A-898

31M05SW0001 2.14037 COLEMAN

010

# REPORT ON A

# HIGH SENSITIVITY MAGNETIC & VLF-EM AIRBORNE SURVEY

## LATCHFORD PROJECT
## COLEMAN TOWNSHIP

## LARDER LAKE MINING DIVISION ONTARIO

for

GENTRY RESOURCES LTD.

by

2.14037

TERRAQUEST LTD.
Toronto, Canada

September 11, 1990

240 Adelaide Street West, Toronto, Canada M5H 1W7, Telephone (416) 971-5400, Fax (416) 971-6449

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## 1.0 INTRODUCTION

This report describes the specifications and results of an airborne geophysical survey carried out for GENTRY RESOURCES LTD. of 1290-122 4th Avenue S.W., Calgary AB T2P 0H3 by Terraquest Ltd., 240 Adelaide Street West, Toronto, Canada. The field work was completed on July 20, 1990 and the data processing, interpretation and reporting from July 21 to September 11, 1990.

The purpose of a survey of this type is two-fold. First to prospect directly for anomalously conductive and magnetic areas in the earth's crust which may be caused by, or at least related to, mineral deposits. A second is to use the magnetic and conductivity patterns derived from the survey results to assist in mapping geology, and to indicate the presence of faults, shear zones, folding, alteration zones and other structures potentially favourable to the presence of gold and base-metal concentration. To achieve this purpose the survey area was systematically traversed by an aircraft carrying geophysical instruments along parallel flight lines spaced at even intervals, 90 metres above the terrain surface, and aligned so as to intersect the regional geology in a way to provide the optimum contour patterns of geophysical data.

## 2.0 THE SURVEY AREA

The survey area is located in Coleman Township, in the Larder Lake Mining Division of Ontario about 10 kilometres west of the town of Cobalt. The claims lie in the centre of the township east of Bay Lake, south of Portage Bay and 2 kilometres north of the town of Latchford. Highway #11 passes through the southeast corner of the survey area.

The latitude and longitude are 47 degrees 21 minutes, and 79 degrees 49 minutes respectively, and the N.T.S. reference is 31M/5.

The locations of the claims numbers are shown in figure 2.

## 3.0 GEOLOGY

Map References


1. Map 2361: Sudbury - Cobalt, Geological Compilation Series. scale 1:253,440 OGS 1977
2. Hanneson,J.E. and Huxter,R.S., 1987: The detection and mapping of basement conductors under areas covered by thick Huronian sedimentary rocks, District of Timiskaming. in Summary of Field Work and Other Activities, 1987. OGS, Misc. Pap. 137, p.406-410
3. Born,P. and Hitch,M.W., 1988: Geology of the Bay Lake area,




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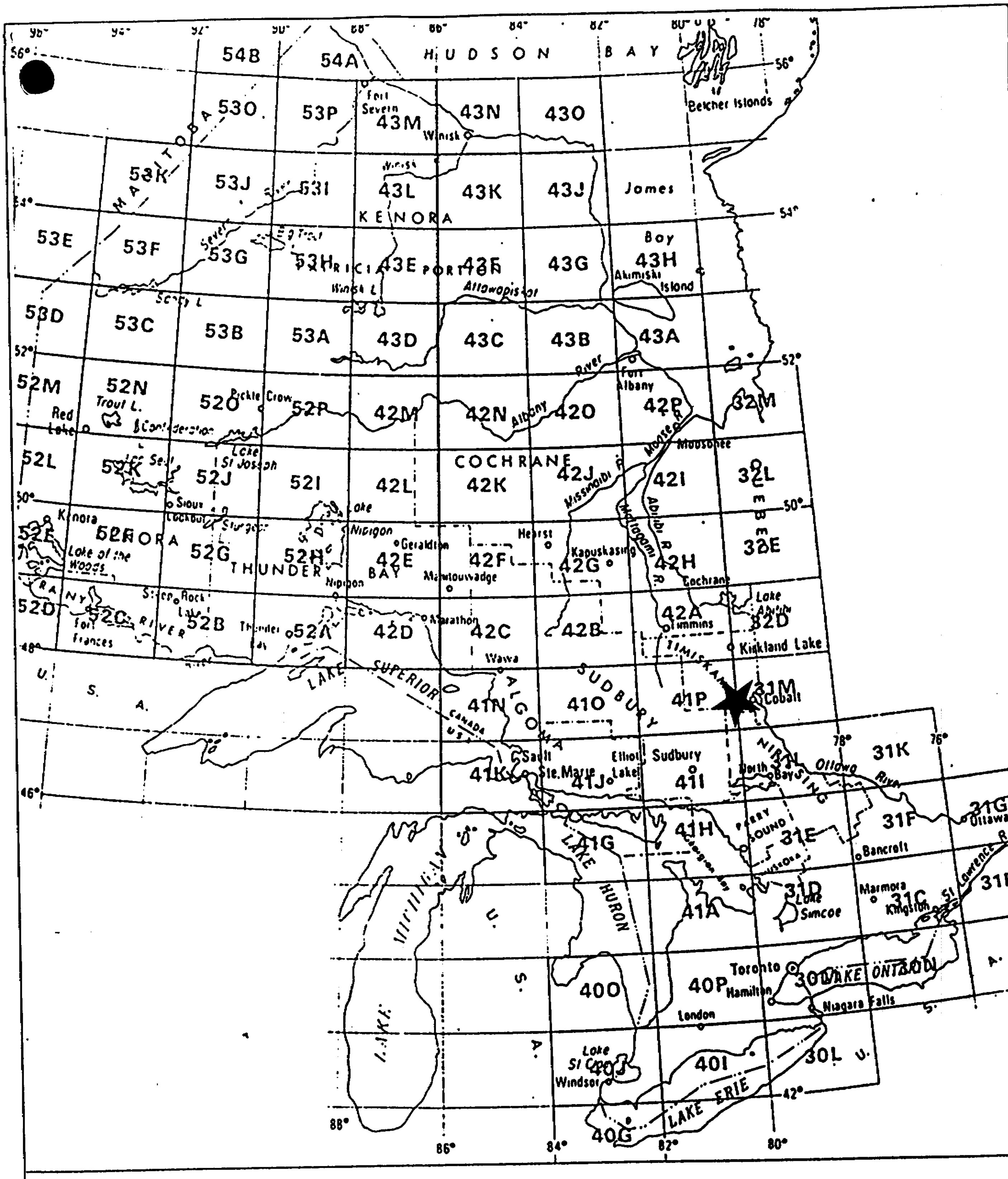


Federal National Topographic System (N.T.S.) Maps

## FIGURE 1. Location Map

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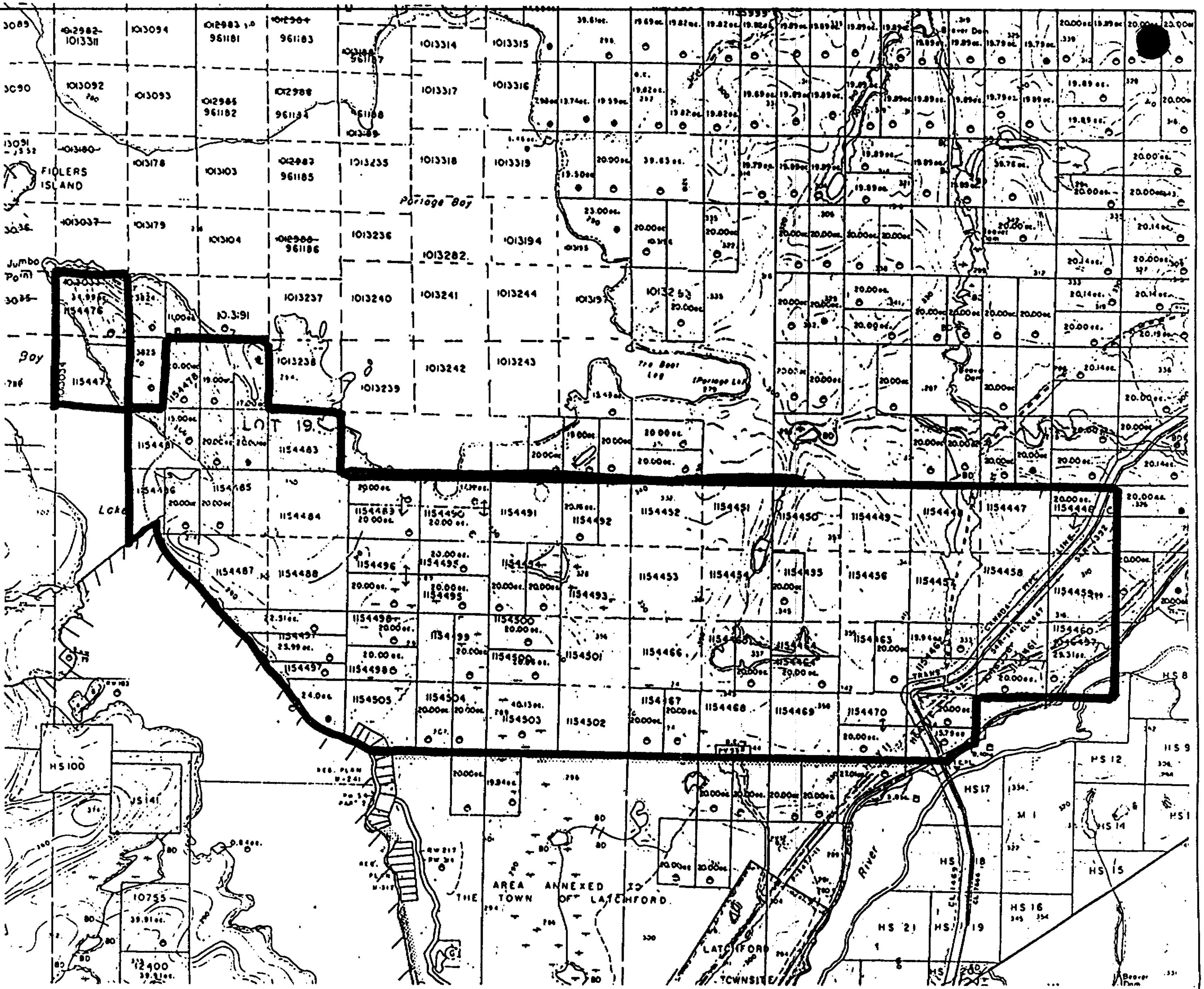


FIGURE 2. SURVEY AREA
(exact claim locations not certified)

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District of Timiskaming. in Summary of Field Work and Other Activities, 1988, OGS Misc. Pap. 141, p.281-287

4. Map OFM 120: Geology of the Bay Lake Area, District of Timiskaming. P.Born and M.Hitch. scale 1:15,840 Open File Map OGS

Most of the survey area is underlain by sediments of the Gowganda and Lorrain Formations of the Cobalt Group. These have been intruded by the Nipissing Diabase Sill also of Middle Precambrian age and is exposed as irregular bands across the property. Significant cobalt, gold, silver and copper mineralization have been discovered along the edges of this intrusive. A recent airborne UTEM survey north of Portage Bay shows that conductors occur along the intrusives at depth within the Gowganda and Lorrain Formation sediments.

## 4.0 SURVEY SPECIFICATIONS

### 4.1 Aircraft and Instruments

The survey was carried out using a Cessna 206 aircraft, registration C-GUCE, which carries two magnetometers and a VLF electromagnetic detector.

The magnetometer sensors are high sensitivity, optically pumped cesium vapour magnetometers mounted in wingtip extensions with a separation of 14.3 metres. Their specifications are as follows:

| | |
|---|---|
| Working range: | 20,000-100,000 gammas |
| Sensitivity: | 0.005 gammas |
| Sampling rate: | 0.2 seconds |
| Model: | BIW 2321H8 |
| Manufacturer: | Scintrex, Concord Ontario. |

The magnetometer processor is a PMAG 3000 and the data acquisition system is a PDAS 1000, both manufactured by Picodas Group Inc.

The signal to noise ratio of the magnetic response is improved by a real time compensation technique provided by Picodas Group Inc. The sources of noise are permanent, induced and eddy current effects of the airframe, and the heading effects. The system uses three orthogonal fluxgate magnetometers to measure the aircraft attitude with respect to the earth's magnetic field vector. A mathematical model is used to solve this interference effect.

The VLF-EM antenna is mounted in a reinforced fibreglass tube projected forward from the midsection of the starboard wing. It is composed of three orthogonal coils and measures (a) the total field strength of the EM field, and (b) the quadrature which is defined as the phase difference between the vertical coil and either one of the horizontal coils. The quadrature polarity is

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defined by the direction of flight, routinely normalized to north or east headings. The total field magnitude is insensitive to antenna orientation in pitch, roll and yaw.

The VLF-EM system measures two frequencies simultaneously so as to allow two transmitters to be selected to ensure good coupling with the target conductors. The "LINE" transmitter (Channel 1) is located ideally at right angles to the flight lines such that the transmitted energy will couple well with the stratigraphy. In this case the recorded quadrature is the phase difference between the vertical coil and the "along line" or LINE coil. The "ORTHO" transmitter (Channel 2) is ideally located along the flight lines or along the direction of cross-faulting, and the recorded quadrature is the phase difference between the vertical coil and the "across line" or ORTHO coil.

Although total field and quadrature data are recorded from both Channels, only the data from Channel 1 are routinely processed and plotted. The data from the Channel 2 are available for processing if requested. Whenever the transmitters are shut down for maintenance the next most suitable transmitter is selected.

