

**REPORT**  
**ON A**  
**LINE CUTTING AND GEOPHYSICAL**  
**SURVEY**

**PAKEAGAMA LAKE PROJECT**  
**RED LAKE MINING DIVISION**  
**NTS 53-C/11**

**FOR**  
**HOUSTON LAKE MINING INC.**  
**2892 WHITE STREET**  
**VAL CARON, ON. P3N 1B2**

**BY**  
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**LASHEX LTD.**  
**JUNE 28, 2001**

**2.21840**

**RECEIVED**  
**JUL 27 2001**  
**GEOSCIENCE ASSESSMENT**  
**OFFICE**



**Table of Contents**

**Page**

Introduction	1
Property Location and Access	2
Property	2
Previous Work	2
Property Geology	2,3
Claim and Grid Map	Fig. 1
Claim Map	Fig. 2
Linecutting Program	3
<u>Geophysical Surveys</u>	
Magnetometer	4
VLF Electromagnetic	4 - 6
Conclusions	7
Recommendations	7
References	
Certificate	
Technical Data	
<u>Back Pocket</u>	
Maps - Total Field Magnetics - Values and Contours	
VLF Electromagnetic - In-Phase and Quadrature Values and Contours	



## **INTRODUCTION**

A program consisting of surveying the base and tie lines, cutting of cross-lines and geophysics consisting of magnetometer and electromagnetic surveys were conducted over the Pakeagama Lake Property of Houston Lake Mining Inc.

The property was staked to cover the important discovery of 'rare metal' mineralization within pegmatites of the Pakeagama Lake Pluton by F. W. Breaks et al. in 1998. Their study showed that the Pakeagama Lake pegmatite is the second largest complex-type, petalite subtype pegmatite in Ontario and contains pollucite, the only mineral for cesium.

The following report covers the present exploration program and gives a conclusion and recommendations for further work.

### **PROPERTY LOCATION AND ACCESS**

The property is located approximately 180 kilometers north of the town of Red Lake and about 25km. west-northwest of a native settlement on North Spirit Lake. It is located within the Red Lake Mining Division.

Access is gained by air only with float plane services available in Red Lake. A winter road exists to the south and east of the property.

The centre of the property has U.T.M. co-ordinates of 5827000mN and 474000mE. The N.T.S. number is 53-C/11.

### **PROPERTY**

The property consists of the following claim:

1232441	16ha
---------	------

The property is owned by: Houston Lake Mining Inc.

2892 White Street

Val Caron, ON., P3N 1B2

### **PREVIOUS WORK**

The property was discovered in 1997 by Stone et al. when they analyzed 3 samples of tourmaline-rich rocks selected near Pakeagama Lake and found them to be anomalous in Li, Cs, Ta, and Be.

The area was mapped and sampled in detail by F.W. Breaks et al. in 1998.

Apart from a few old blazes on dead trees no other work was noted during this program.

### **PROPERTY GEOLOGY**

The property is underlain mainly by the northwest extension of the North Spirit Lake Belt consisting of metavolcanic and metasedimentary rocks. These rocks are in contact with a tonalite and granodiorite gneiss to the southwest and a foliated biotite tonalite and granodiorite to the northeast. Intruding into the metavolcanic-metasedimentary sequence is the Pakeagama Lake Pluton. The rare-metal pegmatite is located within the pluton. The pegmatite varies in width from 10 to 30 meters and is at least 250 meters in strike length, being open to the northwest and southeast.

