



32D04SW0009 2.8767 MCVITTIE

010

REPORT ON
VLF-EM SURVEY
GAUTHIER AND MCVITTIE TOWNSHIPS, ONTARIO
by
R.A. MacGregor, P. Eng.
December 2, 1985

RECEIVED
DEC 20 1985
MINING LANDS SECTION

I. INTRODUCTION

A VLF-EM survey was carried out over cut lines on a group of claims in Gauthier and McVittie Townships, Ontario. The results are shown on the plans in the back pocket.

II. LOCATION, ACCESS AND OWNERSHIP

The claims are located in the south-east part of Gauthier township along the east boundary with one claim in McVittie Township. There are eight claims numbered L736729 to 736732; L821910 and L821927 to 821928 recorded in the name of Lucien Lacasse, Box 231, Larder Lake, Ontario and L760496 recorded in the name of Daniel Lacasse, Larder Lake, Ontario.

Access to the property is by a road from Highway 66 about two miles west of Larder Lake which runs north along the east side of the Misema River crossing the one claim in McVittie Township. Access to the claims in Gauthier Township is obtained by crossing the river from this road.

III. PREVIOUS EXPLORATION

A number of pits and trenches were noted on the claims attesting to previous work. This work includes two old small size shafts or deep pits. Most of this work appears quite old, and there are no known records of it. Some diamond drilling and geophysical work is recorded for the northerly claims in the assessment files.

IV. TOPOGRAPHY

The property consists of low rocky rises with swampy and drift covered areas between. The most easterly claims consists of a high gravel ridge on the east side of the Misema River. The swampy and drift covered areas are covered by black spruce, black ash and poplar, while the higher areas are covered by white spruce, hazel bushes and scrubby poplars.

V. SURVEY PROCEDURE

Lines were cut along the boundary lines of the claims, chained and picketed at 100-foot intervals. Lines were then run every 400 feet east and west and flagged.

A VLF-EM survey was carried out using a Crone Radem instrument set to the signal from Cutler Maine (17.8 KHz). Readings were taken at 100-foot intervals using the procedure outlined in Appendix 1. The looping method was used for control of variation. In this method a base station is selected, and readings taken along lines describing a loop, arriving back at the starting base station in less than two hours. A second loop is then started using either the same base station or another which is tied to the previous loop. Readings are then corrected for diurnal variation by assuming the time between readings is the same and distributing any variation equally among the intervening readings. No correction was applied less than the accuracy of the base station readings.

VI. GEOLOGY

McVittie Township was previously mapped by Jas. E. Thomson and a geological map published as Map No. 50 b.

Geology (Continued)

The general geology of Gauthier Township has been described by J.E. Thomson and Q.T. Griffis and published as Map No. 50 c. both by the Ontario Department of Mines. These maps show the claims underlain by sediments and volcanics of the Temiskaming Series.

The south claims are underlain by fine grained sediments and the north claims by trachyte.

The fine grained sediments consist almost entirely of greywacke, with several conglomerate bands. It is intruded by diabase dykes in two places. Outcrop is sparse with much of the claims covered by swamp. The greywacke is sheared and contains much crenulated bedding. It also contains inclusions of narrow beds of trachytic material.

The trachyte is pinkish in colour and brecciated in a number of places. A grab sample of trachyte breccia just west of the Misema River containing no visible mineralization was slightly anomalous in gold (160 ppb - check 130 ppb).

The Misema River Fault is projected to follow approximately along the Misema River and would approximately follow the Township line.

Two old shafts or deep pits were located on the south claims, but grab samples did not show any anomalous gold. The dumps showed greywacke with highly crenulated bedding and narrow bands or inclusions of trachytic material. Some quartz was noted in the most easterly shaft. A narrow quartz vein had also

Geology (Continued)

previously been trenched on the east shore of a small dried-up pond in the south-east part of the claims. A few quartz stringers were also noted in the trachytes.

VII. DISCUSSION OF RESULTS

There are not a large number of cross-overs on the property. An anomaly almost along the south boundary of Claim L821927 at the west side may be worth follow-up by a more detailed method. It lies in an area completely covered by overburden.

Respectfully submitted



R.A. MacGregor, P. Eng.

December 2, 1985

CERTIFICATE

I, Robert A. MacGregor, certify:

1. I am a Mining Engineer residing at 134 Palace Drive, Sault Ste. Marie, Ontario. I have worked as a mining engineer and geologist for the past 17 years.
2. I am a member of the Association of Professional Engineers of the Province of Ontario and a member of the Canadian Institute of Mining and Metallurgy.
3. I attended Queen's University for two years in the Mining-Geology course.
4. I personally carried out or supervised the field work on the subject claims.

Dec 2/85

Date

A circular seal for a Registered Professional Engineer. The outer ring contains the text "REGISTERED PROFESSIONAL ENGINEER". Inside the ring, the name "R. A. MacGREGOR" is printed. A handwritten signature in black ink is written across the seal. Below the seal, the name "R.A. MacGregor" is printed.