The specifications of the VLF-EM system are:

| | |
|---|---|
| Frequency Range | 15kHz to 25kHz for each channel |
| Sensitivity Range | 130uV to 100mV m at 20kHz<br>3dB down at 14kHz and 24kHz |
| Accuracy: | 1% |
| Reading Interval: | 0.2 second |
| Model: | TOTEM 2A |
| Manufacturer: | Herz Industries, Toronto, Canada |

Other instruments are:

* King KRA-10A radar altimeter
* PDAS-1000 data processor with 40 mByte cassette tape and 3 1/2" disk recorder manufactured by Picodas Group Inc.
* Trimble TRANS GPS satellite navigation
* Video tape flight path confirmation, 1/10th second fiducial intervals and with electronic attitude compensation

## 4.2 Lines and Data

Total survey area..................138 kilometres
Claim group coverage...............95 kilometres
Line direction.....................180 degrees azimuth
Line interval......................100 metres
Tie line interval.................. 2 kilometres
Terrain clearance..................90 metres
Average ground speed...............193 kilometres/hour
Data point interval:

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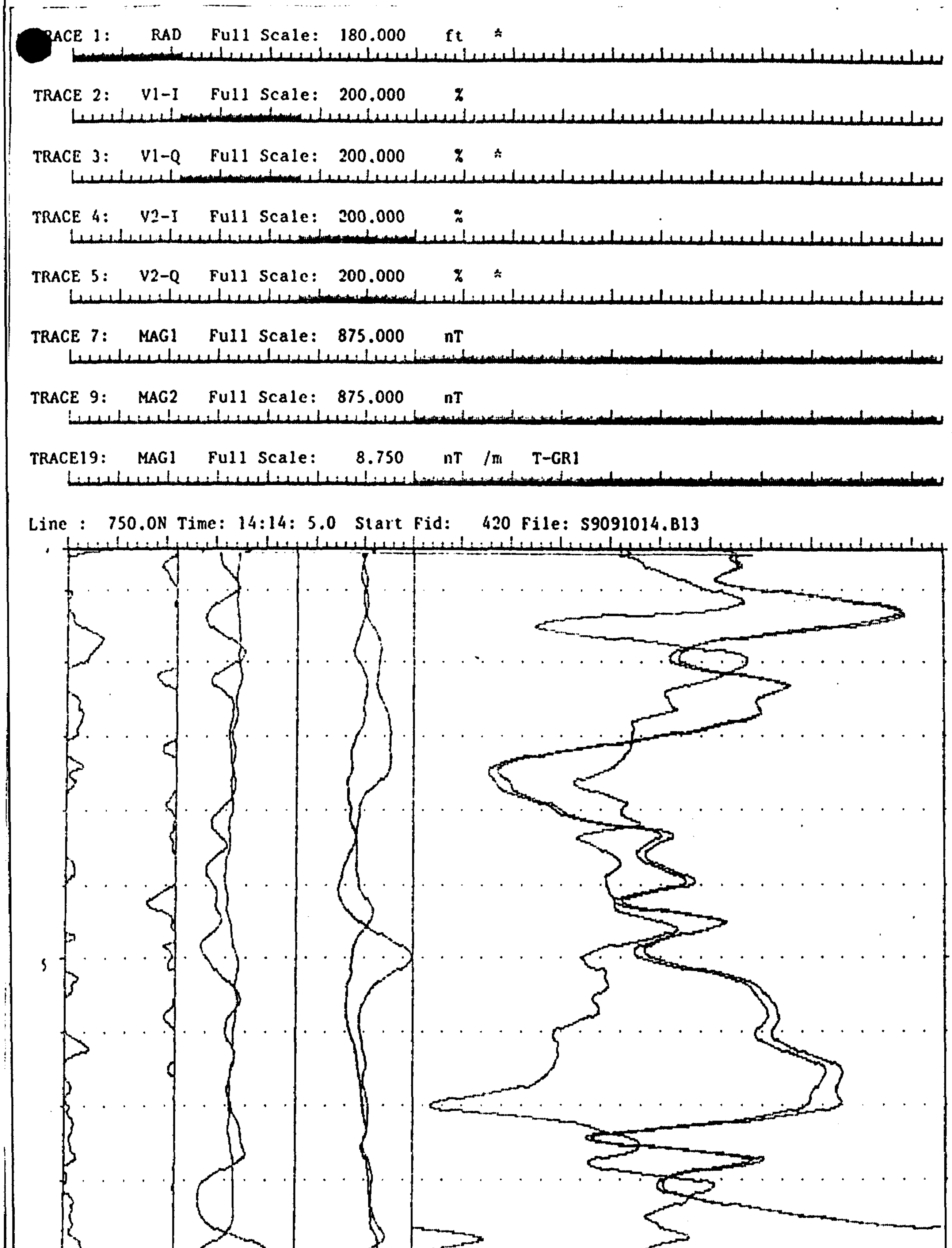


# FIGURE 3. SAMPLE OF ANALOG DATA

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*TERRAQUEST LTD.*

Magnetic...................11 metres
VLF-EM.....................11 metres
Channel 1 ("LINE" Transmitter).........NAA Cutler, 24.0 kHz
Channel 2 ("ORTHO" Transmitter)........NSS Annapolis, 21.4 kHz
FLIGHT LOG:
July 20 flight U-270, partly cloudy

### 4.3 Tolerances

Line spacing: Any gaps wider than twice the line spacing and longer than 10 times the line spacing were filled in by a new line.
Terrain clearance: Portions of line which were flown above 125 metres for more than one kilometre were reflown if safety considerations were acceptable.
Diurnal magnetic variation: Less than ten gammas deviation from a smooth background over a period of two minutes or less as seen on the base station analogue record.
Manoeuvre noise: nil

### 4.4 Navigation and Recovery

The satellite navigation system was used during periods of satellite visibility to ferry to the survey site and to survey along each line using UTM coordinates. The accuracy is variable depending on the number and condition of the satellites; however it is less than twenty five metres and typically in the ten to fifteen metre range.

For assisting the navigation of the aircraft and the recovery of the flight path, semi-controlled mosaics of aerial photographs were made from existing air photos. Each photograph forming the mosaic was adjusted to conform to the NTS map system before the mosaic was assembled. These mosaics are also used as a base for the data and interpretation maps and thereby allow detailed ground locations for follow-up investigations and further mapping.

Flight path recovery was also carried out in the field using a video tape viewer to observe the flight path as recorded by the Geocam video camera system. The flight path recovery was completed daily to enable reflights to be selected where needed for the following day and to provide correlation between the satellite navigation/recovery data and the photomosaic base maps.

## 5.0 DATA PROCESSING

The total field magnetic data was calculated using the magnetic values from the port wing-tip mounted magnetometer. The magnetic data values were levelled in the standard manner by tying survey

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lines to the control lines. The data were then gridded at 2.5mm grid cell size at map scale and contoured using standard cubic spline interpolation to confirm the accuracy of the levelling procedure. Additional adjustments to the total field magnetics were made as required and then plotted on mylar.

The vertical magnetic gradient is computed from the gridded and contoured final total field data using a method of transforming the data set into the frequency domain, applying a transfer function to calculate the gradient, and then transforming back into the spatial domain. The method is described by a number of authors including Grant, 1972 and Spector, 1968. The computer program for this purpose is provided by Paterson, Grant and Watson Ltd. of Toronto.

The VLF data was treated automatically so as to normalize the non conductive background areas to 100 (total field strength) and zero (quadrature). The algorithms to do this were developed by Terraquest and will be provided to anyone interested by application to the company.

All of these data processing calculations and map contouring were carried out by Dataplotting Services Inc. of Toronto.

Grant, F.S. and Spector A., 1970: Statistical Models for Interpreting Aeromagnetic Data; Geophysics, Vol 35

Grant, F.S., 1972: Review of Data Processing and Interpretation Methods in Gravity and Magnetics; Geophysics Vol 37-4

Spector, A., 1968: Spectral Analysis of Aeromagnetic maps; unpublished thesis; University of Toronto.

## 6.0 INTERPRETATION

### 6.1 General Approach

To satisfy the purpose of the survey as stated in the introduction, the interpretation procedure was carried out on both the magnetic and VLF-EM data. On a local scale "geological" units were interpreted from the magnetic gradient contour patterns based on their characteristic patterns and intensities, or "signatures". The contacts are typically located along the steepest section of the gradient; therefore the vertical magnetic gradient format was used primarily to delineate stratigraphy. The total magnetic field format was used to determine the relative magnetic intensity of the interpreted unit. Where possible these units were related to existing geology (known outcrops) to provide a geological identity to the units.

Magnetic anomalies that are caused by iron deposits of ore quality



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are usually obvious owing to their high amplitude, often in tens of thousands of gammas. Mafic to felsic metavolcanics are usually characterized by respectively strong to weak magnetic intensities. Clastic metasediments generally possess very low concentrations of iron bearing minerals and therefore correlate with very low magnetic responses. In some cases, the weak responses from the metasediments are overwhelmed by the magnetic fields from the surrounding lithologies.

Alteration zones can show up as anomalously quiet areas, often adjacent to strong, circular anomalies that represent intrusives, or along an otherwise magnetically active horizon. In some cases contact metamorphic aureoles are characterized by magnetic anomalies.

On a regional scale the total magnetic field contour patterns were used in the same way to delineate bodies of larger dimensions.

Faults and shear zones were interpreted mainly from lateral displacements of otherwise linear magnetic anomalies but also from long narrow "lows". The direction of regional faulting and the topographic lineaments in the general area were taken into account when selecting the dominant fault orientations. Folding is usually seen as curved regional patterns.

VLF-EM anomalies are evaluated according to a) the relative intensities of the total field strength, b) correlation of the total field strength with magnetic, geologic and topographic features, and c) the intensity and nature of the quadrature or phase response.

Areas showing a smooth VLF-EM response somewhat above background (ie. 110 or so) are likely caused by overburden which is thick enough and conductive enough to saturate at these frequencies. In this case limited response from bedrock is seen.

The VLF-EM conductor axes have been identified and evaluated according to the Terraquest classification system (Figure 4). This system correlates the nature and orientation of the conductor axes with stratigraphic, structural and topographic features to obtain an association from which one or more possible origins may be selected. Alternate associations are indicated in parentheses.

The phase response has been categorized according to whether the slope/direction is normal, reverse, or no phase at all. The significance of the differing phase responses is not completely understood although in general reverse phase indicates either overburden as the source or a conductor with considerable depth extent, or both. Normal phase response is theoretically caused by surface conductors with limited depth extent. In some cases, a change in the orientation of the conductor appears to affect the sense of the phase response.

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## FIGURE 4

## TERRAQUEST CLASSIFICATION OF VLF-EM CONDUCTOR AXES

| SYMBOL | CORRELATION | ASSOCIATION: Possible Origins |
|---|---|---|
| a , A | Coincident with magnetic stratigraphy | Bedrock magnetic horizons: stratabound mineralogic origin or shear zone |
| b , B | Parallel to magnetic stratigraphy | Bedrock non-magnetic horizons: stratabound mineralogic origin or shear zone |
| c , C | No correlation with magnetic stratigraphy | Association not known: possible small scale stratabound mineralogic origin, fault or shear zone, overburden |
| d , D | Coincident with magnetic dyke | Dyke or possible fault: mineralogic or electrolytic |
| f , F | Coincident with topographic lineament or parallel to fault system | Fault zone: mineralogic or electrolytic |
| ob , OB | Contours of total field response conform to topographic depression | Most likely overburden: clayey sediments, swampy mud |
| cul , CUL | Coincident with cultural sources | Electrical, pipe or railway lines |

NOTES

1 - Upper case symbols denote a relatively strong total field strength

2 - Underlined symbols denote a relatively strong quadrature response

3 - Mineralogic origins include sulphides, graphite, and in fault zones, gouge

4 - Electrolytic origins imply conductivity related to porosity or high moisture content

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The VLF-EM data from Channel 1 has been processed; the data from Channel 2 has been recorded and can be processed upon request.

## 6.2 Interpretation

The magnetic and VLF-EM data are shown in contoured format on maps at a scale of 1:10,000 in the back pocket. An interpretation map is also provided. The following notes are intended to supplement these maps.

The total magnetic field has a relief of approximately 550 gammas and shows relatively low and uniform magnetic responses which are interrupted by irregular bands of strong susceptibilities. The vertical magnetic gradient shows improved resolution and has been used to delineate the stratigraphy and structure.

The Gowganda (Unit 5) and Lorrain (Unit 6) Formations are both associated with weak magnetic responses and cannot be discriminated from each other.

The strong responses are associated with the Nipissing Diabase Sill (Unit 7). These responses dominate the magnetic map, and in places overwhelm the weak responses from the adjacent sedimentary lithologies. The magnetic mapping shows some significant improvements to the geological mapping in places of no outcrop. The centre of the property (Lot 17 & 18, Con 3) with no outcrop appears to be underlain by the diabase, connecting the known exposures to form a large "X" pattern. Similarly, subtle magnetic responses southeast of the Last Chance Mining Property are suggestive of narrow diabasic bodies, or perhaps diabase at greater depth.

A broad and subtle magnetic anomaly southeast of Portage Bay, along the northern edge of the survey area, occurs in an area mapped as Lorrain Formation sediments. This anomaly appears to be truncated at the eastern and western ends by faults. It may be related to diabase at depth or perhaps older metavolcanic rocks (similar to those outcropping near the town of Cobalt) beneath the sediments.

The regional Latchford Fault displaces the diabase sill with a minor sinistral motion. It is suspected that the diabase along Jumbo Point may have exploited a splay fault related to the Latchford Fault.

Several magnetically interpreted faults or shear zones strike to the northeast, consistent with the topographic lineaments. It is suggested that the "X" pattern formed by the diabase is related to intrusive emplacement along the northwest and the northeast fault systems. If this model is verified, it could be used to predict the occurrences of the diabase for further exploration.

The VLF-EM survey has identified several weak conductors. One



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coincides with the edge of Portage Bay and is most likely due to surficial conductivity.

Most of the conductor axes are associated with faults or shear zones. Several structures identified in this technique trend to the northwest and west-northwest. This type of conductivity may be caused by (a) minerals such as graphite, sulphides or gouge, or (b) an ionic effect created by water or porosity either within the structure or along the upper weathered and leached edge. In general, conductive structures are open or tensional features.

A few conductor axes coincide with the diabase. This type of conductivity may be similar to structural type sources along the edges of the intrusive, or to mineralization within the intrusive. As this is the model of mineralization for the Cobalt region these conductors warrant detailed ground follow up using EM or IP methods.

## 7.0 SUMMARY

An airborne combined magnetic and VLF-EM survey has been carried out at 90 metre mean terrain clearance with 100 metre line intervals and with data reading stations at 11 metres along the flight lines. All data is produced on maps at a scale of 1:10,000.

The magnetic data has been used to modify and update the existing geology, especially in areas of little or no outcrop. The magnetics have been used to identify diabase probably at depth. A model for the emplacement of the diabase along northeast and northwest trending structures has been presented that if verified, may predict the occurrences of diabase. Magnetically interpreted structures trend to the northeast and northwest and are coincident with topographic lineaments.

Several weak VLF-EM conductor axes were found most of which are associated with structural sources. A few are believed to have potential sulphide origins along the edges of the diabase and have been recommended for additional investigation.

**TERRAQUEST LTD.**

GEOLOGICAL ASSOCIATION OF CANADA
CHARLES Q. BARRIE
FELLOW

Charles Q. Barrie, M.Sc.
Geologist

Qual. 2.8305

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# APPENDIX I

## PERSONNEL

Field: Operator...........Andre Roy
Pilot.............Ken Towers
Dataman...........Michel Roy
Completion Date....July 20, 1990

Office: Manager............Roger Watson, P.Eng
Processing.........Dataplotting Services Inc.
Interpretation.....Charles Barrie, M.Sc.

