PRELIMINARY REPORT

TEGALDER RESOURCES INC.,

TIMMINS AREA

by

GEOPHYSICAL SURVEYS INC.,
2272, Léon Harmel
Parc Jean-Talon Nord
Québec, Québec
G1N 4L2

DECEMBER 1980

L.O

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1- INTRODUCTION

Geophysical Surveys Inc. has carried out an airborne geophysical survey of 1020 line miles in the Timmins area for Tegalder Resources Inc. during the period of September 27 to October 4, 1980.

The survey area is divided in 2 blocks which are shown on the index map (figure 1). The lines oriented North-East are spaced 200 metres apart.

Our helicopter geophysical platform has been called REXHEM-1 which is an acronym formed from Relevés d'EXploration Héliportés ElectroMagnétiques.

The REXHEM-1 instrumentation includes an EM-33 from Geonics Ltd, with coaxial max-coupled coils, a G803 proton magnetometer from Geometrics Ltd, a VLF system TOTEM-1A from Herz Industries Ltd, and a digital data acquisition system Sonotek Ltd.

The electromagnetic coils mounted in the bird shell and operating at a frequency of 736Hz were towed 100 feet below the helicopter at an average height of 120 feet above ground.

The magnetic sensor was towed 60 feet below the helicopter at an average height of 160 feet above ground. The survey data quality is excellent particularly with a noise level of less than one ppm on the electromagnetic traces and of two gammas on the magnetic records. The data processing and interpretation were done in Quebec in November and December 1980 on a Sigma 6, Xerox computer.

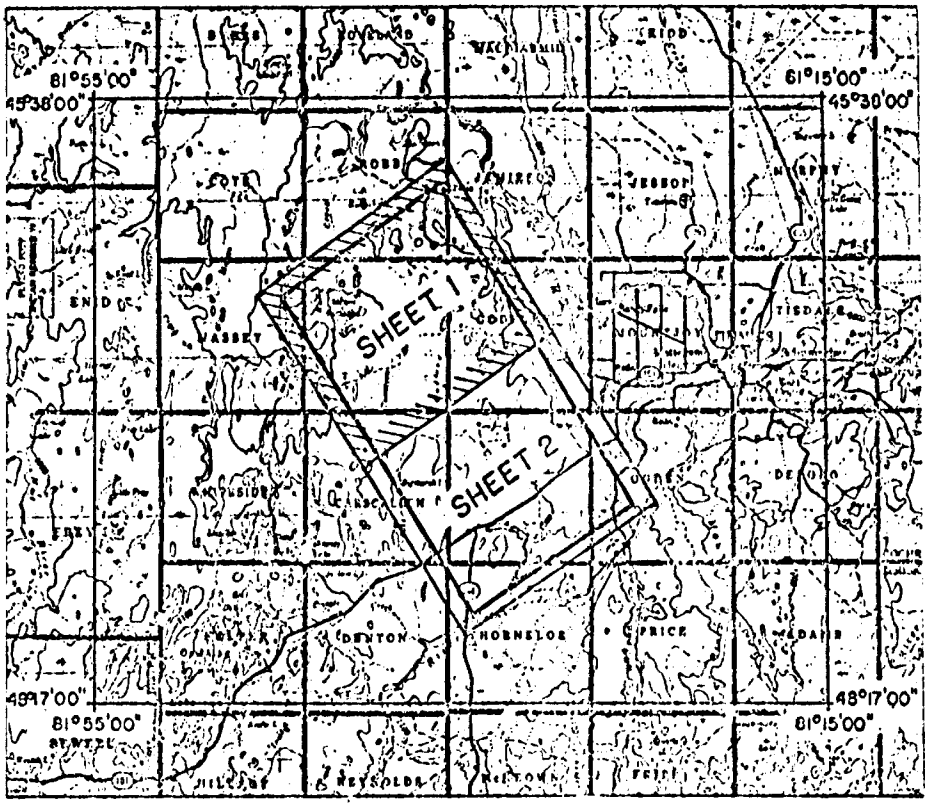


FIGURE 1 INDEX MAP

TIMMINS AREA

2- DATA PRESENTATION

The maps at a scale of 1:15 840 accompanying this report are:

- the electromagnetic anomalies shown by symbols (2 maps)
- the quadrature and total field profiles of the VLF-EM (2 maps)
- the contours of the total magnetic field (2 maps)

The geophysical data were recorded digitally in the helicopter and processed on a Sigma 6, Xerox computer. The mosaic was supplied by Tegalder Resources Inc.

3- SURVEY RESULTS

Most of the electromagnetic anomalies detected in the survey area are related to a main conductor (axis 2) oriented North-West, located between line 71 (anomalies B and C) and line 81 (anomaly A).

This conductor located in Bristol township is characterized by mostly high conductivity-thickness values, without direct magnetic correlation.

However, the anomalies 77-A and 74-A are related to a magnetic response and could be caused by a conductor, which is also magnetic, or by a conductor which lies near a magnetic body.

The majority of conductors which are also magnetic are sulphides containing pyrrhotite and/or magnetite. The favorable exploration targets along this conductor may be selected according to the geology or geophysical criterias, like conductivity-thickness values.

Ground follow-up is recommended on anomalies 76.10 B and C.

Some small conductor axis have been also identified more or less parallel to the main conductor. The conductors which have been selected for ground follow-up are shortly discuss.

---- TURNBULL TOWNSHIP ----

Anomaly 1-A

This conductor located on the limit of Turnbull and Massey townships have a medium conductivity 20 mhos with a direct magnetic correlation of 300 gammas. Ground follow-up surveys are recommended over this anomaly (first priority).

---- CARSCALLEN TOWNSHIP ----

Axis-5

The conductivity-thickness values along this axis are moderate (14 to 20 mhos). This conductor is located on the flank of a magnetic anomaly and could be related to a geological contact (first priority).

Anomalies 76-B and C

The anomalies, 76-B (40 mhos) and 76-C (14 mhos) are located on the north side of a magnetic anomaly of 100 gammas. In addition, the shape of these anomalies are usually an indication of a bedrock conductor (first priority).

Anomaly 71-D

This anomaly without magnetic correlation has a high conductivity-thickness value (35 mhos) (first priority).

Axis 3, 4, 6

These axis have weak to moderate conductivity-thickness values (4 to 20 mhos). The conductor axis 3 and 4 are in a quiet magnetic zone and the conductor axis number 6 is not either associated with a magnetic anomaly (second priority).

Anomalies 80-A, 81-B, and 76-10-A

These anomalies without magnetic correlation and weak conductivity-thickness values seem to be related to the overburden.

The anomaly 76.10-A has a better shape than the other anomalies and ground follow-up should be done first on this anomaly (third priority).

---- GODFREY TOWNSHIP ----

Anomalies 70-A et 71-A, 72-B

These anomalies are weaks (4 to 8 mhos) and are located near a magnetic anomaly of about 150 gammas (second priority).

Anomaly 73-A

This anomaly seems to be related to an edge effect and should be considered with caution.

However, the anomaly has a conductivity-thickness of 11 mhos and is associated with a magnetic anomaly of 150 gammas.

4- GENERAL INTERPRETATION

A vertical half-plane model is used as the theorical model for the phasor diagram (figure 2).

The in-phase and quadrature amplitudes are transferred on this diagram to determine the apparent conductance and the conductor depth.

