ASSESSMENT REPORT

GROUND MAGNETOMETER SURVEY

M.C. L 893844 & M.C. L 893845

LOT 7 CONCESSION III

CATHARINE TOWNSHIP

DISTRICT OF TIMISKAMING

S. A. Gamble
January 14, 1988

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Key Plan: Location and Access

ntroduction

This report contains the results of a ground magnetometer survey carried out on mining claims L 893844 and L 893845, Township of Catharine, District of Timiskaming, in January 1988. The claims are held by B. G. Cook as part of a group held by S. A. Gamble and B. G. Cook in Catharine Township.

Location and Access (See Map 1. Key Plan)

The property is reached by travelling north from Englehart on Highway 624 approximately 14 miles to where a bush road leaves Highway 624 towards the northwest. This road can be followed by truck for approximately 1½ miles to where a beaverdam blocks the road. As recently as March 1987 this refurbished logging road could be accessed for approximately another 3/4 mile to where a grown over logging road leads south to meet the previous bush trail to the property. The mine access road on M.C. L 532869 has been upgraded in 1987 by use of a brush cutter and chain saw to better enable access by hiking, snowmobile, or A.T.V.

Access in January 1988 was entirely by snowmobile from Highway 624.

History

The claims have been held by a number of individuals and companies since 1916. They had been part of a group of claims surrounding the " shaft " claim of Ostrom Gold Mines and Canora Gold Copper Mines Ltd. (also Primary Gold Mines Ltd.) In the early 1970's they were held by Moncrieff Uranium Mines Ltd. as part of the J. M. French claims. In the early 1980's they were part of a group optioned to Kennco Exploration Ltd.

Topography and Vegetation

The topography of M. C. L 893844 is mostly low lying with some moderately higher areas (to 6 meters) along the northern and western boundaries. Large areas of open water occur where two beaverdams influence the topography of the south limit and central section of the claim. Small islands of higher ground occur near the intersections of the base line and L4W and the baseline and L8W before again encountering higher ground at approximately L 11W.

M. C. L 893845 also consists of low ground sharing a common wet boundary with M. C. L 893844. A creek meanders north-south through a large grassy swamp through the center section of the claim, with higher areas (up to 6 meters) occurring in the S.E. quadrant of the claim along lines L2W, L 4W and L6W. The western boundary along L12W and L14W also consists of higher ground with some outcrop.

At the time of this survey beaverponds and wet areas were frozen enabling good access to all areas of the claims.

Vegetation consists mostly of alders, and swamp grass with mixed evergreen and deciduous trees in the higher areas.

Magnetometer Survey

Extensive line cutting was carried out on M.C. L 893844 and M. C. L 893845 in December 1987 and early January 1988, with the use of a brush cutter and chainsaw. The base line was established and cleared to approximately 6 feet for approximately 1200 feet along the common boundary between L 893844 and L 893845. Grid lines were cut at 200 foot intervals along the baseline and cleared to approximately 3 feet in width. Stations were established by chaining and picketing at 100 foot intervals along the base and grid lines. In addition Tyvek tags were used to mark all stations. A totla of 3½ miles were cut on L 893844 and L 893845 for this survey.

On January 10, 1988 a Geometrics Portable Proton Magnetometer (Model G - 816) (See Appendix A.) was used to take readings on M.C. L 893844 and M.C. L 893845. Two readings were taken at each station as a check, and where there was a small difference in the readings an average of the two was used to prepare the resultant map. The results obtained on January 10, 1988 were consistant with the base staion reading on November 26,1987.

Results

The magnetic signature varied between a high of 63031 gammas at L8W, 6 + 00N, and a low of 58314 on L6W 8+00S. A significant magnetic feature was noted at L8W 6+00N on M.C. L 893844 as shown on Map.1. M.C. L 893845 displays less variable magnetic signature than L 893844 and the results show a large section of low readings through much of the central part of the claim. (See Map.1)

Recommendations

A further investigation of the magnetic high on L8W, 6+00N is warranted, and a VLF and geological survey is suggested for 1988.

Jul 2.1068

S.A. GAMBLE
January 14,1988

CERTIFICATE OF THE AUTHOR

I, S. A. Gamble, of 70 First Street, Kirkland Lake, Ontario formerly of 7182 Blackwell Road, Kamloops, British Columbia, certify that:

1. I am a prospector residing at the above address and have held an Ontario Prospector's Licence since 1979.

2. I am a graduate of the University of Ottawa and have studied earth science for two years at the University of Ottawa and one year at Laurentian University.

