42A01SE0071 2.10385 EBY

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REPORT ON THE

AIRBORNE GEOPHYSCIAL SURVEY

ON THE PROPERTY OF

PREMIER EXPLORATION INC.

EBY AND GRENFELL TOWNSHIP, ONTARIO

BY

H. FERDERBER GEOPHYSICS LTD.

RECEIVED
SEP 25 1987
MINING LANDS SECTION

September, 1987
Val d'Or, Quebec

R.A. Campbell,B.Sc.
Geologist

Qual.
2.6609

REPORT ON THE
AIRBORNE GEOPHYSICAL SURVEY
ON THE PROPERTY OF
PREMIER EXPLORATION INC.
EBY AND GRENFELL TOWNSHIP, ONTARIO

INTRODUCTION

On July 7, 1987 an airborne geophysical survey was carried out on the property of Premier Exploration Inc. in Eby and Grenfell Townships, Ontario. Magnetic VLF-electromagnetic data was collected by the airborne division of H. Ferderber Geophysics Ltd. The survey was flown from a base at Val d'Or, Quebec. A total of 57.6 miles of data was collected.

The magnetic survey provides information which helps define the underlying geological structures and identifies any potential economic concentrations which may contain variations in accessory magnetic minerals. The VLF-electromagnetic survey outlines conductive zones which may represent shear zones and/or metallic sulphide deposits containing gold mineralization.

PROPERTY DESCRIPTION, LOCATION AND ACCESS

The Premier Resources Inc. property is comprised of 44 claims, covering approximately 704 hectares, in the western parts of Eby and Grenfell Townships, Larder Lake Mining Division, Ontario. Thirty claims are located in Eby Townwhip and 14 are situated in Grenfell Township. The claims are registered with the office of the mining Recorder in Kirkland Lake and are listed in Appendix 1.

The property is located 13 km west of the town of Kirkland Lake and the village of Kenogami Lake is located near the southeastern boundary. Highway 11 lies within 0.1 km of the eastern boundary of the claim group and numerous roads west from the highway pass with 0.3 km of the east-central boundary.

Over 90% of the property is water covered by Kenogami Lake with most of the rest forested.

Supplies, services and qualified manpower are readily available in the Kirland Lake area.

GEOLOGY

The property is located in the western portion of the Abitibi Volcanic Belt of the Superior Province of the Canadian Shield. The Abitibi Volcanic Belt extends for nearly 350 miles in a west-east direction from Timmins to Chibougamau. It is host to a variety of precious and base metal deposits including the Timmins, Kirkland Lake, Noranda, Val d'Or and the Chibougamau mining camps.

The Abitibi Volcanic Belt is comprised of a complex assemblage of interbedded volcanic and sedimentary rocks intruded by a variety of intrusives, from ultra basic to granitic in composition. The rocks are Archean in age and have been metamorphosed to a greenschist facies. Numerous late Precambrian diabase dykes cut formations of the belt. The rocks generally strike east-west, have a near vertical dip, and are highly folded and faulted.

The Ontario Division of Mines, Map 2205 - Geological Compilation Series, Timmins-Kirkland Lake Area, outlines the geology in the area. It appears that the northern half of the property is underlain by mafic metavolcanic flows and pyroclastic rocks. East of Kenogami Lake, the Coleman Member of the Gowganda Sedimentary Formation(conglomerate, arkose, greywacke, quartzite and argillite), a narrow unit of a alkalic metavolcanic rocks (trachyte, leucitic trachyte, flow, tuff and breccia) and an older unit of metasedimentary rocks (formerly classified as Timiskaming) strike west-southwest between two groups of mafic metavolcanics. A small felsic intrusive body is situated within the southern mafic metavolcanic group, at the southeastern property boundary. Along the south-western shore of the lake, small units of mafic metavolcanics and alkalic metavolcanics and metasedimentary rocks (Formerly, Timiskaming) have been delineated north of the large group of mafic metavolcanics. At the western end of the property the possible western extension Coleman Member strikes north. In the extreme northwestern edge of the claim group a small felsic intrusive body has been found within the mafic metavolcanics.

Anticlinal and synclinal fold axes strike southeast across the lake. The property is located 2.5 km, along strike, from the west-southwest trending from Kirkland Lake fault. Numerous faults striking north-northwest and west-southwest are thought to cross the claim block. Two diabase dykes strike north-northeast to the souteastern shore of the lake.