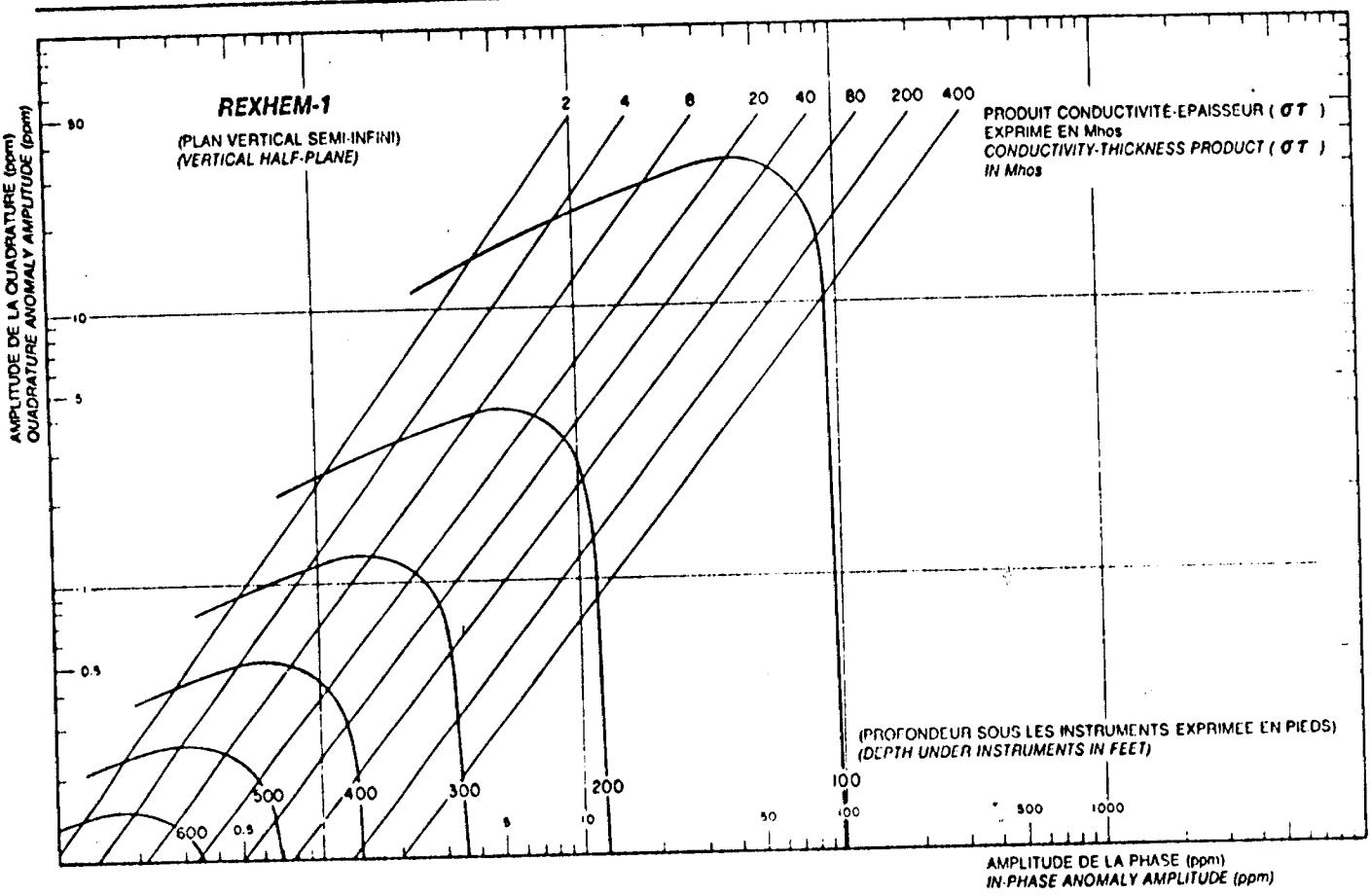
The apparent conductance obtained this way is the product of the electrical conductivity and average thickness.

The best conductivity-thickness product approximations are made from the stronger anomaly responses, whereas for weaker anomalies less than 3 ppm, the approximation is less valid, usually the mhos calculation for each conductor is a good discriminating parameter. Depth estimates to the tops of the conductors should however be treated with caution as the geometry and strength of the anomaly are critical in this approximation.

Most overburden have apparent conductances lower than 4 mhos and also the very weak bedrock conductors and the "structural" conductors such as unmineralized faults and shears.

Ordinarily, the overburden conductor are easily distinguished from these bedrock and structural features by the shapes of their responses. The overburden conductors are identified by the symbol X on the electromagnetic anomalies map but, when the anomaly cannotbe related with confidence to an overburden response the X is put in a circle. (see the legend of the electromagnetic anomalies map).

DIAGRAMME DE LA PHASE
PHASOR DIAGRAM



PHASOR DIAGRAM -FIGURE 2

Poor to moderate conductance (4 to 20 mhos) may originate from massive sulphides, if they are not well connected or if they are of a poorly-conducting variety such as pyrite or galena.

A strong conductance higher than 20 mhos indicates well-connected mineralization extending throughout a fairly large region, and this often suggests either graphitic zones or massive sulphides.

When long conductors without magnetic correlation are located on/or parallel to known faults or photographic lienars, graphite is most likely the cause. It is unfortunate that graphite can also occur as relatively short conductors and produce attractive looking anomalies. With no other information than the airborne results, these must be examined on the ground.

An EM anomaly with a magnetic correlation may be caused by a conductor which is also magnetic, or by a conductor which lies near a magnetic body.

The majority of conductors which are also magnetic are sulphides containing pyrrhotite and/or magnetite.

Conductive and magnetic bodies in close association are often graphite and magnetite. It is usually very difficult to distinguish between these cases.

When the conductor is strongly magnetic, the amplitude of the inphase EM anomaly is weakened and if the conductivity is also weak, the inphase EM anomaly may even be reversed in sign. These anomalies are indicated by the letter M inside a circle on the electromagnetic anomalies map.

Contact zones can often be predicted when anomaly trends coincide with the lines of maximum gradient along a flanking magnetic anomaly.

Power lines sometimes produce spurious anomalies but these can be identified by reference to the monitor trace.

Railroad pipeline and other artificial conductors are recognized by studying the film strips.

Commercial sulphide ore bodies are rare, and those that respond to airborne survey methods usually have medium to high conductivity. Many have magnetic correlation caused by magnetite and/or pyrrhotite and most of them are relatively short conductors.

5- REXHEM-1 INSTRUMENTATION

- An electromagnetic system EM-33 from Geonics Limited (phase and quadrature)
- A G803 proton precession magnetometer from Geometrics Limited with one gamma sensitivity at a sampling rate of 1 second.
- A VLF system TOTEM-1A from Herz Industries (total field and quadrature)
- A digital data system SDS-1200 from Sonotek Limited
- A magnetic tape console Minideck from Digi-Data
- An ACR-8 analogue recorder from Numec Limited
- A radar altimeter AN/APN-171 from Honeywell (accuracy of ± 5 feet)
- A 35mm camera from Spar Aero Limited.

6- REXHEM-1 ELECTROMAGNETOMETER DESCRIPTION

The electromagnetometer EM-33 consists of a helicopter towed bird containing transmitter and receiver coils in a standard coaxial (mixiumum-coupled) configuration which survey experience has shown to be optimum for the detection of ore bodies with simultaneous rejection of overburden noise.

The transmitter frequency (normally 736 Hz) can be varied from 400 to 4000 Hertz to suit the customers particular survey requirements.

The inphase and quadrature components are measured at two rise times of 0.6 second and 2.4 seconds.

THE ADVANCED DESIGN OF THIS SYSTEM OFFERS THE FOLLOWING FEATURES

A. A noise level smaller than 0.5ppm achieved by employment of recently developed composite material for the bird shell yielding a degree of structural rigidity not previously attained and by a new suspension system reducing bird bending noise. The noise level is actually the lowest among all the helicopter electromagnetic system.

The high signal to noise ratio permits detection of conductor to a depth of about 90 meters.

B. Four channels of EM data. Inphase and quadrature components are recorded on four channels at two rise times of 0.6 second and 2.4 seconds allowing a large depth of detection without sacrificing resolution.

C. High resolution. The short rise time of 0.6 second combined with the small coil separation of 6 meters, provide exceptionnally high resolution. The EM-33 is an ideal system to discriminate closely spaced multiple conductors and to identify conductors too small to be detected by airborne electromagnetic system having a large coil separation.

D. Increased depth of exploration particularly on the two channels recording the inphase and quadrature components at the long rise time of 2.4 seconds.

These two high sensitivity channels with a noise level lower than 0.5ppm provide a greater depth of exploration beyond the range of the other helicopter electromagnetic systems.

E. The system is equipped with a 60 Hertz power line monitor to prevent identification of power lines as target conductors and a "spherics" monitor channel which indicated the presence and strength of spherics. Examination of this chart trace which does not respond to subsurface conductors, enables the data reduction crew to immediately remove spherics and other external interference from the actual data traces.

F. Improved electronic signal processing substantially reducing interference from thunderstrom radiation "spherics" and from radar, FM, television and standard broadcast transmitters. The REXHEM-1 system can then be flown near urban areas.

G. A rigid bird shell shorter and heavier than the other helicopter bird EM systems has been designed to increase the coils stability in flight, the signal to noise ratio and therefore the depth of penetration.

7- DESCRIPTION OF THE ANALOGUE CHART AND FILM

The geophysical data were recorded digitally on a magnetic tape and also on an eight channels analogue chart (figure 3). These channels of information are:

i) the elevation above ground;

ii) the electromagnetic data, phase and quadrature recorded at an integration time of 0.6 and 2.4 seconds;

iii) the VLF-EM data, total field and quadrature responses;

iiii) the magnetic data shown at two different vertical scales (100 gammas and 1000 gammas).