3. I have more than eight years relevant practical experience relating to prospecting.

4. I have in conjunction with B. G. Cook planned, directed, and carried out the geophysical survey represented by this report. I have interpreted the results of this survey.

5. I hold a 50% interest in M. C. L 893844 and L 893845.

Respectfully submitted,

S. A. Gamble

S. A. Gamble
December 14,1987

Operating Manual
Model G-816
Portable Proton Magnetometer

1.0 GENERAL INFORMATION

1.1 INTRODUCTION

The Model G-816 Portable Proton Magnetometer is a complete system designed for all man-carry field applications requiring simple operation and stable measurements of the total intensity of the earth's magnetic field. The G-816 is accurate and stable to within ±1 gamma over a range from 20,000 to 90,000 gammas. Since the instrument measures total field intensity, the accuracy of each measurement is independent of sensor leveling. Furthermore, the measurement is based upon on atomic constant* and is independent of temperature, humidity, and sensor orientation. The inherent simplicity of the G-816 proton magnetometer allows rapid, accurate measurements to be obtained from a rugged, compact field instrument. This is a precision instrument and reasonable attention must be given to handling, battery condition, and magnetic environment.

1.2 MAGNETIC ENVIRONMENT

It is important that the earth's magnetic field is not obscured by allowing unwanted magnetic objects to come close to the sensor, Such objects include rings, keys, watches, belt buckles, pocket knives, metal pencils, zippers, some hats, etc. When the sensor is used on the staff, 1 gamma surveys are easily performed provided the sensor is kept at a distance of 3 feet from the operator. When the sensor is used in the backpack, certain articles of clothing and some types of batteries within the console will cause a 5 to 10 gamma shift in readings. The G-816, however, still provides 1 gamma sensitivity and repeatability despite the presence of such a base line shift. The backpack feature is recommended for use in difficult terrain where "hands free" operation is required.

Prior to survey use, objects that are suspected to be magnetic may be checked in the following manner:

1. Attach sensor to staff and connect coiled signal cable to console. Sensor should not be moved or turned during the test, and the suspected article should be far away initially.

* Proton Gyromagnetic Ratio: $(2.67513 \pm 0.00002) \times 10^4$ Radians/Gauss second.

2. Cycle the magnetometer a few times by depressing the READ button--releasing--and waiting for a reading each cycle.

3. Observe measurement readings. Each reading should repeat to ±1 gamma. (A slow shift may occur over several minutes due to a diurnal change in the earth's field.)

4. Place the suspected article at the distance from the sensor expected during actual survey operation.

5. Cycle magnetometer several times and note the readings.

6. Remove the article and repeat steps 2 and 3 to check for diurnal shifts in the earth's field. If a diurnal shift is present, repeat entire test.

7. If the readings obtained in step 5 differ by more than ±1 gamma (±one count) from those obtained in steps 3 and 6, then the article is magnetic.

IF THE ARTICLE IS HIGHLY MAGNETIC, OR IF THE SENSOR IS INSIDE OR NEAR A BUILDING OR VEHICLE, THE PROTON PRECESSION SIGNAL WILL BE LOST, GIVING COMPLETELY ERRATIC READINGS AND LOSS OF ±1 COUNT REPEATABILITY.

The magnetometer should not be operated in areas that are known sources of radio frequency energy, power line noise (transformers), in buildings or near highly magnetic objects. The sensor should always be placed on the staff above the ground, or in the "backpack". The sensor will NOT operate properly when placed directly on the ground.

1.3 SPECIFICATIONS

Sensitivity:	±1 gamma throughout range
Range:	20,000 to 90,000 gammas (worldwide)
Tuning:	Multi-position switch with signal amplitude indicator light on display
Gradient Tolerance:	Exceeds 800 gammas/ft
Sampling Rate:	Manual pushbutton, one reading each 6 seconds.

