AERODAT

VLF EM

MAGNETICS

RADIOMETRICS

INTERPRETATION

ELECTROMAGNETICS

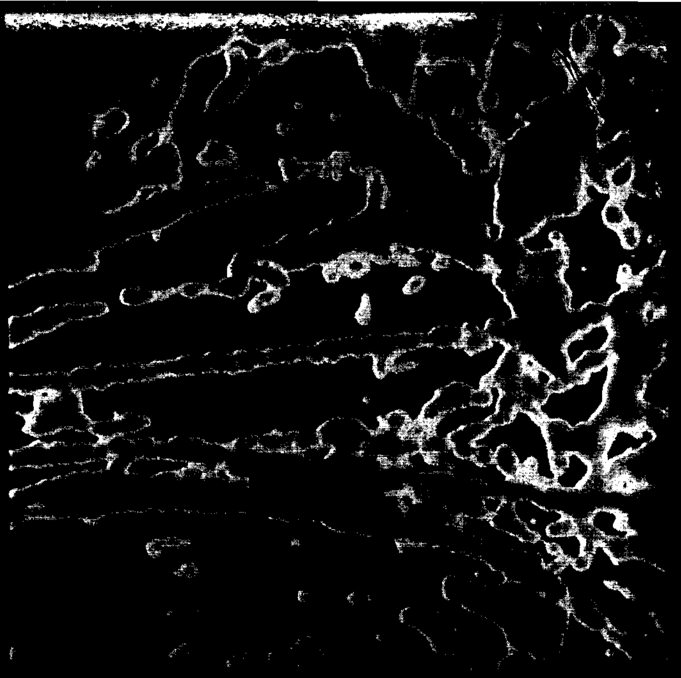
RESEARCH & DEVELOPMENT

ELECTRONIC POSITIONING

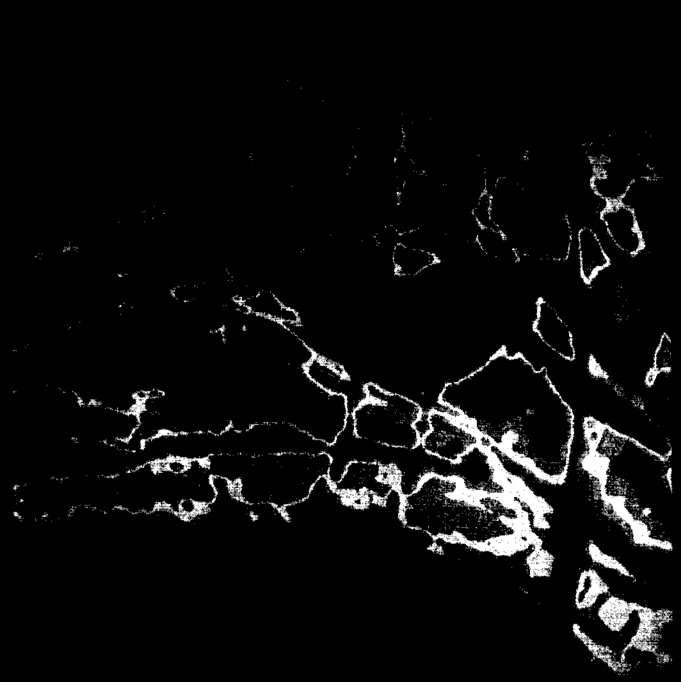
GRADIENT MAGNETICS

DATA PROCESSING

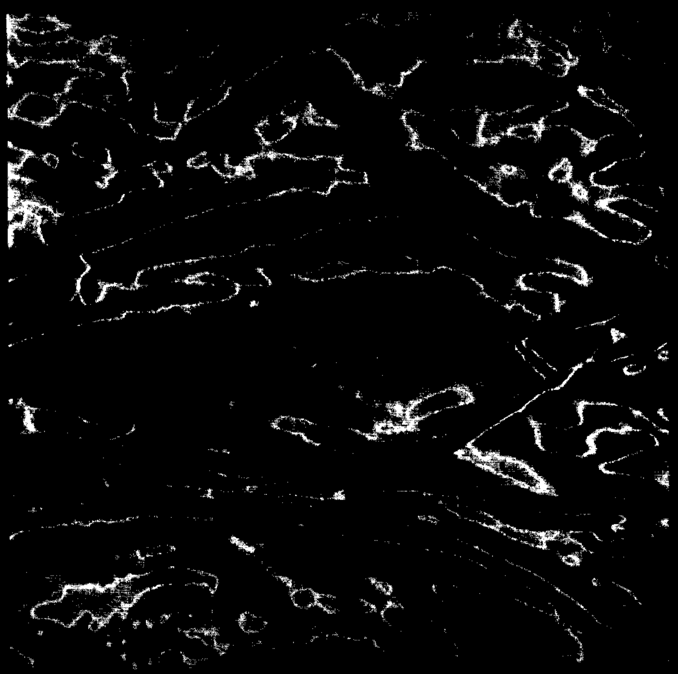
MAGNETIC VERTICAL GRADIENT



APPARENT RESISTIVITY



MAGNETIC TOTAL FIELD



VLF-EM TOTAL FIELD

The above map examples represent just some of the information collected by an Aerodat 3-frequency HEM / 2-frequency VLF-EM / magnetometer survey. The flight line spacing was 100 meters (1/16 mile) accurately controlled by a radar navigation system to a relative accuracy of about 5 meters. Such multisensor, low level, electronic navigation surveys map a variety of geophysical parameters with a resolution and sensitivity comparable to ground surveys at less cost and in shorter time. The above miniature maps each cover 100 square kilometers and contain 1000 line kilometers of geophysical information.

REPORT ON
COMBINED HELICOPTER-BORNE MAGNETIC, ELECTROMAGNETIC AND VLF-EM SURVEYS
GENOA TOWNSHIP CLAIMS
RUSH LAKE AREA, ONTARIO

FOR

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BY

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August 7, 1991

J9101G

Qual 2.7888
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TABLE OF CONTENTS

LIST OF MAPS

Maps are labelled according to scale, map type and sheet number. Map scales are 1:5,000 and 1:20,000. All map types are not necessarily presented at both scales. Details on map types, scales and map sheet layout are given in Section 4.

BLACK LINE MAPS:

Map Type	Description
1.	**BASE MAP;** screened topographic base map with township boundaries and UTM reference corners or grid.
2.	**FLIGHT PATH MAP;** photocombination of the base map with flight lines, and EM anomaly symbols.
3.	**COMPILATION/INTERPRETATION MAP;** with base map.
4.	**TOTAL FIELD MAGNETIC CONTOURS;** with base map.
5.	**VERTICAL MAGNETIC GRADIENT CONTOURS;** with base map.
6.	**APPARENT RESISTIVITY CONTOURS;** apparent resistivity calculated for the 935 Hz data, with base map.
7.	**VLF-EM TOTAL FIELD CONTOURS;** with base map.
8.	**HEM OFFSET PROFILES (935 Hz);** with base map and flight lines.

COLOUR MAPS:

1. **TOTAL FIELD MAGNETICS;** with superimposed contours and EM anomaly symbols.

2. **VERTICAL GRADIENT MAGNETICS;** with superimposed contours and EM anomaly symbols.

3. **APPARENT RESISTIVITY;** calculated for the 935 Hz data with superimposed contours and EM anomaly symbols.

4. **VLF-EM TOTAL FIELD;** with superimposed contours, fiducials and EM anomaly symbols.

5A. **HEM OFFSET PROFILES;** 935 Hz and 850 Hz data with flight lines and EM anomaly symbols.

5B. **HEM OFFSET PROFILES;** 4175 Hz and 4600 Hz data with flight lines and EM anomaly symbols.

DERIVATIVE COLOUR MAPS:

1-A. TOTAL FIELD MAGNETICS SHADOW MAPS; at illumination directions given by angle A.

REPORT ON
COMBINED HELICOPTER-BORNE MAGNETIC, ELECTROMAGNETIC AND VLF-EM SURVEYS, GENOA TOWNSHIP CLAIMS, RUSH LAKE AREA, ONTARIO

1. INTRODUCTION

This report describes an airborne geophysical survey carried out on behalf of Falconbridge Limited - Exploration (Falconbridge) by Aerodat Limited under a contract dated January 4, 1991. Principal geophysical sensors included a four frequency electromagnetic system, a high sensitivity cesium vapour magnetometer and a two frequency VLF-EM system. Ancillary equipment included a radar ranging navigation system, a colour video tracking camera, a radar altimeter, a power line monitor and a base station magnetometer.

The survey was carried out over two areas centered in Marion Township and about 110 km southwest of Timmins. Part of one area is in Genoa Township, immediately east of Marion Township. The two areas are designated areas Marion East and Marion West. Marion East is immediately north west of Rush Lake and covers 10.5 square kilometres. Marion West is centered some 8 km southwest of area A and covers approximately 12 square kilometres. Total survey coverage was approximately 245 line kilometres (area A - 108 km traverse lines plus 10 km magnetic tie lines, area B - 123 km traverse lines plus 4 km magnetic tie lines). The flight line spacing was 100 m. The Aerodat job number is J9101G.

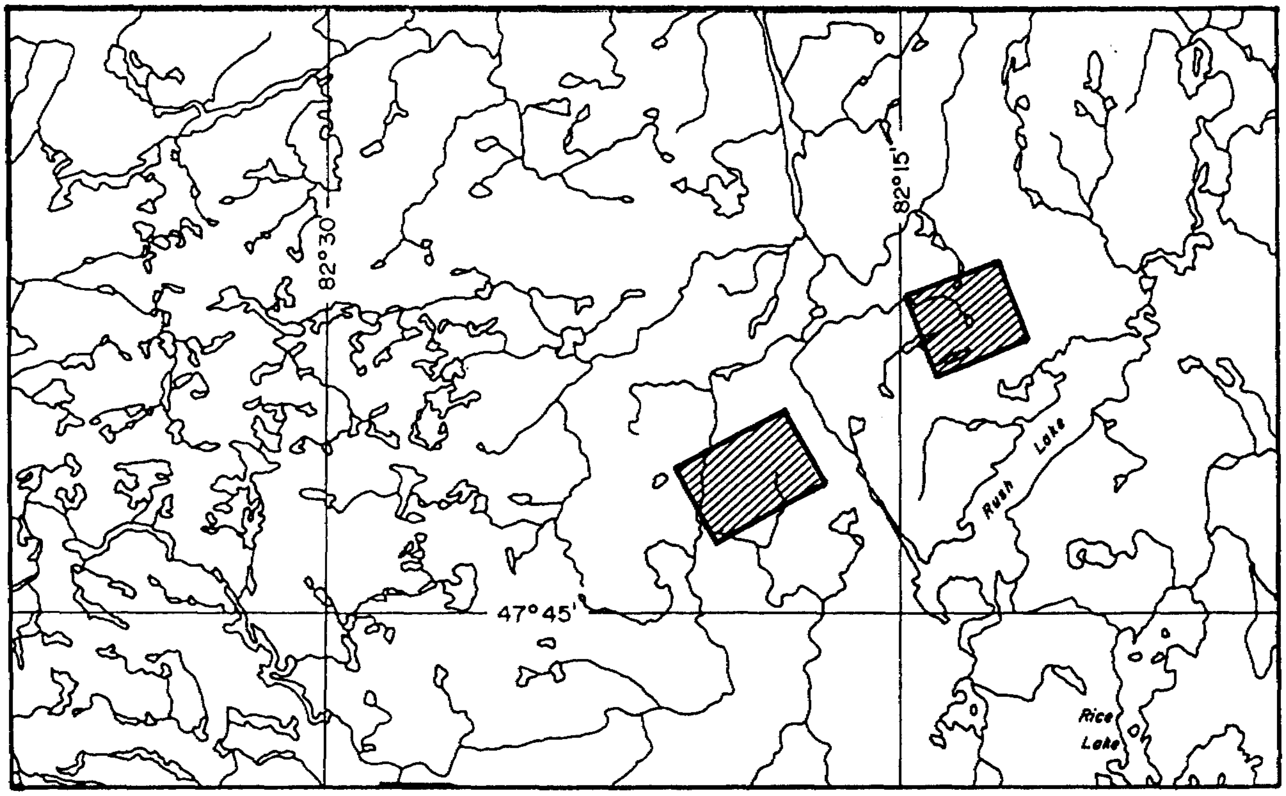
This report describes the survey, the data processing and the data presentation. Electromagnetic anomalies which are thought to be the response to bedrock conductors have been identified and appear on selected map products as EM anomaly symbols with interpreted source characteristics. Where EM and Magnetic results supported it, anomaly centers are joined to form conductor axes. Recommendations concerning areas with favourable geophysical characteristics are made with reference to a compilation/interpretation map.

2. SURVEY AREAS

The survey areas are centred some 110 km southwest of Timmins, Ontario. Area topography is shown on the 1:50,000 scale NTS map sheet - 41O/16 (Rush Lake).

Local relief is minimal - elevations are 1250 ±50 feet. The areas are free of major roads, powerlines, railroads, etc.

The survey areas are shown in the attached index map which includes local topography and latitude - longitude coordinates.



LOCATION MAP

HELICOPTERBORNE GEOPHYSICAL SURVEY
GENOA TOWNSHIP CLAIMS
RUSH LAKE AREA, ONTARIO

on behalf of
FALCONBRIDGE LIMITED - EXPLORATION

BY

AERODAT LIMITED
J9101G

The local magnetic field has an inclination of 76° and a declination of 8° west of north.

3. SURVEY PROCEDURES

The survey was flown on March 3, 1991. Principal personnel are listed in Appendix IV. Three (3) survey flights were required to complete the project.

The flight line spacing was 100 m. The flight line direction was approximately nnw/ssw for both areas. The aircraft ground speed was maintained at approximately 60 knots (30 metres per second). The nominal EM sensor height was 30 metres, consistent with the safety of the aircraft and crew.

Following equipment installation and testing, the ground based transponders of the radar ranging navigation system were installed at two or more sites or more near the survey area. The UTM coordinates of each site were taken from published 1:50,000 NTS maps. The base line (or line between transponders) was flown to determine their separation. The result is used to check the UTM coordinates assigned to each transponder.

The UTM coordinates of survey area corners were taken from maps provided by Falconbridge. These coordinates are used to program the navigation system. A test flight was used to confirm that area coverage would be as required.

Thereafter the traverse lines are flown under the guidance of the navigation system. The operator entered manual fiducials over prominent topographic features as seen on a 1:10,000 scale topographic map - a 5 times photographic enlargement of the 1:50,000 scale NTS sheet. Survey lines which showed excessive deviation were re-flown.

The magnetic tie lines were flown using visual navigation in areas of low topographic and magnetic relief. Aircraft position was taken from the navigation system. Three magnetic tie lines were flown in Marion East. One magnetic tie line was flown in Marion West.

Calibration lines are flown at the start, middle (if required) and end of every survey flight. These lines are flown outside of ground effects to record electromagnetic zero levels.

4. DELIVERABLES

The results of the survey are presented in a report plus maps. The report is presented in four copies. Folded white print copies of the 1:20,000 scale black line maps are bound with the report.

The black line maps are delivered as cronaflex (or clear acetate) originals. The colour maps are delivered in four copies. The shadow maps are delivered in two copies. All maps are rolled and delivered in map tube(s).

A full list of all map types is given at the beginning of this report. A summary is given here.

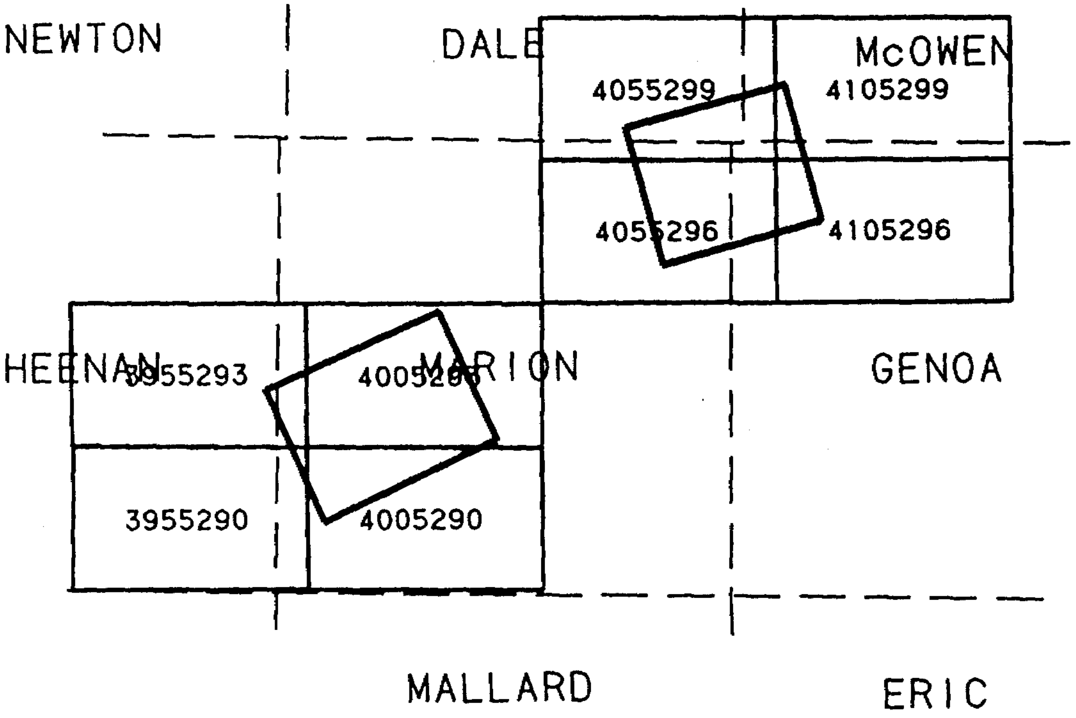
MAP TYPE	DESCRIPTION
1	Base Map (Black line)
2	Flight Path Map (Black line)
3	Compilation/Interpretation Map (Black line)
4	Total Magnetic Field Contours (Black line)
5	Vertical Magnetic Gradient Contours (Black line)
6	Apparent Resistivity - 935 Hz (Black line)
7	VLF-EM Total Field Contours (Black line)
8	HEM Offset Profiles - 935 Hz (Black line)
1	Total Magnetic Field Contours (Colour)
2	Vertical Magnetic Gradient Contours (Colour
3	Apparent Resistivity Contours - 935 Hz - (Colour)
4	VLF-EM Total Field Contours (Colour)
5A	HEM Offset Profiles - (935 & 850 Hz) (Colour)
5B	HEM Offset Profiles - (4175 & 4600 Hz) (Colour)
1A	Total Field Magnetic Shadow Maps (Colour)

Black line map scales are as follows:

MAP TYPE	1:5,000	1:20,000
1	X	X
2	X	X
3	X	X
4	X	X
5	X	X
6		X
7		X
8		X

All maps, except type 2 (flight path map with anomaly centers), are presented on cronaflex. All type 2 maps are presented on clear acetate.

The colour and shadow maps are presented at the following scales:



MAP SHEET LAYOUT
1:50,000 SCALE
HELICOPTERBORNE GEOPHYSICAL SURVEY
GENOA TOWNSHIP CLAIMS

on behalf of
FALCONBRIDGE LIMITED - EXPLORATION

BY

AERODAT LIMITED
J9101G

MAP TYPE	1:5,000	1:20,000
1	X	X
2	X	X
3		X
4		X
5(A&B)	X	
1-A		X

The 1:20,000 scale maps are presented on one map sheet - both areas. These maps show township boundaries and major topographic features. The 1:5,000 scale maps are presented on eight map sheets. The map sheet layout for the 1:5,000 scale maps is shown in the attached figure.

Each 1:5,000 scale map sheet covers an area of 5000 m (east-west) by 3000 m (north-south). Map sheet boundaries are lines of equal UTM grid eastings and northings. Map sheets are labelled using a 7 number code. The first three numbers indicate the UTM easting (in kilometres) of the western boundary of the sheet. The last four numbers indicate the UTM northing (in kilometres) of the southern boundary of the sheet. The 1:5,000 scale map sheet number 4055296 for example covers the area given by

UTM Eastings from 405000 to 410000
UTM Northings from 5296000 to 5199000

The 5,000 scale maps show local topography and a 1 km square UTM grid. A total of eight 1:5,000 scale maps were needed to cover the survey area.

The processed digital data is organized on 9 track archive tape. Both the profile and the gridded data are saved on tape. A full description of the archive tape(s) is delivered with the tape(s).

All gridded data are also provided on diskettes suitable for displaying on IBM compatible 286 or 386 microcomputers using the Aerodat RTI software package.

The Aerodat RTI (Real Time Imaging) program for displaying the gridded data sets from the survey is delivered to Falconbridge.

5. AIRCRAFT AND EQUIPMENT

5.1 Aircraft

An Astar 350B helicopter, (C-GJIX), owned and operated by Questral Helicopters, was used for the survey. Installation of the geophysical and ancillary equipment was carried out by Aerodat. The survey aircraft was flown at a mean terrain clearance of 60 metres.

5.2 Electromagnetic System

The electromagnetic system was an Aerodat 4-frequency system. Two vertical coaxial coil pairs were operated at 935 Hz and 4,600 Hz and two horizontal coplanar coil pairs at 850 Hz and 4,175 Hz. The transmitter-receiver separation was 7 metres. Inphase and quadrature signals were measured simultaneously for the 4 frequencies with a time constant of 0.1 seconds. The HEM bird was towed 30 metres below the helicopter.

5.3 VLF-EM System

The VLF-EM System was a Herz Totem 2A. This instrument measures the total field and vertical quadrature components of two selected frequencies. The sensor was towed in a bird 15 metres below the helicopter.

VLF transmitters are designated "Line" and "Ortho". The line station is that which is in a direction from the survey area which is ideally normal to the flight line direction. This is the VLF station most often used because of optimal coupling with near vertical conductors running perpendicular to the flight line direction. The ortho station is ideally 90 degrees in azimuth away from the line station.

The transmitters used were NAA, Cutler, Maine broadcasting at 24.0 kHz and NSS, Annapolis, Maryland broadcasting at 21.4 kHz. NAA (24.0 kHz) was used as the line station and NSS (21.4 kHz) was used as the ortho station. Cutler is some 20° south of east from the survey areas.

5.4 Magnetometer

The magnetometer employed was a Scintrex H8 cesium, optically pumped magnetometer sensor. The sensitivity of this instrument is 0.001 nanoTeslas at a 0.2 second sampling rate. The sensor was towed in a bird 15 metres below the helicopter.

5.5 Ancillary Systems

Base Station Magnetometer

An IFG-2 proton precession magnetometer was operated at the base of operations to record diurnal variations of the earth's magnetic field. The clock of the base station was synchronized with that of the airborne system to facilitate later correlation. Recording resolution was 1 nT. The update rate was 4 seconds.

External magnetic field variations were recorded on a 3" wide paper chart and on diskette.

The analog record shows the magnetic field trace plotted on a grid. Each division of the grid (0.25") is equivalent to 1 minute (chart speed) or 5 nT (vertical sensitivity). The date, time and current total field magnetic value are printed every 10 minutes.

Radar Altimeter

A King KRA-10 radar altimeter was used to record terrain clearance. The output from the instrument is a linear function of altitude.

Tracking Camera

A Panasonic colour video camera was used to record flight path on VHS video tape. The camera was operated in continuous mode. The flight number, 24 hour clock time (to .01 second), and manual fiducial number are encoded on the video tape.

Radar Ranging Navigation System

A Motorola Miniranger III positioning system was used to guide the pilot over a programmed grid. The ranges to at least two ground stations were digitally recorded. The output sampling rate is 1 second. Ranges are recorded with a resolution of 0.1 m.

Analog Recorder

A RMS dot matrix recorder was used to display the data during the survey. Record contents are as follows:

Label	Contents	Scale
GEOPHYSICAL SENSOR DATA		
MAGF	Total Field Magnetics, Fine	2.5 nT/mm
MAGC	Total Field Magnetics, Course	25 nT/mm
VLT	VLF-EM, Total Field, Line Station	2.5 %/mm
VLQ	VLF-EM, Vertical Quadrature, Line Station	2.5 %/mm
VOT	VLF-EM, Total Field, Ortho Station	2.5 %/mm
VOQ	VLF-EM, Vertical Quadrature, Ortho Station	2.5 %/mm
X09I	935 Hz, Coaxial, Inphase	2.5 ppm/mm
X09Q	935 Hz, Coaxial, Quadrature	2.5 ppm/mm
X4KI	4600 Hz, Coaxial, Inphase	2.5 ppm/mm
X4KQ	4600 Hz, Coaxial, Quadrature	2.5 ppm/mm
P09I	850 Hz, Coplanar, Inphase	5 ppm/mm
P09Q	850 Hz, Coplanar, Quadrature	5 ppm/mm
P4KI	4175 Hz, Coplanar, Inphase	10 ppm/mm
P4KQ	4175 Hz, Coplanar, Quadrature	10 ppm/mm

ANCILLARY DATA

RALT	Radar Altimeter	10 ft/mm
PWRL	60 Hz Power Line Monitor	-

The zero of the radar altimeter is 5 cm (5 large divisions) from the top of the analog chart. The full analog range for the radar altimeter is therefore 500 feet. A flying height of 60 m (197 feet) gives an analog trace which is three large divisions (3 cm) below the top of the analog record.

All but the VLF data are shown on the analog records as positive up. The VLF channels are reversed - positive anomalies are seen as downward excursion and negative anomalies are seen as upward excursions.

Chart speed is 2 mm/second. The 24 hour clock time is printed every 20 seconds. The total magnetic field value is printed every 30 seconds. The ranges from the radar navigation system are printed every minute.

Vertical lines crossing the record are operator activated manual fiducial markers. The start of any survey line is identified by two closely spaced manual fiducials. The end of any survey line is identified by three closely spaced manual fiducials. Manual fiducials are numbered in order. Every tenth manual fiducial is indicated by its number, printed at the bottom of the record.

Calibration sequences are located at the start and end of each flight and at intermediate times where needed.

Digital Recorder

A DGR-33 data system recorded the digital survey data on magnetic media. Contents and update rates were as follows:

DATA TYPE	SAMPLING	RESOLUTION
Magnetometer	0.2 s	0.001 nT
VLF-EM (4 Channels)	0.2 s	0.03 %
HEM (8 Channels)	0.1 s	0.03 ppm (coaxial), 0.06 ppm (coplanar)
Position (2 Channels)	0.2 s	0.1 m
Altimeter	0.2 s	0.05 m
Power Line Monitor	0.2 s	-
Manual Fiducial		
Clock Time		

6. DATA PROCESSING AND PRESENTATION

6.1 Base Map

The 1:20,000 scale base maps were prepared from 1:20,000 scale maps of township boundaries provided by Falconbridge. Local topography - a 2.5 times enlargement of the 1:50,000 scale NTS sheet - was added. The 1:5,000 scale base maps were made as a ten times photographic enlargement of the 1:50,000 scale NTS map sheet.

6.2 Flight Path Map

The flight path is drawn using linear interpolation between x,y positions from the navigation system. These positions are updated every second (or about 6mm at a scale of 1:5,000). These positions are expressed as UTM eastings (x) and UTM northings (y).

The manual fiducials are shown as a small circle and labelled by fiducial number. The 24 hour clock time is shown as a small square, plotted every 30 seconds. Small tick marks are plotted every 2 seconds. Larger tick marks are plotted every 10 seconds.

The block, line and flight numbers are given at the start and end of each survey line. The number 70340 32 indicates area A (block 7), line 34, flight 32. For area B, the block number is 8. The high block and flight numbers are due to the fact that this survey followed a larger project for Falconbridge which was done under the same Aerodat job number.

The flight path map is registered to the base map by matching UTM coordinates from the base maps and the flight path record. The match is confirmed by checking the position of prominent topographic features as recorded by manual fiducial marks or as seen on the flight path video record.

6.3 Electromagnetic Survey Data

The electromagnetic data were recorded digitally at a sample rate of 10 per second with a time constant of 0.1 seconds. A two stage digital filtering process was carried out to reject major sferic events and the reduce system noise.

Local sferic activity can produce sharp, large amplitude events that cannot be removed by conventional filtering procedures. Smoothing or stacking will reduce their amplitude but leave a broader residual response that can be confused with geological phenomena. To avoid this possibility, a computer algorithm searches out and rejects the major sferic events.

The signal to noise ratio was further enhanced by the application of a low pass digital filter. This filter has zero phase shift which prevents any lag or peak displacement from occurring, and it suppresses only variations with a wavelength less than about 0.25 seconds. This low effective time constant gives minimal profile distortion.

Following the filtering process, a base level correction was made using EM zero levels determined during high altitude calibration sequences. The correction applied is a linear function of time that ensures the corrected amplitude of the various inphase and quadrature components is zero when no conductive or permeable source is present. The filtered and levelled data were used in the determination of apparent resistivity (see below).

The HEM offset profiles are plotted at vertical scales of 2 ppm/mm (935 and 4600 Hz) and 8 ppm/mm (850 and 4175 Hz).

6.4 Total Field Magnetics

The aeromagnetic data were corrected for diurnal variations by adjustment with the recorded base station magnetic values. Where needed, the magnetic tie line results were used to further level the magnetic data. No corrections for regional variations were applied. The corrected profile data were interpolated on to a regular grid using an Akima spline technique. The grid provided the basis for threading the presented contours. The minimum contour interval is 2 nT. Grid cell sizes of 25 m (1:20,000 scale maps) and 10 m (1:5,000 scale maps) were used.

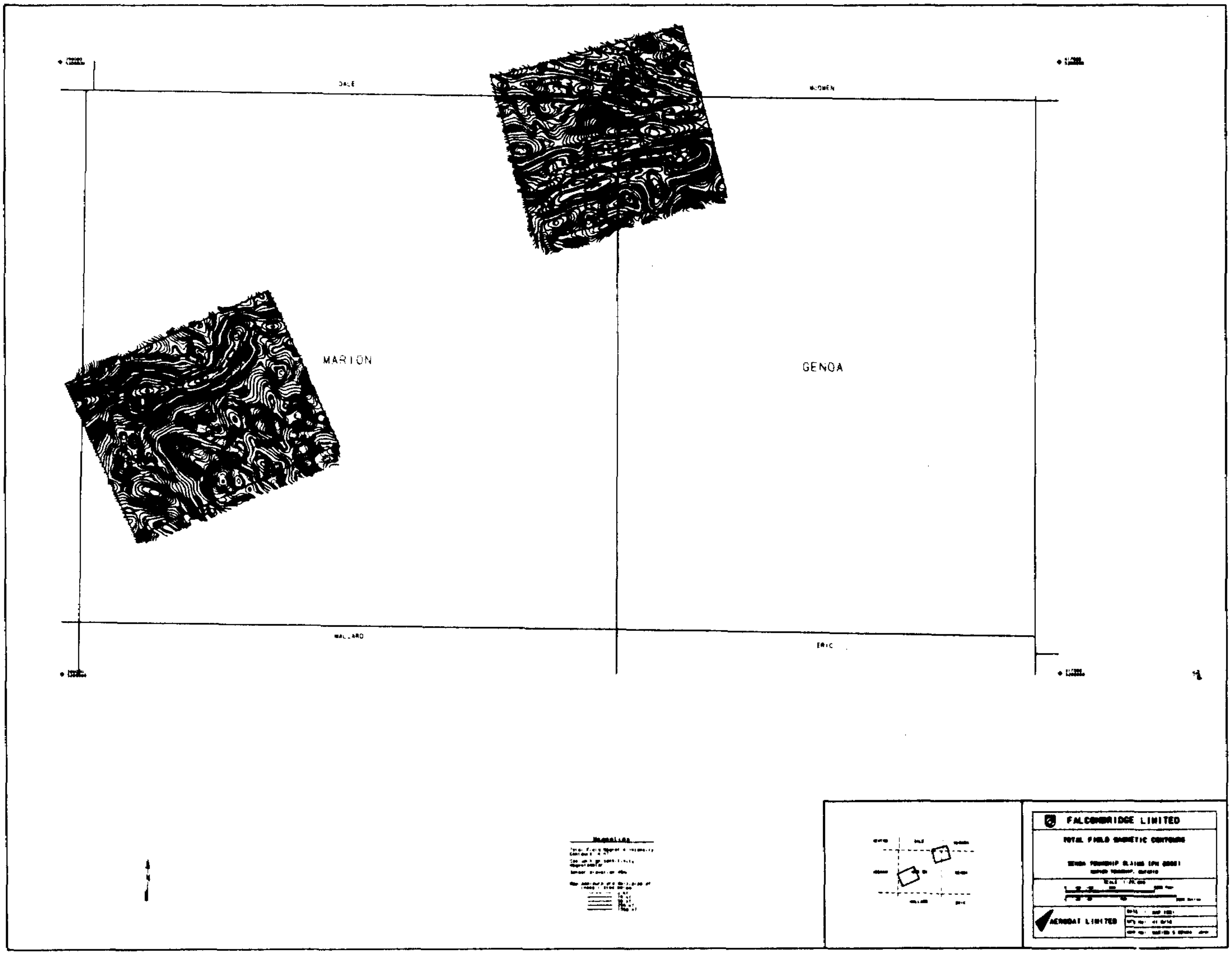
A page size copy of the 1:20,000 scale black line contoured total magnetic field map is attached.

6.5 Vertical Magnetic Gradient

The vertical magnetic gradient was calculated from the gridded total field magnetic data. The calculation is based on a 17 x 17 point convolution in the space domain. The results are contoured using a minimum contour interval of 0.2 nT/m. Grid cell sizes are the same as those used in processing the total field data.

6.6 Apparent Resistivity

The apparent resistivity is calculated by assuming a 200 metre thick conductive layer over resistive bedrock. The computer determines the resistivity that would be consistent with the sensor elevation and recorded inphase and quadrature response amplitudes at the selected frequency. The apparent resistivity profile data were interpolated onto a regular grid at a 25 metres (or 10 metres) true scale interval using an Akima spline technique and contoured using logarithmically arranged contour intervals. The contour interval is 0.1 log(ohm.m). This translates to contour lines at 100, 126, 158, 200, 251, 316, 398, 501, 631 and 794 ohm.m and multiples of 10. Thicker contour lines are used for 100 and 316 ohm.m and multiples of 10.


DALE
MARION
GENOA
MALLARD
ERIC
FALCONBRIDGE LIMITED
TOTAL FIELD MAGNETIC CONTOURS
GENOA TOWNSHIP CLAIMS
ONTARIO
AERODAT LIMITED

The highest measurable resistivity is approximately equal to the transmitter frequency. The lower limit on resistivity is rarely encountered.

6.7 VLF-EM

The VLF Total Field data from the Line Station is levelled such that a response of 0% is seen in non-anomalous regions. The corrected profile data are interpolated onto a regular grid using an Akima spline technique. The grid provided the basis for threading the presented contours. The minimum contour interval is 0.5 %. Grid cell size is 25 m (or 10 m).

7. INTERPRETATION

7.1 Area Geology

The following notes have been taken from Ontario Division of Mines, Geoscience Report 157, "Geology of the Chapleau Area, Districts of Algoma, Sudbury and Cochrane", 1977 by P.C. Thurston, G.M. Siragusa and R.P. Sage. Additional information has been taken from ODM Map number 2067 which shows the geology of Heenan, Marion and Genoa Townships at a scale of 1" = 1/2 mile.

* In Marion and Heenan Townships, felsic to intermediate metavolcanics form a wedge-shaped unit some 16 km long and up to 5 km wide. It has an estimated maximum stratigraphic thickness of 3 km.

* This felsic to intermediate metavolcanic unit is bordered on the southeast by younger granitic and dioritic rocks and on the northwest by the Woman River Iron Formation and overlying metavolcanics of intermediate to mafic composition.

* The iron formation and adjoining metavolcanics (felsic to the southeast and mafic to the northwest) lie along the northwest linb of the Woman River anticline.

* The occurrence of iron formation in a zone of transition from felsic to mafic volcanics, the presence of massive base metal sulphides in the iron formation and the association of these features with a major fold present a picture which is unique within the map area.

* The Woman River iron formation consists of thin bands intercalated with metavolcanics. Typically, oxide-facies iron formation consists of interbedded magnetite layers, chert and pyritic graphitic slate. Occurrences of sulphide minerals (pyrite, pyrrhotite and rare sphalerite), along with disseminated magnetite are sporadic and not extensive.

The Woman River Iron Formation is seen on the GSC Aeromagnetic map (7077G) as a long arcuate magnetic anomaly with peak amplitudes more than 2000 nT. This anomaly crosses through the northern part of Genoa Township, curves to the southwest through Marion Township, ending in the southeast corner of Heenan Township for a total strike length of over 20 km. The survey areas are centered over 3.5 and 4 km segments of this iron formation.

Area geology maps show nnw/sse trending regional faults and diabase dykes.

7.2 Exploration Target

The following notes have been taken from ODM Geoscience Report 157 cited above.

* The iron formation of Genoa, Heenan and Marion Townships has been intermittently examined for iron and base metals since shortly after 1900. This formation consists of two or more parallel bands composed of magnetite, siderite, chert, pyrite and pyrrhotite and contains local concentrations of base metal sulphides.

* there is a change in the iron formation facies from west to east. Oxide facies dominate in the west and sulphide facies dominate in the east. A vertical transition is also present - the iron formation gradually changes from siliceous magnetite - siderite at the base to light grey banded chert having negligible iron content at the top of the formation.

* initial mineral exploration for iron in Heenan, Marion and Genoa Townships over the Woman River Iron Range was conducted prior to 1910. This activity failed to indicate an iron deposit of economic importance but some base metal mineralization was uncovered. Exploration for iron along this belt remained dormant until the early 1960's. Indicated reserves are about 5 million tons of ore grading nearly 40% iron.

A Lead-Zinc occurrence in the northwest corner of Genoa Township is shown on the 1" = 1/2 mile geology map - 2067. The ODM Geoscience Report Number 157 shows this to be an active base metals exploration are beginning in 1929. Reported mineral occurrences have been pyrite, pyrrhotite, chalcopyrite, galena, sphalerite, bornite, magnetite and graphite.

Most of the Woman River Iron Formation is shown as being covered by surveyed mining properties.

The purpose of the helicopter-borne geophysical survey was to define the airborne geophysical character of the iron formation in as much detail as is currently possible and to suggest possible base metals targets.

7.3 EM Anomaly Selection and Analysis

A. Anomaly Selection

The purpose of EM anomaly selection is to identify possible bedrock conductors. The principal characteristic for most anomalies picked is a positive anomaly in the 935 Hz inphase channel with a coincident low in the 850 Hz inphase channel. The same behaviour in the 935/850 Hz quadrature channels, the 4600/4175 Hz inphase and/or quadrature channels will support picking a weak 935 Hz inphase anomaly or may be used in some cases as selection criteria on their own.

These criteria reject EM anomalies due to gradual changes in overburden thickness or resistivity. For such anomalies, the coaxial and coplanar channels (either inphase or quadrature) for the same operating frequency move together and no separation is seen. This information is best seen in the contour plan maps of apparent resistivity.

The width of an anomaly from a thin sheet conductor will depend principally on depth of burial, dip and orientation with respect to flight line direction. A near vertical conductor running normal to the flight lines will yield a coaxial EM anomaly whose width is about 2.5 times the source-sensor separation (measured from 20% of the anomaly peak). The anomaly from such conductors at surface is about 80 m (4 mm at 1:20,000 or 1.6 cm at 1:5,000). The comparable figures for a conductor under 50 m of overburden is 220 m (1.1 cm at 1:20,000 or 4.4 cm at 1:5,000).

Special care is taken in areas of negative inphase response (due to magnetite). The quadrature channels may be the only indicators of a coincident conductor.

EM anomalies due to cultural sources are so judged if there is a coincident response in the power line monitor as seen on the analog records. If present, they are shown on maps as open squares. Conductance range estimates and inphase response amplitudes are not plotted with the anomaly symbol.

B. Analysis

The EM anomaly response amplitudes at 935 Hz are used to determine the conductance and depth of burial of a vertical thin sheet conductor model. These data appear in Appendix II.

The inphase anomaly amplitude and the thin sheet conductance range as determined from the 935 Hz response amplitudes are shown with the plotted anomaly symbols. Each anomaly is identified by flight line number and letter label.

Where the 935 and/or 850 Hz inphase channels are clearly negative, an "M" is printed inside the anomaly symbol and MAGN is shown in the anomaly listings.

Conductance estimates are only valid when working with sufficient anomaly amplitudes. Where the anomaly has been picked from the 4600 and 4175 Hz responses and there is no clear 935 Hz inphase anomaly, the conductance estimates derived from the 935 Hz responses are unreliable. The true conductance is probably quite low however (i.e. less than 1 mho) and in a range where conductance differences are not distinguishable.

Conductive overburden will generally reduce thin sheet conductance estimates because of elevated background levels in the quadrature channels. Depth of burial estimates will in general be too small.

7.4 General Comments

EM

Both survey areas show generally high resistivities - greater than 5000 ohm-m. Relatively thin and/or non-conducting overburden is indicated. Away from the obvious bedrock conductors in the Woman River Iron Formation, the exception is the southwest corner of Marion West - apparent resistivities are less than 600 ohm-m over a broad region. An area of thicker overburden is expected.

Both survey areas show narrow bands of strong bedrock conductors. These bands are composed of up to four parallel conductors with a total width of 300 m or less. In Marion East, the EM anomalies are those of a near vertical thin sheet conductors - 935 Hz inphase high and coincident 850 Hz inphase low. Negative inphase anomalies are rare. Conductance estimates are uniformly high - more than 8 mhos.

The EM anomalies in Marion West are much different. The coaxial and coplanar channels track each other - a flatlying or tabular source is indicated. Discrete near vertical thin sheet conductors are not expected. The anomaly center representation is misleading - the apparent resistivity map is probably a more realistic representation. Negative inphase anomalies are common in Marion West. Conductance estimates of less than 1 mho in the conductor band are probably too low.

Both areas show scattered weak EM anomalies away from the central conductor bands. Responses are often seen in the 4600/4175 Hz quadrature channels and on the border of a resistivity low - edge effects are a concern.

Magnetics

Both areas show the total field magnetic high expected over the Woman River Iron

Formation. Peak amplitudes in Marion East are over 5000 nT. The contrast with low magnetic gradient and amplitude areas immediately north of the iron formation is striking. A magnetic source which is vertical or with a moderate southern dip is expected.

In Marion West peak amplitudes exceed 3000 nT with values over 6000 nT near the border of Marion and Heenan Townships. Total field anomalies appear broader than those seen in Marion East.

The vertical gradient data shows the high amplitude responses expected over the iron formation - 200 to 400 nT/m. The total field high in Marion East now appears as three parallel magnetic anomalies over a width of 600 to 800 m. In Marion West, the VG contour map shows only one source with an average width of some 200 m. The idea of a flat lying or wide tabular source, first proposed with the EM responses, persists.

Three nnw/sse trending faults have been inferred in Marion West from the contoured vertical gradient maps. The eastern most fault is the most definite. A nnw/ssw trending fault has been proposed in Marion East. The evidence is taken from a combination of breaks in the VG and VLF data. In both cases it is difficult to discern possible faults given the small survey areas.

In Marion East, the region of the Woman River Iron Formation is seen as three parallel bands with a total width less than 1000 m. The center band has high magnetic and conductance values. The northern band is less so. The southern band is magnetic only and negative inphase responses are common. Magnetic anomaly amplitudes are not as strong as those in the center band.

VLF

The contoured VLF data shows strong linear anomalies with the expected bias towards the transmitter - Cutler at about 20° south of east. Responses are particularly strong in Marion East with peak amplitudes over 20 to 30%. A weak nnw/sse trending VLF anomaly has been used as evidence of a possible fault.

Response amplitudes in Marion West are weaker over the iron formation - peak amplitudes are generally less than 10%. This may be due to a number of possible breaks in the conductor band and occasionally unfavourable strike directions. The absence of clear VLF conductors in the southwest corner of Marion West is probably due to thicker and/or more conductive overburden.

7.5 Compilation/Interpretation Map

The compilation/interpretation maps show the following features
- EM conductor axes
- the +5 and +25 nT/m VG contour lines

- possible faults
- VLF conductor axes
- favourable area labels

A page size copy of the 1:20,000 scale compilation map is attached.

EM conductor axes are drawn through EM anomalies of like character. Consistency with local magnetic strike is often a factor.

The +5 nT/m vertical gradient contour line is used to indicate the possible outline of moderately strong magnetic sources. The additional +25 nT/m contour line indicates a strong magnetic source.

Possible faults have been taken from the contoured vertical gradient maps. In Marion East, the VLF data has been used as well.

VLF conductor axes have been drawn through the peaks of prominent VLF anomalies.

Interesting geophysical responses have been selected for discussion (see below). These are identified on the compilation maps by letter/number labels.

7.6 Favourable Areas

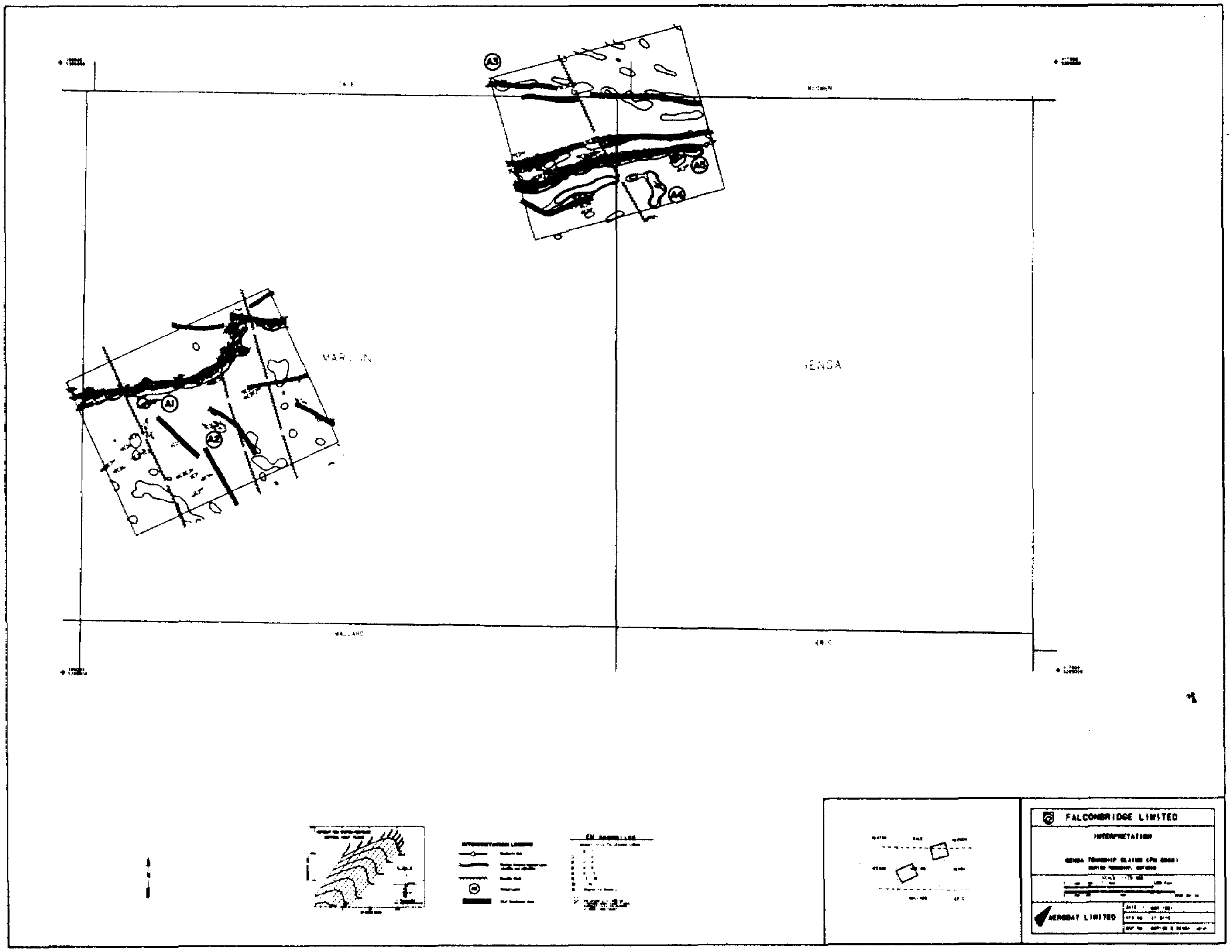
Geophysical targets of special interest are based on promising bedrock conductors in a favourable setting. Weak conductors on the edge of resistivity lows and in an uninteresting geophysical setting are usually passed over. All high conductance EM anomalies, unless part of a long formational conductor, are considered worthy of comment.

Within the conductive bands in both survey areas, the airborne geophysical data alone does not provide enough information to select one part of the conductor over another. A detailed study of the airborne geophysical results by a geologist with more discriminating exploration models is needed.

Outside these conductive bands, a number of isolated bedrock conductors show reasonable conductance estimates and promising EM anomaly shapes. These are labelled A1 to A5. In the discussion below, each target is identified by the area, survey line and 24 hour clock time of the most promising EM anomaly in the conductor.

A1: Marion West: Line 80290 (17:03:08)

A three line conductor about 100 m south of the iron formation. The EM anomalies have been picked based on the behaviour of the inphase channels - the 850 Hz inphase channel is largely negative, the 935 Hz inphase anomaly is more


A3
A5
A4
A1
A2
DALE
GENOA
ERIC
FALCONBRIDGE LIMITED
INTERPRETATION
AERODAT LIMITED

positive. There are no anomalies in the 4600/4175 Hz quadrature channels.

A coincident magnetic anomaly has amplitudes almost as high as those over the iron formation immediately to the north. This target appears to be a small segment broken off from the iron formation. The EM responses from the conductor are weaker than those from the coincident (or neighbouring) magnetite.

A2: Marion West: Line 80200 (16:35:55)

A two line conductor 800 m south of the iron formation. Conductance estimates are 2 to 4 mhos. There is a coincident 150 nT magnetic anomaly. EM peak amplitudes are 3 ppm in the 935 and 4600 Hz inphase channels. As the coaxial and coplanar anomalies are the same shape, a flat lying or wide tabular source is expected.

The coincident quadrature anomalies are less than 3 ppm and the conductance may be higher than shown.

A3: Marion East: Line 70360 (14:11:48)

A three line conductor in the northwest corner of the survey area. The conductor forms part of an east/west trending magnetic (200 nT) and VLF (10 to 20%) feature.

Although the conductance estimates are low - less than 1 mho - the 4600/4175 Hz anomalies clearly indicate a thin sheet near vertical bedrock conductor at or near surface.

A4: Marion East: Line 70120 (13:30:39)

A one line anomaly 500 m south of the iron formation. The conductance estimate - less than 1 mho - is unfair. The conductor is surrounded by negative inphase responses. A much higher conductance estimate should apply.

The conductor is located at the center of a relatively broad, n/s trending magnetic anomaly (1500 nT). The 4600/4175 Hz data suggest a dip to the south.

A5: Marion East: Line 70080 (13:40:48)

Like A1 in Marion West, this appears as a small segment broken off from the iron formation. Conductance estimates are moderate - 4 to 8 mhos. A higher value is possible given the nearby effects of magnetite.

8. CONCLUSIONS

High resolution helicopterborne geophysical surveys have been completed over two areas with a total area of about 22.5 square kilometres centered in Marion and Genoa Townships, just northwest of Rush Lake and some 110 km southwest of Timmins. Total coverage is approximately 235 line kilometres (231 km traverse plus 14 km magnetic tie lines). Results are presented on black line and colour maps at scales of 1:5,000 and 1:20,000. Map types include EM anomaly centres, apparent resistivity, contoured magnetic field, contoured vertical magnetic gradient and contoured VLF-EM Total Field data.

Preferred geophysical characteristics have been built up from a model geological target. These characteristics have been extracted from various map products and transferred to a compilation/interpretation map. Favourable areas are discussed with reference to this compilation map.

Respectfully submitted,

Ian Johnson, Ph.D., P.Eng.
Consulting Geophysicist
for
AERODAT LIMITED
August 7, 1991

J9101G

REGISTERED PROFESSIONAL ENGINEER
I. M. JOHNSON
PROVINCE OF ONTARIO

APPENDIX I

GENERAL INTERPRETIVE CONSIDERATIONS

Electromagnetic

The Aerodat four frequency system utilizes two different transmitter-receiver coil geometries. The traditional coaxial coil configuration is operated at two widely separated frequencies. The horizontal coplanar coil configuration is similarly operated at two different frequencies where at least one pair is approximately aligned with one of the coaxial frequencies.

The electromagnetic response measured by the helicopter system is a function of the "electrical" and "geometrical" properties of the conductor. The "electrical" property of a conductor is determined largely by its electrical conductivity, magnetic susceptibility and its size and shape; the "geometrical" property of the response is largely a function of the conductor's shape and orientation with respect to the measuring transmitter and receiver.

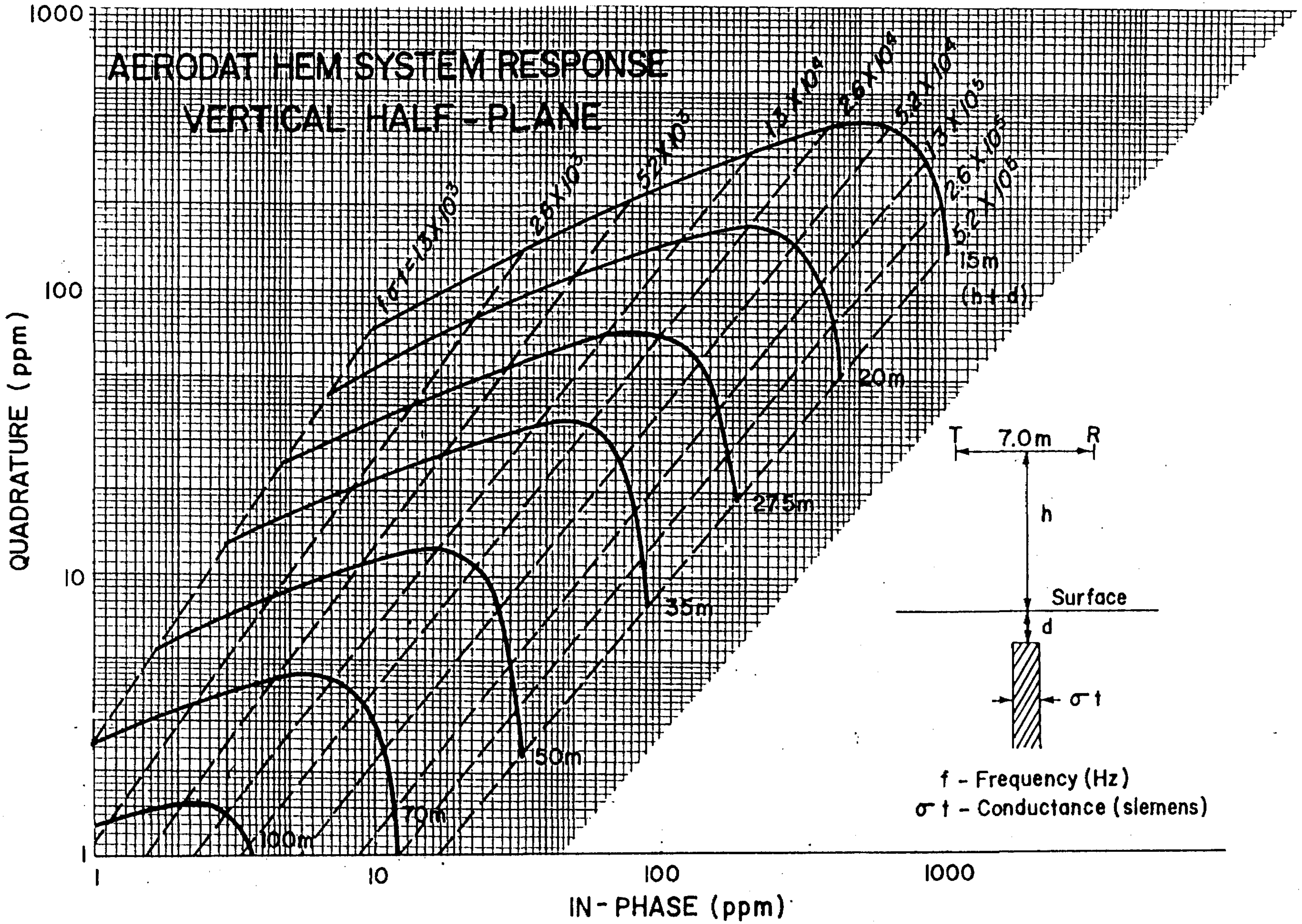
Electrical Considerations

For a given conductive body the measure of its conductivity or conductance is closely related to the measured phase shift between the received and transmitted electromagnetic field. A small phase shift indicates a relatively high conductance, a large phase shift lower conductance. A small phase shift results in a large inphase to quadrature ratio and a large phase shift a low ratio. This relationship is shown quantitatively for non-magnetic vertical half-plane and half-space models on the accompanying phasor diagrams. Other physical models will show the same trend but different quantitative relationships.

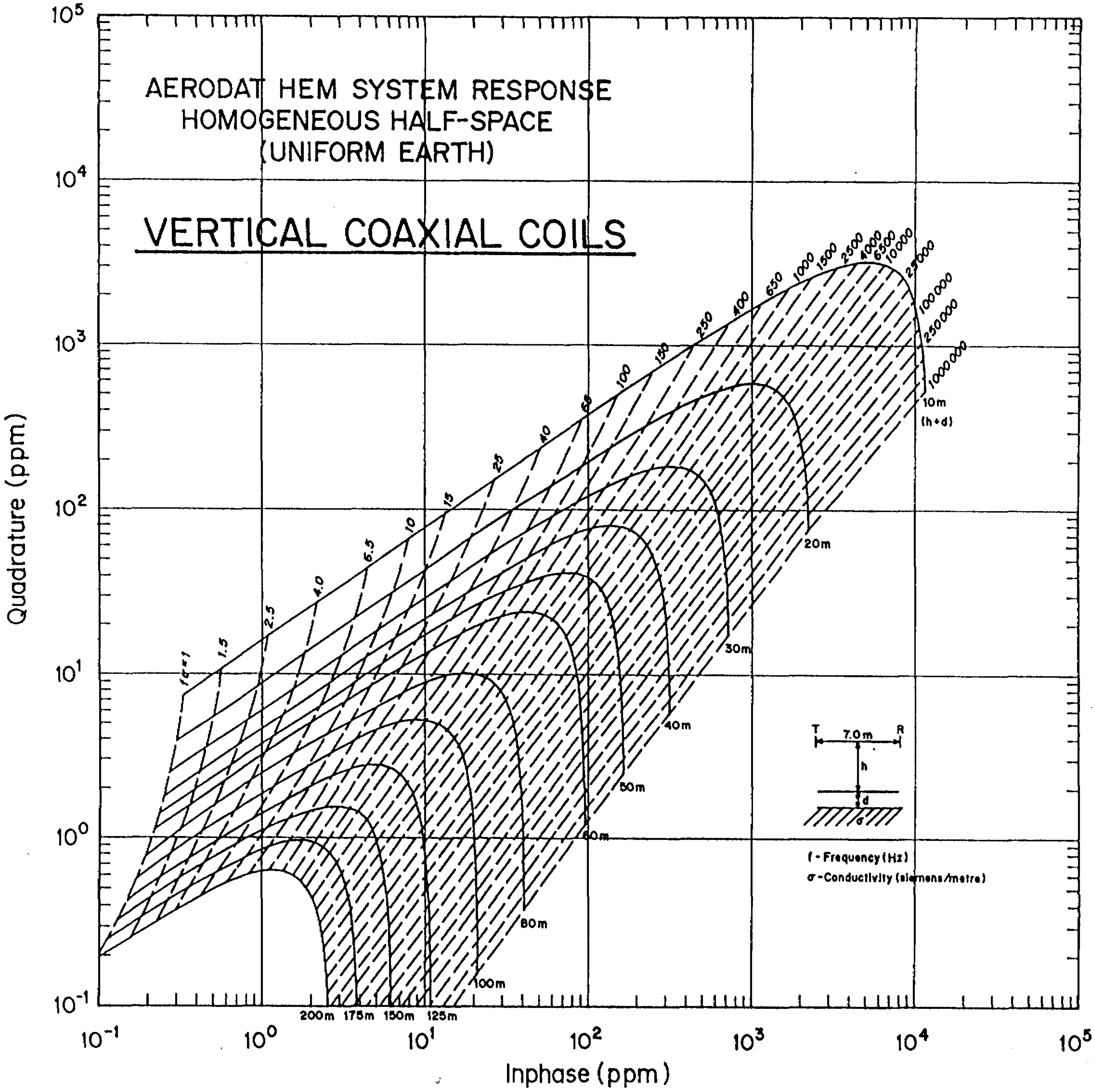
The phasor diagram for the vertical half-plane model, as presented, is for the coaxial coil configuration with the amplitudes in parts per million (ppm) of the primary field as measured at the response peak over the conductor. To assist the interpretation of the survey results the computer is used to identify the apparent conductance and depth of selected anomalies. The results of this calculation are presented in anomaly listings included in the survey report and the conductance and inphase amplitude are presented in symbolized form on the map presentation.

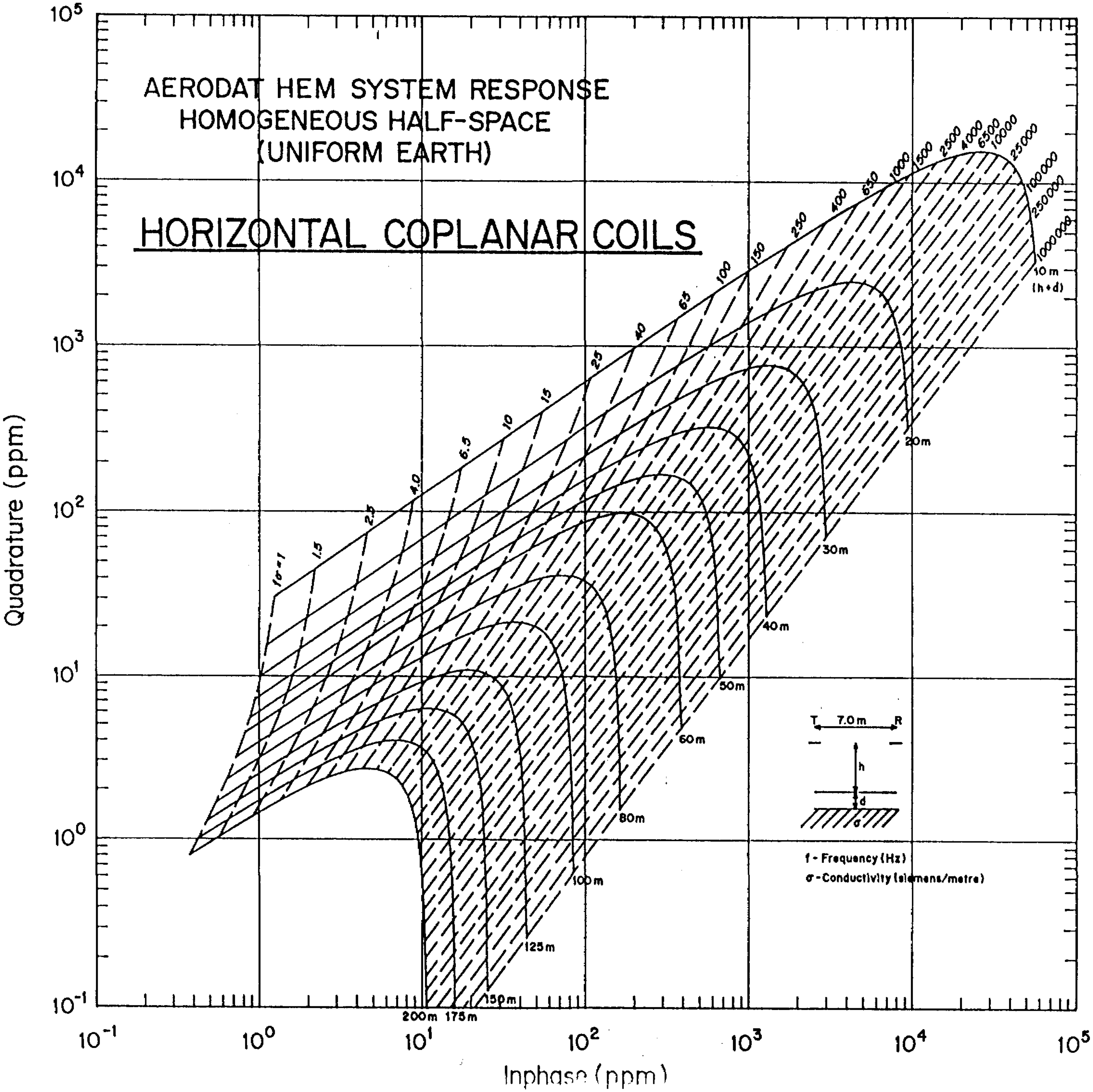
The conductance estimate is most reliable when anomaly amplitudes are large and background resistivities are high. Where the EM anomaly is of low amplitude and background resistivities are low, the conductance estimates are much less reliable. In such situations, the conductance estimate is often quite low regardless of the true nature of the conductor. This is due to the elevated background response levels in the quadrature channel. In an extreme case, the conductance estimate should be discounted and should not prejudice target selection.

The conductance and depth values as presented are correct only as far as the model approximates the real geological situation. The actual geological source may be of limited length, have significant dip, or may be strongly magnetic. Its conductivity and thickness may vary with depth



AERODAT HEM SYSTEM RESPONSE
VERTICAL HALF-PLANE


AERODAT HEM SYSTEM RESPONSE
HOMOGENEOUS HALF-SPACE
(UNIFORM EARTH)
VERTICAL COAXIAL COILS
Quadrature (ppm)
Inphase (ppm)
10^{-1}
10^{0}
10^{1}
10^{2}
10^{3}
10^{4}
10^{5}
fσ=1
1.5
2.5
4.0
6.5
10
15
25
40
65
100
150
250
400
650
1000
1500
2500
4000
6500
10000
25000
100000
250000
1000000
10m
(h+d)
20m
30m
40m
50m
60m
80m
100m
125m
150m
175m
200m
T
7.0m
R
h
d
σ
f - Frequency (Hz)
σ - Conductivity (siemens/metre)


AERODAT HEM SYSTEM RESPONSE
HOMOGENEOUS HALF-SPACE
(UNIFORM EARTH)
HORIZONTAL COPLANAR COILS
Quadrature (ppm)
Inphase (ppm)
10^5
10^4
10^3
10^2
10^1
10^0
10^-1
fσ=1
1.5
2.5
4.0
6.5
10
15
25
40
65
100
150
250
400
650
1000
1500
2500
4000
6500
10000
25000
100000
250000
1000000
10 m
(h+d)
20m
30m
40m
50m
60m
80m
100m
125m
150m
200m
175m
T
7.0m
R
h
d
σ
f - Frequency (Hz)
σ - Conductivity (siemens/metre)

and/or strike and adjacent bodies and overburden may have modified the response. In general the conductance estimate is less affected by these limitations than is the depth estimate, but both should be considered as relative rather than absolute guides to the anomaly's properties.

Conductance in mhos is the reciprocal of resistance in ohms and in the case of narrow slab-like bodies is the product of electrical conductivity and thickness.

The higher ranges of conductance, greater than 2-4 mhos, indicate that a significant fraction of the electrical conduction is electronic rather than electrolytic in nature. Materials that conduct electronically are limited to certain metallic sulphides and to graphite. High conductance anomalies, roughly 10 mhos or greater, are generally limited to massive sulphides or graphites.

Sulphide minerals, with the exception of such ore minerals as sphalerite, cinnabar and stibnite, are good conductors. Sulphides may occur in a disseminated manner that inhibits electrical conduction through the rock mass. In this case the apparent conductance can seriously underrate the quality of the conductor in geological terms. In a similar sense the relatively non-conducting sulphide minerals noted above may be present in significant concentrations in association with minor conductive sulphides, and the electromagnetic response will only relate to the minor associated mineralization. Indicated conductance is also of little direct significance for the identification of gold mineralization. Although gold is highly conductive, it would not be expected to exist in sufficient quantity to create a recognizable anomaly. Minor accessory sulphide mineralization may however provide a useful indirect indication.

In summary, the estimated conductance of a conductor can provide a relatively positive identification of significant sulphide or graphite mineralization. A moderate to low conductance value does not rule out the possibility of significant economic mineralization.

Geometrical Considerations

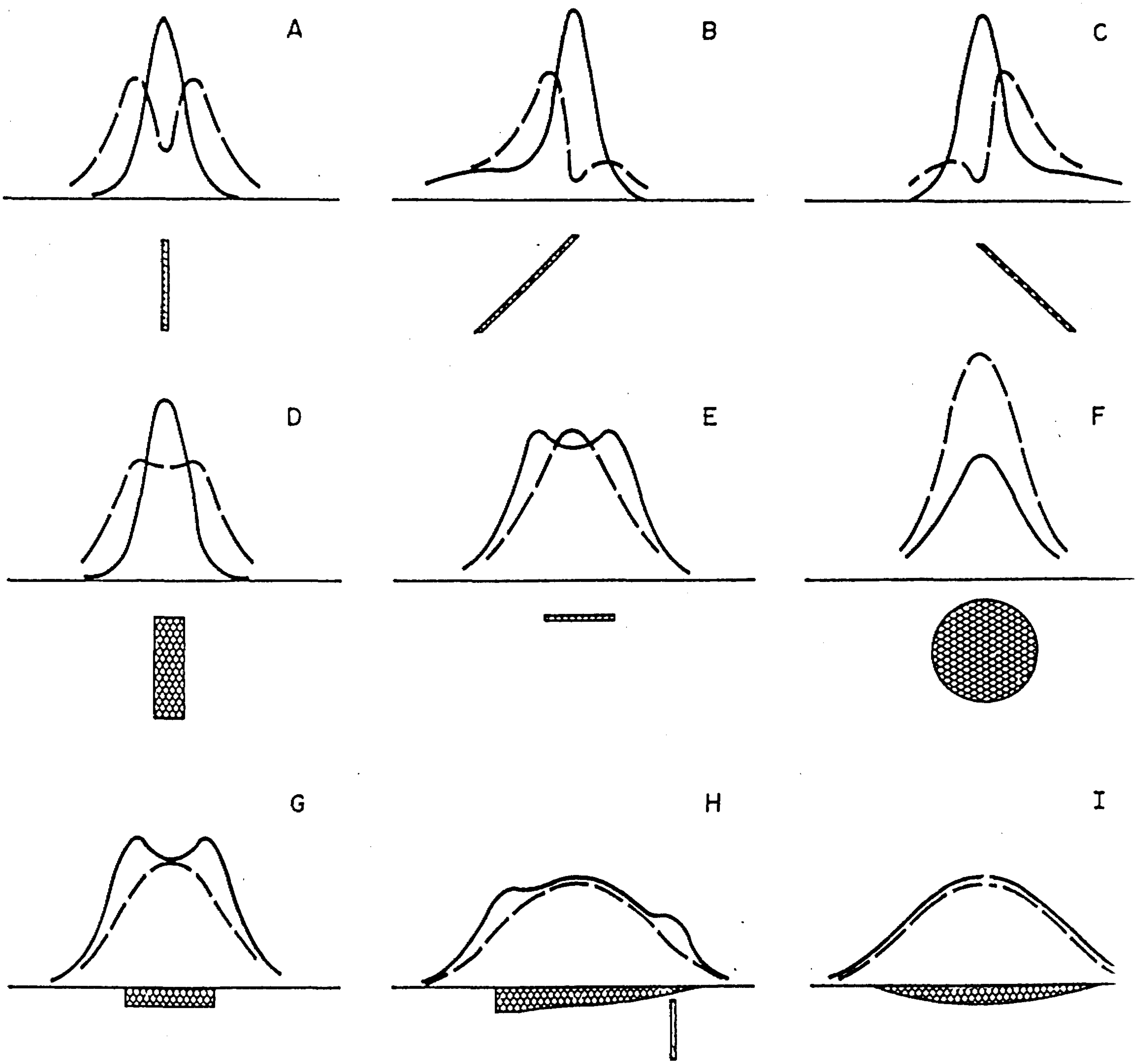
Geometrical information about the geologic conductor can often be interpreted from the profile shape of the anomaly. The change in shape is primarily related to the change in inductive coupling among the transmitter, the target, and the receiver. The accompanying figure shows a selection of HEM response profile shapes from nine idealized targets. Response profiles are labelled A through I. These labels are used in the discussion which follows.

In the case of a thin, steeply dipping, sheet-like conductor, the coaxial coil pair will yield a near symmetric peak over the conductor. On the other hand, the coplanar coil pair will pass through a null couple relationship and yield a minimum over the conductor, flanked by positive side lobes.(Profile A) As the dip of the conductor decrease from vertical, the coaxial anomaly shape changes only slightly, but in the case of the coplanar coil pair the side lobe on the down dip side strengthens relative to that on the up dip side.(Profiles B and C).

As the thickness of the conductor increases, induced current flow across the thickness of the

HEM RESPONSE PROFILE SHAPE AS AN INDICATOR OF CONDUCTOR GEOMETRY

——— COAXIAL vertical scale 1 ppm/unit
— — — COPLANAR vertical scale 4 ppm/unit



conductor becomes relatively significant and complete null coupling with the coplanar coils is no longer possible.(Profile D) As a result, the apparent minimum of the coplanar response over the conductor diminishes with increasing thickness, and in the limiting case of a fully 3 dimensional body or a horizontal layer or half-space, the minimum disappears completely.

A horizontal conducting layer such as a horizontal thin sheet or overburden will produce a response in the coaxial and coplanar coils that is a function of altitude (and conductivity if not uniform). The profile shape will be similar in both coil configurations with an amplitude ratio (coplanar:coaxial) of about 4:1*.(Profiles E and G).

In the case of a spherical conductor, the induced currents are confined to the volume of the sphere, but not relatively restricted to any arbitrary plane as in the case of a sheet-like form. The response of the coplanar coil pair directly over the sphere may be up to 8* times greater than that of the coaxial pair.(Profile F)

In summary, a steeply dipping, sheet-like conductor will display a decrease in the coplanar response coincident with the peak of the coaxial response. The relative strength of this coplanar null is related inversely to the thickness of the conductor. A pronounced null indicates a relatively thin conductor. The dip of such a conductor can be inferred from the relative amplitudes of the side-lobes.

Massive conductors that could be approximated by a conducting sphere will display a simple single peak profile form on both coaxial and coplanar coils, with a ratio between the coplanar to coaxial response amplitudes as high as 8*.

Overburden anomalies often produce broad poorly defined anomaly profiles.(Profile I) In most cases, the response of the coplanar coils closely follows that of the coaxial coils with a relative amplitude ratio of 4*.

Occasionally, if the edge of an overburden zone is sharply defined with some significant depth extent, an edge effect will occur in the coaxial coils. In the case of a horizontal conductive ring or ribbon, the coaxial response will consist of two peaks, one over each edge; whereas the coplanar coil will yield a single peak.(Profile H)

* It should be noted at this point that Aerodat's definition of the measured ppm unit is related to the primary field sensed in the receiving coil without normalization to the maximum coupled (coaxial configuration). If such normalization were applied to the Aerodat units, the amplitude of the coplanar coil pair would be halved.

Magnetics

The Total Field Magnetic Map shows contours of the total magnetic field, uncorrected for regional variation. Whether an EM anomaly with a magnetic correlation is more likely to be caused by a sulphide deposit than one without depends on the type of mineralization. An apparent coincidence between an EM and a magnetic anomaly may be caused by a conductor which is also magnetic, or by a conductor which lies in close proximity to 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 can be, and often are, graphite and magnetite. It is often very difficult to distinguish between these cases. If the conductor is also magnetic, it will usually produce an EM anomaly whose general pattern resembles that of the magnetics. Depending on the magnetic permeability of the conducting body, the amplitude of the inphase EM anomaly will be weakened, and if the conductivity is also weak, the inphase EM anomaly may even be reversed in sign.

The interpretation of contoured aeromagnetic data is a subject on its own involving an array of methods and attitudes. The interpretation of source characteristics for example from total field results is often based on some numerical modelling scheme. The vertical gradient data is more legible in some aspects however and useful inferences about source characteristics can often be read off the contoured VG map.

The zero contour lines in contoured VG data are often sited as a good approximation to the outline of the top of the magnetic source. This only applies to wide (relative to depth of burial) near vertical sources at high magnetic latitudes. It will give an incorrect interpretation in most other cases.

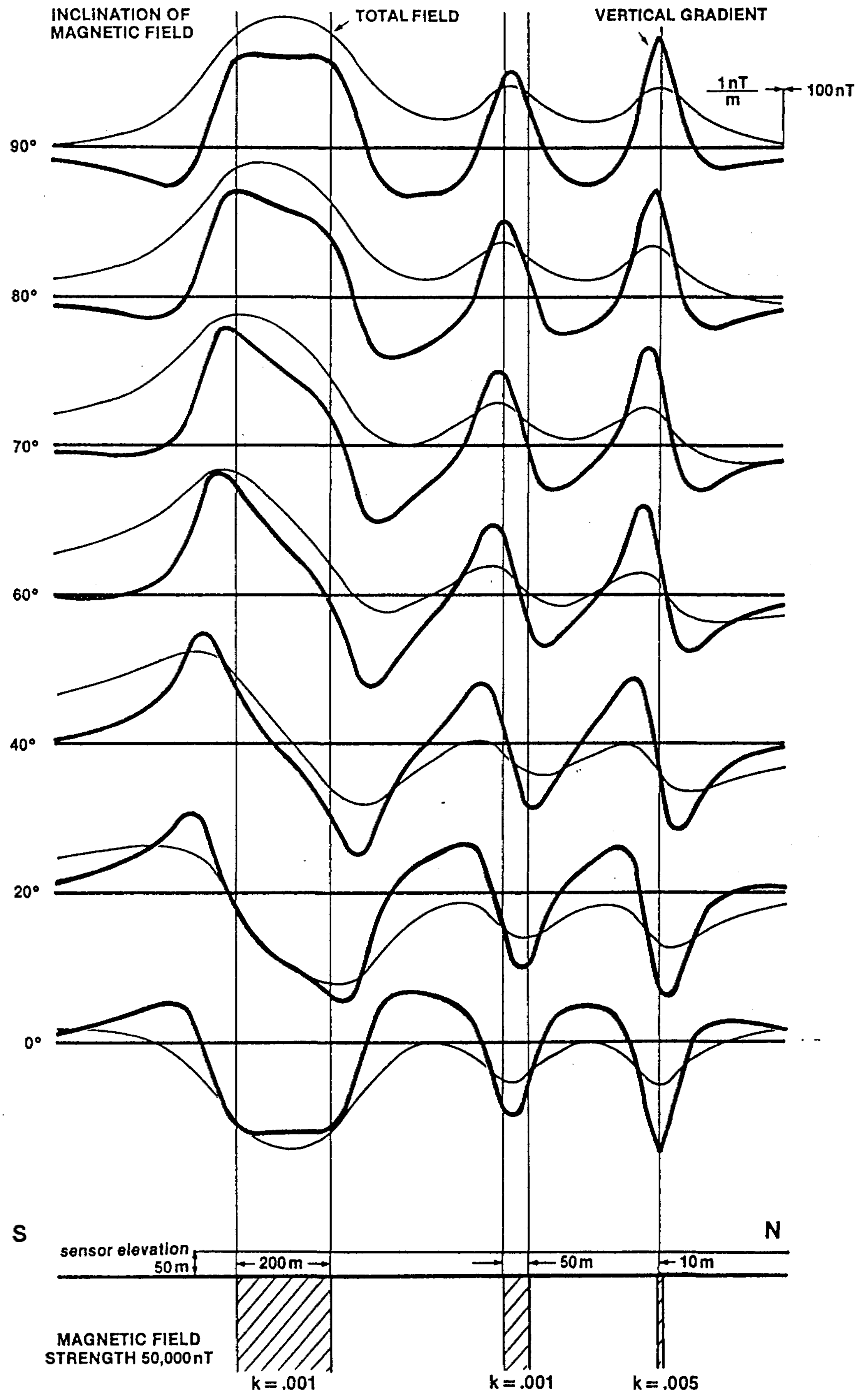
Theoretical profiles of total field and vertical gradient anomalies from tabular sources at a variety of magnetic inclinations are shown in the attached figure. Sources are 10, 50 and 200 m wide. The source-sensor separation is 50 m. The thin line is the total field profile. The thick line is the vertical gradient profile.

The following comments about source geometry apply to contoured vertical gradient data for magnetic inclinations of 70 to 80°.

Outline

Where the VG anomaly has a single sharp peak, the source may be a thin near-vertical tabular source. It may be represented as a magnetic axis or as a tabular source of measureable width - the choice is one of geological preference.

Where the VG anomaly has a broad, flat or inclined top, the source may be a thick tabular source. It may be represented as a thick body where the width is taken from the zero contour lines if the body dips to magnetic north. If the source appears to be dipping to the south (i.e. the VG anomaly is asymmetric), the zero contours are less reliable indicators of outline. The southern most zero contour line should be ignored and the outline taken from the northern zero contour line and the extent of the anomaly peak width.


INCLINATION OF MAGNETIC FIELD
TOTAL FIELD
VERTICAL GRADIENT
1nT/m
100nT
90°
80°
70°
60°
40°
20°
0°
S
N
sensor elevation 50m
200m
50m
10m
MAGNETIC FIELD STRENGTH 50,000nT
k = .001
k = .001
k = .005

Dip

A symmetrical vertical gradient response is produced by a body dipping to magnetic north. An asymmetrical response is produced by a body which is vertical or dipping to the south. For southern dips, the southern most zero contour line may be several hundred meters south of the source.

Depth of Burial

The source-sensor separation is about equal to half of the distance between the zero contour lines for thin near-vertical sources. The estimated depth of burial for such sources is this separation minus 50 m. If a variety of VG anomaly widths are seen in an area, use the narrowest width seen to estimate local depths.

VLF Electromagnetics

The VLF-EM method employs the radiation from powerful military radio transmitters as the primary signals. The magnetic field associated with the primary field is locally horizontal and normal to a line pointing at the transmitter.

The Herz Totem uses three coils in the X, Y, Z configuration to measure the total field and vertical quadrature component from two VLF stations. These stations are designated Line and Ortho. The line station is ideally in a direction from the survey area at right angles to the flight line direction. Conductors normal to the flight line direction point at the line station and are therefore optimally coupled to VLF magnetic fields and in the best situation to gather secondary VLF currents. The ortho station is ideally 90 degrees in azimuth from the line station.

The relatively high frequency of VLF (15-25) kHz provides high response factors for bodies of low conductance. Relatively "disconnected" sulphide ores have been found to produce measurable VLF signals. For the same reason, poor conductors such as sheared contacts, breccia zones, narrow faults, alteration zones and porous flow tops normally produce VLF anomalies. The method can therefore be used effectively for geological mapping. The only relative disadvantage of the method lies in its sensitivity to conductive overburden. In conductive ground the depth of exploration is severely limited.

The effect of strike direction is important in the sense of the relation of the conductor axis relative to the energizing electromagnetic field. A conductor aligned along a radius drawn from a transmitting station will be in a maximum coupled orientation and thereby produce a stronger response than a similar conductor at a different strike angle. Theoretically, it would be possible for a conductor, oriented tangentially to the transmitter to produce no signal. The most obvious effect of the strike angle consideration is that conductors favourably oriented with respect to the transmitter location and also near perpendicular to the flight direction are most clearly rendered and usually dominate the map presentation.

The total field anomaly is an indicator of the existence and position of a conductor. The response will be a maximum over the conductor, without any special filtering, and strongly favour the upper edge of the conductor even in the case of a relatively shallow dip.

Conversely a negative total field anomaly is often seen over local resistivity highs. This is because the VLF field produces electrical currents which flow towards (or away from) the transmitter. These currents are gathered into a conductor and are taken from resistive bodies. The VLF system sees the currents gathered into the conductor as a total field high. It sees the relative absence of secondary currents in the resistor as a total field low.

As noted, VLF anomaly trends show a strong bias towards the VLF transmitter. Structure which is normal to this direction may have no associated VLF anomaly but may be seen as a break or interruption in VLF anomalies. If these structures are of particular interest, maps of the ortho station data may be worthwhile.

Conductive overburden will obscure VLF responses from bedrock sources and may produce low amplitude, broad anomalies which reflect variations in the resistivity or thickness of the overburden.

Extreme topographic relief will produce VLF anomalies which may bear no relationship to variations in electrical conductivity. Deep gullies which are too narrow to have been surveyed at a uniform sensor height often show up as VLF total field lows. Sharp ridges show up as total field highs.

The vertical quadrature component over steeply dipping sheet-like conductor will be a cross-over type response with the cross-over closely associated with the upper edge of the conductor.

The response is a cross-over type due to the fact that it is the vertical rather than total field quadrature component that is measured. The response shape is due largely to geometrical rather than conductivity considerations and the distance between the maximum and minimum on either side of the cross-over is related to target depth. For a given target geometry, the larger this distance the greater the depth.

The vertical quadrature component is rarely presented. Experience has shown the total field to be more sensitive to bedrock conductors and less affected by variations in conductive overburden.

AERODAT LIMITED
June, 1991.

APPENDIX II

ANOMALY LISTINGS

J9101 - FALCONBRIDGE LIMITED ANOMALY LIST - GENOA TOWNSHIP CLAIMS

				AMPLITUDE (PPM)		CONDUCTOR		BIRD
FLIGHT	LINE	ANOMALY	CATEGORY	INPHASE	QUAD.	CTP MHOS	DEPTH MTRS	HEIGHT MTRS
33	70010	A	1	0.6	0.7	1.0	100	31
33	70010	B	0	0.0	1.7	0.0	0	37
33	70020	A	0	0.4	2.7	0.0	20	30
33	70020	B	3	3.3	1.9	6.9	58	34
33	70030	A	0	-0.2	2.3	0.0	0	34
33	70040	A	1	0.8	0.8	1.5	99	27
33	70040	B	3	2.3	1.6	4.5	69	31
33	70040	C	3	3.1	2.4	4.4	54	34
33	70050	A	4	14.5	7.3	14.4	32	25
33	70050	B	0	0.6	2.7	0.0	30	27
33	70060	A	0	1.1	2.4	0.5	45	29
33	70060	B	4	7.0	4.4	8.2	40	30
33	70070	A	0	-0.5	0.4	0.0	0	28
33	70070	B	3	6.8	5.5	5.7	37	28
33	70070	C	5	18.8	7.1	23.1	28	27
33	70070	D	0	1.3	3.9	0.3	26	31
33	70080	A	0	1.6	3.3	0.7	33	34
33	70080	B	6	18.2	4.4	41.8	27	30
33	70080	C	4	3.9	1.9	9.4	57	33
33	70080	D	3	8.0	5.8	7.1	37	27
33	70090	A	5	13.4	5.5	18.5	33	27
33	70090	B	0	1.2	3.0	0.4	28	38
33	70100	A	1	1.9	2.9	1.2	39	37
33	70100	B	5	19.6	8.1	20.8	25	27
33	70110	A	5	22.5	7.8	27.5	20	31
33	70110	B	4	13.5	7.4	12.5	24	33
33	70110	C	0	1.6	4.2	0.4	27	31
33	70120	A	1	2.3	3.6	1.3	35	35
33	70120	B	4	8.2	5.3	8.4	35	30
33	70120	C	5	18.7	6.5	25.8	24	31
33	70120	D MAGN	1	2.2	3.9	1.0	38	28
33	70130	A	5	16.4	7.2	18.1	24	32

Estimated depth may be unreliable because the stronger part of the conductor may be deeper or to one side of the flight line, or because of a shallow dip or overburden effects.

J9101 - FALCONBRIDGE LIMITED ANOMALY LIST - GENOA TOWNSHIP CLAIMS

				AMPLITUDE (PPM)		CONDUCTOR		BIRD
						CTP	DEPTH	HEIGHT
FLIGHT	LINE	ANOMALY	CATEGORY	INPHASE	QUAD.	MHOS	MTRS	MTRS
33	70130	B	4	13.1	8.8	9.4	24	30
33	70130	C	1	2.8	4.9	1.2	24	37
33	70140	A	1	2.4	3.1	1.8	40	36
33	70140	B	4	15.6	7.5	15.7	31	25
33	70140	C	5	11.0	4.3	18.6	35	30
33	70150	A	5	12.3	4.7	19.9	33	29
33	70150	B	4	11.8	5.8	13.9	31	30
33	70150	C	0	1.2	3.4	0.3	28	33
33	70160	A	0	0.4	1.2	0.1	50	36
33	70160	B	3	8.8	6.3	7.5	33	29
33	70160	C	5	11.4	4.3	19.7	32	32
33	70170	A	4	10.5	5.4	12.5	34	30
33	70170	B	3	4.7	4.0	4.5	45	28
33	70170	C	3	4.7	3.6	5.3	45	30
33	70170	D MAGN	0	-0.4	2.0	0.0	0	30
33	70170	E	0	0.3	2.2	0.0	22	31
33	70180	A	0	0.6	2.0	0.1	35	35
33	70180	B MAGN	0	-1.2	0.8	0.0	0	29
33	70180	C	3	7.3	5.5	6.5	37	28
33	70180	D	4	10.6	5.7	11.8	31	32
33	70190	A	5	16.9	7.8	17.1	24	31
33	70190	B	2	4.3	5.2	2.6	39	25
33	70190	C MAGN	0	-0.7	1.8	0.0	0	33
33	70190	D	0	0.2	2.1	0.0	12	35
33	70200	A	0	0.5	3.6	0.0	17	28
33	70200	B	2	3.2	4.1	2.1	36	33
33	70200	C	2	3.0	3.4	2.4	41	34
33	70210	A	4	4.6	1.8	13.7	55	33
33	70210	B	4	8.2	3.4	15.5	40	32
33	70210	C	0	-0.3	3.1	0.0	0	29
33	70220	A	0	0.2	2.3	0.0	13	32
33	70220	B	2	2.4	2.7	2.2	53	29
33	70220	C	5	18.2	6.0	27.5	23	32
33	70220	D	4	7.1	3.1	13.7	40	35
32	70230	A	4	5.6	2.9	9.9	48	31

Estimated depth may be unreliable because the stronger part of the conductor may be deeper or to one side of the flight line, or because of a shallow dip or overburden effects.

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				AMPLITUDE (PPM)		CONDUCTOR		BIRD
FLIGHT	LINE	ANOMALY	CATEGORY	INPHASE	QUAD.	CTP MHOS	DEPTH MTRS	HEIGHT MTRS
32	70230	B	4	6.7	3.8	9.3	44	28
32	70230	C	3	6.4	4.1	7.7	38	34
32	70230	D	1	0.9	1.0	1.3	83	33
32	70240	A	0	0.0	0.7	0.0	0	34
32	70240	B	0	1.7	3.2	0.8	38	31
32	70240	C	4	8.3	5.1	9.0	34	32
32	70240	D	5	8.8	3.3	18.2	39	32
32	70250	A	0	0.2	0.9	0.0	52	33
32	70250	B	6	17.0	3.9	43.9	30	29
32	70250	C	5	5.1	1.6	19.4	55	32
32	70260	A	0	0.3	1.9	0.0	29	29
32	70260	B	4	6.5	3.4	10.3	43	31
32	70260	C	5	12.9	3.6	30.9	32	32
32	70260	D	0	-0.5	0.8	0.0	0	26
32	70260	E	0	-0.3	1.1	0.0	0	27
32	70260	F	0	0.3	0.3	0.8	148	30
32	70270	A	0	-0.5	0.9	0.0	0	28
32	70270	B	4	9.4	4.8	12.2	36	30
32	70270	C	4	7.0	3.7	10.4	44	29
32	70270	D	0	0.2	2.0	0.0	22	27
32	70280	A	0	1.5	4.0	0.4	31	27
32	70280	B	4	4.9	2.2	11.5	52	32
32	70280	C	5	8.3	2.8	20.7	41	32
32	70280	D	0	0.0	1.7	0.0	0	27
32	70290	A	5	8.5	3.1	18.7	41	31
32	70290	B	3	2.6	1.7	5.2	65	32
32	70290	C	0	0.6	3.2	0.0	22	29
32	70290	D	1	3.0	5.1	1.3	32	28
32	70300	A	1	3.1	4.2	1.9	38	30
32	70300	B	3	4.6	3.4	5.5	41	36
32	70300	C	3	4.2	2.7	6.5	49	34
32	70300	D	5	13.6	3.9	30.3	30	32
32	70310	A	5	14.9	6.5	17.7	30	28
32	70310	B	3	3.4	2.2	5.9	57	32
32	70310	C	3	2.0	1.2	5.3	73	36
32	70310	D	3	4.2	3.4	4.7	45	32
32	70310	E	0	0.8	2.1	0.2	43	30

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J9101 - FALCONBRIDGE LIMITED ANOMALY LIST - GENOA TOWNSHIP CLAIMS

				AMPLITUDE (PPM)		CONDUCTOR		BIRD
FLIGHT	LINE	ANOMALY	CATEGORY	INPHASE	QUAD.	CTP MHOS	DEPTH MTRS	HEIGHT MTRS
32	70320	A	2	1.4	1.2	2.6	80	31
32	70320	B	3	7.6	5.5	6.9	35	30
32	70320	C	1	2.9	4.1	1.7	38	30
32	70320	D	0	0.7	1.4	0.4	59	33
32	70320	E	6	21.6	6.6	32.1	24	29
32	70330	A	5	17.5	7.3	19.8	28	27
32	70330	B	0	1.3	2.2	0.8	53	28
32	70330	C	3	7.7	5.4	7.3	36	29
32	70330	D	3	9.2	6.4	7.9	33	28
32	70330	E	2	3.6	4.9	2.0	37	27
32	70340	A	0	1.7	3.1	0.8	42	29
32	70340	B	2	6.2	6.8	3.6	32	27
32	70340	C	3	8.2	7.5	5.2	32	27
32	70340	D	3	8.0	8.7	4.0	28	26
32	70340	E MAGN	0	0.0	3.8	0.0	0	26
32	70340	F	4	6.8	3.7	9.9	46	27
32	70350	A	5	7.0	2.7	16.2	47	29
32	70350	B	2	1.6	1.7	2.0	67	30
32	70350	C	1	4.4	7.5	1.6	26	27
32	70350	D	2	7.9	9.1	3.7	28	25
32	70350	E	2	8.0	12.0	2.5	18	27
32	70350	F	0	0.6	0.8	0.7	89	33
32	70350	G	0	-1.0	1.3	0.0	0	30
33	70351	A	0	0.6	1.9	0.1	36	37
33	70351	B	0	1.1	5.1	0.1	18	27
33	70351	C	0	2.6	8.3	0.4	19	24
33	70351	D	0	1.5	4.0	0.4	27	31
33	70351	E	2	5.4	5.7	3.5	33	31
33	70360	A	3	5.9	4.0	6.9	45	28
33	70360	B	0	0.2	3.5	0.0	0	33
33	70360	C	1	3.4	6.8	1.1	26	27
33	70360	D	1	3.6	7.9	1.0	20	29
33	70360	E	0	0.9	3.7	0.1	25	28

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FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM)		CONDUCTOR		BIRD
				INPHASE	QUAD.	CTP MHOS	DEPTH MTRS	HEIGHT MTRS
34	80010	A	0	1.2	2.3	0.6	42	35
34	80010	B	1	1.1	1.4	1.2	71	30
34	80020	A	0	-0.2	1.5	0.0	0	25
34	80020	B	2	5.0	5.4	3.3	33	31
34	80030	A	2	3.6	3.6	3.2	45	30
34	80040	A	0	0.5	0.7	0.6	94	33
34	80040	B MAGN	0	-0.2	1.6	0.0	0	30
34	80050	A	0	-1.5	0.5	0.0	0	34
34	80060	A MAGN	0	-0.6	1.5	0.0	0	30
34	80070	A	2	5.6	6.0	3.5	31	31
34	80080	A MAGN	0	-1.4	3.4	0.0	0	30
34	80080	B	2	7.0	10.2	2.5	22	27
34	80080	C	3	11.8	10.2	6.4	22	30
34	80080	D	0	0.9	3.6	0.1	23	31
34	80090	A	0	2.3	6.0	0.6	18	33
34	80090	B	1	3.4	7.4	1.0	18	32
34	80090	C	2	5.3	7.9	2.1	22	31
34	80090	D MAGN	0	-1.8	5.2	0.0	0	34
34	80090	E MAGN	0	-0.3	1.9	0.0	0	30
34	80100	A MAGN	0	-2.9	2.5	0.0	0	30
34	80100	B MAGN	0	-2.2	3.8	0.0	0	29
34	80100	C MAGN	0	-3.7	4.6	0.0	0	25
34	80100	D MAGN	0	-4.2	6.7	0.0	0	26
34	80100	E	2	5.7	8.1	2.4	25	28
34	80110	A	2	3.3	3.1	3.4	52	27
34	80110	B	2	3.1	2.7	3.7	52	31
34	80110	C	0	0.0	2.6	0.0	0	31
34	80120	A	0	-0.2	2.3	0.0	0	27
34	80120	B	0	-0.2	1.4	0.0	0	28
34	80120	C	3	2.9	1.6	7.0	66	32
34	80120	D	2	5.7	6.2	3.5	40	21
34	80120	E	0	-0.1	3.2	0.0	0	25
34	80130	A	0	0.9	2.1	0.3	47	29

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J9101 - FALCONBRIDGE LIMITED ANOMALY LIST - GENOA TOWNSHIP CLAIMS

				AMPLITUDE (PPM)		CONDUCTOR		BIRD
FLIGHT	LINE	ANOMALY	CATEGORY	INPHASE	QUAD.	CTP MHOS	DEPTH MTRS	HEIGHT MTRS
34	80130	B	3	11.2	8.3	7.8	26	31
34	80140	A	2	9.5	11.1	3.9	26	24
34	80140	B	2	4.8	5.5	3.0	37	27
34	80150	A	0	1.5	3.2	0.6	35	32
34	80150	B	1	3.2	6.4	1.1	26	28
34	80160	A	0	0.0	0.8	0.0	0	27
34	80160	B	3	8.4	5.8	7.7	37	27
34	80160	C	0	1.6	3.5	0.6	34	31
34	80170	A	1	1.7	2.0	1.7	59	31
34	80170	B	3	7.4	5.1	7.4	41	26
34	80170	C	3	0.7	0.3	5.6	133	34
34	80180	A	5	12.2	5.4	16.2	36	26
34	80180	B	3	5.1	3.2	7.3	46	32
34	80190	A	3	4.9	3.5	6.0	48	28
34	80190	B	3	3.9	3.3	4.2	43	34
34	80190	C	0	-0.6	0.4	0.0	0	30
34	80200	A	0	1.1	1.7	0.9	60	31
34	80200	B	1	2.5	3.7	1.5	44	26
34	80210	A MAGN	0	0.9	3.2	0.1	27	31
34	80210	B	0	0.0	0.2	0.0	0	32
34	80220	A	4	5.5	3.3	8.0	55	22
34	80220	B	2	3.1	3.4	2.6	46	29
34	80220	C	2	2.2	1.8	3.5	62	34
34	80230	A MAGN	0	0.8	3.3	0.1	27	28
34	80240	A MAGN	0	-0.2	3.4	0.0	0	25
34	80250	A MAGN	1	3.2	4.9	1.6	39	24
34	80250	B	0	-0.1	2.3	0.0	0	28
34	80260	A MAGN	0	-0.5	1.7	0.0	0	31
34	80270	A MAGN	0	-4.7	0.9	0.0	0	29
34	80270	B	0	0.2	4.2	0.0	1	28
34	80280	A	0	0.2	2.5	0.0	15	27

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J9101 - FALCONBRIDGE LIMITED ANOMALY LIST - GENOA TOWNSHIP CLAIMS

FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
34	80280	B	0	-0.1	3.2	0.0	0	31
34	80280	C	0	-0.5	0.9	0.0	0	28
34	80280	D	2	0.4	0.2	3.3	162	37
34	80280	E MAGN	0	-10.3	2.5	0.0	0	24
34	80280	F MAGN	1	2.8	4.9	1.2	33	28
34	80290	A MAGN	0	0.1	3.2	0.0	0	31
34	80290	B MAGN	0	-4.0	3.4	0.0	0	29
34	80290	C MAGN	0	0.0	2.4	0.0	0	30
34	80290	D	0	-0.4	2.0	0.0	0	32
34	80300	A MAGN	0	-4.4	0.0	0.0	0	29
34	80300	B MAGN	0	-1.4	2.9	0.0	0	33
34	80300	C MAGN	0	-2.1	1.9	0.0	0	29
34	80310	A MAGN	0	-0.4	0.8	0.0	0	36
34	80310	B MAGN	0	-0.6	1.3	0.0	0	28
34	80310	C	0	0.8	1.5	0.5	59	32
34	80310	D	0	0.5	3.0	0.0	21	29
34	80320	A	0	0.4	2.5	0.0	23	30
34	80320	B MAGN	0	0.6	1.2	0.3	65	31
34	80320	C	0	0.8	1.4	0.6	65	30
34	80330	A	1	3.0	4.2	1.8	39	29
34	80330	B	0	0.3	2.6	0.0	18	29
34	80340	A	0	1.1	2.1	0.6	47	33
34	80340	B MAGN	0	-0.6	4.3	0.0	0	26
34	80350	A MAGN	1	3.4	5.0	1.7	30	33
34	80350	B MAGN	0	1.5	4.4	0.3	28	27
34	80350	C	0	0.1	2.7	0.0	0	32
34	80360	A	0	-1.2	2.9	0.0	0	30
34	80360	B	0	2.2	4.9	0.7	31	26
34	80360	C	0	2.1	3.9	0.9	36	30
34	80370	A MAGN	0	-1.9	3.2	0.0	0	30
34	80370	B MAGN	0	-2.5	4.8	0.0	0	31
34	80370	C	0	1.3	3.5	0.4	33	28
34	80380	A	0	0.7	3.3	0.0	26	27
34	80380	B MAGN	0	0.0	10.9	0.0	0	24
34	80380	C MAGN	0	-1.1	5.7	0.0	0	28

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J9101 - FALCONBRIDGE LIMITED ANOMALY LIST - GENOA TOWNSHIP CLAIMS

				AMPLITUDE (PPM)		CONDUCTOR		BIRD
						CTP	DEPTH	HEIGHT
FLIGHT	LINE	ANOMALY	CATEGORY	INPHASE	QUAD.	MHOS	MTRS	MTRS
34	80390	A MAGN	0	-4.3	4.9	0.0	0	27
34	80390	B MAGN	0	-10.3	3.4	0.0	0	25
34	80390	C MAGN	0	-3.2	1.5	0.0	0	31
34	80390	D	0	-0.1	4.9	0.0	0	29
34	80400	A	0	-0.3	4.0	0.0	0	23
34	80400	B MAGN	0	-7.3	0.2	0.0	0	27
34	80400	C MAGN	0	-7.9	1.3	0.0	0	33
34	80410	A MAGN	0	-3.6	1.0	0.0	0	31
34	80410	B MAGN	0	-15.3	1.8	0.0	0	27
34	80410	C MAGN	0	-6.0	1.1	0.0	0	28
34	80410	D	0	0.1	3.6	0.0	0	28

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APPENDIX III

CERTIFICATE OF QUALIFICATIONS

I, IAN JOHNSON, certify that:

1. I am registered as a Professional Engineer in the Province of Ontario.

2. I reside at 38 Tinti Place in the town of Thornhill, Ontario.

3. I hold a Ph.D. in Geophysics from the University of British Columbia, having graduated in 1972.

4. I have been continuously engaged in both professional and managerial roles in the minerals industry in Canada and abroad for the past fourteen years.

5. The accompanying report was prepared from published or publicly available information and material supplied by Falconbridge Limited - Exploration and Aerodat Limited in the form of government reports and proprietary airborne exploration data. I have not personally visited the specific property.

7. I have no interest, direct or indirect, in the property described nor in Falconbridge Limited - Exploration.

8. I hereby consent to the use of this report in a Statement of Material Facts of the Company and for the preparation of a prospectus for submission to the appropriate securities commission and/or other regulatory authorities.

Signed,

Ian Johnson

Ian Johnson, Ph.D., P. Eng.