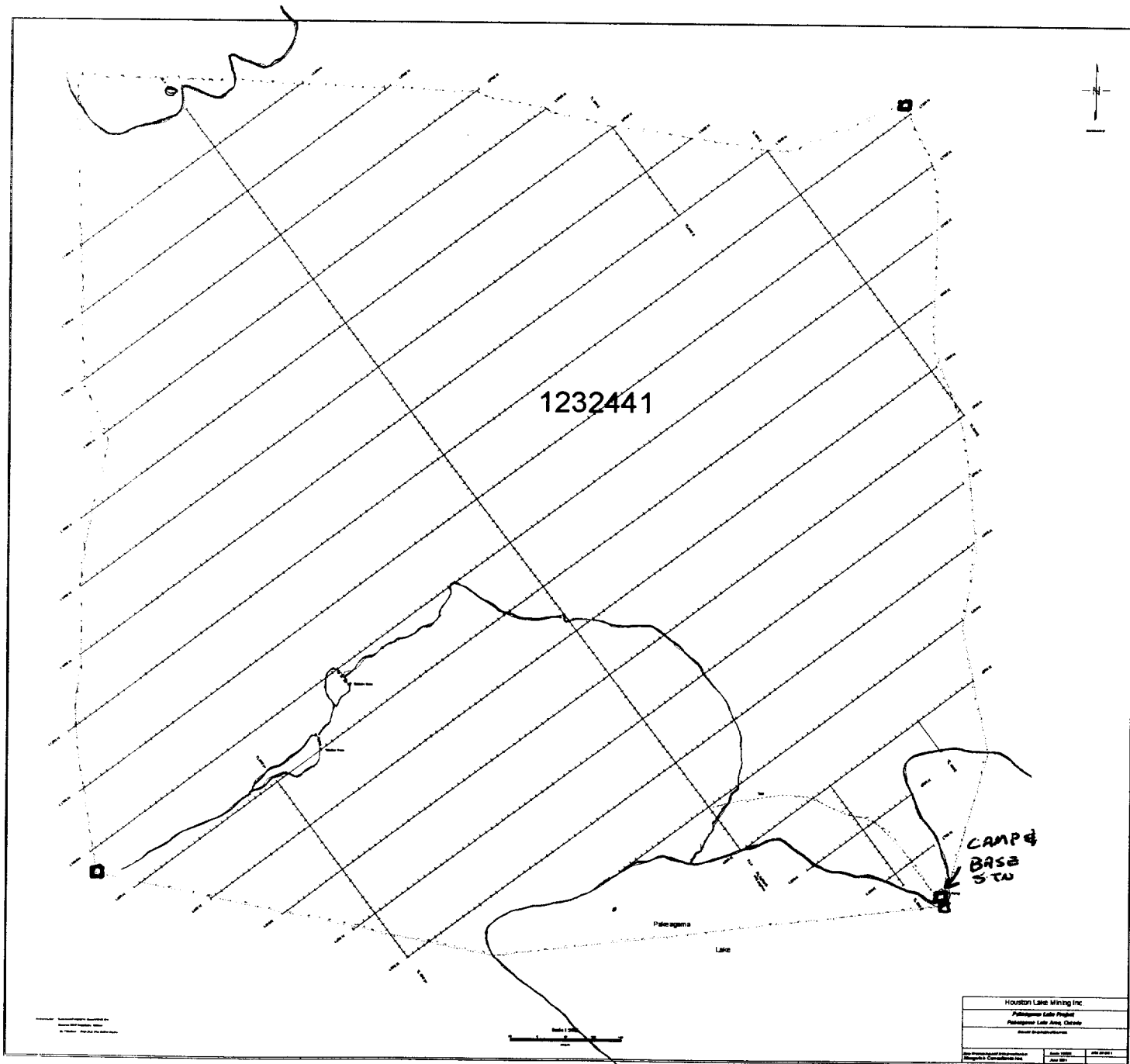


fig 1

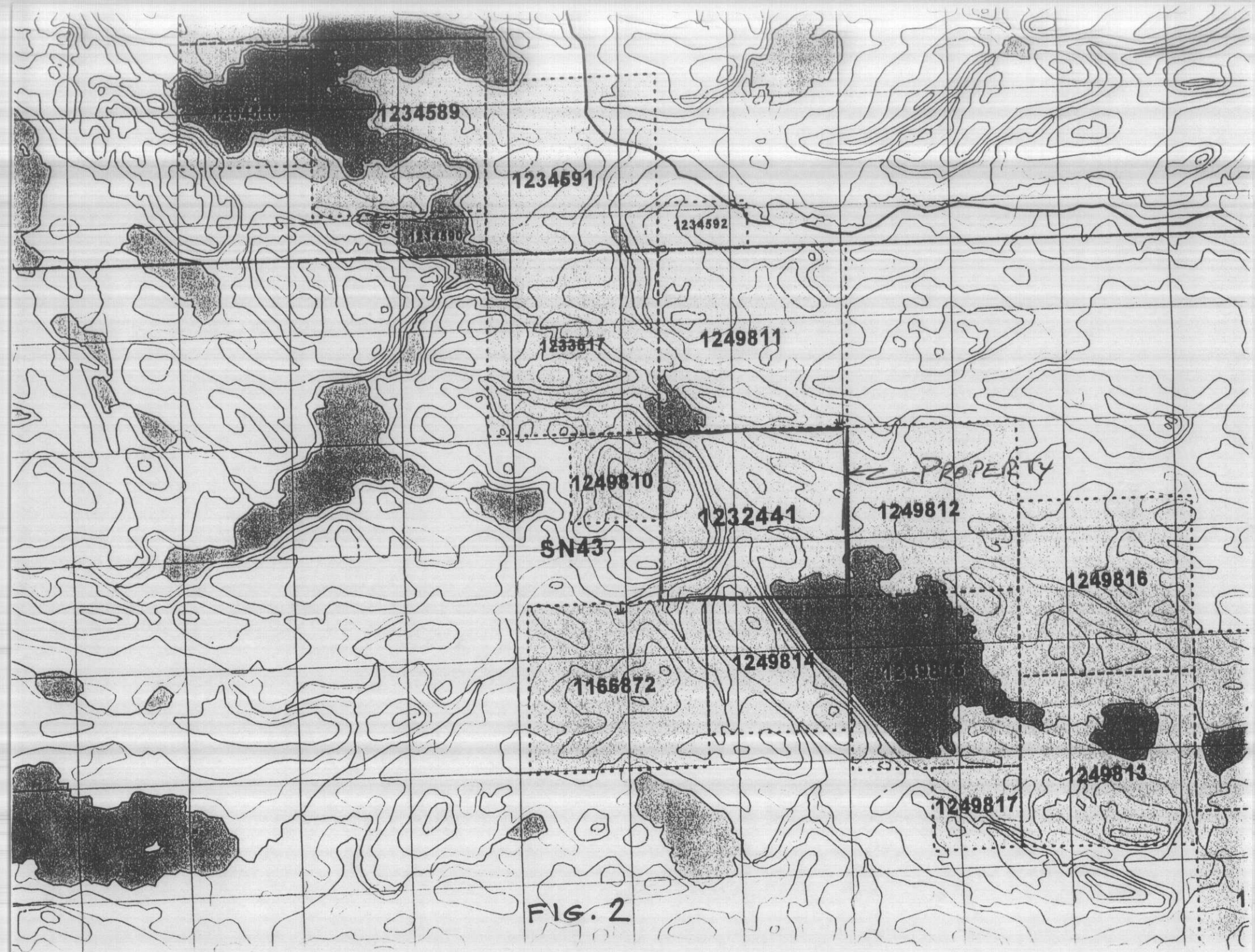


FIG. 2

The Bearhead Lake Fault Zone extends northwest-southeast along the northeast side of the property and imparts a strong foliation of that direction to the surrounding rocks. As the tonalite and granodiorite gneiss is approached to the southwest the metavolcanic rocks become metamorphosed to the amphibolite grade.

### **LINE CUTTING PROGRAM**

The base line of the present survey was established parallel to an existing rough cut base line roughly at 142 degrees. The surveyed base line was cut back to the southeast to Pakeagama Lake where line 3N was established and then cut and chained to the northwest to a small lake at the northwest end of the property (19+90N). Lines were turned 90 degrees, with the transit, every 100 meters along the baseline. Line 15+00N was surveyed to the east for 600 meters until it intersected the claim boundary then was turned 90 degrees for 200 meters to 13+00N where it was again turned 90 degrees and cut to 800 east to establish tie-line 800E. Tie-line 800E was cut to 7+00N. L8+00N was surveyed to the west until it intersected the baseline. In 3.0 kilometers of survey the line was off 16 cm. to the north and 86 cm. to the west.

Line 8+00N was surveyed to the west where Tie-line 6+00W was established. This line was surveyed north to L15+00N and south to L5+00N.

L3+00N was surveyed east to Tie-line 2+00E and a sub-baseline was run to 0+75N at the edge of Pakeagama Lake.

Stations were established every 25 meters along the cross-lines.