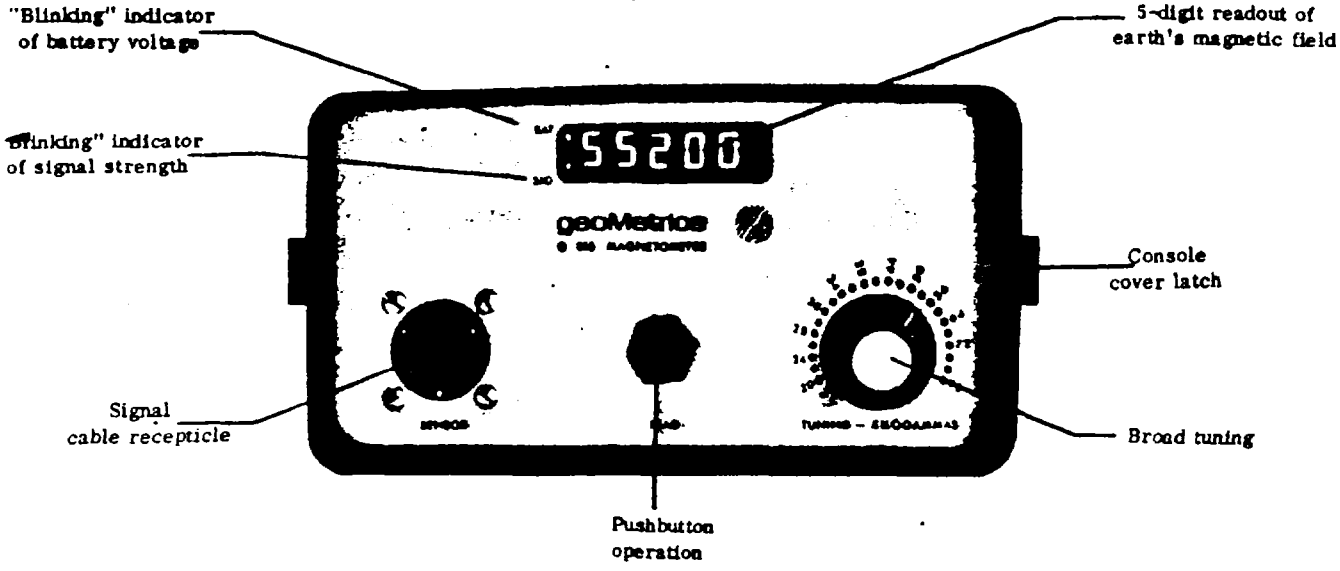
Output:	5 digit numeric display with readout directly in gammas
Power Requirements:	Twelve self-contained 1.5 volt "D" cell universally available flashlight-type batteries. Charge state or replacement signified by flashing indicator light on display.
Temperature Range:	Console and sensor: -40° to +85° C Battery pack: 0° to +50° C (limited use to -15° C; lower temperature battery belt operation — optional)
Accuracy (Total Field):	±1 gamma through 0° to +50° C temperature range
Sensor:	High signal, noise cancelling, interchangeably mounted on separate staff or attached to back pack
Size:	Console: 3.5 x 7 x 11 inches (9 x 18 x 28 cm) Sensor: 3.5 x 5 inches (9 x 13 cm) Staff: 1 inch diameter x 8 ft. length (3 cm x 2.5 m)

Weight:

	Lbs.	Kgs.
Console (w/batteries):	5.5	2.5
Sensor and signal cable:	4	1.8
Aluminum staff:	2	.9
	11.5	5.2

CONTROLS AND INDICATORS

Figure 2-1



APPENDIX B.

MAGNETOMETER SURVEY READINGS

Base Station: Base Line 0+00E, 0+00N

Starting Time: 13:00h January 10, 1988 59901 gammas

Finishing Time: 16:15h January 10, 1988 59898 gammas

LINE	STATION	+GAMMAS
L2W	13±00S	58343
	12+00S	58767
	11+00S	58329
	10+00S	58408
	9+00S	58616
	8+00S	58570
	7+00S	58517
	6+00S	58427
	5+00S	58611
	4+00S	59055
	3+00S	60006
	2+00S	58824
	1+00S	59111
	BL	58370
L3W	BL	58479
L4W	13+00S	59431
	12+00S	59564
	11+00S	59501
	10+00S	59859
	9+00S	59967
	8+00S	59511
	7+00S	59423
	6+00S	59352
	5+00S	59443
	4+00S	59590
	3+00S	59671
	2+00S	59358
	1+00S	59224
	BL	59444
	1+00N	59672
	2+00N	59718
	3+00N	59754
	4+00N	60686
	5+00N	60104
	6+00N	60242
	7+00N	60345
	8+00N	60170
	9+00N	58857