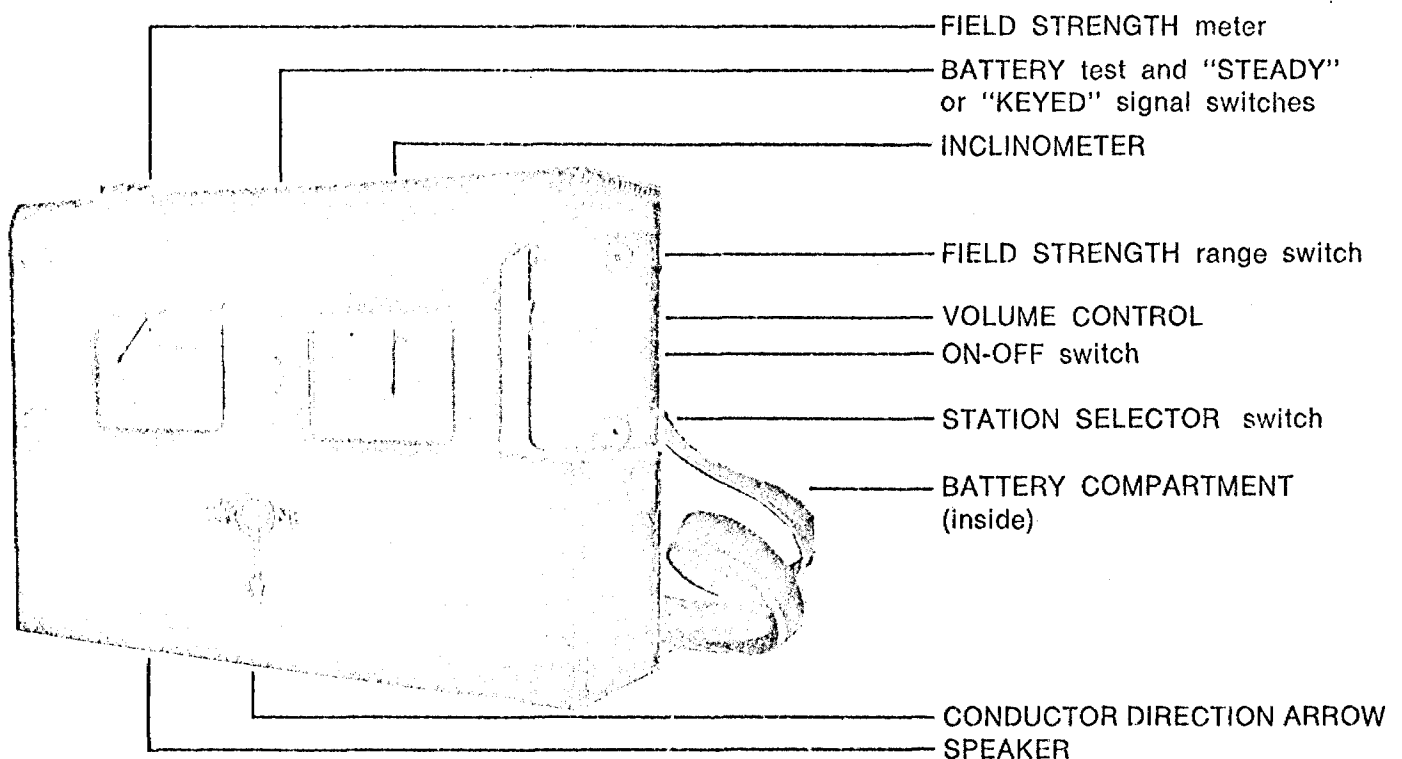
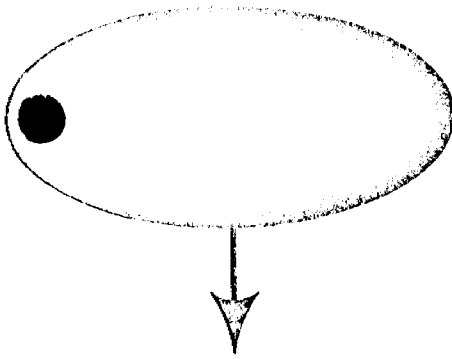
R.A. MacGregor

Appendix I

CRONE GEOPHYSICS LIMITED

3607 WOLFEDALE ROAD,
MISSISSAUGA, ONTARIO,
CANADA.

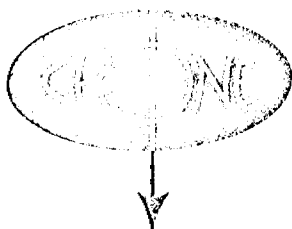
Phone: (416) 270-0096



This is a rugged, simple to operate, ONE MAN EM unit. It can be used without line cutting and is thus ideally suited for GROUND LOCATION OF AIRBORNE CONDUCTORS and the CHECKING OUT OF MINERAL SHOWINGS. This instrument utilizes higher than normal EM frequencies and is capable of detecting DISSEMINATED SULPHIDE DEPOSITS and SMALL SULPHIDE BODIES. It accurately isolates BANDED CONDUCTORS and operates through areas of HIGH HYDRO NOISE. The method is capable of deep penetration but due to the high frequency used its penetration is limited in areas of clay and conductive overburden.

The DIP ANGLE measurement detects a conductor from a considerable distance and is used primarily for locating conductors. The FIELD STRENGTH measurement is used to define the shape and attitude of the conductor.

