NAREX Ore Search Consultants Inc.

010

NRX-83-25

117455 CANADA LTD.

GEOPHYSICAL SURVEYS

Elephant Head Lake Property

Connaught Township

LARDER LAKE MINING DIVISION
District of Sudbury
Ontario

October 1983

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ACCOMPANYING MAPS

Drawing #1 - Magnetometer Survey Scale: 1 inch to 200 feet

Drawing #2 - Electromagnetic Survey Scale: 1 inch to 200 feet

A. INTRODUCTION

The Elephant Head Lake property consists of three (3) contiguous claims in Connaught Township, Larder Lake Mining Division, District of Sudbury, Ontario. These claims which are held by 117455 Canada Ltd. are L636600, L636601 and L643141.

During August 1983, a grid was cut over the property and subsequent EM-16 and magnetometer surveys were conducted by NAREX Ore Search Consultants Inc.

B. LOCATION AND ACCESS

The claim group is located in central Connaught Township, north of Highway 560 and west of the village of Shiningtree, Ontario. Elephant Head Lake is a major body of water which is located just to the south of the claim block. Elephant Head Creek transects the property and flows out of Elephant Head Lake.

C. SURVEY AND INSTRUMENT DATA

The surveys were conducted over previously cut east-west (approx.) lines which are spaced at 300 foot intervals across the property. A total of 4.0 miles of grid and base lines were cut and picketed every 100 feet. The main baseline which is oriented N20^{o}W has a length of 2800 feet across the middle of the property.

1. MAGNETOMETER SURVEY

The magnetometer survey was carried out with a Geometrics "Unimag I" portable proton magnetometer. This type of magnetometer utilizes the precession of spinning protons or nucleii of the hydrogen atom in a sample of hydrocarbon fluid to measure the total magnetic intensity.

These spinning protons behave as small spinning dipoles which are temporarily aligned or polarized by the application of a uniform magnetic field generated by a current in a coil of wire. When the current is removed, the spin of the proton causes them to precess about the direction of the ambient or earth's magnetic field. The precessing proton then generates a small signal in the same coil used to polarize it, a signal whose frequency is precisely proportional to the total magnetic field intensity and independent of the orientation of the coil (sensor of the magnetometer). Operation of the instrument is simple: one simply presses a button and reads the number for the total magnetic field strength in gammas (γ), with a sensitivity of $\pm$ 10 γ (gammas). Readings were taken every fifty (50) feet along grid lines for a total of 350 stations. Readings along the baseline serves as a standard to make the necessary corrections to compensate for the diurnal variations of the local magnetic field.

2. ELECTROMAGNETIC SURVEY

The electromagnetic survey was carried out using a "Geonics" EM-16 unit. The EM-16 is a sensitivie receiver covering the frequency of the V.L.F. (very low frequency) transmitting stations, with a means of measuring the vertical field components. The VLF transmitting stations operating for communication with submarines have a vertical antenna. The antenna current is thus vertical, creating a concentric horizontal magnetic field around them. When these magnetic fields meet conductive bodies in the ground, secondary fields are set up radiating from these bodies. The EM-16 equipment measures the vertical component of these secondary fields.

The receiver has two inputs with two receiving coils built into the instrument. One coil has a normally vertical axis and the other, a horizontal one. Secondary fields caused by conductive bodies are, therefore, measured by the EM-16 by the angle of dip on the instrument and by measured percentage of the quadrature component (out of phase component) to give a null signal. Any deviation from the zero null position is indicative of a secondary field and, therefore, of a possible conductive body.

The transmitting station used for this survey was station NSS (21.7 kHz) Annapolis, U.S.A. Readings were taken every 50 feet along the picketed lines for a total of 702 readings from 351 stations.

D. INTERPRETATION OF RESULTS

1. Magnetometer Survey (Drawing #1)

Results from the magnetomer survey outline several north-northwest trending magnetic features. The highest anomalies are located on lines LO at 2+00W and at 1+00W; on L3S at 5+50W and at 10+50W (Claim 643141). These values are in the range of 61,000 to 68,000 γ (very high). There are also several pronounced magnetic low anomalous areas which are located on L9N at the baseline; L3N at 2+00W; LO at 1+50W. These values are in the range of 50,000 to 56,000 γ. In addition to the above-mentioned, there are several high and magnetic low subsidiary anomalies both east and west of the baseline in Claims L636600, 636601 and 643141. The predominant features do, however, occur west of the baseline on lines L3N, LO and L3S in Claim L643141. The magnetic gradients are very steep here with absolute differences in the order of 13,000 γ in a distance of 50 to 300 feet.

