distance between the transmitter and receiver. The Ronke EM16 utilizes the U. S. Navy's very low frequency (VLF) transmitters, in the present case NAA, Cutler Maine and NBA Balboa, Canal Zone and so does away with the need for a transmitter on the property; it can also penetrate to a greater depth and gives readings in all four quadrants of the compass, rather than the two as is usual. Thus an anomaly can be detected by completing the survey in this manner in a 360 degree circumference. Two maps were prepared on the present Ronke EM survey, one for the E-W survey using NBA Balboa, Canal Zone, the other N-S survey map using NAA Cutler, Maine transmitter. As can be seen from these maps, the N-S survey picks up E-W conductors and the E-W survey picks up N-S conductors, and with only one of these maps on the survey area, only half the information would be available.

The distance between the maximum positive and negative readings is about the same as the distance from the ground surface to a point somewhat above the centre of the effective area of the conductive area. In general, in phase readings are related to the bedrock conductors in bedrock, whereas from quadrature one may interpret some idea of conductive overburden.

#### Survey Results:

A characteristic of the EM16 is that it readily detects conductors. Identification of these conductors is a prime concern of anyone understanding geology.

The Ronke EM16 survey on this property is plotted on two sheets one giving N-S reading and the other giving E-W readings.

On the N-S sheet there are several ESE trending vertical conductors in the south portion of the property, with their effective centres of conductivity about 100 feet deep. In Bageverd Lake are several strong conductors, all may trend ENE, though on the NE claim an ESE trend is possible. A prospect showing is recorded in this area by Laird on Map 41d which accompanies Vol. XLI, Part 3, ODM Annual Report 1932. A comparison between the data from the two sheets shows a coincidence of conductors. All conductors appear to be vertical having symmetrical profiles.

Conclusions and Recommendations:

Since several conductors appear to follow a pattern of importance, a further check by I. P. survey method should precede drilling which is also warranted.

Respectfully submitted,

*William Russell Miller*

William Russell Miller



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**ASSESSMENT WORK DETAILS**

Township or Area CHESTER

Type of Survey RONKA E.M. 16 SURVEY  
A separate form is required for each type of survey

Chief Line Cutter A. GUERTIN  
 or Contractor KIRKLAND LAKE, ONT

Party Chief WILLIAM RUSSELL MILLER  
9 FLYCOTE CR ETOBICOKE, ONT

Consultant D. W. SULLIVAN, P. ENG.  
RRI, GEORGE TOWN, ONT

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5220898
5220899
5220900
5220901 <sup>4 not covered</sup>
5220902
5220903
5220905

**COVERING DATES**

Line Cutting APRIL 15 TO MAY 15, 1970

Field MAY 15 TO JUNE 10, 1970  
Instrument work, geological mapping, sampling etc.

Office JUNE 15 TO JUNE 22, 1970

**INSTRUMENT DATA**

Make, Model and Type RONKA E.M. 16 UNIT

Scale Constant or Sensitivity INFO ACCOMPANIES REPORT  
Or provide copy of instrument data from Manufacturer's brochure.

Radiometric Background Count —

Number of Stations Within Claim Group 1083

Number of Readings Within Claim Group 4332

Number of Miles of Line cut Within Claim Group 22 miles

Number of Samples Collected Within Claim Group —

**CREDITS REQUESTED**

20 DAYS per claim

40 DAYS per claim Includes (Line cutting)

Geological Survey

Geophysical Survey

Geochemical Survey

Show  
 Check ✓

TOTAL 9 claims

DATE Feb 21/71

SIGNED William Russell Miller

Send in duplicate to:  
 FRED W. MATTHEWS  
 SUPERVISOR-PROJECTS SECTION  
 DEPARTMENT OF MINES &  
 NORTHERN AFFAIRS  
 WHITNEY BLOCK  
 QUEEN'S PARK  
 TORONTO, ONTARIO

If space insufficient, attach list

SUBMISSION OF GEOLOGICAL, GEOPHYSICAL AND GEOCHEMICAL SURVEYS  
AS ASSESSMENT WORK

In order to simplify the filing of geological, geochemical and ground geophysical surveys for assessment work, the Minister has approved the following procedure under Section 84 (8a) of the Ontario Mining Act. This special provision does not apply to airborne geophysical surveys.