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APPENDIX II

## CERTIFICATE OF QUALIFICATION

I, Charles Q. Barrie, certify that :

1. I am registered as a Fellow with the Geological Association of Canada and work as a Professional Geologist.
2. I hold an honours B.Sc. degree in Geology from McMaster University, obtained in 1977.
3. I hold an M.Sc. degree in Geology from Dalhousie University, obtained in 1980.
4. I am a member of the Prospectors and Developers Association of Canada.
5. I have been working continuously as a geologist in the mineral industry for ten years.
6. I reside at 1373 Queen Victoria Avenue in the city of Mississauga, Ontario, L5H 3H2.
7. I am employed by and am an owner of Terraquest Ltd., specializing in high sensitivity airborne geophysical surveys.
8. The accompanying report has been prepared from airborne data collected by Terraquest Ltd. exclusively for GENTRY RESOURCES LTD.. Reference material included geological maps published by the provincial government. I have not visited the property.
9. I have no interest in the property described nor the immediate area of the claims.

Toronto, Ontario
September 11, 1990

Signed,

Charles Q. Barrie, M.Sc.
Vice President, TERRAQUEST LTD.

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# HIGH SENSITIVITY MAGNETIC & VLF-EM AIRBORNE SURVEY

## KITTSON PROJECT

## KITTSON & COLEMAN TOWNSHIPS

## LARDER LAKE MINING DIVISION ONTARIO

for

WINSLOW GOLD CORP.

2.14037

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Figure 2 - Survey Area Map
Figure 3 - Sample Record
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No. A-897-2, Vertical Magnetic Gradient
No. A-897-3, VLF-EM Survey
No. A-897-4, Interpretation



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## 1.0 INTRODUCTION

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The purpose of a survey of this type is two-fold. First to prospect directly for anomalously conductive and magnetic areas in the earth's crust which may be caused by, or at least related to, mineral deposits. A second is to use the magnetic and conductivity patterns derived from the survey results to assist in mapping geology, and to indicate the presence of faults, shear zones, folding, alteration zones and other structures potentially favourable to the presence of gold and base-metal concentration. To achieve this purpose the survey area was systematically traversed by an aircraft carrying geophysical instruments along parallel flight lines spaced at even intervals, 90 metres above the terrain surface, and aligned so as to intersect the regional geology in a way to provide the optimum contour patterns of geophysical data.

## 2.0 THE SURVEY AREA

The survey area is located in Kittson and Coleman Townships, in the Larder Lake Mining Division of Ontario about 15 kilometres west of the town of Cobalt. The claims lie along the western part of Coleman Township and the eastern part of Kittson Township, north and east of Kitt Lake, south of Montreal River, and west of Bay Lake. The property is readily accessible by water routes and old bush roads from Highway #11.

The latitude and longitude are 47 degrees 22 minutes, and 79 degrees 55 minutes respectively, and the N.T.S. reference is 31M/5.

The property boundary and claim numbers are shown in figure 2.

## 3.0 GEOLOGY

References


1. Map 2361: Sudbury - Cobalt, Geological Compilation Series. scale 1:253,440 OGS 1977
2. Map OFM 120: Geology of the Bay Lake Area. scale 1:15,840 P.Born and M.Hitch, OGS
3. Born, P, and Burbidge, G.H. 1987: Geology of Brigstocke and Kittson Townships, District of Timiskaming. <u>in</u> Summary of Field Work and Other Activities, 1987. OGS Misc. Pap.




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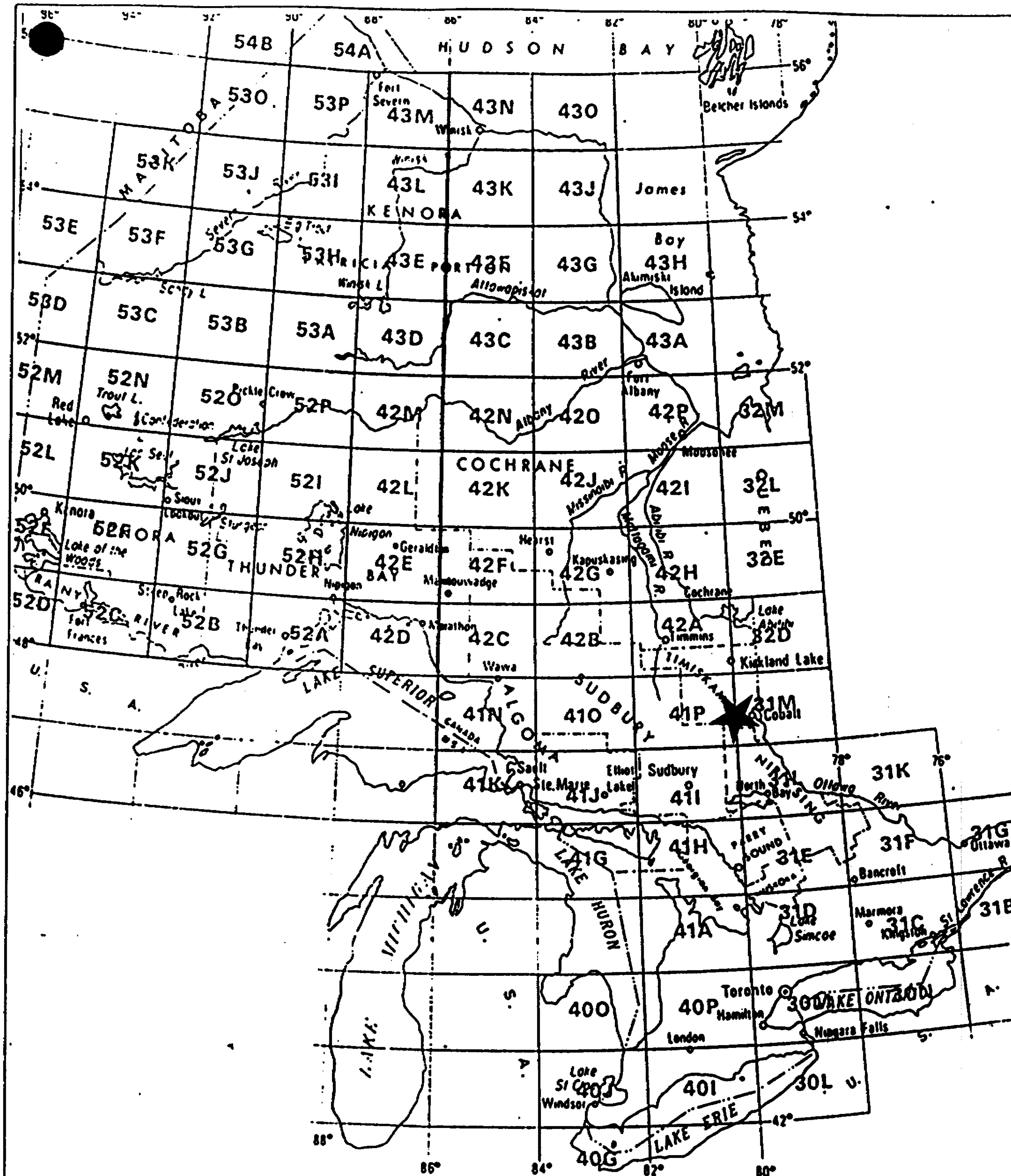
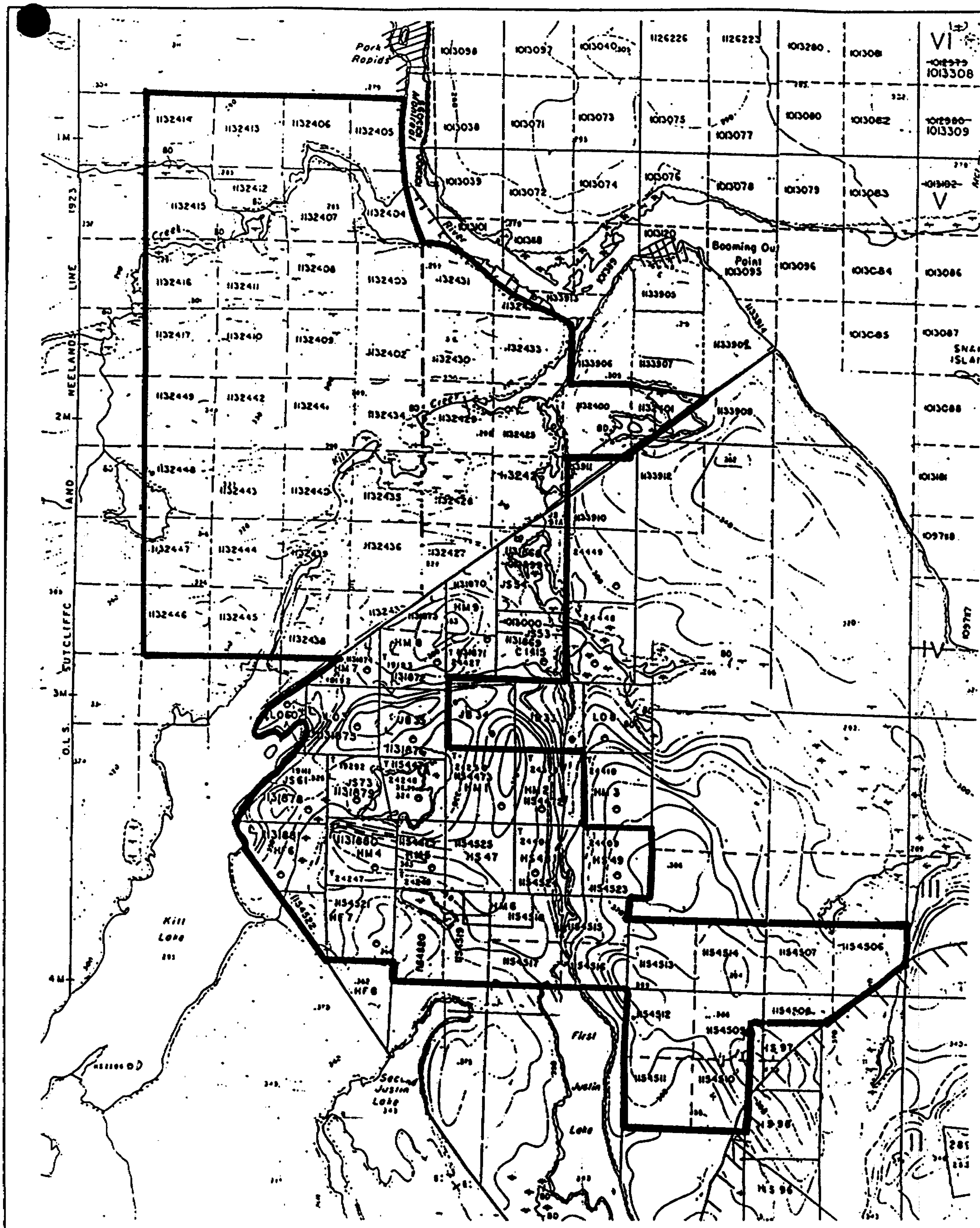



Federal National Topographic System (N.T.S.) Maps

## FIGURE 1. Location Map

240 Adelaide Street West, Toronto, Canada M5H 1W7, Telephone (416) 971-5400, Fax (416) 971-6449




# FIGURE 2. SURVEY AREA

(exact claim locations not certified)

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137, p.198-204

4. Hanneson, J.E. and Huxter,R.S. 1987: The detection and mapping of basement conductors under areas covered by thick Huronian sedimentary rocks, District of Timiskaming. in Summary of Field Work and Other Activities, 1987. OGS Misc.Pap., p.406-410

5. Born, P. and Hitch, M.W., 1988: Geology of the Bay Lake area, District of Timiskaming. in Summary Of Field Work and Other Activities, 1988. OGS Misc.Pap. 141, p. 281-287

The eastern part of the survey area is underlain by Proterozoic metasediments belonging to the Lorrain Formation, primarily arkosic lithologies. These are semiconformably underlain to the west by rocks of the Gowganda Formation, primarily siltstone, arenite and mudstone. Both Formations have been intruded by the Nipissing Diabase Sill which locally is composed of quartz gabbro, varied texture gabbro and granophyre.

The dominant regional structure trends to the northwest and is represented by the Latchford Fault which runs through Bay Lake to the east of the property. Less extensive parallel structures have been mapped recently within the property. Cross structures trend to the northeast.

Mineralization occurs along the edges of the Nipissing Diabase Sill in calcite veins. Three mines have extracted cobalt within the survey area, the Shakt-Davis, Edison and Cobalt-Kittson mines. Significant mineralization within these deposits include smaltite, cobaltite, gersdorffite, erythrite (cobalt bloom), annabergite (nickel bloom), pyrite, chalcopyrite, niccolite, silver and gold.

The area has potential for precious and base metal mineralization along the sill. A recent airborne UTEM survey north of Bay Lake indicated several conductors at depth beneath the Proterozoic sediments.

# 4.0 SURVEY SPECIFICATIONS

## 4.1 Aircraft and Instruments

The survey was carried out using a Cessna 206 aircraft, registration C-GUCE, which carries two magnetometers and a VLF electromagnetic detector.

The magnetometer sensors are high sensitivity, optically pumped cesium vapour magnetometers mounted in wingtip extensions with a separation of 14.3 metres. Their specifications are as follows:

| | |
|---|---|
| Working range: | 20,000-100,000 gammas |
| Sensitivity: | 0.005 gammas |
| Sampling rate: | 0.2 seconds |

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Model: BIW 2321H8
Manufacturer: Scintrex, Concord Ontario.

The magnetometer processor is a PMAG 3000 and the data acquisition system is a PDAS 1000, both manufactured by Picodas Group Inc.

The signal to noise ratio of the magnetic response is improved by a real time compensation technique provided by Picodas Group Inc. The sources of noise are permanent, induced and eddy current effects of the airframe, and the heading effects. The system uses three orthogonal fluxgate magnetometers to measure the aircraft attitude with respect to the earth's magnetic field vector. A mathematical model is used to solve this interference effect.

The VLF-EM antenna is mounted in a reinforced fibreglass tube projected forward from the midsection of the starboard wing. It is composed of three orthogonal coils and measures (a) the total field strength of the EM field, and (b) the quadrature which is defined as the phase difference between the vertical coil and either one of the horizontal coils. The quadrature polarity is defined by the direction of flight, routinely normalized to north or east headings. The total field magnitude is insensitive to antenna orientation in pitch, roll and yaw.

The VLF-EM system measures two frequencies simultaneously so as to allow two transmitters to be selected to ensure good coupling with the target conductors. The "LINE" transmitter (Channel 1) is located ideally at right angles to the flight lines such that the transmitted energy will couple well with the stratigraphy. In this case the recorded quadrature is the phase difference between the vertical coil and the "along line" or LINE coil. The "ORTHO" transmitter (Channel 2) is ideally located along the flight lines or along the direction of cross-faulting, and the recorded quadrature is the phase difference between the vertical coil and the "across line" or ORTHO coil.

Although total field and quadrature data are recorded from both Channels, only the data from Channel 1 are routinely processed and plotted. The data from the Channel 2 are available for processing if requested. Whenever the transmitters are shut down for maintenance the next most suitable transmitter is selected.