CRONE GEOPHYSICS LIMITED



3607 WOLFEDALE ROAD
MISSISSAUGA, ONTARIO
CANADA

PHONE (416) 270-0096

INSTRUCTIONS FOR OPERATION OF THE RADEM VLF-EM RECEIVER

(1) Transmitter Stations

The VLF Communication Broadcast stations are positioned throughout the world. At present, 12 of these stations broadcast steadily except for maintenance periods usually of 1/2 to 1/3 days per week. The RADEM receives any 7 of these stations with selection by means of a switch. The usable range of the stations varies widely with power and transmission conditions but is usually between 1000 and 5000 miles. Two types of signals are broadcast "keyed" (on and off) and "frequency shift" (FM). Frequency shift provides a steady signal and is most suitable for Field Strength measurements. When a "Keyed" signal is used the receiver must be switched to the keyed signal "K" position for Field Strength Measurements.

A station should be selected that is located in the same direction as the regional strike. If in doubt of the geological strike two orthogonal stations should be read.

(2) Field Measurements

(a) Dip Angle of Resultant Field

Technically the angle in degrees, from the horizontal, of the major axis of the polarization ellipse. This is the easiest measurement to make since it is not dependent on changes in signal strength. The dip angle measurement detects a conductor from a considerable distance - from several hundred to several thousand feet. Direct plotting of the dip angles often does not clearly define the shape or position of the conductor. If strong regional effects occur the conductor may not produce a cross-over and may be defined only by a sharp variation in dip angles.

Two methods are available to overcome this defect in the dip angle measurement: (1) Field Strength measurement and (2) treatment of the Dip Angle data by means of a simple process developed by D. C. Fraser and described in Geophysics Vol. 34, #6, December 1969.

(b) Field Strength Measurements

These measurements do not detect the conductor until they are almost above it. Thus they are independent of regional trends and accurately define the shape and boundaries of the conductor. This is simply achieved by contouring the Field Strength readings. Either the Resultant Field Strength or Horizontal Component of the Field Strength are measured, usually the latter, since it is easier to read.

The Field Strength of a VLF station varies with time thus a base station must be established and drift corrections applied as in a magnetic survey. Drift is particularly rapid during sunrise and sunset (50% per hour) and reading is not advised during this period. The primary base station is usually located in a non conductive area where the dip angle is near "0" and the out-of-phase signal is also "0" - the Field Strength is set at 100 at this station and this is the Normal Field Strength standard for the survey.

(c) "Out-of-Phase" Field Strength Measurement

This is in effect the out of phase component perpendicular in direction to the resultant field. The measurement is without sign and is sensitive to very low orders of conductivity. It is simply the minimum reading of the Field Strength meter obtained when reading the Dip Angle. It is expressed in terms of percent of the normal Field Strength. It is not usually recorded unless very low orders of conductivity are of interest.

FIELD PROCEDURE:

- (1) Make sure the "Normal" - "K" switch is in the normal position.
- (2) Hold the RADEM with the meter faces horizontal. Rotate the instrument in a horizontal plane, by moving the body until a null is observed on the Field Strength meter. This aligns the base of the instrument in the direction of the VLF field and the operator will be facing in the direction of the transmitting station.
- (3) Raise the instrument such that the meter faces are vertical and rock it back and forth until a minimum is obtained on the Field Strength meter (switch on 0-300 scale). This minimum is the "Out-of-Phase" reading. Holding the instrument at the minimum position read the inclinometer for the Dip Angle reading. Note that the arrow through the "o" of Crone points towards the conductor. If this is north then the inclinometer reads 17°N and the conductor is towards the north. This convention leaves no doubt as to where the conductor is located. The operator must be able to recognize between a true cross-over and a false cross-over and this convention is established to help simplify this matter.

(4) For a Horizontal Field Strength measurement hold the meter face horizontal and rotate this instrument in a horizontal plane until a maximum reading is obtained. This will be approximately in a direction at right angles to the operator. For a Resultant Field Strength measurement - this is the maximum Field Strength reading obtainable - and is obtained by holding the RADEM at right angles to the operator and inclined at the same angle as the dip angle.

(5) For a Field Strength reading with a "Keyed" VLF signal move the "Normal" - "K" switch to the "K" position. It must be returned to the "Normal" position for the dip angle measurement.

Since the Field Strength varies with time this reading must be tied to a base station with drift corrections applied similar to a magnetometer survey. If possible the primary base station should be established in a non-conductive area where the dip angle is near "0" with out of phase near "0" and where the volume control is adjusted such that the Field Strength reading is "100".

EXAMPLE OF FIELD SHEET

Station	Out of Phase-%	Dip Angle Degrees	Reading	Field Strength Time	Drift	Corr.	Remarks
L 6+00W							
10N-Base	2	0	100	9:00	0	100	
10+50N	2	0	100	.02	0	100	Lake
11N	0	2N	99	.04	-1	98	Lake
11+50N	0	6N	101	.06	-1	100	
12N	0	12N	102	.08	-2	100	Road
12+50N	4	22N	118	.10	-2	116	
13N	6	20N	185	.12	-2	187	
13+50N	6	8N	263	.14	-3	260	X'over
14 N	0	1S	247	.17	-3	245	
14+50N	0	12S	164	.20	-4	162	
/							
10N-Base			114	10:10	-14	100	

TRANSMITTER STATION SHUT DOWN TIMETABLE (All times Eastern Standard)

Monday	8:00 a.m. to 2:00 p.m.	Annapolis, Maryland
Tuesday	12:00 a.m. to 5:00 p.m.	Hawaii
Wednesday	7:00 a.m. to 1:00 p.m.	Balboa, Panama
Thursday	11:00 a.m. to 7:00 p.m.	Seattle, Washington
Friday	9:00 a.m. to 1:00 p.m.	Cutler, Maine

BATTERIES

For units up to #100 - 2 of 9 volt batteries required. For units above #100 - 1 only battery is required but plugs for 2 batteries are supplied for cold weather operation.