In all a total of 6.175 km of surveyed baseline and tie-lines along with 19.850 km. of cross-lines were established.

## **GEOPHYSICAL SURVEYS**

A combined magnetometer-electromagnetic vlf survey was performed over the property by Lashex Ltd. Readings were taken every 12.5 meters along the cross-lines, baseline and tie-lines with the magnetometer and every 25 meters along the cross-lines with the vlf.

The data was plotted by Meegwich Consultants Inc.

### **Magnetometer Survey**

The magnetometer survey was performed using a Scintrex MP-4 as a field unit and a Scintrex ENVIMAG as the base station.

The survey defined a number of southeast trending magnetic anomalies that mainly define the underlying thin iron formations within the metasedimentary rocks (e.g. L1900N, 1+00E - 1+50E to L1000N, 4+00E) . These units are both magnetite and pyrrhotite bearing horizons. Numerous gossanous outcrops were noted in the areas of high magnetic readings (e.g.L1900N, 1+25E).

The Pakeagama Lake Granite has intruded the metasedimentary rocks in the southeast quadrant of the property. They are, in general, defined by a flat magnetic signature in the range of 58,800 - 58,900 nanoteslas. The lean magnetic iron formation can be seen to wrap around the boundaries of the intrusion going easterly along the north boundary and south along the west boundary. In part it was noted that some of the iron formation and metasedimentary rocks have been caught up in the intrusion as xenoliths along this contact zone

### **VLF Electromagnetic Survey**

The survey was performed using a Scintrex VLF-4 with Cutler, Maine at a frequency of 24.0 kHz. being read. Readings were taken every 25 meters along the lines.

The property was found to contain a number of vlf conductors that will be discussed below.

Conductor A - This strong conductor extends from L1300N to L1900N and from 75 to 150W. The Quadrature response to the In-Field indicates that it is a probably a bedrock source ( sulphides?). The conductor flanks the south side of a moderate magnetic anomaly.

Conductor B - This weak conductor extends from L1400 to 1700N and ~0+75S within a moderate



magnetic anomaly. The probable cause is disseminated sulphides.

Conductor C and J - This strong conductor extends from L 500N / 600E to L1900N / 0+75E. The conductor appears to have an offset at L 900N of ~75 meters to the east. The conductor follows a strong magnetic anomaly. Rusty, gossanous rocks were noted in the field indicating sulfides (pyrrhotite) as a probable cause.

Conductor D - This conductor is similar and parallel to 'C' and also extends across the property from L700N / 700E to L1900N/ 150E.

Conductor E and G - Located at L1200N / 450E to L 1700N / 275E this conductor is probably caused from a swamp contact.

Conductor F - This conductor is located at the north end of the property at L 1700N / 500E. Probable cause is swamp contact however it does flank the start of a magnetic anomaly.

Conductor H - This short conductor is located at L1200N / 625E to L1300N / 625 E. It occurs in an area of weak to moderate magnetic intensity. Causes may be disseminated sulphides or swamp contact.

Conductor I - This conductor extends from L1000N / 875E to L1200N / 750E. It has a corresponding weak to moderate magnetic signature. The probable cause is disseminated sulphides.

Conductor K - This conductor is located from L1100N / 300W to L1200N / 275W. It has a strong magnetic signature. The probable cause is disseminated sulphides.

Conductor L - This conductor is located from L300N / 500E to L900N / 0+25W. It is a strong conductor with a good in-phase to quadrature response and a coinciding magnetic anomaly. The probable cause for this conductor is sulphides.

Conductor M - This conductor is located sub-parallel to 'L' from L600N / 150E to L1000N /

200W and is probably a parallel sulphide horizon.

Conductor N - This conductor is located from L700N / 325W to L 900N / 250W. Probable cause is topography or swamp contact.

Conductor O - This conductor is located from L800N / 400W to L900N / 375W. It is a moderate strength conductor with a corresponding strong magnetic anomaly. Probable cause is sulphides.

Conductor P - This conductor is located from L500N / 250W to L700N / 250W. The probable cause of this conductor is swamp / hill contact.

Conductor Q - This one line conductor is located at L500N / 100-125E. The probable cause is the creek and flooded area.

Conductor R - This one line conductor is located on L300N / 350E. The probable cause is swamp.

Conductor S - This weak conductor is located from L200N / 200E to L300N / 150E. The probable cause is swamp contact.

Conductor T - This conductor extends from L 500N / 500W to L700N / 525W. It is moderate to strong with a corresponding magnetic anomaly. The probable cause is sulphides.

## **CONCLUSIONS**

The geophysical program performed on the Pakeagama Lake property was successful in identifying numerous mag-vlf anomalies many of which are coincidental. These anomalies will have to be ground checked to ascertain their nature. Most moderate to strong coincidental magnetic/vlf anomalies are probably caused from sulphide/magnetite or pyrrhotite bearing sedimentary horizons.

The main reason for the property is the pegmatites containing rare metals. The survey was unsuccessful in tracing this zone however the magnetic survey traces out a rough outline of the contacts between the meta-sedimentary rocks and the granite that contains the pegmatites in overburden covered areas. Some partly digested, sulphide/magnetite bearing xenoliths were noted within the granite, near these contacts.

## **RECOMMENDATIONS**

Due to the positive nature of this geophysical survey it is recommended that further work on the property be carried out.

The economically important Pakeagama Granite will have to be mapped and sampled in detail as this geophysical survey could not differentiate internal pegmatites from the background granite.

The rest of the property should be mapped, prospected and sampled mainly to determine the nature of the numerous probable sulfide horizons within the sedimentary package and to ascertain their economic importance.

### **References Cited**

Stone, D., Fogal, R., and Fitzsimmon, S. 1993. Precambrian Geology Whiteloon Lake; Ontario Geological Survey, Preliminary Map P.3224, scale 1:50,000

Breaks F.W., Tindle, A.G., and Smith S.R. 1999 Project Unit 98-001. Rare-metal Mineralization Associated with the Berens River - Sachigo Subprovincial boundary, Northwestern Ontario: Discovery of a New Zone of Complex-Type, Petalite Subtype Pegmatite and Implications for Future Exploration, p. 168 - 182.