I. M. JOHNSON

J9101G
Thornhill, Ontario
August 7, 1991

APPENDIX IV

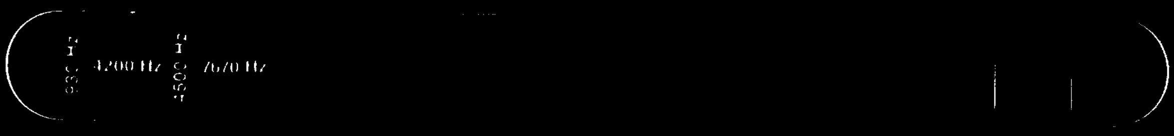
PERSONNEL

FIELD

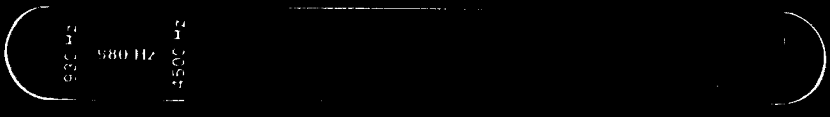
Flown	March 3, 1991
Pilots	Luke Kukovica
Operators	Peter Moore

OFFICE

Processing	Mary Chong-Foo George McDonald Ed Hamilton
Report	Ian Johnson



HEM 4



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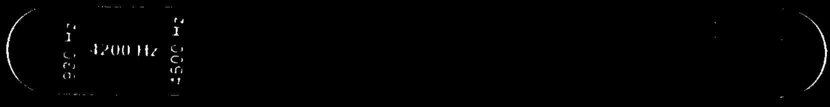
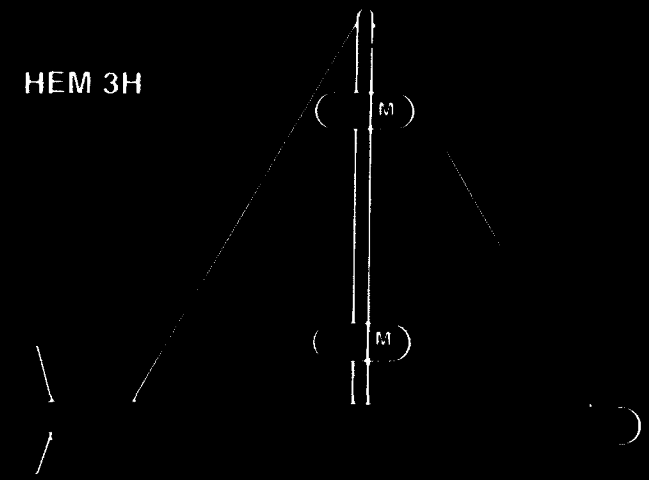
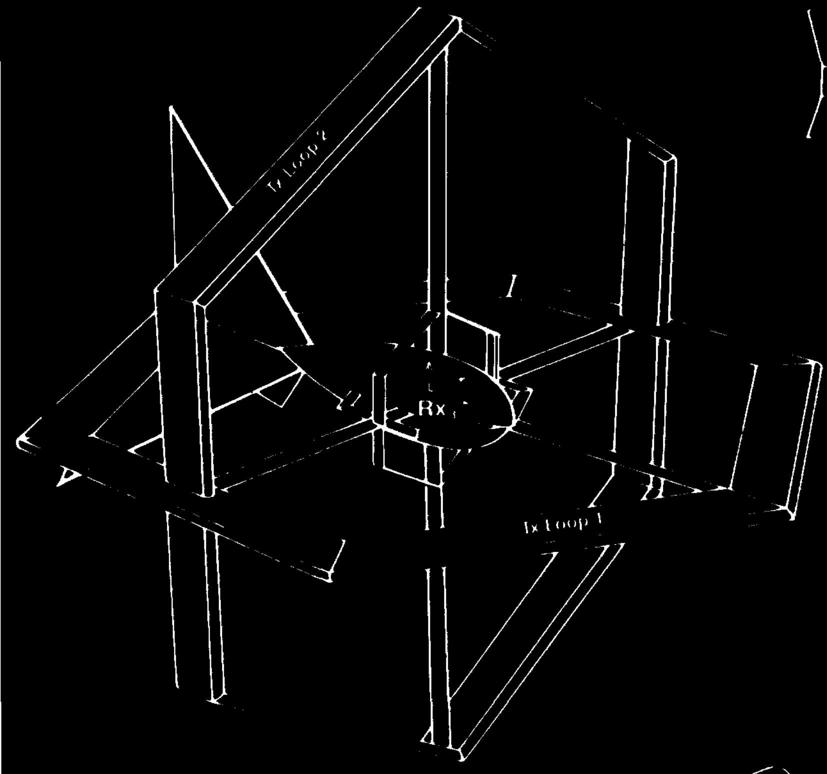


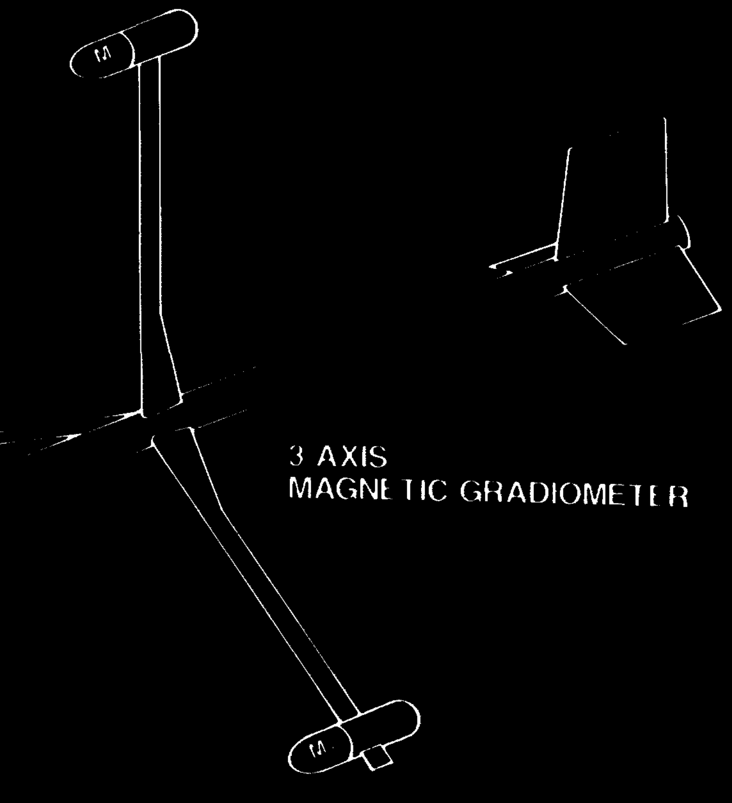
HEM 3H



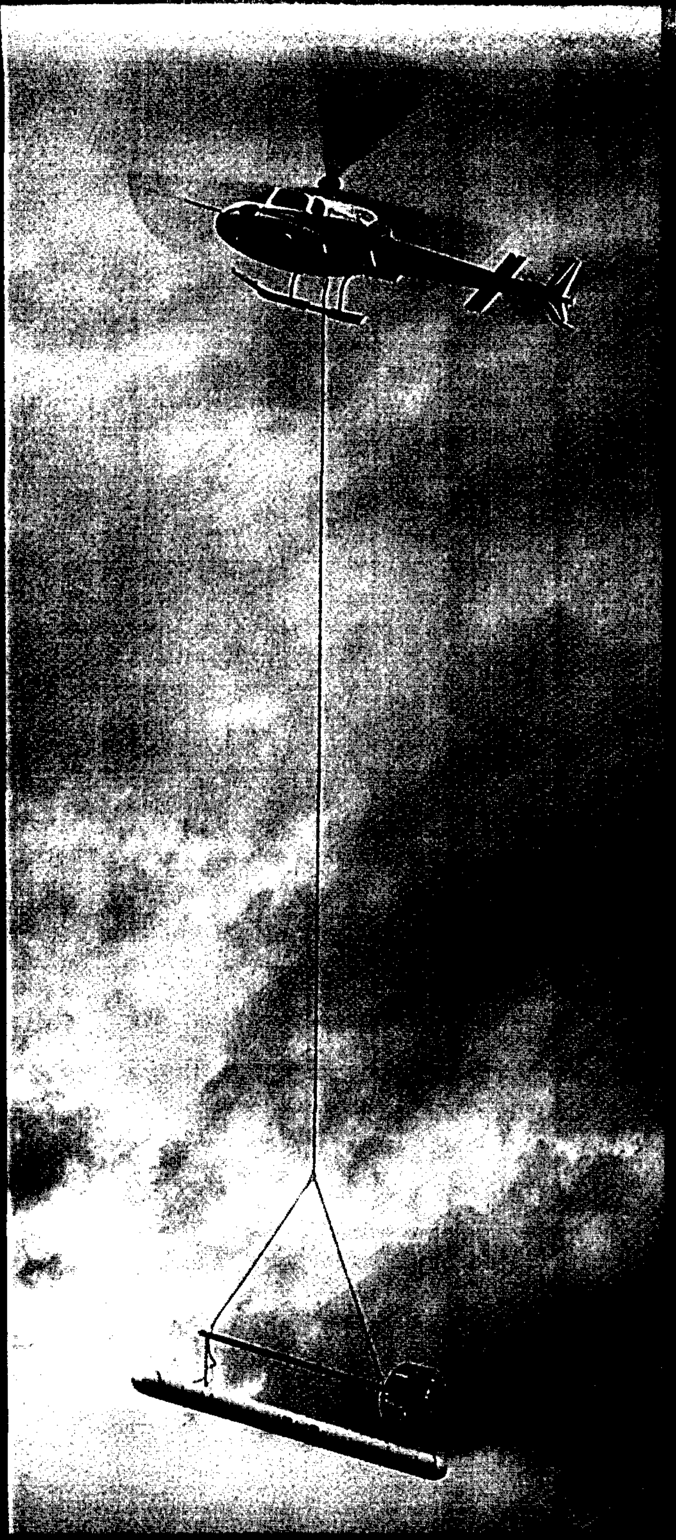
VERTICAL MAGNETIC GRADIOMETER



EXPERIMENTAL TRANSIENT EM
2 AXIS RIGID GEOMETRY



3 AXIS
MAGNETIC GRADIOMETER



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Report of Work Conducted After Recording Claim

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- A separate copy of this form must be completed for each Work Group.
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- A sketch, showing the claims the work is assigned to, must accompany this form.

ecorded Holder(s): Falconbridge Limited
Client No.: 130679
ddress: P.O. Box 1140, 571 Moneta Avenue, Timmins, ON, P4N 7H9
Telephone No.: (705)267-1188
ining Division: Porcupine
Township/Area: Marion
M or G Plan No.: G-1174
Dates Work Performed From: March 3, 1991 To: August 7, 1991

Vork Performed (Check One Work Group Only)

Work Group	Type
Geotechnical Survey	Helicopter Borne Magnetic, Electromagnetic and VLF-EM
Physical Work, Including Drilling	
Rehabilitation	RECEIVED
Other Authorized Work	MAR 19 1993
Assays	
Assignment from Reserve	MINING LANDS BRANCH

otal Assessment Work Claimed on the Attached Statement of Costs $ 4,629.00

ote: The Minister may reject for assessment work credit all or part of the assessment work submitted if the recorded holder cannot verify expenditures claimed in the statement of costs within 30 days of a request for verification.

ersons and Survey Company Who Performed the Work (Give Name and Address of Author of Report)

Name	Address
Ian Johnston Aerodat Limited	3883 Nashua Drive Mississauga, ON, L4V 1R3
	RECORDED
	FEB 19 1993

ttach a schedule if necessary)

ertification of Beneficial Interest * See Note No. 1 on reverse side

	Date	Recorded Holder or Agent (Signature)
I certify that at the time the work was performed, the claims covered in this work report were recorded in the current holder's name or held under a beneficial interest by the current recorded holder.		

ertification of Work Report

I certify that I have a personal knowledge of the facts set forth in this Work report, having performed the work or witnessed same during and/or after its completion and annexed report is true.

ame and Address of Person Certifying
Roman Gadzala
Jim Aultman, c/o Falconbridge Limited, P.O. Box 1140, 571 Moneta Avenue, Timmins, ON, P4N 7H9

elepone No.: (705)267-1188
Date: Feb 19/93
Certified By (Signature): R. Gadzala

or Office Use Only

Total Value Cr. Recorded	Date Recorded	Mining Recorder	Received Stamp
$4,629.	FEB. 19/93	D White	RECEIVED FEB 19 1993 HB (c) 1:35
	Deemed Approval Date MAY 20/93	Date Approved	
	Date Notice for Amendments Sent		

Work Report Number for Applying Reserve	Claim Number (see Note 2)	Number of Claim Units	Value of Assessment Work Done on this Claim	Value Applied to this Claim	Value Assigned from this Claim	Reserve: Work to be Claimed at a Future Date
	P-568516	1	$46.00	0	0	$46.00
	P-568517	1	$137.00	0	0	$137.00
	P-568518	1	$136.00	0	0	$136.00
	P-619128	1	$56.00	0	0	$56.00
	P-619129	1	$55.00	0	0	$55.00
	P-619130	1	$161.00	0	0	$161.00
	P-622999	1	$205.00	0	0	$205.00
	P-623000	1	$213.00	0	0	$213.00
	P-624001	1	$185.00	0	0	$185.00
	P-624002	1	$207.00	0	0	$207.00
	P-624003	1	$71.00	0	0	$71.00
	P-628434	1	$107.00	0	0	$107.00
	P-628435	1	$104.00	0	0	$104.00
	P-628436	1	$105.00	0	0	$105.00
	P-628437	1	$81.00	0	0	$81.00
	P-628438	1	$112.00	0	0	$112.00
	P-628439	1	$51.00	0	0	$51.00
	—		—	—	—	—
	Total Number of Claims		Total Value Work Done	Total Value Work Applied	Total Assigned From	Total Reserve

(03/91)

Continued on Next Page

Credits you are claiming in this report may be cut back. In order to minimize the adverse effects of such deletions, please indicate from which claims you wish to *priorize the deletion of credits*. Please mark (✓) one of the following:

1. ☐ Credits are to be cut back starting with the claim listed last, working backwards.
2. ☒ Credits are to be cut back equally over all claims contained in this report of work.
3. ☐ Credits are to be cut back as priorized on the attached appendix.

In the event that you have not specified your choice of priority, option one will be implemented.

Note 1: Examples of beneficial interest are unrecorded transfers, option agreements, memorandum of agreements, etc., with respect to the mining claims.

Note 2: If work has been performed on patented or leased land, please complete the following:

I certify that the recorded holder had a beneficial interest in the patented or leased land at the time the work was performed.	Signature	Date

Work Report Number for Applying Reserve	Claim Number (see Note 2)	Number of Claim Units	Value of Assessment Work Done on this Claim	Value Applied to this Claim	Value Assigned from this Claim	Reserve: Work to be Claimed at a Future Date
	P-628440	1	$29.00	0	0	$29.00
	P-634522	1	$108.00	0	0	$108.00
	P-634523	1	$34.00	0	0	$34.00
	P-750622	1	$147.00	0	0	$147.00
	P-750623	1	$133.00	0	0	$133.00
	P-1176234	1	$116.00	0	0	$116.00
	P-1176235	1	$130.00	0	0	$130.00
	P-1176236	1	$129.00	0	0	$129.00
	P-1176237	1	$131.00	0	0	$131.00
	P-1176238	1	$132.00	0	0	$132.00
	P-1176239	1	$164.00	0	0	$164.00
	P-1176240	1	$145.00	0	0	$145.00
	P-1176241	1	$110.00	0	0	$110.00
	P-1176242	1	$91.00	0	0	$91.00
	P-1176243	1	$128.00	0	0	$128.00
	P-1176244	1	$137.00	0	0	$137.00
	P-1176245	1	$170.00	0	0	$170.00
	—		—	—	—	—
	Total Number of Claims		Total Value Work Done	Total Value Work Applied	Total Assigned From	Total Reserve

Continued on Next Page

Credits you are claiming in this report may be cut back. In order to minimize the adverse effects of such deletions, please indicate from which claims you wish to priorize the deletion of credits. Please mark (✓) one of the following:

1. ☐ Credits are to be cut back starting with the claim listed last, working backwards.
2. ☒ Credits are to be cut back equally over all claims contained in this report of work.
3. ☐ Credits are to be cut back as priorized on the attached appendix.

In the event that you have not specified your choice of priority, option one will be implemented.

Note 1: **Examples of beneficial interest are unrecorded transfers, option agreements, memorandum of agreements, etc., with respect to the mining claims.**

Note 2: **If work has been performed on patented or leased land, please complete the following:**

I certify that the recorded holder had a beneficial interest in the patented or leased land at the time the work was performed.

Signature

Date

Numéro de rapport sur les travaux exécutés pour l'affectation de la réserve	Numéro de claim	Nombre d'unités	Valeur des travaux d'évaluation exécutés sur ce claim	Valeur affectée à ce claim	Valeur transférée de ce claim	Réserve : travaux à réclamer à une date ultérieure
	P-1176423	1	$74.00	0	0	$74.00
	P-1176424	1	$148.00	0	0	$148.00
	P-1176425	1	$94.00	0	0	$94.00
	P-1176426	1	$72.00	0	0	$72.00
	P-1176427	1	$175.00	0	0	$175.00
	39		$4,629.00	0	0	$4,629.00
	Nombre total de claims		Valeur totale des travaux exécutés	Valeur totale des travaux qui a été affectée	Total transféré	Réserve totale

Les crédits que vous réclamez dans le présent rapport peuvent être réduits. Afin de diminuer les conséquences défavorables de telles réductions, veuillez indiquer l'ordre dans lequel vous désirez qu'elles soient appliquées à vos claims. Veuillez cocher (✓) l'une des options suivantes :

1. ☐ Les crédits doivent être réduits en commençant par le dernier claim sur la liste.
2. ☒ Les crédits doivent être réduits également entre tous les claims figurant dans le présent rapport.
3. ☐ Les crédits doivent être réduits selon l'ordre donné en annexe.

Si vous n'avez pas choisi d'option, la première sera appliquée.

Note 1 : **Examples d'intérêts bénéficiaires : cessions non enregistrées, ententes sur des options, protocoles d'entente, etc. relatif** **aux claims.**

Note 2: Si des travaux ont été exécutés sur un terrain faisant l'objet de lettres patentes ou d'un bail, veuillez remplir ce qui s

Je certifie que le titulaire enregistré possédait un intérêt bénéficiaire sur le terrain faisant l'objet de lettres patentes ou d'un bail, au moment où les travaux ont été exécutés	Signature	Date

Ontario

Ministry of
Northern Development
and Mines

[illegible]ère du
D[illegible]loppement du Nord
et des mines

Statement of Costs for Assessment Credit
État des coûts aux fins du crédit d'évaluation

Mining Act/Loi sur les mines

Transaction No./N° de transaction W9360.00022

Personal information collected on this form is obtained under the authority of the Mining Act. This information will be used to maintain a record and ongoing status of the mining claim(s). Questions about this collection should be directed to the Provincial Manager, Minings Lands, Ministry of Northern Development and Mines, 4th Floor, 159 Cedar Street, Sudbury, Ontario P3E 6A5, telephone (705) 670-7264.

Les renseignements personnels contenus dans la présente formule sont recueillis en vertu de la Loi sur les mines et serviront à tenir à jour un registre des concessions minières. Adresser toute question sur la collecte de ces renseignements au chef provincial des terrains miniers, ministère du Développement du Nord et des Mines, 159, rue Cedar, 4e étage, Sudbury (Ontario) P3E 6A5, téléphone (705) 670-7264.

1. Direct Costs/Coûts directs

Type	Description	Amount Montant	Totals Total global
Wages Salaires	Labour Main-d'oeuvre		
	Field Supervision Supervision sur le terrain	$305.00	$305.00
Contractor's and Consultant's Fees Droits de l'entrepreneur et de l'expert-conseil	Type Airborne	$4,324.00	
	Geophysics		
			$4,324.00
Supplies Used Fournitures utilisées	Type		
Equipment Rental Location de matériel	Type		

Total Direct Costs Total des coûts directs $4,629.00

2. Indirect Costs/Coûts indirects

** Note: When claiming Rehabilitation work Indirect costs are not allowable as assessment work.
Pour le remboursement des travaux de réhabilitation, les coûts indirects ne sont pas admissibles en tant que travaux d'évaluation.

Type	Description	Amount Montant	Totals Total global
Transportation Transport	Type		
Food and Lodging Nourriture et hébergement			
Mobilization and Demobilization Mobilisation et démobilisation			

Sub Total of Indirect Costs Total partiel des coûts indirects

Amount Allowable (not greater than 20% of Direct Costs) Montant admissible (n'excédant pas 20 % des coûts directs)

Total Value of Assessment Credit (Total of Direct and Allowable Indirect costs) **Valeur totale du crédit d'évaluation (Total des coûts directs et indirects admissibles)**

Note: The recorded holder will be required to verify expenditures claimed in this statement of costs within 30 days of a request for verification. If verification is not made, the Minister may reject for assessment work all or part of the assessment work submitted.

Note : Le titulaire enregistré sera tenu de vérifier les dépenses demandées dans le présent état des coûts dans les 30 jours suivant une demande à cet effet. Si la vérification n'est pas effectuée, le ministre peut rejeter tout ou une partie des travaux d'évaluation présentés.

Filing Discounts

1. Work filed within two years of completion is claimed at 100% of the above Total Value of Assessment Credit.
2. Work filed three, four or five years after completion is claimed at 50% of the above Total Value of Assessment Credit. See calculations below:

Remises pour dépôt

1. Les travaux déposés dans les deux ans suivant leur achèvement sont remboursés à 100 % de la valeur totale susmentionnée du crédit d'évaluation.
2. Les travaux déposés trois, quatre ou cinq ans après leur achèvement sont remboursés à 50 % de la valeur totale du crédit d'évaluation susmentionné. Voir les calculs ci-dessous.

Total Value of Assessment Credit		Total Assessment Claimed
	× 0.50 =	

Valeur totale du crédit d'évaluation		Évaluation totale demandée
	× 0,50 =	

RECEIVED
MAR 19 1993
MINING LANDS BRANCH

Certification Verifying Statement of Costs

I hereby certify:
that the amounts shown are as accurate as possible and these costs were incurred while conducting assessment work on the lands shown on the accompanying Report of Work form.

that as ______________________ I am authorized
(Recorded Holder, [✓ Agent], Position in Company)

to make this certification

Attestation de l'état des coûts

J'atteste par la présente :
que les montants indiqués sont le plus exact possible et que ces dépenses ont été engagées pour effectuer les travaux d'évaluation sur les terrains indiqués dans la formule de rapport de travail ci-joint.

Et qu'à titre de ______________________ je suis autorisé
(titulaire enregistré, représentant, poste occupé dans la compagnie)

à faire cette attestation.

Signature	Date
	Feb 26/93

0212 (04/91)

Nota : Dans cette formule, lorsqu'il désigne des personnes, le masculin est utilisé au sens neutre.

Ministry of Northern Development and Mines
Ontario

Report of Work Conducted After Recording Claim

Mining Act

111.L .

Transaction Number
W9360.00023

Personal Information collected on this form is obtained under the authority of the Mining Act. This information will be used for correspondence. Questions about this collection should be directed to the Provincial Manager, Mining Lands, Ministry of Northern Development and Mines, Fourth Floor, 159 Cedar Street, Sudbury, Ontario, P3E 6A5, telephone (705) 670-7264.

Instructions:
- Please type or print and submit in duplicate.
- Refer to the Mining Act and Regulations for requirements of filing assessment work or consult the Mining Recorder.
- A separate copy of this form must be completed for each Work Group.
- Technical reports and maps must accompany this form in duplicate.
- A sketch, showing the claims the work is assigned to, must accompany this form.

Recorded Holder(s) Falconbridge Limited		Client No. 130679
Address P.O. Box 1140, 571 Moneta Avenue, Timmins, ON, P4N 7H9		Telephone No. (705)267-1188
Mining Division Porcupine	Township/Area Marion and Genoa	M or G Plan No. G-1131, G-1174
Dates Work Performed From: March 3, 1991	To: August 7, 1991	

Work Performed (Check One Work Group Only)

	Work Group	Type
☐	Geotechnical Survey	Helicopter Borne Magnetic, Electromagnetic and VLF-EM
☐	Physical Work, Including Drilling	
☐	Rehabilitation	
☐	Other Authorized Work	
☐	Assays	
☐	Assignment from Reserve	

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MAR 1 9 1993
MINING LANDS BRANCH

Total Assessment Work Claimed on the Attached Statement of Costs $ 3,424.00

Note: The Minister may reject for assessment work credit all or part of the assessment work submitted if the recorded holder cannot verify expenditures claimed in the statement of costs within 30 days of a request for verification.

Persons and Survey Company Who Performed the Work (Give Name and Address of Author of Report)

Name	Address
Ian Johnston ~~Aerodat Limited~~	3883 Nashua Drive Mississauga, ON, L4V 1R3

(attach a schedule if necessary)

RECEIVED
MAR 1 9 1993
MINING LANDS BRANCH

RECORDED
FEB 1 9 1993
Receipt

Certification of Beneficial Interest * **See Note No. 1 on reverse side**

	Date	Recorded Holder or Agent (Signature)
I certify that at the time the work was performed, the claims covered in this work report were recorded in the current holder's name or held under a beneficial interest by the current recorded holder.		

Certification of Work Report

I certify that I have a personal knowledge of the facts set forth in this Work report, having performed the work or witnessed same during and/or after its completion and annexed report is true.

Name and Address of Person Certifying Roman Gadzalo Jim Aultman, c/o Falconbridge Limited, P.O. Box 1140, 571 Moneta Avenue, Timmins, ON, P4N 7H9		
Telepone No. (705)267-1188	Date Feb 19/93	Certified By (Signature) R. Gadzalo

For Office Use Only

Total Value Cr. Recorded	Date Recorded	Mining Recorder	Received Stamp
$3,424.	FEB. 19/93	S White	RECEIVED FEB 19 1993 TB (c) 1:35
	Deemed Approval Date MAY 20/93	Date Approved	
	Date Notice for Amendments Sent		

0241 (03/91)

Work Report Number for Applying Reserve	Claim Number (see Note 2)	Number of Claim Units	Value of Assessment Work Done on this Claim	Value Applied to this Claim	Value Assigned from this Claim	Reserve: Work to be Claimed at a Future Date
	P-583862	1	$153.00	0	0	$153.00
	P-583863	1	$136.00	0	0	$136.00
	P-583864	1	$143.00	0	0	$143.00
	P-583865	1	$131.00	0	0	$131.00
	P-583866	1	$143.00	0	0	$143.00
	P-583867	1	$144.00	0	0	$144.00
	P-583868	1	$137.00	0	0	$137.00
	P-583869	1	$189.00	0	0	$189.00
	P-583870	1	$178.00	0	0	$178.00
	P-583871	1	$147.00	0	0	$147.00
	P-583872	1	$143.00	0	0	$143.00
	P-583873	1	$144.00	0	0	$144.00
	—		—	—	—	—
	Total Number of Claims		Total Value Work Done	Total Value Work Applied	Total Assigned From	Total Reserve

(03/91)

Continued on next Page...

Credits you are claiming in this report may be cut back. In order to minimize the adverse effects of such deletions, please indicate from which claims you wish to priorize the deletion of credits. Please mark (✓) one of the following:

1. ☐ Credits are to be cut back starting with the claim listed last, working backwards.
2. ☑ Credits are to be cut back equally over all claims contained in this report of work.
3. ☐ Credits are to be cut back as priorized on the attached appendix.

In the event that you have not specified your choice of priority, option one will be implemented.

Note 1: **Examples of beneficial interest are unrecorded transfers, option agreements, memorandum of agreements, etc., with respect to the mining claims.**

Note 2: If work has been performed on patented or leased land, please complete the following:

I certify that the recorded holder had a beneficial interest in the patented or leased land at the time the work was performed.

Signature

Date

Numéro de rapport sur les travaux exécutés pour l'affectation *de la réserve*	Numéro de claim	Nombre d'unités	Valeur des travaux d'évaluation exécutés sur ce claim	Valeur affectée à ce claim	Valeur transférée de ce claim	Réserve : travaux à réclamer à une date ultérieure
	P-583876	1	$127.00	0	0	$127.00
	P-583877	1	$114.00	0	0	$114.00
	P-583878	1	$151.00	0	0	$151.00
	P-583879	1	$116.00	0	0	$116.00
Lease	P-583880	1	$94.00	0	0	$94.00
Lease	P-583881	1	$106.00	0	0	$106.00
	P-583882	1	$134.00	0	0	$134.00
	P-583883	1	$143.00	0	0	$143.00
Lease	P-583884	1	$262.00	0	0	$262.00
Lease	P-583885	1	$183.00	0	0	$183.00
	P-583886	1	$206.00	0	0	$206.00
	23		$3,424.00	0	0	$3,424.00
	Nombre total de claims		**Valeur totale des travaux exécutés**	**Valeur totale des travaux qui a été affectée**	**Total transféré**	**Réserve totale**

Les crédits que vous réclamez dans le présent rapport peuvent être réduits. Afin de diminuer les conséquences défavorables de telles réductions, veuillez indiquer l'ordre dans lequel vous désirez qu'elles soient appliquées à vos claims. Veuillez cocher (✓) l'une des options suivantes :

1. ☐ Les crédits doivent être réduits en commençant par le dernier claim sur la liste.
2. ☒ Les crédits doivent être réduits également entre tous les claims figurant dans le présent rapport.
3. ☐ Les crédits doivent être réduits selon l'ordre donné en annexe.

Si vous n'avez pas choisi d'option, la première sera appliquée.

Note 1 : Exemples d'intérêts bénéficiaires : cessions non enregistrées, ententes sur des options, protocoles d'entente, etc. relatifs aux claims.

Note 2: Si des travaux ont été exécutés sur un terrain faisant l'objet de lettres patentes ou d'un bail, veuillez remplir ce qui suit:

Je certifie que le titulaire enregistré possédait un intérêt bénéficiaire sur le terrain faisant l'objet de lettres patentes ou d'un bail, au moment où les travaux ont été exécutés.	Signature	Date

Ministry of Northern Development and Mines
Ontario
Ministère du Développement du Nord et des mines

Statement of Costs for Assessment Credit
État des coûts aux fins du crédit d'évaluation

Mining Act/Loi sur les mines

Transaction No./N° de transaction W9360.00023

Personal information collected on this form is obtained under the authority of the Mining Act. This information will be used to maintain a record and ongoing status of the mining claim(s). Questions about this collection should be directed to the Provincial Manager, Minings Lands, Ministry of Northern Development and Mines, 4th Floor, 159 Cedar Street, Sudbury, Ontario P3E 6A5, telephone (705) 670-7264.

Les renseignements personnels contenus dans la présente formule sont recueillis en vertu de la Loi sur les mines et serviront à tenir à jour un registre des concessions minières. Adresser toute question sur la collece de ces renseignements au chef provincial des terrains miniers, ministère du Développement du Nord et des Mines, 159, rue Cedar, 4e étage, Sudbury (Ontario) P3E 6A5, téléphone (705) 670-7264.

1. Direct Costs/Coûts directs

Type	Description	Amount Montant	Totals Total global
Wages Salaires	Labour Main-d'oeuvre		
	Field Supervision Supervision sur le terrain	$225.00	$225.00
Contractor's and Consultant's Fees Droits de l'entrepreneur et de l'expert-conseil	Type Airborne		
	Geophysics	$3,199.00	
			$3,199.00
Supplies Used Fournitures utilisées	Type		
Equipment Rental Location de matériel	Type		
		Total Direct Costs Total des coûts directs	$3,424.00

2. Indirect Costs/Coûts indirects

** **Note:** When claiming Rehabilitation work indirect costs are not allowable as assessment work.
Pour le remboursement des travaux de réhabilitation, les coûts indirects ne sont pas admissibles en tant que travaux d'évaluation.

Type	Description	Amount Montant	Totals Total global
Transportation Transport	Type		
Food and Lodging Nourriture et hébergement			
Mobilization and Demobilization Mobilisation et démobilisation			
		Sub Total of Indirect Costs Total partiel des coûts indirects	
		Amount Allowable (not greater than 20% of Direct Costs) Montant admissible (n'excédant pas 20 % des coûts directs)	
		Total Value of Assessment Credit (Total of Direct and Allowable Indirect costs) Valeur totale du crédit d'évaluation (Total des coûts directs et indirects admissibles)	

Note: The recorded holder will be required to verify expenditures claimed in this statement of costs within 30 days of a request for verification. If verification is not made, the Minister may reject for assessment work all or part of the assessment work submitted.

Note : Le titulaire enregistré sera tenu de vérifier les dépenses demandées dans le présent état des coûts dans les 30 jours suivant une demande à cet effet. Si la vérification n'est pas effectuée, le ministre peut rejeter tout ou une partie des travaux d'évaluation présentés.

Filing Discounts

1. Work filed within two years of completion is claimed at 100% of the above Total Value of Assessment Credit.
2. Work filed three, four or five years after completion is claimed at 50% of the above Total Value of Assessment Credit. See calculations below:

Total Value of Assessment Credit		Total Assessment Claimed
	× 0.50 =	

Remises pour dépôt

1. Les travaux déposés dans les deux ans suivant leur achèvement sont remboursés à 100 % de la valeur totale susmentionnée du crédit d'évaluation.
2. Les travaux déposés trois, quatre ou cinq ans après leur achèvement sont remboursés à 50 % de la valeur totale du crédit d'évaluation susmentionné. Voir les calculs ci-dessous.

Valeur totale du crédit d'évaluation		Évaluation totale demandée
	× 0,50 =	

RECEIVED
MAR 1 9 1992
MINING LANDS BRANCH

Certification Verifying Statement of Costs

I hereby certify:
that the amounts shown are as accurate as possible and these costs were incurred while conducting assessment work on the lands shown on the accompanying Report of Work form.

that as ______________________ I am authorized
(Recorded Holder, [✓ Agent], Position in Company)

to make this certification

Attestation de l'état des coûts

J'atteste par la présente :
que les montants indiqués sont le plus exact possible et que ces dépenses ont été engagées pour effectuer les travaux d'évaluation sur les terrains indiqués dans la formule de rapport de travail ci-joint.

Et qu'à titre de ______________________ je suis autorisé
(titulaire enregistré, représentant, poste occupé dans la compagnie)

à faire cette attestation.

Signature	Date
	[illegible]

0212 (04/91)

Nota : Dans cette formule, lorsqu'il désigne des personnes, le masculin est utilisé au sens neutre

Ministry of Northern Development and Mines
tario

Report of Work Conducted Before Recording Claim

Mining Act

Transaction Number
W9360.00024

onal information collected on this form is obtained under the authority of the Mining Act. This information will be used for correspondence. Questions about collection should be directed to the Provincial Manager, Mining Lands, Ministry of Northern Development and Mines, Fourth Floor, 159 Cedar Street, oury, Ontario, P3E 6A5, telephone (705) 670-7264.

ructions:
- Please type or print and submit in duplicate.
- Refer to the Mining Act and Regulations for requirements of filing assessment work or consult the Mining Recorder.
- A separate copy of this form must be completed for each Work Group.
- Technical reports and maps must accompany this form in duplicate.
- A sketch, showing the claims the work is assigned to, must accompany this form.

orded Holder(s) Falconbridge Limited		Client No. 130679
ress P.O. Box 1140, 571 Moneta Avenue, Timmins, ON, P4N 7H9		Telephone No. (705)267-1188
ng Division Porcupine	Township/Area Marion	M or G Plan No. G-1174

ates ork erformed From: March 3, 1991 To: August 7, 1991

rk Performed (Check One Work Group Only)

Work Group	Type
Regional Surveys	Helicopter Borne Magnetic, Electromagnetic and VLF-EM
Prospecting	

RECEIVED
MAR 1 9 1993
MINING LANDS BRANCH

al Assessment Work Claimed on the Attached Statement of Costs $ 2,601.00

te: **The Minister may reject for assessment work credit all or part of the assessment work submitted if the recorded holder cannot verify expenditures claimed in the statement of costs within 30 days of a request for verification.**

rsons and Survey Company Who Performed the Work (Give Name and Address of Author of Report)

Name	Address
an Johnston erodat Limited	3883 Nashua Drive Mississauga, ON, L4V 1R3

RECORDED
FEB 1 9 1993
Receipt

ach a schedule if necessary)

RECEIVED
MAR 1 9 1993
MINING LANDS BRANCH

rtification of Beneficial Interest * **See Note No. 1 on reverse side**

certify that at the time the work was performed, the claims covered in this work port were recorded in the current holder's name or held under a beneficial interest the current recorded holder.	Date	Recorded Holder or Agent (Signature)

rtification of Work Report

certify that I have a personal knowledge of the facts set forth in this work report, having performed the work or witnessed it during and/or after its ompletion, and the annexed report is true.

ne and Address of Person Certifying
oman Gadzala
im Aultman,c/o Falconbridge Limited, P.O. Box 1140, 571 Moneta Avenue, Timmins, ON, P4N 7H9

epone No. 705) 267-1188	Date Feb 19/93	Certified By (Signature) R. Gadzala

r Office Use Only

otal Value Cr. Recorded 2,601.	Date Recorded FEB. 19/93	Mining Recorder	Received Stamp RECEIVED FEB 19 1993 TB (C) 1.35
	Deemed Approval Date MAY 20/93	Date Approved	
	Date Notice for Amendments Sent		

Claim Number	Number of Claim Units	Value of Work Done on Land Subsequently Staked as this Claim	Value Applied to this Claim: From Work Done on Land Subsequently Staked as this Claim	Value Applied to this Claim: From the Allowable 25% of the Survey Costs from Adjacent Crown Land	Value Applied to this Claim: Total Applied to this Claim	Value Assigned from this Claim	Reserve: Work to be Claimed at Future Date
P-11[illegible]11	3	$346.00	$346.00	$380.00	$726.00		
P-1189512	2	$260.00	$260.00	$380.00	$640.00		
P-1189513	3	$400.00	$400.00	$380.00	$780.00		
P-1189514	1	$76.00	$76.00	$379.00	$455.00		
	9	$1,082.00			$2,601.00	—	—
	Total Number of Claims	Total Value Work Done on Subsequently Staked Land			Total Applied	Total Assigned	Total Reserve

3240 (03/91)

Credits you are claiming in this report may be cut back. In order to minimize the adverse effects of such deletions, please indicate from which claims you wish to priorize the deletion of credits. Please mark (✓) one of the following:

1. ☐ Credits are to be cut back starting with the claim listed last, working backwards.
2. ☒ Credits are to be cut back equally over all claims contained in this report of work.
3. ☐ Credits are to be cut back as priorized on the attached appendix.

In the event that you have not specified your choice of priority, option one will be implemented.

Note 1: **Examples of beneficial interest are unrecorded transfers, option agreements, memorandum of agreements, etc., with respect to the mining claims.**

Ministry of Northern Development and Mines
Ministère du Développement du Nord et des mines
Ontario

Statement of Costs for Assessment Credit
État des coûts aux fins du crédit d'évaluation

Mining Act/Loi sur les mines

Transaction No./N° de transaction W9360.00024

Personal information collected on this form is obtained under the authority of the Mining Act. This information will be used to maintain a record and ongoing status of the mining claim(s). Questions about this collection should be directed to the Provincial Manager, Minings Lands, Ministry of Northern Development and Mines, 4th Floor, 159 Cedar Street, Sudbury, Ontario P3E 6A5, telephone (705) 670-7264.

Les renseignements personnels contenus dans la présente formule sont recueillis en vertu de la Loi sur les mines et serviront à tenir à jour un registre des concessions minières. Adresser toute question sur la collecte de ces renseignements au chef provincial des terrains miniers, ministère du Développement du Nord et des Mines, 159, rue Cedar, 4ᵉ étage, Sudbury (Ontario) P3E 6A5, téléphone (705) 670-7264.

1. Direct Costs/Coûts directs

Type	Description	Amount Montant	Totals Total global
Wages Salaires	Labour Main-d'oeuvre		
	Field Supervision Supervision sur le terrain	$172.00	$172.00
Contractor's and Consultant's Fees Droits de l'entrepreneur et de l'expert-conseil	Type Airborne		
	Geophysics	$2,429.00	
			$2,429.00
Supplies Used Fournitures utilisées	Type		
Equipment Rental Location de matériel	Type		
		Total Direct Costs Total des coûts directs	$2,601.00

2. Indirect Costs/Coûts indirects

** Note: When claiming Rehabilitation work indirect costs are not allowable as assessment work.
Pour le remboursement des travaux de réhabilitation, les coûts indirects ne sont pas admissibles en tant que travaux d'évaluation.

Type	Description	Amount Montant	Totals Total global
Transportation Transport	Type		
Food and Lodging Nourriture et hébergement			
Mobilization and Demobilization Mobilisation et démobilisation			
		Sub Total of Indirect Costs Total partiel des coûts indirects	
Amount Allowable (not greater than 20% of Direct Costs) Montant admissible (n'excédant pas 20 % des coûts directs)			
Total Value of Assessment Credit (Total of Direct and Allowable Indirect costs)	Valeur totale du crédit d'évaluation (Total des coûts directs et indirects admissibles)		

Note: The recorded holder will be required to verify expenditures claimed in this statement of costs within 30 days of a request for verification. If verification is not made, the Minister may reject for assessment work all or part of the assessment work submitted.

Note : Le titulaire enregistré sera tenu de vérifier les dépenses demandées dans le présent état des coûts dans les 30 jours suivant une demande à cet effet. Si la vérification n'est pas effectuée, le ministre peut rejeter tout ou une partie des travaux d'évaluation présentés.

Filing Discounts

1. Work filed within two years of completion is claimed at 100% of the above Total Value of Assessment Credit.
2. Work filed three, four or five years after completion is claimed at 50% of the above Total Value of Assessment Credit. See calculations below:

Total Value of Assessment Credit		Total Assessment Claimed
	× 0.50 =	

Remises pour dépôt

1. Les travaux déposés dans les deux ans suivant leur achèvement sont remboursés à 100 % de la valeur totale susmentionnée du crédit d'évaluation.
2. Les travaux déposés trois, quatre ou cinq ans après leur achèvement sont remboursés à 50 % de la valeur totale du crédit d'évaluation susmentionné. Voir les calculs ci-dessous.

Valeur totale du crédit d'évaluation		Évaluation totale demandée
	× 0,50 =	

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MINING LANDS BRANCH

Certification Verifying Statement of Costs

I hereby certify:
that the amounts shown are as accurate as possible and these costs were incurred while conducting assessment work on the lands shown on the accompanying Report of Work form.

that as ______________________ I am authorized
(Recorded Holder, [✓ Agent], Position in Company)

to make this certification

Attestation de l'état des coûts

J'atteste par la présente :
que les montants indiqués sont le plus exact possible et que ces dépenses ont été engagées pour effectuer les travaux d'évaluation sur les terrains indiqués dans la formule de rapport de travail ci-joint.

Et qu'à titre de ______________________ je suis autorisé
(titulaire enregistré, représentant, poste occupé dans la compagnie)

à faire cette attestation.

Signature	Date
	Feb 24/93

0212 (04/91)

Nota : Dans cette formule, lorsqu'il désigne des personnes, le masculin est utilisé au sens neutre

Ministry of
Northern Development
an[illegible]nes
)ntario

Report of Work Conducted Before Recording Claim

Mining Act

M.C.

Transaction Number
W9360.00035

ersonal information collected on this form is obtained under the authority of the Mining Act. This information will be used for correspondence. Questions about is collection should be directed to the Provincial Manager, Mining Lands, Ministry of Northern Development and Mines, Fourth Floor, 159 Cedar Street, udbury, Ontario, P3E 6A5, telephone (705) 670-7264.

nstructions:
- Please type or print and submit in duplicate.
- Refer to the Mining Act and Regulations for requirements of filing assessment work or consult the Mining Recorder.
- A separate copy of this form must be completed for each Work Group.
- Technical reports and maps must accompany this form in duplicate.
- A sketch, showing the claims the work is assigned to, must accompany this form.

ecorded Holder(s) Falconbridge Limited		Client No. 130679
ddress P.O. Box 1140, 571 Moneta Avenue, Timmins, ON, P4N 7H9		Telephone No. (705)267-1188
lining Division Porcupine	Township/Area Marion and Genoa	M or G Plan No. G-1174, G-1131

Dates Work Performed From: March 3, 1991 To: August 7, 1991

Vork Performed (Check One Work Group Only)

	Work Group	Type
‹	Regional Surveys	Helicopter-Borne Magnetic, Electomagnetic and VLF-EM
	Prospecting	

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MAR 1 9 1993
MINING LANDS BRANCH

otal Assessment Work Claimed on the Attached Statement of Costs $ 2,436.00

lote: The Minister may reject for assessment work credit all or part of the assessment work submitted if the recorded holder cannot verify expenditures claimed in the statement of costs within 30 days of a request for verification.

ersons and Survey Company Who Performed the Work (Give Name and Address of Author of Report)

Name	Address
Ian Johnston Aerodat Limited	3883 Nashua Drive Mississauga, ON, L4V 1R3

RECORDED
FEB 1 9 1993
Receipt

attach a schedule if necessary)

ertification of Beneficial Interest * See Note No. 1 on reverse side

I certify that at the time the work was performed, the claims covered in this work report were recorded in the current holder's name or held under a beneficial interest by the current recorded holder.	Date MAR 1 9 1993	Recorded Holder or Agent (Signature)

RECEIVED
MINING LANDS BRANCH

ertification of Work Report

I certify that I have a personal knowledge of the facts set forth in this work report, having performed the work or witnessed it during and/or after its completion, and the annexed report is true.

Name and Address of Person Certifying
Roman Sadzale
~~Jim Aultman~~ c/o Falconbridge Limited P.O. Box 1140, 571 Moneta Avenue, Timmins, ON, P4N 7H9

Telepone No. (705)267-1188	Date Feb 19/93	Certified By (Signature) R. Sadzale

or Office Use Only

Total Value Cr. Recorded $2,436.	Date Recorded FEB. 19/93	Mining Recorder D White	Received Stamp RECEIVED FEB 19 1993 HB (c) 1:35
	Deemed Approval Date MAY 20/93	Date Approved	
	Date Notice for Amendments Sent		

240 (03/91)

Claim Number	Number of Claim Units	Value of Work Done on Land Subsequently Staked as this Claim	Value Applied to this Claim			Value Assigned from this Claim	Reserve: Work to be Claimed at Future Date
			From Work Done on Land Subsequently Staked as this Claim	From the Allowable 25% of the Survey Costs from Adjacent Crown Land	Total Applied to this Claim		
P-11[illegible]516	4	$616.00	$616.00	$1,820.00	$2,436.00	0	0
	4	$616.00			$2,436.00	—	—
	Total Number of Claims	Total Value Work Done on Subsequently Staked Land			Total Applied	Total Assigned	Total Reserve

249 (03/91)

Credits you are claiming in this report may be cut back. In order to minimize the adverse effects of such deletions, please indicate from which claims you wish to priorize the deletion of credits. Please mark (✓) one of the following:

1. ☐ Credits are to be cut back starting with the claim listed last, working backwards.
2. ☒ Credits are to be cut back equally over all claims contained in this report of work.
3. ☐ Credits are to be cut back as priorized on the attached appendix.

In the event that you have not specified your choice of priority, option one will be implemented.

Note 1: Examples of beneficial interest are unrecorded transfers, option agreements, memorandum of agreements, etc., with respe to the mining claims.

Ministry of
Northern Development
and Mines
Ontario

Ministère du
Développement du Nord
et des mines

Statement of Costs for Assessment Credit
État des coûts aux fins du crédit d'évaluation

Mining Act/Loi sur les mines

Transaction No./N° de transaction
W9360.00025

Personal information collected on this form is obtained under the authority of the Mining Act. This information will be used to maintain a record and ongoing status of the mining claim(s). Questions about this collection should be directed to the Provincial Manager, Minings Lands, Ministry of Northern Development and Mines, 4th Floor, 159 Cedar Street, Sudbury, Ontario P3E 6A5, telephone (705) 670-7264.

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1. Direct Costs/Coûts directs

Type	Description	Amount Montant	Totals Total global
Wages Salaires	Labour Main-d'oeuvre		
	Field Supervision Supervision sur le terrain	$161.00	$161.00
Contractor's and Consultant's Fees Droits de l'entrepreneur et de l'expert-conseil	Type Airborne		
	Geophysics	$2,275.00	
			$2,275.00
Supplies Used Fournitures utilisées	Type		
Equipment Rental Location de matériel	Type		
		Total Direct Costs Total des coûts directs	$2,436.00

2. Indirect Costs/Coûts indirects

** Note: When claiming Rehabilitation work indirect costs are not allowable as assessment work.
Pour le remboursement des travaux de réhabilitation, les coûts indirects ne sont pas admissibles en tant que travaux d'évaluation.

Type	Description	Amount Montant	Totals Total global
Transportation Transport	Type		
Food and Lodging Nourriture et hébergement			
Mobilization and Demobilization Mobilisation et démobilisation			
		Sub Total of Indirect Costs Total partiel des coûts indirects	
		Amount Allowable (not greater than 20% of Direct Costs) Montant admissible (n'excédant pas 20 % des coûts directs)	
		Total Value of Assessment Credit (Total of Direct and Allowable Indirect costs) Valeur totale du crédit d'évaluation (Total des coûts directs et indirects admissibles)	

Note: The recorded holder will be required to verify expenditures claimed in this statement of costs within 30 days of a request for verification. If verification is not made, the Minister may reject for assessment work all or part of the assessment work submitted.

Note : Le titulaire enregistré sera tenu de vérifier les dépenses demandées dans le présent état des coûts dans les 30 jours suivant une demande à cet effet. Si la vérification n'est pas effectuée, le ministre peut rejeter tout ou une partie des travaux d'évaluation présentés.

Filing Discounts

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2. Work filed three, four or five years after completion is claimed at 50% of the above Total Value of Assessment Credit. See calculations below:

Total Value of Assessment Credit × 0.50 = Total Assessment Claimed

Remises pour dépôt

1. Les travaux déposés dans les deux ans suivant leur achèvement sont remboursés à 100 % de la valeur totale susmentionnée du crédit d'évaluation.
2. Les travaux déposés trois, quatre ou cinq ans après leur achèvement sont remboursés à 50 % de la valeur totale du crédit d'évaluation susmentionné. Voir les calculs ci-dessous.

Valeur totale du crédit d'évaluation × 0,50 = Évaluation totale demandée

RECEIVED
MAR 19 1993
MINING LANDS BRANCH

Certification Verifying Statement of Costs

I hereby certify:
that the amounts shown are as accurate as possible and these costs were incurred while conducting assessment work on the lands shown on the accompanying Report of Work form.

that as R. Gredzalc (Sr. Field Geologist) I am authorized
(Recorded Holder, Agent, Position in Company)

to make this certification

Attestation de l'état des coûts

J'atteste par la présente :
que les montants indiqués sont le plus exact possible et que ces dépenses ont été engagées pour effectuer les travaux d'évaluation sur les terrains indiqués dans la formule de rapport de travail ci-joint.

Et qu'à titre de ____________ je suis autorisé
(titulaire enregistré, représentant, poste occupé dans la compagnie)

à faire cette attestation.

Signature
Date Feb 21/93

0212 (04/91)

Nota : Dans cette formule, lorsqu'il désigne des personnes, le masculin est utilisé au sens neutre.

Ontario

Ministry of
Northern Development
and Mines

Ministère du
Développement du Nord
et des Mines

Geoscience Approvals Section
Mining Lands Branch
Willet Green Miller Centre
933 Ramsey Lake Road
6th Floor
Sudbury, Ontario
P3E 6B5

Telephone: (705) 670-5853
Fax: (705) 670-5863

Our File: 2.14949
Transaction #: W9360.00022
W9360.00023
W9360.00024

May 14, 1993

Mining Recorder
Ministry of Northern Development
and Mines
60 Wilson Avenue
1st Floor
Timmins, Ontario
P4N 2S7

Dear Sir:

RE: Approval of Assessment Work on mining claims P 568516 et al. in Marion and Genoa Townships.

The assessment credits for airborne geophysics, section 15 of the Mining Act Regulations, as listed on the original Report of Work, have been approved as of **May 5, 1993.**

Please indicate this approval on the claim record sheets.

If you have any questions please contact Dale Messenger at (705) 670-5858.

ONTARIO GEOLOGICAL SURVEY
GIS - ASSESSMENT FILES
JUN 22 1993
RECEIVED

Yours sincerely,

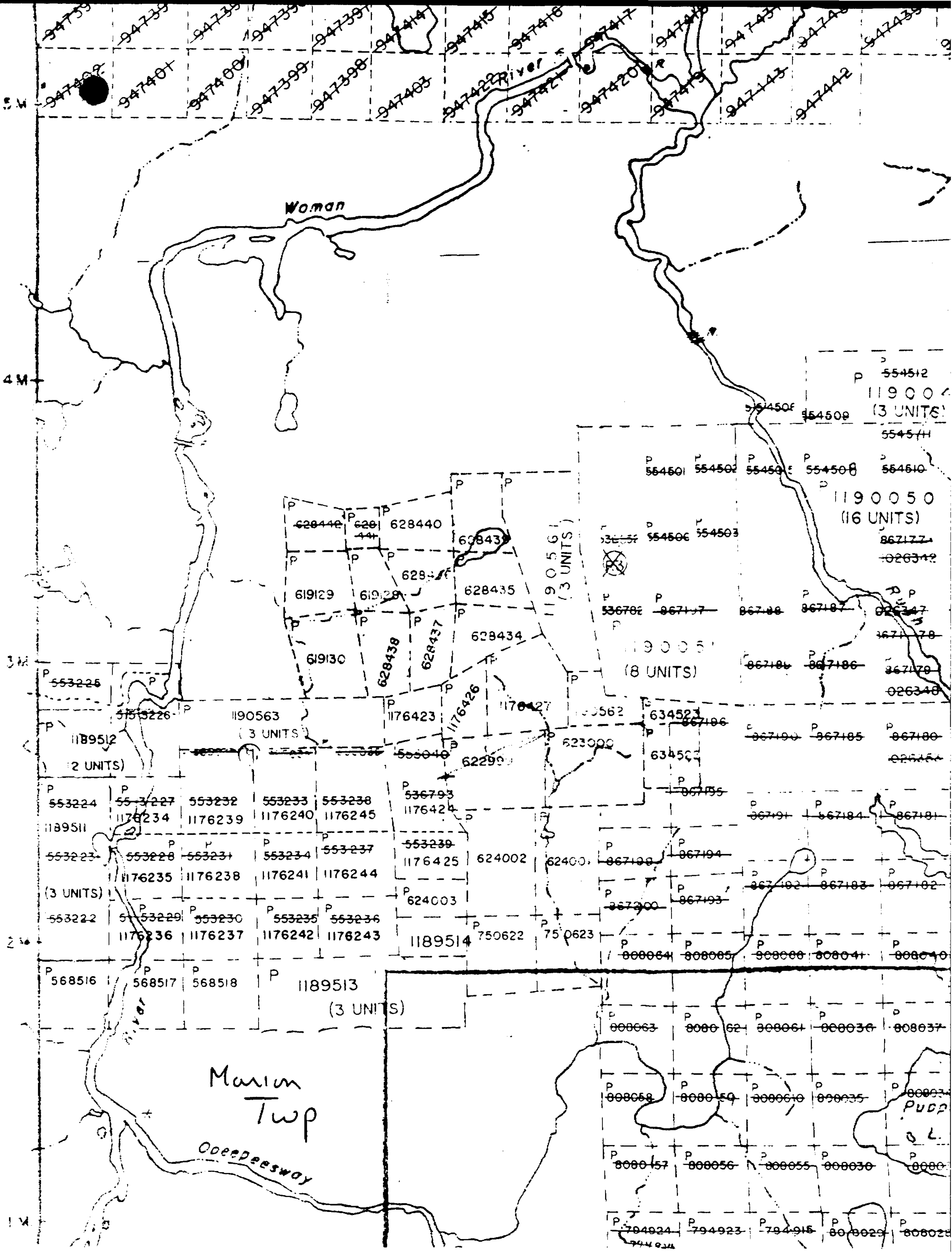
Blair Kite

Blair Kite
(Acting) Senior Manager, Mining Lands Branch
Mines and Minerals Division

DEM/jl
Enclosures:

cc: ✓Assessment Files Office
Toronto, Ontario

Resident Geologist
Timmins, Ontario



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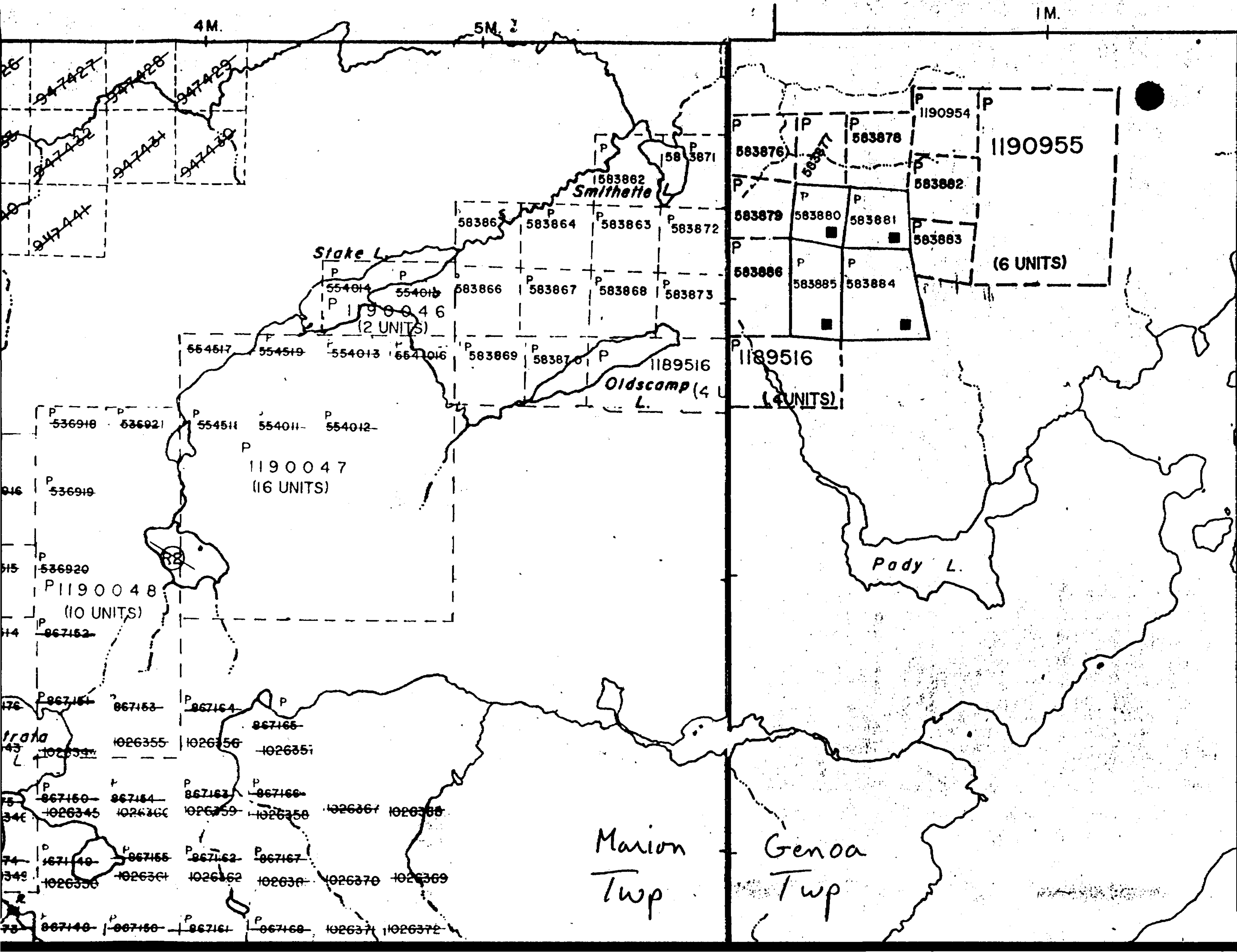
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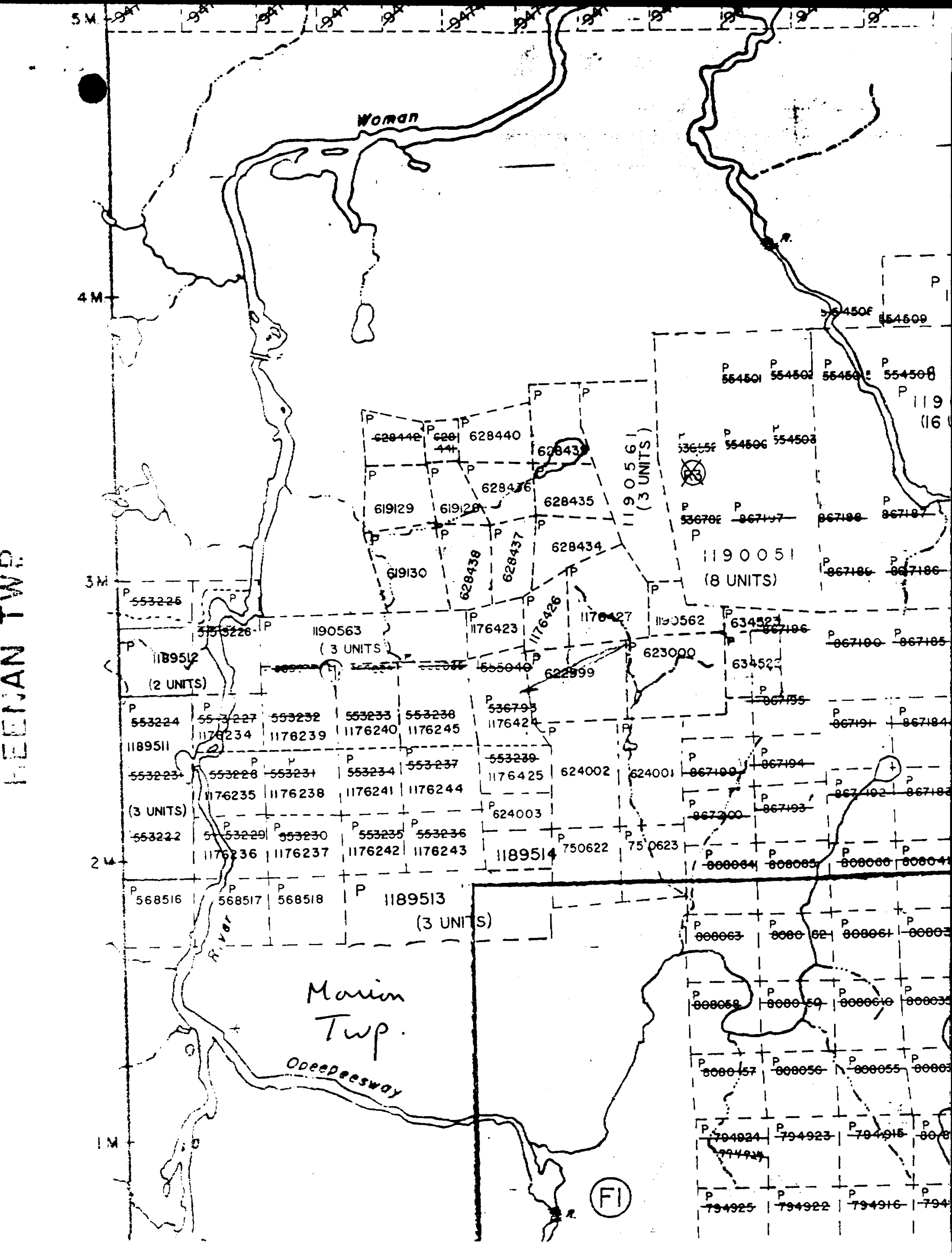
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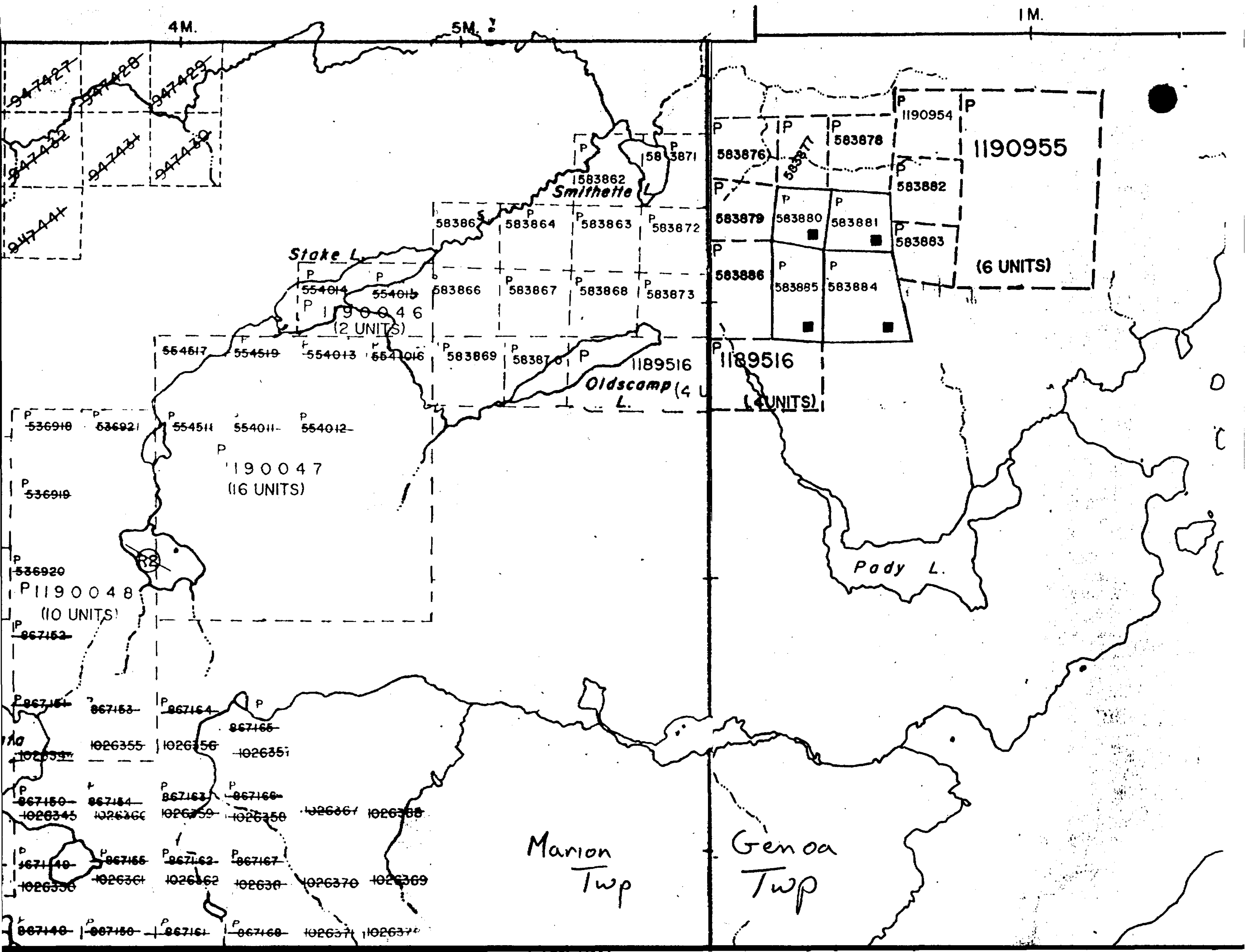

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[redacted]

AEROD

3
0

Falconbridge Limited
P.O. Box 1140
571 Moneta Avenue
Timmins, Ontario
P4N 7H9

Attention: Mr. Stan G. Clemmer

RECEIVED
MAR 19 1993
MINING LANDS BRANCH

In Account With:

Aerodat Limited
3883 Nashua Drive
Mississauga, Ontario
L4V 1R3

Re: Helicopterborne Geophysical Survey - Timmins area of Ontario

Pursuant to Schedule B - Payment Schedule (on completion of flying) of Agreement between Falconbridge Limited and Aerodat Limited dated January 14, 1991.

Amount Due	$90,000.00
GST (R100067024)	6,300.00
Total Amount Due	**$96,300.00**

SC SC

602-600-008-191 - ~~45%~~ ~~25%~~ 8 ~~23,647.00~~ Apr. 1 '91 22,100.00
602-600-008-186 - ~~45%~~ ~~65%~~ 8 ~~43,769.50~~ 40,950.00
Fripp 602-600-008-703 - ~~5%~~ 8 ~~10,432.50~~ 9,750.00
Genoa 602-600-008-668 - ~~5%~~ 8 ~~10,511.00~~ ✓ 17,300.00
90,000

MARION/GENOA AEM SURVEY - LINE KILOMETRES PER CLAIM

- Genoa grid = 118km
- Marion grid = <u>127km</u>

245km (100m lines)

Genoa claims

claim #	line kilometres	claim #	line kilometres
583876	1.40	583883	1.58
583877	1.25	583884	2.89
583878	1.66	583885	2.02
583879	1.28	583886	2.27
583880	1.04	1189516	2.54 (+ 4.25)
583881	1.17	1190954	1.64
583882	1.48	1190955	2.27

Marion claims

claim #	line kilometres	claim #	line kilometres
583862	1.69	583863	1.50
583864	1.58	583865	1.44
583866	1.58	583867	1.58
583868	1.51	583869	2.08
583870	1.96	583871	1.62

Marion claims - Block A - "Genoa"

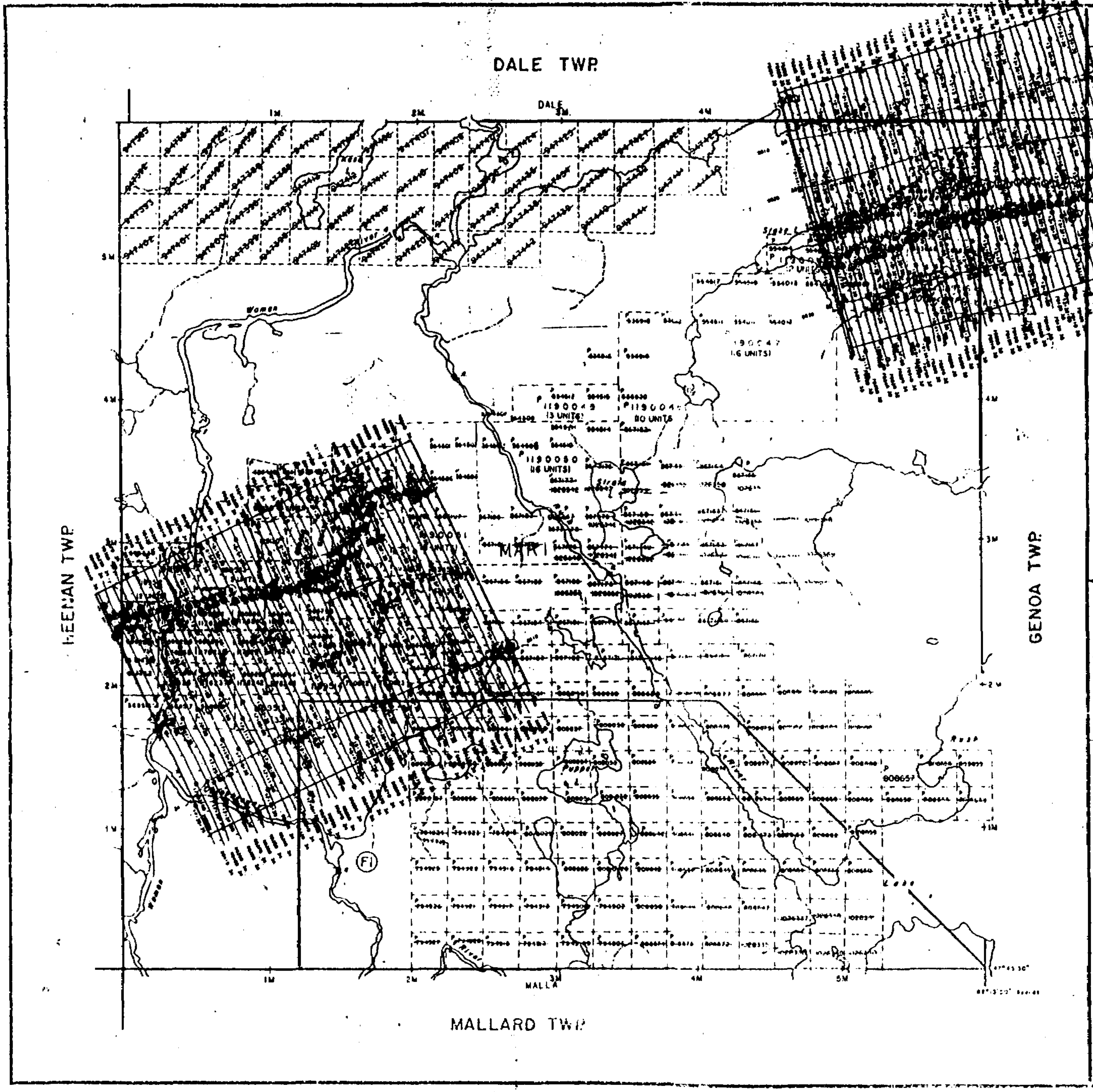
claim #	line kilometres	claim #	line kilometres
583872	1.58	583873	1.58
1189516	4.25	1190046	1.30
1190047	1.04		

Marion claims - Block B

claim #	line kilometres	claim #	line kilometres
568516	0.54	568517	1.62
568518	1.61	619128	0.66
619129	0.65	619130	1.91
622999	2.43	623000	2.53
624001	2.20	624002	2.46
624003	0.84	628434	1.27
628435	1.23	628436	1.25
628437	0.96	628438	1.33
628439	0.60	628440	0.34
634522	1.28	634523	0.40
750622	1.75	750623	1.58

Marion Block B (cont'd)

claim #	line kilometres	claim #	line kilometres
1176234	1.38	1176235	1.54
1176236	1.53	1176237	1.56
1176238	1.57	1176239	1.95
1176240	1.72	1176241	1.30
1176242	1.08	1176243	1.52
1176244	1.63	1176245	2.02
1176423	0.88	1176424	1.76
1176425	1.12	1176426	0.86
1176427	2.06	1189511	4.11
1189512	3.08	1189513	4.74
1189514	0.90	1190051	7.98
1190561	3.78	1190562	1.00
1190563	3.34		



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
[illegible]				

SCALE: 1 INCH = 40 CHAINS

LEGEND

PATENTED LAND	Ⓟ
CROWN LAND SALE	C.S.
LEASES	Ⓛ
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.	⊖
LAND USE PERMIT	

NOTES

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

(FI) THIS TWP. IS SUBJECT TO FOREST ACTIVITIES IN 1992/93 FURTHER INFORMATION AVAILABLE ON FILE.

TOWNSHIP

MARION

M.N.R. ADMINISTRATIVE DISTRICT

CHAPLEAU

MINING DIVISION

PORCUPINE

LAND TITLES / REGISTRY DIVISION

SUDBURY

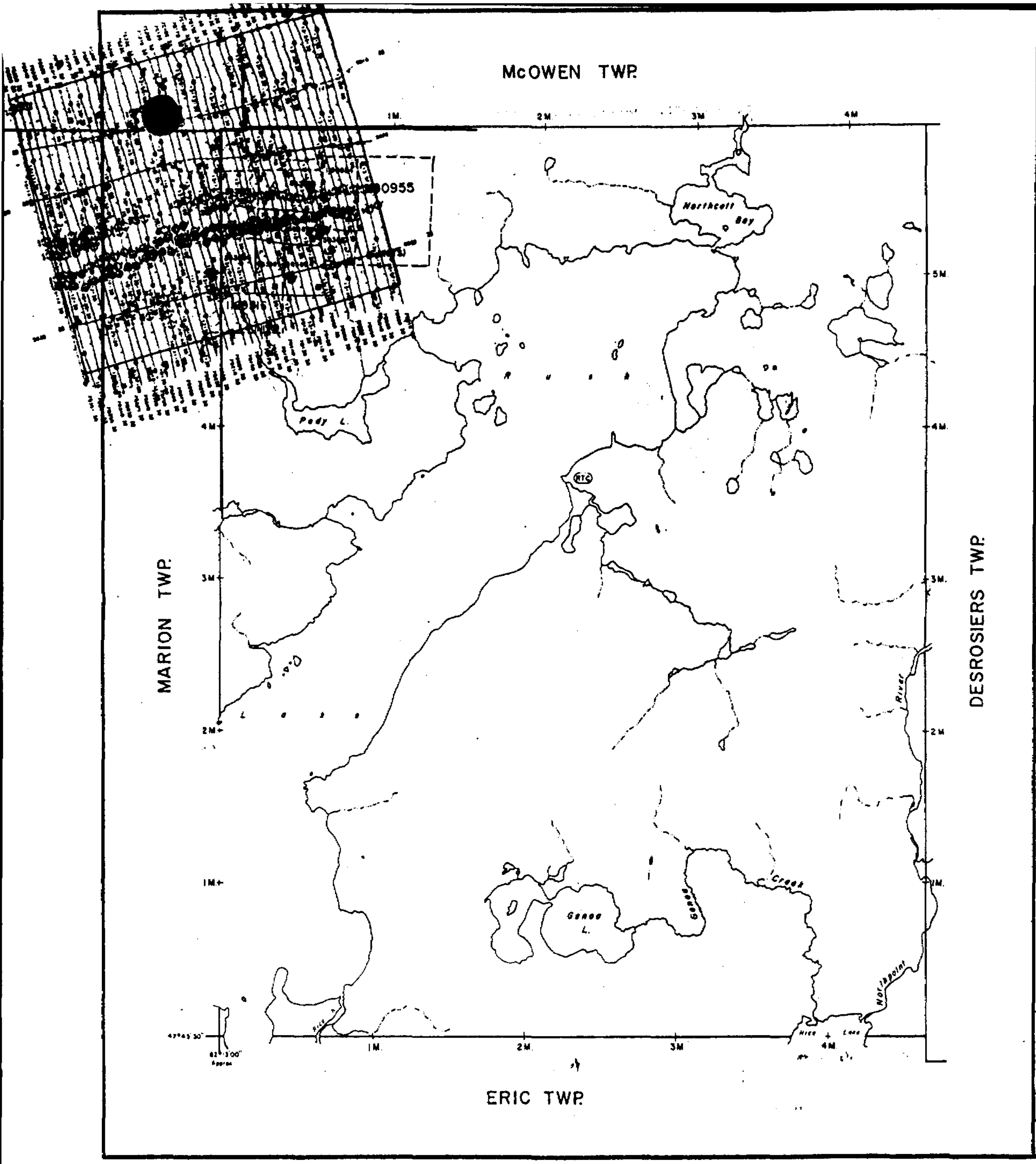
Ministry of Natural Resources

Ministry of Northern Development and Mines

Ontario

Date JULY 1956

Number G-1174



SCALE: 1 INCH = 40 CHAINS

LEGEND

PATENTED LAND	Ⓟ
CROWN LAND SALE	C.S.
LEASES	Ⓛ
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
LUP. LAND USE PERMIT	

RTC REMOTE TOURIST CAMPS

NOTES

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

LEASE, SURFACE & MINING RIGHTS ■

TOWNSHIP

GENOA

M.N.R. ADMINISTRATIVE DISTRICT

CHAPLEAU

MINING DIVISION

PORCUPINE

LAND TITLES / REGISTRY DIVISION

SUDBURY

Ministry of Natural Resources
Ontario

Ministry of Northern Development and Mines

Date
REVISED FEB 1990
ACTIVATED AUGUST 10, 1992
BY D.C.
CHECKED BY S.B.

Number
G-1131

AEROD

Falconbridge Limited
P.O. Box 1140
571 Moneta Avenue
Timmins, Ontario
P4N 7H9

Attention: Mr. Stan G. Clemmer

RECEIVED
MAR 1 9 1993
MINING LANDS BRANCH

In Account With:

Aerodat Limited
3883 Nashua Drive
Mississauga, Ontario
L4V 1R3

Re: Helicopterborne Geophysical Survey - Timmins area of Ontario

Pursuant to Schedule B - Payment Schedule (on completion of flying) of Agreement between Falconbridge Limited and Aerodat Limited dated January 14, 1991.

Amount Due	$90,000.00
GST (R100067024)	6,300.00
Total Amount Due	**$96,300.00**

SCE

SC

602-600-008-191 - ~~45%~~ ~~25%~~ 8 ~~23,647.00~~ Apr. 1 '91 22,100.00
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1176425	1.12	1176426	0.86
1176427	2.06	1189511	4.11
1189512	3.08	1189513	4.74
1189514	0.90	1190051	7.98
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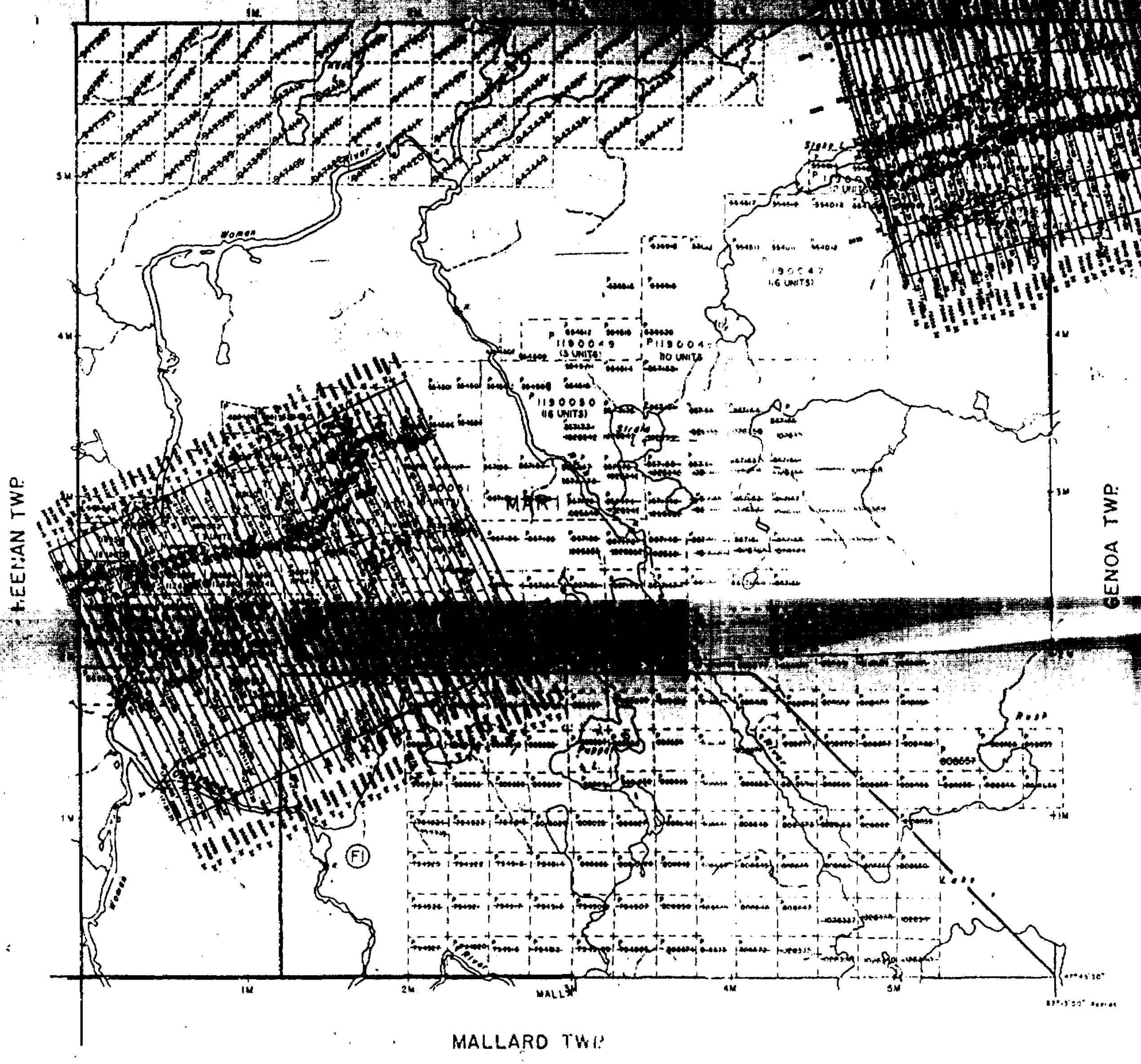
1190563	3.34		



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

SCALE: 1 INCH = 40 CHAINS

LEGEND

PATENTED LAND	Ⓟ
CROWN LAND SALE	C.S.
LEASES	Ⓛ
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.	
LAND USE PERMIT	

NOTES

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

(F1) THIS TWP. IS SUBJECT TO FOREST ACTIVITIES IN 1992/93. FURTHER INFORMATION AVAILABLE ON FILE.

(R2) MINING AND SURFACE RIGHTS RE-OPENED TO PROSPECTING, STAKING OUT, SALE AND LEASE UNDER SECTION 36 OF THE MINING ACT RSO 1990 EFFECTIVE 30-NOV-92 AT 7 AM E.S.T. ORDER NO. [illegible] DATED 30-OCT-92

TOWNSHIP

MARION

M.N.R. ADMINISTRATIVE DISTRICT

CHAPLEAU

(R) SURFACE AND MINING RIGHTS RE-OPENED TO PROSPECTING, STAKING OUT, SALE OR LEASE UNDER SECTION 35 OF THE MINING ACT, RSO 1990. EFFECTIVE [illegible] AT 7:00 AM E.S.T. ORDER NO. [illegible] DATED 28-APR-93

MINING DIVISION

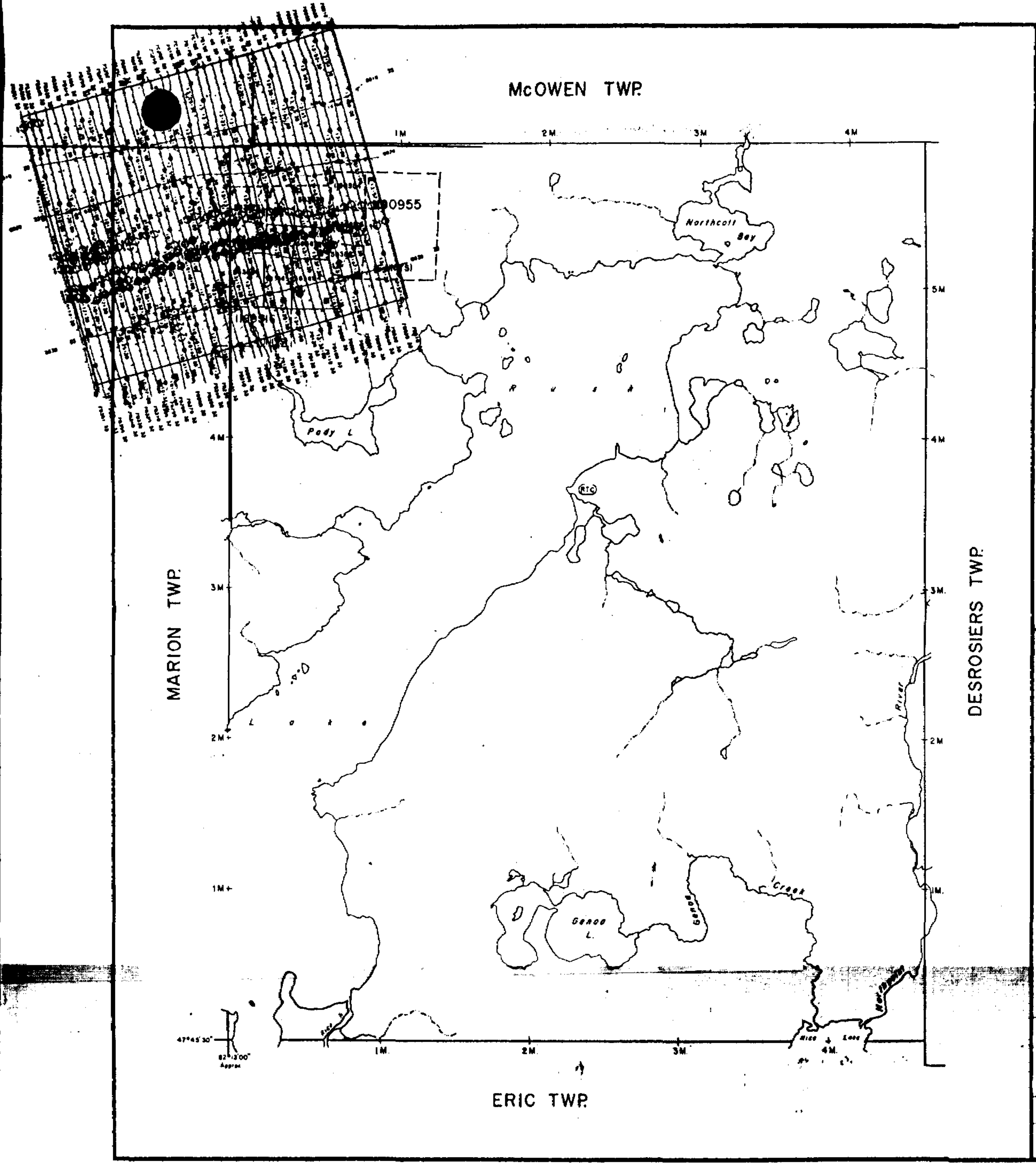
PORCUPINE

LAND TITLES / REGISTRY DIVISION

SUDBURY

Ministry of Natural Resources
Ministry of Northern Development and Mines
Ontario

Date	Number
JULY 1964	G-1174



SCALE: 1 INCH = 40 CHAINS

FEET 0 1000 2000 4000 6000 8000

METRES 0 200 1000 (1 KM) 2000 (2 KM)

LEGEND

PATENTED LAND	Ⓟ
CROWN LAND SALE	C.S
LEASES	Ⓛ
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
L.U.P. LAND USE PERMIT	

(RTC) REMOTE TOURIST CAMPS

NOTES

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

LEASE, SURFACE & MINING RIGHTS ■

TOWNSHIP

GENOA

M.N.R. ADMINISTRATIVE DISTRICT

CHAPLEAU

MINING DIVISION

PORCUPINE

LAND TITLES / REGISTRY DIVISION

SUDBURY

Ontario Ministry of Natural Resources Ministry of Northern Development and Mines

Date REVISED FEB. 1990

ACTIVATED AUGUST 18, 1992 BY D.C.

CHECKED BY B.B.

Number G-1131

AERODAT

2.1[illegible]49

VLF EM

MAGNETICS

RADIOMETRICS

INTERPRETATION

ELECTROMAGNETICS

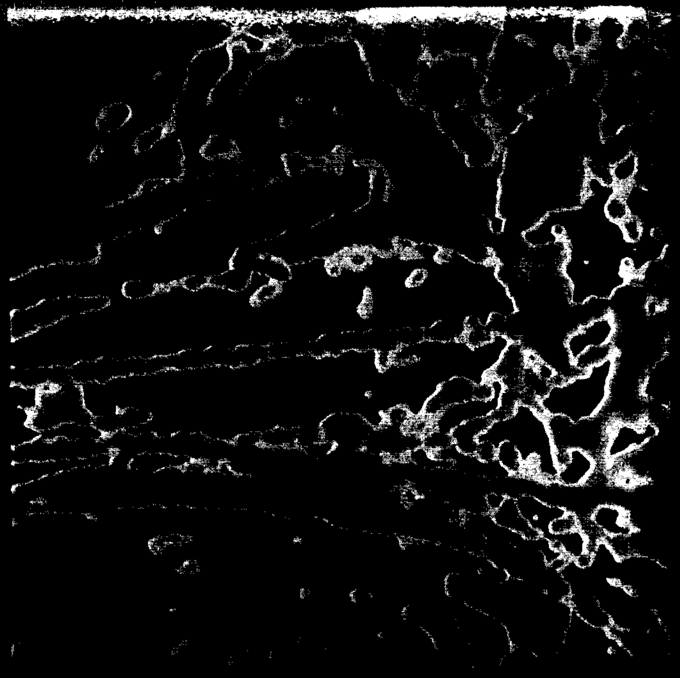
RESEARCH & DEVELOPMENT

ELECTRONIC POSITIONING

GRADIENT MAGNETICS

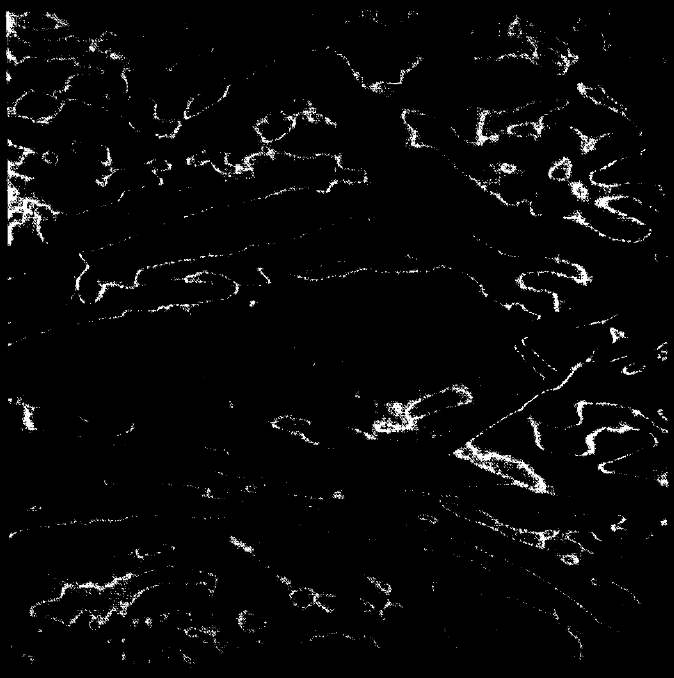
DATA PROCESSING

MAGNETIC VERTICAL GRADIENT



APPARENT RESISTIVITY

MAGNETIC TOTAL FIELD



VLF-EM TOTAL FIELD

The above map examples represent just some of the information collected by an Aerodat 3-frequency HEM / 2-frequency VLF-EM / magnetometer survey. The flight line spacing was 100 meters (1/16 mile) accurately controlled by a radar navigation system to a relative accuracy of about 5 meters. Such multisensor, low level, electronic navigation surveys map a variety of geophysical parameters with a resolution and sensitivity comparable to ground surveys at less cost and in shorter time. The above miniature maps each cover 100 square kilometers and contain 1000 line kilometers of geophysical information.

REPORT ON
COMBINED HELICOPTER-BORNE MAGNETIC, ELECTROMAGNETIC AND VLF-EM SURVEYS
GENOA TOWNSHIP CLAIMS
RUSH LAKE AREA, ONTARIO

FOR

FALCONBRIDGE LTD. - EXPLORATION
571 MONETA AVENUE, BOX 1140
TIMMINS, ONTARIO
P4N 7H9

BY

AERODAT LIMITED
3883 NASHUA DRIVE
MISSISSAUGA, ONTARIO
L4V 1R3
PHONE: 416 - 671-2446

August 7, 1991

2.14949

COPY

J9101G

Ian Johnson, Ph.D., P.Eng.
Consulting Geophysicist

TABLE OF CONTENTS

LIST OF MAPS

Maps are labelled according to scale, map type and sheet number. Map scales are 1:5,000 and 1:20,000. All map types are not necessarily presented at both scales. Details on map types, scales and map sheet layout are given in Section 4.

BLACK LINE MAPS:

Map Type	Description
1.	**BASE MAP;** screened topographic base map with township boundaries and UTM reference corners or grid.
2.	**FLIGHT PATH MAP;** photocombination of the base map with flight lines, and EM anomaly symbols.
3.	**COMPILATION/INTERPRETATION MAP;** with base map.
4.	**TOTAL FIELD MAGNETIC CONTOURS;** with base map.
5.	**VERTICAL MAGNETIC GRADIENT CONTOURS;** with base map.
6.	**APPARENT RESISTIVITY CONTOURS;** apparent resistivity calculated for the 935 Hz data, with base map.
7.	**VLF-EM TOTAL FIELD CONTOURS;** with base map.
8.	**HEM OFFSET PROFILES (935 Hz);** with base map and flight lines.

COLOUR MAPS:

1. **TOTAL FIELD MAGNETICS;** with superimposed contours and EM anomaly symbols.
2. **VERTICAL GRADIENT MAGNETICS;** with superimposed contours and EM anomaly symbols.
3. **APPARENT RESISTIVITY;** calculated for the 935 Hz data with superimposed contours and EM anomaly symbols.
4. **VLF-EM TOTAL FIELD;** with superimposed contours, fiducials and EM anomaly symbols.

5A. **HEM OFFSET PROFILES;** 935 Hz and 850 Hz data with flight lines and EM anomaly symbols.

5B. **HEM OFFSET PROFILES;** 4175 Hz and 4600 Hz data with flight lines and EM anomaly symbols.

DERIVATIVE COLOUR MAPS:

1-A. **TOTAL FIELD MAGNETICS SHADOW MAPS;** at illumination directions given by angle A.

REPORT ON
COMBINED HELICOPTER-BORNE
MAGNETIC, ELECTROMAGNETIC AND VLF-EM
SURVEYS, GENOA TOWNSHIP CLAIMS,
RUSH LAKE AREA, ONTARIO

1. INTRODUCTION

This report describes an airborne geophysical survey carried out on behalf of Falconbridge Limited - Exploration (Falconbridge) by Aerodat Limited under a contract dated January 4, 1991. Principal geophysical sensors included a four frequency electromagnetic system, a high sensitivity cesium vapour magnetometer and a two frequency VLF-EM system. Ancillary equipment included a radar ranging navigation system, a colour video tracking camera, a radar altimeter, a power line monitor and a base station magnetometer.

The survey was carried out over two areas centered in Marion Township and about 110 km southwest of Timmins. Part of one area is in Genoa Township, immediately east of Marion Township. The two areas are designated areas Marion East and Marion West. Marion East is immediately north west of Rush Lake and covers 10.5 square kilometres. Marion West is centered some 8 km southwest of area A and covers approximately 12 square kilometres. Total survey coverage was approximately 245 line kilometres (area A - 108 km traverse lines plus 10 km magnetic tie lines, area B - 123 km traverse lines plus 4 km magnetic tie lines). The flight line spacing was 100 m. The Aerodat job number is J9101G.

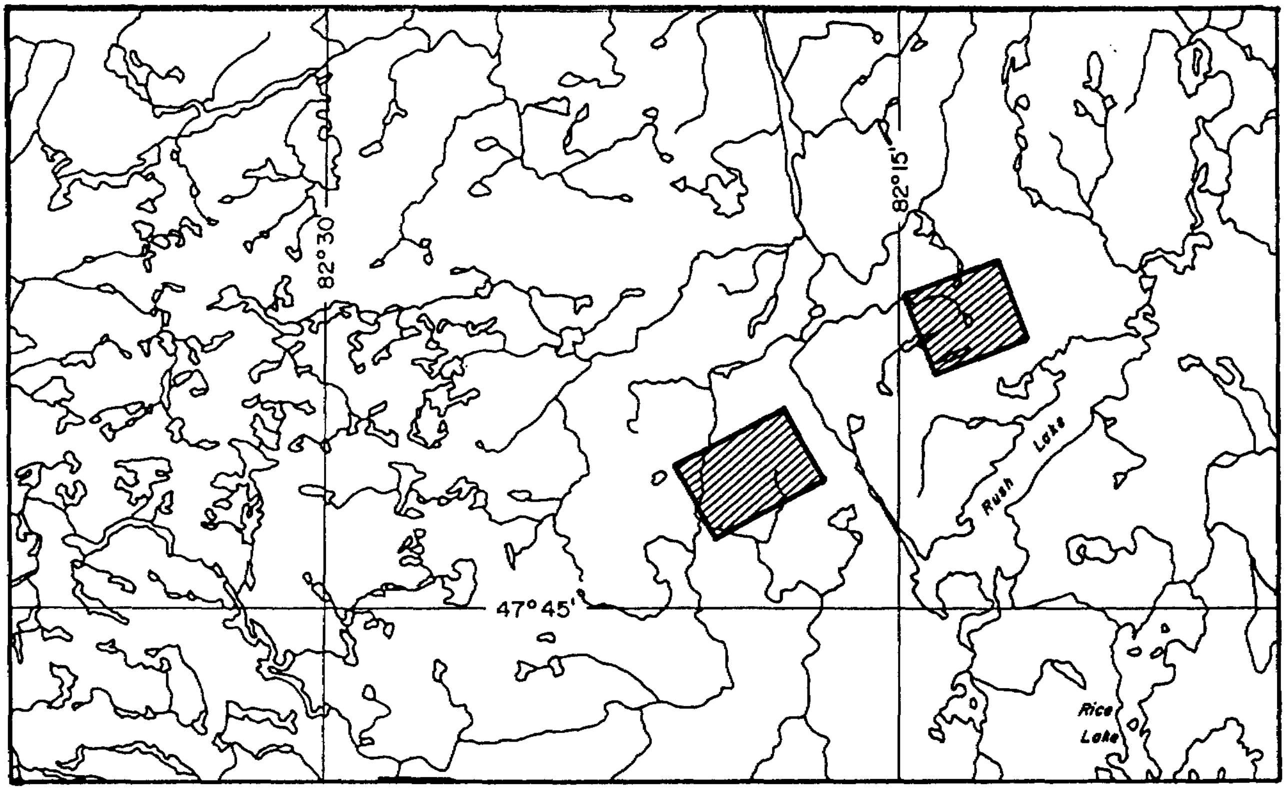
This report describes the survey, the data processing and the data presentation. Electromagnetic anomalies which are thought to be the response to bedrock conductors have been identified and appear on selected map products as EM anomaly symbols with interpreted source characteristics. Where EM and Magnetic results supported it, anomaly centers are joined to form conductor axes. Recommendations concerning areas with favourable geophysical characteristics are made with reference to a compilation/interpretation map.

2. SURVEY AREAS

The survey areas are centred some 110 km southwest of Timmins, Ontario. Area topography is shown on the 1:50,000 scale NTS map sheet - 41O/16 (Rush Lake).

Local relief is minimal - elevations are 1250 ±50 feet. The areas are free of major roads, powerlines, railroads, etc.

The survey areas are shown in the attached index map which includes local topography and latitude - longitude coordinates.



LOCATION MAP

HELICOPTERBORNE GEOPHYSICAL SURVEY
GENOA TOWNSHIP CLAIMS
RUSH LAKE AREA, ONTARIO

on behalf of
FALCONBRIDGE LIMITED - EXPLORATION

BY

AERODAT LIMITED
J9101G

The local magnetic field has an inclination of 76° and a declination of 8° west of north.

3. SURVEY PROCEDURES

The survey was flown on March 3, 1991. Principal personnel are listed in Appendix IV. Three (3) survey flights were required to complete the project.

The flight line spacing was 100 m. The flight line direction was approximately nnw/ssw for both areas. The aircraft ground speed was maintained at approximately 60 knots (30 metres per second). The nominal EM sensor height was 30 metres, consistent with the safety of the aircraft and crew.

Following equipment installation and testing, the ground based transponders of the radar ranging navigation system were installed at two or more sites or more near the survey area. The UTM coordinates of each site were taken from published 1:50,000 NTS maps. The base line (or line between transponders) was flown to determine their separation. The result is used to check the UTM coordinates assigned to each transponder.

The UTM coordinates of survey area corners were taken from maps provided by Falconbridge. These coordinates are used to program the navigation system. A test flight was used to confirm that area coverage would be as required.

Thereafter the traverse lines are flown under the guidance of the navigation system. The operator entered manual fiducials over prominent topographic features as seen on a 1:10,000 scale topographic map - a 5 times photographic enlargement of the 1:50,000 scale NTS sheet. Survey lines which showed excessive deviation were re-flown.

The magnetic tie lines were flown using visual navigation in areas of low topographic and magnetic relief. Aircraft position was taken from the navigation system. Three magnetic tie lines were flown in Marion East. One magnetic tie line was flown in Marion West.

Calibration lines are flown at the start, middle (if required) and end of every survey flight. These lines are flown outside of ground effects to record electromagnetic zero levels.

4. DELIVERABLES

The results of the survey are presented in a report plus maps. The report is presented in four copies. Folded white print copies of the 1:20,000 scale black line maps are bound with the report.

The black line maps are delivered as cronaflex (or clear acetate) originals. The colour maps are delivered in four copies. The shadow maps are delivered in two copies. All maps are rolled and delivered in map tube(s).

A full list of all map types is given at the beginning of this report. A summary is given here.

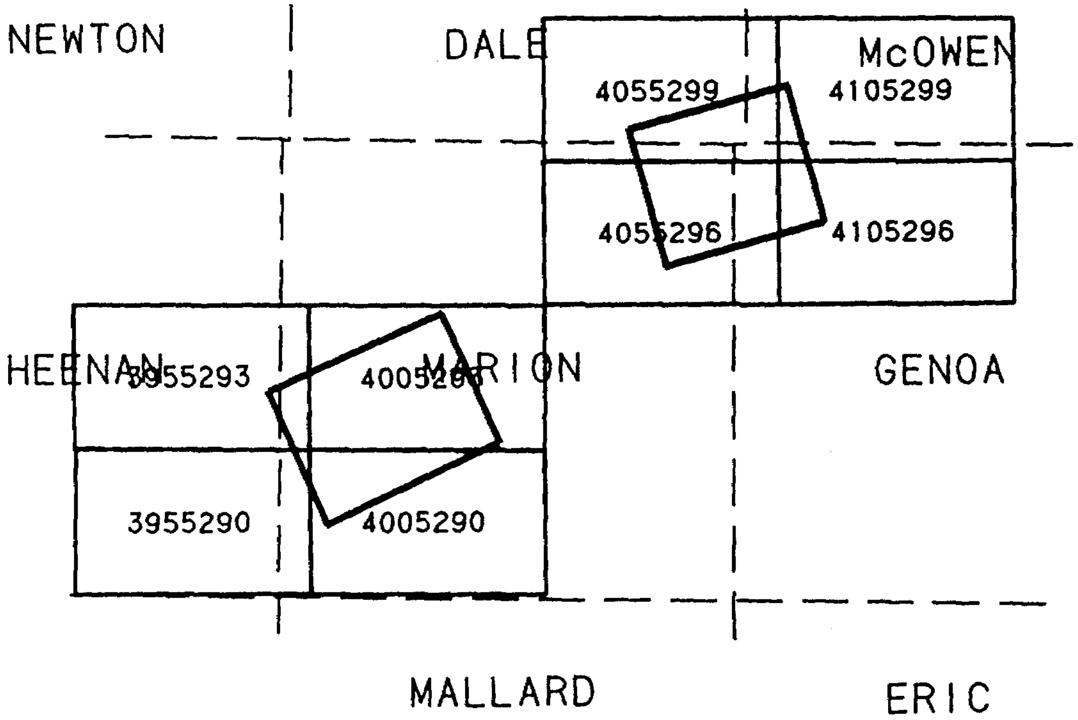
MAP TYPE	DESCRIPTION
1	Base Map (Black line)
2	Flight Path Map (Black line)
3	Compilation/Interpretation Map (Black line)
4	Total Magnetic Field Contours (Black line)
5	Vertical Magnetic Gradient Contours (Black line)
6	Apparent Resistivity - 935 Hz (Black line)
7	VLF-EM Total Field Contours (Black line)
8	HEM Offset Profiles - 935 Hz (Black line)
1	Total Magnetic Field Contours (Colour)
2	Vertical Magnetic Gradient Contours (Colour
3	Apparent Resistivity Contours - 935 Hz - (Colour)
4	VLF-EM Total Field Contours (Colour)
5A	HEM Offset Profiles - (935 & 850 Hz) (Colour)
5B	HEM Offset Profiles - (4175 & 4600 Hz) (Colour)
1A	Total Field Magnetic Shadow Maps (Colour)

Black line map scales are as follows:

MAP TYPE	1:5,000	1:20,000
1	X	X
2	X	X
3	X	X
4	X	X
5	X	X
6		X
7		X
8		X

All maps, except type 2 (flight path map with anomaly centers), are presented on cronaflex. All type 2 maps are presented on clear acetate.

The colour and shadow maps are presented at the following scales:



MAP SHEET LAYOUT
1:50,000 SCALE
HELICOPTERBORNE GEOPHYSICAL SURVEY
GENOA TOWNSHIP CLAIMS

on behalf of
FALCONBRIDGE LIMITED - EXPLORATION

BY

AERODAT LIMITED
J9101G

MAP TYPE	1:5,000	1:20,000
1	X	X
2	X	X
3		X
4		X
5(A&B)	X	
1-A		X

The 1:20,000 scale maps are presented on one map sheet - both areas. These maps show township boundaries and major topographic features. The 1:5,000 scale maps are presented on eight map sheets. The map sheet layout for the 1:5,000 scale maps is shown in the attached figure.

Each 1:5,000 scale map sheet covers an area of 5000 m (east-west) by 3000 m (north-south). Map sheet boundaries are lines of equal UTM grid eastings and northings. Map sheets are labelled using a 7 number code. The first three numbers indicate the UTM easting (in kilometres) of the western boundary of the sheet. The last four numbers indicate the UTM northing (in kilometres) of the southern boundary of the sheet. The 1:5,000 scale map sheet number 4055296 for example covers the area given by

UTM Eastings from 405000 to 410000
UTM Northings from 5296000 to 5199000

The 5,000 scale maps show local topography and a 1 km square UTM grid. A total of eight 1:5,000 scale maps were needed to cover the survey area.