Subsequent geological mapping indicates that the areas with high anomalies are underlain by magnetic facies Iron formation. The areas of low magnetic values are underlain by limestones.

Several of the gabbro bodies in Claim 636601 are also outlined by slightly higher magnetic values (59,000 γ contour); these strike N20^{o}W.

The rest of the areas shows a relatively flat magnetic gradient.

2. Electromagnetic Survey (Drawing #2)

Several moderate-strength, north-south trending conductors were detected by the EM-16 survey.

Conductor A is a moderate to weak conductor which is traceable over 1800 feet in Claims L636601 and 636600 and continues to the north. The quadrature response for this conductor is similar and sympathetic to the in-phase component.

Conductor C is a moderate-strength, north-south conductor traceable for 600 feet in Claim 643141.

Conductor D is a weak to moderate conductor in Claim 636600 near the baseline and is traceable on two lines (300 feet) and continues to the south.

As in Conductor A, the quadrature responses for Conductors C and D are similar to the in-phase component of each, suggesting a feature related to the swamp, creek or conductive overburden - not a good bedrock conductor. Topographically, Conductors A, C and D all correspond to swamps and thick swamp overburden.

Conductor B is located on LO at 2+00W. It is a short but strong conductor in which the in-phase and quadrature components behave in a similar and sympathetic manner.

However, since the conductor is within 50-100 feet of a copper showing, it is believed to be a conductor probably caused by massive sulphides. The conductor is weakly traceable 300 feet to the south (L3S, 1+50W) but not to the north.

E. CONCLUSIONS AND RECOMMENDATIONS

Results from both the magnetometer and electromagnetic surveys show several significant anomalies and conductors over the Elephant Head Lake property.

Conductors A (1800 feet long), C (600 feet long) and D (310 feet long) are largely restricted to swampy areas and are believed to be caused by drainage and/or deep conductive swamp overburden.

Conductor B is a strong conductor on LO at 2+00W and is believed to be caused by massive sulphides.

Results from the magnetometer indicate that the central part of the property is underlain by both Iron formation (high magnetic anomalies) and limestone (low magnetic anomalies) which trend in a north-south direction. These rock types are located in the vicinity of the Copper-showing. The rest of the property is underlain by a variety of felsic to mafic volcanic rocks. There is a strong correlation of the high magnetic anomalies and Conductor B - i.e. high magnetic and a sulphide conductor which is an excellent exploration target.

It is, therefore, recommended that a program of detailed geophysics should be carried out in the vicinity of the Copper showing. Vertical loop EM method could be used to

check the validity of all the EM-16 conductors. If results warrant, a drill program consisting of a minimum of 2000 feet should then be undertaken in an effort to outline further massive sulphides and copper mineralization.

Peter Born
Project Geologist

PB:SG

Land Administration

Ministry of Natural Resources, Ontario

Report of Work
(Geophysical, Geological, Geochemical and Expenditures)

41P11SW0035 2.5954 CONNAUGHT

900

The Mining Act — Do not use shaded areas below.

(file L636599)

Type of Survey(s): Geophysical #256

Township or Area: CONNAUGHT TWP

Claim Holder(s): TIMMINS GOLD RESOURCES LTD & 117455 CANADA LIMITED

Prospector's Licence No.: T 1166 T 7371

Address: 208-440 Shepard Ave E, Scarborough, Ont. M1S 4A7

Survey Company: MATRIX OREXPLORATION CONSULTANTS INC.

Date of Survey (from & to): 18 Day | 03 Mo. | 83 Yr. | 23 Day | 03 Mo. | 83 Yr.

