

**OPERATIONS REPORT**

**HIGH SENSIVITY MAGNETIC  
AIRBORNE SURVEY**

**PARKMAN PROPERTY  
PARKMAN TWP.  
ONTARIO**

for

**GRENVILLE GOLD CORPORATION**

by

**TERRAQUEST LTD.**

March 31, 2003



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2)	Calculated Vertical Magnetic Gradient and Measured Horizontal Magnetic Gradient

## 1.0 INTRODUCTION

This report describes the specification and results of an airborne geophysical survey carried out for GRENVILLE GOLD CORPORATION, 11 Arcadian Circle, Toronto, ON, M8W 2Z1, attention Mr. Timothy J. Beesley, telephone 416-253-1964, fax 416-253-9418, email tjbeesley@hotmail.com. The survey was performed by Terraquest Ltd., 1366 Boulder Creek Crs., Mississauga, Ontario, Canada L5J 4P5, telephone 905-403-0026, fax 905-403-0065 and email info@terraquest.ca.

The purpose of the survey of this type is to collect geophysical data that can be used to prospect directly for anomalous magnetic areas in the earth's crust which may be caused by or related to economic minerals. Secondly, the geophysical patterns may be used indirectly for exploration by mapping the geology in detail, including the faults, shear zones, folding, alteration zones and other structures.

To obtain this data, the area was systematically traversed by an aircraft carrying geophysical equipment along parallel flight lines spaced at even intervals and oriented so as to intersect the geology and structure in a way as to provide optimum contour patterns of the geophysical data.







## 2.0 SURVEY AREA

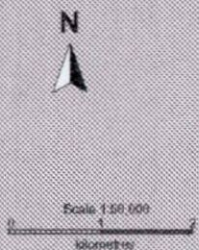
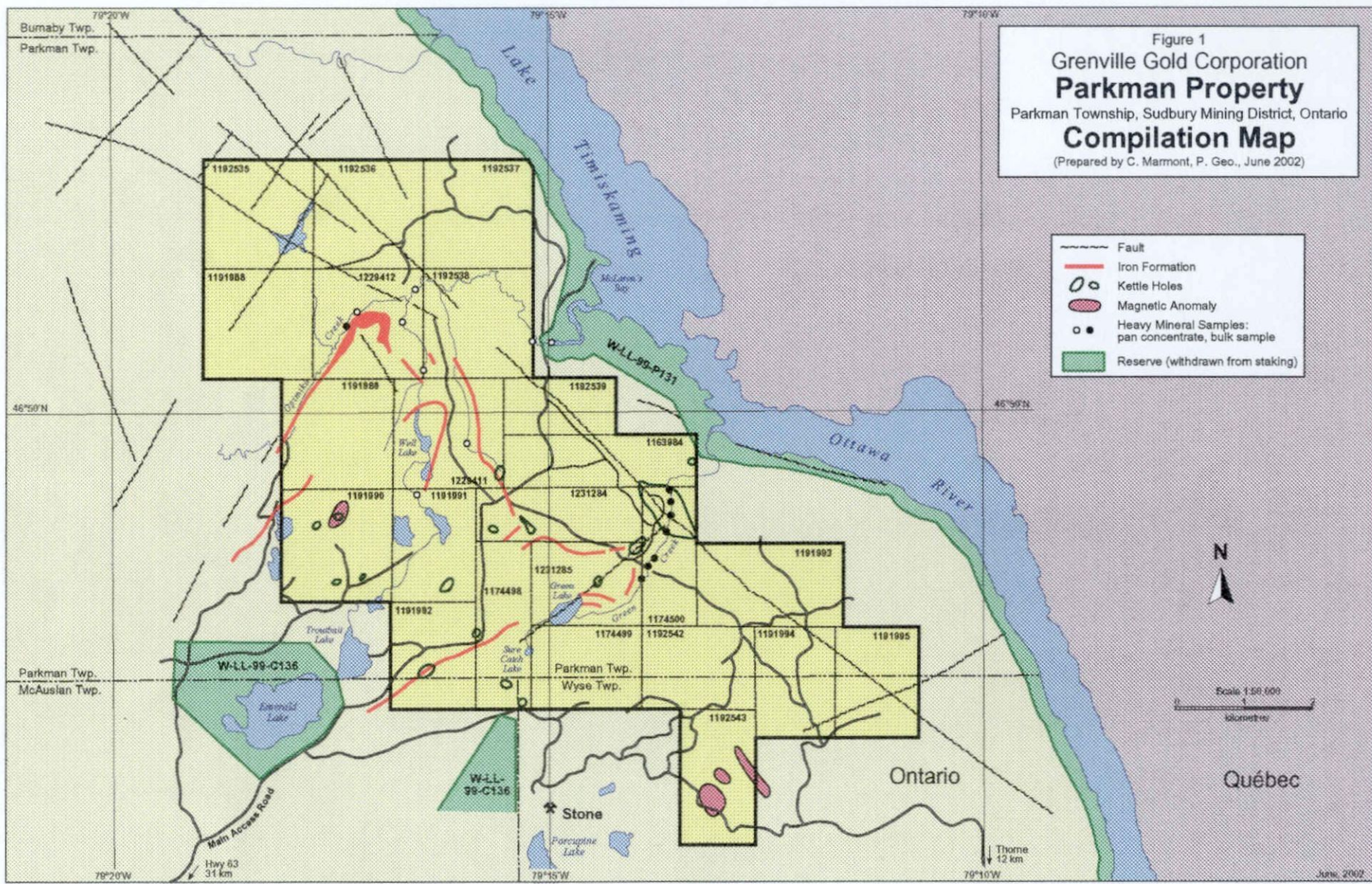
The survey area is in northeastern Ontario, approximately 50 kilometres north of North Bay and 12 kilometres north northwest of the town of Thorne. The survey block is located in Parkman and McAuslan Townships, immediately west of Lake Timiskaming and Ottawa River. The survey area is irregular in shape; the north south dimension measures approximately 10 kilometres and 10.5 kilometres east west. The survey location is 46 degrees 49 minutes north and 79 degrees 15 minutes west. The survey is in UTM Zone 17. The coordinates of the survey are as follows:

0	B095 LINES		
1	Z 17		
2	633114.0	5191336.0	AREA CORNER 1
2	633216.0	5188410.0	AREA CORNER 2
2	634415.0	5188406.0	AREA CORNER 3
2	634408.0	5187657.0	AREA CORNER 4
2	635549.0	5187299.0	AREA CORNER 5
2	637620.0	5186900.0	AREA CORNER 6
2	637621.0	5186180.0	AREA CORNER 7
2	637830.0	5186110.0	AREA CORNER 8
2	637845.0	5184911.0	AREA CORNER 9
2	638850.0	5184950.0	AREA CORNER 10
2	638940.0	5183340.0	AREA CORNER 11
2	636560.0	5183299.0	AREA CORNER 12
2	636720.0	5181880.0	AREA CORNER 13
2	635555.0	5181805.0	AREA CORNER 14
2	635308.0	5183753.0	AREA CORNER 15
2	631294.0	5183552.0	AREA CORNER 16
2	631280.0	5185155.0	AREA CORNER 17
2	629707.0	5185110.0	AREA CORNER 18
2	629603.0	5186690.0	AREA CORNER 19
2	629616.0	5188365.0	AREA CORNER 20
2	628420.0	5188290.0	AREA CORNER 21
2	628458.0	5191524.0	AREA CORNER 22
2	632985.0	5191594.0	AREA CORNER 23
2	633114.0	5191336.0	AREA CORNER 24
4	98		NUMBER OF LINES



Figure 1  
**Grenville Gold Corporation  
 Parkman Property**  
 Parkman Township, Sudbury Mining District, Ontario  
**Compilation Map**  
 (Prepared by C. Marmont, P. Geo., June 2002)

-  Fault
-  Iron Formation
-  Kettle Holes
-  Magnetic Anomaly
-  Heavy Mineral Samples:  
pan concentrate, bulk sample
-  Reserve (withdrawn from staking)





5	100.0								SPACING, m.
6	627920.0	5191505.0							MASTER LINE BL
7	639440.0	5191505.0							MASTER LINE TL
8	50								MAX CROSS TRACK, m.
9	8	-160	-176						DELTA X/Y/Z
10	5								LOG FPR EVERY 5 SECS
11	0.9996000000	0.0							0.0 K0, X/Y SHIFT
14	200								LINES EXTENDED BEYOND AREA
16	10								FIRST LINE NUMBER
17	635555.0	5181805.0	90.00						MASTER POINT, HEADING
20	CLARKE-1866	6378206.4	294.9786982	5					ELLIPSOID
21	0								NO EQUATORIAL CROSSING
30	20	9600	N	1	8				RS-232 PORT 2 INCOMING FORMAT
31	16	9600	O	1	8				RS-232 PORT 1 OUTGOING FORMAT
38	0								UTM DATA TYPE, METRIC SYSTEM
39	5								RACE TRACK
102	UTM								UTM X/Y SCALE

### 3.0 EQUIPMENT SPECIFICATIONS

#### 3.1 AIRCRAFT

The survey was carried using a single engine Cessna 206U aircraft registration C-GGLS, which carries three high sensitivity magnetometers. It is equipped with long range tanks, outboard tanks (total 9 hours range), tundra tires, cargo door and full avionics.

The aircraft has been extensively modified to support a tail stinger and two wing tip extensions. The transverse separation between the wing tip sensors is 13.5 metres and the longitudinal separation to the tail sensor is 7.2 metres. Considerable effort has been made to remove all ferruginous materials near the sensors and to ensure that the aircraft electrical system does not create any interference or noise. The figure of merit using Geological Survey of Canada standards is approximately 9 nT uncompensated and approximately 0.8 to 1.2 nT compensated depending on the latitude and geological environment..

The aircraft is owned and operated by Terraquest Ltd. under full Canadian Ministry of Transport approval and certification for specialty flying including airborne geophysical surveys. The aircraft is maintained at base operations by a regulatory AMO facility, Leggat Aviation Inc.

#### 3.2 AIRBORNE GEOPHYSICAL EQUIPMENT

The primary airborne geophysical equipment includes three high sensitivity cesium vapour magnetometers. Ancillary support equipment includes a tri-axial fluxgate magnetometer, video camera, video recorder, radar altimeter, barometric altimeter, GPS receiver, GPS receiver with a real-time correction service, and a navigation system. The navigation system comprises a left/right-up/down indicator for the pilot and a screen showing the survey area, planned flight lines, and the real time flight path. All data were collected and stored by the data acquisition system. The following provides detailed equipment specifications:

##### Cesium Vapour Magnetometer Sensors (mounted in tail stinger and wing tip extensions)

Model	CS-2
Manufacturer	Scintrex
Resolution	0.001 nT counting at 0.1 per second
Sensitivity	+/- 0.005 nT
Dynamic Range	15,000 to 100,000 nT
Fourth Difference	0.02 nT

**Tri-Axial Fluxgate Magnetic Sensor (for compensation, mounted in midpart of tail stinger)**

Model	MAG-03MC
Manufacturer	Bartington Instruments Ltd.
Input	24-34 VDC, >30 milliamps
Field Range	+/- 100,000 nanotesla
Internal noise	at 1Hz to 1 kHz: 0.6 nT rms.
Bandwidth	0 to 1 kHz maximally flat, -12 dB/octave roll off beyond 1 kHz
Freq. Response	1 to 100 Hz: +/-0.5%; 100 to 500 Hz: +/-1.5%; 0.5 to 1 kHz: +/-5.0%
Calibration. Accuracy	+/-0.5%
Orthogonality	+/-0.5% worst case
Package alignment	+/-0.5% over full temperature range
Scaling Error	absolute: +/-0.5%; between axes: +/-0.5%

**Video Camera (mounted in belly of aircraft)**

Model	VDC-2982 (colour)
Manufacturer	Sanyo
Serial Number	698000-30
Specifications	½", 470hr, 1.3LX, 12 VDC, C/CS, EI/ES, backlite compensation
Lens	Rainbow 2/3", 4.7 mm, F1.8-360, auto iris

**Video Recorder**

Model	Camcorder model VL-239
Manufacturer	Sharp
Media	8mm cassette
Serial Number	610516300

**Radar Altimeter**

Model	KRA-10A
Manufacturer	King
Serial Number	071-1114-00
Accuracy	5% up to 2,500 feet
Calibrate accuracy	1%
Output	Analog for pilot, converted to digital for data acquisition

**Barometric Altimeter**

Model	LX18001AN
Manufacturer	Sensym
Source	coupled to aircraft barometric system

**Navigation Interface (console mounted in rack with remote displays for pilot)**

Model	PNAV 2001
Manufacturer	Picodas Group Inc.
Data input	real time processing of GPS output data
Pilot readout	left/right and up/down pilot indicator
Operator readout	screen modes: map, survey and line
Data recording	all data recorded in real time by PDAS 1000

**Real-Time GPS Correction (connects to Novatel GPS receiver see below)**

Model	Landstar Mark III
Manufacturer	Racal
Antenna	post type
Operating temperature	0-50 °C
Broadcast Services	Service Satellite Link: American Satellite Corp. (AMSC) L band broadcast (1525 to 1559 MHz satellite band) Data update 2 seconds, Data latency 5-6 seconds

Cold acquisition 12 seconds  
Reacquisition 7 seconds

Power supplies:

- 1) PC6B converter to convert 13.75 volt aircraft power to 27.5 volts DC.
- 2) Power distribution unit located in the instrument rack, manufactured by Picodas Group Inc., interfaces with the aircraft power and provides filtered and continuous power at 13.75 and 27.5 VDC to components.
- 3) The 1000A console manufactured by Picodas Group Inc. contains three 32 VDC switching power supply for the cesium vapour magnetometer sensors; console also provides switching power for fluxgate magnetometer (real time magnetic compensation), radar altimeter, barometric altimeter, and ancillary equipment.

Data Acquisition System (mounted in rack)

Model	PDAS 1000
Manufacturer	Picodas Group Inc.
Operating System	MSDOS
Microprocessor	80486dx-66 CPU
Coprocessor	Intel 80486dx
Memory	on board 8 MB, page interleaving, shadow RAM for BIOS, EMS 4.0
Clock	real time, hardware implementation of MC14618 in the integrated peripheral controller
I/O slots	5 AT and 3 PC compatible slots
Display	electroluminescent 640 x 400 pixels
Graphic display	scrolling analog chart with 5 windows operator selectable, freeze display capability to hold image for inspection
Recording media	standard hard drive with extra shock mounts, standard floppy drive and quarter inch tape backup (QIC format)
Sampling	selectable sampling for each input type: 1.0, 0.5, 0.25, 0.2, 0.1 seconds
Inputs	12 differential analog input with 16 bit resolution
Serial ports	2 RS-232C (expandable)
Parallel ports	10 definable 8 bit I/O; 2 definable 8 bit outputs

The PDAS 1000 contains several boards as described below:

Magnetometer Board (three boards, one for each magnetometer sensor)

Model	PCB
Manufacturer	Picodas Group Inc.
Input range	20,000 – 100,000 nT
Sampling	1,000 per second
Bandwidth	selectable 0.7, 1.0 or 2.0 Hz
Resolution	0.0001 nT
Microprocessor	TMS 9995
Firmware	8 Kbit EPROM board resident
Internal crystal	18,432 kHz
Crystal accuracy	absolute <0.01%
Host interfacing	8 kByte dual port memory
Address selection	within 20 bit addressing in 8 kByte software selectable steps
Input signal	TTL, CMOS, open collectible compatible or sine wave with decoupler
Input impedance	TTL >1 kOhm

Magnetic compensation for aircraft and heading effects is done in real time. Raw magnetic values are also stored and thus compensation with different variable can be performed at a later date.

GPS Differential Receiver Board

Model	GPS card 3951 R
-------	-----------------



Manufacturer	Novatel
Antenna	Model 511, low profile
Channels	12
Position update	0.2 second for navigation
Accuracy	position with SA implement 100 metres, with no SA 10 metres, velocity 0.1 knot time recovery 1pps, 100 nsec pulse width
Data recording	all raw GPS and positional data logged by PDAS1000

#### Analog Processor Board

Model	PCB
Manufacturer	Picodas Group Inc.
	Provides separate A/D converter for each analog input with no multiplexing; each channel is sampled at a rate of 1,000 samples per second with digital processing applied

### 3.3 BASE STATION EQUIPMENT

High sensitivity magnetic base station data was provided by a cesium vapour magnetometer logging onto a notebook and with time synchronization from the GPS base station receiver.

The magnetometer is the same as used in the aircraft, a CS-2 magnetometer manufactured by Scintrex. The processor is also the same as used in the aircraft but is housed in a portable box model MEP-710, manufactured by Picodas Group Inc. The logging software is written by Picodas Group Inc., BASEMAG version 5.02 for an IBM compatible PC (notebook) with RS232 input. It supports real time graphics, automatic startup, compressed data storage, selectable start/stop times, plotting of data to screen or printer at user-selected scales, and fourth-digital difference and diurnal quality flags which are set by user in BASEPLOT. Time recorded is taken from the base GPS receiver.

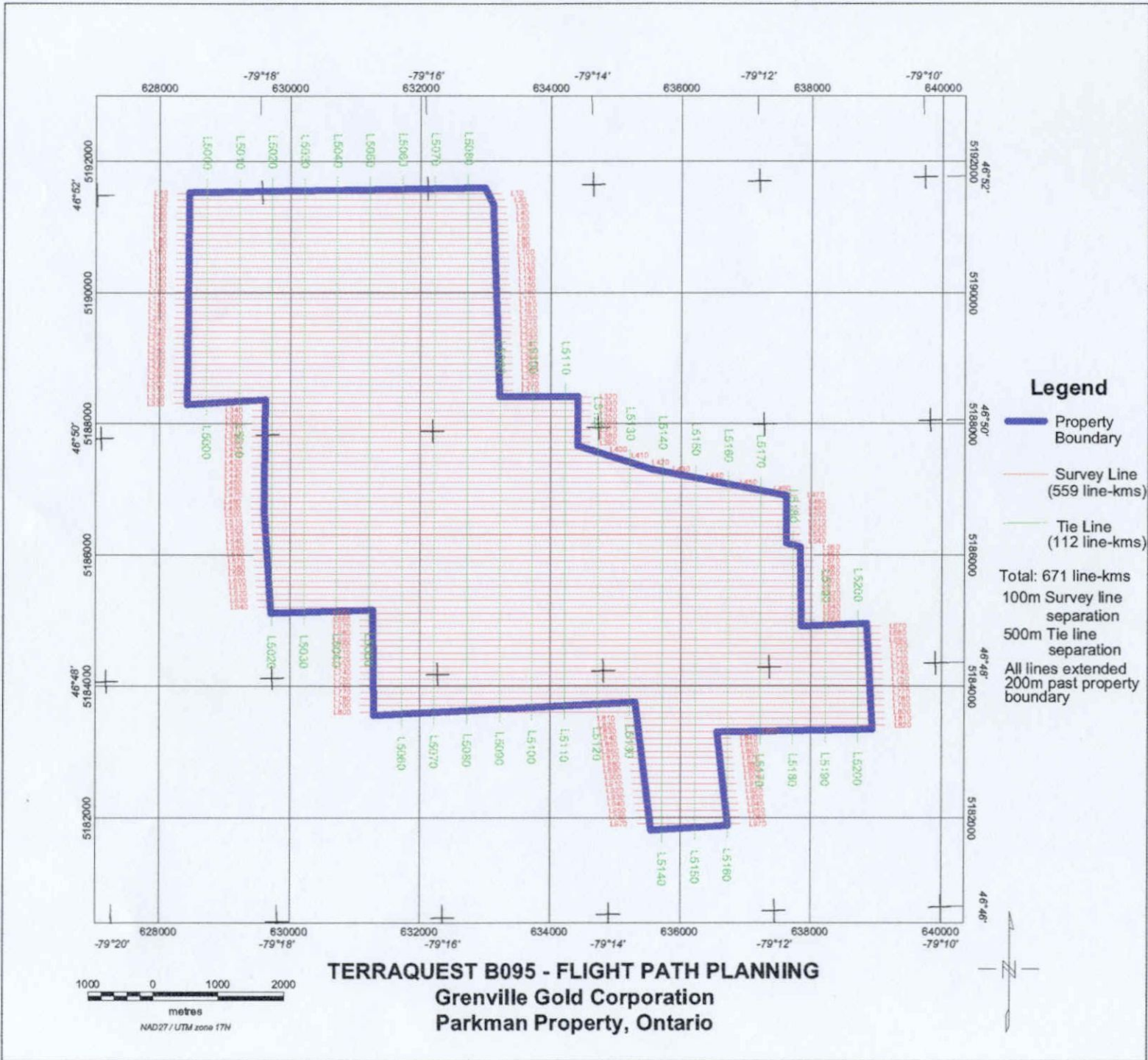
The GPS base station data are provided by a GPS receiver, with logging onto a notebook..

Model	MX 4200D
Manufacturer	Magnavox
Serial number	5057
Type	continuous tracking, L1 frequency, C/A ode (SPS), 6-channel independent
Receiver sensitivity	-143 dBm Costas threshold
Logging rate	1 per second

### 4.0 SURVEY SPECIFICATIONS

#### 4.1 LINES AND DATA

Survey lines	534 km
Tie lines	<u>112</u> km
Total Block	646 km
Survey Line Interval	100 metres
Tie Line Interval	500 km
Survey Line Direction	090 degrees
Tie Line Direction	360 degrees
Terrain Clearance	80 metres (mean terrain clearance)
Average Ground Speed	60 metres/second
Data Point Interval	6 metres



**TERRAQUEST B095 - FLIGHT PATH PLANNING**  
 Grenville Gold Corporation  
 Parkman Property, Ontario

## **4.2 TOLERANCES**

**Line Spacing:** Reflights will take place if the final differentially corrected flight path deviates from the intended flight path by +/-25 metres over a distance greater than 1 kilometre.

**Terrain Clearance:** The aircraft terrain clearance will be smoothly maintained at 80 metres MTC in a drape mode. Reflights will take place if the final differentially corrected altitude deviates from the flight altitude by +/-35% over a distance of one kilometre or more.

**Diurnal Magnetic Variation:** The airborne survey will be confined to periods in which the diurnal activity is 2 nT or less over a chord of 30 seconds in length.

**GPS Data:** GPS data shall include at least four satellites for accurate navigation and flight path recovery. There shall be no significant gaps in any of the digital data including GPS and magnetic data.

## **4.3 NAVIGATION AND RECOVERY**

The satellite navigation system was used to ferry to the survey sites and to survey along each line. The survey coordinates of each area outline were supplied by the client in longitude/latitude and were used to establish the survey boundaries and the flight lines. The Clark 1866 ellipsoid for Mean Continental USA was used with x-y-z delta shifts of 8, -160 and -176 respectively. The UTM zone is 17.

The flight path guidance accuracy is variable depending upon the number and condition (health) of the satellites employed. The selective availability normally imposed by the military was at a minimum during this period and consequently the accuracy was for the most part better than 10 metres. Real-time correction using the Racal (receiver and broadcast services) improves the accuracy to about 3 metres or less.

A video camera recorded the ground image along the flight path. A video display screen in the cockpit enabled the operator to monitor the flight path during the survey.

## **4.4 OPERATIONAL LOGISTICS**

The base of operations was in North Bay, Ontario. The base station (combined high sensitivity magnetic and GPS) was set up at the airport, well away from cultural interference.

The survey was flown successfully in 6 flights GLS346, 347, 348, 351, 354 and 355 from March 18<sup>th</sup> to 30<sup>th</sup>. Survey productivity was hindered by high winds, poor visibility, and aircraft maintenance.

## **5.0 DATA PROCESSING**

The data were transmitted via an FTP site to Controlled Geophysics Inc. (CGI) processing laboratory in Thornhill, Ontario, Canada where it was reviewed thoroughly for quality control and tolerances on all channels. This included any corrections to the flight path, making flight path plots, importing the base station data, creating a database on a flight by flight basis, and posting the data. All data were checked for continuity and integrity. Any errors or omission or data beyond tolerances were flagged for reflight and the crew was notified by return FTP transmission, ready for their flight in the morning.

The final processing involved tie line leveling in the standard manner by tying the survey lines to the tie lines using GEOSOFT software. The total field was gridded and microlevelled in the Fourier domain (generally less than 1 nT corrections) to reduce any linear noise along the flight path without degrading the geologic signal. The vertical magnetic gradient was calculated from the final processed total magnetic field gridded data. The final levelled datasets were gridded and were contoured.



The measured horizontal gradient was obtained as follows: a) the transverse gradient is the value from the left sensor minus the value from the right sensor divided by their separation, b) the longitudinal gradient is the difference between the tail sensor and the average of the left and right sensors, and divided by the longitudinal separation, c) the horizontal gradient is the vector sum of the transverse and longitudinal gradients. In addition every other line is flipped to accommodate the flight direction and a shift is applied to equalize the sensors.

The final processed magnetic data were plotted as maps of total magnetic field and calculated vertical gradient. The horizontal gradient was plotted as vectors along the flight lines on the same plot as the calculated vertical gradient. The scanned image of the topography was included with the magnetic data as an underlay. The final processed database and gridded data are archived in a CD-ROM disk.

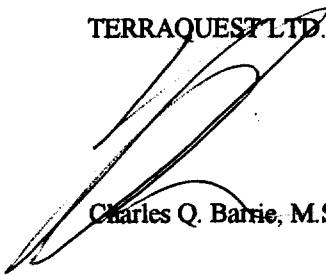
## 6.0 SUMMARY

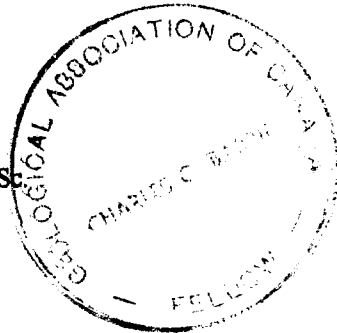
An airborne high sensitivity magnetic survey with three magnetometers was performed at 80 metre mean terrain clearance, 100 metre line interval, 500 metre tie line interval, and data sample points at 6 metres along the flight lines. A high sensitivity magnetic and a GPS base station located in North bay, Ontario recorded the diurnal magnetic activity and reference GPS data during the survey for adherence to survey tolerances.

The data were subjected to final processing to produce digital files and plots of a) total magnetic field and b) calculated vertical magnetic gradient combined with vectors of the measured horizontal gradient which are plotted along the flight lines. All data have been archived on a CD-ROM.

Respectfully Submitted,

TERRAQUEST LTD.

  
Charles Q. Barrie, M.Sc.



## **APPENDIX I**

### **PERSONNEL**

<b>Field:</b>	<b>Pilot Operators</b>	<b>Katherine Haight, Todd Whitley, Philip Briggs</b>
<b>Office:</b>	<b>Chief Geophysicist Manager</b>	<b>Chris Vaughan (CGI) Charles Barrie</b>

## **APPENDIX II**

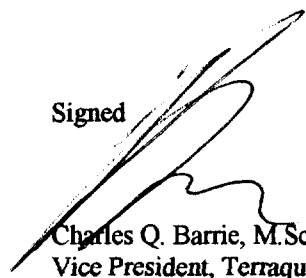
### **CERTIFICATE OF QUALIFICATION**

I, Charles Barrie, certify that I:

- 1) am registered as a Fellow with the Geological Association of Canada and work professionally as a geologist,
- 2) hold an Honours degree in Geology from McMaster University, Canada, obtained in 1977,
- 3) hold an M.Sc. in Geology from Dalhousie University, Canada, obtained in 1980,
- 4) am a member of the Prospectors and Developers Association of Canada,
- 5) am a member of the Canadian Institute of Mining, Metallurgy and Petroleum,
- 6) have worked as a geologist for over twenty five years,
- 7) am employed by and am an owner of Terraquest Ltd., specializing in high sensitivity airborne geophysical surveys, and
- 8) have prepared this operations and specifications report pertaining to airborne data collected by Terraquest Ltd..

Mississauga, Ontario, Canada

Signed

  
Charles Q. Barrie, M.Sc.  
Vice President, Terraquest Ltd.

□□□

**Christopher Marmont, M.Sc., P.Geo.**  
**Consulting Geologist**  
1165 Queen's Avenue  
Oakville, Ontario  
Canada. L6H 2B3

Tel (905) 845-2179  
Fax (905) 845-5644  
E-Mail [chrismarmont@cogeco.ca](mailto:chrismarmont@cogeco.ca)

April 2, 2003

Geoscience Assessment Office,  
Mining Lands Section,  
MNDM, 6<sup>th</sup>. Floor,  
933 Ramsey Lake Road,  
Sudbury, Ontario.  
P3E 6B5.

**Re: Declaration of Assessment Work Performed on Mining Claims,  
Parkman, McAuslan and Wyse Townships, Sudbury Mining Division.**

Dear Sir/Madam,

Please find attached the following items relevant to mining claims in the above listed townships:

- A. Application to Distribute Banked Assessment Work Credits ✓
- B. Form 241, Declaration of Assessment Work Performed on Mining Lands ✓
- C. Form 212, Statement of Costs for Assessment Credit ✓
- D. Two copies of Technical Report of Assessment Work ✓
- E. Contiguity Sketch ✓

The immediate concern is for claims 1163584, 1174498, 1174499 and 1174500, whose due date is April 11, 2003. Please apply the distribution of banked credits prior to applying the costs of the survey being reported in this submission.

Please note that because the airborne geophysical survey was completed only in late March the technical report is preliminary in nature. I will forward the Final Report to you as soon as possible. The Contractor advises me that this normally takes about 5 weeks. *rec'd June 10/03.*

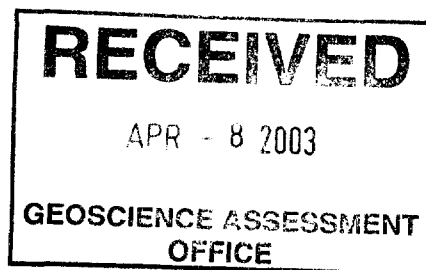
I believe that the costs of the survey submitted herein and banked assessment work credits will readily meet assessment work requirements.

If you have any questions, please do not hesitate to call me.

Yours sincerely,

*C. Marmont.*

Christopher Marmont.





**OPERATIONS REPORT**

**HIGH SENSIVITY MAGNETIC  
& VLF-EM AIRBORNE SURVEY**

**PARKMAN PROPERTY  
PARKMAN TWP.  
ONTARIO**

for

2

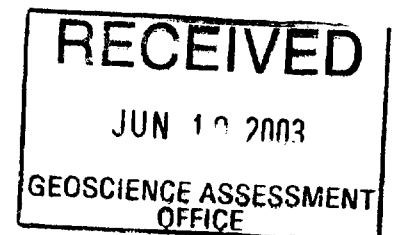
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March 31, 2003



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The purpose of the survey of this type is to collect geophysical data that can be used to prospect directly for anomalous magnetic areas in the earth's crust which may be caused by or related to economic minerals. Secondly, the geophysical patterns may be used indirectly for exploration by mapping the geology in detail, including the faults, shear zones, folding, alteration zones and other structures.

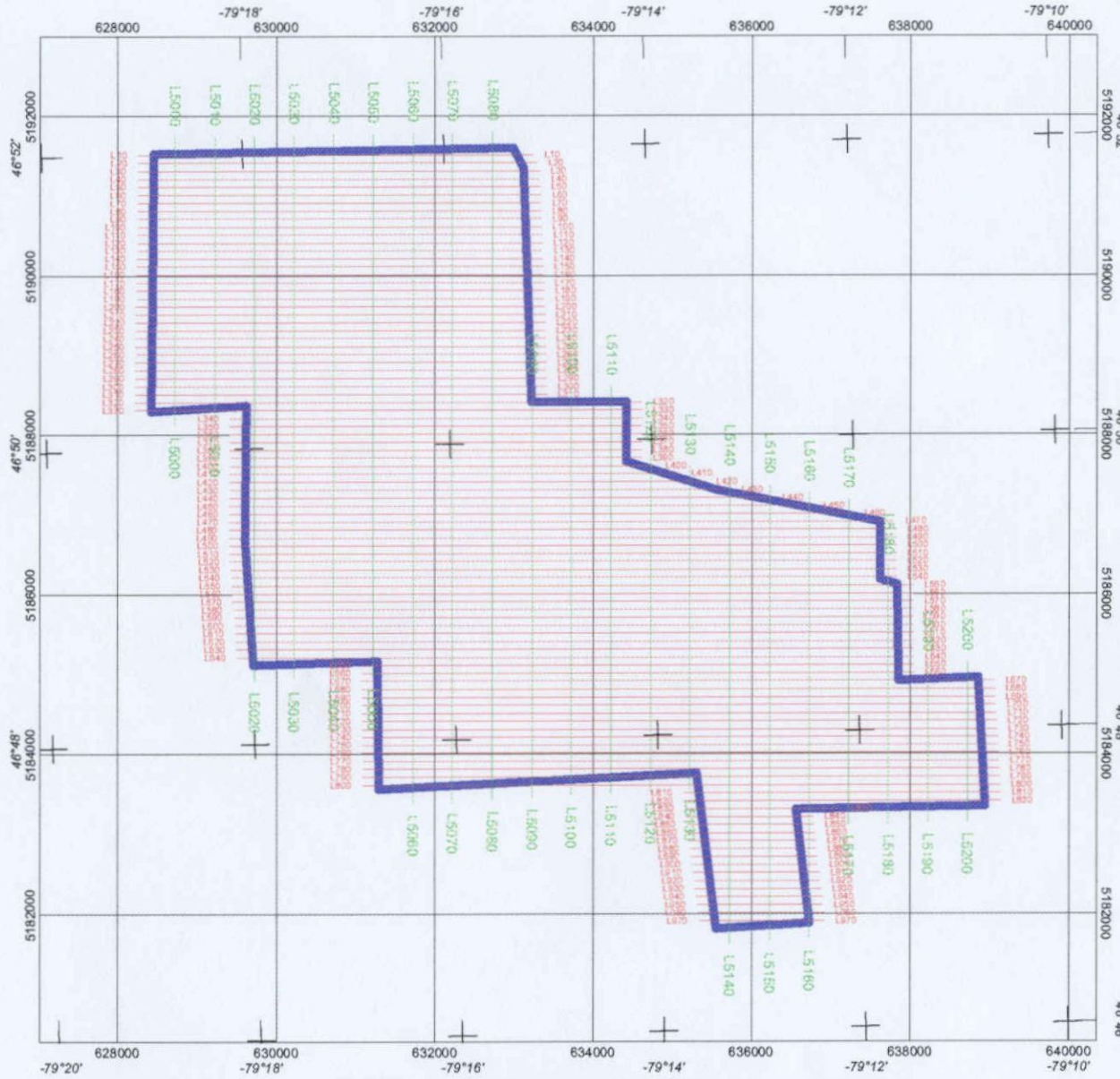
To obtain this data, the area was systematically traversed by an aircraft carrying geophysical equipment along parallel flight lines spaced at even intervals and oriented so as to intersect the geology and structure in a way as to provide optimum contour patterns of the geophysical data.

## 2.0 SURVEY AREA




The survey area is in northeastern Ontario, approximately 50 kilometres north of North Bay and 12 kilometres north northwest of the town of Thorne. The survey block is located in Parkman and McAuslan Townships, immediately west of Lake Timiskaming and Ottawa River. The survey area is irregular in shape; the north south dimension measures approximately 10 kilometres and 10.5 kilometres east west. The survey location is 46 degrees 49 minutes north and 79 degrees 15 minutes west. The survey is in UTM Zone 17. The coordinates of the survey are as follows:

0	B095 LINES		
1	Z 17		
2	633114.0	5191336.0	AREA CORNER 1
2	633216.0	5188410.0	AREA CORNER 2
2	634415.0	5188406.0	AREA CORNER 3
2	634408.0	5187657.0	AREA CORNER 4
2	635549.0	5187299.0	AREA CORNER 5
2	637620.0	5186900.0	AREA CORNER 6
2	637621.0	5186180.0	AREA CORNER 7
2	637830.0	5186110.0	AREA CORNER 8
2	637845.0	5184911.0	AREA CORNER 9
2	638850.0	5184950.0	AREA CORNER 10
2	638940.0	5183340.0	AREA CORNER 11
2	636560.0	5183299.0	AREA CORNER 12
2	636720.0	5181880.0	AREA CORNER 13
2	635555.0	5181805.0	AREA CORNER 14
2	635308.0	5183753.0	AREA CORNER 15
2	631294.0	5183552.0	AREA CORNER 16
2	631280.0	5185155.0	AREA CORNER 17
2	629707.0	5185110.0	AREA CORNER 18
2	629603.0	5186690.0	AREA CORNER 19
2	629616.0	5188365.0	AREA CORNER 20
2	628420.0	5188290.0	AREA CORNER 21
2	628458.0	5191524.0	AREA CORNER 22
2	632985.0	5191594.0	AREA CORNER 23
2	633114.0	5191336.0	AREA CORNER 24
4	98		NUMBER OF LINES



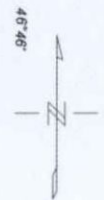
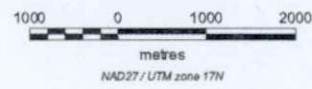


**Legend**

-  Property Boundary
-  Survey Line (559 line-kms)
-  Tie Line (112 line-kms)

Total: 671 line-kms  
100m Survey line separation  
500m Tie line separation  
All lines extended 200m past property boundary

**TERRAQUEST B095 - FLIGHT PATH PLANNING**  
Grenville Gold Corporation  
Parkman Property, Ontario



5	100.0								SPACING, m.
6	627920.0	5191505.0							MASTER LINE BL
7	639440.0	5191505.0							MASTER LINE TL
8	50								MAX CROSS TRACK, m.
9	8	-160	-176						DELTA X/Y/Z
10	5								LOG FPR EVERY 5 SECS
11	0.9996000000		0.0						0.0 K0, X/Y SHIFT
14	200								LINES EXTENDED BEYOND AREA
16	10								FIRST LINE NUMBER
17	635555.0	5181805.0	90.00						MASTER POINT, HEADING
20	CLARKE-1866	6378206.4	294.9786982	5					ELLIPSOID
21	0								NO EQUATORIAL CROSSING
30	20	9600	N	1	8				RS-232 PORT 2 INCOMING FORMAT
31	16	9600	O	1	8				RS-232 PORT 1 OUTGOING FORMAT
38	0								UTM DATA TYPE, METRIC SYSTEM
39	5								RACE TRACK
102	UTM								UTM X/Y SCALE

### 3.0 EQUIPMENT SPECIFICATIONS

#### 3.1 AIRCRAFT

The survey was carried using a single engine Cessna 206U aircraft registration C-GGLS, which carries three high sensitivity magnetometers. It is equipped with long range tanks, outboard tanks (total 9 hours range), tundra tires, cargo door and full avionics.

The aircraft has been extensively modified to support a tail stinger and two wing tip extensions. The transverse separation between the wing tip sensors is 13.5 metres and the longitudinal separation to the tail sensor is 7.2 metres. Considerable effort has been made to remove all ferruginous materials near the sensors and to ensure that the aircraft electrical system does not create any interference or noise. The figure of merit using Geological Survey of Canada standards is approximately 9 nT uncompensated and approximately 0.8 to 1.2 nT compensated depending on the latitude and geological environment..

The aircraft is owned and operated by Terraquest Ltd. under full Canadian Ministry of Transport approval and certification for specialty flying including airborne geophysical surveys. The aircraft is maintained at base operations by a regulatory AMO facility, Leggat Aviation Inc.