The analogue chart scale is approximatively equal at 1:18 500, the chart paper moves through the recorder console at a speed of 1.5mm/sec. and the average speed of the helicopter is 100 kilometres per hour.

The line number and fiducial numbers are printed automatically on the analogue chart at an interval of twenty fids, for example line 148 and fid number 1010 will be printed 1010L148 and the next numbers on the chart will be 1030L148, 1050L148, etc...

The camera fiducial marks, printed on the analogue chart at an interval of 4.5mm or 3 secondes, indicate each point where a photograph was taken.

The fiducial numbers and line number are also printed automatically on the 35mm film, a fid number appears on every frame of the film but on the twentieth frame the fid number is replaced by the line number. These 35mm photographs are used for the flight path recovery.

GEOPHYSICAL SURVEYS INC.

REXHEM-1

0 FIDUCIAL AND FLIGHT LINE NUMBER

HELICOPTER ELEVATION
(0 to 800 feet)

400' FIDUCIALS

PHASE 0.6 s.
1 ppm/div.

FIDUCIALS (multiple of 10)

QUADRATURE 0.6 s.
1 ppm/div

SPHERICS MONITOR

PHASE 2.4 s.
0.5 ppm/div

60 Hz MONITOR

VLF
total field 1.5%/div

FIDUCIALS

VLF
quadrature 1.5%/div.

MAGNETOMETER
(1000 gammas scale)

MAGNETOMETER
(100 gammas scale)

Report written by:

RENE FORTIN, Geophysicist

Read and approved by:

CLAUDE JOBIN, Geophysicist

ANOMALY LIST

*** EM-33 TIMMINS AREA ***

ANOMALY	FIDUCIAL	PHASE (PPM)	QUAD. (PPM)	CONDUCTOR MHOS	CONDUCTOR DEPTH	ELEVATION (FEET)	MAGNETOMETER FIDUCIAL	MAGNETOMETER GAMMAS
101 A	157.0	5	3	20	145	80	157.5	300
200 A	306.5	3	2	14	120	140		
701 A	1059.0	2	2	7	175	80		
1800 A	870.8	1	2	3	145	80		
1901 A	668.0	2	2	7	175	80		
2301 A	56.5	1	2	3	145	80		
2501 A	2026.8	1	2	3	105	20	2026.8	50
2511 A	2130.0	1	3	1	140	40		
3501 A	555.0	1	25	1		80		
3501 B	671.5	2	3	4	175	40	672.0	50
3600 A	545.5	2	23	1		80		
4101 A	2050.0	0	5			80		
4101 B	2051.5	-3	2	0		80	2051.5	625
4101 C	2052.5	0	3			100		
5101 A	692.0	0	8			80		
5101 B	697.0	1	3	1	120	60	697.5	50
5200 A	524.0	2	2	7	175	80	524.0	100
5200 B	528.1	0	8			80		
5501 A	105.0	1	3	1	100	80		
6101 A	51.0	3	2	14	220	40	51.0	150

ANOMALY	FIDUCIAL	PHASE (PPM)	QUAD. (PPM)	CONDUCTOR MHOS	CONDUCTOR DEPTH	ELEVATION (FEET)	MAGNETOMETER FIDUCIAL	MAGNETOMETER GAMMAS
6101 B	52.8	2	1	17	260	60		
6301 A	253.0	2	1	17	260	60		
7000 A	247.0	2	3	4	155	60	246.0	200
7101 A	335.8	2	2	7	175	80	335.0	140
7101 B	384.5	4	3	14	165	60		
7101 C	385.0	5	3	20	165	60		
7101 D	412.0	3	1	35	190	100		
7200 A	493.2	1	2	3	165	60		
7200 B	541.5	3	3	8	145	80	540.0	100
7200 C	545.2	1	6	1	20	100	545.2	125
7301 A	623.0	9	9	11	100	60	623.0	100
7301 B	675.0	3	1	35	230	60	674.0	150
7400 A	781.5	2	2	7	175	80	781.5	300
7501 A	968.0	4	3	14	145	80	966.0	750
7600 A	1028.0	2	1	17	240	80		
7600 B	1041.0	6	2	40	200	40		
7600 C	1042.0	3	2	14	200	60		
7610 A	1175.0	1	1	6	240	80	1175.0	50
7610 B	1182.0	2	1	17	240	80		
7610 C	1183.0	2	1	17	240	80		
7701 A	1260.0	6	3	25	165	60	1260.0	300
7701 B	1261.0	2	2	7	215	40		
7701 C	1293.8	3	2	14	215	40		
7701 D	1295.5	2	1	17	260	80		
7701 E	1313.0	4	2	20	170	80	1313.0	250
7800 A	1331.0	2	3	4	155	60	1329.0	50

*** EM-33 TIMMINS AREA ***

ANOMALY	FIDUCIAL	PHASE (PPM)	QUAD. (PPM)	CONDUCTOR MHOS	CONDUCTOR DEPTH	ELEVATION (FEET)	MAGNETOMETER FIDUCIAL	MAGNETOMETER GAMMAS
7800 B	1346.0	3	2	14	180	80		
7800 C	1347.0	3	2	14	200	60		
7800 D	1380.5	1	2	3	165	60	1379.5	350
7800 E	1382.0	2	2	7	195	60		
7901 A	1564.5	3	4	6	140	60		
7901 B	1565.8	2	2	7	215	40	1568.0	350
8000 A	1222.0	2	2	7	155	100	1221.0	30
8000 B	1283.0	1	2	3	165	80	1281.0	325
8101 A	1952.0	2	1	17	240	80	1954.5	400
8101 B	2006.0	1	2	3	165	60	2007.5	15
8501 A	473.8	6	5	14	110	80		
8501 B	474.8	2	3	4	115	100	476.0	400
8601 A	507.0	8	5	20	130	60	505.5	270
8701 A	784.0	7	5	17	110	80	785.5	400
8901 A	213.0	2	1	17	240	80	215.5	200
9000 A	257.8	2	2	7	195	60		
9200 A	565.8	3	3	8	125	100	564.0	125
10100 A	1268.0	4	3	14	125	100		
10901 A	328.0	2	2	7	155	100		
12000 A	814.0	3	10	2	20	100		
12101 A	564.8	3	3	8	125	100		

*** EM-33 TIMMINS AREA ***

ANOMALY	FIDUCIAL	PHASE (PPM)	QUAD. (PPM)	CONDUCTOR MHOS	DEPTH	ELEVATION (FEET)	MAGNETOMETER FIDUCIAL	GAMMAS
12200 A	551.2	1	4	1	70	80		

Ontario

Ministry of Natu

GEOPHYSICAL – GEOLOGI
TECHNICAL DATA

42A06NW0302 2.3752 GODFREY

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) E.M. Mag. VLF

Township or Area Tumbull, Bristol

Claim Holder(s) Tagalder Resources Inc.

Survey Company Geophysical Surveys Inc.

Author of Report Rene Fortin

Address of Author 2272 Leon Harmel, Parc Jean-Talon Nord, Quebec G1N 4L2

Covering Dates of Survey September 27 to October 4, 1980.
(linecutting to office)

Total Miles of Line Cut

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	
–Magnetometer	
–Radiometric	
–Other	
Geological	
Geochemical	

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

Magnetometer X Electromagnetic X ~~XXXXXXXXX~~ Radiometric VLF
(enter days per claim)

DATE: June 10, 1981 SIGNATURE: John Rainmeault
Author of Report or Agent

Res. Geol. Qualifications

Previous Surveys

File No.	Type	Date	Claim Holder

MINING CLAIMS TRAVERSED
List numerically

(prefix) (number)

see attached list

If space insufficient, attach list

TOTAL CLAIMS

OFFICE USE ONLY

GEOPHYSICAL TECHNICAL DATA

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

Number of Stations _____ Number of Readings _____

Station interval _____ Line spacing _____

Profile scale _____

Contour interval _____

MAGNETIC

Instrument _____

Accuracy – Scale constant _____

Diurnal correction method _____

Base Station check-in interval (hours) _____

Base Station location and value _____

_____

ELECTROMAGNETIC

Instrument _____

Coil configuration _____

Coil separation _____

Accuracy _____

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

Frequency _____
(specify V.L.F. station)

Parameters measured _____

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 _____

SELF POTENTIAL

Instrument _____ Range _____

Survey Method _____

_____

Corrections made _____

_____

RADIOMETRIC

Instrument _____

Values measured _____

Energy windows (levels) _____

Height of instrument _____ Background Count _____

Size of detector _____

Overburden _____

(type, depth – include outcrop map)

OTHERS (SEISMIC, DRILL WELL LOGGING ETC.)