If, in the opinion of the Minister, a ground geophysical survey meets the requirements prescribed for such a survey, including:

- (a) substantial and systematic coverage of each claim
- (b) line spacing not exceeding 400 foot intervals
- (c) stations not exceeding 100 foot intervals or
- (d) the average number of readings per claim not less than 40 readings

it will qualify for a credit of 40 assessment work days for each claim so covered. It will not be necessary for the applicant to furnish any data or breakdown concerning the persons employed in the survey except for the names and addresses of those in charge of the various phases (linecutting contractor, etc.). It will be assumed that the required number of man days were spent in producing the survey to qualify for the specified credit.

Each additional ground geophysical survey using the same grid system and otherwise meeting these requirements will qualify for an assessment work credit of 20 days.

A geological survey using the same grid system, and meeting the requirements for submission of geological surveys for maximum credits will qualify for an assessment work credit of 20 days. If line cutting has not previously been reported with any other survey and is reported in conjunction with the geological survey a credit of 40 days per claim will be allowed for the survey.

Similarly, a geochemical survey using the same grid system with the average number of collected samples per claim being not less than 40 samples, and meeting the requirements for the submission of geochemical surveys for maximum credits, will qualify for an assessment work credit of 20 days. If line cutting has not previously been reported with any other survey and is reported in conjunction with the geochemical survey a credit of 40 days per claim will be allowed for the survey.

Credits for partial coverage or for surveys not meeting requirements for full credit will be granted on a pro-rata basis.

If the credits are reduced for any reason, a fifteen day Notice of Intent will be issued. During this period, the applicant may apply to the Mining Commissioner for relief if his claims are jeopardized for lack of work or, if he wishes, may file with the Department, normal assessment work breakdowns listing the names of the employees and the dates of work. The survey would then be re-assessed to determine if higher credits may be allowed under the provisions of subsections 8 and 9 of section 84 of the Mining Act.

If new breakdowns are not submitted, the Performance and Coverage credits are confirmed to the Mining Recorder at the end of the fifteen days.

