REPORT

ON

GEOPHYSICAL SURVEYS

ON PROPERTY

IN

O'SULLIVAN LAKE AND MAUN LAKE AREAS

THUNDER BAY MINING DIVISION

ONTARIO

E. W. BAZINET, P. ENG.
DESIGNATED CONSULTANT

Dated

at

Penetang, Ontario.
July 15, 1980.

REPORT

ON

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O'SULLIVAN LAKE AND MAUN LAKE AREAS

THUNDER BAY MINING DIVISION

ONTARIO

INTRODUCTION

Ground geophysical work, consisting of electromagnetic surveys and a magnetometer survey, was carried out on two claim groups, located in the O'Sullivan Lake and Maun Lake areas of Ontario, during March, April and June of 1980. These properties are referred to as property "A" and property "B".

PROPERTIES

The properties consist of two separate claim groups totalling 28 unpatented claims. Property "A" included 16 claims totalling 640 acres, and property "B" consists of 12 claims covering approximately 480 acres. The groups are precisely described as follows:-

Property "A"

Claim No.	Status	Approx. Acres
TB 539726	Unpatented	40
TB 539727	"	"
TB 539728	"	"
TB 539729	"	"
TB 539730	"	"
TB 539731	"	"
TB 539732	"	"

TB 539733	Unpatented	40
TB 539751	"	40
TB 539752	"	40
TB 539753	"	40
TB 539520	"	40
TB 539521	"	40
TB 539522	"	40
TB 539523	"	40
TB 539524	"	40
	Total Acres	640

Property "B"

Claim No	Status	Approx, Acres
TB 539714	"	40
TB 539715	"	40
TB 539716	"	40
TB 539717	"	40
TB 539718	"	40
TB 539719	"	40
TB 539720	"	40
TB 539721	"	40
TB 539722	"	40
TB 539723	"	40
TB 539724	"	40
TB 539725	"	40
	Total Acres	480

LOCATION AND ACCESS

The properties are situated on the north shore of the north east arm of O'Sullivan Lake, approximately twenty miles north west of Nakina and fifty-five miles due north of Geraldton. A gravel road connecting Cavell, on the C.N.R. 15 miles west of Nakina, passes close to the west shore of O'Sullivan Lake. From this point it is 9 miles to the property by boat. The most practical method of winter access is by charter aircraft from Nakina.

SURVEY METHOD AND PRESENTATION OF RESULTS

The horizontal loop electromagnetic survey employed the Apex Maxmin II electromagnetic instrument operated in the horizontal

coil configuration with a transmitter-receiver separation of 328 feet. Readings of the in-phase and out-of-phase components of the resultant field at 1777 Hz and 3555 Hz were recorded at station intervals of 100 feet and 50 feet, where greater detail was required. Grid lines were established at 400 feet spacings and 200 feet spacings where greater detail was required. The ideal profile of the electromagnetic readings over a conductive body forms a curve with positive shoulders as the conductor is approached and a negative trough over the conductor. Both the in-phase and out-of-phase response show the same general curve over a conductor except in areas of deep conductive overburden. In the latter setting phase rotation phenomena can alter the ideal type response over bedrock conductive body. The ratio between the in-phase and out-of-phase response over a conductive zone provides a qualitative indication of the conductivity of a conductor as does the geophysical response at different frequencies. Conductivity thickness determinations (mhos) provide a quantitative method for comparing the degree of conductivity. In general, the ratio of the in-phase to out-of-phase response increases as the conductivity of the underlying body increases and a ratio of 1.0 or greater is considered to be typical of the response generated by a massive sulfide body.

The electromagnetic responses as plotted on the accompanying maps are not corrected for topographic variations.

The magnetometer survey employed the Geo Metrics Model G816 portable proton magnetometer, measuring the total intensity of the earth's magnetic field within an accuracy of plus or minus one gamma. The magnetic responses as plotted on the accompanying maps, are corrected for diurnal variation and instrument drift, and are contoured at appropriate intervals. Magnetic base stations were

established at regular intervals so that base station readings were made approximately every 30 minutes.

The magnetic surveys and electromagnetic surveys at 1777 Hz and 3555 Hz are plotted on separate maps at a scale of one inch equals 200 feet. The electromagnetic readings are plotted in profile at a scale of one inch equals 20%.

INTERPRETATION OF RESULTS OF THE GEOPHYSICAL PROGRAM

Claim Group "A"

The electromagnetic survey over group "A", as plotted on the accompanying maps, outlines 4 conductors. The magnetometer survey indicates that all of the conductors are, at least in part, associated with anomalous magnetic responses.

The following is a brief description and interpretation of the conductors:-

Conductor A

Conductor A, is a moderate to strong feature with geophysical responses typical of semi massive to massive sulfide concentrations under moderate overburden depth. The west end of the conductor is coincident with a magnetic anomaly with maximum intensity of approximately 500 gammas above background.