#491



32D04SW0009 2.8767 MCVITTIE

900

W850800491

Mining Act

Do not use shaded areas below.

Type of Survey(s) VLF-EM	Township or Area Gauthier & McVittie
Claim Holder(s) Lucien Lacasse	Inspector's Licence No. K-18234 K-19953
Address Box 231 LARDER LAKE, Ontario	Daniel Lacasse 79 Commissioner St. Larder Lake Ontario POK 1LO
Survey Company Colex Exploration Inc.	Date of Survey (from & to) 15, 08 85 31, 10 85
Name and Address of Author (of Geo-Technical report) R.A. MacGregor, 134 Palace Dr., Sault Ste. Marie, Ontario P6B 5H5	

Credits Requested per Each Claim in Columns at right

Mining Claims Traversed (List in numerical sequence)

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

Mining Claim		Expend. Days Cr.	Mining Claim		Expend. Days Cr.
Prefix	Number		Prefix	Number	
L	736729				
/	736730				
/	736731				
/	736732				
/	821910				
/	821927				
/	821928				
/	760496				

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MINING LANDS SECTION

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.

Total number of mining claims covered by this report of work. **8**

Date **Nov. 26/85** Recorder (Holder or Agent Signature) *[Signature]*

For Office Use Only

Total Days Cr. Recorded **160** Date Recorded **DEC 9 1985** Mining Recorder *[Signature]*

Date Approved as Recorded **86/11/17** Mining Director *[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
R.A. MacGregor, 134 Palace Dr., Sault Ste. Marie, Ontario P6B 5H5

Date Certified **Nov. 26/85** Certified by (Signature) *[Signature]*

1986 01 03

File: 2.8767

Mining Recorder
Ministry of Northern Development and Mines
4 Government Road East
Kirkland Lake, Ontario
P2N 1A2

Dear Sir:

We received reports and maps on December 30, 1985 for a Geophysical (Electromagnetic) Survey submitted under Special Provisions (credit for Performance and Coverage) on Mining Claims L 736729, et al, in Gauthier and McVittie Townships.

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

We do not have a copy of the report of work which is normally filed with your office prior to the submission of this technical data. Please forward a copy as soon as possible.

Yours sincerely,

S.E. Yundt
Director
Land Management Branch

Whitney Block, Room 6643
Queen's Park
Toronto, Ontario
M7A 1W3
Phone: (416)965-4888

AB/mc

cc: Lucien Lacasse
Dobie, Ontario
POK 1B0

Daniel Lacasse
Larder Lake, Ontario
POK 1L0

R.A. MacGregor
134 Palace Drive
Sault Ste. Marie, Ontario
P6B 5H5

Mining Recorder
Kirkland Lake, Ontario

GEOPHYSICAL TECHNICAL DATA

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

Number of Stations 459 Number of Readings 459
Station interval 100' Line spacing 400'
Profile scale 1" = 40'
Contour interval

MAGNETIC

Instrument
Accuracy - Scale constant
Diurnal correction method
Base Station check-in interval (hours)
Base Station location and value

ELECTROMAGNETIC

Instrument Crone Radem
Coil configuration N/A
Coil separation N/A
Accuracy +/- 5 degrees
Method: [x] Fixed transmitter [] Shoot back [] In line [] Parallel line
Frequency Cutler Maine (17.8 KHz)
Parameters measured Dip angle of resultant Field

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

BOX 1110
SAULT STE. MARIE
ONTARIO P6A 5N7

R. A. MACGREGOR, P.ENG.
MINING ENGINEER
134 PALACE DRIVE
SAULT STE. MARIE, ONTARIO
P6B 5H5

OFFICE:
705-949-5928
HOME:
705-949-4250

Dec. 20/85

PROJECTS BRANCH
MINISTRY OF NATURAL RESOURCES
Room 1617
Mining Lands Section
Whitney Block
Queen's Park
TORONTO, Ontario
M5C 2M6

Dear Sir or Madam:

Enclosed are reports on VLF survey - Gauthier & McVittie (Dec 2/85)
Magnetonite & VLF survey - Gauthier (2800064)
Dec 20/85 and Breakdown & maps re Assessment work

Yours truly

R. A. MacGregor
Robert A. MacGregor *per. J.S.*

RAM/jh

Encl.