Total Miles of line Cut: 3 miles

Name and Address of Author (of Geo-Technical report): Peter Perrin - 208-440 Shepard Ave E

Credits Requested per Each Claim in Columns at right

Special Provisions		Days per Claim
For first survey: Enter 40 days. (This includes line cutting)	Geophysical - Electromagnetic	40
	Geophysical - Magnetometer	20
For each additional survey: using the same grid: Enter 20 days (for each)	Geophysical - Radiometric	
	Geophysical - Other	
	Geological	
	Geochemical	

Man Days		Days per Claim
Complete reverse side and enter total(s) here	Geophysical - Electromagnetic	
	Geophysical - Magnetometer	
	Geophysical - Radiometric	
	Geophysical - Other	
	Geological	
	Geochemical	

Airborne Credits		Days per Claim
Note: Special provisions credits do not apply to Airborne Surveys.	Electromagnetic	
	Magnetometer	
	Radiometric	

RECEIVED
SEP 20 1983
MINING LANDS SECTION

Mining Claims Traversed (List in numerical sequence)

Mining Claim Prefix	Mining Claim Number	Expend. Days Cr.	Mining Claim Prefix	Mining Claim Number	Expend. Days Cr.
L	636600				
"	636601				
	643541				

LARDER LAKE MINING DIV.
RECEIVED
SEP - 9 1983
AM 7 8 9 10 11 12 1 2 3 4 5 6 PM

LARDER LAKE MINING DIV.
RECEIVED
AUG 29 1983
AM 7 8 9 10 11 12 1 2 3 4 5 6 PM

1st Recd

Total number of mining claims covered by this report of work: 3

Expenditures (excludes power stripping)

Type of Work Performed

Performed on Claim(s)

Calculation of Expenditure Days Credits

Total Expenditures: $ ÷ 15 = Total Days Credits

Instructions: Total Days Credits may be apportioned at the claim holder's choice. Enter number of days credits per claim selected in columns at right.

For Office Use Only		
Total Days Cr. Recorded: 180	Date Recorded: SEP 9 1983	Mining Recorder
	Date Approved as Recorded: 84.4.3	Branch Director

Date: Aug. 23/83 — Recorded Holder or Agent (Signature)

Certification Verifying Report of Work

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

Name and Postal Address of Person Certifying: Peter PERRIN - P.O Box 531, BRADFORD, ONT.

Date Certified: Aug. 23/83 — Certified by (Signature)

1362 (81/9)

Ontario

Ministry of Natural Resources

File _____

GEOPHYSICAL – GEOLOGICAL – GEOCHEMICAL TECHNICAL DATA STATEMENT

TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT
FACTS SHOWN HERE NEED NOT BE REPEATED IN REPORT
TECHNICAL REPORT MUST CONTAIN INTERPRETATION, CONCLUSIONS ETC.

Type of Survey(s) GEOPHYSICAL

Township or Area CONNAUGHT TOWNSHIP

Claim Holder(s) 117455 CANADA LTD.

Survey Company NAREX ORE SEARCH CONSULTANTS INC.

Author of Report PETER BORN

Address of Author BOX 531, BRADFORD, ONT. L0G 1C0

Covering Dates of Survey AUGUST 18 - OCTOBER 20, 1983
(linecutting to office)

Total Miles of Line Cut 4.0

SPECIAL PROVISIONS CREDITS REQUESTED

ENTER 40 days (includes line cutting) for first survey.

ENTER 20 days for each additional survey using same grid.

	DAYS per claim
Geophysical	
--Electromagnetic	40
--Magnetometer	20
--Radiometric	
--Other	
Geological	
Geochemical	

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

Magnetometer _____ Electromagnetic _____ Radiometric _____
(enter days per claim)

DATE: Oct 20, 1983 SIGNATURE: _____
Author of Report or Agent

Res. Geol. _____ Qualifications 2.36004

Previous Surveys

File No.	Type	Date	Claim Holder

MINING CLAIMS TRAVERSED
List numerically

(prefix)	(number)
L	63600
L	63601
L	643141

If space insufficient, attach list

RECEIVED
OCT 24 1983
MINING LANDS SECTION

TOTAL CLAIMS 3

OFFICE USE ONLY

837 (5/79)

GEOPHYSICAL TECHNICAL DATA

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

Number of Stations 352 Number of Readings 702

Station interval 50 ft. Line spacing 300 ft.