The property is located 10 km west-southwest form the gold producing Macassa Mine in the Kirkland Lake gold camp. In the vicinity of the property numerous gold prospects and occurrences have been discovered. In Eby Twp. the Walters , the Rogick-Clark-Elliot and the Baldwin prospects are located approximately 0.7, 1.6 and 2.6 km east of the southeast boundary, respectively. The Walters Prospect was outlined in quartz veins and stringers in metavolcanics and metasediments with a 2.5 foot sample across one of the veins assaying 0.17oz/ton Au. In the Rogick-Clark-Elliot Prospect assays of grab samples, from trenches in quartz veins cutting across a contact between carbonated rocks and a small syenite body, were up to 0.49 oz/ton Au and drill intersections of up to 0.70 oz/ton Au over 10.0 ft were obtained. A shaft was sunk and 2760 ft of lateral development was performed between 1917 and 1929 on the Baldwin Prospect. In total, 43 oz of Au, grading 0.53 oz/ton, were produced. The best gold values were in system of veins trending N 65^{o}E at the intersection of a N 20^{o} E striking fracture/fault zone near a contact between metavolcanics and Timiskaming conglomerate, greywacke and tuffaceous sediment. Numerous gold occurrences were also found between 1.3 and 3.2 km south of the property. These occurrences are in quartz veins and stringers in mafic metavolcanics which are often cut by felsic and diabase dykes.

INSTRUMENTATION AND SURVEY METHODS

The survey was completed using a Cessna 172, fixed wing aircraft (CF-AAV) owned and operated by H. Ferderber Geophysics Ltd. It was piloted by P. Jevremovic of Val d'Or. The navigator/operator was M. Caron, also from Val d'Or. Geophysical sensors were mounted in modified wing tips. A GEM-GSM-9 BA Overhauser Proton Precession Magnetometer and Herz Totem 2AG VLF-electromagnetic system were used. The magnetometer has a resolution of 0.5 gammas, recorded on analogue tape. The VLF-EM measures the change in total field and vertical quadrature field on two channels simultaneously, with an accuracy of 1%. The data is then transferred to a printer. The transmitting station at Culter, Maime, (NAA), frequency 24.0 kiloherz was used .

The survey was conducted at an aircraft altitude of 250 feet above ground level. The altitude was measured with a Bonzer Mark 10 radar altimeter. A survey speed of approximately 100 miles per hour was used. Navigation was visual with reference to air photo mosaics at a scale of 1:15840 (one inch to 1320 feet). Lines flown in northwest-southeast directions at spacings of 440 feet were recovered from the photo mosaics. Manual fiducials were recorded simultaneously on the geophysical tapes and solid state memory.

In Grenfell Township, the Campbell, the Grenfell-Kirkland and Magni Prospects have been discovered approximately 1.6 to 4.5 km east and east-northeast of the claim group. The Campbell Prospect, 1.6 km east-north east of the claim group, is in northwest trending mafic metavolcanies, overlain in the south by flat lying sedimentary rocks. A shaft was sunk and 2,500 feet of lateral development was completed between 1926 and 1928. Assays of up to 0.55 oz/ton Au in quartz veinlets and pyrite rich wall rock, generally in shear zones, were obtained. Two fracture zones, mineralized with quartz and iron carbonate within mafic metavolcanics contain reported gold values in 1920 of up to 84 oz/ton on the Grenfell-Kirkland Prospect, Two short shafts were sunk on the property. Approximately 4.5 km east-northeast of the property on the Magni Prospect two shafts were sunk between 1920 and 1929. Several east striking mineralized zones, comprised of sheared quartz veins in mafic metavolcanics and gabbro cut by small porphyry and diabase dykes, were sampled. Three mineralized zones, each averaging 3 ft in width, were sampled for 800 feet giving assays of up to 2.3 oz/ton Au at the 125 ft level. Two gold accurrences in silicified mafic metavolcanics were found within 1.6 km of the property.

DATA PRESENTATION

Flight lines, fiducial points and geophysical responses were reproduced from the air photo mosaics on maps at a scale of 1:15,840 (one inch to 1320 feet). The outline of the claim group and claim map are shown on each sheet.

The aeromagnetic data was corrected for diurnal variation by using base lines as references. The data was then reduced to a base level of 58,000 gammas, contoured at 25 and 100 gamma intervals and presented on Map MG-1.

The VLF-EM data was transferred from the Totem 2AG memory to printed form. Base values were determined and the change in the total field strength as a percentage of the base values was calculated. The VLF-EM values were plotted on map EM-1. The positive values were contoured at intervals of 2%. The conductor axes were determined and labelled 1, 2, 3, etc. No priority was attached to the numbering system.