RECEIVED
DEC 30 1985
MINING LANDS SECTION

Mining Lands Section

File No 2.8767

Control Sheet

TYPE OF SURVEY

GEOPHYSICAL
 GEOLOGICAL
 GEOCHEMICAL
 EXPENDITURE

MINING LANDS COMMENTS:

J. Hurst
Signature of Assessor

Jan 16/86
Date

600
LA

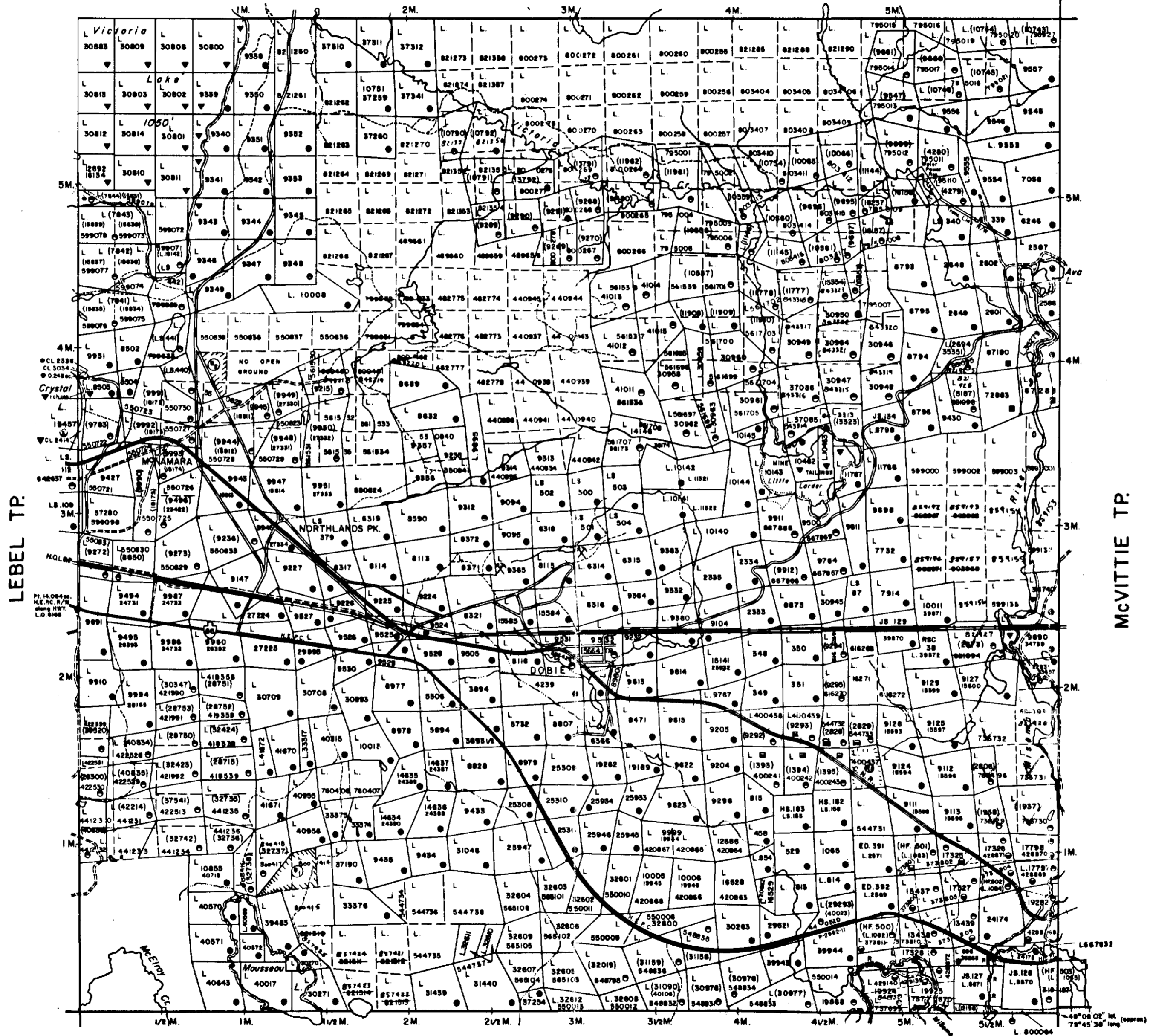
REFERENCES

AREAS WITHDRAWN FROM DISPOSITION

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

Description	Order No.	Date	Disposition	File
Sec. 34/80	022/85	20/12/85	M+S	
Sec. 34/70	028/85	20/12/85	M+S	

ARNOLD TP.



SAND and GRAVEL

①	M.T.C.	PIT No 1886	FILE 101421
②	M.T.C.	PIT 37-27	

LEGEND

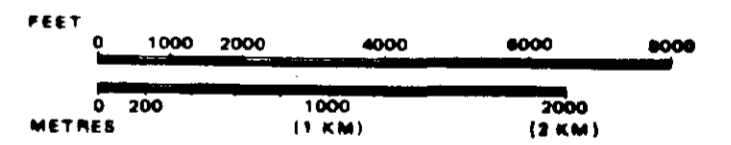
HIGHWAY AND ROUTE No.	
OTHER ROADS	
TRAILS	
SURVEYED LINES:	
TOWNSHIPS, BASE LINES, ETC.	
LOTS, MINING CLAIMS, PARCELS, ETC.	
UNSURVEYED LINES:	
LOT LINES	
PARCEL BOUNDARY	
MINING CLAIMS ETC.	
RAILWAY AND RIGHT OF WAY	
UTILITY LINES	
NON-PERENNIAL STREAM	
FLOODING OR FLOODING RIGHTS	
SUBDIVISION OR COMPOSITE PLAN	
RESERVATIONS	
ORIGINAL SHORELINE	
MARSH OR MUSKEG	
MINES	
TRAVERSE MONUMENT	