The conductor is outlined over a length of in excess of 1200 feet and has a maximum width of 180 feet. The dip appears to be

near vertical. It coincides with a known area of copper-silver mineralization. The west end of this mineralized zone was tested by quite a few shallow diamond drill holes by previous operators and although some good grade copper-silver intersections were obtained over narrow widths, the mineralized sections could not be correlated into substantial zones. The previous diamond drilling has been confined to a strike length of approximately 400 feet, between lines 200 West and 200 East. The easterly 700 feet of conductor A has never been drill hole tested or trenched.

In the writer's opinion, the easterly extension of the known mineralized zone should be drill tested and at least one hole should be drilled to a depth of approximately 1000 feet to test the zone at depth. The easterly extension of the conductor does not coincide with a magnetic anomaly suggesting a change in mineral content towards the east.

Conductor B

Conductor B, is a moderate to strong feature. The geophysical response over the easterly 800 feet of the conductor is typical of massive sulfide response while the response over the westerly 1600 feet appears to be caused by disseminated type mineralization possibly

representing a mineralized shear zone. The easterly sector of the conductor is associated with a weak magnetic anomaly. Low gold values are known to be associated with a sheared quartz-carbonate zone near the easterly extremity of conductor B. The conductor underlies O'Sullivan Lake and has never been explored. It has a strike length of approximately 2400 feet and a maximum width of 400 feet. The dip appears to be near vertical.

In the writer's opinion, conductor B warrants testing by diamond drilling.

Conductor Zone C and D

Conductor C and D, has a length of approximately 1300 feet and a maximum width of 280 feet. The electromagnetic response is strong on line 400 east probably due to massive sulfide mineralization. The response over the remaining strike length is weaker and it appears to be caused by disseminated mineralization. The conductor is closely associated with a magnetic anomaly having a maximum relief of approximately 600 gammas.

Conductor zone C and D, is completely concealed by by fairly deep overburden and diamond drilling to determine the bedrock source is recommended.

Claim Group "B"

The electromagnetic survey on group "B", does not

appear to have outlined any good conductors. Weak conductive areas as outlined by the survey coincide with swamps and areas which appear to be underlain by deep overburden and thus it is probable that these responses are due to conductive overburden rather than concentrations of sulfide minerals. It is probable that the sulfide mineralization is not sufficiently concentrated to produce an anomalous response.

CONCLUSIONS AND RECOMMENDATIONS

The electromagnetic survey over group "A", outlines 4 conductors with geophysical responses typical of massive sulfide concentrations. A 400 foot strike length on one of these conductors has previously been tested by shallow drilling. Copper-silver-gold mineralization was intersected in these holes. It is therefore recommended that diamond drilling be carried out to determine if the conductors are due to economic concentrations of base or precious metal sulfides.

The electromagnetic survey on group "B", did not detect the known copper-silver mineralization. From former drilling carried out on this zone, it is apparent that the known mineralized zone is made up of discrete sulfide blibs and veinlets. This type of mineralization is not sufficiently conductive to be detected by the electromagnetic method. In the writer's opinion, the survey does not outline any extension to the known zone nor does it indicate any areas within the zone containing more massive concentrations of sulfides. No further exploration work is therefore recommended on the old mineralized zone. However, a narrow high grade chalcopyrite vein which was previously located in a small outcrop in a swamp

southeast of the old zone has never been explored. The occurrence is surrounded by swamp and is recommended that two short holes be drilled to explore the depth and strike continuity of this occurrence.

Respectfully Submitted

E. W. Bazinet, P. Eng.
Designated Consultant.

63.2086

Penetang, Ontario.
July 15, 1980.

Ontario

Ministry of Natu

GEOPHYSICAL – GEOLOG
TECHNICAL DAT

42L07NW8027 2.3383 ~~O'SULLIVAN~~ MAUN LAKE

900

TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT
FACTS SHOWN HERE NEED NOT BE REPEATED IN REPORT
TECHNICAL REPORT MUST CONTAIN INTERPRETATION, CONCLUSIONS ETC.

Type of Survey(s) Magnetometer & Electromagnetic
Township or Area O'Sullivan Lake and Maun Lake Areas
Claim Holder(s) E. W. Bazinet

Survey Company E. W. Bazinet Mining and Exploration Ltd.
Author of Report E. W. Bazinet
Address of Author SS 3, Site 6, Comp.20. Penetang L0K 1P0
Covering Dates of Survey March 15 June 30/80
(linecutting to office)
Total Miles of Line Cut 10.17

SPECIAL PROVISIONS CREDITS REQUESTED

ENTER 40 days (includes line cutting) for first survey.

ENTER 20 days for each additional survey using same grid.