#### 3.2 AIRBORNE GEOPHYSICAL EQUIPMENT

The primary airborne geophysical equipment includes three high sensitivity cesium vapour magnetometers. Ancillary support equipment includes a tri-axial fluxgate magnetometer, video camera, video recorder, radar altimeter, barometric altimeter, GPS receiver, GPS receiver with a real-time correction service, and a navigation system. The navigation system comprises a left/right-up/down indicator for the pilot and a screen showing the survey area, planned flight lines, and the real time flight path. All data were collected and stored by the data acquisition system. The following provides detailed equipment specifications:

Cesium Vapour Magnetometer Sensors (mounted in tail stinger and wing tip extensions)	
Model	CS-2
Manufacturer	Scintrex
Resolution	0.001 nT counting at 0.1 per second
Sensitivity	+/- 0.005 nT
Dynamic Range	15,000 to 100,000 nT
Fourth Difference	0.02 nT

**Tri-Axial Fluxgate Magnetic Sensor (for compensation, mounted in midpart of tail stinger)**

Model	MAG-03MC
Manufacturer	Bartington Instruments Ltd.
Input	24-34 VDC, >30 milliamps
Field Range	+/- 100,000 nanotesla
Internal noise	at 1Hz to 1 kHz: 0.6 nT rms.
Bandwidth	0 to 1 kHz maximally flat, -12 dB/octave roll off beyond 1 kHz
Freq. Response	1 to 100 Hz: +/-0.5%; 100 to 500 Hz: +/-1.5%; 0.5 to 1 kHz: +/-5.0%
Calibration Accuracy	+/-0.5%
Orthogonality	+/-0.5% worst case
Package alignment	+/-0.5% over full temperature range
Scaling Error	absolute: +/-0.5%; between axes: +/-0.5%

VLF-EM System: uses 3 orthogonal coils mounted in tube projected forward from the midpoint of the port wing, coupled with a rack mounted receiver-console to measure the total field strength and quadrature components of the VLF field using the transmitter in Maine NAA frequency 24 kHz.

Model	TOTEM 2A
Manufacturer	Hertz Industries
Accuracy	1%
Sampling Interval	0.5 seconds

**Video Camera (mounted in belly of aircraft)**

Model	VDC-2982 (colour)
Manufacturer	Sanyo
Serial Number	698000-30
Specifications	½", 470hr, 1.3LX, 12 VDC, C/CS, EI/ES, backlite compensation
Lens	Rainbow 2/3", 4.7 mm, F1.8-360, auto iris

**Video Recorder**

Model	Camcorder model VL-239
Manufacturer	Sharp
Media	8mm cassette
Serial Number	610516300

**Radar Altimeter**

Model	KRA-10A
Manufacturer	King
Serial Number	071-1114-00
Accuracy	5% up to 2,500 feet
Calibrate accuracy	1%
Output	Analog for pilot, converted to digital for data acquisition

**Barometric Altimeter**

Model	LX18001AN
Manufacturer	Sensym
Source	coupled to aircraft barometric system

**Navigation Interface (console mounted in rack with remote displays for pilot)**

Model	PNAV 2001
Manufacturer	Picodas Group Inc.
Data input	real time processing of GPS output data
Pilot readout	left/right and up/down pilot indicator
Operator readout	screen modes: map, survey and line
Data recording	all data recorded in real time by PDAS 1000

Real-Time GPS Correction (connects to Novatel GPS receiver see below)

Model	Landstar Mark III
Manufacturer	Racal
Antenna	post type
Operating temperature	0-50 °C
Broadcast Services	Service Satellite Link: American Satellite Corp. (AMSC) L band broadcast (1525 to 1559 MHz satellite band) Data update 2 seconds, Data latency 5-6 seconds Cold acquisition 12 seconds Reacquisition 7 seconds

Power supplies:

- 1) PC6B converter to convert 13.75 volt aircraft power to 27.5 volts DC.
- 2) Power distribution unit located in the instrument rack, manufactured by Picodas Group Inc., interfaces with the aircraft power and provides filtered and continuous power at 13.75 and 27.5 VDC to components.
- 3) The 1000A console manufactured by Picodas Group Inc. contains three 32 VDC switching power supply for the cesium vapour magnetometer sensors; console also provides switching power for fluxgate magnetometer (real time magnetic compensation), radar altimeter, barometric altimeter, and ancillary equipment.

Data Acquisition System (mounted in rack)

Model	PDAS 1000
Manufacturer	Picodas Group Inc.
Operating System	MSDOS
Microprocessor	80486dx-66 CPU
Coprocessor	Intel 80486dx
Memory	on board 8 MB, page interleaving, shadow RAM for BIOS, EMS 4.0
Clock	real time, hardware implementation of MC14618 in the integrated peripheral controller
I/O slots	5 AT and 3 PC compatible slots
Display	electroluminescent 640 x 400 pixels
Graphic display	scrolling analog chart with 5 windows operator selectable, freeze display capability to hold image for inspection
Recording media	standard hard drive with extra shock mounts, standard floppy drive and quarter inch tape backup (QIC format)
Sampling	selectable sampling for each input type: 1.0, 0.5, 0.25, 0.2, 0.1 seconds
Inputs	12 differential analog input with 16 bit resolution
Serial ports	2 RS-232C (expandable)
Parallel ports	10 definable 8 bit I/O; 2 definable 8 bit outputs

The PDAS 1000 contains several boards as described below:

Magnetometer Board (three boards, one for each magnetometer sensor)

Model	PCB
Manufacturer	Picodas Group Inc.
Input range	20,000 – 100,000 nT
Sampling	1,000 per second
Bandwidth	selectable 0.7, 1.0 or 2.0 Hz
Resolution	0.0001 nT
Microprocessor	TMS 9995
Firmware	8 Kbit EPROM board resident
Internal crystal	18,432 kHz
Crystal accuracy	absolute <0.01%
Host interfacing	8 kByte dual port memory
Address selection	within 20 bit addressing in 8 kByte software selectable steps

Input signal	TTL, CMOS, open collectible compatible or sine wave with decoupler
Input impedance	TTL>1 kOhm

Magnetic compensation for aircraft and heading effects is done in real time. Raw magnetic values are also stored and thus compensation with different variable can be performed at a later date.

#### GPS Differential Receiver Board

Model	GPS card 3951 R
Manufacturer	Novatel
Antenna	Model 511, low profile
Channels	12
Position update	0.2 second for navigation
Accuracy	position with SA implement 100 metres, with no SA 10 metres, velocity 0.1 knot time recovery 1pps, 100 nsec pulse width
Data recording	all raw GPS and positional data logged by PDAS1000

#### Analog Processor Board

Model	PCB
Manufacturer	Picodas Group Inc. Provides separate A/D converter for each analog input with no multiplexing; each channel is sampled at a rate of 1,000 samples per second with digital processing applied

### 3.3 BASE STATION EQUIPMENT

High sensitivity magnetic base station data was provided by a cesium vapour magnetometer logging onto a notebook and with time synchronization from the GPS base station receiver.

The magnetometer is the same as used in the aircraft, a CS-2 magnetometer manufactured by Scintrex. The processor is also the same as used in the aircraft but is housed in a portable box model MEP-710, manufactured by Picodas Group Inc. The logging software is written by Picodas Group Inc., BASEMAG version 5.02 for an IBM compatible PC (notebook) with RS232 input. It supports real time graphics, automatic startup, compressed data storage, selectable start/stop times, plotting of data to screen or printer at user-selected scales, and fourth-digital difference and diurnal quality flags which are set by user in BASEPLOT. Time recorded is taken from the base GPS receiver.

The GPS base station data are provided by a GPS receiver, with logging onto a notebook..

Model	MX 4200D
Manufacturer	Magnavox
Serial number	5057
Type	continuous tracking, L1 frequency, C/A ode (SPS), 6-channel independent
Receiver sensitivity	-143 dBm Costas threshold
Logging rate	1 per second

## 4.0 SURVEY SPECIFICATIONS

### 4.1 LINES AND DATA

Survey lines	534 km
Tie lines	<u>112</u> km
Total Block	646 km

Survey Line Interval	100 metres
Tie Line Interval	500 km
Survey Line Direction	090 degrees
Tie Line Direction	360 degrees
Terrain Clearance	80 metres (mean terrain clearance)
Average Ground Speed	60 metres/second
Data Point Interval	6 metres

## 4.2 TOLERANCES

**Line Spacing:** Reflights will take place if the final differentially corrected flight path deviates from the intended flight path by +/-25 metres over a distance greater than 1 kilometre.

**Terrain Clearance:** The aircraft terrain clearance will be smoothly maintained at 80 metres MTC in a drape mode. Reflights will take place if the final differentially corrected altitude deviates from the flight altitude by +/-35% over a distance of one kilometre or more.

**Diurnal Magnetic Variation:** The airborne survey will be confined to periods in which the diurnal activity is 2 nT or less over a chord of 30 seconds in length.

**GPS Data:** GPS data shall include at least four satellites for accurate navigation and flight path recovery. There shall be no significant gaps in any of the digital data including GPS and magnetic data.

## 4.3 NAVIGATION AND RECOVERY

The satellite navigation system was used to ferry to the survey sites and to survey along each line. The survey coordinates of each area outline were supplied by the client in longitude/latitude and were used to establish the survey boundaries and the flight lines. The Clark 1866 ellipsoid for Mean Continental USA was used with x-y-z delta shifts of 8, -160 and -176 respectively. The UTM zone is 17.

The flight path guidance accuracy is variable depending upon the number and condition (health) of the satellites employed. The selective availability normally imposed by the military was at a minimum during this period and consequently the accuracy was for the most part better than 10 metres. Real-time correction using the Racal (receiver and broadcast services) improves the accuracy to about 3 metres or less.

A video camera recorded the ground image along the flight path. A video display screen in the cockpit enabled the operator to monitor the flight path during the survey.

## 4.4 OPERATIONAL LOGISTICS

The base of operations was in North Bay, Ontario. The base station (combined high sensitivity magnetic and GPS) was set up at the airport, well away from cultural interference.

The survey was flown successfully in 6 flights GLS346, 347, 348, 351, 354 and 355 from March 18<sup>th</sup> to 30<sup>th</sup>. Survey productivity was hindered by high winds, poor visibility, and aircraft maintenance.

## 5.0 DATA PROCESSING

The data were transmitted via an FTP site to Controlled Geophysics Inc. (CGI) processing laboratory in Thornhill, Ontario, Canada where it was reviewed thoroughly for quality control and tolerances on all channels. This included any corrections to the flight path, making flight path plots, importing the base station data, creating a database on a flight by flight basis, and posting the data. All data were checked for



continuity and integrity. Any errors or omission or data beyond tolerances were flagged for reflight and the crew was notified by return FTP transmission, ready for their flight in the morning.

The final processing involved tie line leveling of the tail stinger magnetometer in the standard manner by tying the survey lines to the tie lines using GEOSOFT software. The total field was gridded and microlevelled in the Fourier domain (generally less than 1 nT corrections) to reduce any linear noise along the flight path without degrading the geologic signal. The vertical magnetic gradient was calculated from the final processed total magnetic field gridded data. The final levelled datasets were gridded and were contoured.

The measured horizontal gradient was obtained as follows. a) The raw transverse gradient is the value from the left sensor minus the value from the right sensor divided by their separation. b) The raw longitudinal gradient is the difference between the tail sensor and the average of the left and right sensors, and divided by the longitudinal separation. c) The raw gradients are then DC shifted to account for line heading effects and differences in the sensors. d) The gradients are then rotated from aircraft centric components to true geographic components; these are the final North and East gradients, which are listed in the database. e) The map product is the total horizontal gradient, which is the vector sum of the transverse and longitudinal gradients such that the direction of the arrow is the orientation of the total horizontal gradient and the length represents the magnitude.

The total field strength of the VLF-EM data was gridded, shifted to account for heading variations, levelled and contoured. Every other line of the quadrature data was flipped according to heading and plotted in profile format along the flight lines.

The final processed magnetic data are plotted as maps of a) contours of total magnetic field and b) magnetic gradients. The calculated vertical gradient is shown as contours, and the horizontal gradient is plotted as vectors along the flight lines on the same plot as the calculated vertical gradient. The VLF-EM data are plotted as contours of the total field strength and profiles of the quadrature plotted along the flight lines. The scanned image of the topography is included with the geophysical data as an underlay. The final processed database and gridded data are archived in a CD-ROM disk.

## 6.0 SUMMARY

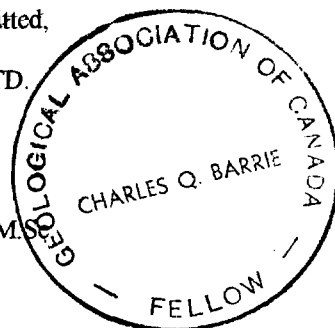
An airborne high sensitivity magnetic survey with three magnetometers was performed at 80 metre mean terrain clearance, 100 metre line interval, 500 metre tie line interval, and data sample points at 6 metres along the flight lines. A high sensitivity magnetic and a GPS base station located in North bay, Ontario recorded the diurnal magnetic activity and reference GPS data during the survey for adherence to survey tolerances.

The data were subjected to final processing and leveling to produce a digital database. Final plots include: a) contours of total magnetic field, b) contours of calculated vertical magnetic gradient combined with vectors of the measured horizontal gradient which are plotted along the flight lines, and c) contours of total VLF-EM field strength with profiles of the quadrature. All data have been archived on a CD-ROM.

Respectfully Submitted,

TERRAQUEST LTD.

Charles Q. Barrie, M.Sc.



## APPENDIX I

### PERSONNEL

Field:	Pilot Operators	Katherine Haight, Todd Whitley, Philip Briggs
Office:	Chief Geophysicist Manager	Chris Vaughan (CGI) Charles Barrie

## APPENDIX II

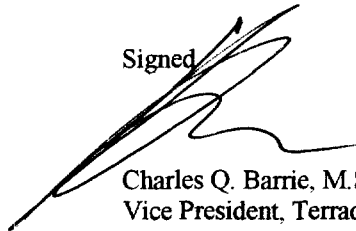
### CERTIFICATE OF QUALIFICATION

I, Charles Barrie, certify that I:

- 1) am registered as a Fellow with the Geological Association of Canada and work professionally as a geologist,
- 2) hold an Honours degree in Geology from McMaster University, Canada, obtained in 1977,
- 3) hold an M.Sc. in Geology from Dalhousie University, Canada, obtained in 1980,
- 4) am a member of the Prospectors and Developers Association of Canada,
- 5) am a member of the Canadian Institute of Mining, Metallurgy and Petroleum,
- 6) have worked as a geologist for over twenty five years,
- 7) am employed by and am an owner of Terraquest Ltd., specializing in high sensitivity airborne geophysical surveys, and
- 8) have prepared this operations and specifications report pertaining to airborne data collected by Terraquest Ltd..

Mississauga, Ontario, Canada

Signed



Charles Q. Barrie, M.Sc.  
Vice President, Terraquest Ltd.

2.25342

**Interpretation of Airborne Geophysical Data  
Parkman Property, Ontario**

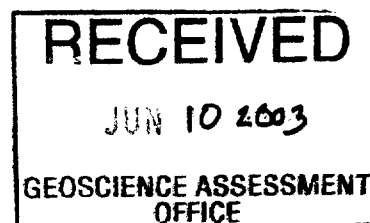
**For**

**Grenville Gold Corp.**

**By**

**Robert Hearst, M.Sc., P.Geoph (NAPEG)  
Consulting Geophysicist**

**May 24, 2003**



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### APPENDIX A – Magnetic Modeling Results

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Map 5 – Euler Deconvolution  
Map 6 – Keating Correlation Coefficients – 50 m Diameter Cylinder

Map 7 - Keating Correlation Coefficients – 100 m Diameter Cylinder  
Map 8 - Keating Correlation Coefficients – 150 m Diameter Cylinder  
Map 9 - Keating Correlation Coefficients – 200 m Diameter Cylinder  
Map 10 – Magnetic Modeling Results  
Map 11 – Geophysical Interpretation  
Map 12 – Geophysical Interpretation with Vector Chrome ®

## **Executive Summary:**

Terraquest Airborne Geophysics completed an airborne magnetic and VLF-EM survey over the Parkman Property of Grenville Gold Corp in the spring of 2003. The primary objective of the airborne magnetic survey was to detect the presence of potential kimberlitic material in order to locate the source of kimberlitic indicator minerals found through heavy mineral sampling on the Parkham Property.

The survey as flown, included the acquisition of magnetic gradiometer data in the down line (longitudinal) direction in addition to the cross line (transverse) direction. Subsequently the data set was forwarded to Bob Komarechka in Sudbury, Ontario for processing using his Vector Chrome system.

Geologically, the area covered by the airborne magnetic survey is complex. Present are Iron Formations which may mask or influence the signature of any magnetic kimberlitic which may be present in the survey area.

In order to better define and kimberlitic source rock and to provide a structural interpretation of the property the following work has been completed on the airborne magnetic data set:

1. All gradient data acquired (horizontal transverse and horizontal longitudinal) has been analyzed in profile in conjunction with TMI, calculated vertical gradient, and topographic data in an attempt to identify subtle features that tend to be lost in the gridding process. Through this analysis it is possible to identify small features that are masked in part by higher amplitude features, "filtered" during the gridding process or fall between flight lines.
2. Selected modeling of magnetic anomalies has been completed. Anomalies were selected to provide estimates of depth to magnetic basement, test geologic concepts, identify location of discrete magnetic bodies, and to potentially provide independent confirmation of the validity of the Vector Chrome results where possible.
3. Kimberlite type body identification has been completed through the calculation of 'Keating Coefficients" and the application of Euler Deconvolution.
4. Calculation of the Analytic Signal response to better discriminate between the signature of the Iron Formation present and to aid in the interpretation of possible kimberlitic bodies was completed.
5. Re-gridding of the original data using gradient enhancement techniques to better identify the various geologic units present in the study area.
6. An attempt was made to merge the gridded data with the Vector Chrome data resulting in the preparation of an interpretation map incorporating the results of the modeling and profile data analysis.



The application and interpretation of the above processes resulted in the delineation of three distinct magnetic domains within the Parkham Property.

- Magnetic Domain A occupies the northwest of the property and is magnetically quiet, containing few discrete magnetic anomalies. The southern boundary of this magnetic domain is defined by a pronounced positive magnetic gradient striking NE-SW. This Domain is not thought to be prospective for Kimberlite.
- Magnetic Domain B occupies the central portion of the Parkham Property and is comprised of high magnetic amplitude Iron Formation rocks that exhibit a sinuous “U” shaped aspect, the open portion of the “U” being to the SW. This Domain is thought to be prospective for Kimberlite, particularly to the east and west of the Iron Formation where discrete magnetic anomalies suggestive of vertical magnetic cylinders are present. This Domain also overlaps with the location of the kimberlite indicator mineral anomalies. This Domain is thought to represent the youngest magnetic events and therefore overprints what is thought to be the older Magnetic Domain C to the southeast of the Property.
- Magnetic Domain C occupies the southeast portion of the Parkham Property. The dominant magnetic trend of the anomalies in this Domain is NW-SE, parallel to the faulting direction associated with the Ottawa River Structural Zone. The Domain is considered to be of moderate to low priority for Kimberlite potential.

A total of 24 magnetic targets comprising 20 discrete positive and 4 discrete negative magnetic anomalies have been identified for follow-up within Magnetic Domains A, B and C. High priority targets (10) are confined to Magnetic Domain B. A minimum of three of the high priority targets appear to be located to be located up drainage and potentially up-ice from high kimberlite indicator mineral concentrations obtained during prior field work. The remaining 14 targets are distributed between Magnetic Domains A, B and C.

It is recommended that the high priority targets be geologically mapped in detail. The targets should be surveyed on the ground utilizing a vertical magnetic gradiometer system as a minimum. Additional recommended and complementary geophysical methods to be applied during follow-up phase are radiometrics (Exploranium GR-320 spectrometer) and an electromagnetic method consisting of Max-Min or similar system.

# **Interpretation of Airborne Geophysical Data**

## **Parkman Property, Ontario**

### **For**

## **Grenville Gold Corp.**

### **1.0 INTRODUCTION:**

Terraquest Airborne Geophysics completed an airborne magnetic and VLF-EM survey over the Parkman Property of Grenville Gold Corp in the spring of 2003. The primary objective of the airborne magnetic survey was to detect the presence of potential kimberlitic material in order to locate the source of kimberlitic indicator minerals found through heavy mineral sampling on the Parkham Property. A levelled data set of the Total Magnetic Intensity (TMI) was delivered along with maps and digital data to Grenville Gold Corp. The delivered maps (1:10,000) included a scalar plot of the combined horizontal gradient data, calculated vertical gradient, TMI, and VLF-EM (total field with quadrature profiles) for station NAA (Cutler, Maine). The flight-line direction for the survey was E-W with tie lines flown N-S. Flight line spacing was a nominal 100m with tie lines flown at nominal spacing of 500m. Flying height during data acquisition was a nominal 120m.

The survey as flown, included the acquisition of magnetic gradiometer data in the down line (longitudinal) direction in addition to the cross line (transverse) direction. Subsequently the data set was forwarded to Bob Komarechka in Sudbury, Ontario for processing using his Vector Chrome ® system. The results of the Vector Chrome ® processing are interesting but require correlation and integration into a geological and geophysical framework.

Geologically, the area covered by the airborne magnetic survey is complex. Present are Iron Formations which may mask or influence the signature of any magnetic kimberlitic which may be present in the survey area.

In order to better define and kimberlitic source rock and to provide a structural interpretation of the property the following work has been completed on the airborne magnetic data set:

1. All gradient data acquired (horizontal transverse and horizontal longitudinal) has been analyzed in profile in conjunction with TMI, calculated vertical gradient, and topographic data in an attempt to identify subtle features that tend to be lost in the gridding process. Through this analysis it is possible to identify small features

that are masked in part by higher amplitude features, “filtered” during the gridding process or fall between flight lines.

2. Selected modeling of magnetic anomalies has been completed. Anomalies were selected to provide estimates of depth to magnetic basement, test geologic concepts, identify location of discrete magnetic bodies, and to potentially provide independent confirmation of the validity of the Vector Chrome ® results where possible.
3. Kimberlite type body identification has been completed through the calculation of ‘Keating Coefficients’ and the application of Euler Deconvolution.
4. Calculation of the Analytic Signal response to better discriminate between the signatures of the Iron Formation present and to aid in the interpretation of possible kimberlitic bodies was completed.
5. Re-gridding of the original data using gradient enhancement techniques to better identify the various geologic units present in the study area.
6. An attempt was made to merge the gridded data with the Vector Chrome ® data resulting in the preparation of an interpretation map incorporating the results of the modeling and profile data analysis.

### **1.1 General Geologic Setting:**

The Parkham property is situated in close proximity to the known Grenville Front. There is a pronounced positive magnetic gradient striking NE-SW in the NW corner of the property (Map 1, Map 11) that is interpreted as reflecting the direction and location of Grenville Front activity. The host rock to the north and west of this feature is relatively quiet magnetically, with no major magnetic features present other than the magnetic anomaly assumed to be associated with Grenville Front activity.

The central portion of the property is dominated by high magnetic amplitude Iron Formation rocks that exhibit a sinuous “U” shaped aspect, the open portion of the “U” being to the SW. The magnetic signature of the Iron Formation is such that it appears pinch and swell throughout the survey area and may possibly mask the presence of smaller magnetic bodies that are unrelated to the genesis of the Iron Formation.

In the SE corner of the property, the magnetic signature changes abruptly from that of the central Iron Formation, the boundary corresponding well to the geological mapping of the OGS. This portion of the property is marked by a series of low magnetic amplitude, narrow (<200 m wide) lineaments striking NW-SW. These lineations are consistent with possible banding and or faulting related to the Ottawa River Rift system.

The Geology Map of Ontario indicates the possible presence of NW-SE to E-W striking dikes on the property. Magnetically, if these dikes are present, they are marginally magnetic and of low magnetic amplitude ( $\leq 250$  nT).

The VLF-EM data as acquired and presented by Terraquest for station NAA (Cutler, Maine) exhibits a strong trend striking NW-SE. This trend mimics the direction of faulting associated with the development of the Ottawa River Structural Zone. The NE-SW trends marking the north and south boundary of the Iron Formation host geologic unit as indicated in the TMI, although present in the VLF-EM, are less obvious. It is apparent that the VLF-EM data for NAA resulted in good coupling with the NW-SE striking geologic units.

## **2.0 PROCESSING PROCEDURES**

### **2.1 Analysis of Profile Data**

The airborne survey database was examined in profile form on a flight line – by - flight line basis. The results of which comprise Appendix A of this report. The magnetic data channels examined, include the raw and corrected magnetic data for all magnetometers (one on each wingtip and one mounted in a tail stinger) in conjunction with the gradients measured in the transverse (between wingtips), longitudinal (down-line) directions and a calculated vertical gradient. A topographic profile calculated from the aircraft GPS altimeter and radar altimeter channels was also displayed to assist in the identification of magnetic activity possibly related to topographic features.

A qualitative analysis of the profile data was completed. The anomalies were ranked on a scale of 1 to 6 according to the interpreted basic magnetic characteristics, taking into consideration the effect of aircraft height, topography, and the magnetic gradient responses (transverse, longitudinal and vertical). The interpreted axis of the anomaly was indicated on the line profiles. The ranking scheme used was:

1. Low amplitude, broad anomaly (typically  $< 100$ nT)
2. Low amplitude, narrow anomaly
3. Moderate amplitude, narrow anomaly (typically  $< 750$ nT)
4. Moderate amplitude, broad anomaly
5. High amplitude, narrow anomaly
6. High amplitude, broad anomaly

The results are presented in plan (Map 4).

Where appropriate, magnetic modeling was completed on the profile data. The results of the magnetic modeling are included in Appendix A. A total of 24 individual magnetic anomalies were modeled.

Through the examination of the gradient data in profile form it is possible to identify and discriminate magnetic signal that originates from cultural sources, from off-flight line

sources and to possibly identify weaker and/or smaller magnetic bodies which lie within areas of complex magnetic activity (i.e. Iron formations).

## **2.2 Keating Correlation Coefficient and Euler Deconvolution Analyses**

An automated kimberlite recognition technique, popularly known as the Keating Correlation Coefficient, was applied to the analytic signal of the TMI. The technique computes the first-order regression between a vertical cylinder model anomaly and the gridded magnetic data. The technique is based on the assumption that a vertical magnetic cylinder is a first approximation (geometric) of a kimberlite pipe. If this assumption is valid, then a clustering of solutions will be obtained around a common point. Kimberlite bodies of irregular geometry may not be detected by this method. Other geologic bodies with a vertical cylinder geologic aspect will also be detected by the method.

The technique, as applied to the Parkham Property survey, utilized the analytic signal of the TMI. A characteristic of the analytic signal is that it is relatively insensitive to the effects of magnetic field orientation and remanence.

Model anomalies were generated for the analytic signal response of a cylinder of 50 m, 100 m, 150 m and 200 m diameter, buried approximately 30 m below surface. Solutions with an absolute correlation coefficient of greater than 90% were accepted. The results of the Keating Correlation Coefficient calculation are presented in plan map form on Maps 6 through 9.

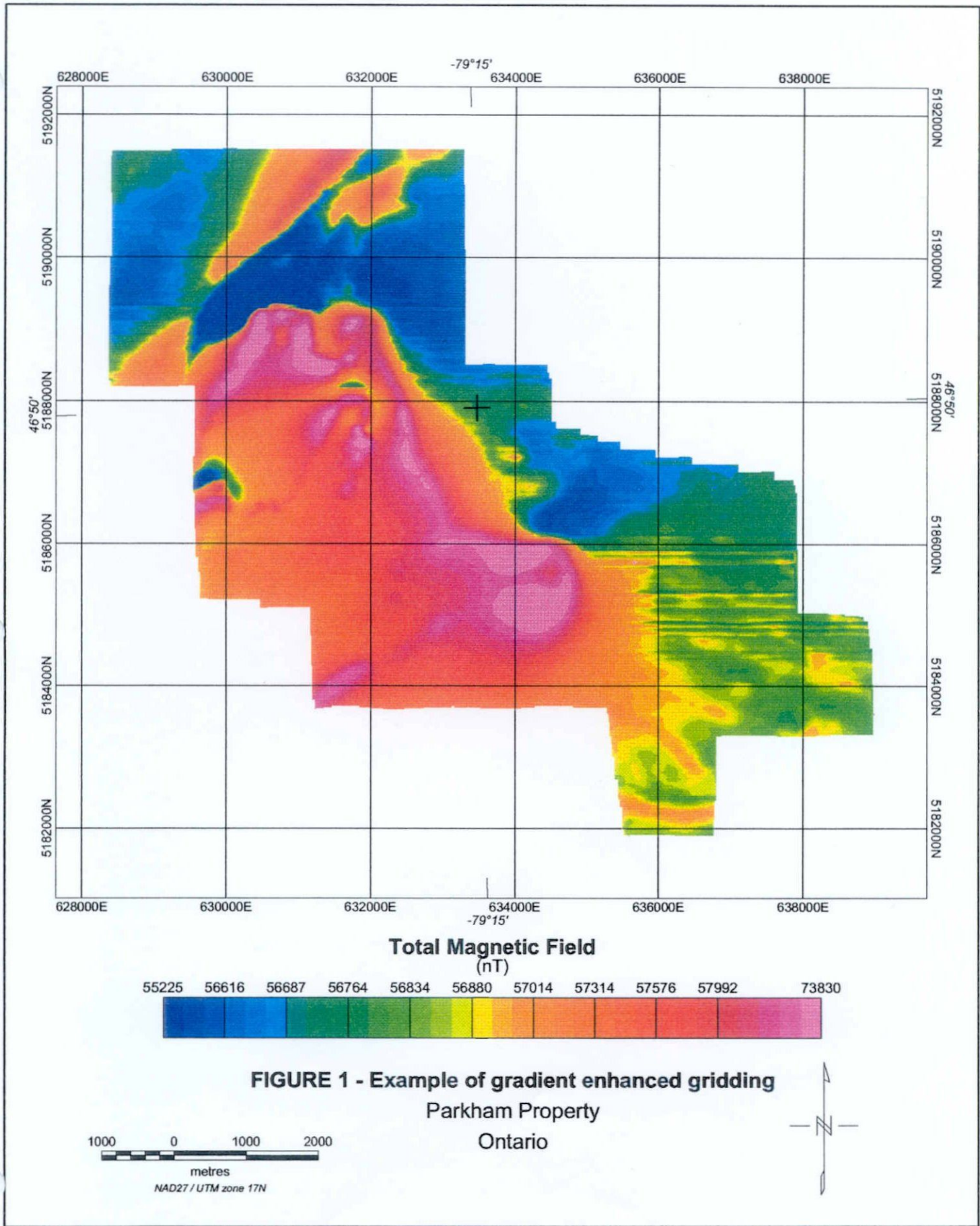
To further supplement the identification of kimberlite like bodies, Euler Deconvolution depth estimation was applied. Euler Deconvolution is based on Euler's homogeneity equation, an equation relating the field (in this case magnetic) and the constituent gradient components, with a degree of homogeneity  $N$ . The degree of homogeneity is analogous to a structural index, or the rate of change with distance of a field from the source body. In the case of vertical pipe-like bodies, the structural index ( $N$ ) is equal to 2, the rate of the magnetic field falling off with distance ( $r$ ) by  $1/r^2$ .

The results of the Euler Deconvolution depth estimation are presented in plan map form as Map 5.

## **2.3 Gradient Enhancement Gridding**

A gridding algorithm that allowed for the inclusion of the measured transverse and longitudinal gradients was tested on the Parkham Property data set. The purpose of using the gradients in the gridding process are to further constrain the extrapolation of anomaly shape in areas where no data exists (i.e. between flight lines). The method requires that all gradient data acquired be orthogonal to the direction of aircraft motion.

The gradient enhancement gridding algorithm used did not result in a superior gridded product being obtained. The result (included as Figure 1, page size map only) exhibits severe inconsistencies between flight lines in areas where the flying height between adjacent lines varies by a considerable margin.



## **2.4 Vector Chrome ® Processing**

Processing of the airborne dataset using the proprietary Vector Chrome ® gradient processing package was completed by Bob Komarechka on behalf of Grenville Gold Corp. The processed Vector Chrome ® image in windows bitmap format was provided and incorporated/evaluated with respect to the following interpretation (Map 12).

## **3.0 INTERPRETATION**

The application and interpretation of the above processes resulted in the preparation of Geophysical Interpretation Map 11. Several prominent features can be identified from the aeromagnetic data and processed products.

A series of magnetic lineations striking NW-SE across the entire property have been interpreted as fault structures. These magnetic faults are crosscut by second series of magnetic lineations striking NE-SW. Both series of lineations are interpreted as originating with and related to, the Ottawa River Structural Zone (ORSZ). The preferential magnetic enhancement of some of the NE-SW structures is interpreted as associated with the development of the Grenville Front. The VLF-EM data acquired simultaneously with the magnetic data is dominated by anomalies associated with NW-SE family of faults, suggesting that the faults are part of a long-lived and deep rooted fault system. There is also positive correlation between the magnetic lineations and similar features observed in the topography. The influence of these structures varies across the Property. In the north, the dominant lineation direction is NE-SW; through the central area the directions are less distinct, with the exception of the eastern margin of the Property where the dominant direction is NW-SE. The SE corner of the Property is dominated by the NW-SE lineation direction. It is assumed that these faults are the major structural control present in the Property and will have influenced any intrusive geologic events.

An Iron Formation (IF) has been mapped geologically in the central section of the Property. This feature magnetically active and produces the highest amplitude magnetic anomalies (>1000 nT) on the property.

The magnetic characteristics of the Parkham Property are such that three distinct magnetic domains can be defined.

### **3.1 Magnetic Domain A**

Magnetic Domain A occupies the northwest of the property and is magnetically quiet, containing few discrete magnetic anomalies. The southern boundary of this magnetic domain is defined by a pronounced positive magnetic gradient striking NE-SW. The magnetic signature of this Domain is dominated by a series of lineations with a dominant strike direction of NE-SW, sub-parallel to the boundary fault separating this Domain from that of Domain B to the south. This bounding fault is well defined in the profile data. The strength of the magnetic associated with the bounding fault is conducive to



fluid migration and magnetic mineral enrichment within the fault zone, probably with magnetic mineral depletion in the host rock to the north. This interpretation is supported by the results of the Euler Deconvolution, many of the solution lying within or adjacent to the fault lineations.

Magnetic modeling of the bounding fault is consistent with a linear and narrow zone of enhanced magnetization. The depth to the magnetic source ranges from near surface (<10 m) to approximately 100m. The dip of the bounding fault structure is 45° – 55° to the NW.

Keating Correlation Coefficients are very limited within this Domain, indicating a lack of vertical cylindrical intrusive. There is one exception to this statement; a poorly defined Keating and shallow Euler Deconvolution anomaly is defined at 629000mE, 5189500mN (Anomaly A-1). Modeling of a low amplitude discrete magnetic anomaly (L190a1, Anomaly A-2) in the swamp at 629220mE, 5189713mN was also completed.

Although there appears to be significant structural control in this Domain, it not thought to be prospective for Kimberlite.

### **3.2 Magnetic Domain B**

Magnetic Domain B occupies the central portion of the Parkham Property and is comprised of high magnetic amplitude Iron Formation (IF) rocks which exhibit a sinuous “U” shaped aspect, the open portion of the “U” being to the SW. The IF is the dominant magnetic feature on the survey. The sinuous shape is consistent with extreme folding events. There is an apparent correlation between the IF and the edges of the topographic high ground, the IF occupying the edge of the high ground in many instances. The Vector Chrome ® processing images the IF extremely well, where the IF is represented as a narrow semi-continuous band of homogeneous magnetic susceptibility and magnetization. The dominant NW-SE and NE-SW fault directions are less prevalent in this domain. The NE corner of Domain B is defined by many short wavelength, high amplitude anomalies consistent with an area that has undergone a high degree of metamorphism and fluid mixing. This Domain is thought to represent the youngest magnetic events present and therefore overprints what is interpreted as the older Magnetic Domain C in the southeast.

Profile gradient analysis allows for the interpretation of multiple bands comprising the IF in many instances. Euler Deconvolution tended to outline the magnetic axis of the IF.

This Domain is thought to be prospective for Kimberlite, particularly to the east of the IF and in the NE corner of the Magnetic Domain B, where discrete magnetic anomalies suggestive of vertical magnetic cylinders are present. This Domain also overlaps with the location of the kimberlite indicator mineral anomalies recorded from samples obtained along Green Creek in the South-Central part of the Property. This Domain is thought to represent the youngest magnetic events and therefore overprints what is thought to be the older Magnetic Domain 3 to the southeast of the Property.

Keating Correlation Coefficient anomalies fall predominately within this Domain and principally within the “U” shaped defined by the IF. Magnetic modeling (L330a1, L260a1) of the IF confirms very high magnetic susceptibilities in excess of 10% magnetite by volume and narrow aspect causative bodies. The majority of the Keating anomalies were obtained for a vertical cylinder of 100 m diameter. Magnetic modeling of individual anomalies using a cylindrical also resulted in solutions of approximately 100 m in diameter.

A total of 15 anomalies (B-1 through B-15) have been identified for additional ground follow-up. The anomalies are summarized and ranked in Table 1.

### **3.3 Magnetic Domain C**

Magnetic Domain C occupies the east and southeast portion of the Parkham Property. The dominant magnetic trend of the anomalies in this Domain is NW-SE, parallel to the faulting direction associated with the ORSZ. There is good correlation between the magnetic lineaments and topographic features (slopes and drainage courses) that can be interpreted as fault controlled. The associated magnetic anomalies tend to be long and linear of low to moderate amplitude (60 to 400 nT). Limited modeling of these anomalies suggest a moderate dip to the NE of between 40° and 50°. The majority of Euler solutions obtained in this study were for this magnetic Domain. There are numerous, low amplitude discrete magnetic anomalies within this Domain.

An E-W striking dike corresponding to the mapped geology is observed within the magnetic data at the extreme south of the Property.

The majority of the magnetic activity observed over this Domain is consistent with strata bound or fault confined magnetization. The Domain is therefore considered to be of moderate to low priority for Kimberlite potential.

## **4.0 CONCLUSIONS AND RECOMMENDATIONS**

The Parkham Property aeromagnetic survey outlines three major magnetic Domains identified as A, B and C. Dominant trends visible from the magnetic survey are two families of magnetic lineaments, striking NW-SE and NE-SW, interpreted as fault structures related to the development of the Ottawa River Structural Zone. In the NW of the property (Magnetic Domain A), the dominant trend is NE-SW, consistent with the strike of the Grenville Front. Magnetic Domain B is dominated by a sinuous magnetic anomaly that appears to pinch and swell and has been interpreted as Iron Formation (IF). Magnetic Domain C is dominated by the NW-SE trending series of faults and lower amplitude magnetic anomalies.

The depth of burial of the magnetic sources varies across the property. In general, Magnetic Domains A and C appear to occupy the topographically lower areas of the property. Magnetic Domain B, in general, occupies the high topographic ground and poor drainage areas (small ponds, lakes and swamps). Euler Deconvolution results

probably provide the best indication of the potential thickness of, and the variability in, the glacial overburden on the Property. The general thickness of overburden is interpreted to be in the 30 m to 50 m range, but over selected and modeled magnetic features, shallower burial depths are encountered. A better estimate of glacial overburden thickness could be obtained from a ground electromagnetic (EM) survey and/or a detailed ground magnetic survey over selected anomalies.