The processed digital data is organized on 9 track archive tape. Both the profile and the gridded data are saved on tape. A full description of the archive tape(s) is delivered with the tape(s).

All gridded data are also provided on diskettes suitable for displaying on IBM compatible 286 or 386 microcomputers using the Aerodat RTI software package.

The Aerodat RTI (Real Time Imaging) program for displaying the gridded data sets from the survey is delivered to Falconbridge.

5. AIRCRAFT AND EQUIPMENT

5.1 Aircraft

An Astar 350B helicopter, (C-GJIX), owned and operated by Questral Helicopters, was used for the survey. Installation of the geophysical and ancillary equipment was carried out by Aerodat. The survey aircraft was flown at a mean terrain clearance of 60 metres.

5.2 Electromagnetic System

The electromagnetic system was an Aerodat 4-frequency system. Two vertical coaxial coil pairs were operated at 935 Hz and 4,600 Hz and two horizontal coplanar coil pairs at 850 Hz and 4,175 Hz. The transmitter-receiver separation was 7 metres. Inphase and quadrature signals were measured simultaneously for the 4 frequencies with a time constant of 0.1 seconds. The HEM bird was towed 30 metres below the helicopter.

5.3 VLF-EM System

The VLF-EM System was a Herz Totem 2A. This instrument measures the total field and vertical quadrature components of two selected frequencies. The sensor was towed in a bird 15 metres below the helicopter.

VLF transmitters are designated "Line" and "Ortho". The line station is that which is in a direction from the survey area which is ideally normal to the flight line direction. This is the VLF station most often used because of optimal coupling with near vertical conductors running perpendicular to the flight line direction. The ortho station is ideally 90 degrees in azimuth away from the line station.

The transmitters used were NAA, Cutler, Maine broadcasting at 24.0 kHz and NSS, Annapolis, Maryland broadcasting at 21.4 kHz. NAA (24.0 kHz) was used as the line station and NSS (21.4 kHz) was used as the ortho station. Cutler is some 20° south of east from the survey areas.

5.4 Magnetometer

The magnetometer employed was a Scintrex H8 cesium, optically pumped magnetometer sensor. The sensitivity of this instrument is 0.001 nanoTeslas at a 0.2 second sampling rate. The sensor was towed in a bird 15 metres below the helicopter.

5.5 Ancillary Systems

Base Station Magnetometer

An IFG-2 proton precession magnetometer was operated at the base of operations to record diurnal variations of the earth's magnetic field. The clock of the base station was synchronized with that of the airborne system to facilitate later correlation. Recording resolution was 1 nT. The update rate was 4 seconds.

External magnetic field variations were recorded on a 3" wide paper chart and on diskette.

The analog record shows the magnetic field trace plotted on a grid. Each division of the grid (0.25") is equivalent to 1 minute (chart speed) or 5 nT (vertical sensitivity). The date, time and current total field magnetic value are printed every 10 minutes.

Radar Altimeter

A King KRA-10 radar altimeter was used to record terrain clearance. The output from the instrument is a linear function of altitude.

Tracking Camera

A Panasonic colour video camera was used to record flight path on VHS video tape. The camera was operated in continuous mode. The flight number, 24 hour clock time (to .01 second), and manual fiducial number are encoded on the video tape.

Radar Ranging Navigation System

A Motorola Miniranger III positioning system was used to guide the pilot over a programmed grid. The ranges to at least two ground stations were digitally recorded. The output sampling rate is 1 second. Ranges are recorded with a resolution of 0.1 m.

Analog Recorder

A RMS dot matrix recorder was used to display the data during the survey. Record contents are as follows:

Label	Contents	Scale
GEOPHYSICAL SENSOR DATA		
MAGF	Total Field Magnetics, Fine	2.5 nT/mm
MAGC	Total Field Magnetics, Course	25 nT/mm
VLT	VLF-EM, Total Field, Line Station	2.5 %/mm
VLQ	VLF-EM, Vertical Quadrature, Line Station	2.5 %/mm
VOT	VLF-EM, Total Field, Ortho Station	2.5 %/mm
VOQ	VLF-EM, Vertical Quadrature, Ortho Station	2.5 %/mm
X09I	935 Hz, Coaxial, Inphase	2.5 ppm/mm
X09Q	935 Hz, Coaxial, Quadrature	2.5 ppm/mm
X4KI	4600 Hz, Coaxial, Inphase	2.5 ppm/mm
X4KQ	4600 Hz, Coaxial, Quadrature	2.5 ppm/mm
P09I	850 Hz, Coplanar, Inphase	5 ppm/mm
P09Q	850 Hz, Coplanar, Quadrature	5 ppm/mm
P4KI	4175 Hz, Coplanar, Inphase	10 ppm/mm
P4KQ	4175 Hz, Coplanar, Quadrature	10 ppm/mm

ANCILLARY DATA

RALT	Radar Altimeter	10 ft/mm
PWRL	60 Hz Power Line Monitor	-

The zero of the radar altimeter is 5 cm (5 large divisions) from the top of the analog chart. The full analog range for the radar altimeter is therefore 500 feet. A flying height of 60 m (197 feet) gives an analog trace which is three large divisions (3 cm) below the top of the analog record.

All but the VLF data are shown on the analog records as positive up. The VLF channels are reversed - positive anomalies are seen as downward excursion and negative anomalies are seen as upward excursions.

Chart speed is 2 mm/second. The 24 hour clock time is printed every 20 seconds. The total magnetic field value is printed every 30 seconds. The ranges from the radar navigation system are printed every minute.

Vertical lines crossing the record are operator activated manual fiducial markers. The start of any survey line is identified by two closely spaced manual fiducials. The end of any survey line is identified by three closely spaced manual fiducials. Manual fiducials are numbered in order. Every tenth manual fiducial is indicated by its number, printed at the bottom of the record.

Calibration sequences are located at the start and end of each flight and at intermediate times where needed.

Digital Recorder

A DGR-33 data system recorded the digital survey data on magnetic media. Contents and update rates were as follows:

DATA TYPE	**SAMPLING**	**RESOLUTION**
Magnetometer	0.2 s	0.001 nT
VLF-EM (4 Channels)	0.2 s	0.03 %
HEM (8 Channels)	0.1 s	0.03 ppm (coaxial), 0.06 ppm (coplanar)
Position (2 Channels)	0.2 s	0.1 m
Altimeter	0.2 s	0.05 m
Power Line Monitor	0.2 s	-
Manual Fiducial		
Clock Time		

6. DATA PROCESSING AND PRESENTATION

6.1 Base Map

The 1:20,000 scale base maps were prepared from 1:20,000 scale maps of township boundaries provided by Falconbridge. Local topography - a 2.5 times enlargement of the 1:50,000 scale NTS sheet - was added. The 1:5,000 scale base maps were made as a ten times photographic enlargement of the 1:50,000 scale NTS map sheet.

6.2 Flight Path Map

The flight path is drawn using linear interpolation between x,y positions from the navigation system. These positions are updated every second (or about 6mm at a scale of 1:5,000). These positions are expressed as UTM eastings (x) and UTM northings (y).

The manual fiducials are shown as a small circle and labelled by fiducial number. The 24 hour clock time is shown as a small square, plotted every 30 seconds. Small tick marks are plotted every 2 seconds. Larger tick marks are plotted every 10 seconds.

The block, line and flight numbers are given at the start and end of each survey line. The number 70340 32 indicates area A (block 7), line 34, flight 32. For area B, the block number is 8. The high block and flight numbers are due to the fact that this survey followed a larger project for Falconbridge which was done under the same Aerodat job number.

The flight path map is registered to the base map by matching UTM coordinates from the base maps and the flight path record. The match is confirmed by checking the position of prominent topographic features as recorded by manual fiducial marks or as seen on the flight path video record.

6.3 Electromagnetic Survey Data

The electromagnetic data were recorded digitally at a sample rate of 10 per second with a time constant of 0.1 seconds. A two stage digital filtering process was carried out to reject major sferic events and the reduce system noise.

Local sferic activity can produce sharp, large amplitude events that cannot be removed by conventional filtering procedures. Smoothing or stacking will reduce their amplitude but leave a broader residual response that can be confused with geological phenomena. To avoid this possibility, a computer algorithm searches out and rejects the major sferic events.

The signal to noise ratio was further enhanced by the application of a low pass digital filter. This filter has zero phase shift which prevents any lag or peak displacement from occurring, and it suppresses only variations with a wavelength less than about 0.25 seconds. This low effective time constant gives minimal profile distortion.

Following the filtering process, a base level correction was made using EM zero levels determined during high altitude calibration sequences. The correction applied is a linear function of time that ensures the corrected amplitude of the various inphase and quadrature components is zero when no conductive or permeable source is present. The filtered and levelled data were used in the determination of apparent resistivity (see below).

The HEM offset profiles are plotted at vertical scales of 2 ppm/mm (935 and 4600 Hz) and 8 ppm/mm (850 and 4175 Hz).

6.4 Total Field Magnetics

The aeromagnetic data were corrected for diurnal variations by adjustment with the recorded base station magnetic values. Where needed, the magnetic tie line results were used to further level the magnetic data. No corrections for regional variations were applied. The corrected profile data were interpolated on to a regular grid using an Akima spline technique. The grid provided the basis for threading the presented contours. The minimum contour interval is 2 nT. Grid cell sizes of 25 m (1:20,000 scale maps) and 10 m (1:5,000 scale maps) were used.

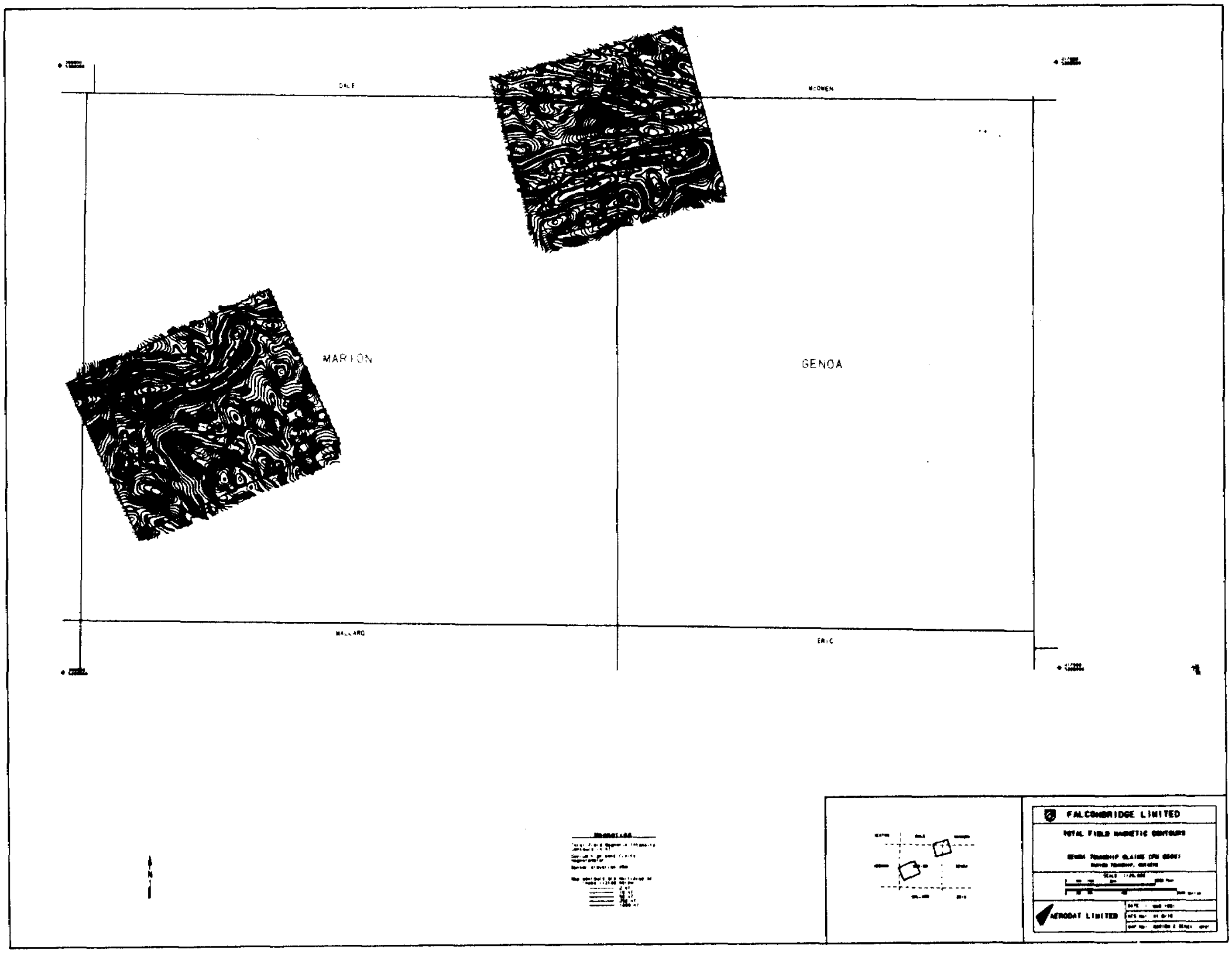
A page size copy of the 1:20,000 scale black line contoured total magnetic field map is attached.

6.5 Vertical Magnetic Gradient

The vertical magnetic gradient was calculated from the gridded total field magnetic data. The calculation is based on a 17 x 17 point convolution in the space domain. The results are contoured using a minimum contour interval of 0.2 nT/m. Grid cell sizes are the same as those used in processing the total field data.

6.6 Apparent Resistivity

The apparent resistivity is calculated by assuming a 200 metre thick conductive layer over resistive bedrock. The computer determines the resistivity that would be consistent with the sensor elevation and recorded inphase and quadrature response amplitudes at the selected frequency. The apparent resistivity profile data were interpolated onto a regular grid at a 25 metres (or 10 metres) true scale interval using an Akima spline technique and contoured using logarithmically arranged contour intervals. The contour interval is 0.1 log(ohm.m). This translates to contour lines at 100, 126, 158, 200, 251, 316, 398, 501, 631 and 794 ohm.m and multiples of 10. Thicker contour lines are used for 100 and 316 ohm.m and multiples of 10.


DALE
McOWEN
MARION
GENOA
MALLARD
ERIC
N
FALCONBRIDGE LIMITED
TOTAL FIELD MAGNETIC CONTOURS
AERODAT LIMITED

The highest measurable resistivity is approximately equal to the transmitter frequency. The lower limit on resistivity is rarely encountered.

6.7 VLF-EM

The VLF Total Field data from the Line Station is levelled such that a response of 0% is seen in non-anomalous regions. The corrected profile data are interpolated onto a regular grid using an Akima spline technique. The grid provided the basis for threading the presented contours. The minimum contour interval is 0.5 %. Grid cell size is 25 m (or 10 m).

7. INTERPRETATION

7.1 Area Geology

The following notes have been taken from Ontario Division of Mines, Geoscience Report 157, "Geology of the Chapleau Area, Districts of Algoma, Sudbury and Cochrane", 1977 by P.C. Thurston, G.M. Siragusa and R.P. Sage. Additional information has been taken from ODM Map number 2067 which shows the geology of Heenan, Marion and Genoa Townships at a scale of 1" = 1/2 mile.

* In Marion and Heenan Townships, felsic to intermediate metavolcanics form a wedge-shaped unit some 16 km long and up to 5 km wide. It has an estimated maximum stratigraphic thickness of 3 km.

* This felsic to intermediate metavolcanic unit is bordered on the southeast by younger granitic and dioritic rocks and on the northwest by the Woman River Iron Formation and overlying metavolcanics of intermediate to mafic composition.

* The iron formation and adjoining metavolcanics (felsic to the southeast and mafic to the northwest) lie along the northwest linb of the Woman River anticline.

* The occurrence of iron formation in a zone of transition from felsic to mafic volcanics, the presence of massive base metal sulphides in the iron formation and the association of these features with a major fold present a picture which is unique within the map area.

* The Woman River iron formation consists of thin bands intercalated with metavolcanics. Typically, oxide-facies iron formation consists of interbedded magnetite layers, chert and pyritic graphitic slate. Occurrences of sulphide minerals (pyrite, pyrrhotite and rare sphalerite), along with disseminated magnetite are sporadic and not extensive.

The Woman River Iron Formation is seen on the GSC Aeromagnetic map (7077G) as a long arcuate magnetic anomaly with peak amplitudes more than 2000 nT. This anomaly crosses through the northern part of Genoa Township, curves to the southwest through Marion Township, ending in the southeast corner of Heenan Township for a total strike length of over 20 km. The survey areas are centered over 3.5 and 4 km segments of this iron formation.

Area geology maps show nnw/sse trending regional faults and diabase dykes.

7.2 Exploration Target

The following notes have been taken from ODM Geoscience Report 157 cited above.

* The iron formation of Genoa, Heenan and Marion Townships has been intermittently examined for iron and base metals since shortly after 1900. This formation consists of two or more parallel bands composed of magnetite, siderite, chert, pyrite and pyrrhotite and contains local concentrations of base metal sulphides.

* there is a change in the iron formation facies from west to east. Oxide facies dominate in the west and sulphide facies dominate in the east. A vertical transition is also present - the iron formation gradually changes from siliceous magnetite - siderite at the base to light grey banded chert having negligible iron content at the top of the formation.

* initial mineral exploration for iron in Heenan, Marion and Genoa Townships over the Woman River Iron Range was conducted prior to 1910. This activity failed to indicate an iron deposit of economic importance but some base metal mineralization was uncovered. Exploration for iron along this belt remained dormant until the early 1960's. Indicated reserves are about 5 million tons of ore grading nearly 40% iron.

A Lead-Zinc occurrence in the northwest corner of Genoa Township is shown on the 1" = 1/2 mile geology map - 2067. The ODM Geoscience Report Number 157 shows this to be an active base metals exploration are beginning in 1929. Reported mineral occurrences have been pyrite, pyrrhotite, chalcopyrite, galena, sphalerite, bornite, magnetite and graphite.

Most of the Woman River Iron Formation is shown as being covered by surveyed mining properties.

The purpose of the helicopter-borne geophysical survey was to define the airborne geophysical character of the iron formation in as much detail as is currently possible and to suggest possible base metals targets.

7.3 EM Anomaly Selection and Analysis

A. Anomaly Selection

The purpose of EM anomaly selection is to identify possible bedrock conductors. The principal characteristic for most anomalies picked is a positive anomaly in the 935 Hz inphase channel with a coincident low in the 850 Hz inphase channel. The same behaviour in the 935/850 Hz quadrature channels, the 4600/4175 Hz inphase and/or quadrature channels will support picking a weak 935 Hz inphase anomaly or may be used in some cases as selection criteria on their own.

These criteria reject EM anomalies due to gradual changes in overburden thickness or resistivity. For such anomalies, the coaxial and coplanar channels (either inphase or quadrature) for the same operating frequency move together and no separation is seen. This information is best seen in the contour plan maps of apparent resistivity.

The width of an anomaly from a thin sheet conductor will depend principally on depth of burial, dip and orientation with respect to flight line direction. A near vertical conductor running normal to the flight lines will yield a coaxial EM anomaly whose width is about 2.5 times the source-sensor separation (measured from 20% of the anomaly peak). The anomaly from such conductors at surface is about 80 m (4 mm at 1:20,000 or 1.6 cm at 1:5,000). The comparable figures for a conductor under 50 m of overburden is 220 m (1.1 cm at 1:20,000 or 4.4 cm at 1:5,000).

Special care is taken in areas of negative inphase response (due to magnetite). The quadrature channels may be the only indicators of a coincident conductor.

EM anomalies due to cultural sources are so judged if there is a coincident response in the power line monitor as seen on the analog records. If present, they are shown on maps as open squares. Conductance range estimates and inphase response amplitudes are not plotted with the anomaly symbol.

B. Analysis

The EM anomaly response amplitudes at 935 Hz are used to determine the conductance and depth of burial of a vertical thin sheet conductor model. These data appear in Appendix II.

The inphase anomaly amplitude and the thin sheet conductance range as determined from the 935 Hz response amplitudes are shown with the plotted anomaly symbols. Each anomaly is identified by flight line number and letter label.

Where the 935 and/or 850 Hz inphase channels are clearly negative, an "M" is printed inside the anomaly symbol and MAGN is shown in the anomaly listings.

Conductance estimates are only valid when working with sufficient anomaly amplitudes. Where the anomaly has been picked from the 4600 and 4175 Hz responses and there is no clear 935 Hz inphase anomaly, the conductance estimates derived from the 935 Hz responses are unreliable. The true conductance is probably quite low however (i.e. less than 1 mho) and in a range where conductance differences are not distinguishable.

Conductive overburden will generally reduce thin sheet conductance estimates because of elevated background levels in the quadrature channels. Depth of burial estimates will in general be too small.

7.4 General Comments

EM

Both survey areas show generally high resistivities - greater than 5000 ohm-m. Relatively thin and/or non-conducting overburden is indicated. Away from the obvious bedrock conductors in the Woman River Iron Formation, the exception is the southwest corner of Marion West - apparent resistivities are less than 600 ohm-m over a broad region. An area of thicker overburden is expected.

Both survey areas show narrow bands of strong bedrock conductors. These bands are composed of up to four parallel conductors with a total width of 300 m or less. In Marion East, the EM anomalies are those of a near vertical thin sheet conductors - 935 Hz inphase high and coincident 850 Hz inphase low. Negative inphase anomalies are rare. Conductance estimates are uniformly high - more than 8 mhos.

The EM anomalies in Marion West are much different. The coaxial and coplanar channels track each other - a flatlying or tabular source is indicated. Discrete near vertical thin sheet conductors are not expected. The anomaly center representation is misleading - the apparent resistivity map is probably a more realistic representation. Negative inphase anomalies are common in Marion West. Conductance estimates of less than 1 mho in the conductor band are probably too low.

Both areas show scattered weak EM anomalies away from the central conductor bands. Responses are often seen in the 4600/4175 Hz quadrature channels and on the border of a resistivity low - edge effects are a concern.

Magnetics

Both areas show the total field magnetic high expected over the Woman River Iron

Formation. Peak amplitudes in Marion East are over 5000 nT. The contrast with low magnetic gradient and amplitude areas immediately north of the iron formation is striking. A magnetic source which is vertical or with a moderate southern dip is expected.

In Marion West peak amplitudes exceed 3000 nT with values over 6000 nT near the border of Marion and Heenan Townships. Total field anomalies appear broader than those seen in Marion East.

The vertical gradient data shows the high amplitude responses expected over the iron formation - 200 to 400 nT/m. The total field high in Marion East now appears as three parallel magnetic anomalies over a width of 600 to 800 m. In Marion West, the VG contour map shows only one source with an average width of some 200 m. The idea of a flat lying or wide tabular source, first proposed with the EM responses, persists.

Three nnw/sse trending faults have been inferred in Marion West from the contoured vertical gradient maps. The eastern most fault is the most definite. A nnw/ssw trending fault has been proposed in Marion East. The evidence is taken from a combination of breaks in the VG and VLF data. In both cases it is difficult to discern possible faults given the small survey areas.

In Marion East, the region of the Woman River Iron Formation is seen as three parallel bands with a total width less than 1000 m. The center band has high magnetic and conductance values. The northern band is less so. The southern band is magnetic only and negative inphase responses are common. Magnetic anomaly amplitudes are not as strong as those in the center band.

VLF

The contoured VLF data shows strong linear anomalies with the expected bias towards the transmitter - Cutler at about 20° south of east. Responses are particularly strong in Marion East with peak amplitudes over 20 to 30%. A weak nnw/sse trending VLF anomaly has been used as evidence of a possible fault.

Response amplitudes in Marion West are weaker over the iron formation - peak amplitudes are generally less than 10%. This may be due to a number of possible breaks in the conductor band and occasionally unfavourable strike directions. The absence of clear VLF conductors in the southwest corner of Marion West is probably due to thicker and/or more conductive overburden.

7.5 Compilation/Interpretation Map

The compilation/interpretation maps show the following features

- EM conductor axes
- the +5 and +25 nT/m VG contour lines

- possible faults
- VLF conductor axes
- favourable area labels

A page size copy of the 1:20,000 scale compilation map is attached.

EM conductor axes are drawn through EM anomalies of like character. Consistency with local magnetic strike is often a factor.

The +5 nT/m vertical gradient contour line is used to indicate the possible outline of moderately strong magnetic sources. The additional +25 nT/m contour line indicates a strong magnetic source.

Possible faults have been taken from the contoured vertical gradient maps. In Marion East, the VLF data has been used as well.

VLF conductor axes have been drawn through the peaks of prominent VLF anomalies.

Interesting geophysical responses have been selected for discussion (see below). These are identified on the compilation maps by letter/number labels.

7.6 Favourable Areas

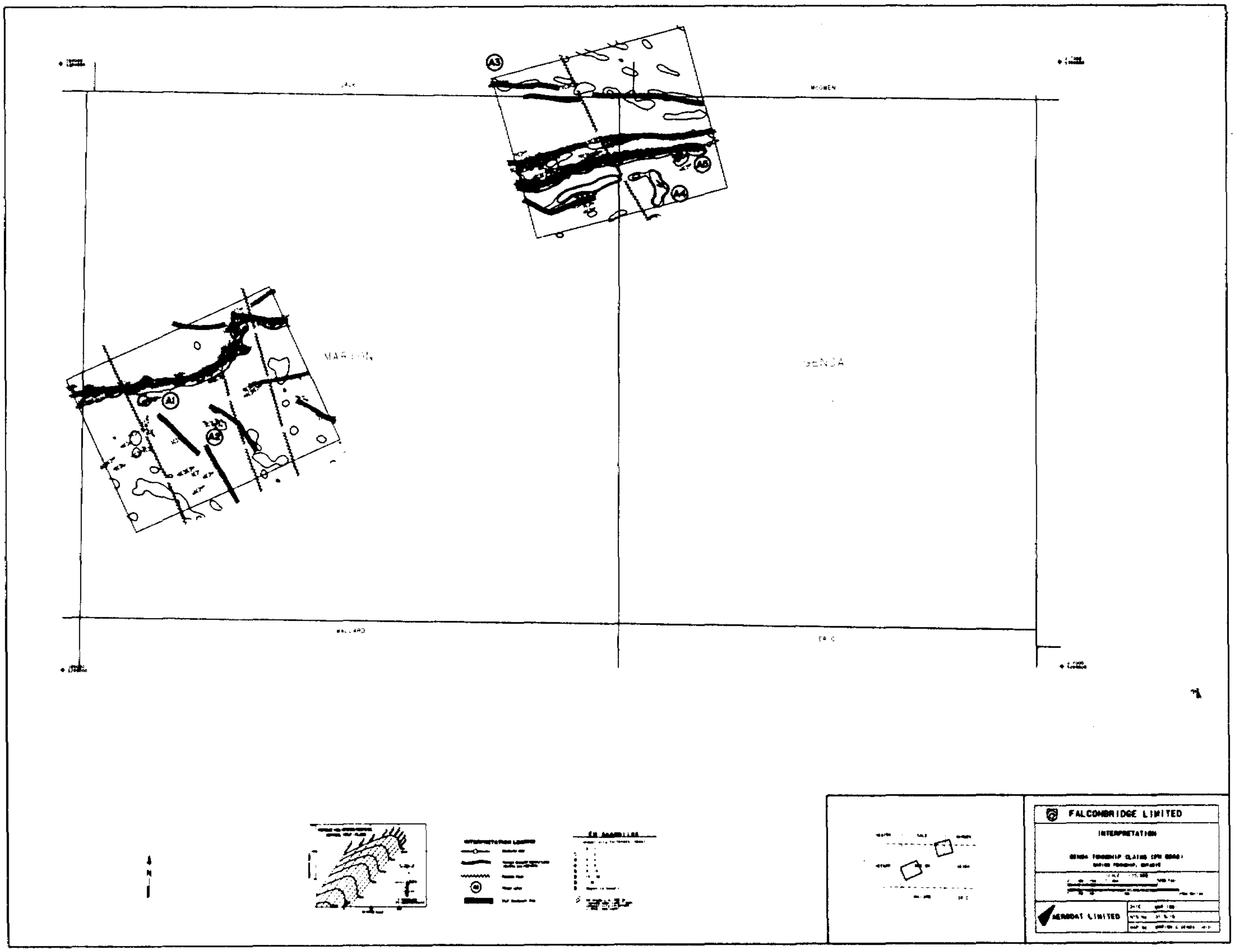
Geophysical targets of special interest are based on promising bedrock conductors in a favourable setting. Weak conductors on the edge of resistivity lows and in an uninteresting geophysical setting are usually passed over. All high conductance EM anomalies, unless part of a long formational conductor, are considered worthy of comment.

Within the conductive bands in both survey areas, the airborne geophysical data alone does not provide enough information to select one part of the conductor over another. A detailed study of the airborne geophysical results by a geologist with more discriminating exploration models is needed.

Outside these conductive bands, a number of isolated bedrock conductors show reasonable conductance estimates and promising EM anomaly shapes. These are labelled A1 to A5. In the discussion below, each target is identified by the area, survey line and 24 hour clock time of the most promising EM anomaly in the conductor.

A1: Marion West: Line 80290 (17:03:08)

A three line conductor about 100 m south of the iron formation. The EM anomalies have been picked based on the behaviour of the inphase channels - the 850 Hz inphase channel is largely negative, the 935 Hz inphase anomaly is more


A3
JACK
McOWEN
A5
A4
MARION
GENOA
A1
A2
ERIC
FALCONBRIDGE LIMITED
INTERPRETATION
AERODAT LIMITED

positive. There are no anomalies in the 4600/4175 Hz quadrature channels.

A coincident magnetic anomaly has amplitudes almost as high as those over the iron formation immediately to the north. This target appears to be a small segment broken off from the iron formation. The EM responses from the conductor are weaker than those from the coincident (or neighbouring) magnetite.

A2: Marion West: Line 80200 (16:35:55)

A two line conductor 800 m south of the iron formation. Conductance estimates are 2 to 4 mhos. There is a coincident 150 nT magnetic anomaly. EM peak amplitudes are 3 ppm in the 935 and 4600 Hz inphase channels. As the coaxial and coplanar anomalies are the same shape, a flat lying or wide tabular source is expected.

The coincident quadrature anomalies are less than 3 ppm and the conductance may be higher than shown.

A3: Marion East: Line 70360 (14:11:48)

A three line conductor in the northwest corner of the survey area. The conductor forms part of an east/west trending magnetic (200 nT) and VLF (10 to 20%) feature.

Although the conductance estimates are low - less than 1 mho - the 4600/4175 Hz anomalies clearly indicate a thin sheet near vertical bedrock conductor at or near surface.

A4: Marion East: Line 70120 (13:30:39)

A one line anomaly 500 m south of the iron formation. The conductance estimate - less than 1 mho - is unfair. The conductor is surrounded by negative inphase responses. A much higher conductance estimate should apply.

The conductor is located at the center of a relatively broad, n/s trending magnetic anomaly (1500 nT). The 4600/4175 Hz data suggest a dip to the south.

A5: Marion East: Line 70080 (13:40:48)

Like A1 in Marion West, this appears as a small segment broken off from the iron formation. Conductance estimates are moderate - 4 to 8 mhos. A higher value is possible given the nearby effects of magnetite.

8. CONCLUSIONS

High resolution helicopterborne geophysical surveys have been completed over two areas with a total area of about 22.5 square kilometres centered in Marion and Genoa Townships, just northwest of Rush Lake and some 110 km southwest of Timmins. Total coverage is approximately 235 line kilometres (231 km traverse plus 14 km magnetic tie lines). Results are presented on black line and colour maps at scales of 1:5,000 and 1:20,000. Map types include EM anomaly centres, apparent resistivity, contoured magnetic field, contoured vertical magnetic gradient and contoured VLF-EM Total Field data.

Preferred geophysical characteristics have been built up from a model geological target. These characteristics have been extracted from various map products and transferred to a compilation/interpretation map. Favourable areas are discussed with reference to this compilation map.

Respectfully submitted,

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August 7, 1991

J9101G

REGISTERED PROFESSIONAL ENGINEER
I. M. JOHNSON
PROVINCE OF ONTARIO

APPENDIX I

GENERAL INTERPRETIVE CONSIDERATIONS

Electromagnetic

The Aerodat four frequency system utilizes two different transmitter-receiver coil geometries. The traditional coaxial coil configuration is operated at two widely separated frequencies. The horizontal coplanar coil configuration is similarly operated at two different frequencies where at least one pair is approximately aligned with one of the coaxial frequencies.

The electromagnetic response measured by the helicopter system is a function of the "electrical" and "geometrical" properties of the conductor. The "electrical" property of a conductor is determined largely by its electrical conductivity, magnetic susceptibility and its size and shape; the "geometrical" property of the response is largely a function of the conductor's shape and orientation with respect to the measuring transmitter and receiver.

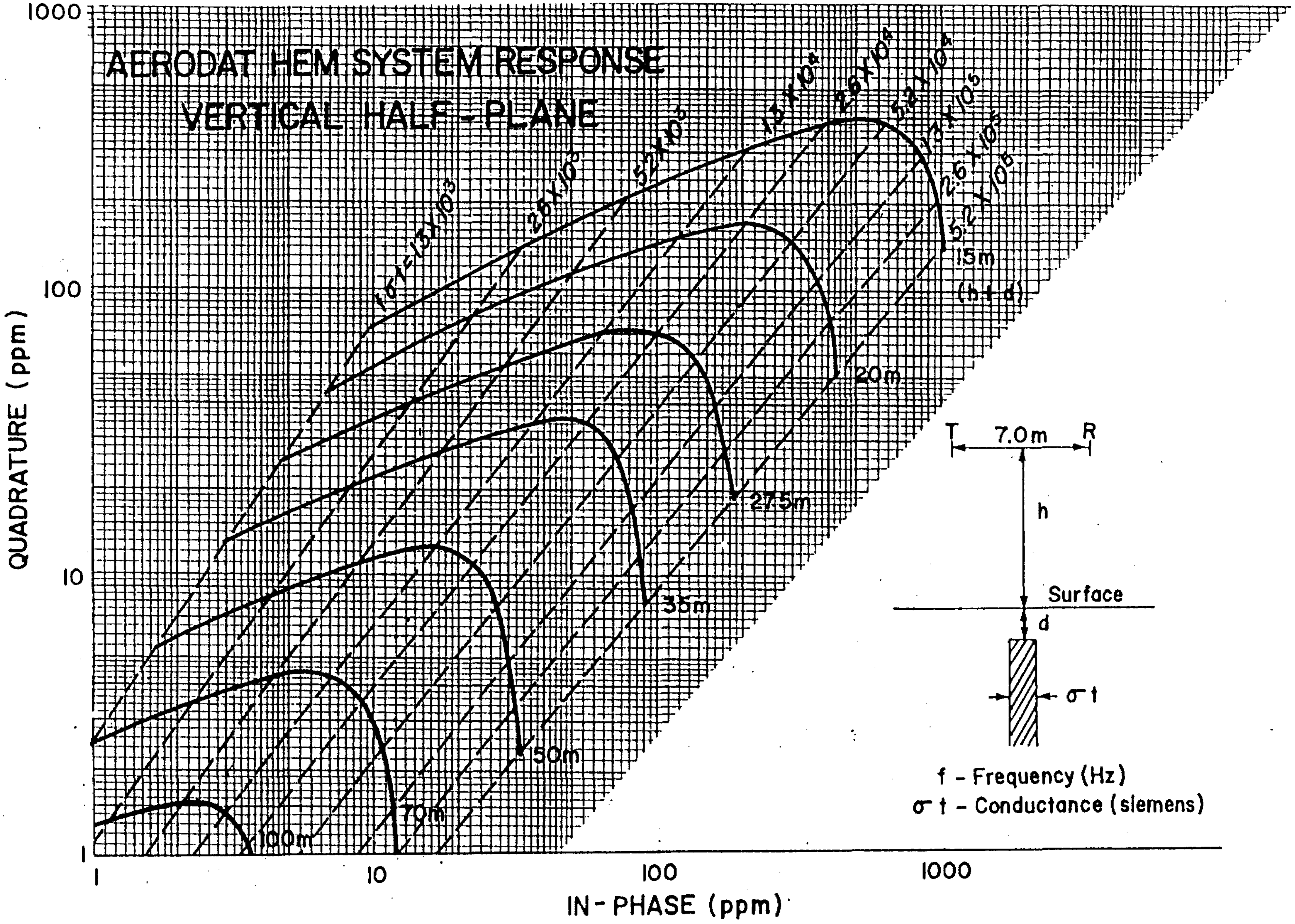
Electrical Considerations

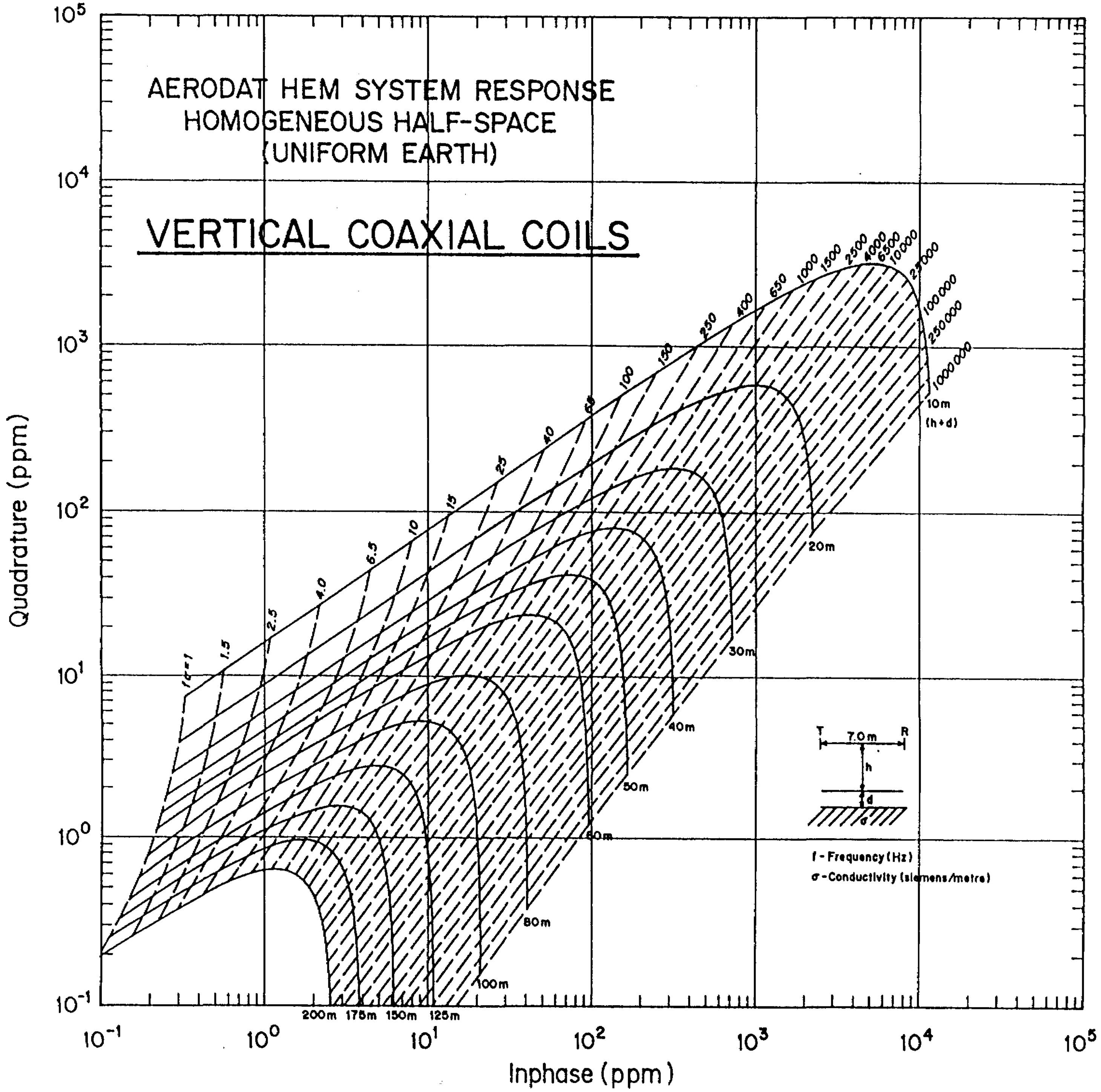
For a given conductive body the measure of its conductivity or conductance is closely related to the measured phase shift between the received and transmitted electromagnetic field. A small phase shift indicates a relatively high conductance, a large phase shift lower conductance. A small phase shift results in a large inphase to quadrature ratio and a large phase shift a low ratio. This relationship is shown quantitatively for non-magnetic vertical half-plane and half-space models on the accompanying phasor diagrams. Other physical models will show the same trend but different quantitative relationships.

The phasor diagram for the vertical half-plane model, as presented, is for the coaxial coil configuration with the amplitudes in parts per million (ppm) of the primary field as measured at the response peak over the conductor. To assist the interpretation of the survey results the computer is used to identify the apparent conductance and depth of selected anomalies. The results of this calculation are presented in anomaly listings included in the survey report and the conductance and inphase amplitude are presented in symbolized form on the map presentation.

The conductance estimate is most reliable when anomaly amplitudes are large and background resistivities are high. Where the EM anomaly is of low amplitude and background resistivities are low, the conductance estimates are much less reliable. In such situations, the conductance estimate is often quite low regardless of the true nature of the conductor. This is due to the elevated background response levels in the quadrature channel. In an extreme case, the conductance estimate should be discounted and should not prejudice target selection.

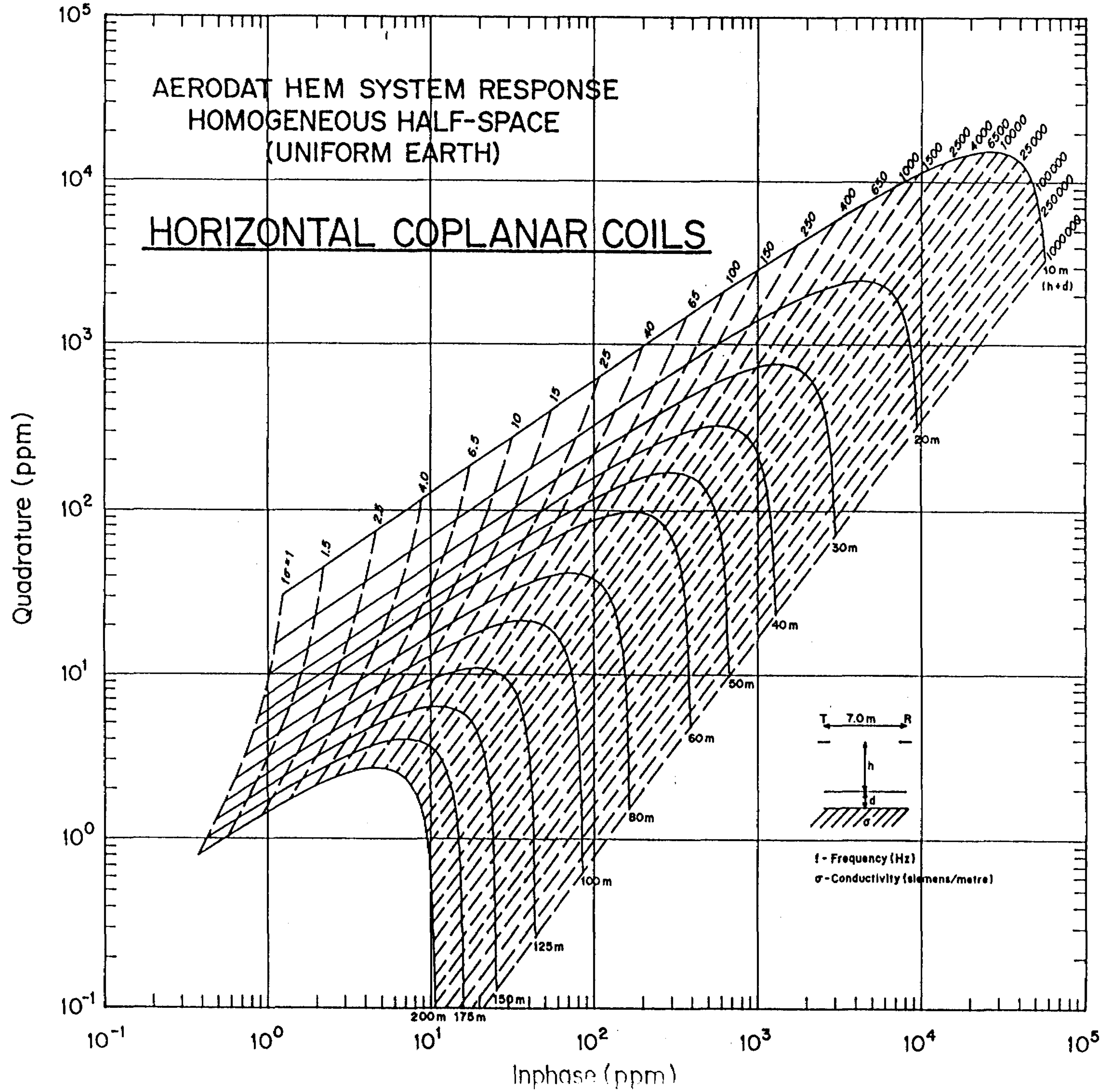
The conductance and depth values as presented are correct only as far as the model approximates the real geological situation. The actual geological source may be of limited length, have significant dip, or may be strongly magnetic. Its conductivity and thickness may vary with depth


AERODAT HEM SYSTEM RESPONSE
VERTICAL HALF - PLANE
QUADRATURE (ppm)
IN - PHASE (ppm)
1000
100
10
1
1
10
100
1000
$f\sigma t = 1.3 X 10^3$
$2.6 X 10^3$
$5.2 X 10^3$
$1.3 X 10^4$
$2.6 X 10^4$
$5.2 X 10^4$
$1.3 X 10^5$
$2.6 X 10^5$
$5.2 X 10^5$
15m
(h + d)
20m
27.5m
35m
50m
70m
100m
T
7.0m
R
h
Surface
d
σ t
f - Frequency (Hz)
σ t - Conductance (siemens)



AERODAT HEM SYSTEM RESPONSE
HOMOGENEOUS HALF-SPACE
(UNIFORM EARTH)

VERTICAL COAXIAL COILS



AERODAT HEM SYSTEM RESPONSE
HOMOGENEOUS HALF-SPACE
(UNIFORM EARTH)

HORIZONTAL COPLANAR COILS

and/or strike and adjacent bodies and overburden may have modified the response. In general the conductance estimate is less affected by these limitations than is the depth estimate, but both should be considered as relative rather than absolute guides to the anomaly's properties.

Conductance in mhos is the reciprocal of resistance in ohms and in the case of narrow slab-like bodies is the product of electrical conductivity and thickness.

The higher ranges of conductance, greater than 2-4 mhos, indicate that a significant fraction of the electrical conduction is electronic rather than electrolytic in nature. Materials that conduct electronically are limited to certain metallic sulphides and to graphite. High conductance anomalies, roughly 10 mhos or greater, are generally limited to massive sulphides or graphites.

Sulphide minerals, with the exception of such ore minerals as sphalerite, cinnabar and stibnite, are good conductors. Sulphides may occur in a disseminated manner that inhibits electrical conduction through the rock mass. In this case the apparent conductance can seriously underrate the quality of the conductor in geological terms. In a similar sense the relatively non-conducting sulphide minerals noted above may be present in significant concentrations in association with minor conductive sulphides, and the electromagnetic response will only relate to the minor associated mineralization. Indicated conductance is also of little direct significance for the identification of gold mineralization. Although gold is highly conductive, it would not be expected to exist in sufficient quantity to create a recognizable anomaly. Minor accessory sulphide mineralization may however provide a useful indirect indication.

In summary, the estimated conductance of a conductor can provide a relatively positive identification of significant sulphide or graphite mineralization. A moderate to low conductance value does not rule out the possibility of significant economic mineralization.

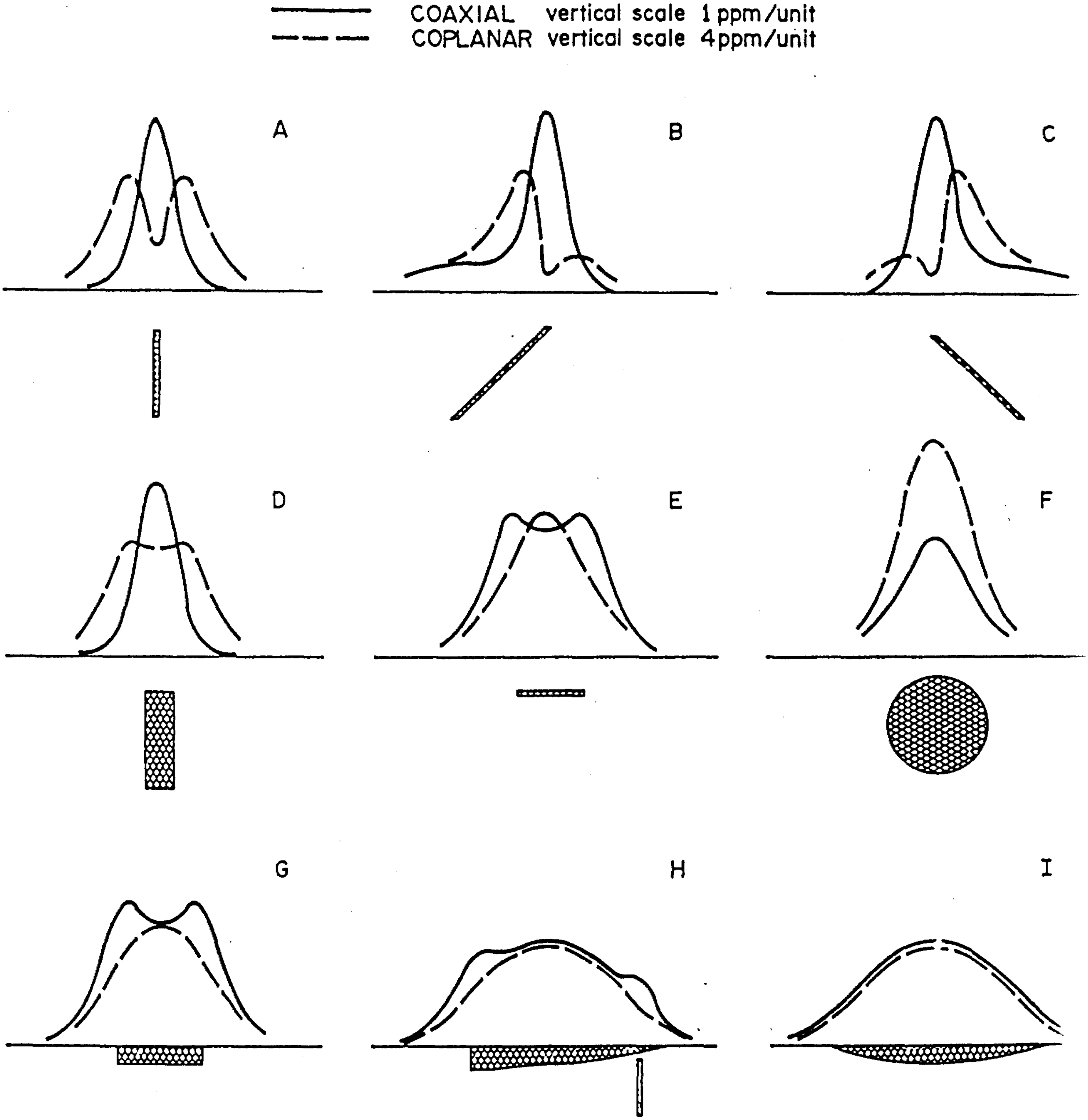
Geometrical Considerations

Geometrical information about the geologic conductor can often be interpreted from the profile shape of the anomaly. The change in shape is primarily related to the change in inductive coupling among the transmitter, the target, and the receiver. The accompanying figure shows a selection of HEM response profile shapes from nine idealized targets. Response profiles are labelled A through I. These labels are used in the discussion which follows.

In the case of a thin, steeply dipping, sheet-like conductor, the coaxial coil pair will yield a near symmetric peak over the conductor. On the other hand, the coplanar coil pair will pass through a null couple relationship and yield a minimum over the conductor, flanked by positive side lobes.(Profile A) As the dip of the conductor decrease from vertical, the coaxial anomaly shape changes only slightly, but in the case of the coplanar coil pair the side lobe on the down dip side strengthens relative to that on the up dip side.(Profiles B and C).

As the thickness of the conductor increases, induced current flow across the thickness of the

HEM RESPONSE PROFILE SHAPE AS AN INDICATOR OF CONDUCTOR GEOMETRY



conductor becomes relatively significant and complete null coupling with the coplanar coils is no longer possible.(Profile D) As a result, the apparent minimum of the coplanar response over the conductor diminishes with increasing thickness, and in the limiting case of a fully 3 dimensional body or a horizontal layer or half-space, the minimum disappears completely.

A horizontal conducting layer such as a horizontal thin sheet or overburden will produce a response in the coaxial and coplanar coils that is a function of altitude (and conductivity if not uniform). The profile shape will be similar in both coil configurations with an amplitude ratio (coplanar:coaxial) of about 4:1*.(Profiles E and G).

In the case of a spherical conductor, the induced currents are confined to the volume of the sphere, but not relatively restricted to any arbitrary plane as in the case of a sheet-like form. The response of the coplanar coil pair directly over the sphere may be up to 8* times greater than that of the coaxial pair.(Profile F)

In summary, a steeply dipping, sheet-like conductor will display a decrease in the coplanar response coincident with the peak of the coaxial response. The relative strength of this coplanar null is related inversely to the thickness of the conductor. A pronounced null indicates a relatively thin conductor. The dip of such a conductor can be inferred from the relative amplitudes of the side-lobes.

Massive conductors that could be approximated by a conducting sphere will display a simple single peak profile form on both coaxial and coplanar coils, with a ratio between the coplanar to coaxial response amplitudes as high as 8*.

Overburden anomalies often produce broad poorly defined anomaly profiles.(Profile I) In most cases, the response of the coplanar coils closely follows that of the coaxial coils with a relative amplitude ratio of 4*.

Occasionally, if the edge of an overburden zone is sharply defined with some significant depth extent, an edge effect will occur in the coaxial coils. In the case of a horizontal conductive ring or ribbon, the coaxial response will consist of two peaks, one over each edge; whereas the coplanar coil will yield a single peak.(Profile H)

* It should be noted at this point that Aerodat's definition of the measured ppm unit is related to the primary field sensed in the receiving coil without normalization to the maximum coupled (coaxial configuration). If such normalization were applied to the Aerodat units, the amplitude of the coplanar coil pair would be halved.

Magnetics

The Total Field Magnetic Map shows contours of the total magnetic field, uncorrected for regional variation. Whether an EM anomaly with a magnetic correlation is more likely to be caused by a sulphide deposit than one without depends on the type of mineralization. An apparent coincidence between an EM and a magnetic anomaly may be caused by a conductor which is also magnetic, or by a conductor which lies in close proximity to 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 can be, and often are, graphite and magnetite. It is often very difficult to distinguish between these cases. If the conductor is also magnetic, it will usually produce an EM anomaly whose general pattern resembles that of the magnetics. Depending on the magnetic permeability of the conducting body, the amplitude of the inphase EM anomaly will be weakened, and if the conductivity is also weak, the inphase EM anomaly may even be reversed in sign.

The interpretation of contoured aeromagnetic data is a subject on its own involving an array of methods and attitudes. The interpretation of source characteristics for example from total field results is often based on some numerical modelling scheme. The vertical gradient data is more legible in some aspects however and useful inferences about source characteristics can often be read off the contoured VG map.

The zero contour lines in contoured VG data are often sited as a good approximation to the outline of the top of the magnetic source. This only applies to wide (relative to depth of burial) near vertical sources at high magnetic latitudes. It will give an incorrect interpretation in most other cases.

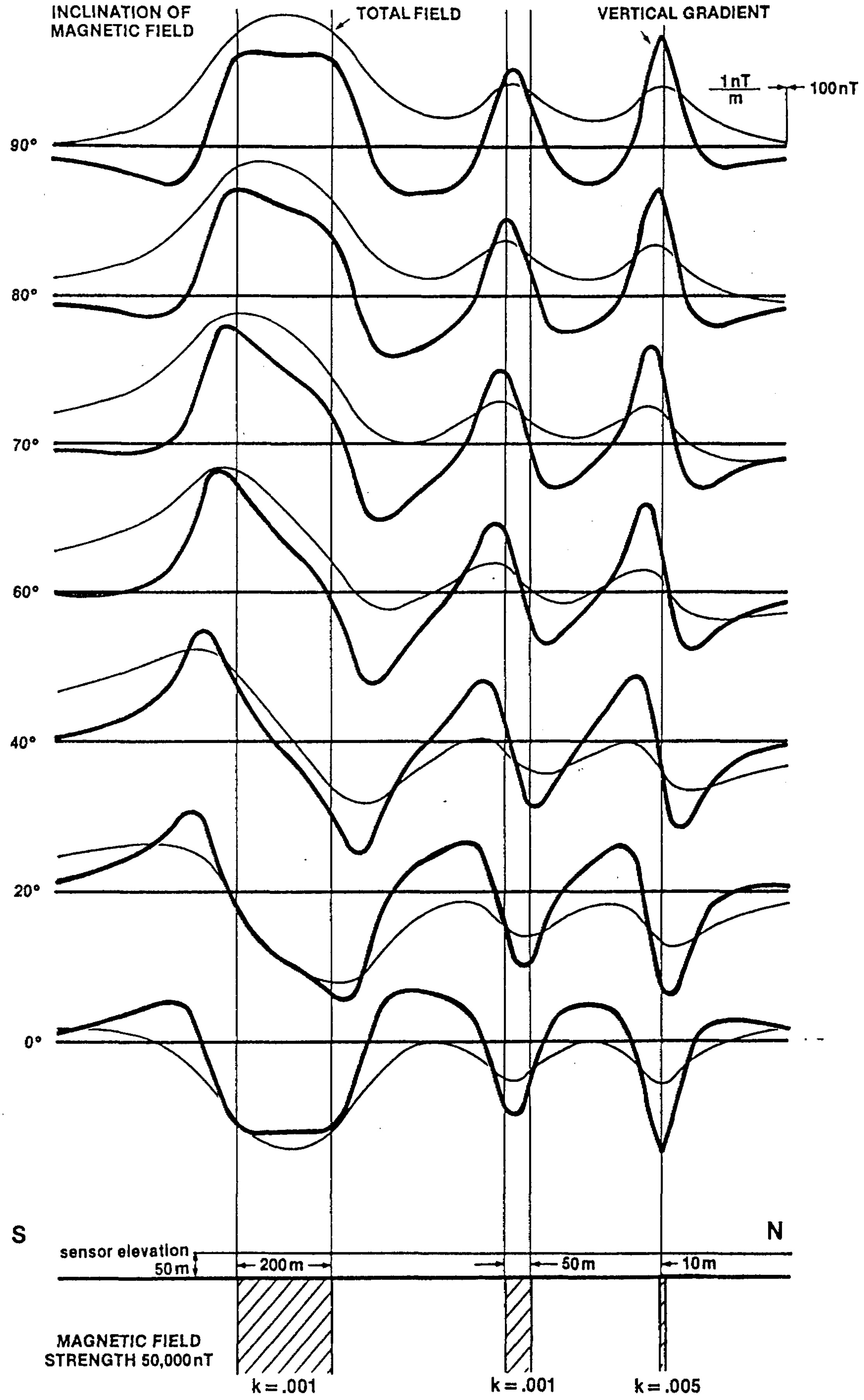
Theoretical profiles of total field and vertical gradient anomalies from tabular sources at a variety of magnetic inclinations are shown in the attached figure. Sources are 10, 50 and 200 m wide. The source-sensor separation is 50 m. The thin line is the total field profile. The thick line is the vertical gradient profile.

The following comments about source geometry apply to contoured vertical gradient data for magnetic inclinations of 70 to 80°.

Outline

Where the VG anomaly has a single sharp peak, the source may be a thin near-vertical tabular source. It may be represented as a magnetic axis or as a tabular source of measureable width - the choice is one of geological preference.

Where the VG anomaly has a broad, flat or inclined top, the source may be a thick tabular source. It may be represented as a thick body where the width is taken from the zero contour lines if the body dips to magnetic north. If the source appears to be dipping to the south (i.e. the VG anomaly is asymmetric), the zero contours are less reliable indicators of outline. The southern most zero contour line should be ignored and the outline taken from the northern zero contour line and the extent of the anomaly peak width.


INCLINATION OF MAGNETIC FIELD
TOTAL FIELD
VERTICAL GRADIENT
1 nT / m
100 nT
90°
80°
70°
60°
40°
20°
0°
S
N
sensor elevation
50 m
200 m
50 m
10 m
MAGNETIC FIELD STRENGTH 50,000 nT
k = .001
k = .001
k = .005

Dip

A symmetrical vertical gradient response is produced by a body dipping to magnetic north. An asymmetrical response is produced by a body which is vertical or dipping to the south. For southern dips, the southern most zero contour line may be several hundred meters south of the source.

Depth of Burial

The source-sensor separation is about equal to half of the distance between the zero contour lines for thin near-vertical sources. The estimated depth of burial for such sources is this separation minus 50 m. If a variety of VG anomaly widths are seen in an area, use the narrowest width seen to estimate local depths.

VLF Electromagnetics

The VLF-EM method employs the radiation from powerful military radio transmitters as the primary signals. The magnetic field associated with the primary field is locally horizontal and normal to a line pointing at the transmitter.

The Herz Totem uses three coils in the X, Y, Z configuration to measure the total field and vertical quadrature component from two VLF stations. These stations are designated Line and Ortho. The line station is ideally in a direction from the survey area at right angles to the flight line direction. Conductors normal to the flight line direction point at the line station and are therefore optimally coupled to VLF magnetic fields and in the best situation to gather secondary VLF currents. The ortho station is ideally 90 degrees in azimuth from the line station.

The relatively high frequency of VLF (15-25) kHz provides high response factors for bodies of low conductance. Relatively "disconnected" sulphide ores have been found to produce measurable VLF signals. For the same reason, poor conductors such as sheared contacts, breccia zones, narrow faults, alteration zones and porous flow tops normally produce VLF anomalies. The method can therefore be used effectively for geological mapping. The only relative disadvantage of the method lies in its sensitivity to conductive overburden. In conductive ground the depth of exploration is severely limited.

The effect of strike direction is important in the sense of the relation of the conductor axis relative to the energizing electromagnetic field. A conductor aligned along a radius drawn from a transmitting station will be in a maximum coupled orientation and thereby produce a stronger response than a similar conductor at a different strike angle. Theoretically, it would be possible for a conductor, oriented tangentially to the transmitter to produce no signal. The most obvious effect of the strike angle consideration is that conductors favourably oriented with respect to the transmitter location and also near perpendicular to the flight direction are most clearly rendered and usually dominate the map presentation.

The total field anomaly is an indicator of the existence and position of a conductor. The response will be a maximum over the conductor, without any special filtering, and strongly favour the upper edge of the conductor even in the case of a relatively shallow dip.

Conversely a negative total field anomaly is often seen over local resistivity highs. This is because the VLF field produces electrical currents which flow towards (or away from) the transmitter. These currents are gathered into a conductor and are taken from resistive bodies. The VLF system sees the currents gathered into the conductor as a total field high. It sees the relative absence of secondary currents in the resistor as a total field low.

As noted, VLF anomaly trends show a strong bias towards the VLF transmitter. Structure which is normal to this direction may have no associated VLF anomaly but may be seen as a break or interruption in VLF anomalies. If these structures are of particular interest, maps of the ortho station data may be worthwhile.

Conductive overburden will obscure VLF responses from bedrock sources and may produce low amplitude, broad anomalies which reflect variations in the resistivity or thickness of the overburden.

Extreme topographic relief will produce VLF anomalies which may bear no relationship to variations in electrical conductivity. Deep gullies which are too narrow to have been surveyed at a uniform sensor height often show up as VLF total field lows. Sharp ridges show up as total field highs.

The vertical quadrature component over steeply dipping sheet-like conductor will be a cross-over type response with the cross-over closely associated with the upper edge of the conductor.

The response is a cross-over type due to the fact that it is the vertical rather than total field quadrature component that is measured. The response shape is due largely to geometrical rather than conductivity considerations and the distance between the maximum and minimum on either side of the cross-over is related to target depth. For a given target geometry, the larger this distance the greater the depth.

The vertical quadrature component is rarely presented. Experience has shown the total field to be more sensitive to bedrock conductors and less affected by variations in conductive overburden.

AERODAT LIMITED
June, 1991.

APPENDIX II

ANOMALY LISTINGS

J9101 - FALCONBRIDGE LIMITED ANOMALY LIST - GENOA TOWNSHIP CLAIMS

				AMPLITUDE (PPM)		CONDUCTOR		BIRD
FLIGHT	LINE	ANOMALY	CATEGORY	INPHASE	QUAD.	CTP MHOS	DEPTH MTRS	HEIGHT MTRS
33	70010	A	1	0.6	0.7	1.0	100	31
33	70010	B	0	0.0	1.7	0.0	0	37
33	70020	A	0	0.4	2.7	0.0	20	30
33	70020	B	3	3.3	1.9	6.9	58	34
33	70030	A	0	-0.2	2.3	0.0	0	34
33	70040	A	1	0.8	0.8	1.5	99	27
33	70040	B	3	2.3	1.6	4.5	69	31
33	70040	C	3	3.1	2.4	4.4	54	34
33	70050	A	4	14.5	7.3	14.4	32	25
33	70050	B	0	0.6	2.7	0.0	30	27
33	70060	A	0	1.1	2.4	0.5	45	29
33	70060	B	4	7.0	4.4	8.2	40	30
33	70070	A	0	-0.5	0.4	0.0	0	28
33	70070	B	3	6.8	5.5	5.7	37	28
33	70070	C	5	18.8	7.1	23.1	28	27
33	70070	D	0	1.3	3.9	0.3	26	31
33	70080	A	0	1.6	3.3	0.7	33	34
33	70080	B	6	18.2	4.4	41.8	27	30
33	70080	C	4	3.9	1.9	9.4	57	33
33	70080	D	3	8.0	5.8	7.1	37	27
33	70090	A	5	13.4	5.5	18.5	33	27
33	70090	B	0	1.2	3.0	0.4	28	38
33	70100	A	1	1.9	2.9	1.2	39	37
33	70100	B	5	19.6	8.1	20.8	25	27
33	70110	A	5	22.5	7.8	27.5	20	31
33	70110	B	4	13.5	7.4	12.5	24	33
33	70110	C	0	1.6	4.2	0.4	27	31
33	70120	A	1	2.3	3.6	1.3	35	35
33	70120	B	4	8.2	5.3	8.4	35	30
33	70120	C	5	18.7	6.5	25.8	24	31
33	70120	D MAGN	1	2.2	3.9	1.0	38	28
33	70130	A	5	16.4	7.2	18.1	24	32

Estimated depth may be unreliable because the stronger part of the conductor may be deeper or to one side of the flight line, or because of a shallow dip or overburden effects.

J9101 - FALCONBRIDGE LIMITED ANOMALY LIST - GENOA TOWNSHIP CLAIMS

FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
33	70130	B	4	13.1	8.8	9.4	24	30
33	70130	C	1	2.8	4.9	1.2	24	37
33	70140	A	1	2.4	3.1	1.8	40	36
33	70140	B	4	15.6	7.5	15.7	31	25
33	70140	C	5	11.0	4.3	18.6	35	30
33	70150	A	5	12.3	4.7	19.9	33	29
33	70150	B	4	11.8	5.8	13.9	31	30
33	70150	C	0	1.2	3.4	0.3	28	33
33	70160	A	0	0.4	1.2	0.1	50	36
33	70160	B	3	8.8	6.3	7.5	33	29
33	70160	C	5	11.4	4.3	19.7	32	32
33	70170	A	4	10.5	5.4	12.5	34	30
33	70170	B	3	4.7	4.0	4.5	45	28
33	70170	C	3	4.7	3.6	5.3	45	30
33	70170	D MAGN	0	-0.4	2.0	0.0	0	30
33	70170	E	0	0.3	2.2	0.0	22	31
33	70180	A	0	0.6	2.0	0.1	35	35
33	70180	B MAGN	0	-1.2	0.8	0.0	0	29
33	70180	C	3	7.3	5.5	6.5	37	28
33	70180	D	4	10.6	5.7	11.8	31	32
33	70190	A	5	16.9	7.8	17.1	24	31
33	70190	B	2	4.3	5.2	2.6	39	25
33	70190	C MAGN	0	-0.7	1.8	0.0	0	33
33	70190	D	0	0.2	2.1	0.0	12	35
33	70200	A	0	0.5	3.6	0.0	17	28
33	70200	B	2	3.2	4.1	2.1	36	33
33	70200	C	2	3.0	3.4	2.4	41	34
33	70210	A	4	4.6	1.8	13.7	55	33
33	70210	B	4	8.2	3.4	15.5	40	32
33	70210	C	0	-0.3	3.1	0.0	0	29
33	70220	A	0	0.2	2.3	0.0	13	32
33	70220	B	2	2.4	2.7	2.2	53	29
33	70220	C	5	18.2	6.0	27.5	23	32
33	70220	D	4	7.1	3.1	13.7	40	35
32	70230	A	4	5.6	2.9	9.9	48	31

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J9101 - FALCONBRIDGE LIMITED ANOMALY LIST - GENOA TOWNSHIP CLAIMS

FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
32	70230	B	4	6.7	3.8	9.3	44	28
32	70230	C	3	6.4	4.1	7.7	38	34
32	70230	D	1	0.9	1.0	1.3	83	33
32	70240	A	0	0.0	0.7	0.0	0	34
32	70240	B	0	1.7	3.2	0.8	38	31
32	70240	C	4	8.3	5.1	9.0	34	32
32	70240	D	5	8.8	3.3	18.2	39	32
32	70250	A	0	0.2	0.9	0.0	52	33
32	70250	B	6	17.0	3.9	43.9	30	29
32	70250	C	5	5.1	1.6	19.4	55	32
32	70260	A	0	0.3	1.9	0.0	29	29
32	70260	B	4	6.5	3.4	10.3	43	31
32	70260	C	5	12.9	3.6	30.9	32	32
32	70260	D	0	-0.5	0.8	0.0	0	26
32	70260	E	0	-0.3	1.1	0.0	0	27
32	70260	F	0	0.3	0.3	0.8	148	30
32	70270	A	0	-0.5	0.9	0.0	0	28
32	70270	B	4	9.4	4.8	12.2	36	30
32	70270	C	4	7.0	3.7	10.4	44	29
32	70270	D	0	0.2	2.0	0.0	22	27
32	70280	A	0	1.5	4.0	0.4	31	27
32	70280	B	4	4.9	2.2	11.5	52	32
32	70280	C	5	8.3	2.8	20.7	41	32
32	70280	D	0	0.0	1.7	0.0	0	27
32	70290	A	5	8.5	3.1	18.7	41	31
32	70290	B	3	2.6	1.7	5.2	65	32
32	70290	C	0	0.6	3.2	0.0	22	29
32	70290	D	1	3.0	5.1	1.3	32	28
32	70300	A	1	3.1	4.2	1.9	38	30
32	70300	B	3	4.6	3.4	5.5	41	36
32	70300	C	3	4.2	2.7	6.5	49	34
32	70300	D	5	13.6	3.9	30.3	30	32
32	70310	A	5	14.9	6.5	17.7	30	28
32	70310	B	3	3.4	2.2	5.9	57	32
32	70310	C	3	2.0	1.2	5.3	73	36
32	70310	D	3	4.2	3.4	4.7	45	32
32	70310	E	0	0.8	2.1	0.2	43	30

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J9101 - FALCONBRIDGE LIMITED ANOMALY LIST - GENOA TOWNSHIP CLAIMS

				AMPLITUDE (PPM)		CONDUCTOR		BIRD
FLIGHT	LINE	ANOMALY	CATEGORY	INPHASE	QUAD.	CTP MHOS	DEPTH MTRS	HEIGHT MTRS
32	70320	A	2	1.4	1.2	2.6	80	31
32	70320	B	3	7.6	5.5	6.9	35	30
32	70320	C	1	2.9	4.1	1.7	38	30
32	70320	D	0	0.7	1.4	0.4	59	33
32	70320	E	6	21.6	6.6	32.1	24	29
32	70330	A	5	17.5	7.3	19.8	28	27
32	70330	B	0	1.3	2.2	0.8	53	28
32	70330	C	3	7.7	5.4	7.3	36	29
32	70330	D	3	9.2	6.4	7.9	33	28
32	70330	E	2	3.6	4.9	2.0	37	27
32	70340	A	0	1.7	3.1	0.8	42	29
32	70340	B	2	6.2	6.8	3.6	32	27
32	70340	C	3	8.2	7.5	5.2	32	27
32	70340	D	3	8.0	8.7	4.0	28	26
32	70340	E MAGN	0	0.0	3.8	0.0	0	26
32	70340	F	4	6.8	3.7	9.9	46	27
32	70350	A	5	7.0	2.7	16.2	47	29
32	70350	B	2	1.6	1.7	2.0	67	30
32	70350	C	1	4.4	7.5	1.6	26	27
32	70350	D	2	7.9	9.1	3.7	28	25
32	70350	E	2	8.0	12.0	2.5	18	27
32	70350	F	0	0.6	0.8	0.7	89	33
32	70350	G	0	-1.0	1.3	0.0	0	30
33	70351	A	0	0.6	1.9	0.1	36	37
33	70351	B	0	1.1	5.1	0.1	18	27
33	70351	C	0	2.6	8.3	0.4	19	24
33	70351	D	0	1.5	4.0	0.4	27	31
33	70351	E	2	5.4	5.7	3.5	33	31
33	70360	A	3	5.9	4.0	6.9	45	28
33	70360	B	0	0.2	3.5	0.0	0	33
33	70360	C	1	3.4	6.8	1.1	26	27
33	70360	D	1	3.6	7.9	1.0	20	29
33	70360	E	0	0.9	3.7	0.1	25	28

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FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM)		CONDUCTOR		BIRD HEIGHT MTRS
				INPHASE	QUAD.	CTP MHOS	DEPTH MTRS	
34	80010	A	0	1.2	2.3	0.6	42	35
34	80010	B	1	1.1	1.4	1.2	71	30
34	80020	A	0	-0.2	1.5	0.0	0	25
34	80020	B	2	5.0	5.4	3.3	33	31
34	80030	A	2	3.6	3.6	3.2	45	30
34	80040	A	0	0.5	0.7	0.6	94	33
34	80040	B MAGN	0	-0.2	1.6	0.0	0	30
34	80050	A	0	-1.5	0.5	0.0	0	34
34	80060	A MAGN	0	-0.6	1.5	0.0	0	30
34	80070	A	2	5.6	6.0	3.5	31	31
34	80080	A MAGN	0	-1.4	3.4	0.0	0	30
34	80080	B	2	7.0	10.2	2.5	22	27
34	80080	C	3	11.8	10.2	6.4	22	30
34	80080	D	0	0.9	3.6	0.1	23	31
34	80090	A	0	2.3	6.0	0.6	18	33
34	80090	B	1	3.4	7.4	1.0	18	32
34	80090	C	2	5.3	7.9	2.1	22	31
34	80090	D MAGN	0	-1.8	5.2	0.0	0	34
34	80090	E MAGN	0	-0.3	1.9	0.0	0	30
34	80100	A MAGN	0	-2.9	2.5	0.0	0	30
34	80100	B MAGN	0	-2.2	3.8	0.0	0	29
34	80100	C MAGN	0	-3.7	4.6	0.0	0	25
34	80100	D MAGN	0	-4.2	6.7	0.0	0	26
34	80100	E	2	5.7	8.1	2.4	25	28
34	80110	A	2	3.3	3.1	3.4	52	27
34	80110	B	2	3.1	2.7	3.7	52	31
34	80110	C	0	0.0	2.6	0.0	0	31
34	80120	A	0	-0.2	2.3	0.0	0	27
34	80120	B	0	-0.2	1.4	0.0	0	28
34	80120	C	3	2.9	1.6	7.0	66	32
34	80120	D	2	5.7	6.2	3.5	40	21
34	80120	E	0	-0.1	3.2	0.0	0	25
34	80130	A	0	0.9	2.1	0.3	47	29

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J9101 - FALCONBRIDGE LIMITED ANOMALY LIST - GENOA TOWNSHIP CLAIMS

FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
34	80130	B	3	11.2	8.3	7.8	26	31
34	80140	A	2	9.5	11.1	3.9	26	24
34	80140	B	2	4.8	5.5	3.0	37	27
34	80150	A	0	1.5	3.2	0.6	35	32
34	80150	B	1	3.2	6.4	1.1	26	28
34	80160	A	0	0.0	0.8	0.0	0	27
34	80160	B	3	8.4	5.8	7.7	37	27
34	80160	C	0	1.6	3.5	0.6	34	31
34	80170	A	1	1.7	2.0	1.7	59	31
34	80170	B	3	7.4	5.1	7.4	41	26
34	80170	C	3	0.7	0.3	5.6	133	34
34	80180	A	5	12.2	5.4	16.2	36	26
34	80180	B	3	5.1	3.2	7.3	46	32
34	80190	A	3	4.9	3.5	6.0	48	28
34	80190	B	3	3.9	3.3	4.2	43	34
34	80190	C	0	-0.6	0.4	0.0	0	30
34	80200	A	0	1.1	1.7	0.9	60	31
34	80200	B	1	2.5	3.7	1.5	44	26
34	80210	A MAGN	0	0.9	3.2	0.1	27	31
34	80210	B	0	0.0	0.2	0.0	0	32
34	80220	A	4	5.5	3.3	8.0	55	22
34	80220	B	2	3.1	3.4	2.6	46	29
34	80220	C	2	2.2	1.8	3.5	62	34
34	80230	A MAGN	0	0.8	3.3	0.1	27	28
34	80240	A MAGN	0	-0.2	3.4	0.0	0	25
34	80250	A MAGN	1	3.2	4.9	1.6	39	24
34	80250	B	0	-0.1	2.3	0.0	0	28
34	80260	A MAGN	0	-0.5	1.7	0.0	0	31
34	80270	A MAGN	0	-4.7	0.9	0.0	0	29
34	80270	B	0	0.2	4.2	0.0	1	28
34	80280	A	0	0.2	2.5	0.0	15	27

Estimated depth may be unreliable because the stronger part of the conductor may be deeper or to one side of the flight line, or because of a shallow dip or overburden effects.

J9101 - FALCONBRIDGE LIMITED ANOMALY LIST - GENOA TOWNSHIP CLAIMS

FLIGHT	LINE	ANOMALY	CATEGORY	AMPLITUDE (PPM) INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
34	80280	B	0	-0.1	3.2	0.0	0	31
34	80280	C	0	-0.5	0.9	0.0	0	28
34	80280	D	2	0.4	0.2	3.3	162	37
34	80280	E MAGN	0	-10.3	2.5	0.0	0	24
34	80280	F MAGN	1	2.8	4.9	1.2	33	28
34	80290	A MAGN	0	0.1	3.2	0.0	0	31
34	80290	B MAGN	0	-4.0	3.4	0.0	0	29
34	80290	C MAGN	0	0.0	2.4	0.0	0	30
34	80290	D	0	-0.4	2.0	0.0	0	32
34	80300	A MAGN	0	-4.4	0.0	0.0	0	29
34	80300	B MAGN	0	-1.4	2.9	0.0	0	33
34	80300	C MAGN	0	-2.1	1.9	0.0	0	29
34	80310	A MAGN	0	-0.4	0.8	0.0	0	36
34	80310	B MAGN	0	-0.6	1.3	0.0	0	28
34	80310	C	0	0.8	1.5	0.5	59	32
34	80310	D	0	0.5	3.0	0.0	21	29
34	80320	A	0	0.4	2.5	0.0	23	30
34	80320	B MAGN	0	0.6	1.2	0.3	65	31
34	80320	C	0	0.8	1.4	0.6	65	30
34	80330	A	1	3.0	4.2	1.8	39	29
34	80330	B	0	0.3	2.6	0.0	18	29
34	80340	A	0	1.1	2.1	0.6	47	33
34	80340	B MAGN	0	-0.6	4.3	0.0	0	26
34	80350	A MAGN	1	3.4	5.0	1.7	30	33
34	80350	B MAGN	0	1.5	4.4	0.3	28	27
34	80350	C	0	0.1	2.7	0.0	0	32
34	80360	A	0	-1.2	2.9	0.0	0	30
34	80360	B	0	2.2	4.9	0.7	31	26
34	80360	C	0	2.1	3.9	0.9	36	30
34	80370	A MAGN	0	-1.9	3.2	0.0	0	30
34	80370	B MAGN	0	-2.5	4.8	0.0	0	31
34	80370	C	0	1.3	3.5	0.4	33	28
34	80380	A	0	0.7	3.3	0.0	26	27
34	80380	B MAGN	0	0.0	10.9	0.0	0	24
34	80380	C MAGN	0	-1.1	5.7	0.0	0	28

Estimated depth may be unreliable because the stronger part of the conductor may be deeper or to one side of the flight line, or because of a shallow dip or overburden effects.

J9101 - FALCONBRIDGE LIMITED ANOMALY LIST - GENOA TOWNSHIP CLAIMS

				AMPLITUDE (PPM)		CONDUCTOR		BIRD
						CTP	DEPTH	HEIGHT
FLIGHT	LINE	ANOMALY	CATEGORY	INPHASE	QUAD.	MHOS	MTRS	MTRS
34	80390	A MAGN	0	-4.3	4.9	0.0	0	27
34	80390	B MAGN	0	-10.3	3.4	0.0	0	25
34	80390	C MAGN	0	-3.2	1.5	0.0	0	31
34	80390	D	0	-0.1	4.9	0.0	0	29
34	80400	A	0	-0.3	4.0	0.0	0	23
34	80400	B MAGN	0	-7.3	0.2	0.0	0	27
34	80400	C MAGN	0	-7.9	1.3	0.0	0	33
34	80410	A MAGN	0	-3.6	1.0	0.0	0	31
34	80410	B MAGN	0	-15.3	1.8	0.0	0	27
34	80410	C MAGN	0	-6.0	1.1	0.0	0	28
34	80410	D	0	0.1	3.6	0.0	0	28

Estimated depth may be unreliable because the stronger part of the conductor may be deeper or to one side of the flight line, or because of a shallow dip or overburden effects.

APPENDIX III

CERTIFICATE OF QUALIFICATIONS

I, IAN JOHNSON, certify that:

1. I am registered as a Professional Engineer in the Province of Ontario.
2. I reside at 38 Tinti Place in the town of Thornhill, Ontario.
3. I hold a Ph.D. in Geophysics from the University of British Columbia, having graduated in 1972.
4. I have been continuously engaged in both professional and managerial roles in the minerals industry in Canada and abroad for the past fourteen years.
5. The accompanying report was prepared from published or publicly available information and material supplied by Falconbridge Limited - Exploration and Aerodat Limited in the form of government reports and proprietary airborne exploration data. I have not personally visited the specific property.
7. I have no interest, direct or indirect, in the property described nor in Falconbridge Limited - Exploration.
8. I hereby consent to the use of this report in a Statement of Material Facts of the Company and for the preparation of a prospectus for submission to the appropriate securities commission and/or other regulatory authorities.

Signed,

Ian Johnson

Ian Johnson, Ph.D., P. Eng.

I. M. JOHNSON

J9101G
Thornhill, Ontario
August 7, 1991

APPENDIX IV

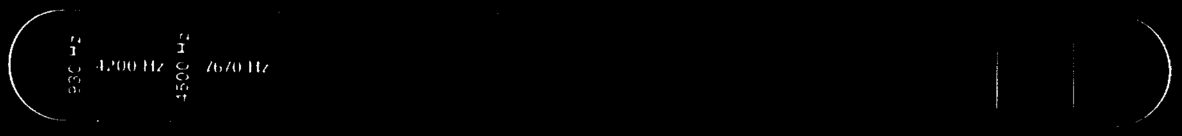
PERSONNEL

FIELD

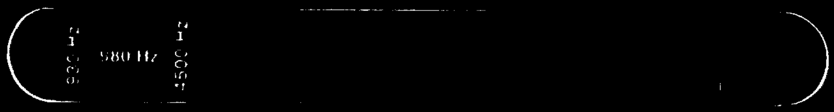
Flown	March 3, 1991
Pilots	Luke Kukovica
Operators	Peter Moore

OFFICE

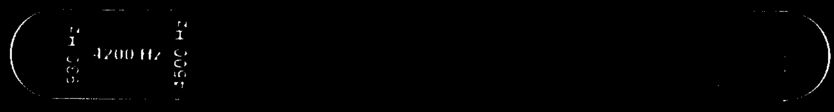
Processing	Mary Chong-Foo George McDonald Ed Hamilton
Report	Ian Johnson



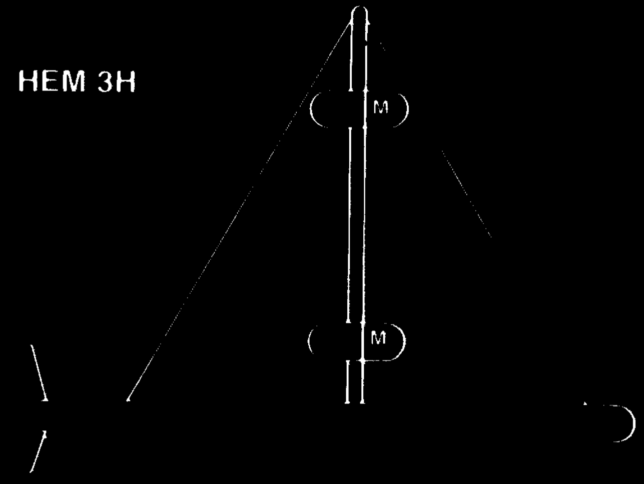
HEM 4



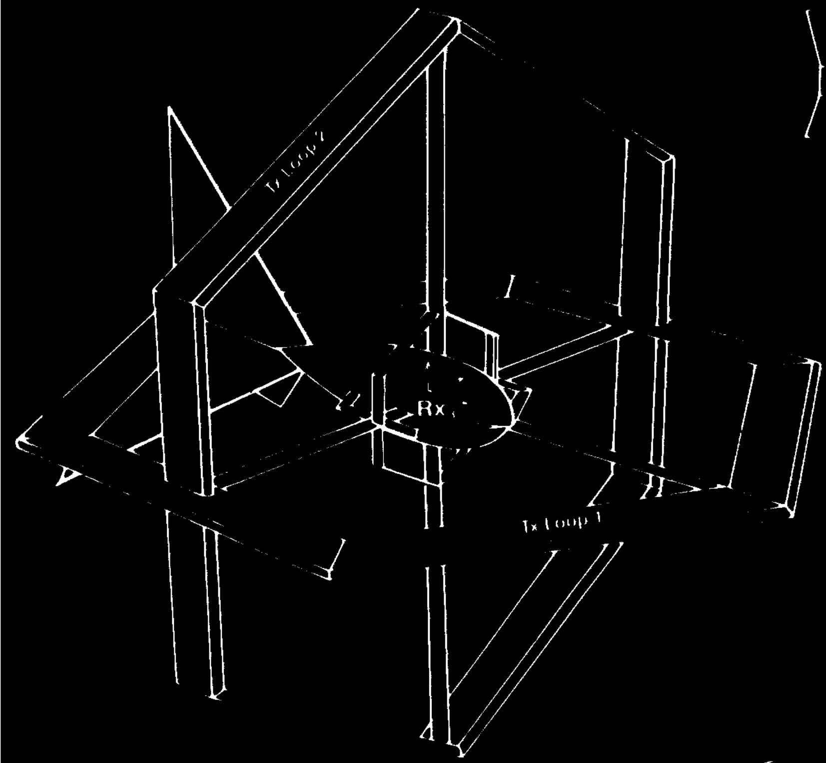
HEM 3L



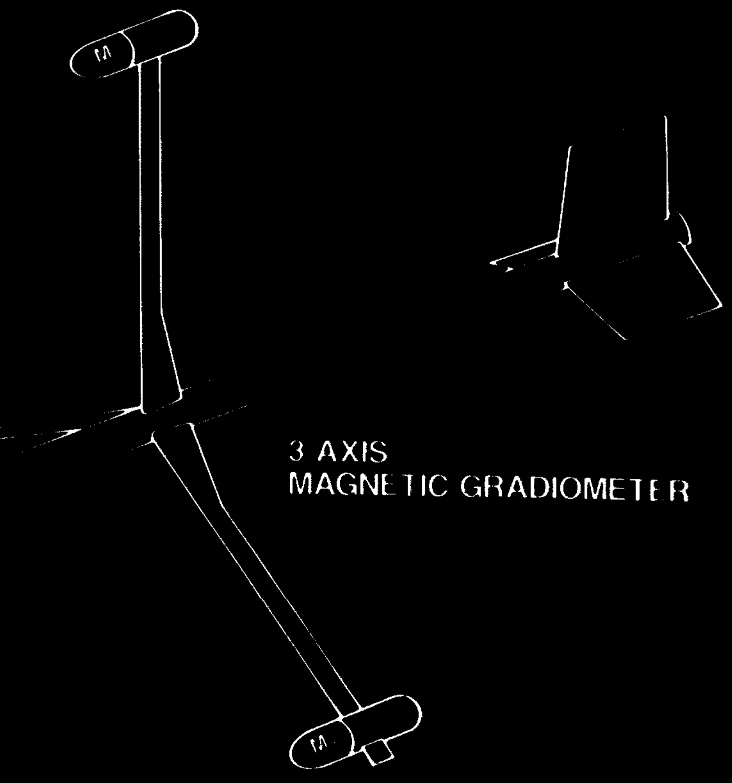
HEM 3H



VERTICAL MAGNETIC GRADIOMETER



EXPERIMENTAL TRANSIENT EM
2 AXIS RIGID GEOMETRY



3 AXIS
MAGNETIC GRADIOMETER

AERODAT began operating in 1968 to provide a specialized service in the field of helicopter-borne geophysical surveys. Since that time several hundred thousand kilometers of electromagnetic, magnetic and radiometric data have been flown. AERODAT offers its clients the most advanced multi-frequency, multi-orientation electromagnetic systems, magnetometers, gamma spectrometers and radar positioning systems, backed by Aerodat's proven operational skill and experience.

SERVICES

ELECTROMAGNETIC HEM and VLF:

Specially designed and configured systems for mineral exploration programs base metals, gold and kimberlites.

Analysis software may be applied to the results to interpret strata resistivity and thickness for geologic mapping, including geotechnical, ground water and placer applications.

MAGNETIC TOTAL FIELD and GRADIENT:

A primary method for geologic and structural mapping. The magnetic gradient method provides maximum resolution of subtle magnetic anomalies and complex geological structures.

GAMMA RAY SPECTROMETRY:

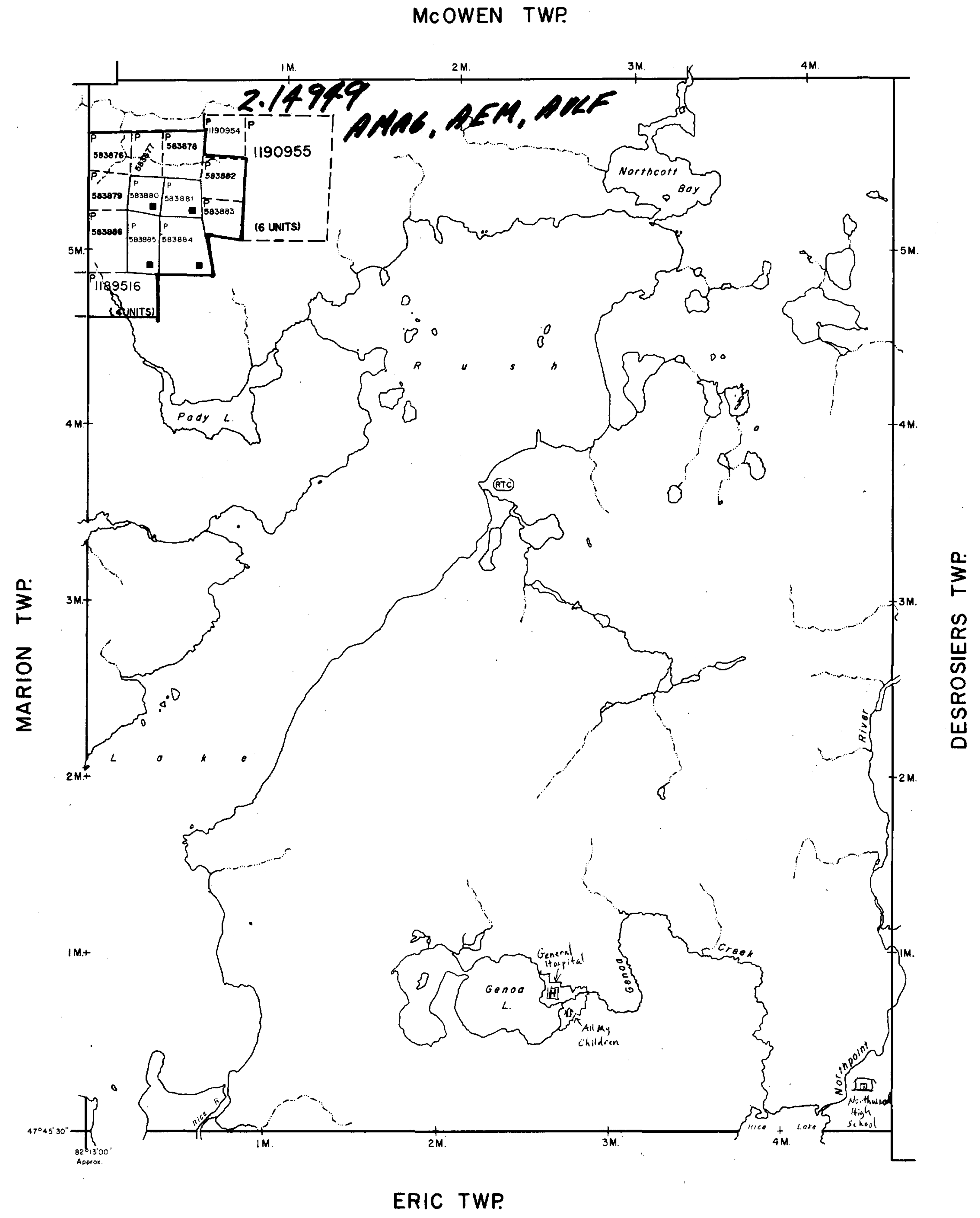
A geophysical method that can aid geological mapping as well as direct uranium exploration programs.

ELECTRONIC NAVIGATION:

Facilitates the navigation and positioning of detailed surveys. Positional control is accurate to better than 10 meters providing a data resolution and accuracy comparable to ground surveys.

COMPUTER COMPILATION and INTERPRETATION:

Advanced in-house compilation hardware and software permit custom tailoring of presentations and analysis products to meet the survey objectives.



SCALE: 1 INCH = 40 CHAINS

FEET 0 1000 2000 4000 6000 8000

METRES 0 200 1000 (1 KM) 2000 (2 KM)

LEGEND

PATENTED LAND	Ⓟ
CROWN LAND SALE	C.S.
LEASES	Ⓛ
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.
L.U.P. LAND USE PERMIT	

(RTC) REMOTE TOURIST CAMPS

NOTES

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

LEASE, SURFACE & MINING RIGHTS ■

PORCUPINE MINING DIVISION
RECEIVED
MAR 18 1993

TOWNSHIP

GENOA

M.N.R. ADMINISTRATIVE DISTRICT

CHAPLEAU

MINING DIVISION

PORCUPINE

LAND TITLES / REGISTRY DIVISION

SUDBURY

Ontario

Ministry of Natural Resources

Ministry of Northern Development and Mines

Date
REVISED FEB. 1990

ACTIVATED AUGUST 18, 1992
BY D.C.

CHECKED BY B.B.

Number
G-1131

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41O15SE9058 2.14949 GENOA

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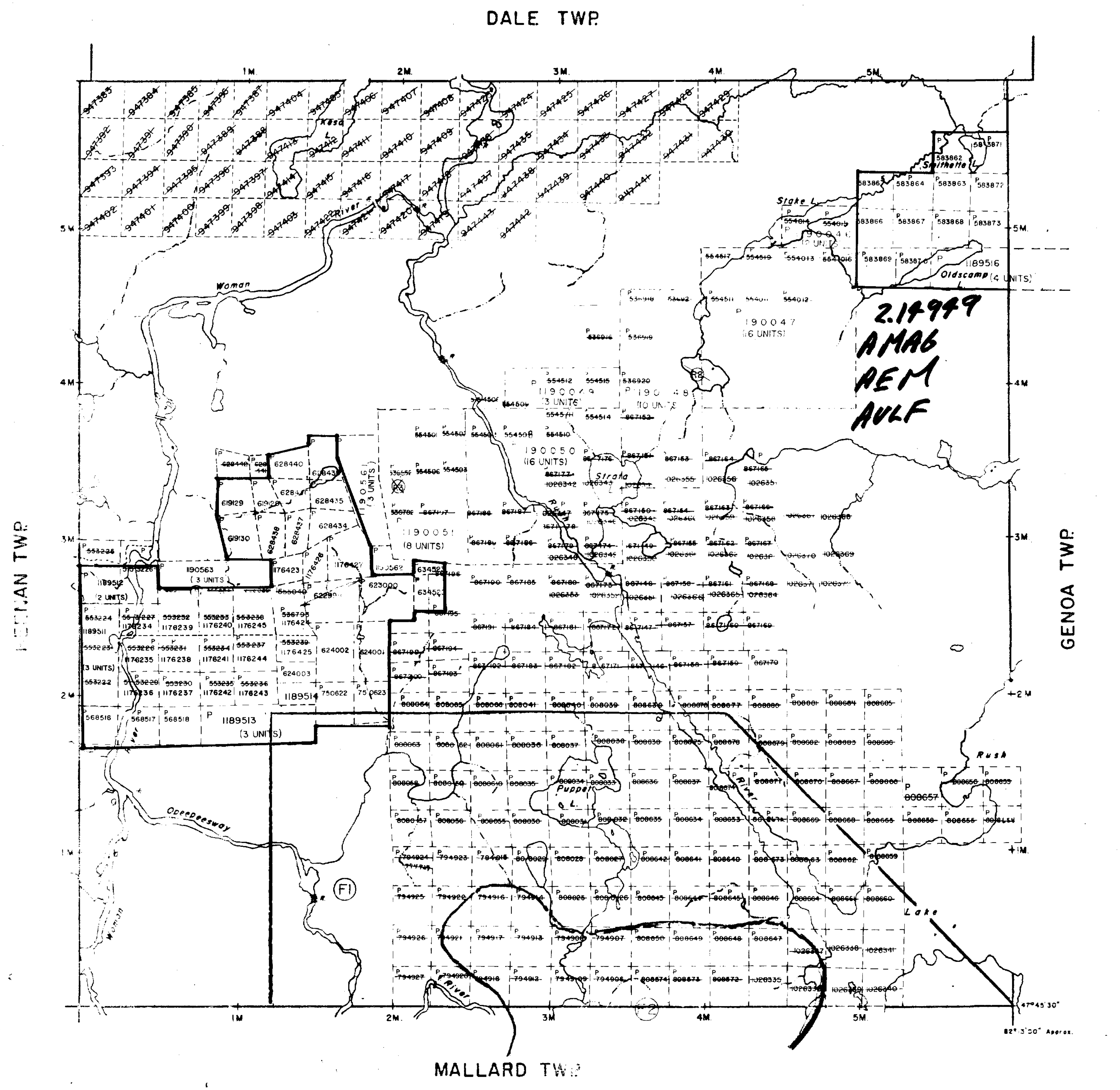
TRIM LINE

TRIM LINE



2.14949
AMAG
AEM
AVLF

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

Ⓡ3 ~~MINING AND SURFACE RIGHTS WITHDRAWN FROM PROSPECTING, STAKING, SALE OR LEASE, SECTION 36 OF THE MINING ACT RSO 1980 ORDER NO. W-60\86 86-05-21~~

SURFACE AND MINING RIGHTS REOPENED TO PROSPECTING, STAKING OUT, SALE OR LEASE UNDER SECTION 36 OF THE MINING ACT RSO 1980 EFFECTIVE 90-NOV. 05 AT 7 AM E.S.T. ORDER NO. 0-P 6\90 NR DATED 90-OCT-22.

SCALE: 1 INCH = 40 CHAINS

Ⓡ2 ~~MINING AND SURFACE RIGHTS WITHDRAWN FROM PROSPECTING, STAKING OUT, SALE OR LEASE UNDER SECTION 36 OF THE MINING ACT RSO 1980 ORDER NO. W-93/87 NR DATED 87-NOV.-10 AT 1:00 P.M.~~

FEET 0 1000 2000 4000 6000 8000

METRES 0 200 1000 1 KM 2000 2 KM

LEGEND

PATENTED LAND	Ⓟ
CROWN LAND SALE	C.S.
LEASES	Ⓛ
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.	⊖
LAND USE PERMIT	*

Ⓕ2 THIS TWP. IS SUBJECT TO FOREST ACTIVITY IN 1993/94. FURTHER INFORMATION ON FILE.