	DAYS per claim
Geophysical	
–Electromagnetic	40
–Magnetometer	20
–Radiometric	
–Other	
Geological	
Geochemical	

AIRBORNE CREDITS (Special provision credits do not apply to airborne surveys)

Magnetometer _____ Electromagnetic _____ Radiometric _____
(enter days per claim)

DATE: July 15/80 SIGNATURE: E W Bazinet
Author of Report or Agent

Res. Geol. _____ Qualifications _____

Previous Surveys

File No.	Type	Date	Claim Holder

MINING CLAIMS TRAVERSED
List numerically
EM M

(prefix)	(number)
TB	539714
TB	539715
TB	539716
TB	539717
TB	539718
TB	539719
TB	539720
TB	539721
TB	539722
TB	539723
TB	539724
TB	539725

If space insufficient, attach list

TOTAL CLAIMS 12

OFFICE USE ONLY

837 (5/79)

GEOPHYSICAL TECHNICAL DATA

GROUND SURVEYS – If more than one survey, specify data for each type of survey

Number of Stations 490 Number of Readings 600

Station interval 100 feet and 50 feet Line spacing 400 feet

Profile scale 1 inch = 20% in-phase & out-of-phase

Contour interval 100 gammas

MAGNETIC

Instrument Geo Metrics Model G816 Proton Mag

Accuracy – Scale constant 1 gamma

Diurnal correction method Corrected to reference base station every 30 minutes

Base Station check-in interval (hours) 0.5 hours

Base Station location and value Base line @ 20+ 00N, 1267 gammas

ELECTROMAGNETIC

Instrument Apex Parametrics Max Min II

Coil configuration Horizontal Loop

Coil separation 328 feet

Accuracy Plus or Minus ½%

Method: ☐ Fixed transmitter ☐ Shoot back ☒ In line ☐ Parallel line

Frequency 1777 and 3555 Hz (specify V.L.F. station)

Parameters measured In-phase and Quadrature (out-of-phase) component of the secondary field.

GRAVITY

Instrument

Scale constant

Corrections made

Base station value and location

Elevation accuracy

INDUCED POLARIZATION RESISTIVITY

Instrument

Method ☐ Time Domain ☐ Frequency Domain

Parameters – On time Frequency

– Off time Range

– Delay time

– Integration time

Power

Electrode array

Electrode spacing

Type of electrode

Ontario

Ministry of Natural Resources

File _____

GEOPHYSICAL – GEOLOGICAL – GEOCHEMICAL TECHNICAL DATA STATEMENT

**TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT
FACTS SHOWN HERE NEED NOT BE REPEATED IN REPORT
TECHNICAL REPORT MUST CONTAIN INTERPRETATION, CONCLUSIONS ETC.**

Type of Survey(s) Magnetometer & Electromagnetic

Township or Area O'Sullivan Lake Area

Claim Holder(s) E. W. Bazinet and Glen H. Coyne

Survey Company E. W. Bazinet Mining and Exploration Ltd.

Author of Report E. W. Bazinet

Address of Author SS 3, Site 6, Comp.20, Penetang L0k 1P0

Covering Dates of Survey March 15 to June 30/80 (linecutting to office)

Total Miles of Line Cut 21.15

SPECIAL PROVISIONS CREDITS REQUESTED

ENTER 40 days (includes line cutting) for first survey.

ENTER 20 days for each additional survey using same grid.

	DAYS per claim
Geophysical	
–Electromagnetic	40
–Magnetometer	20
–Radiometric	
–Other	
Geological	
Geochemical	

AIRBORNE CREDITS (Special provision credits do not apply to airborne surveys)

Magnetometer _____ Electromagnetic _____ Radiometric _____ (enter days per claim)

DATE: July 15/80 SIGNATURE: G.W. Bazinet
Author of Report or Agent

Res. Geol. _____ Qualifications 63.2086

Previous Surveys

File No.	Type	Date	Claim Holder

MINING CLAIMS TRAVERSED
List numerically EM M.

(prefix)	(number)
TB	539520
TB	539521
TB	539522
TB	539523
TB	539524
TB	539726
TB 1/4	539727 1/4
TB	539728
TB	539729
TB	539730
TB	539731
TB	539732
TB	539733
TB	539751
TB	539752
TB	539753
TB 1/4	554092 1/4
TB	554093
TB	554094
TB	554095
TB	554096

TOTAL CLAIMS 21

If space insufficient, attach list

OFFICE USE ONLY

837 (5/79)

GEOPHYSICAL TECHNICAL DATA

GROUND SURVEYS – If more than one survey, specify data for each type of survey

Number of Stations 1130 Number of Readings 1130

Station interval 100 feet Line spacing 400 feet

Profile scale 1 inch = 20% in-phase & out-of-phase

Contour interval 100 gammas

MAGNETIC

Instrument Geo Metrics Model G816 Proton Mag

Accuracy – Scale constant 1 gamma

Diurnal correction method Corrected to reference base station every 30 minutes

Base Station check-in interval (hours) 0.5 hours

Base Station location and value Base line @ 8 + 00E, 1125 gammas

ELECTROMAGNETIC

Instrument Apex Parametrics Max Min II

Coil configuration Horizontal Loop

Coil separation 328 feet

Accuracy Plus or Minus ½%

Method: ☐ Fixed transmitter ☐ Shoot back ☒ In line ☐ Parallel line

Frequency 1777 and 3555 Hz (specify V.L.F. station)

Parameters measured In-phase and Quadrature (out-of-phase) component of the secondary field.