The primary objective of the aeromagnetic survey was to define areas and selected magnetic targets that may indicate the presence of kimberlitic rock. To this end, a total of 24 magnetic targets comprising 20 discrete positive and 4 discrete negative magnetic anomalies have been identified for follow-up within Magnetic Domains A, B and C. A description of each target is provided as Table 1. High priority targets (10) are confined to Magnetic Domain B. A minimum of three of the high priority targets appear to be located to be located up drainage and potentially up-ice from high kimberlite indicator mineral concentrations obtained during prior field work. The remaining 14 targets are distributed between Magnetic Domains A and C.

Given the presence of Iron Formation and the complex nature of some of the magnetic anomalies, it is strongly recommended that all targets be geologically mapped in detail through ground investigations and accompanied by geochemical and if possible, additional heavy mineral sampling. Follow-up geophysical surveying utilizing a vertical magnetic gradiometer system is also recommended as a minimum. Ideally, the follow-up ground geologic and magnetic surveys should be supplemented by complementary geophysical methods of a radiometric survey (Exploranium GR-320 spectrometer) and an electromagnetic method consisting of Max-Min or similar system. The additional information obtained from these systems would help to better define the anomaly source and shape, particularly in areas where the anomaly is buried under glacial overburden. The use of a ground spectrometer may prove most diagnostic in the differentiation of kimberlitic source material from other mafic intrusive rocks.

The potential for additional, non-kimberlitic mineralisation exists on the Parkham property. In particular, the boundary zone between Magnetic Domains A and B may prove to be prospective for other commodities such as gold. If a Raglan type mineralisation model is applied, then the IF formation of Domain B may prove to be prospective for nickel

**Table 1 – Potential Kimberlite Targets**

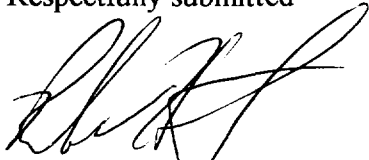
<b>Anomaly ID</b>	<b>Easting (metres)</b>	<b>Northing (metres)</b>	<b>Description / Recommendation</b>	<b>Priority</b>
A-1	629000	5189500	Located in swamp, shallow (<20), Keating (poor) and moderate Euler solution. Further ground follow-up required.	Low
A-2	629220	5189713	Discrete circular magnetic target may be part of mineralisation in fault zone, modeled (L190a1) as vertical cylinder. Further ground follow-up required.	Low
B-1	632233	5199908	Modeled as a rectangular prism, this anomaly has a dike-like appearance, is of limited strike length (750 m) and width (100 m). Euler solutions are consistent with a dike model; Keating solutions are consistent with 100 m diameter intrusive core. Could be a “blow”. Expected depth is 100 m.	Moderate
B-2	631500	5190600	Shallow Euler (<10 m) anomaly with weak Keating anomaly (all diameters modeled)	Moderate
B-3	631050	5188800	Located in the IF, may be a local discrete source. Modeling of the anomaly as an IF (L280a1) yields results consistent with an IF. Keating and Euler solutions suggestive of a discrete source. Vector Chrome® processing is also suggestive of a discrete source.	<b>High</b>
B-4	632800	5188750	Located on the Boundary of Domains B & C, anomaly is defined by multiple Keating solutions, a possible Vector Chrome® correlation and a residual TMI anomaly.	Moderate
B-5	632000	5189000	Discrete magnetic anomaly modeled as a vertical cylinder with shallow dip and approximately 70m depth of burial.	Low
B-6	632400	5187800	Discrete magnetic anomaly modeled (TL5060a1) with a strong Keating anomaly coefficient (150m > diameter) and Euler convergence. Depth estimate varies from 40 m to 100 m. Target is in drainage system. Vector Chrome® is suggestive of a discrete source.	<b>High</b>

<b>Anomaly ID</b>	<b>Easting (metres)</b>	<b>Northing (metres)</b>	<b>Description / Recommendation</b>	<b>Priority</b>
B-7	631716	5186790	Located in the drainage between Little Web Lake and Big Web Lake, this anomaly is discrete, modeled as a vertical cylinder of 80m diameter dipping 45°W, at surface and a good Keating anomaly. Vector Chrome ® processing produces a discrete anomaly.	<b>High</b>
B-8	632350	5185225	A discrete magnetic anomaly modeled as a cylindrical body dipping 45 W at a depth of 50 m. Euler solutions suggest a shallower source (<10m). Vector Chrome ® suggestive of magnetic properties similar to IF.	Moderate
B-9	631875	5185000	Anomalous as a high negative Keating solution. Suggestive of remanently magnetized source. Correlates to a Vector Chrome ® anomaly.	<b>High</b>
B-10	634400	5185200	Lies within the Green Lake / Green Creek drainage system and is upstream from heavy mineral sampling anomalies. Strong Keating anomaly with focused Euler solutions suggesting a burial depth of 50 m. Modeled as cylinder (L641a2), the result is for a cylinder with a plunging top bounded by drainage and approaching the surface (50 m depth).	<b>High</b>
B-11	634750	5185500	Similar to B-11 in that this anomaly lies within the Green Creek drainage. Keating and deep Euler anomaly (100 m) with a possible Vector Chrome ® discrete anomaly.	<b>Moderate to High</b>
B-12	632331	5185594	Discrete magnetic anomaly (L601a1) modeled as a cylinder dipping 40°SW from surface. Diameter is approx. 100 m. Correlates to Vector Chrome ® discrete anomaly.	<b>High</b>

<b>Anomaly ID</b>	<b>Easting (metres)</b>	<b>Northing (metres)</b>	<b>Description / Recommendation</b>	<b>Priority</b>
B-13	629859	5186805	Complex double peaked magnetic anomaly in the near surface (L481a1) with a near vertical aspect. Correlating shallow Euler solutions around model edges. Possible Vector Chrome ® anomaly.	<b>High</b>
B-14	631750	5188800	Keating anomaly on 100m and 150 m diameter solutions with converging shallow (5 m) Euler depth solutions. In the Little Web Lake drainage system.	Moderate
B-15	631383	5189901	Negative magnetic anomaly suggestive of a remanently magnetized source, cylindrical in aspect (Keating and model L170a1) of ~ 100m diameter dipping 54°ESE, shallow depth of burial..	<b>High</b>
B-16	630150	5185800	Discrete magnetic anomaly with possible steep dip to the NW. Source is shallow and may be associated with the nearby IF immediately to the NE	Low
B-17	630600	5186500	Discrete magnetic anomaly possible associated with / continuation of IF. Shallow source (<10 m)	Low
B-18	631664	5186204	Occupying swampy ground immediately to the W of Big Web Lake, this anomaly was modeled as a rectangular prism source, approximately 100 m below surface and of shallow dip (30°). Correlates to Euler Deconvolution solutions suggesting a shallower depth of burial (<20m).	<b>High</b>
C-1	638136	5184413	Discrete magnetic high anomaly (100 nT) modeled as a cylinder (L721a1). Depth of burial is estimated at 80 m. Dip is inferred to be shallow (33°) to the NE.	Moderate
C-2	635825	5185750	Located at fault junction and boundary of Magnetic Domains B & C. Convergence of Euler depth solutions, depth estimate is <10 m. Aspect of anomaly appears to be vertical.	Moderate

<b>Anomaly ID</b>	<b>Easting (metres)</b>	<b>Northing (metres)</b>	<b>Description / Recommendation</b>	<b>Priority</b>
C-3	637700	5183450	Located at junction of NE-SW and NW-SE striking faults. Negative TMI anomaly but positive Euler Deconvolution convergence. Potentially shallow depth of burial (< 20 m)	Moderate
C-4	636550	5184600	Discrete E-W striking anomaly of limited extent. Euler solutions suggest shallow burial depth (<20 m). Located at fault intersection.	Moderate

Respectfully submitted



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## **APPENDIX B**

### **Magnetic Modeling Results**

#### **Explanatory Notes:**

Top Panel: Blue – Observed profile (corrected and leveled tail stinger magnetometer (Mag 3)  
Red – Fitted surface  
Grey – background reference level

Bottom Panel: Green – Aircraft survey altitude  
Brown – Topographic profile

#### **Summary Section**

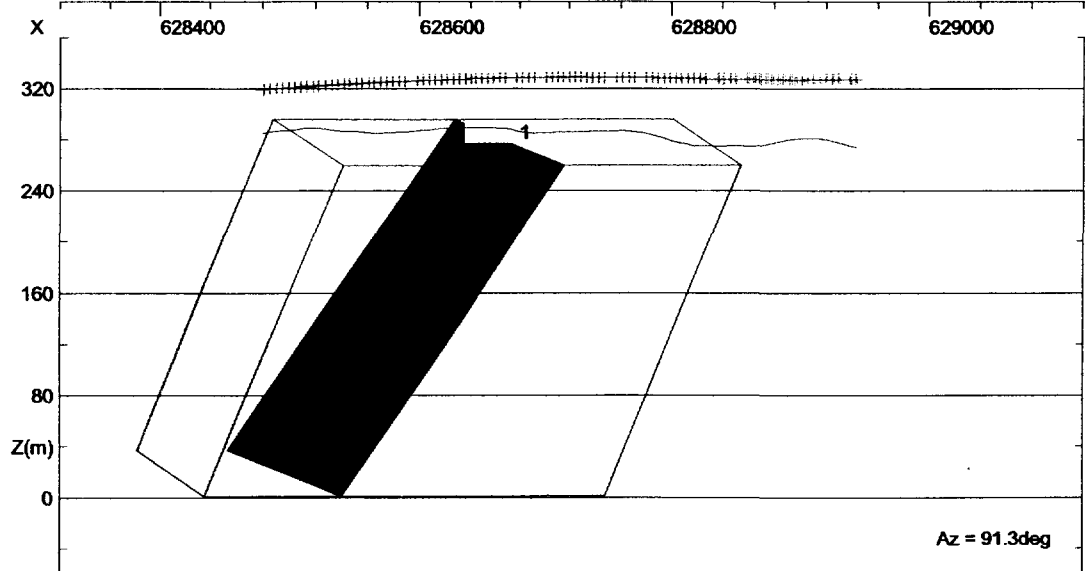
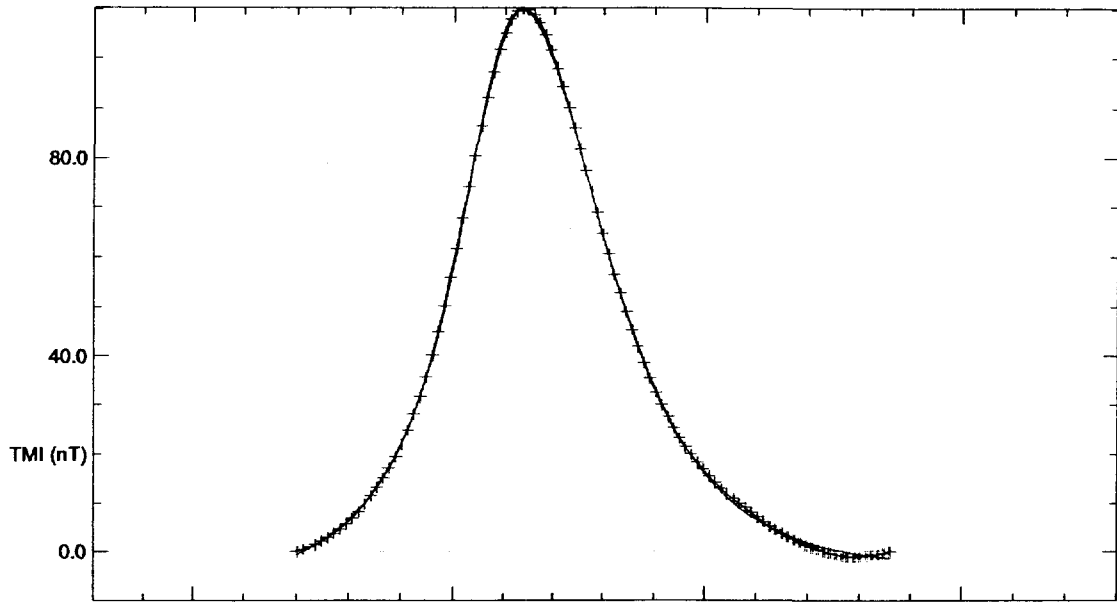
Body Type: Rectangular Prism, Cylinder

Position: Location of centre of upper surface of model  
X – UTM Easting  
Y – UTM Northing  
Z – Depth (metres above geoid surface)  
Strike – degrees clockwise from north  
Dip – degrees from vertical, +ve west or south, -ve east or north  
Plunge – direction of plunge (if applicable)

Properties: Magnetic susceptibility (cgs units)

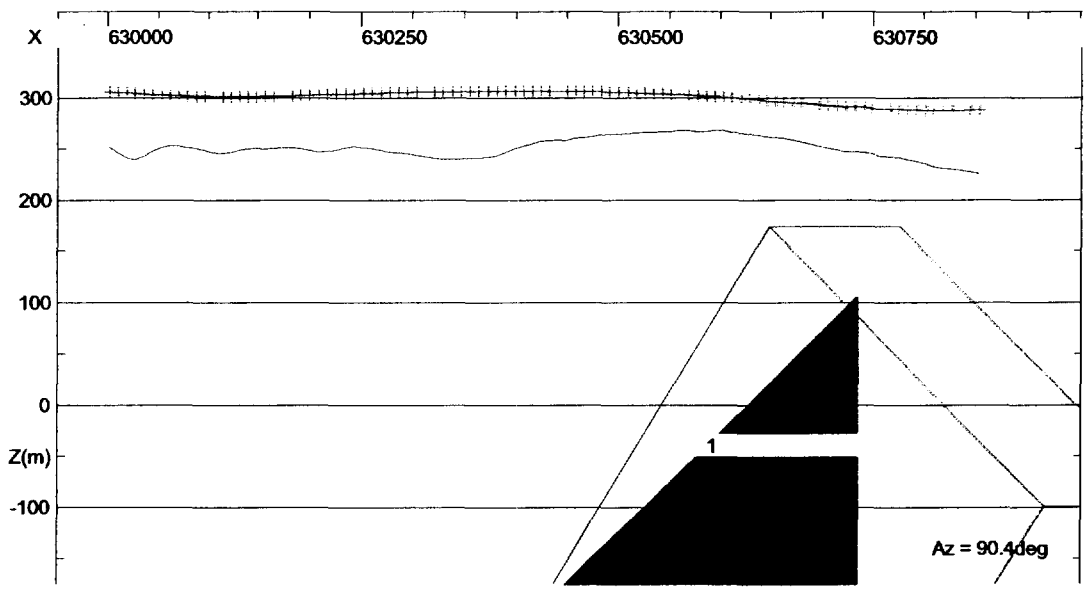
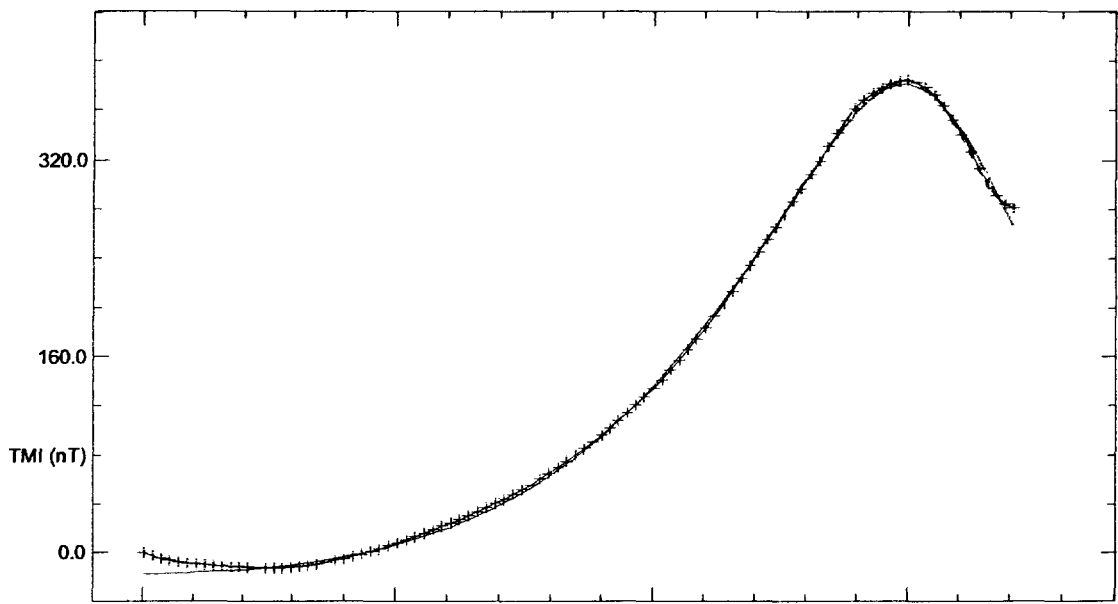
Shape: A – width of model (perpendicular to strike)  
B – length of model (along strike)  
C – thickness (true)  
Slope – orientation of upper model surface (cylinder models only)

Map 10



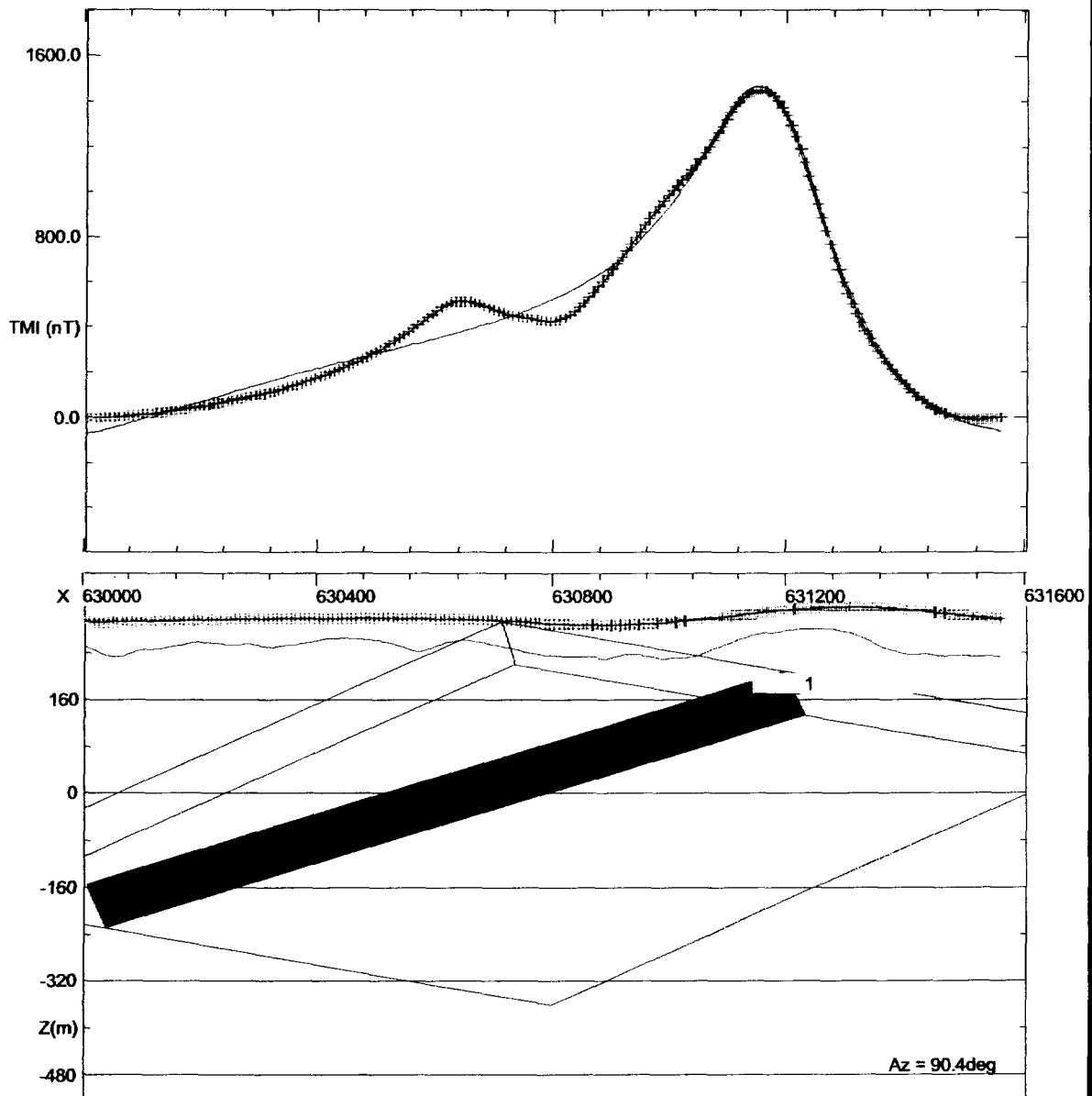
### Model Summary

<b>Model title:</b>	FLIGHT LINE 41- ANOMALY 1					
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<b>Body type:</b>	Rectangular Prism					
<b>Description:</b>						
<b>Position:</b>	<b>X</b> 628671	<b>Y</b> 5191195	<b>Z</b> 278	<b>Strike</b> 40.0	<b>Dip</b> 27.7	<b>Plunge</b> 0.0
<b>Properties:</b>	<b>Susc(cgs)</b> 0.00080					
<b>Shape:</b>	<b>A</b> 76.9	<b>B</b> 500.0	<b>C</b> 292.3			



### Model Summary

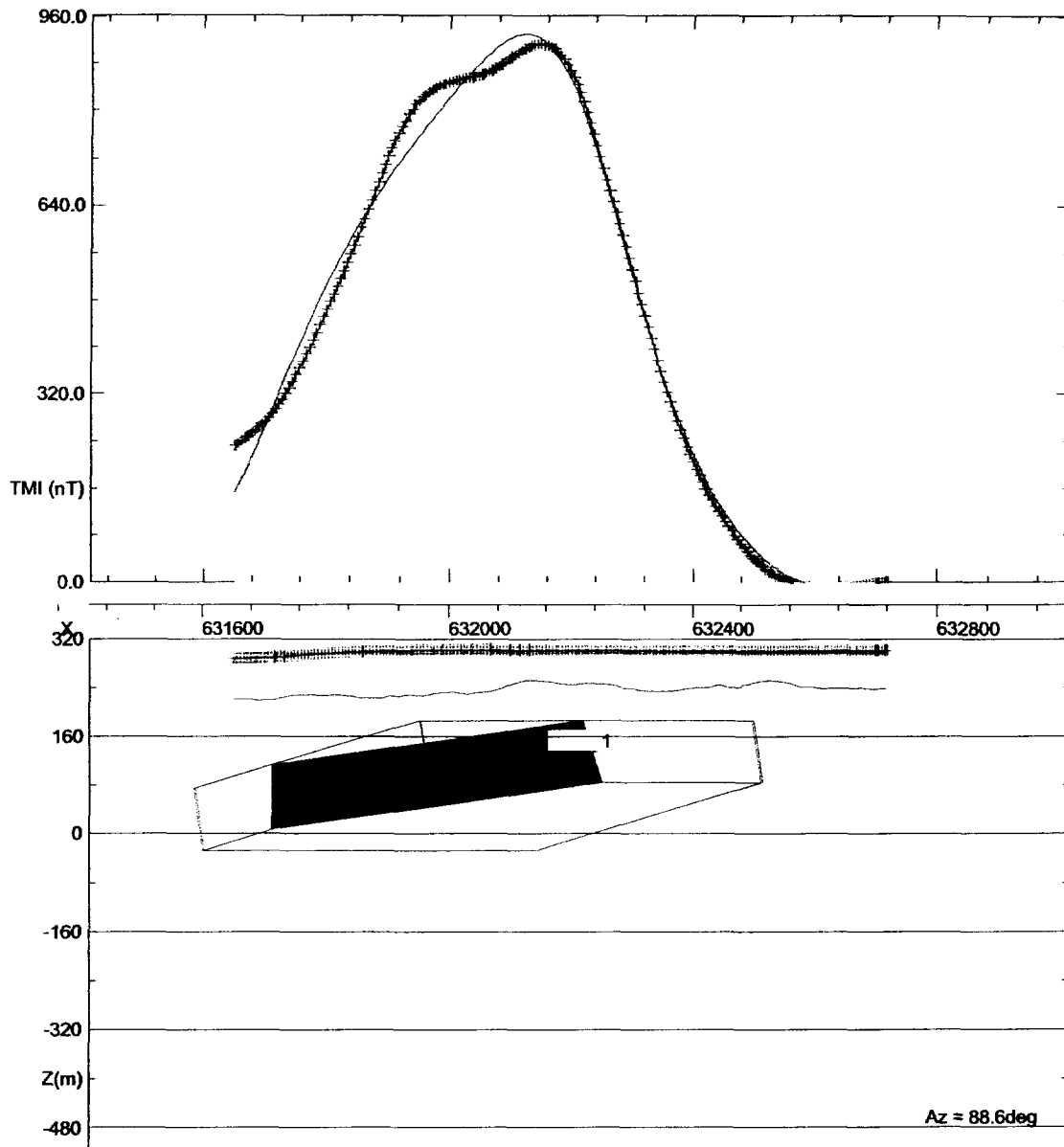
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<b>Body type:</b>	Rectangular Prism					
<b>Description:</b>						
<b>Position:</b>	<b>X</b> 630576	<b>Y</b> 5191106	<b>Z</b> -50	<b>Strike</b> 40.0	<b>Dip</b> -51.9	<b>Plunge</b> 0.0
<b>Properties:</b>	<b>Susc(cgs)</b> 0.01193					
<b>Shape:</b>	<b>A</b> 571.4	<b>B</b> 200.0	<b>C</b> 442.4			



### Model Summary

<b>Model title:</b>	FLIGHT LINE 60 - ANOMALY 1					
<b>IGRF:</b>	<b>Strength</b>	<b>Declination</b>	<b>Inclination</b>			
	56780	-12.0	73.3			
<b>Body type:</b>	Rectangular Prism					
<b>Position:</b>	<b>X</b>	<b>Y</b>	<b>Z</b>	<b>Strike</b>	<b>Dip</b>	<b>Plunge</b>
	631215	5190994	170	42.0	67.8	13.1
<b>Properties:</b>	<b>Susc(cgs)</b>					
	0.03015					
<b>Shape:</b>	<b>A</b>	<b>B</b>	<b>C</b>			
	78.9	2000.0	1113.2			

31



### Model Summary

**Model title:** FLIGHT LINE 70 - ANOMALY 1

**IGRF:**                      **Strength**                      **Declination**                      **Inclination**  
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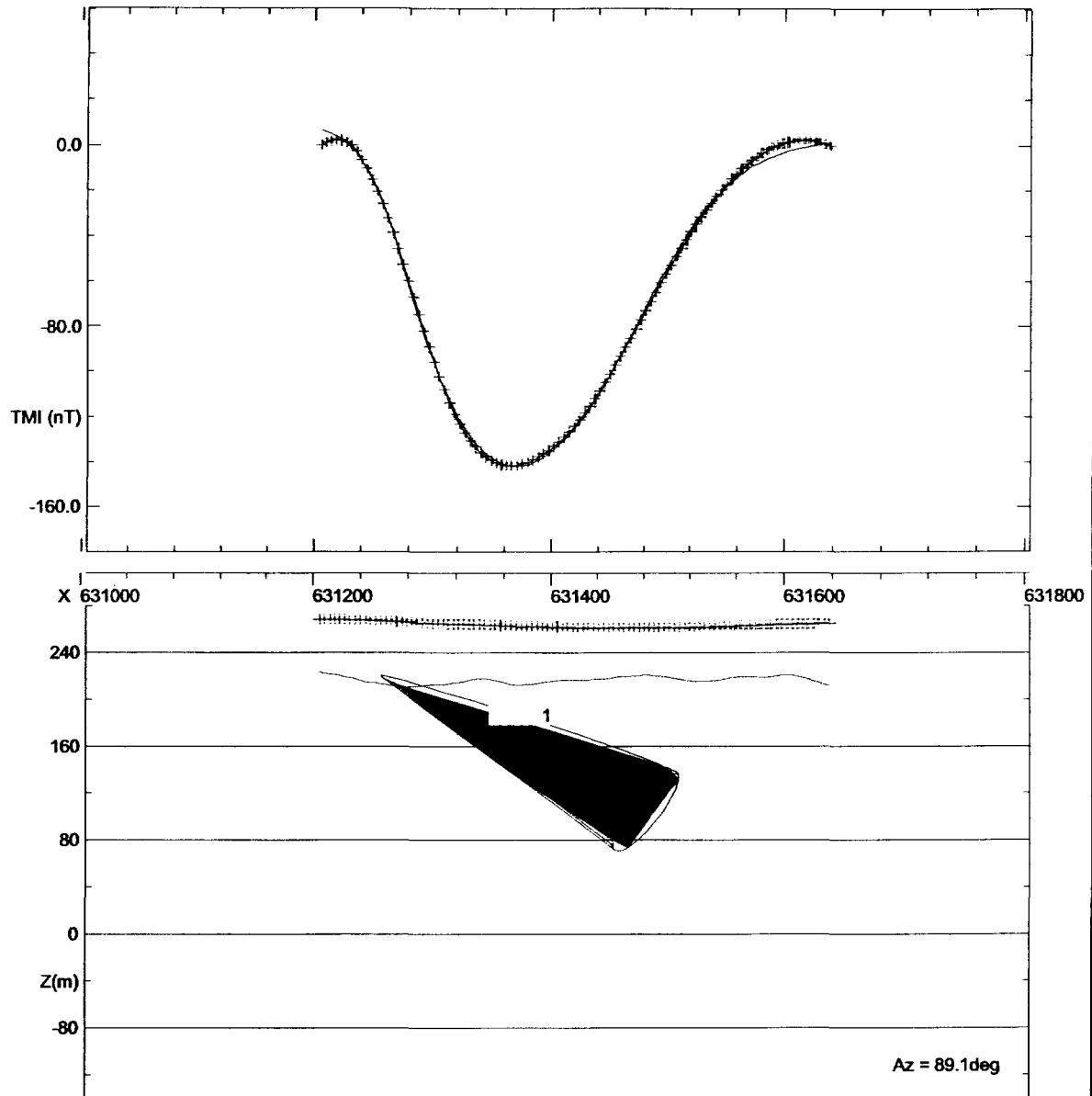
**Body type:**                      Rectangular Prism

**Description:**

**Position:**                      **X**                      **Y**                      **Z**                      **Strike**                      **Dip**                      **Plunge**  
    632233                      5190908                      135                      45.0                      78.2                      0.0

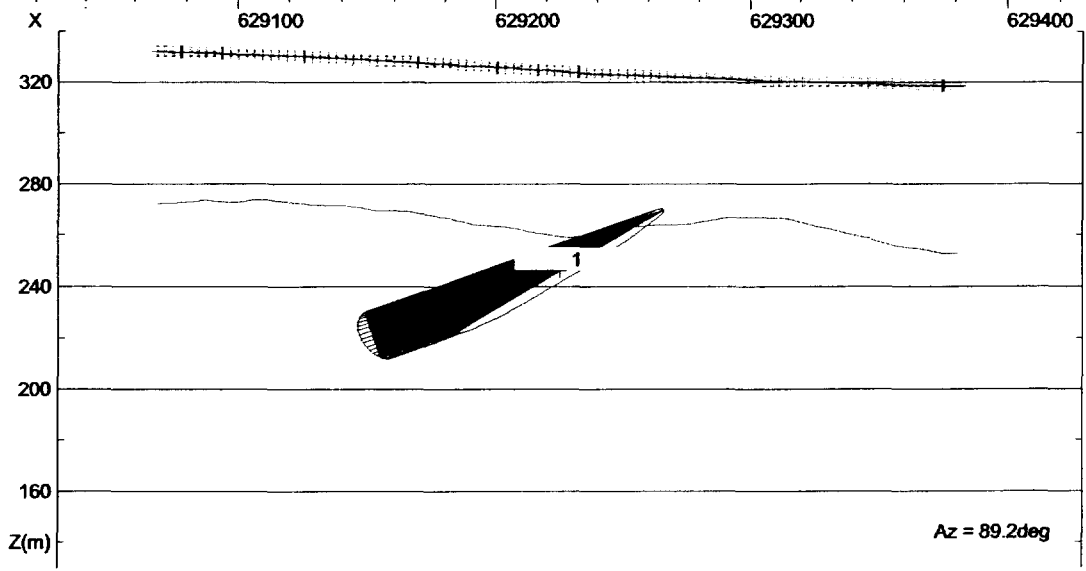
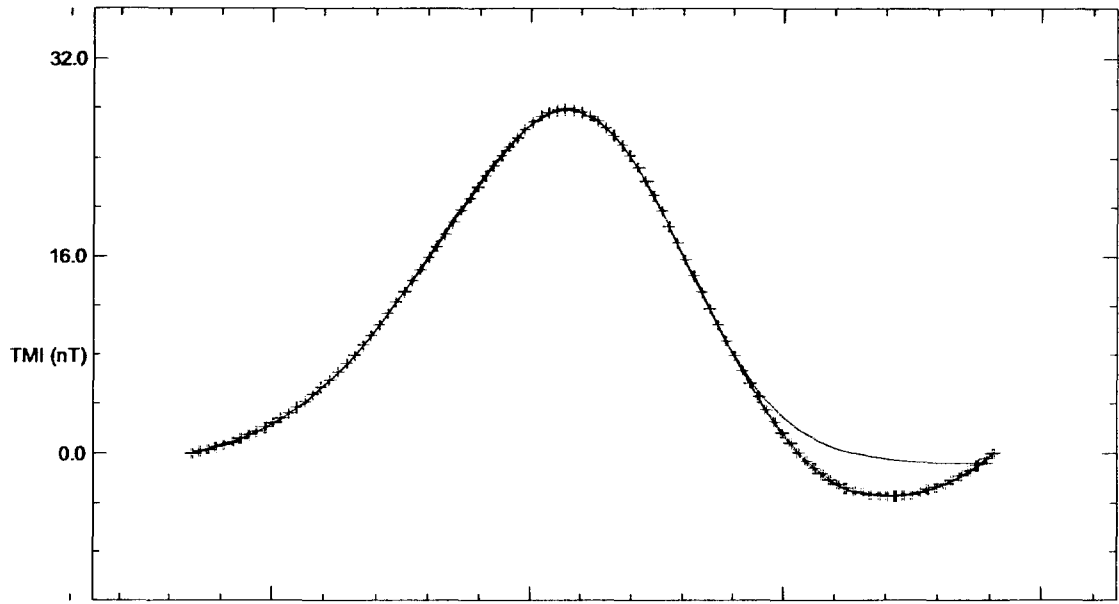
**Properties:**                      **Susc(cgs)**  
    0.01345

**Shape:**                      **A**                      **B**                      **C**  
    104.7                      750.0                      544.8



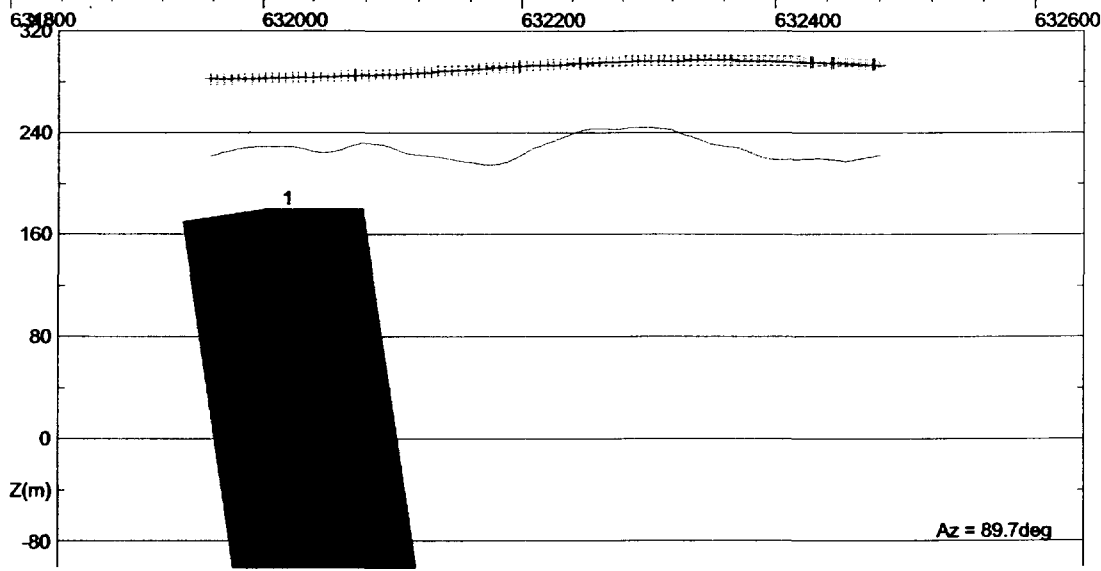
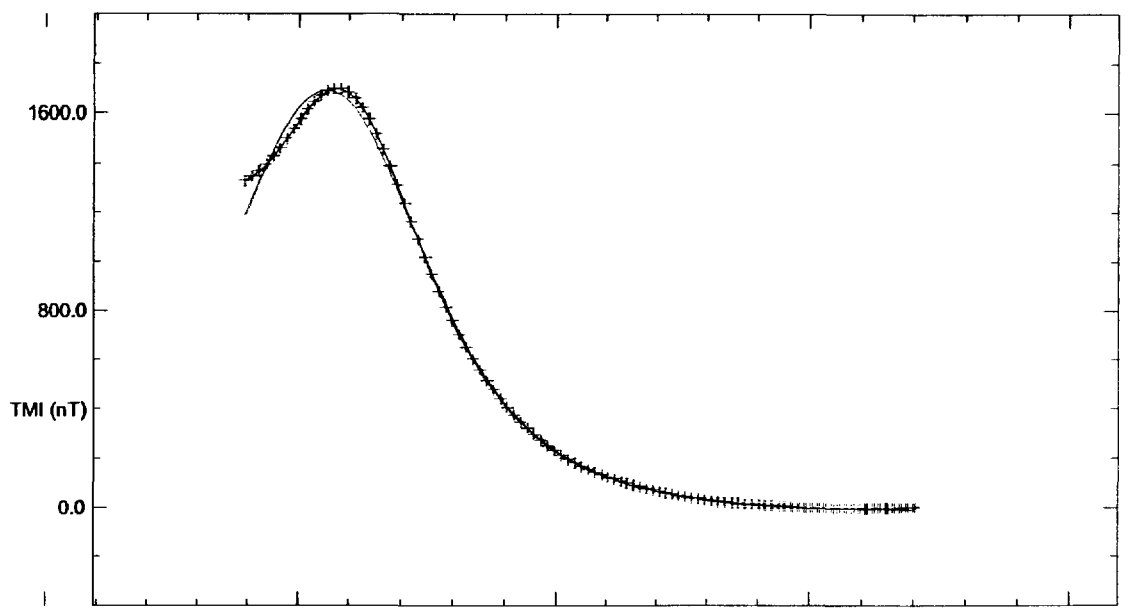
### Model Summary

<b>Model title:</b>	FLIGHT LINE 170 - ANOMALY 1					
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<b>Body type:</b>	Cylinder					
<b>Description:</b>						
<b>Position:</b>	<b>X</b> 631383	<b>Y</b> 5189901	<b>Z</b> 178	<b>Strike</b> 15.0	<b>Dip</b> -54.1	<b>Plunge</b> 0.0
<b>Properties:</b>	<b>Susc(cgs)</b> -0.00392					
<b>Shape:</b>	<b>A</b> 85.1	<b>B</b> 113.8	<b>C</b> 125.8	<b>Slope</b> 161.9		