## **STATEMENT OF QUALIFICATIONS**

I, Raymond L. Lashbrook, do hereby declare:

- i) that I reside at: 973 Pine Creek Road, R.R.#1  
Callander, Ontario, P0H 1H0
- ii) that I attended Haileybury School of Mines in the Two Year Mining Technician course  
from 1967 to 1969.
- iii) that I have personal knowledge of the facts presented in this report.
- iv) that I have no interest in the property nor do I expect to gain an interest in the  
property.
- v) that I own a contract exploration company, Lashex Ltd., that performed the  
assessment work being submitted.



Raymond L. Lashbrook  
July 25, 2001

**Technical Data**

**Linecutting and Surveying**

June 01 to June 17, 2001

Crew: Ray Lashbrook  
Pierre Coulomb  
Jacques Poirier  
Antonio MacKenzie

**Geophysics**

Operator: Ray Lashbrook

Instrument: Field - Scintrex MP-4/VLF-4, Serial #8707309

Base Station - Scintrex ENVIMAG

Base Station Location - 0+25N, 2+50E

Base Value - 58,885 nanoteslas

VLF Station Read - NAA, 24.0kHz, Cutler, Maine.

# Technical Description of the MP-3 Proton Magnetometer

## Total Field Operating Range

20,000 to 100,000 nT (1 nT = 1 gamma)

## Gradient Tolerance

± 5000 nT/m

## Total Field Absolute Accuracy

± 1 nT at 50,000 nT

± 2 nT over total field operating range

## Resolution

0.1 nT

## Tuning

Fully solid-state. Manual or automatic keyboard selectable.

## Fastest Cycle Time

2 seconds. For portable readings this is the time taken from the push of a button to the display of the measured value.

## Continuous Cycle Times

Keyboard selectable in 1 second increments upwards from 2 seconds to 999 seconds.

## Operating Temperature Range

-40°C to +50°C provided optional Display Heater is used below -20°C.

## Digital Display

32 character, 2 line LCD display

## Keyboard Input

14 keys for entering all commands, coordinates, header and ancillary information.

## Languages

English plus French is standard.

## Clock

Real time clock with day, month, year, hour, minute and second. Needs keyboard initialization only after bat-

tery replacement. One second resolution.

± 1 second stability over 12 hours.

## Standard Memory

16K RAM internal solid-state memory in single reading mode records up to 1175 total field and gradient observations, or 1350 total field measurements including coordinates, time and header information. In continuous cycle mode, records up to 8000 total field measurements including time and header information.

## Digital Data Output

RS-232C serial interface for digital printer, modem, microcomputer, cassette tape recorder, a second MP-3 or an IGS-2/MP-4. Data outputs in 7 or 8 bit ASCII, one start, two stop bits, no parity format. Baud rate is keyboard selectable at 110, 300, 600, 1200, and 2400 baud. Carriage return delay is keyboard selectable in increments of one from 0 to 999. Handshaking is done through X-on/X-off protocol.

## Analog Output

For a strip chart recorder. 0 to 999 mV full scale with keyboard selectable sensitivities of 10, 100 or 1000 nT full scale.

## Trigger Output

Allows MP-3 to act as master for other instrumentation.

## Console Dimensions

240 x 90 x 240 mm includes mounted battery pack.

## Weight

2.4 kg excludes batteries.

## Power Requirements

Can be powered by external 12 V DC or one of the Battery Pack Options listed below.

## Sensor Options

In the following options the actual sensors are identical, however, mountings and cables vary.

### Portable Total Field Sensor Option

Includes sensor, staff, one short cable, one long cable and backpack sensor harness. Weight of sensor, cable and staff is 1.9 kg. Staff comprises four 0.5 m sections of 25 mm diameter aluminum tubing.

### Base Station Sensor Option

Includes sensor, tripod, 50 m cable, external power cable and analog chart recorder cable. Weight of sensor, cable and tripod is 6.5 kg. Tripod is 530 mm collapsed, 1500 mm extended.

### Gradiometer Sensor Option

For use with the Portable Total Field Sensor Option. Includes second sensor, cables and two 0.5 m staff extenders. Combined weight of Total Field and Gradiometer Sensor options with staff, 1 m extender and cables is 3.5 kg.

### Marine Sensor Option

Includes sensor installed in a fish with cable up to 100 m in length.

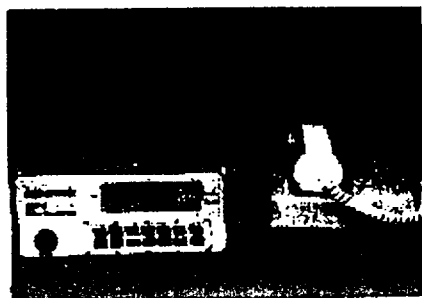
### Airborne Sensor Option

Includes sensor installed in a 'bird' with a tow cable or in a 'stinger' mounted on the aircraft.

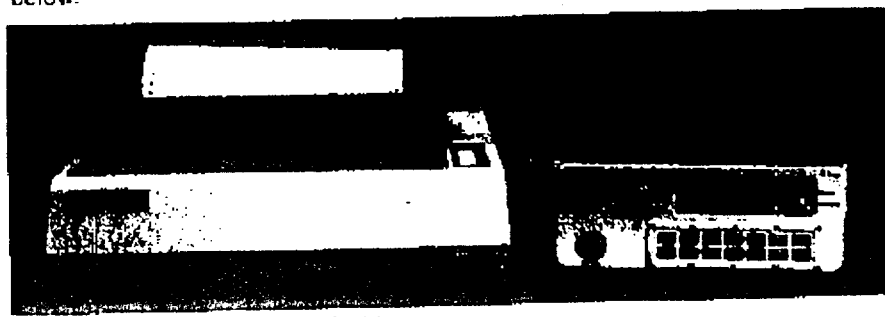
## Battery Pack Options

### Non-rechargeable Battery Pack

Includes battery holder and 10 disposable 'C' cell batteries for installation on console. Nominal capacity is 4.0 Ampere hours. Used in low sensitivity total field magnetometry in



With the use of a modem the MP-3 can send its data across telephone lines.



The MP-3 outputs directly to a digital printer.

# Technical Description of the MP-3 Proton Magnetometer

temperatures above 0°C. Weight is 0.9 kg. At 25°C gives 10,000 total field or 5000 total field gradient readings.