The specifications of the VLF-EM system are:

| | |
|---|---|
| Frequency Range | 15kHz to 25kHz for each channel |
| Sensitivity Range | 130uV to 100mV m at 20kHz<br>3dB down at 14kHz and 24kHz |
| Accuracy: | 1% |
| Reading Interval: | 0.2 second |
| Model: | TOTEM 2A |
| Manufacturer: | Herz Industries, Toronto, Canada |

Other instruments are:

TERRAQUEST LTD
240 Adelaide Street West, Toronto, Canada M5H 1W7. Telephone (416) 971-5400, Fax (416) 971-6339

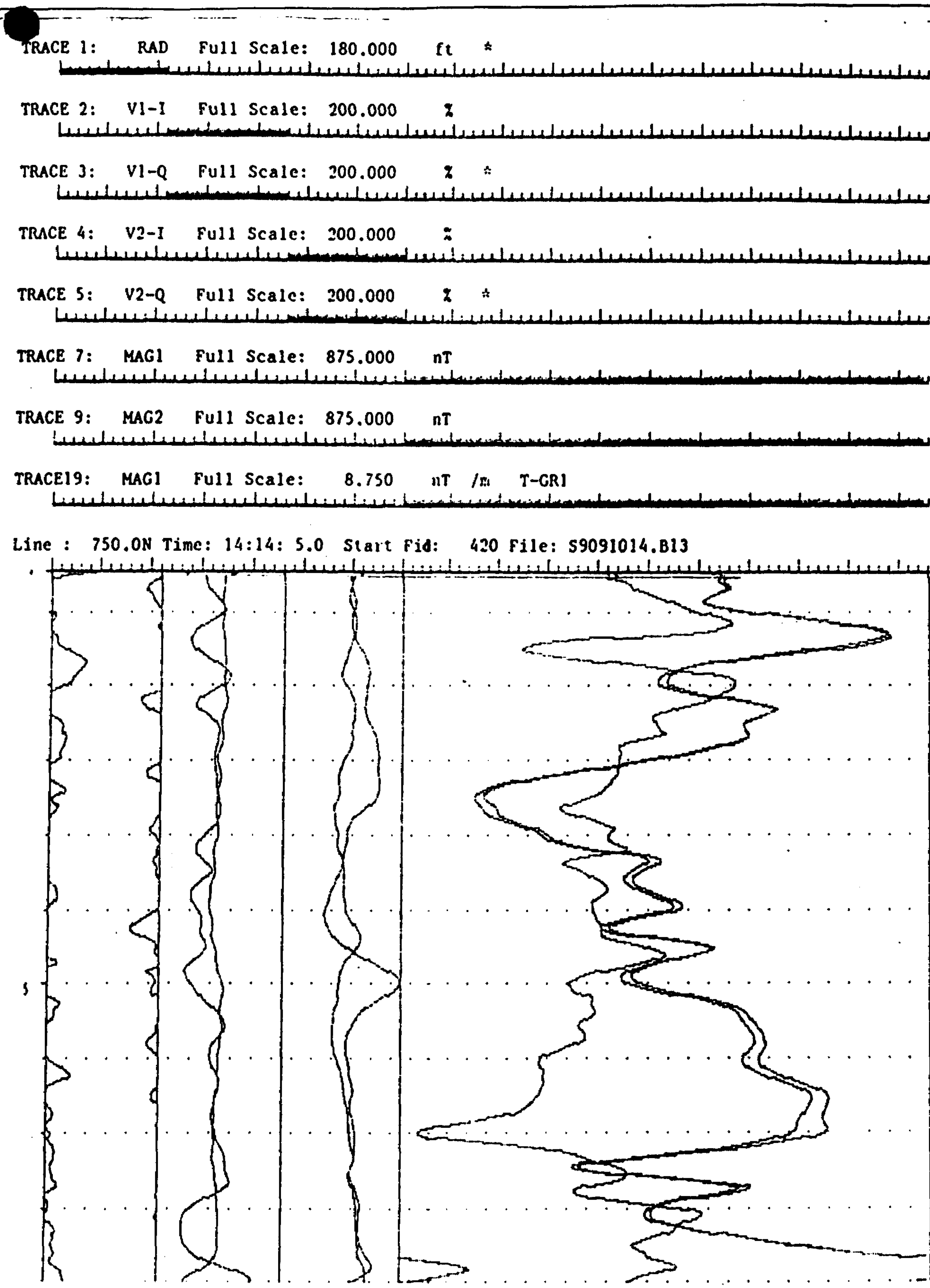


FIGURE 3. SAMPLE OF ANALOG DATA

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* King KRA-10A radar altimeter
* PDAS-1000 data processor with 40 mByte cassette tape and 3 1/2" disk recorder manufactured by Picodas Group Inc.
* Trimble TRANS GPS satellite navigation
* Video tape flight path confirmation, 1/10th second fiducial intervals and with electronic attitude compensation

## 4.2 Lines and Data

Total survey area..................176 kilometres
Claim group coverage..............135 kilometres
Line direction.....................360 degrees azimuth
Line interval......................100 metres
Tie line interval.................. 2 kilometres
Terrain clearance..................90 metres
Average ground speed..............193 kilometres/hour
Data point interval:
    Magnetic..................11 metres
    VLF-EM....................11 metres
Channel 1 ("LINE" Transmitter).........NAA Cutler, 24.0 kHz
Channel 2 ("ORTHO" Transmitter)........NSS Annapolis, 21.4 kHz
FLIGHT LOG:
    July 20   flight U-269, partly cloudy

## 4.3 Tolerances

Line spacing: Any gaps wider than twice the line spacing and longer than 10 times the line spacing were filled in by a new line.

Terrain clearance: Portions of line which were flown above 125 metres for more than one kilometre were reflown if safety considerations were acceptable.

Diurnal magnetic variation: Less than ten gammas deviation from a smooth background over a period of two minutes or less as seen on the base station analogue record.

Manoeuvre noise: nil

## 4.4 Navigation and Recovery

The satellite navigation system was used during periods of satellite visibility to ferry to the survey site and to survey along each line using UTM coordinates. The accuracy is variable depending on the number and condition of the satellites; however it is less than twenty five metres and typically in the ten to fifteen metre range.

For assisting the navigation of the aircraft and the recovery of

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the flight path, semi-controlled mosaics of aerial photographs were made from existing air photos. Each photograph forming the mosaic was adjusted to conform to the NTS map system before the mosaic was assembled. These mosaics are also used as a base for the data and interpretation maps and thereby allow detailed ground locations for follow-up investigations and further mapping.

Flight path recovery was also carried out in the field using a video tape viewer to observe the flight path as recorded by the Geocam video camera system. The flight path recovery was completed daily to enable reflights to be selected where needed for the following day and to provide correlation between the satellite navigation/recovery data and the photomosaic base maps.

## 5.0 DATA PROCESSING

The total field magnetic data was calculated using the magnetic values sampled from the port magnetometer. The magnetic values were levelled in the standard manner by tying survey lines to the control lines. Standard cubic spline gridding of the levelled data at 2.5 mm grid cell spacing at map scale and subsequent contouring were then performed.

The vertical magnetic gradient is computed from the gridded and contoured final total field data using a method of transforming the data set into the frequency domain, applying a transfer function to calculate the gradient, and then transforming back into the spatial domain. The method is described by a number of authors including Grant, 1972 and Spector, 1968. The computer program for this purpose is provided by Paterson, Grant and Watson Ltd. of Toronto.

The VLF data was treated automatically so as to normalize the non conductive background areas to 100 (total field strength) and zero (quadrature). The algorithms to do this were developed by Terra-quest and will be provided to anyone interested by application to the company.

All of these data processing calculations and map contouring were carried out by Dataplotting Services Inc. of Toronto.

Grant, F.S. and Spector A., 1970: Statistical Models for Interpreting Aeromagnetic Data; Geophysics, Vol 35

Grant, F.S., 1972: Review of Data Processing and Interpretation Methods in Gravity and Magnetics; Geophysics Vol 37-4

Spector, A., 1968: Spectral Analysis of Aeromagnetic maps; unpublished thesis; University of Toronto.

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# 6.0 INTERPRETATION

## 6.1 General Approach

To satisfy the purpose of the survey as stated in the introduction, the interpretation procedure was carried out on both the magnetic and VLF-EM data. On a local scale "geological" units were interpreted from the magnetic gradient contour patterns based on their characteristic patterns and intensities, or "signatures". The contacts are typically located along the steepest section of the gradient; therefore the vertical magnetic gradient format was used primarily to delineate stratigraphy. The total magnetic field format was used to determine the relative magnetic intensity of the interpreted unit. Where possible these units were related to existing geology (known outcrops) to provide a geological identity to the units.

Magnetic anomalies that are caused by iron deposits of ore quality are usually obvious owing to their high amplitude, often in tens of thousands of gammas. Mafic to felsic metavolcanics are usually characterized by respectively strong to weak magnetic intensities. Clastic metasediments generally possess very low concentrations of iron bearing minerals and therefore correlate with very low magnetic responses. In some cases, the weak responses from the metasediments are overwhelmed by the magnetic fields from the surrounding lithologies.

Alteration zones can show up as anomalously quiet areas, often adjacent to strong, circular anomalies that represent intrusives, or along an otherwise magnetically active horizon. In some cases contact metamorphic aureoles are characterized by magnetic anomalies.

On a regional scale the total magnetic field contour patterns were used in the same way to delineate bodies of larger dimensions.

Faults and shear zones were interpreted mainly from lateral displacements of otherwise linear magnetic anomalies but also from long narrow "lows". The direction of regional faulting and the topographic lineaments in the general area were taken into account when selecting the dominant fault orientations. Folding is usually seen as curved regional patterns.

VLF-EM anomalies are evaluated according to a) the relative intensities of the total field strength, b) correlation of the total field strength with magnetic, geologic and topographic features, and c) the intensity and nature of the quadrature or phase response.

Areas showing a smooth VLF-EM response somewhat above background (ie. 110 or so) are likely caused by overburden which is thick

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## FIGURE 4

## TERRAQUEST CLASSIFICATION OF VLF-EM CONDUCTOR AXES

| SYMBOL | CORRELATION | ASSOCIATION: Possible Origins |
|---|---|---|
| **a , A** | Coincident with magnetic stratigraphy | Bedrock magnetic horizons: stratabound mineralogic origin or shear zone |
| **b , B** | Parallel to magnetic stratigraphy | Bedrock non-magnetic horizons: stratabound mineralogic origin or shear zone |
| **c , C** | No correlation with magnetic stratigraphy | Association not known: possible small scale stratabound mineralogic origin, fault or shear zone, overburden |
| **d , D** | Coincident with magnetic dyke | Dyke or possible fault: mineralogic or electrolytic |
| **f , F** | Coincident with topographic lineament or parallel to fault system | Fault zone: mineralogic or electrolytic |
| **ob , OB** | Contours of total field response conform to topographic depression | Most likely overburden: clayey sediments, swampy mud |
| **cul , CUL** | Coincident with cultural sources | Electrical, pipe or railway lines |

NOTES

1 - Upper case symbols denote a relatively strong total field strength

2 - Underlined symbols denote a relatively strong quadrature response

3 - Mineralogic origins include sulphides, graphite, and in fault zones, gouge

4 - Electrolytic origins imply conductivity related to porosity or high moisture content

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enough and conductive enough to saturate at these frequencies. In this case limited response from bedrock is seen.

The VLF-EM conductor axes have been identified and evaluated according to the Terraquest classification system (Figure 4). This system correlates the nature and orientation of the conductor axes with stratigraphic, structural and topographic features to obtain an association from which one or more possible origins may be selected. Alternate associations are indicated in parentheses.

The phase response has been categorized according to whether the slope/direction is normal, reverse, or no phase at all. The significance of the differing phase responses is not completely understood although in general reverse phase indicates either overburden as the source or a conductor with considerable depth extent, or both. Normal phase response is theoretically caused by surface conductors with limited depth extent. In some cases, a change in the orientation of the conductor appears to affect the sense of the phase response.

The VLF-EM data from Channel 1 has been processed; the data from Channel 2 has been recorded and can be processed upon request.

## 6.2 Interpretation

The magnetic and VLF-EM data are shown in contoured format on maps at a scale of 1:10,000 in the back pocket. An interpretation map is also provided. The following notes are intended to supplement these maps.

The total magnetic field has a relief of approximately 500 gammas and shows several strong, well defined anomalies, a few weak, poorly defined trends, and broad expanses of low, relatively uniform magnetic values. The vertical magnetic gradient shows improved resolution of the anomalies and has been used to delineate the stratigraphy and structure.

The broad expanses of weak, relatively uniform magnetic values correlate with the Lorrain Formation (Unit 6) and the Gowganda Formation (Unit 5). These are typical responses for sedimentary lithologies.

The strong magnetic values coincide with the Nipissing Diabase Sill (Unit 7). Generally there is a good correlation with the current geological mapping with a few prominent exceptions. Along the southwestern edge of the survey area, between Kitt and Second Justin Lakes a strong anomaly coincides with sedimentary rocks. Also, in the northwest corner of the survey strong responses were recorded over sedimentary rocks. In these locations the Nipissing Diabase Sill probably occurs close to the surface beneath the sedimentary rocks.

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The moderate to weak anomalies are also probably associated with the diabase sill, perhaps at greater depth, less total volume, or with different composition. For example the weak anomaly south of Edison Marsh is associated with outcrops of diabase that appears to be similar in composition to the main sill, therefore it is interpreted to have limited thickness. Other minor occurrences of the diabase sill are interpreted from the magnetic data.

The airborne survey has identified a major, northwest trending fault that passes through Edison Marsh and is referred to here as the Edison Marsh Fault. This structure can be interpreted from both the magnetic and VLF-EM data and is coincident with a prominent lineament that can be identified on both the air photos and the topographic map. It extends well beyond the survey area and is probably related to the same deformational event that was responsible for the Latchford and Montreal River Faults.

Interpretation of the magnetic data suggests that this fault has an upthrown component on the west side and a minor dextral component. The fact that it has VLF-EM conductivity suggests that it may be an open or porous structure capable of hosting water or mineralization. Weak magnetic signatures along the structure may indicate that diabase has been intruded along this zone of weakness. Consequently all structures should be investigated for possible diabaseic intrusives.

Other less extensive structures with similar orientation have been interpreted from the magnetic data. Several northeast trending faults or shear zones displace the diabase sill.

Numerous weak conductors have been identified from the VLF-EM survey. Three correlate with the edges of lakes and are interpreted to be related to conductive overburden. Surficial conductivity appears to be confined to topographic depressions.

Most of the conductor axes are associated with structures. These may be caused by (a) minerals such as graphite, sulphides or gouge, or (b) an ionic effect created by water or porosity within the structure or along the upper weathered and leached edge.