SURVEY RESULTS AND INTERPRETATION

The magnetic data outlines a linear magnetic high striking east-southeast, southeast and east, from north to south, across the northeastern property boundary, along Kenogami Lake. This high outlines the position of the northern group of mafic metamorphic rocks. Lows in the northwest corner of the property (south of the linear high) and at the extreme southeastern corner of the surveyed area represent two small felsic intrusive bodies. A series of magnetic lows lie south of the linear magneic high. These lows reflect the lower magnetic susceptibility of underlying rocks of Coleman Member sediments, a narrow unit of alkalic metavolcanics, and to the south, a metasedimentary unit. These lows strike east, southeast and east from the southwest bay of Kenogami Lake, along the southern part of the lake. Three zones of magnetic highs striking approximetely east-west were outlined near the southern limits of the lows representing 3 possible mafic metavolcanic units lying south of the lake and along the southwestern shore of the bay of Lake Kenogami. A small high near the southeast end of line 23 could be the northern limit of a diabase dyke.

The magnetic contours are highly distorted in the southern part of the property indicating that at least 5 possible northeast, north-northwest and north striking faults are situated in the southern part of the claim block.

VLF-ELECTROMAGNETIC SURVEY

Four short conductive zones were outlined on the property by the VLF-electromagnetic survey. Zones 1 and 2 strike north-northwest across the southeastern part of the claim group. These zones follow distortions in magnetic contours and could outline the location of a possible fault zone within mafic metavolcanic rocks. Conductor 1 is located in the southeastern mafic unit and has both ends cut-off by lows representing metasediments, to the north, and felsic intrusive body, to the south. Conductor 2 is situated across magnetic high contours, with the south end being terminated by zone 4.

Conductor zone 3 strikes east across the extreme southeastern boundary of the property. It could represent a small shear within a unit of mafic metavolcanic rocks.

Zone 4 is an east-west striking conductor generally conformable with the strike of the contours of the highs outlining the extent of the northern mafic metavolcanic unit. It may be a shear within this unit.

CONCLUSIONS AND RECOMMENDATIONS

The magnetic survey and VLF-electromagnetic surveys were successful in helping to outline the geology underlying the property and delineating 4 conductive zones on the claim group. The magnetic results indicate that the northern and northeastern parts of the property are underlain by a folded unit of mafic metasedimenary rocks. Near the southern and southeastern boundaries magnetic highs could outline the northern and northeastern limits of three mafic metavolcanic units. Between the northern and southern mafic metavolcanics the magnetic values indicate that the rocks have low magnetic susceptibility and map 2205 indicates that the Coleman Member sedimentary rocks, alkalic metavolcanics and older metasedimentary rocks underlie this area. Five possible northeast, north-northeast and north striking faults are situated in the southern part of the property.

Conductive zones 1 and 2, following a possible fault zone, across two metavolcanic units are good gold exploration targets, expecially at the north and south ends of zone 1 where the conductor is cut-off by two lows representing sediments, in the north, and a felsic intrusive body, in the south. The intersection of zones 2 and 4 also represent potential targets for alteration and sulphide mineralization.

Ground vertical gradient and total field magnetic and horizontal loop-electromagnetic surveys, and shoreline geology and prospecting should be completed on the property to better define and classify the geology and conductive zones prior to a possible diamond drilling program.

Respectfully submitted,

H. FERDERBER GEOPHYSICS LTD.

R.A. Campbell, B.Sc.
Geologist

APPENDIX I - CLAIM LIST

L 892100	918995
892170	919002
892171	919003
892215	919108
892216	919109
892217	919100
892218	961844
892219	961845
892220	961846
892221	961847
892222	961857
892223	961859
892224	
892819	
892820	
892821	
892822	
917324	
917325	
917326	
917327	
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917335	
917336	
917337	
917338	

Land Management 328/87

Ministry of Northern Affairs and Mines
Ontario

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

2.14

42A01SE0071 2.10385 EBY

900

Mining Act

– Do not use shaded areas below.

Type of Survey(s)	Township or Area
AIRBORNE MAGNETOMETER & VLF-EM SURVEYS	GRENFELL & EBY TPS.