NOTES

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

Ⓡ1 ~~MINING AND SURFACE RIGHTS WITHDRAWN FROM STAKING UNDER SECTION 36 OF THE MINING ACT R.S.O. 1980 ORDER NO. W-11/87 DATED 87-FEB.-3 (P-555037 TO 039 INCL.)~~

Ⓕ1 **THIS TWP. IS SUBJECT TO FOREST ACTIVITIES IN 1992/93 FURTHER INFORMATION AVAILABLE ON FILE.**

Ⓡ2 MINING AND SURFACE RIGHTS RE-OPENED TO PROSPECTING, STAKING OUT, SALE AND LEASE UNDER SECTION 36 OF THE MINING ACT RSO 1980 EFFECTIVE 90-NOV. 05 AT 7 AM E.S.T. ORDER NO. 0-P 07\90 NR DATED 90-OCT-22

TOWNSHIP
MARION

M.N.R. ADMINISTRATIVE DISTRICT
CHAPLEAU

Ⓡ1 SURFACE AND MINING RIGHTS RE-OPENED TO PROSPECTING, STAKING OUT, SALE OR LEASE UNDER SECTION 35 OF THE MINING ACT, RSO 1990 EFFECTIVE 92-MAY-05 AT 7:00 AM E.S.T. ORDER NO.0-P-11/92 NER DATED 92-APR-15

MINING DIVISION
PORCUPINE

LAND TITLES / REGISTRY DIVISION
SUDBURY

PORCUPINE MINING DIVISION
RECEIVED
MAR 17 1993

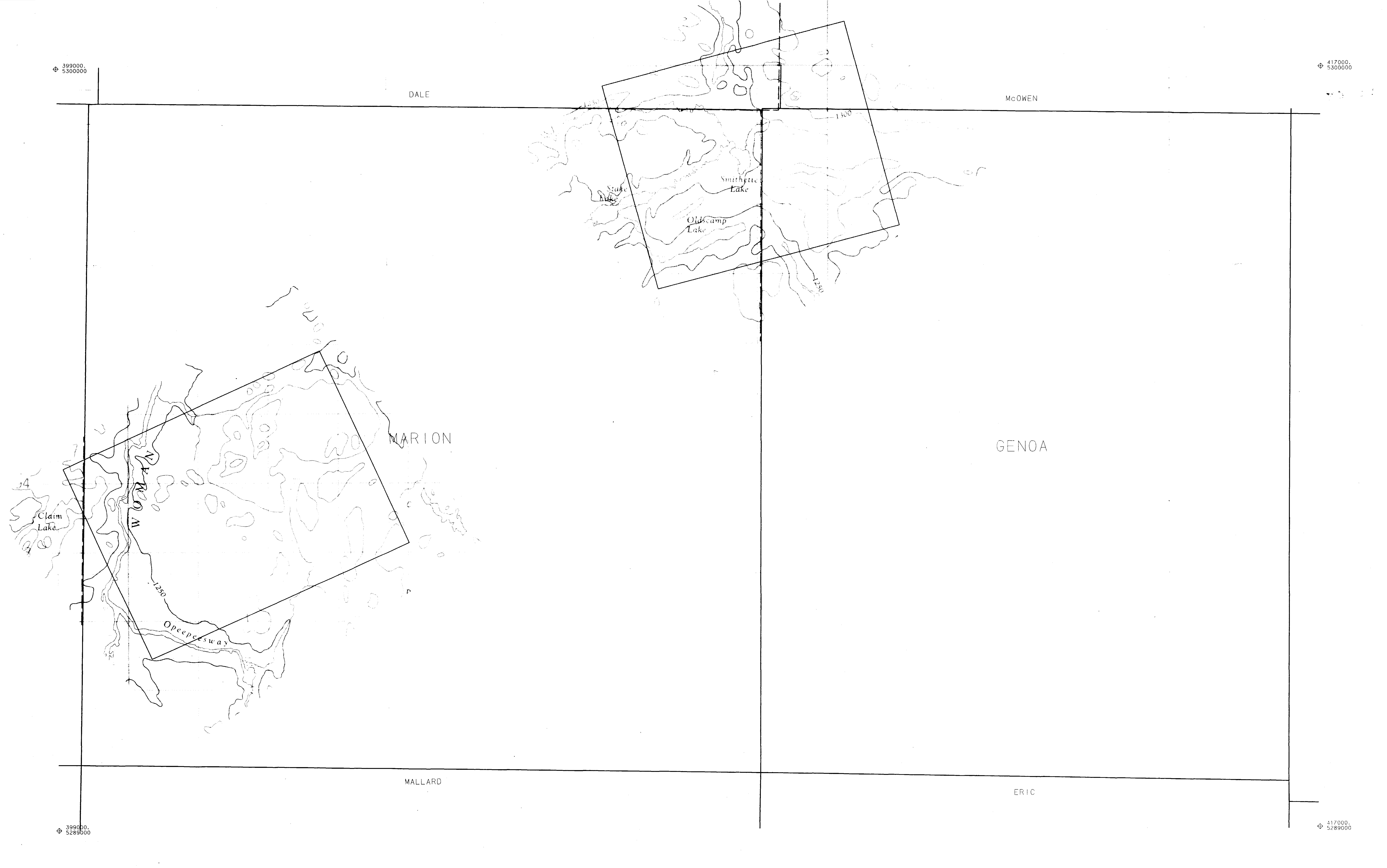
Ministry of Natural Resources
Ministry of Northern Development and Mines
Ontario

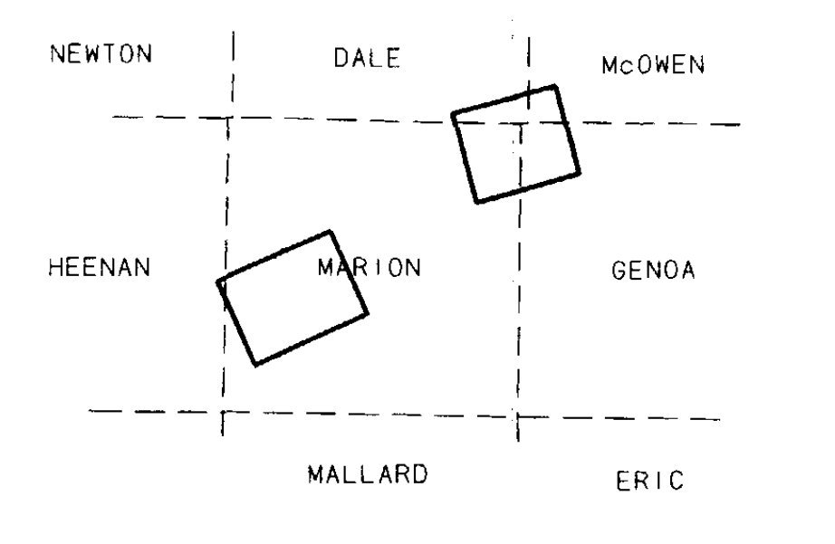
Date	Number
JULY 1986	G-1174
Traced LP checked L.H. nov 17/86	

THE INFORMATION THAT APPEARS ON THIS MAP HAS BEEN COMPILED FROM VARIOUS SOURCES. AND ACCURACY IS NOT GUARANTEED. THOSE WISHING TO STAKE MINING CLAIMS SHOULD CONSULT WITH THE MINING

41016SE9058 2.14949 GENOA

201





FALCONBRIDGE LIMITED

BASE MAP

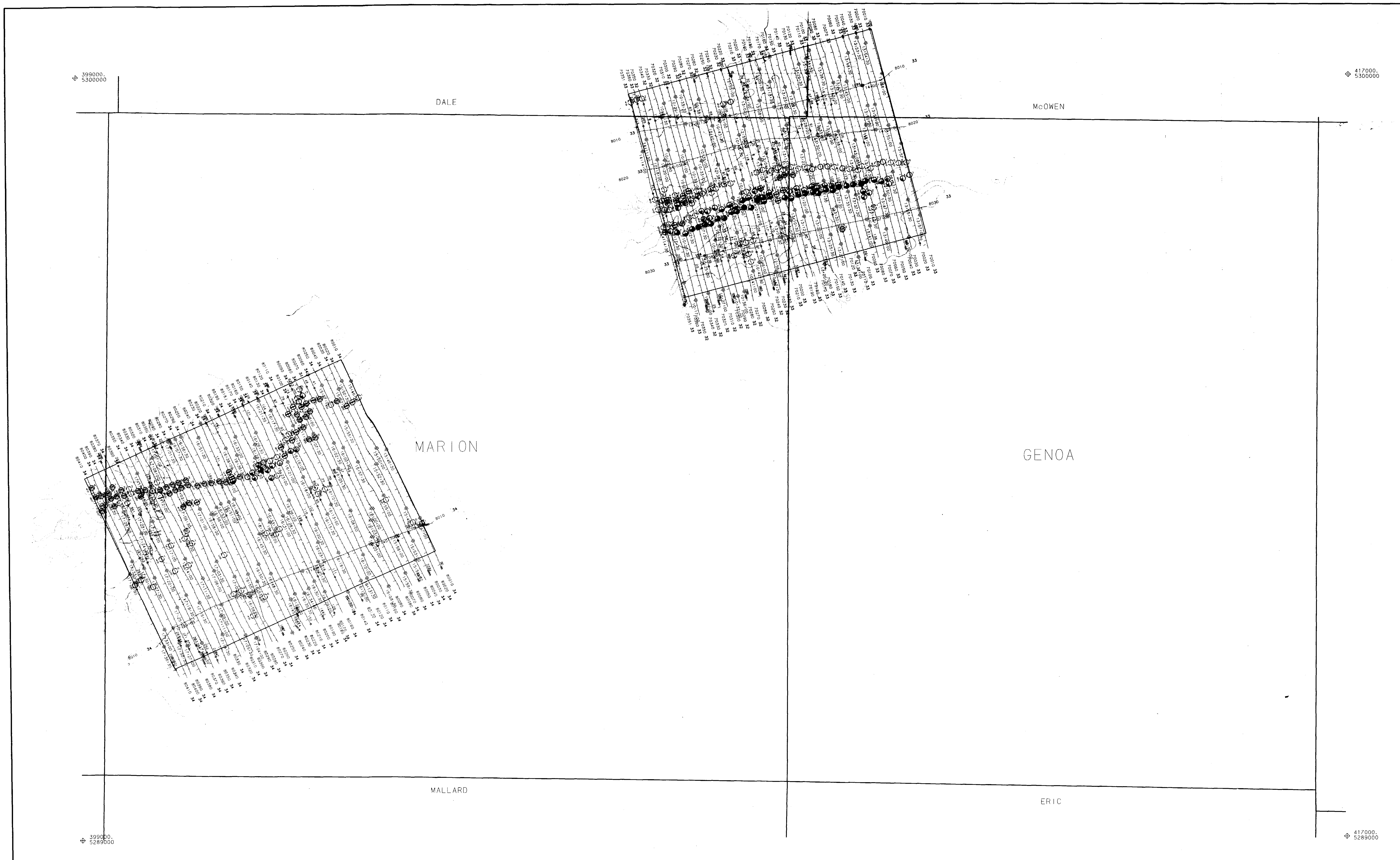
2.14949

GENOA TOWNSHIP CLAIMS (PN 8668)
MARION TOWNSHIP, ONTARIO

SCALE 1:20,000
0 660 1320 2640 5280 Feet
0 200 400 1000 2000 Metres

AERODAT LIMITED

DATE : MAR 1991
NTS No: 41 0/16
MAP No: MARION & GENOA J9101



Flight Path

Navigation and recovery using Motorola Mini-Ranger (MRS III) radar navigation system.

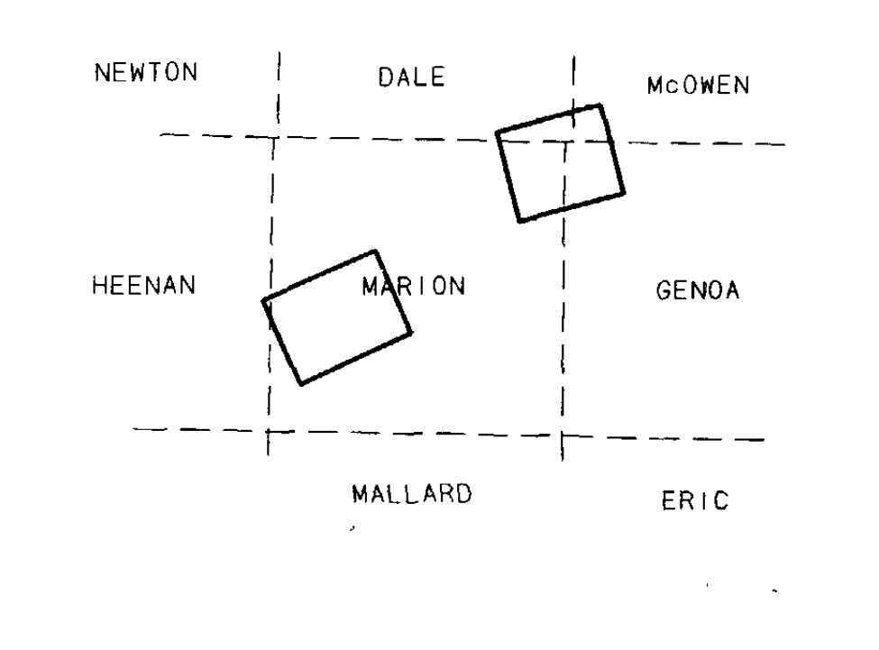
Average terrain clearance 60m
Average line spacing 100m

EM Anomalies

Conductivity Thickness (mhos)

- ◌ 0 - 1
- ○ 1 - 2
- ⊖ 2 - 4
- ◐ 4 - 8
- ◒ 8 - 15
- ◕ 15 - 30
- ● > 30
- ⊗ Magnetite Anomaly

EM Anomaly A, 935 Hz inphase amplitude 7 ppm. Conductivity thickness 2 mhos (see code).



FALCONBRIDGE LIMITED

FLIGHT PATH

2.14949

GENOA TOWNSHIP CLAIMS (PN 8668)

MARION TOWNSHIP, ONTARIO

SCALE 1:20,000

0 660 1320 2640 5280 Feet

0 200 400 1000 2000 Metres

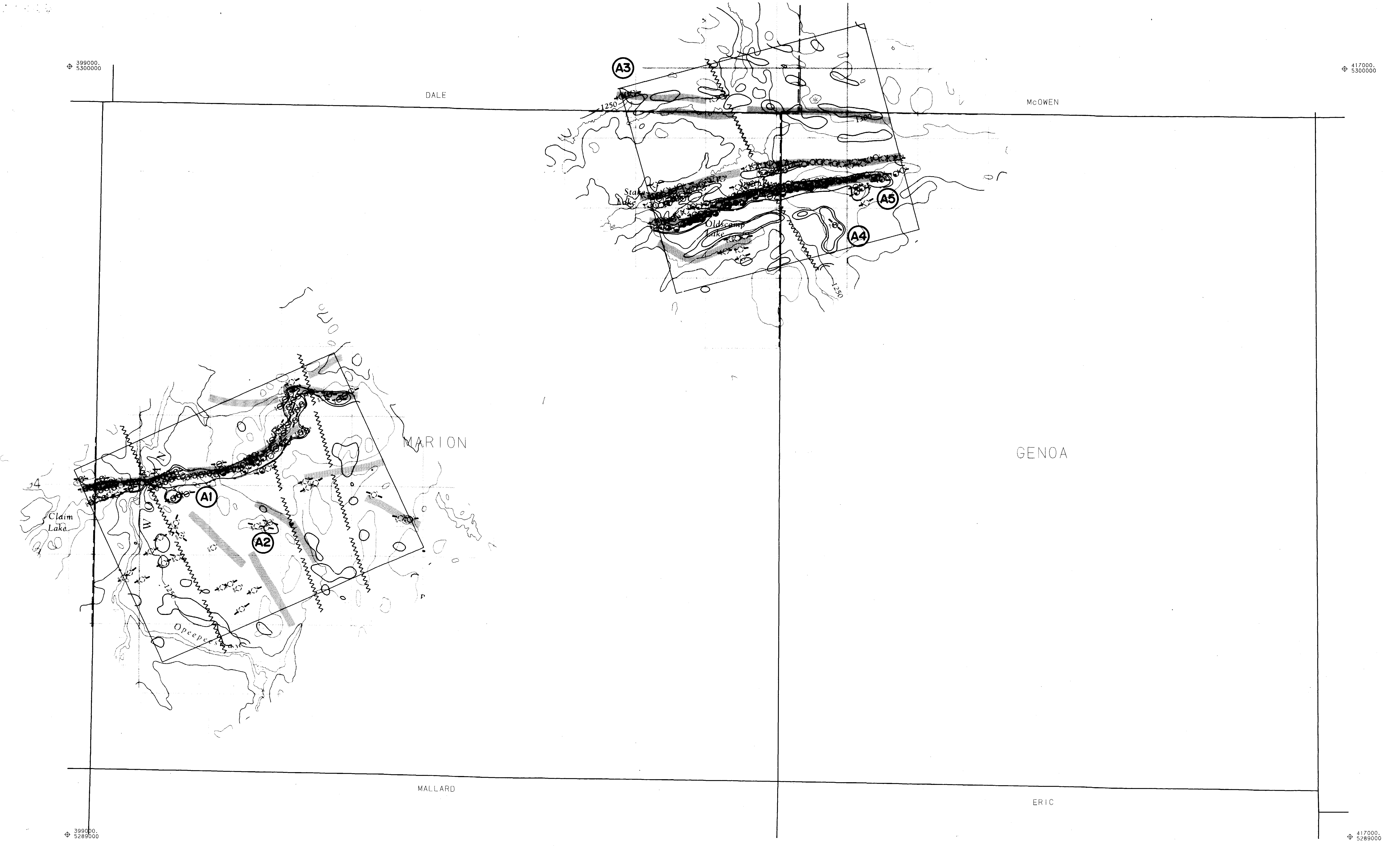
AERODAT LIMITED

DATE : MAR 1991

NTS No: 41 0/16

MAP No: MARION & GENOA J9101

203



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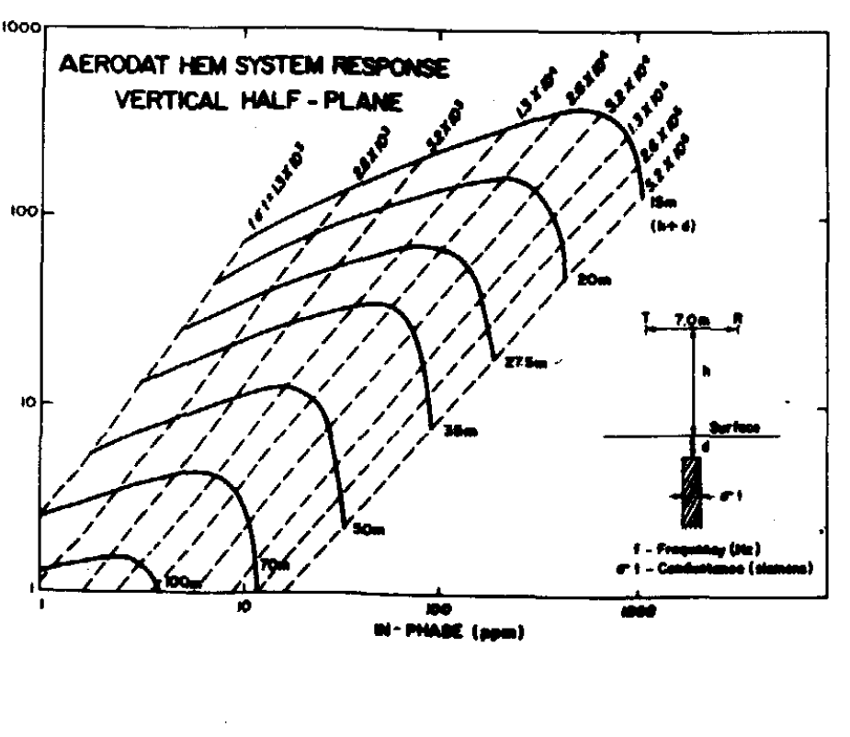


INTERPRETATION LEGEND

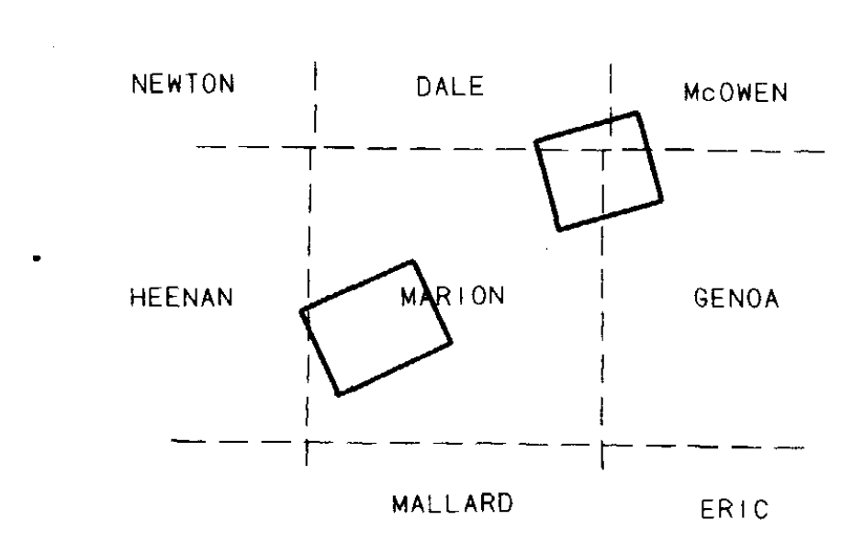
—○—	Conductor Axis
≈	Vertical Gradient Contour Lines +5 nT/m and +25 nT/m
⋀⋀⋀⋀	Possible Fault
Ⓐ1	Target Label
▨	VLF Conductor Axis

EM Anomalies

Conductivity Thickness (mhos)

◌	0 - 1
○	1 - 2
⊖	2 - 4
◐	4 - 8
◒	8 - 15
◕	15 - 30
●	> 30
⊗	Magnetite Anomaly

EM Anomaly A, 935 Hz
inphase amplitude 7 ppm.
Conductivity thickness
2 mhos (see code).



FALCONBRIDGE LIMITED

INTERPRETATION

2.14949

GENOA TOWNSHIP CLAIMS (PN 8668)

MARION TOWNSHIP, ONTARIO

SCALE 1:20,000

0 660 1320 2640 5280 Feet

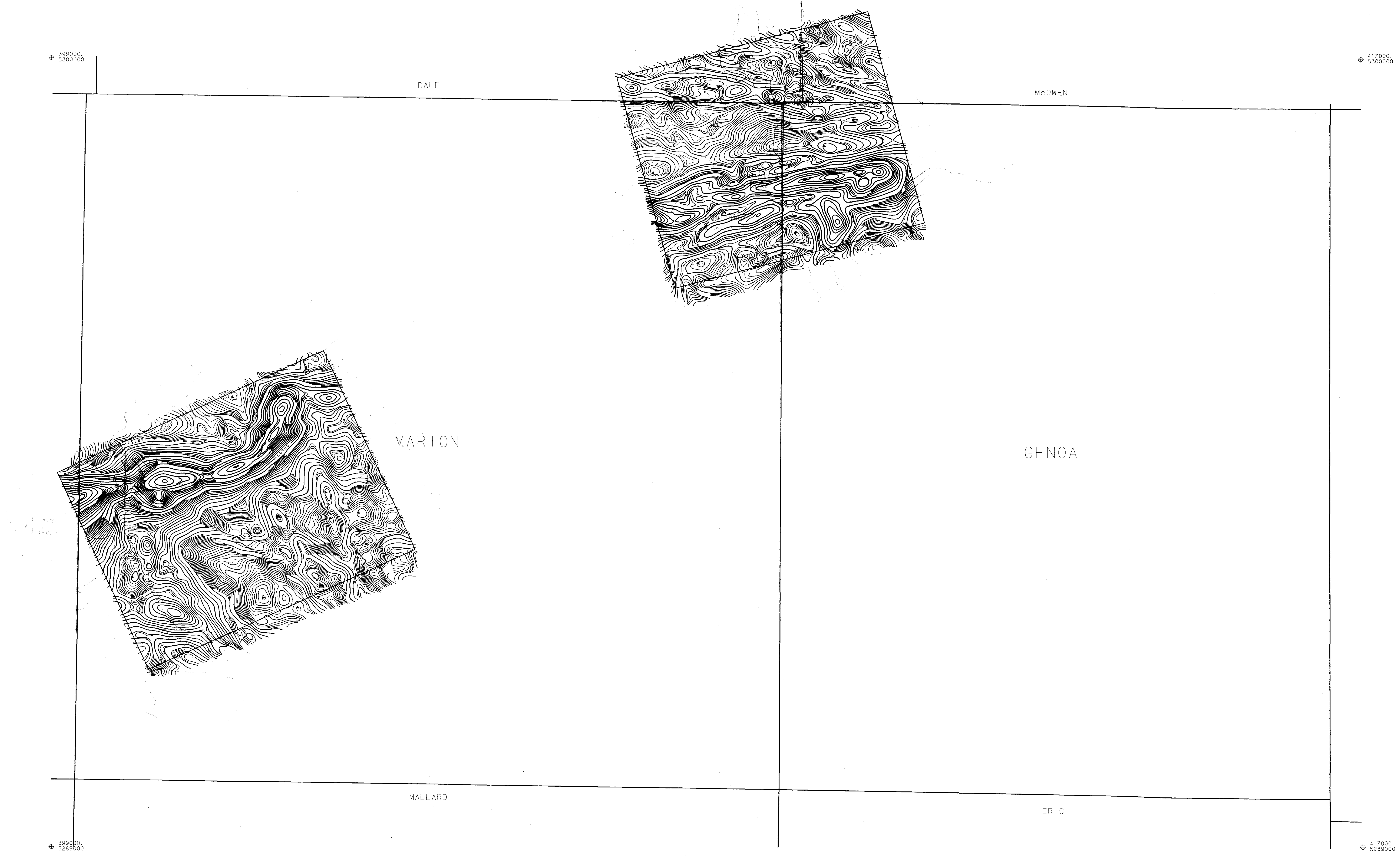
0 200 400 1000 2000 Metres

AERODAT LIMITED

DATE : MAR 1991

NTS No: 41 O/16

MAP No: MARION & GENOA J9101



Magnetics

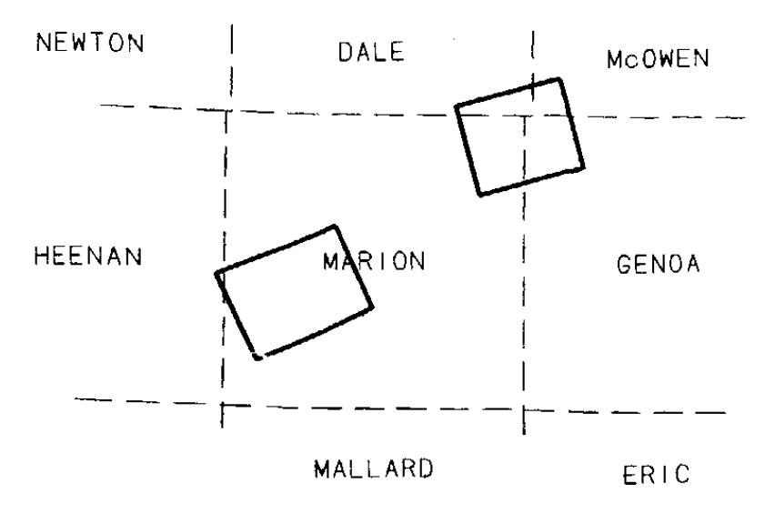
Total Field Magnetic Intensity Contours in nT.

Cesium high sensitivity magnetometer.

Sensor elevation 45m

Map contours are multiples of those listed below

- 2 nT
- 10 nT
- 50 nT
- 250 nT
- 1000 nT



FALCONBRIDGE LIMITED

TOTAL FIELD MAGNETIC CONTOURS

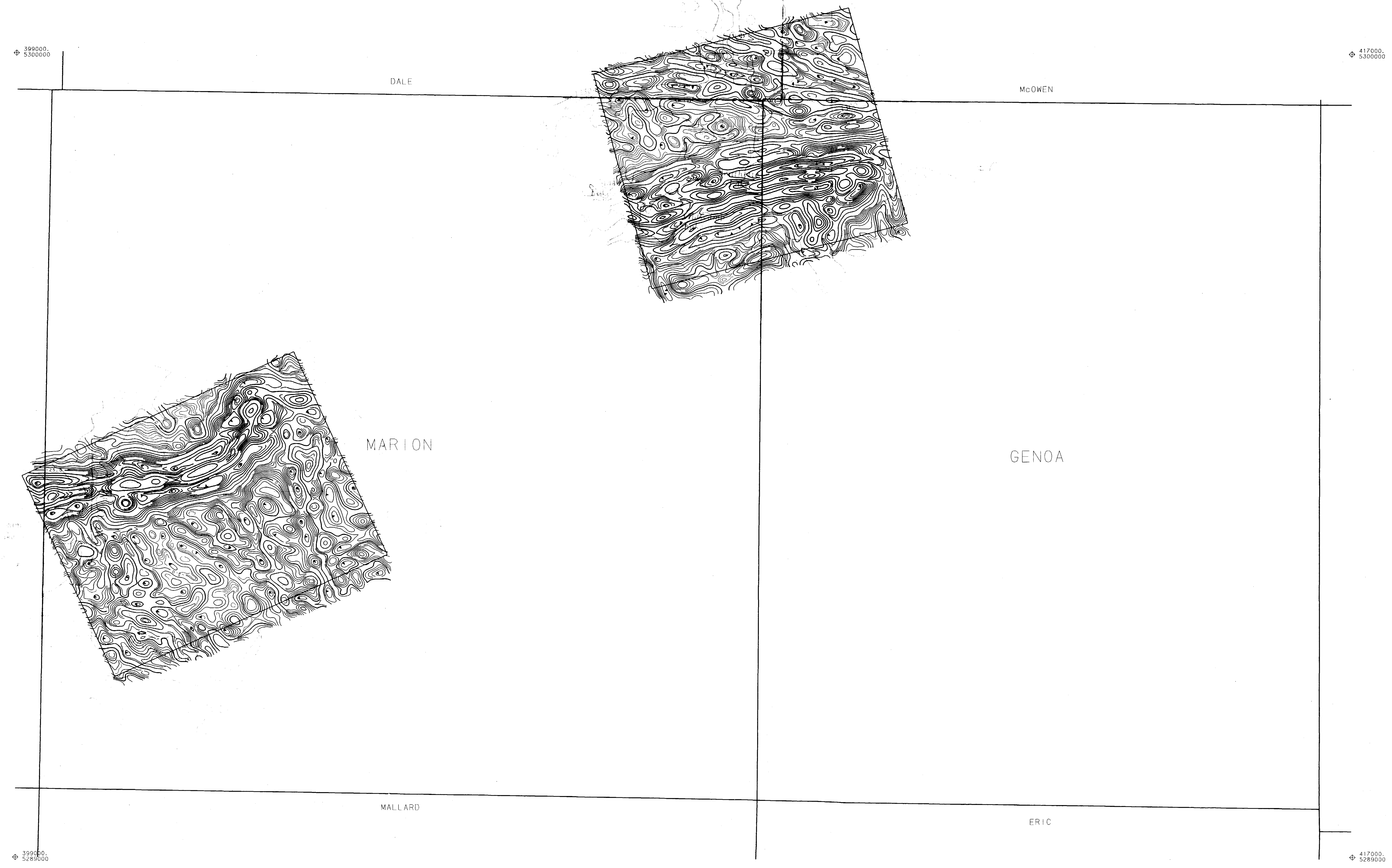
2.14949

GENOA TOWNSHIP CLAIMS (PN 8668)
MARION TOWNSHIP, ONTARIO

SCALE 1:20,000
0 660 1320 2640 5280 Feet
0 200 400 1000 2000 Metres

AERODAT LIMITED

DATE : MAR 1991
NTS No: 41 O/16
MAP No: MARION & GENOA J9101



Vertical Gradient

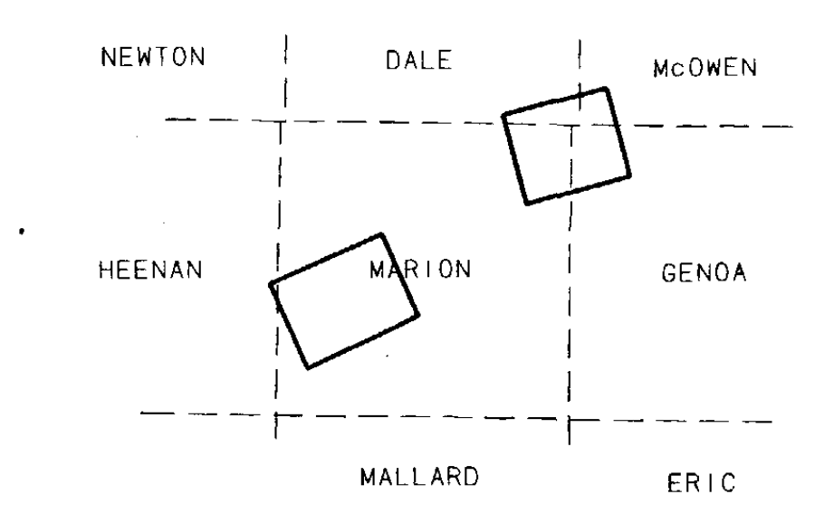
Vertical Magnetic Gradient calculated from the total field magnetic intensity in nT/m.

Cesium high sensitivity magnetometer.

Sensor elevation 45m

Map contours are multiples of those listed below

———	0.20 nT/m
———	1.00 nT/m
———	5.00 nT/m
———	25.0 nT/m
———	100 nT/m



FALCONBRIDGE LIMITED

CALCULATED VERTICAL MAGNETIC GRADIENT

2.14949

GENOA TOWNSHIP CLAIMS (PN 8668)

MARION TOWNSHIP, ONTARIO

SCALE 1:20,000

0 660 1320 2640 5280 Feet

0 200 400 1000 2000 Metres

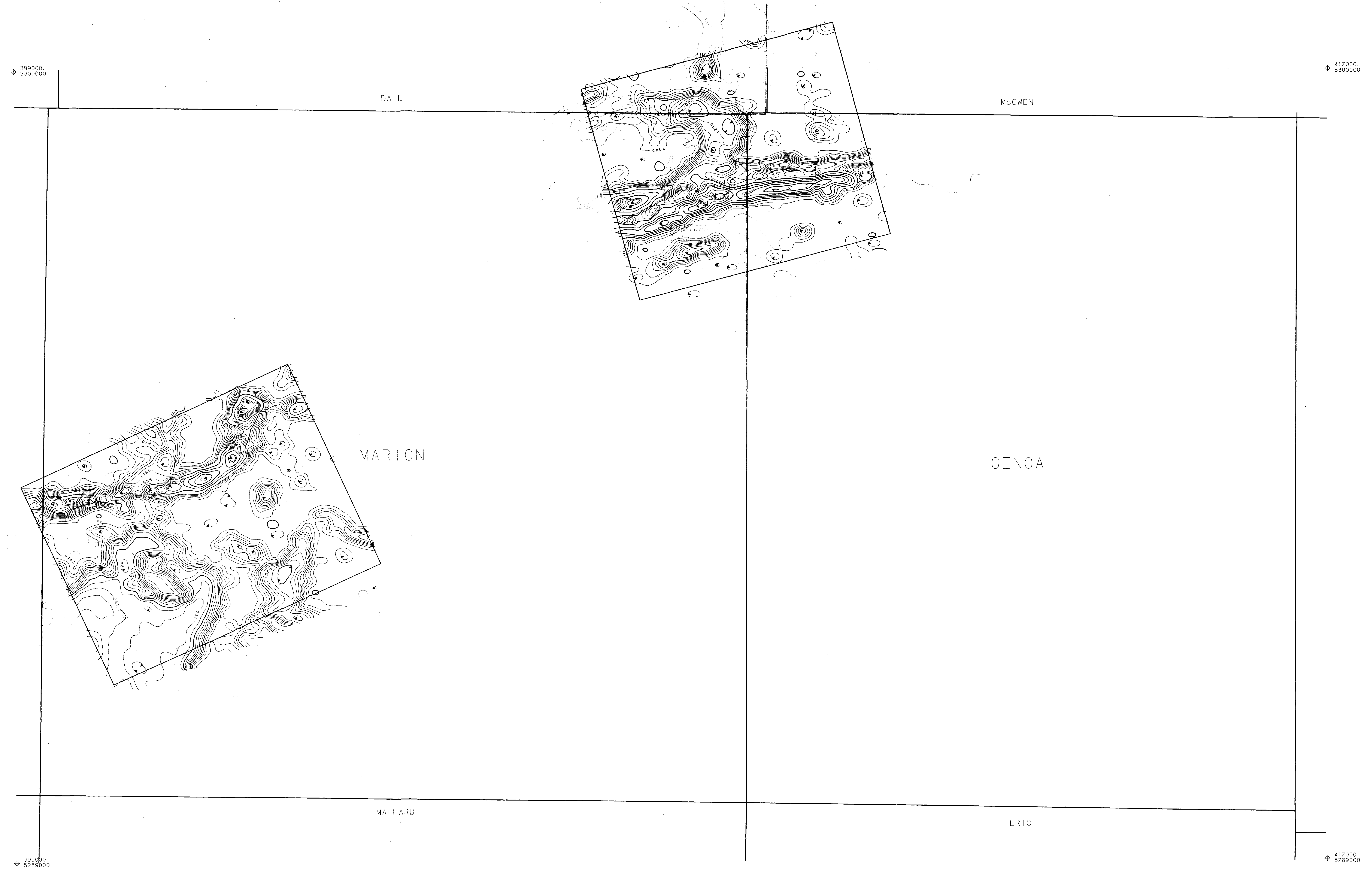
AERODAT LIMITED

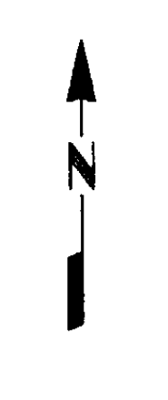
DATE : MAR 1991

NTS No: 41 0/16

MAP No: MARION & GENOA J9101

41016SE9058 2.14949 GENOA





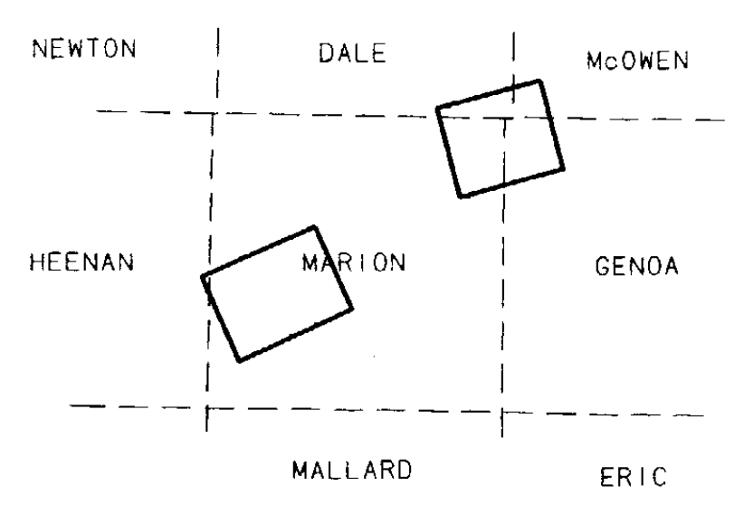
Apparent Resistivity

Calculated from 935 Hz
coaxial EM response assuming
a 200 m conductive layer.

Contouring in ohm*m at
logarithmic intervals.

Sensor elevation 30m

Map contours are multiples of
those listed below
0.1 log(ohm*m)
0.5 log(ohm*m)
1.0 log(ohm*m)
5.00 log(ohm*m)



FALCONBRIDGE LIMITED

APPARENT RESISTIVITY CONTOURS (935 Hz)

2.14949

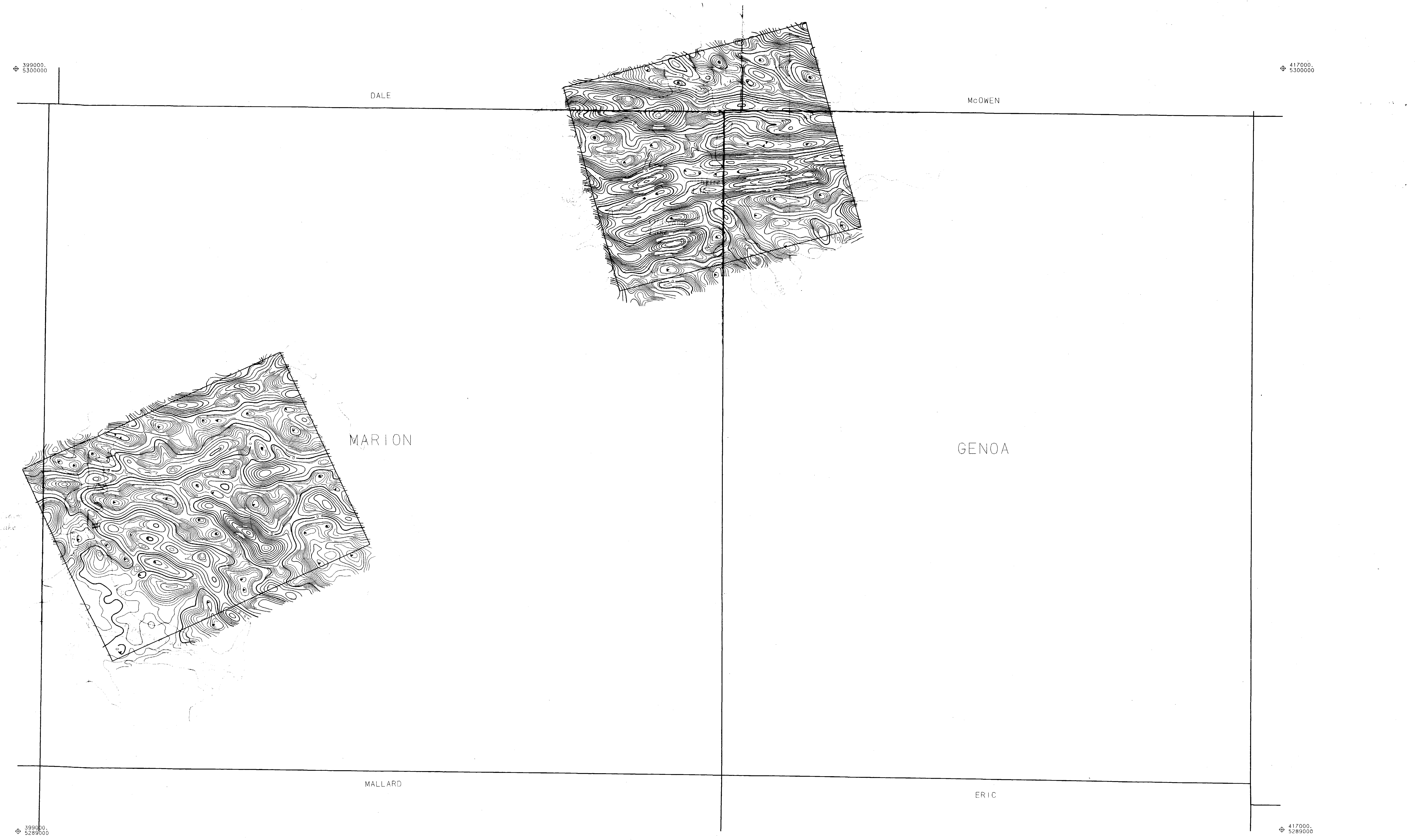
GENOA TOWNSHIP CLAIMS (PN 8668)
MARION TOWNSHIP, ONTARIO

SCALE 1:20,000
0 660 1320 2640 5280 Feet
0 200 400 1000 2000 Metres

AERODAT LIMITED

DATE : MAR 1991
NTS No: 41 O/16
MAP No: MARION & GENOA J9101

207



VLF-EM

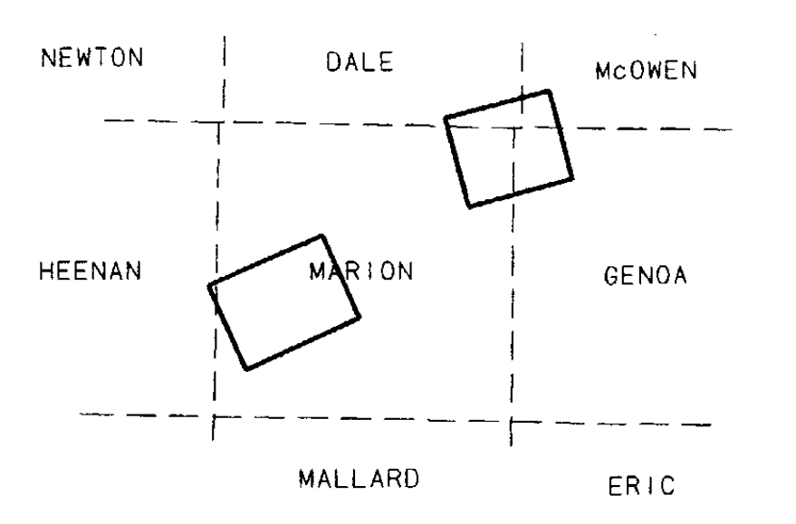
VLF-EM Total Field Intensity in percent.

Station: NAA
Cutler, Maine
24.0 kHz

Sensor elevation 45m

Map contours are multiples of those listed below

———	0.5 %
———	2.5 %
———	10.0 %
———	50.0 %



FALCONBRIDGE LIMITED

VLF-EM TOTAL FIELD CONTOURS

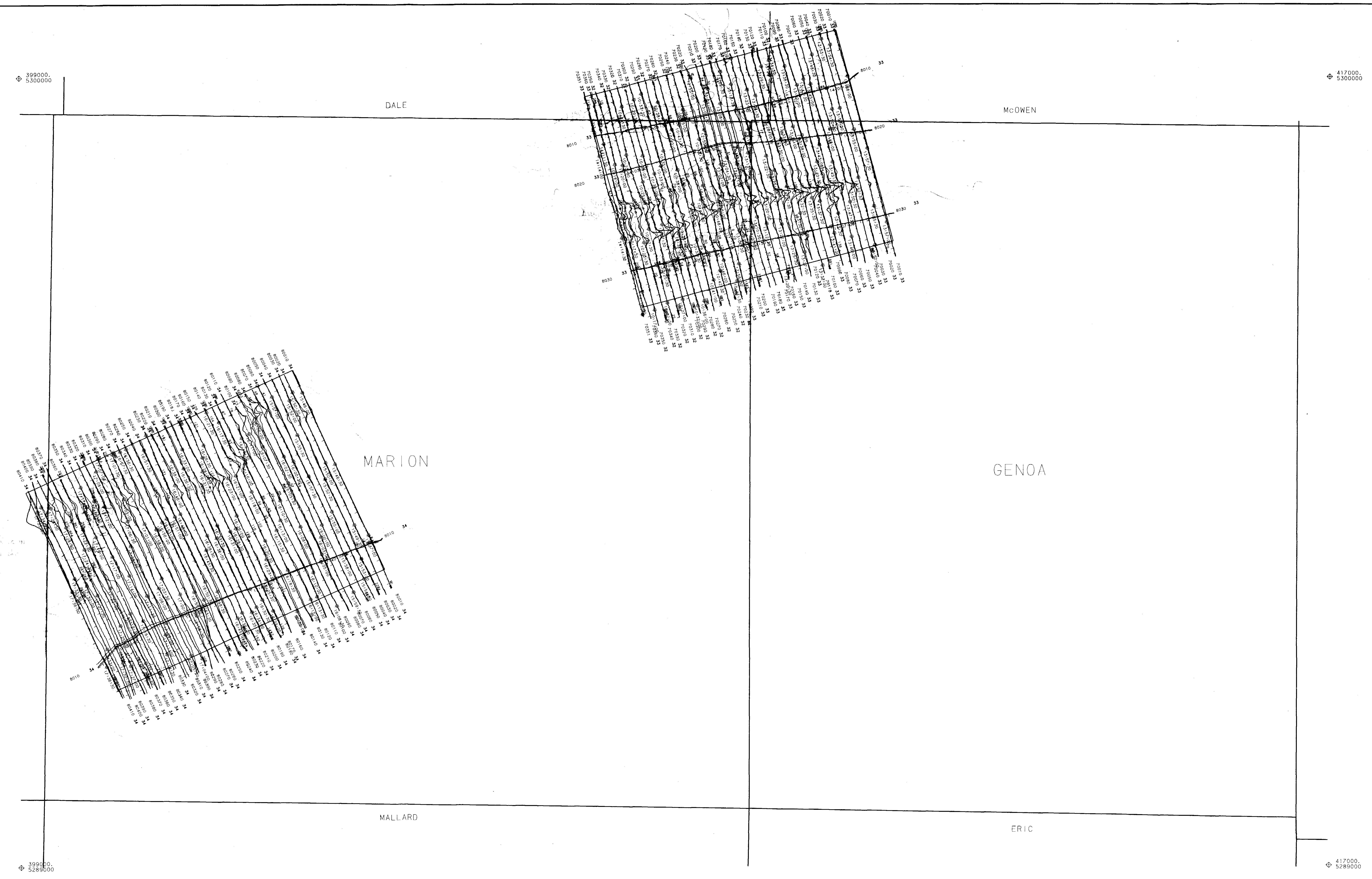
2.14949

GENOA TOWNSHIP CLAIMS (PN 8668)
MARION TOWNSHIP, ONTARIO

SCALE 1:20,000

AERODAT LIMITED

DATE : MAR 1991
NTS No: 41 O/16
MAP No: MARION & GENOA J9101



Flight Path

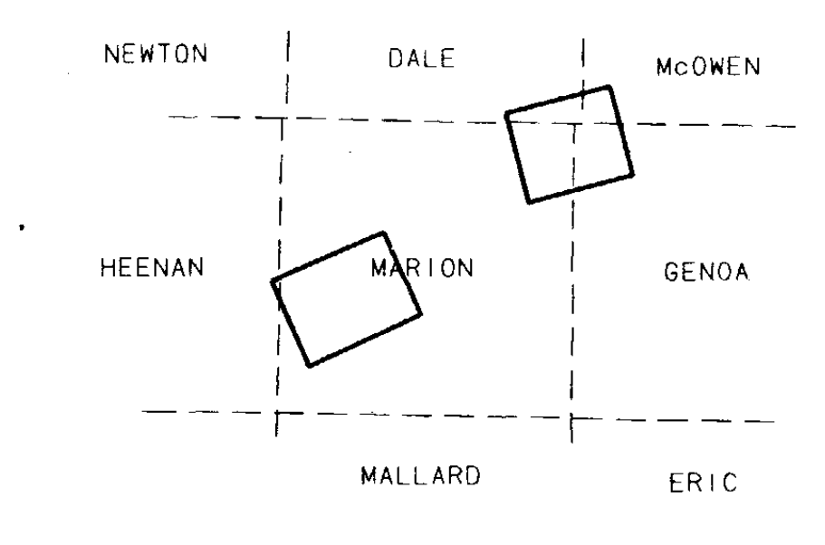
Navigation and recovery using
Motorola Mini-Ranger (MRS III)
radar navigation system.

Average terrain clearance 60m
Average line spacing 100m

EM Profiles

935 Hz Coaxial	2 ppm/mm
———	inphase component
———	quadrature component

Sensor elevation..........30
Coil separation........



FALCONBRIDGE LIMITED

EM PROFILES (935 Hz)

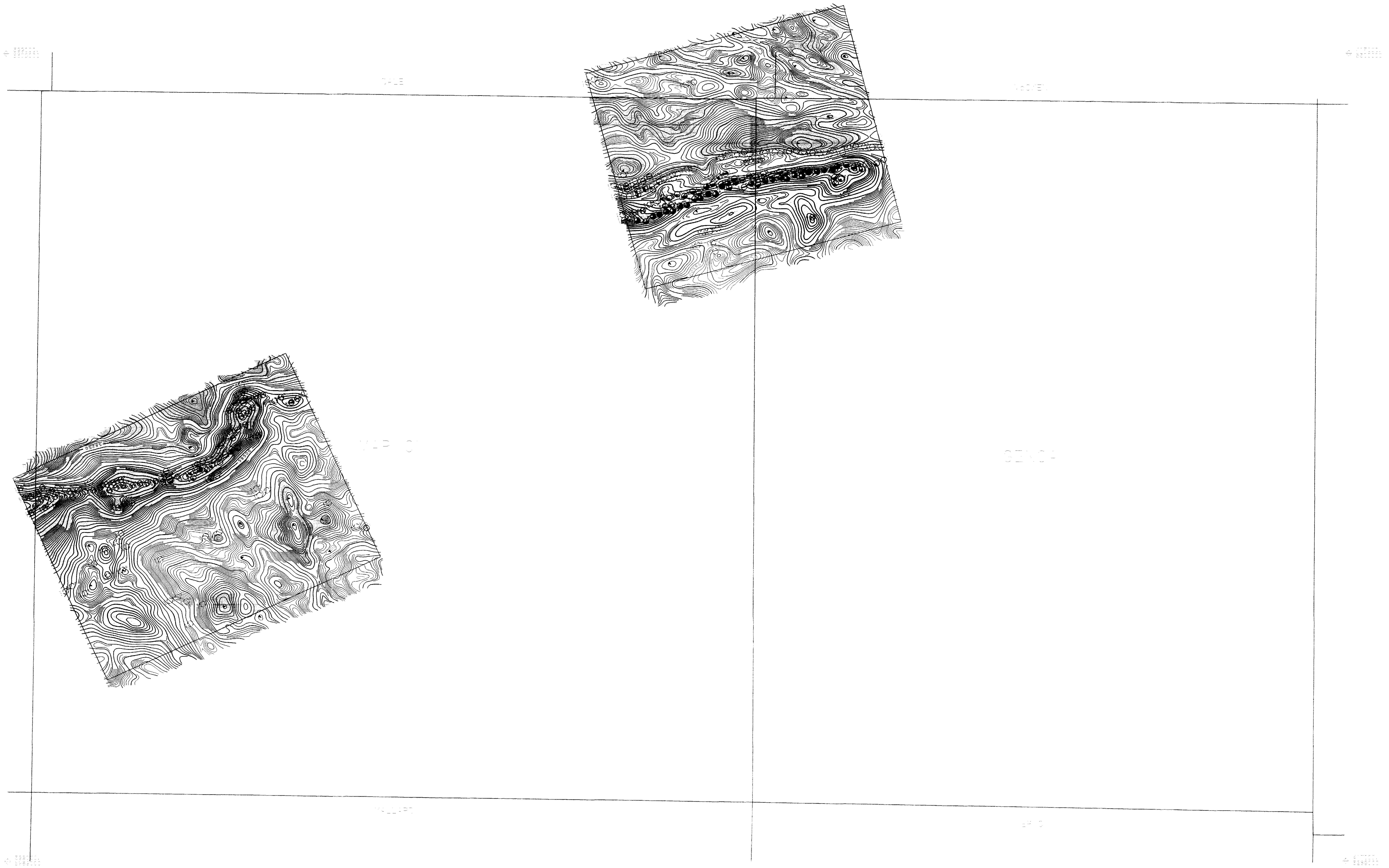
2.14949

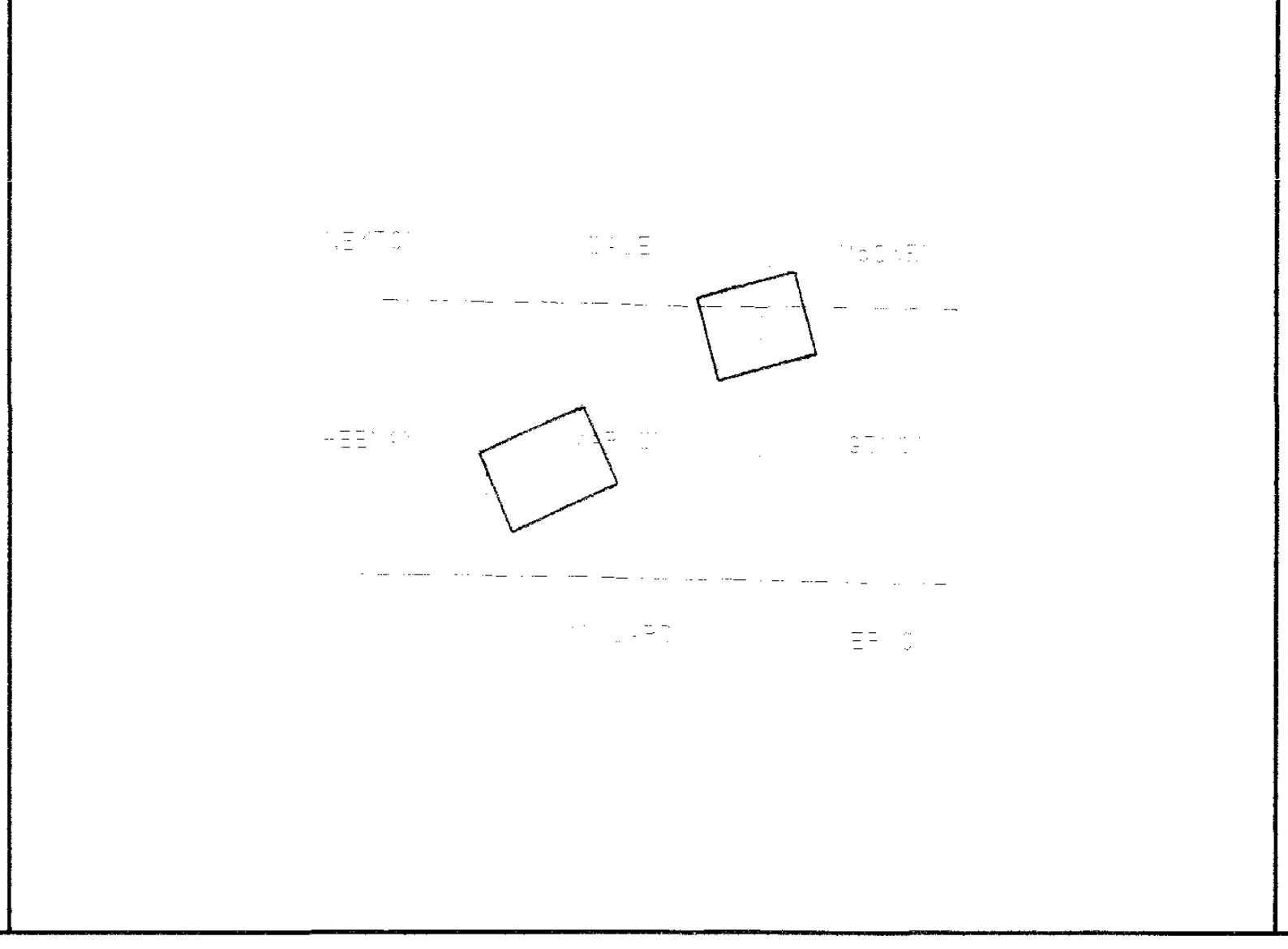
GENOA TOWNSHIP CLAIMS (PN 8668)
MARION TOWNSHIP, ONTARIO

SCALE 1:20,000
0 660 1320 2640 5280 Feet
0 200 400 1000 2000 Metres

AERODAT LIMITED

DATE :	MAR 1991
NTS No:	41 O/16
MAP No:	MARION & GENOA J9101





EM Anomalies

Conductivity Thickness (mhos)

0 - 1
1 - 2
2 - 4
4 - 8
8 - 15
15 - 30
> 30

[illegible]

Magnetics

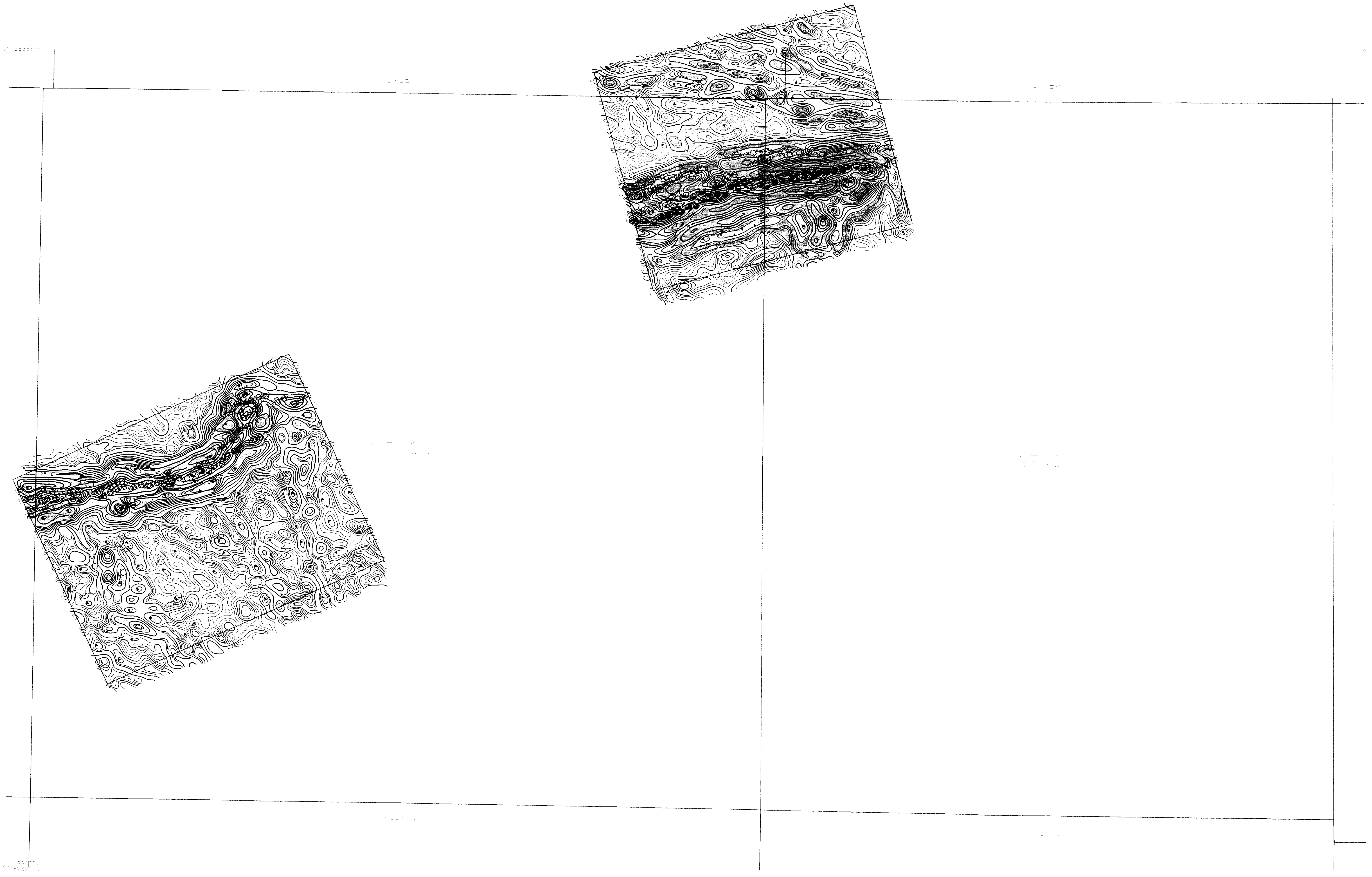
[illegible]

FALCONBRIDGE LIMITED

TOTAL FIELD MAGNETICS
CONTOURS AND COLOURS

GENOA TOWNSHIP CLAIMS (PN 8668)
MARION TOWNSHIP, ONTARIO

AERODAT LIMITED

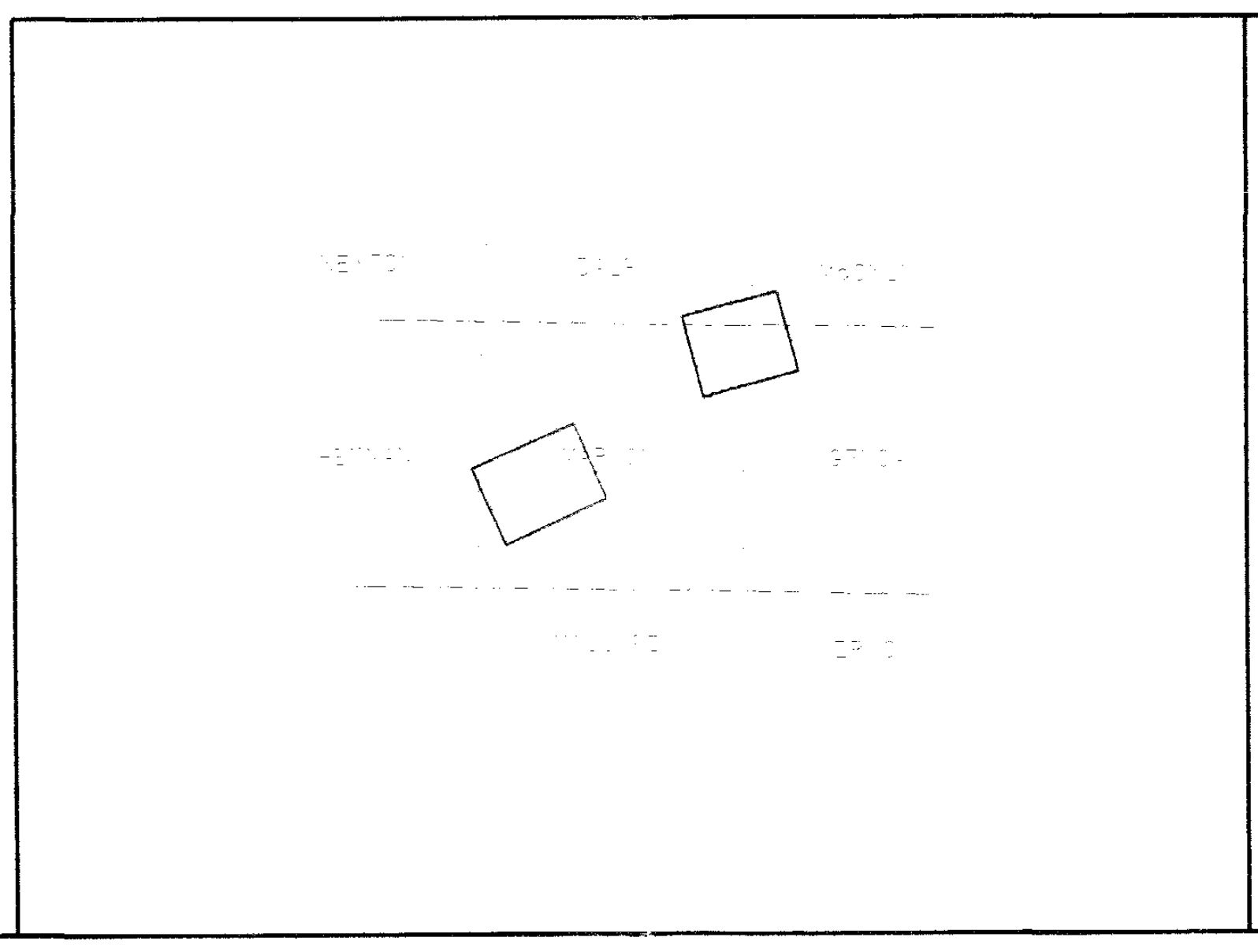


EM Anomalies

Conductivity Thickness (mhos)

- 0 - 1
- 1 - 2
- 2 - 4
- 4 - 8
- 8 - 15
- 15 - 30
- > 30
- Magnetite Anomaly

Vertical Gradient



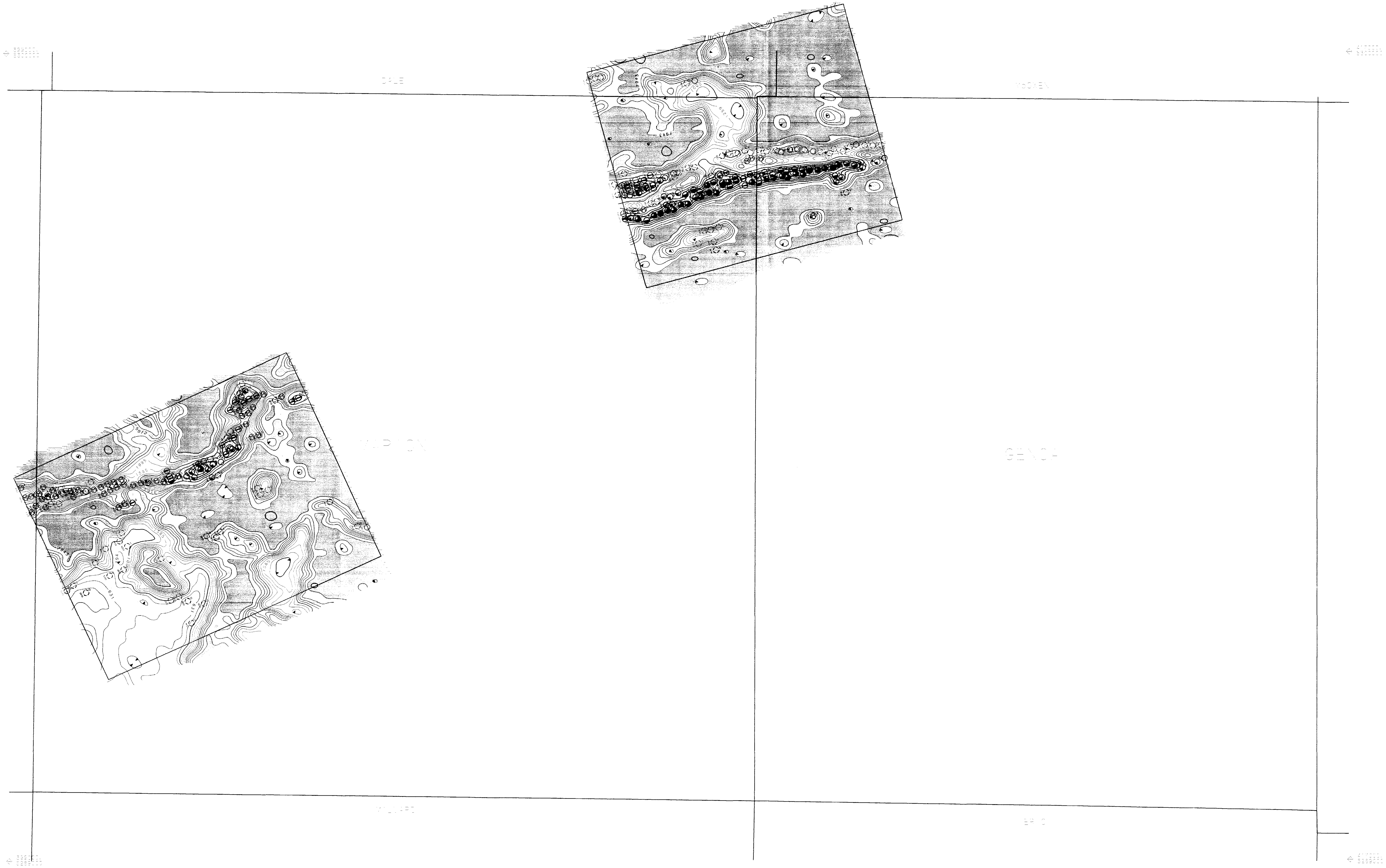
FALCONBRIDGE LIMITED

CALCULATED VERTICAL MAGNETIC GRADIENT
CONTOURS AND COLOURS

GENOA TOWNSHIP CLAIMS (PN 8668)
MARION TOWNSHIP, ONTARIO

SCALE 1:20,000

AERODAT LIMITED



EM Anomalies

Conductivity Thickness (mhos)

- ○ 0 - 1
- ○ 1 - 2
- ⊖ 2 - 4
- ◔ 4 - 8
- ◒ 8 - 15
- ◕ 15 - 30
- ● > 30
- Magnetite Anomaly

EM Anomaly A, 935 Hz [illegible]
Conductivity thickness
2 mhos (see code)

Apparent Resistivity

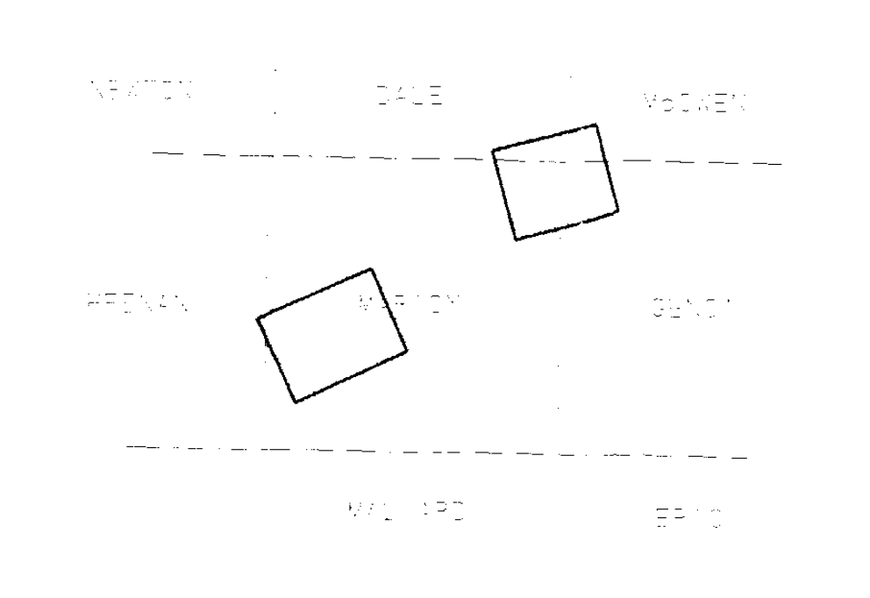
Calculated from 935 Hz
coaxial EM response assuming
a 200 m conductive layer.

Contouring in ohm-m at
logarithmic intervals.

Sensor elevation 30m

Map contours are multiples of
those listed below

15849
7943
6310
5012
3981
3162
2512
1995
1585
1000
794
631
501
251
100
3



FALCONBRIDGE LIMITED

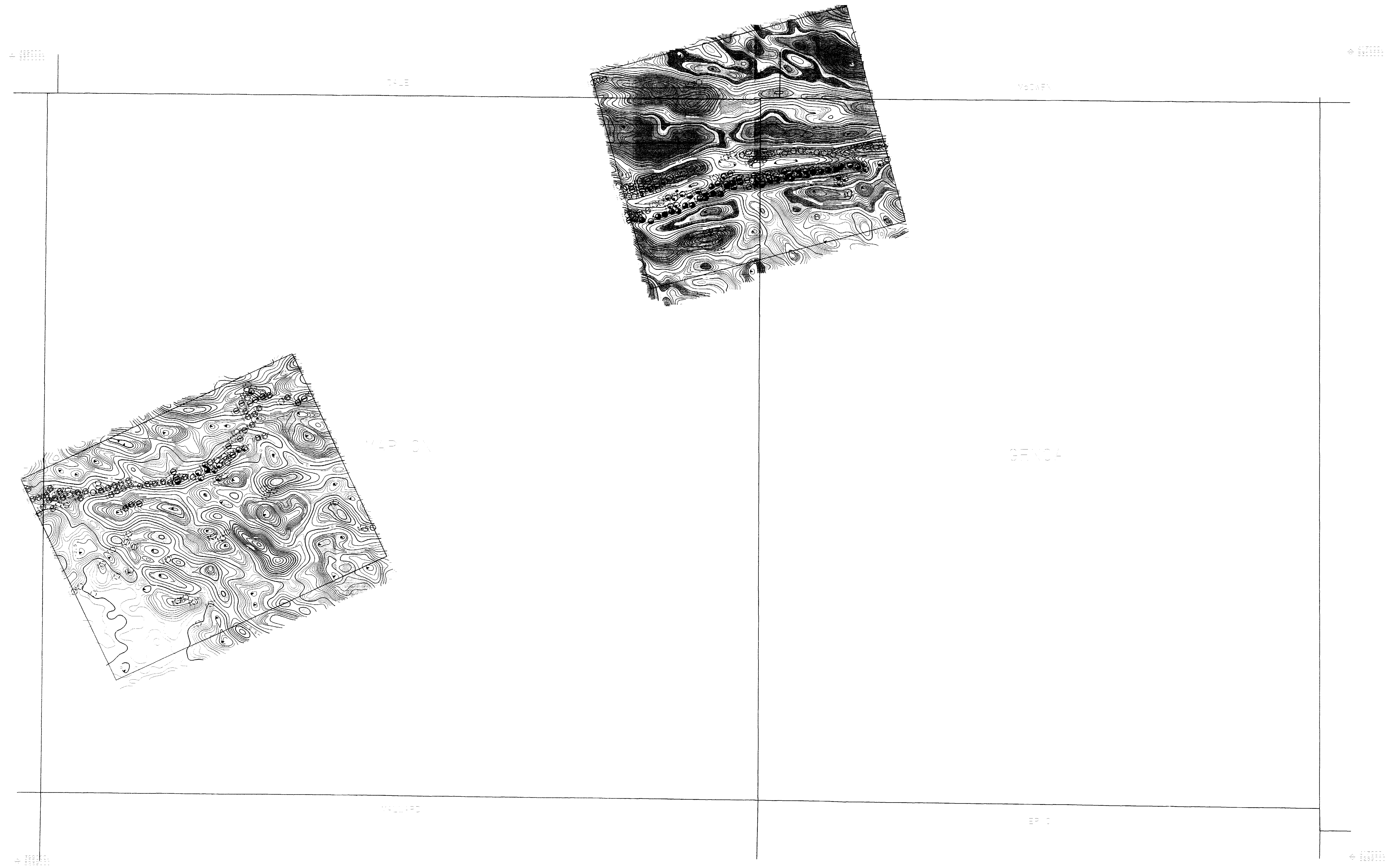
APPARENT RESISTIVITY (935 Hz)
CONTOURS AND COLOURS

GENOA TOWNSHIP CLAIMS (PN 8668)
MARION TOWNSHIP, ONTARIO

SCALE 1:20,000
0 660 1320 2640 5280 feet
0 200 400 1000 2000 Metres

AERODAT LIMITED

DATE: [illegible] MAR 1991
NTS No: 41 O/16
MAP No: MARION & GENOA [illegible]



EM Anomalies

Conductivity Thickness (mhos)

○	0 - 1
○	1 - 2
⊖	2 - 4
◔	4 - 8
◒	8 - 15
◕	15 - 30
●	> 30
⊗	Magnetic anomaly

VLF-EM

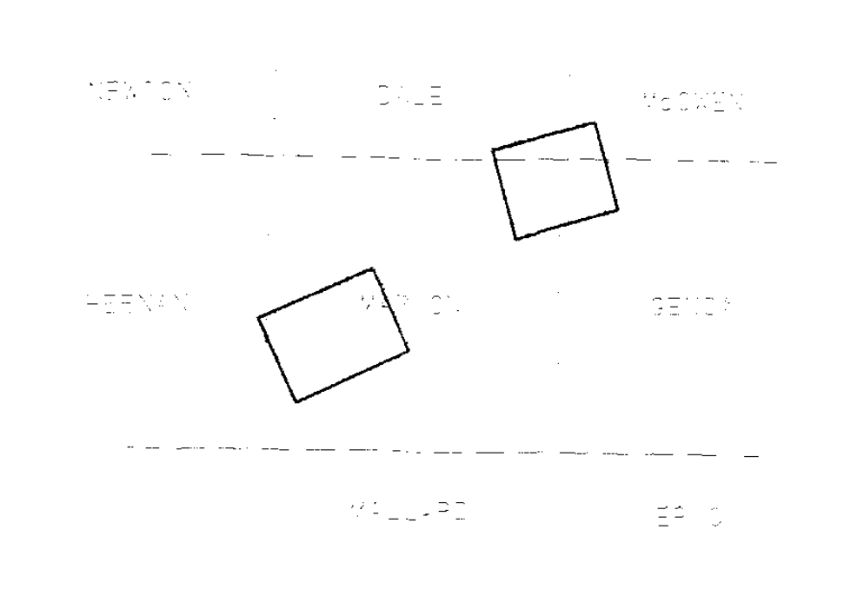
VLF-EM Total Field Intensity in percent.

Station: NAA
Cutler, Maine
24.0 kHz

Sensor elevation 45m

Map contours are multiples of those listed below:

0.5 %
2.5 %
10.0 %
50.0 %



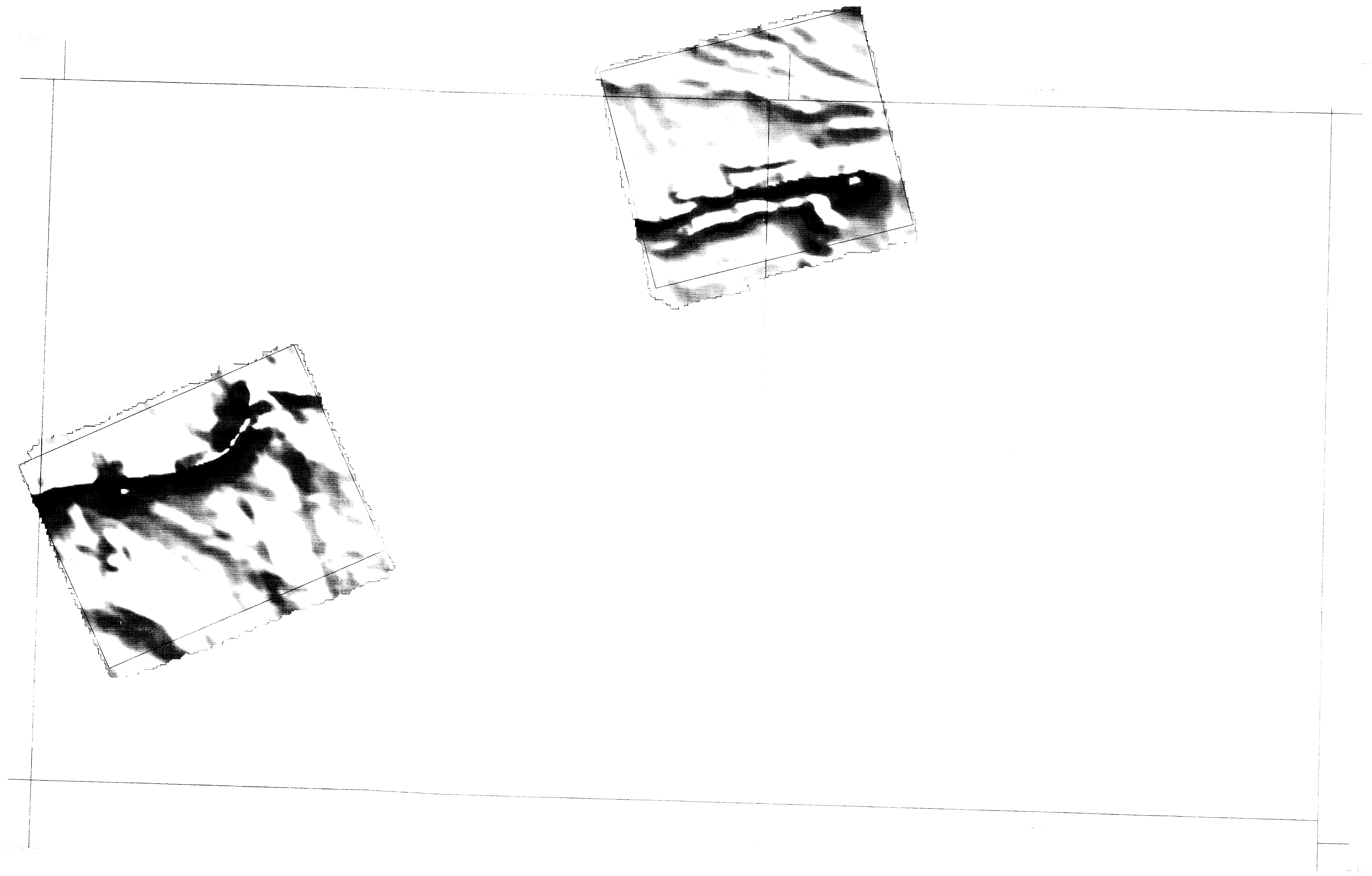
FALCONBRIDGE LIMITED

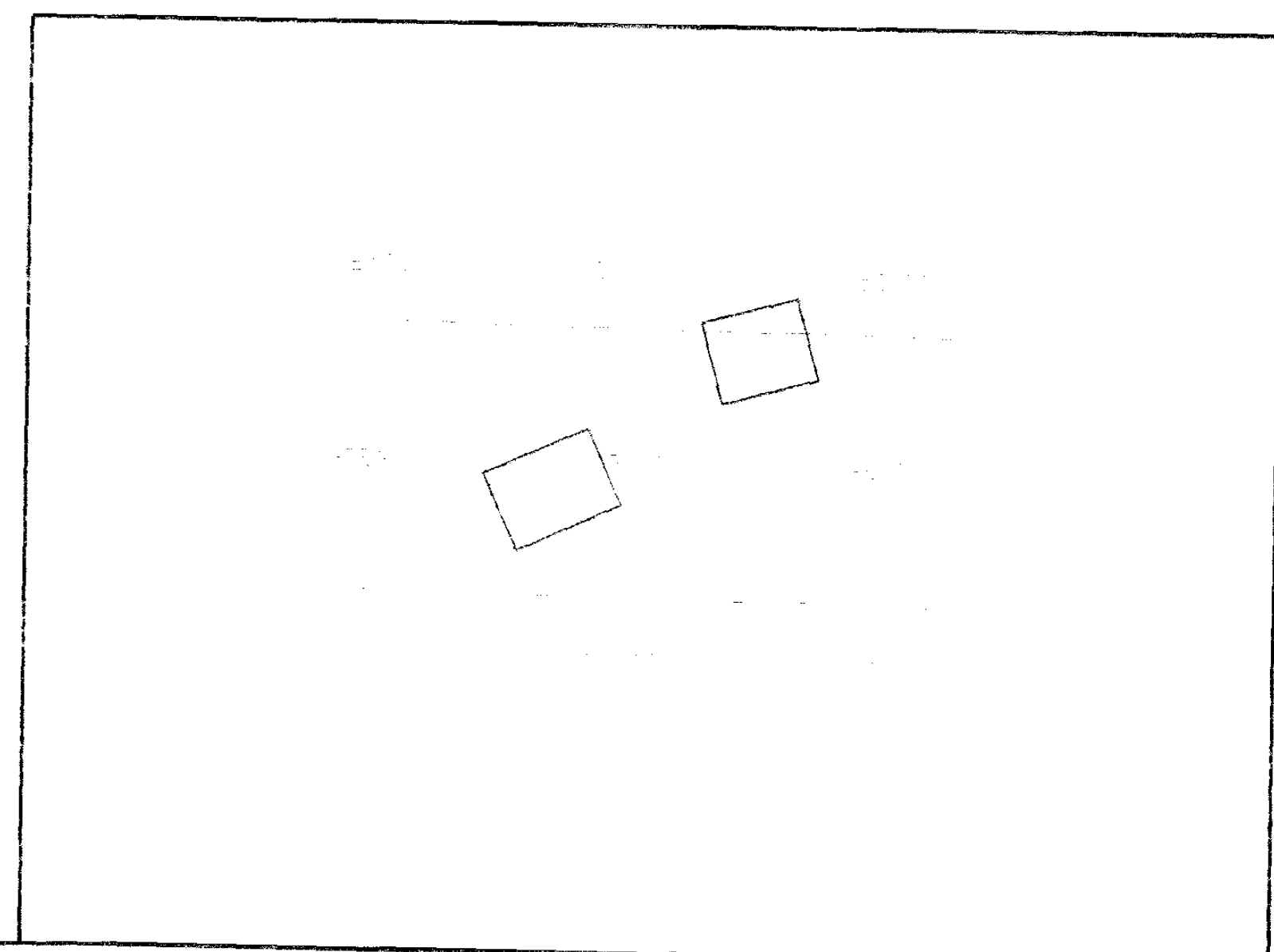
VLF-EM TOTAL FIELD
CONTOURS AND COLOURS

GENOA TOWNSHIP CLAIMS (PN 8668)
MARION TOWNSHIP, ONTARIO

SCALE 1:20,000
0 660 1320 2640 5280 Feet
0 200 400 1000 2000 Metres

AERODAT LIMITED



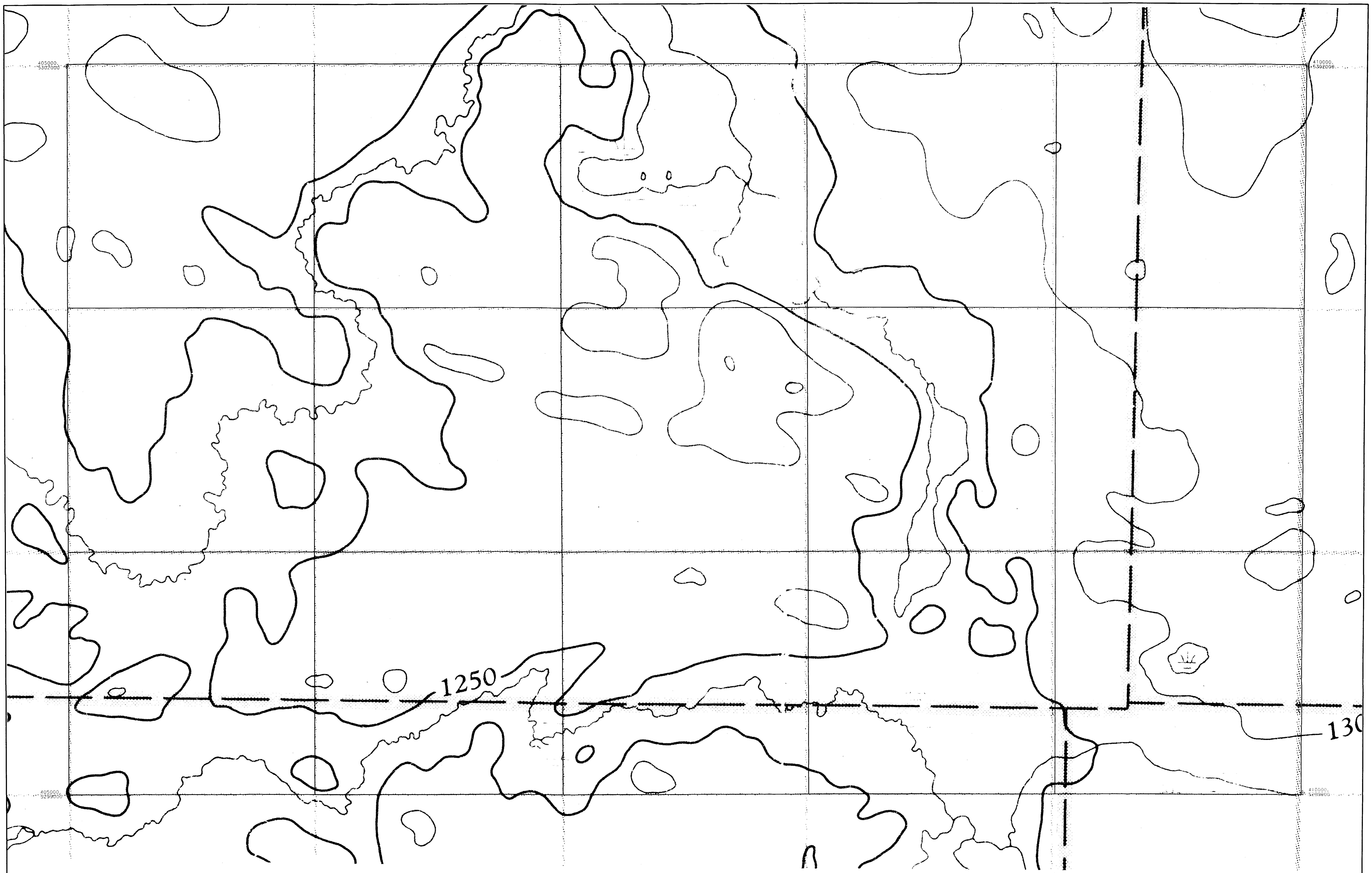


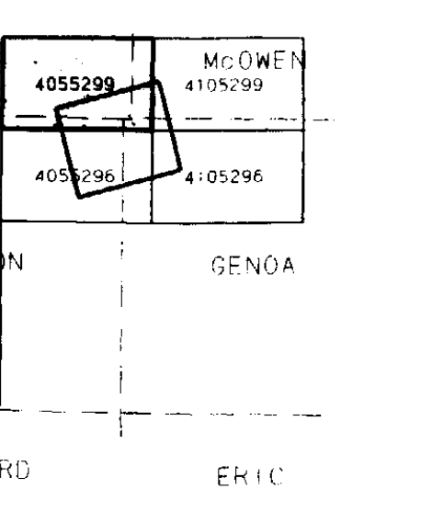
FALCONBRIDGE LIMITED

TOTAL FIELD MAGNETICS
SHADOW MAP

GENOA PROJECT (PN 8668)
MARION TOWNSHIP, ONTARIO

AERODAT LIMITED





FALCONBRIDGE LIMITED

BASE MAP

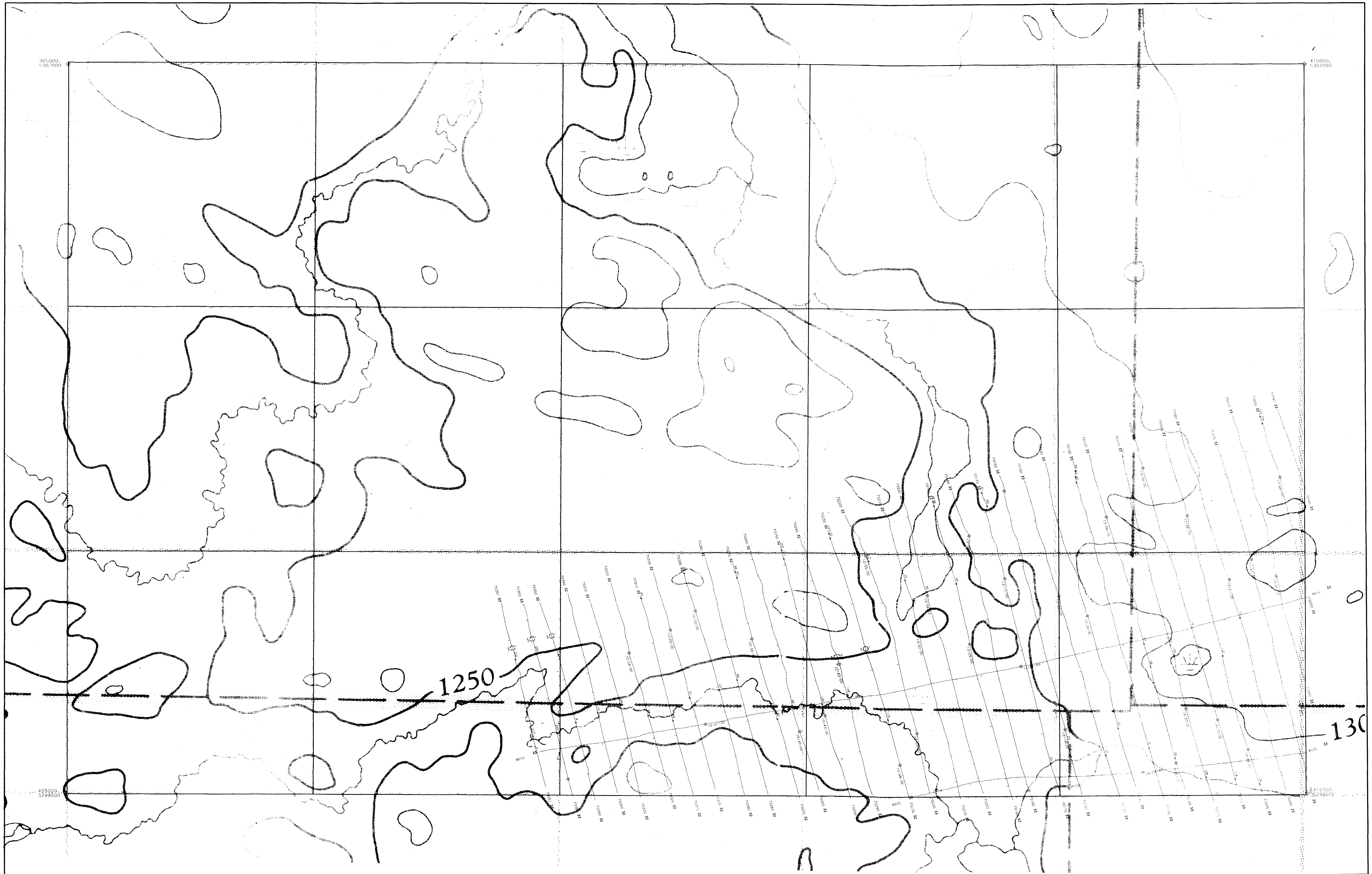
2.14949

GENOA TOWNSHIP CLAIMS (PN 8668)
DALE TOWNSHIP, ONTARIO

SCALE 1:5,000
0 165 330 660 1320 Feet
0 50 100 250 500 Metres

AERODAT LIMITED

DATE : MAR 1991
NTS No: 41 0/16
MAP No: 4055299 J9101



Flight Path

Navigation and recovery using Motorola Mini-Ranger (MRS III) radar navigation system.

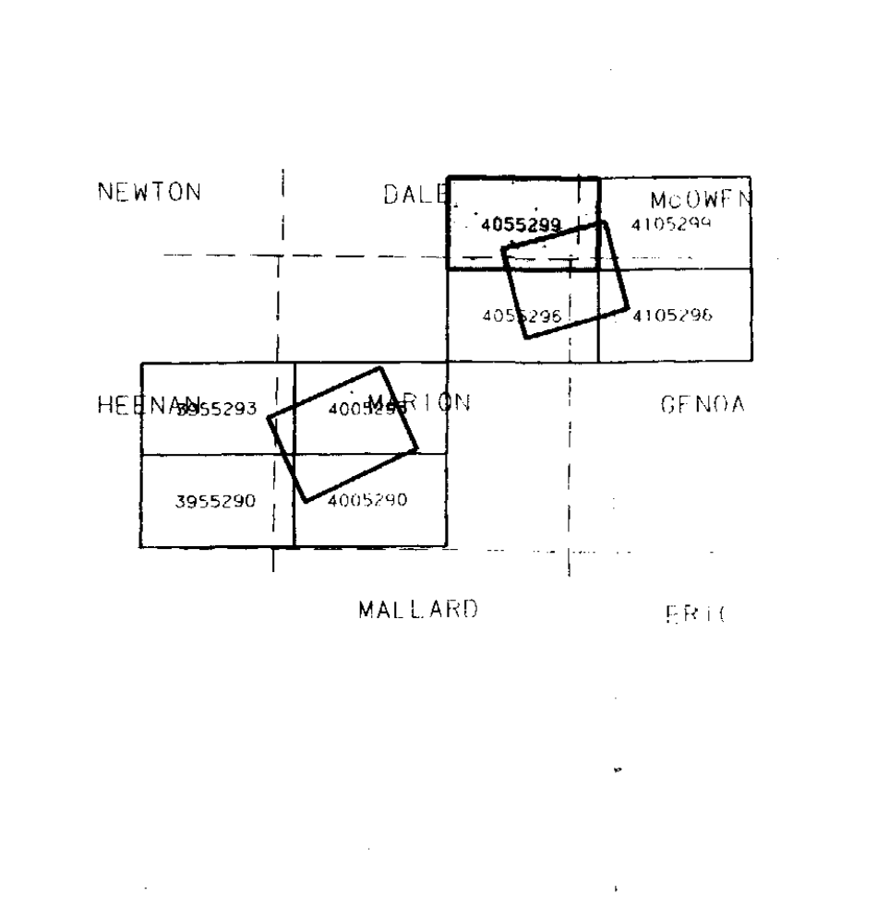
Average terrain clearance 60m
Average line spacing 100m

EM Anomalies

Conductivity thickness (mhos)

- ◌ 0 - 1
- ○ 1 - 2
- ⊖ 2 - 4
- ◐ 4 - 8
- ◒ 8 - 15
- ◕ 15 30
- ● > 30
- ⊗ Magnetite Anomaly

EM Anomaly A, 935 Hz inphase amplitude 7 ppm. Conductivity thickness 2 mhos (see code).



FALCONBRIDGE LIMITED

FLIGHT PATH

2.14949

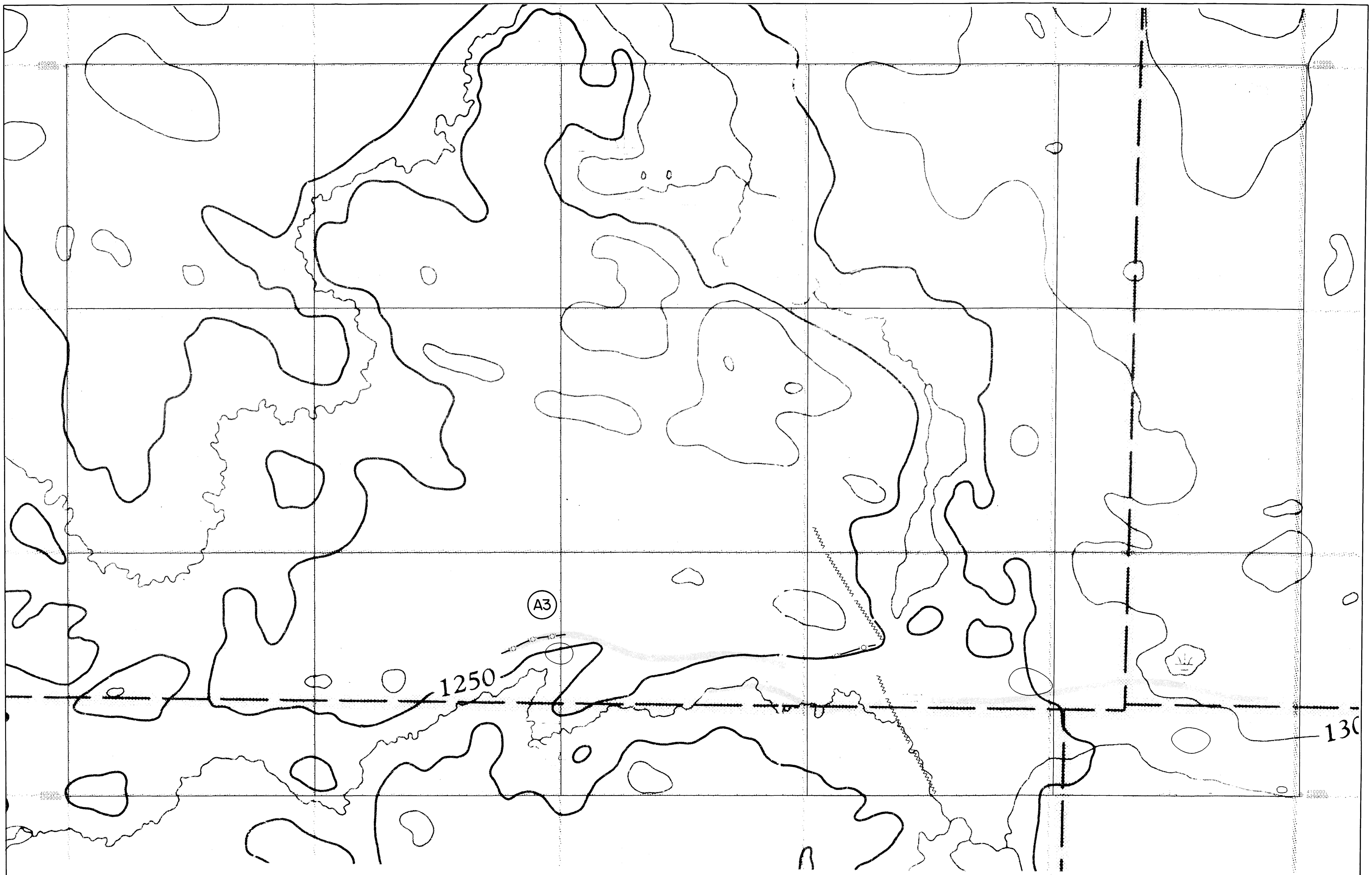
GENOA TOWNSHIP CLAIMS (PN 8668)
DALE TOWNSHIP, ONTARIO

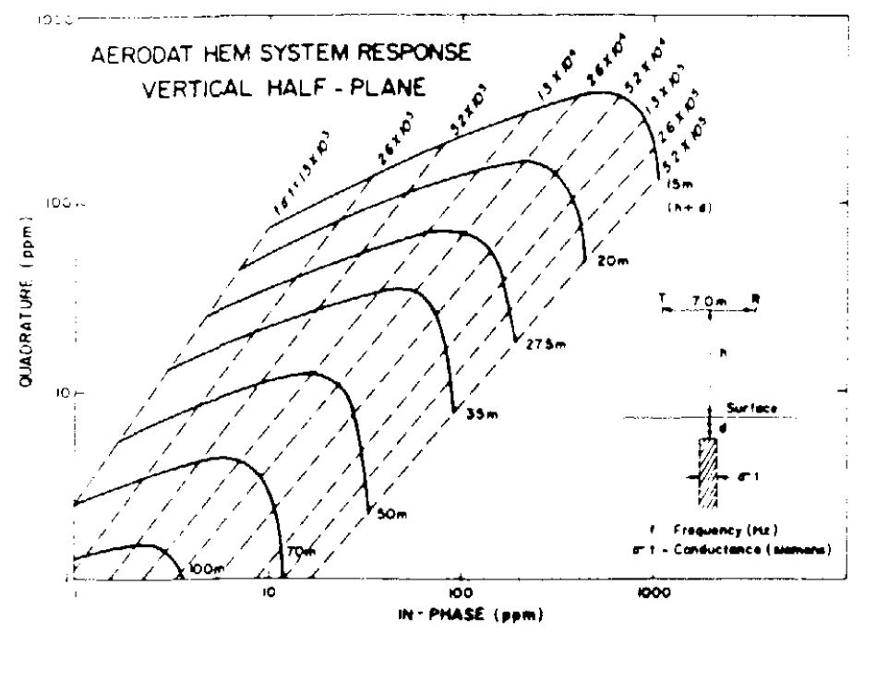
SCALE 1:5,000

0 165 330 660 1320 Feet
0 50 100 250 500 Metres

AERODAT LIMITED

DATE : MAR 1991
NTS No: 41 0/16
MAP No: 4055299 J9101





INTERPRETATION LEGEND

Conductor Axis

Vertical Gradient Contour Lines +5 nT/m and +25 nT/m

Possible Fault

(A1) Target Label

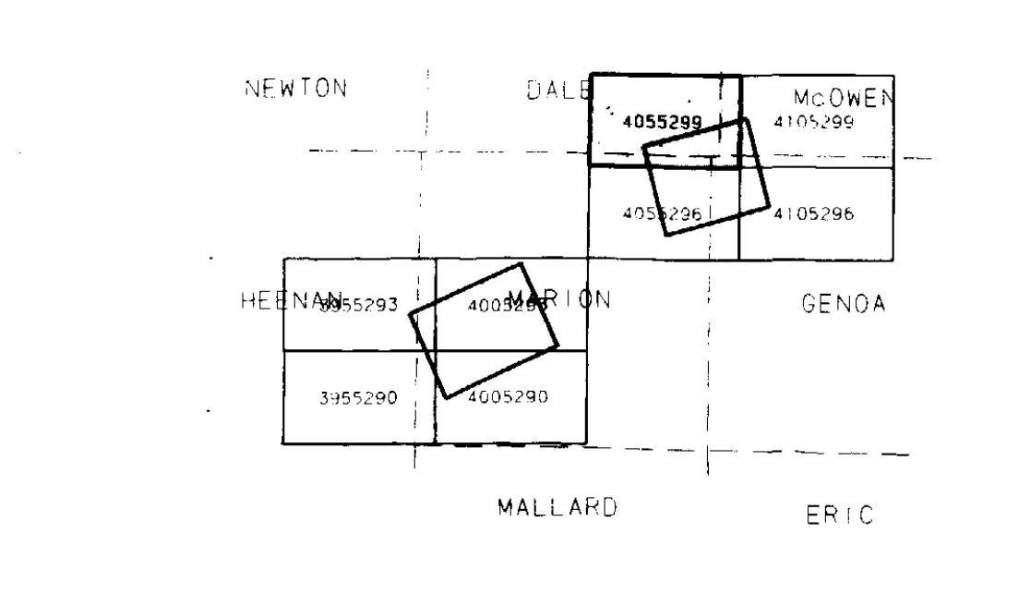
VLF Conductor Axis

EM Anomalies

Conductivity Thickness (mhos)

◌	0 - 1
○	1 - 2
◒	2 - 4
◑	4 - 8
◒	8 - 15
◕	15 - 30
●	> 30
⊗	Magnetite Anomaly

EM Anomaly A, 935 Hz
inphase amplitude 7 ppm.
Conductivity thickness
2 mhos (see code).



FALCONBRIDGE LIMITED

INTERPRETATION

2.14949

GENOA TOWNSHIP CLAIMS (PN 8668)

DALE TOWNSHIP, ONTARIO

SCALE 1:5,000

0 165 330 660 1320 Feet

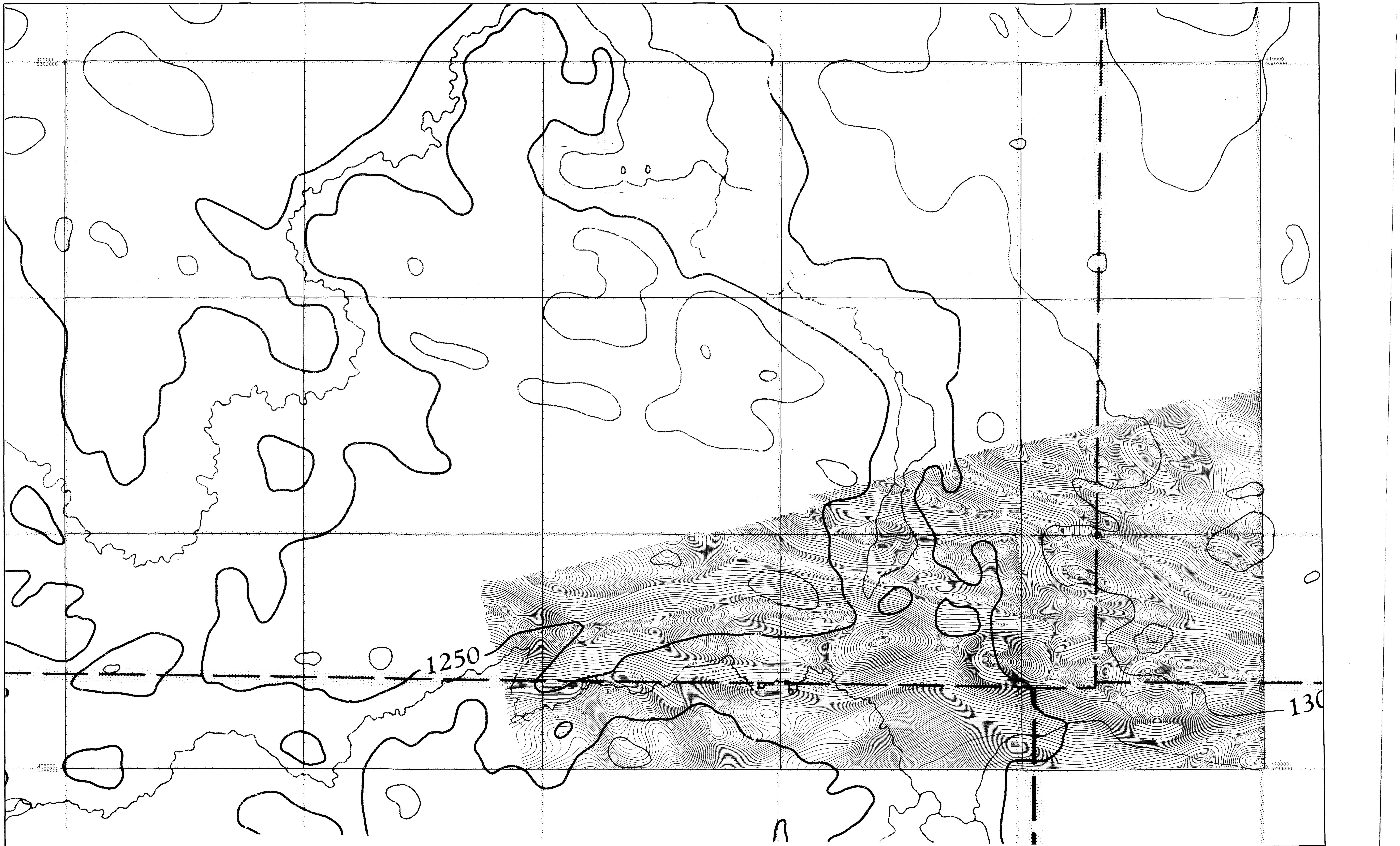
0 50 100 250 500 Metres

AERODAT LIMITED

DATE : MAR 1991

NTS No: 41 O/16

MAP No: 4055299 J9101



Magnetics

Total Field Magnetic Intensity
Contours in nT.