Some correlate with the edges of the diabase sills and may be related to either a structural type source along the zone of weakness or more importantly to mineralization within the diabase. As this is the habit of most of the mineralization in the region, these conductors should be investigated thoroughly on the ground using EM or IP techniques. All three past producing mines occur along the same diabase sill and are close to major cross structures and VLF-EM conductivity.

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## 7.0 SUMMARY

An airborne combined magnetic and VLF-EM survey has been carried out at 90 metre mean terrain clearance with 100 metre line intervals and with data reading stations at 11 metres along the flight lines. All data is produced on maps at a scale of 1:10,000.

The magnetic data has been used to modify and update the existing geology and has shown a number of areas with potential for buried diabase sill beneath the Lorrain and Gowganda Formations. Several minor structures and a one major fault have been interpreted. The intrusion of the diabase may be related to zones of weakness as controlled by the faults, therefore all structures should be investigated for potential diabase.

Numerous weak VLF-EM conductor axes were found most of which are associated with structural sources. Some are coincident with the edges of the diabase intrusives and possess good potential for precious or base metal mineralization.

**TERRAQUEST LTD.**

Charles Q. Barrie, M.Sc.
Geologist

GEOLOGICAL ASSOCIATION OF CANADA
CHARLES Q. BARRIE
FELLOW

Qual 2.8305

240 Adelaide Street West, Toronto, Canada M5H 1W7, Telephone (416) 971-5400, Fax (416) 971-6449

## APPENDIX I

PERSONNEL

| | | |
|---|---|---|
| Field: | Operator........... | Andre Roy |
| | Pilot.............. | Ken Towers |
| | Dataman............ | Michel Roy |
| | Completion Date.... | July 20, 1990 |
| Office: | Manager............ | Roger Watson, P.Eng |
| | Processing......... | Dataplotting Services Inc. |
| | Interpretation..... | Charles Barrie, M.Sc. |

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APPENDIX II

CERTIFICATE OF QUALIFICATION

I, Charles Q. Barrie, certify that :

1. I am registered as a Fellow with the Geological Association of Canada and work as a Professional Geologist.

2. I hold an honours B.Sc. degree in Geology from McMaster University, obtained in 1977.

3. I hold an M.Sc. degree in Geology from Dalhousie University, obtained in 1980.

4. I am a member of the Prospectors and Developers Association of Canada.

5. I have been working continuously as a geologist in the mineral industry for ten years.

6. I reside at 1373 Queen Victoria Avenue in the city of Mississauga, Ontario, L5H 3H2.

7. I am employed by and am an owner of Terraquest Ltd., specializing in high sensitivity airborne geophysical surveys.

8. The accompanying report has been prepared from airborne data collected by Terraquest Ltd. exclusively for WINSLOW GOLD CORP.. Reference material included geological maps published by the provincial government. I have not visited the property.

9. I have no interest in the property described nor the immediate area of the claims.

Toronto, Ontario
September 10, 1990

Signed,

Charles Q. Barrie, M.Sc.
Vice President, TERRAQUEST LTD.

240 Adelaide Street West, Toronto, Canada M5H 1W7, Telephone (416) 971-5400, Fax (416) 971-6449

ML

9108 00134

Ministry of Northern Development and Mines

31M05SW0001 2.14037 COLEMAN

900

**Mining Act**

# Report of Work
(Geophysical, Geological and Geochemi

| Type of Survey(s) | Mining Division | Township or Area |
|---|---|---|
| Airborne Magnetic and VLF-EM | Larder Lake | Coleman Township |

| Recorded Holder(s) | Prospector's Licence No. |
|---|---|
| Gerald N. Ross 2.14037 | C 36800 |
| **Address** | **Telephone No.** |
| 1290, 112 - 4th Avenue SW., Calgary, AB T2P 0H3 | (403) 264-6161 |

**Survey Company**
Terraquest Ltd.

| Name and Address of Author (of Geo-Technical Report) | Date of Survey (from & to) |
|---|---|
| C. Barrie, 240 Adelaide St. West, Toront, ON M5H 1W7 | 20 07 90 – 20 07 90 (Day Mo. Yr.) |

**Credits Requested per Each Claim in Columns at right**

| Special Provisions | | Days per Claim |
|---|---|---|
| For first survey: Enter 40 days. (This includes line cutting) | Geophysical | |
| | - Electromagnetic | |
| | - Magnetometer | |
| For each additional survey: using the same grid: Enter 20 days (for each) | - Other | |
| | Geological | |
| | Geochemical | |
| **Man Days** | Geophysical | Days per Claim |
| Complete reverse side and enter total(s) here | - Electromagnetic | |
| | - Magnetometer | |
| | - Other | |
| | Geological | |
| | Geochemical | |
| **Airborne Credits** | | Days per Claim |
| Note: Special provisions credits do not apply to Airborne Surveys. | Electromagnetic | 40 |
| | Magnetometer | 40 |
| | Other | |

Total miles flown over claim(s).

| Date | Recorded Holder or Agent (Signature) |
|---|---|
| March 25/91 | [signature] |

**Mining Claims Traversed (List in numerical sequence)**

| Mining Claim Prefix | Number | Mining Claim Prefix | Number | Mining Claim Prefix | Number |
|---|---|---|---|---|---|
| | | | SEE ATTACHED SCHEDULE "A" | | |

RECEIVED
APR 29 1991
MINING LANDS SECTION

Total number of mining claims covered by this report of work. 91

**Certification Verifying Report of Work**

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

Name and Address of Person Certifying
Gerald N. Ross, 1290, 112 - 4th Avenue SW., Calgary, AB T2P 0H3

| Telephone No. | Date | Certified By (Signature) |
|---|---|---|
| (403) 264-6161 | March 25/91 | [signature] |

**For Office Use Only**

| Total Days Cr. Recorded | Date Recorded | Mining Recorder |
|---|---|---|
| 7280 | March 28/91 | [signature] |
| | **Date Approved as Recorded** | **Provincial Manager, Mining Lands** |
| | June 24/91 | Ron C Gashinski |

Received Stamp

RECEIVED
LARDER LAKE
MINING DIVISION
MAR 28 1991
TIME 9.58am

DOCUMENT NO.
W9180·00134

# SCHEDULE A

## SCHEDULE OF MINERAL CLAIMS

## COLEMAN TOWNSHIP, PROVINCE OF ONTARIO

| | Claim Number | Amount | Registration |
|---|---|---|---|
| 1. | L1154446 thru L1154461 | 16 | Gerald N. Ross |
| 2. | L1154462 thru L1154475 | 14 | Gerald N. Ross |
| 3. | L1154476 thru L1154491 (1) | 13 | Gerald N. Ross |
| 4. | L1154492 thru L1154505 | 14 | Gerald N. Ross |
| 5. | L1154506 thru L1154517 | 12 | Gerald N. Ross |
| 6. | L1154518 thru L1154525 | 8 | Gerald N. Ross |
| 7. | L1131868 thru L1131881 | 14 | Gerald N. Ross |
| | | 91 | |

(1) excepting claims L1154479, L1154480 and L1154482

RECEIVED
LARDER LAKE
MINING DIVISION

MAR 28 1991

TIME 9 58 am

ML

Ministry of Northern Development and Mines

DOCUMENT No. W9108.00135

**Mining Act**

## Report of Work
(Geophysical, Geological and Geochemical Surveys)

Instructions
- Please type or print.
- Refer to Section 77, the Mining Act for assessment work requirements and maximum credits allowed per survey type.
- If number of mining claims traversed exceeds space on this form, attach a list.
- Technical Reports and maps in duplicate should be submitted to Mining Lands Section, Mineral Development and Lands Branch.

| | |
|---|---|
| Type of Survey(s) | Airborne Magnetic and VLF-EM |
| Mining Division | Larder Lake |
| Township or Area | Kittson Township |
| Recorded Holder(s) | Gerald N. Ross 2.14037 |
| Prospector's Licence No. | C 36800 |
| Address | 1290, 112 - 4th Avenue SW., Calgary, AB T2P 0H3 |
| Telephone No. | (403) 264-6161 |
| Survey Company | Terraquest Ltd. |
| Name and Address of Author (of Geo-Technical Report) | C. Barrie, 240 Adelaide St. West, Toront, ON M5H 1W7 |
| Date of Survey (from & to) | 20 07 90 (Day Mo. Yr.) – 20 07 90 (Day Mo. Yr.) |

Credits Requested per Each Claim in Columns at right

| | | | Days per Claim |
|---|---|---|---|
| Special Provisions | For first survey: Enter 40 days. (This includes line cutting) | Geophysical | |
| | | - Electromagnetic | |
| | | - Magnetometer | |
| | For each additional survey: using the same grid: | - Other | |
| | Enter 20 days (for each) | Geological | |
| | | Geochemical | |
| Man Days | Complete reverse side and enter total(s) here | Geophysical | |
| | | - Electromagnetic | |
| | | - Magnetometer | |
| | | - Other | |
| | | Geological | |
| | | Geochemical | |
| Airborne Credits | Note: Special provisions credits do not apply to Airborne Surveys. | Electromagnetic | 40 |
| | | Magnetometer | 40 |
| | | Other | |

Total miles flown over claim(s).

Date: March 25/91 — Recorded Holder or Agent (Signature): [signature]

Mining Claims Traversed (List in numerical sequence)

| Mining Claim Prefix | Mining Claim Number | Mining Claim Prefix | Mining Claim Number | Mining Claim Prefix | Mining Claim Number |
|---|---|---|---|---|---|
| | | | SEE ATTACHED SCHEDULE "A" | | |

RECEIVED APR 29 1991 MINING LANDS SECTION

Total number of mining claims covered by this report of work. 43

### Certification Verifying Report of Work

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

Name and Address of Person Certifying: Gerald N. Ross, 1290, 112 - 4th Avenue SW., Calgary, AB T2P 0H3

Telephone No.: (403) 264-6161 — Date: March 25/91 — Certified By (Signature): [signature]

### For Office Use Only

| Total Days Cr. Recorded | Date Recorded | Mining Recorder |
|---|---|---|
| 3440 | Mar 28/91 | [signature] |
| | Date Approved as Recorded | Provincial Manager, Mining Lands |
| | June 24/91 | [signature] |

Received Stamp: RECEIVED LARDER LAKE MINING DIVISION MAR 28 1991 TIME 9 58 am

1362 (89/06)

M.L.

W9180.00135

**SCHEDULE A**

**SCHEDULE OF MINERAL CLAIMS**

**KITTSON TOWNSHIP, PROVINCE OF ONTARIO**

| | Claim Number | Amount | Registration |
|---|---|---|---|
| 1. | L1132400 thru L1132406 | 7 | Gerald N. Ross |
| 2. | L1132439 thru L1132449 | 11 | Gerald N. Ross |
| 3. | L1132407 thru L1132417 | 11 | Gerald N. Ross |
| 4. | L1132425 thru L1132438 | 14 | Gerald N. Ross |
| | | 43 | |

**Winslow Gold Corp.**

*Suite 1290, 112 - 4th Avenue S.W., Calgary, Alberta T2P 0H3*
*Telephone: (403) 264-6161 Fax: (403) 266-3069*

RECEIVED 6/77

JUN 03 1991

MINING LANDS SECTION

May 24, 1991

2.14037

Mining Lands
4th Floor, 159 Cedar Street
Sudbury, Ontario
P3E 6A5

**ATTENTION: Mr. Larry Stoliker**

Dear Sir:

**RE: Latchford & Kittson Projects
Technical Maps
Your File No. 2.14037**

Please find enclosed original copies of Terraquest Ltd.'s technical maps pertaining to the July 20, 1990 High Sensitivity Magnetic and VLF-EM Airborne Survey conducted over the Latchford and Kittson project claims. The maps enclosed are as follows:

1. Airborne Magnetic Survey - Total Magnetic Field;
2. Airborne Magnetic Survey - Vertical Magentic Gradient;
3. Airborne VLF-EM Survey - Contours of Total Field Strength;
4. Interpretation.

A duplicate set of maps will be forwarded in another six weeks or so if requested. We are currently in the process of tracking down the mylars from which to make additional copies. In the meantime, it would be appreciated if our Latchford and Kittson project filings could be formalized with just the one set of maps.

Kindly advise the undersigned if this is possible and if a second set of maps is definitely required.

Yours very truly,

**WINSLOW GOLD CORP.**

Ketan Panchmatia

Ketan Panchmatia
Controller

**Winslow Gold Corp.**

*Suite 1290, 112 - 4th Avenue S.W., Calgary, Alberta T2P 0H3*
*Telephone: (403) 264-6161 Fax: (403) 266-3069*

June 12, 1991

RECEIVED
JUN 18 1991
MINING LANDS SECTION

Mining Lands
4th Floor, 159 Cedar Street
Sudbury, Ontario
P3E 6A5

**ATTENTION: Mr. Larry Stoliker**

Dear Sir:

**RE: Latchford & Kittson Projects**
**Technical Maps**
**Your File No. 2.14037**

2.14037

Please find enclosed a second set of original copies of Terraquest Ltd.'s technical maps pertaining to the July 20, 1990 High Sensitivity Magnetic and VLF-EM Airborne Survey conducted over the Latchford and Kittson project claims. The following maps are enclosed:

1. Airborne Magnetic Survey - Total Magnetic Field;
2. Airborne Magnetic Survey - Vertical Magnetic Gradient;
3. Airborne VLF-EM Survey - Contours of Total Field Strength;
4. Interpretation.

The first set of maps was forwarded to your office on May 24, 1991.

I understand that you are now in receipt of all the necessary documents required pursuant to our Latchford and Kittson project filings.

Yours very truly,

**WINSLOW GOLD CORP.**

Ketan Panchmatia

Ketan Panchmatia
Controller

**Winslow Gold Corp.**

*Suite 1290, 112 - 4th Avenue S.W., Calgary, Alberta T2P 0H3*
*Telephone: (403) 264-6161 Fax: (403) 266-3069*

May 2, 1991

RECEIVED

MAY 13 1991

MINING LANDS SECTION

Mining Lands
4th Floor, 159 Cedar Street
Sudbury, Ontario
P3E 6A5

Dear Sir/Madam:

**RE: Terraquest Ltd.**
**Latchford & Kittson Projects**
**Technical Maps**

Please find enclosed, in duplicate, copies of Terraquest Ltd.'s Technical Maps pertaining to the July 20, 1990 High Sensitivity Magnetic and VLF-EM Airborne Survey conducted over Latchford and Kittson project claims.

Report of Work forms pertaining to the aforementioned Survey were filed with the Mining Recorder's office in Kirkland Lake on March 25, 1991. The Technical Reports pertaining to same were filed with your offices on March 27, 1991.

Should you have any questions regarding the enclosed, please do not hesitate to contact the undersigned.