Claim Holder(s)	Prospector's Licence No.
PREMIER EXPLORATIONS INC.	T1762

Address: 70 McCAMUS AVE. KIRKLAND LAKE ONT. P2N 2J9

Survey Company	Date of Survey (from & to) Day / Mo. / Yr. / Day / Mo. / Yr.	Total Miles of line Cut
H. FERBERBER GEOPHYSICS LTD.	7 7 87	

Name and Address of Author (of Geo-Technical report): ROBERT CAMPBELL 169 PERREAULT AVE. VAL D'OR QUEBEC

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	
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	40
	Magnetometer	40
	Radiometric	

RECEIVED
AUG 28 1987
MINING LANDS SECTION

LAND MINING DIV.
AUG 10 1987
AM PM

Mining Claims Traversed (List in numerical sequence)

Mining Claim Prefix	Mining Claim Number	Expend. Days Cr.
L	892215	
	892216	
	892217	
	892218	
	892219	
	892220	
	892221	
	892222	
	892223	
	892224	
	892819	
	892820	
	892821	
	892822	
	917324	
	917325	
	917326	
	917327	
	917328	
	917329	
	917330	
	917331	
	917332	

Mining Claim Prefix	Mining Claim Number	Expend. Days Cr.
L	917333	
	917334	
	917335	
	917336	
	917337	
	917338	
	919108	
	919109	
	919110	
	919002	
	919003	
	918995	
	961844	
	961845	
	961846	
	961847	
	892170	
	892171	
	961857	
	961859	
	892100	

Total number of mining claims covered by this report of work: 44

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: 3520	Date Recorded: August 10/87	Mining Recorder: M. Gallagher
	Date Approved as Recorded	Branch Director

Date	Recorded Holder or Agent (Signature)
AUG. 10/87	Carl P. Forbes

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: CARL P. FORBES 70 McCAMUS AVE KIRKLAND LAKE ONT. P2N 2J9

Date Certified	Certified by (Signature)
AUG. 10 /87	Carl P. Forbes

Ministry of Northern Development and Mines
Ontario

Technical Assessment Work Credits

File 2.10385

Date: November 10,1987

Mining Recorder's Report of Work No.: 328/87

Recorded Holder: Premier Explorations Inc.

Township ~~XXXXX~~: Grenfell & Eby Townships

Type of survey and number of Assessment days credit per claim	Mining Claims Assessed
Geophysical	L - 892100
Electromagnetic 31.3 days	892170-171 inclusive
Magnetometer 31.3 days	892215-224 inclusive
Radiometric ____ days	892819-822 inclusive
Induced polarization ____ days	917324-338
Other ____ days	918995
Section 77 (19) See "Mining Claims Assessed" column	919002-003
Geological ____ days	919108-109
Geochemical ____ days	919100
Man days ☐ Airborne ☒	961844-847
Special provision ☐ Ground ☐	961857
☐ Credits have been reduced because of partial coverage of claims.	961859
☐ Credits have been reduced because of corrections to work dates and figures of applicant.	

Special credits under section 77 (16) for the following mining claims

No credits have been allowed for the following mining claims

☐ not sufficiently covered by the survey ☐ insufficient technical data filed

The Mining Recorder may reduce the above credits if necessary in order that the total number of approved assessment days recorded on each claim does not exceed the maximum allowed as follows: Geophysical - 80; Geologocal - 40; Geochemical - 40; Section 77(19) - 60.

November 25, 1987

Your File: 328/87
Our File: 2.10385

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

Dear Sir:

RE: Notice of Intent dated November 10, 1987
Geophysical (Electromagnetic and Magnetometer) Survey
on Mining Claims L-892100 et al
in the Townships of Grenfell and Eby

The assessment work credits, as listed with the above-mentioned Notice of Intent, have been approved as of the above date.

Please inform the recorded holder of these mining claims and so indicate on your records.