## Rechargeable Battery Pack and Charger

Includes battery holder, 6 rechargeable, non-magnetic, sealed lead-acid batteries and charger for installation on console. Best for high sensitivity total field measurements, all gradient measurements and operation below 0°C. Pack weighs 1.3 kg. Nominal capacity is 2.5 Ampere hours. At 25°C gives 7000 total field or 3500 total gradient readings. Charger specifications are: 140 x 95 x 65 mm, 115/230 V AC; 50/60 Hz; 20 VA, overload protected.

## Heavy Duty Rechargeable Battery Pack

Includes heavy duty rechargeable batteries installed in a console with a built-in charger. Used for rapid cycling base station or mobile applications. Total weight is 7.6 kg. Nominal capacity is 12.5 Ampere hours. Dimensions are 240 x 90 x 240 mm. Power requirements: 115/230 V AC; 50/60 Hz; 50 VA. Overload protected.

## Low Temperature Battery Extender Kit

Comprises a cover for the bottom of the instrument console, a battery pack cover, a waist belt and a battery cable. Slots on the battery pack cover permit belt mounting next to the operator's body for warmth.

## Optional Accessories

### Language Options

In addition to English, a second language using Latin characters can replace French.

### RS-232 Cable and Adaptor

Includes a special RS-232 data transfer cable and MP-3 to RS-232 cable adaptor. Used for communicating between the MP-3 and peripheral devices including a second MP-3 or IGS-2/MP-4 for diurnal corrections.

### Minor Spare Parts Kit

Includes 2 keyboard diaphragms and two fuses.

### Carrying Cases

A variety of carrying cases are available to suit different combinations of console and sensor options.

### Display Heater

Required for cold weather operation. Powered by main batteries, thermostatically controlled to turn off above -20°C.

### MP-3/4 Proton Magnetometer Function Tester

When connected between the console and sensor, applies a signal to test the polarizing circuit, the coil and the signal processing circuitry. Switch selectable magnetic field simulation at 22,500; 30,000; 45,000; 60,000 and 90,000 nT.

## Peripheral Devices

Scintrex is prepared to recommend or supply digital printers, modems, cassette tape recorders, analog recorders and microcomputers with software.

## Applications Software

Scintrex supplies fully documented software written for the IBM PC computer and certain other microcomputers which use the MS-DOS operating system. This software is designed to permit: 1) archiving of data, 2) processing of magnetic data and 3) profile and contour outputs on digital printers.

## Memory Expansion Options

### Memory Expansion I

Memory can be added on an existing board to complement the 16K RAM Standard Memory. This can be done in up to six 8K RAM increments to raise system memory to a total of 64K RAM. Each 16K RAM increment holds as many readings as the Standard Memory.

### Memory Expansion II

An additional board is required on which an additional sixteen 8K RAM groups can be installed to bring the system total memory to 192K RAM. Each 16K RAM increment holds as many readings as the Standard Memory.

# SCINTREX

222 Snidercroft Road  
Concord Ontario Canada  
L4K 1B5

Telephone: (416) 669-2280  
Cable: Geoscint Toronto  
Telex: 06-964570

Geophysical and Geochemical  
Instrumentation and Services



# Technical Description of the VLF-3 VLF Electromagnetic System

## Frequency Tuning

Automatic digital tuning. Can be tuned to any frequency in the range 15.0 to 29.0 Hz with a bandwidth of 150 Hz. Up to three frequencies can be chosen by keyboard entry for sequential measurements.

## Field Strength Range

Fields as low as 100 nA/m can be received. Maximum received field is 2 mA/metre. These values are specified for 20 kHz. For any other frequency, normalize the above limits with station frequency in kHz/20.

## Signal Filtering

Narrow bandpass, low pass and sharp cut-off high pass filters.

## Measuring Time

0.5 seconds sample interval. As many as 2<sup>16</sup> samples can be stacked to improve measurement accuracy.

## VLF-Magnetic Field Components Measured

1) Horizontal amplitude, 2) vertical in-phase component, and 3) vertical quadrature components. Vertical components are displayed as a percentage of horizontal component and are related in phase to the horizontal component. Their range is  $\pm 120\%$ ; reading resolution 1%.

## VLF-Magnetic Field Sensor

Two air-cored coils in a backpack mounted housing with an electronic level for automatic tilt compensation. The error in the vertical in-phase component is less than 1% for tilts up to 25°.

## VLF-Electric Field Dipole

Two capacitive electrodes with integral preamplifiers and 5 m of cable. Probe input impedance exceeds 100 megohms and capacitance is less than 1 picofarad.

## VLF-Electric Field Components Measured

In-phase and quadrature components of the horizontal electric field phase related to the horizontal VLF-magnetic field. These components are not recorded but are used in the calculations of resistivity and phase. The reading resolution is 1 ohm.

## Apparent Resistivity Calculation

$$\rho = \frac{1}{2\pi f \mu_0} \left| \frac{E_x}{H_y} \right|^2$$

where:

- $\rho$  = apparent resistivity in ohm-meters
- $E_x$  = horizontal electric amplitude, calculated.  
 $E_x = (E_x(I)^2 + E_x(Q)^2)^{1/2}$
- $H_y$  = horizontal magnetic amplitude, measured
- $f$  = VLF station frequency in Hertz
- $\mu_0$  = permeability of the ground in Henries/meter, a constant

The resistivity calculation has a range of 1 to 100,000 ohm-meters with a resolution of 1 ohm-meter.

## Phase Angle Calculation

The phase angle  $\theta$  is expressed as:

$$\theta = \arctan \frac{E_x(Q)}{E_x(I)}$$

where:

- $E_x(Q)$  = horizontal quadrature VLF electric field, measured
- $E_x(I)$  = horizontal in-phase VLF electric field, measured

The phase angle calculation has a range of -180° to +180° with a resolution of 1°. By definition the angle is positive when the E field leads the H field.

## Digital Display

32 character, 2 line LCD display

## Keyboard Input

14 keys for entering all commands, coordinates, header and ancillary information.

## Languages

English plus French is standard.

## Standard Memory

The internal 16K RAM solid-state memory records up to 1100 VLF-magnetic or 600 combined VLF-magnetic and VLF-electric measurements.