Yours very truly,

**WINSLOW GOLD CORP.**

Ketan Panchmatia

Ketan Panchmatia
Controller

Encl.

KP/jlw

**Winslow Gold Corp.**

*Suite 1290, 112 - 4th Avenue S.W., Calgary, Alberta T2P 0H3*
*Telephone: (403) 264-6161 Fax: (403) 266-3069*

March 27, 1991

RECEIVED 5/34

APR 04 1991

MINING LANDS SECTION

Mining Lands
159 Cedar Street
4th Floor
Sudbury, Ontario
P3E 6A5

Dear Sirs:

**RE: Technical Reports and Maps**
**Terraquest Ltd.'s Latchford and Kittson Project**
**on behalf of Gerald N. Ross**

Please find enclosed, in duplicate, copies of Terraquest Resources Ltd.'s ("Terraquest") High Sensitivity Magnetic and VLF-EM Airborne Surveys on the Latchford and Kittson projects.

Terraquest conducted these surveys on behalf of Gerald N. Ross, the registered owner of the claims covered in Terraquest's report. The surveys were conducted on July 20, 1990 over various claims in the Coleman and Kittson townships, Larder Lake mining division. The maps pertaining to same will follow under separate cover.

Please be advised that the Report of Work forms have been filed with the Mining Recorders Office in Kirkland Lake.

If you should have any questions, please do not hesitate to contact the undersigned.

Yours very truly,

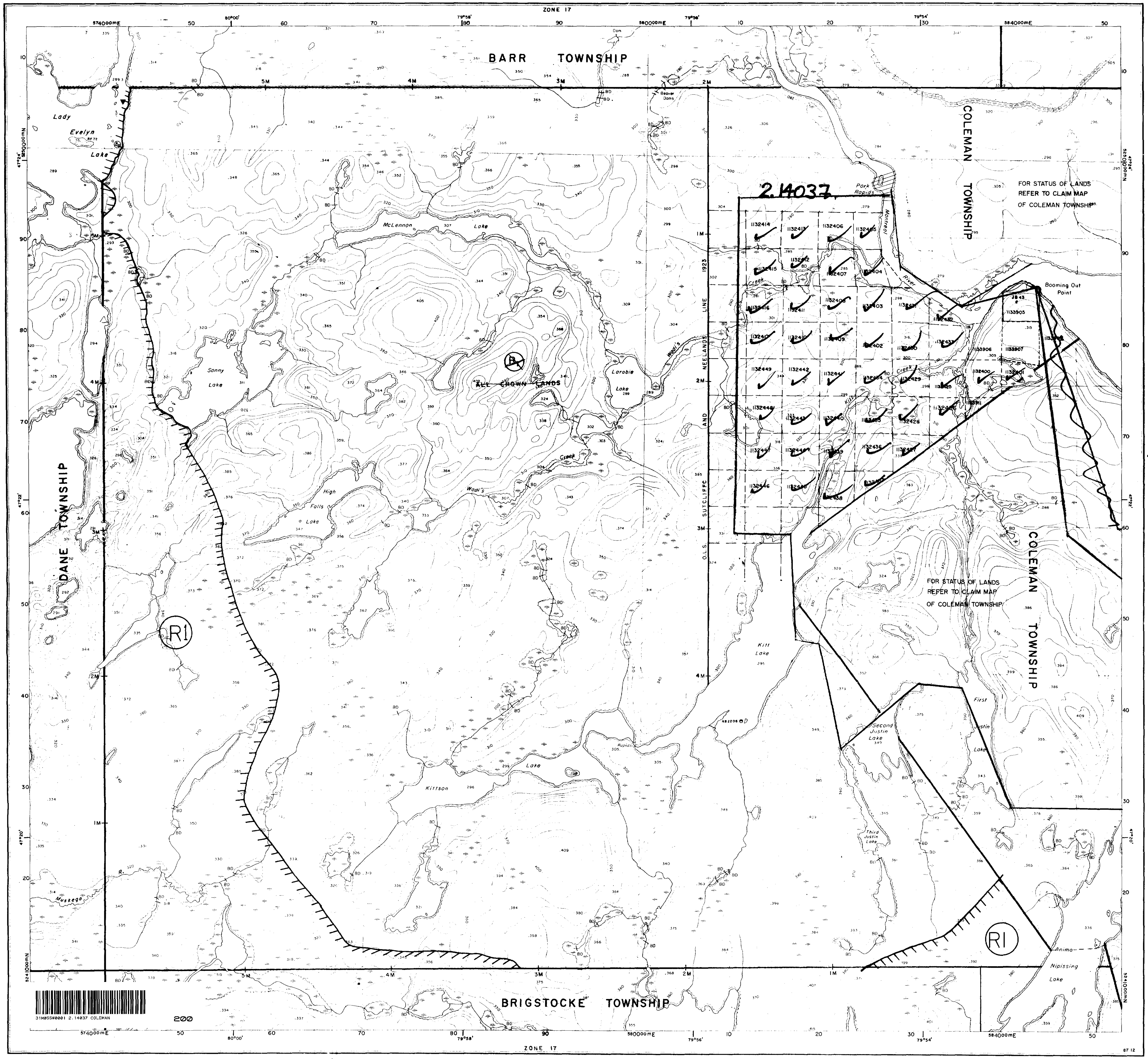
**WINSLOW GOLD CORP.**

Ketan Panchmatia

Ketan Panchmatia
Controller

Encl.

KP/jlw




Ministry of Natural Resources
Ministry of Northern Development and Mines
Ontario

**geology reference-COBALT**

RESIDENT GEO.

## INDEX TO LAND DISPOSITION

PLAN
G-3434

TOWNSHIP
KITTSON

M.N.R. ADMINISTRATIVE DISTRICT
TEMAGAMI

MINING DIVISION
LARDER LAKE

LAND TITLES/REGISTRY DIVISION
TIMISKAMING

Scale 1:20 000

Contour Interval 10 Metres

### AREAS WITHDRAWN FROM DISPOSITION

MRO - Mining Rights Only
SRO - Surface Rights Only
M + S - Mining and Surface Rights

| Description | Order No. | Date | Disposition | File |
|---|---|---|---|---|
| ~~(R1) SEC. 36/80~~ | ~~W.3/82~~ | ~~5/11/82~~ | ~~S+M~~ | |
| (R2) LO 7458 FLOODING ON LADY EVELYN LAKE TO CONTOUR ELEVATION 948.46 | | | | 24583 |

(R1) SURFACE AND MINING RIGHTS ON ALL CROWN LAND IN THIS TWP. WITHDRAWN FROM PROSPECTING,STAKING OUT, SALE OR LEASE SECTION 36 OF THE MINING ACT R.S.O 1980 ORDER W-38-82 EFFECTIVE 11/5/82.

*****PART OF ORDER W-38-82 RE-OPENED ORDER O-ML01-90 NER EFFECTIVE APRIL 3 AT 7AM E.S.T.

### SYMBOLS

Boundary
- Township, Meridian, Baseline
- Road allowance; surveyed
- shoreline
- Lot/Concession; surveyed
- unsurveyed
- Parcel; surveyed
- unsurveyed
- Right-of-way; road
- railway
- utility
- Reservation
- Cliff, Pit, Pile
- Contour
- Interpolated
- Approximate
- Depression
- Control point (horizontal)
- Flooded land
- Mine head frame
- Pipeline (above ground)
- Railway; single track
- double track
- abandoned
- Road; highway, county, township
- access
- trail, bush
- Shoreline (original)
- Transmission line
- Wooded area

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 RECORDER, MINISTRY OF NORTHERN DEVELOPMENT AND MINES, FOR ADDITIONAL INFORMATION ON THE STATUS OF THE LANDS SHOWN HEREON

### DISPOSITION OF CROWN LANDS

Patent
- Surface & Mining Rights
- Surface Rights Only
- Mining Rights Only

Lease
- Surface & Mining Rights
- Surface Rights Only
- Mining Rights Only

- Licence of Occupation
- Order-in-Council
- Cancelled
- Reservation
- Sand & Gravel

"THIS MAP SHOWS THE APPROXIMATE LOCATION OF THE BOUNDARIES OF THE AREA WHICH IS THE SUBJECT OF CURRENT LITIGATION. THE EXACT LOCATION WILL BE SHOWN FOLLOWING CONFIRMATION BY THE PARTIES TO THE ACTION."

DATE OF ISSUE
MAY 14 1991
LARDER LAKE MINING RECORDER'S OFFICE

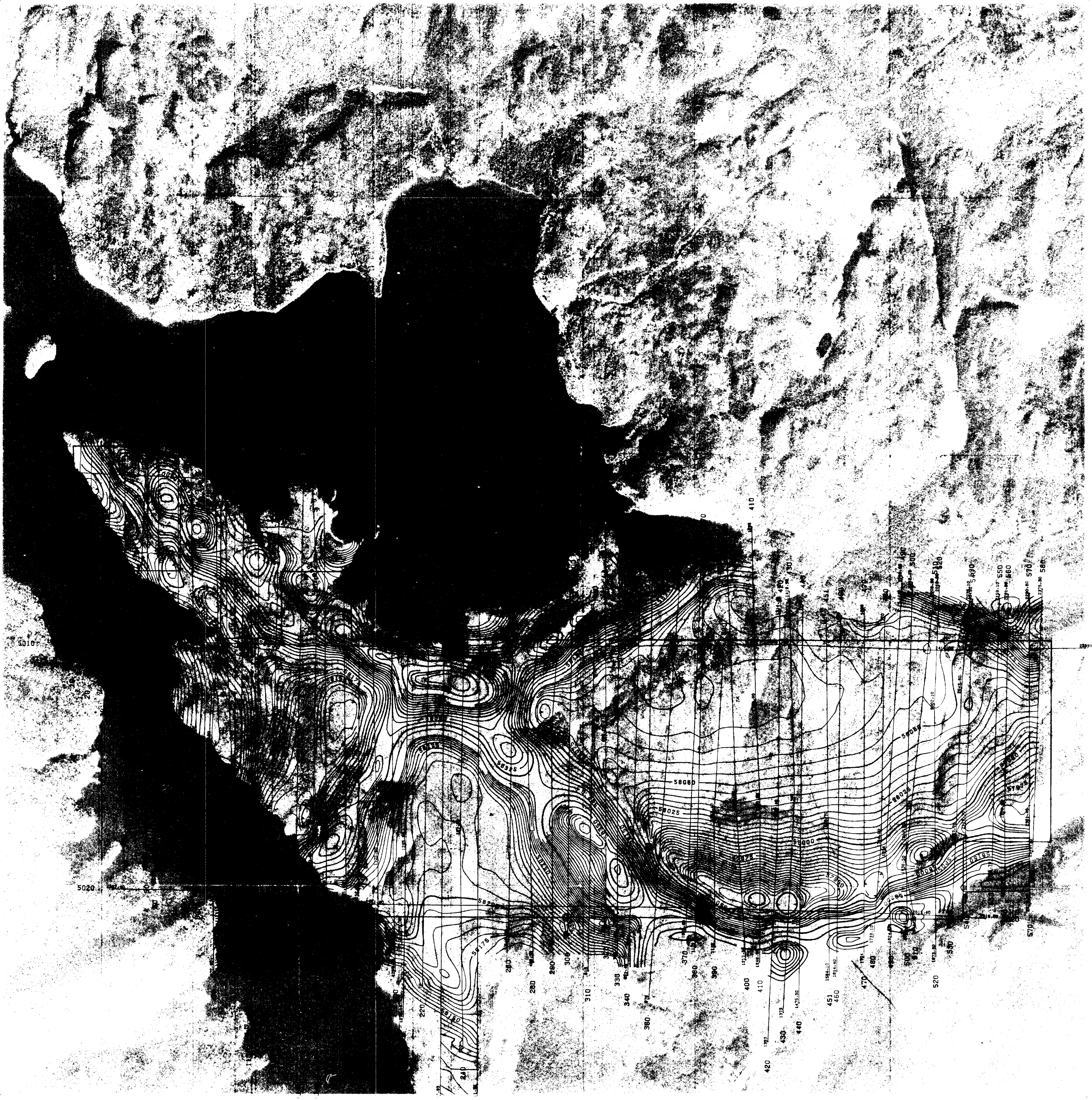
CIRCULATED MAY 3/88

31M05SW0001 2.14037 COLEMAN 200

Map base and land disposition drafting by Surveys and Mapping Branch, Ministry of Natural Resources.

The disposition of land, location of lot fabric and parcel boundaries on this index was compiled for administrative purposes only.


BUCKE TOWNSHIP
LORRAIN TOWNSHIP
GILLIES LIMIT TOWNSHIP
BLOCK
KITTSON TOWNSHIP
BRIGSTOCKE TOWNSHIP
FOR STATUS OF LANDS REFER TO KITTSON TOWNSHIP MAP
COBALT
LATCHFORD
LOT 19
2.14037
Ministry of Natural Resources
Ministry of Northern Development and Mines
Ontario
INDEX TO LAND DISPOSITION
PLAN
G-3418
TOWNSHIP
COLEMAN
M.N.R. ADMINISTRATIVE DISTRICT
TEMAGAMI
MINING DIVISION
LARDER LAKE
LAND TITLES/REGISTRY DIVISION
TIMISKAMING
"THIS MAP SHOWS THE APPROXIMATE LOCATION OF THE BOUNDARIES OF THE AREA WHICH IS THE SUBJECT OF CURRENT LITIGATION. THE EXACT LOCATION WILL BE SHOWN FOLLOWING CONFIRMATION BY THE PARTIES TO THE ACTION."
Scale 1:20 000
Contour Interval 10 Metres
SYMBOLS
Boundary
Township, Meridian, Baseline
Road allowance; surveyed
shoreline
Lot/Concession; surveyed
unsurveyed
Parcel; surveyed
unsurveyed
Right-of-way; road
railway
utility
Reservation
Cliff, Pit, Pile
Contour
Interpolated
Approximate
Depression
Control point (horizontal)
Flooded land
Mine head frame
Pipeline (above ground)
Railway; single track
double track
abandoned
Road; highway, county, township
access
trail, bush
Shoreline (original)
Transmission line
Wooded area
DISPOSITION OF CROWN LANDS
Patent
Surface & Mining Rights
Surface Rights Only
Mining Rights Only
Lease
Surface & Mining Rights
Surface Rights Only
Mining Rights Only
Licence of Occupation
Order-in-Council
AREAS WITHDRAWN FROM DISPOSITION
MRO - Mining Rights Only
SRO - Surface Rights Only
M + S - Mining and Surface Rights
TOWNSHIP SUBJECT TO FORESTRY OPERATIONS
NOTES
FLOODING ON MONTREAL RIVER TO CONTOUR ELEVATION 277.37m BY ONTARIO HYDRO FROM HOUND CHUTE TO TOWN OF LATCHFORD. L.O.715
MINING CLAIMS ON CLEAR LAKE ETC. SUBJECT TO WATER RESERVATION TO TOWN OF COBALT.
NOTICE OF FORESTRY ACTIVITY
THIS TOWNSHIP / AREA FALLS WITHIN THE LATCHFORD MANAGEMENT UNIT AND MAY BE SUBJECT TO FORESTRY OPERATIONS. THE MNR UNIT FORESTER FOR THIS AREA CAN BE CONTACTED AT:
P.O. BOX 38
LAKESHORE DRIVE
TEMAGAMI, ONT.
P0H 2H0
705-569-3622
DATE OF ISSUE
APR 15 1991
LARDER LAKE
MINING RECORDER'S OFFICE
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 RECORDER, MINISTRY OF NORTHERN DEVELOPMENT AND MINES, FOR ADDITIONAL INFORMATION ON THE STATUS OF THE LANDS SHOWN HEREON.
geology reference-COBALT
210