**Model Summary**

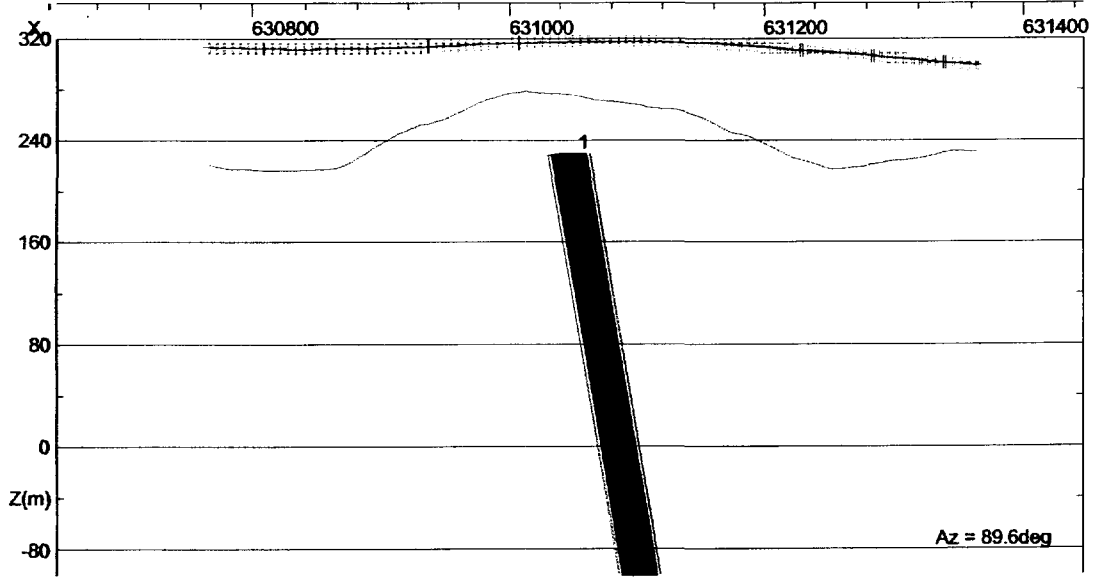
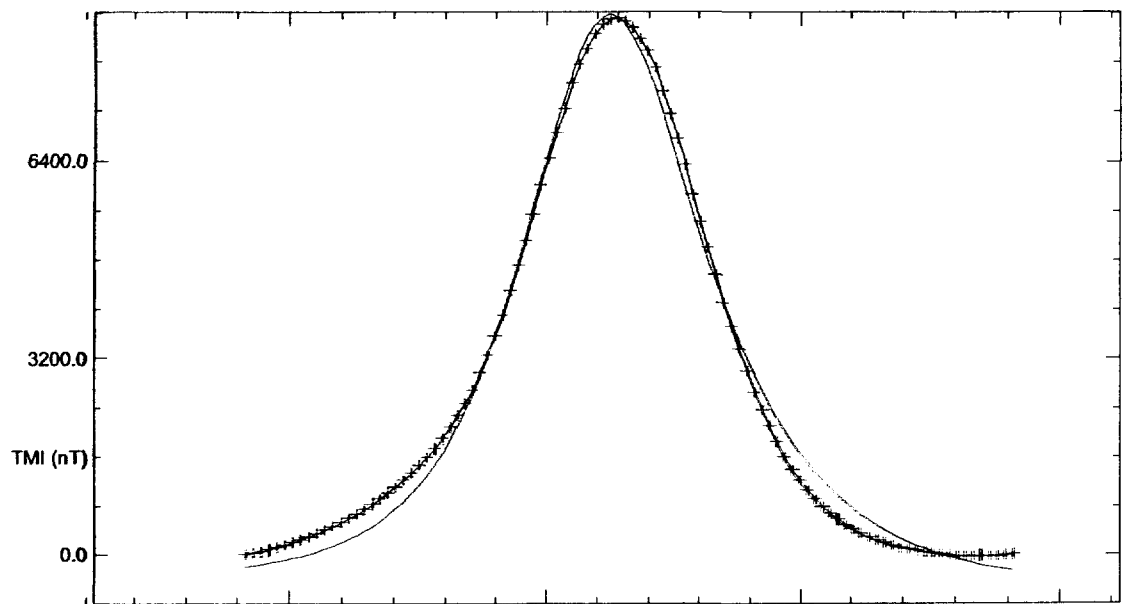
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<b>Body type:</b>	Cylinder					
<b>Description:</b>						
<b>Position:</b>	<b>X</b> 629226	<b>Y</b> 5189713	<b>Z</b> 246	<b>Strike</b> 10.0	<b>Dip</b> 71.1	<b>Plunge</b> 0.0
<b>Properties:</b>	<b>Susc(cgs)</b> 0.00266					
<b>Shape:</b>	<b>A</b> 19.7	<b>B</b> 80.0	<b>C</b> 76.8	<b>Slope</b> 167.9		



**Model Summary**

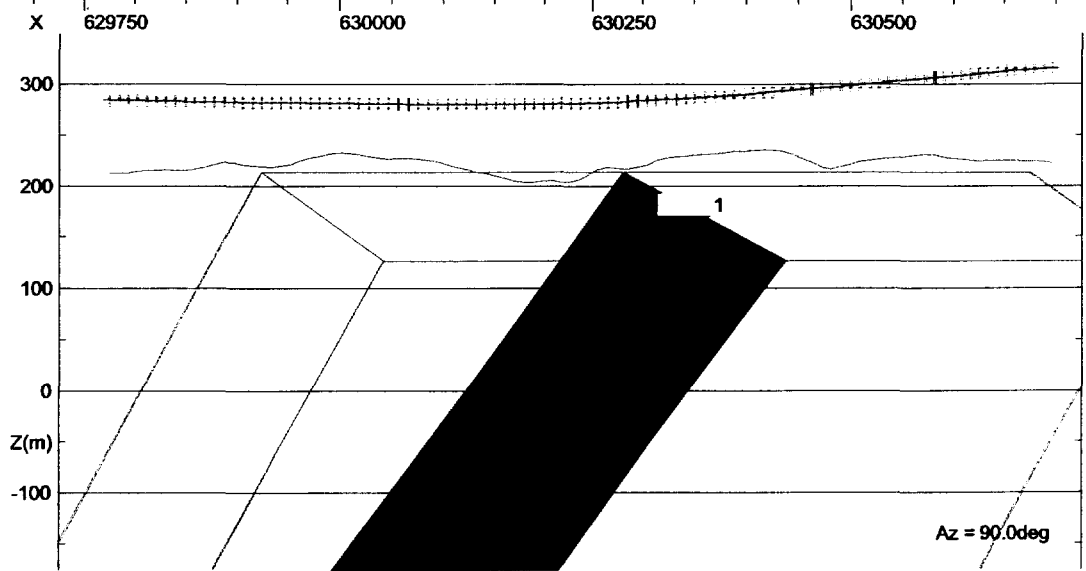
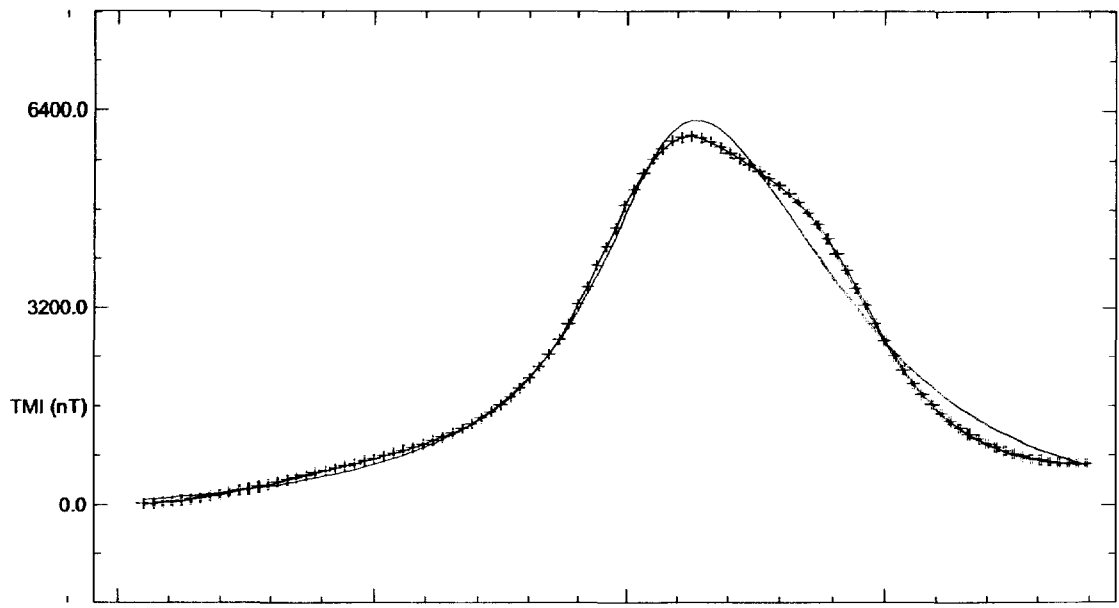
<b>Model title:</b>	FLIGHT LINE 260 - ANOMALY 1					
<b>IGRF:</b>	<b>Strength</b> 56780	<b>Declination</b> -12.0	<b>Inclination</b> 73.3			
<b>Body type:</b>	Cylinder					
<b>Description:</b>						
<b>Position:</b>	<b>X</b> 632006	<b>Y</b> 5188998	<b>Z</b> 180	<b>Strike</b> 0.0	<b>Dip</b> -8.3	<b>Plunge</b> 0.0
<b>Properties:</b>	<b>Susc(cgs)</b> 0.06118					
<b>Shape:</b>	<b>A</b> 140.6	<b>B</b> 73.2	<b>C</b> 301.7	<b>Slope</b> 90.0		





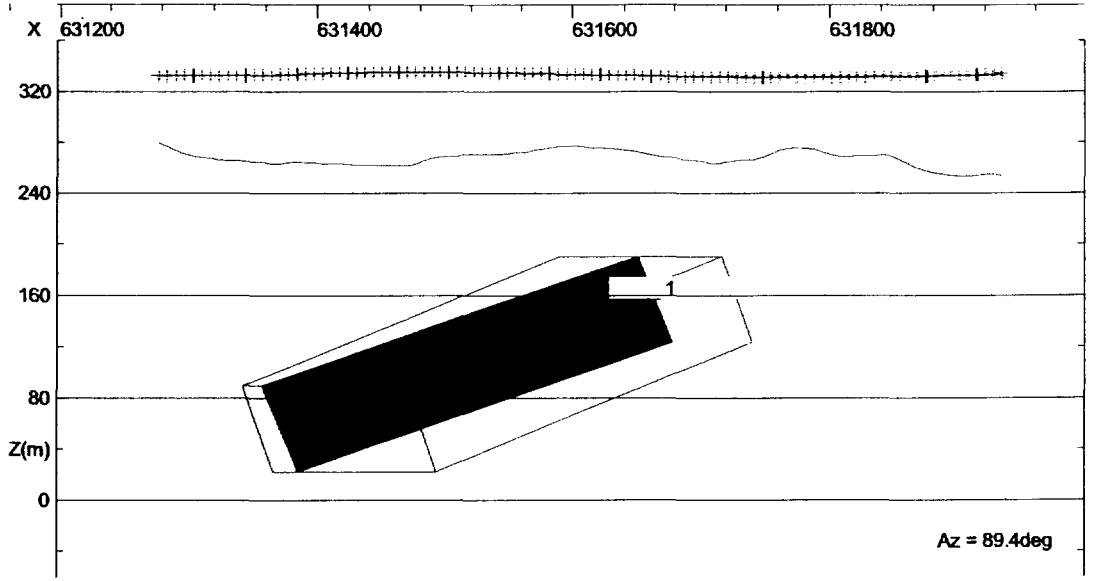
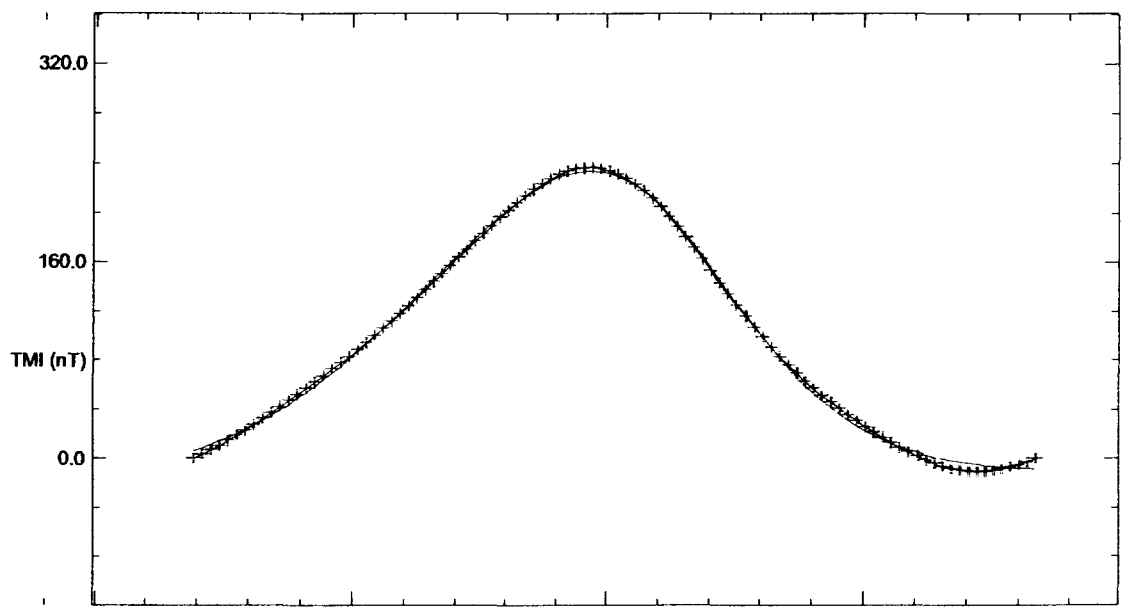
### Model Summary

<b>Model title:</b>	FLIGHT LINE 280 - ANOMALY 1					
<b>IGRF:</b>	<b>Strength</b>	<b>Declination</b>	<b>Inclination</b>			
	56780	-12.0	73.3			
<b>Body type:</b>	Rectangular Prism					
<b>Description:</b>						
<b>Position:</b>	<b>X</b>	<b>Y</b>	<b>Z</b>	<b>Strike</b>	<b>Dip</b>	<b>Plunge</b>
	631045	5188807	230	0.0	-9.8	0.0
<b>Properties:</b>	<b>Susc(cgs)</b>					
	0.41485					
<b>Shape:</b>	<b>A</b>	<b>B</b>	<b>C</b>			
	27.4	800.0	427.8			



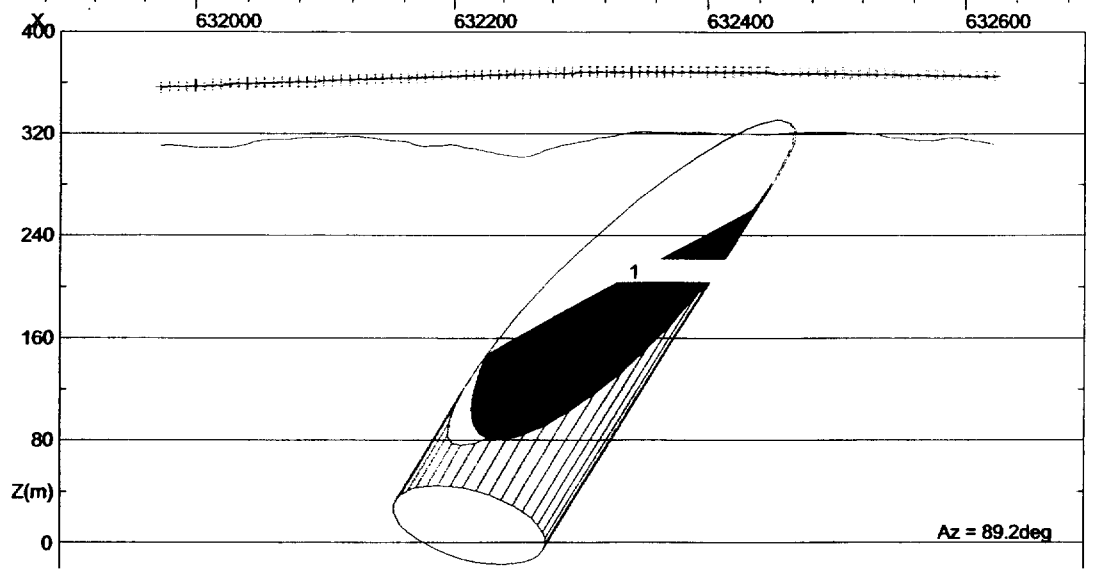
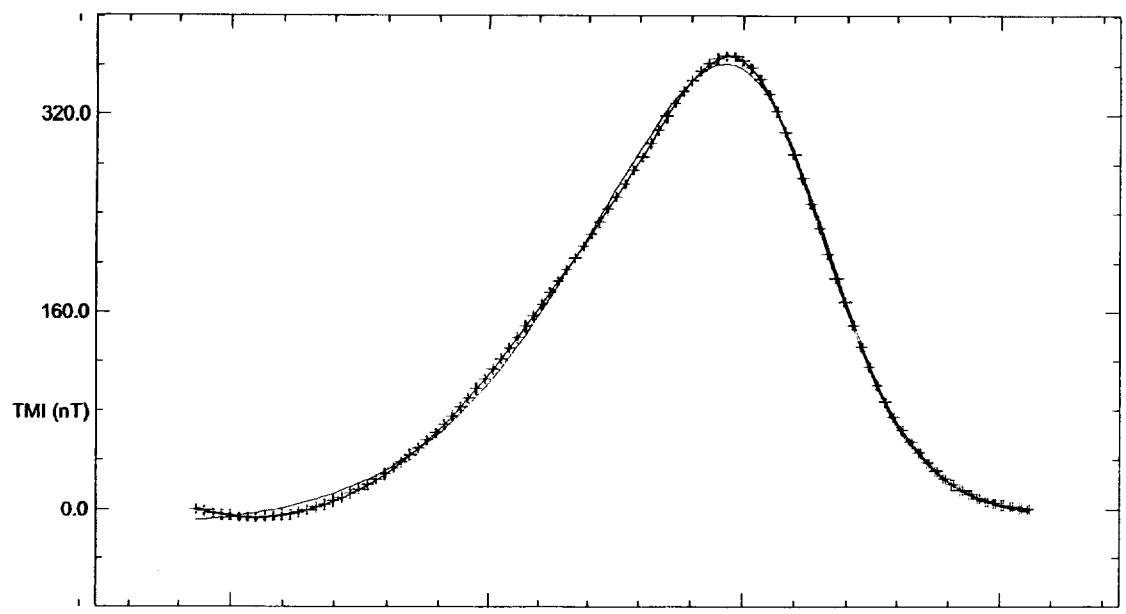
**Model Summary**

<b>Model title:</b>	FLIGHT LINE 290 - ANOMALY 1					
<b>IGRF:</b>	<b>Strength</b> 56780	<b>Declination</b> -12.0	<b>Inclination</b> 73.3			
<b>Body type:</b>	Rectangular Prism					
<b>Description:</b>						
<b>Position:</b>	<b>X</b> 630359	<b>Y</b> 5188705	<b>Z</b> 170	<b>Strike</b> 30.0	<b>Dip</b> 32.5	<b>Plunge</b> 0.0
<b>Properties:</b>	<b>Susc(cgs)</b> 0.04995					
<b>Shape:</b>	<b>A</b> 161.9	<b>B</b> 1500.0	<b>C</b> 1087.0			



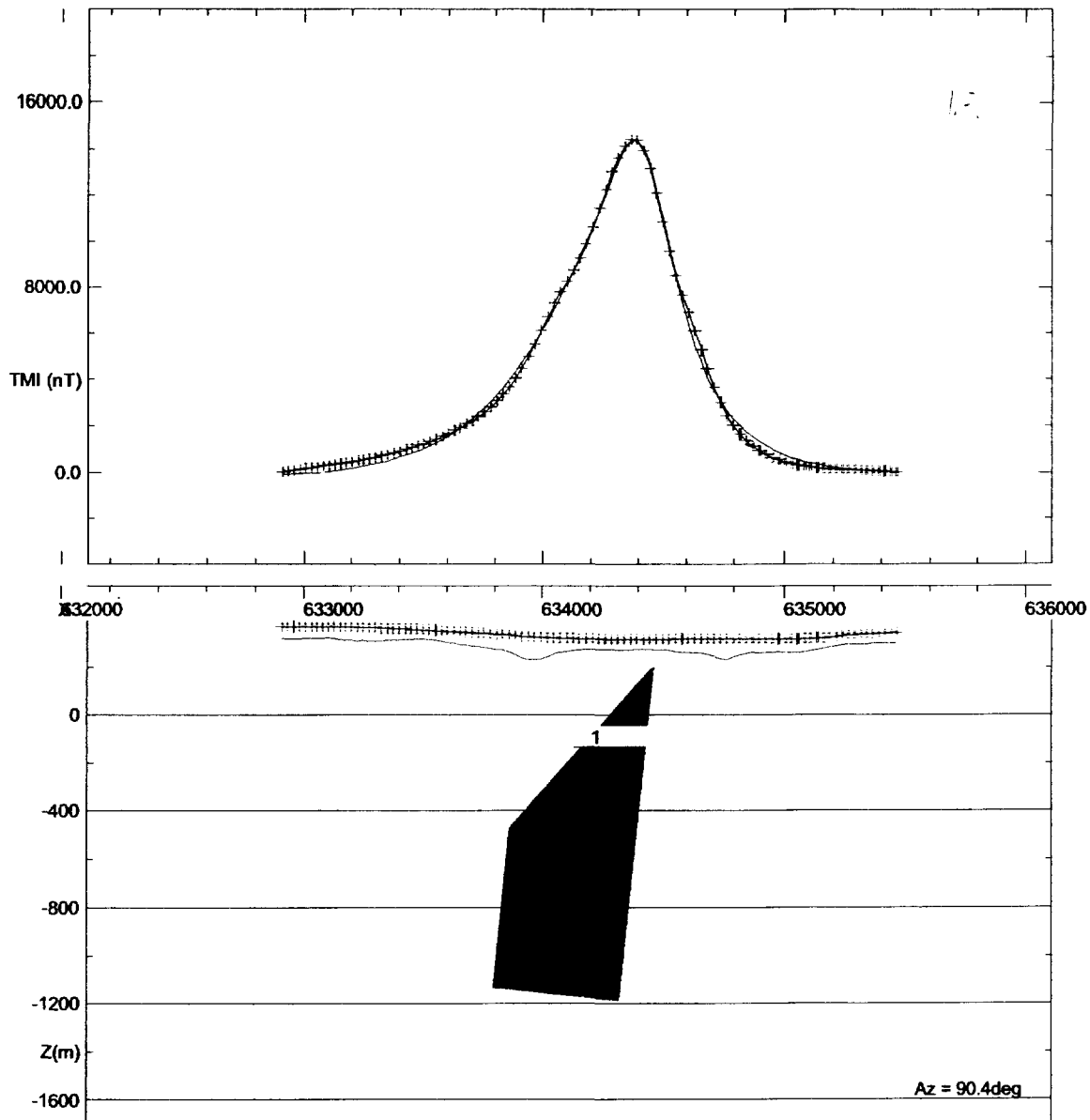
**Model Summary**

<b>Model title:</b>	FLIGHT LINE 541 - ANOMALY 1					
<b>IGRF:</b>	<b>Strength</b> 56780	<b>Declination</b> -12.0	<b>Inclination</b> 73.3			
<b>Body type:</b>	Rectangular Prism					
<b>Description:</b>						
<b>Position:</b>	<b>X</b> 631664	<b>Y</b> 5186204	<b>Z</b> 157	<b>Strike</b> -24.0	<b>Dip</b> 69.4	<b>Plunge</b> 0.0
<b>Properties:</b>	<b>Susc(cgs)</b> 0.00886					
<b>Shape:</b>	<b>A</b> 72.1	<b>B</b> 320.0	<b>C</b> 287.3			



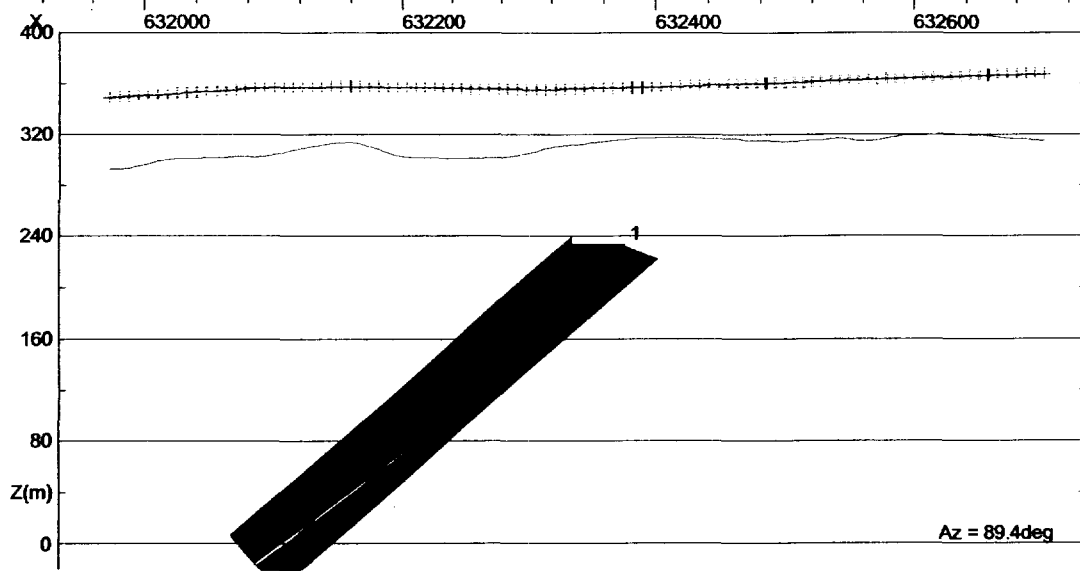
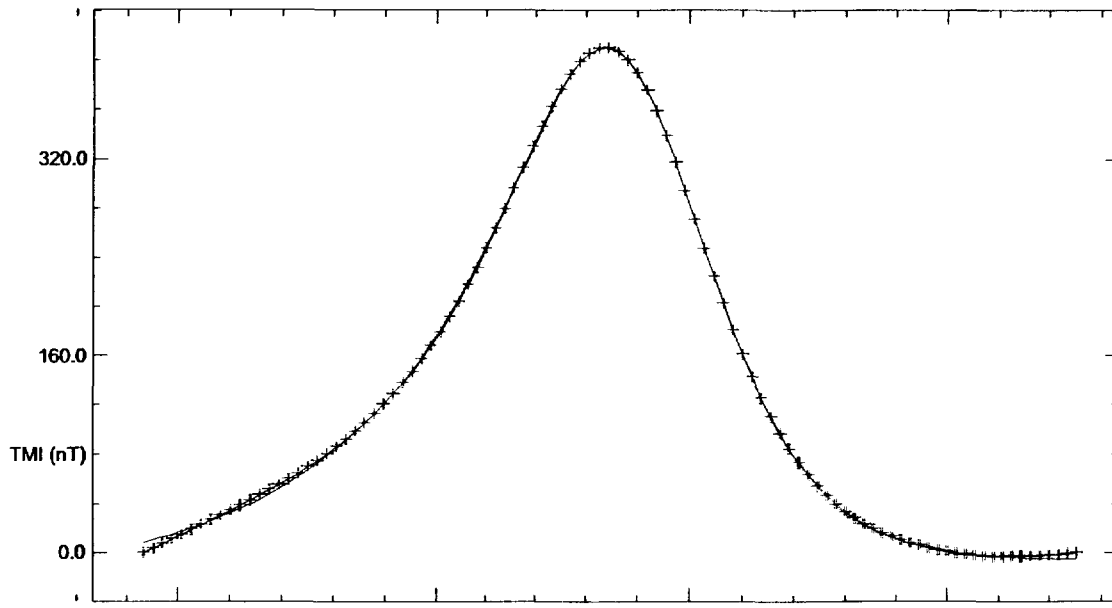
### Model Summary

<b>Model title:</b>	FLIGHT LINE 601 - ANOMALY 1					
<b>IGRF:</b>	<b>Strength</b>	<b>Declination</b>	<b>Inclination</b>			
	56780	-12.0	73.3			
<b>Body type:</b>	Cylinder					
<b>Description:</b>						
<b>Position:</b>	<b>X</b>	<b>Y</b>	<b>Z</b>	<b>Strike</b>	<b>Dip</b>	<b>Plunge</b>
	632331	5185594	203	-44.0	40.3	0.0
<b>Properties:</b>	<b>Susc(cgs)</b>					
	0.01649					
<b>Shape:</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>Slope</b>		
	94.5	160.0	248.4	12.8		



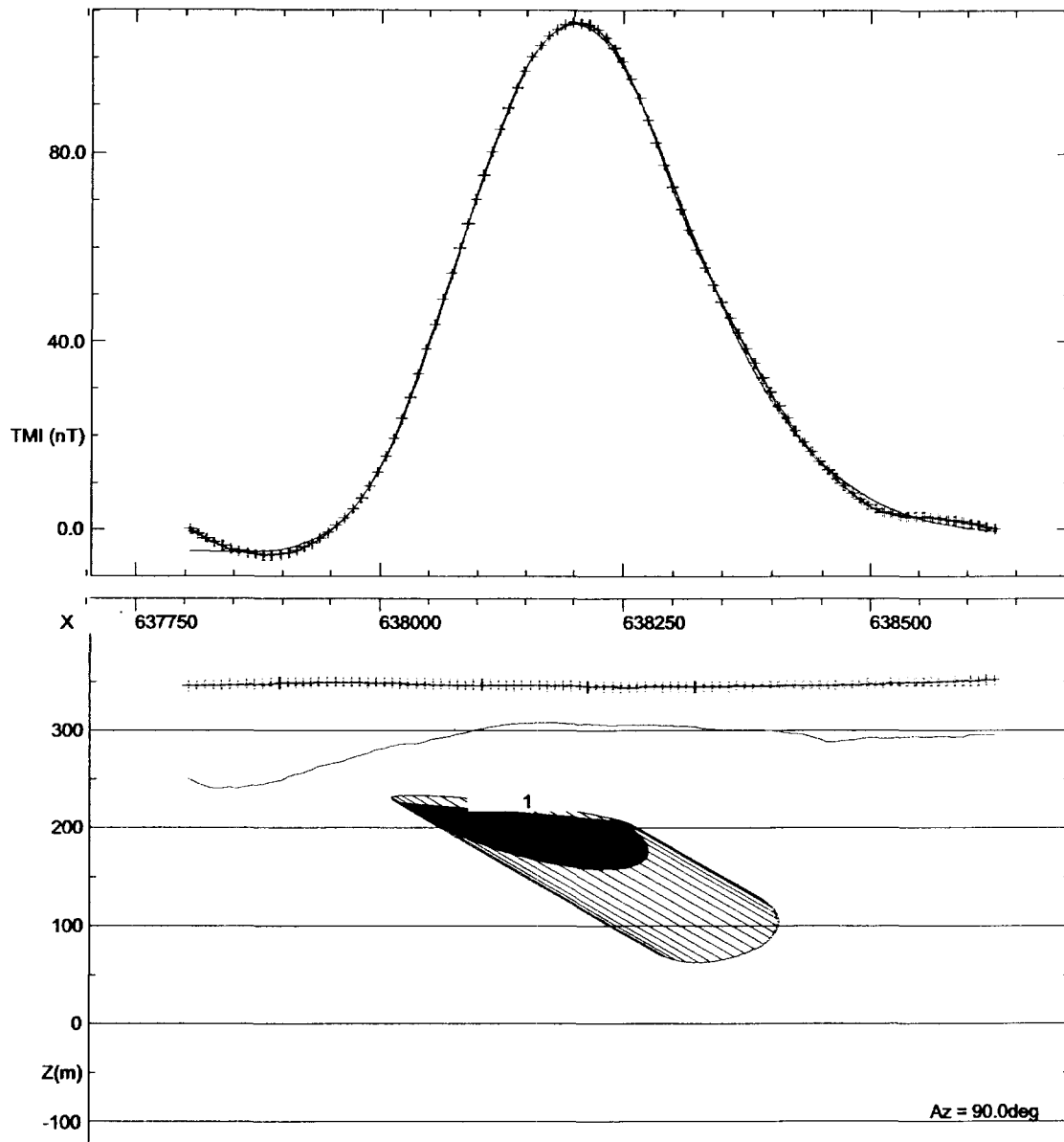
### Model Summary

<b>Model title:</b>	FLIGHT LINE 641 - ANOMALY 2					
<b>IGRF:</b>	<b>Strength</b>	<b>Declination</b>	<b>Inclination</b>			
	56780	-12.0	73.3			
<b>Body type:</b>	Cylinder					
<b>Description:</b>						
<b>Position:</b>	<b>X</b>	<b>Y</b>	<b>Z</b>	<b>Strike</b>	<b>Dip</b>	<b>Plunge</b>
	634162	5185194	-134	0.4	5.8	0.0
<b>Properties:</b>	<b>Susc(cgs)</b>					
	0.35066					
<b>Shape:</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>Slope</b>		
	527.6	779.8	1031.4	36.0		



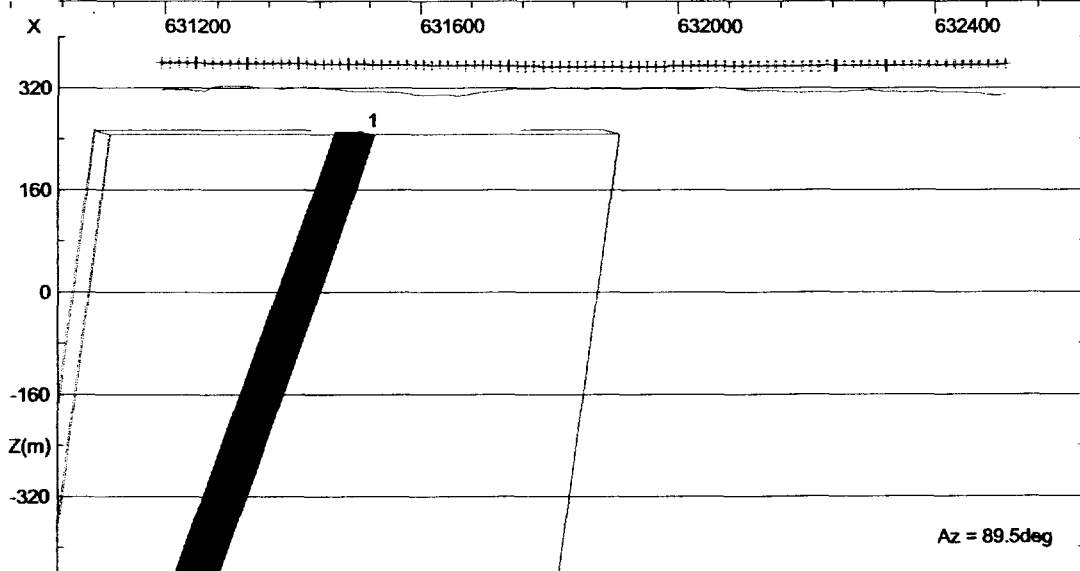
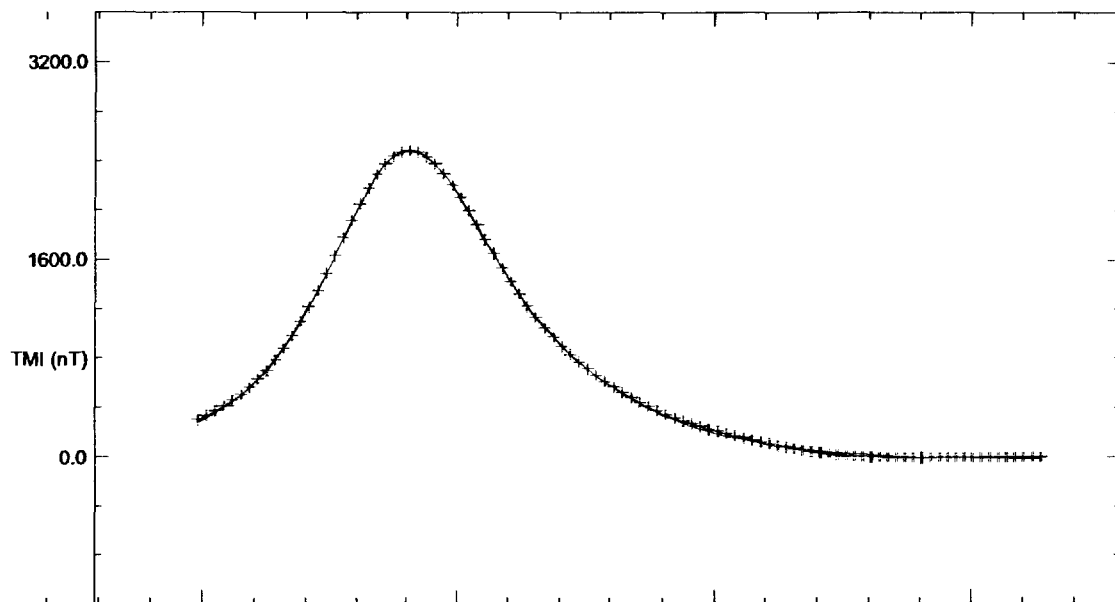
**Model Summary**

<b>Model title:</b>	FLIGHT LINE 641 - ANOMALY 1					
<b>IGRF:</b>	<b>Strength</b> 56780	<b>Declination</b> -12.0	<b>Inclination</b> 73.3			
<b>Body type:</b>	Cylinder					
<b>Description:</b>						
<b>Position:</b>	<b>X</b> 632371	<b>Y</b> 5185213	<b>Z</b> 233	<b>Strike</b> 0.0	<b>Dip</b> 48.9	<b>Plunge</b> 0.0
<b>Properties:</b>	<b>Susc(cgs)</b> 0.01922					
<b>Shape:</b>	<b>A</b> 56.5	<b>B</b> 160.0	<b>C</b> 378.2	<b>Slope</b> 62.7		