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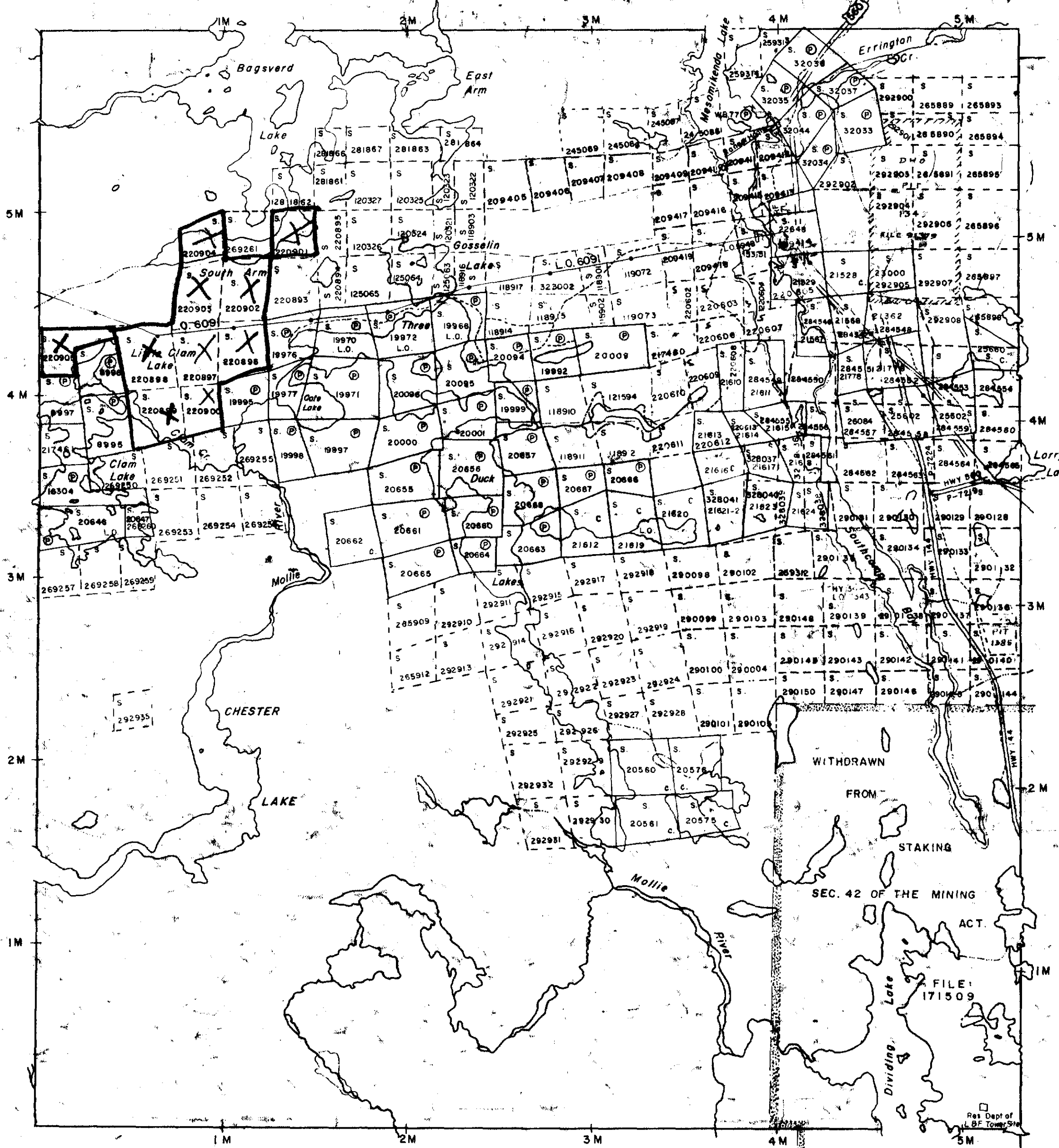
CHESTER TWP.

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# Neville Twp. (M.-888)

Yeo Twp. (M.-1188)

Bennewiss Twp. (M.-658)



# Invergarry Twp. (M.-948)

THE TOWNSHIP  
*Claim of Map*  
**CHESTER**

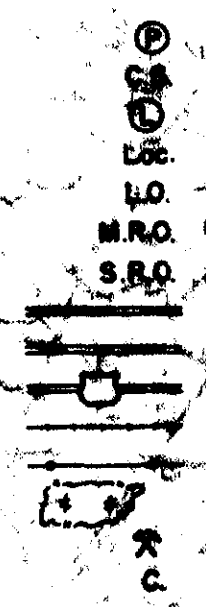
DISTRICT OF SUDBURY

SUDBURY 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 MUSKES
- MINES
- CANCELLED



### NOTES

400' Surface Rights Reservation around all Lakes and Rivers.

Flooding Rights To 1200' Contour Reserved To N.E.P.C. File: 10621.

DATE OF ISSUE  
 AUG 11 1971  
 ONT. DEPT. OF MINES  
 AND NORTHERN AFFAIRS

PLAN NO.-M.717

ONTARIO DEPARTMENT OF MINES AND NORTHERN AFFAIRS



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CHESTER TWP.