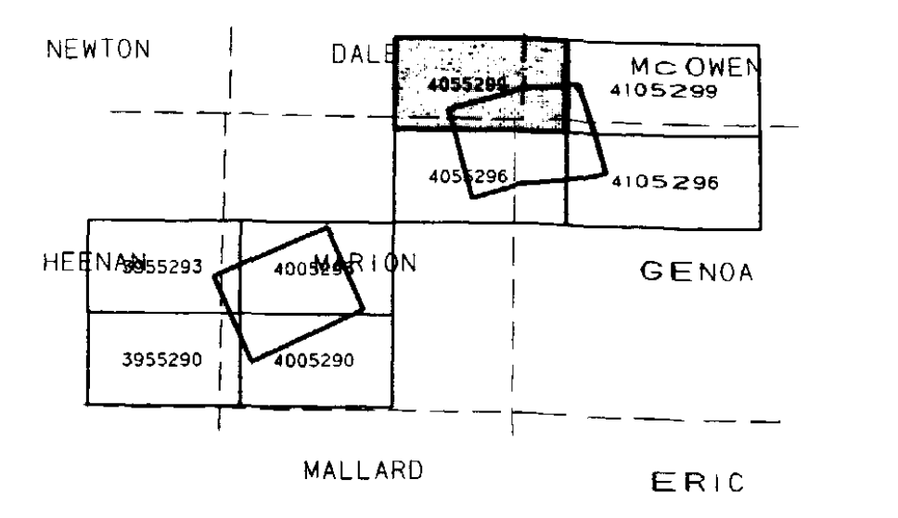
Cesium high sensitivity
magnetometer.

Sensor elevation 45m

Map contours are multiples of
those listed below

─	2 nT
─	10 nT
─	50 nT
─	250 nT
─	1000 nT

N



FALCONBRIDGE LIMITED

TOTAL FIELD MAGNETIC CONTOURS

2.14949

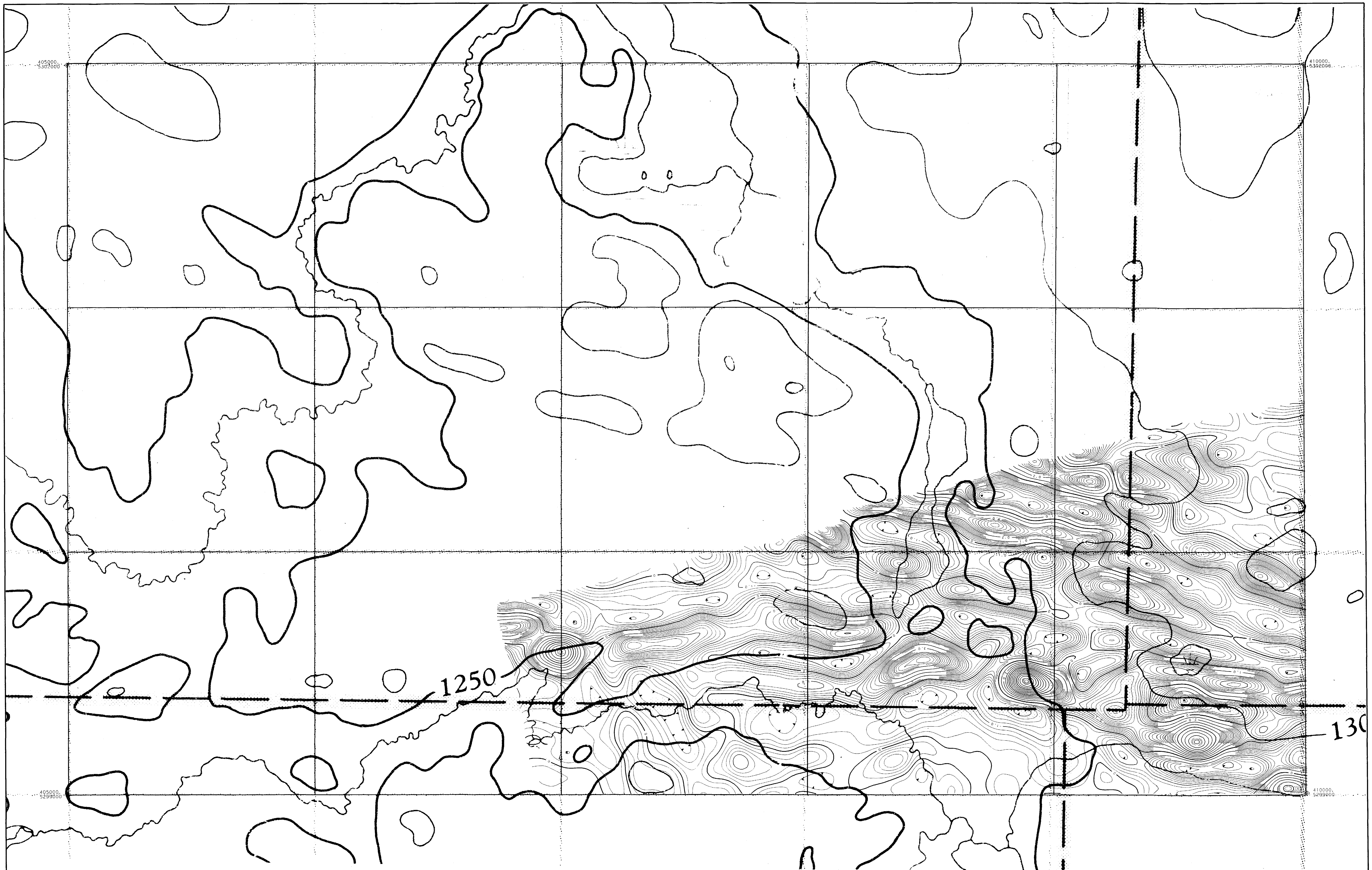
GENOA TOWNSHIP CLAIMS (PN 8668)
DALE TOWNSHIP, ONTARIO

SCALE 1:5,000

0 165 330 660 1320 Feet
0 50 100 250 500 Metres

AERODAT LIMITED

DATE : MAR 1991
NTS No: 41 O/16
MAP No: 4055299 J9101



Vertical Gradient

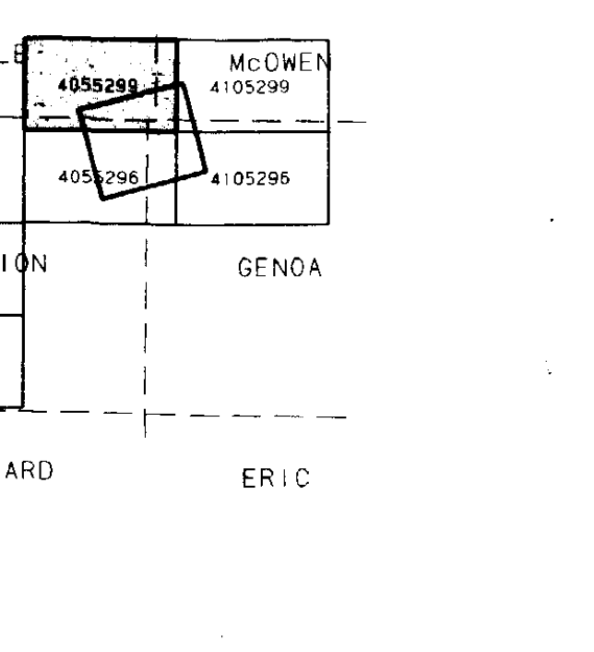
Vertical Magnetic Gradient calculated from the total field magnetic intensity in nT/m.

Cesium high sensitivity magnetometer.

Sensor elevation 45m

Map contours are multiples of those listed below

┄┄┄┄	0.20 nT/m
────	1.00 nT/m
────	5.00 nT/m
────	25.0 nT/m
────	100 nT/m



FALCONBRIDGE LIMITED

CALCULATED VERTICAL MAGNETIC GRADIENT

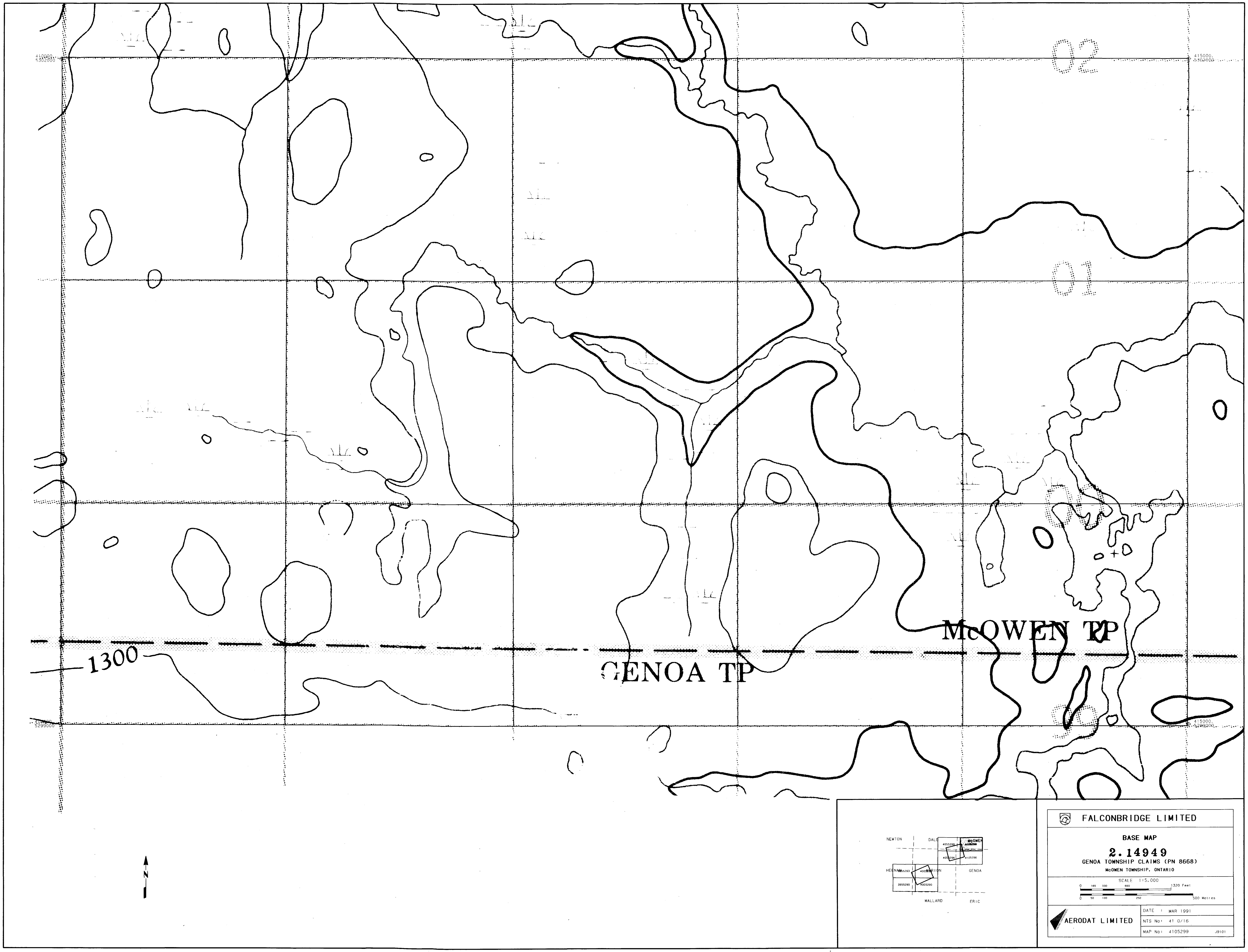
2.14949

GENOA TOWNSHIP CLAIMS (PN 8668)
DALE TOWNSHIP, ONTARIO

SCALE 1:5,000
0 165 330 660 1320 Feet
0 50 100 250 500 Metres

AEKODAT LIMITED

DATE :	MAR 1991
NTS No:	41 0/16
MAP No:	4055299 J9101



FALCONBRIDGE LIMITED

BASE MAP

2.14949

GENOA TOWNSHIP CLAIMS (PN 8668)

McOWEN TOWNSHIP, ONTARIO

SCALE 1:5,000

0 165 330 660 1320 Feet

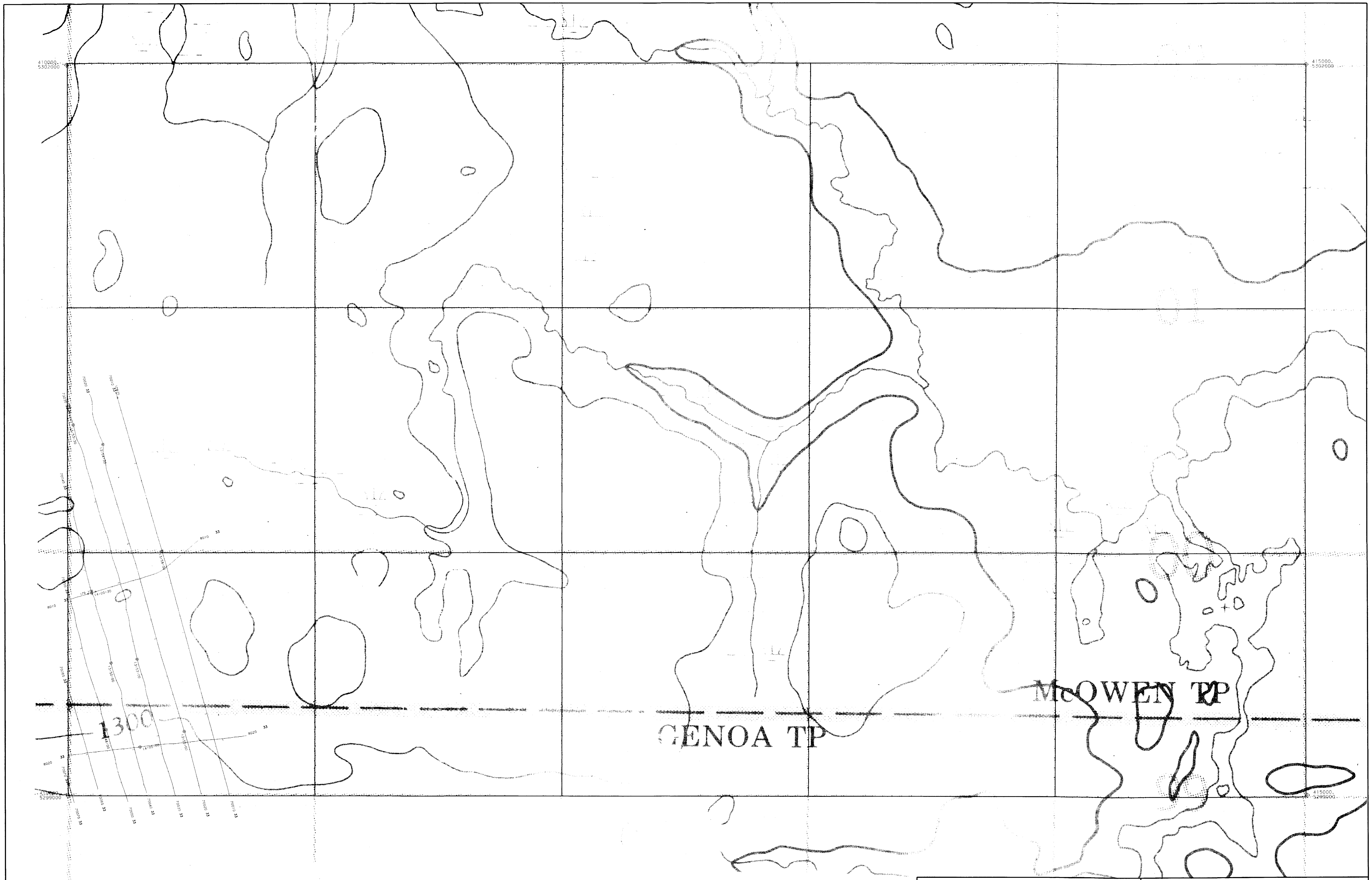
0 50 100 250 500 Metres

AERODAT LIMITED

DATE : MAR 1991

NTS No: 41 0/16

MAP No: 4105299 J9101



Flight Path

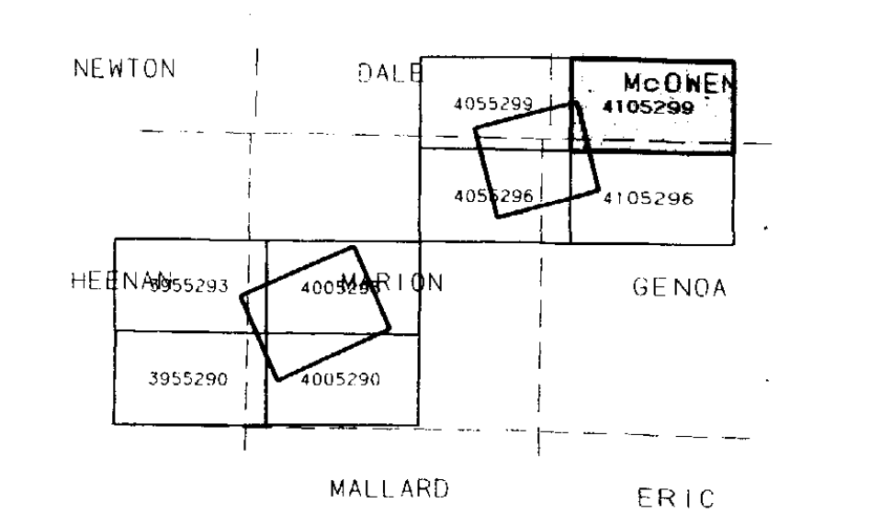
Navigation and recovery using Motorola Mini-Ranger (MRS III) radar navigation system.

Average terrain clearance 60m
Average line spacing 100m

EM Anomalies

Conductivity Thickness (mhos)

◌	0 - 1
○	1 - 2
⊖	2 - 4
◕	4 - 8
◒	8 - 15
◕	15 - 30
●	> 30
⊗	Magnetite Anomaly
◌	EM Anomaly A, 935 Hz inphase amplitude 7 ppm. Conductivity thickness 2 mhos (see code).



FALCONBRIDGE LIMITED

FLIGHT PATH

2.14949

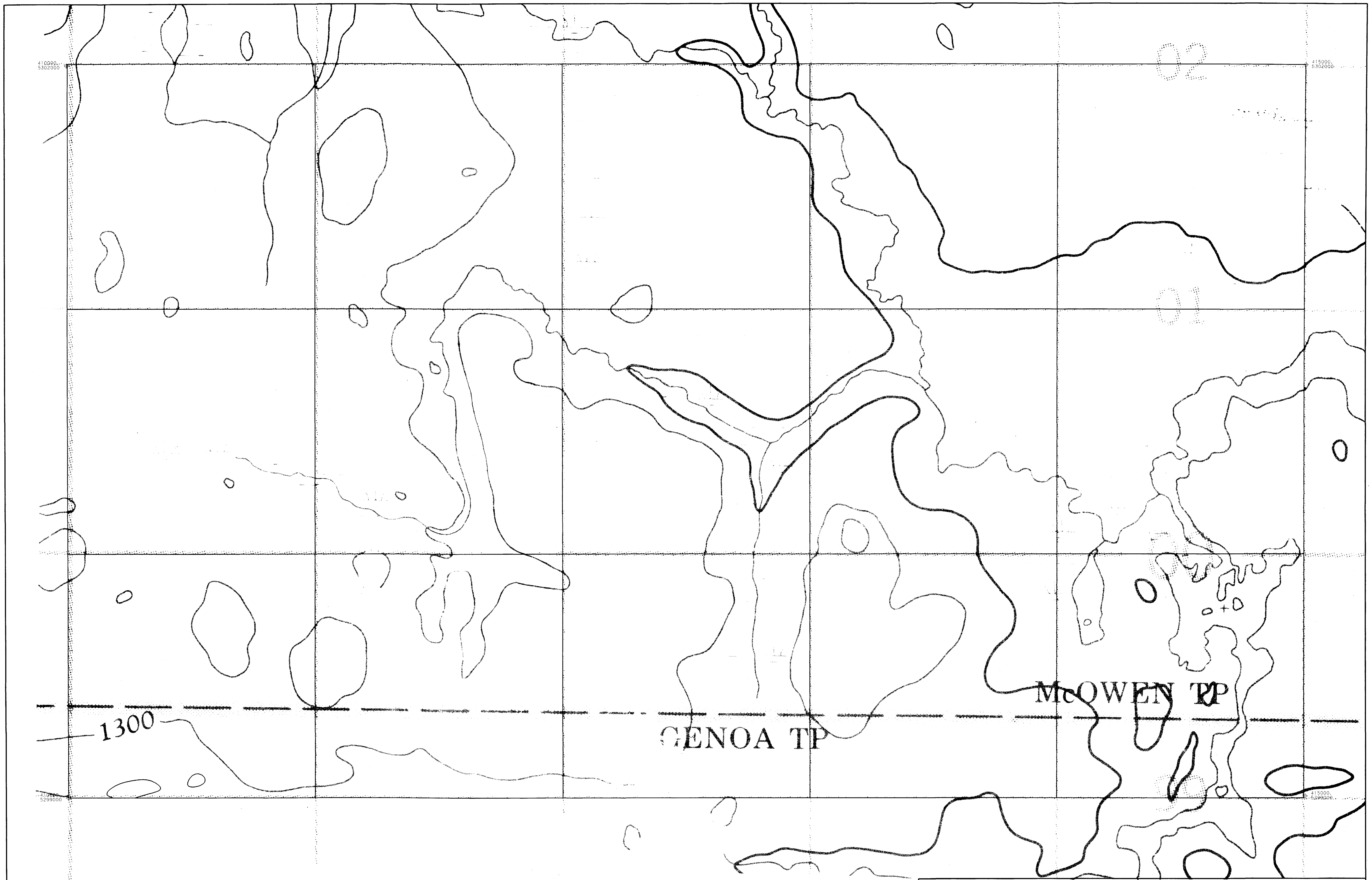
GENOA TOWNSHIP CLAIMS (PN 8668)
McOWEN TOWNSHIP, ONTARIO

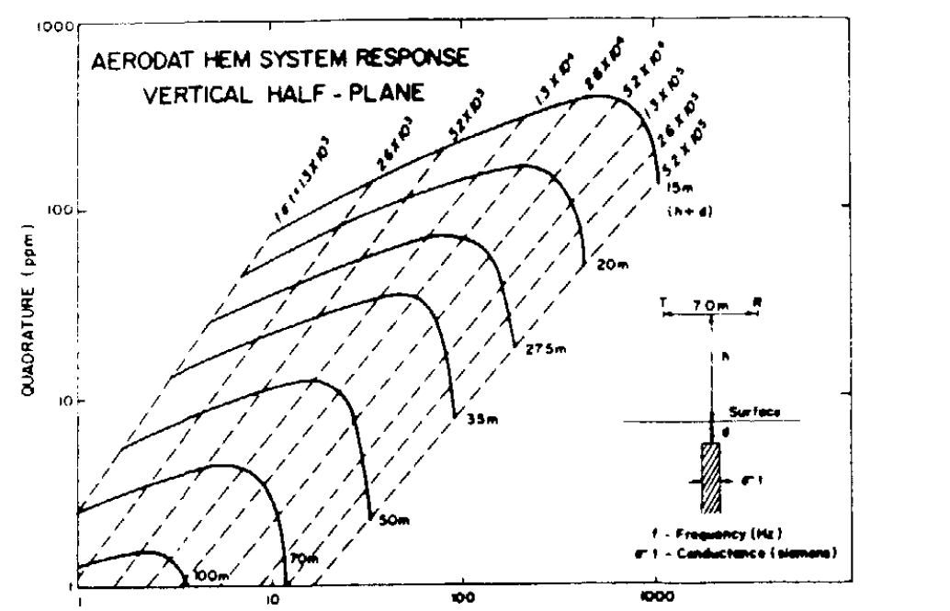
SCALE 1:5,000

0 165 330 660 1320 Feet
0 50 100 250 500 Metres

AERODAT LIMITED

DATE : MAR 1991
NTS No: 41 O/16
MAP No: 4105299 J9101





INTERPRETATION LEGEND

—○—	Conductor Axis
═	Vertical Gradient Contour Lines +5 nT/m and +25 nT/m
∿∿∿	Possible Fault
(A1)	Target Label
⋯	VLF Conductor Axis

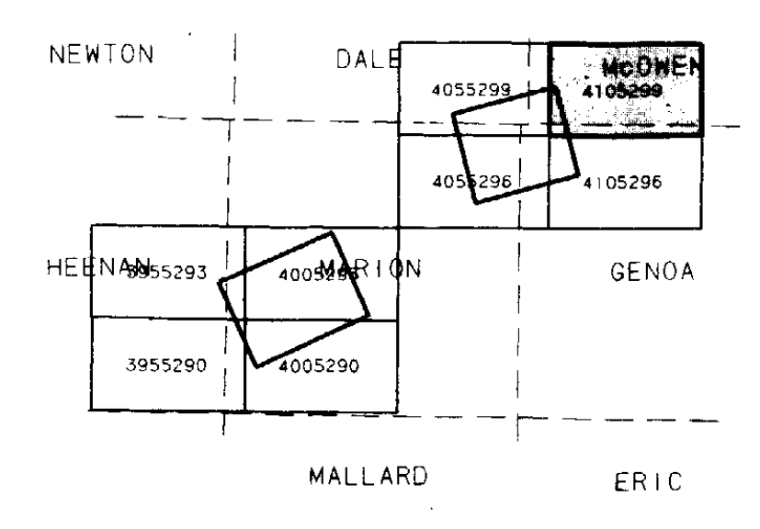
EM Anomalies

Conductivity Thickness (mhos)

◌	0 - 1
○	1 - 2
⊖	2 - 4
◐	4 - 8
◒	8 - 15
◕	15 - 30
●	> 30
⊗	Magnetite Anomaly

-○- EM Anomaly A, 935 Hz inphase amplitude 7 ppm. Conductivity thickness 2 mhos (see code).

N



FALCONBRIDGE LIMITED

INTERPRETATION

2.14949

GENOA TOWNSHIP CLAIMS (PN 8668)

McOWEN TOWNSHIP, ONTARIO

SCALE 1:5,000

0 165 330 660 1320 Feet

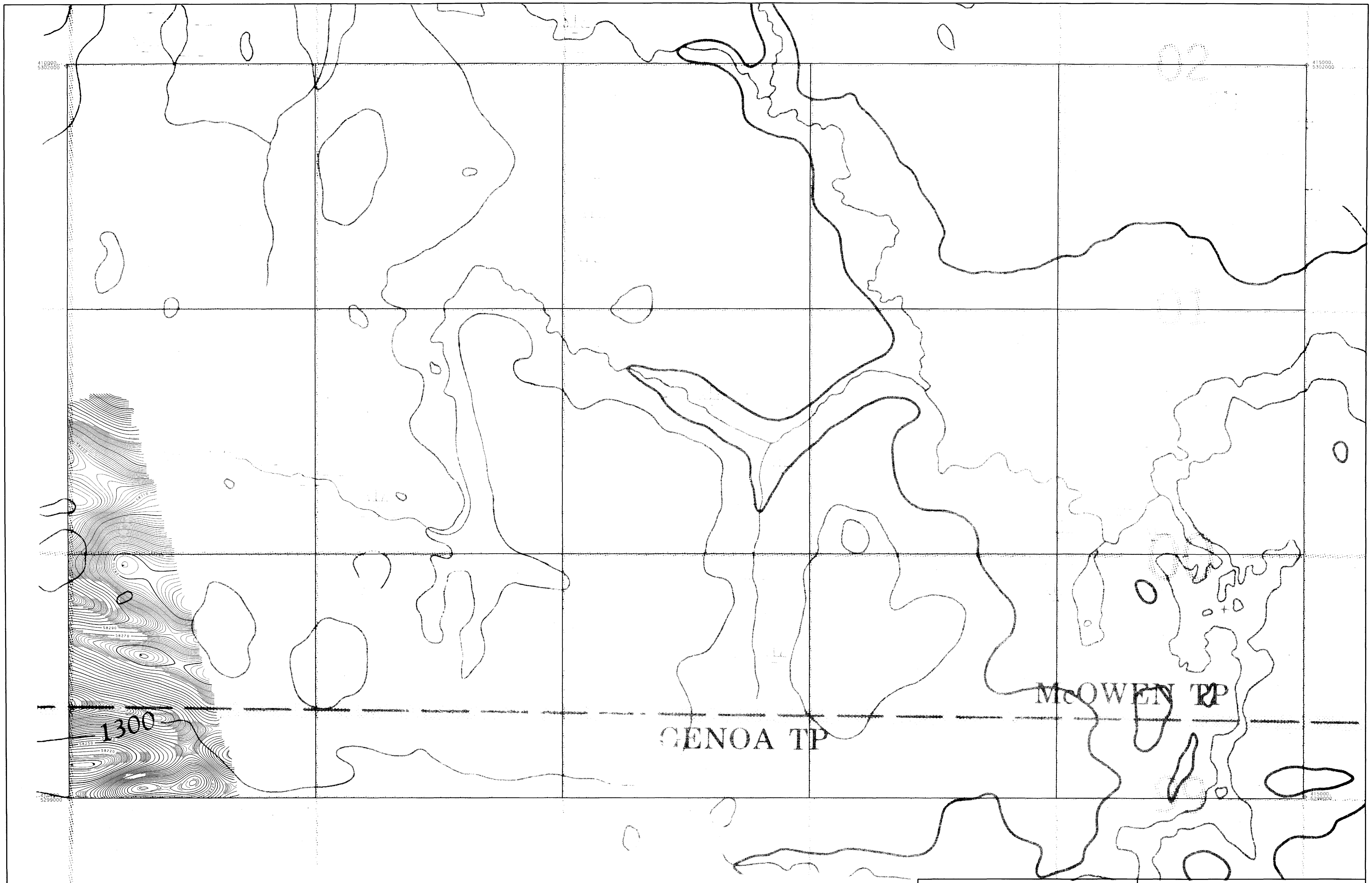
0 50 100 250 500 Metres

AERODAT LIMITED

DATE : MAR 1991

NTS No: 41 O/16

MAP No: 4105299 J9101



Magnetics

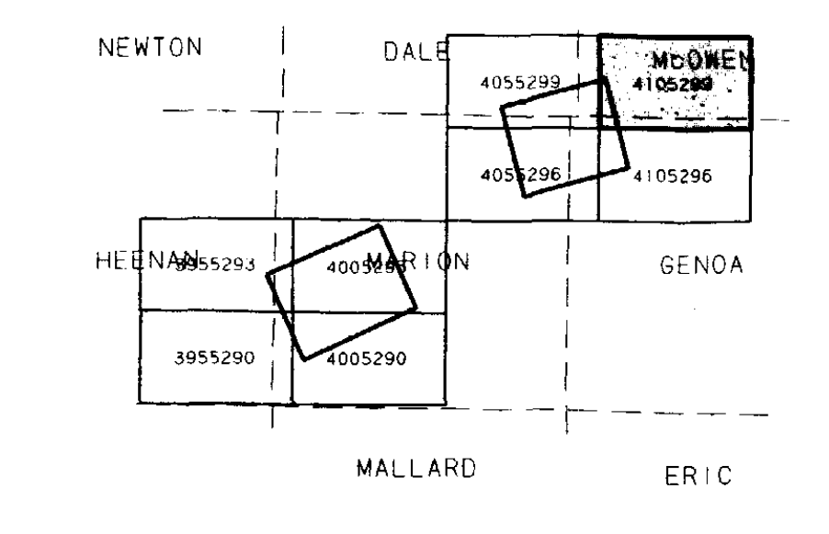
Total Field Magnetic Intensity Contours in nT.

Cesium high sensitivity magnetometer.

Sensor elevation 45m

Map contours are multiples of those listed below
- 2 nT
- 10 nT
- 50 nT
- 250 nT
- 1000 nT

N



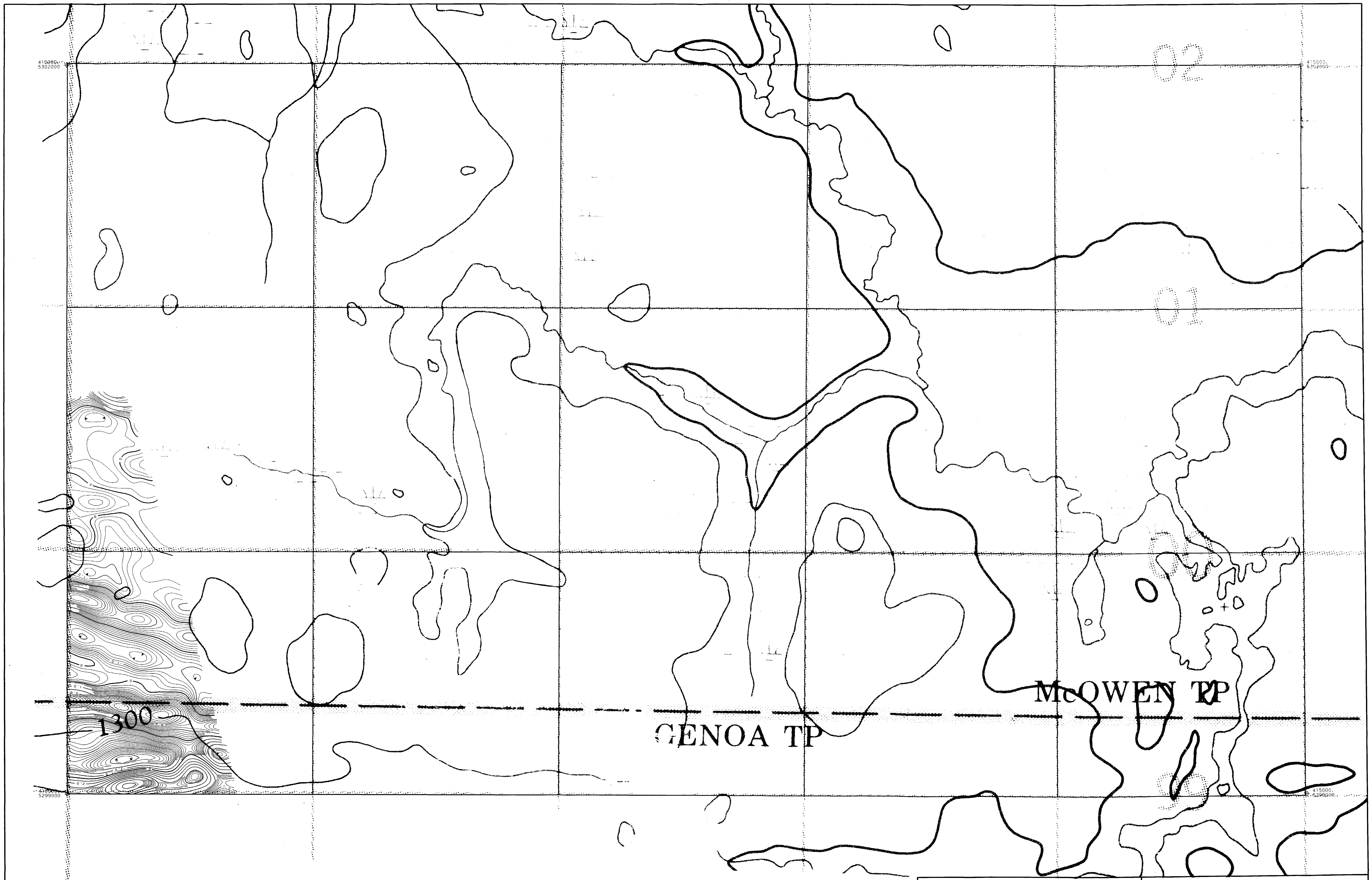
FALCONBRIDGE LIMITED

TOTAL FIELD MAGNETIC CONTOURS
2.14949
GENOA TOWNSHIP CLAIMS (PN 8668)
McOWEN TOWNSHIP, ONTARIO

SCALE 1:5,000
0 165 330 660 1320 Feet
0 50 100 250 500 Metres

AERODAT LIMITED

DATE : MAR 1991
NTS No: 41 O/16
MAP No: 4105299 J9101



Vertical Gradient

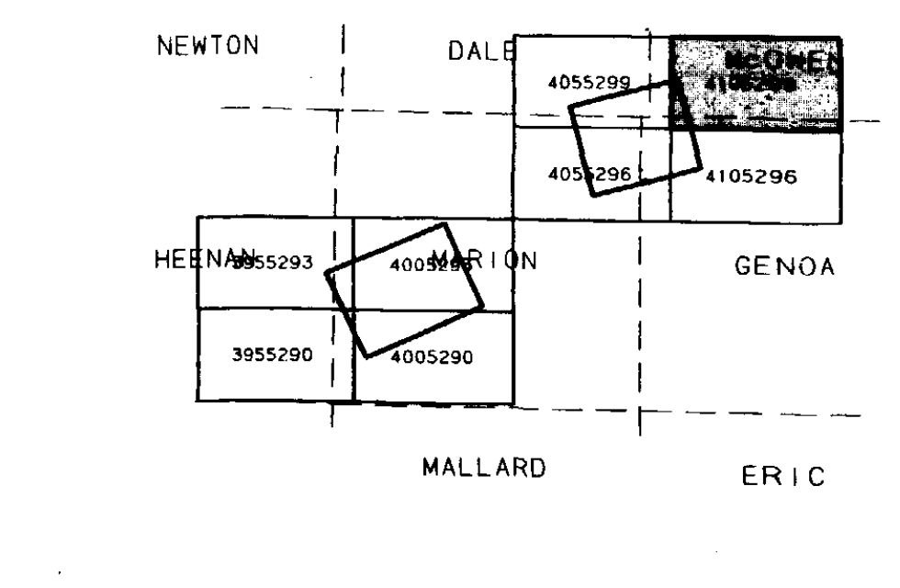
Vertical Magnetic Gradient calculated from the total field magnetic intensity in nT/m.

Cesium high sensitivity magnetometer.

Sensor elevation 45m

Map contours are multiples of those listed below

- 0.20 nT/m
- 1.00 nT/m
- 5.00 nT/m
- 25.0 nT/m
- 100 nT/m



FALCONBRIDGE LIMITED

CALCULATED VERTICAL MAGNETIC GRADIENT
2.14949

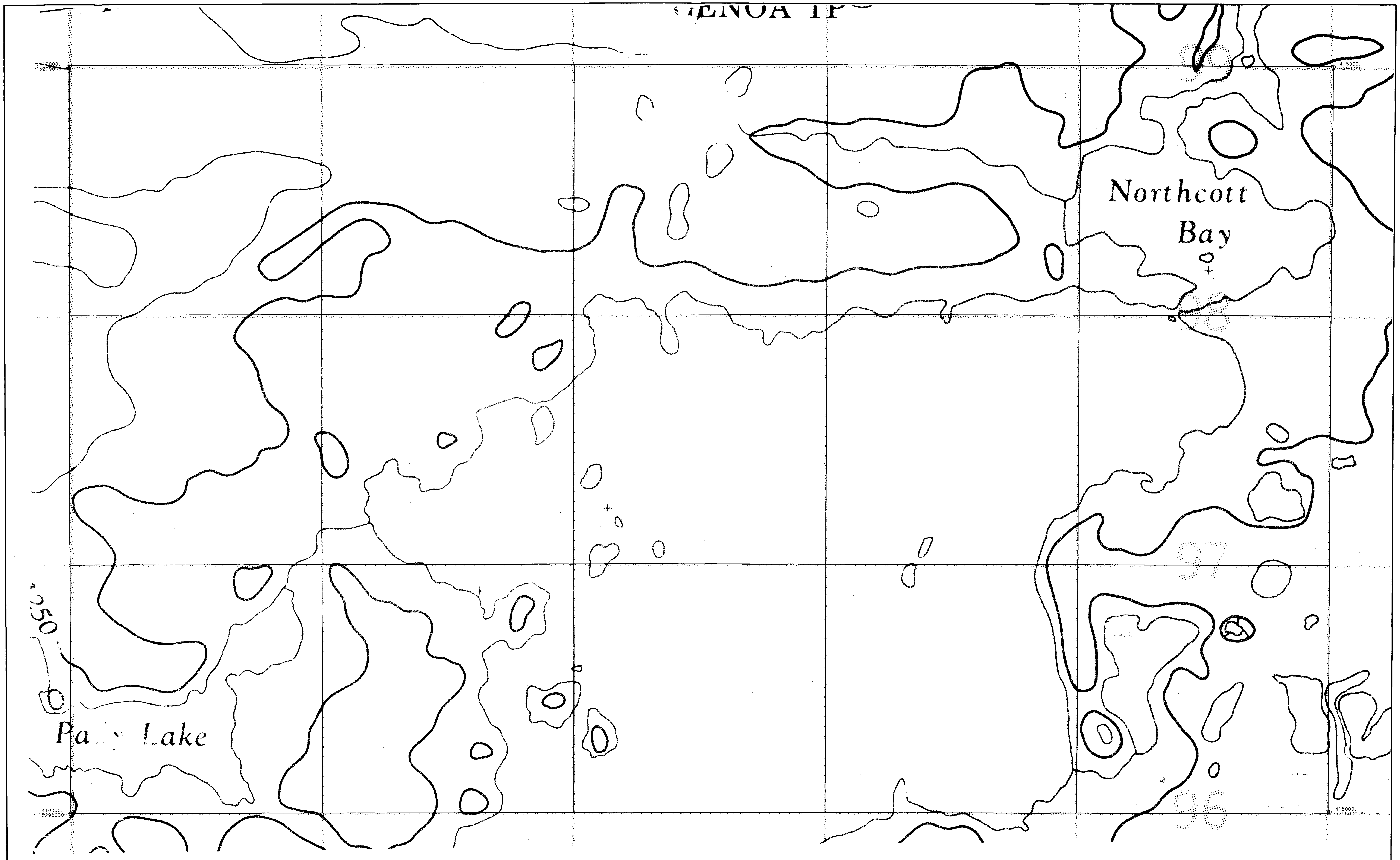
GENOA TOWNSHIP CLAIMS (PN 8668)
McOWEN TOWNSHIP, ONTARIO

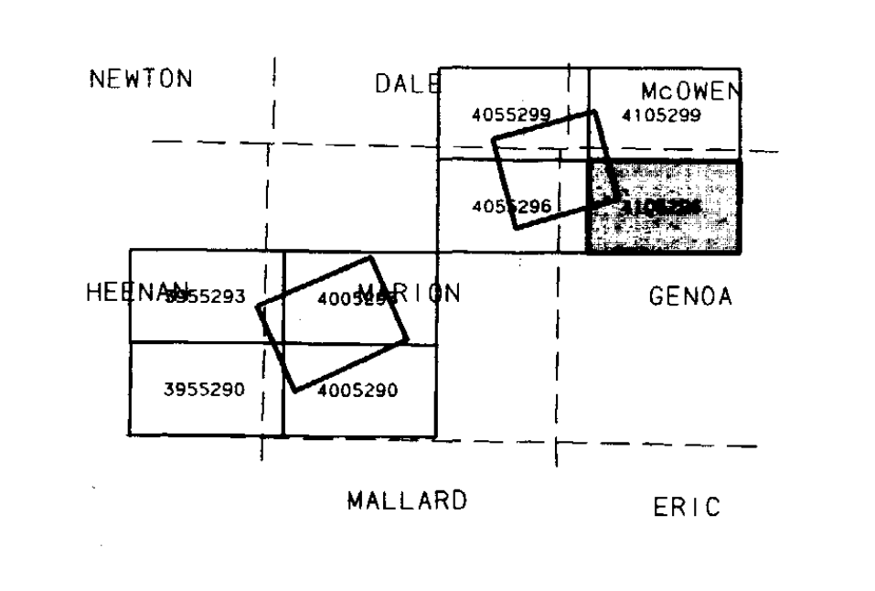
SCALE 1:5,000

0 165 330 660 1320 Feet
0 50 100 250 500 Metres

AERODAT LIMITED

DATE : MAR 1991
NTS No: 41 0/16
MAP No: 4105299 J9101





FALCONBRIDGE LIMITED

BASE MAP

2.14949

GENOA TOWNSHIP CLAIMS (PN 8668)

GENOA TOWNSHIP, ONTARIO

SCALE 1:5,000

0 165 330 660 1320 Feet

0 50 100 250 500 Metres

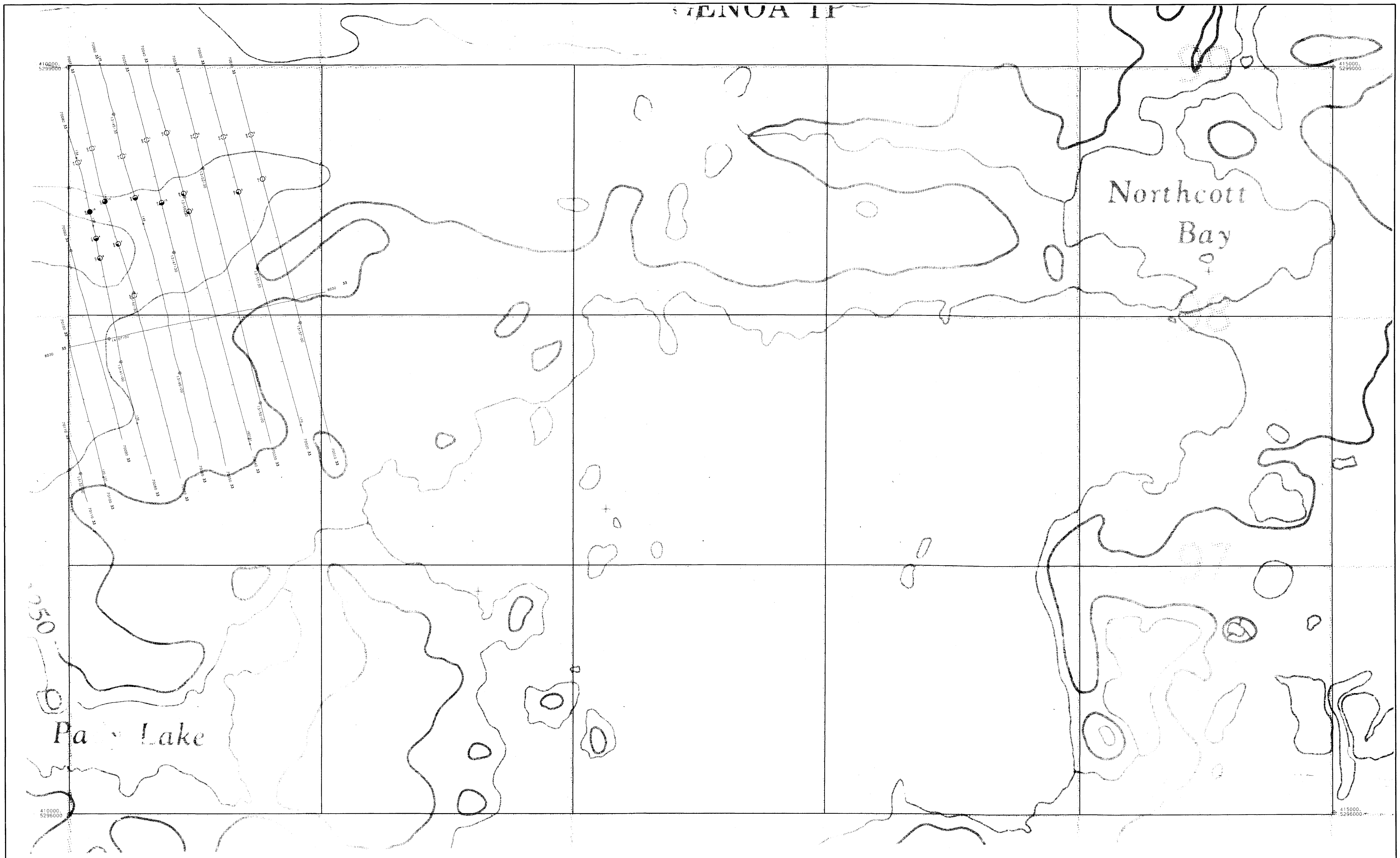
AERODAT LIMITED

DATE : MAR 1991

NTS No: 41 0/16

MAP No: 4105296 J9101

41016SE9058 2.14949 GENOA



Flight Path

Navigation and recovery using Motorola Mini-Ranger (MRS III) radar navigation system.

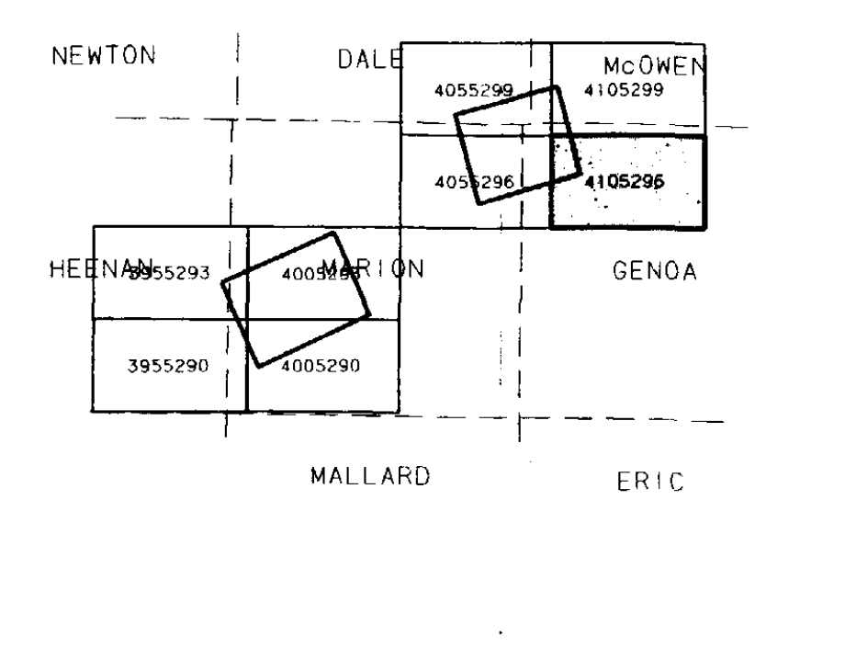
Average terrain clearance 60m
Average line spacing 100m

EM Anomalies

Conductivity Thickness (mhos)

◌	0 - 1
○	1 - 2
⊖	2 - 4
◐	4 - 8
◒	8 - 15
◕	15 - 30
●	> 30
⊗	Magnetite Anomaly

EM Anomaly A, 935 Hz
inphase amplitude 7 ppm.
Conductivity thickness
2 mhos (see code).



FALCONBRIDGE LIMITED

FLIGHT PATH

2.14949

GENOA TOWNSHIP CLAIMS (PN 8668)

GENOA TOWNSHIP, ONTARIO

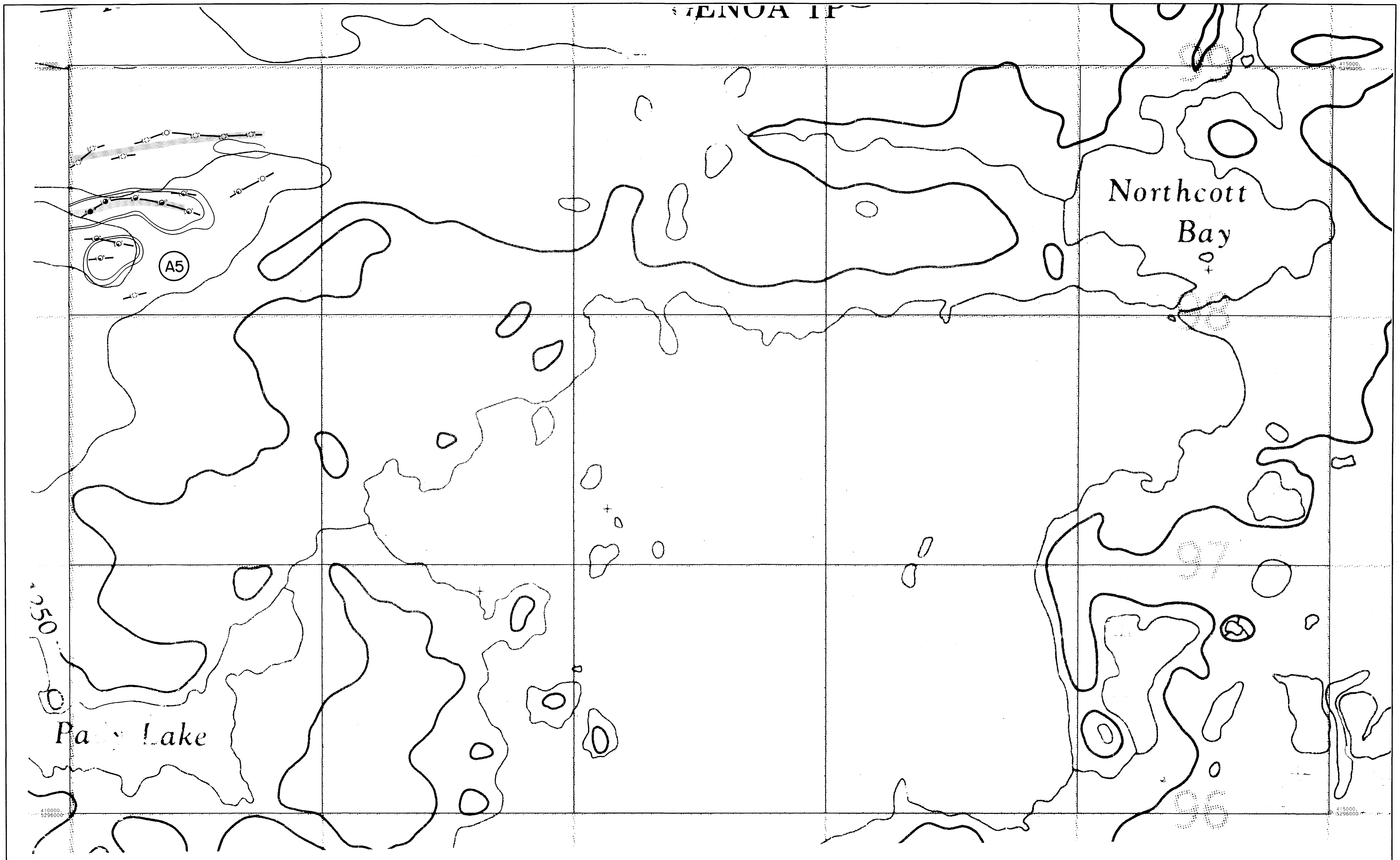
SCALE 1:5,000

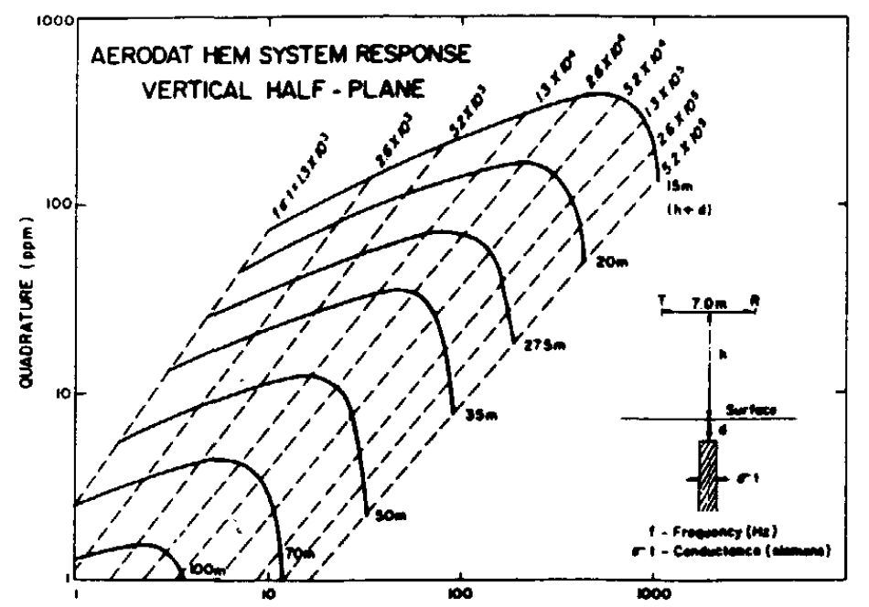
0 165 330 660 1320 Feet

0 50 100 250 500 Metres

AERODAT LIMITED

DATE : MAR 1991
NTS No: 41 O/16
MAP No: 4105296 J9101





INTERPRETATION LEGEND

Conductor Axis

Vertical Gradient Contour Lines
+5 nT/m and +25 nT/m

Possible Fault

Ⓐ1 Target Label

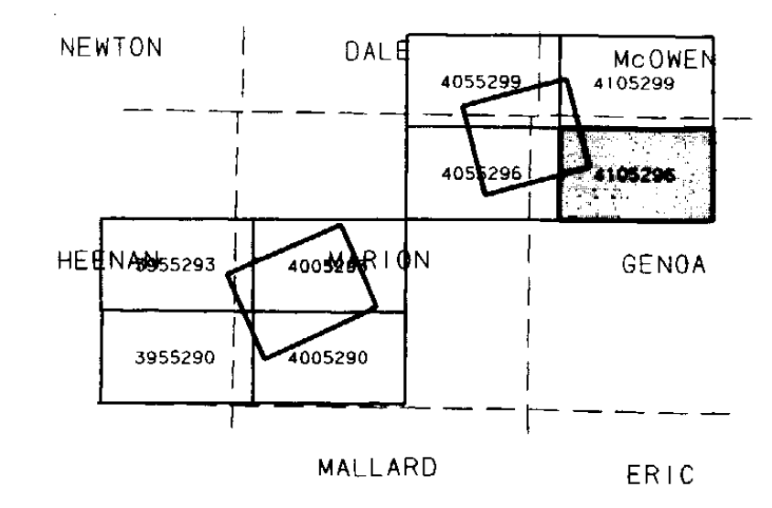
VLF Conductor Axis

EM Anomalies

Conductivity Thickness (mhos)

○	0 - 1
○	1 - 2
⊖	2 - 4
◐	4 - 8
◒	8 - 15
◕	15 - 30
●	> 30
⊗	Magnetite Anomaly

EM Anomaly A, 935 Hz
inphase amplitude 7 ppm.
Conductivity thickness
2 mhos (see code).



FALCONBRIDGE LIMITED

INTERPRETATION

2.14949

GENOA TOWNSHIP CLAIMS (PN 8668)

GENOA TOWNSHIP, ONTARIO

SCALE 1:5,000

0 165 330 660 1320 Feet

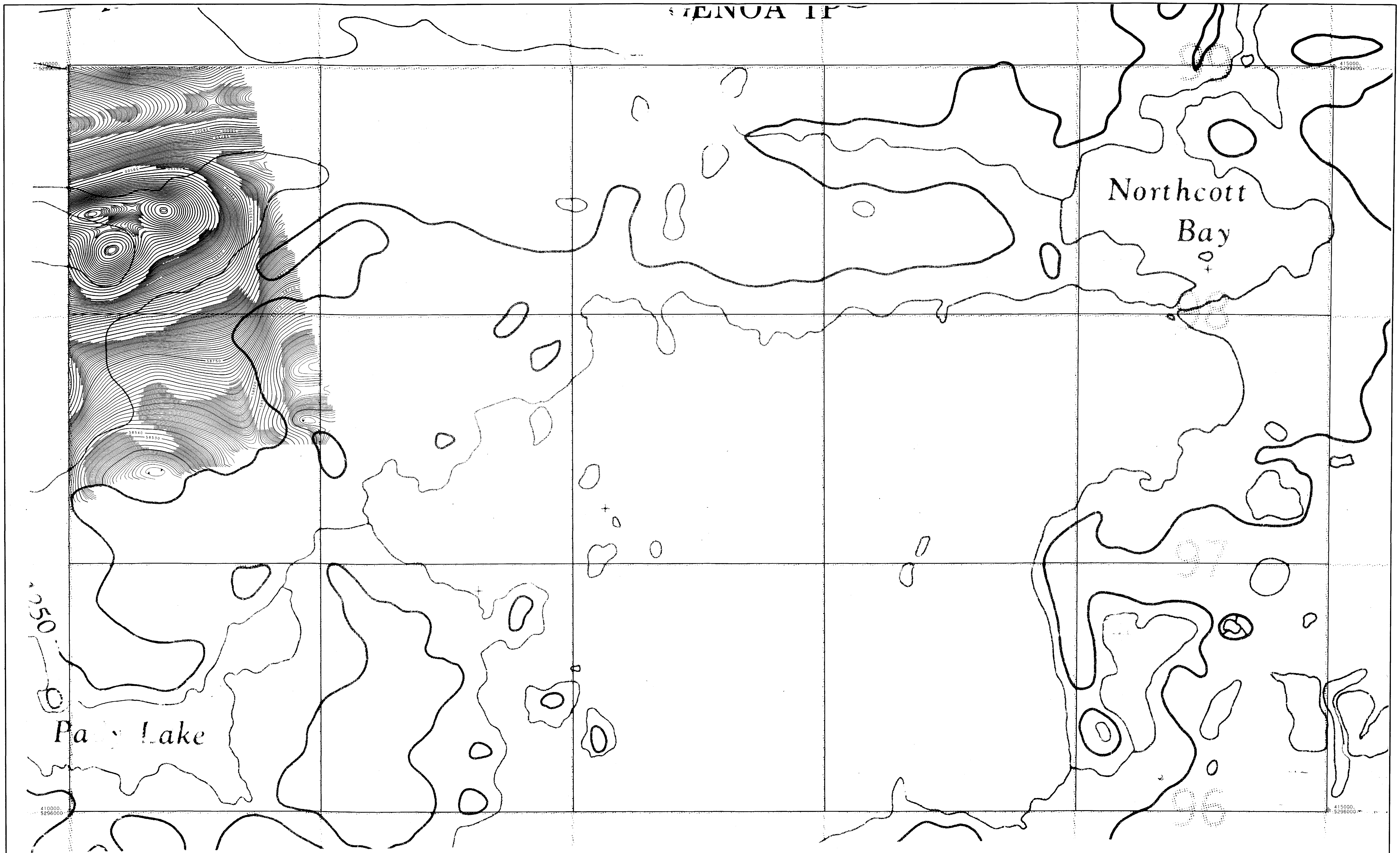
0 50 100 250 500 Metres

AERODAT LIMITED

DATE : MAR 1991

NTS No: 41 0/16

MAP No: 4105296 J9101



Magnetics

Total Field Magnetic Intensity
Contours in nT.

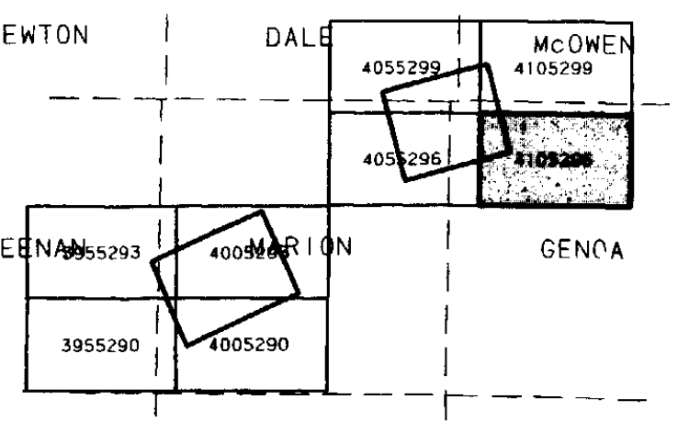
Cesium high sensitivity
magnetometer.

Sensor elevation 45m

Map contours are multiples of
those listed below

———	2 nT
———	10 nT
———	50 nT
———	250 nT
———	1000 nT

N



FALCONBRIDGE LIMITED

TOTAL FIELD MAGNETIC CONTOURS

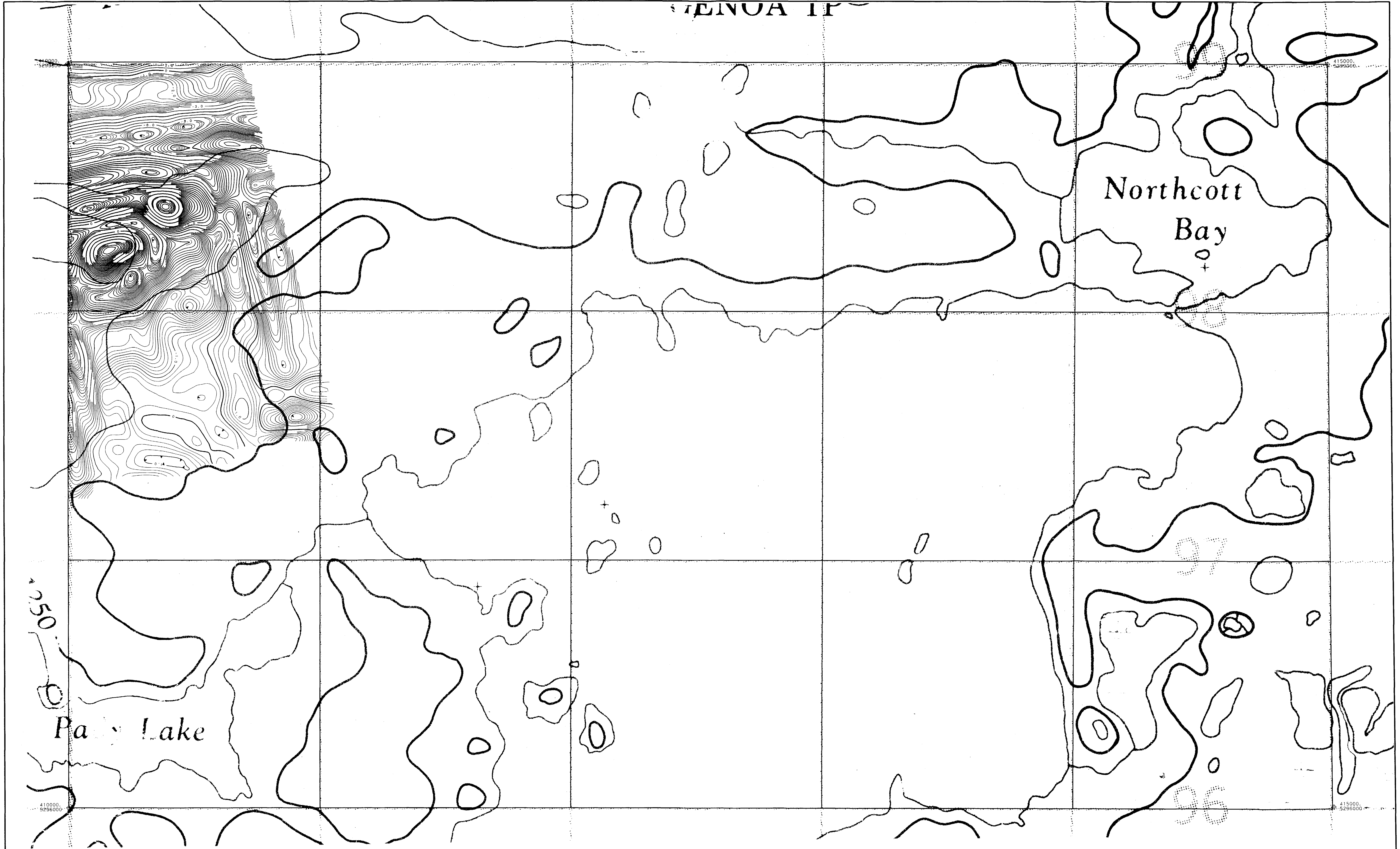
2.14949

GENOA TOWNSHIP CLAIMS (PN 8668)
GENOA TOWNSHIP, ONTARIO

SCALE 1:5,000
0 165 330 660 1320 Feet
0 50 100 250 500 Metres

AERODAT LIMITED

DATE : MAR 1991
NTS No: 41 O/16
MAP No: 4105296 J9101



Vertical Gradient

Vertical Magnetic Gradient calculated from the total field magnetic intensity in nT/m.

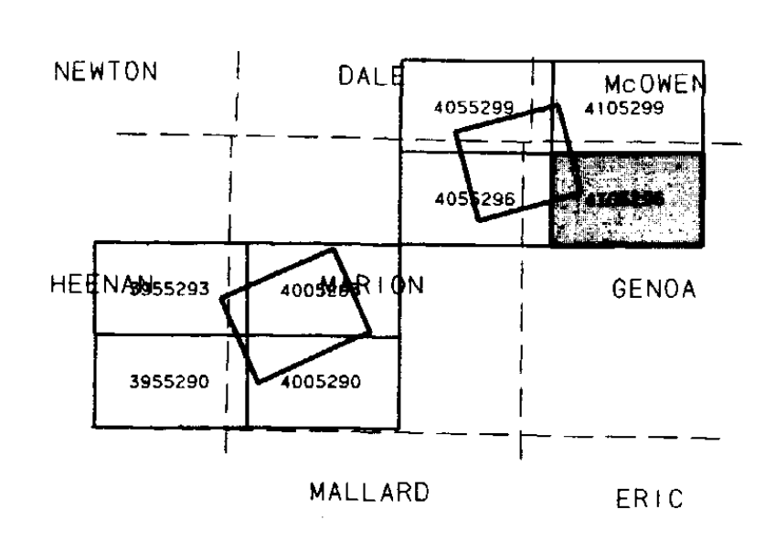
Cesium high sensitivity magnetometer.

Sensor elevation 45m

Map contours are multiples of those listed below

————	0.20 nT/m
————	1.00 nT/m
————	5.00 nT/m
————	25.0 nT/m
————	100 nT/m

N



FALCONBRIDGE LIMITED

CALCULATED VERTICAL MAGNETIC GRADIENT
2. 14949

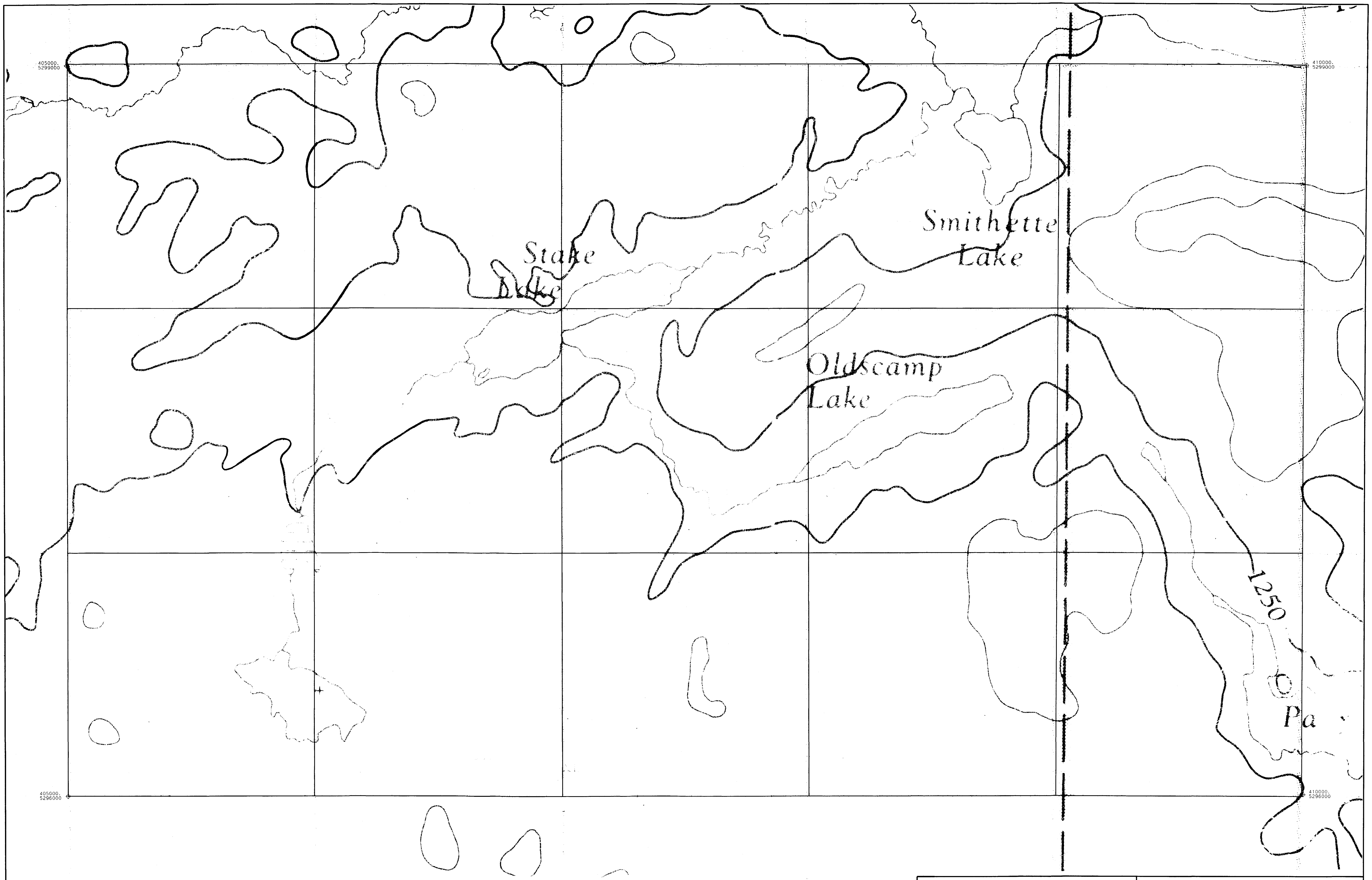
GENOA TOWNSHIP CLAIMS (PN 8668)
GENOA TOWNSHIP, ONTARIO

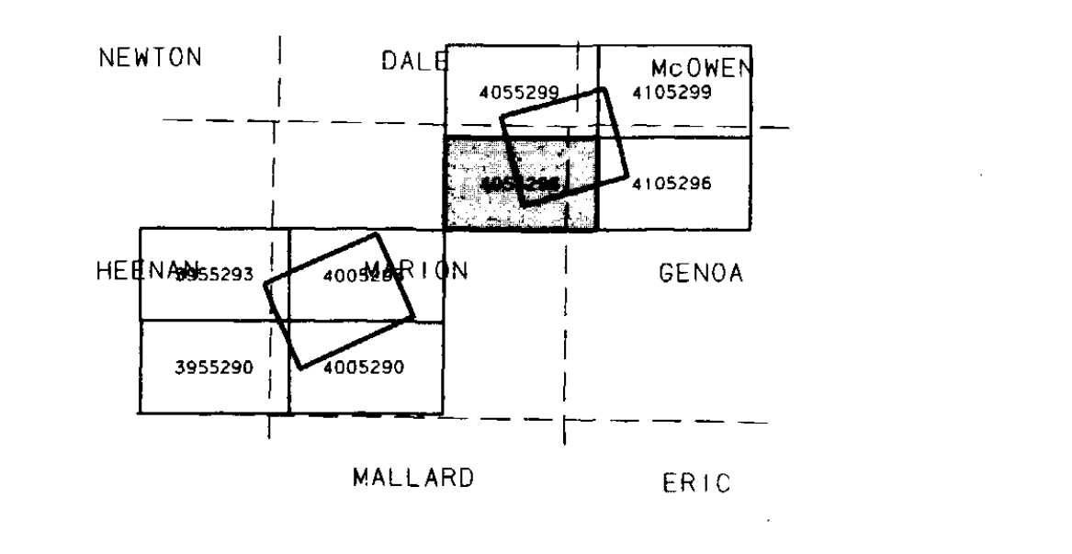
SCALE 1:5,000
0 165 330 660 1320 Feet
0 50 100 250 500 Metres

AERODAT LIMITED

DATE : MAR 1991
NTS No: 41 O/16
MAP No: 4105296 J9101

41016SE9058 2.14949 GENOA





FALCONBRIDGE LIMITED

BASE MAP

2.14949

GENOA TOWNSHIP CLAIMS (PN 8668)

MARION TOWNSHIP, ONTARIO

SCALE 1:5,000

0 165 330 660 1320 Feet

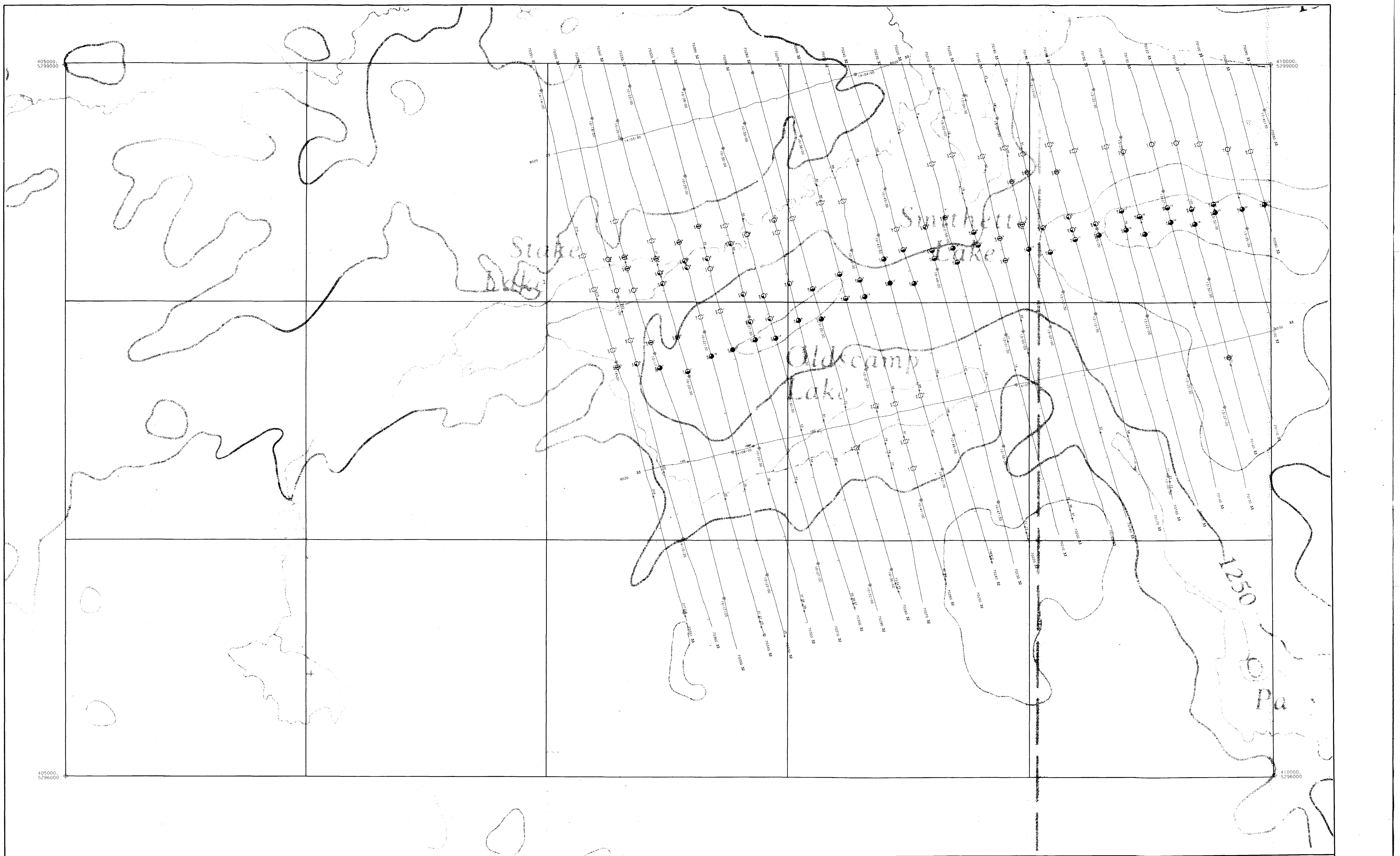
0 50 100 250 500 Metres

AERODAT LIMITED

DATE : MAR 1991

NTS No: 41 O/16

MAP No: 4055296 J9101



Flight Path

Navigation and recovery using Motorola Mini-Ranger (MRS III) radar navigation system.

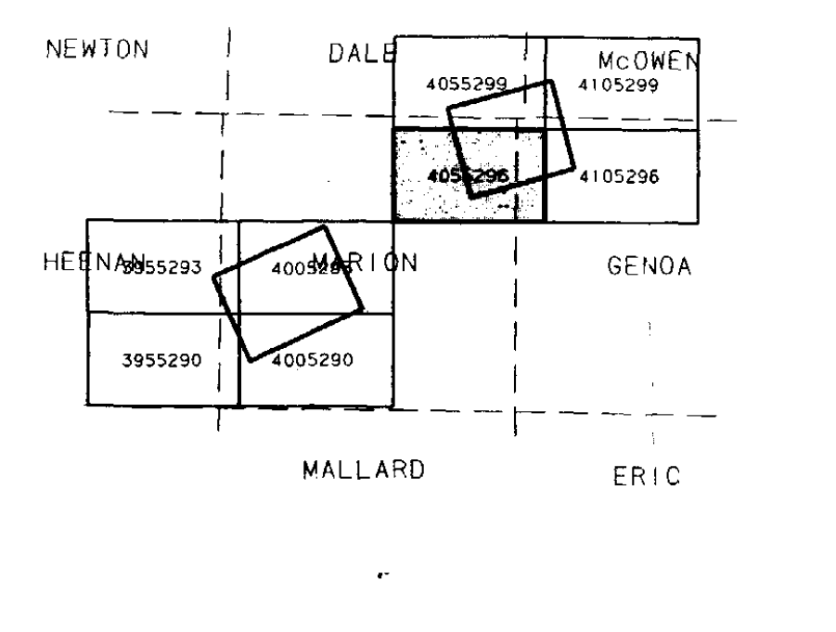
Average terrain clearance 60m
Average line spacing 100m

EM Anomalies

Conductivity Thickness (mhos)

◌	0 - 1
○	1 - 2
⊖	2 - 4
◕	4 - 8
◒	8 - 15
◕	15 - 30
●	> 30
⊗	Magnetite Anomaly

EM Anomaly A, 935 Hz inphase amplitude 7 ppm. Conductivity thickness 2 mhos (see code).



FALCONBRIDGE LIMITED

FLIGHT PATH -

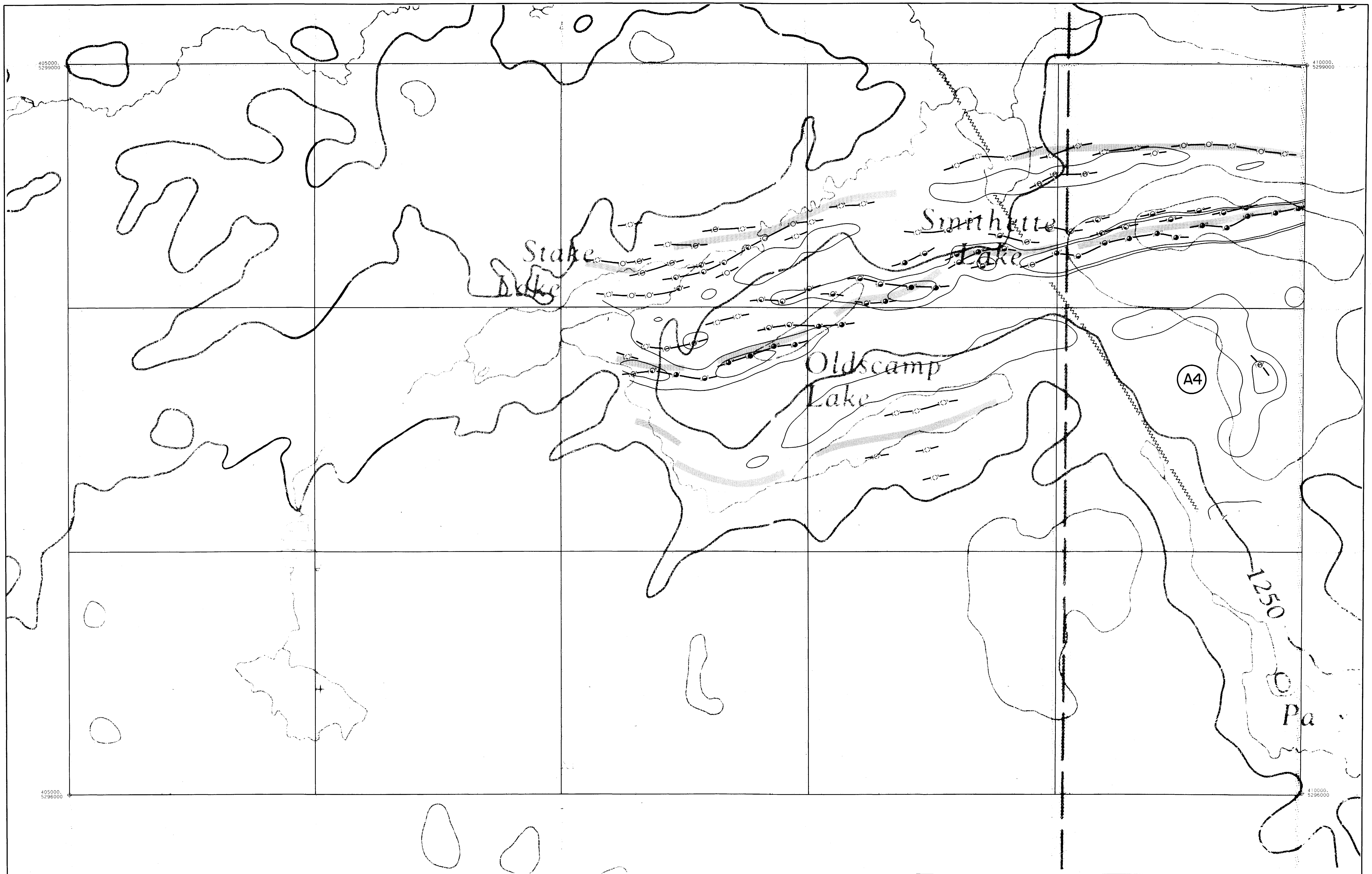
2.14949

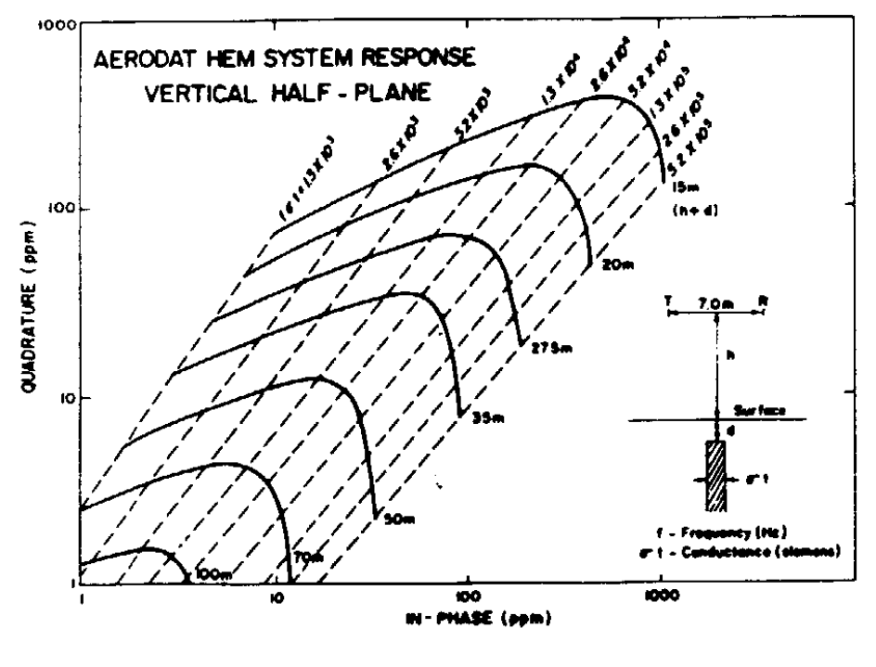
GENOA TOWNSHIP CLAIMS (PN 8668)
MARION TOWNSHIP, ONTARIO

SCALE 1:5,000
0 165 330 660 1320 Feet
0 50 100 250 500 Metres

AERODAT LIMITED

DATE : MAR 1991
NTS No: 41 0/16
MAP No: 4055296 J9101





N

INTERPRETATION LEGEND

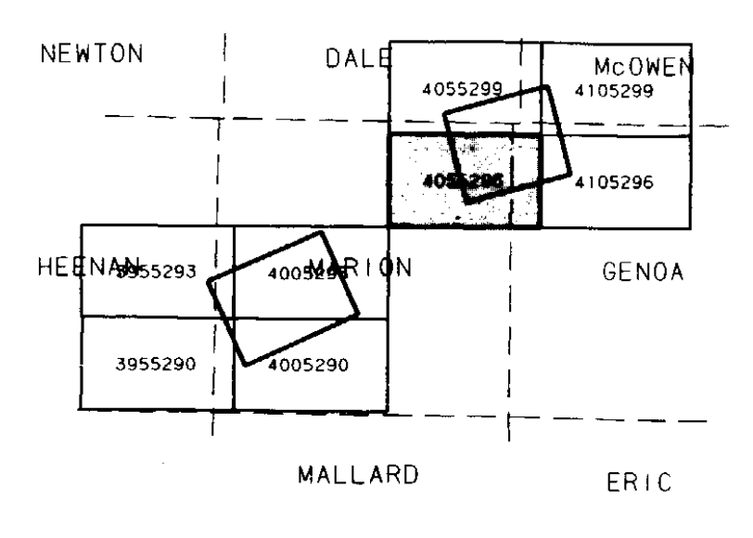
—○—	Conductor Axis
═	Vertical Gradient Contour Lines +5 nT/m and +25 nT/m
∿∿∿	Possible Fault
(A1)	Target Label
▒	VLF Conductor Axis

EM Anomalies

Conductivity Thickness (mhos)

◌	0 - 1
○	1 - 2
⊖	2 - 4
◐	4 - 8
◒	8 - 15
◕	15 - 30
●	> 30
⊗	Magnetite Anomaly

EM Anomaly A, 935 Hz
inphase amplitude 7 ppm.
Conductivity thickness
2 mhos (see code).



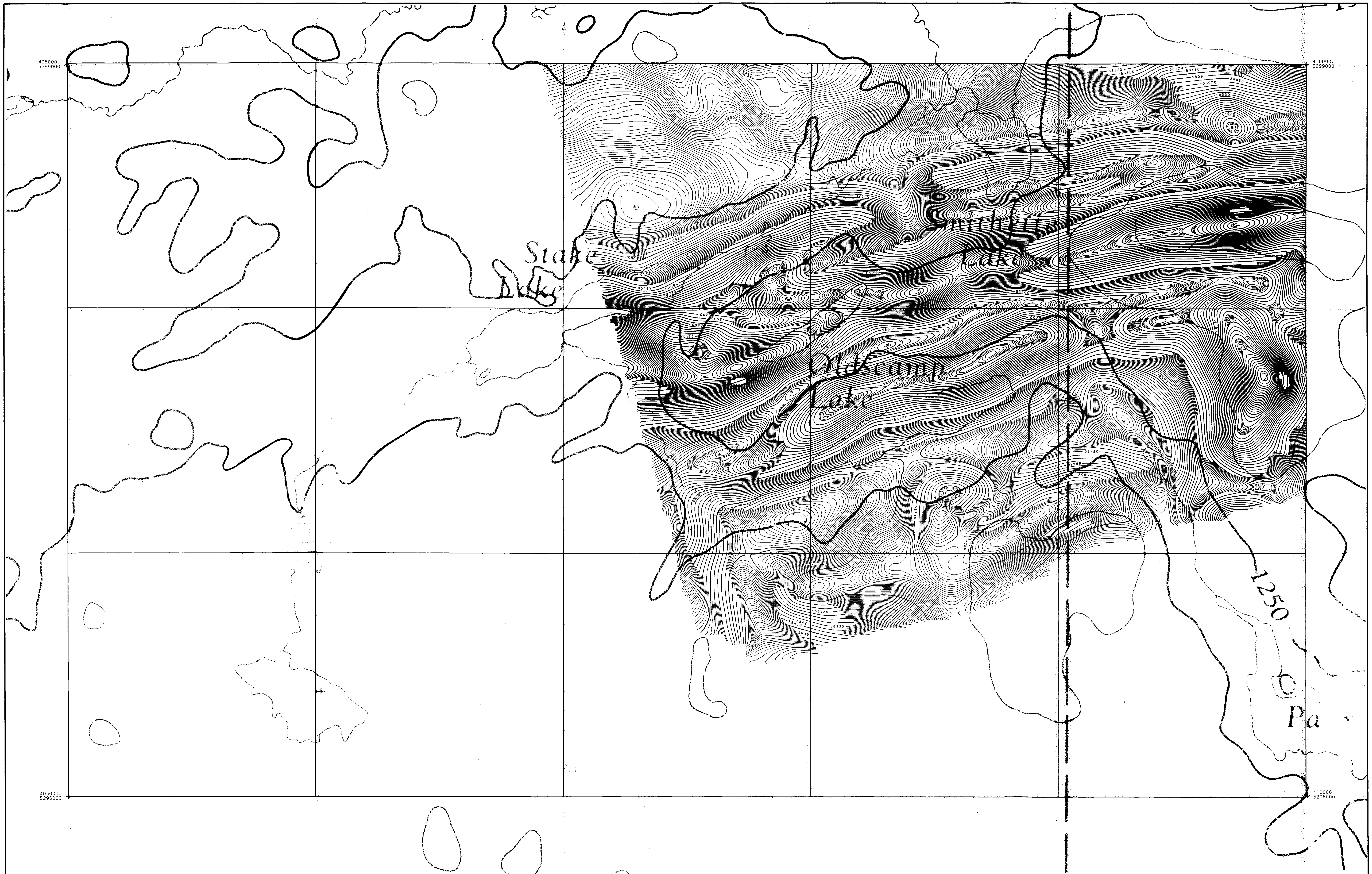
FALCONBRIDGE LIMITED

INTERPRETATION
2.14949
GENOA TOWNSHIP CLAIMS (PN 8668)
MARION TOWNSHIP, ONTARIO

SCALE 1:5,000
0 165 330 660 1320 Feet
0 50 100 250 500 Metres

AERODAT LIMITED

DATE :	MAR 1991
NTS No:	41 O/16
MAP No:	4055296 J9101



Magnetics

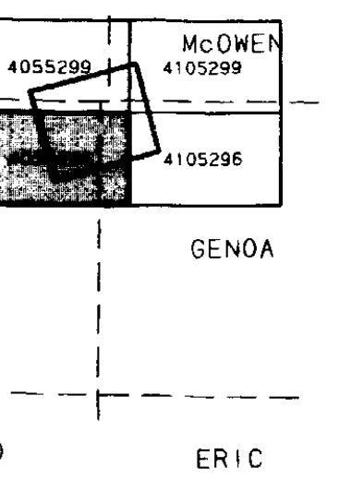
Total Field Magnetic Intensity Contours in nT.

Cesium high sensitivity magnetometer.

Sensor elevation 45m

Map contours are multiples of those listed below

───	2 nT
───	10 nT
───	50 nT
───	250 nT
───	1000 nT



FALCONBRIDGE LIMITED

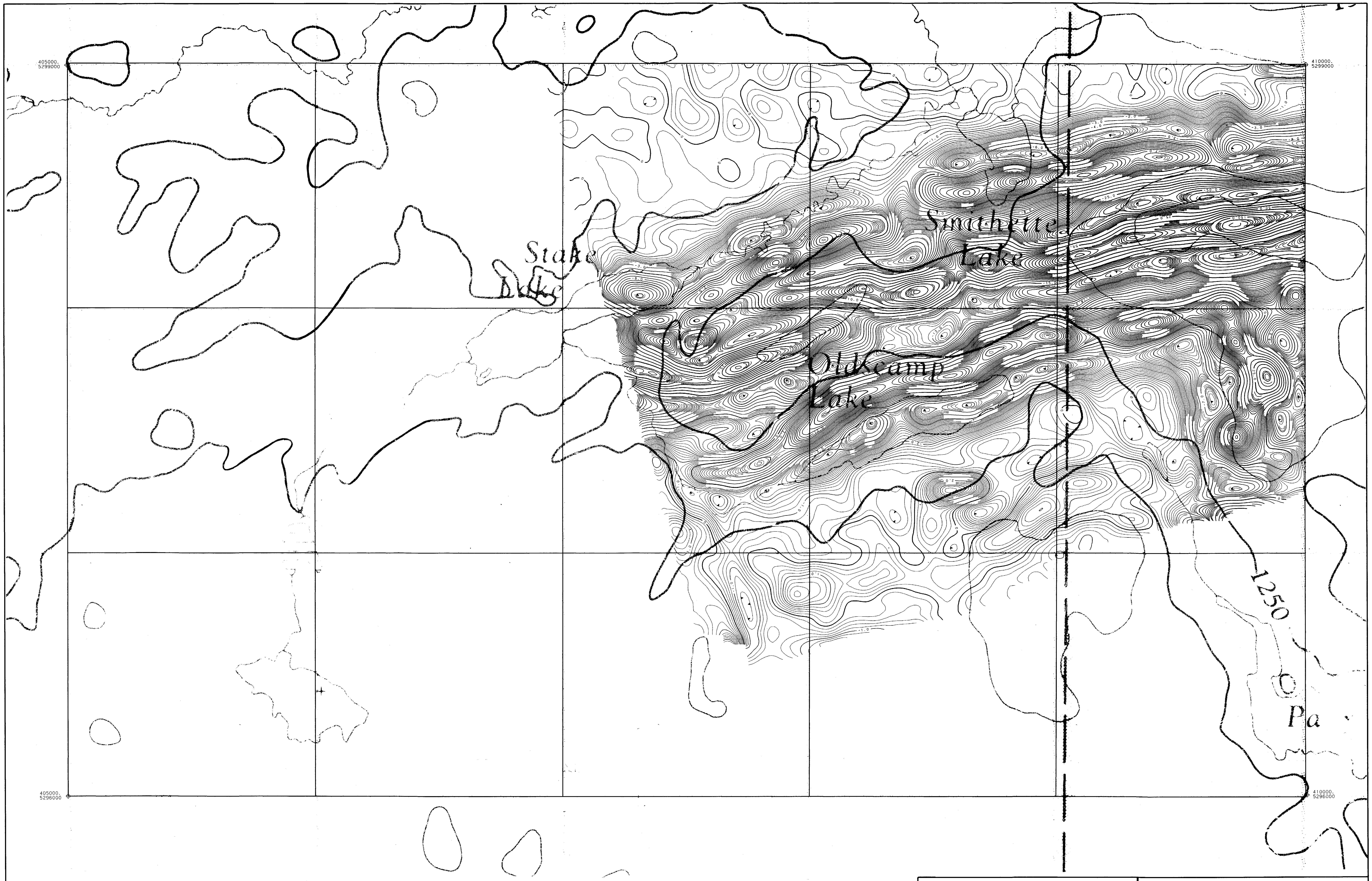
TOTAL FIELD MAGNETIC CONTOURS
2.14949

GENOA TOWNSHIP CLAIMS (PN 8668)
MARION TOWNSHIP, ONTARIO

SCALE 1:5,000
0 165 330 660 1320 Feet
0 50 100 250 500 Metres

AERODAT LIMITED

DATE : MAR 1991
NTS No: 41 O/16
MAP No: 4055296 J9101



Vertical Gradient

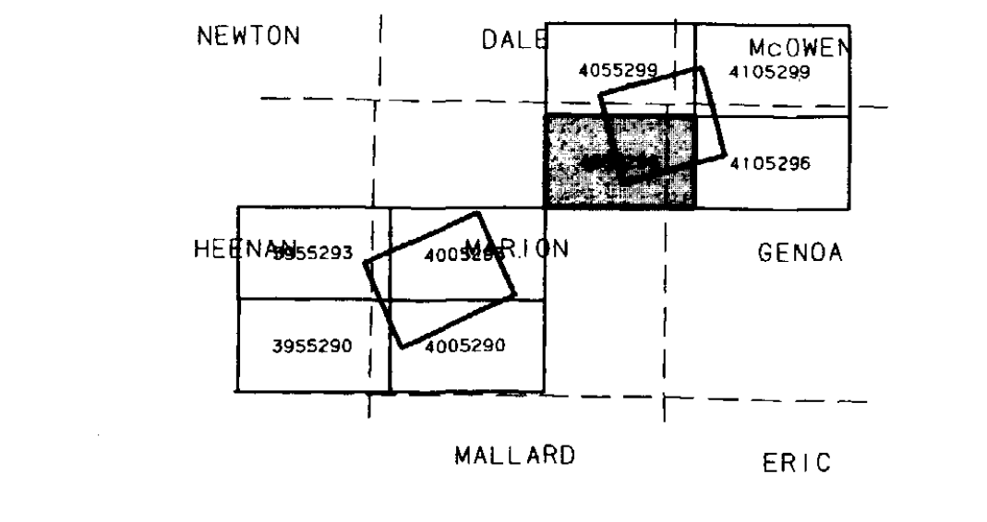
Vertical Magnetic Gradient calculated from the total field magnetic intensity in nT/m.

Cesium high sensitivity magnetometer.