Profile scale 1" to 40%

Contour interval 1000 , 500

MAGNETIC

Instrument UNIMAG I - GEOMETRICS

Accuracy -- Scale constant ±100

Diurnal correction method CROSS LINE CHECKS ON BASELINE READINGS

Base Station check-in interval (hours)

Base Station location and value

ELECTROMAGNETIC

Instrument EM-16 (GEONICS)

Coil configuration

Coil separation

Accuracy ±1%

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

Frequency NSS 21.7 KHZ
(specify V.L.F. station)

Parameters measured IN-PHASE AND QUADRATURE DIP ANGLE

GRAVITY

Instrument

Scale constant

Corrections made

Base station value and location

Elevation accuracy

INDUCED POLARIZATION
RESISTIVITY

Instrument

Method ☐ Time Domain ☐ Frequency Domain

Parameters -- On time Frequency

-- Off time Range

-- Delay time

-- Integration time

Power

Electrode array

Electrode spacing

Type of electrode

SELF POTENTIAL

Instrument _____ Range _____

Survey Method _____

_____

Corrections made _____

_____

RADIOMETRIC

Instrument _____

Values measured _____

Energy windows (levels) _____

Height of instrument _____ Background Count _____

Size of detector _____

Overburden _____

(type, depth – include outcrop map)

OTHERS (SEISMIC, DRILL WELL LOGGING ETC.)

Type of survey _____

Instrument _____

Accuracy _____

Parameters measured _____

_____

Additional information (for understanding results) _____

_____

_____

AIRBORNE SURVEYS

Type of survey(s) _____

Instrument(s) _____

(specify for each type of survey)

Accuracy _____

(specify for each type of survey)

Aircraft used _____

Sensor altitude _____

Navigation and flight path recovery method _____

_____

Aircraft altitude _____ Line Spacing _____

Miles flown over total area _____ Over claims only _____

GEOCHEMICAL SURVEY – PROCEDURE RECORD

Numbers of claims from which samples taken _____

Total Number of Samples _____

Type of Sample _____
(Nature of Material)

Average Sample Weight _____

Method of Collection _____

Soil Horizon Sampled _____

Horizon Development _____

Sample Depth _____

Terrain _____

Drainage Development _____

Estimated Range of Overburden Thickness _____

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

Mesh size of fraction used for analysis _____

General _____

ANALYTICAL METHODS

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

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

Others _____

Field Analysis (_____ tests)

Extraction Method _____

Analytical Method _____

Reagents Used _____

Field Laboratory Analysis

No. (_____ tests)

Extraction Method _____

Analytical Method _____

Reagents Used _____

Commercial Laboratory (_____ tests)

Name of Laboratory _____

Extraction Method _____

Analytical Method _____

Reagents Used _____

General _____

Ministry of Natural Resources
Ontario

Geotechnical Report Approval

File 2.5954

Mining Lands Comments

- You wanted to see this file again.

☑ To: Geophysics Mr. Barlow.

Comments

☑ Approved ☐ Wish to see again with corrections | Date March 19/84 | Signature R Rh

☐ To: Geology - Expenditures

Comments

☐ Approved ☐ Wish to see again with corrections | Date | Signature

☐ To: Geochemistry

Comments

LD

☐ Approved ☐ Wish to see again with corrections | Date | Signature

☐ To: Mining Lands Section, Room 6462, Whitney Block. (Tel: 5-1380)

1593 (81/10)

NAREX Ore Search Consultants Inc.

4900 Sheppard Avenue East, Suite 208, Scarborough
Ontario, Canada M1S 4A7 Tel. (416) 293-2990

Ref. 24, 1984 March 2

Mr. J. R. Morton
Acting Director
Land Management Branch
Ministry of Natural Resources
Whitney Block, Room 6643
Queen's Park
Toronto, Ontario
M7A 1W3

Dear Mr. Morton: Geophysical (Electromegnetic and Magnetometer) Survey submitted on mining claims L636600 et al, in Connaught Township - Your File 2.5954.

Enclosed are the plans, in duplicate, on which the appropriate changes have been made to conform with the requests stated in a letter dated February 20, 1984.

I trust everything should now be in order. Enclosed is a copy of the letter.

Yours truly,

Peter Born
Project Geologist

PB:R

Enclosures

Your File: 256
Our File: 2.5931

February 20, 1984.