LINE	STATION	GAMMAS
L4W	10+00N	59945
	11+00N	59507
	12+00N	59671
	13+00N	60506
	13+60N	60151
L5W	BL	58631
L6W	13+00S	58417
	12+00S	58408
	11+00S	59075
	10+00S	58879
	9+00S	58993
	8+00S	58314
	7+00S	58361
	6+00S	58438
	5+00S	58501
	4+00S	58586
	3+00S	59209
	2+00S	59117
	1+00S	58959
	BL	58604
	1+00N	58457
	2+00N	58785
	3+00N	58845
	4+00N	58909
	5+00N	59041
	6+00N	59471
	7+00N	59613
	8+00N	59316
	9+00N	59187
	10+00N	59714
	11+00N	58883
	12+00N	59643
	13+00N	59831
L7W	BL	58689
L8W	14+00S	59480
	13+00S	59004
	12+00S	59073
	11+00S	58343
	10+00S	58396
	9+00S	58333
	8+00S	58355
	7+00S	58449
	6+00S	58585

APPENDIX B. (Page 3)

LINE	STATION	GAMMAS
L8W	5+00S	58827
	4+00S	58887
	3+00S	58673
	2+00S	58396
	1+00S	58188
	BL	58496
	1+00N	58349
	2+00N	58443
	3+00N	58665
	4+00N	59131
	5+00N	59089
	6+00N	63031
	7+00N	59266
	8+00N	59335
	9+00N	58970
	10+00N	59352
	11+00N	58440
	12+00N	58942
	13+00N	58661
	14+00N	58915
L9W	BL	58518
L10W	14+00S	59142
	13+00S	59134
	12+00S	58857
	11+00S	58717
	10+00S	58486
	9+00S	58492
	8+00S	58595
	7+00S	58563
	6+00S	58521
	5+00S	58977
	4+00S	58579
	3+00S	58778
	2+00S	58693
	1+00S	58336
	BL	58646
	1+00N	59054
	2+00N	59199
	3+00N	59294
	4+00N	59294
	5+00N	59440
	6+00N	59560
	7+00N	59726
	8+00N	60768
	9+00N	60726
	10+00N	59339
	11+00N	59388
	12+00N	59167
	13+00N	59713

LINE	STATION	GAMMAS
L11W	BL	58681
L12W	13+00S	58941
	12+00S	58615
	11+00S	58452
	10+00S	58801
	9+00S	58529
	8+00S	58551
	7+00S	59302
	6+00S	58622
	5+00S	58607
	4+00S	58758
	3+00S	58945
	2+00S	58750
	1+00S	58885
	BL	58769
	1+00N	58798
	2+00N	58690
	3+00N	58760
	4+00N	58543
	5+00N	58952
	6+00N	59130
	7+00N	59436
	8+00N	58774
	9+00N	58940
	10+00N	59505
	11+00N	61631
	12+00N	59858
	13+00N	60112
	13+20N	59915
L13W	BL	
L14W	13+00S	58934
	12+00S	59083
	11+00S	59077
	10+00S	59008
	9+00S	59150
	8+00S	59131
	7+00S	59341
	6+00S	59149
	5+00S	59019

LINE	STATION	GAMMAS
L14W	4+00S	59034
	3+00S	59103
	2+00S	58767
	1+00S	59161
	BL	59372
	1+00N	59082
	2+00N	59169
	3+00N	59130
	4+00N	59222
	5+00N	59250
	6+00N	59289
	7+00N	59332
	8+00N	59138
	9+00N	59237
	10+00N	59334
	11+00N	59032
	12+00N	59584
	13+00N	60186

Ministry of Northern Development and Mines

Ontario

Land Management

Report of Work

(Geophysical, Geological, Geochemical and Expenditures)

W880

31M13NW0063 2.10756 CATHARINE

900

Mining Act — Do not use shaded areas below.