Sensor elevation 45m

Map contours are multiples of those listed below

———	0.20 nT/m
———	1.00 nT/m
———	5.00 nT/m
———	25.0 nT/m
———	100 nT/m



FALCONBRIDGE LIMITED

CALCULATED VERTICAL MAGNETIC GRADIENT
2.14949

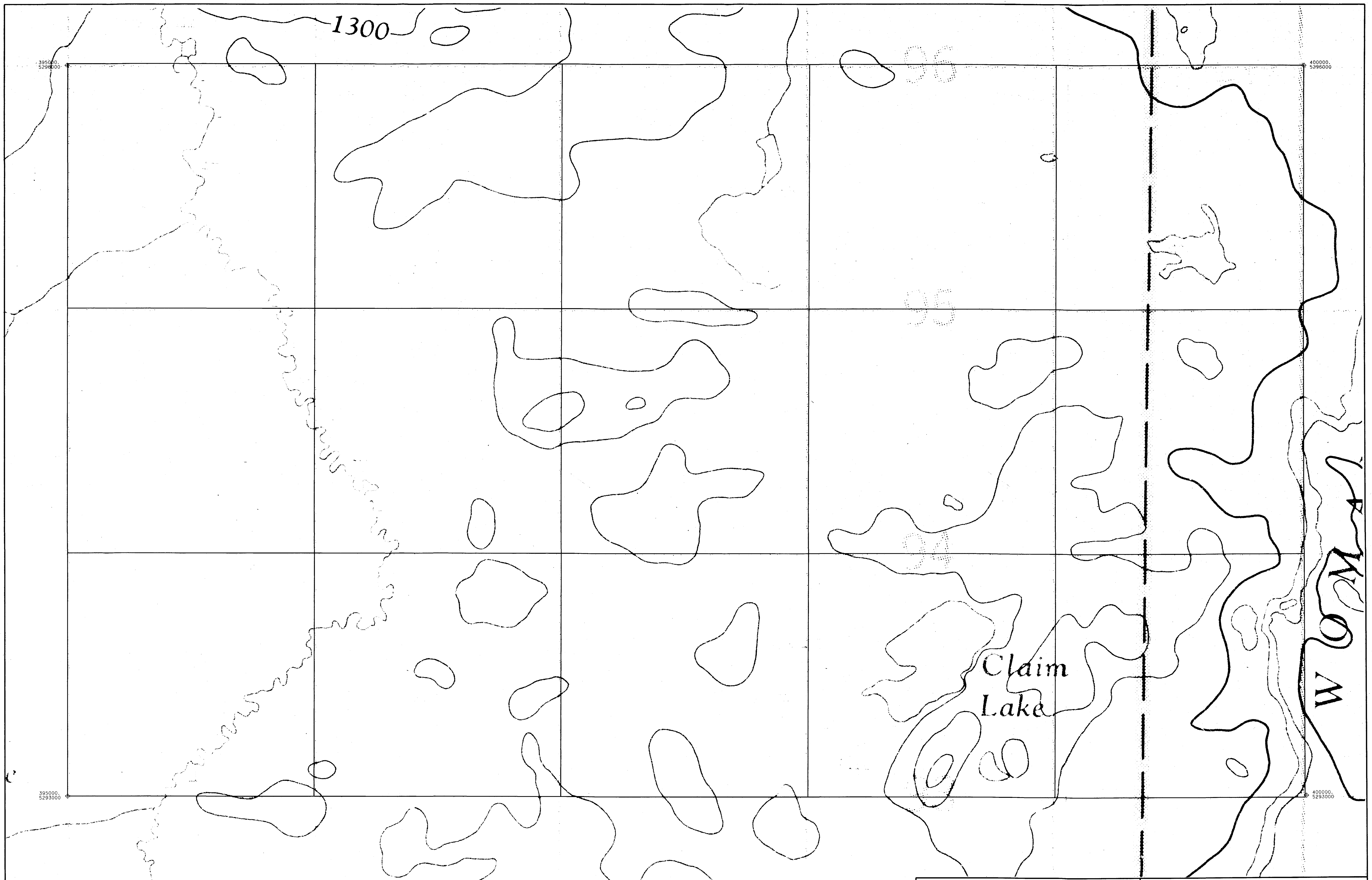
GENOA TOWNSHIP CLAIMS (PN 8668)
MARION TOWNSHIP, ONTARIO

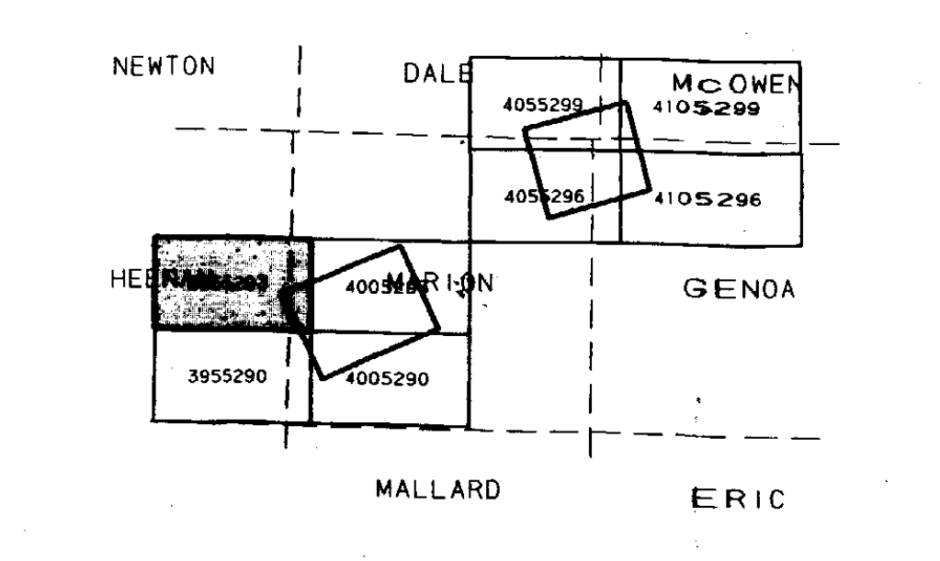
SCALE 1:5,000

0 165 330 660 1320 Feet
0 50 100 250 500 Metres

AERODAT LIMITED

DATE : MAR 1991
NTS No: 41 0/16
MAP No: 4055296 J9101





N

FALCONBRIDGE LIMITED

BASE MAP

2.14949

GENOA TOWNSHIP CLAIMS (PN 8668)

HEENAN TOWNSHIP, ONTARIO

SCALE 1:5,000

0 165 330 660 1320 Feet

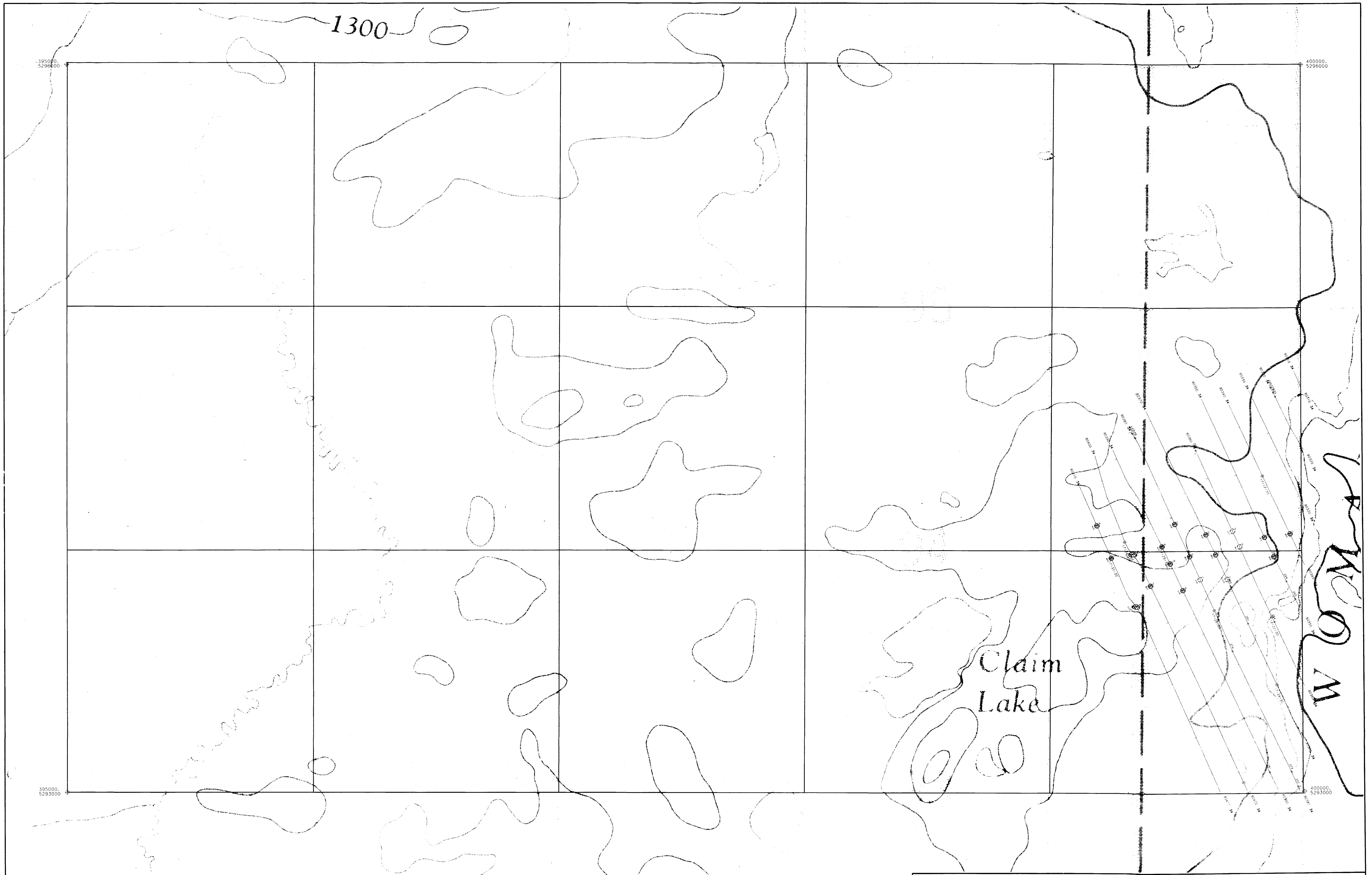
0 50 100 250 500 Metres

AERODAT LIMITED

DATE : MAR 1991

NTS No: 41 O/16

MAP No: 3955293 J9101



Flight Path

Navigation and recovery using Motorola Mini-Ranger (MRS III) radar navigation system.

Average terrain clearance 60m
Average line spacing 100m

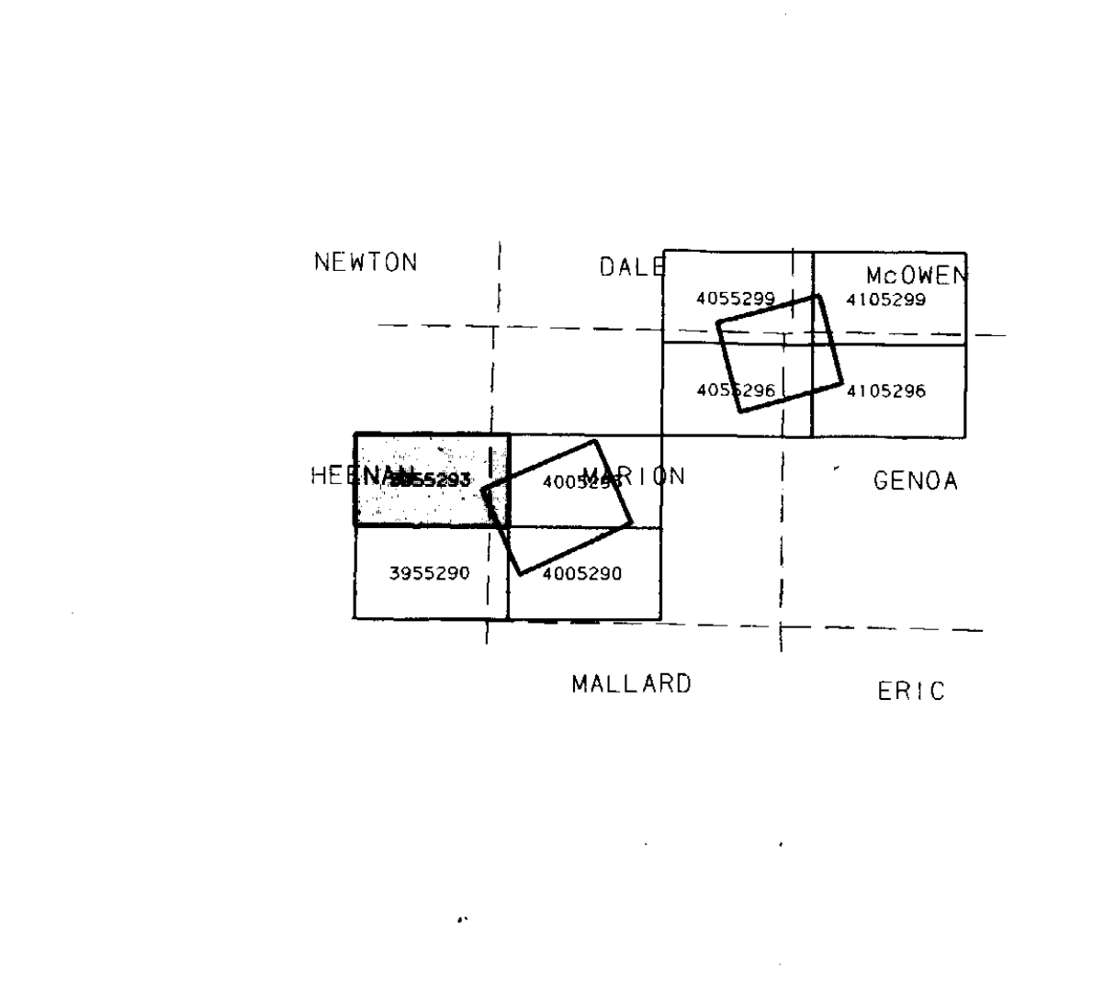
EM Anomalies

Conductivity Thickness (mhos)

◌	0 - 1
○	1 - 2
⊖	2 - 4
◐	4 - 8
◒	8 - 15
◕	15 - 30
●	> 30
Ⓢ	Magnetite Anomaly

EM Anomaly A, 935 Hz inphase amplitude 7 ppm. Conductivity thickness 2 mhos (see code).

N



FALCONBRIDGE LIMITED

FLIGHT PATH

2.14949

GENOA TOWNSHIP CLAIMS (PN 8668)

HEENAN TOWNSHIP, ONTARIO

SCALE 1:5,000

0 165 330 660 1320 Feet

0 50 100 250 500 Metres

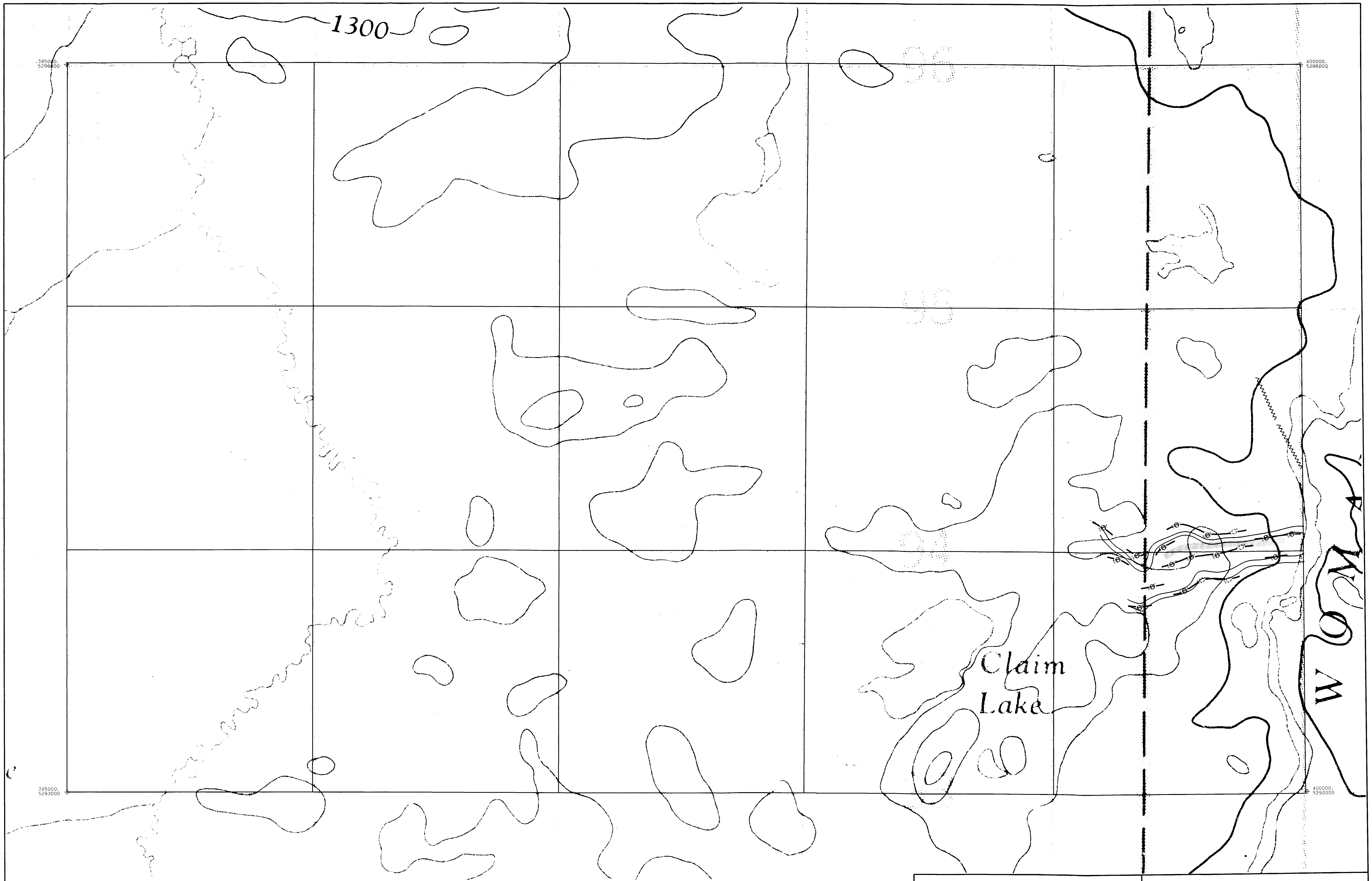
AERODAT LIMITED

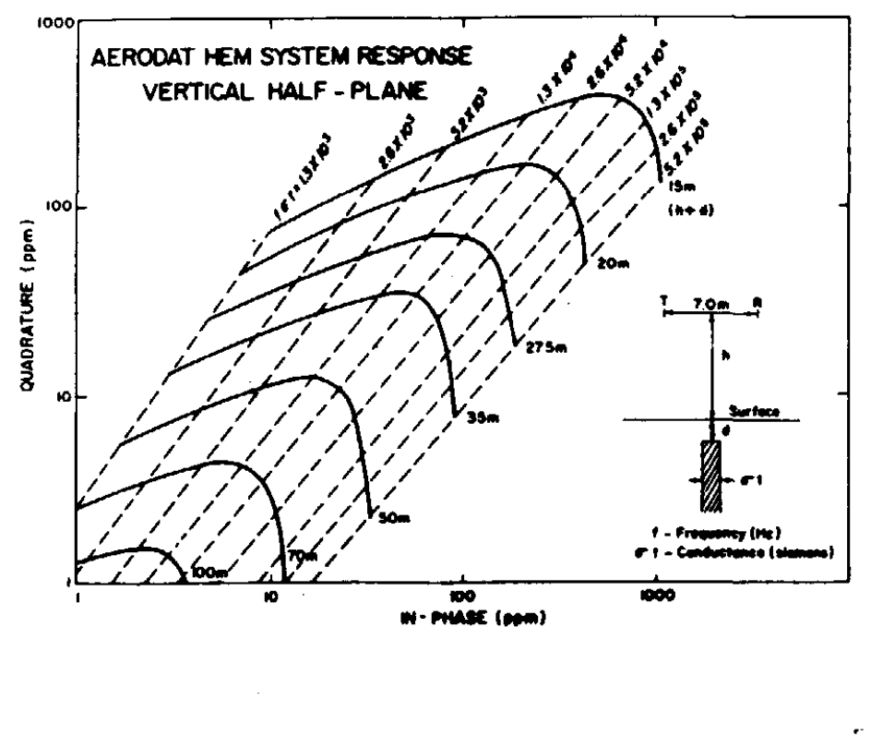
DATE : MAR 1991

NTS No: 41 O/16

MAP No: 3955293 J9101

236





N

INTERPRETATION LEGEND

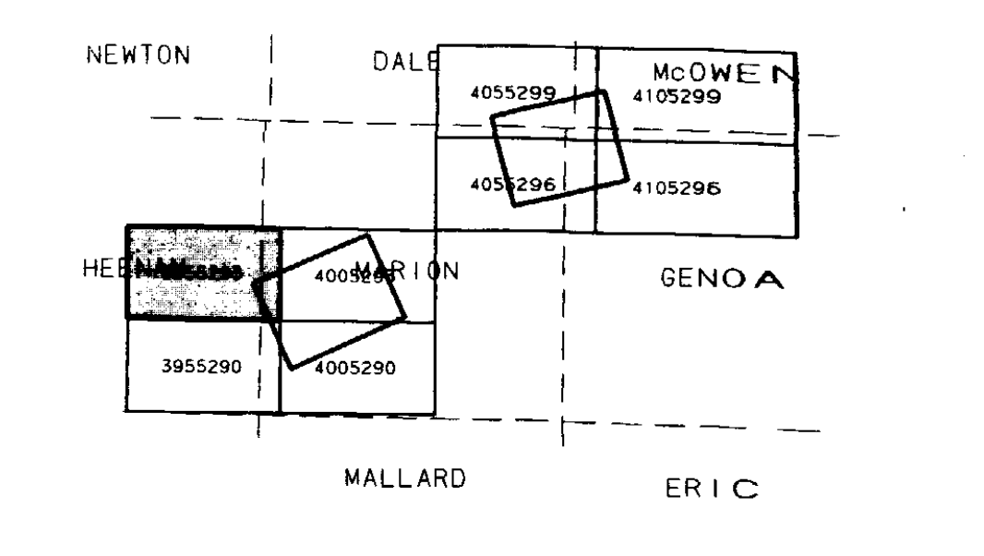
—○—	Conductor Axis
═	Vertical Gradient Contour Lines +5 nT/m and +25 nT/m
∿∿∿	Possible Fault
Ⓐ1	Target Label
▨	VLF Conductor Axis

EM Anomalies

Conductivity Thickness (mhos)

◌	0 - 1
○	1 - 2
⊖	2 - 4
◔	4 - 8
◒	8 - 15
◕	15 - 30
●	> 30
⊗	Magnetite Anomaly

EM Anomaly A, 935 Hz inphase amplitude 7 ppm. Conductivity thickness 2 mhos (see code).



FALCONBRIDGE LIMITED

INTERPRETATION

2.14949

GENOA TOWNSHIP CLAIMS (PN 8668)

HEENAN TOWNSHIP, ONTARIO

SCALE 1:5,000

0 165 330 660 1320 Feet

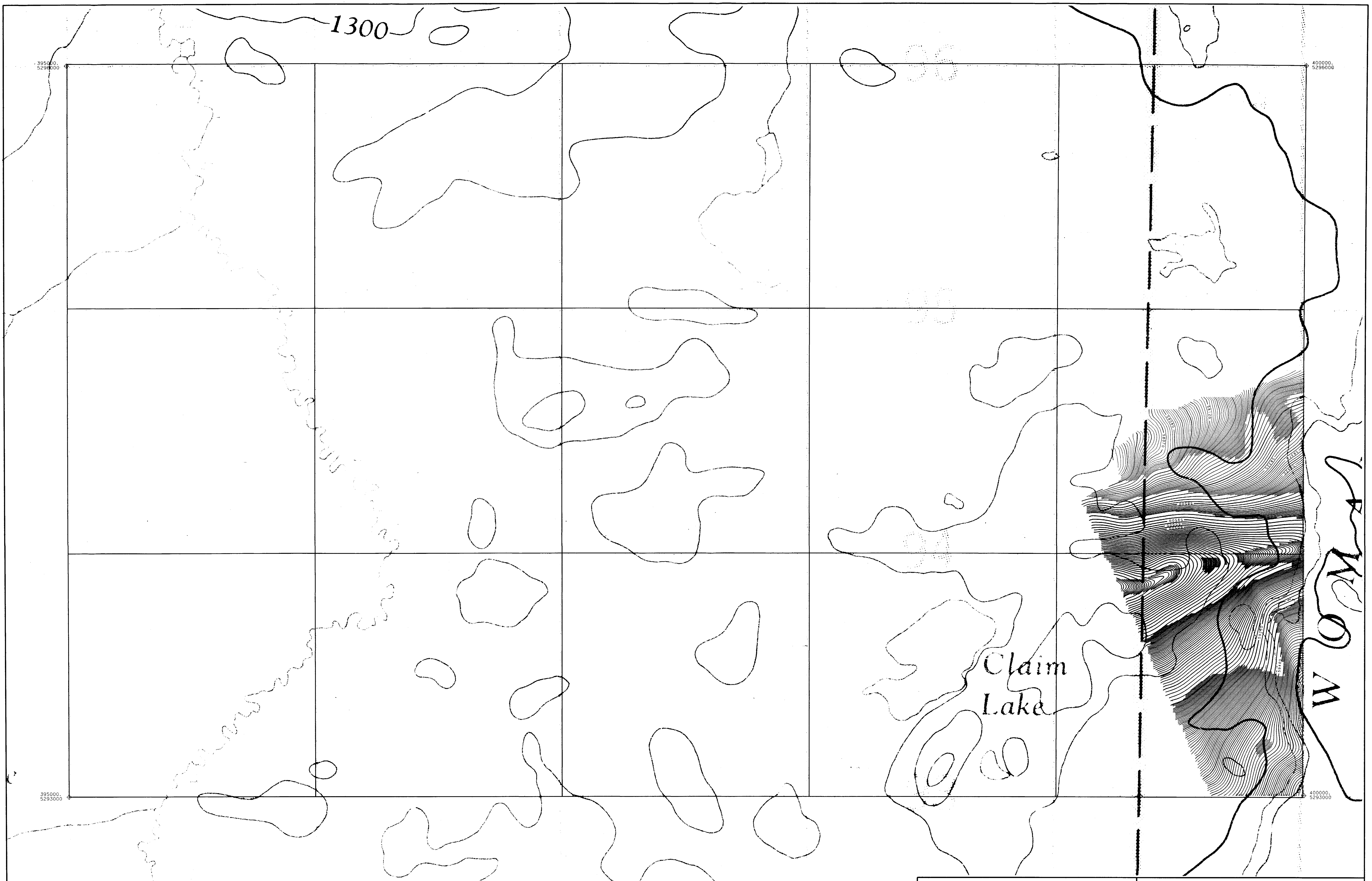
0 50 100 250 500 Metres

AERODAT LIMITED

DATE : MAR 1991

NTS No: 41 O/16

MAP No: 3955293 J9101



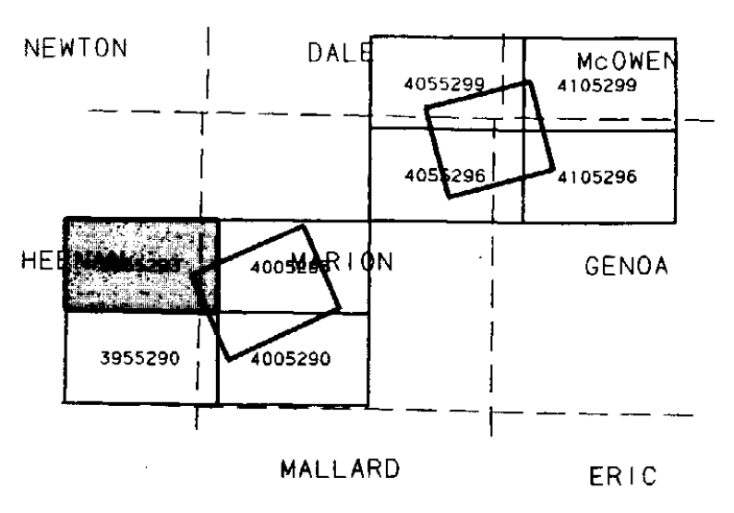
Magnetics

Total Field Magnetic Intensity Contours in nT.

Cesium high sensitivity magnetometer.

Sensor elevation 45m

Map contours are multiples of
those listed below
- 2 nT
- 10 nT
- 50 nT
- 250 nT
- 1000 nT



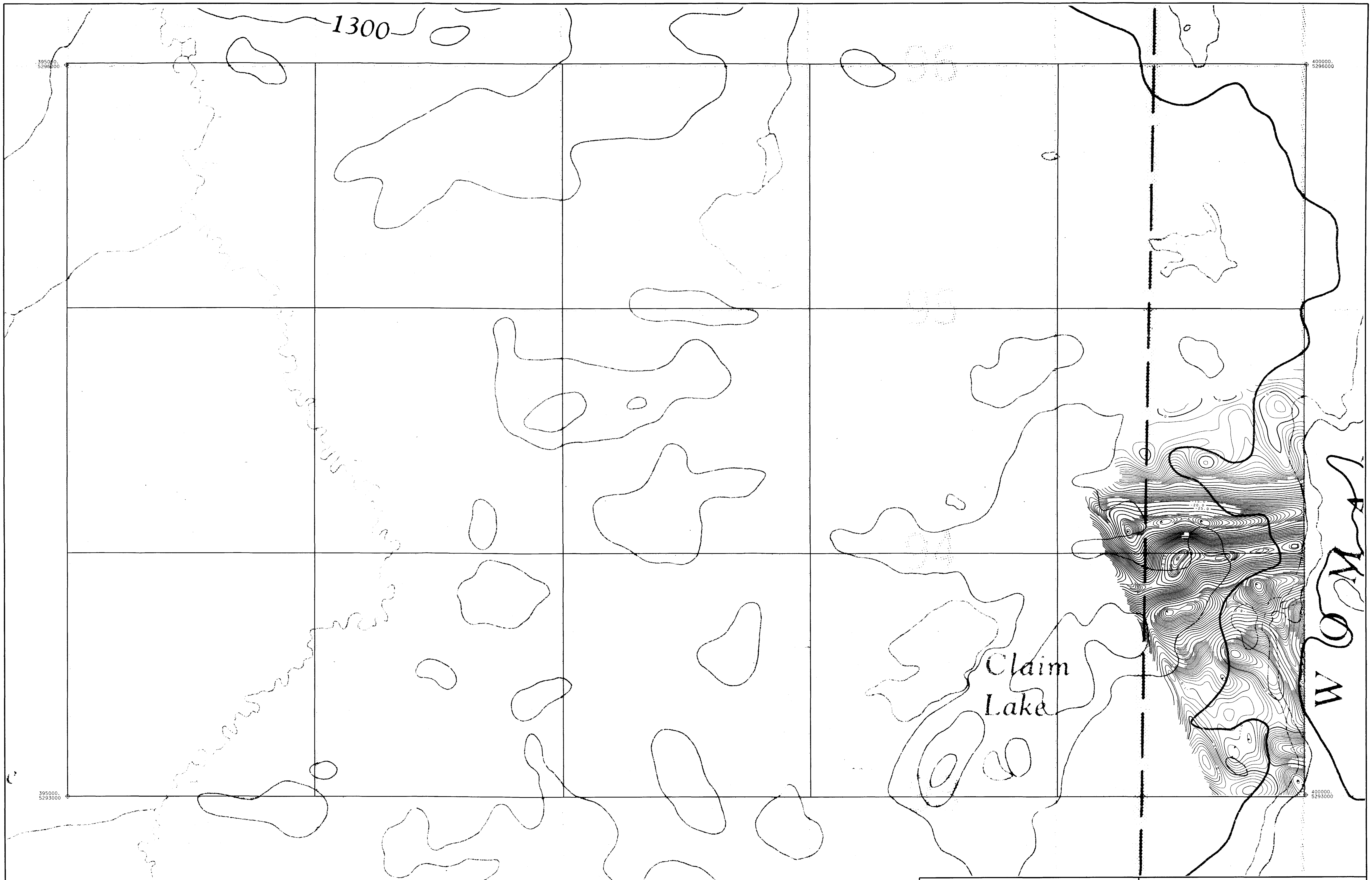
FALCONBRIDGE LIMITED

TOTAL FIELD MAGNETIC CONTOURS
2.14949
GENOA TOWNSHIP CLAIMS (PN 8668)
HEENAN TOWNSHIP, ONTARIO

SCALE 1:5,000
0 165 330 660 1320 Feet
0 50 100 250 500 Metres

AERODAT LIMITED

DATE : MAR 1991
NTS No: 41 O/16
MAP No: 3955293 J9101



Vertical Gradient

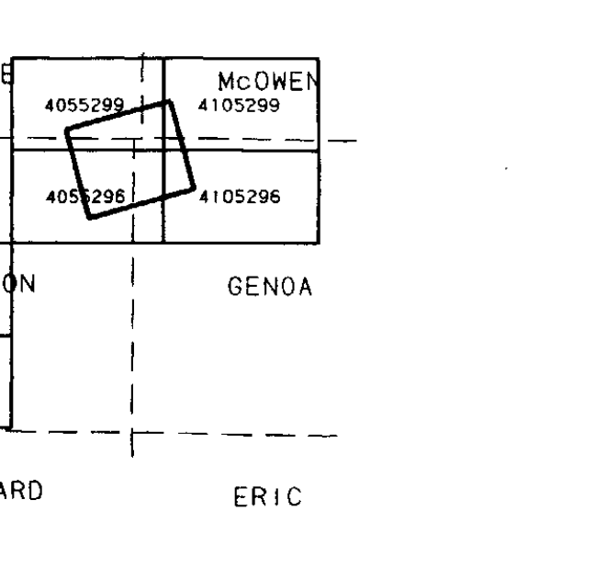
Vertical Magnetic Gradient calculated from the total field magnetic intensity in nT/m.

Cesium high sensitivity magnetometer.

Sensor elevation 45m

Map contours are multiples of those listed below

0.20 nT/m
1.00 nT/m
5.00 nT/m
25.0 nT/m
100 nT/m



FALCONBRIDGE LIMITED

CALCULATED VERTICAL MAGNETIC GRADIENT

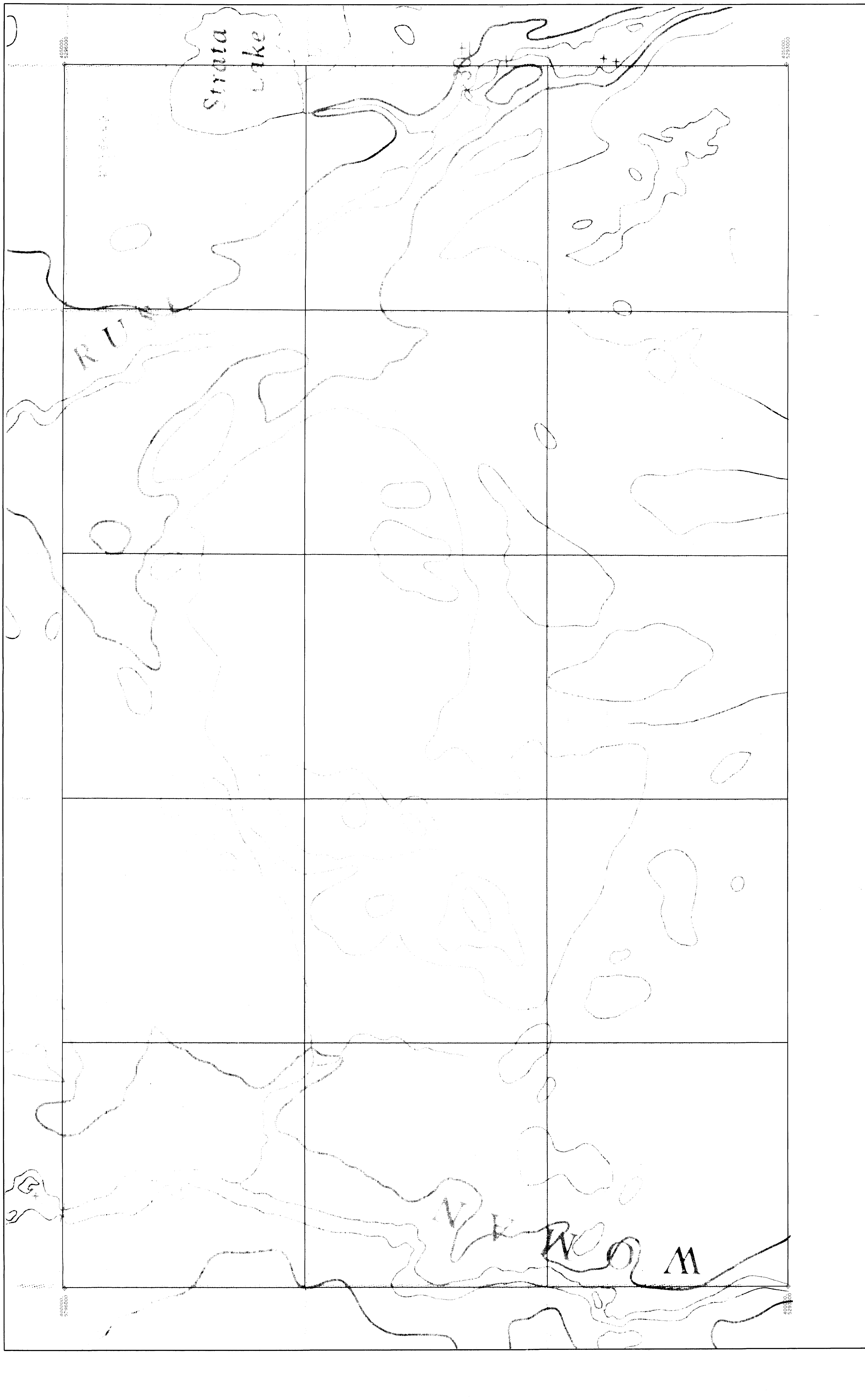
2.14949

GENOA TOWNSHIP CLAIMS (PN 8668)
HEENAN TOWNSHIP, ONTARIO

SCALE 1:5,000
0 165 330 660 1320 Feet
0 50 100 250 500 Metres

AERODAT LIMITED

DATE : MAR 1991
NTS No: 41 0/16
MAP No: 3955293 J9101



FALCONBRIDGE LIMITED

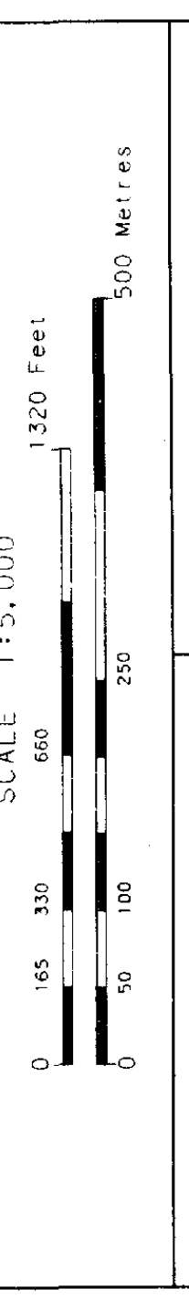
BASE MAP

2.14949

GENOA TOWNSHIP CLAIMS (PN 8668)

MARION TOWNSHIP, ONTARIO

SCALE 1:5,000



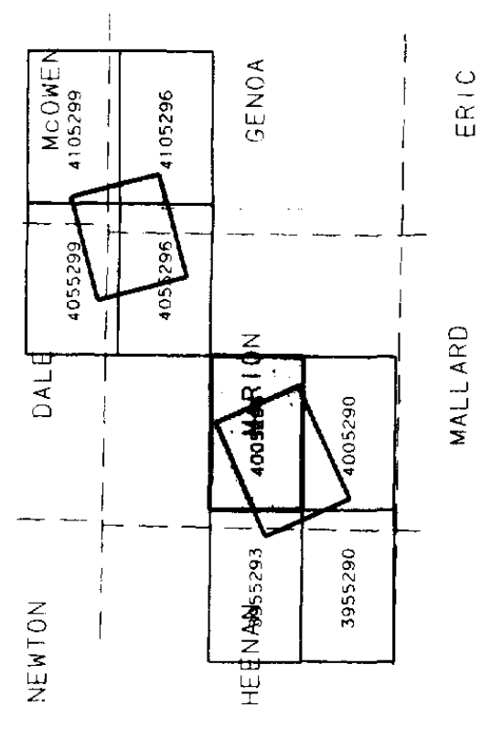
AERODAT LIMITED

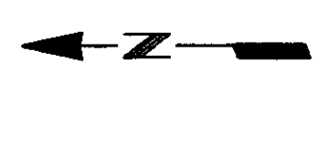
DATE : MAR 1991

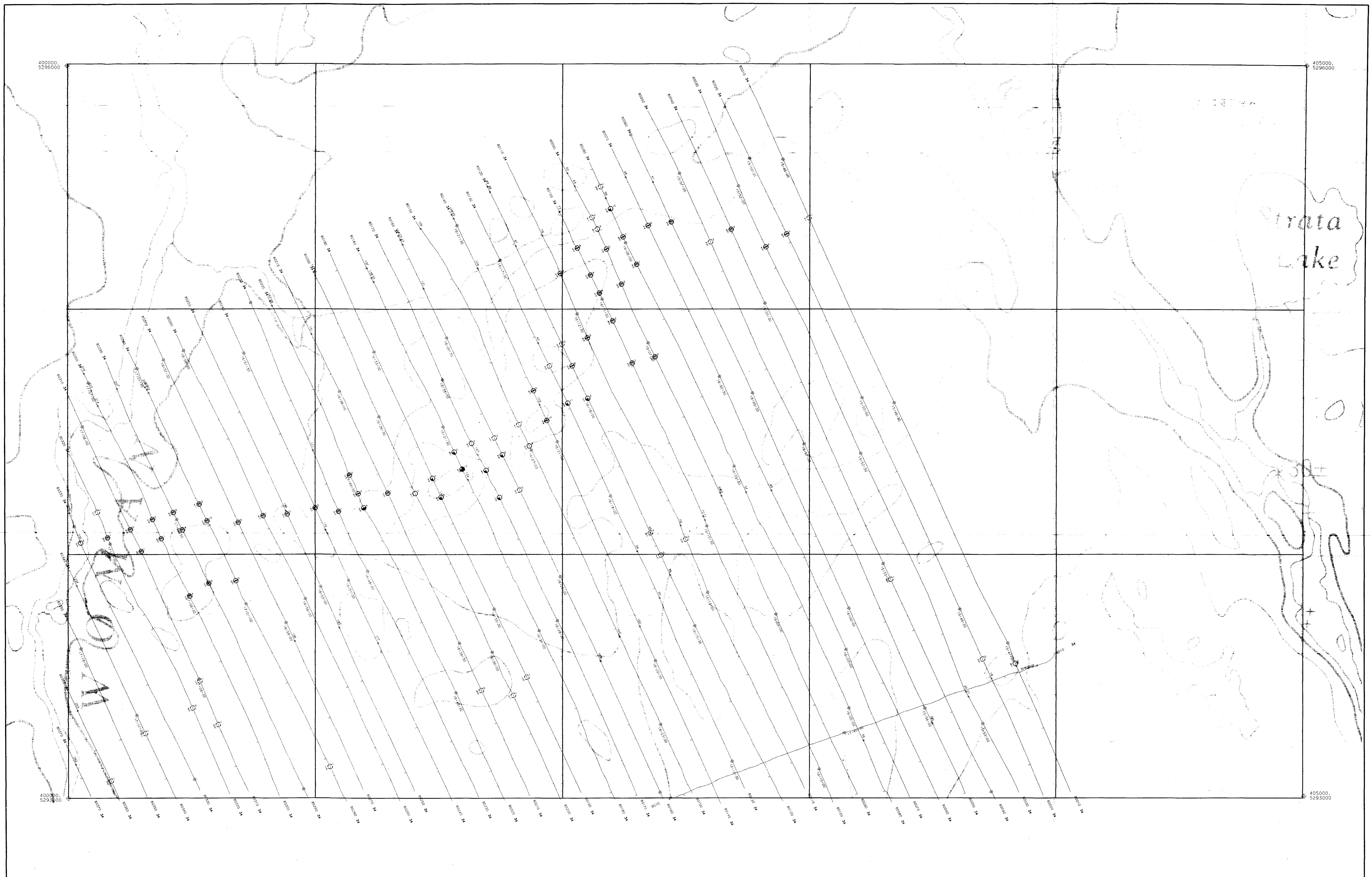
NTS No: 41 O/16

MAP No: 4005293

J9101







Flight Path

Navigation and recovery using Motorola Mini-Ranger (MRS III) radar navigation system.

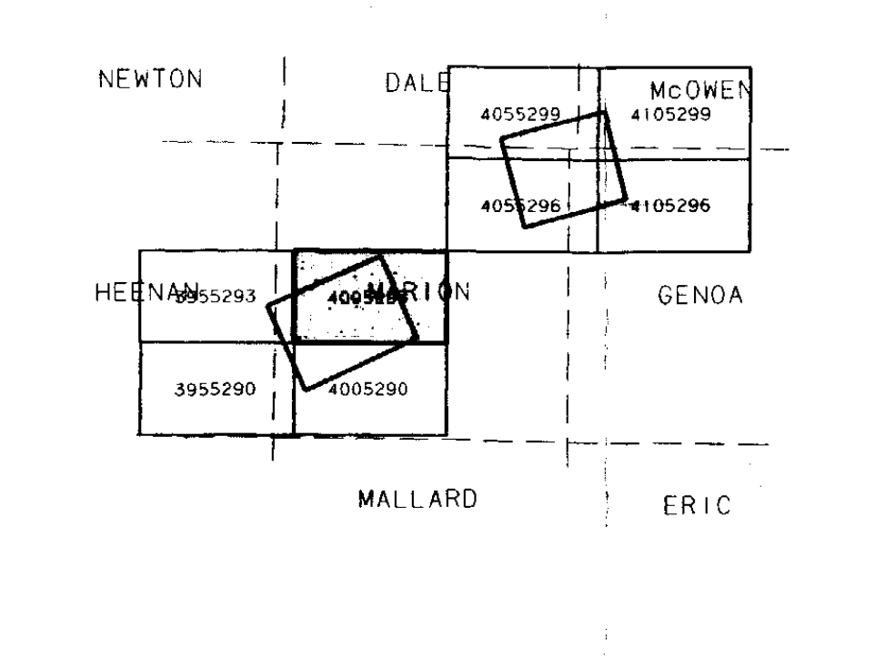
Average terrain clearance 60m
Average line spacing 100m

EM Anomalies

Conductivity Thickness (mhos)

◌	0 - 1
○	1 - 2
⊖	2 - 4
◐	4 - 8
◒	8 - 15
◕	15 - 30
●	> 30
⊗	Magnetite Anomaly

EM Anomaly A, 935 Hz inphase amplitude 7 ppm. Conductivity thickness 2 mhos (see code).



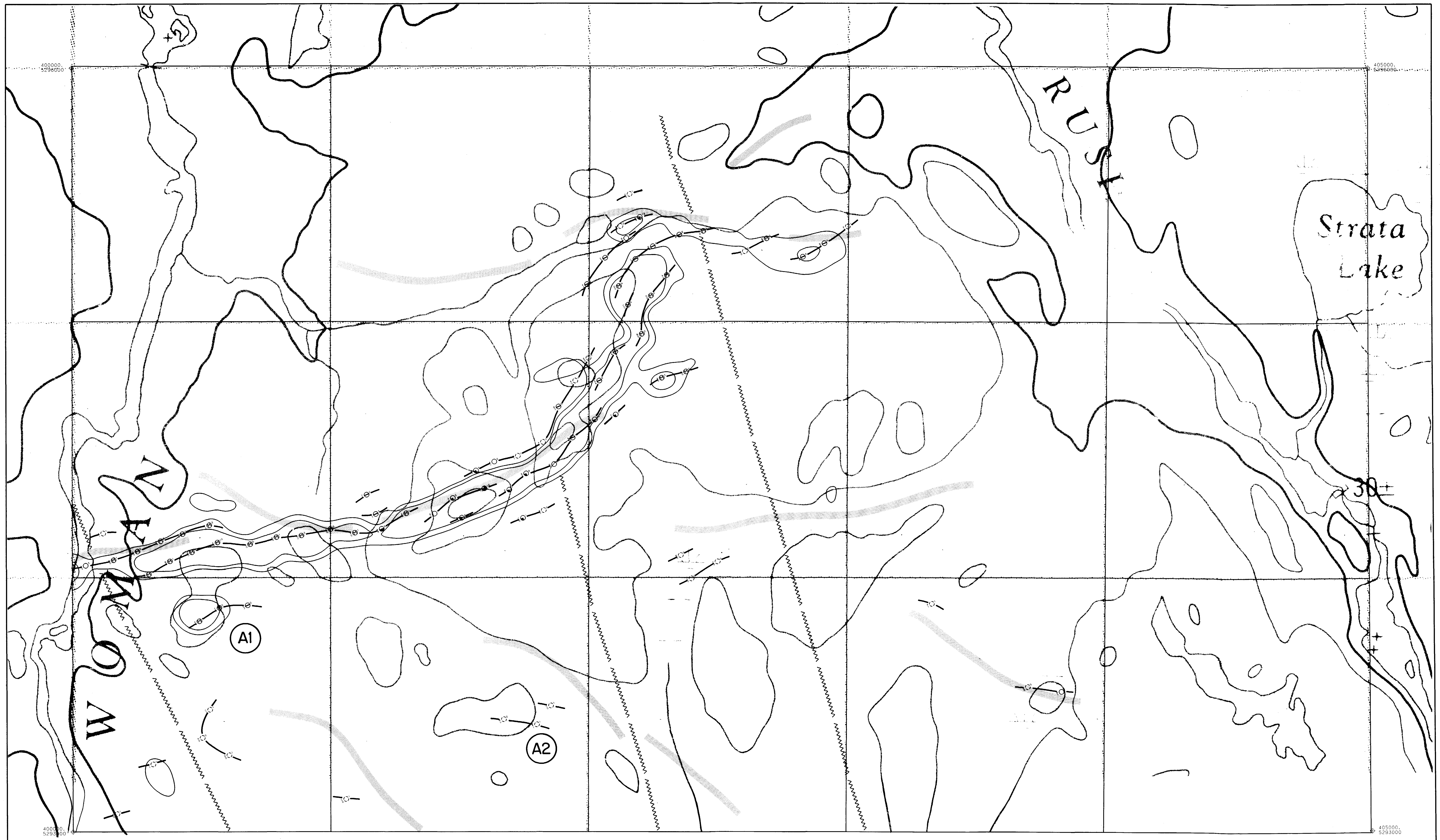
FALCONBRIDGE LIMITED

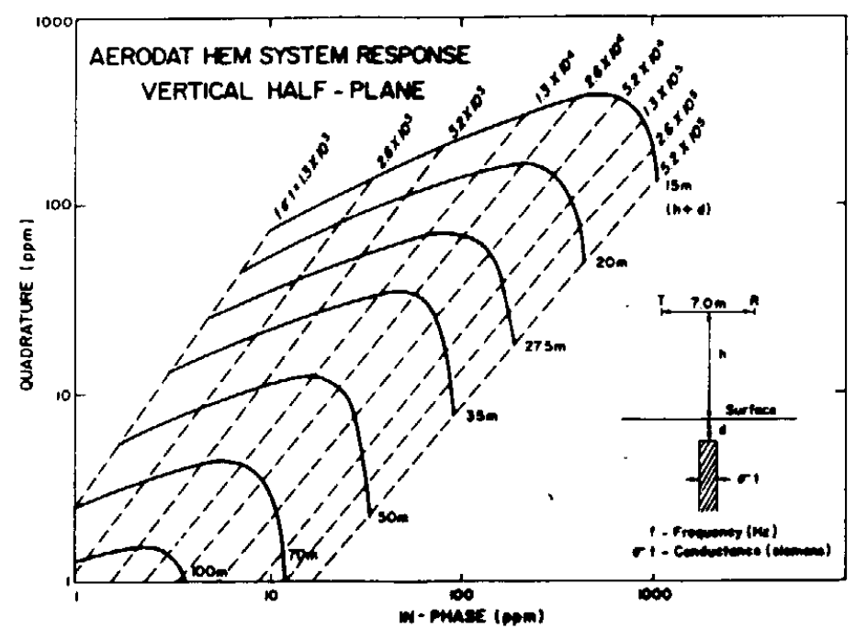
FLIGHT PATH
2.14949
GENOA TOWNSHIP CLAIMS (PN 8668)
MARION TOWNSHIP, ONTARIO

SCALE 1:5,000
0 165 330 660 1320 Feet
0 50 100 250 500 Metres

AERODAT LIMITED

DATE : MAR 1991
NTS No: 41 O/16
MAP No: 4005293 J9101





INTERPRETATION LEGEND

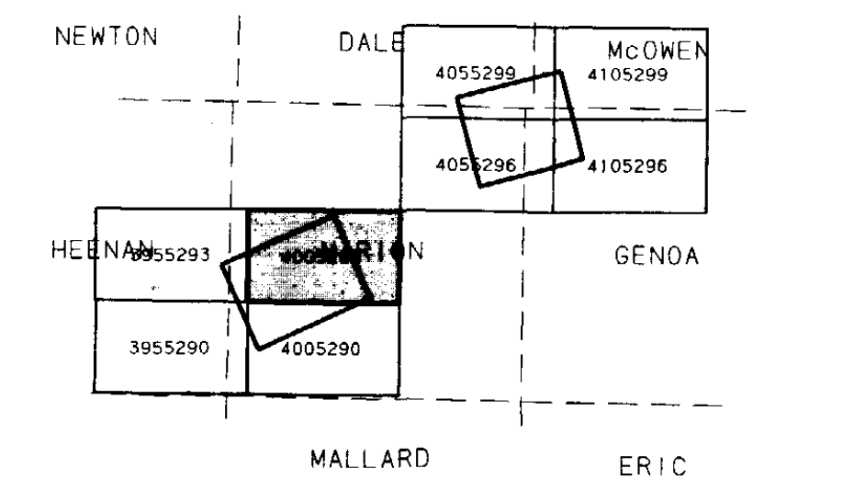
—○—	Conductor Axis
═	Vertical Gradient Contour Lines +5 nT/m and +25 nT/m
∧∧∧∧∧	Possible Fault
(A1)	Target Label
▨	VLF Conductor Axis

EM Anomalies

Conductivity Thickness (mhos)

◌	0 - 1
○	1 - 2
⊖	2 - 4
◐	4 - 8
◒	8 - 15
◕	15 - 30
●	> 30
⊛	Magnetite Anomaly

EM Anomaly A, 935 Hz
inphase amplitude 7 ppm.
Conductivity thickness
2 mhos (see code).



FALCONBRIDGE LIMITED

INTERPRETATION

2.14949

GENOA TOWNSHIP CLAIMS (PN 8668)

MARION TOWNSHIP, ONTARIO

SCALE 1:5,000

0 165 330 660 1320 Feet

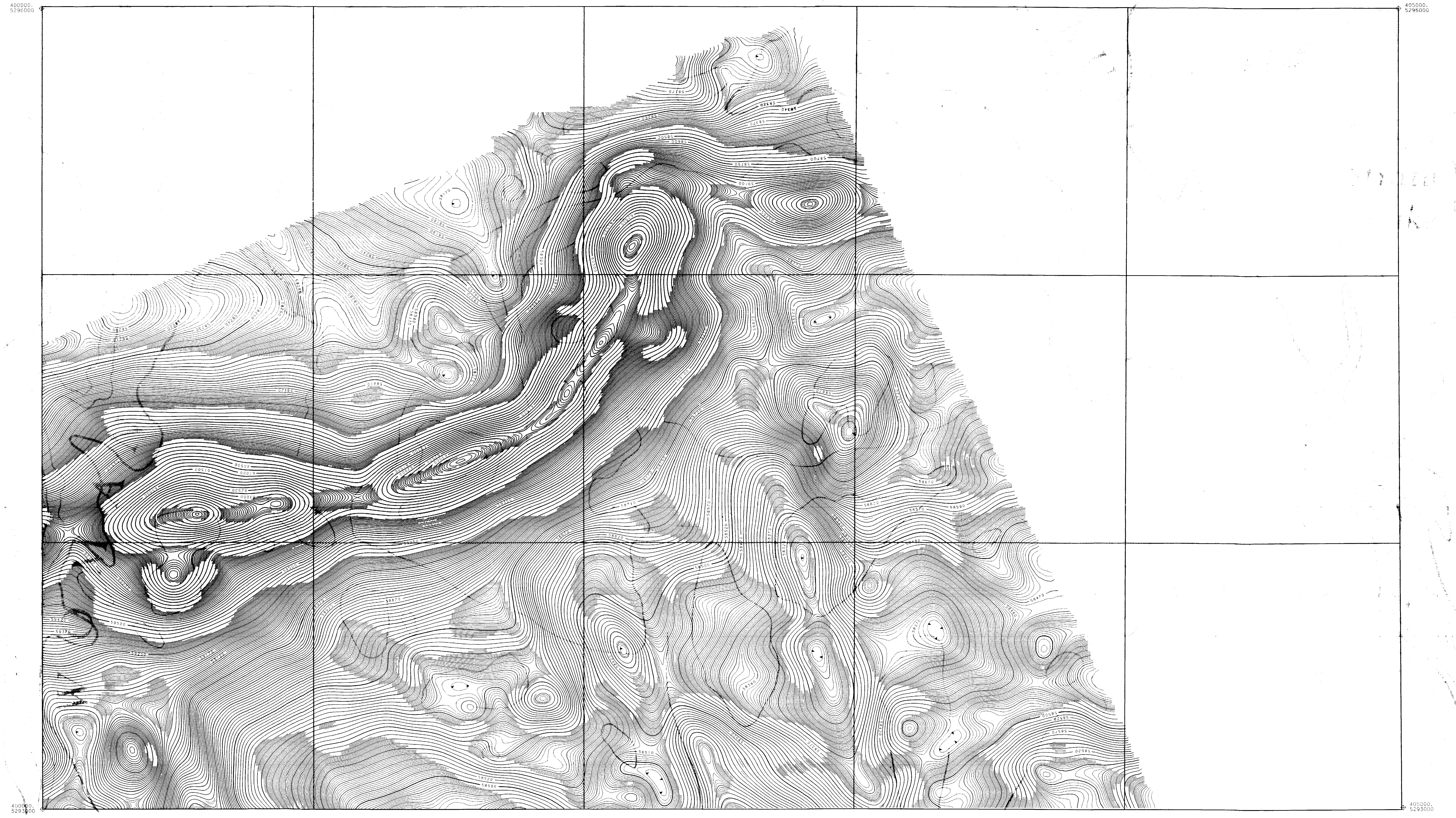
0 50 100 250 500 Metres

AERODAT LIMITED

DATE : MAR 1991

NTS No: 41 0/16

MAP No: 4005293 J9101



N

Magnetics

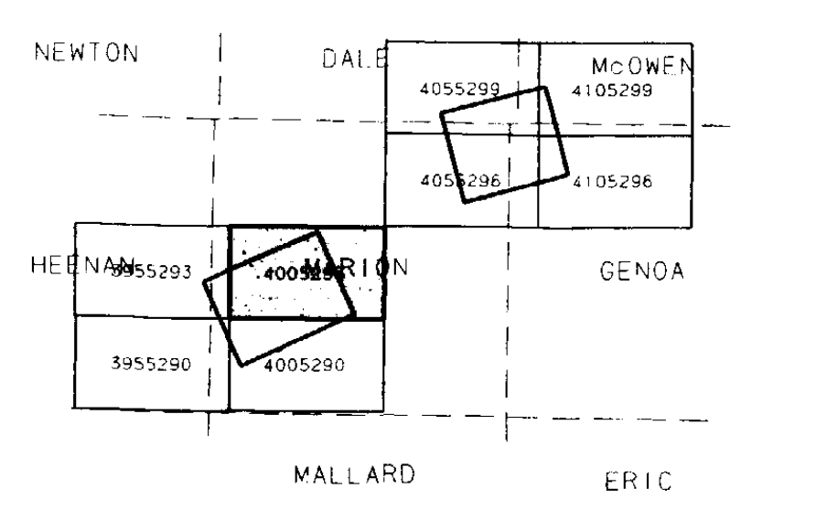
Total Field Magnetic Intensity Contours in nT.

Cesium high sensitivity magnetometer.'

Sensor elevation 45m

Map contours are multipies of
those listed below

2 nT
10 nT
50 nT
250 nT
1000 nT



FALCONBRIDGE LIMITED

TOTAL FIELD MAGNETIC CONTOURS
2.14949

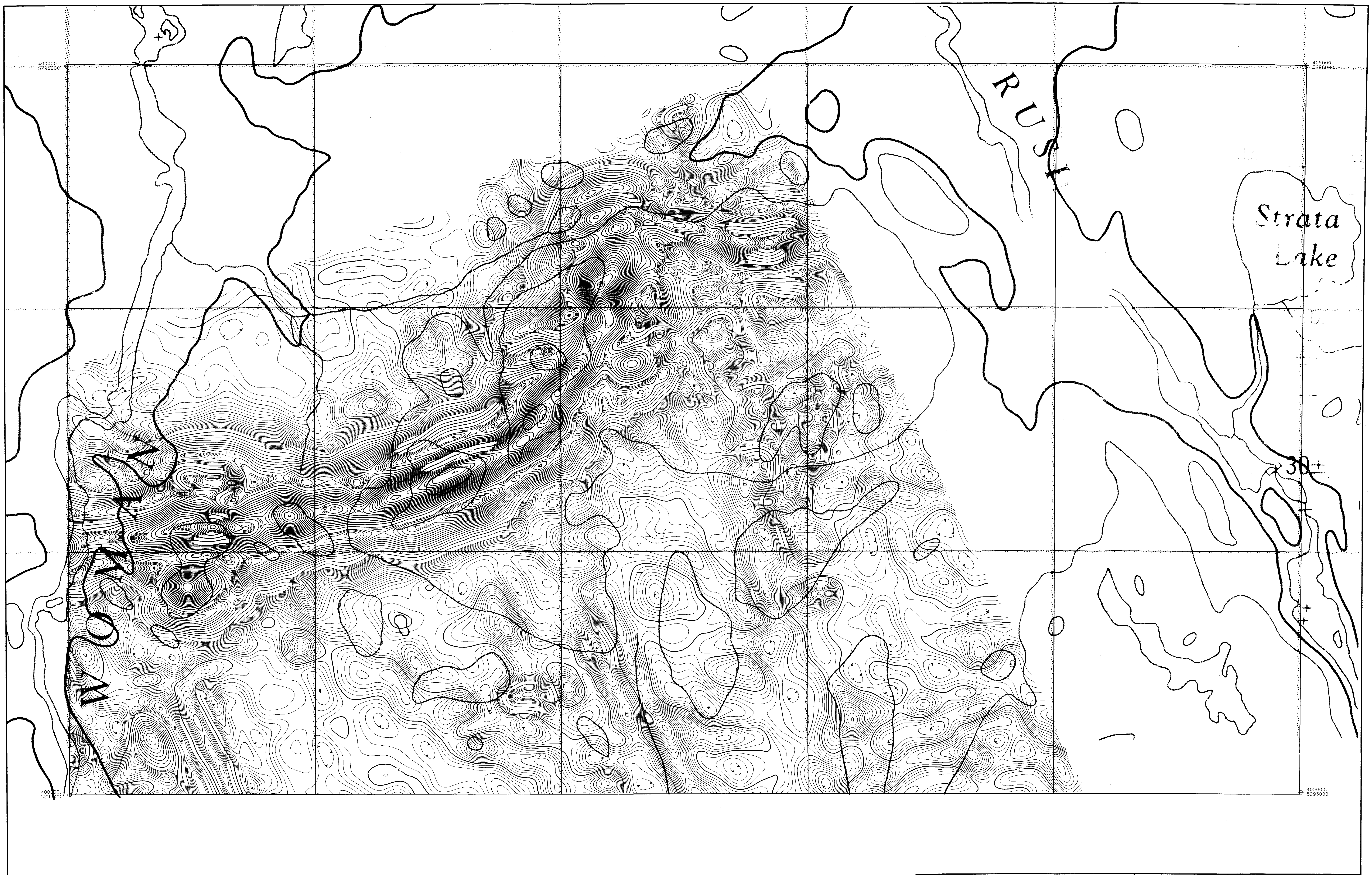
GENOA TOWNSHIP CLAIMS (PN 8668)
MARION TOWNSHIP, ONTARIO

SCALE 1:5,000
0 165 330 660 1320 Feet
0 50 100 250 500 Metres

AERODAT LIMITED

DATE : MAR 1991
NTS No: 41 0/16
MAP No: 4005293 J9101

41016SE9858 2.14949 GENOA



Vertical Gradient

Vertical Magnetic Gradient calculated from the total field magnetic intensity in nT/m.

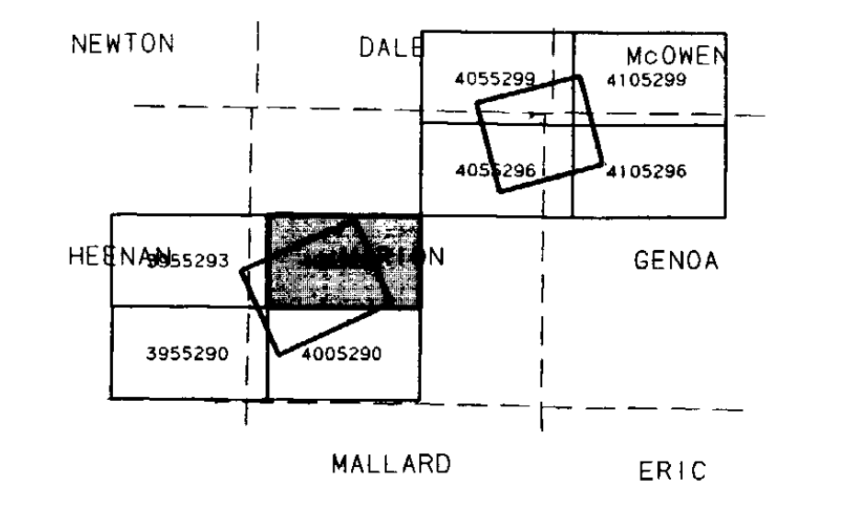
Cesium high sensitivity magnetometer.

Sensor elevation 45m

Map contours are multiples of those listed below

———	0.20 nT/m
———	1.00 nT/m
———	5.00 nT/m
———	25.0 nT/m
———	100 nT/m

N



FALCONBRIDGE LIMITED

CALCULATED VERTICAL MAGNETIC GRADIENT

2.14949

GENOA TOWNSHIP CLAIMS (PN 8668)

MARION TOWNSHIP, ONTARIO

SCALE 1:5,000

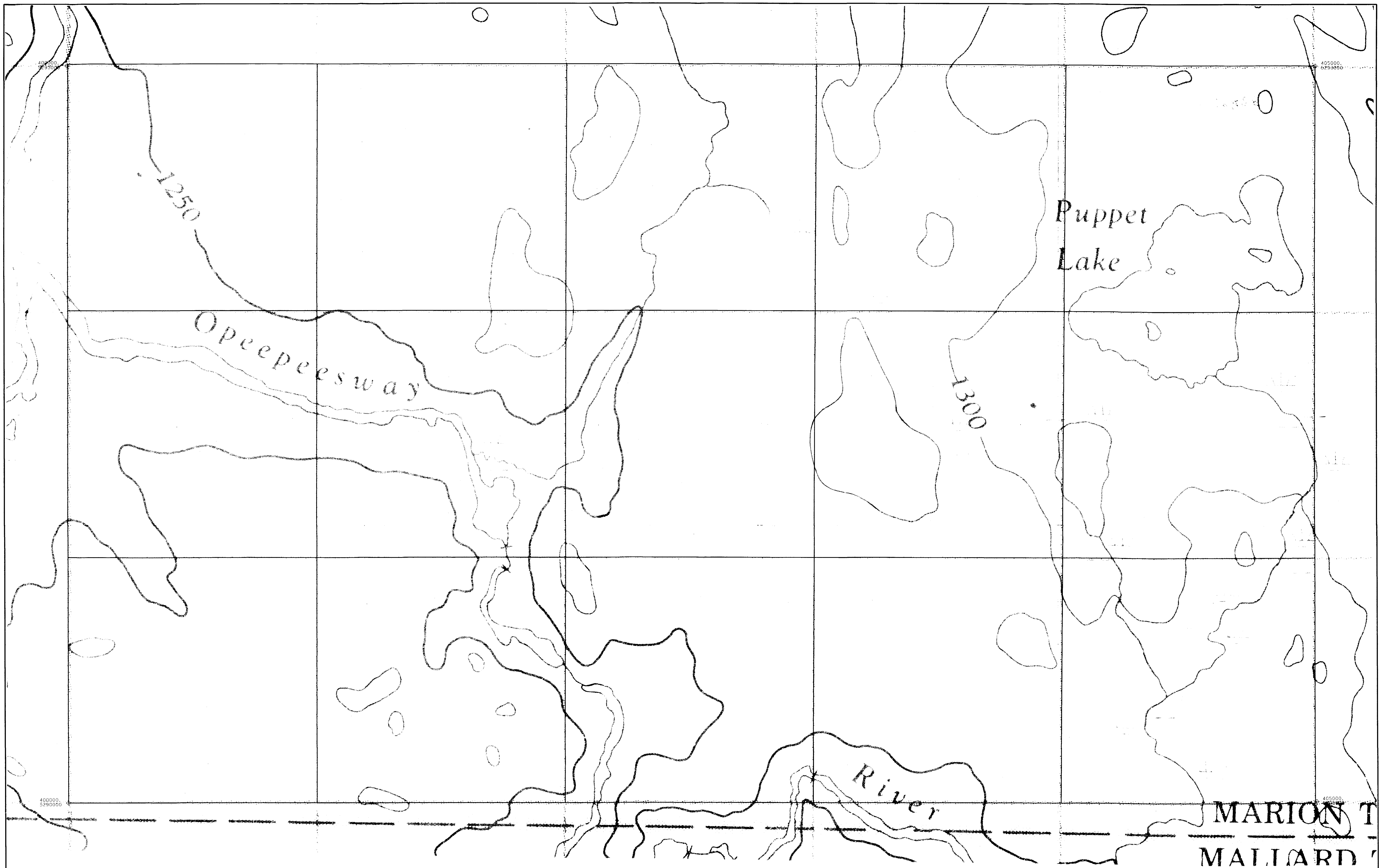
AERODAT LIMITED

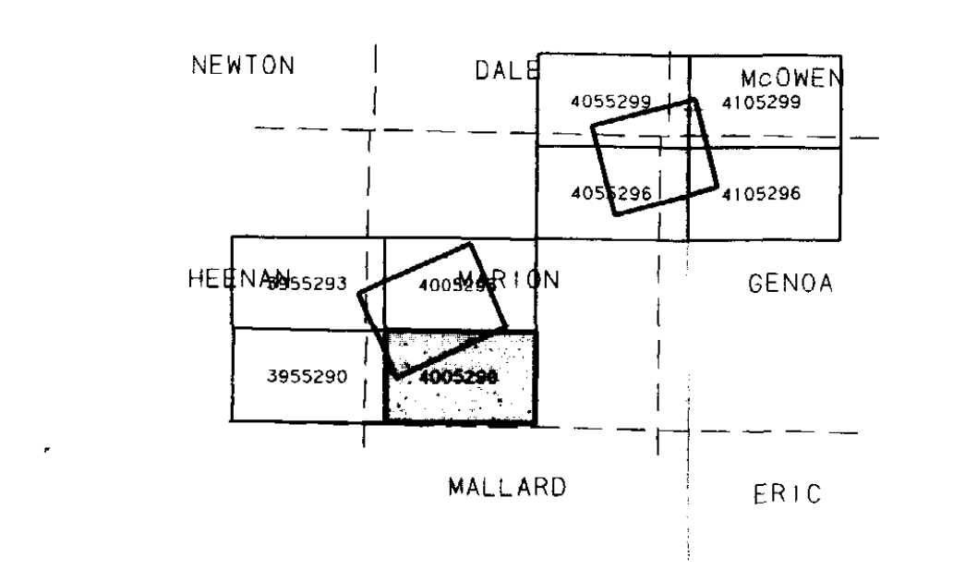
DATE : MAR 1991

NTS No: 41 0/16

MAP No: 4005293 J9101

41016SE9058 2.14949 GENOA





FALCONBRIDGE LIMITED

BASE MAP

2.14949

GENOA TOWNSHIP CLAIMS (PN 8668)

MARION TOWNSHIP, ONTARIO

SCALE 1:5,000

0 165 330 660 1320 Feet

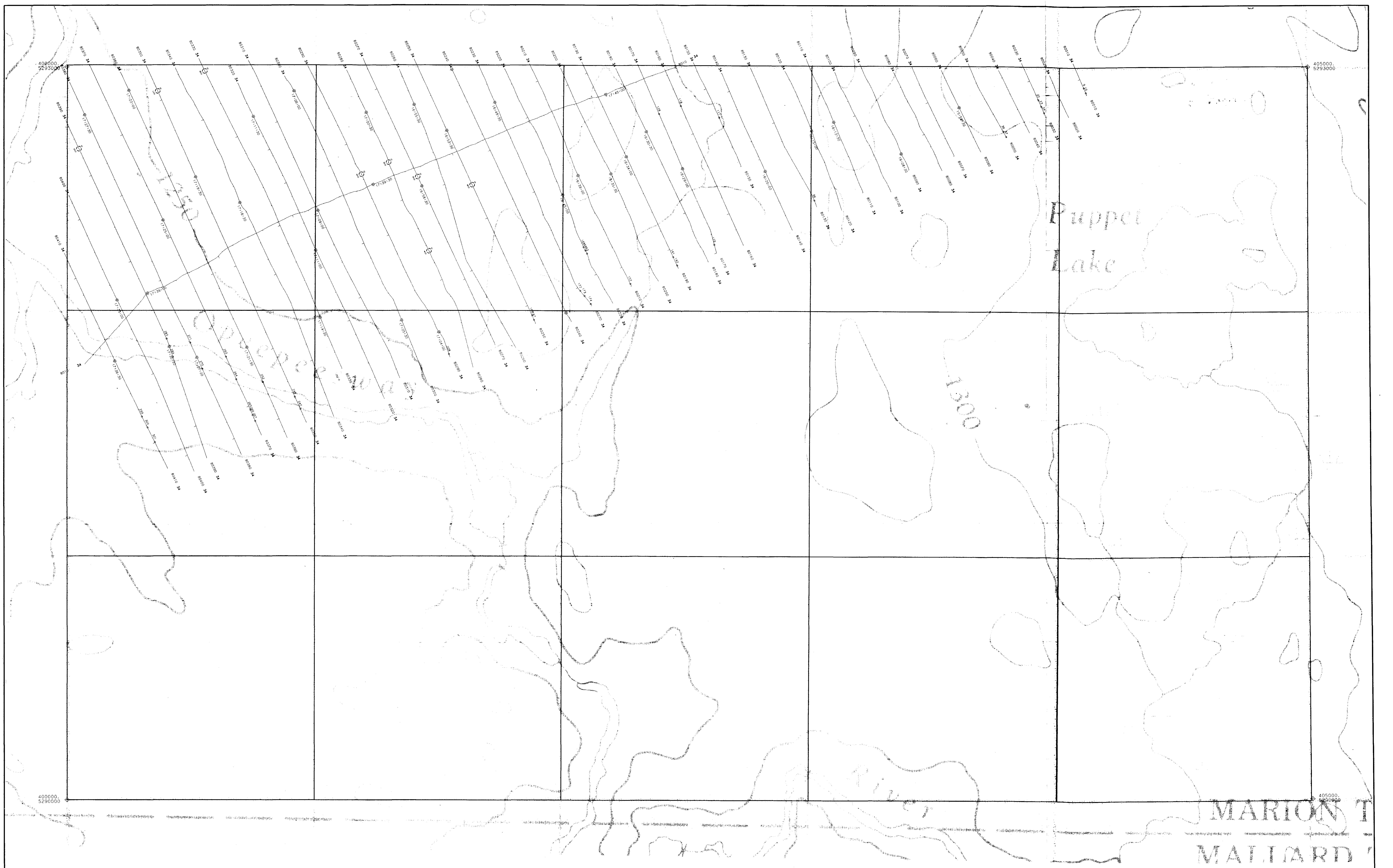
0 50 100 250 500 Metres

AERODAT LIMITED

DATE : MAR 1991

NTS No: 41 O/16

MAP No: 4005290 J9101



Flight Path

Navigation and recovery using Motorola Mini-Ranger (MRS III) radar navigation system.

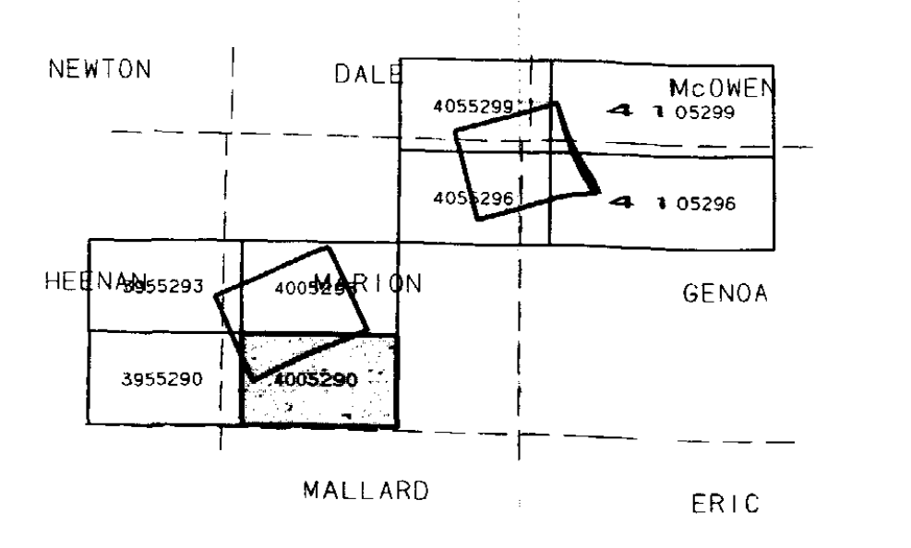
Average terrain clearance 60m
Average line spacing 100m

EM Anomalies

Conductivity Thickness (mhos)

◌	0 - 1
○	1 - 2
⊖	2 - 4
◕	4 - 8
◒	8 - 15
◕	15 - 30
●	> 30
⊛	Magnetite Anomaly

EM Anomaly A, 935 Hz inphase amplitude 7 ppm. Conductivity thickness 2 mhos (see code).



FALCONBRIDGE LIMITED

FLIGHT PATH

2.14949

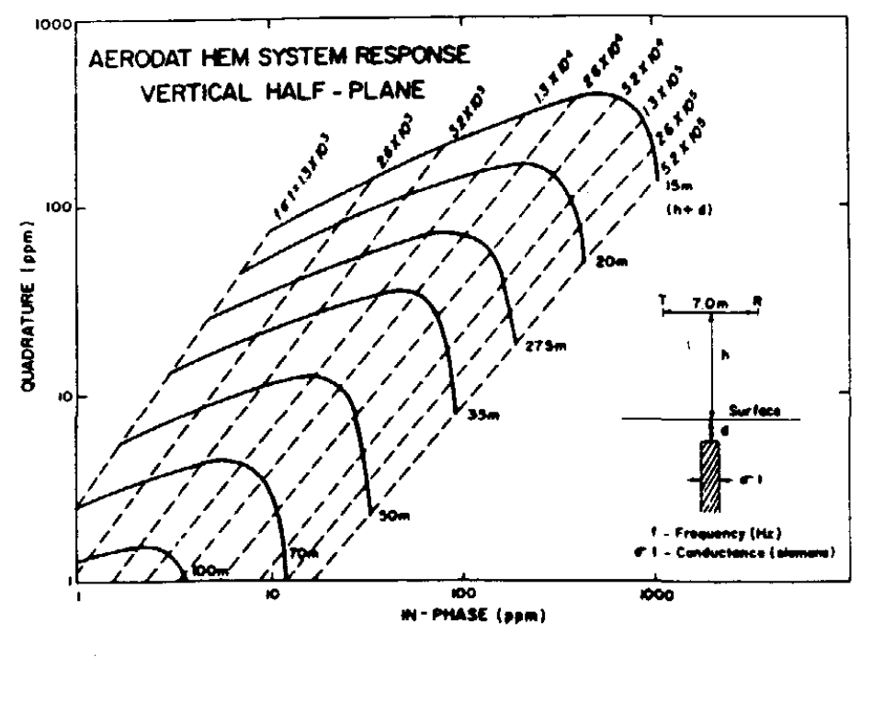
GENOA TOWNSHIP CLAIMS (PN 8668)
MARION TOWNSHIP, ONTARIO

SCALE 1:5,000

0 165 330 660 1320 Feet
0 50 100 250 500 Metres

AERODAT LIMITED

DATE : MAR 1991
NTS No: 41 0/16
MAP No: 4005290 J9101



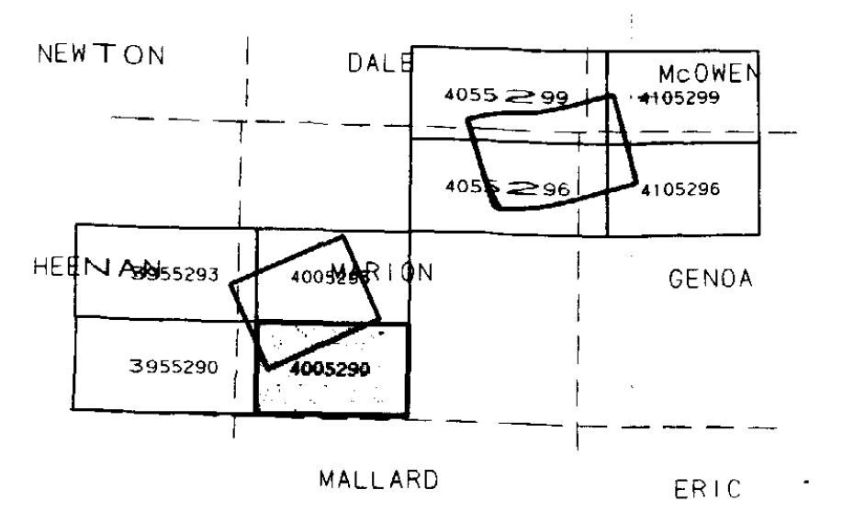
INTERPRETATION LEGEND

—○—	Conductor Axis
≈	Vertical Gradient Contour Lines +5 nT/m and +25 nT/m
∧∧∧∧∧	Possible Fault
(A1)	Target Label
▨	VLF Conductor Axis

EM Anomalies

Conductivity Thickness (mhos)

◌	0 - 1
○	1 - 2
⊖	2 - 4
◔	4 - 8
◒	8 - 15
◕	15 - 30
●	> 30
⊗	Magnetite Anomaly
—○—	EM Anomaly A, 935 Hz inphase amplitude 7 ppm. Conductivity thickness 2 mhos (see code).



FALCONBRIDGE LIMITED

INTERPRETATION

2.14949

GENOA TOWNSHIP CLAIMS (PN 8668)

MARION TOWNSHIP, ONTARIO

SCALE 1:5,000

0 165 330 660 1320 Feet

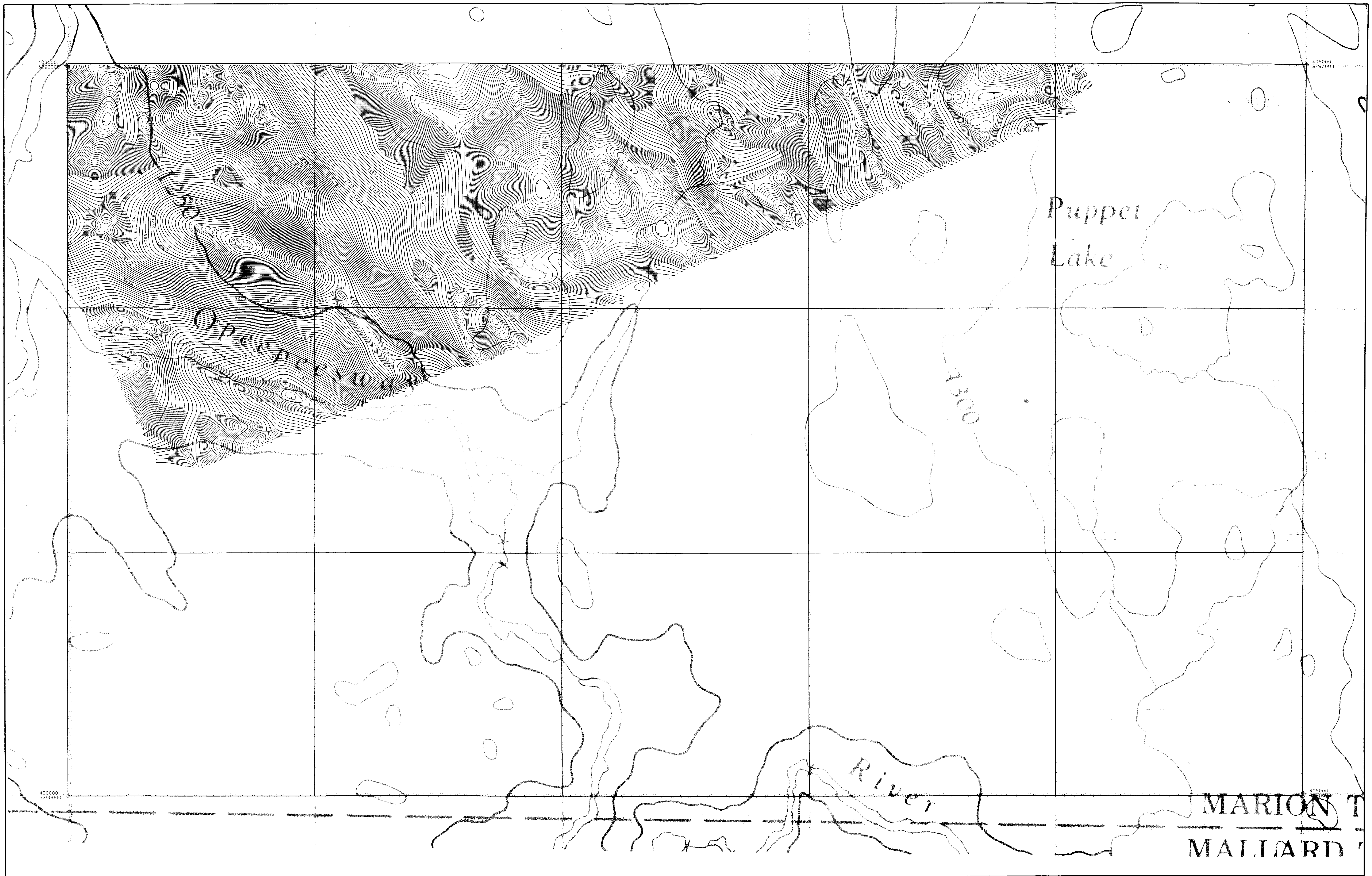
0 50 100 250 500 Metres

AERODAT LIMITED

DATE : MAR 1991

NTS No: 41 O/16

MAP No: 4005290 J9101



Magnetics

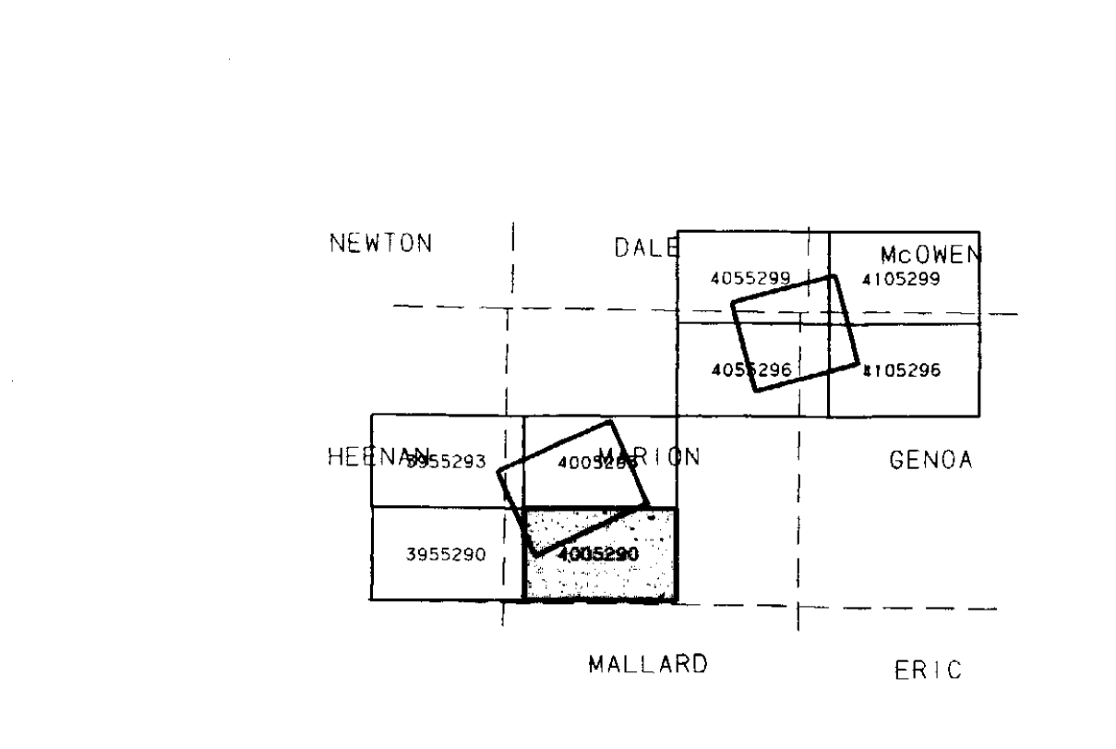
Total Field Magnetic Intensity Contours in nT.

Cesium high sensitivity magnetometer.

Sensor elevation 45m

Map contours are multiples of those listed below

—	2 nT
—	10 nT
—	50 nT
—	250 nT
—	1000 nT



FALCONBRIDGE LIMITED

TOTAL FIELD MAGNETIC CONTOURS

2.14949

GENOA TOWNSHIP CLAIMS (PN 8668)

MARION TOWNSHIP, ONTARIO

SCALE 1:5,000

0 165 330 660 1320 Feet

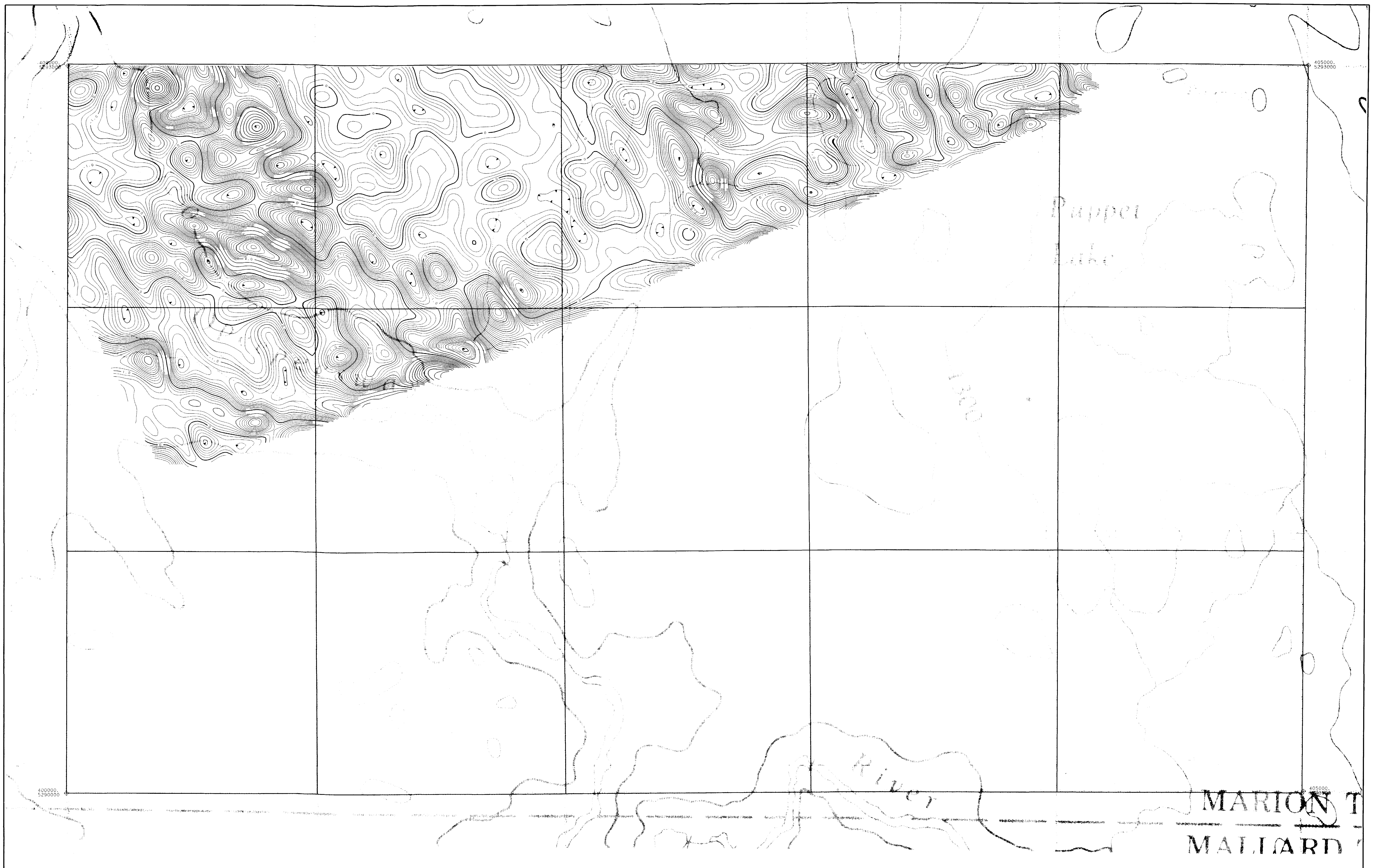
0 50 100 250 500 Metres

AERODAT LIMITED

DATE : MAR 1991

NTS No: 41 O/16

MAP No: 4005290 J9101



Vertical Gradient

Vertical Magnetic Gradient calculated from the total field magnetic intensity in nT/m.

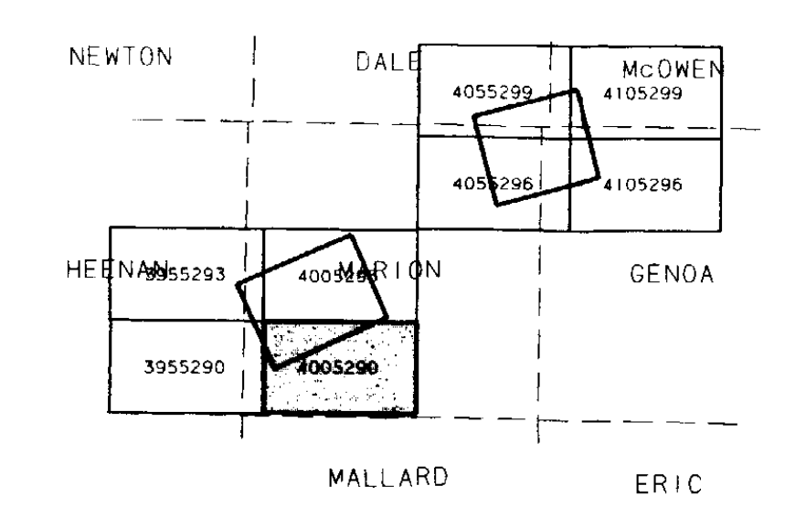
Cesium high sensitivity magnetometer.

Sensor elevation 45m

Map contours are multiples of those listed below

———	0.20 nT/m
———	1.00 nT/m
———	5.00 nT/m
———	25.0 nT/m
———	100 nT/m

N



FALCONBRIDGE LIMITED

CALCULATED VERTICAL MAGNETIC GRADIENT

2.14949

GENOA TOWNSHIP CLAIMS (PN 8668)

MARION TOWNSHIP, ONTARIO

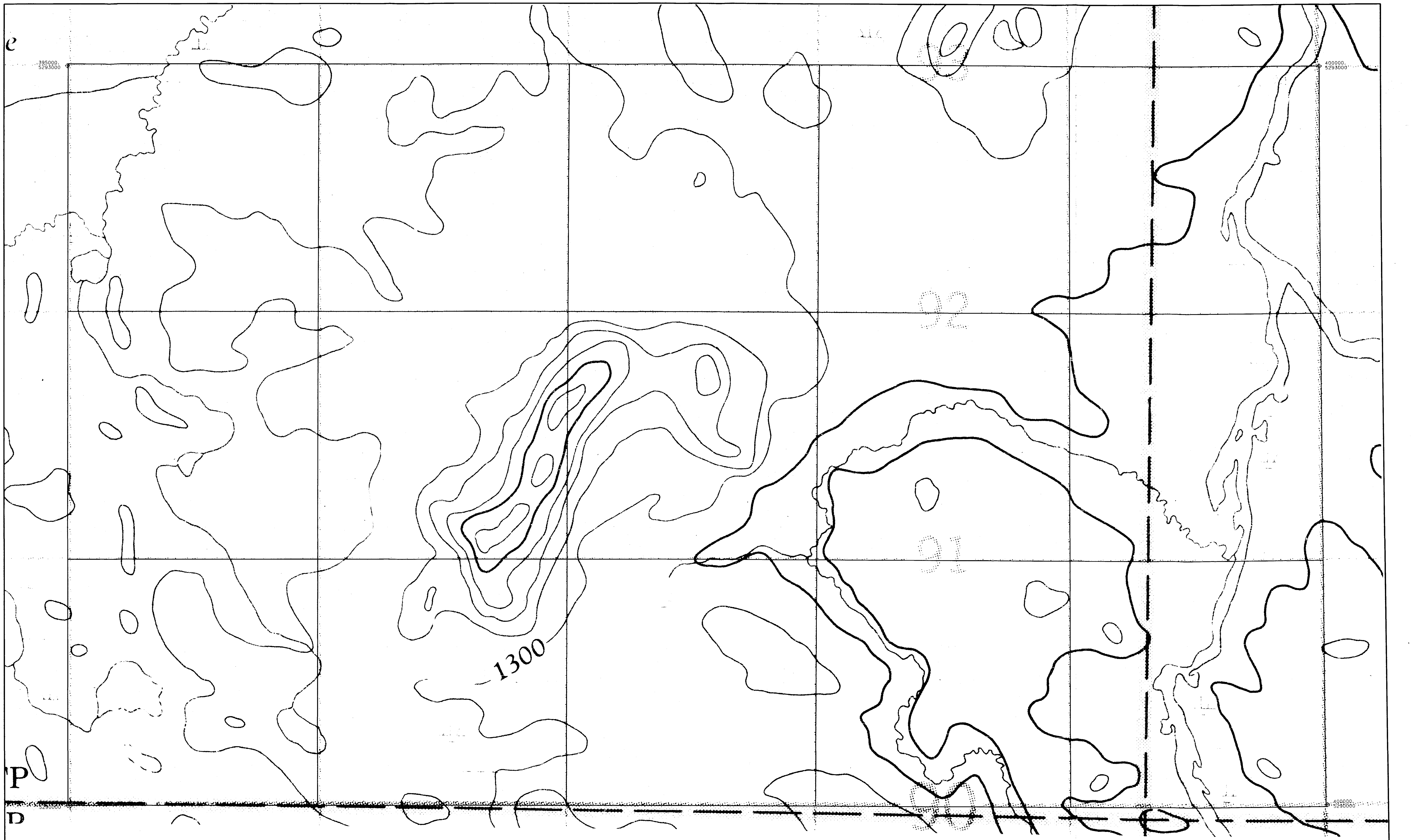
SCALE 1:5,000

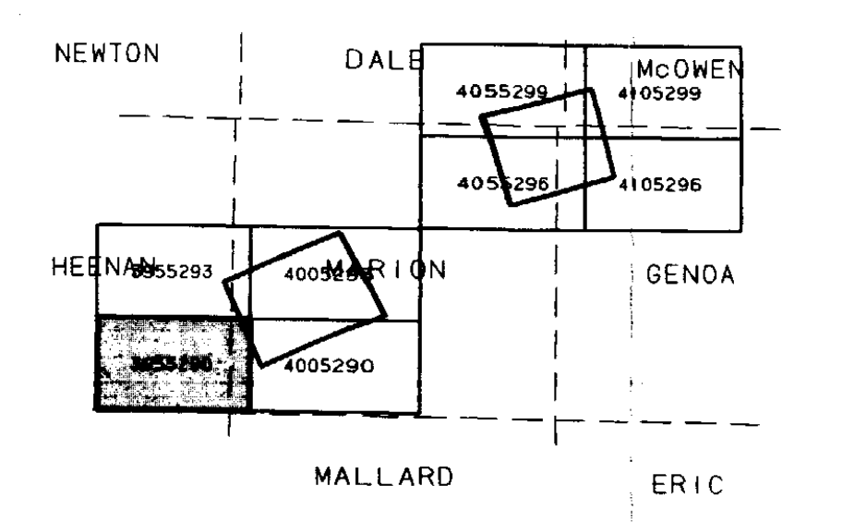
0 165 330 660 1320 Feet

0 50 100 250 500 Metres

AERODAT LIMITED

DATE :	MAR 1991
NTS No:	41 0/16
MAP No:	4005290 J9101





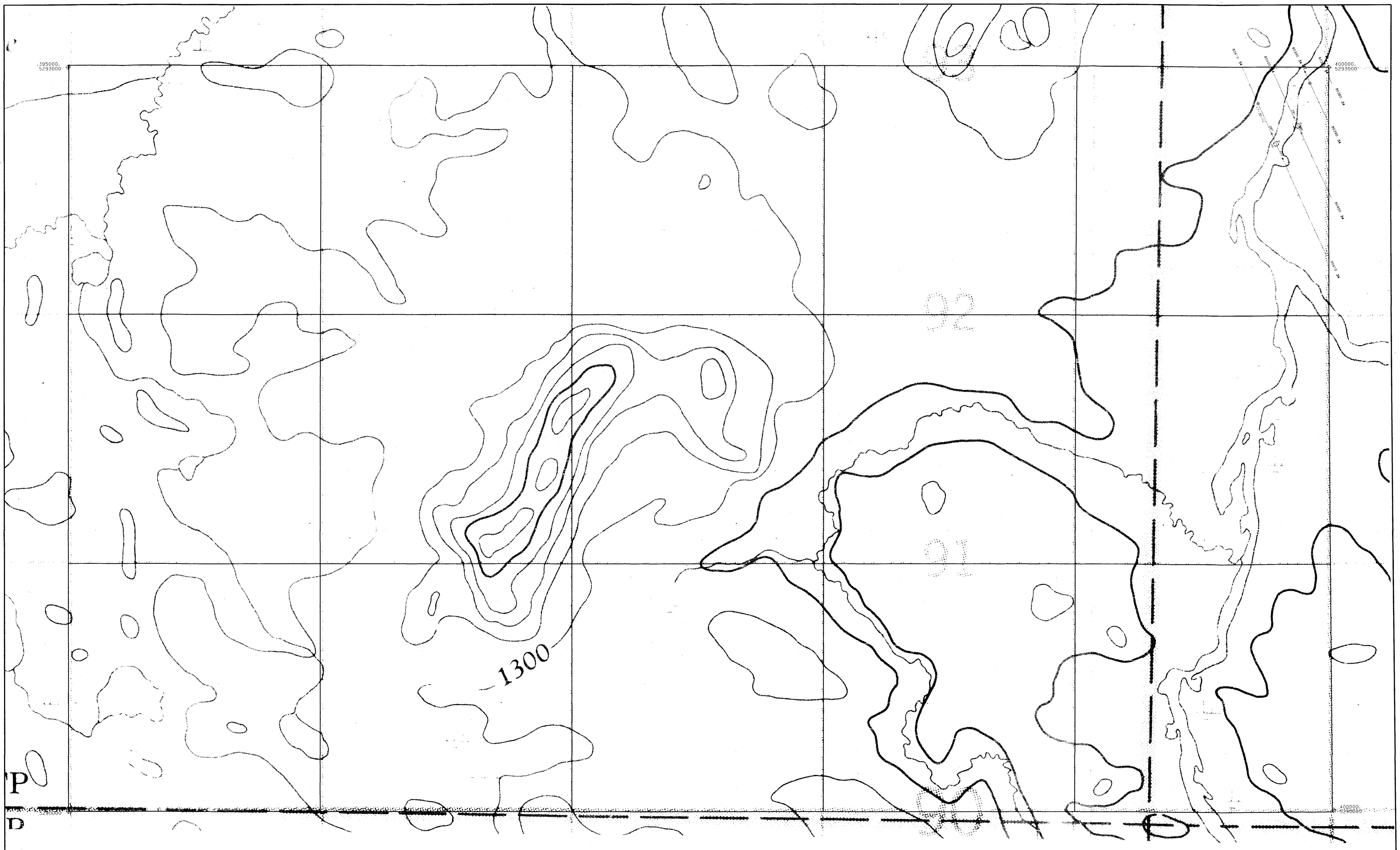
FALCONBRIDGE LIMITED

BASE MAP
2.14949
GENOA TOWNSHIP CLAIMS (PN 8668)
MARION TOWNSHIP, ONTARIO

SCALE 1:5,000
0 165 330 660 1320 Feet
0 50 100 250 500 Metres

AERODAT LIMITED

DATE : MAR 1991
NTS No: 41 0/16
MAP No: 3955290 J9101



Flight Path

Navigation and recovery using Motorola Mini-Ranger (MRS III) radar navigation system.

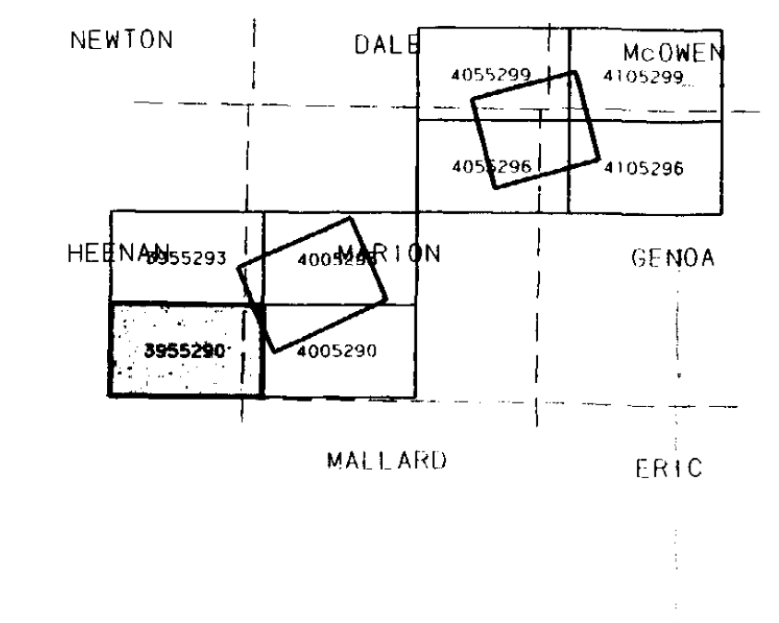
Average terrain clearance 60m
Average line spacing 100m

EM Anomalies

Conductivity Thickness (mhos)

◌	0 - 1
○	1 - 2
⊖	2 - 4
◔	4 - 8
◒	8 - 15
◕	15 - 30
●	> 30
⊕	Magnetite Anomaly

EM Anomaly A, 935 Hz inphase amplitude 7 ppm. Conductivity thickness 2 mhos (see code).