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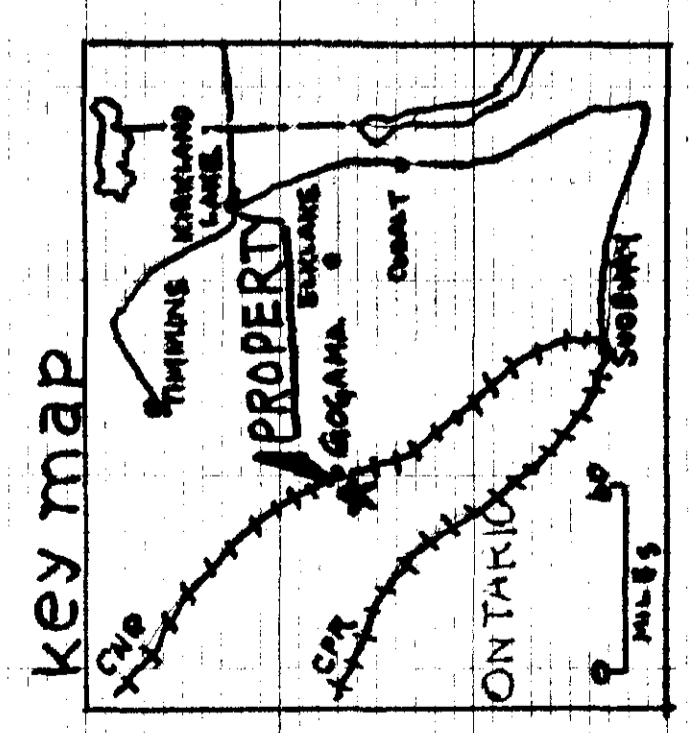


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OLD RAILROAD LINE (LITTLE CLAM LAKE)  
AND BROKEN IN PLACES

LEGEND  
EAST-WEST READINGS ON  
STATION N.B.A. 6480, C.T.  
ON 24° 14' 30" 34" W.  
K.M. = 44.00 1" = 100.0'  
IN PHASE READING  
QUADRANTAL READING  
E.M. - PROSPECTING ABNATICS  
LIMITED THIS MAP - 1933  
SHEET 2 OF 2