Yours sincerely,

W.R. Cowan, Manager
Mining Lands Section
Mines and Minerals Division

Whitney Block, Room 6610
Queen's Park
Toronto, Ontario
M7A 1W3

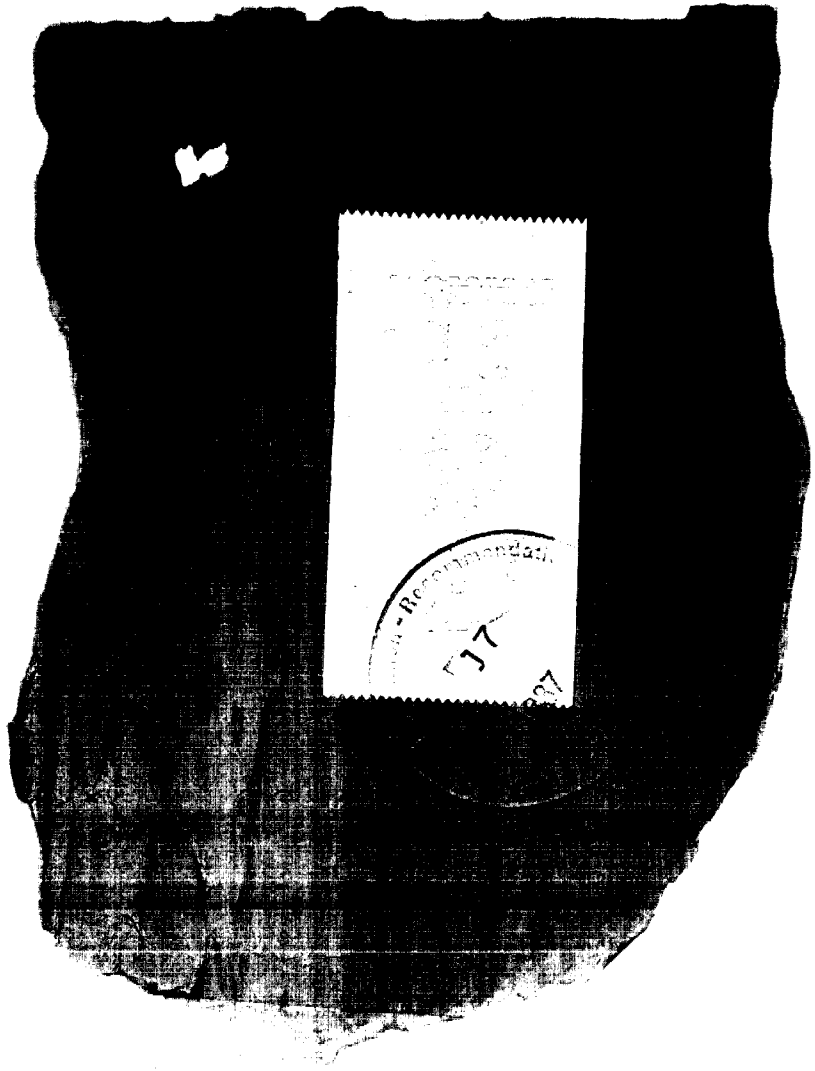
Telephone: (416) 965-4888

RM:pl
Enclosure: Technical Assessment Work Credits

cc: Mr. G.H. Ferguson
Mining & Lands Commissioner
Toronto, Ontario

Resident Geologist
Kirkland Lake, Ontario

Premier Exploration Inc.
70 McCamus Ave.
Kirkland Lake, Ontario
P2N 2J9



Grenfell Twp. M.351

Burt Twp. M.334

Otto Twp. M.379

Blain Twp. M.418

M.G.S. FILE 18864

VI

V

IV

III

II

I

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

THE TOWNSHIP OF 2.10385 EBY

DISTRICT OF TIMISKAMING

LARDER LAKE MINING DIVISION

SCALE: 1-INCH=40 CHAINS

LEGEND

PATENTED LAND	(P)
CROWN LAND SALE	C.S.
LEASES	(L)
LOCATED LAND	Loc.
LICENSE OF OCCUPATION	L.O.
MINING RIGHTS ONLY	M.R.O
SURFACE RIGHTS ONLY	S.R.O.
ROADS	
IMPROVED ROADS	
KING'S HIGHWAYS	
RAILWAYS	
POWER LINES	
MARSH OR MUSKEG	
MINES	
CANCELLED	C.

NOTES

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

AREAS WITHDRAWN FROM STAKING
under Sec. 43 of The Mining Act (R.S.O. 1970).