Type of survey _____

Instrument _____

Accuracy _____

Parameters measured _____

_____

Additional information (for understanding results) _____

_____

_____

AIRBORNE SURVEYS

Type of survey(s) E.M., MAGNETOMETER, V.L.F.

Instrument(s) REXHEM 1 (EM-33); VLF (TOTEM-1A); Magnetometer (G803)

(specify for each type of survey)

Accuracy E.M. Noise level less that 1PPM; Mag: within 2 gammas

(specify for each type of survey)

Aircraft used Helicopter

Sensor altitude Mag. - 50 m E.M. - 40 m.

Navigation and flight path recovery method The geophysical data, line number and fiducial numbers were recorded automatically on the analogue chart. The fiducial numbers are automatically printed on the 35mm film. The 35mm photographs are used for the flight path recovery.

Aircraft altitude ~~70m~~ Line Spacing 200m

Miles flown over total area 1020 Over claims only _____

GEOCHEMICAL SURVEY – PROCEDURE RECORD

Numbers of claims from which samples taken _____

_____

_____

Total Number of Samples _____

Type of Sample _____
(Nature of Material)

Average Sample Weight _____

Method of Collection _____

_____

Soil Horizon Sampled _____

Horizon Development _____

Sample Depth _____

Terrain _____

_____

Drainage Development _____

Estimated Range of Overburden Thickness _____

_____

_____

SAMPLE PREPARATION
(Includes drying, screening, crushing, ashing)

Mesh size of fraction used for analysis _____

_____

_____

_____

General _____

_____

_____

_____

_____

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_____

_____

_____

_____

ANALYTICAL METHODS

Values expressed in: per cent ☐
p. p. m. ☐
p. p. b. ☐

Cu, Pb, Zn, Ni, Co, Ag, Mo, As,-(circle)

Others _____

Field Analysis (_____ tests)

Extraction Method _____

Analytical Method _____

Reagents Used _____

Field Laboratory Analysis

No. (_____ tests)

Extraction Method _____

Analytical Method _____

Reagents Used _____

Commercial Laboratory (_____ tests)

Name of Laboratory _____

Extraction Method _____

Analytical Method _____

Reagents Used _____

General _____

_____

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BRISTOL TOWNSHIP

CLAIM NUMBER

P-595955
P-595956
P-595957
P-595958
P-595959
P-595960
P-595961

P-529951
P-529952
P-529953
P-529954
P-529955

P-585260
P-585261
P-585262
P-585263

TURNBULL TOWNSHIP

CLAIM NUMBER

P-553140
P-553141
P-553142
P-553143
P-553144
P-553145
P-553146
P-553147
P-553148
P-553149
P-553150
P-553151
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P-586295
P-586296
P-586297
P-586298
P-586299
P-586300
P-586301
P-586302
P-586303

Jamieson Twp. (M.288)

Turnbull Twp. (M.316)

Mountjoy Twp. (M.302)

Bristol Twp. (M.264)

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

VI V IV III II I

THE TOWNSHIP OF

GODFREY

DISTRICT OF COCHRANE

PORCUPINE MINING DIVISION

SCALE: 1-INCH = 40 CHAINS

LEGEND

PATENTED LAND	P
CROWN LAND SALE	C.S.
LEASES	L
LOCATED LAND	Loc.
LICENSE OF OCCUPATION	L.O.
MINING RIGHTS ONLY	M.R.O.
SURFACE RIGHTS ONLY	S.R.O.
ROADS	
IMPROVED ROADS	
KING'S HIGHWAYS	
RAILWAYS	
POWER LINES	
MARSH OR MUSKEG	
MINES	
CANCELLED	C.
PATENTED S.R.O.	

NOTES

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

Flooding rights on either side of the Mattagami to H.E.P.C.

This township lies within the Municipality of CITY of TIMMINS.

Reservations:

(R1) - Reserved for recreational purposes under Sec. 3 P.L.A. File 188543.

DATE OF ISSUE
FEB - 9 1981
SURVEYS AND MAPPING BRANCH

PLAN NO. M.284

ONTARIO
MINISTRY OF NATURAL RESOURCES
SURVEYS AND MAPPING BRANCH

42A06NW0302 2.3752 GODFREY

200

Godfrey Twp. - M.284

Carscallen Twp. - M.267

Ogden Twp. - M.305

Thorneloe Twp. - M.313

THE TOWNSHIP OF

BRISTOL

DISTRICT OF COCHRANE

PORCUPINE MINING DIVISION

SCALE: 1-INCH = 40 CHAINS

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

ROADS

IMPROVED ROADS

KING'S HIGHWAYS

RAILWAYS

POWER LINES

MARSH OR MUSKEG

MINES

CANCELLED

NOTES

400' Surface Rights Reservation along the shores of all lakes & rivers

Areas withdrawn from staking under Section 43 of the Mining Act (R.S.O. 1970).

Order No.	File	Date	Disposition
(W)	164584		Surface Rights Only

DATE OF ISSUE
FEB - 9 1981
SURVEYS AND MAPPING BRANCH

This township lies within the Municipality of the CITY of TIMMINS.