DISPOSITION OF CROWN LANDS

TYPE OF DOCUMENT	SYMBOL
PATENT, SURFACE & MINING RIGHTS	●
" SURFACE RIGHTS ONLY	○
" MINING RIGHTS ONLY	◐
LEASE, SURFACE & MINING RIGHTS	■
" SURFACE RIGHTS ONLY	□
" MINING RIGHTS ONLY	◑
LICENCE OF OCCUPATION	▼
ORDER-IN-COUNCIL	OC
RESERVATION	⊙
CANCELLED	⊘
SAND & GRAVEL	⊙

NOTE: MINING RIGHTS IN PARCELS PATENTED PRIOR TO MAY 6, 1913, VESTED IN ORIGINAL PATENTEE BY THE PUBLIC LANDS ACT, R.S.O. 1970, CHAP. 200, SEC. 63, SUBSEC. 1.

SCALE: 1 INCH = 40 CHAINS



TOWNSHIP Jan. 8/86

GAUTHIER

M.N.R. ADMINISTRATIVE DISTRICT
 KIRKLAND LAKE
 MINING DIVISION
 LARDER LAKE
 LAND TITLES / REGISTRY DIVISION
 TIMISKAMING

Ontario Ministry of Land Natural Resources Management Branch

Sale JANUARY, 1985

Number
G-3211

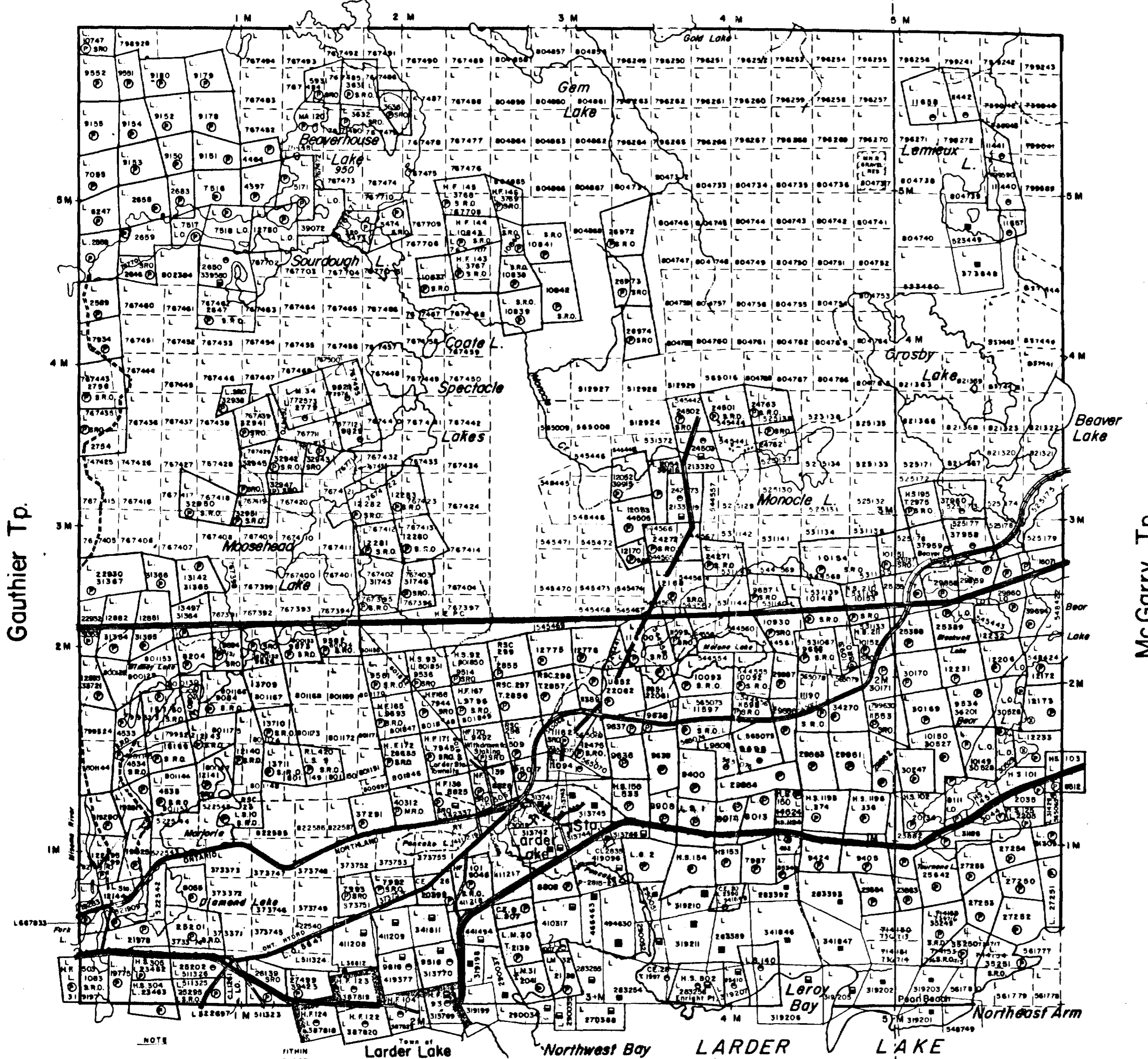


3208450009 2, 8767 MCVITTIE

Katrine Tp.