## Clock

Real time clock with day, month, year, hour, minute and second. One second resolution,  $\pm 1$  second stability over 12 hours. Needs keyboard initialization only after battery replacement.

## Digital Data Output

RS-232C serial interface for digital printer, modem, microcomputer or cassette tape recorder. Data outputs in 7 or 8 bit ASCII, one start, two stop bits, no parity format. Baud rate is keyboard selectable at 110, 300, 600, 1200 and 2400 baud. Carriage return delay is keyboard selectable in increments of one from 0 to 999. Handshaking is done through X-on/ X-off protocol.

## Dimensions

Console: 240 x 90 x 240 mm  
VLF-Magnetic Sensor: 110 mm diameter, length 120 mm

## Weights

Console with Non-Rechargeable Battery Pack: 3.5 kg.  
Console with Rechargeable Battery Pack: 4.0 kg.  
VLF-magnetic Sensor with harness: 1.5 kg  
VLF-electric Sensor, total weight of capacitive electrodes plus cables is 0.9 kg.

## Operating Temperature Range

-40°C to +50° provided optional Display Heater is used below -20°C.

## Power Requirements

Can be powered by external 12 V DC or one of the Battery Pack Options listed below. The current consumption is 0.2 A.

# Technical Description of the VLF-4 VLF Electromagnetic System

## Optional and Accessory Items

**Non-Rechargeable Battery Pack Option**  
10 disposable alkaline C cell for installation inside VLF-3 console provide 6000 readings at 25°C assuming each measurement requires the typical time of about 15 seconds.

### Rechargeable Battery Pack and Charger Option

Six rechargeable lead-acid batteries in holder for installation in VLF-3 console provide 3400 readings at 25°C, assuming each measurement requires 15 seconds. Suggested for cold weather operation.

The charger runs from 115 or 230 V AC, 50 or 60 Hz and draws 20VA. It is overload protected; 140 x 95 x 65 mm; 1.0 kg.

### Low Temperature Battery Extender Kit

Comprises a cover for the bottom of the instrument console, a battery pack cover, a waist belt and a battery cable. Slots on the battery pack cover permit belt mounting next to the operator's body for warmth.

**Optional RS-232 Cable and Adaptor**  
Used for communicating between VLF-3 and peripheral devices such as a digital printer, microcomputer, cassette recorder or modem.

**Optional Memory Expansion**  
Increases the memory four times, to a maximum of 64K RAM in 8K RAM increments. Each 16K RAM increments holds as many readings as the Standard Memory.

**Electric Field Sensor Option**  
This option, consisting of two capacitive electrodes with integral preamplifiers and an interconnecting cable permits VLF resistivity measurements to be made. Five metres is the standard cable length, however, longer lengths are available on request.

**Primary Field Drift Correction Option**  
This option consists of a special program EPROM which permits the VLF-3 to operate in a cycling mode, measuring and storing data from up to three transmitters. It also permits communication between a portable and a base station VLF-3 for the purpose of correcting the horizontal VLF-magnetic field vector for changes in primary field strength.

### Display Heater

Required for cold weather operation. Powered by main batteries, thermostatically controlled to turn off above -20°C.

### Peripheral Devices

Scintrex is prepared to recommend or supply digital printers, modems, cassette tape recorders and microcomputers with software.

### Language Options

In addition to English, a second language using Latin characters can replace English.

### Carrying Case

Scintrex carrying case CC-4 will carry console, sensor, battery pack, RS-232 cable with adaptor and manual.

### Applications Software

Scintrex supplies fully documented software written for the IBM PC computer and certain other microcomputers which use the MS-DOS operating system. This software is designed to permit: 1) archiving of data, 2) calculation of parameters such as VLF ellipticity, dip angle, total field and Fraser filters and 3) profile and contour outputs on digital printers.

**SCINTREX**

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Concord Ontario Canada  
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Geophysical and Geochemical  
Instrumentation and Services

### **Work Report Summary**

Transaction No: W0120.30509                                    Status: APPROVED  
Recording Date: 2001-JUL-27                                    Work Done from: 2001-JUN-01  
Approval Date: 2001-SEP-19                                    to: 2001-JUN-29

Client(s):  
301804        HOUSTON LAKE MINING INC.

Survey Type(s):  
   LC                                    MAG                                    VLF

**Work Report Details:**

<b>Claim#</b>	<b>Perform</b>	<b>Perform Approve</b>	<b>Applied</b>	<b>Applied Approve</b>	<b>Assign</b>	<b>Assign Approve</b>	<b>Reserve</b>	<b>Reserve Approve</b>	<b>Due Date</b>
KRL 1232441	\$31,935	\$31,935	\$31,755	\$31,755	\$0	0	\$180	\$180	2007-JUL-30
	\$31,935	\$31,935	\$31,755	\$31,755	\$0	\$0	\$180	\$180	

Status of claim is based on information currently on record.



53C11SW2004    2.21840    PAKEAGAMA LAKE    900

Date: 2001-SEP-20

GEOSCIENCE ASSESSMENT OFFICE  
933 RAMSEY LAKE ROAD, 6th FLOOR  
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EARL GRAYME ANTHONY  
HOUSTON LAKE MINING INC.  
2892 WHITE STREET  
VAL CARON, ONTARIO  
P3N 1B2 CANADA

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

**Submission Number:** 2.21840  
**Transaction Number(s):** W0120.30509

Dear Sir or Madam

**Subject: Approval of Assessment Work**

We have approved your Assessment Work Submission with the above noted Transaction Number(s). The attached Work Report Summary indicates the results of the approval.

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 JIM MCAULEY by email at james.mcauley@ndm.gov.on.ca or by phone at (705) 670-5855.