### Model Summary

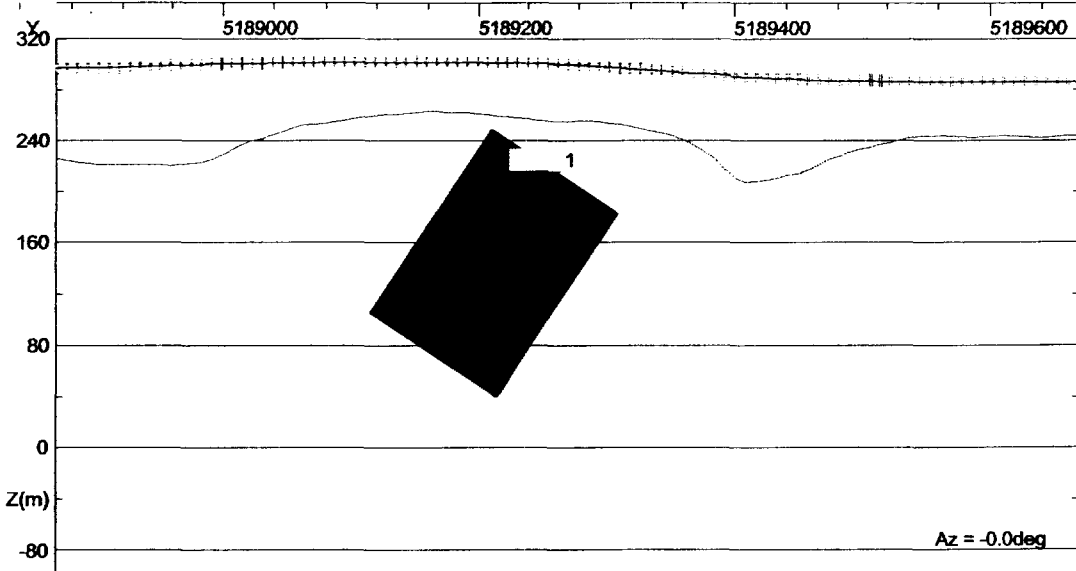
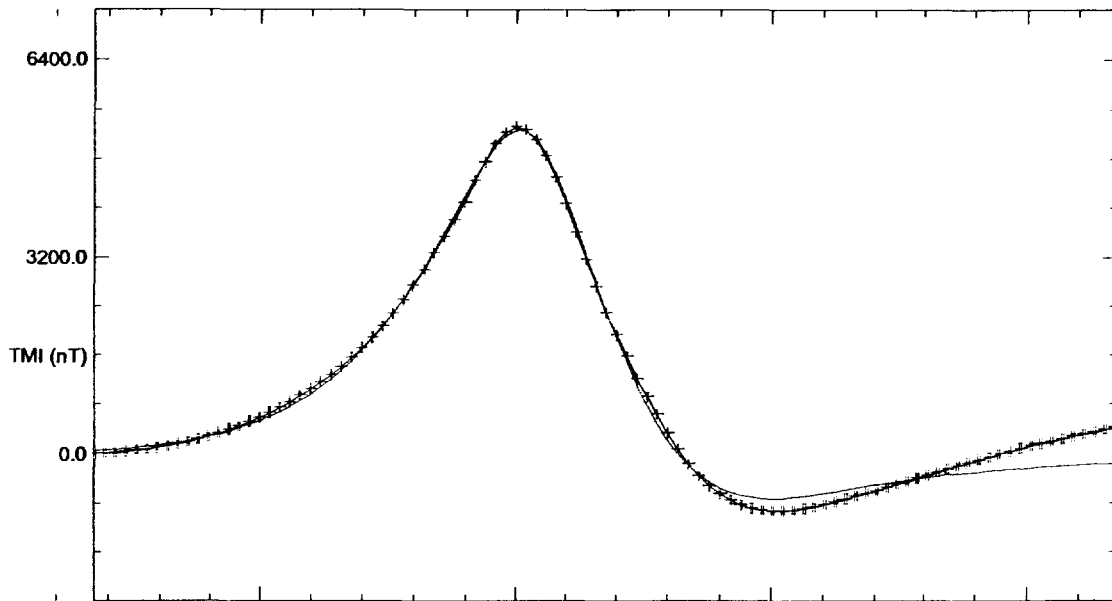
<b>Model title:</b>	FLIGHT LINE 721 - ANOMALY 1					
<b>IGRF:</b>	<b>Strength</b>	<b>Declination</b>	<b>Inclination</b>			
	56780	-12.0	73.3			
<b>Body type:</b>	Cylinder					
<b>Description:</b>						
<b>Position:</b>	<b>X</b>	<b>Y</b>	<b>Z</b>	<b>Strike</b>	<b>Dip</b>	<b>Plunge</b>
	638136	5184413	216	-45.0	-67.5	0.0
<b>Properties:</b>	<b>Susc(cgs)</b>					
	0.00318					
<b>Shape:</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>Slope</b>		
	79.5	196.1	306.4	164.2		



### Model Summary

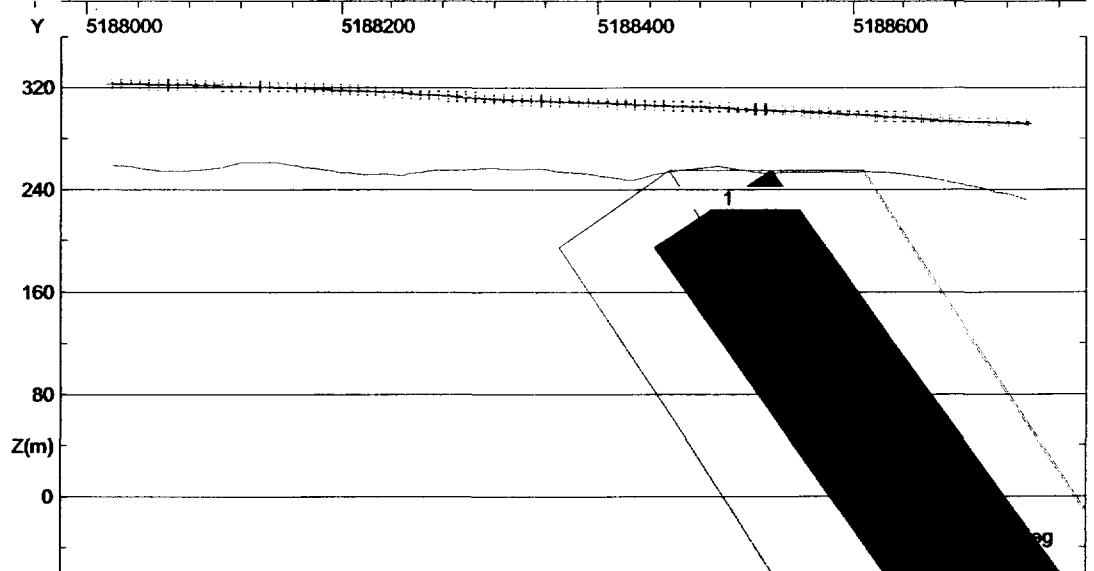
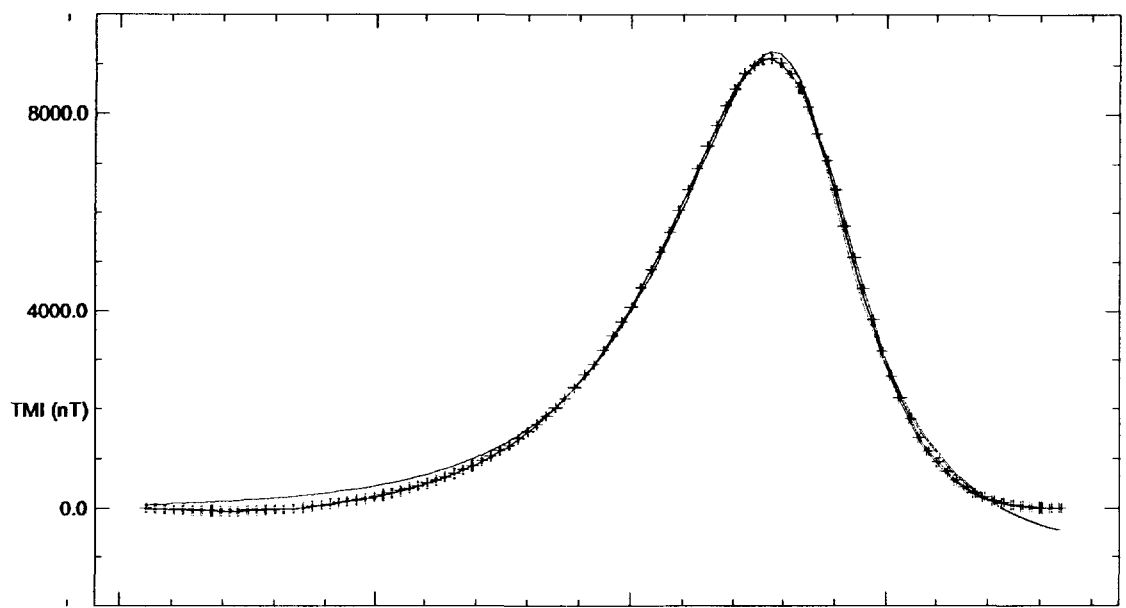
<b>Model title:</b>	FLIGHT LINE 760 - ANOMALY 1					
<b>IGRF:</b>	<b>Strength</b> 56780	<b>Declination</b> -12.0	<b>Inclination</b> 73.3			
<b>Body type:</b>	Rectangular Prism					
<b>Description:</b>						
<b>Position:</b>	<b>X</b> 631499	<b>Y</b> 5184009	<b>Z</b> 250	<b>Strike</b> 52.0	<b>Dip</b> 12.3	<b>Plunge</b> 0.0
<b>Properties:</b>	<b>Susc(cgs)</b> 0.06608					
<b>Shape:</b>	<b>A</b> 39.7	<b>B</b> 1000.0	<b>C</b> 1310.2			





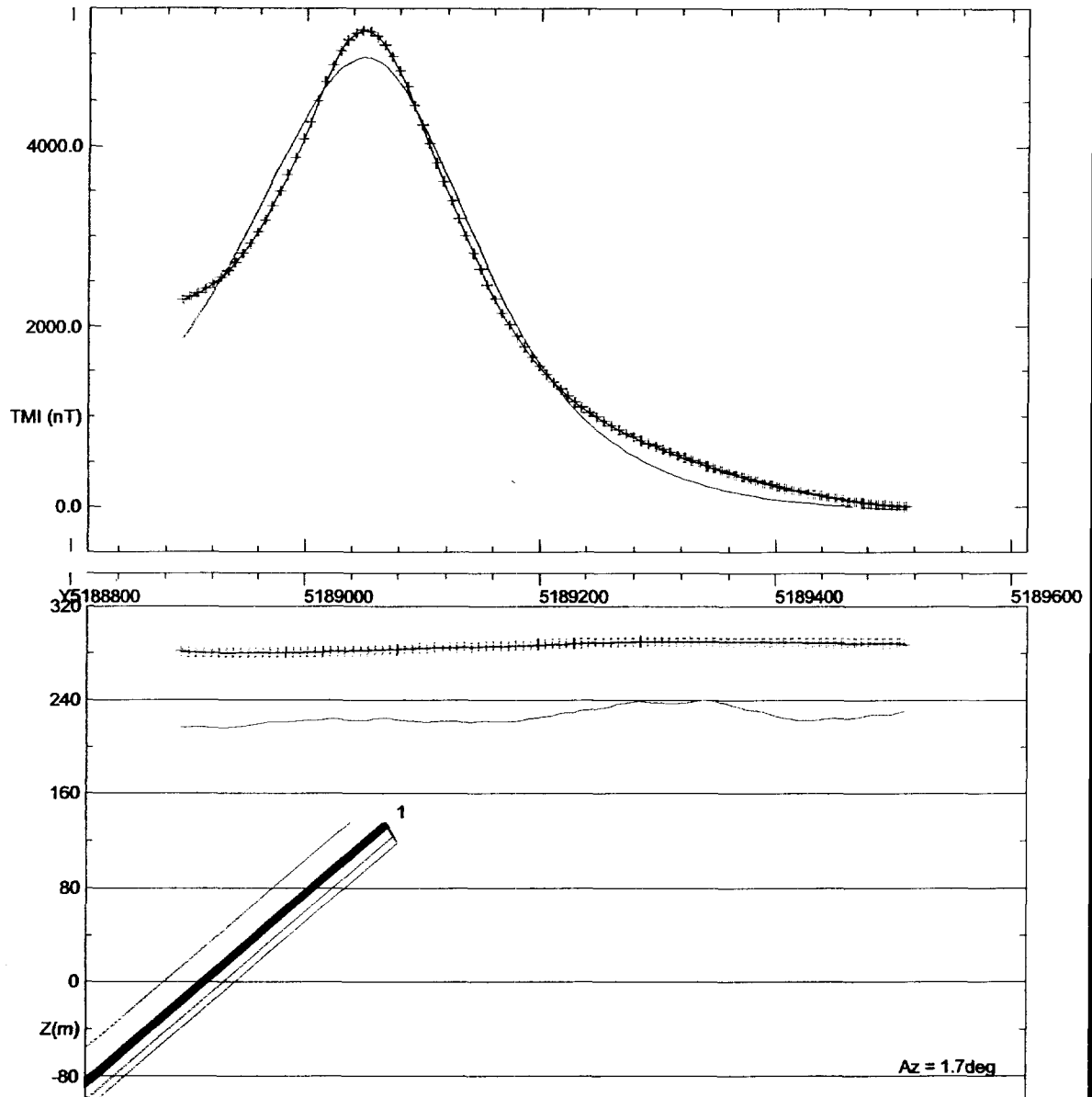
### Model Summary

<b>Model title:</b>	TIE LINE 5040 - ANOMALY 1					
<b>IGRF:</b>	<b>Strength</b>	<b>Declination</b>	<b>Inclination</b>			
	56780	-12.0	73.3			
<b>Body type:</b>	Rectangular Prism					
<b>Description:</b>						
<b>Position:</b>	<b>X</b>	<b>Y</b>	<b>Z</b>	<b>Strike</b>	<b>Dip</b>	<b>Plunge</b>
	630723	5189260	216	-90.0	33.7	0.0
<b>Properties:</b>	<b>Susc(cgs)</b>					
	0.06497					
<b>Shape:</b>	<b>A</b>	<b>B</b>	<b>C</b>			
	119.9	300.0	172.9			



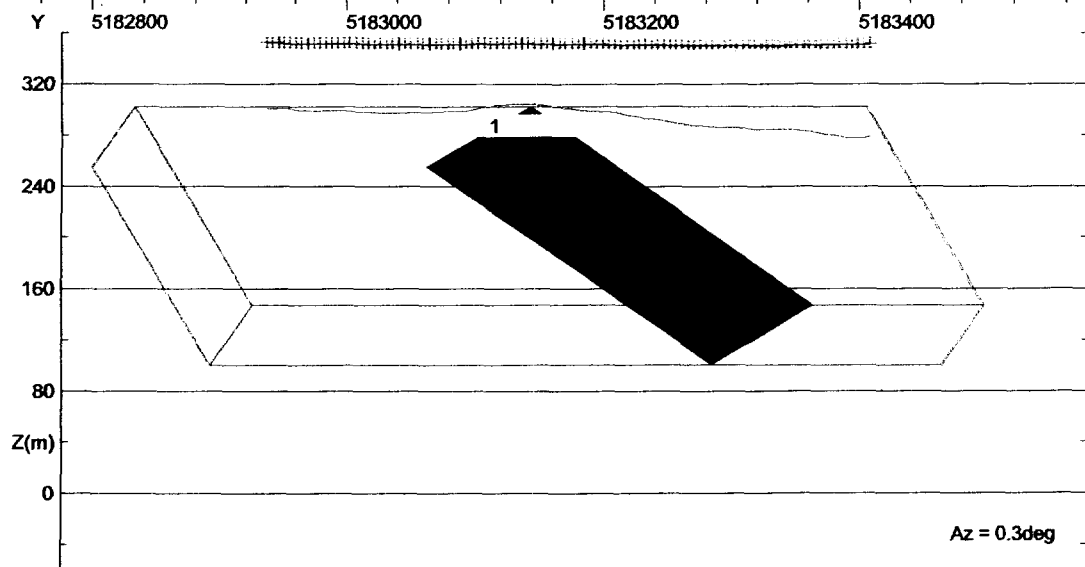
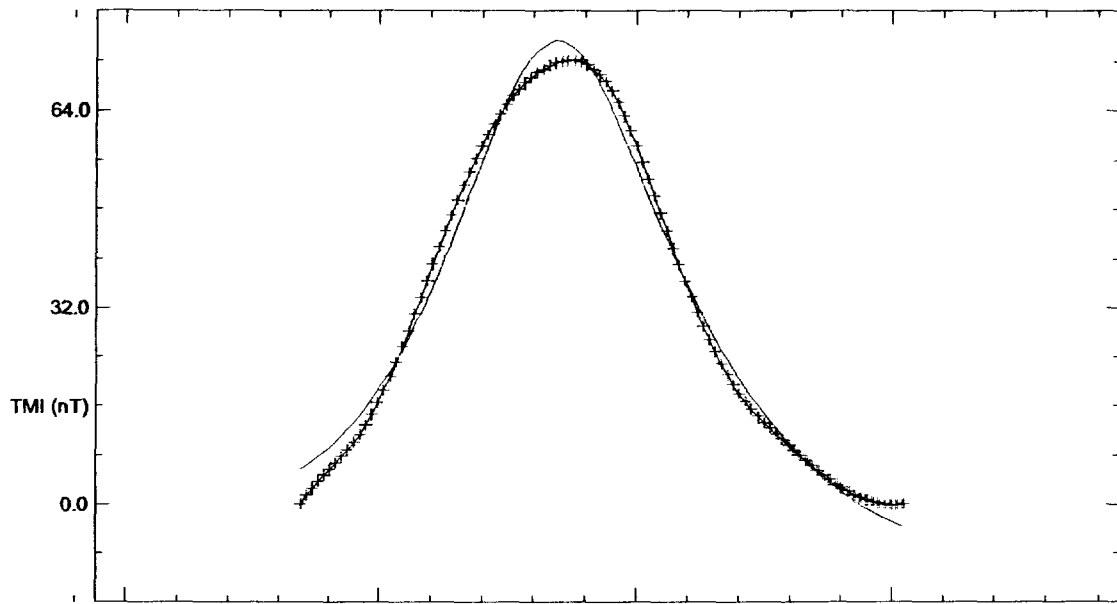
### Model Summary

<b>Model title:</b>	TIE LINE 5050 - ANOMALY 1					
<b>IGRF:</b>	<b>Strength</b>	<b>Declination</b>	<b>Inclination</b>			
	56780	-12.0	73.3			
<b>Body type:</b>	Rectangular Prism					
<b>Description:</b>						
<b>Position:</b>	<b>X</b>	<b>Y</b>	<b>Z</b>	<b>Strike</b>	<b>Dip</b>	<b>Plunge</b>
	631197	5188489	224	108.0	34.4	0.0
<b>Properties:</b>	<b>Susc(cgs)</b>					
	0.08873					
<b>Shape:</b>	<b>A</b>	<b>B</b>	<b>C</b>			
	106.9	500.0	402.5			



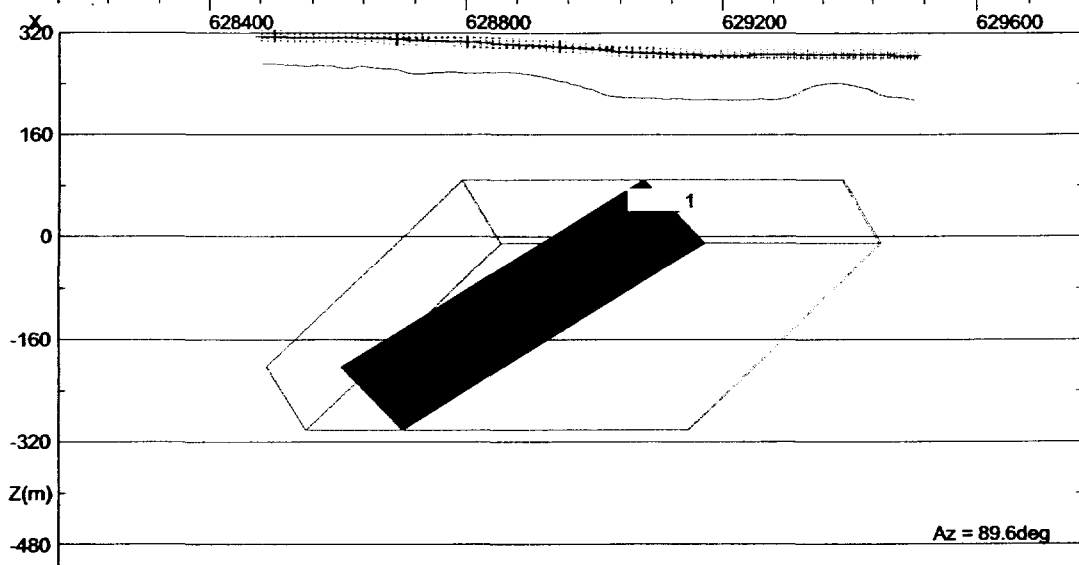
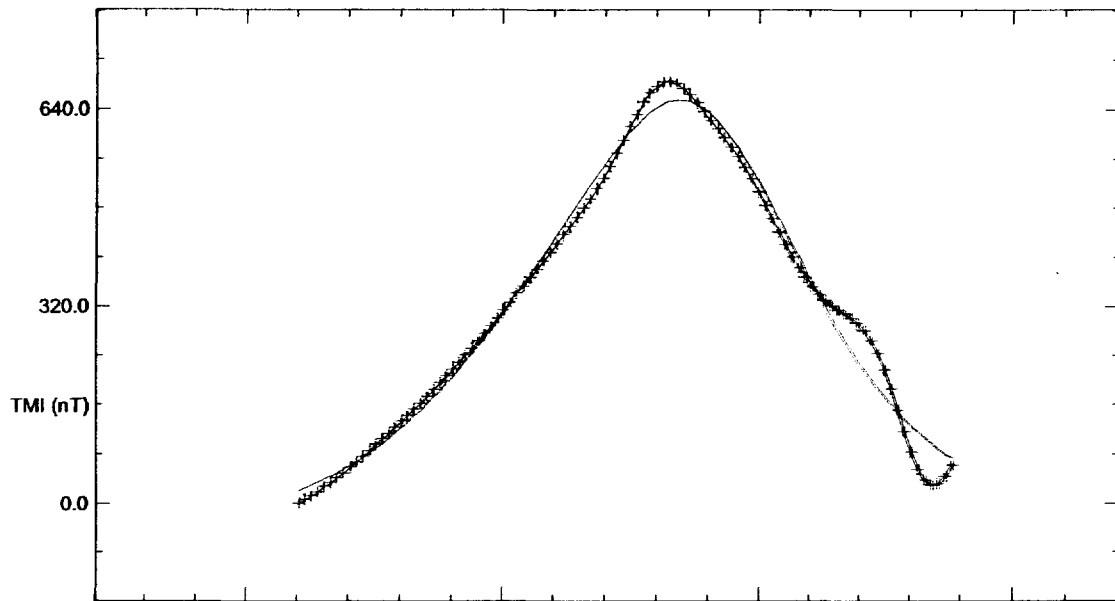
### Model Summary

<b>Model title:</b>	TIE LINE 5060 - ANOMALY 1					
<b>IGRF:</b>	<b>Strength</b>	<b>Declination</b>	<b>Inclination</b>			
	56780	-12.0	73.3			
<b>Body type:</b>	Rectangular Prism					
<b>Description:</b>						
<b>Position:</b>	<b>X</b>	<b>Y</b>	<b>Z</b>	<b>Strike</b>	<b>Dip</b>	<b>Plunge</b>
	631710	5189070	136	80.0	-48.7	10.5
<b>Properties:</b>	<b>Susc(cgs)</b>					
	9.51594					
<b>Shape:</b>	<b>A</b>	<b>B</b>	<b>C</b>			
	6.5	250.0	511.1			



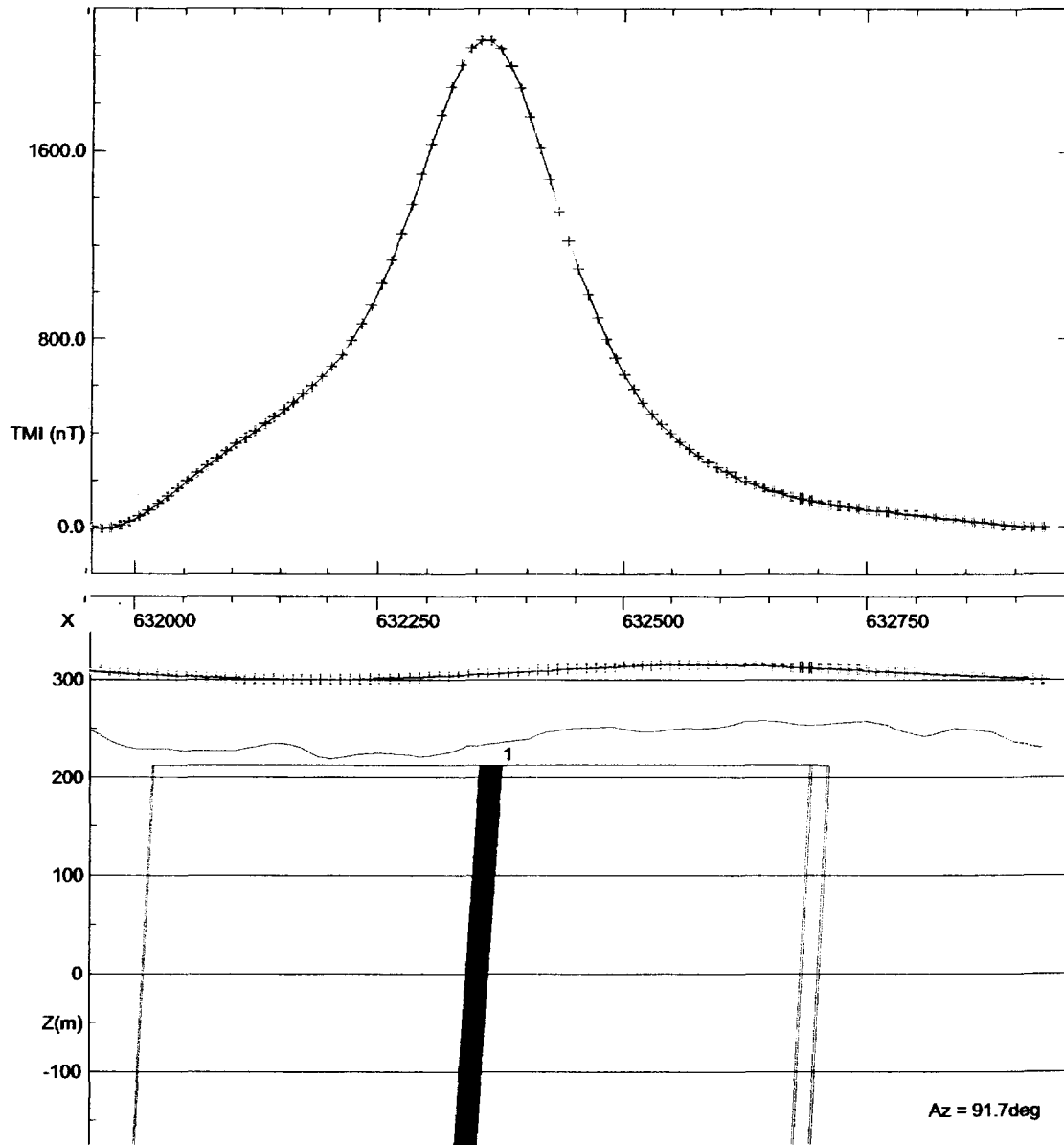
### Model Summary

<b>Model title:</b>	TIE LINE 5150 - ANOMALY 1					
<b>IGRF:</b>	<b>Strength</b> 56780	<b>Declination</b> -12.0	<b>Inclination</b> 73.3			
<b>Body type:</b>	Rectangular Prism					
<b>Description:</b>						
<b>Position:</b>	<b>X</b> 636218	<b>Y</b> 5183103	<b>Z</b> 279	<b>Strike</b> -40.0	<b>Dip</b> -42.4	<b>Plunge</b> 0.0
<b>Properties:</b>	<b>Susc(cgs)</b> 0.00089					
<b>Shape:</b>	<b>A</b> 70.0	<b>B</b> 750.0	<b>C</b> 210.7			



### Model Summary

<b>Model title:</b>	FLIGHT LINE 310 - ANOMALY 1					
<b>IGRF:</b>	<b>Strength</b> 56780	<b>Declination</b> -12.0	<b>Inclination</b> 73.3			
<b>Body type:</b>	Rectangular Prism					
<b>Description:</b>						
<b>Position:</b>	<b>X</b> 629121	<b>Y</b> 5188509	<b>Z</b> 39	<b>Strike</b> 36.0	<b>Dip</b> 52.3	<b>Plunge</b> 0.0
<b>Properties:</b>	<b>Susc(cgs)</b> 0.01605					
<b>Shape:</b>	<b>A</b> 124.3	<b>B</b> 1000.0	<b>C</b> 476.9			



### Model Summary

**Model title:** FLIGHT LINE 350 - ANOMALY 1

**IGRF:** **Strength** 56780      **Declination** -12.0      **Inclination** 73.3

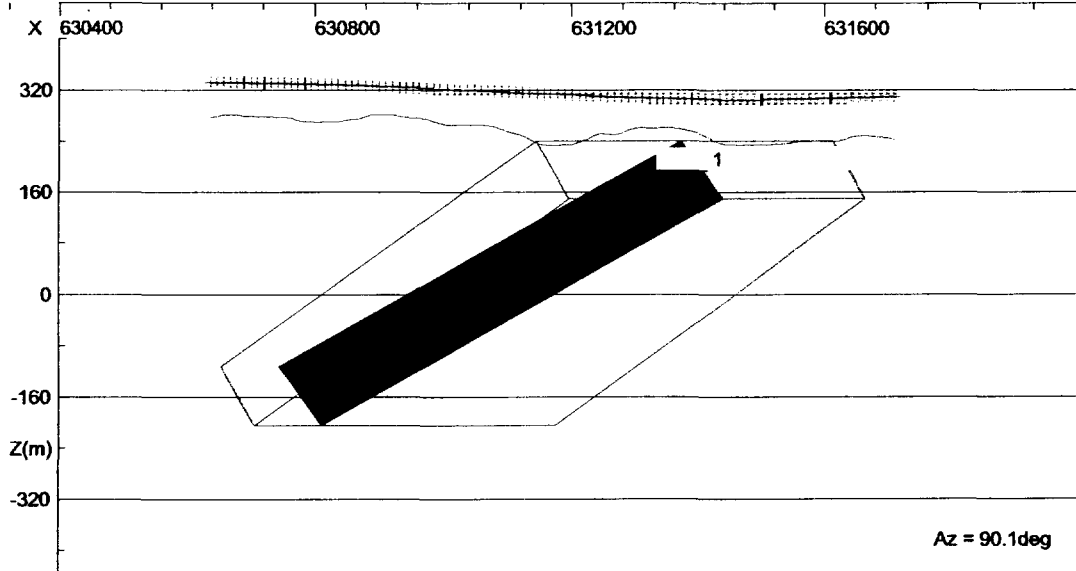
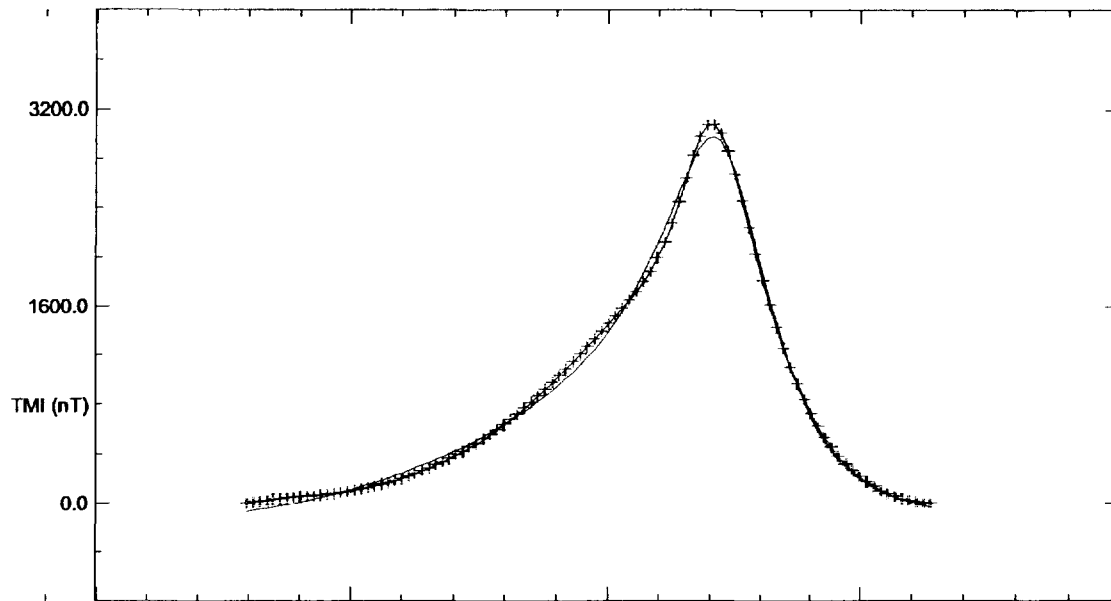
**Body type:** Rectangular Prism

**Description:**

**Position:** **X** 632366      **Y** 5188103      **Z** 212      **Strike** -25.0      **Dip** 3.2      **Plunge** 0.0

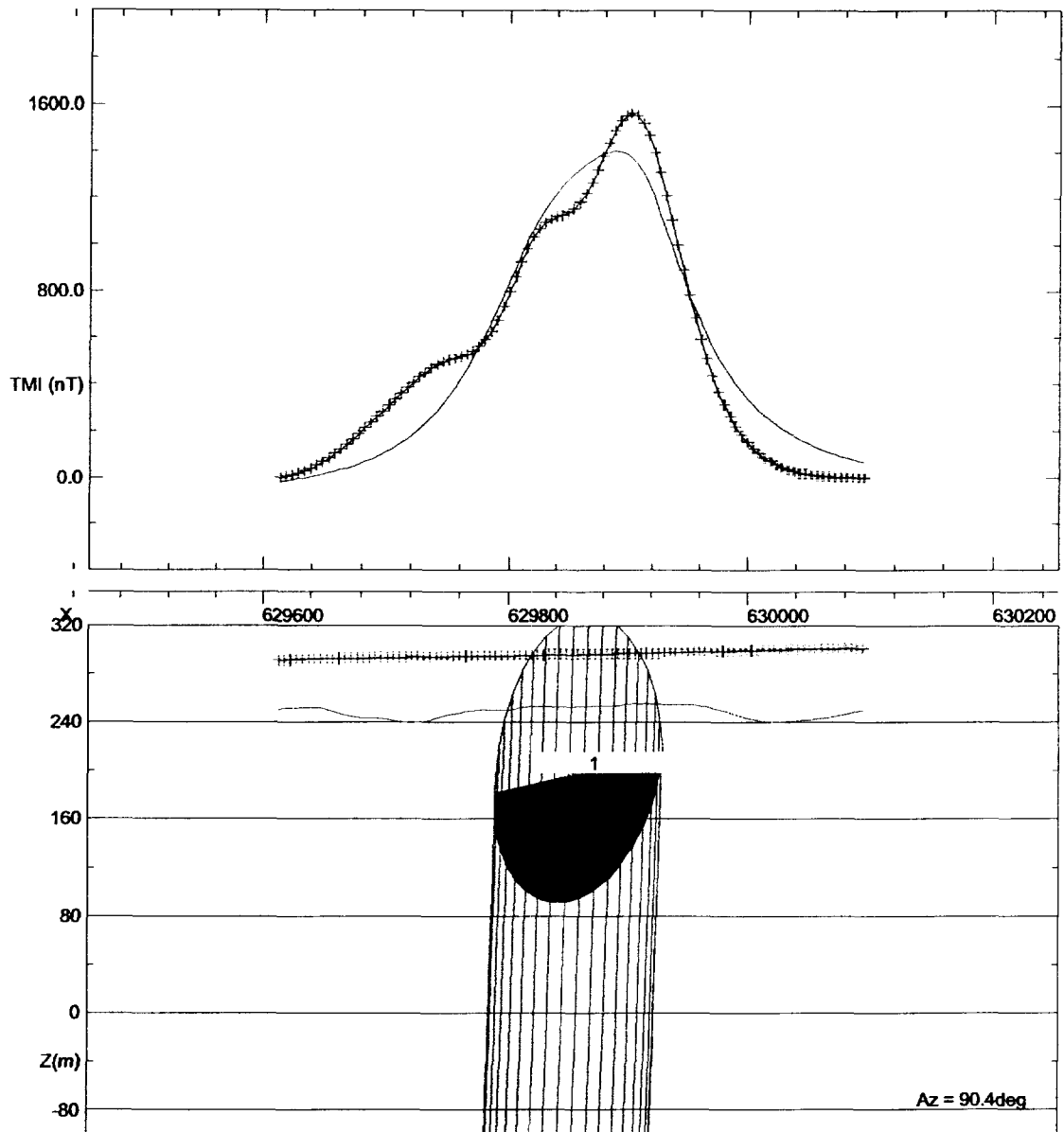
**Properties:** **Susc(cgs)** 0.10155

**Shape:** **A** 19.3      **B** 1500.0      **C** 1898.5



### Model Summary

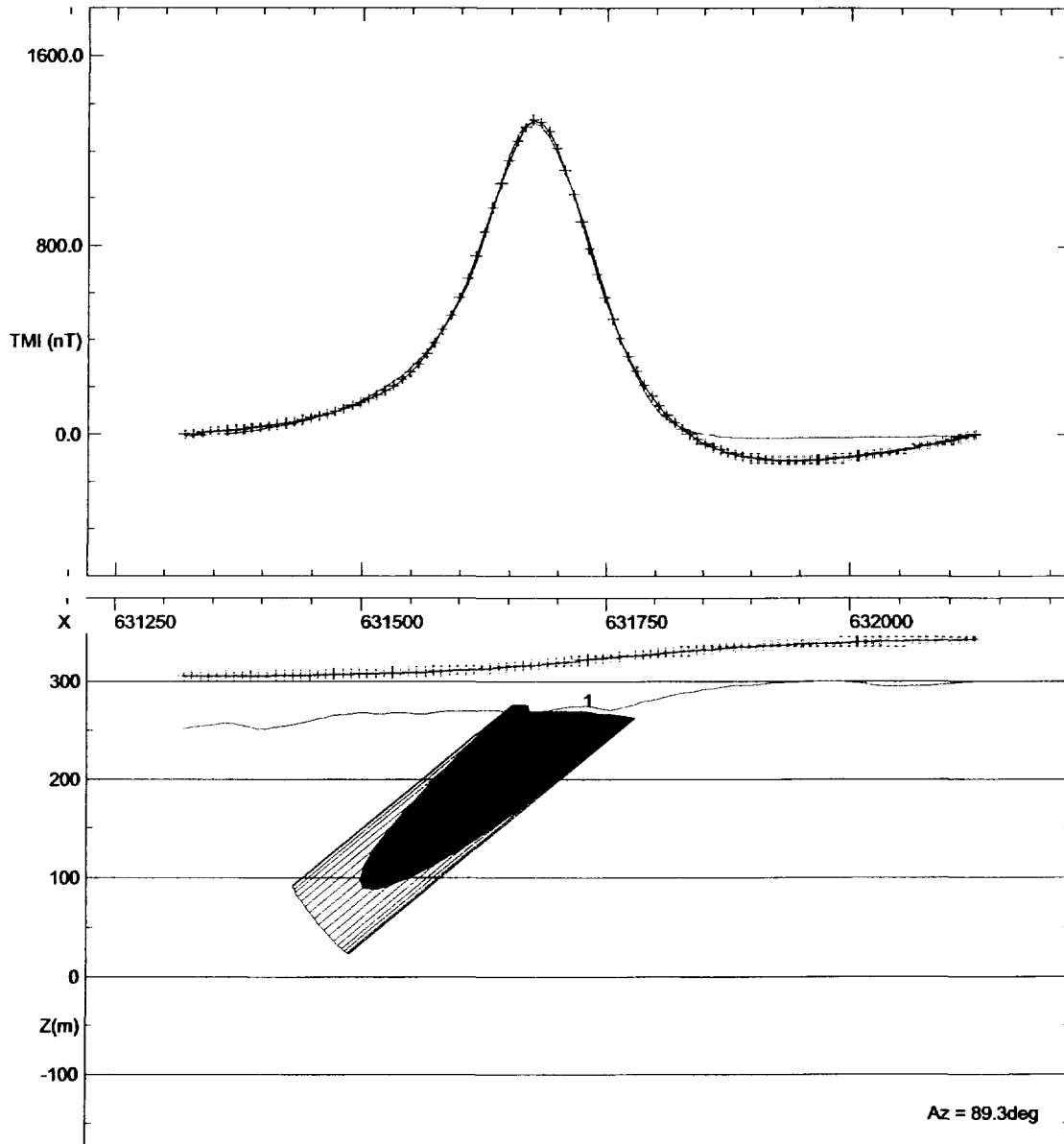
<b>Model title:</b>	FLIGHT LINE 390 - ANOMALY 1					
<b>IGRF:</b>	<b>Strength</b> 56780	<b>Declination</b> -12.0	<b>Inclination</b> 73.3			
<b>Body type:</b>	Rectangular Prism					
<b>Description:</b>						
<b>Position:</b>	<b>X</b> 631402	<b>Y</b> 5187706	<b>Z</b> 194	<b>Strike</b> 28.0	<b>Dip</b> 57.4	<b>Plunge</b> 0.0
<b>Properties:</b>	<b>Susc(cgs)</b> 0.03236					
<b>Shape:</b>	<b>A</b> 109.5	<b>B</b> 1000.0	<b>C</b> 655.5			



### Model Summary

<b>Model title:</b>	FLIGHT LINE 481 - ANOMALY 1					
<b>IGRF:</b>	<b>Strength</b>	<b>Declination</b>	<b>Inclination</b>			
	56780	-12.0	73.3			
<b>Body type:</b>	Cylinder					
<b>Description:</b>						
<b>Position:</b>	<b>X</b>	<b>Y</b>	<b>Z</b>	<b>Strike</b>	<b>Dip</b>	<b>Plunge</b>
	629859	5186805	197	84.0	15.6	0.0
<b>Properties:</b>	<b>Susc(cgs)</b>					
	0.08743					
<b>Shape:</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>Slope</b>		
	55.6	139.7	323.3	10.8		





**Model Summary**

<b>Model title:</b>	FLIGHT LINE 481 - ANOMALY 2					
<b>IGRF:</b>	<b>Strength</b>	<b>Declination</b>	<b>Inclination</b>			
	56780	-12.0	73.3			
<b>Body type:</b>	Cylinder					
<b>Description:</b>						
<b>Position:</b>	<b>X</b>	<b>Y</b>	<b>Z</b>	<b>Strike</b>	<b>Dip</b>	<b>Plunge</b>
	631716	5186798	269	10.0	51.0	0.0
<b>Properties:</b>	<b>Susc(cgs)</b>					
	0.01450					
<b>Shape:</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>Slope</b>		
	90.5	80.0	334.8	45.4		

## Work Report Summary

Transaction No: W0370.00568 Status: APPROVED (D)  
 Recording Date: 2003-APR-08 Work Done from: 2003-MAR-11  
 Approval Date: 2003-JUL-07 to: 2003-MAR-30

**Client(s):**

164856 MARMONT, CHRISTOPHER  
 201344 THOMAS, RODNEY NELSON



**Survey Type(s):**

AMAG

31L14SE2007 2.25342 PARKMAN

900

**Work Report Details:**

Claim#	Perform	Perform Approve	Applied	Applied Approve	Assign	Assign Approve	Reserve	Reserve Approve	Due Date
S 1163584	\$854	\$854	\$5,122	\$5,122	\$0	0	\$0	\$0	2004-APR-11
S 1174498	\$732	\$732	\$3,978	\$3,978	\$0	0	\$0	\$0	2004-APR-11
S 1174499	\$732	\$732	\$4,585	\$4,585	\$0	0	\$0	\$0	2004-APR-11
S 1174500	\$610	\$610	\$2,815	\$2,815	\$0	0	\$0	\$0	2004-APR-11
S 1191988	\$976	\$976	\$0	\$0	\$976	976	\$0	\$0	2004-JUN-14
S 1191989	\$976	\$976	\$0	\$0	\$976	976	\$0	\$0	2004-JUN-14
S 1191990	\$976	\$976	\$0	\$0	\$976	976	\$0	\$0	2004-JUN-14
S 1191991	\$732	\$732	\$0	\$0	\$638	638	\$94	\$94	2004-JUN-14
S 1191992	\$732	\$732	\$0	\$0	\$732	732	\$0	\$0	2004-JUN-14
S 1191993	\$916	\$916	\$0	\$0	\$916	916	\$0	\$0	2004-JUN-14
S 1191994	\$732	\$732	\$0	\$0	\$732	732	\$0	\$0	2004-JUN-14
S 1191995	\$732	\$732	\$0	\$0	\$732	732	\$0	\$0	2004-JUN-14
S 1191996	\$854	\$854	\$0	\$0	\$854	854	\$0	\$0	2004-OCT-22
S 1192535	\$976	\$976	\$0	\$0	\$976	976	\$0	\$0	2004-MAY-09
S 1192536	\$976	\$976	\$0	\$0	\$976	976	\$0	\$0	2004-MAY-09
S 1192537	\$976	\$976	\$0	\$0	\$976	976	\$0	\$0	2004-JUN-14
S 1192538	\$976	\$976	\$0	\$0	\$976	976	\$0	\$0	2004-JUN-14
S 1192539	\$488	\$488	\$0	\$0	\$488	488	\$0	\$0	2004-JUN-14
S 1192542	\$732	\$732	\$0	\$0	\$732	732	\$0	\$0	2004-MAY-09
S 1192543	\$916	\$916	\$0	\$0	\$916	916	\$0	\$0	2004-MAY-09
S 1229411	\$976	\$976	\$976	\$976	\$0	0	\$0	\$0	2003-DEC-24
S 1229412	\$976	\$976	\$976	\$976	\$0	0	\$0	\$0	2003-DEC-24
S 1231284	\$732	\$732	\$732	\$732	\$0	0	\$0	\$0	2003-DEC-24
S 1231285	\$732	\$732	\$732	\$732	\$0	0	\$0	\$0	2003-DEC-24
	\$20,010	\$20,010	\$19,916	\$19,916	\$13,572	\$13,572	\$94	\$94	

External Credits: \$0

**Reserve:**

\$94 Reserve of Work Report#: W0370.00568

\$94 Total Remaining

Status of claim is based on information currently on record.