MUNICIPALITY OF LARDER LAKE

IMPROVEMENT DISTRICT OF
MCGARRY



NOTE

FITTING
SHEET
(R.S.O. 1970).

Town of
Larder Lake

Northwest Bay

LARDER LAKE

IMPROVEMENT DISTRICT OF
MCGARRY

LEGEND

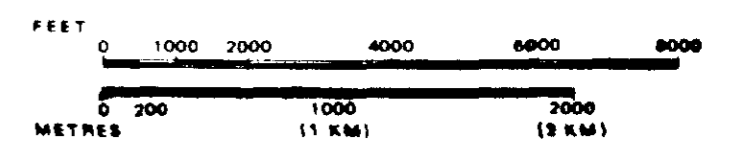
- HIGHWAY AND ROUTE No.
- OTHER ROADS
- TRAILS
- SURVEYED LINES:
 - TOWNSHIPS, BASE LINES, ETC.
 - LOTS, MINING CLAIMS, PARCELS, ETC.
- UNSURVEYED LINES:
 - LOT LINES
 - PARCEL BOUNDARY
 - MINING CLAIMS ETC.
- RAILWAY AND RIGHT OF WAY
- UTILITY LINES
- NON-PERENNIAL STREAM
- FLOODING OR FLOODING RIGHTS
- SUBDIVISION OR COMPOSITE PLAN
- RESERVATIONS
- ORIGINAL SHORELINE
- MARSH OR MUSKEG
- MINES
- TRAVERSE MONUMENT

DISPOSITION OF CROWN LANDS

TYPE OF DOCUMENT	SYMBOL
PATENT, SURFACE & MINING RIGHTS	
" SURFACE RIGHTS ONLY	
" MINING RIGHTS ONLY	
LEASE, SURFACE & MINING RIGHTS	
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LICENCE OF OCCUPATION	
ORDER-IN-COUNCIL	
RESERVATION	
CANCELLED	
SAND & GRAVEL	