GRAVITY

Instrument

Scale constant

Corrections made

Base station value and location

Elevation accuracy

INDUCED POLARIZATION RESISTIVITY

Instrument

Method ☐ Time Domain ☐ Frequency Domain

Parameters – On time Frequency

– Off time Range

– Delay time

– Integration time

Power

Electrode array

Electrode spacing

Type of electrode

REFERENCES

CONTROL SURVEYS

Traverse of Abamasagi & O'Sullivan Lakes by C.R. Kenny O.L.S. 1924 & 1925
Field Note Books Nos 2018 & 2019
7th Base Line by Beatty & Beatty O.L.S. 1928.
Field Note Book No 2298.

87°15' 87°00' 50°30' 50°22'30"

LAKE DEVELOPMENT PLAN
ABAMASAGI LAKE
FILE-183094 JUNE.11,1970

LAKE DEVELOPMENT PLAN
O'SULLIVAN LAKE
FILE No.182 935 May 6, 1970

ABAMASAGI LAKE
O'SULLIVAN LAKE
HANOVER LAKE
SUPERB LAKE
KAWASHKAGAMA LAKE
KAWASHKAGAMA RIVER
BLOB CREEK
ALBERT FALLS CREEK
HANOVER R.

Surface Rights Only

7TH BASE LINE
165 M 166 M 167 M 168 M 169 M 170 M 171 M 172 M 173 M 174 M 175 M
EAST

MgL.O.14498

REFERENCES

TOPOGRAPHY

Lakes, Rivers, etc, From Forest Resources Inventory Sheet No 504871

2.3383

SAND AND GRAVEL
(G) QUARRY PERMIT

LEGEND

- Paved Road
- Gravel Road
- Other Roads
- Trail or Path
- Highway Route Number (2)
- Electric Power Line.
- Telephone Line
- Railroad & Right of Way
- Bridge, Buildings
- Non-Perennial Stream
- Rapids, Portage
- Muskeg or Marsh
- Flooded Land
- Traverse Post. (10)

DISPOSITION OF CROWN LANDS

TYPE OF DOCUMENT	SYMBOL
PATENT, SURFACE & MINING RIGHTS	●
" , SURFACE RIGHTS ONLY	◒
" , MINING RIGHTS ONLY	◒
LEASE, SURFACE & MINING RIGHTS	■
" , SURFACE RIGHTS ONLY	◨
" , MINING RIGHTS ONLY	◨
LICENCE-OF-OCCUPATION	▼
ORDER-IN-COUNCIL	oc
RESERVATION	(R)
CANCELLED	C.

NOTE: MINING RIGHTS IN PARCELS PATENTED PRIOR TO MAY 6, 1913, VESTED IN ORIGINAL PATENTEE BY THE PUBLIC LANDS ACT, R.S.O. 1970, CHAP. 380, SEC. 63, SUBSEC 1.

Ministry of Natural Resources
Ontario Surveys and Mapping Branch

AREA Thunder Bay Mining Division

O'SULLIVAN LAKE

DISTRICT OF THUNDER BAY.

DR. E.J.D.	CH. J.L.S.	APP.	JUNE 15, 1950.
SCALE:- 1 INCH: 40 CHS			M-1415
TORONTO CANADA			

REFERENCES

SURVEYS

7TH. BASE LINE SURVEYED BY BEATTY AND BEATTY O.L.S. 1928. FIELD NOTE BOOK NO. 2298.