Timmins Gold Resources Ltd.
Suite 208
4900 Sheppard Avenue
Scarborough, Ontario
M1S 4A7

Dear Sir:

RE: Geophysical (Electromagnetic and Magnetometer) survey submitted on mining claims L 536600 et al in the Township of Connaught.

Enclosed are the plans, in duplicate, for the above mentioned survey. Please indicate the actual reading at each station on the V.L.F. plans. In addition please provide a legend on each plan indicating the units measured and return the plans to this office.

Yours verybtruly,

J.R. Morton
Acting Director
Land Management Branch

Whitney Block
Room 6643
Queen's Park
Toronto, Ontario
M7A 1W3
Phone: 416/965-1380

D. Kinvig:dg

Encls:

cc: 117455 Canada Limited
c/o Arachnae Management Limited
Buttonville Airport
Markham, Ontario
L3P 3J9

cc: Peter Born
P.O. Box 531
Bradford, Ontario
L LOG 1C0

cc: Mining Recorder
Kirkland Lake, Ontario

Ministry of Natural Resources
Ontario

Geotechnical Report Approval

File 2.5954

Mining Lands Comments

- missing pertinent geological data, summary of exploration
geophysical map requires legend detailing units measured
(lakes rivers not indicated)

☐ To: Geophysics Mr. R. Barlow

Comments

- need legend on maps
- VLF raw data needed

☐ Approved	☑ Wish to see again with corrections	Date Jan 3/83	Signature R Rahn

☐ To: Geology - Expenditures

Comments

☐ Approved	☐ Wish to see again with corrections	Date	Signature

☐ To: Geochemistry

Comments

☐ Approved	☐ Wish to see again with corrections	Date	Signature

☐ To: Mining Lands Section, Room 6462, Whitney Block. (Tel: 5-1380)

1593 (81/10)

256

2.5954

1983 11 03

Mr. George J. Koleszar
Mining Recorder
Ministry of Natural Resources
4 Government Road East
P.O. Box 984
Kirkland Lake, Ontario
P2N 1A2

Dear Sir:

We have received reports and maps for a Geophysical (Electromagnetic and Magnetometer) survey submitted under Special Provisions (credit for Performance and Coverage) on mining claims L 636600 et al in the Township of Connaught.

This material will be examined and assessed and a statement of assessment work credits will be issued.

Yours very truly,

E.F. Anderson
Director
Land Management Branch

Whitney Block, Room 6643
Queen's Park
Toronto, Ontario
M7A 1W3
Phone:(416)965-1380

A. Barr:mc

cc: Timmins Gold Resources Ltd
Suite 208
4900 Sheppard Avenue
Scarborough, Ontario M1S 4A7

cc: 117455 Canada Limited
c/o Arachnae Management Limited
Buttonville Airport
Markham, Ontario
L3P 3J9

cc: Peter Born
P.O. Box 531
Bradford, Ontario
L0G 1C0

CABOT TWP M. 695

BRUNSWICK TWP M. 684

CHURCHILL TWP M. 719

MIRAMICHI TWP M. 865

Wire L.
Picket L.
Okawakenda L.
Burns L.
Clopper L.
Chris L.
Tina L.
Mataris L.
Esther L.
Little Esther L.
Connaught L.
Wanatongua L.
Waonga Lake
Elephanthead Creek
Elephanthead
H.E.P.C. TRANSMISSION LINE

2.5954

NOTES

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

DATE OF ISSUE
MAR 30 1994
Ministry of Natural Resources
TORONTO

LEGEND

PATENTED LAND	P or
PATENTED FOR SURFACE RIGHTS ONLY	
LEASE	L
LICENSE OF OCCUPATION	L.O.
CROWN LAND SALES	C.S.
LOCATED LAND	Loc.
CANCELLED	C.
MINING RIGHTS ONLY	M.R.O.
SURFACE RIGHTS ONLY	S.R.O.
HIGHWAY & ROUTE NO.	17
ROADS	
TRAILS	
RAILWAYS	
POWER LINES	
MARSH OR MUSKEG	
MINES	

*used only with summer resort locations or when space is limited

TOWNSHIP OF

CONNAUGHT

DISTRICT OF
SUDBURY

LARDER LAKE
MINING DIVISION

SCALE : 1 INCH = 40 CHAINS (1/2 MILE)