Type of Survey(s)	Township or Area
Ground Magnetometer Survey	Catharine

Claim Holder(s)	Prospector's Licence No.
B. G. Cook	K 18972

Address: 6 Wright Hargreaves Ave. Kirkland Lake, Ont. P2N 1B2

Survey Company	Date of Survey (from & to)	Total Miles of line Cut
S. A. Gamble & self	12 09 87 / 13 01 88	3½

Name and Address of Author (of Geo-Technical report)

S. A. Gamble, 70 First Street; Kirkland Lake, Ontario P2N 1N3

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	
	Geophysical - Magnetometer	40
For each additional survey: using the same grid: Enter 20 days (for each)	Geophysical - Radiometric	
	Geophysical - Other	
	Geological	
	Geochemical	

RECEIVED JAN 21 1988 MINING LANDS SECTION

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	

Mining Claims Traversed (List in numerical sequence)

Mining Claim Prefix	Mining Claim Number	Expend. Days Cr.
L	893844	40
	893845	40

Mining Claim Prefix	Mining Claim Number	Expend. Days Cr.

ONTARIO GEOLOGICAL SURVEY ASSESSMENT FILES RESEARCH OFFICE FEB 10 1988 RECEIVED

LARDER LAKE MINING DIV. RECEIVED JAN 15 1988 2:00 PM

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

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: 80	Date Recorded: Jan. 15/88	Mining Recorder: M. G. Wegner
	Date Approved as Recorded: 29 Jan 88	Branch Director:

Date	Recorded Holder or Agent (Signature)
January 15/88	B. G. Cook

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

S. A. Gamble, 70 First Street Kirkland Lake, Ontario P2N 1N3

Ministry of Northern Development and Mines

Ontario

Geophysical-Geological-Geochemical Technical Data Statement

File _____

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) Ground Magnetometer Survey

Township or Area Catharine Twp.

Claim Holder(s) B. G. Cook
Box 561, Kirkland Lake, Ont. P2N 3J8

Survey Company self & S. A. Gamble

Author of Report S. A. Gamble

Address of Author 70 First Street, Kirkland Lk.P2N 1N3

Covering Dates of Survey Oct.12,1987 - Jan.14 1988
(linecutting to office)

Total Miles of Line Cut 3½ miles

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	
–Magnetometer	40
–Radiometric	
–Other	
Geological	
Geochemical	

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

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

DATE: _____ SIGNATURE: _____
Author of Report or Agent

Res. Geol. _____ Qualifications _____

Previous Surveys

File No.	Type	Date	Claim Holder

MINING CLAIMS TRAVERSED
List numerically

(prefix)	(number)
L	893844
L	893845

If space insufficient, attach list

TOTAL CLAIMS _____

OFFICE USE ONLY

837 (85/12)

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 _____

GEOPHYSICAL TECHNICAL DATA

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

Number of Stations 179 Number of Readings 179 x 2 = 358

Station interval 100 feet Line spacing 200 feet

Profile scale N/A

Contour interval 1000 gammas

MAGNETIC

Instrument Geometrics Portable Proton Magnetometer (Model G - 816)

Accuracy – Scale constant ± 1 gamma over a range of 20000 to 90000 gammas

Diurnal correction method N/A

Base Station check-in interval (hours) 2, hours

Base Station location and value BL / 0+00W start: 59901; finish 59898

ELECTROMAGNETIC

Instrument

Coil configuration

Coil separation

Accuracy

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

Frequency
(specify V.L.F. station)

Parameters measured

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

McELROY TP.

PACAUD TP.

SKEAD TP.

MARTER TP.