Yours Sincerely,



Ron Gashinski  
Supervisor, Geoscience Assessment Office

**Cc:** Resident Geologist

Houston Lake Mining Inc.  
(Claim Holder)

Assessment File Library

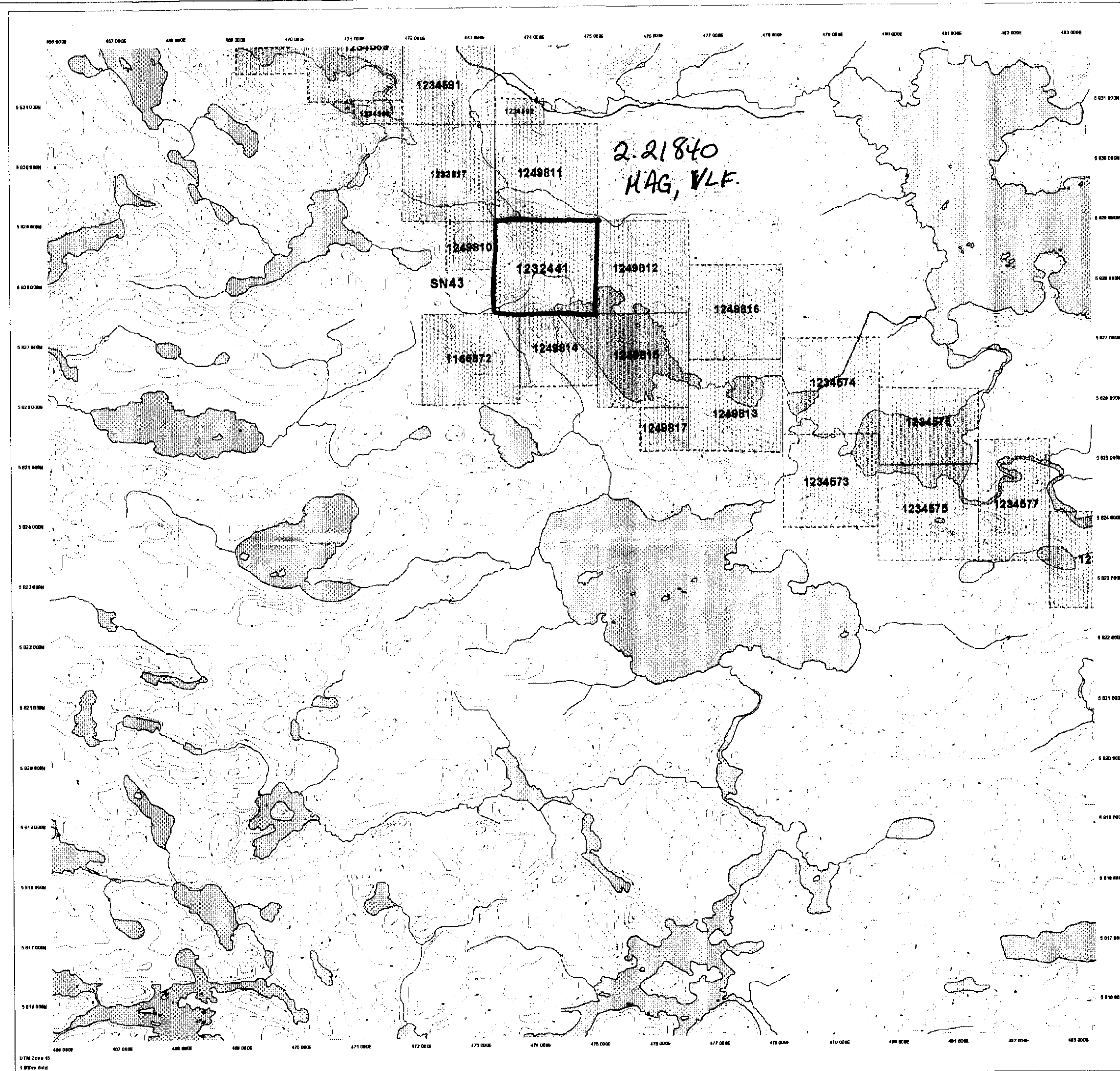
Houston Lake Mining Inc.  
(Assessment Office)



# MINING LAND TENURE MAP

Date / Time of Issue Jul 20 2001 08:53h Eastern  
TOWNSHIP / AREA PLAN  
PAKEAGAMA LAKE AREA G-1842

ADMINISTRATIVE DISTRICTS / DIVISIONS  
Mining Division Red Lake  
Land Titles/Registry Division KENORA  
Ministry of Natural Resources District RED LAKE



### TOPOGRAPHIC

- Administrative Boundary
- Township
- Concession Unit
- Provincial Road
- Inter-Route
- CRP, PE and PA
- Contour
- Contour - Agri. Activity Description
- Shed
- Mine Heap/ore
- Railway
- Road
- Trail
- Natural Open Fields
- Hydro Line
- Communication Line
- Wooded Area
- Minerals - Central Model Area - Cont'd

### LAND TENURE

- Freehold 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 Occupation
  - License Expired
  - Surface and Mining Rights
  - Surface Rights Only
  - Mining Rights Only
- Land Use Plans
- Order of Conditions
- Water Power Lease Agreement
- Mineral Claim

### LAND TENURE WITHDRAWALS

- 1254 Area Withdrawal from Disposition Mining Act Withdrawal by user
  - Surface and Mining Rights Withdrawal
  - Surface Rights Only Withdrawal
  - Mining Rights Only Withdrawal
  - Order to Cancel Mineral Title
  - Surface and Mining Rights Withdrawal
  - Surface Rights Only Withdrawal
  - Mining Rights Only Withdrawal

### IMPORTANT NOTICES

### LAND TENURE WITHDRAWAL DESCRIPTIONS

IMPORTANT NOTICES  
Areas under these notices are subject to cancellation or other mineral processing, mining and related development activities.

53C11SW2004 2.21840 PAKEAGAMA LAKE 200

### General Information and Limitations

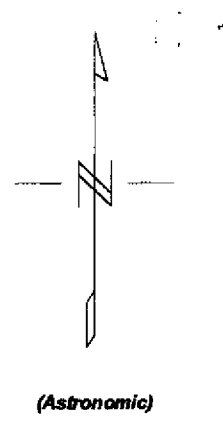
This map is a mining claim map and is not a map of the Province of Ontario. It is not a map of the Province of Ontario. It is not a map of the Province of Ontario. It is not a map of the Province of Ontario.

Contact Information:  
Provincial Mining Recorder's Office  
Ministry of Northern Development and Mines  
1000 Lakeshore Blvd. East  
Thunder Bay, Ontario  
P4Z 1B6  
Tel: (807) 378-3444  
Fax: (807) 378-3444  
Web: www.mndm.gov.on.ca

Map Datum: NAD 83  
Projection: UTM (8 Zone)  
Topographic Data Source: Land Information Ontario  
Mining Land Tenure Source: Provincial Mining Recorder's Office

This map may not accurately represent the current status of mining claims or other mineral processing, mining and related development activities. It is not a map of the Province of Ontario. It is not a map of the Province of Ontario. It is not a map of the Province of Ontario.