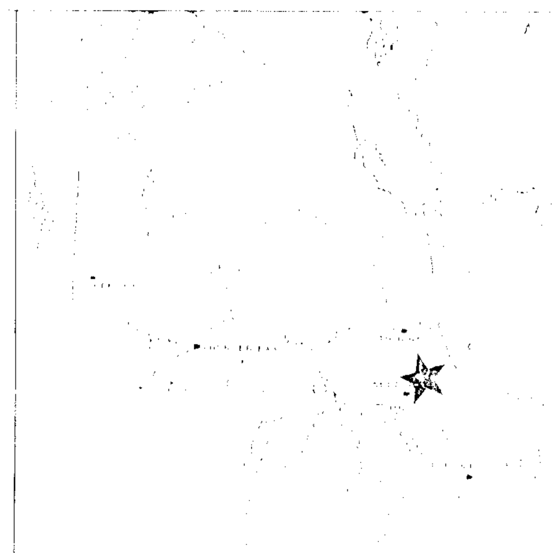



LEGEND

| | |
|---|---|
| Survey Altitude | 90 METRES MTC |
| Line Spacing | 300 METRES |
| Survey Boundary | |

TOTAL MAGNETIC FIELD
- 500 gammas
- 100 gammas
- 25 gammas
- 5 gammas

220



GENTRY RESOURCES LIMITED

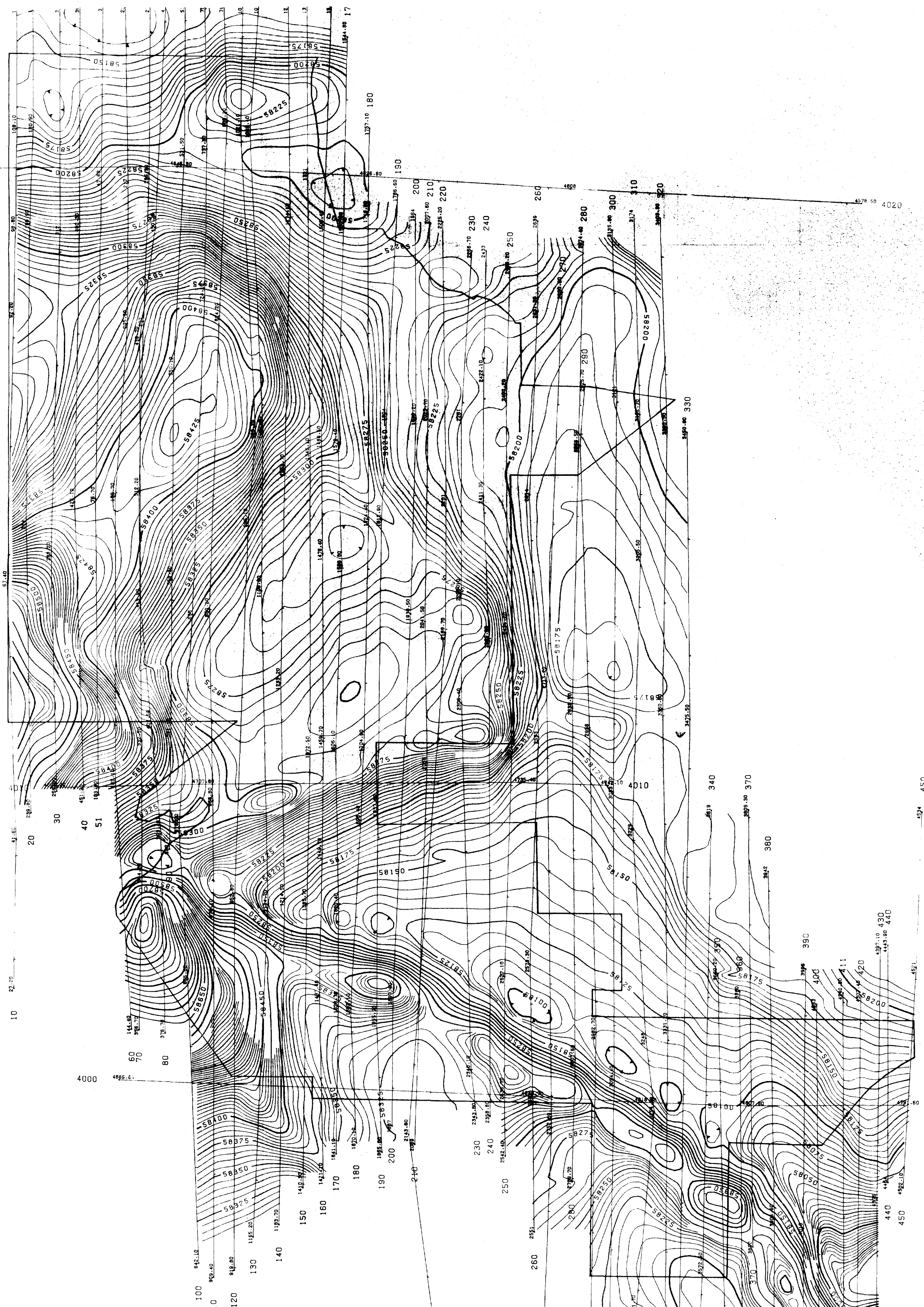
# AIRBORNE MAGNETIC SURVEY

## TOTAL MAGNETIC FIELD

LATCHFORD PROJECT
ONTARIO

| | | | |
|---|---|---|---|
| N.T.S. NO. | 31M/5 | DRAWING NO. | A 898 1 |
| SCALE | 1 : 10,000 | DATE | JULY 1990 |

*TERRAQUEST LTD.*
TORONTO, CANADA




LEGEND

Survey Altitude 90 METRES MTC
Line Spacing 100 METRES
Survey Boundary

TOTAL MAGNETIC FIELD
500 gammas
100 gammas
25 gammas
5 gammas

WINSLOW GOLD CORP.

# AIRBORNE MAGNETIC SURVEY

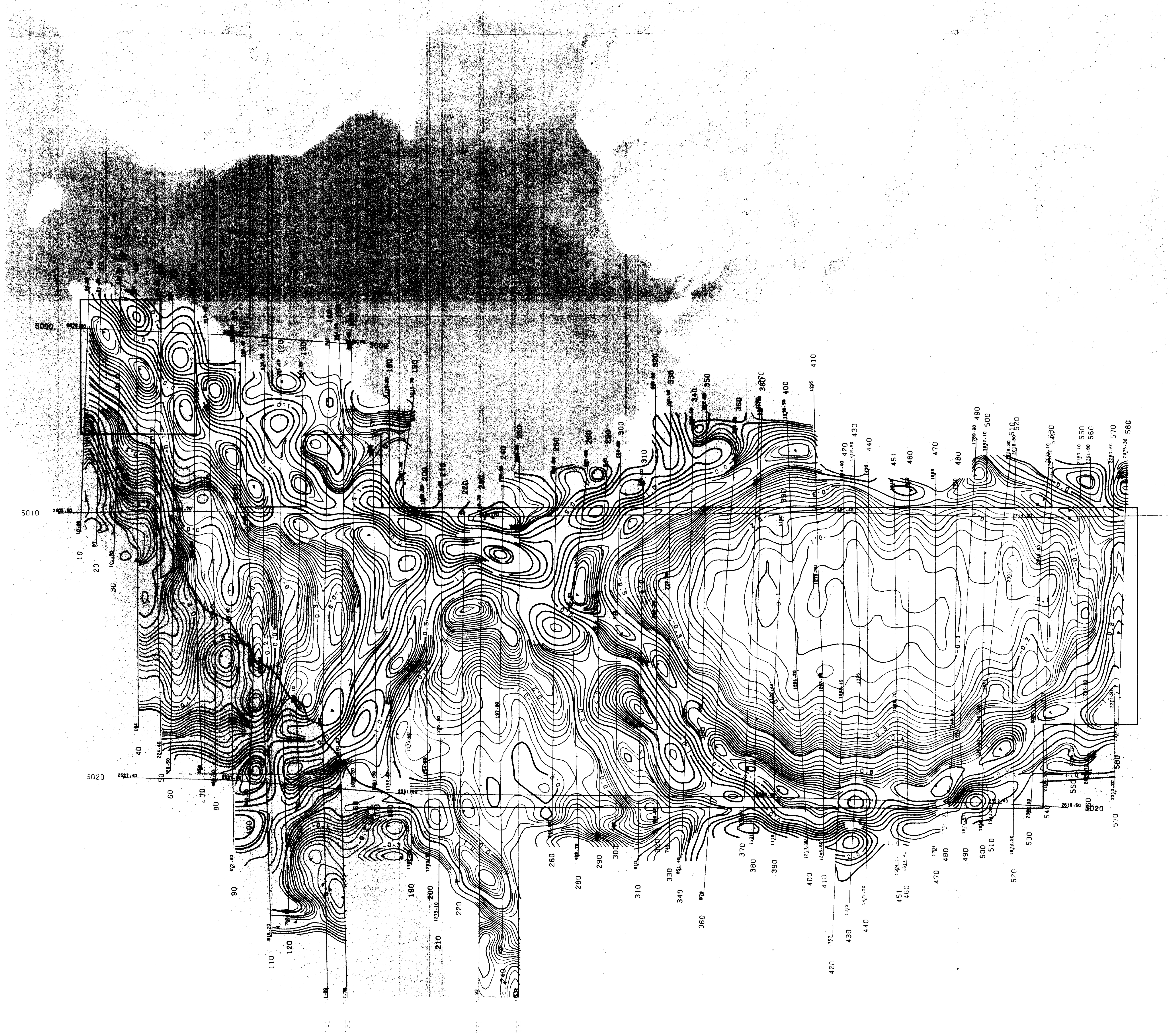
## TOTAL MAGNETIC FIELD

KITTSON PROJECT
ONTARIO

| | | | |
|---|---|---|---|
| NTS NO. | 5M/5 | DRAWING NO. | A 897-1 |
| SCALE | 1 : 10,000 | DATE | JULY 1990 |

*TERRAQUEST LTD.*
*TORONTO, CANADA*

230




LEGEND

| | |
|---|---|
| Survey Altitude | 90 metres MTC |
| Line Spacing | 100 metres |
| Survey Boundary | ——— |

VERTICAL MAGNETIC GRADIENT

| | |
|---|---|
| 2.500 gammas/metre | ——— |
| 0.500 gammas/metre | ——— |
| 0.100 gammas/metre | |
| 0.025 gammas/metre | |

240

GENTRY RESOURCES LIMITED

# AIRBORNE MAGNETIC SURVEY

VERTICAL MAGNETIC GRADIENT
Calculated From Total Field

LATCHFORD PROJECT
ONTARIO

| | | | |
|---|---|---|---|
| NTS NO. | 31M/5 | DRAWING NO. | A 898-2 |
| SCALE | 1:20,000 | DATE | JULY 1990 |

*TERRAQUEST LTD.*

*TORONTO, CANADA*


LEGEND

Survey Altitude 80 metres [illegible]
Line Spacing 100 metres
Survey Boundary

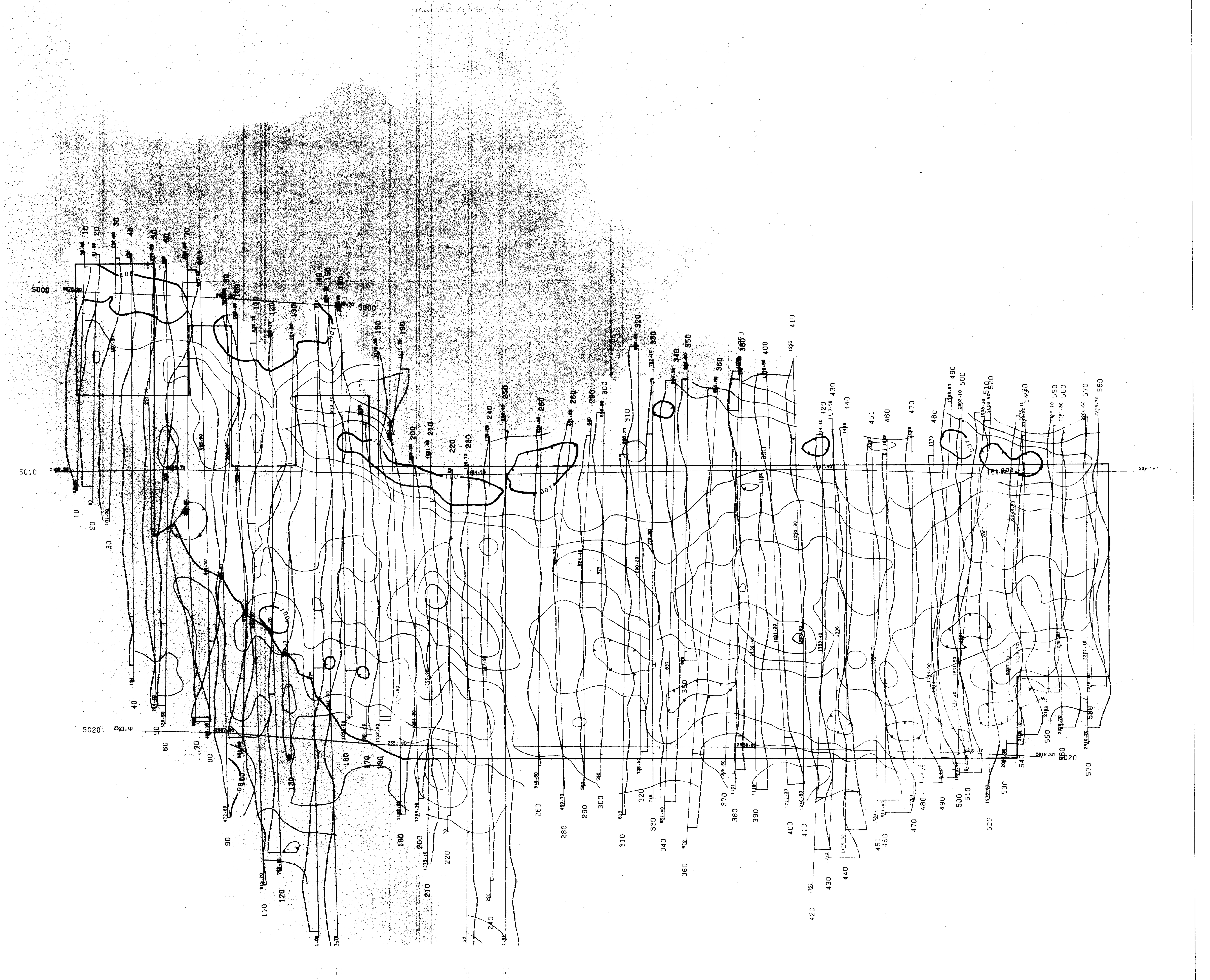
VERTICAL MAGNETIC GRADIENT
[illegible] gammas/metre
0.500 gammas/metre
[illegible] gammas/metre
[illegible] gammas/metre

WINSLOW GOLD CORP.