PLAN NO. M-264

ONTARIO
MINISTRY OF NATURAL RESOURCES
SURVEYS AND MAPPING BRANCH

42A06NW0302 2.3752 GODFREY

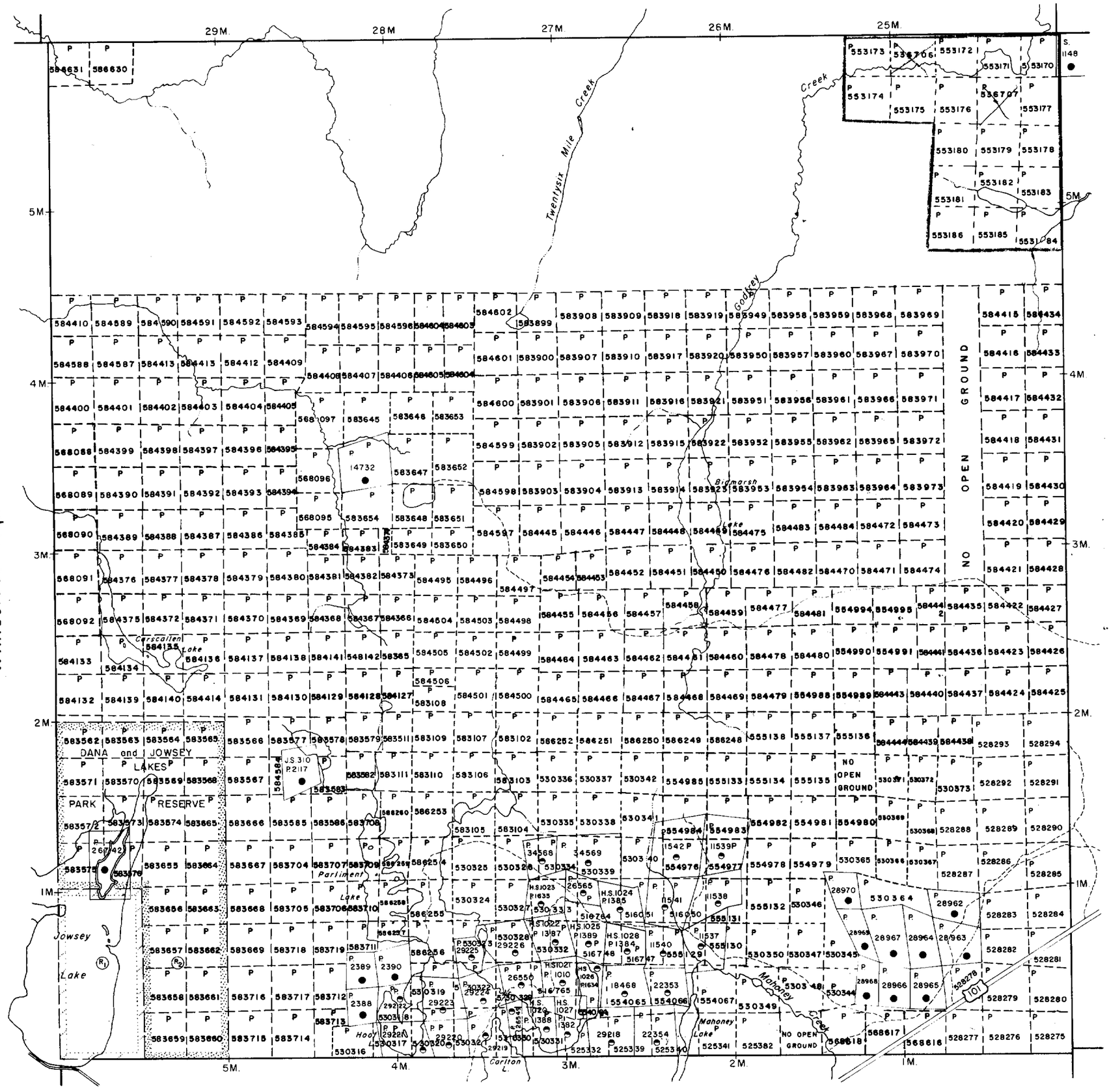
K. Adamov

Turnbull Twp. - M.316

Whitesides Twp. - M.318

Bristol Twp. - M.264

Denton Twp. - M.273



THE TOWNSHIP OF

CARSCALLEN

DISTRICT OF COCHRANE

PORCUPINE MINING DIVISION

SCALE: 1-INCH = 40 CHAINS

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

ROADS
IMPROVED ROADS
KING'S HIGHWAYS
RAILWAYS
POWER LINES
MARSH OR MUSKEG
MINES
CANCELLED

NOTES

400' Surface Rights Reservation along the shores of all lakes and rivers.

This township lies within the Municipality of the CITY of TIMMINS.

AREAS WITHDRAWN FROM STAKING

S.R.—SURFACE RIGHTS Section	Order No.	File	Date	M.R.—MINING RIGHTS Disposition
R1 - Sec. 42 (R.S.O. '60)		171506		S.R. & M.R.
R2		171506		S.R.

DATE OF ISSUE
FEB - 9 1981
SURVEYS AND MAPPING BRANCH

PLAN NO. M.267

ONTARIO
MINISTRY OF NATURAL RESOURCES
SURVEYS AND MAPPING BRANCH

42A06NW0302 2.3752 GODFREY

Robb TP. (M.309)

Massey TP. (M.296)

Godfrey TP. (M.284)

Carscallen TP. (M.267)

17M. BASE LINE 16M. surveyed in 1905 15M. by O.L.S. A. NIVEN 14M. 13M.

29M. 28M. BASE LINE 27M. surveyed in 1899 by 26M. O.L.S. A. NIVEN 25M.

5M. 4M. 3M. 2M. 1M.

Christmas Lake

Christmas Creek

Mt. Rutledge

Mile Creek

Twenty Six Mile Creek

Robb Creek

Goodfish Creek

1st MERIDIAN LINE surveyed in 1905 by O.L.S. A. NIVEN

THE TOWNSHIP OF

TURNBULL

DISTRICT OF COCHRANE

PORCUPINE MINING DIVISION

SCALE: 1-INCH = 40 CHAINS

LEGEND

PATENTED LAND	● or (P)
CROWN LAND SALE	C.S.
LEASES	(L)
LOCATED LAND	Loc.
LICENSE OF OCCUPATION	L.O.
MINING RIGHTS ONLY	M.R.O.
SURFACE RIGHTS ONLY	S.R.O.
ROADS	
IMPROVED ROADS	
KING'S HIGHWAYS	
RAILWAYS	
POWER LINES	
MARSH OR MUSKEG	
MINES	
CANCELLED	C.
PATENTED FOR SURFACE RIGHTS ONLY	

NOTES

400' Surface Rights Reservation along the shores of all lakes & rivers

This township lies within the Municipality of CITY of TIMMINS.

DATE OF ISSUE
FEB - 9 1981
SURVEYS AND MAPPING BRANCH

PLAN NO. M-316

ONTARIO
MINISTRY OF NATURAL RESOURCES
SURVEYS AND MAPPING BRANCH

42A06NW0302 2.3752 GODFREY

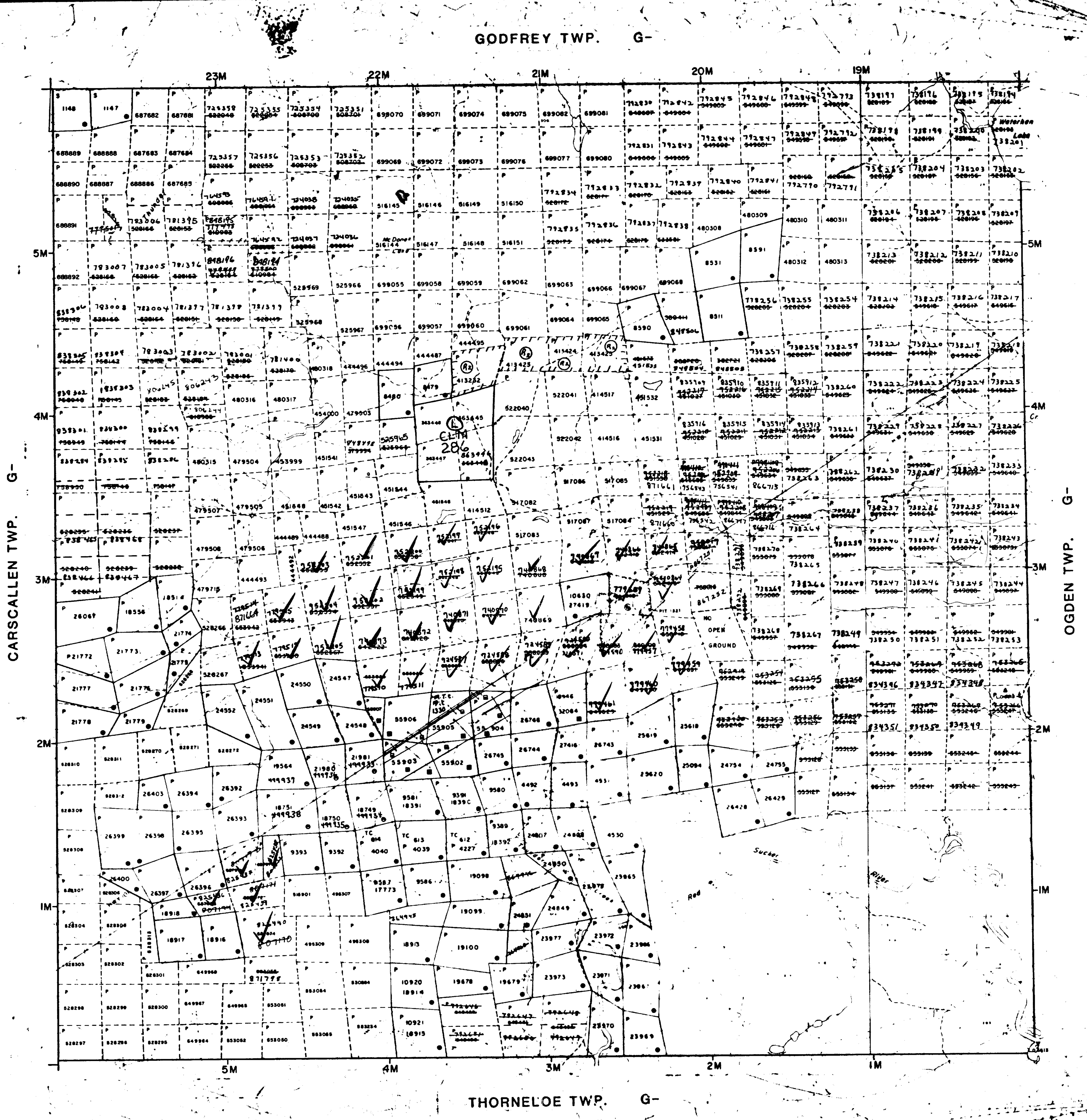
230

MAP SYMBOLOGY

AREAS WITHDRAWN FROM DISPOSITION

M.R.O. – MINING RIGHTS ONLY
S.R.O. – SURFACE RIGHTS ONLY
M.+ S. – MINING AND SURFACE RIGHTS

Description	Order No.	Date	Disposition	File
Sect. 36	W-28/85	Nov 19/85	M.+S.	NRW 37/85