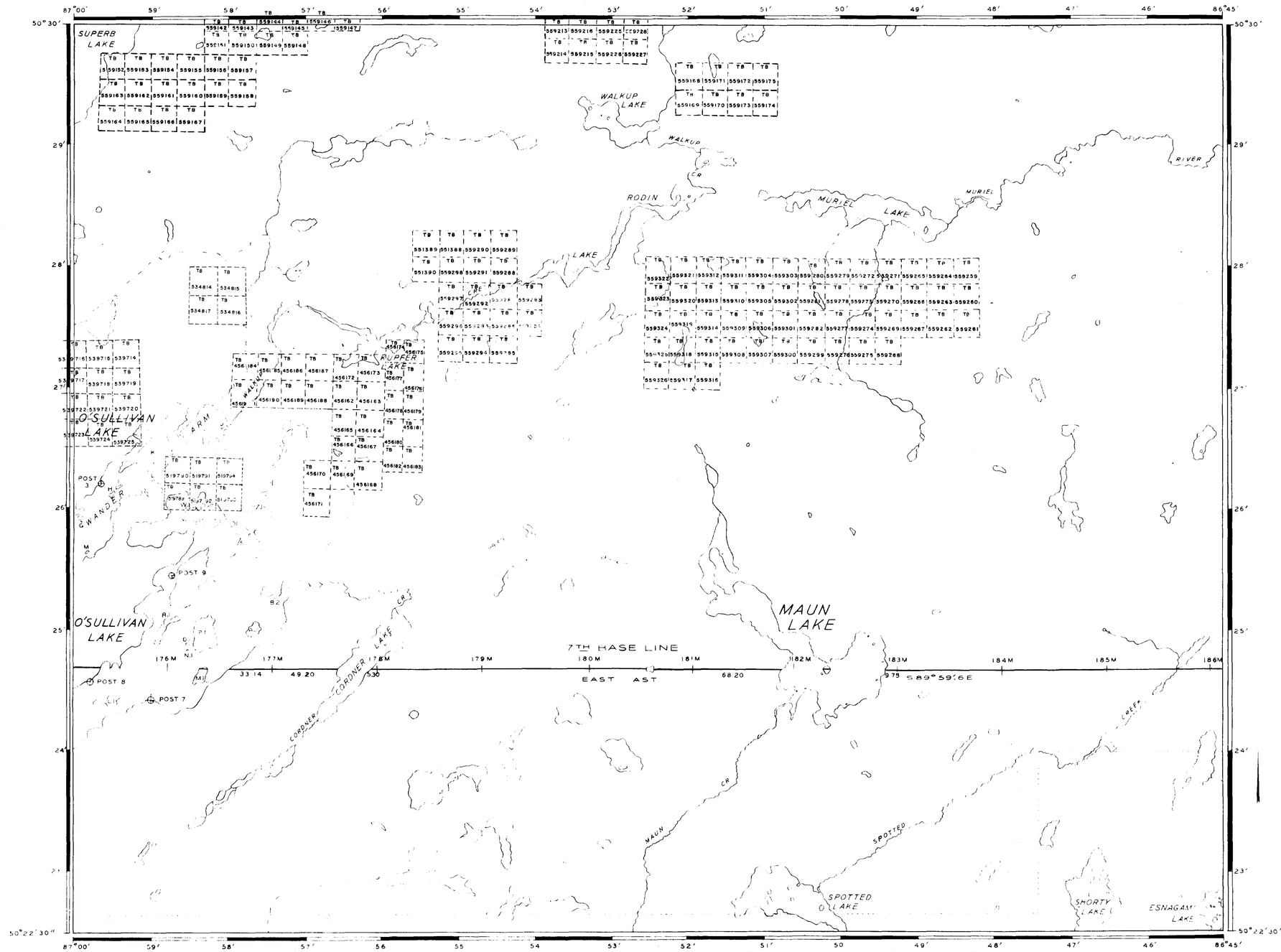
TRAVERSE OF O'SULLIVAN & SUPERB LAKES BY C.R. KENNY O.L.S. 1924 PLAN NO. R28-22 FIELD NOTE BOOK NO. 2018.

TRAVERSE OF ESNAGAMI LAKE & ISLANDS BY C.R. KENNY O.L.S. 1924. PLAN NO. R30-15. FIELD NOTE BOOK NO.

400' surface rights reservation along the shores of all lakes and rivers.

ESNAGAMI LAKE PARK RESERVE - FILE 80704

LAKE DEVELOPMENT PLAN
O'SULLIVAN LAKE
FILE NR 82935 May 6, 1980



ESNAGAMI LAKE PARK RESERVE

REFERENCES

TOPOGRAPHY

LAKES, RIVERS, ETC., FROM FOREST RESOURCES INVENTORY SHEET No. 504864.

2.3383

LEGEND

- PAVED ROAD
- GRAVEL ROAD
- OTHER ROADS
- TRAIL OR PATH
- HIGHWAY ROUTE No. 7
- ELECTRIC POWER LINE
- TELEPHONE LINE
- RAILROAD & RIGHT OF WAY
- RAPIDS, PORTAGE
- NON-PERENNIAL STREAM
- EDGE OF CLEARING
- TREELESS MARSH OR MARSH
- BRIDGE, BUILDINGS
- TRAVERSE POST

DISPOSITION OF CROWN LANDS

- PATENT, SURFACE AND MINING RIGHTS
- " , SURFACE RIGHTS ONLY
- " , MINING RIGHTS ONLY
- LEASE, SURFACE AND MINING RIGHTS
- " , SURFACE RIGHTS ONLY
- " , MINING RIGHTS ONLY
- LICENCE OF OCCUPATION

ONTARIO
MINISTRY OF NATURAL RESOURCES
SURVEYS AND MAPPING BRANCH

AREA
MAUN LAKE
MINING DIVISION
THUNDER BAY
DISTRICT OF
THUNDER BAY

DR. W.E.M.	CH. G.H.C.	APP. E.J.D.	DEC 1951
SCALE 1 INCH = 40 CHS.		DWG. No.	M-1416
TORONTO, CANADA			

48 N
44 N
40 N
36 N
32 N
28 N
24 N
20 N
16 N
12 N
8 N
4 N
0

BASE LINE

539716
539715
539714
539717
539718
539719
539722
539721
539720
539723
539724
539725

N

O' SULLIVAN LAKE

THUNDER BAY MINING DIVISION

ONTARIO

HORIZONTAL LOOP

ELECTROMAGNETIC SURVEY

SCALE 1"= 200'

LEGEND.