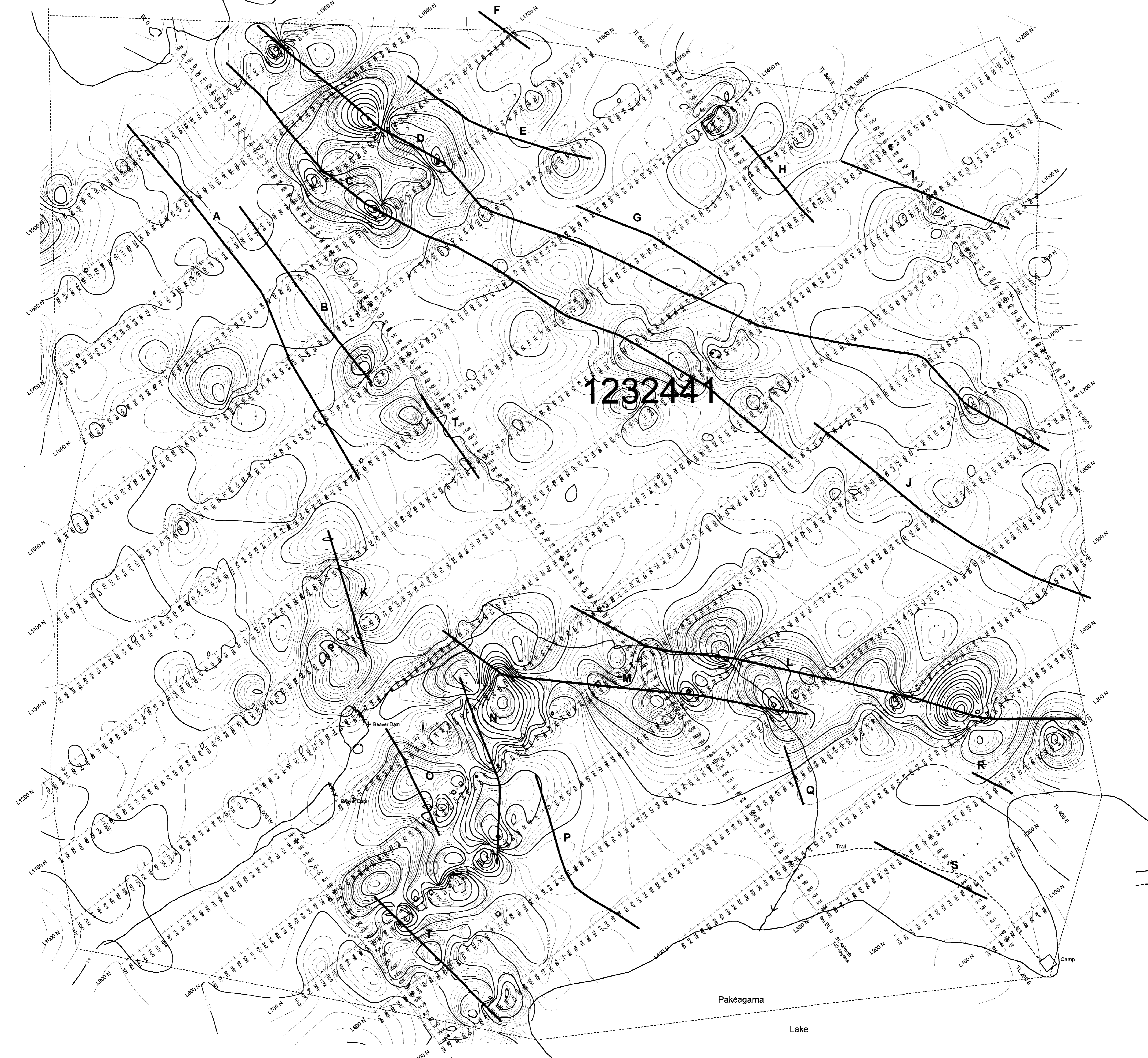
2.21840

1232441

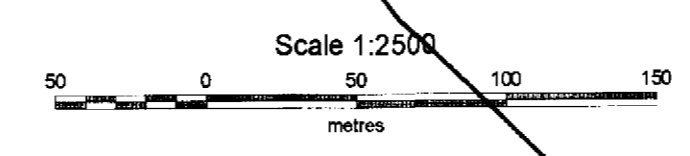
59000 subtracted from all readings

2.21840

— Conductor Axis, Defined  
- - - Conductor Axis, Interpreted or Weak



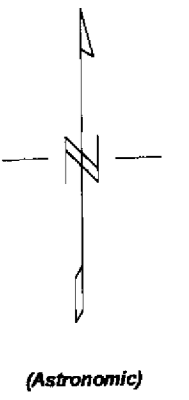
Instruments: Schlöter MP-4VLE-4 Serial #5707309  
Schlötter ENVI Mag Base Station  
VLF Station: NAA 24.0 kHz Cutler Maine



Survey and Interpretation by:  
Lashex Ltd.

Houston Lake Mining Inc.		
Pakeagama Lake Project		
Pakeagama Lake Area, Ontario		
Ground Geophysical Surveys		
Total Field Magnetics		
Contours		
Data Processing by:	Scale 1:2500	NTS 53 C/11
Meegwich Consultants Inc.	June 2001	





21840

1232441

Profile Scale: 1 cm = 30%

— Conductor Axis, Defined  
- - - Conductor Axis, Interpreted or Weak

2.21840

Instruments: Schnorr MP-4VLF-4 Serial #8707309  
Schnorr ENVI Mag Base Station  
VLF Station: NAA 24.0 kHz Cutler Maine

Scale 1:2500  
metres

Survey and Interpretation by:  
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Houston Lake Mining Inc.		
Pakeagama Lake Project		
Pakeagama Lake Area, Ontario		
Ground Geophysical Surveys		
VLF - EM Survey		
Profiles of the In-Phase and Quadrature		
Data Processing by:	Scale 1:2500	NTS 53 C/11
Meegwich Consultants Inc.	June 2001	