LEGEND

HIGHWAY AND ROUTE No.
OTHER ROADS
TRAILS
SURVEYED LINES
TOWNSHIPS, BASE LINES, ETC.
LOTS, MINING CLAIMS, PARCELS, ETC.
UNSURVEYED LINES
LOT LINES
PARCEL BOUNDARY
MINING CLAIMS ETC.
RAILWAY AND RIGHT OF WAY
UTILITY LINES
NON PERENNIAL STREAM
FLOODING OR FLOODING RIGHTS
SUBDIVISION OR COMPOSITE PLAN
RESERVATIONS
ORIGINAL SHORELINE
MARSH OR MUSKEG
MINES
TRAVERSE MONUMENT

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	◔
CANCELLED	●
SAND & GRAVEL	◐

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

SCALE 1:20 000

Up to date as of: Dec 19/85

KEY PLAN
For O.B.M. Map

20 17 4600 53800
20 17 4600 53600
20 17 4600 53400

TOWNSHIP

BRISTOL

M.N.R. ADMINISTRATIVE DISTRICT
TIMMINS
MINING DIVISION
PORCUPINE
LAND TITLES / REGISTRY DIVISION
COCHRANE

Ontario — Ministry of Natural Resources — Land Management Branch

G-3998

42A06NW0302 2.3752 GODFREY

240

HELICOPTER MAGNETIC AND ELECTROMAGNETIC
SURVEY WITH THE REXHEM-I SYSTEM

TURNBULL AREA

SHEET 1

ELECTROMAGNETIC ANOMALIES MAP

1980

SURVEY AND COMPILATION BY
GEOPHYSICAL SURVEYS INC

LEGEND

- Anomaly ≥ 10ppm
- Anomaly 5 to 9ppm
- Anomaly ≤ 4ppm
- Anomaly probably from overburden
- Anomaly from overburden
- Anomaly with positive in phase and negative quadrature amplitudes, (conductive magnetic formation)
- Anomaly may be fictitious
- Alphabetic anomaly identification and apparent conductivity thickness value in mhos (A 10)
- Conductor axes
- Magnetic correlation (14)
- Power line
- Flight line, fiducials and numbers (50 / 65)

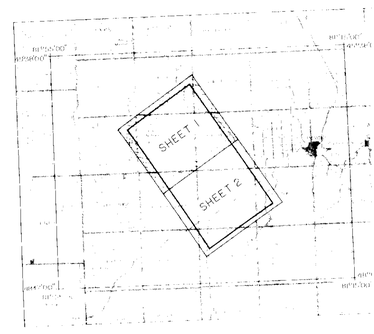
NOTE: The REXHEM-I instrumentation includes an E.M.-33 from Geonics Ltd. with coaxial max.-coupled coils operating at a frequency of 736 Hz a G803 proton magnetometer from Geometrics Ltd. a VLF system TOTEM-1A from Hertz Industries Ltd. and a digital data acquisition system from Sonotek Ltd.

Astronomic North used

SCALE 1 IN 8400

2.3752 cm.

LES RELEVES GEOPHYSIQUES INC



42A08NW0007 2.3752 GOCHEY

250

HELICOPTER MAGNETIC AND ELECTROMAGNETIC
SURVEY WITH THE REXHEM-I SYSTEM

T.L. 20003

T.L. 20003

LEGEND

Anomaly > 10ppm

Anomaly 5 to 10ppm

Anomaly > 4ppm

Anomaly probably from overburden

Anomaly from overburden

Anomaly with positive in-phase and negative quadrature amplitudes. (Conductive magnetic formation.)

Anomaly may be fictitious

Alphabetic anomaly identification and apparent conductivity thickness value in meter

Conductor axis

Magnetic correlation

Power line

Tie line numerals and numbers

NOTE: The REXHEM-I instrumentation includes an E.M. 33 from Geonics Ltd. with coaxial mex. coupled coils operating at a frequency of 7.36 Hz, a GSM-3 proton magnetometer from Geometrics Ltd., a VLF system TOTEM-1A from Hertz Industries Ltd. and a digital data acquisition system from Sonotek Ltd.

Astronomic North used

TURNBULL AREA

SHEET 2

ELECTROMAGNETIC ANOMALIES MAP

1980

SURVEY AND COMPILATION BY
GEOPHYSICAL SURVEYS INC

SCALE 1:5,000

237520

SHEET 1
SHEET 2

LES REEVES GEOPHYSICIST Inc.

260

HELICOPTER MAGNETIC AND ELECTROMAGNETIC
SURVEY WITH THE REXHEM-I SYSTEM

TURNBULL AREA

SHEET 1

TOTAL MAGNETIC FIELD MAP

1980

SURVEY AND COMPILATION BY
GEOPHYSICAL SURVEYS INC

LEGEND

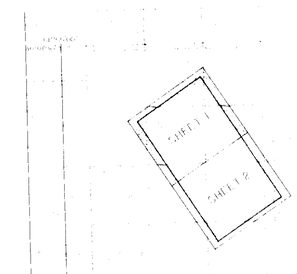
ISOMAGNETIC LINES (absolute total field)

500 gammas 500
100 gammas 100
50 gammas 50
10 gammas 10
Magnetic depression ..... ▲ ▲
Flight line, fiducial and number 20

NOTE : The REXHEM-I instrumentation includes an E.M. 33 from Geonics Ltd. with coax.al max. coupled coils operating at a frequency of 736 Hz a GR03 proton magneto meter from Geoinvestigations Ltd., a VLF system TOTEM-1A from Hertz Industries Ltd. and a digital data acquisition system from Sonotek Ltd.

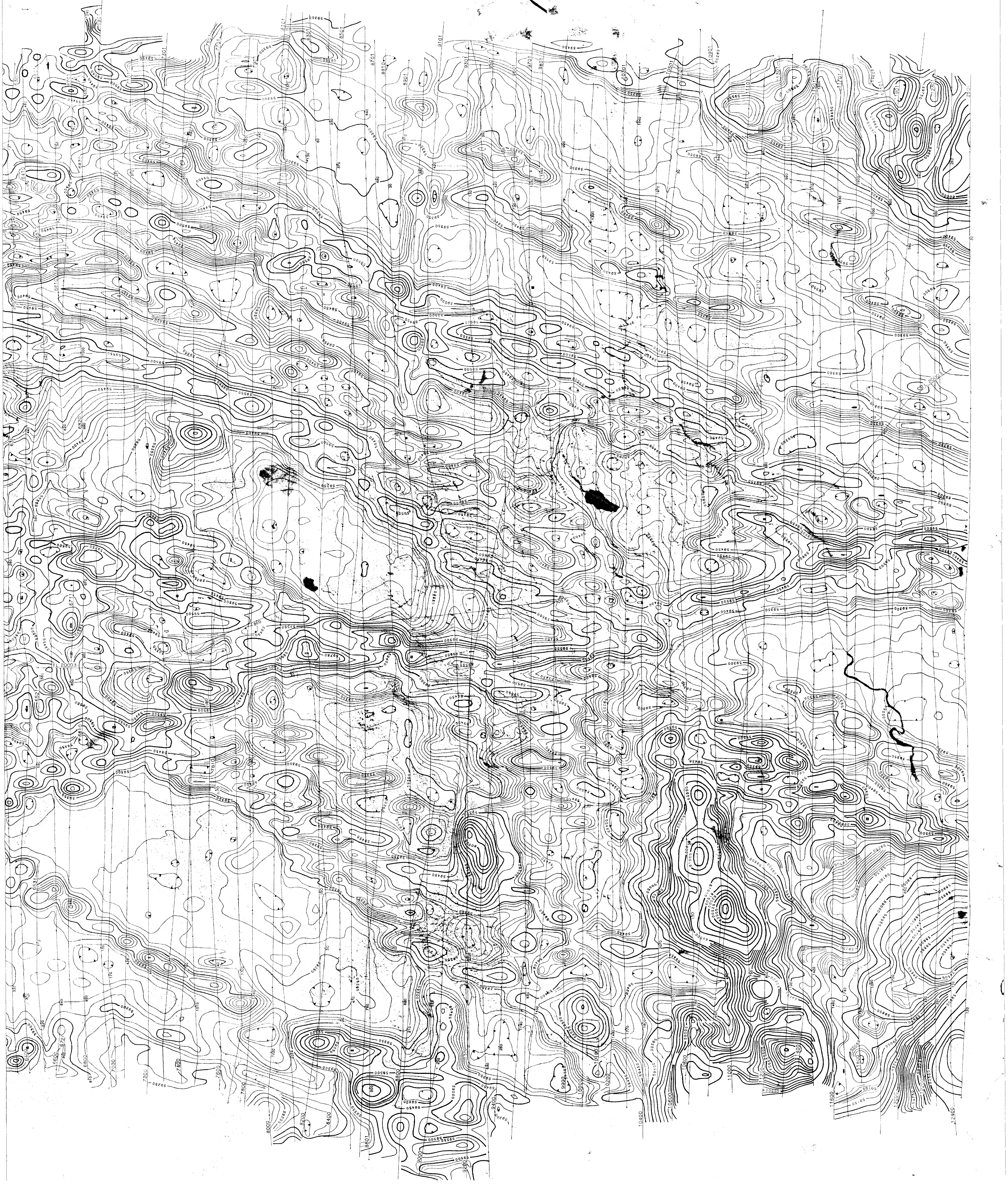
Astronomic North used

SCALE 1:5,000



GEOPHYSICAL SURVEYS INC

13752 02



TURNBULL AREA

SHEET 2

TOTAL MAGNETIC FIELD MAP

1980

SURVEY AND COMPILATION BY
GEOPHYSICAL SURVEYS INC

LEGEND

ISOMAGNETIC LINES (absolute total field)