MEASUREMENT STATIONS
IN PHASE (1 in. =20%) } +ve plotted North
OUT OF PHASE (1 in =20%)
COIL SEPARATION : 328 ft
FREQUENCY: 3555 HZ
CONDUCTORS
INSTRUMENT : MAX MIN II

TB 539716	TB 539715	TB 539714
TB 539717	TB 539718	TB 539719
TB 539722	TB 539721	TB 539720
TB 539723	TB 539724	TB 539725

WANDER ARM

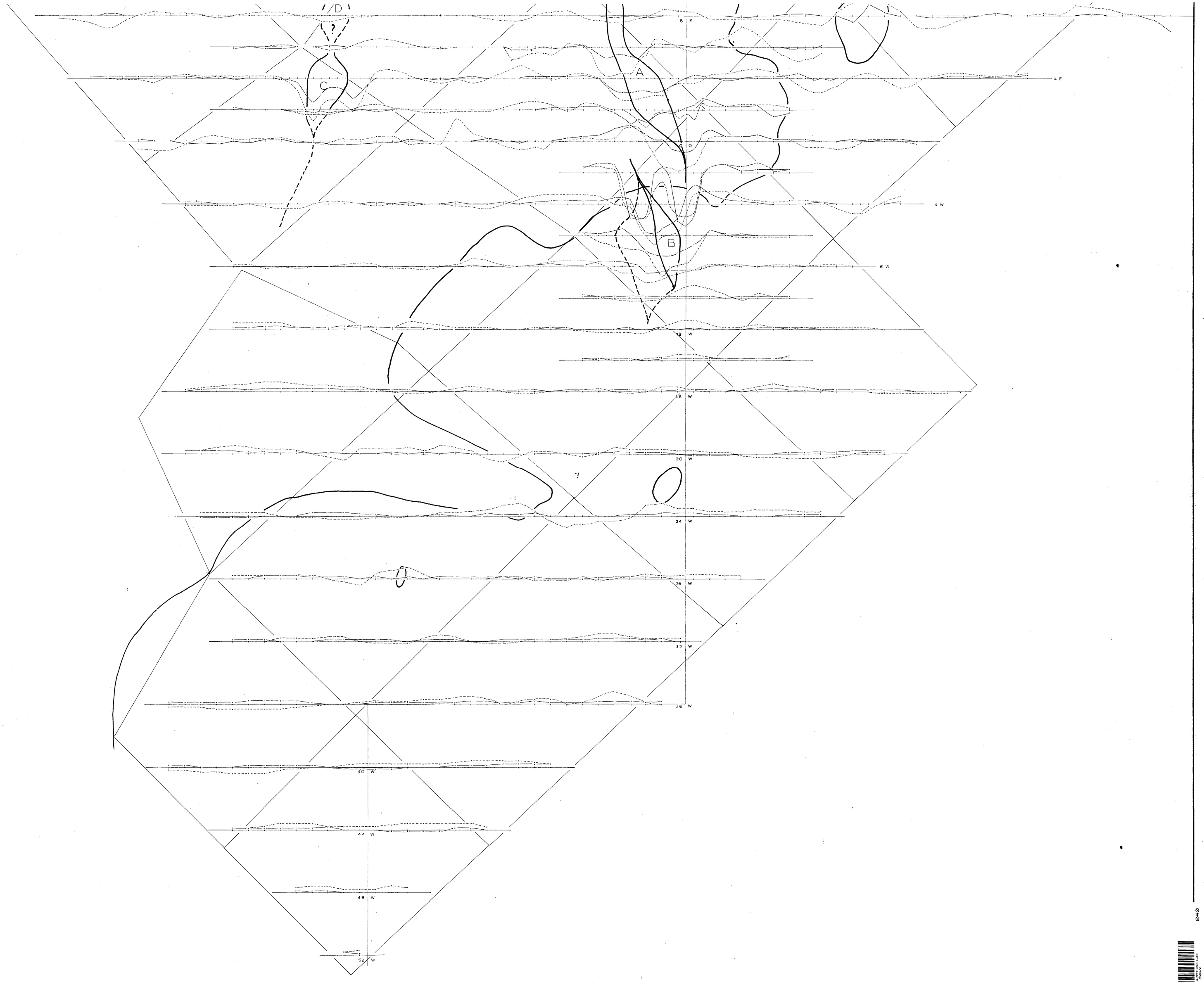
REGISTERED PROFESSIONAL ENGINEER
MINING
E. W. BAZINET
PROVINCE OF ONTARIO

July 15/80

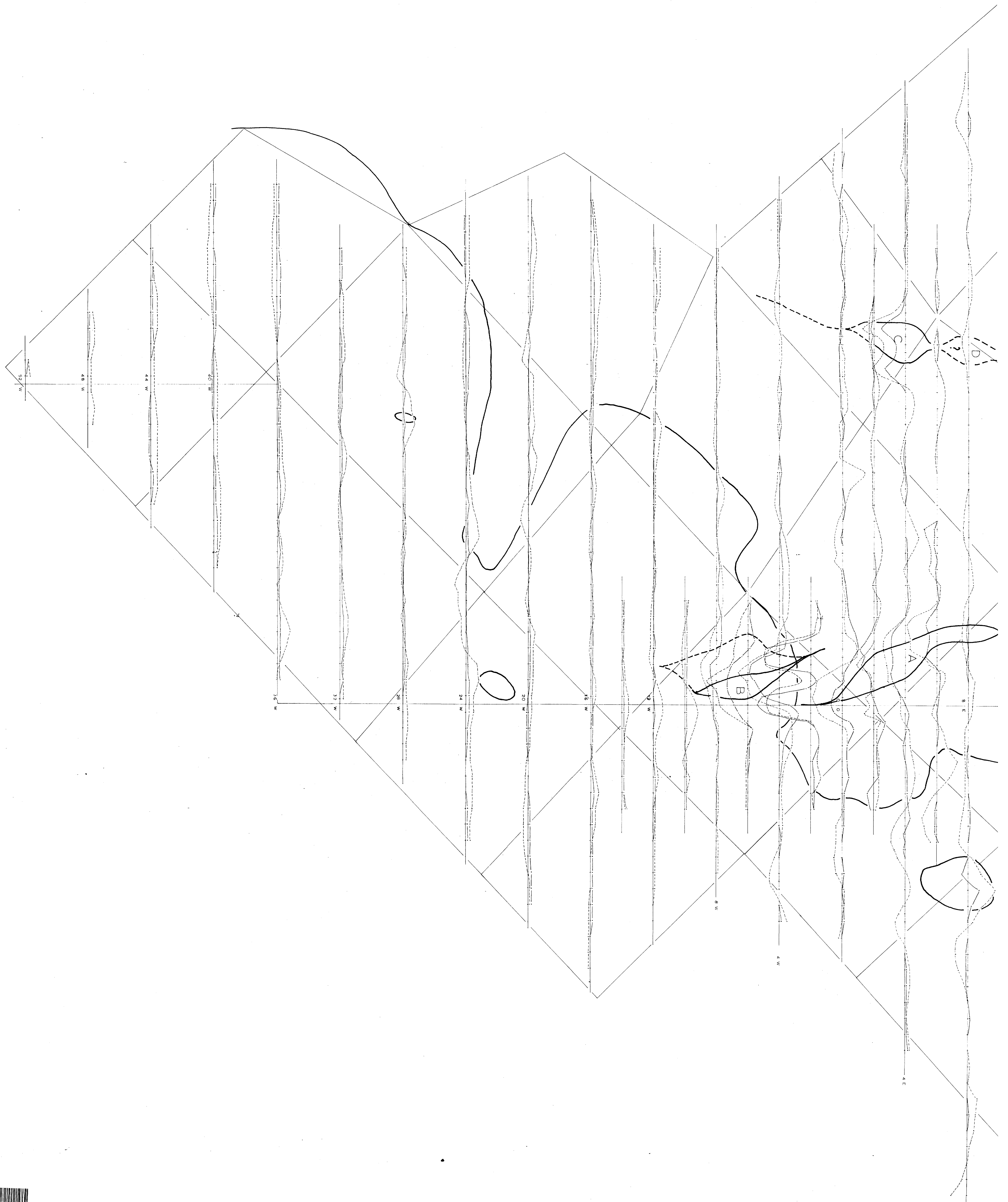
1 inch = 1320 feet

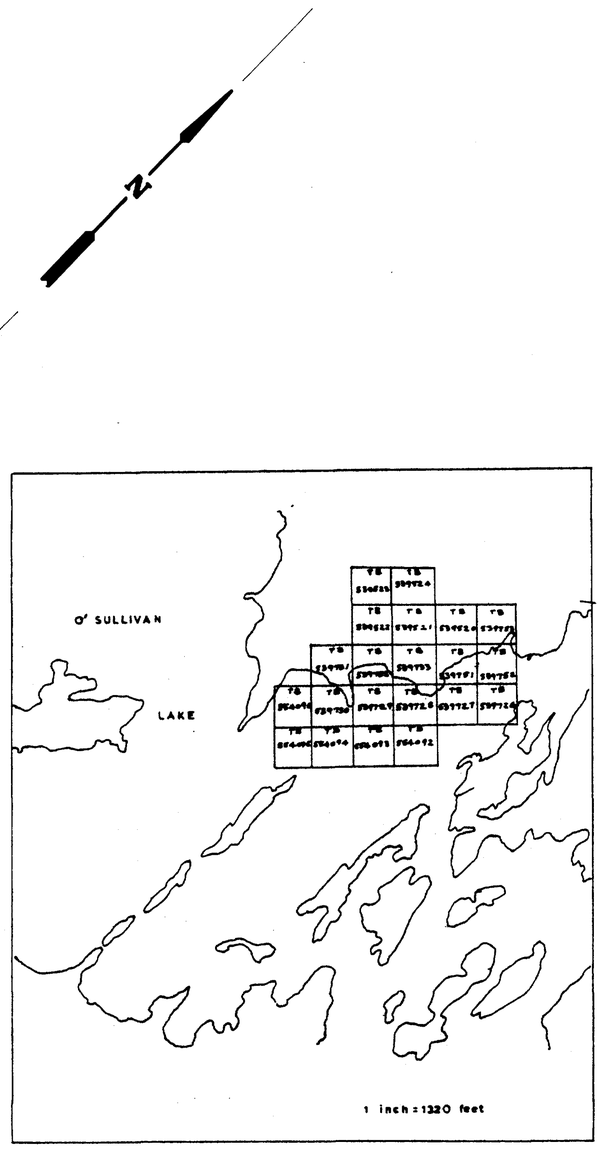
2.3383


B E
A W
8 W
16 W
20 W
24 W
28 W
32 W
36 W
40 W
44 W
48 W
65



240