VI

V

IV

III

II

I

12 11 10 9 8 7 6 5 4 3 2 1

47°58'06" Approx

79°46'36" Approx

NOTES

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

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

DATE OF ISSUE

JAN 29 1988

MINING RECORDS OFFICE

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

CATHARINE

DISTRICT OF
TIMISKAMING

LARDER LAKE
MINING DIVISION

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

DR. K.K.I

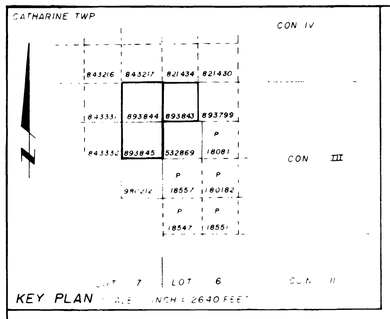
DATE JULY 1986

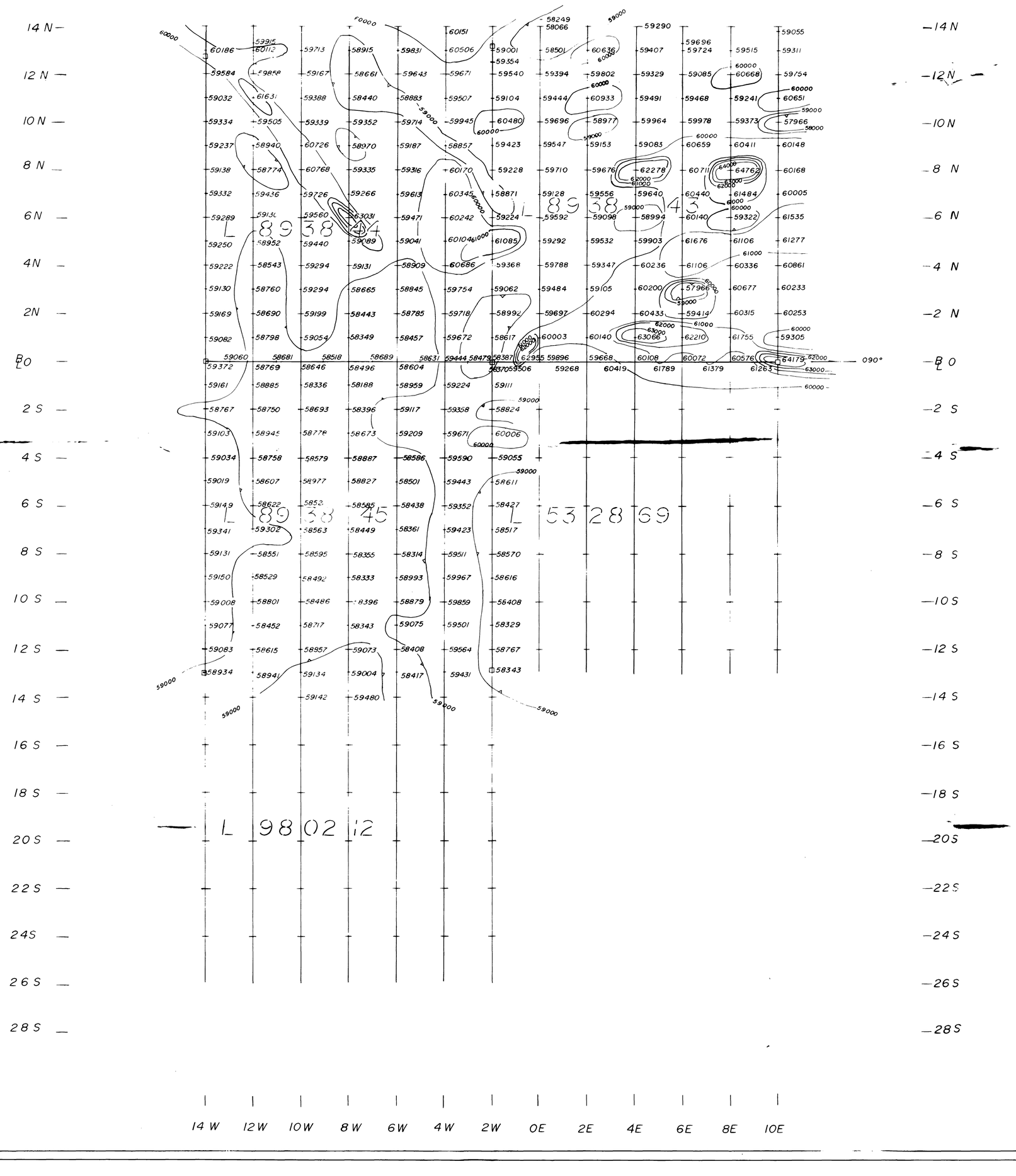
PLAN NO. G-3615

Ministry of Natural Resources

Ministry of Northern Development and Mines

Ontario





LEGEND

60677 STATION READINGS IN GAMMAS

60000 CONTOUR INTERVALS IN 1000 GAMMAS

□ CLAIM POST

KIRKLAND LAKE, ONT
DECEMBER 14, 1987
S A GAMBLE

MINING CLAIMS L 893844 & L 893845
JANUARY 14, 1988

SCALE 1" = 200'

0 200 400 600

CATHARINE PROPERTY
M.C. L 893843
L 893844
L 893845 2.10156

MAP 1.