Date: 2003-NOV-10

GEOSCIENCE ASSESSMENT OFFICE  
933 RAMSEY LAKE ROAD, 6th FLOOR  
SUDBURY, ONTARIO  
P3E 6B5

Tel: (888) 415-9845  
Fax: (877) 670-1555

CHRISTOPHER MARMONT  
1165 QUEEN'S AVENUE  
OAKVILLE, ONTARIO  
L6H 2B3 CANADA

**Submission Number:** 2.25342  
**Transaction Number(s):** W0370.00568

Dear Sir or Madam

**Subject: Deemed Approval of Assessment Work**

We have approved your Assessment Work Submission with the above noted Transaction Number(s) as per 6(7) of the Assessment Work Regulation. Only eligible assessment work is deemed approved for assessment work credit. The attached Work Report Summary indicates the results of the approval.

NOTE: The report has not been reviewed for technical deficiencies and reported expenses were not evaluated based on the Industry Standard.

At the discretion of the Ministry, the assessment work performed on the mining lands noted in this work report may be subject to inspection and/or investigation at any time.

If you have any question regarding this correspondence, please contact BRUCE GATES by email at [bruce.gates@ndm.gov.on.ca](mailto:bruce.gates@ndm.gov.on.ca) or by phone at (705) 670-5856.

Yours Sincerely,



Ron C. Gashinski  
Senior Manager, Mining Lands Section

**Cc:** Resident Geologist

Christopher Marmont  
(Claim Holder)

Rodney Nelson Thomas  
(Claim Holder)

Assessment File Library

Christopher Marmont  
(Assessment Office)

Date / Time of Issue: Fri Nov 07 13:51:25 EST 2003

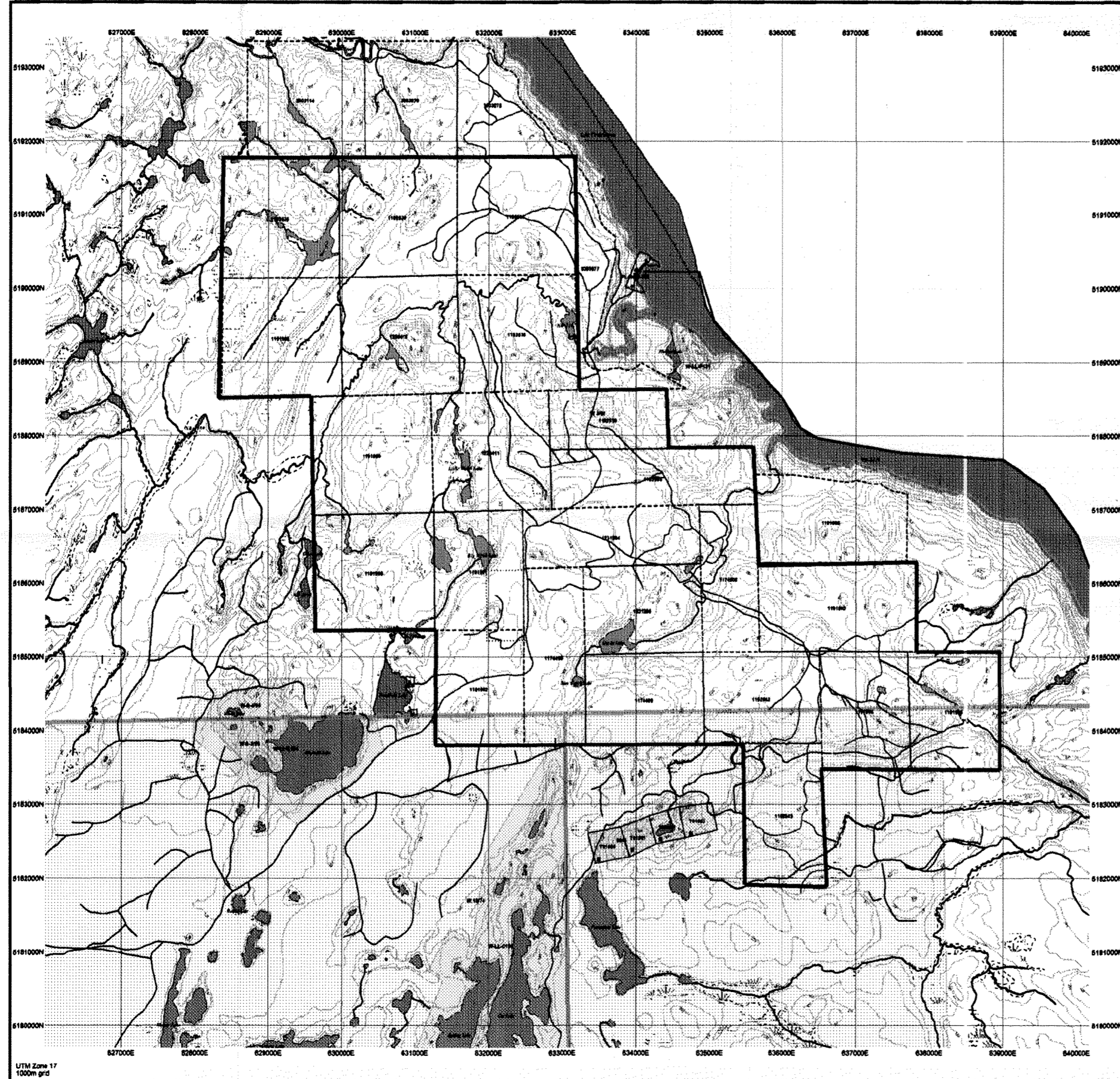
TOWNSHIP / AREA  
PARKMAN

PLAN  
G-1666

ADMINISTRATIVE DISTRICTS / DIVISIONS

Mining Division  
Land Titles/Registry Division  
Ministry of Natural Resources District

Sudbury  
NIPISSING  
NORTH BAY

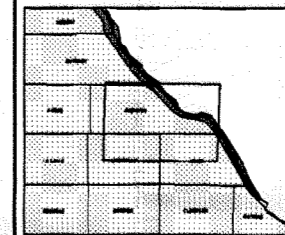


TOPOGRAPHIC

- Administrative Boundaries
- Township
- Commonwealth Lot
- Provincial Park
- Indian Reserve
- Can. P.E. & T.W.
- Contour
- Mine Shaft
- Water Headframe
- Roadway
- Railroad
- Tail
- Natural Gas Pipeline
- Utility
- Tower

Land Tenure

- Registered Patent
- Surface And Mining Rights
- Surface Rights Only
- Mining Rights Only
- Leasehold Patent
- Surface And Mining Rights
- Surface Rights Only
- Mining Rights Only
- License of Occupancy
- License Not Specified
- Surface And Mining Rights
- Surface Rights Only
- Mining Rights Only
- Local Use Permit
- Order In Council (Not open for Mining)
- Public Power License Agreement
- Mining Claim
- Filed Only Mining Claims



LAND TENURE WITHDRAWALS

- Area Withdrawn from Disposition
- Mining And Mineral Rights
- Surface And Mining Rights Withdrawal
- Surface Rights Only Withdrawal
- Mining Rights Only Withdrawal
- Order In Council Withdrawal Types
- Surface And Mining Rights Withdrawal
- Surface Rights Only Withdrawal
- Mining Rights Only Withdrawal

LAND TENURE WITHDRAWAL DESCRIPTIONS

Location	Type	Date	Description
48P	Wm	Jan 1, 2001	SEC 26 20 W 6-47 20 20 15 20 15 20 15 20
48P	Wm	Jan 1, 2001	SEC 26 20 W 6-47 20 20 15 20 15 20 15 20
48P	Wm	Jan 1, 2001	Agreement with Parks # 2001P 20000031
48P	Wm	Jan 1, 2001	SEC 26 20 W 6-47 20 20 15 20 15 20 15 20
48P	Wm	Jan 1, 2001	A.P. Mining Exp 20 SEP 1997
48P	Wm	Jan 1, 2001	A.P. Mining Exp 20 SEP 1997
W 101	Wm	May 26, 1981	SEC 26 20 W 6-47 20 20 15 20 15 20 15 20
W 101-14	Wm	Feb 28, 2002	Order In Council Withdrawal Type
W 101-15	Wm	Feb 28, 2002	Order In Council Withdrawal Type
W 101-16	Wm	Feb 28, 2002	Order In Council Withdrawal Type
W 101-17	Wm	Feb 28, 2002	Order In Council Withdrawal Type
W 101-18	Wm	Feb 28, 2002	Order In Council Withdrawal Type
W 101-19	Wm	Feb 28, 2002	Order In Council Withdrawal Type
W 101-20	Wm	Feb 28, 2002	Order In Council Withdrawal Type
W 101-21	Wm	Feb 28, 2002	Order In Council Withdrawal Type
W 101-22	Wm	Feb 28, 2002	Order In Council Withdrawal Type
W 101-23	Wm	Feb 28, 2002	Order In Council Withdrawal Type
W 101-24	Wm	Feb 28, 2002	Order In Council Withdrawal Type
W 101-25	Wm	Feb 28, 2002	Order In Council Withdrawal Type
W 101-26	Wm	Feb 28, 2002	Order In Council Withdrawal Type
W 101-27	Wm	Feb 28, 2002	Order In Council Withdrawal Type
W 101-28	Wm	Feb 28, 2002	Order In Council Withdrawal Type
W 101-29	Wm	Feb 28, 2002	Order In Council Withdrawal Type
W 101-30	Wm	Feb 28, 2002	Order In Council Withdrawal Type
W 101-31	Wm	Feb 28, 2002	Order In Council Withdrawal Type
W 101-32	Wm	Feb 28, 2002	Order In Council Withdrawal Type
W 101-33	Wm	Feb 28, 2002	Order In Council Withdrawal Type
W 101-34	Wm	Feb 28, 2002	Order In Council Withdrawal Type
W 101-35	Wm	Feb 28, 2002	Order In Council Withdrawal Type
W 101-36	Wm	Feb 28, 2002	Order In Council Withdrawal Type
W 101-37	Wm	Feb 28, 2002	Order In Council Withdrawal Type
W 101-38	Wm	Feb 28, 2002	Order In Council Withdrawal Type
W 101-39	Wm	Feb 28, 2002	Order In Council Withdrawal Type
W 101-40	Wm	Feb 28, 2002	Order In Council Withdrawal Type
W 101-41	Wm	Feb 28, 2002	Order In Council Withdrawal Type
W 101-42	Wm	Feb 28, 2002	Order In Council Withdrawal Type
W 101-43	Wm	Feb 28, 2002	Order In Council Withdrawal Type
W 101-44	Wm	Feb 28, 2002	Order In Council Withdrawal Type
W 101-45	Wm	Feb 28, 2002	Order In Council Withdrawal Type
W 101-46	Wm	Feb 28, 2002	Order In Council Withdrawal Type
W 101-47	Wm	Feb 28, 2002	Order In Council Withdrawal Type
W 101-48	Wm	Feb 28, 2002	Order In Council Withdrawal Type
W 101-49	Wm	Feb 28, 2002	Order In Council Withdrawal Type
W 101-50	Wm	Feb 28, 2002	Order In Council Withdrawal Type

2.25342  
AMAG

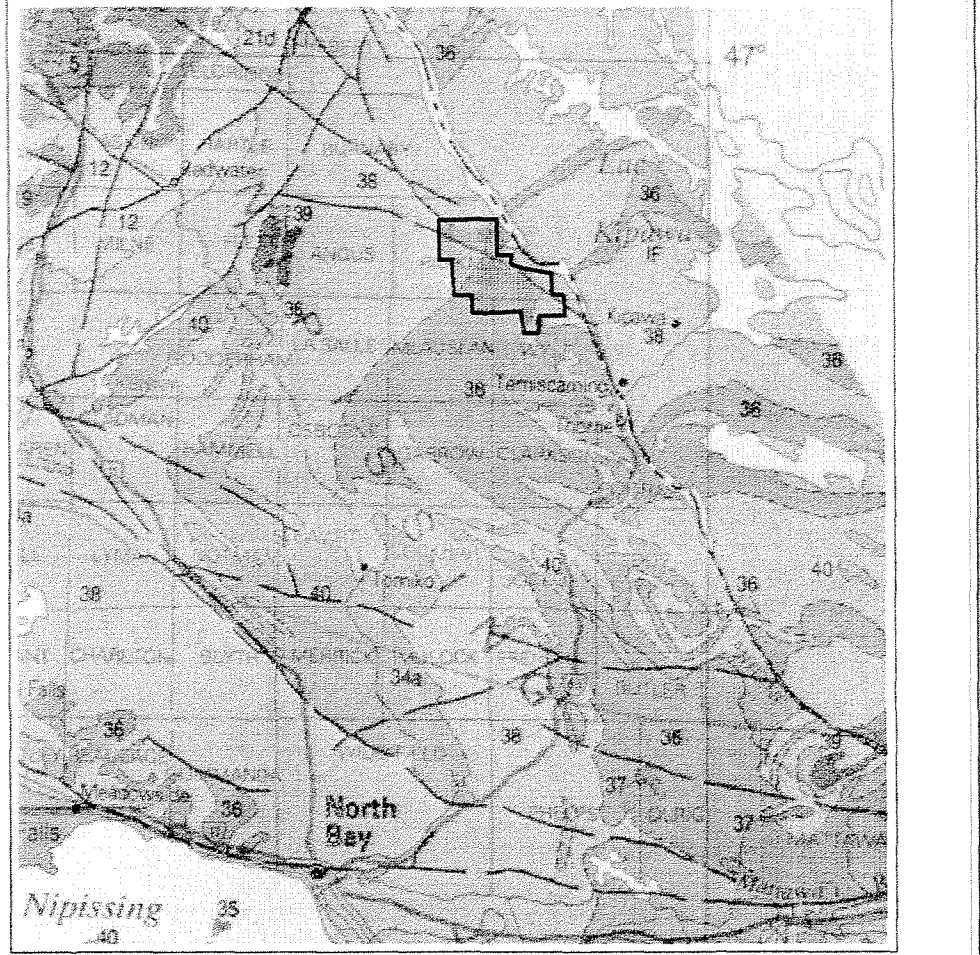
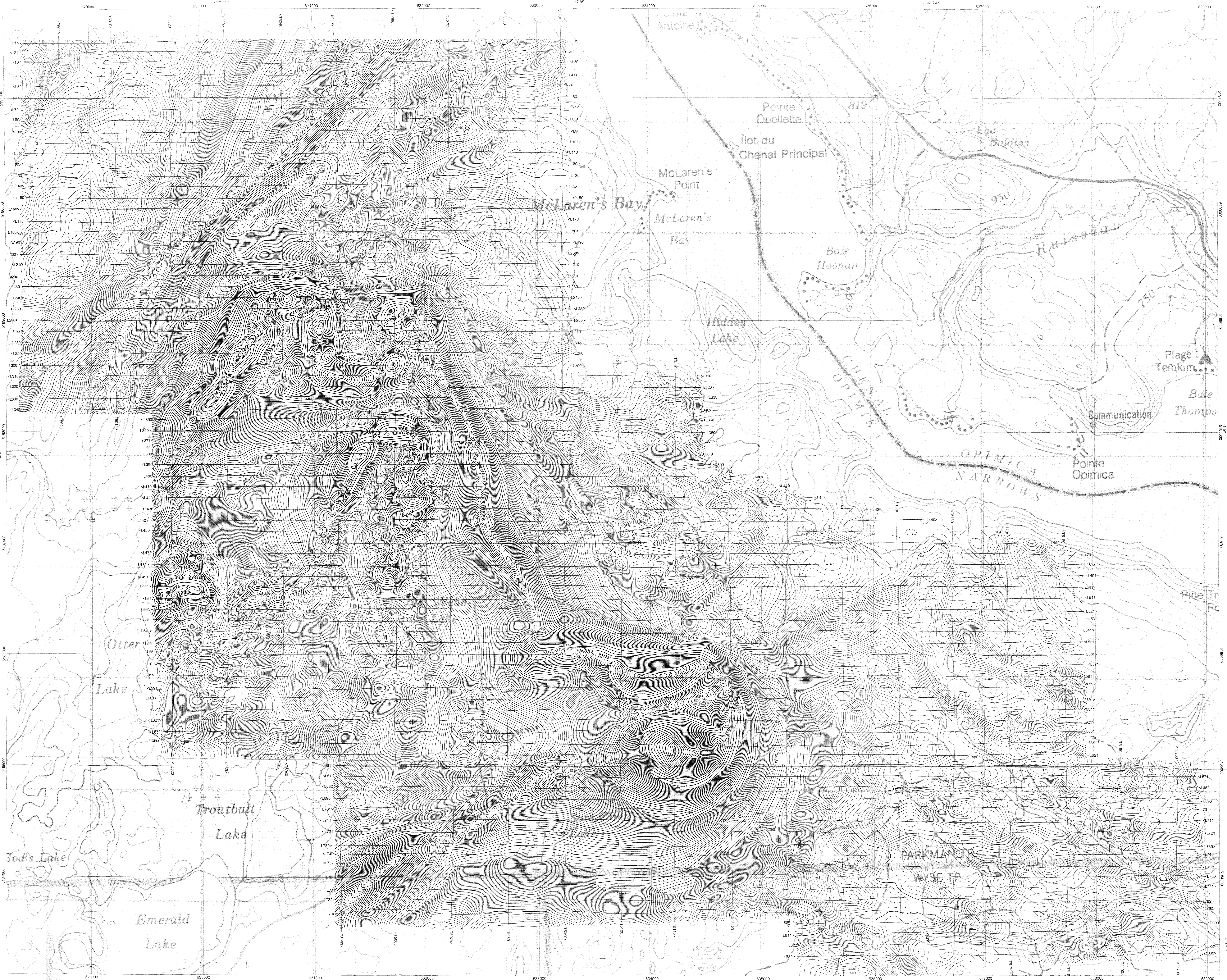


Those wishing to make mining claims should consult with the Provincial Mining Recorder's Office of the Ministry of Northern Development and Mines for additional information on the status of the lands shown herein. This map is not intended for registration, survey, or any other determination purposes as the information shown on this map is compiled from various sources. Completeness and accuracy are not guaranteed. Additional information may also be obtained through the Provincial Land Titles and Registry Office, of the Ministry of Natural Resources.

General Information and Limitations  
 Contact Information: Provincial Mining Recorder's Office  
 Tel: (800) 415-9448 ext 5740/5741/5742/5743/5744/5745/5746/5747/5748/5749/5750  
 Fax: (800) 415-9448 ext 5740/5741/5742/5743/5744/5745/5746/5747/5748/5749/5750

This map may not show unregistered mineral claims and it is not intended to be used as a basis for any legal proceedings. It is not intended to be used as a basis for any legal proceedings. It is not intended to be used as a basis for any legal proceedings.





Minimum Contour Gridding / Cell Size: 20 m

Contour Interval (m)
25
100
250
500
1000

Magnetic GRF of 46°50'N, 79°15'W, and 323 m A.S.L. on March 25, 2003  
 Declination: 13.2°  
 Intensity: 56773.40 nT

(Note: UTM Grid on Scanned Topography is NAD83.)

Scale 1:10000

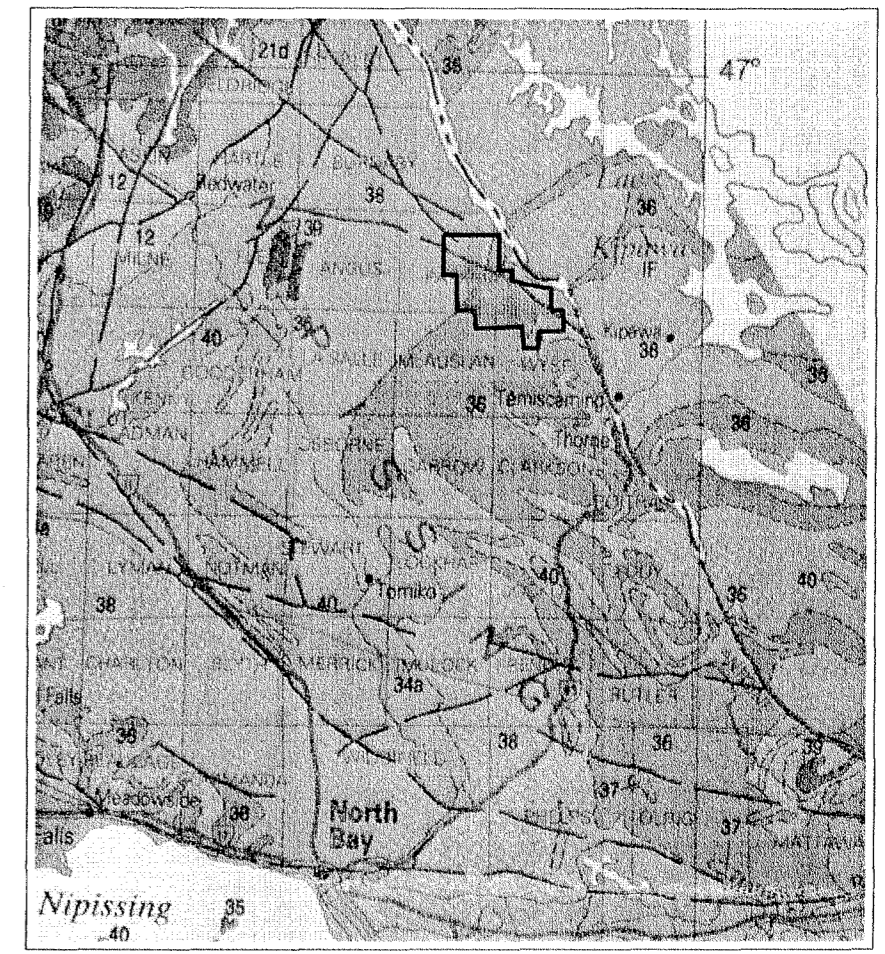
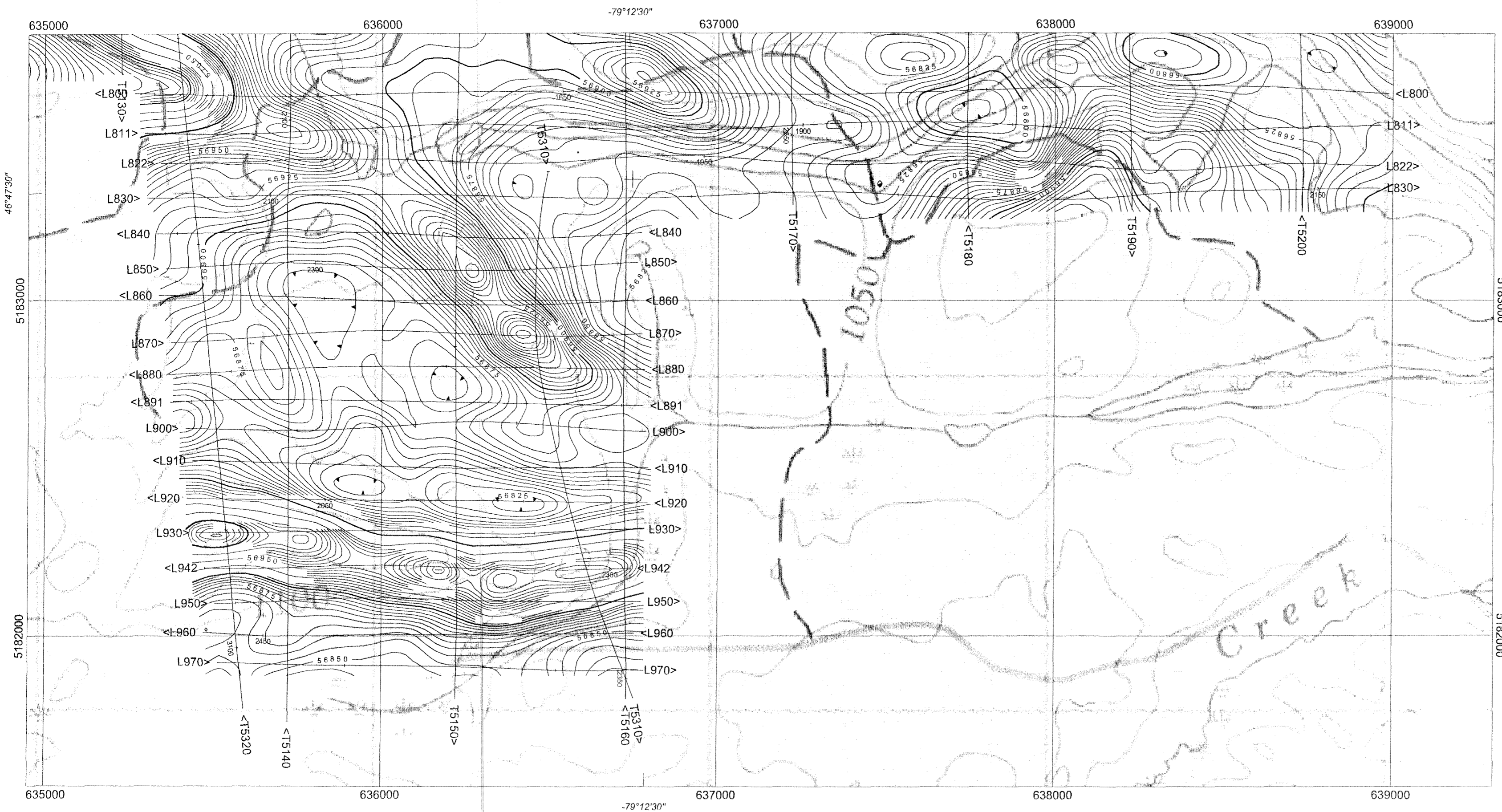
0 200 400 600 800  
 metres  
 0 200 400 600 800  
 METERS

**GRENVILLE GOLD CORPORATION**  
**PARKMAN PROJECT, ONT. - NORTH SHEET**  
 Total Magnetic Intensity  
 Contours with Scanned Topography

Terraquest Limited, Mississauga, Ontario, Canada  
 Data Acquisition  
 CGI Controlled Geophysics Inc., Thornhill, Ontario, Canada

Map: 8095TMBWn Image: 31614 Date: March 31, 2003





Minimum Curvature Gridding / Cell Size: 20 m

Contour Intervals (nT)	
5	5
25	25
100	100
500	500
2500	2500

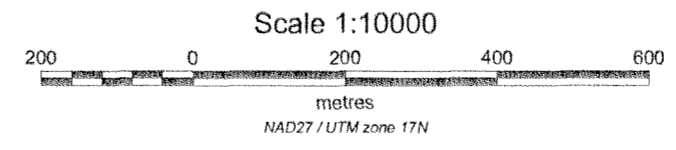
Magnetic IGRF at 46°50'N, 79°15'W,  
and 325 m A.S.L. on March 25, 2003  
Inclination: 73.29°  
Declination: -12.02°  
Intensity: 56773.40 nT

2.25342

**GRENVILLE GOLD CORP.**  
**PARKMAN PROJECT, ONT. - SOUTH SHEET**  
 Total Magnetic Intensity  
 Contours with Scanned Topography

*Data Acquisition by*  
 Terraquest Limited, Mississauga, Ontario, Canada  
*Data Processing and Plotting by*  
 CGI Controlled Geophysics Inc., Thornhill, Ontario, Canada

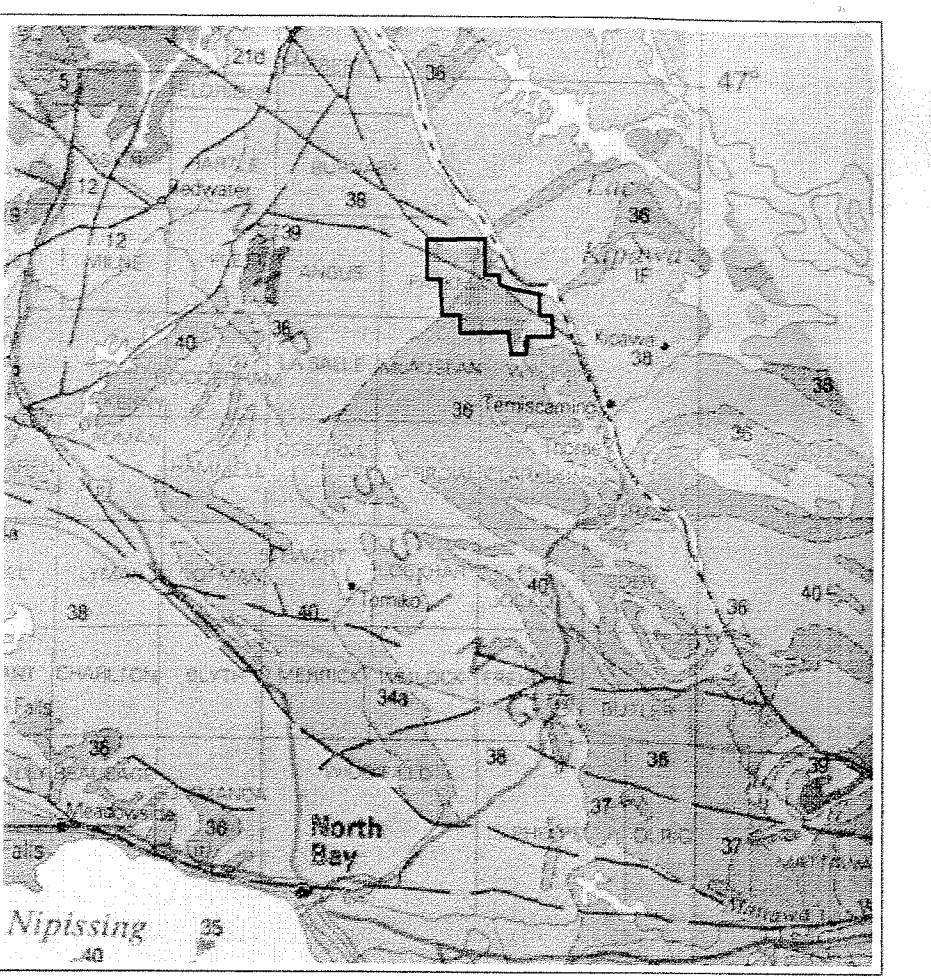
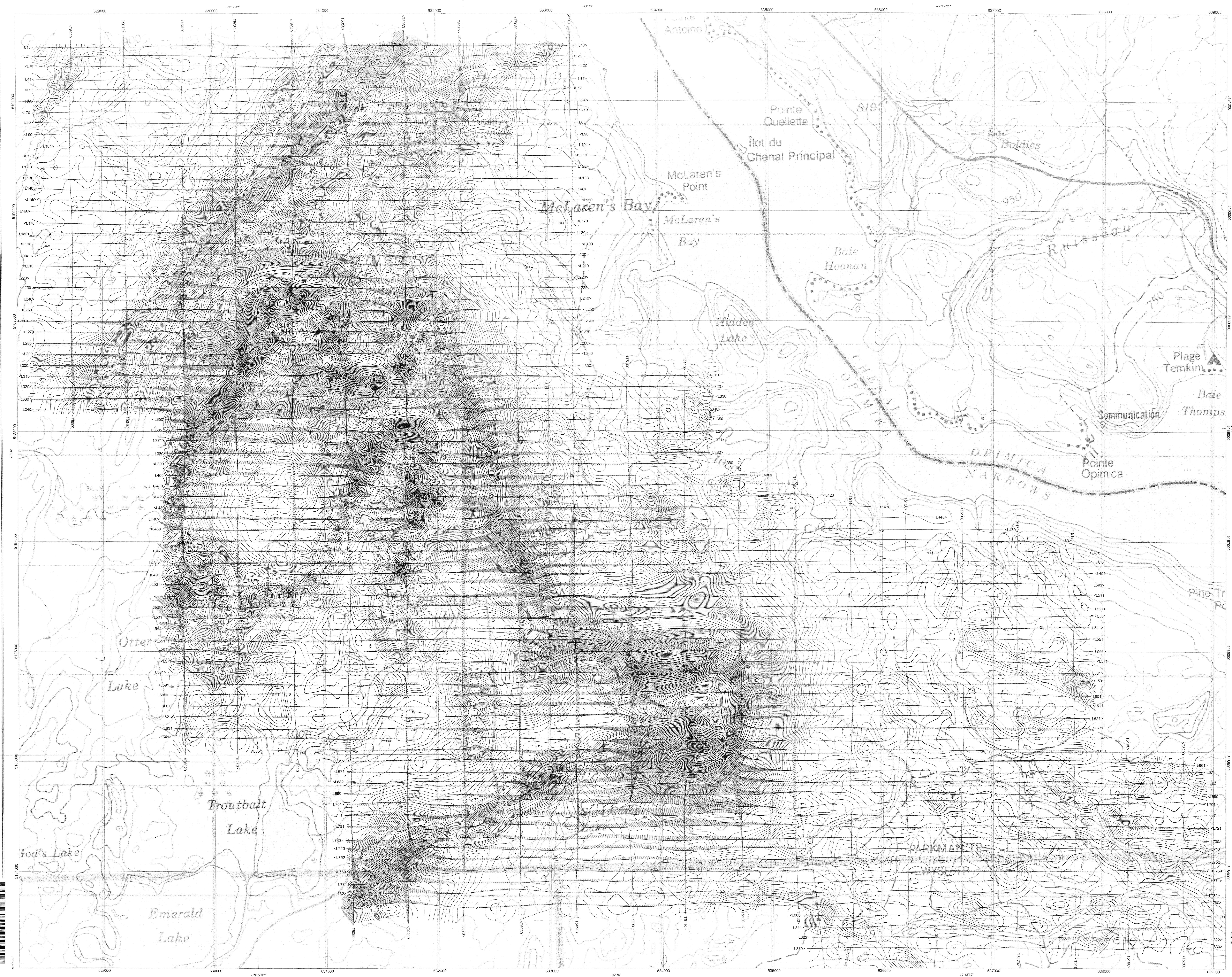
Map: B095TMIBWs Image: 31L14 Date: March 31, 2003



(Note: UTM Grid on Scanned Topography is NAD83.)