O' SULLIVAN LAKE

THUNDER BAY MINING DIVISION

ONTARIO

GROUP A

MAGNETOMETER

SURVEY

SCALE 1 In = 200 ft

LEGEND

600 = TOTAL INTENSITY OF THE EARTH MAGNETIC FIELD MINUS 59,000 GAMMAS

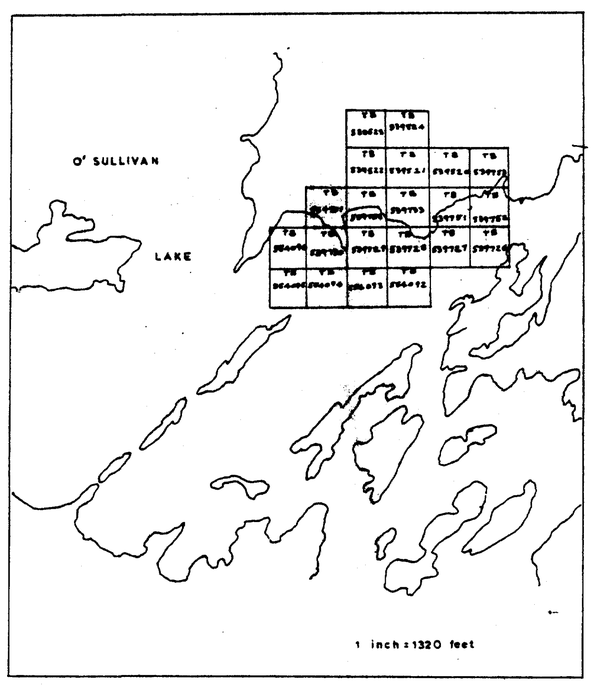
MAGNETIC CONTOUR INTERVAL 100 GAMMAS

BASE STATION

MINING LANDS BRANCH
J. W. BAZINET
PROVINCE OF ONTARIO

1980

2.3383



O' SULLIVAN LAKE

THUNDER BAY MINING DIVISION

ONTARIO

GROUP A

HORIZONTAL LOOP

ELECTROMAGNETIC SURVEY

SCALE 1" = 200'

LEGEND

MEASUREMENT STATIONS

IN PHASE (1 in. = 20%) } +ve plotted NE

OUT OF PHASE (1 in. = 20%)

COIL SEPARATION : 328 ft

FREQUENCY: [illegible]