500 gammas 500

100 gammas 100

50 gammas 50

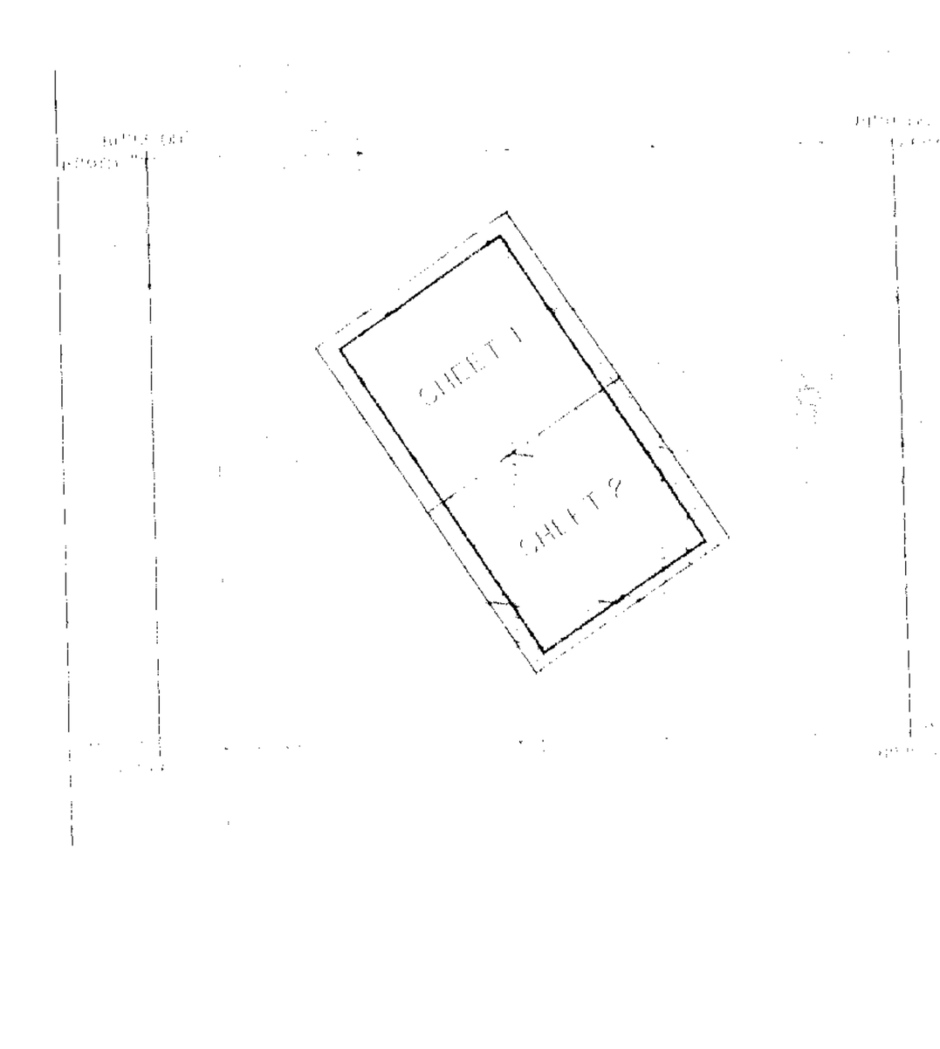
10 gammas 10

Magnetic depression ....

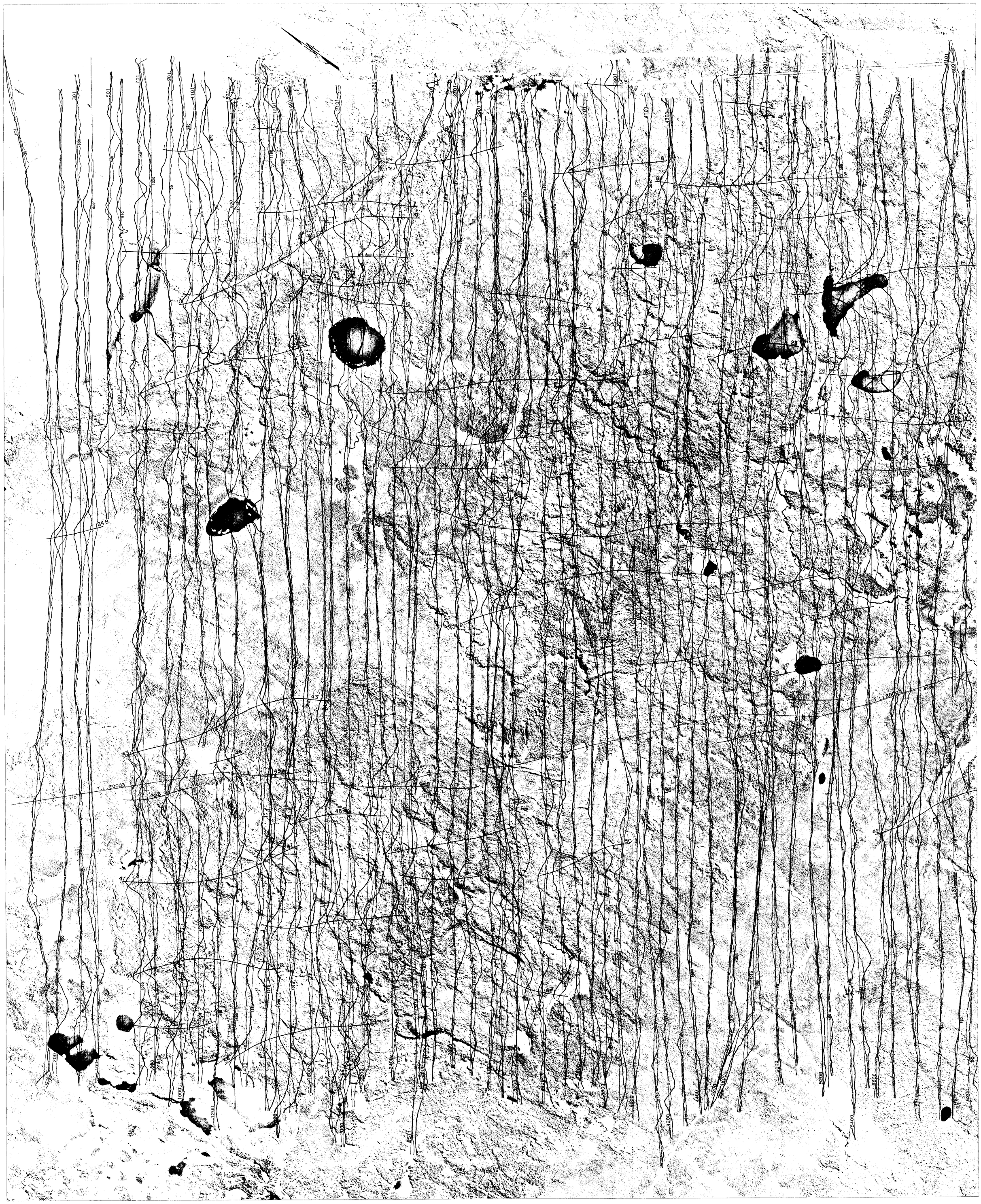
Flight lines, fiducials and numbers 35 40

NOTE: The REXHEM-I instrumentation includes an EM-33 from Geonics Ltd. with coaxial max-coupled coils operating at a frequency of 736 Hz, a G803 proton magnetometer from Geometrics Ltd., a VLF system TOTEM-1A from Herb Industries Ltd. and a digital data acquisition system from Sonotek Ltd.