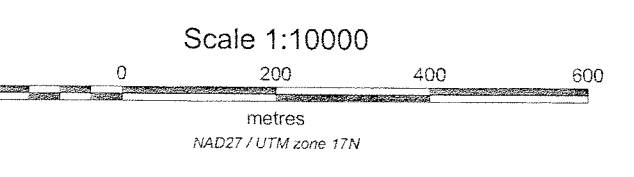


Measured Magnetic Horizontal Gradient  
 Vector Scale 4.0 nT/m per cm  
 (Vector Amplitudes Clipped at +/- 4.0 nT/m for clarity)

Minimum Curvature Gridding / Cell Size: 20 m  
 Contour Interval (m): 0.1  
 0.5  
 1.0  
 2.5  
 10.0  
 50.0

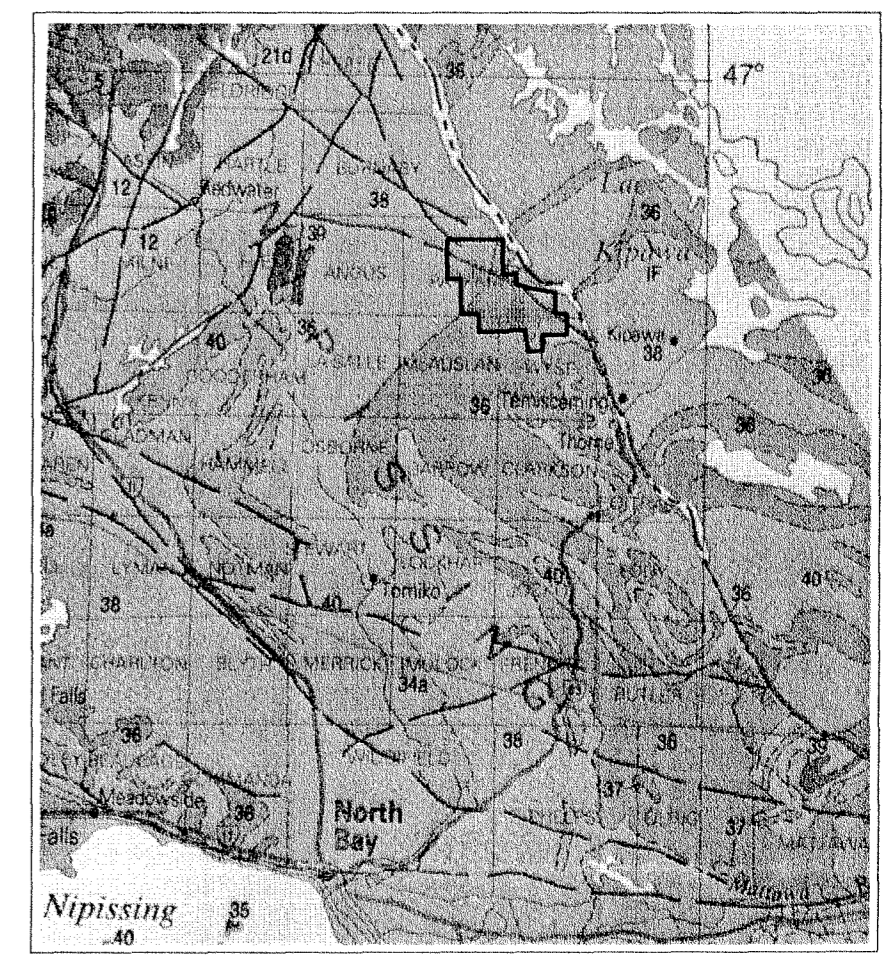
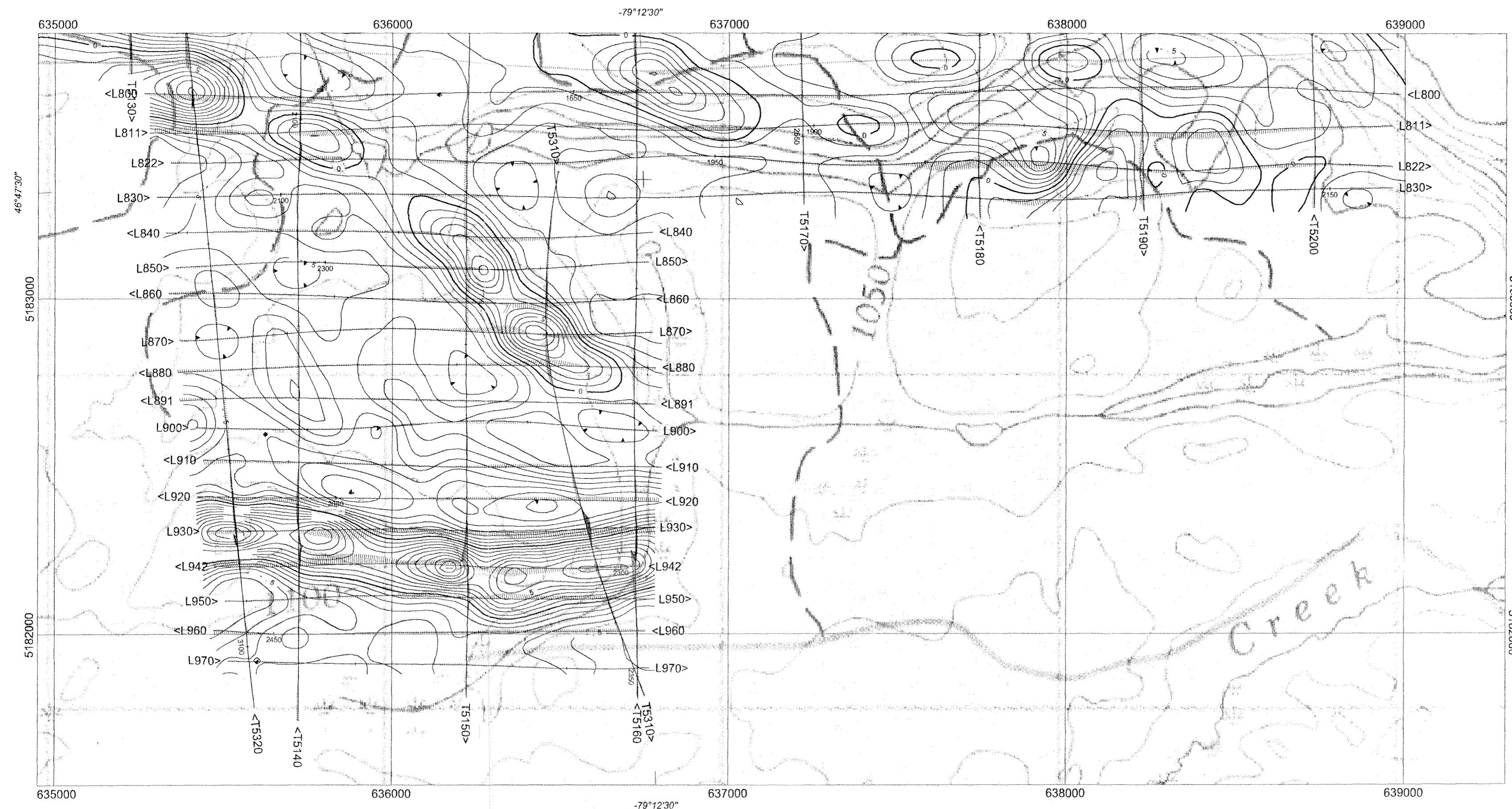
Magnetic IGR at 43°50'N, 79°15'W  
 and 325 m A.S.L. on March 25, 2003  
 Inclination: 73.52°  
 Declination: -12.02°  
 Intensity: 56775.40 nT

(Note: UTM Grid on Scanned Topography is NAD83.)



**GRENVILLE GOLD CORPORATION**  
**PARKMAN PROJECT, ONT. - NORTH SHEET**  
 Magnetic Horizontal Gradient Vectors with  
 Magnetic Vertical Gradient Contours and Scanned Topo.  
 Data Acquisition by  
 Terraquest Limited, Mississauga, Ontario, Canada  
 Data Processing and Formatting  
 CGI Controlled Geomatics Inc., Thornhill, Ontario, Canada  
 Map: B095GRADBWN Image: 31L14 Date: March 31, 2003





Minimum Curvature Gridding / Cell Size: 20 m

Contour Intervals (nT/m)	
	0.1
	0.5
	2.5
	10.0
	50.0

Magnetic IGRF at 46°50'N, 79°15'W,  
and 325 m A.S.L. on March 25, 2003  
Inclination: 73.29°  
Declination: -12.02°  
Intensity: 56773.40 nT

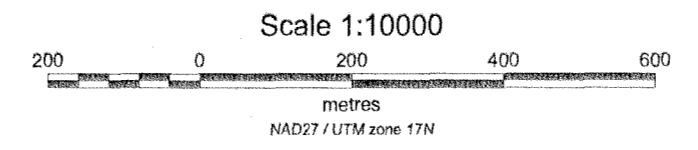
Measured Magnetic Horizontal Gradient  
Vector Scale: 4.0 nT/m per cm  
(Vector Amplitudes Clipped at +/- 4.0 nT/m for clarity)

**GRENVILLE GOLD CORP.**

**PARKMAN PROJECT, ONT. - SOUTH SHEET**  
Horizontal Magnetic Gradient Vectors with  
Magnetic Vertical Gradient Contours and Scanned Topo.

Data Acquisition by  
Terraquest Limited, Mississauga, Ontario, Canada  
Data Processing and Plotting by  
CGI Controlled Geophysics Inc., Thornhill, Ontario, Canada

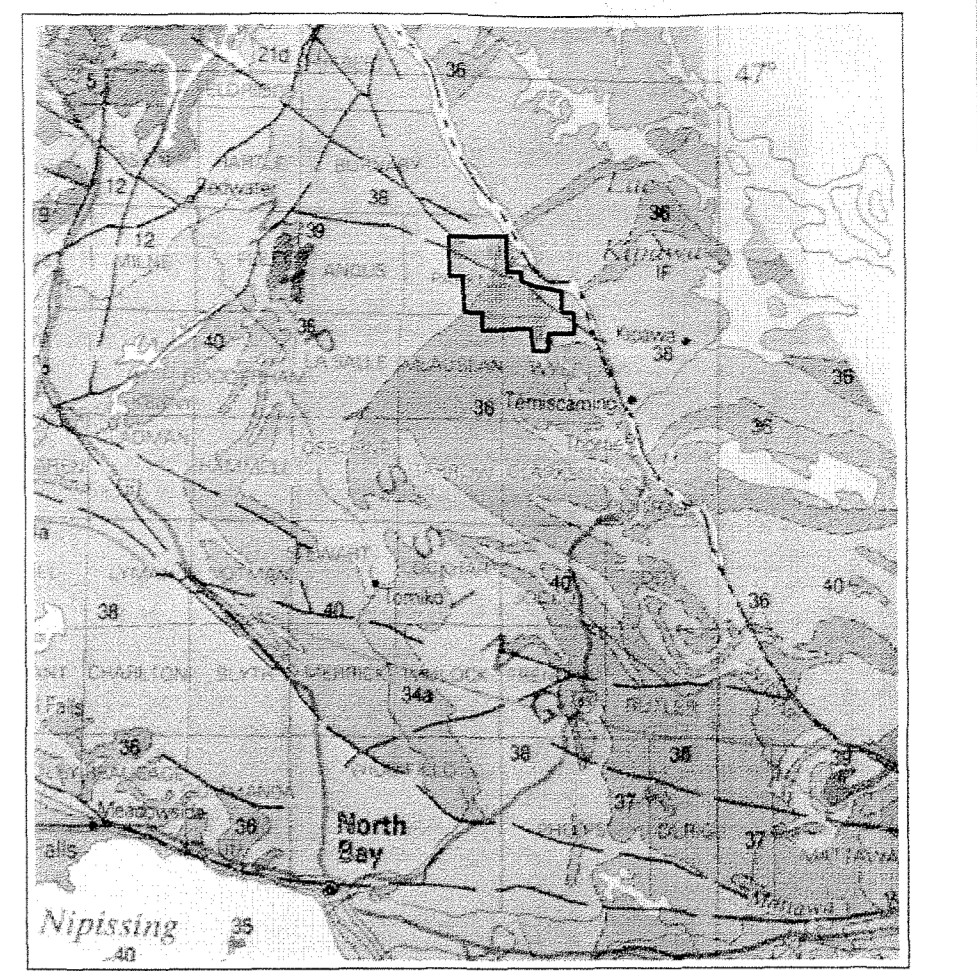
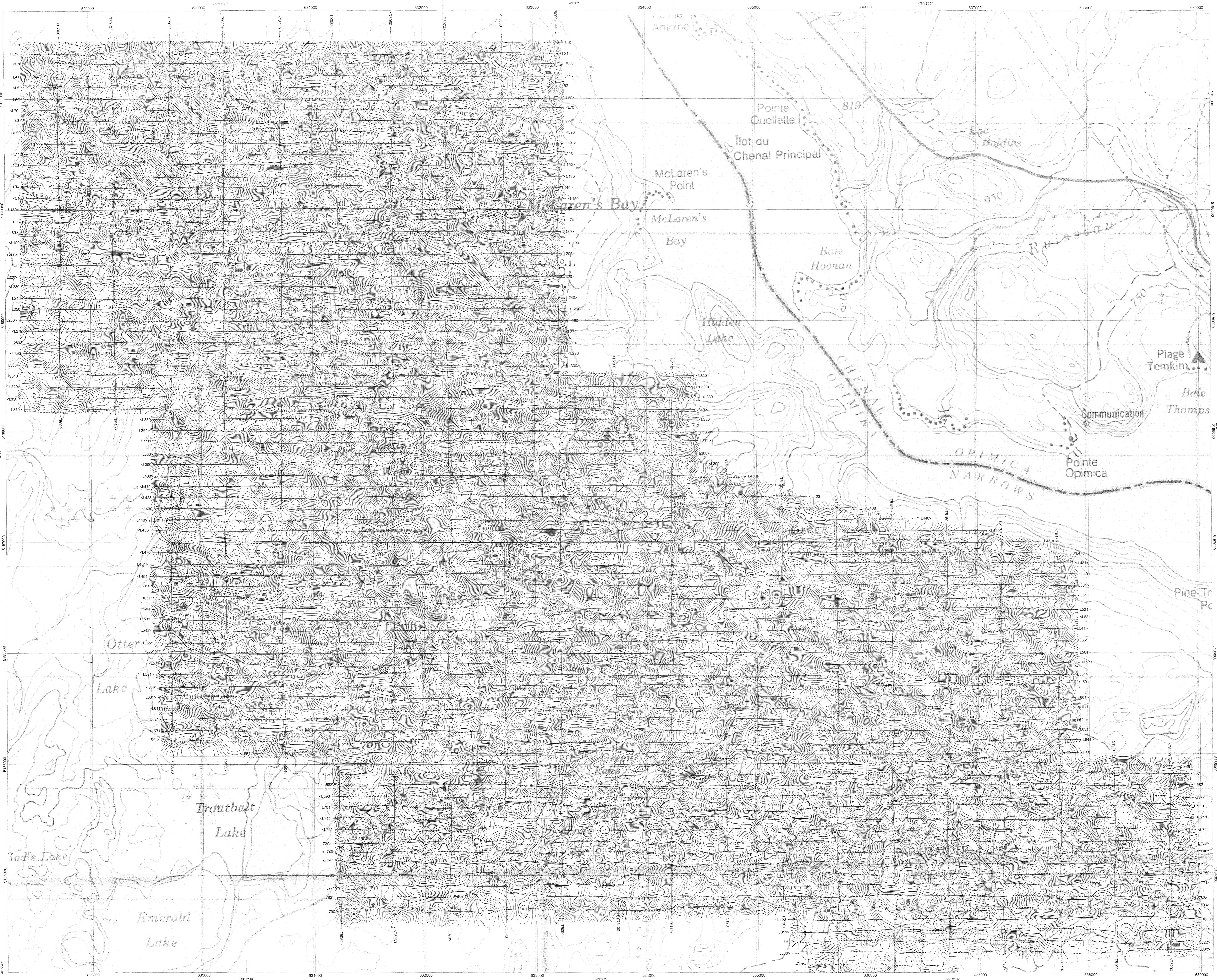
Map: B095GRADBWs Image: 31L14 Date: March 31, 2003



(Note: UTM Grid on Scanned Topography is NAD83.)



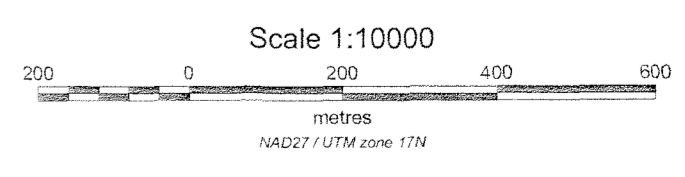




Contour intervals (ft)  
 5  
 25  
 100  
 500

VLF Station NAA Cutler, Maine  
 Quadrature Profile Scale: 20.0 ft/mm  
 Quadrature Profile Slope: 0.5 ft  
 Positive to East and North

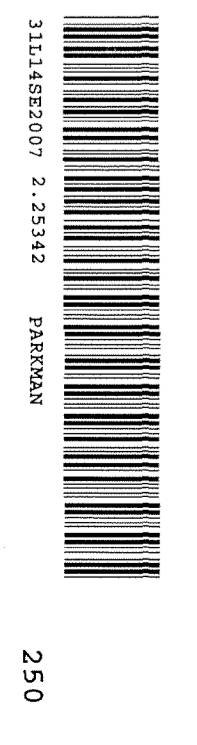
(Note: UTM Grid on Scanned Topography is NAD83)



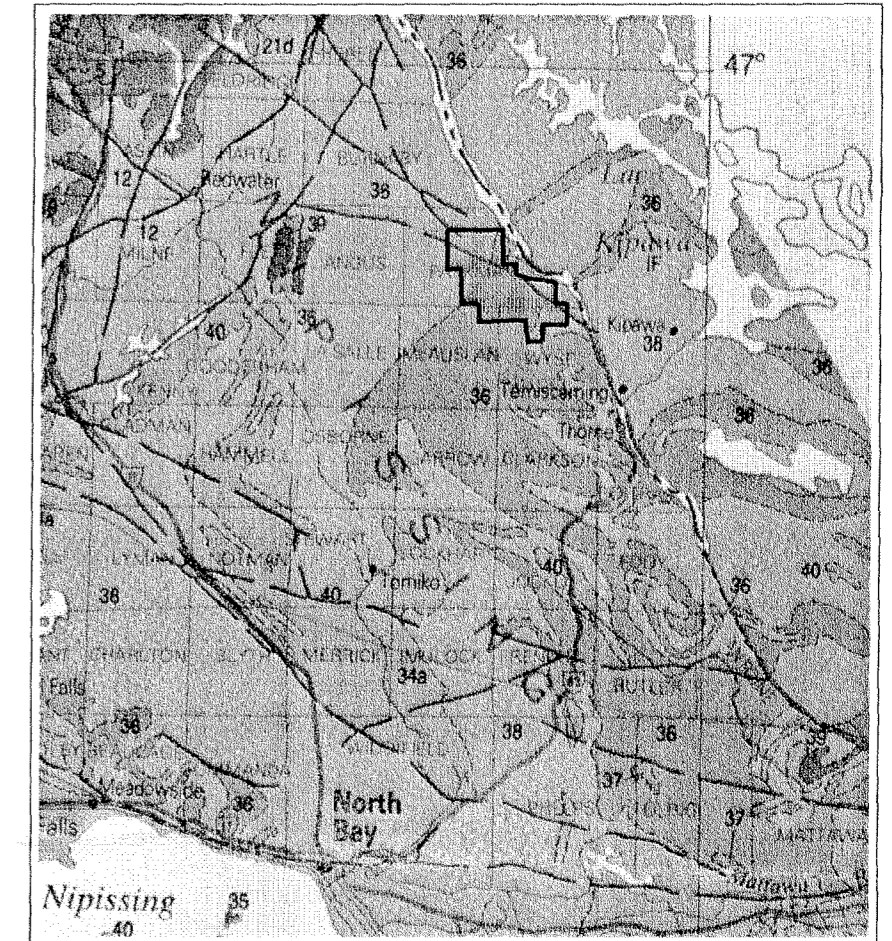
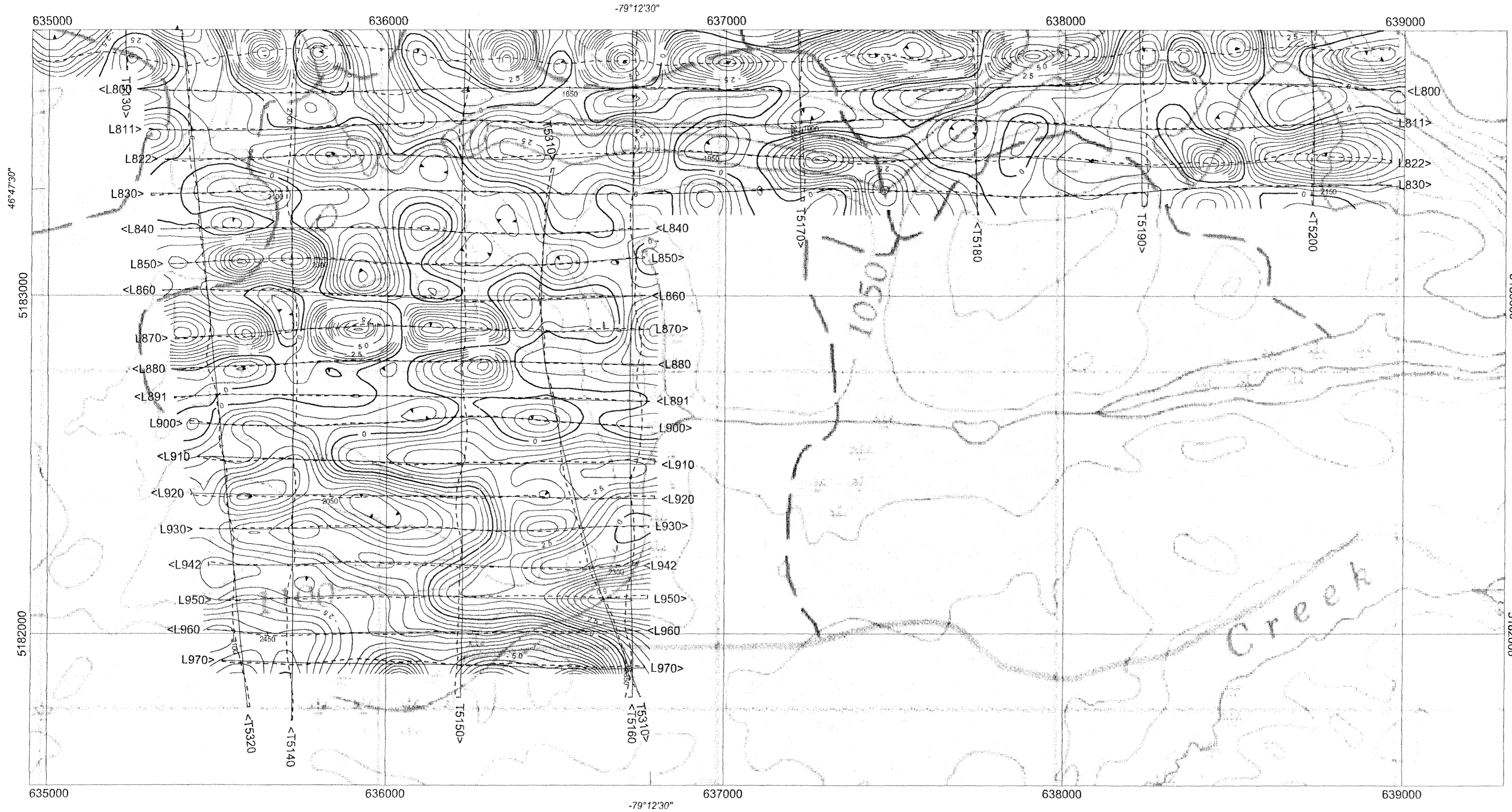
GRENVILLE GOLD CORPORATION  
**PARKMAN PROJECT, ONT. - NORTH SHEET**  
 Cutler, Maine VLF-EM Quadrature Profiles and  
 VLF-EM Total Field Contoured Colour Image

Data Acquired by:  
 Terraquest Limited, Mississauga, Ontario, Canada  
 Data Processing and Formatting by:  
 CGI Controlled Geophysics Inc., Thornhill, Ontario, Canada

Map: B095VLFn Image: VLFINETFM Date: March 31, 2003







2.25342

Contour Intervals (%)	
	5
	25
	100
	500

VLF Station NAA Cutler, Maine  
 Quadrature Profile Scale: 20.0 %/mm  
 Quadrature Profile Base: 0.0 %  
 Positive to East and North

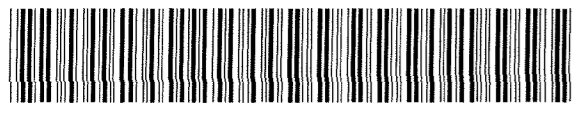
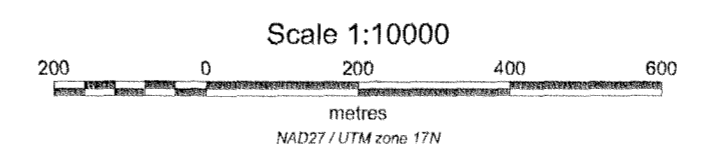
(Note: UTM Grid on Scanned Topography is NAD83.)

**GRENVILLE GOLD CORP.**

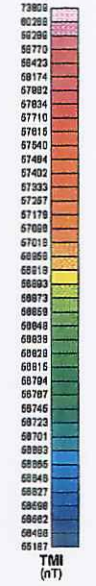
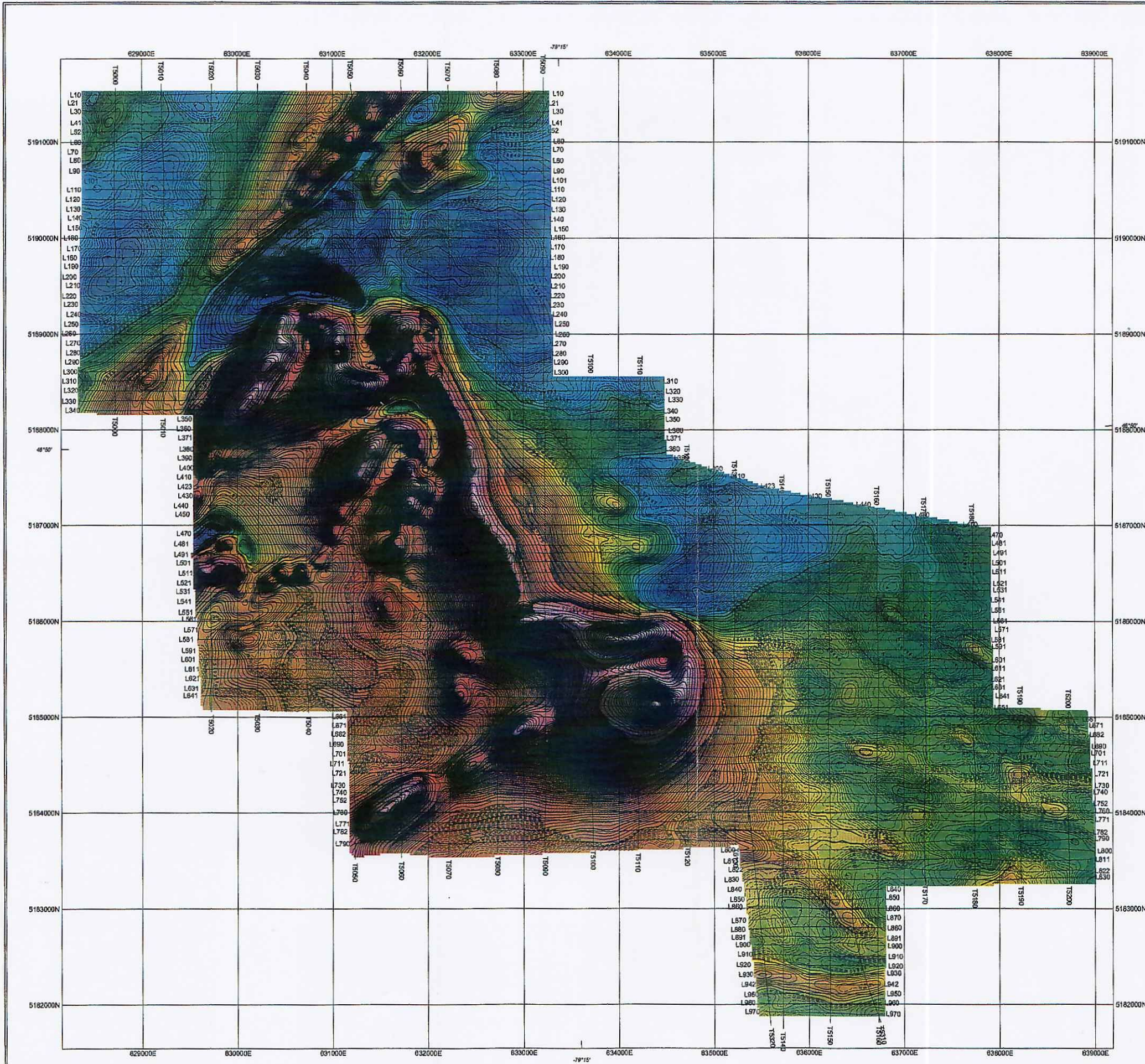
**PARKMAN PROJECT, ONT. - SOUTH SHEET**  
 Cutler, Maine VLF-EM Quadrature Profiles and  
 VLF-EM Total Field Contours with Scanned Topo.

*Data Acquisition by*  
 Terraquest Limited, Mississauga, Ontario, Canada  
*Data Processing and Plotting by*  
 CGI Controlled Geophysics Inc., Thornhill, Ontario, Canada

**Map: B095VLFBW Image: 31L14 Date: March 31, 2003**







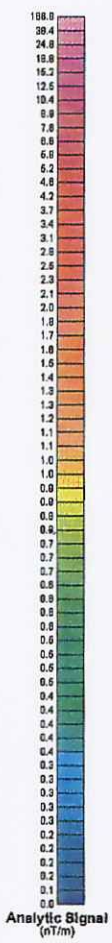
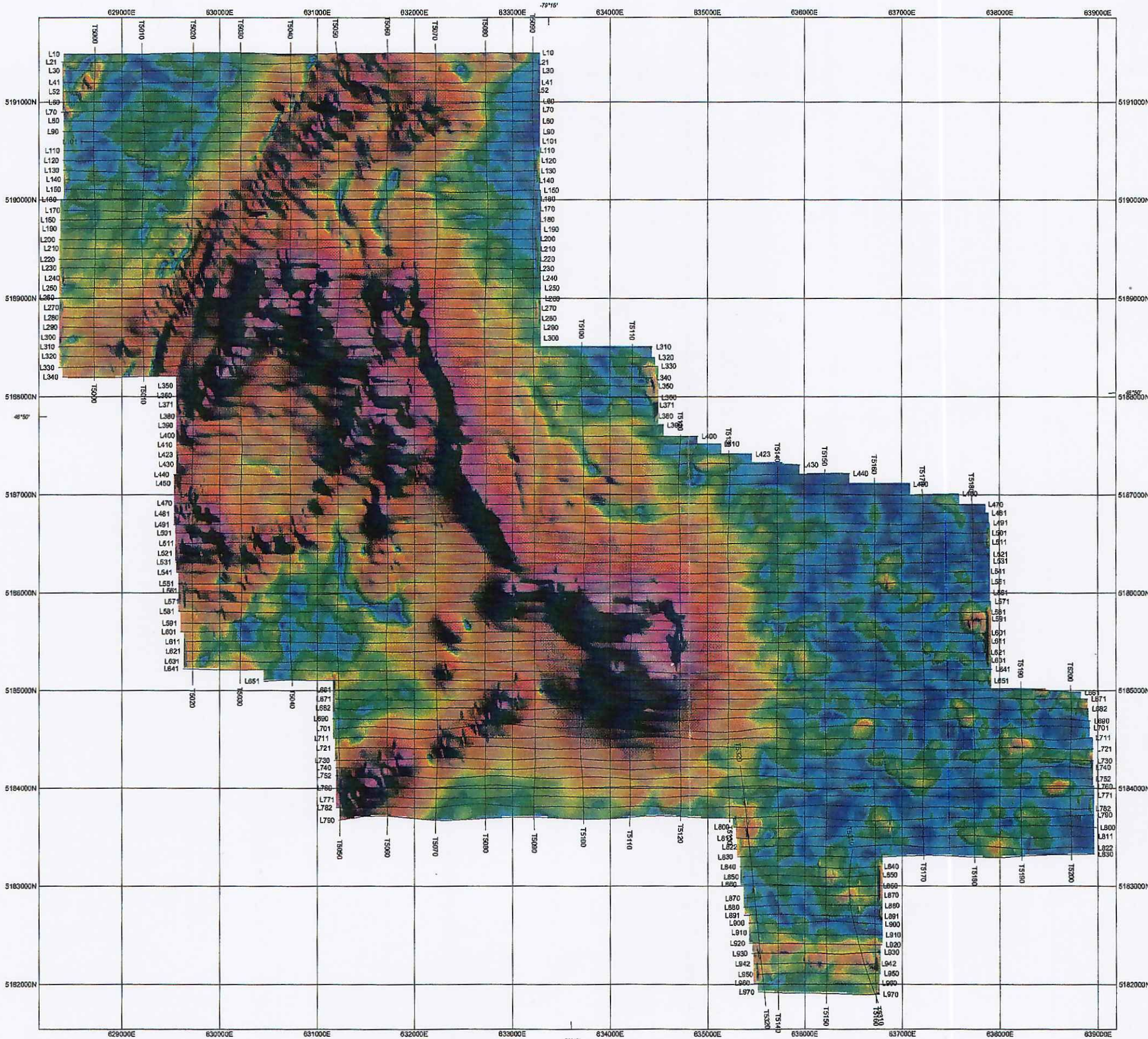
2.25342



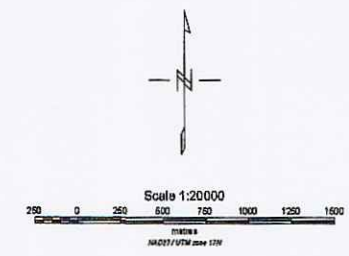
**MAP 1**  
**GRENVILLE GOLD CORP.**  
**TOTAL MAGNETIC INTENSITY**  
**PARKHAM PROPERTY**  
**ONTARIO**  
 Aeromagnetic and VLF-EM data acquired by Terraquest Limited along  
 E-W flight lines spaced at 100 m and N-S flight lines spaced at 500 m  
 with a MTC of 120m. Survey completed in March 2003.  
 False shadow illumination: Inclination 45 deg., Declination 45 deg.  
 Rob Hearst, Consulting Geophysicist







2.25342



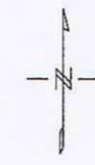
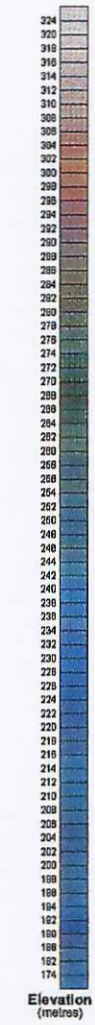
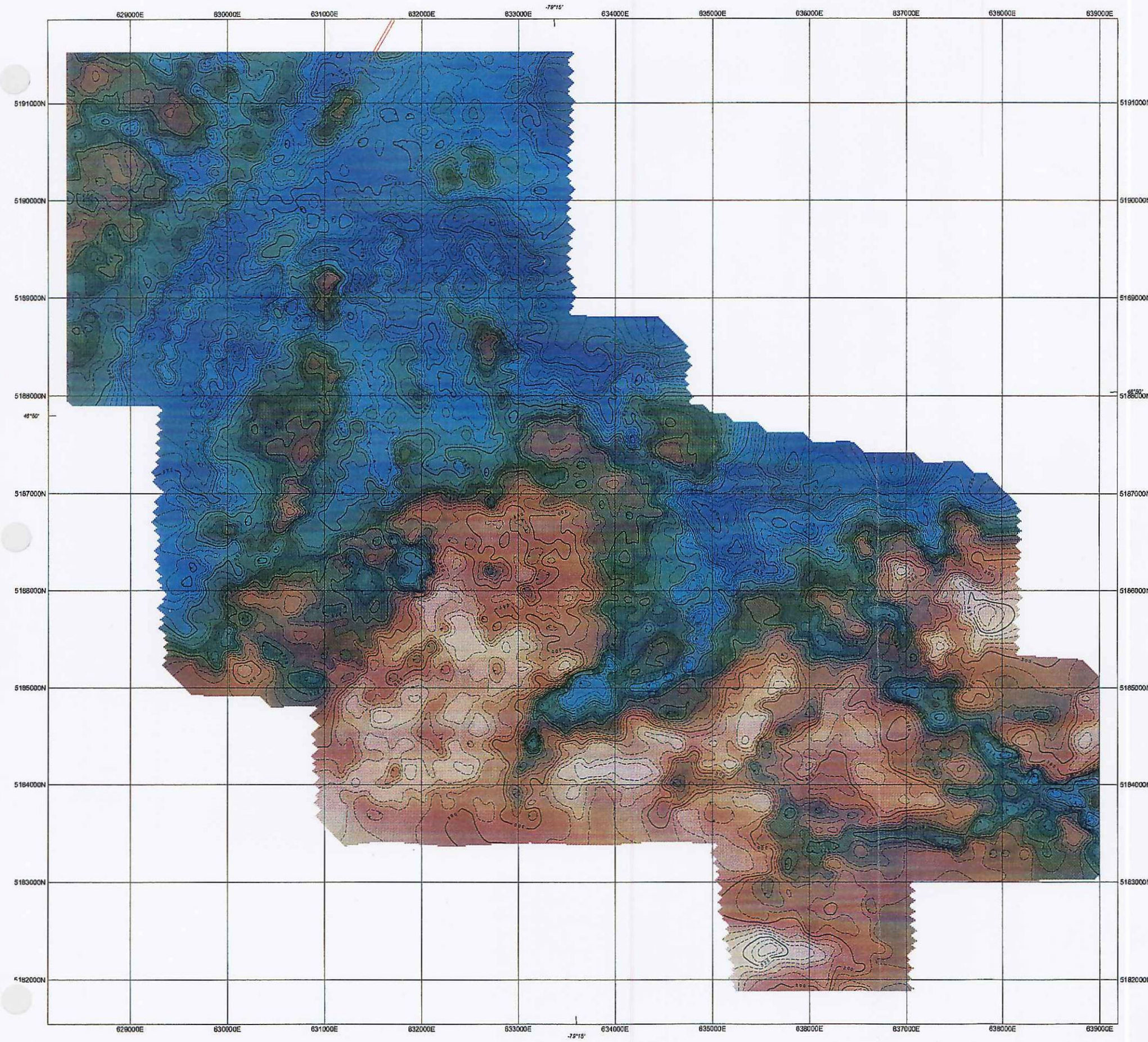
**MAP 2**  
**GRENVILLE GOLD CORP.**  
**ANALYTIC SIGNAL OF THE TOTAL MAGNETIC FIELD (TMI)**  
**PARKHAM PROPERTY**  
**ONTARIO**  
 Calculated from airborne geophysical survey data acquired by Terraquest Limited along E-W flight lines with a 100 m line separation and mean terrain clearance (MTC) of 120 m. Survey completed in March 2003.  
 Rob Hoarst, Consulting Geophysicist







31L14SE2007 2.25342 PARKMAN



2.25342

**MAP 3**

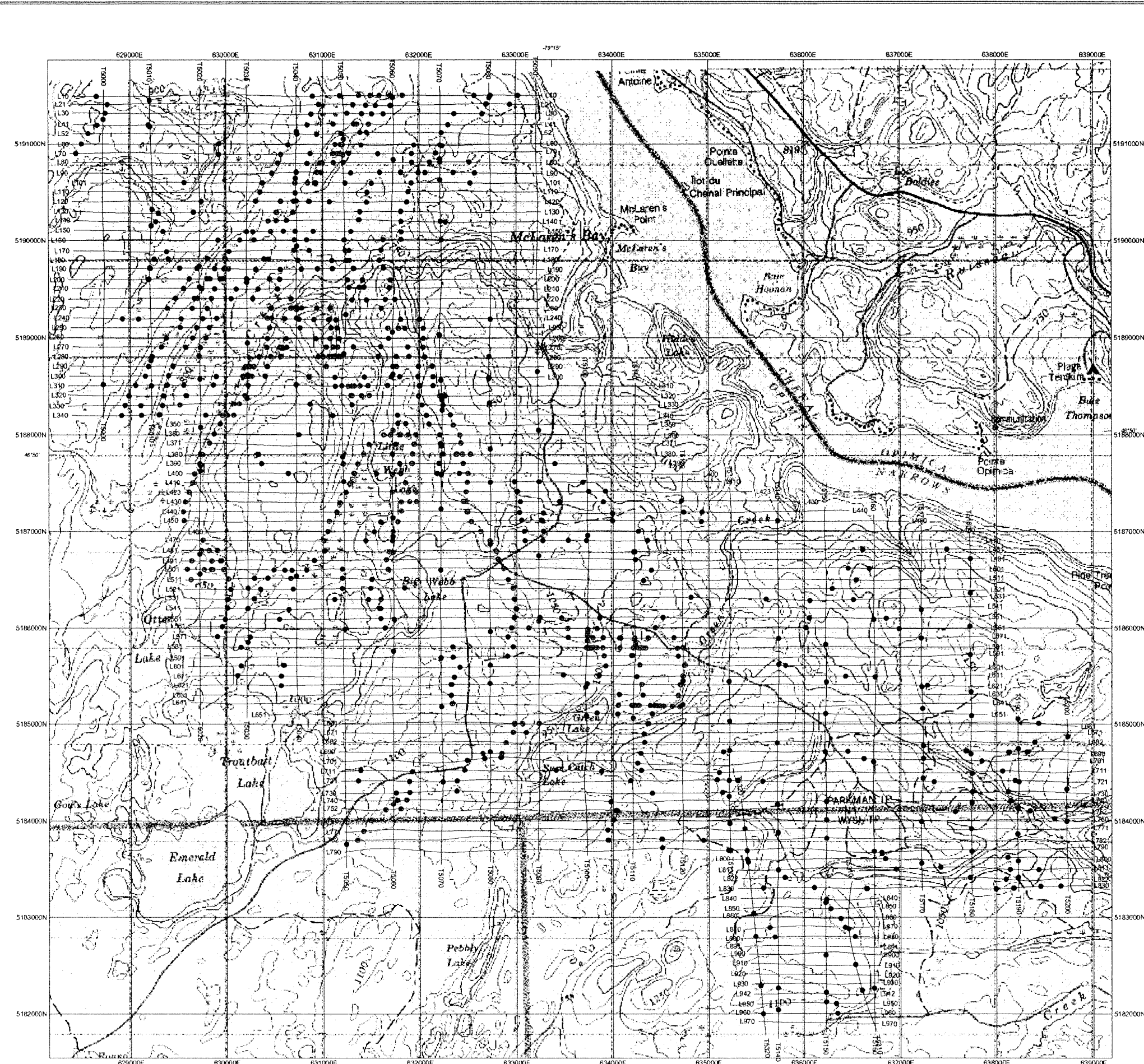
**GRENVILLE GOLD CORP.**

**CALCULATED DIGITAL TERRAIN MODEL  
PARKHAM PROPERTY  
ONTARIO**

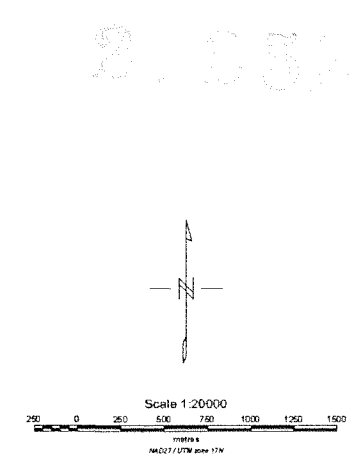
Calculated from the GPS altimeter and radar altimeter data as acquired by Terraquest Limited along E-W flight lines with a MTC of 120m. Survey completed in March 2003. The elevations are not tied to any local elevation benchmark.