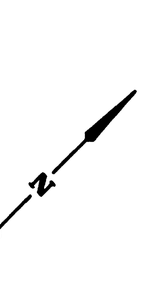
CONDUCTORS

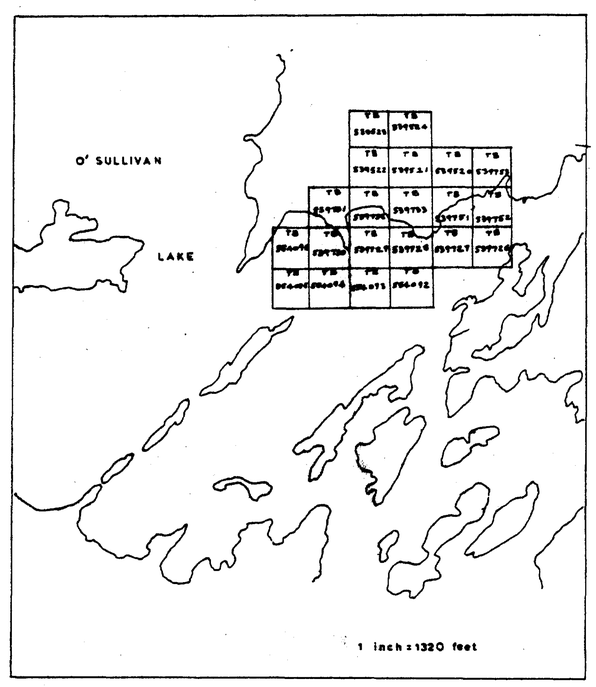
INSTRUMENT : MAX MIN II

REGISTERED PROFESSIONAL ENGINEER
MINING
E. W. KAZINET
PROVINCE OF ONTARIO

July 15/80

2.3383





O' SULLIVAN LAKE

THUNDER BAY MINING DIVISION

ONTARIO

GROUP A

HORIZONTAL LOOP

ELECTROMAGNETIC SURVEY

SCALE 1" = 200'

LEGEND

MEASUREMENT STATIONS

IN PHASE (1 in. = 20%) } +ve plotted NE

OUT OF PHASE (1 in. = 20%)

COIL SEPARATION : 328 ft

FREQUENCY: 877 Hz

CONDUCTORS

INSTRUMENT : MAX MIN II

REGISTERED PROFESSIONAL ENGINEER
MINING
E.W. BAZINET
PROVINCE OF ONTARIO

July 15/80

2.3383