FALCONBRIDGE LIMITED

FLIGHT PATH

2.14949

GENOA TOWNSHIP CLAIMS (PN 8668)

MARION TOWNSHIP, ONTARIO

SCALE 1:5,000

0 165 330 660 1320 Feet

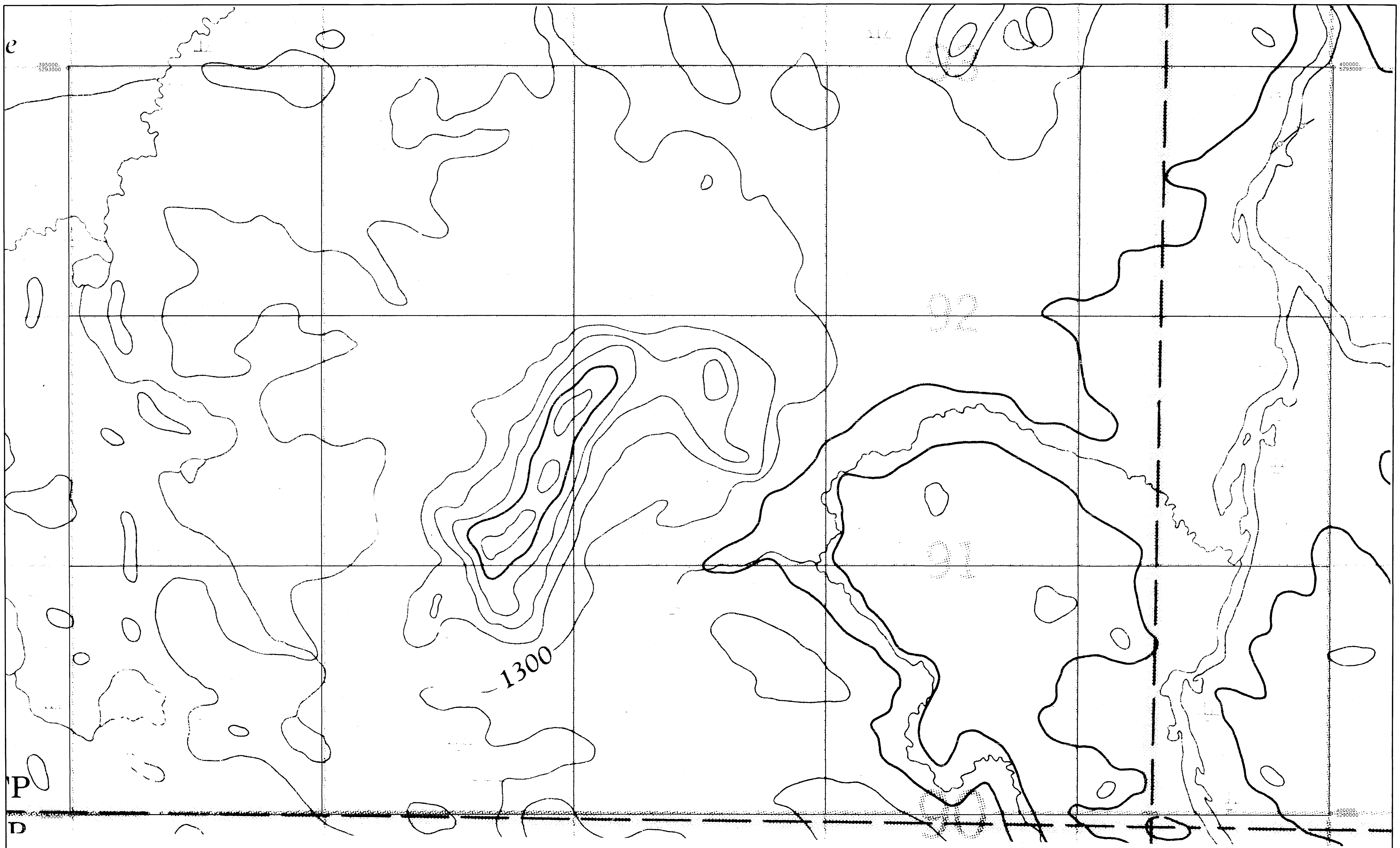
0 50 100 250 500 Metres

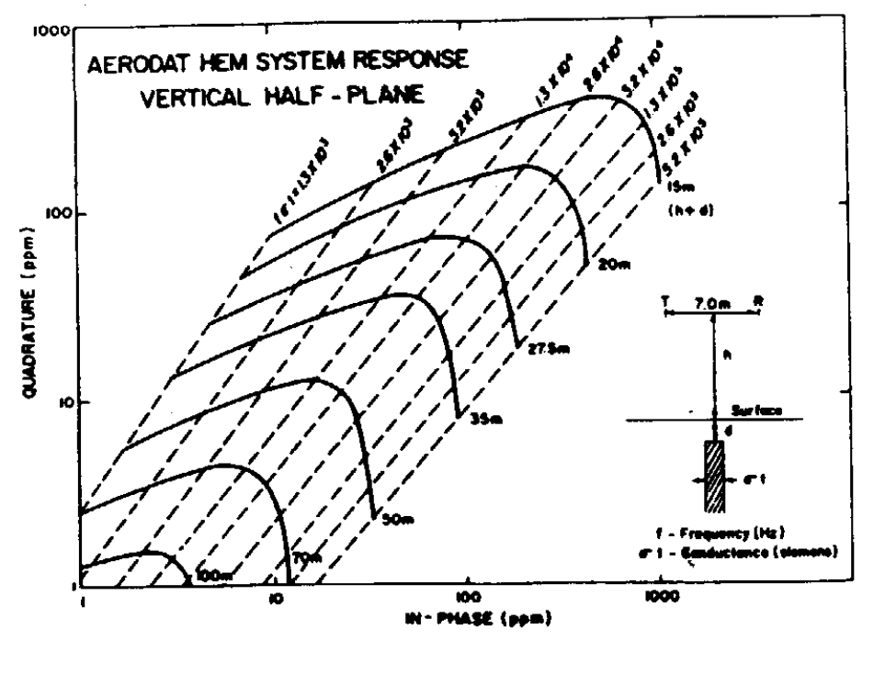
AERODAT LIMITED

DATE : MAR 1991

NTS No: 41 O/16

MAP No: 3955290 J9101





INTERPRETATION LEGEND

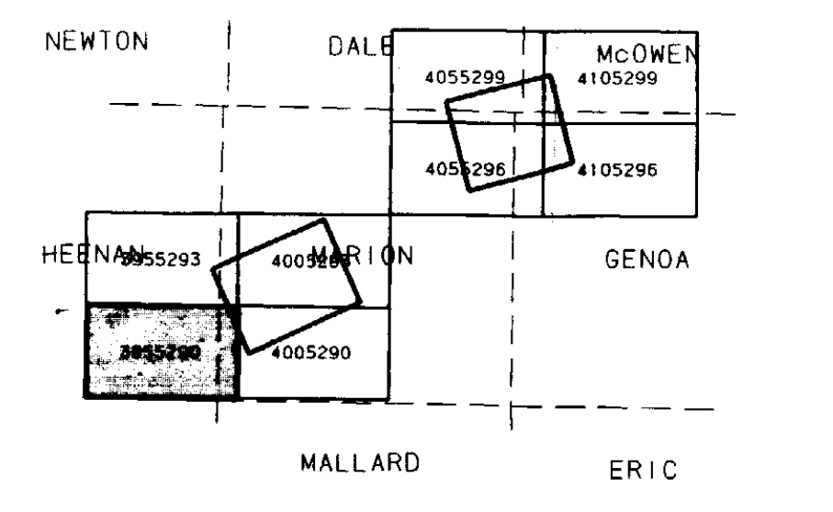
- Conductor Axis
- Vertical Gradient Contour Lines +5nT/m and +25nT/m
- Possible Fault
- (A1) Target Label
- ▨ VLF Conductor Axis

EM Anomalies

Conductivity Thickness (mhos)

◌	0 - 1
○	1 - 2
⊖	2 - 4
◐	4 - 8
◒	8 - 15
◕	15 - 30
●	> 30
⊗	Magnetite Anomaly

EM Anomaly A, 935 Hz
inphase amplitude 7 ppm.
Conductivity thickness
2 mhos (see code).



FALCONBRIDGE LIMITED

INTERPRETATION

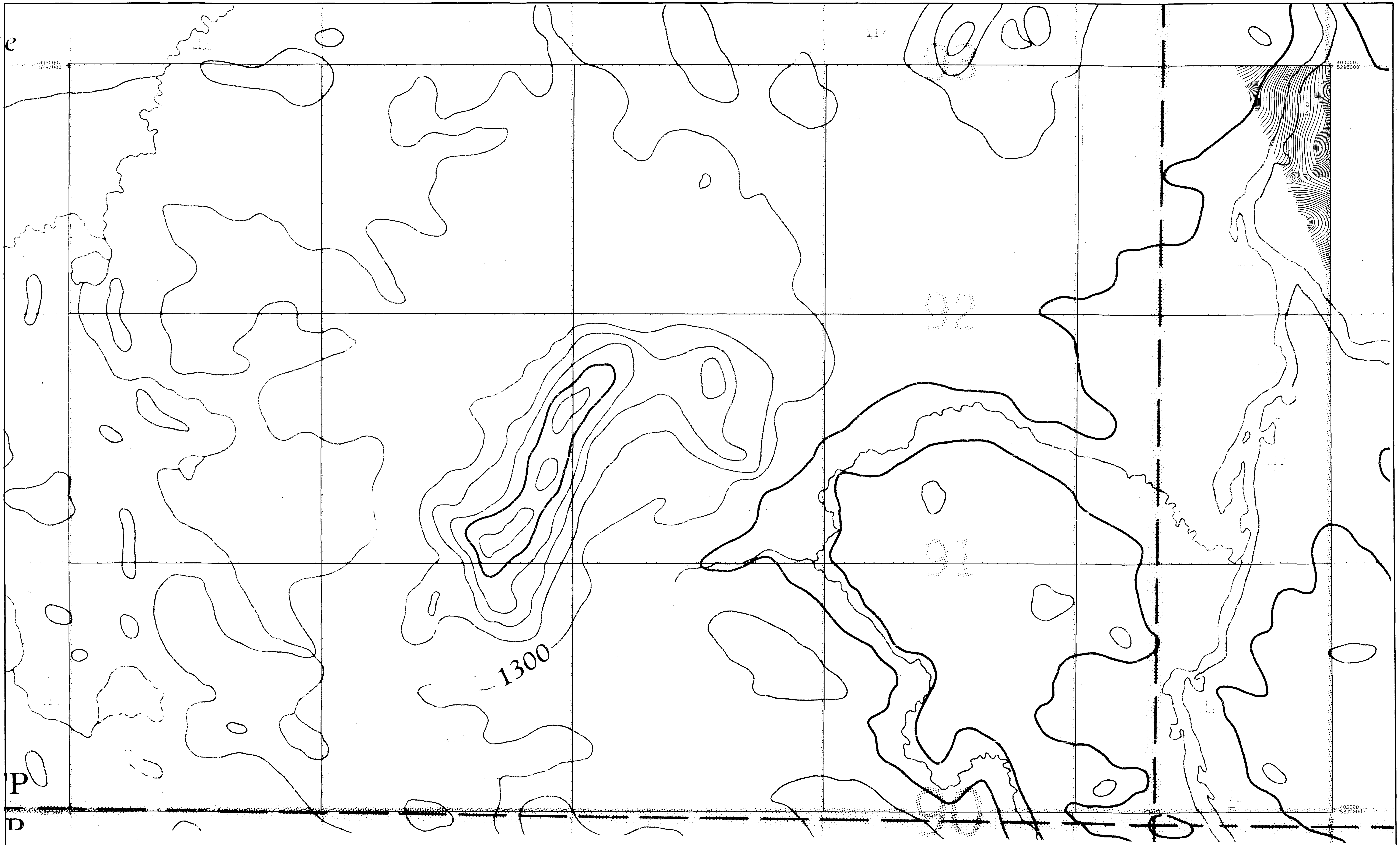
2.14949

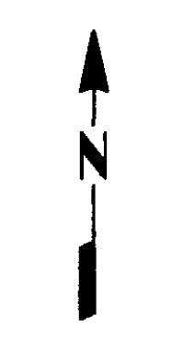
GENOA TOWNSHIP CLAIMS (PN 8668)
MARION TOWNSHIP, ONTARIO

SCALE 1:5,000
0 165 330 660 1320 Feet
0 50 100 250 500 Metres

AERODAT LIMITED

DATE : MAR 1991
NTS No: 41 O/16
MAP No: 3955290 J9101





Magnetics

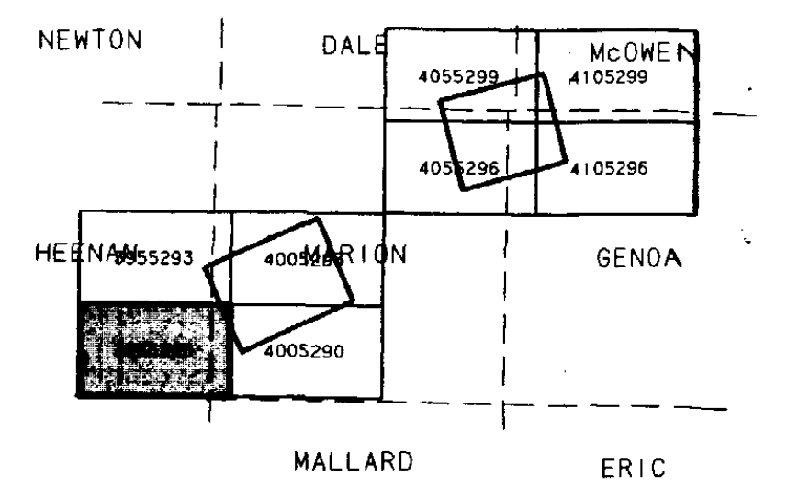
Total Field Magnetic Intensity Contours in nT.

Cesium high sensitivity magnetometer.

Sensor elevation 45m

Map contours are multiples of those listed below

———	2 nT
———	10 nT
———	50 nT
———	250 nT
———	1000 nT



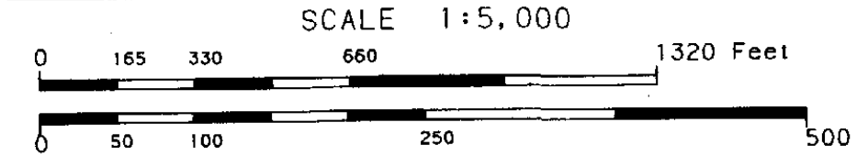
FALCONBRIDGE LIMITED

TOTAL FIELD MAGNETIC CONTOURS

2.14949

GENOA TOWNSHIP CLAIMS (PN 8668)
MARION TOWNSHIP, ONTARIO

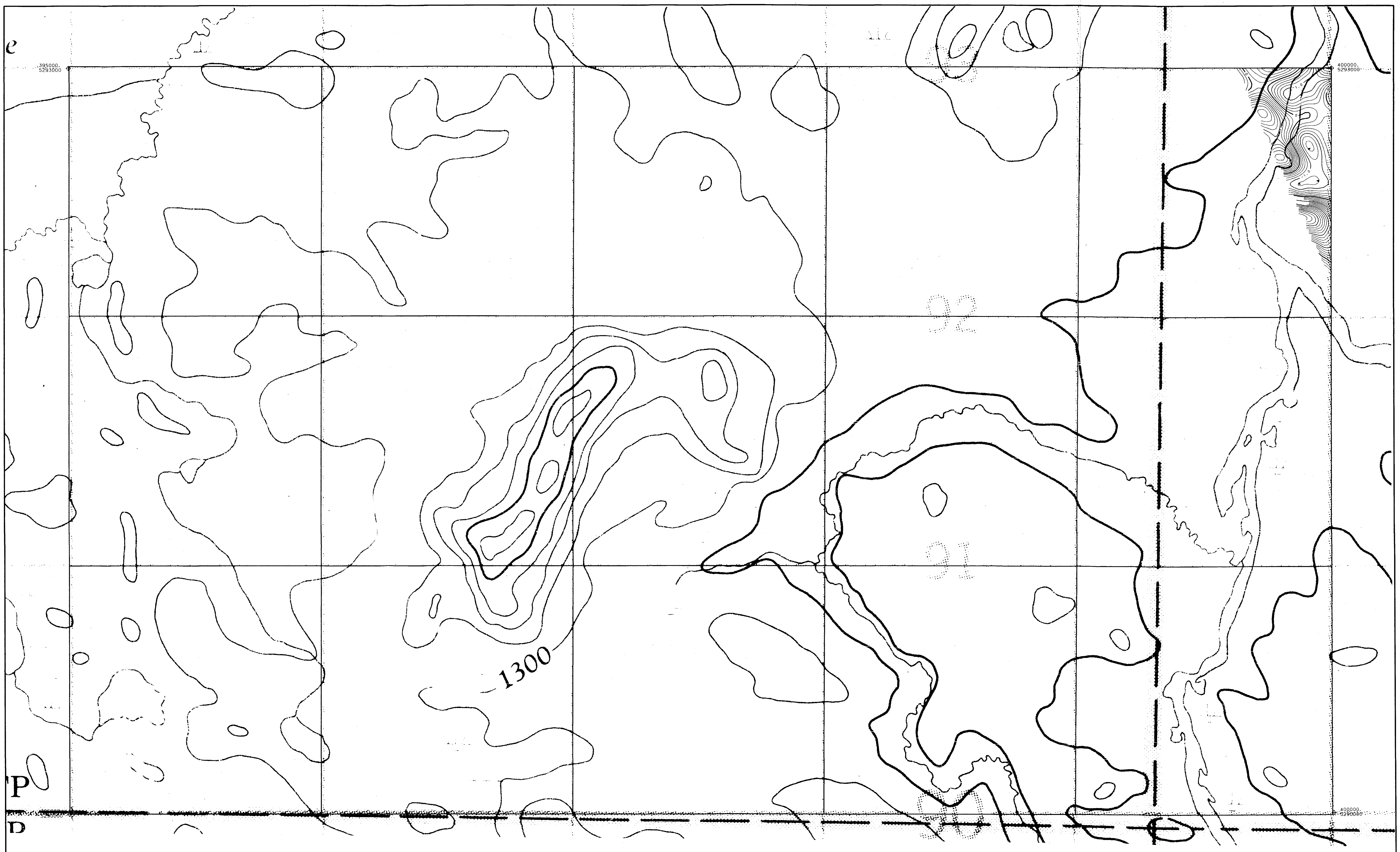
SCALE 1:5,000



AERODAT LIMITED

DATE : MAR 1991
NTS No: 41 0/16
MAP No: 3955290 J9101

253



Vertical Gradient

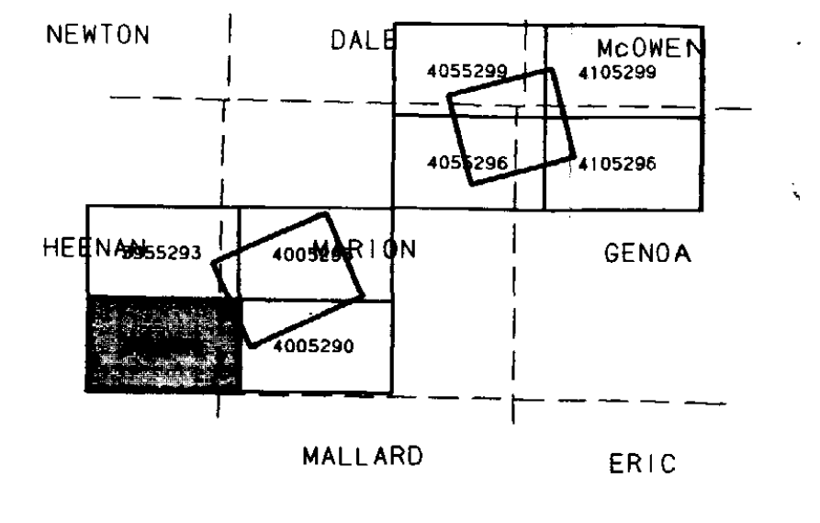
Vertical Magnetic Gradient calculated from the total field magnetic intensity in nT/m.

Cesium high sensitivity magnetometer.

Sensor elevation 45m

Map contours are multiples of those listed below

- 0.20 nT/m
- 1.00 nT/m
- 5.00 nT/m
- 25.0 nT/m
- 100 nT/m



FALCONBRIDGE LIMITED

CALCULATED VERTICAL MAGNETIC GRADIENT

2.14949

GENOA TOWNSHIP CLAIMS (PN 8668)

MARION TOWNSHIP, ONTARIO

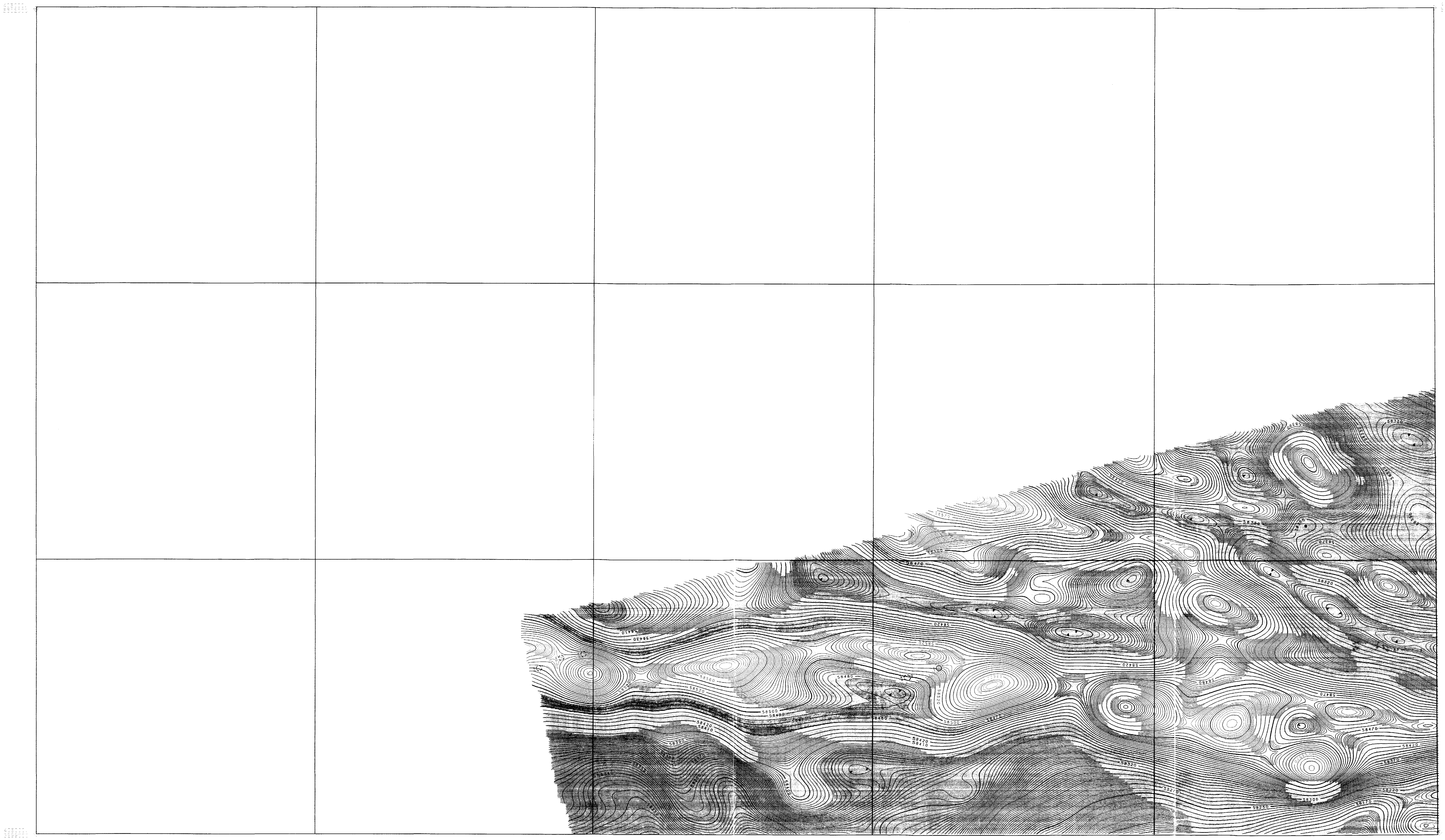
SCALE 1:5,000

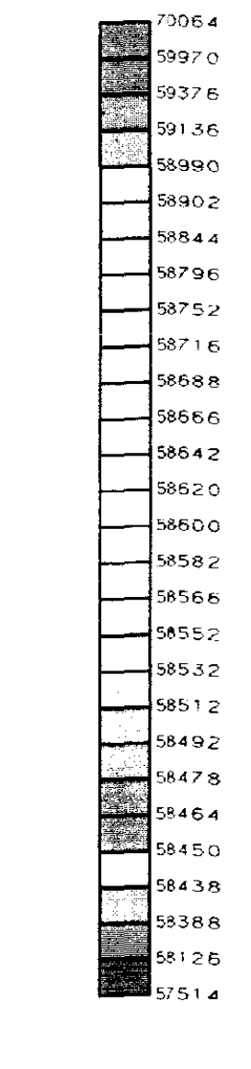
0 165 330 660 1320 Feet

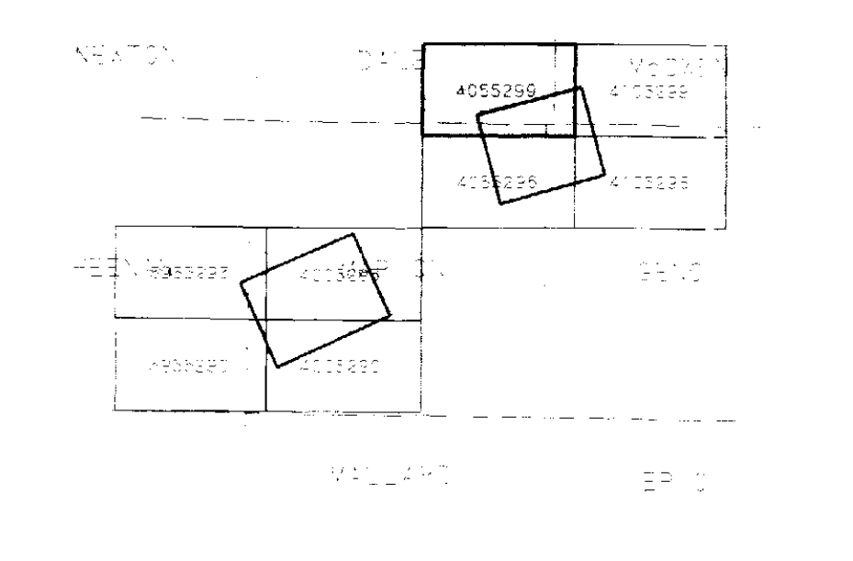
0 50 100 250 500 Metres

AERODAT LIMITED

DATE : MAR 1991
NTS No: 41 0/16
MAP No: 3955290 J9101







EM Anomalies

Conductivity Thickness (mhos)

○	0 - 1
○	1 - 2
⊕	2 - 4
◔	4 - 8
◑	8 - 15
◕	15 - 30
●	> 30
Ⓜ	Magnetite Anomaly

Magnetics

Total Field Magnetic Intensity Contours in nT.

Cesium high sensitivity magnetometer.

Colours distributed on an equal area basis.

Sensor elevation 45m

Map contours are multiples of those listed below

FALCONBRIDGE LIMITED

TOTAL FIELD MAGNETICS
CONTOURS AND COLOURS

GENOA PROJECT (PN 8668)

DALE TOWNSHIP, ONTARIO

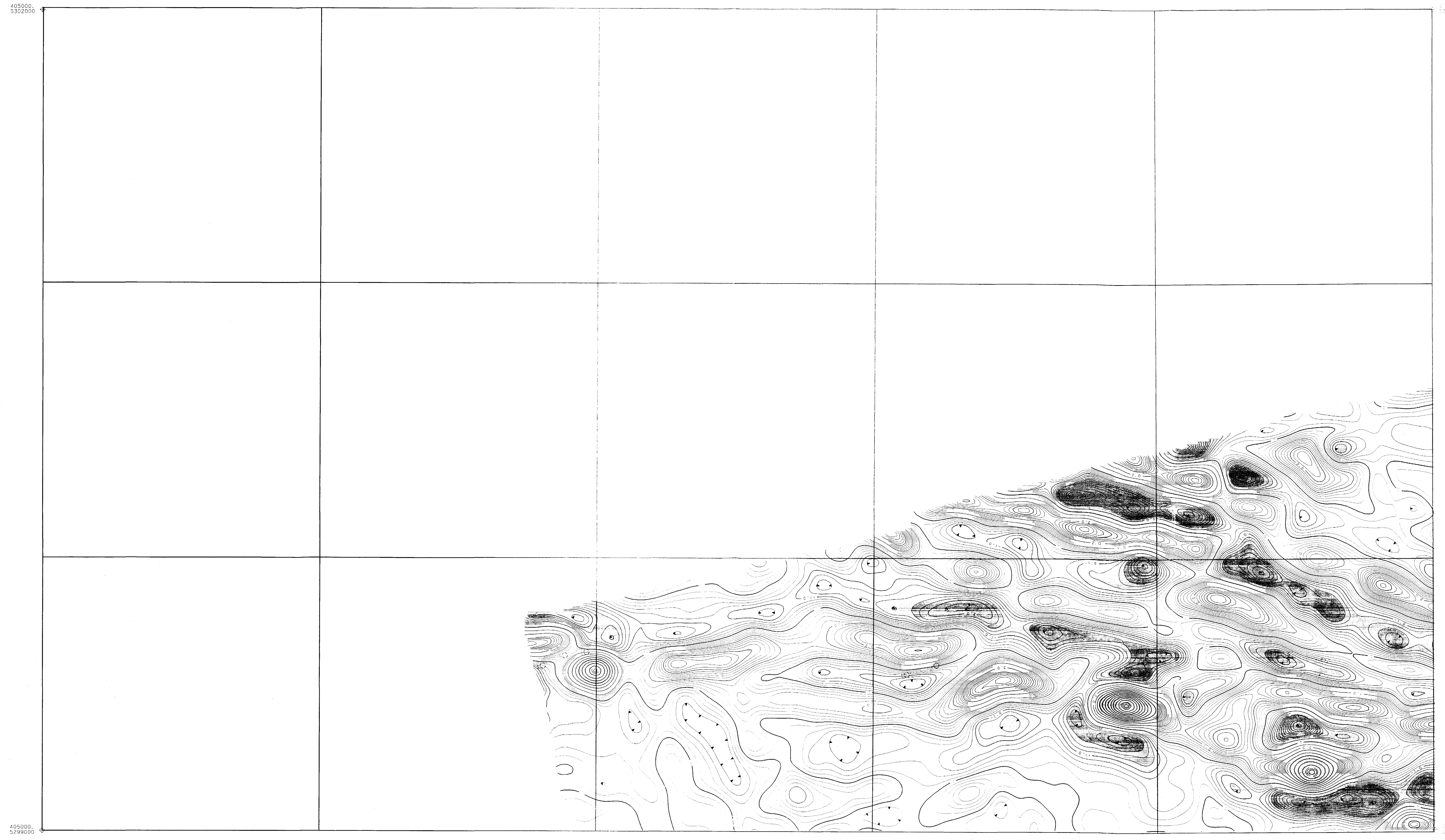
SCALE 1:5,000

1320 Feet

500 Metres

AERODAT LIMITED

255

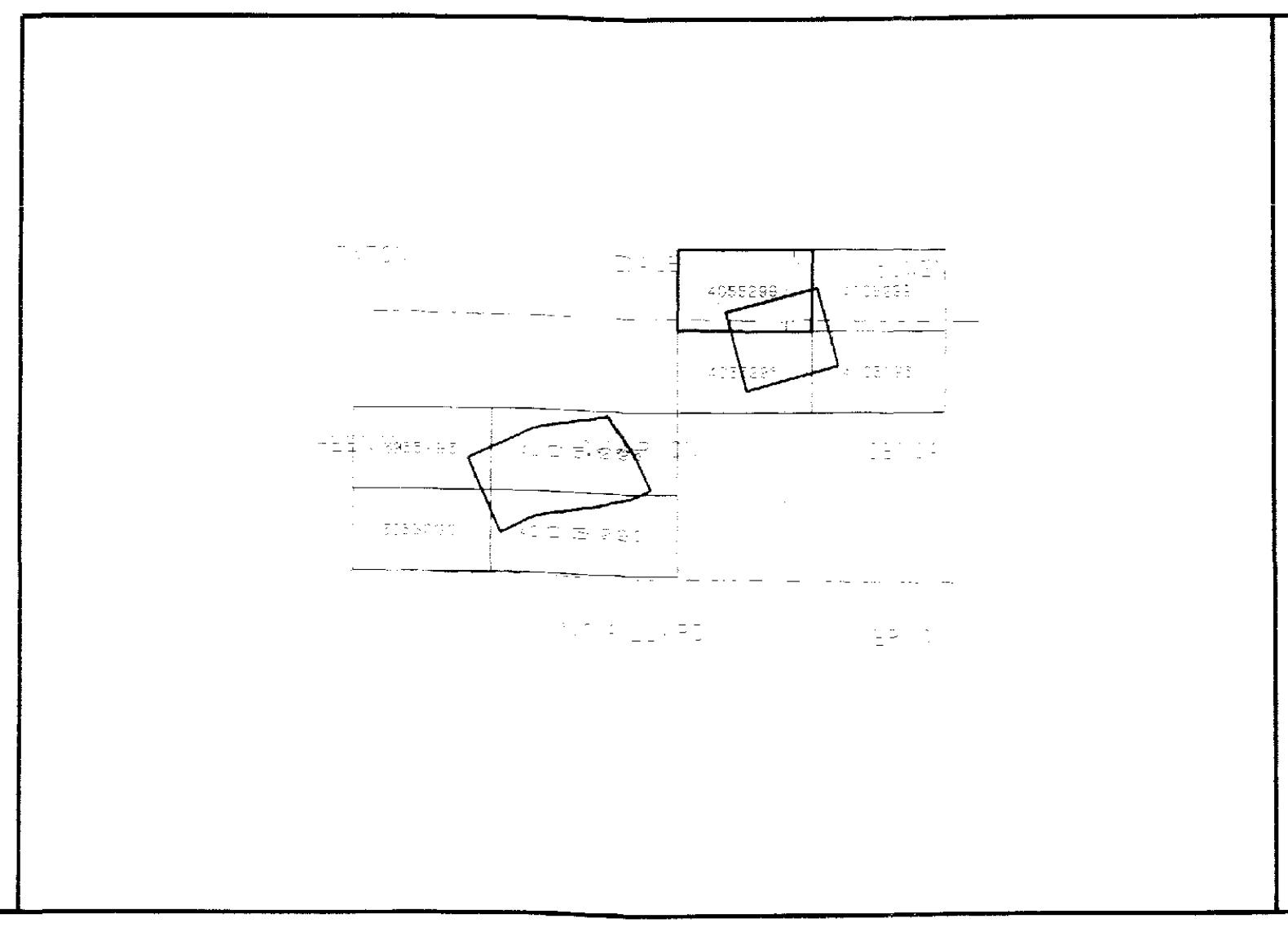


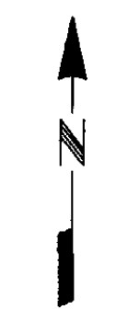
EM Anomalies

Conductivity Thickness (mhos)

- ○ 0 - 1
- ○ 1 - 2
- ⊖ 2 - 4
- ◔ 4 - 8
- ◒ 8 - 15
- ◕ 15 - 30
- ● > 30
- Ⓜ Magnetite Anomaly

Vertical Gradient



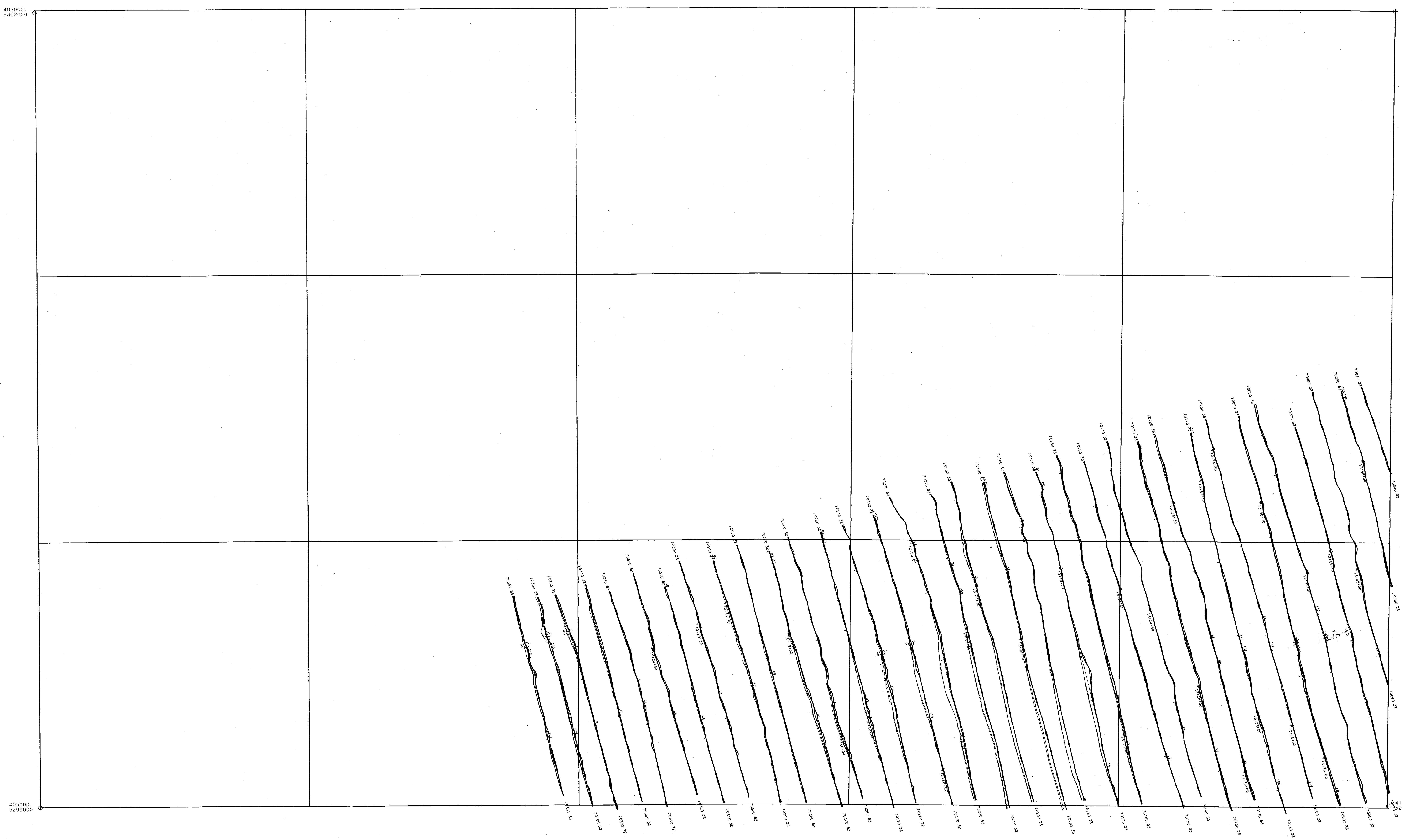


FALCONBRIDGE LIMITED

CALCULATED VERTICAL MAGNETIC GRADIENT CONTOURS AND COLOURS

GENOA PROJECT (PN 8668)
DALE TOWNSHIP, ONTARIO

AERODAT LIMITED



EM Anomalies

Conductivity Thickness (mhos)

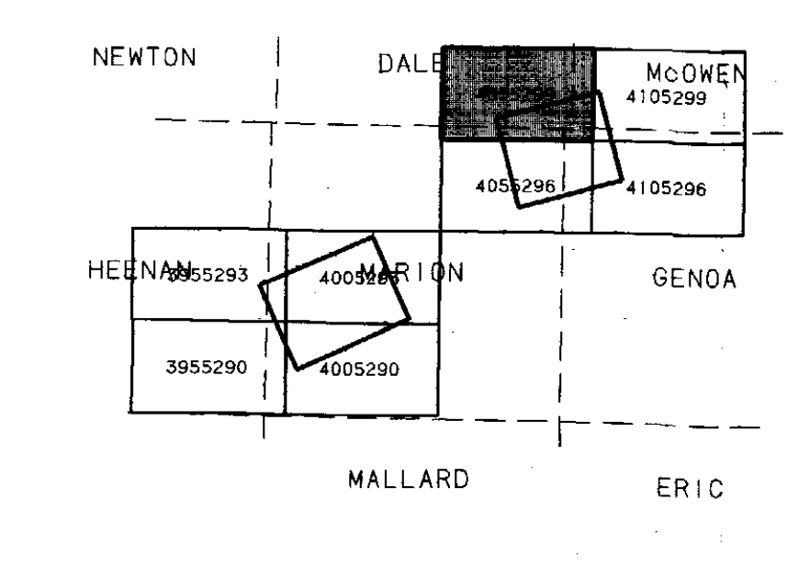
◌	0 - 1
○	1 - 2
⊖	2 - 4
◔	4 - 8
◒	8 - 15
◕	15 - 30
●	> 30
⊘	Magnetite Anomaly
	EM Anomaly A, 935 Hz inphase amplitude 7 ppm. Conductivity thickness 2 mhos (see code).

EM Profiles

935 Hz Coaxial 1 ppm/mm
- inphase component
- quadrature component

850 Hz Coplanar 4 ppm/mm
- inphase component
- quadrature component

Sensor elevation..........30m
Coil separation...........7m



FALCONBRIDGE LIMITED

ELECTROMAGNETIC PROFILES
(935 Hz Coaxial, 850 Hz Coplanar)

2.14949

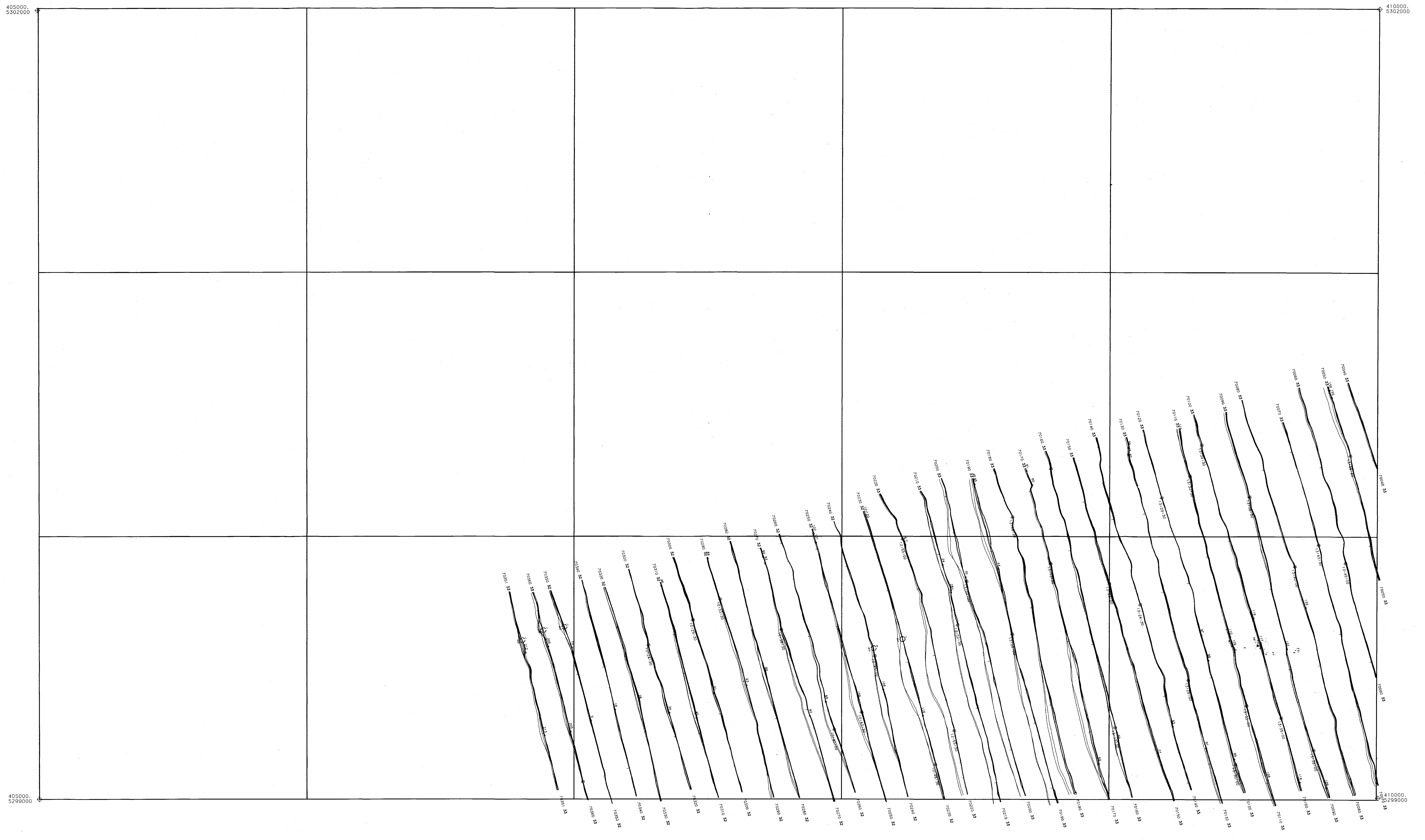
GENOA PROJECT (PN 8668)
DALE TOWNSHIP, ONTARIO

SCALE 1:5,000
0 165 330 660 1320 Feet
0 50 100 250 500 Metres

AERODAT LIMITED

DATE :	MAR 1991
NTS No:	41 O/16
MAP No:	4055299 J9101

257



N

EM Anomalies

Conductivity Thickness (mhos)

◌	0 - 1
○	1 - 2
⊖	2 - 4
◕	4 - 8
◒	8 - 15
◕	15 - 30
●	> 30
⊛	Magnetite Anomaly
○	EM Anomaly A, 935 Hz inphase amplitude 7 ppm. Conductivity thickness 2 mhos (see code).

EM Profiles

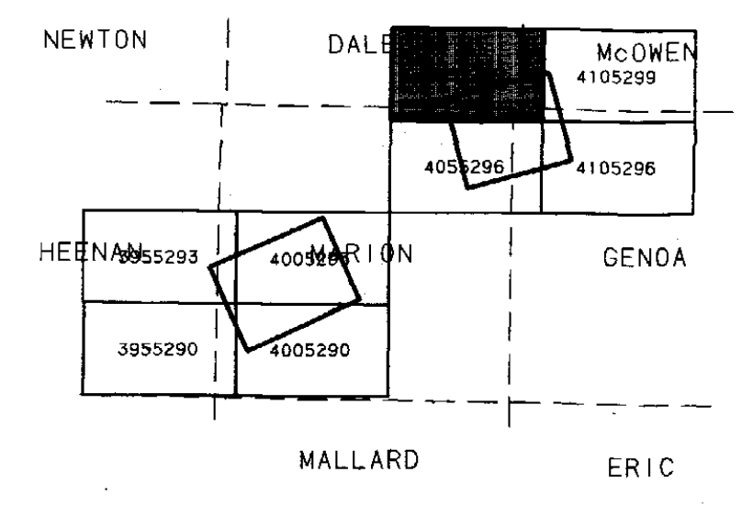
4600 Hz Coaxial 2 ppm/mm

━━━━	inphase component
────	quadrature component

4175 Hz Coplanar 8 ppm/mm

━━━━	inphase component
────	quadrature component

Sensor elevation..........30m
Coil separation............7m



FALCONBRIDGE LIMITED

ELECTROMAGNETIC PROFILES
(4600 Hz Coaxial, 4175 Hz Coplanar)

2.14949

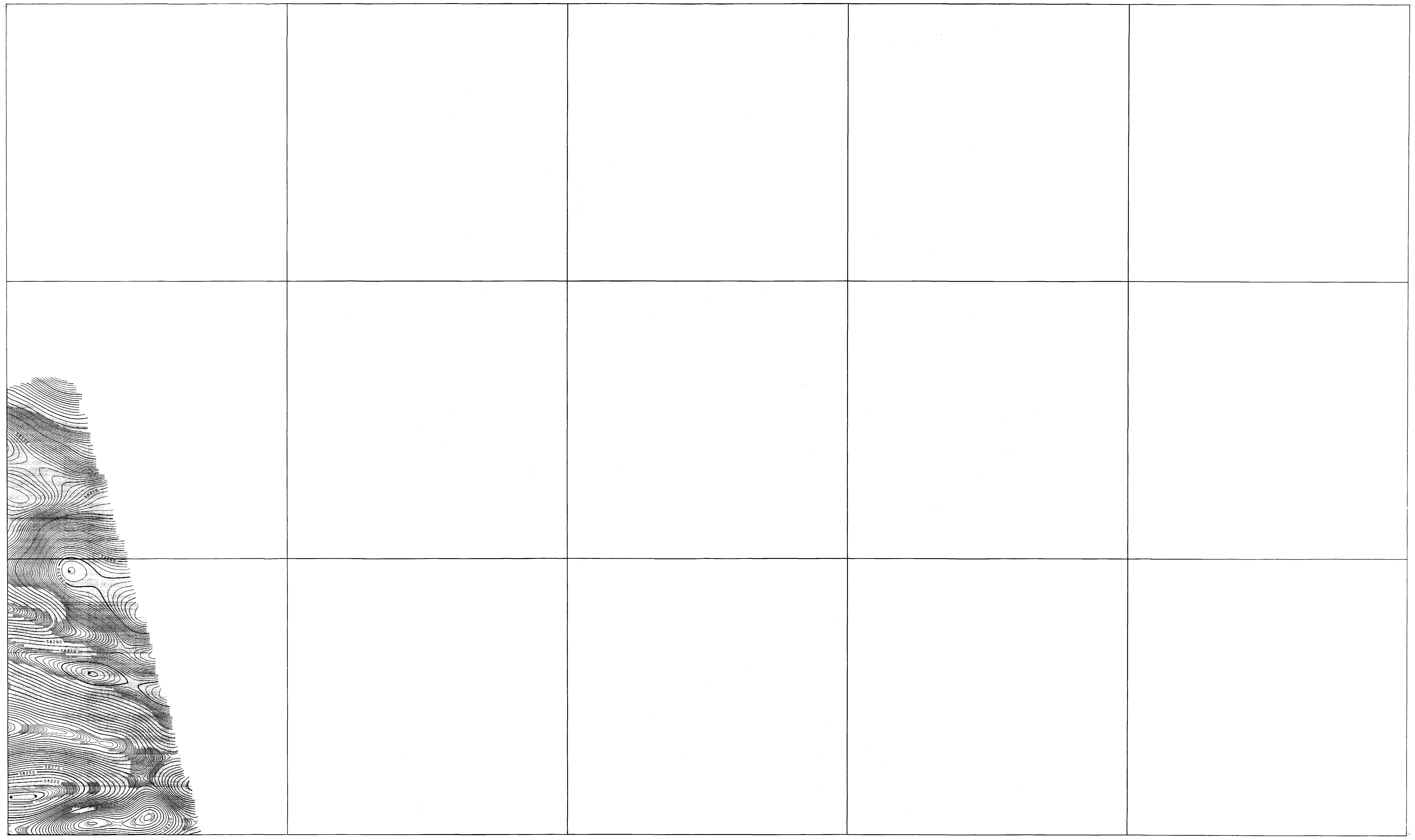
GENOA PROJECT (PN 8668)
DALE TOWNSHIP, ONTARIO

SCALE 1:5,000
0 165 330 660 1320 Feet
0 50 100 250 500 Metres

AERODAT LIMITED

DATE :	MAR 1991
NTS No:	41 0/16
MAP No:	4055299 J9101

258



EM Anomalies

Conductivity Thickness (mhos)

◌	0 - 1
○	1 - 2
⊖	2 - 4
◔	4 - 8
◒	8 - 15
◕	15 - 30
●	> 30
⊗	Magnetite Anomaly
-○-	EM Anomaly A, 935 Hz inphase amplitude 7 ppm. Conductivity thickness 2 mhos (see code).

Magnetics

Total Field Magnetic Intensity Contours in nT.

Cesium high sensitivity magnetometer.

Colours distributed on an equal area basis.

Sensor elevation 45m

Map contours are multiples of those listed below

2 nT
10 nT
50 nT
250 nT
1000 nT

70064
59970
59376
59136
58990
58902
58844
58796
58752
58716
58688
58666
58642
58620
58600
58582
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58552
58532
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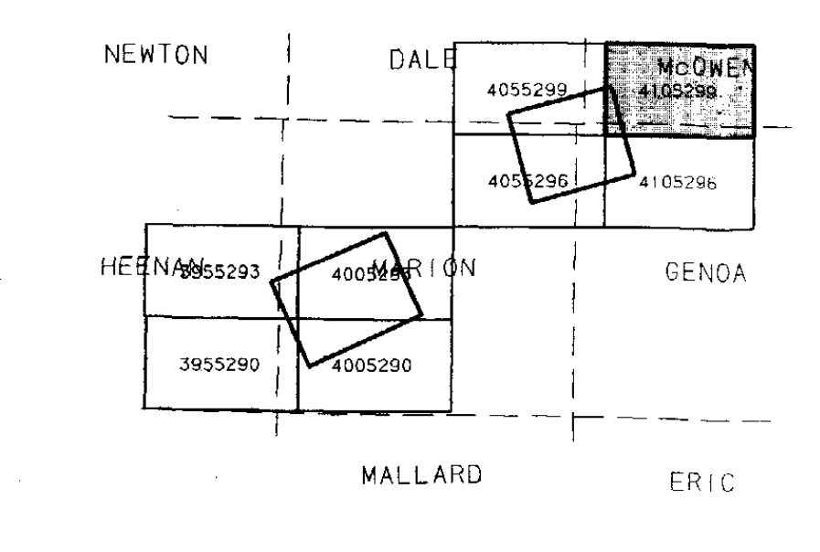
58478
58464
58450
58438
58388
58126
57514



FALCONBRIDGE LIMITED

TOTAL FIELD MAGNETICS
CONTOURS AND COLOURS

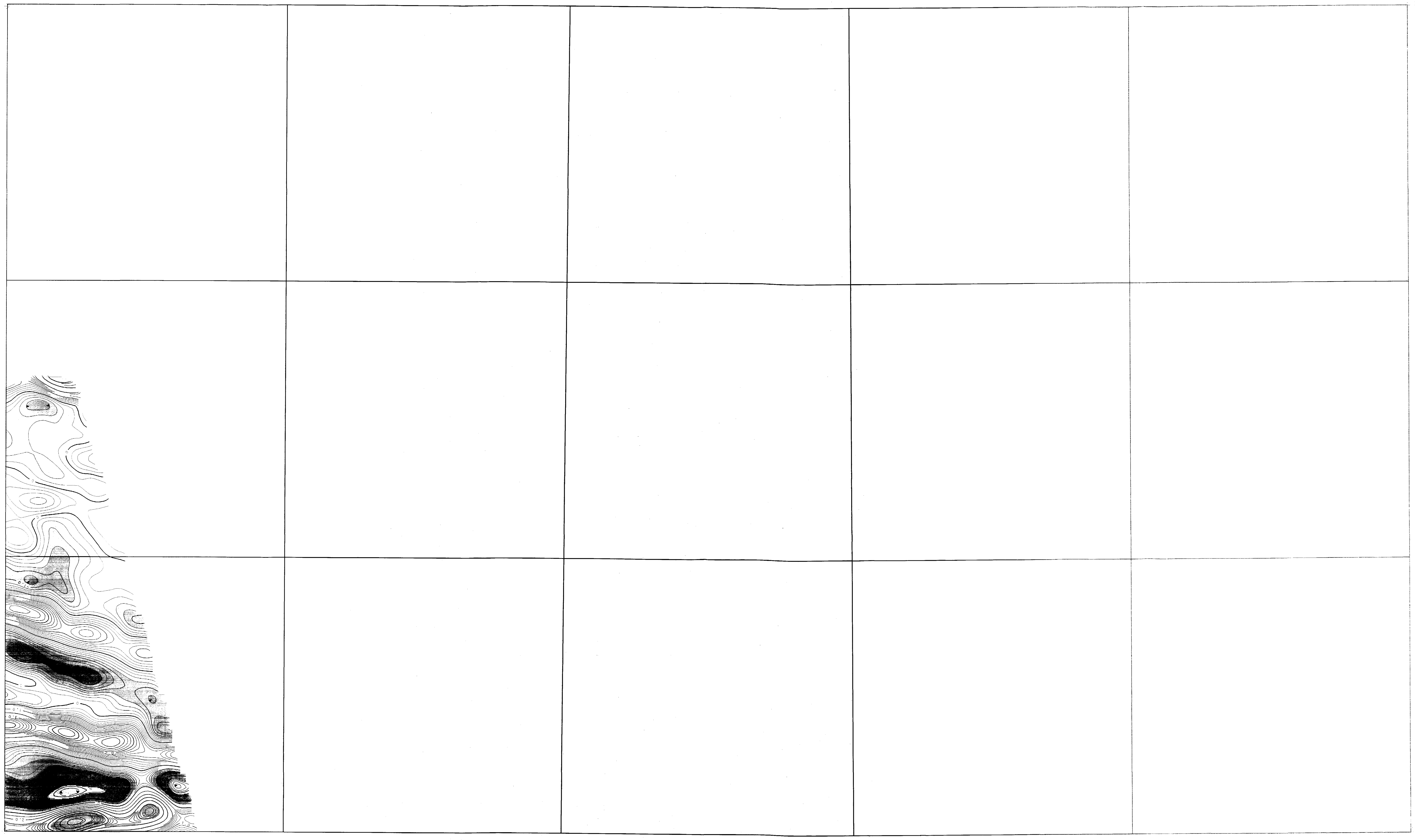
GENOA PROJECT (PN 8668)
McOWEN TOWNSHIP, ONTARIO

SCALE 1:5,000
0 165 330 660 1320 Feet
0 50 100 250 500 Metres

AERODAT LIMITED

DATE: [illegible] MAR 1991
NTS No: 41 O/16
MAP No: 4105299 J9101

258



EM Anomalies

Conductivity Thickness (mhos)

◌	0 - 1
○	1 - 2
⊖	2 - 4
◐	4 - 8
◒	8 - 15
◕	15 - 30
●	> 30
⊗	Magnetite Anomaly

EM Anomaly A, 935 Hz inphase amplitude 7 ppm. Conductivity thickness 2 mhos (see code).

Vertical Gradient

Vertical Magnetic Gradient calculated from the total field magnetic intensity in nT/m.

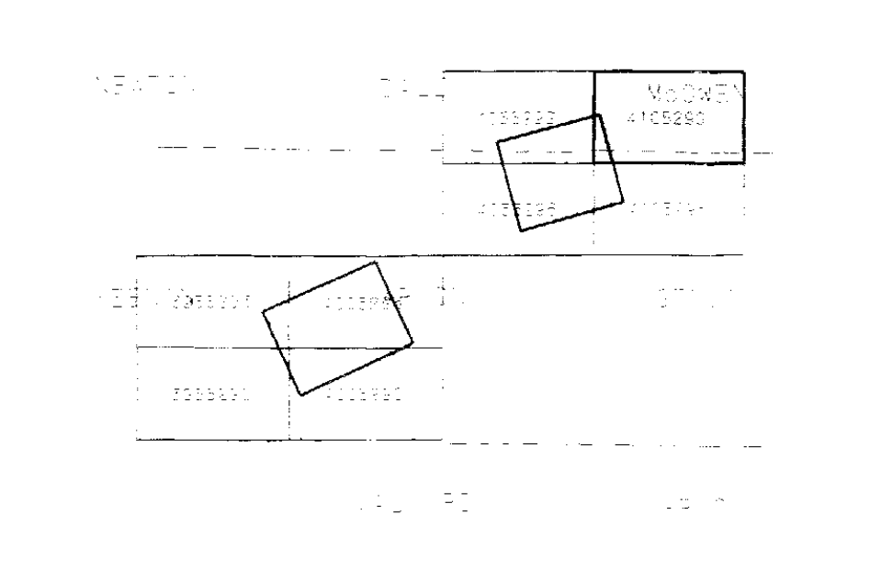
Cesium high sensitivity magnetometer.

Sensor elevation 45m

Map contours are multiples of those listed below

0.20 nT/m
1.00 nT/m
5.00 nT/m
25.0 nT/m
100 nT/m

348.
134.
13.
5.4
4.0
2.6
1.8
1.2
0.8
0.6
0.4
0.2
0.0
-0.2
-0.4
-0.6
-0.8
-1.2
-1.6
-2.4
-3.8
-6.2
-12.0
-136.2



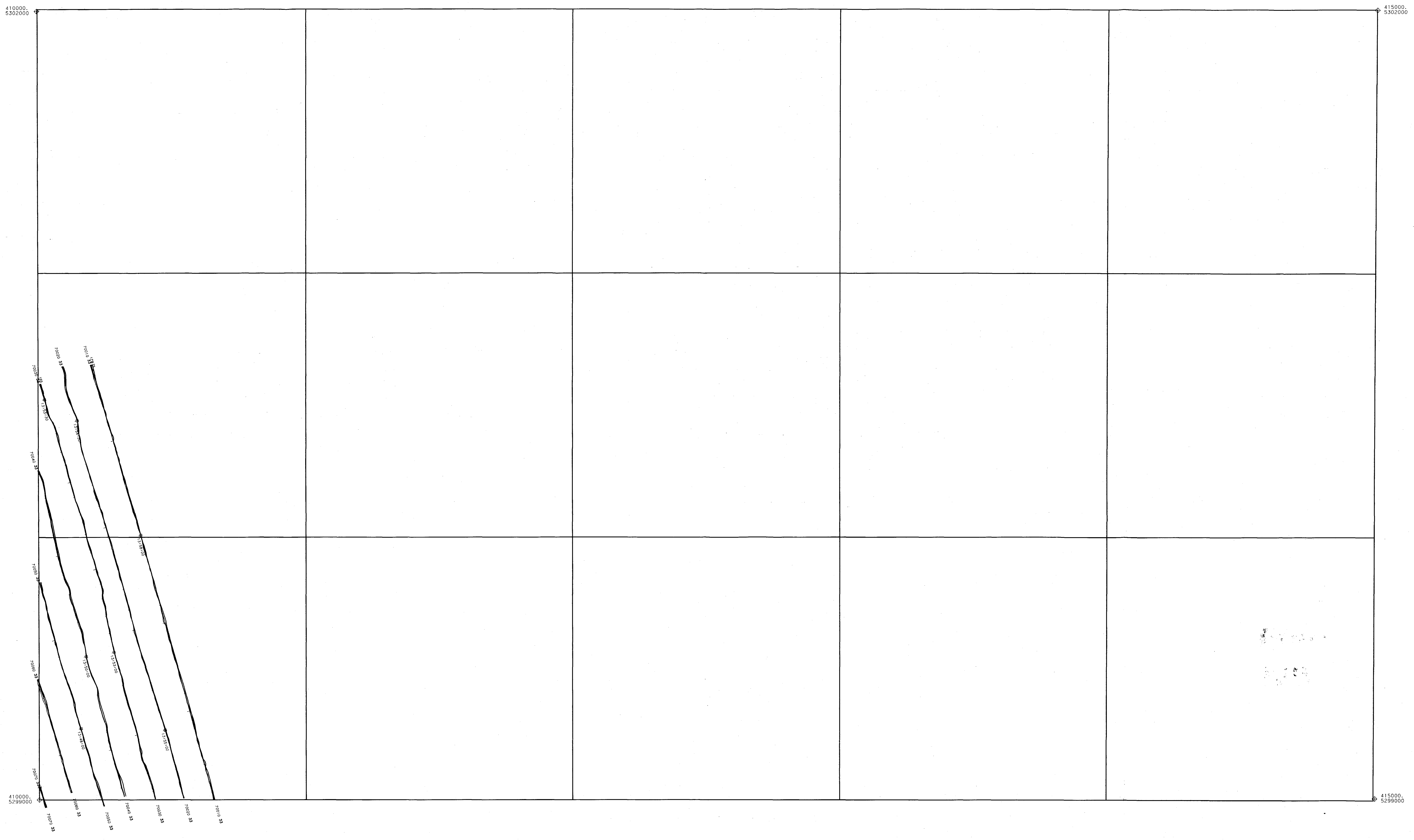
FALCONBRIDGE LIMITED

CALCULATED VERTICAL MAGNETIC GRADIENT CONTOURS AND COLOURS

GENOA PROJECT (PN 8668)
McOWEN TOWNSHIP, ONTARIO

AFRODAT LIMITED

260



EM Anomalies

Conductivity Thickness (mhos)

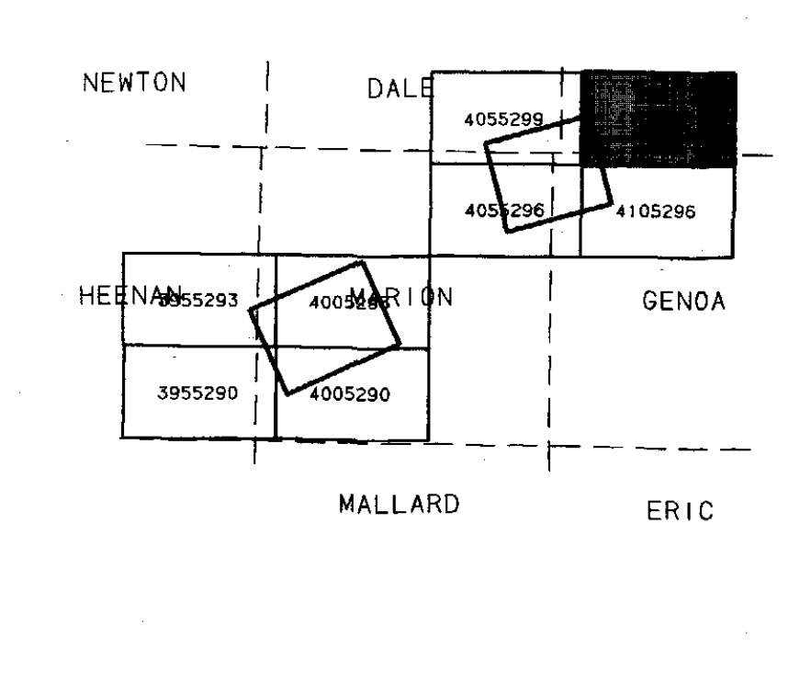
◌	0 - 1
○	1 - 2
⊖	2 - 4
◐	4 - 8
◒	8 - 15
◕	15 - 30
●	> 30
ⓢ	Magnetite Anomaly
A 2 7	EM Anomaly A, 935 Hz inphase amplitude 7 ppm. Conductivity thickness 2 mhos (see code).

EM Profiles

935 Hz Coaxial 1 ppm/mm
- inphase component
- quadrature component

850 Hz Coplanar 4 ppm/mm
- inphase component
- quadrature component

Sensor elevation..........30m
Coil separation...........7m



FALCONBRIDGE LIMITED

ELECTROMAGNETIC PROFILES
(935 Hz Coaxial, 850 Hz Coplanar)

2.14949

GENOA PROJECT (PN 8668)

McOWEN TOWNSHIP, ONTARIO

SCALE 1:5,000

0 165 330 660 1320 Feet

0 50 100 250 500 Metres

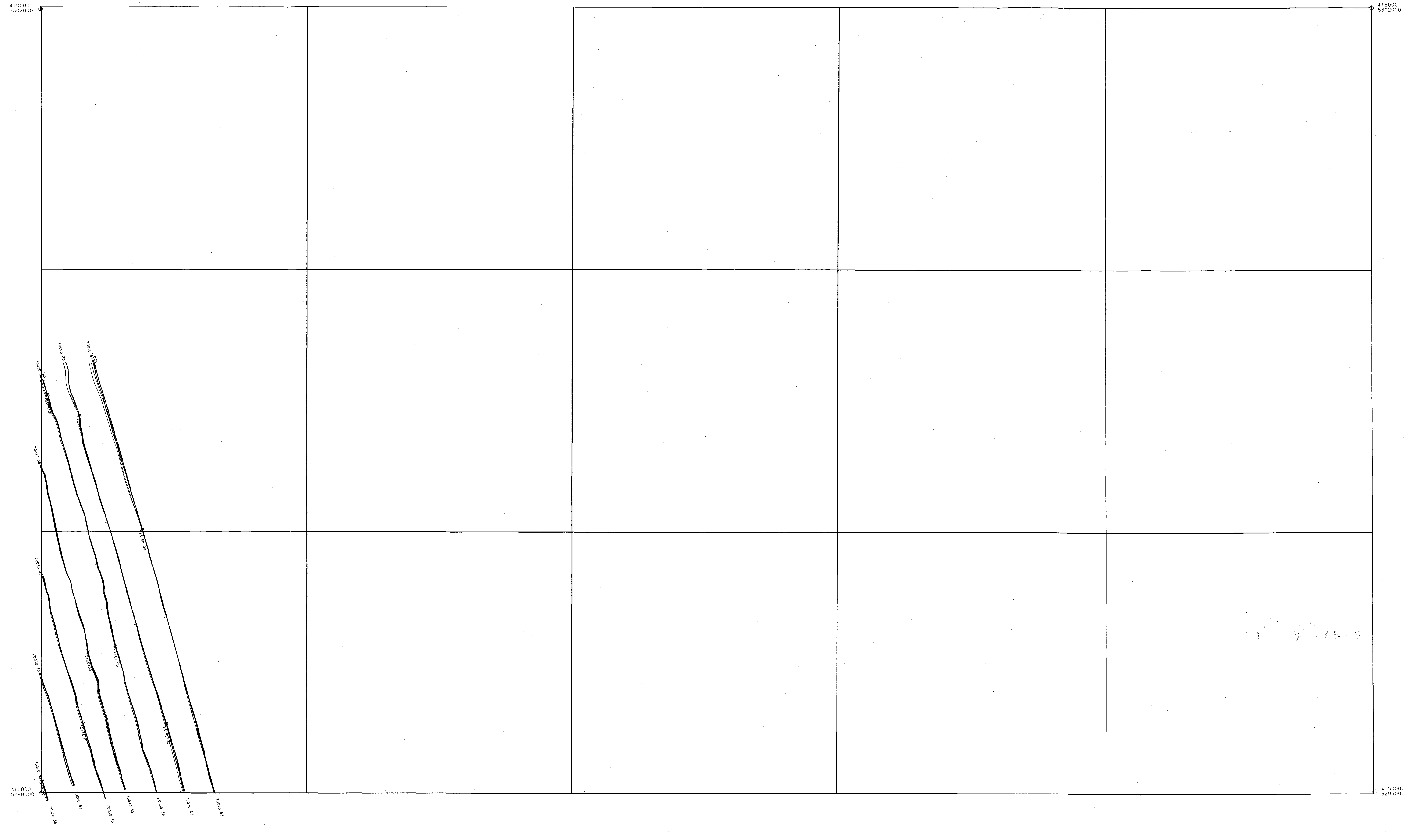
AERODAT LIMITED

DATE : MAR 1991

NTS No: 41 0/16

MAP No: 4105299 J9101

261



N

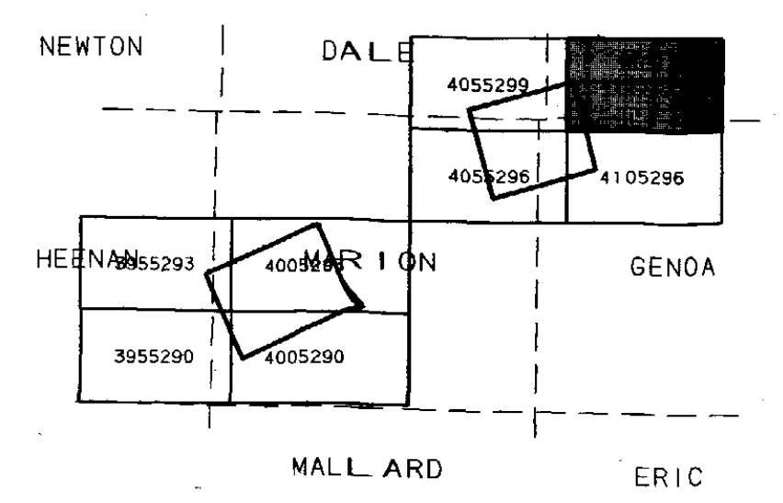
EM Anomalies

Conductivity Thickness (mhos)

○	0 - 1
○	1 - 2
⊖	2 - 4
◐	4 - 8
◒	8 - 15
◕	15 - 30
●	> 30
⊗	Magnetite Anomaly
A ○ 7 2	EM Anomaly A, 935 Hz inphase amplitude 7 ppm. Conductivity thickness 2 mhos (see code).

EM Profiles

4600 Hz Coaxial 2 ppm/mm
——— inphase component
——— quadrature component
4175 Hz Coplanar 8 ppm/mm
——— inphase component
——— quadrature component
Sensor elevation..........30m
Coil separation...........7m



FALCONBRIDGE LIMITED

ELECTROMAGNETIC PROFILES
(4600 Hz Coaxial, 4175 Hz Coplanar)

14949

GENOA PROJECT (PN 8668)
McOWEN TOWNSHIP, ONTARIO

SCALE 1:5,000
0 165 330 660 1320 Feet
0 50 100 250 500 Metres

AERODAT LIMITED

DATE : MAR 1991
NTS No: 41 0/16
MAP No: 4105299 J9101

262

EM Anomalies

Conductivity Thickness (mhos)

- ○ 0 - 1
- ○ 1 - 2
- ◐ 2 - 4
- ◐ 4 - 8
- ◒ 8 - 15
- ◕ 15 - 30
- ● > 30
- Σ Magnetite Anomaly
- EM Anomaly at 935 Hz
  Inphase amplitude in ppm
  Conductivity thickness
  in mhos (see above)

Magnetics

Total Field Magnetic Intensity Contours in nT.

Cesium high sensitivity magnetometer.

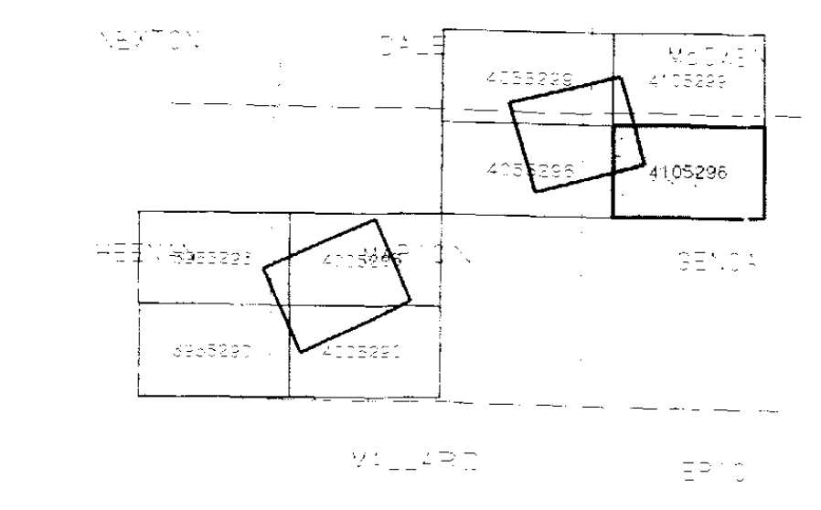
Colours distributed on an actual area basis.

Sensor elevation 45m

Map contours are multiples of those listed below

2 nT
10 nT
50 nT
250 nT
1000 nT

70064
59970
59376
59136
58990
58902
58844
58796
58752
58716
58688
58666
58642
58620
58600
58582
58566
58552
58532
58512
58492
58478
58464
58450
58438
58388
58126
57514



FALCONBRIDGE LIMITED

TOTAL FIELD MAGNETICS CONTOURS AND COLOURS

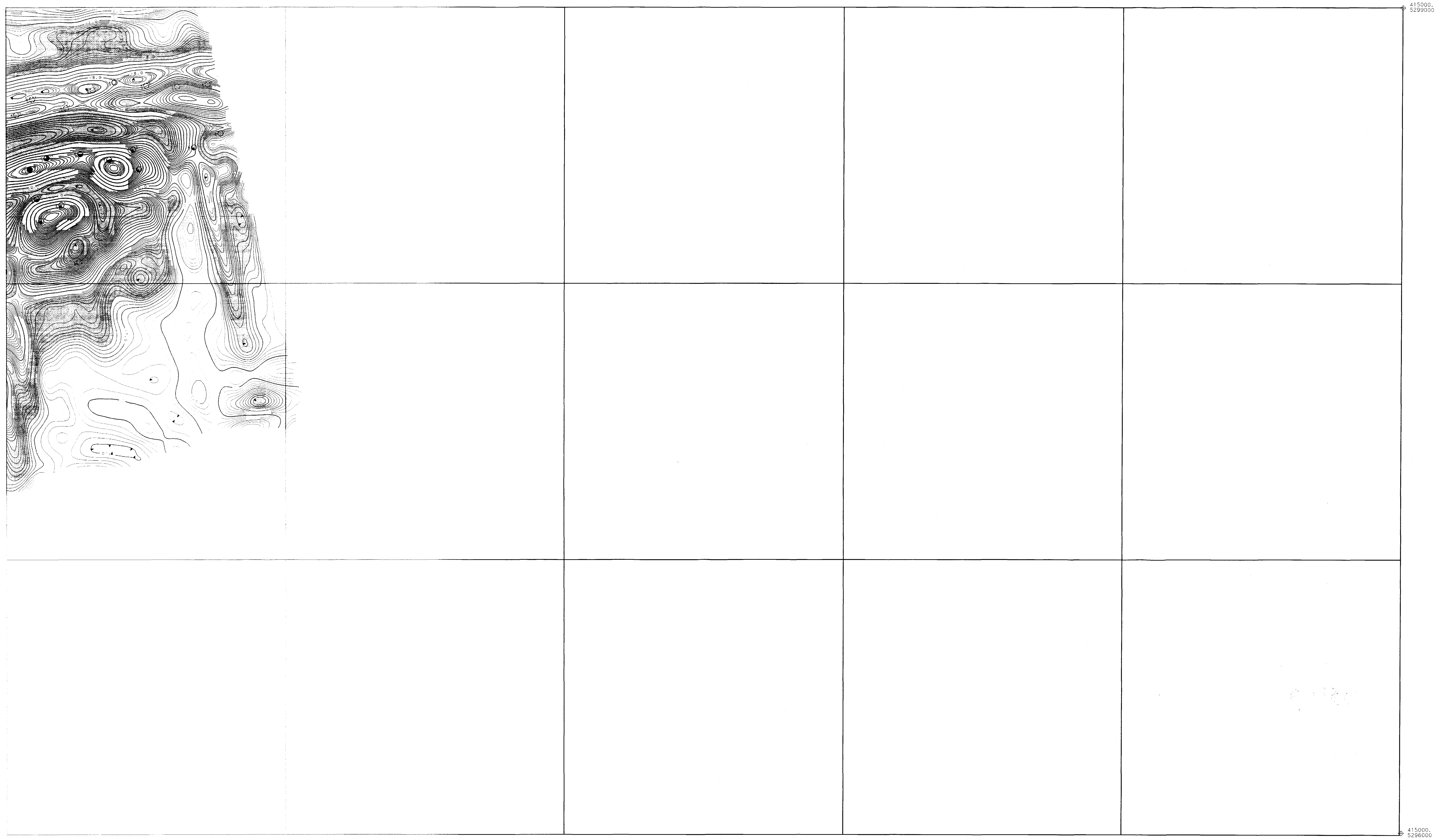
GENOA PROJECT (PN 8668)
GENOA TOWNSHIP, ONTARIO

SCALE 1:5,000
0 165 330 660 1320 Feet
0 50 100 250 500 Metres

AERODAT LIMITED

DATE : MAR 1991
NTS No: 41 O/16
MAP No: 4105296 J9101

263



EM Anomalies

Conductivity Thickness (mhos)

- 0 - 1
- 1 - 2
- 2 - 4
- 4 - 8
- 8 - 15
- 15 - 30
- > 30
- Magnetite Anomaly
- EM Anomaly A, 935 Hz inphase amplitude 7 ppm, conductivity thickness 2 mhos (see code).

Vertical Gradient

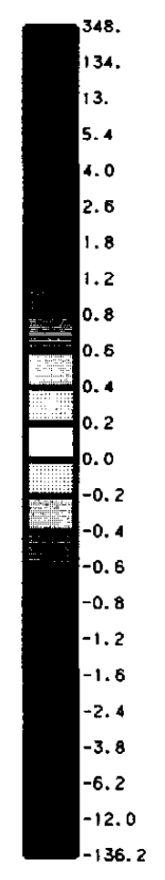
Vertical Magnetic Gradient calculated from the total field magnetic intensity in nT/m.

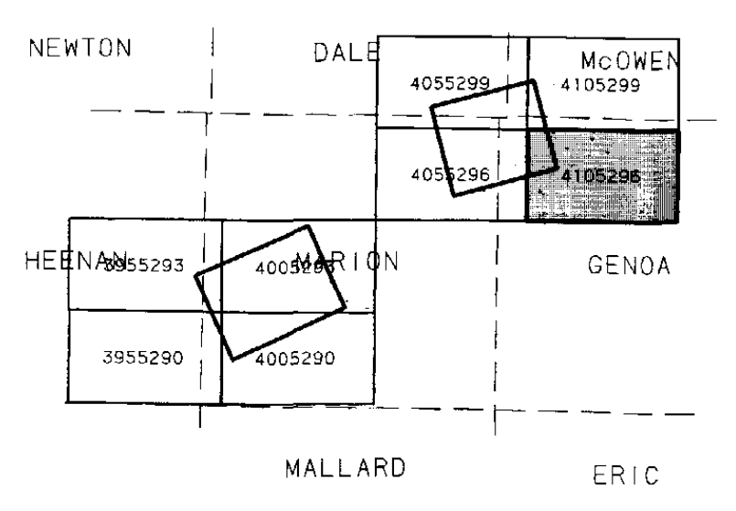
Cesium high sensitivity magnetometer.

Sensor elevation 45m

Map contours are multiples of those listed below

0.20 nT/m
1.00 nT/m
5.00 nT/m
25.0 nT/m
100 nT/m





FALCONBRIDGE LIMITED

CALCULATED VERTICAL MAGNETIC GRADIENT CONTOURS AND COLOURS

2.14949

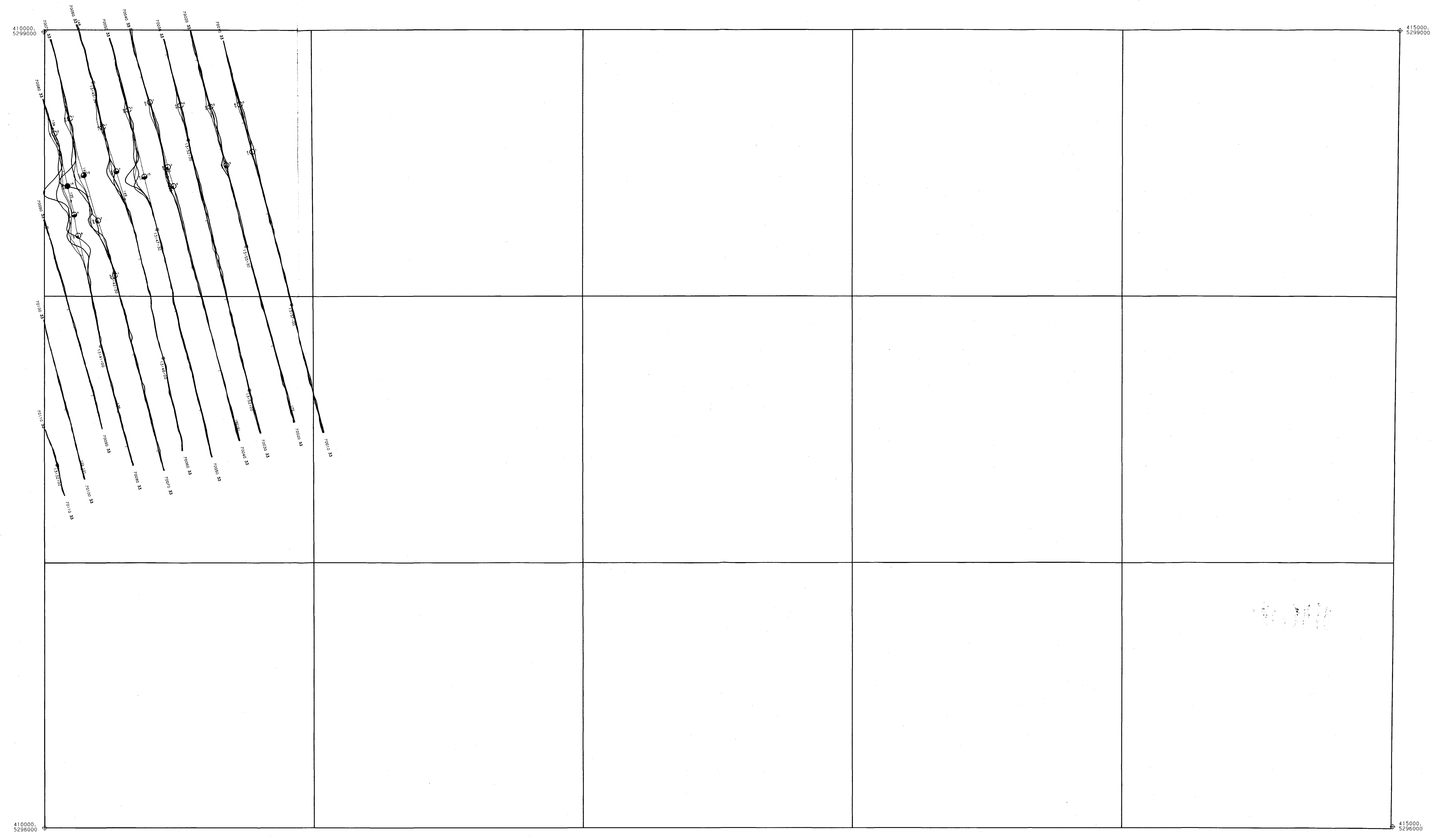
GENOA PROJECT (PN 8668)

GENOA TOWNSHIP, ONTARIO

SCALE 1:5,000

AERODAT LIMITED

DATE : MAR 1991
NTS No: 41 O/16
MAP No: 4105296 J9101



EM Anomalies

Conductivity Thickness (mhos)

◌	0 - 1
○	1 - 2
⊖	2 - 4
◔	4 - 8
◒	8 - 15
◕	15 - 30
●	> 30
⊗	Magnetite Anomaly
-○-	EM Anomaly A, 935 Hz inphase amplitude 7 ppm. Conductivity thickness 2 mhos (see code).

EM Profiles

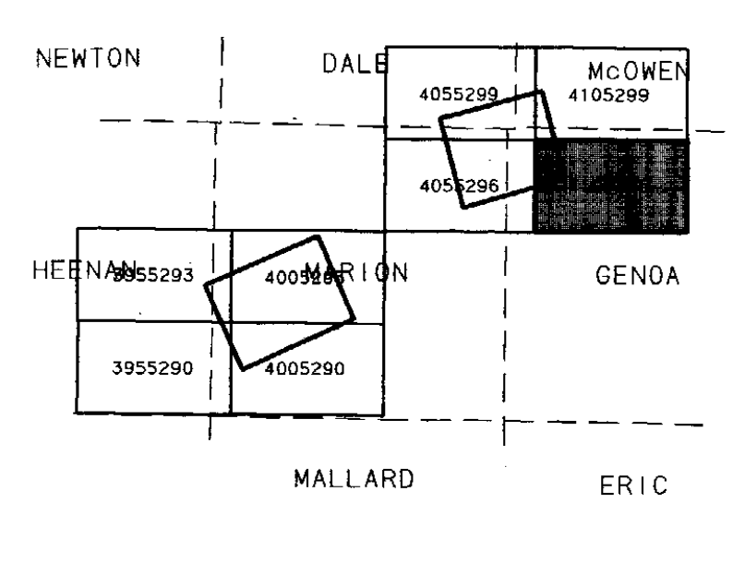
935 Hz Coaxial 1 ppm/mm

━━━	inphase component
───	quadrature component

850 Hz Coplanar 4 ppm/mm

━━━	inphase component
───	quadrature component

Sensor elevation..........30m
Coil separation............7m



FALCONBRIDGE LIMITED

ELECTROMAGNETIC PROFILES

(935 Hz Coaxial, 850 Hz Coplanar)

2.14949

GENOA PROJECT (PN 8668)

GENOA TOWNSHIP, ONTARIO

SCALE 1:5,000

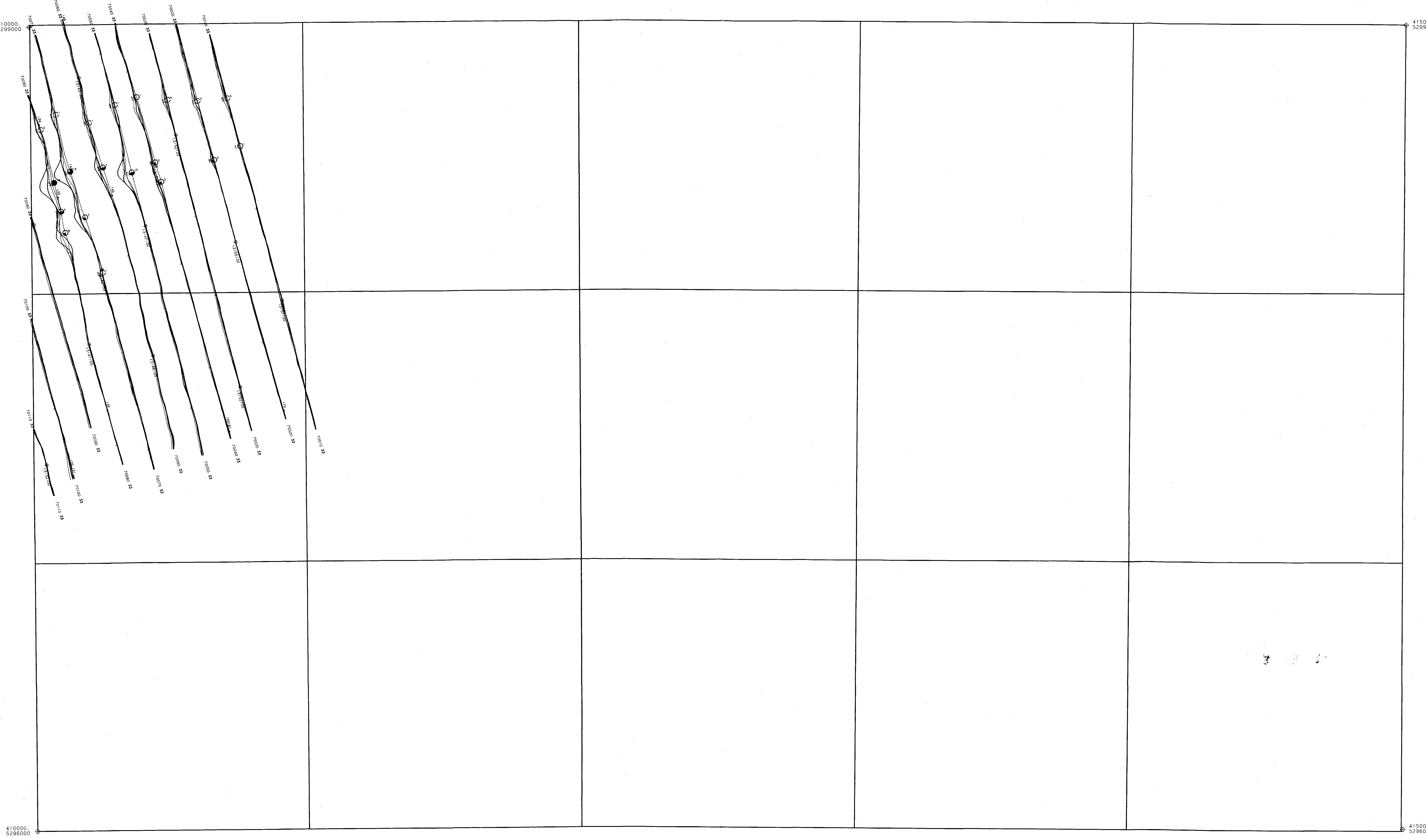
0 165 330 660 1320 Feet

0 50 100 250 500 Metres

AERODAT LIMITED

DATE :	MAR 1991
NTS No:	41 0/16
MAP No:	4105296 J9101

265



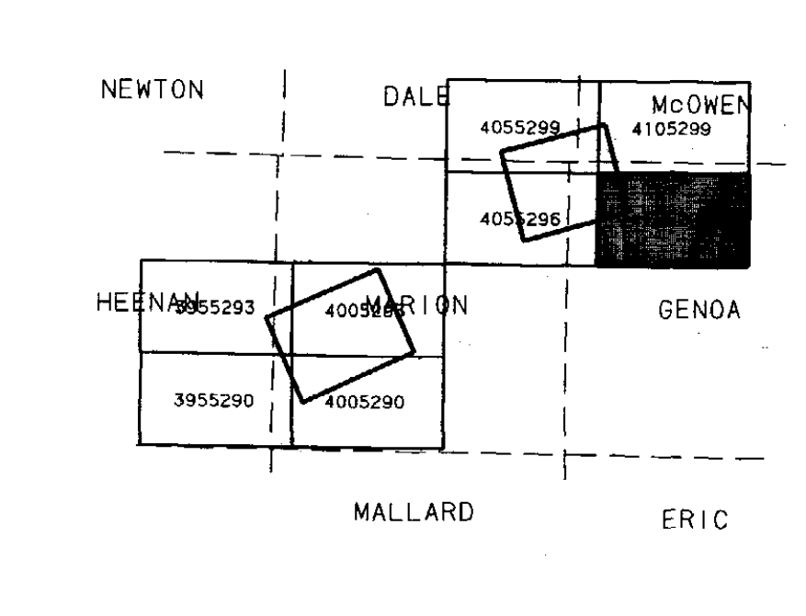
EM Anomalies

Conductivity Thickness (mhos)

◌	0 - 1
○	1 - 2
⊖	2 - 4
◕	4 - 8
◒	8 - 15
◕	15 - 30
●	> 30
⊗	Magnetite Anomaly
-○-	EM Anomaly A, 935 Hz inphase amplitude 7 ppm. Conductivity thickness 2 mhos (see code).

EM Profiles

4600 Hz Coaxial 2 ppm/mm
——— inphase component
——— quadrature component
4175 Hz Coplanar 8 ppm/mm
——— inphase component
——— quadrature component
Sensor elevation..........30m
Coil separation............7m



FALCONBRIDGE LIMITED

ELECTROMAGNETIC PROFILES
(4600 Hz Coaxial, 4175 Hz Coplanar)

2.14949

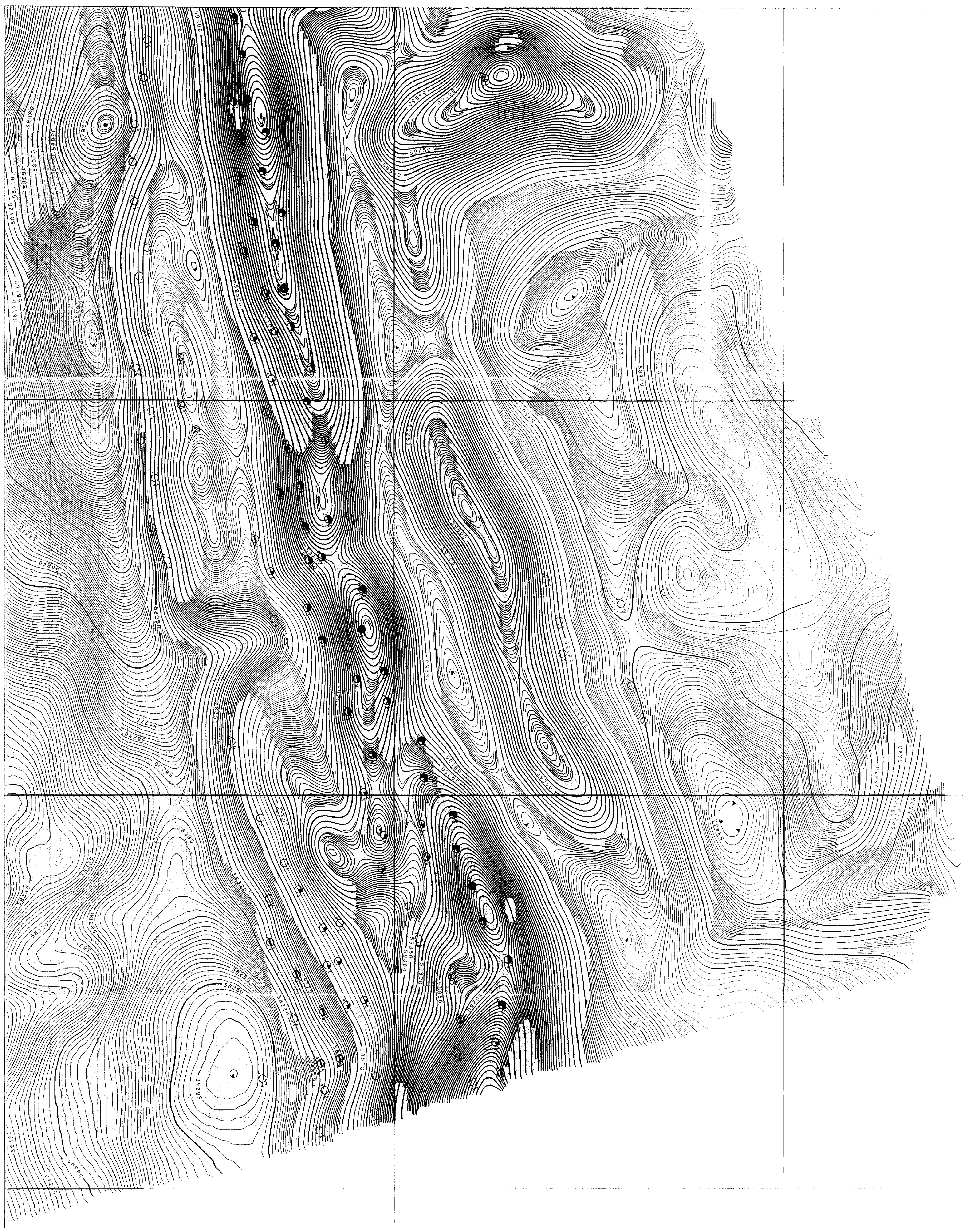
GENOA PROJECT (PN 8668)
GENOA TOWNSHIP, ONTARIO

SCALE 1:5,000
0 165 330 660 1320 Feet
0 50 100 250 500 Metres

AERODAT LIMITED

DATE : MAR 1991
NTS No: 41 O/16
MAP No: 4105296 J9101

266

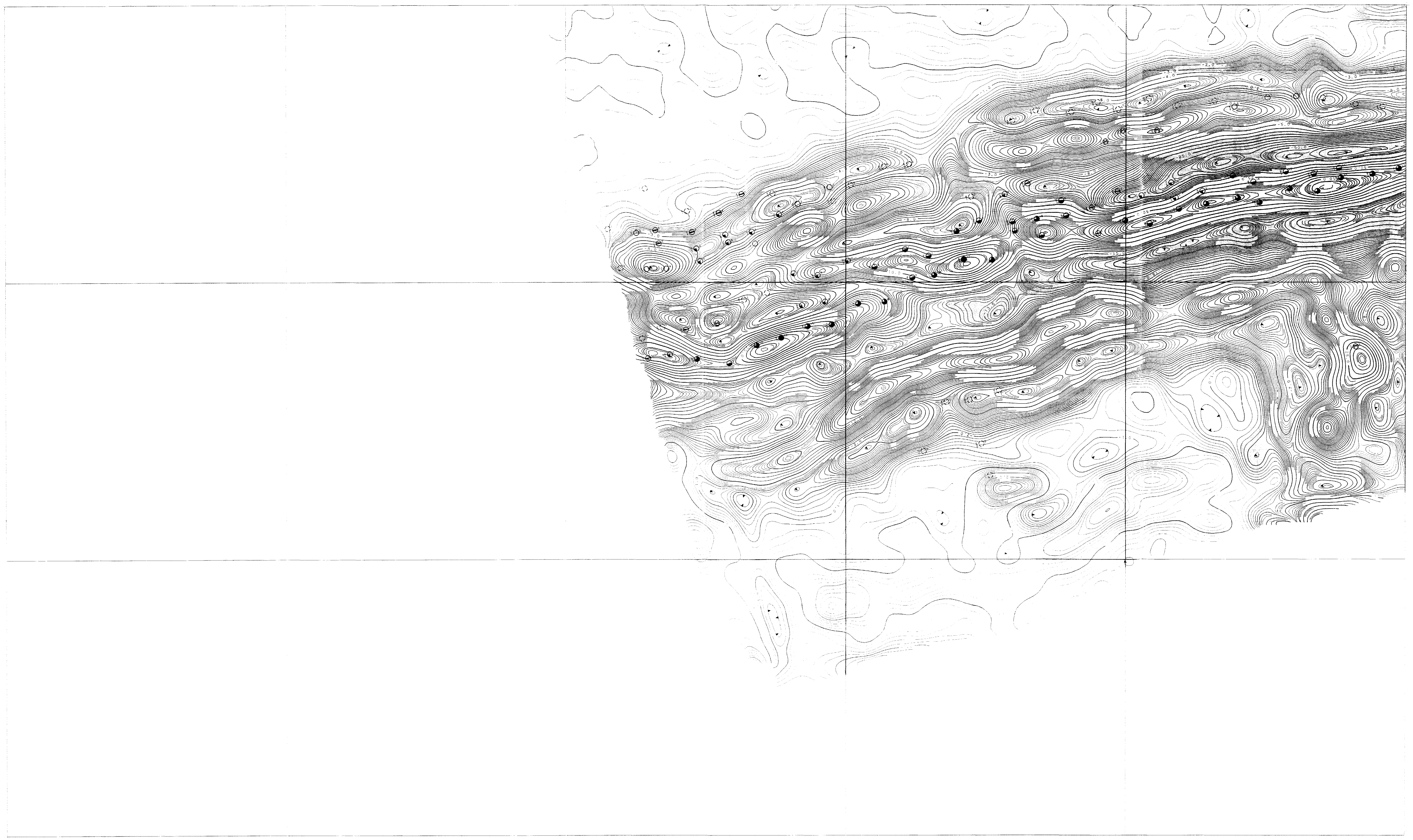


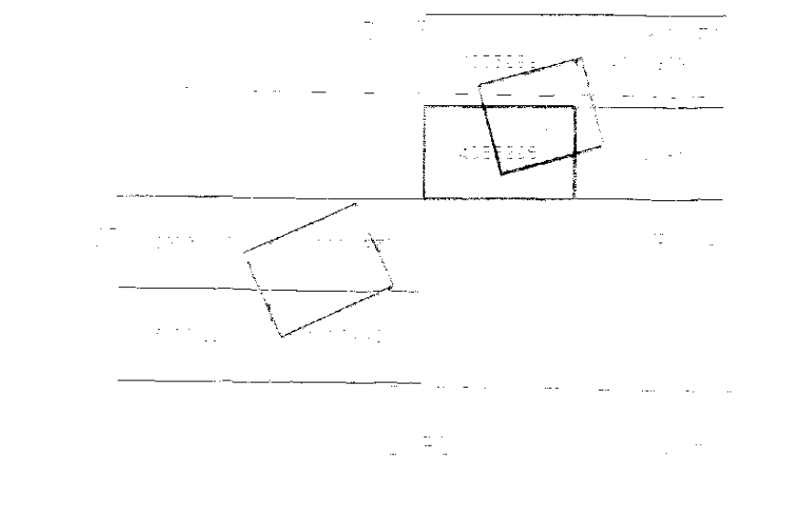
FALCONBRIDGE LIMITED

TOTAL FIELD MAGNETICS
CONTOURS AND COLOURS

GENOA PROJECT (PN 8668)
DALE TOWNSHIP, ONTARIO

AERODAT LIMITED



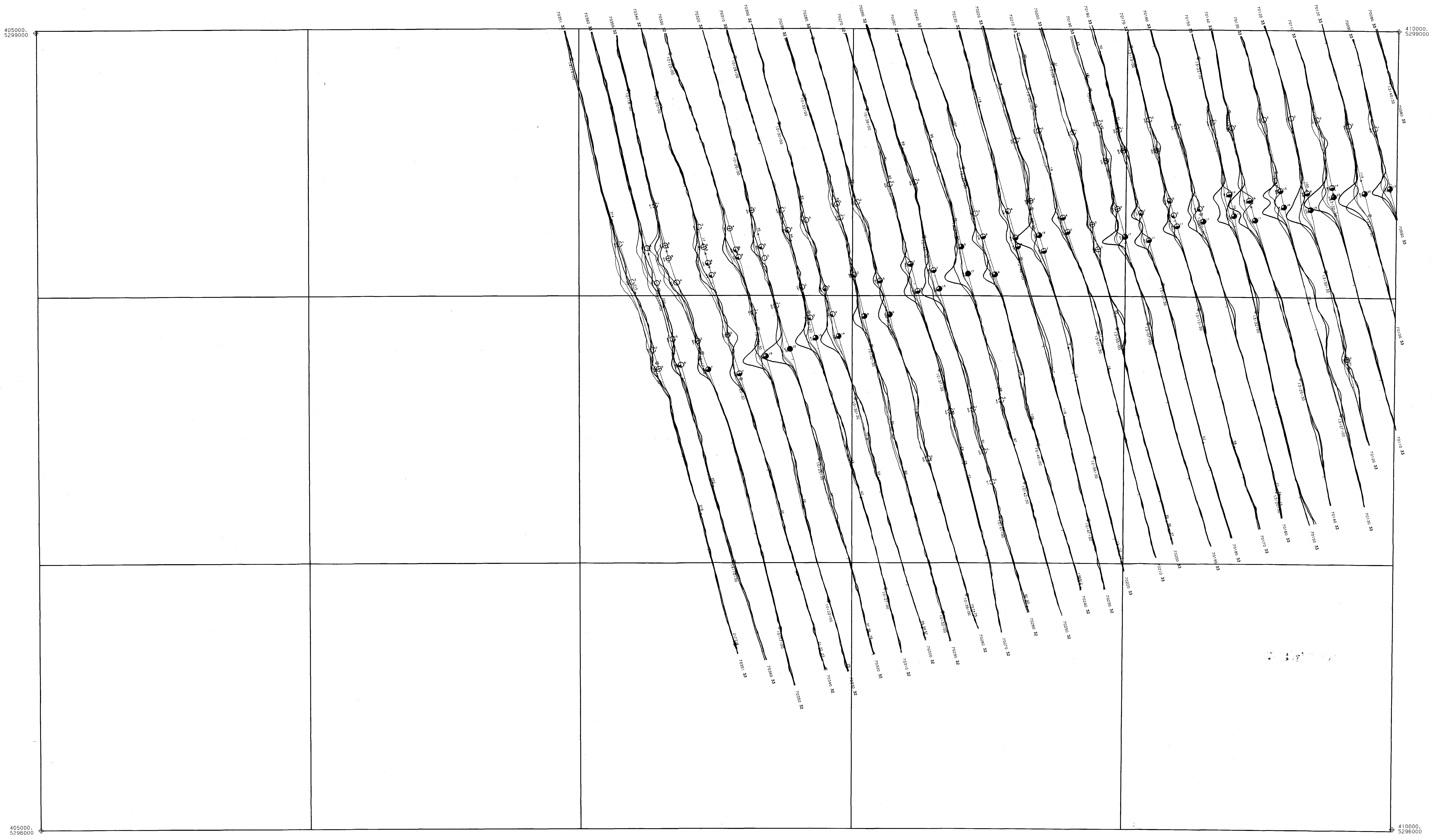


FALCONBRIDGE LIMITED

CALCULATED VERTICAL MAGNETIC GRADIENT
CONTOURS AND COLOURS

GENOA PROJECT (PN 8668)
DALE TOWNSHIP, ONTARIO

AERODAT LIMITED



EM Anomalies

Conductivity Thickness (mhos)

◌	0 - 1
○	1 - 2
⊖	2 - 4
◕	4 - 8
◒	8 - 15
◕	15 - 30
●	> 30
Ⓜ	Magnetite Anomaly
-○-	EM Anomaly A, 935 Hz inphase amplitude 7 ppm. Conductivity thickness 2 mhos (see code).