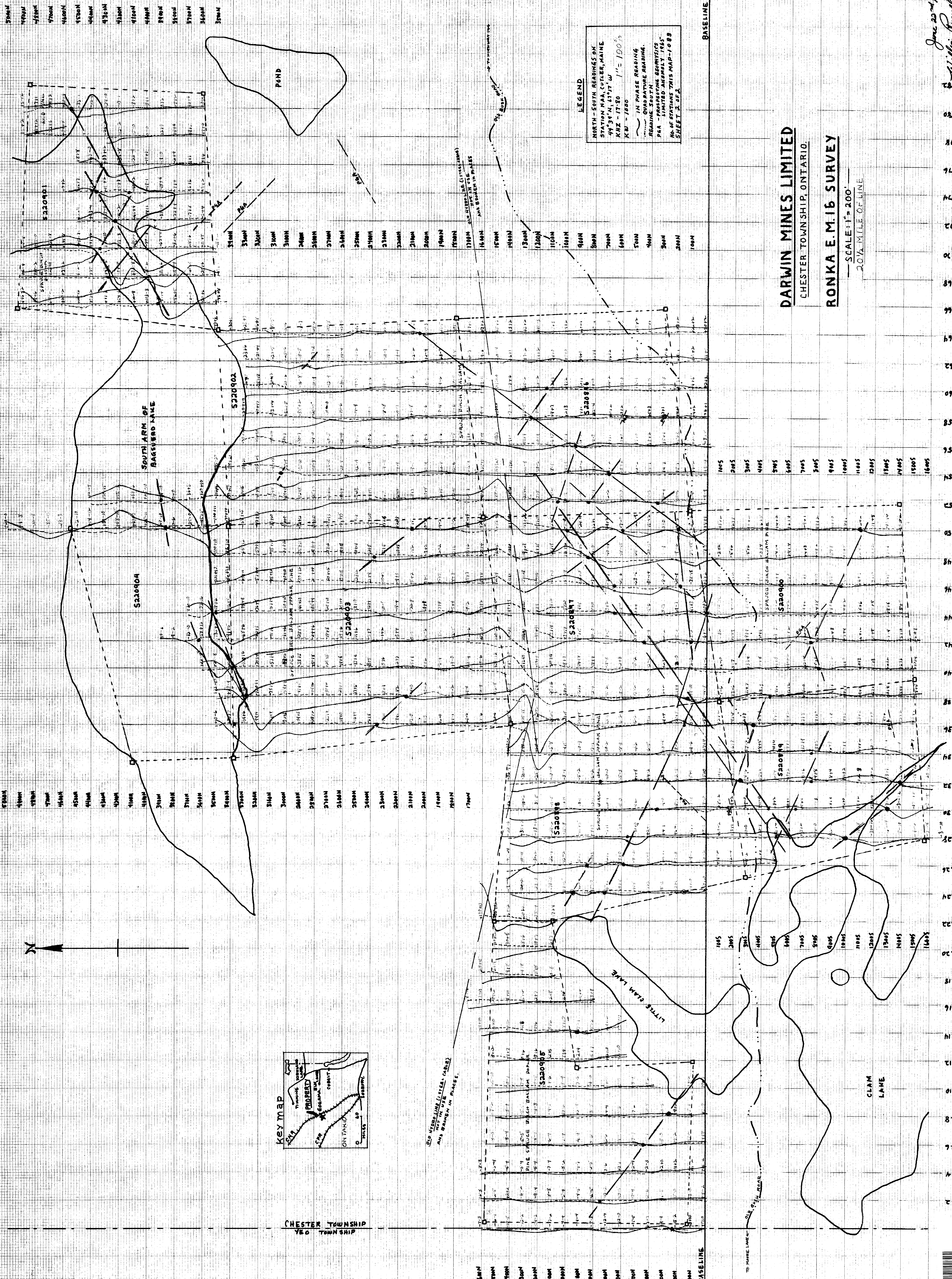
**DARWIN MINES LIMITED**  
CHESTER TOWNSHIP, ONTARIO  
**RONKA E.M.16 SURVEY**

SCALE: 1" = 200'  
20.0 MILES OF LINE

June 20, 1933  
William Ronald M. J. J.







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49000  
49100  
49200  
49300  
49400  
49500  
49600  
49700  
49800  
49900  
50000

50100  
50200  
50300  
50400  
50500  
50600  
50700  
50800  
50900  
51000  
51100  
51200  
51300  
51400  
51500  
51600  
51700  
51800  
51900  
52000  
52100  
52200  
52300  
52400  
52500  
52600  
52700  
52800  
52900  
53000

**LEGEND**

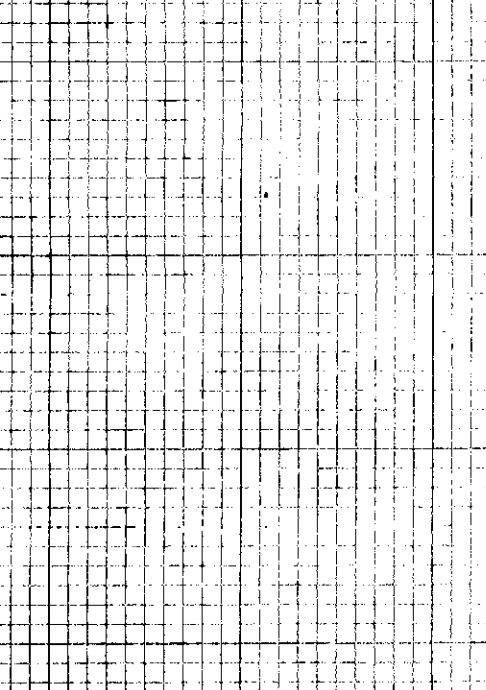
NORTH - SOUTH READINGS ON STATION NAA CUTLER, MAINE  
 N 42° 39' 41" E 17° 17' 10" W  
 X B U - 17-80 1" = 100 ft  
 X B U - 1800

IN PHASE READING  
 QUADRATURE READING  
 READING SOUTH  
 P & A - PROSPECTING READING  
 P & A - PROSPECTING READING  
 P & A - PROSPECTING READING  
 P & A - PROSPECTING READING  
 P & A - PROSPECTING READING

AS SHOWN ON THIS MAP - 1988  
 SHEET 2 OF 2

**DARWIN MINES LIMITED**  
 CHESTER TOWNSHIP, ONTARIO,  
**RONKA E. M. 16 SURVEY**

SCALE 1" = 200'  
 2.017 MILE OF LINE



CHESTER TOWNSHIP  
 TOWNSHIP

OLD HYDROLINE (LITTLE LAKE)  
 AND BRINGS IN PLACE.

BASELINE

BASELINE

June 22nd 1978  
 W. J. Wilson  
 Ronald Apple