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SCALE: 1 INCH = 40 CHAINS



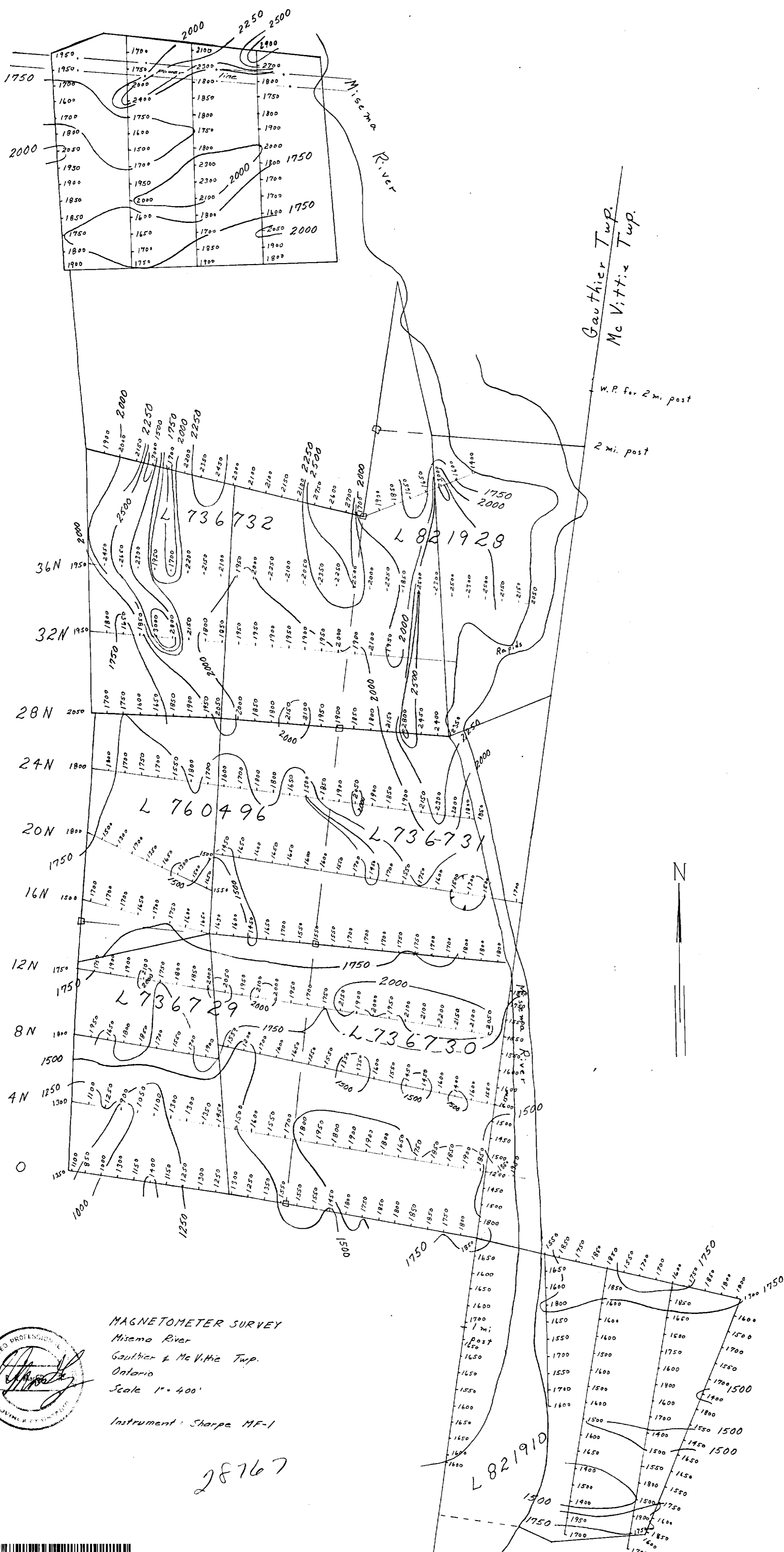
Aug. 22/85

TOWNSHIP
McVITTIE
M.N.R. ADMINISTRATIVE DISTRICT
KIRKLAND LAKE
MINING DIVISION
LARDER LAKE
LAND TITLES / REGISTRY DIVISION
TIMISKAMING

Ministry of Natural Resources Branch
Land Management

Date: SEPTEMBER 1984
Number: G-3163

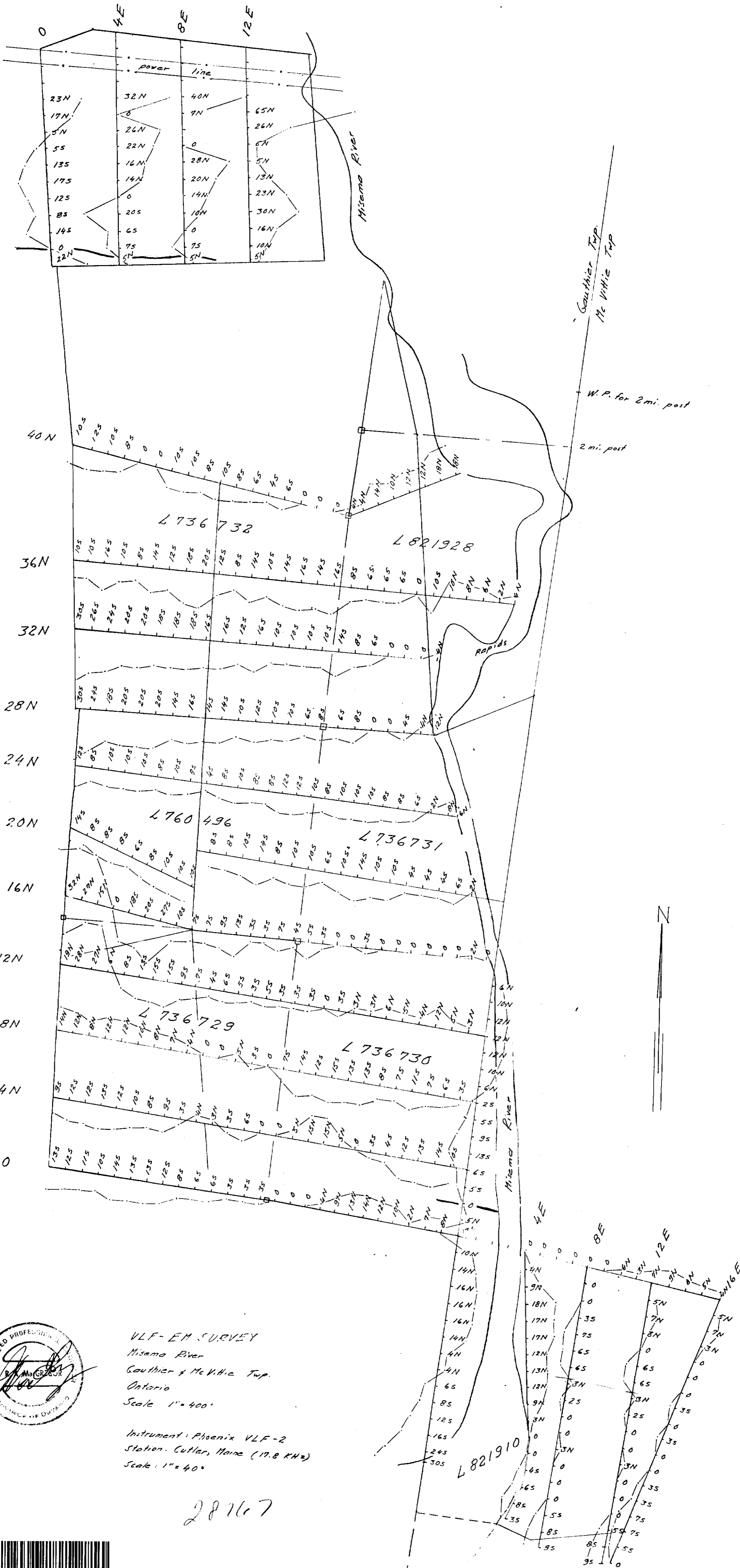




MAGNETOMETER SURVEY
 Misema River
 Gauthier & Mc Vittie Twp.
 Ontario
 Scale 1" = 400'
 Instrument: Sharpe MF-1

28767





VLF-EM SURVEY
 Misema River
 Gauthier & McVittie Twp.
 Ontario
 Scale 1" = 400'

Instrument: Phoenix VLF-2
 Station: Cutler, Maine (17.8 km)
 Scale: 1" = 40'

28767