Order No.	File	Date	Disposition

N½ Lot 7, Con. 3 - Cert. of Forfeiture - Sept 17/85

#1

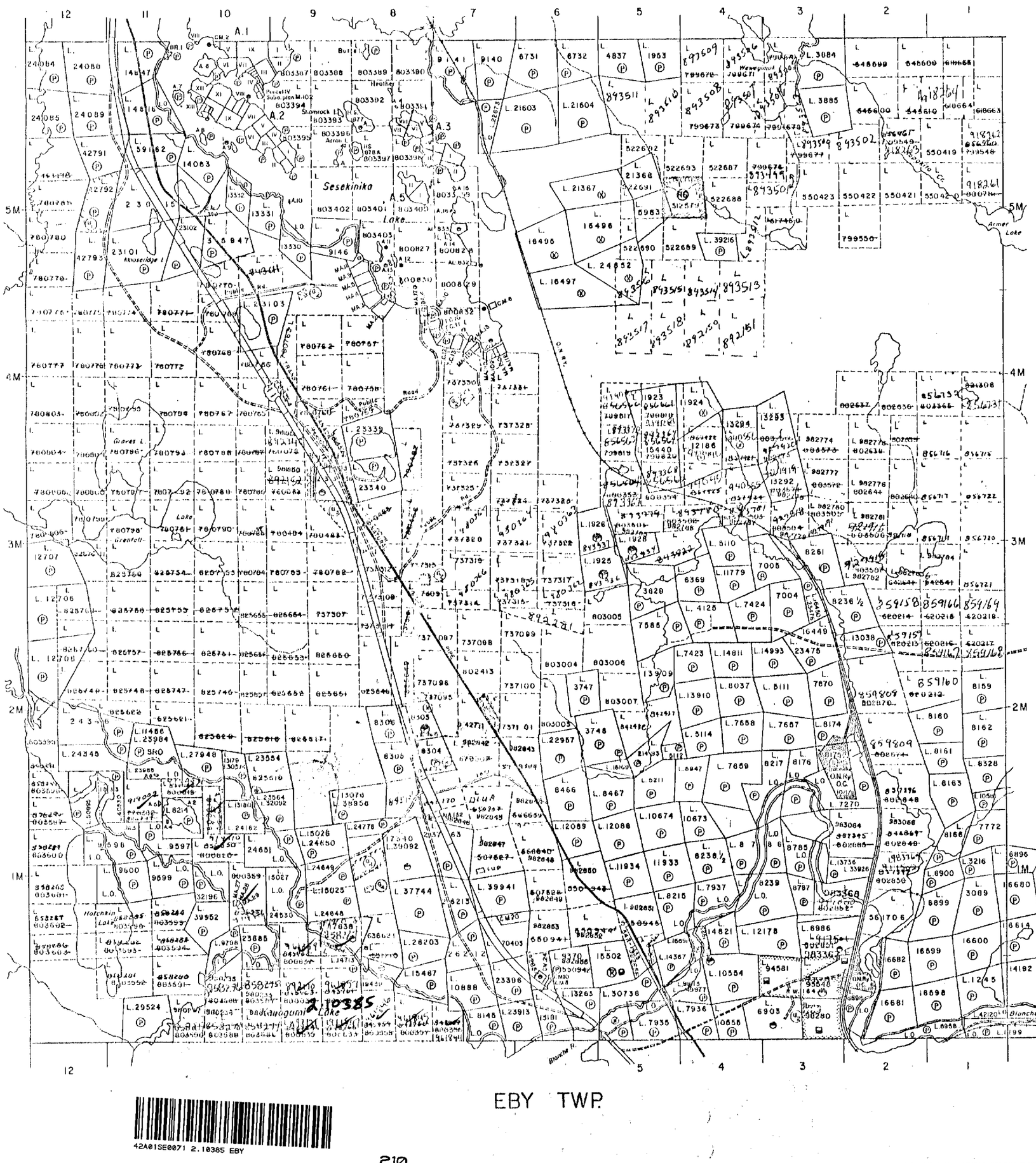
PLAN NO.- M-345

ONTARIO
MINISTRY OF NATURAL RESOURCES
SURVEYS AND MAPPING BRANCH

42A01SE0071 2.10385 EBY

200

MAISONVILLE TWP.



BOMPAS TWP.

TECK TWP.

EBY TWP.

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

- PATENT, SURFACE & MINING RIGHTS ..... (P)
- " , SURFACE RIGHTS ONLY ..... (P)
- " , MINING RIGHTS ONLY ..... (P)
- LEASE, SURFACE & MINING RIGHTS ..... (L)
- " , SURFACE RIGHTS ONLY ..... (L)
- " , MINING RIGHTS ONLY ..... (L)
- LICENCE OF OCCUPATION ..... (L.O. or LO)
- ORDER-IN-COUNCIL ..... (OC)
- RESERVATION ..... (R)
- CANCELLED ..... (C)
- SAND & GRAVEL ..... (S)

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. 380, SEC. 64, SUBSEC 1.