EM Profiles

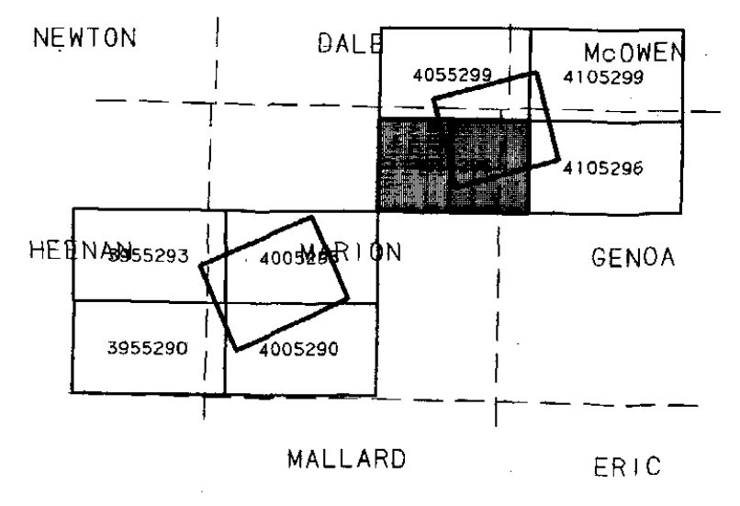
935 Hz Coaxial 1 ppm/mm

━━━	inphase component
───	quadrature component

850 Hz Coplanar 4 ppm/mm

━━━	inphase component
───	quadrature component

Sensor elevation..........30m
Coil separation...........7m



FALCONBRIDGE LIMITED

ELECTROMAGNETIC PROFILES
(935 Hz Coaxial, 850 Hz Coplanar)

2.14949

GENOA PROJECT (PN 8668)
DALE TOWNSHIP, ONTARIO

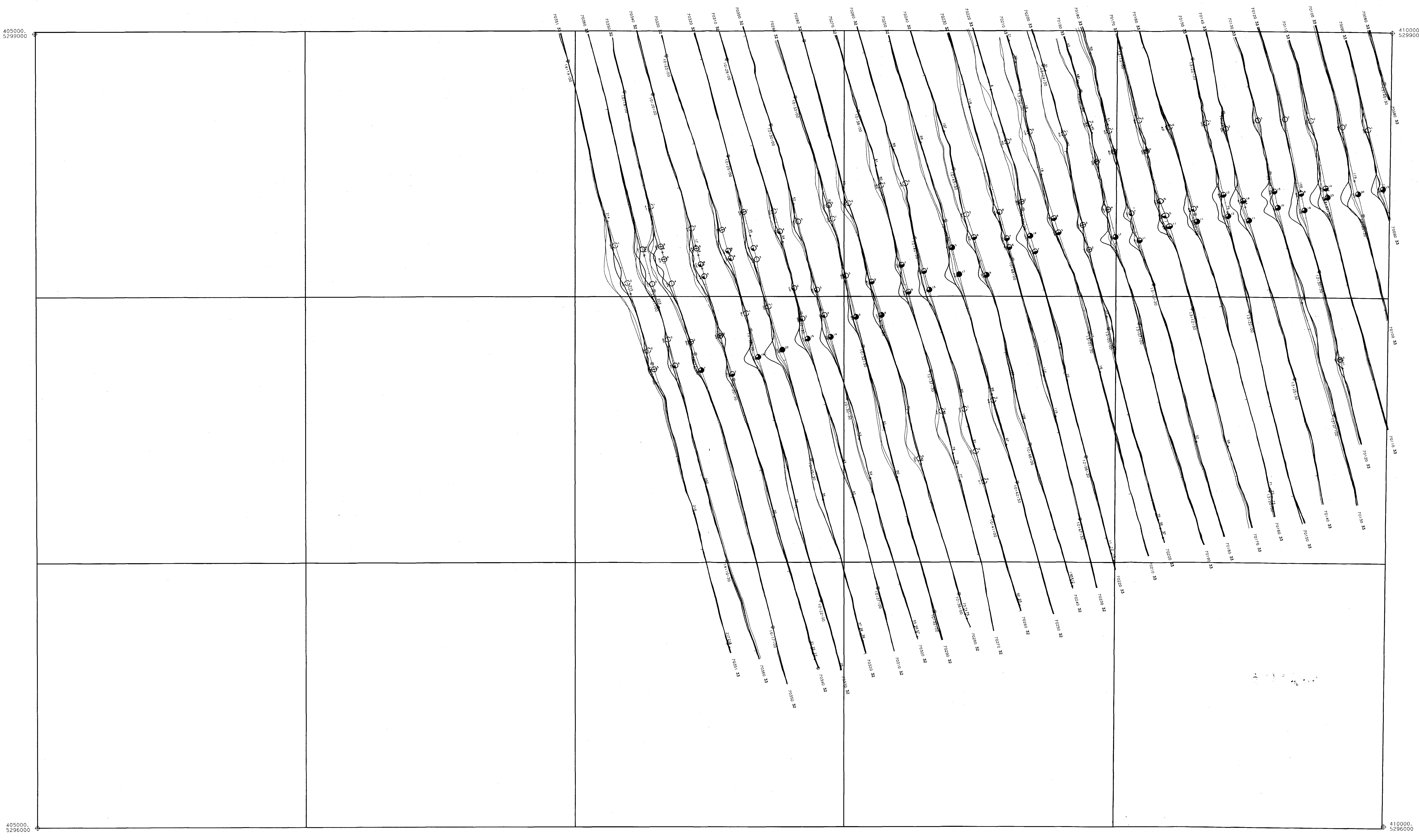
SCALE 1:5,000
0 165 330 660 1320 Feet
0 50 100 250 500 Metres

AERODAT LIMITED

DATE : MAR 1991
NTS No: 41 0/16
MAP No: 4055296 J9101

41016SE9858 2.14949 GENOA

269



EM Anomalies

Conductivity Thickness (mhos)

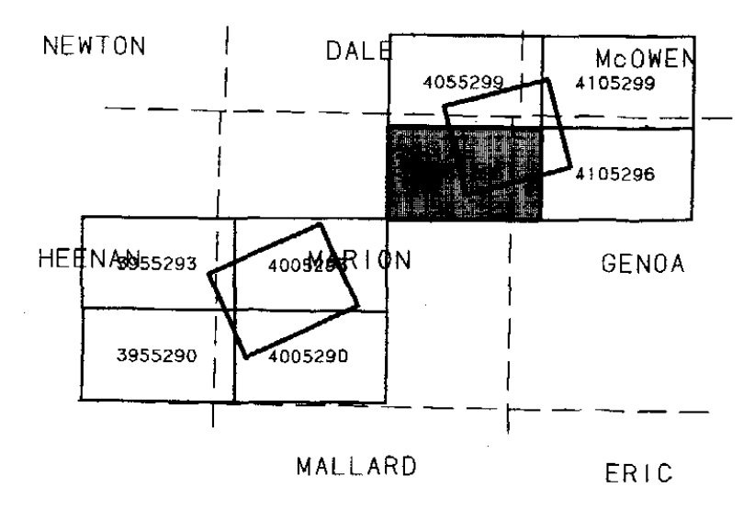
◌	0 - 1
○	1 - 2
⊖	2 - 4
◕	4 - 8
◒	8 - 15
◕	15 - 30
●	> 30
⊗	Magnetite Anomaly
A 7 ○ 2	EM Anomaly A, 935 Hz inphase amplitude 7 ppm. Conductivity thickness 2 mhos (see code).

EM Profiles

4600 Hz Coaxial 2 ppm/mm
——— inphase component
——— quadrature component

4175 Hz Coplanar 8 ppm/mm
——— inphase component
——— quadrature component

Sensor elevation..........30m
Coil separation............7m



FALCONBRIDGE LIMITED

ELECTROMAGNETIC PROFILES
(4600 Hz Coaxial, 4175 Hz Coplanar)

2.14949

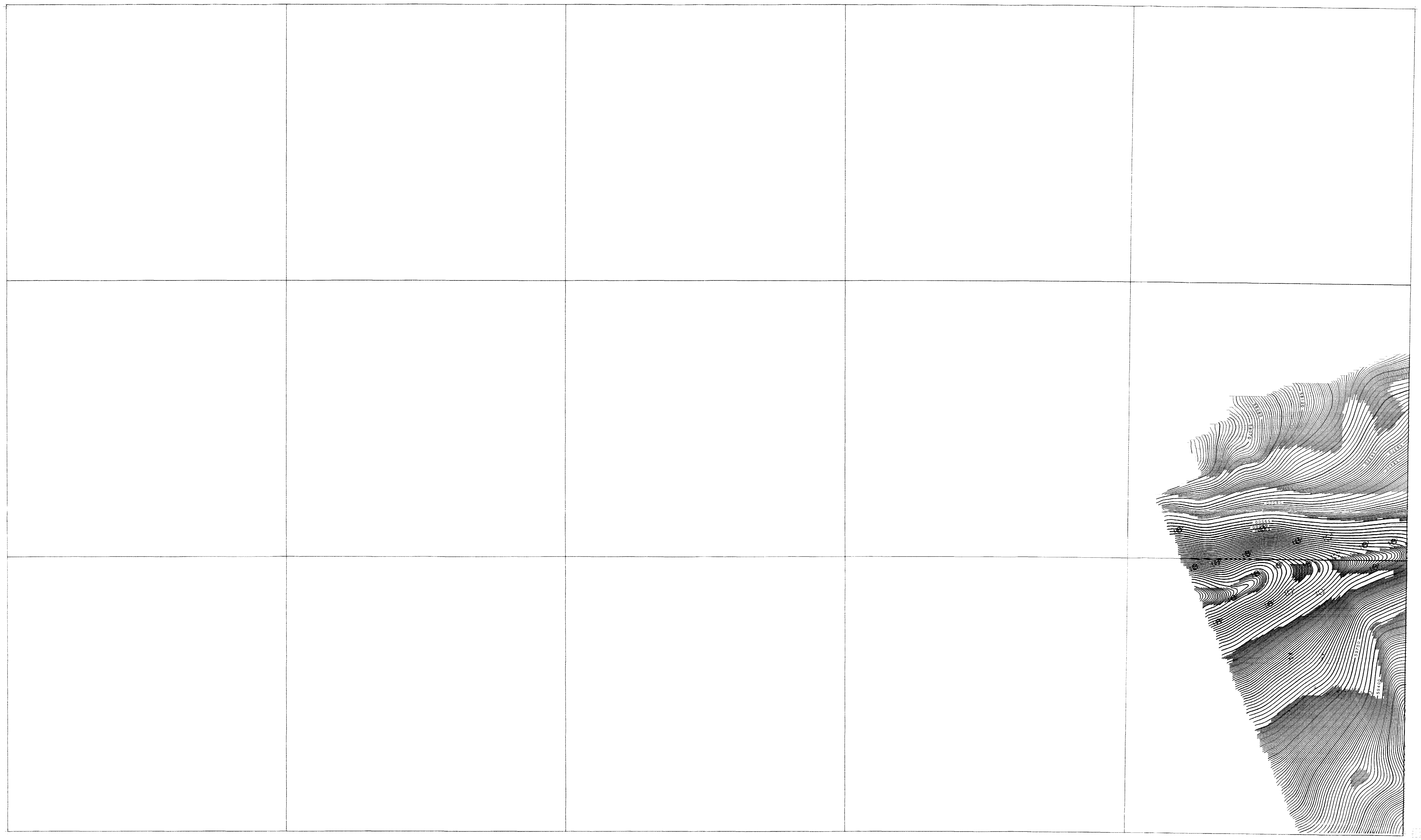
GENOA PROJECT (PN 8668)
DALE TOWNSHIP, ONTARIO

SCALE 1:5,000
0 165 330 660 1320 Feet
0 50 100 250 500 Metres

AERODAT LIMITED

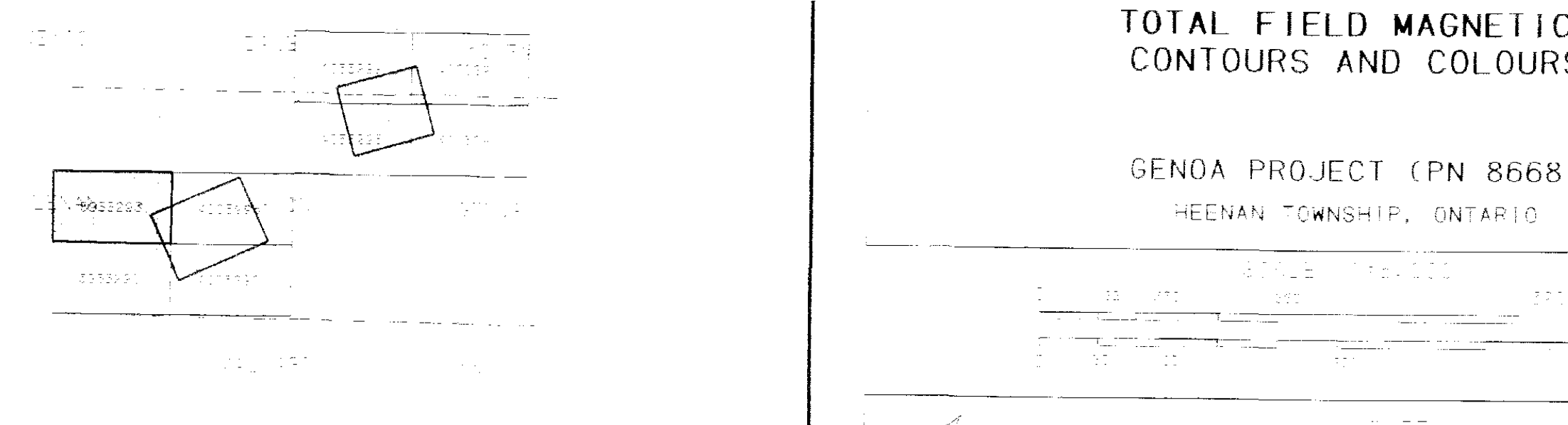
DATE : MAR 1991
NTS No: 41 O/16
MAP No: 4055296 J9101

270



EM Anomalies

Magnetics

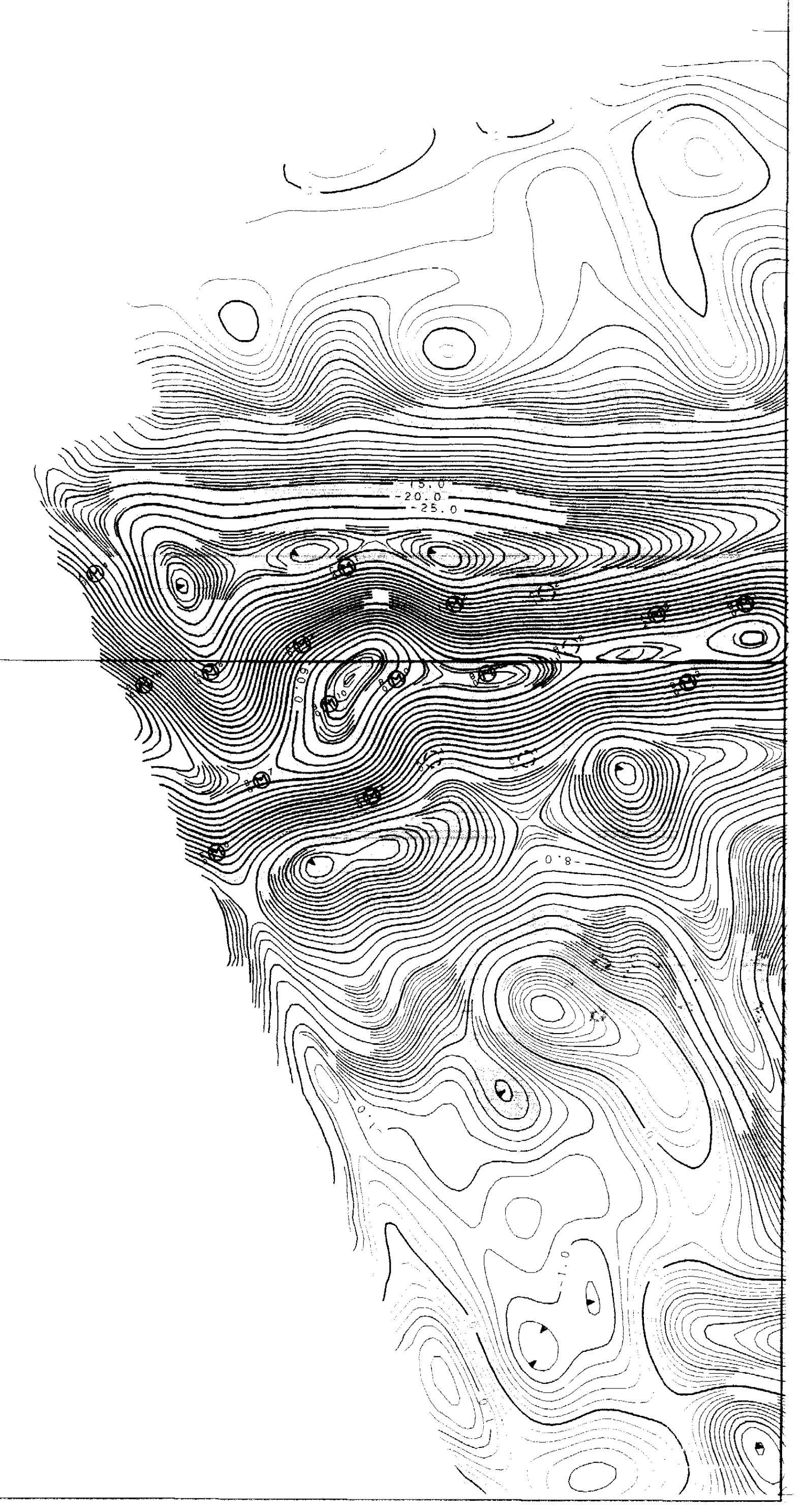


FALCONBRIDGE LIMITED

TOTAL FIELD MAGNETICS
CONTOURS AND COLOURS

GENOA PROJECT (PN 8668)
HEENAN TOWNSHIP, ONTARIO

AERODAT LIMITED



EM Anomalies

[illegible]

Vertical Gradient

[illegible]

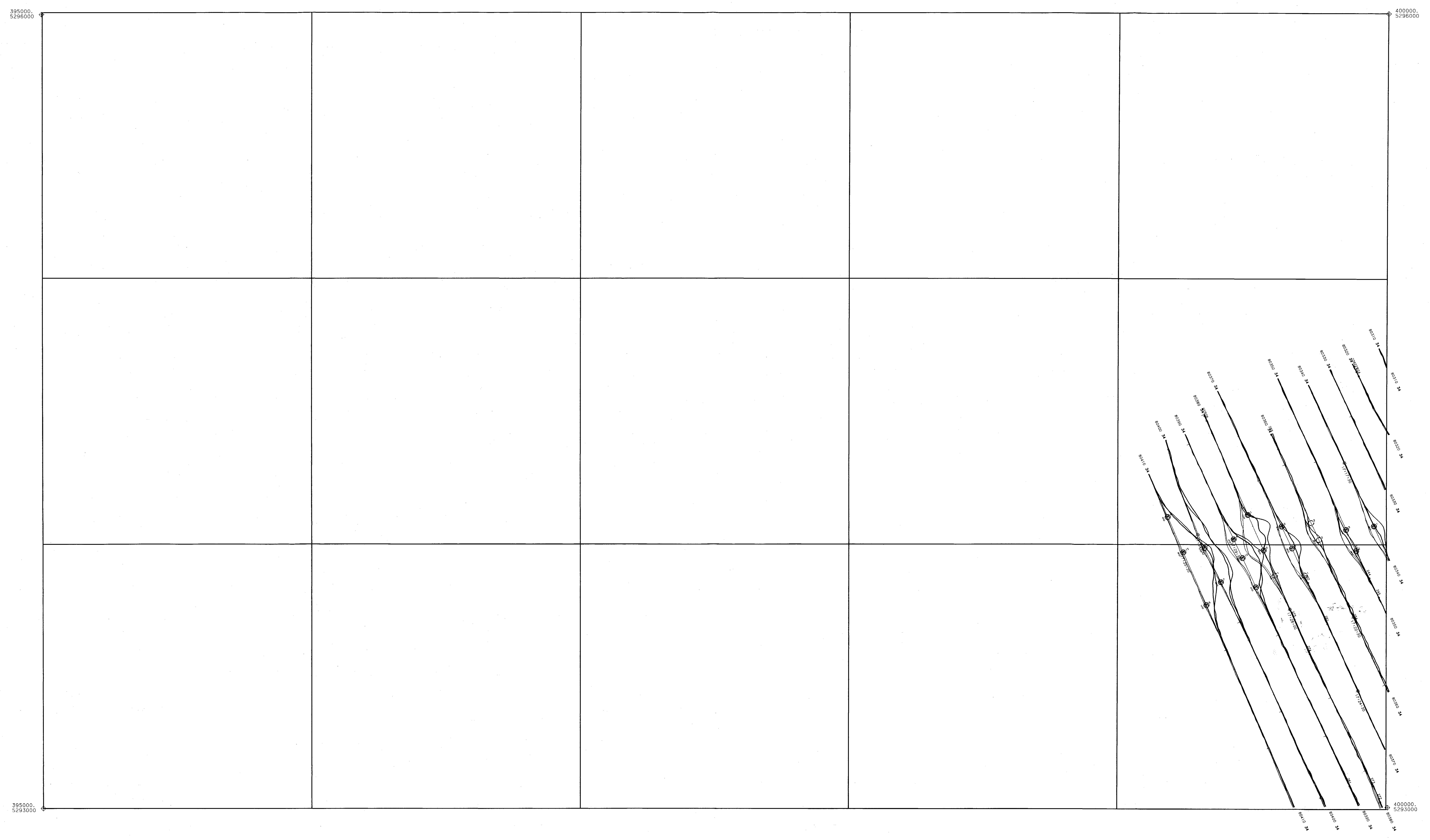
FALCONBRIDGE LIMITED

CALCULATED VERTICAL MAGNETIC GRADIENT
CONTOURS AND COLOURS

GENOA PROJECT (PN 8668)
HEENAN TOWNSHIP, ONTARIO

AERODAT LIMITED

272



EM Anomalies

Conductivity Thickness (mhos)

◌	0 - 1
○	1 - 2
⊖	2 - 4
◐	4 - 8
◒	8 - 15
◕	15 - 30
●	> 30
ⓜ	Magnetite Anomaly
○	EM Anomaly A, 935 Hz inphase amplitude 7 ppm. Conductivity thickness 2 mhos (see code).

EM Profiles

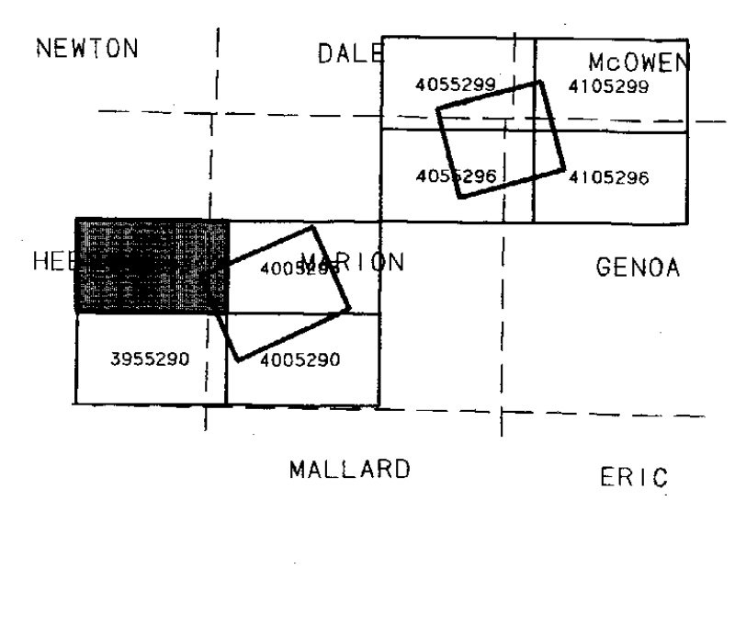
935 Hz Coaxial 1 ppm/mm

━━━━	inphase component
────	quadrature component

850 Hz Coplanar 4 ppm/mm

━━━━	inphase component
────	quadrature component

Sensor elevation..........30m
Coil separation...........7m



FALCONBRIDGE LIMITED

ELECTROMAGNETIC PROFILES
(935 Hz Coaxial, 850 Hz Coplanar)

2.14949

GENOA PROJECT (PN 8668)
HEENAN TOWNSHIP, ONTARIO

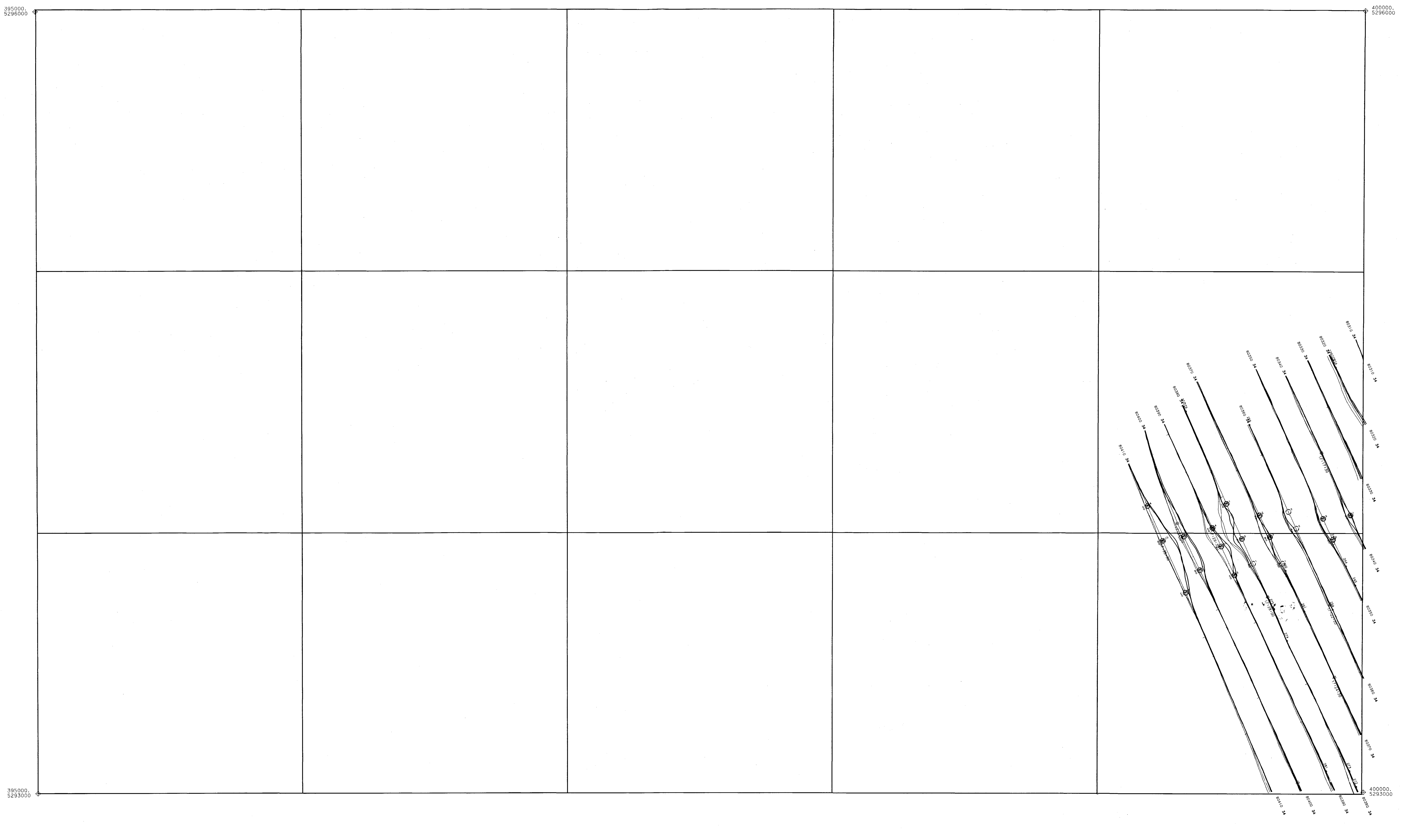
SCALE 1:5,000

0 165 330 660 1320 Feet
0 50 100 250 500 Metres

AERODAT LIMITED

DATE : MAR 1991
NTS No: 41 O/16
MAP No: 3955293 J9101

273



EM Anomalies

Conductivity Thickness (mhos)

◌	0 - 1
○	1 - 2
⊖	2 - 4
◔	4 - 8
◒	8 - 15
◕	15 - 30
●	> 30
ⓢ	Magnetite Anomaly

EM Anomaly A, 935 Hz inphase amplitude 7 ppm. Conductivity thickness 2 mhos (see code).

EM Profiles

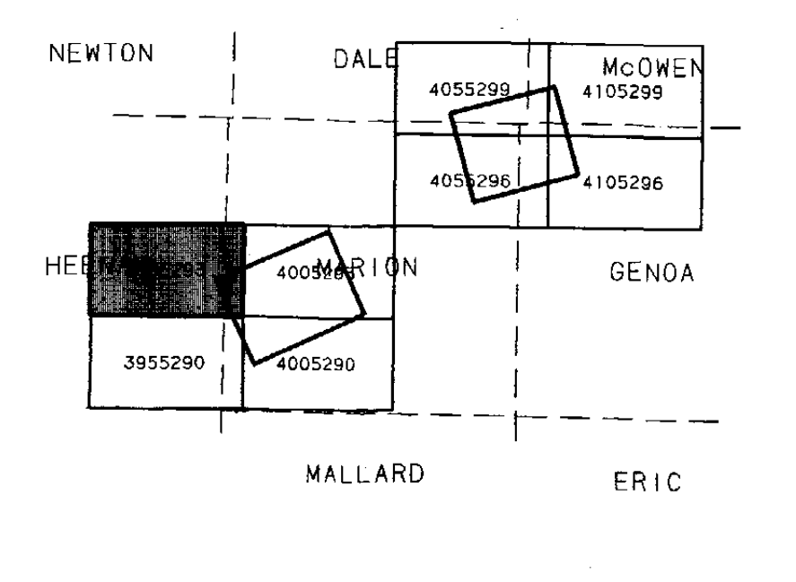
4600 Hz Coaxial 2 ppm/mm

━━	inphase component
──	quadrature component

4175 Hz Coplanar 8 ppm/mm

━━	inphase component
──	quadrature component

Sensor elevation..........30m
Coil separation...........7m



FALCONBRIDGE LIMITED

ELECTROMAGNETIC PROFILES
(4600 Hz Coaxial, 4175 Hz Coplanar)

2.14949

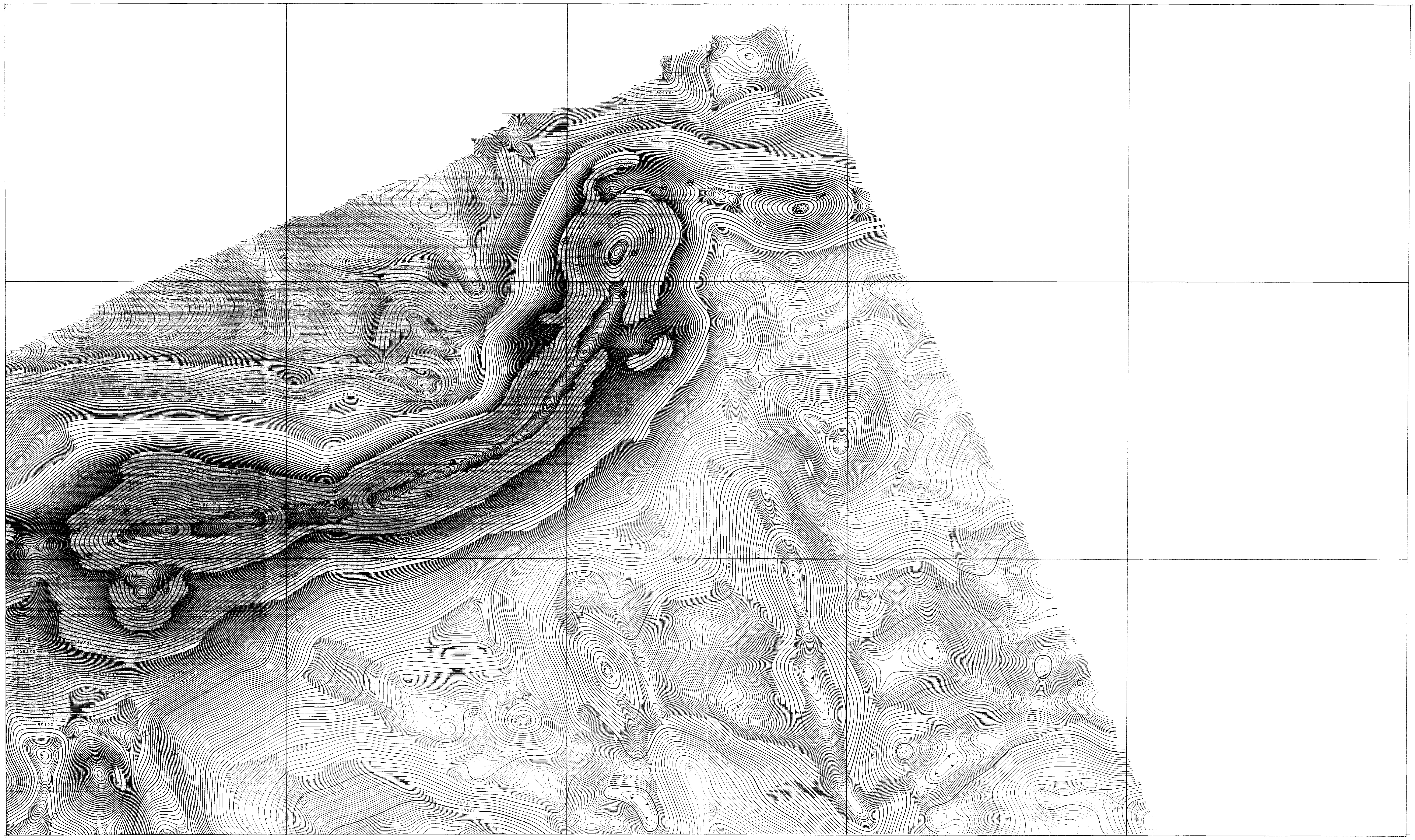
GENOA PROJECT (PN 8668)
HEENAN TOWNSHIP, ONTARIO

SCALE 1:5,000
0 165 330 660 1320 Feet
0 50 100 250 500 Metres

AERODAT LIMITED

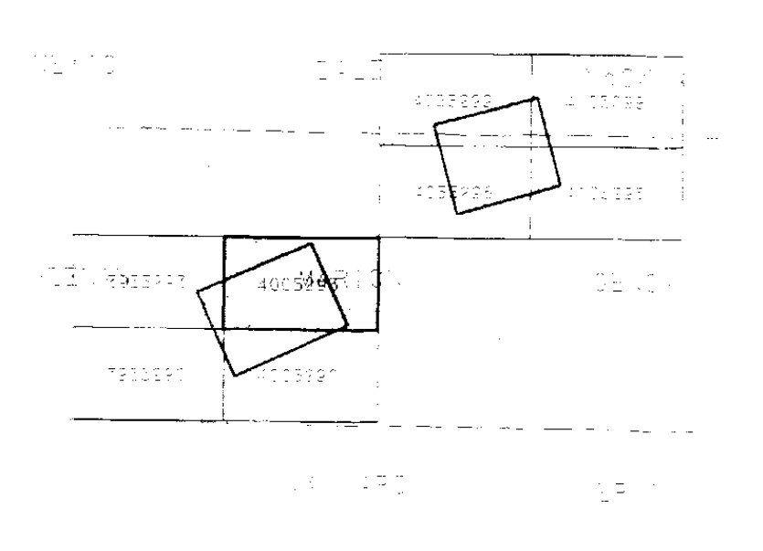
DATE : MAR 1991
NTS No: 41 O/16
MAP No: 3955293 J9101

274



EM Anomalies

Magnetics

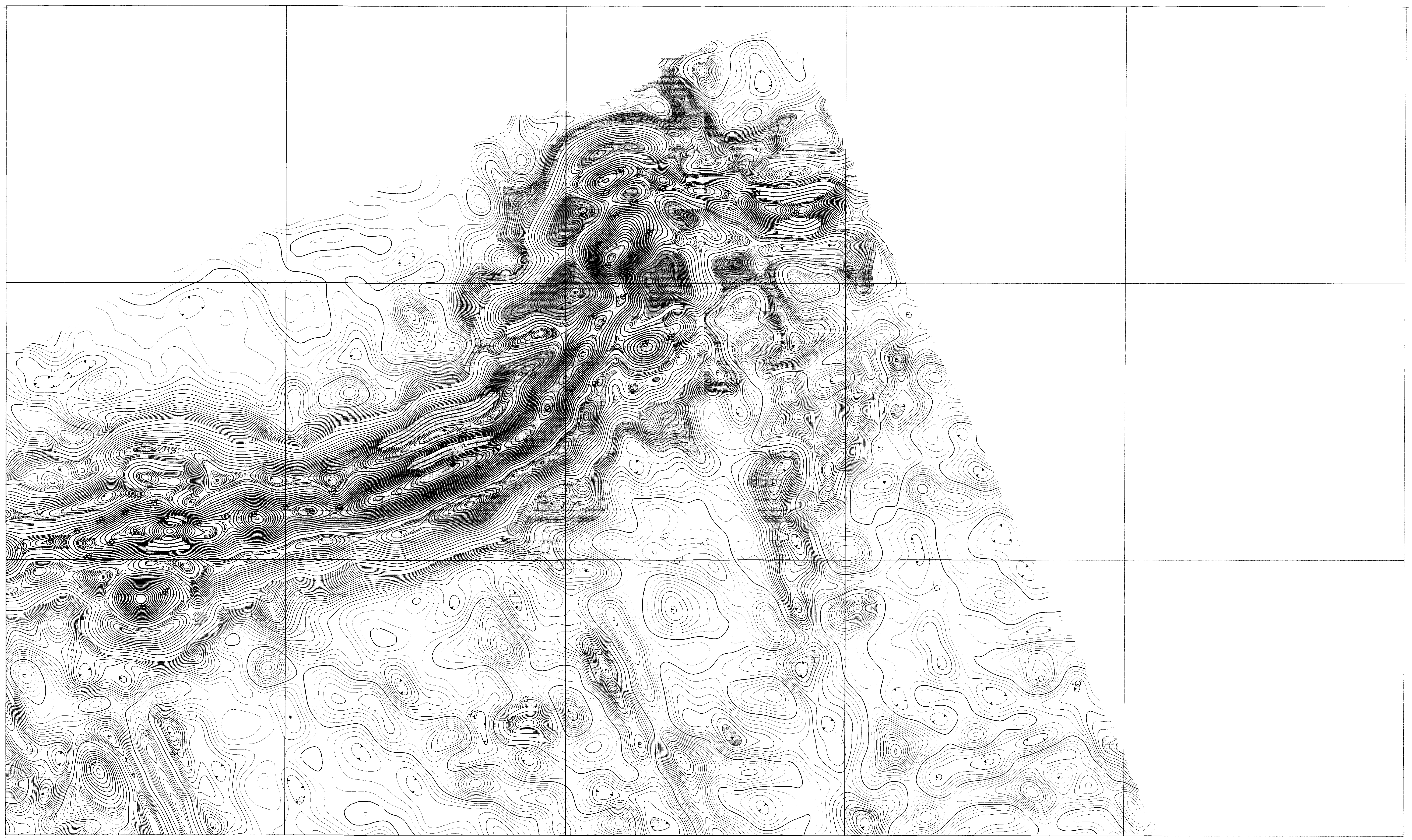


FALCONBRIDGE LIMITED

TOTAL FIELD MAGNETICS
CONTOURS AND COLOURS

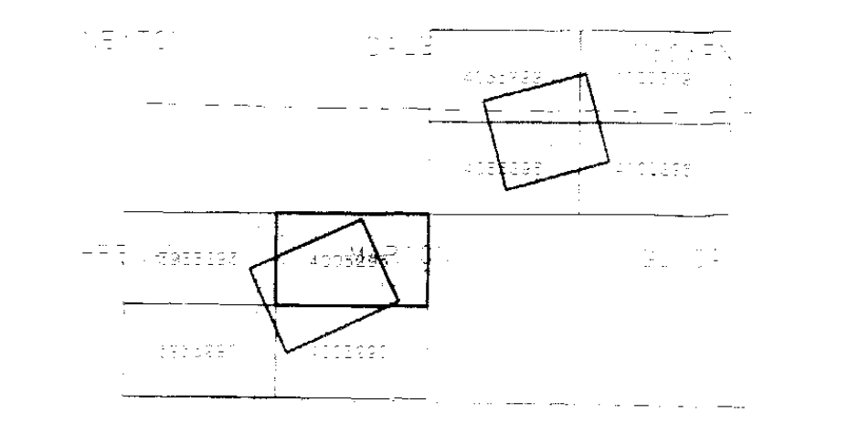
GENOA PROJECT (PN 8668)
MARION TOWNSHIP, ONTARIO

AERODAT LIMITED



EM Anomalies

Vertical Gradient



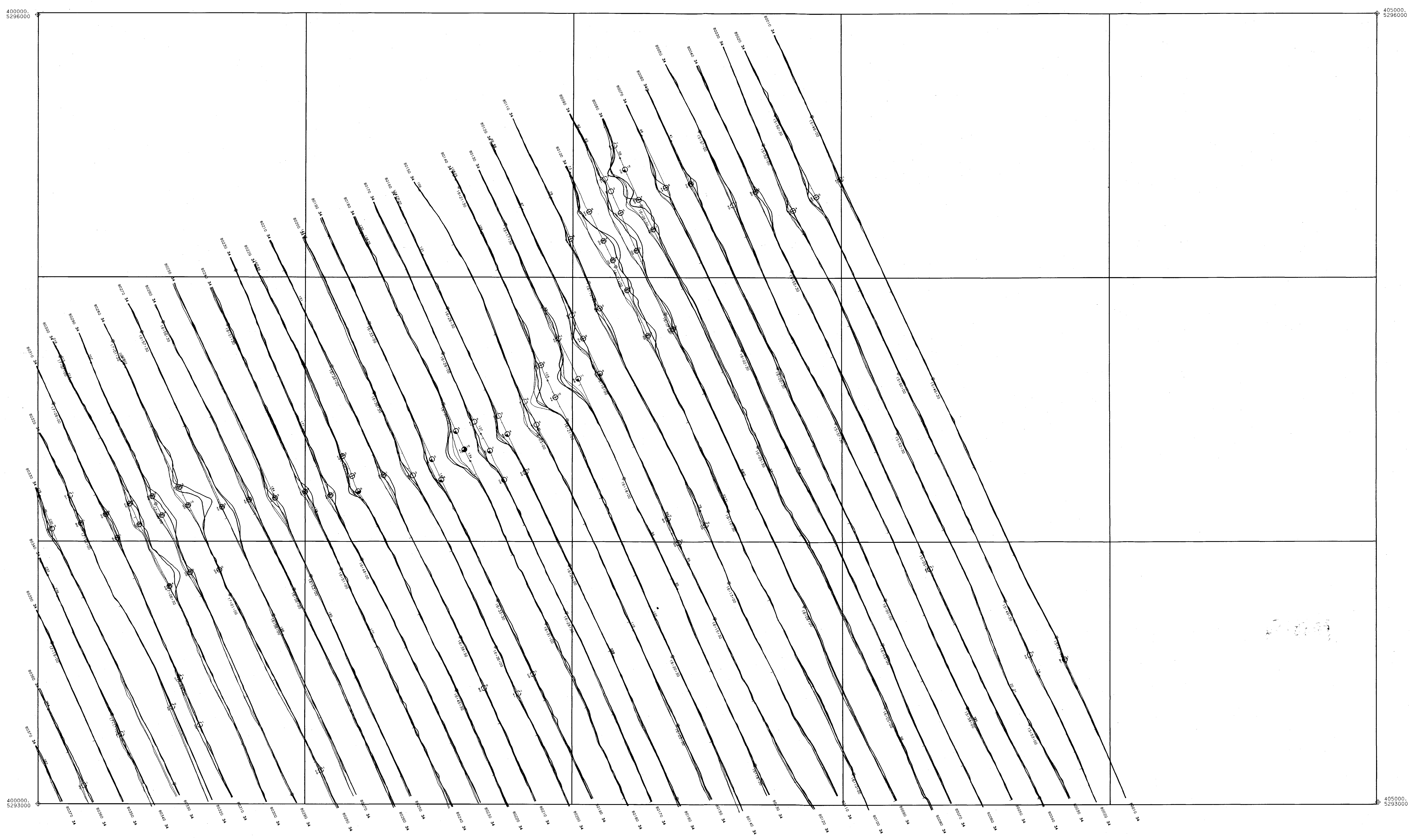
FALCONBRIDGE LIMITED

CALCULATED VERTICAL MAGNETIC GRADIENT CONTOURS AND COLOURS

GENOA PROJECT (PN 8668)

MARION TOWNSHIP, ONTARIO

AEROTDAT LIMITED



EM Anomalies

Conductivity Thickness (mhos)

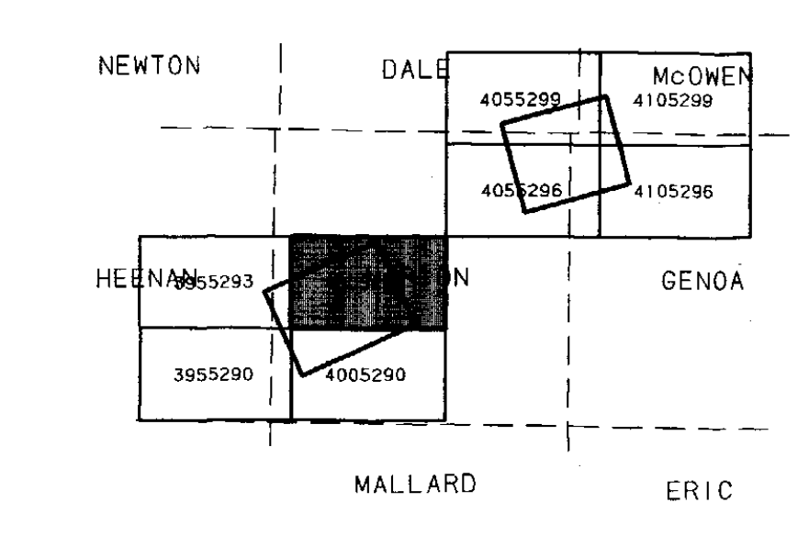
◌	0 - 1
○	1 - 2
⊖	2 - 4
◐	4 - 8
◒	8 - 15
◕	15 - 30
●	> 30
⊗	Magnetite Anomaly
○	EM Anomaly A, 935 Hz inphase amplitude 7 ppm. Conductivity thickness 2 mhos (see code).

EM Profiles

935 Hz Coaxial 1 ppm/mm
inphase component
quadrature component

850 Hz Coplanar 4 ppm/mm
inphase component
quadrature component

Sensor elevation..........30m
Coil separation............7m



FALCONBRIDGE LIMITED

ELECTROMAGNETIC PROFILES
(935 Hz Coaxial, 850 Hz Coplanar)

2.14949

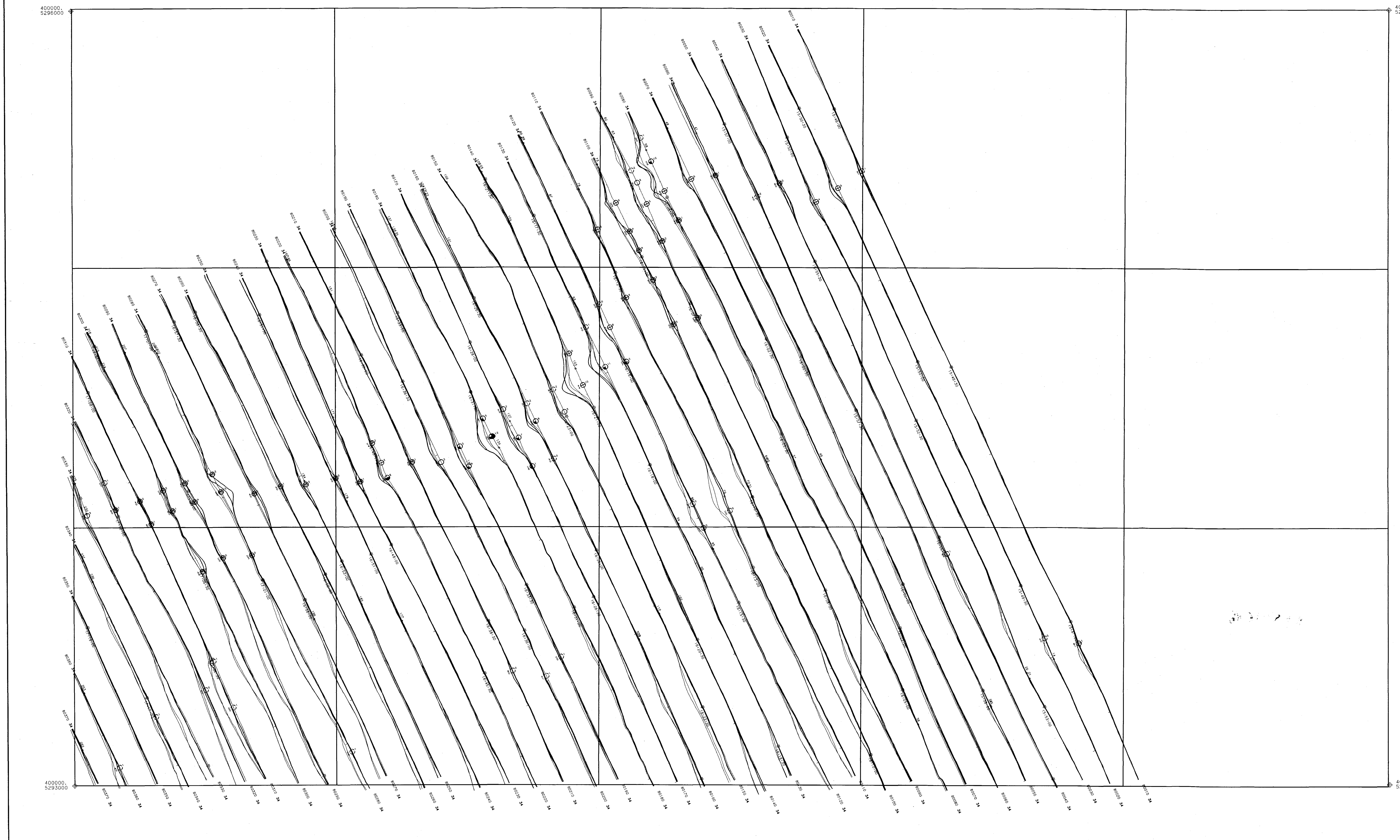
GENOA PROJECT (PN 8668)
MARION TOWNSHIP, ONTARIO

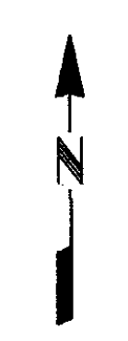
SCALE 1:5,000
0 165 330 660 1320 Feet
0 50 100 250 500 Metres

AERODAT LIMITED

DATE : MAR 1991
NTS No: 41 O/16
MAP No: 4005293 J9101

277





EM Anomalies

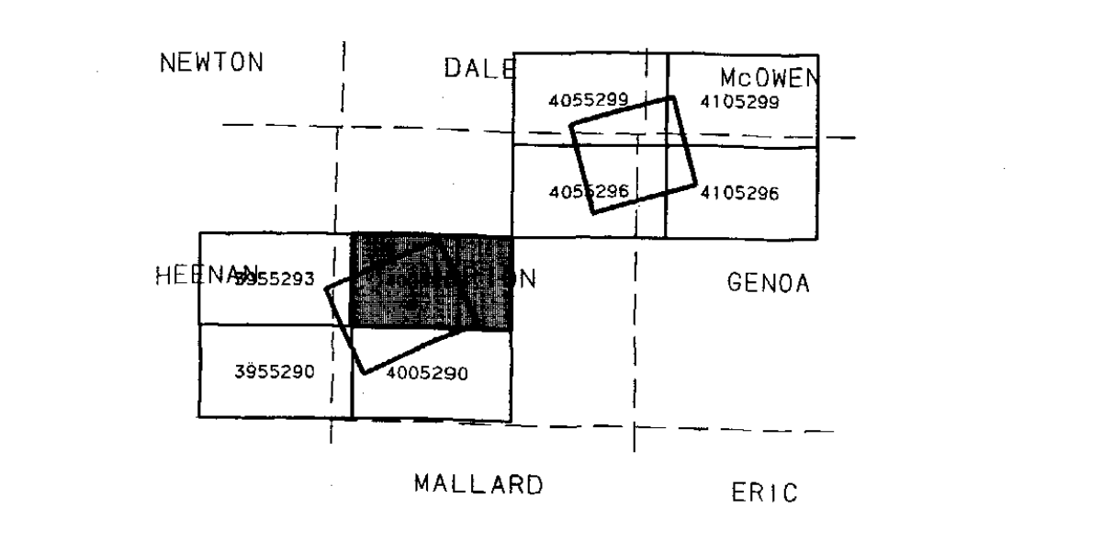
Conductivity Thickness (mhos)

◌	0 - 1
○	1 - 2
⊖	2 - 4
◐	4 - 8
◒	8 - 15
◕	15 - 30
●	> 30
⊗	Magnetite Anomaly
○	EM Anomaly A, 935 Hz inphase amplitude 7 ppm. Conductivity thickness 2 mhos (see code).

EM Profiles

4600 Hz Coaxial	2 ppm/mm
━━	inphase component
──	quadrature component
4175 Hz Coplanar	8 ppm/mm
━━	inphase component
──	quadrature component

Sensor elevation..........30m
Coil separation............7m



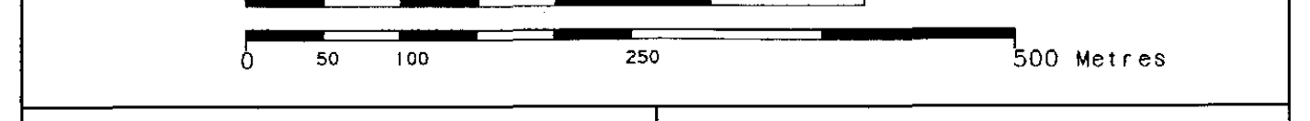
FALCONBRIDGE LIMITED

ELECTROMAGNETIC PROFILES
(4600 Hz Coaxial, 4175 Hz Coplanar)

2.14949

GENOA PROJECT (PN 8668)
MARION TOWNSHIP, ONTARIO

SCALE 1:5,000



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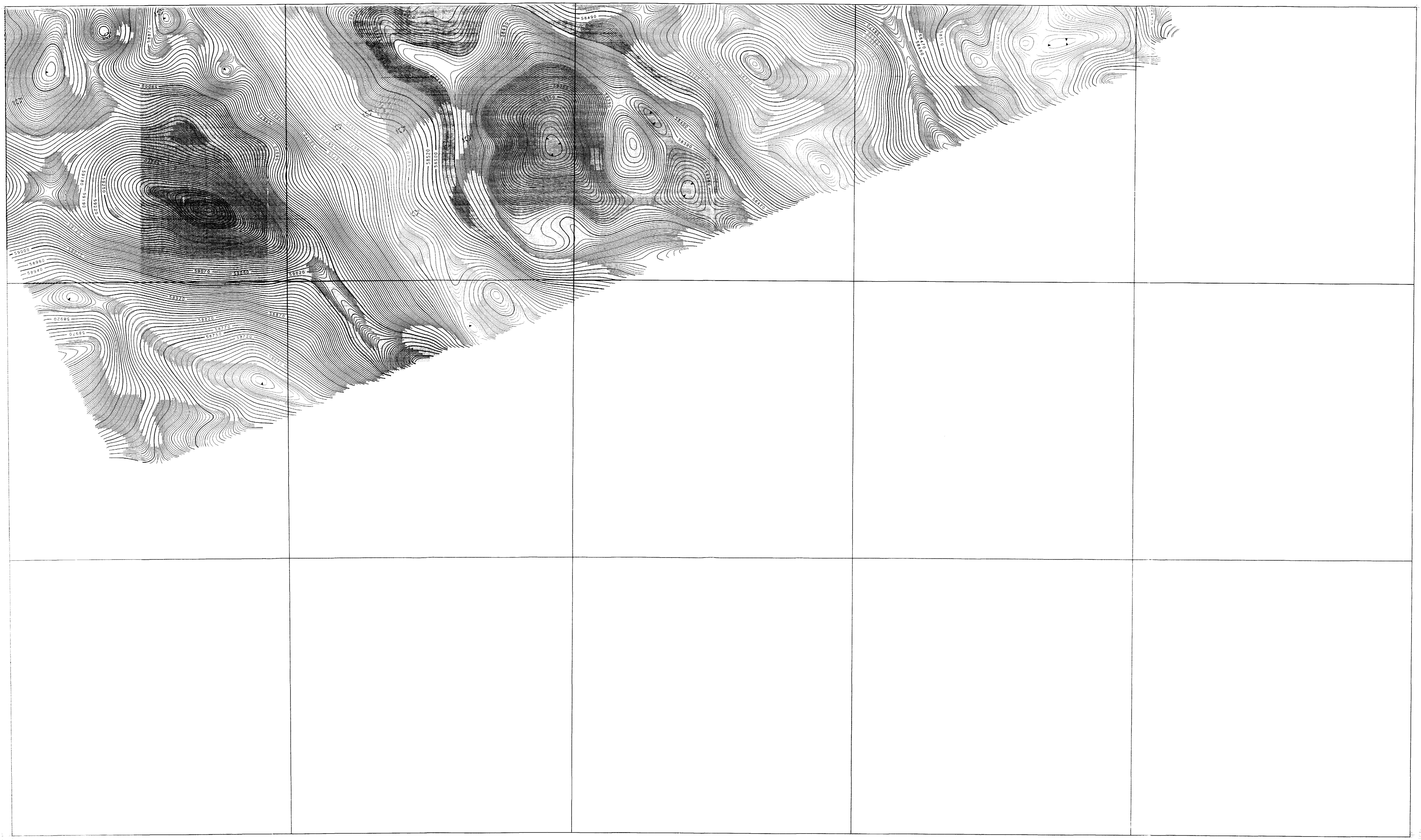
DATE : MAR 1991
NTS No: 41 0/16
MAP No: 4005293 J9101

278



EM Anomalies

Conductivity Thickness (mhos)

- ○ 0 - 1
- ○ 1 - 2
- ⊖ 2 - 4
- ◔ 4 - 8
- ◒ 8 - 15
- ◕ 15 - 30
- ● > 30
- Magnetite Anomaly

Magnetics

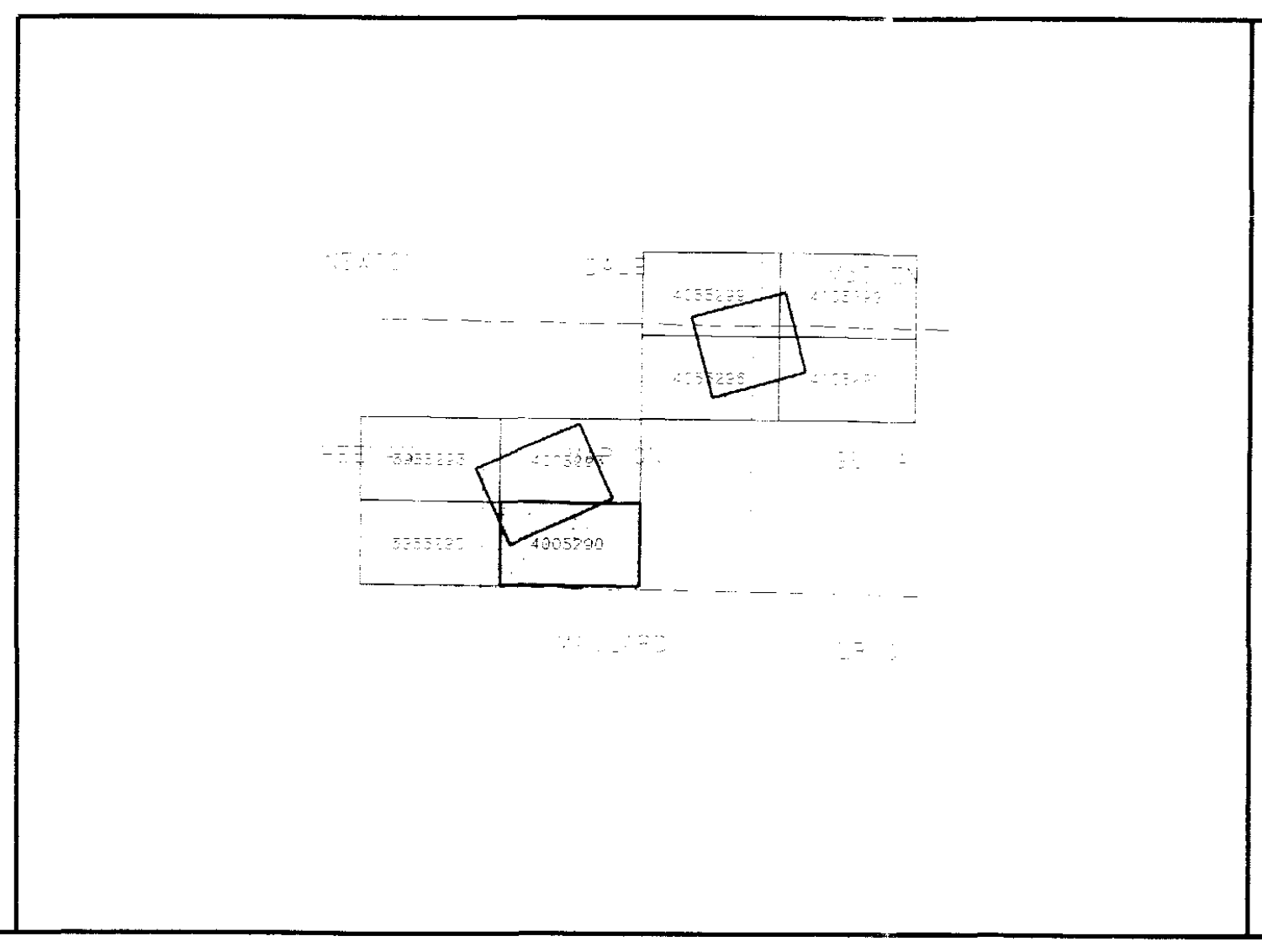
Total Field Magnetic Intensity Contours in nT

Cesium high sensitivity magnetometer.

Contours distributed on an equal area basis.

Sensor elevation 45m

Map contours are multiples of those listed below

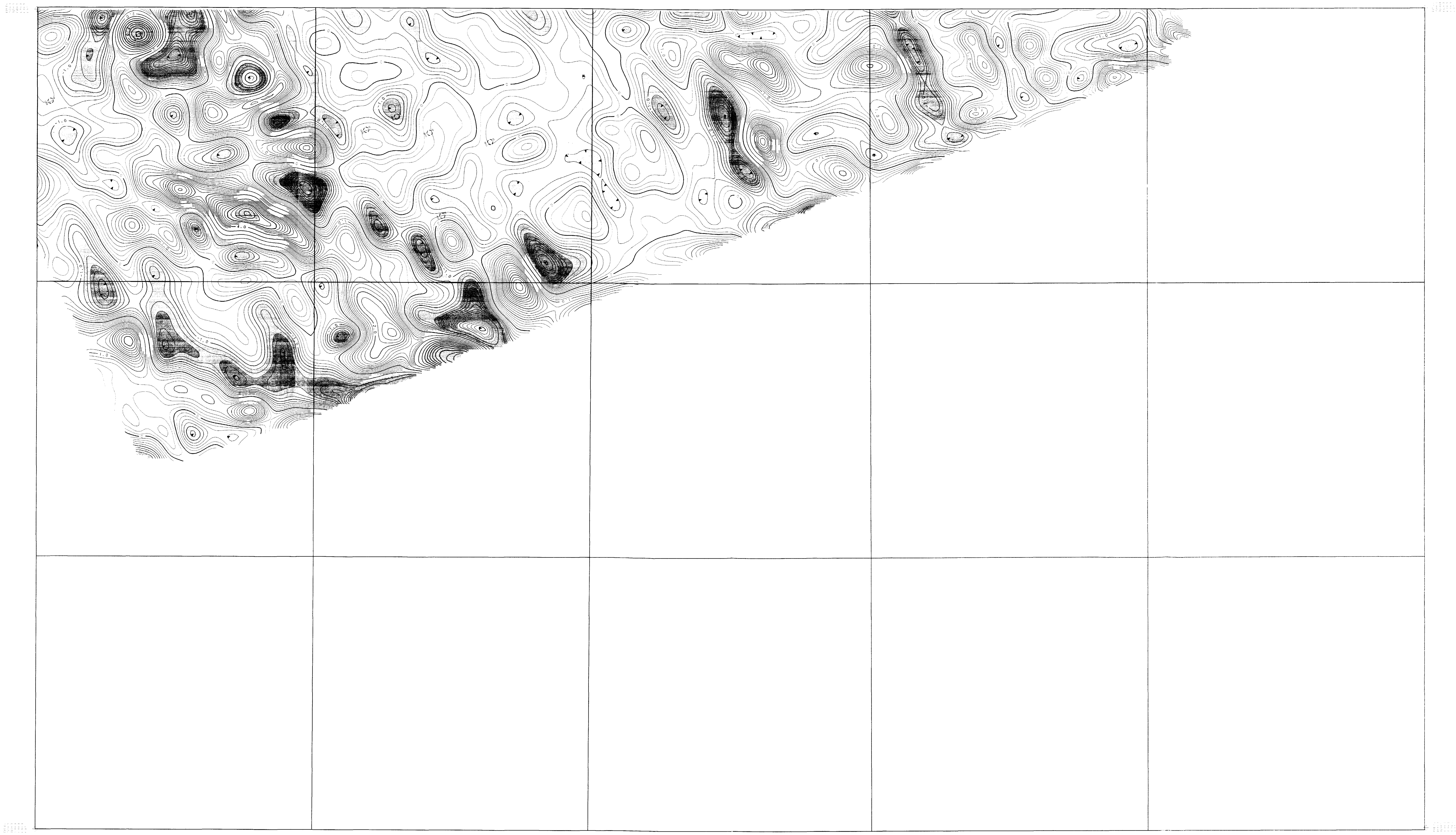


FALCONBRIDGE LIMITED

TOTAL FIELD MAGNETICS
CONTOURS AND COLOURS

GENOA PROJECT (PN 8668)
MARION TOWNSHIP, ONTARIO

AERODAT LIMITED



EM Anomalies

Conductivity Thickness (mhos)

○	0 - 1
○	1 - 2
○	2 - 4
◔	4 - 8
◑	8 - 15
◕	15 - 30
●	> 30
Σ	Magnetic Anomaly

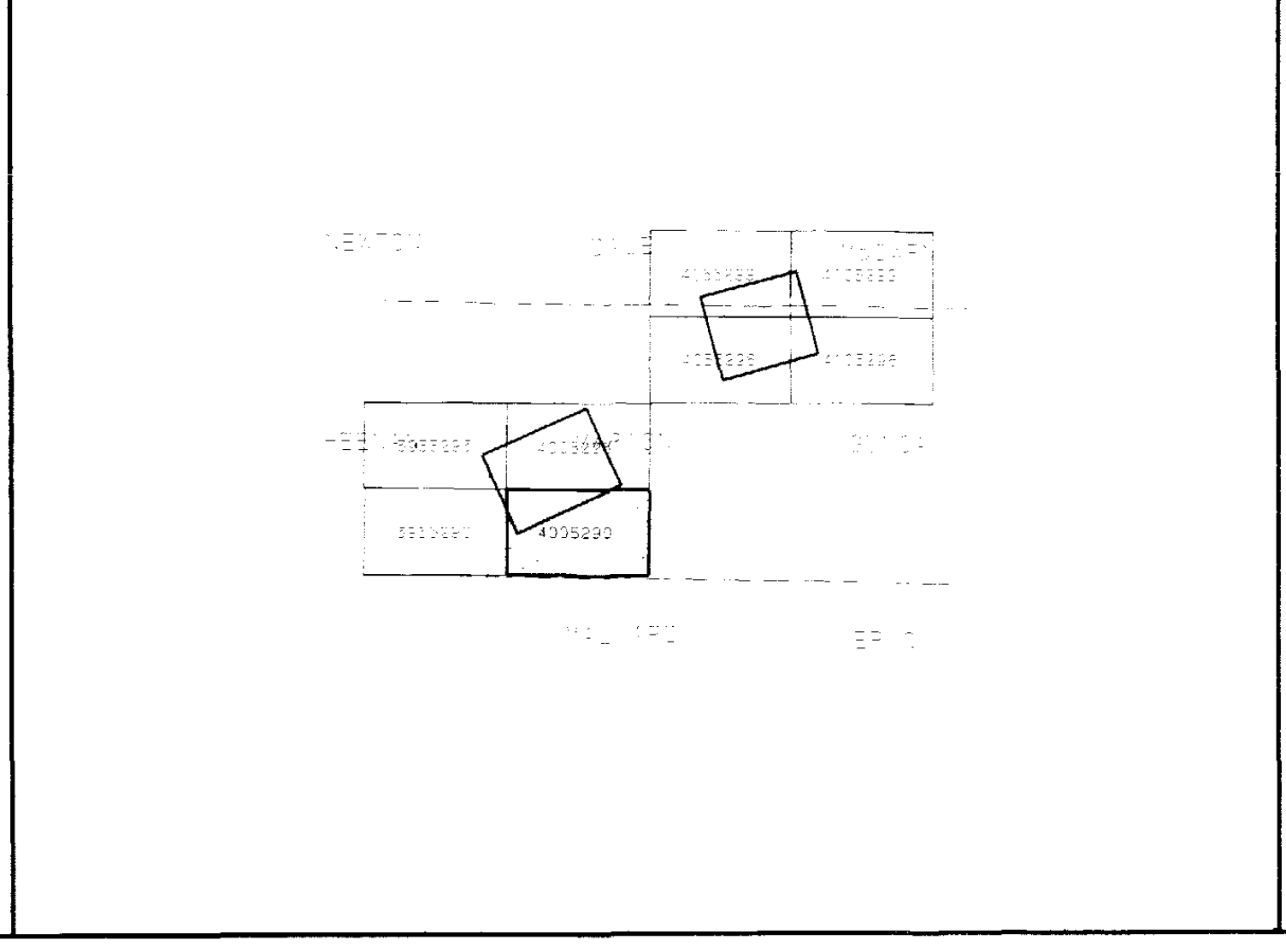
Vertical Gradient

Vertical Magnetic Gradient calculated from the total field magnetic intensity in nT/m.

Cesium high sensitivity magnetometer.

Sensor elevation 45m

Map contours are multiples of those listed below



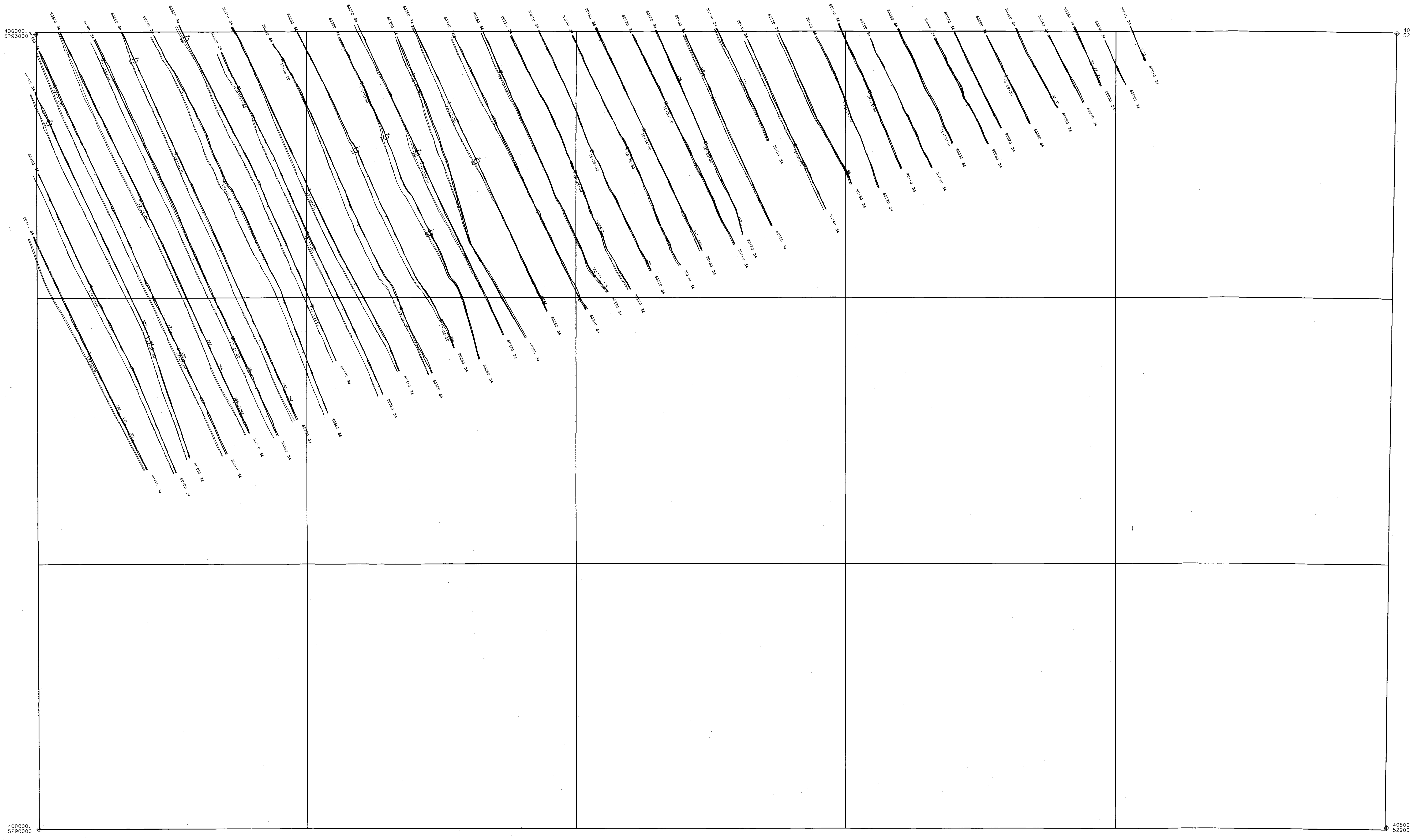
FALCONBRIDGE LIMITED

CALCULATED VERTICAL MAGNETIC GRADIENT
CONTOURS AND COLOURS

GENOA PROJECT (PN 8668)
MARION TOWNSHIP, ONTARIO

AFRODAT LIMITED

280



EM Anomalies

Conductivity Thickness (mhos)

◌	0 - 1
○	1 - 2
⊖	2 - 4
◔	4 - 8
◒	8 - 15
◕	15 - 30
●	> 30
⊗	Magnetite Anomaly
○	EM Anomaly A, 935 Hz inphase amplitude 7 ppm. Conductivity thickness 2 mhos (see code).

EM Profiles

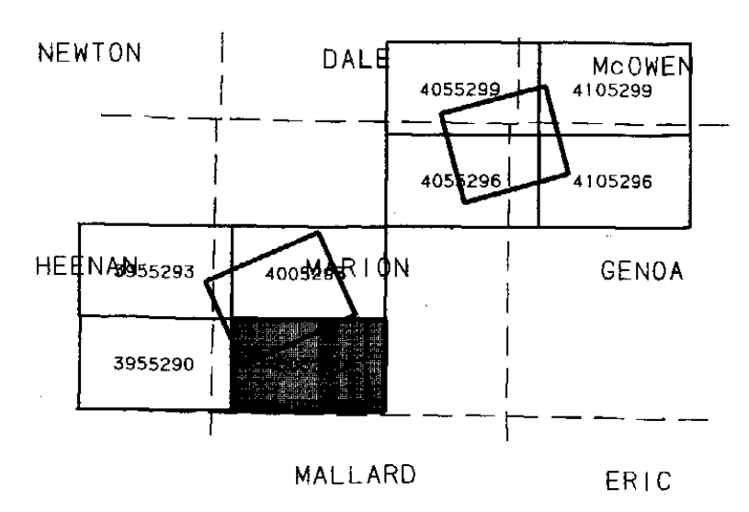
935 Hz Coaxial 1 ppm/mm

- inphase component
- quadrature component

850 Hz Coplanar 4 ppm/mm

- inphase component
- quadrature component

Sensor elevation..........30m
Coil separation............7m



FALCONBRIDGE LIMITED

ELECTROMAGNETIC PROFILES
(935 Hz Coaxial, 850 Hz Coplanar)

2.14949

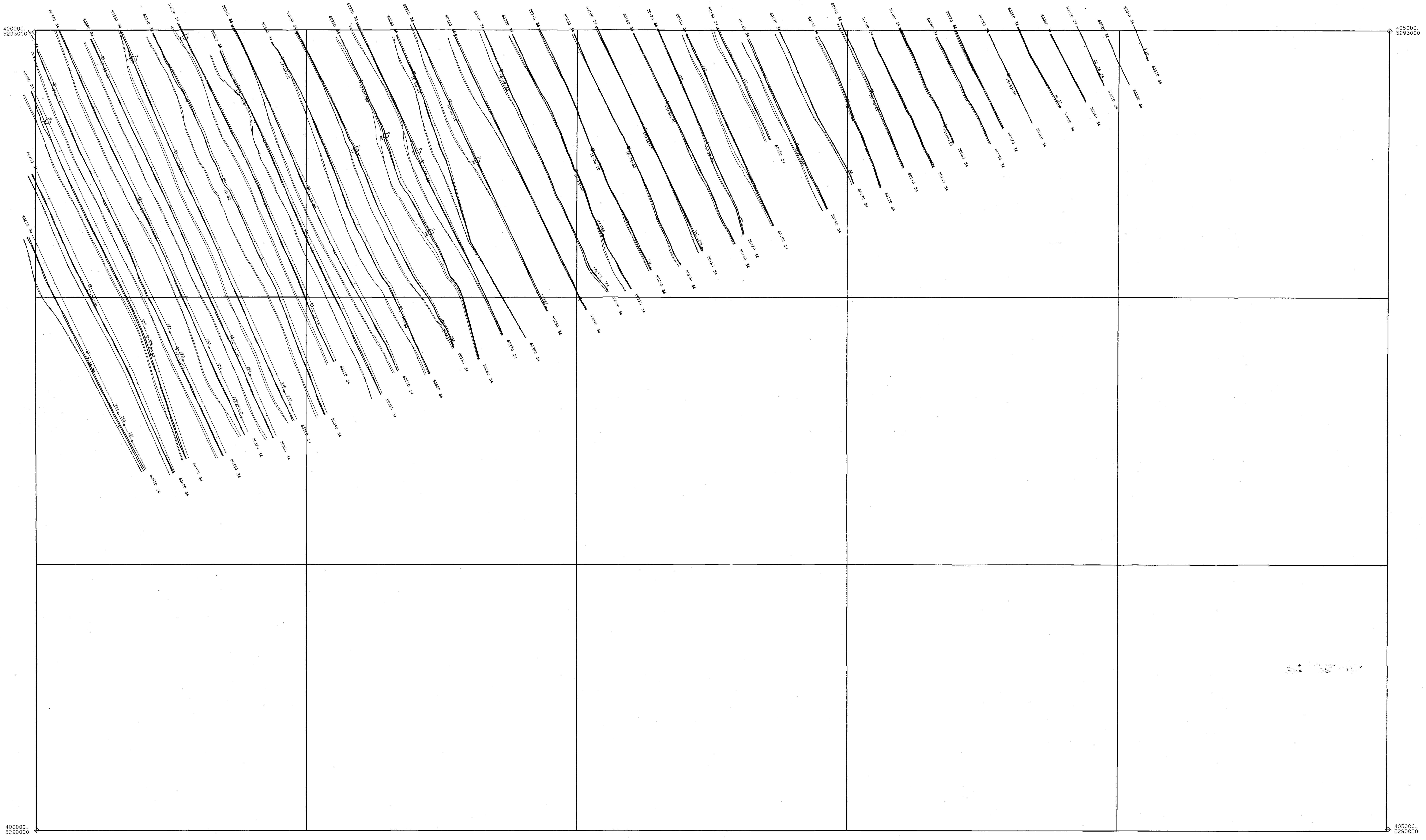
GENOA PROJECT (PN 8668)
MARION TOWNSHIP, ONTARIO

SCALE 1:5,000
0 165 330 660 1320 Feet
0 50 100 250 500 Metres

AERODAT LIMITED

DATE :	MAR 1991
NTS No:	41 O/16
MAP No:	4005290 J9101

281



EM Anomalies

Conductivity Thickness (mhos)

◌	0 - 1
○	1 - 2
⊖	2 - 4
◔	4 - 8
◒	8 - 15
◕	15 - 30
●	> 30
Ⓢ	Magnetite Anomaly
A 7 2	EM Anomaly A, 935 Hz inphase amplitude 7 ppm. Conductivity thickness 2 mhos (see code).

EM Profiles

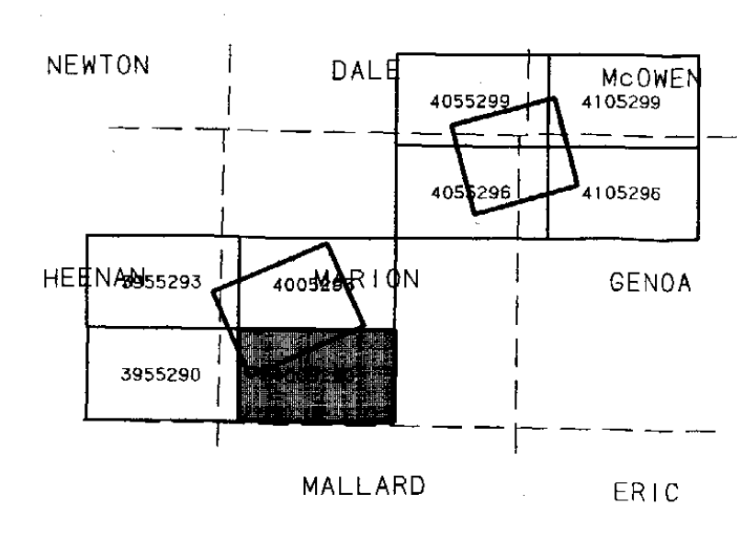
4600 Hz Coaxial 2 ppm/mm

━━	inphase component
──	quadrature component

4175 Hz Coplanar 8 ppm/mm

━━	inphase component
──	quadrature component

Sensor elevation..........30m
Coil separation............7m



FALCONBRIDGE LIMITED

ELECTROMAGNETIC PROFILES
(4600 Hz Coaxial, 4175 Hz Coplanar)

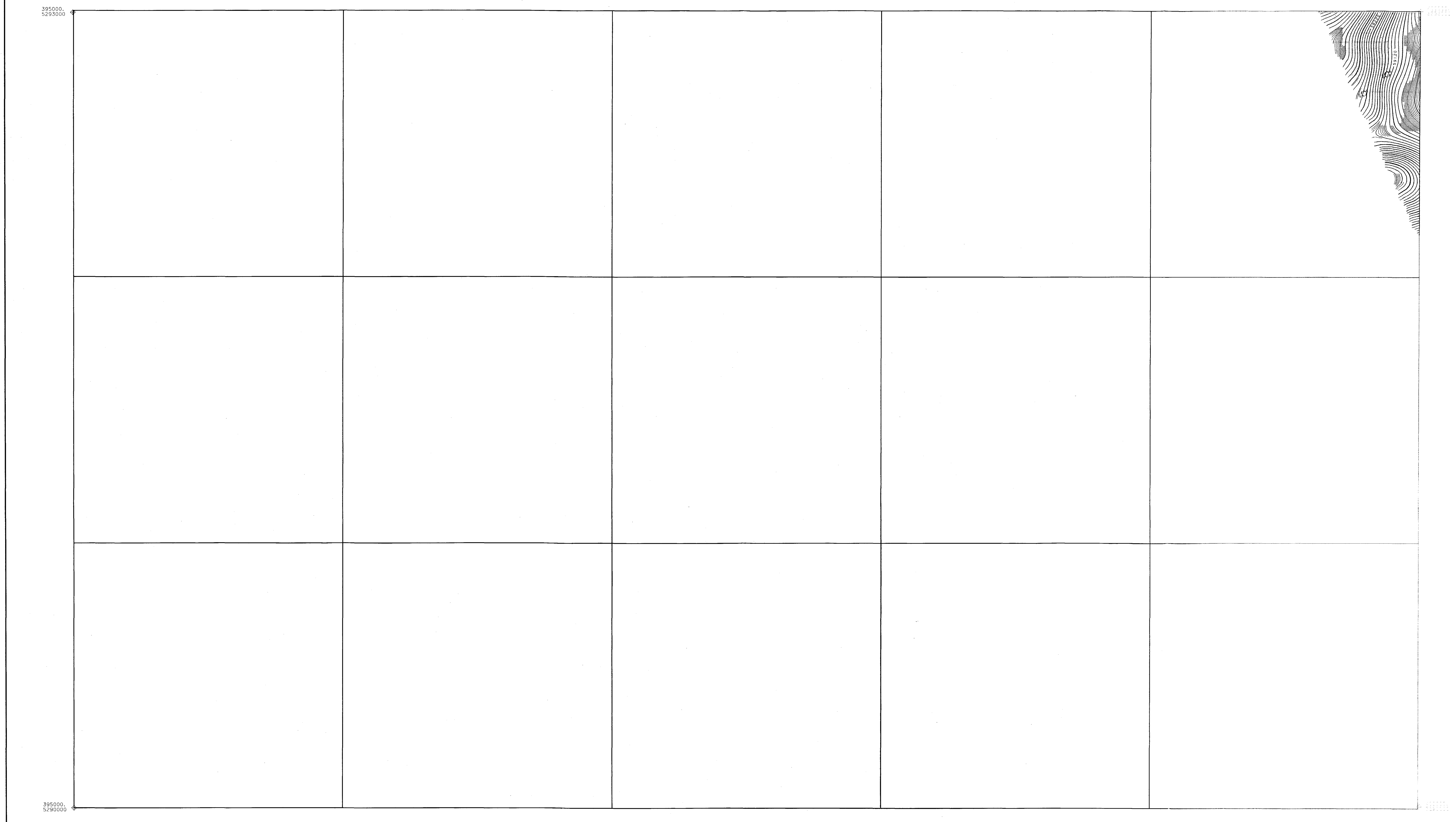
GENOA PROJECT (PN 8668)
MARION TOWNSHIP, ONTARIO

SCALE 1:5,000
0 165 330 660 1320 Feet
0 50 100 250 500 Metres

AERODAT LIMITED

DATE : MAR 1991
NTS No: 41 O/16
MAP No: 4005290 J9101

282



EM Anomalies

Conductivity Thickness (mhos)

◌	0 - 1
○	1 - 2
⊖	2 - 4
◔	4 - 8
◒	8 - 15
◕	15 - 30
●	> 30
⊗	Magnetite Anomaly

EM Anomaly A, 935 Hz
inphase amplitude 7 ppm.
Conductivity thickness
2 mhos (see code).

Magnetics

Total Field Magnetic Intensity Contours in nT.

Cesium high sensitivity magnetometer.

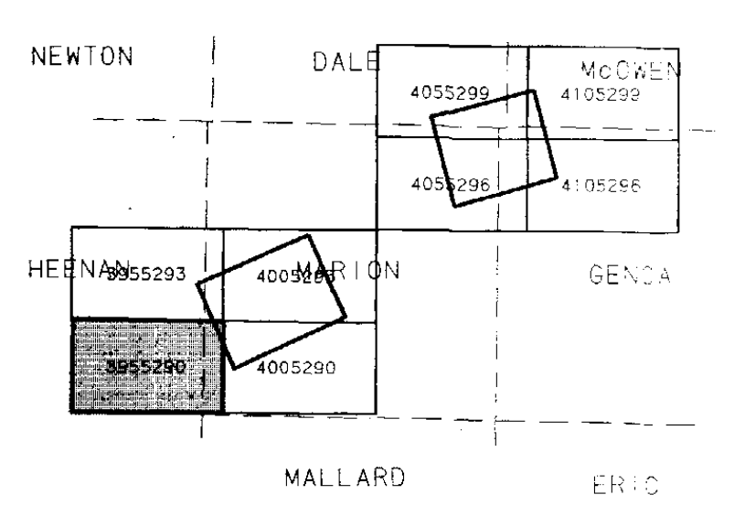
Colours distributed on an equal area basis.

Sensor elevation 45m

Map contours are multiples of those listed below

2 nT
10 nT
50 nT
250 nT
1000 nT

70064
59970
59376
59136
58990
58902
58844
58796
58752
58716
58688
58666
58642
58620
58600
58582
58566
58552
58532
58512
58492
58478
58464
58450
58438
58388
58126
57514



FALCONBRIDGE LIMITED

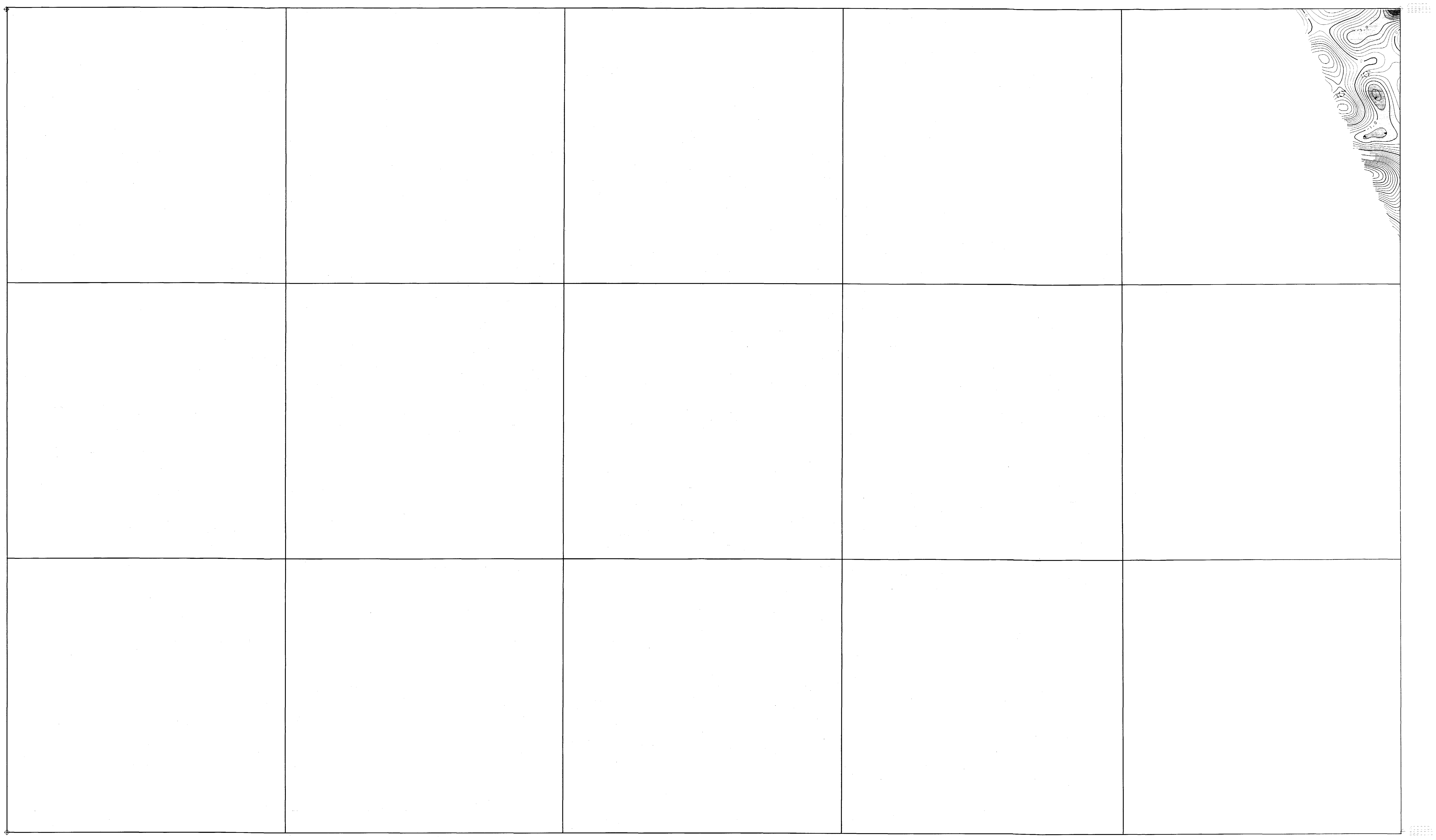
TOTAL FIELD MAGNETICS
CONTOURS AND COLOURS

GENOA PROJECT (PN 8668)

HEENAN TOWNSHIP, ONTARIO

AERODAT LIMITED

283



EM Anomalies

Conductivity Thickness (mhos)

- ◌ 0 - 1
- ○ 1 - 2
- ⊖ 2 - 4
- ◔ 4 - 8
- ◒ 8 - 15
- ◕ 15 - 30
- ● > 30
- ⊗ Magnetite Anomaly
- EM Anomaly A, 935 Hz inphase amplitude 7 ppm. Conductivity thickness 2 mhos (see code).

Vertical Gradient

Vertical Magnetic Gradient calculated from the total field magnetic intensity in nT/m.

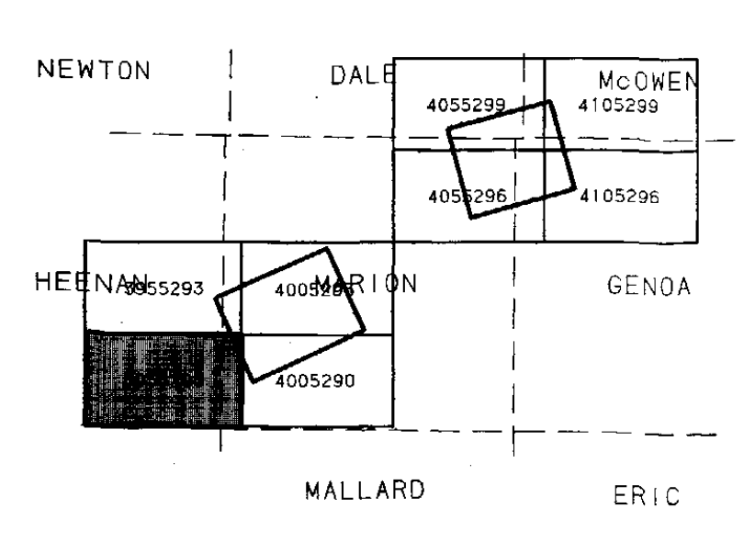
Cesium high sensitivity magnetometer.

Sensor elevation 45m

Map contours are multiples of those listed below

- 0.20 nT/m
- 1.00 nT/m
- 5.00 nT/m
- 25.0 nT/m
- 100 nT/m

348.
134.
13.
5.4
4.0
2.6
1.8
1.2
0.8
0.6
0.4
0.2
0.0
-0.2
-0.4
-0.6
-0.8
-1.2
-1.6
-2.4
-3.8
-6.2
-12.0
-136.2



FALCONBRIDGE LIMITED

CALCULATED VERTICAL MAGNETIC GRADIENT
CONTOURS AND COLOURS

GENOA PROJECT (PN 8668)

HEENAN TOWNSHIP, ONTARIO

SCALE 1:5,000

0 165 330 660 1320 Feet

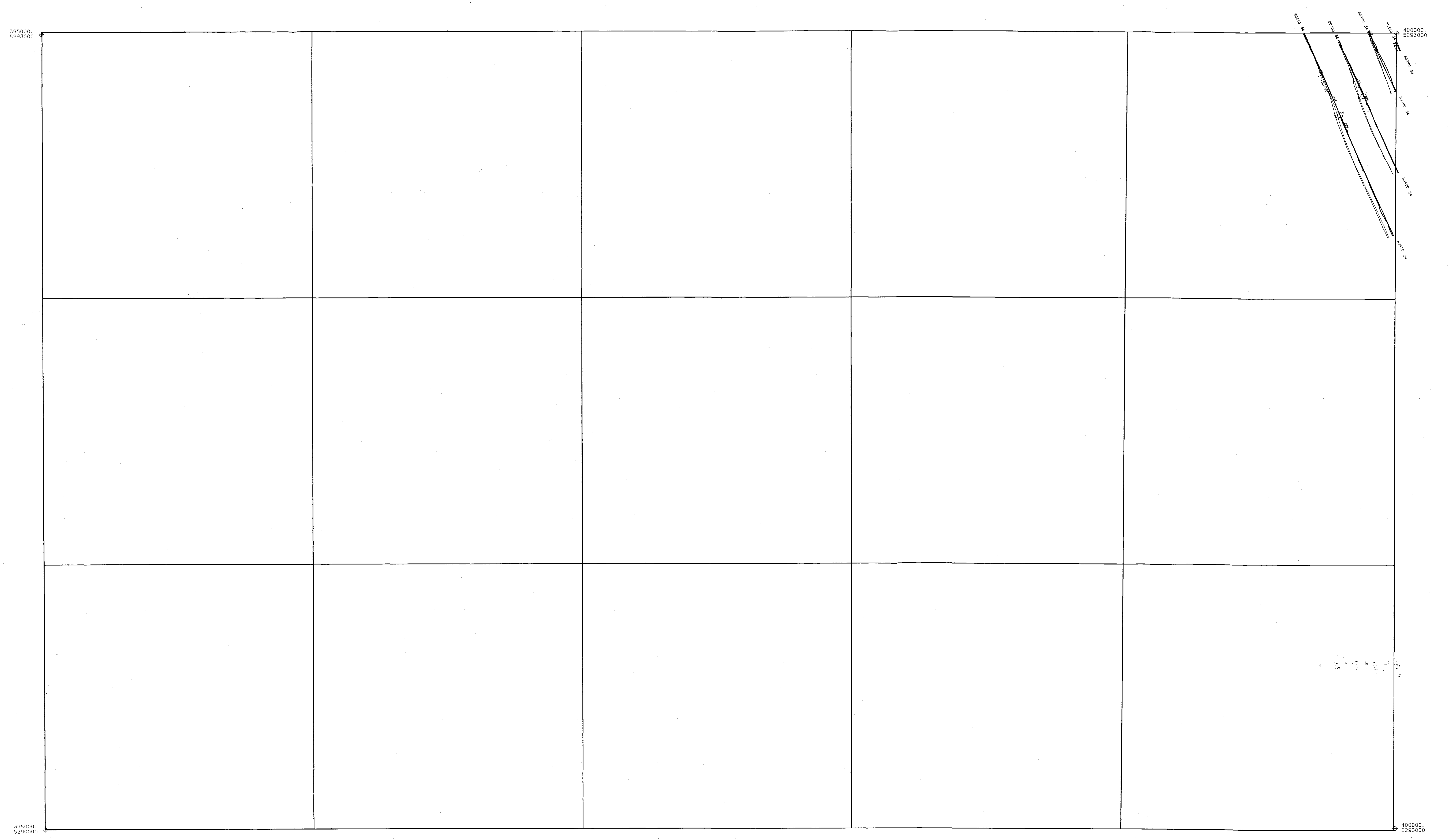
0 50 100 250 500 Metres

AERODAT LIMITED

DATE: 4 MAR 1991

NTS No: 41 O/16

MAP No: 3955290 L9101



EM Anomalies

Conductivity Thickness (mhos)

◌	0 - 1
○	1 - 2
⊖	2 - 4
◔	4 - 8
◒	8 - 15
◕	15 - 30
●	> 30
ⓢ	Magnetite Anomaly
○	EM Anomaly A, 935 Hz inphase amplitude 7 ppm. Conductivity thickness 2 mhos (see code).

EM Profiles

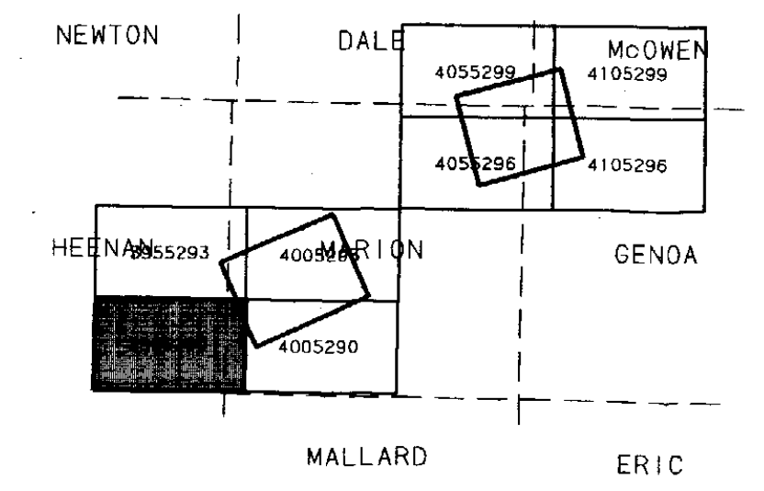
935 Hz Coaxial 1 ppm/mm

━━━	inphase component
───	quadrature component

850 Hz Coplanar 4 ppm/mm

━━━	inphase component
───	quadrature component

Sensor elevation..........30m
Coil separation............7m



FALCONBRIDGE LIMITED

ELECTROMAGNETIC PROFILES
(935 Hz Coaxial, 850 Hz Coplanar)

2.14949

GENOA PROJECT (PN 8668)

HEENAN TOWNSHIP, ONTARIO

SCALE 1:5,000

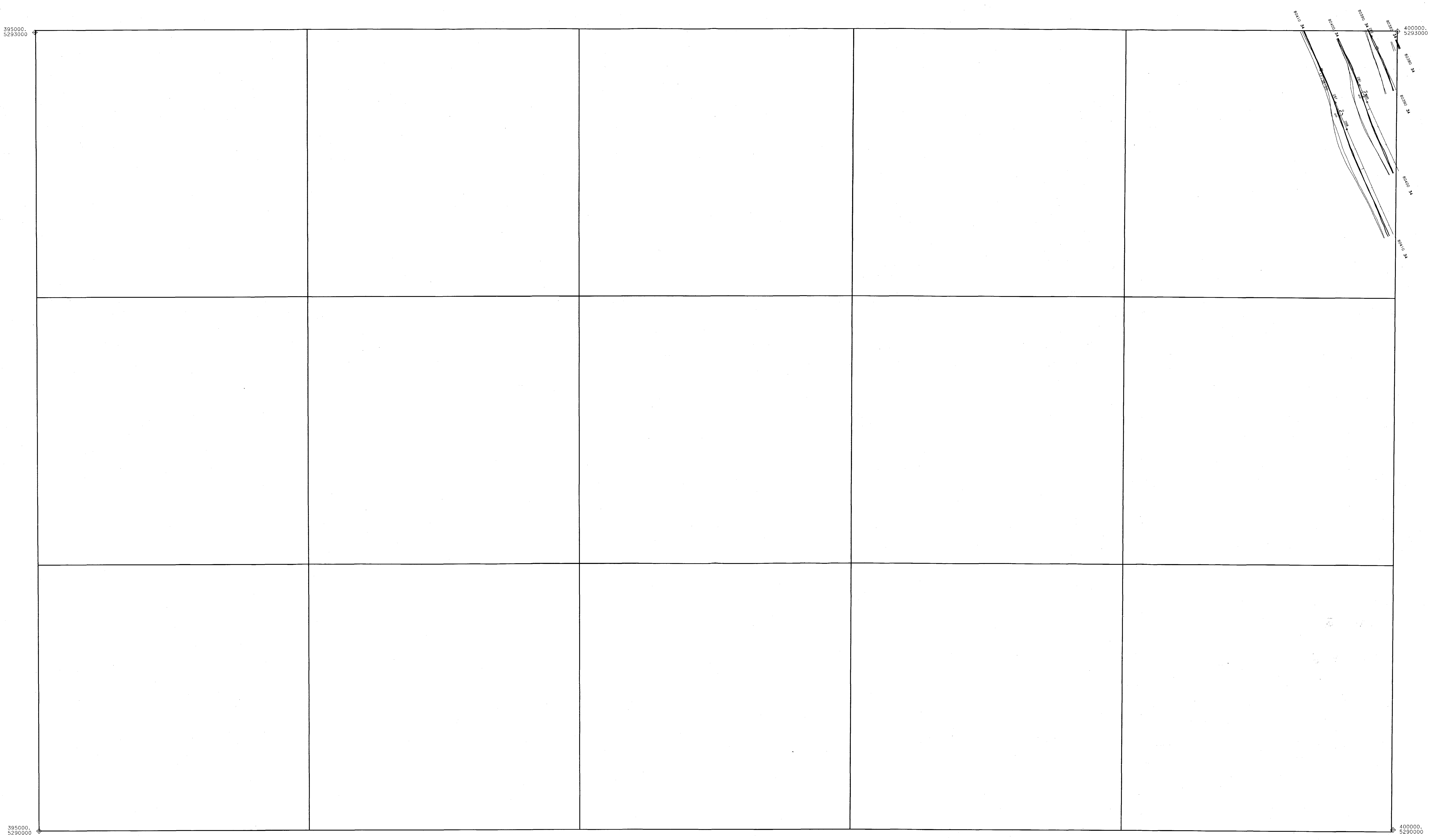
0 165 330 660 1320 Feet

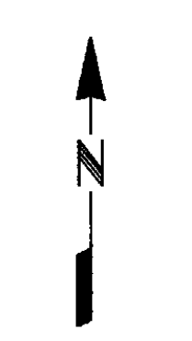
0 50 100 250 500 Metres

AERODAT LIMITED

DATE :	MAR 1991
NTS No:	41 0/16
MAP No:	3955290 J9101

285





EM Anomalies

Conductivity Thickness (mhos)

◌	0 - 1
○	1 - 2
⊖	2 - 4
◕	4 - 8
◒	8 - 15
◕	15 - 30
●	> 30
⊗	Magnetite Anomaly
○	EM Anomaly A, 935 Hz inphase amplitude 7 ppm. Conductivity thickness 2 mhos (see code).

EM Profiles

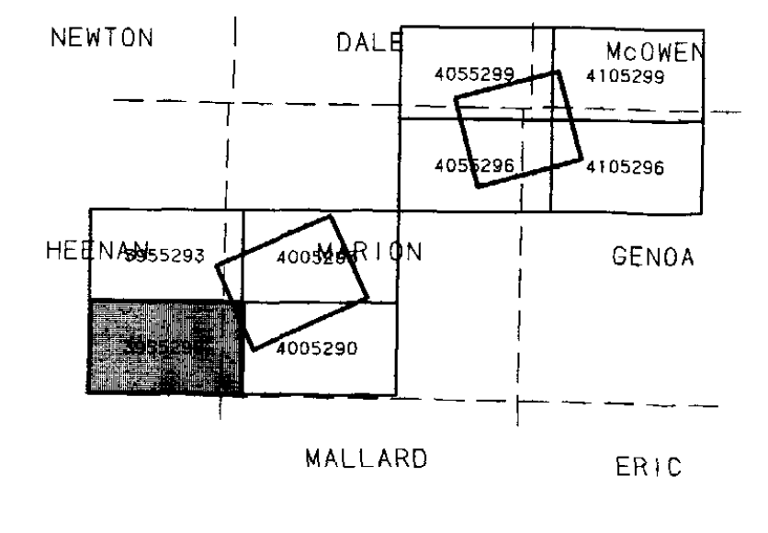
4600 Hz Coaxial 2 ppm/mm

━━━	inphase component
───	quadrature component

4175 Hz Coplanar 8 ppm/mm

━━━	inphase component
───	quadrature component

Sensor elevation..........30m
Coil separation...........7m



FALCONBRIDGE LIMITED

ELECTROMAGNETIC PROFILES

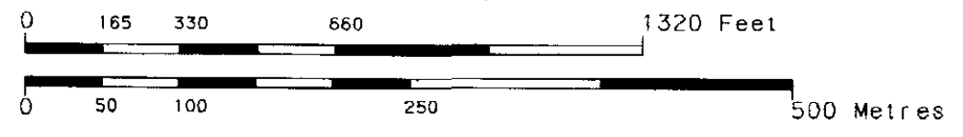
(4600 Hz Coaxial, 4175 Hz Coplanar)

2.14949

GENOA PROJECT (PN 8668)

HEENAN TOWNSHIP, ONTARIO

SCALE 1:5,000



AERODAT LIMITED

DATE : MAR 1991
NTS No: 41 O/16
MAP No: 3955290 J9101

286