DR. JBK	PLAN NO. M. 730
DATE 20-Jan-71	

ONTARIO
MINISTRY OF NATURAL RESOURCES
SURVEYS AND MAPPING BRANCH

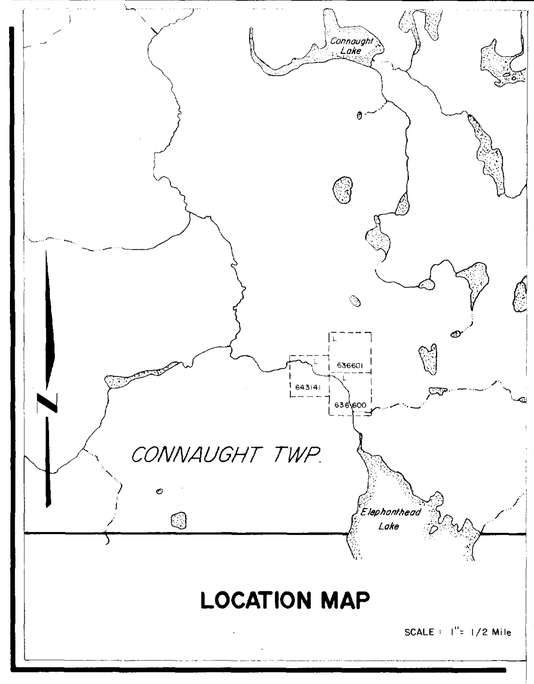
L15N L12N L9N L6N L3N 00 L3S L6S L9S L12S

16+00E
12+00E
8+00E
4+00E
B.L.O
4+00W
8+00W
12+00W
16+00W

636601

643141

636600



LOCATION MAP

SCALE : 1" = 1/2 Mile

Total magnetic field, readings in gammas.

117455 CANADA LIMITED

ELEPHANTHEAD LAKE PROPERTY

CONNAUGHT TOWNSHIP, DISTRICT OF SUDBURY, ONTARIO

MAGNETOMETER SURVEY

Operator: M.GRANT	Date: Aug. 1983	Instrument: UNIMAG I	Scale: 1: 2,400 or 1" = 200'
Drawn By: M.E.O.	Date: Oct. 1983		Drawing No: 25954

L15N L12N L9N L6N L3N 00 L3S L6S L9S L12S

16+00E 12+00E 8+00E 4+00E B.L. 0 4+00W 8+00W 12+00W 16+00W

A

B

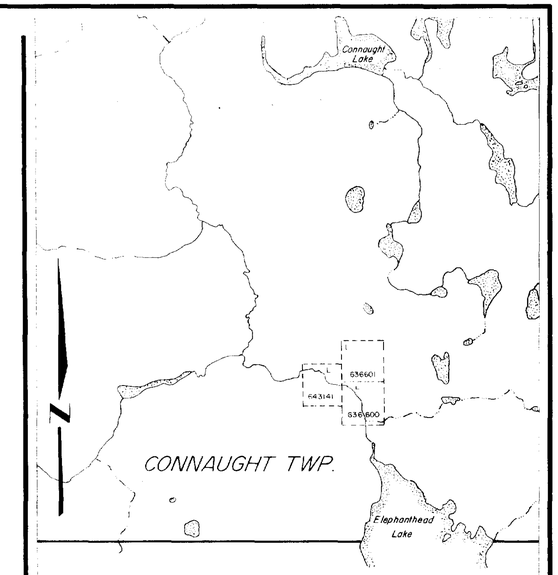
C

D

636601

636600

643141



LOCATION MAP

SCALE : 1"= 1/2 Mile

STATION : NSS 21.7 KHz.

IN-PHASE QUADRATURE

Direction of readings

40% 0 40%

E.M.-16 conductor axis

FEET

117455 CANADA LIMITED

ELEPHANTHEAD LAKE PROPERTY

CONNAUGHT TOWNSHIP, DISTRICT OF SUDBURY, ONTARIO

E.M.-16 SURVEY

Operator	P. Born	Date	Sep. 1983	Instrument	GEONICS	Scale	1: 2 400 or 1"= 200'
Drawn by	M.E.O.	Date	Oct 1983			Drawing No.	25954

41P11SW8235 2.5954 CONNAUGHT

220