SCALE: 1 INCH = 40 CHAINS

FEET 0 1000 2000 4000 6000 8000

METRES 0 200 1000 2000 (1 KM) (2 KM)

DATE OCT 23 1987

TOWNSHIP

GRENFELL

M.N.R. ADMINISTRATIVE DISTRICT

KIRKLAND LAKE

MINING DIVISION

LARDER LAKE

LAND TITLES / REGISTRY DIVISION

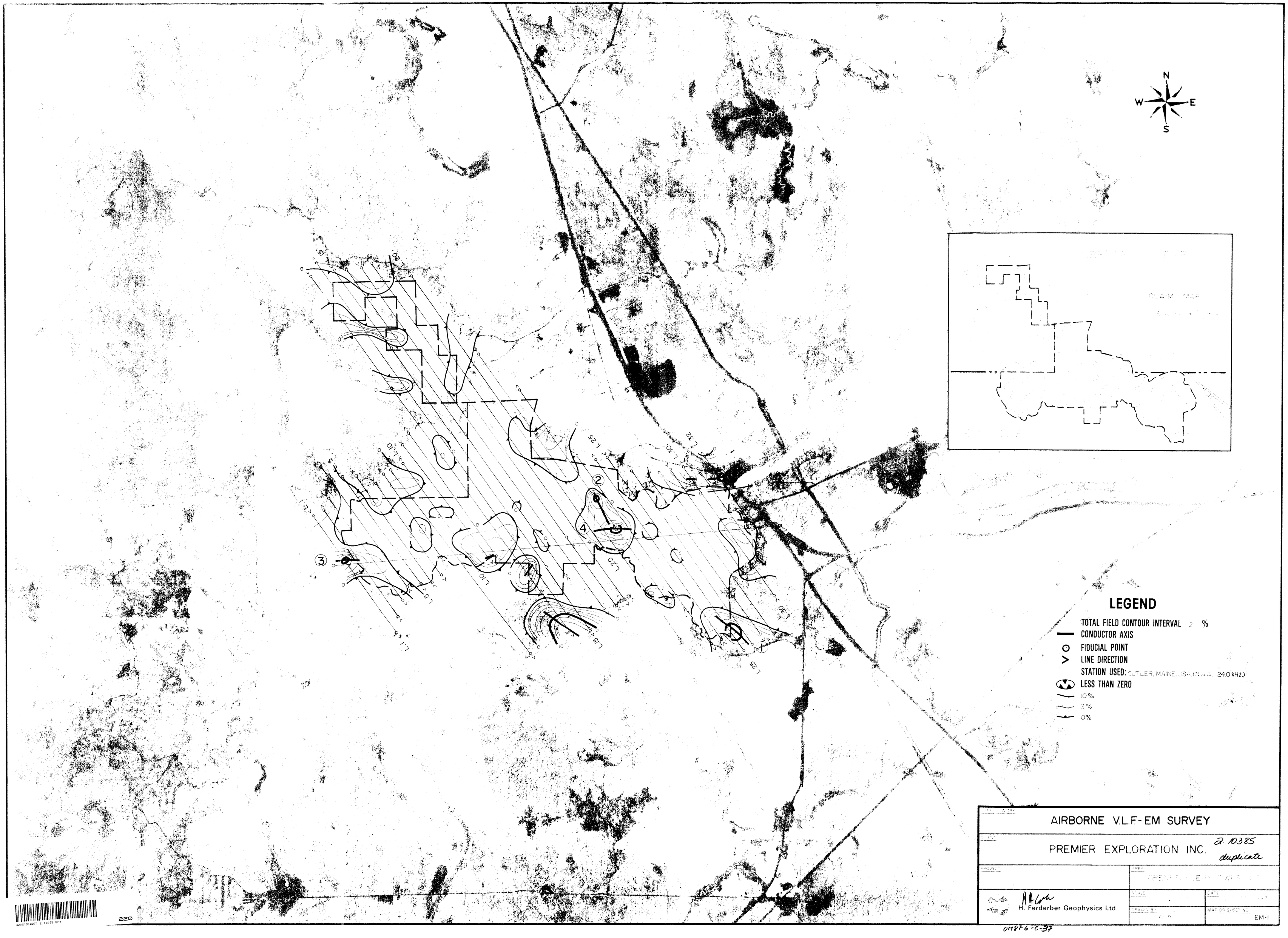
TIMISKAMING 2.10385

Ontario Ministry of Natural Resources — Land Management Branch

Date JANUARY, 1985

Number G-3212

42A01SE0071 2.10385 EBY