Astronomic North used



23752
02



TURNBULL AREA

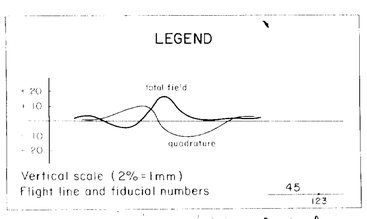
SHEET 1

TOTAL FIELD AND QUADRATURE
PROFILES OF THE VLF-EM

1980

SURVEY AND COMPILATION BY
GEOPHYSICAL SURVEYS INC

LEGEND



NOTE: The REXHEM-I instrumentation includes an EM-33 from Geonics Ltd. with coaxial max-coupled coils operating at a frequency of 736 Hz a G803 proton magnetometer from Geometrics Ltd. a VLF system TOTEM-IA from Hertz Industries Ltd. and a digital data acquisition system from Sonotek Ltd.

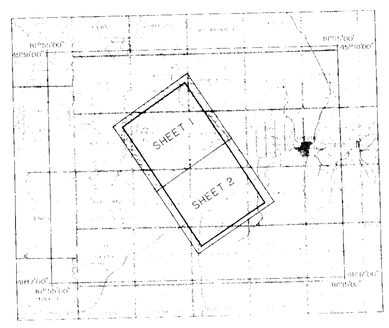
V.L.F. station NAA Cutler, me. 17.8 Khz

Astronomic North used

SCALE 1:15 840

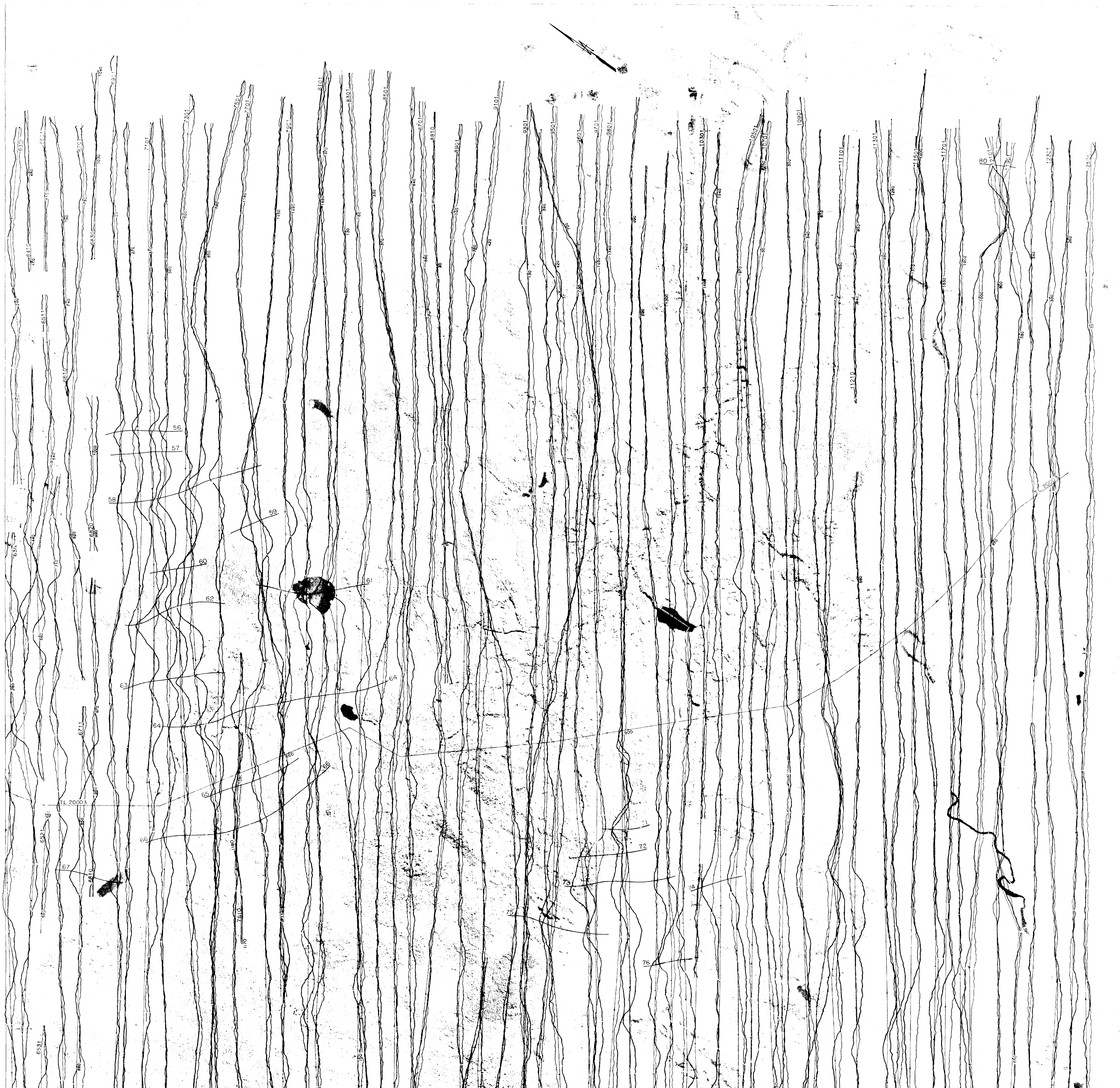
Miles 1/4 1/8 0 1/4 1/2 3/4 1 Miles

2.3752
01



LES RELEVES GEOPHYSIQUES INC

HELICOPTER MAGNETIC AND ELECTROMAGNETIC
SURVEY WITH THE REXHEM-I SYSTEM



TURNBULL AREA

SHEET 2

TOTAL FIELD AND QUADRATURE
PROFILES OF THE VLF-EM

1980

SURVEY AND COMPILATION BY
GEOPHYSICAL SURVEYS INC

LEGEND

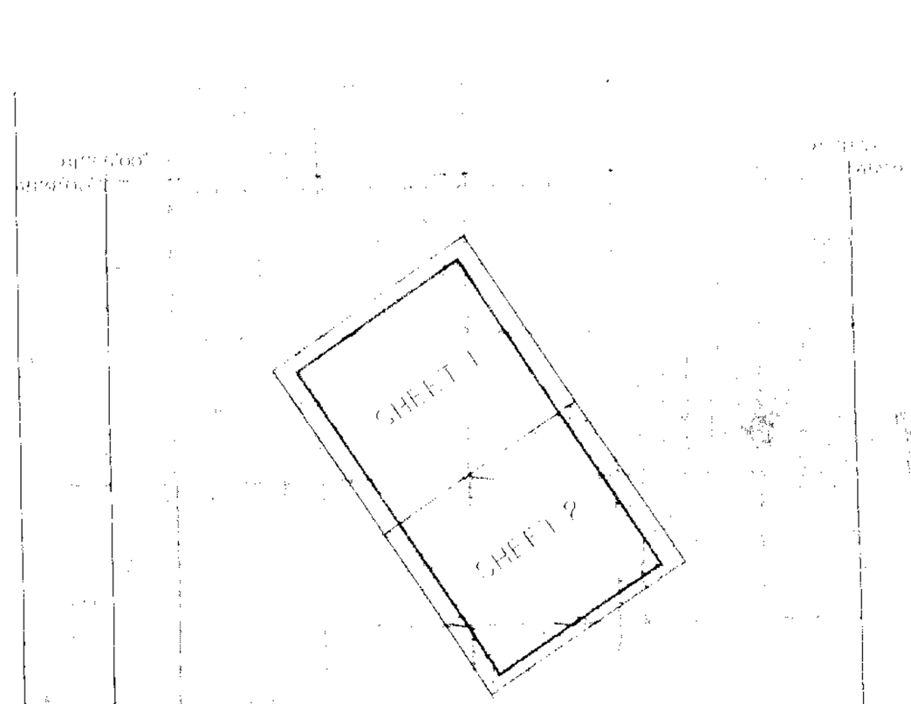
Vertical scale (2%=1mm)
Flight line and fiducial numbers

NOTE: The REXHEM-I instrumentation includes an EM-33 from Geonics Ltd. with coaxial max. coupled coils operating at a frequency of 736 Hz, a G803 proton magnetometer from Geometrics Ltd., a VLF system TOTEM-1A from Herts Industries Ltd. and a digital data acquisition system from Sonotek Ltd.

VLF station: NAA Cutler, me. 17.8 KHz

Astronomic North used

SCALE 1:15 840



LES RELEVES GEOPHYSIQUES INC

2.3752

300