*Rob Hearst, Consulting Geophysicist*





- Profile Anomaly Interpretation  
(Qualitative)
- low amplitude, broad anomaly
  - low amplitude, narrow anomaly
  - moderate amplitude, narrow anomaly
  - moderate amplitude, broad anomaly
  - high amplitude, narrow anomaly
  - high amplitude, broad anomaly



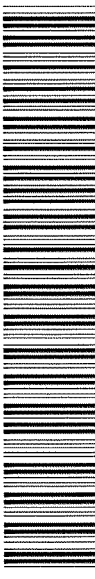
**MAP 4**

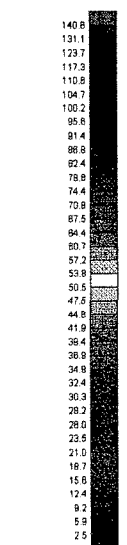
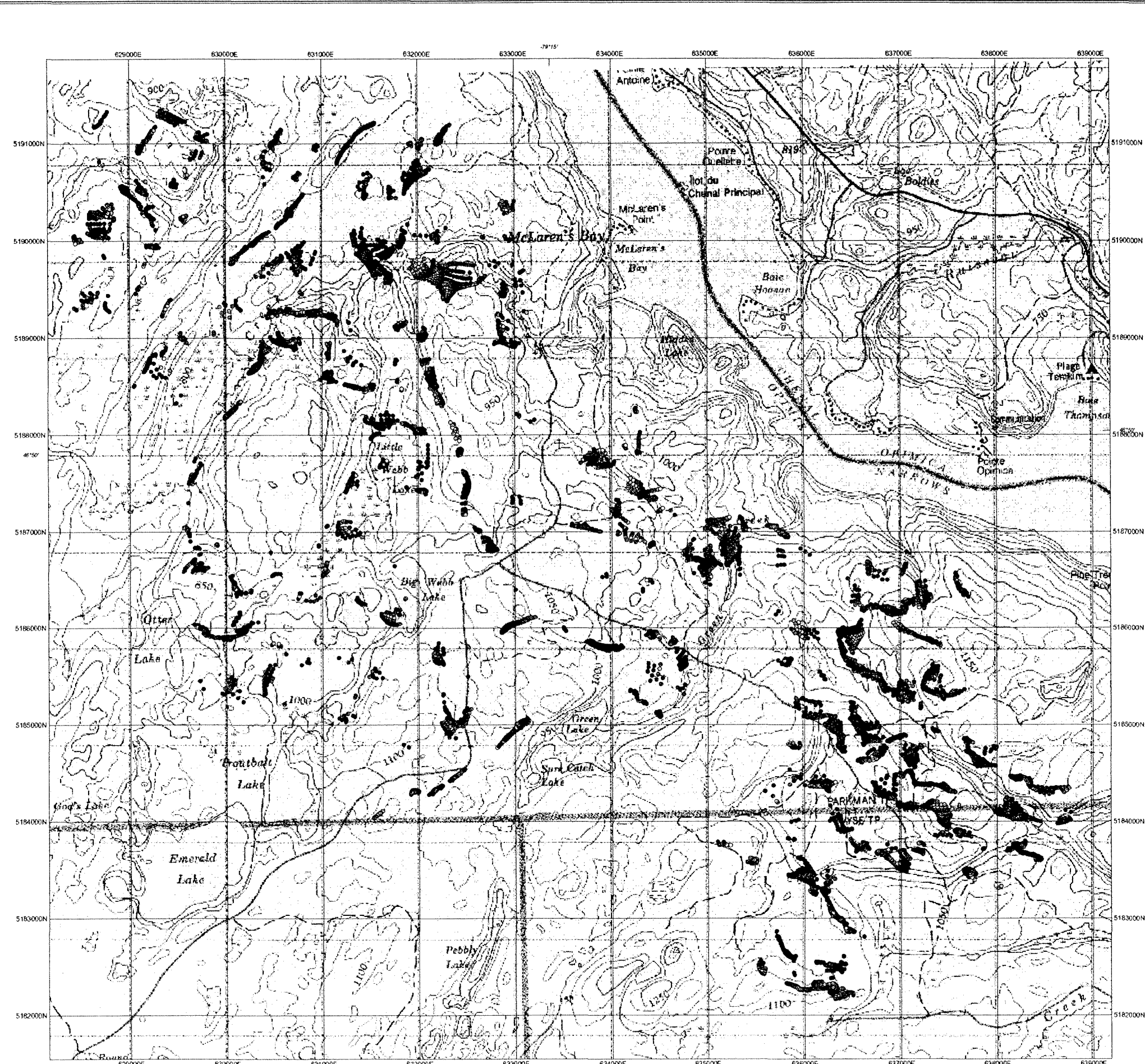
**GRENVILLE GOLD CORP.**  
**PROFILE ANOMALY INTERPRETATION (QUALITATIVE)**  
**PARKHAM PROPERTY**  
**ONTARIO**

Interpretation of airborne geophysical survey data  
 acquired by Terrascan Limited along E-W Right lines  
 with a MTC of 120m. Survey completed in March 2003.

*Rob Hearst, Consulting Geophysicist*

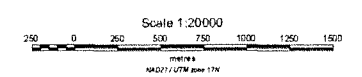
3114SE2007 2.25342 PARKMAN





Euler Depth Solutions (metres)

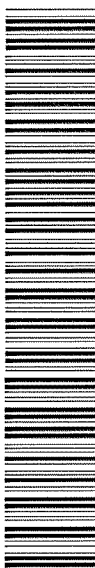
2.2142



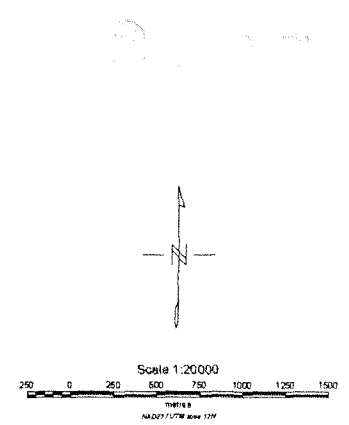
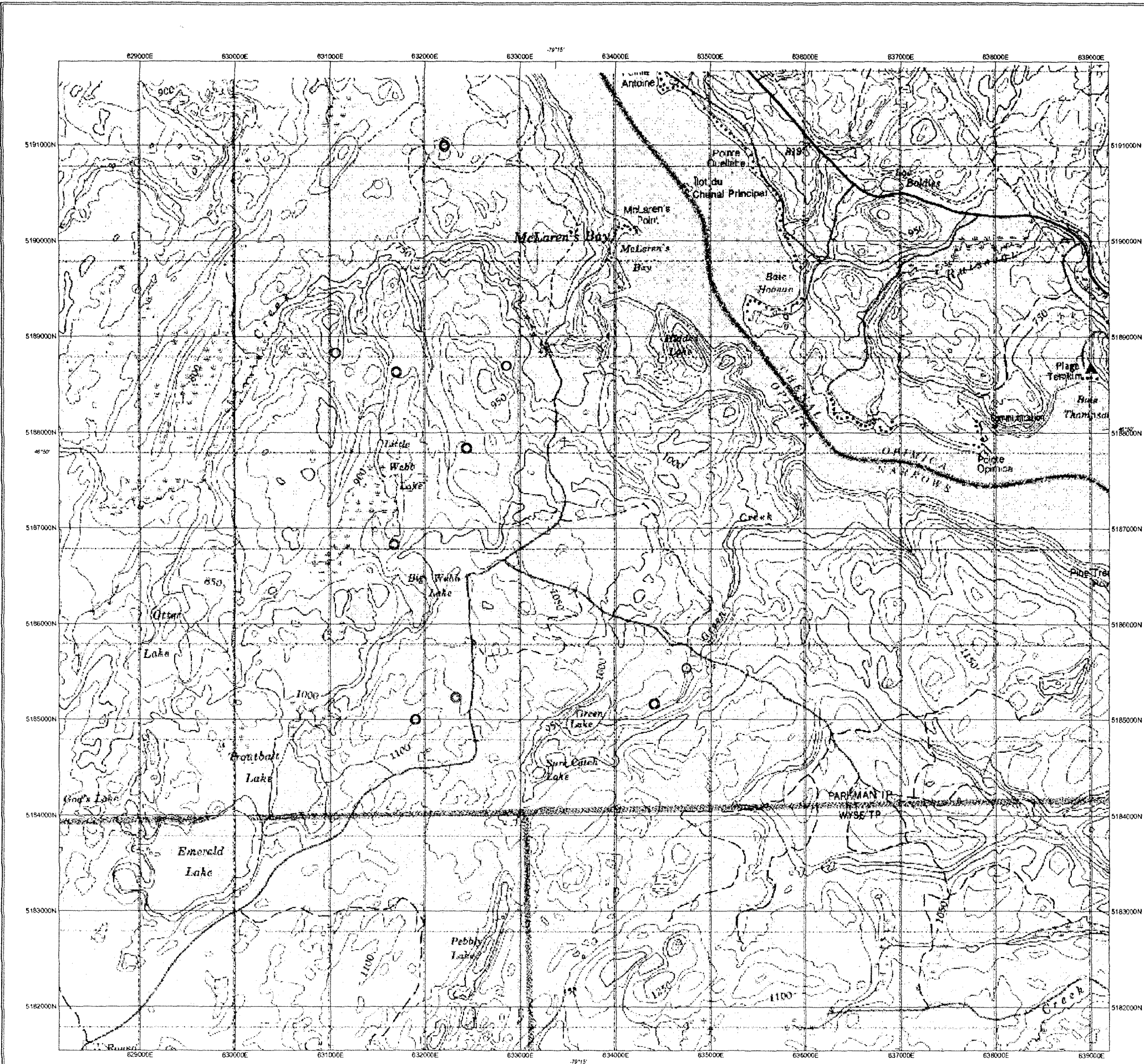
**MAP 5**

**GRENVILLE GOLD CORP.**  
**EULER DECONVOLUTION**  
**PARKHAM PROPERTY**  
**ONTARIO**  
 Euler deconvolution solutions calculated for a structural index of (S) 2.0. Calculated using airborne magnetic survey completed by Terraquest Limited, March, 2003.  
**Rob Hearn, Consulting Geophysicist**

3114SE2007 2.25342



PARKMAN



**MAP 6**  
**GRENVILLE GOLD CORP.**  
**KEATING CORRELATION COEFFICIENTS**  
**50 M DIAMETER CYLINDER**  
**PARKHAM PROPERTY, ONTARIO**  
 Keating correlation coefficients (blue +ve, red -ve) calculated for  
 a vertical cylinder of radius 25 m, 50 m, 75 m & 100 m  
 Calculated using airborne magnetic survey completed by  
 Terquest Limited, March, 2003.  
 Rob Heerst, Consulting Geophysicist

3114SE2007 2.25342

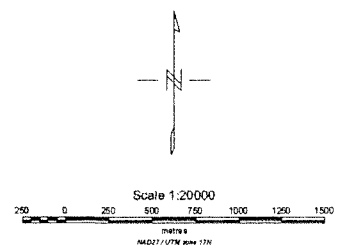
PARKMAN

320





2.25342



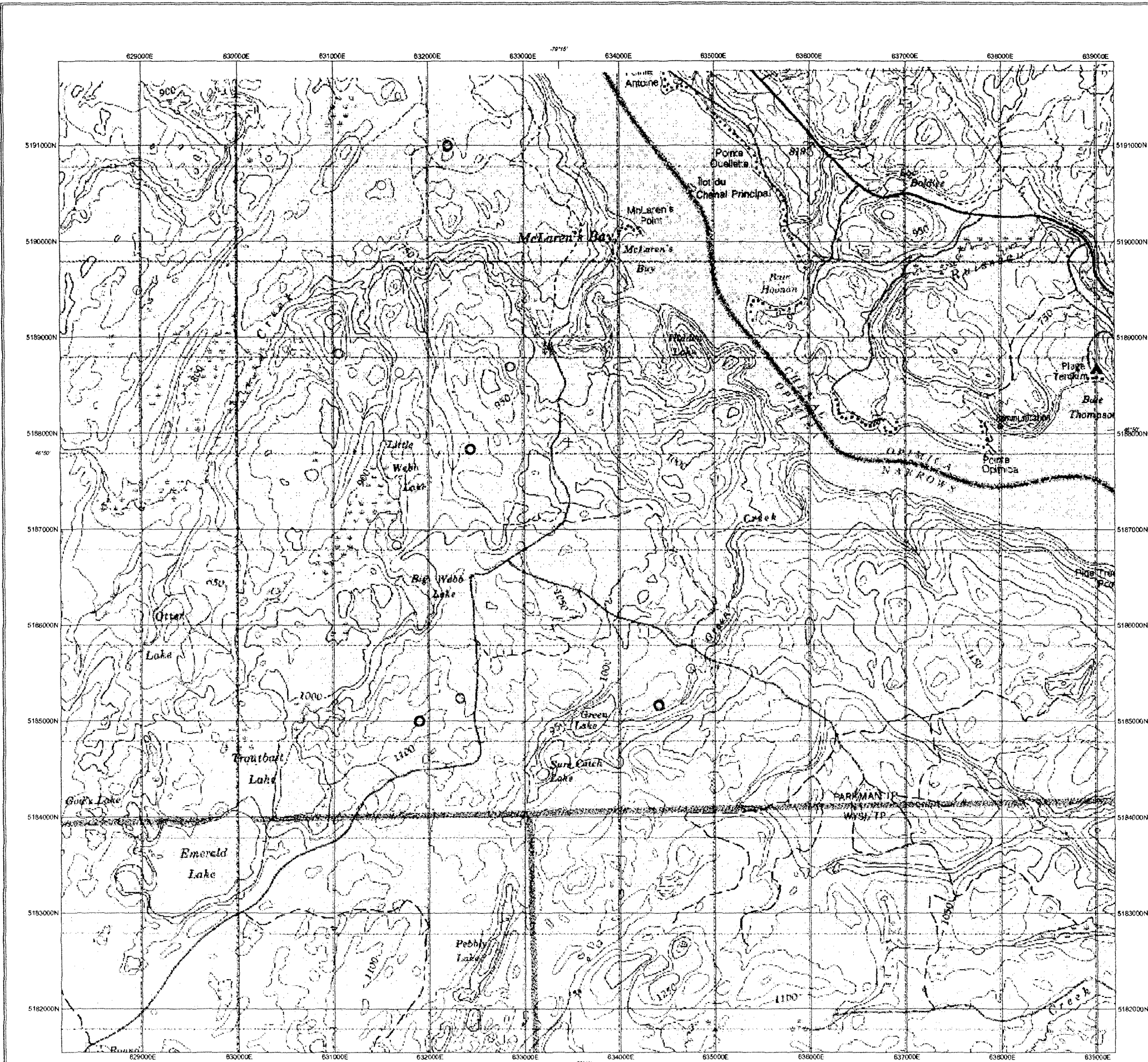
**MAP 7**  
**GRENVILLE GOLD CORP.**  
**KEATING CORRELATION COEFFICIENTS**  
**100 M DIAMETER CYLINDER**  
**PARKHAM PROPERTY, ONTARIO**  
 Keating correlation coefficients (blue +ve, red -ve) calculated for  
 a vertical cylinder of radius 25 m, 50 m, 75 m & 100 m.  
 Calculated using airborne magnetic survey completed by  
 Terquest Limited, March, 2003.  
**Rob Hears, Consulting Geophysicist**

3114SE2007 2.25342

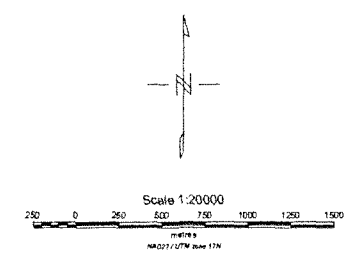


PARKMAN

330



2.85842



**MAP 8**

**GRENVILLE GOLD CORP.**  
**KEATING CORRELATION COEFFICIENTS**  
**150 M DIAMETER CYLINDER**  
**PARKHAM PROPERTY, ONTARIO**

Keating correlation coefficients (blue +ve, red -ve) calculated for a vertical cylinder of radius 25 m, 50 m, 75 m & 100 m. Calculated using airborne magnetic survey completed by Terraquest Limited, March, 2003.

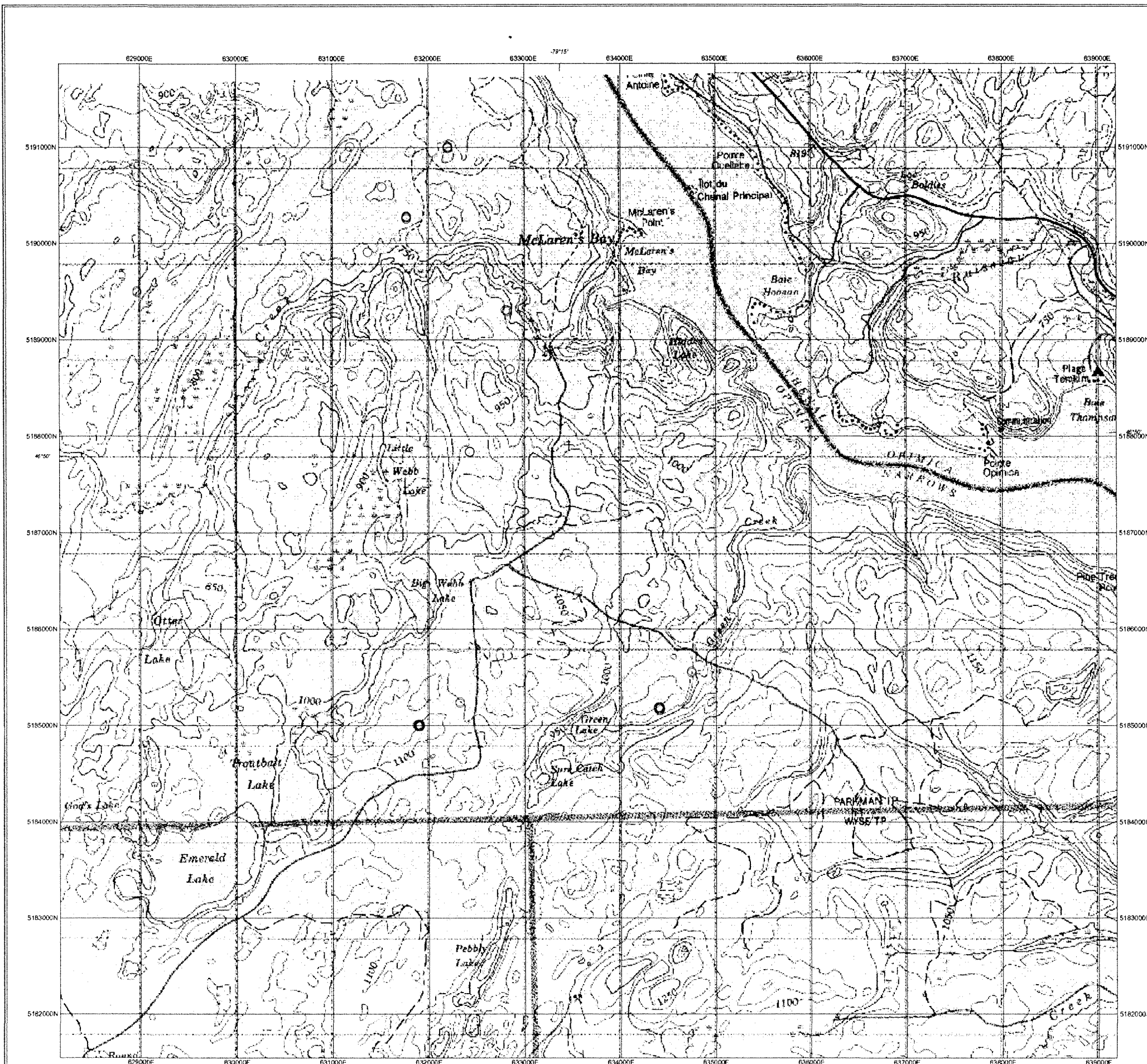
**Rob Heerst, Consulting Geophysicist**

3114SE2007

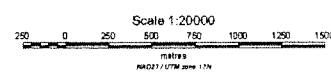
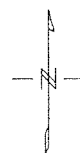
2.25342

PARKMAN

340



2.25342



**MAP 9**

**GRENVILLE GOLD CORP.**  
**KEATING CORRELATION COEFFICIENTS**  
**200 M DIAMETER CYLINDER**  
**PARKHAM PROPERTY, ONTARIO**

Keating correlation coefficients (blue +ve, red -ve) calculated for a vertical cylinder of radius 25 m, 50 m, 75 m & 100 m. Calculated using airborne magnetic survey completed by Terraquest Limited, March, 2003.

**Rob Hears, Consulting Geophysicist**

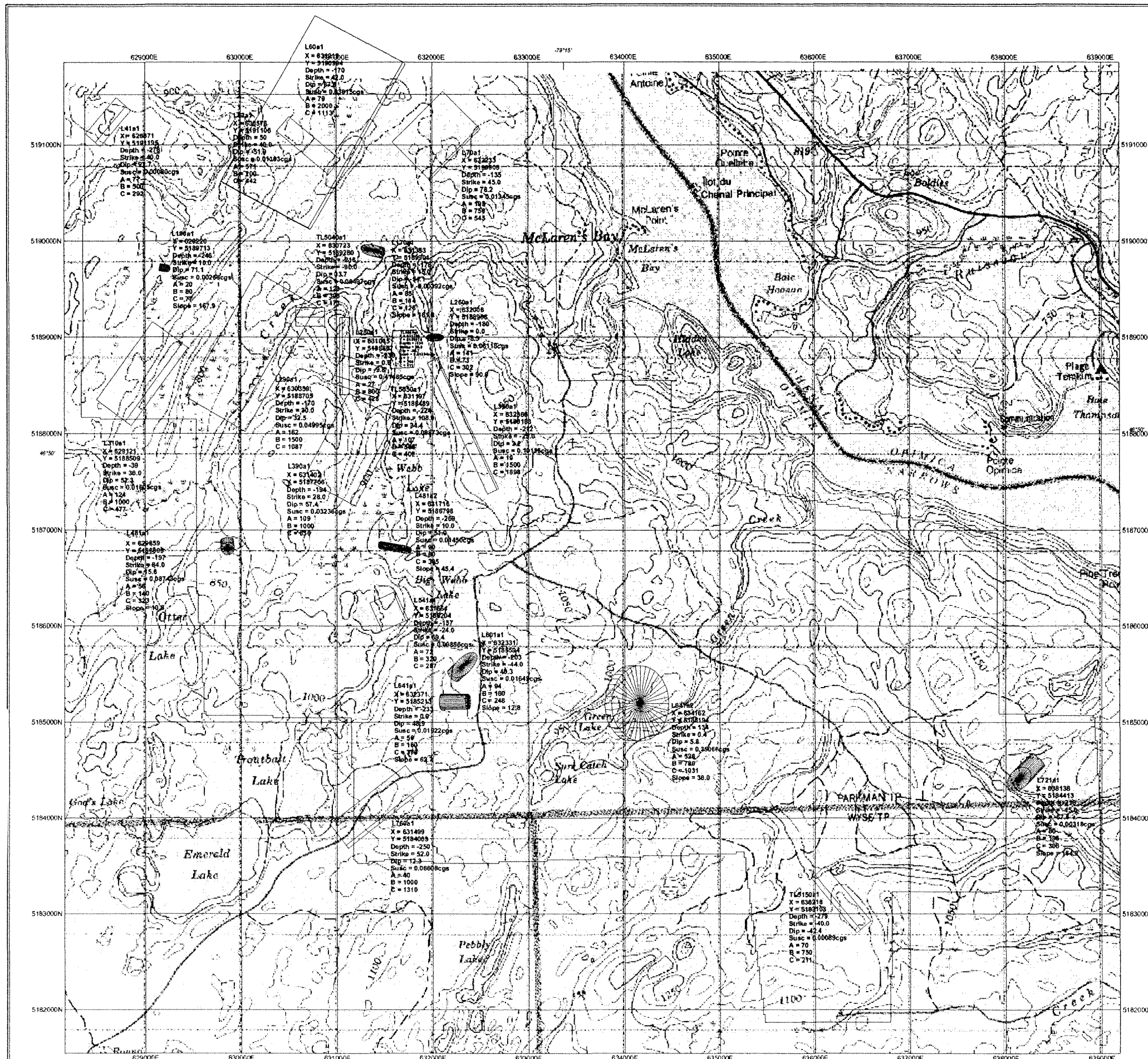
3114SE2007

2.25342

PARKHAM

350





**Model Legend**

Rectangular Prism Model

Model ID: L41a1  
 UTM Easting of top centre X = 628871  
 UTM Northing of top centre Y = 5189196  
 Depth (m above geoid) Depth = 278  
 Dip (m from N) Strike = 277  
 Dip (m from E) Dip = 277  
 Fixed susceptibility Susc = 0.00008cgs  
 Width of top surface (m) A = 77  
 Strike Length (m) B = 80  
 True thickness (m) C = 292

Cylinder Model

Model ID: L721a1  
 UTM Easting of top centre X = 630126  
 UTM Northing of top centre Y = 5184413  
 Depth (m above geoid) Depth = 418  
 Dip (m from N) Strike = -48.0  
 Dip (m from E) Dip = 47.8  
 Fixed susceptibility Susc = 0.00018cgs  
 Width of top surface (m) A = 80  
 Strike Length (m) B = 196  
 True thickness (m) C = 308  
 Slope of top surface of model Slope = 144.2

3114SE2007 2.25342 PARKMAN

**MAP 10**

**GRENVILLE GOLD CORP.**

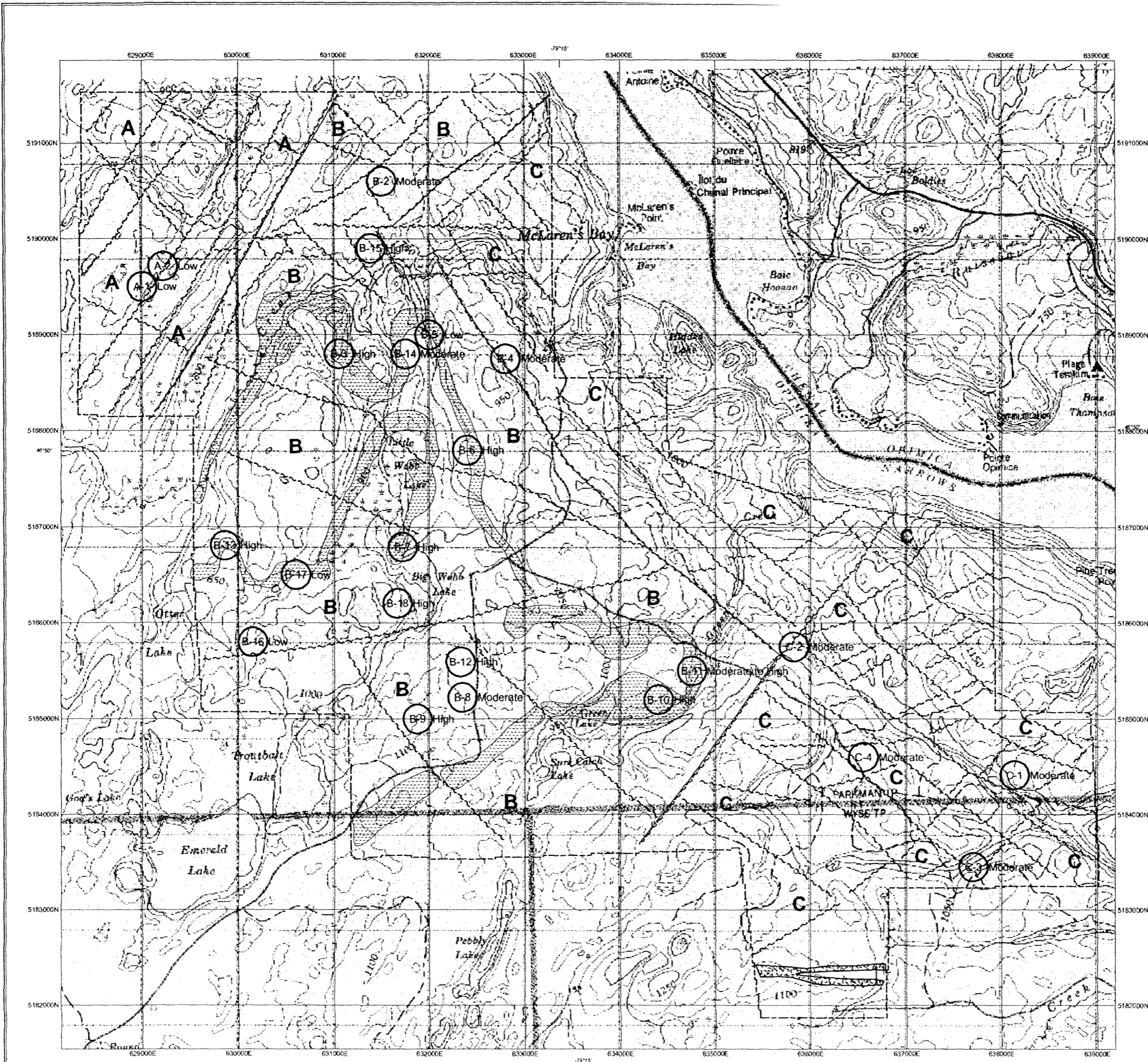
**MAGNETIC MODELING RESULTS**

**PARKMAN PROPERTY**

**ONTARIO**

Interpretation of airborne geophysical survey data acquired by Terraquest Limited along E-W flight lines with a MTC of 120m. Survey completed in March 2003.

*Rob Hearst, Consulting Geophysicist*



2.25342

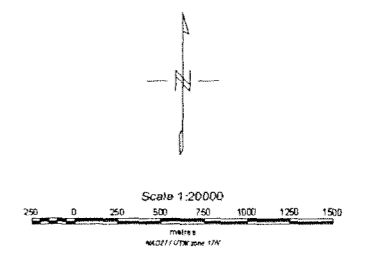
Anomalous Magnetic Targets

**C-2** Moderate  
Target ID Priority

Magnetic Interpretation

--- Fault  
 [Hatched] Dike  
 [Stippled] Iron Formation

**A** Magnetic Domain  
 - - - - - Magnetic Domain Boundary



**MAP 11**

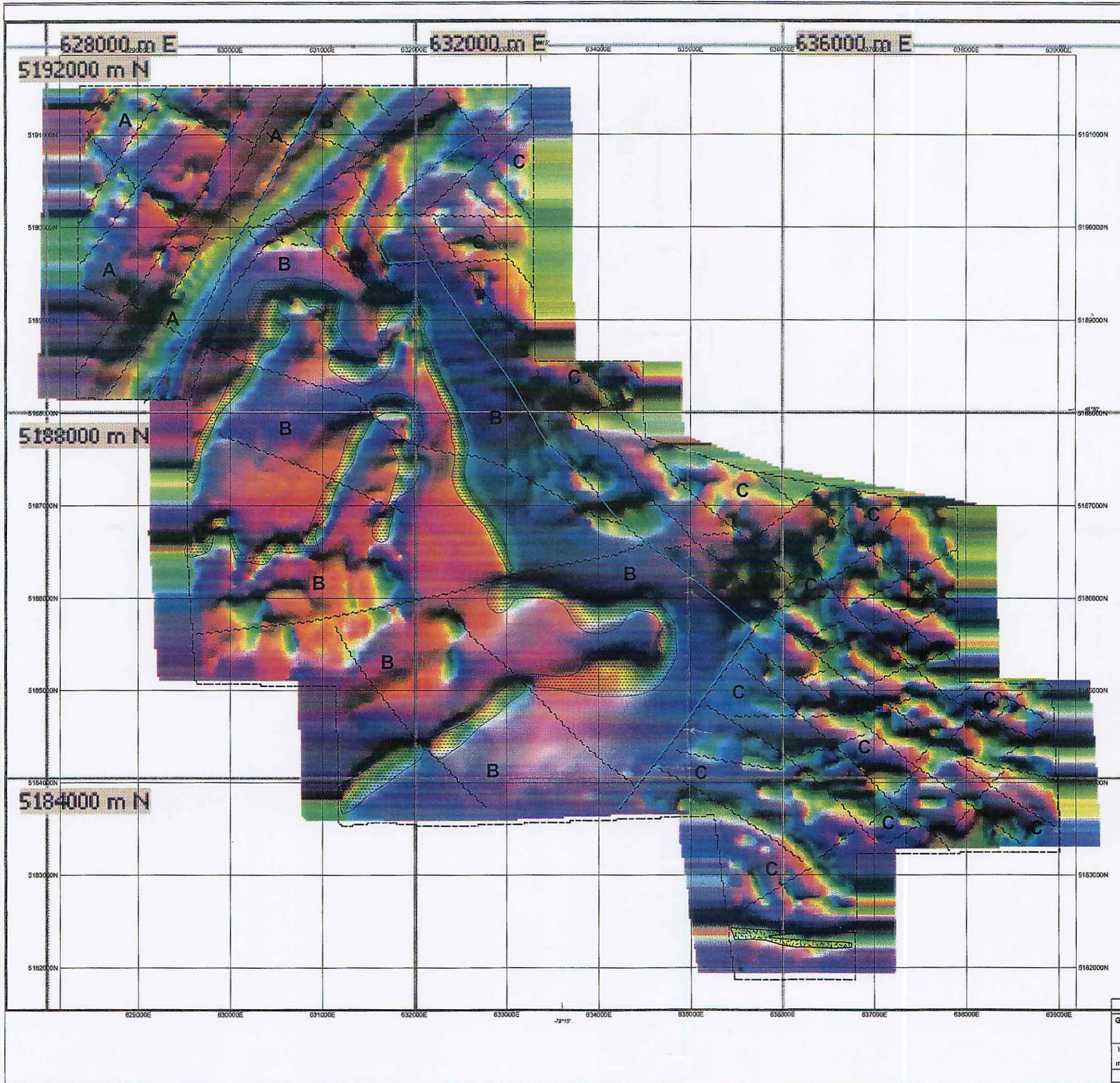
**GRENVILLE GOLD CORP.**  
**GEOLOGICAL INTERPRETATION**  
**PARKHAM PROPERTY**  
**ONTARIO**

Interpreted from airborne geophysical survey data acquired by Terraquest Limited along E-W flight lines with a 100 m line separation and mean terrain clearance (MTC) of 120 m. Survey completed in March 2003.

Rob Heerst, Consulting Geophysicist


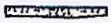


3114SE007 2.25342 PARKHAM 370





2.25342

Magnetic Interpretation

-  Fault
-  Dike
-  Iron Formation
- A** Magnetic Domain
-  Magnetic Domain Boundary



MAP 12

GRENVILLE GOLD CORP.

GEOPHYSICAL INTERPRETATION with VECTOR CHROME  
PARKHAM PROPERTY  
ONTARIO

Interpreted from airborne geophysical survey data acquired by Terraquest  
Limited along E-W flight lines with a 100 m line separation and  
mean terrain clearance (MTC) of 120 m. Survey completed in March 2003.

Rob Hearst, Consulting Geophysicist



PARKMAN

380