AIRBORNE V.L.F-EM SURVEY

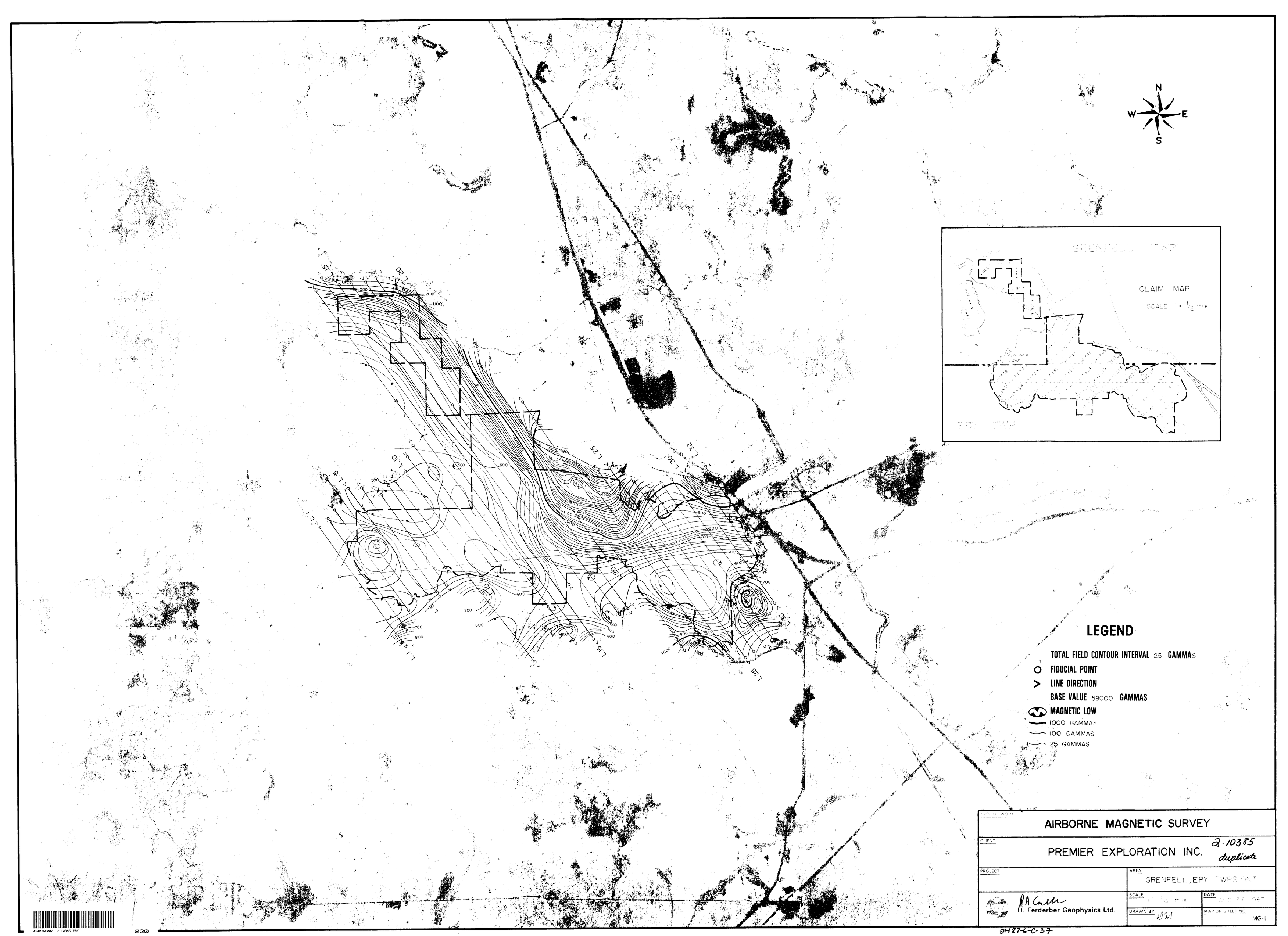
PREMIER EXPLORATION INC. 2.10385 duplicate

H. Ferderber Geophysics Ltd.

EM-1

220

0487-6-C-37



TYPE OF WORK: AIRBORNE MAGNETIC SURVEY

CLIENT: PREMIER EXPLORATION INC. 2.10385 duplicate

PROJECT:

AREA: GRENFELL, EPY TWPS, ONT

H. Ferderber Geophysics Ltd.

SCALE: 1" = 1/2 mile

DATE: AUGUST 1987

DRAWN BY: NM

MAP OR SHEET NO.: MG-1

OM87-6-C-37

42A15E0071 2.10385 EBY