AIRBORNE MAGNETIC SURVEY
VERTICAL MAGNETIC GRADIENT
Calculated From Total Field

KITTSON PROJECT
ONTARIO

TERRAQUEST LTD.
TORONTO, CANADA



LEGEND

Survey Altitude
Line Spacing
Survey Boundary

TOTAL FIELD STRENGTH (Contours)

QUADRATURE (Profiles along Flight Lines)
Normal Slope    Reverse Slope

VLF Transmitter
NAA Cutler 24.0 kHz
Azimuth

260

GENTRY RESOURCES LIMITED

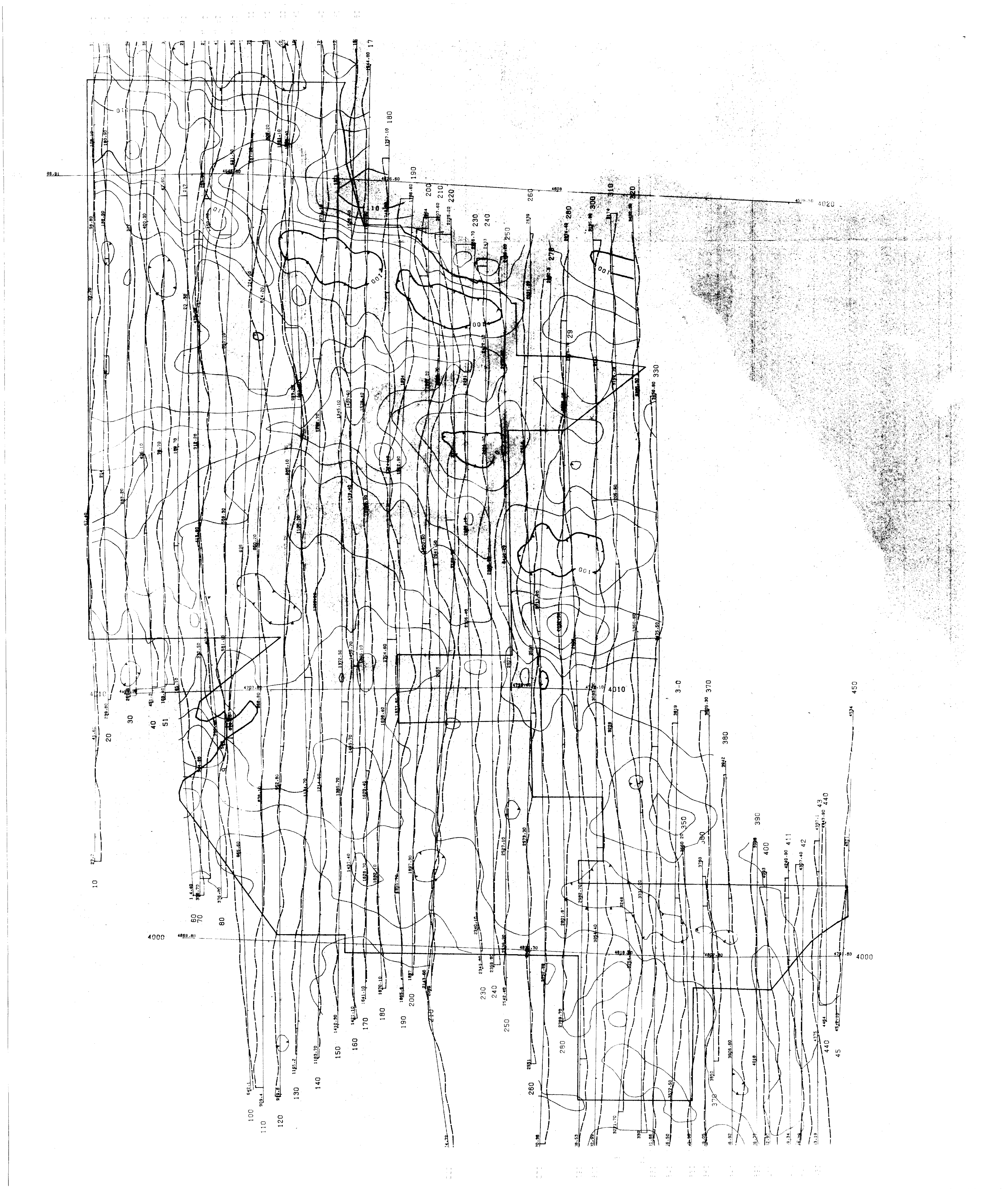
# AIRBORNE VLF–EM SURVEY

CONTOURS OF TOTAL FIELD STRENGTH
PROFILES OF QUADRATURE

LATCHFORD PROJECT
ONTARIO

| | | | |
|---|---|---|---|
| N.T.S. NO. | 31M/5 | DRAWING NO. | A-[illegible] |
| SCALE | 1 : 10,000 | DATE | JULY 1990 |

TERRAQUEST LTD.
TORONTO, CANADA



270

VLF Transmitter
NAA Cutler, 24.0 kHz
Azimuth

## LEGEND

Survey Altitude — 90 metres MTC
Line Spacing — 100 metres
Survey Boundary

TOTAL FIELD STRENGTH (Contours)
50%
10%

QUADRATURE (Profiles along Flight Lines)
Normal Slope — Reverse Slope

WINSLOW GOLD CORP.

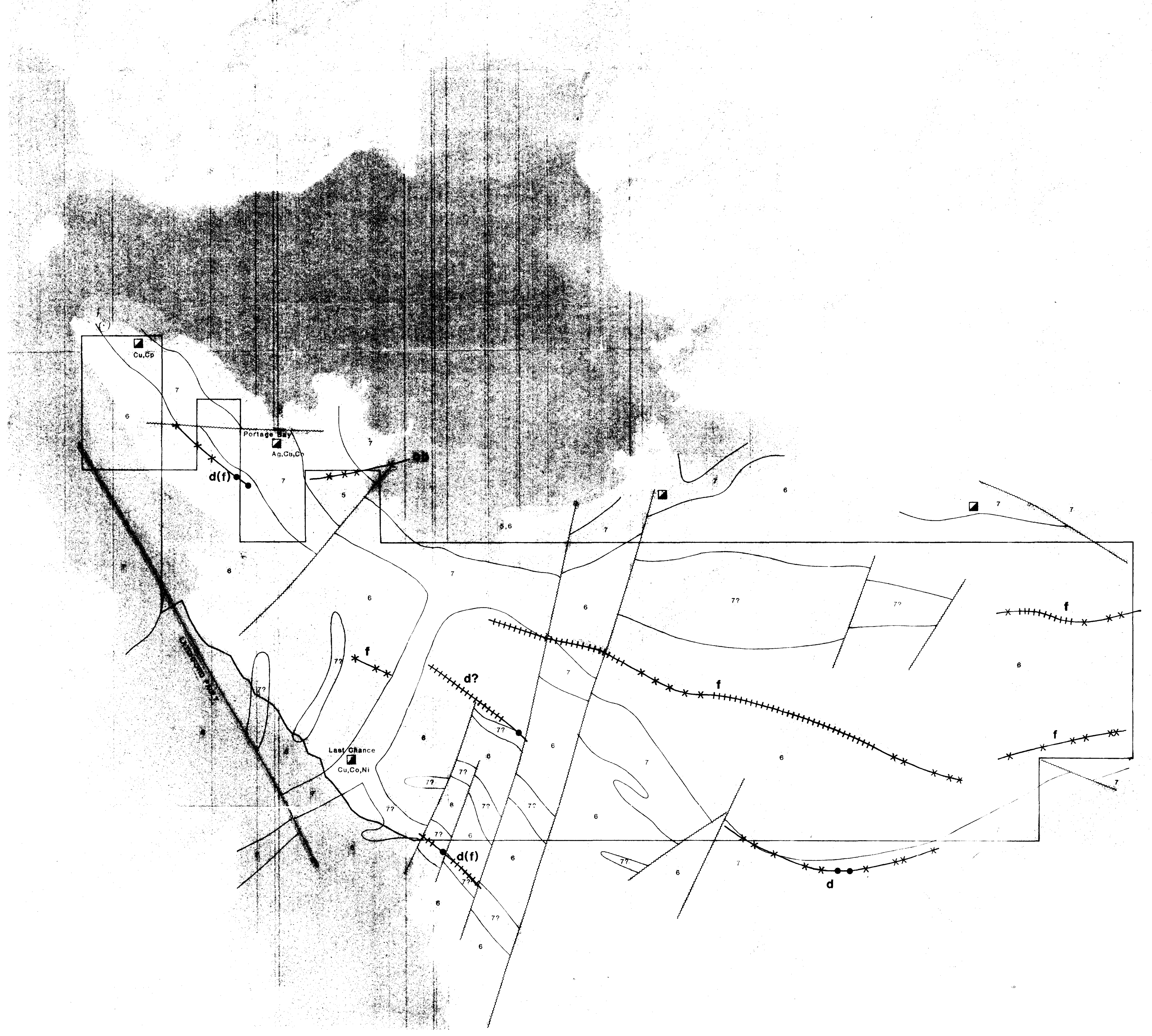
# AIRBORNE VLF–EM SURVEY

CONTOURS OF TOTAL FIELD STRENGTH
PROFILES OF QUADRATURE

KITTSON PROJECT
ONTARIO

DATE — JULY 1990

TERRAQUEST LTD.
TORONTO, CANADA




LITHOLOGY

Nipissing Diabase Sill

Lorrain Formation

Gowganda Formation

LEGEND

Survey Altitude

Line Spacing

Survey Boundary

VLF Transmitter
NAA Cutler, 24.0 kHz
Azimuth

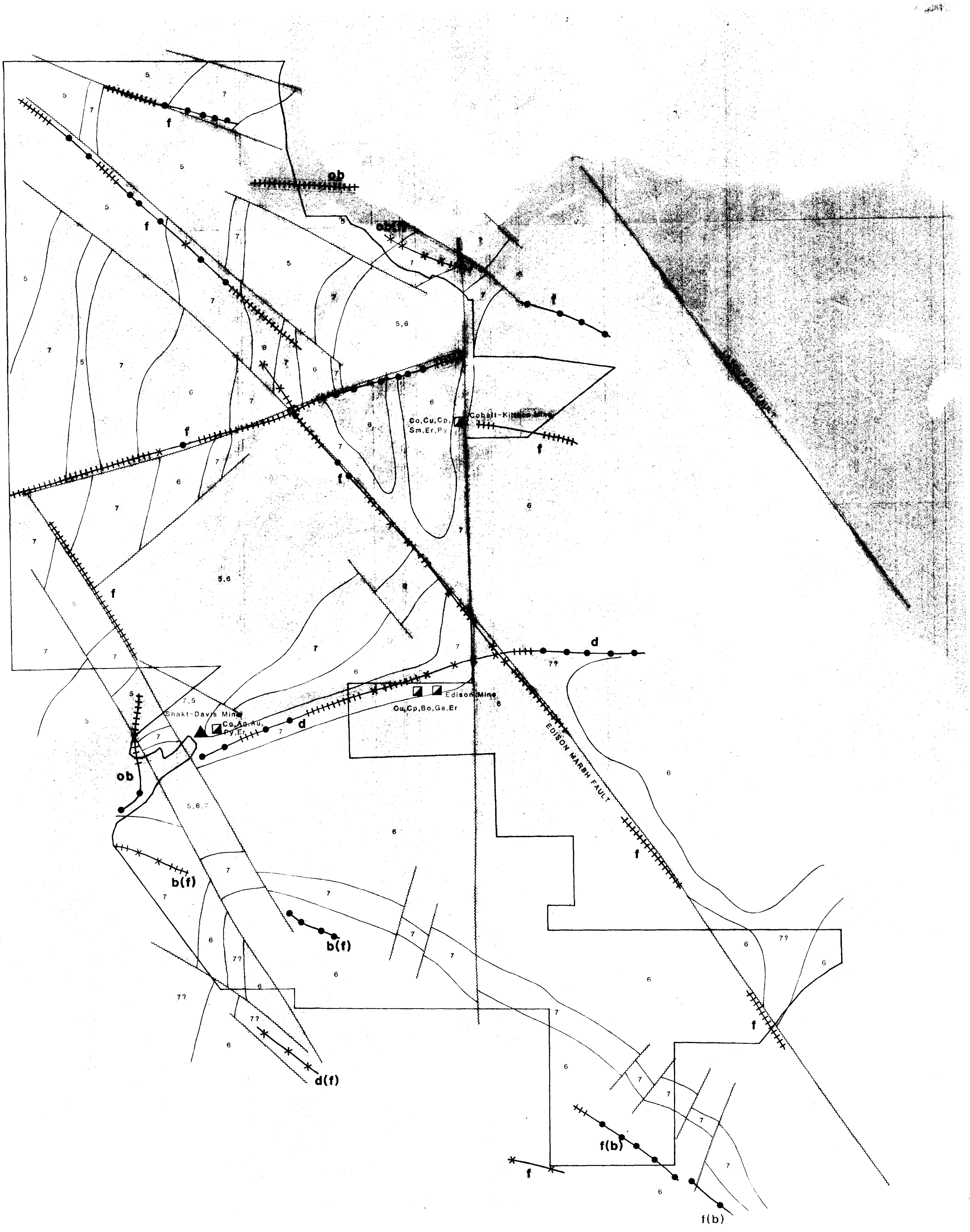
280

GENTRY RESOURCES LIMITED

INTERPRETATION

LATCHFORD PROJECT
ONTARIO

TERRAQUEST LTD.
TORONTO, CANADA




290 LITHOLOGY

LEGEND

Survey Altitude
Line Spacing
Survey Boundary

VLF Transmitter
NAA Cutler, 24.0 kHz
Azimuth

WINSLOW GOLD CORP.

INTERPRETATION

KITTSON PROJECT
ONTARIO

TERRAQUEST LTD.
TORONTO, CANADA