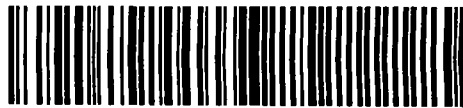


REPORT  
AIRBORNE GEOPHYSICAL  
OF PAR



42A03NE0020 63.1899 DOUGLAS

010

McARTHUR TOWNSHIP  
PORCUPINE MINING DIVISION  
FOR  
ACME GAS AND OIL CO. LTD.

**I. INTRODUCTION**

During the last week of January 1966 this company performed an airborne geophysical survey for Acme Gas and Oil Company Limited over the southern part of McArthur Township, near Timmins, in the Porcupine Mining Division of Ontario.

A total of 125 line miles was surveyed, using this Company's geophysically equipped Otter aircraft, employing an in-phase/out-of-phase electromagnetic system and an Elliott magnetometer. This equipment is described in Appendix II of this report.

Lines were flown at 1/8 mile intervals in a direction N22°E. Mean terrain clearance was 150 feet.

Canadian Aero Mineral Surveys Limited personnel employed on this project were as follows:

Project Manager	-	G. A. Curtis, Ottawa, Ont.
Pilot	-	G. Deluce, Ottawa, Ont.
Navigator	-	D. Sarazin, Ottawa, Ont.
Equipment Operator	-	T. Peacock, Ottawa, Ont.
Data Compiler	-	G. Granger, Ottawa, Ont.
Draftsman	-	P. Tallyhoe, Ottawa, Ont.

The project was supervised by D.M. Wagg, P.Eng., author of this report.

A plan map accompanying this report shows flight lines plotted on a base which has been prepared from an air-photo laydown. Electromagnetic anomalies obtained are plotted on this map.

Included in this report is a listing of anomalies in Appendix I, and a description of equipment, records, and survey procedures in Appendix II.

## II. GEOLOGY

This area is covered by O.D.M. preliminary Map No. P-141 "Timmins Sheet". The area surveyed lies on and south of a granite contact with basic volcanics. The latter are apparently intruded by ultrabasics and ENE faults are shown trending through the north central part of the area. Two bands of iron formation are noted in the south central boundary of the area, which trend NNW into the area.

## III. GEOPHYSICAL RESULTS

Four conductive zones are noted, all on the same apparent horizon. These are likely a reflection of continuations of the iron formation noted above. The anomalies making up these zones are discussed below.

Zone 1 - Anomalies 8A, 9A, 10A, 11A, 12A, 14A, 15A and 16A

This conductor zone is apparently quite narrow, but anomalies,

although fairly weak reflect fair to good conductivity. Magnetic correlation is intense and direct. The zone probably reflects sulphides in an environment of magnetite, and could be ground checked in the vicinity of anomaly 14A.

Zone 2 - Anomalies 20A, 21A, 22A, 23A, 24A and 25A

This zone appears similar to zone 1 except that magnetic correlation, while still direct, is somewhat weaker than noted above. The zone may reflect a higher development of sulphides (pyrrhotite?) than in zone 1 and should be checked in the vicinity of anomaly 22A.

Zone 3 - Anomalies 29A and 30A

These anomalies indicate probable iron formation with development of probable magnetite. Conductivity is medium to good. The zone should be checked if interest arises from zone 2 or if local geologic environment appears favourable.

Zone 4 - Anomalies 31A, 32A, 33A and 33B

This zone is characterized by somewhat broader anomalies than those in the other conductive zones, partly due to the flight angle over the zone. Conductivities appear fair, and magnetic correlation is not exact. The zone should be examined in the vicinity of anomaly 32A.

IV. RECOMMENDATIONS

Zones 1, 2 and 4 should be followed up as noted above.  
Zone 3 followup might be dependent on local geologic conditions  
and/or results from examination of the other conductors.

Respectfully submitted,

*Don M Wagg*

OTTAWA, Ontario,  
February 10, 1966.

Don M. Wagg, P.Eng., (Ont.)  
Geophysicist.

APPENDIX I

PROJECT NO. 6056 - McARTHUR TOWNSHIP AREA

<u>Anomaly</u>	<u>Fiducials</u>	<u>In-Phase Quad</u>	<u>Altitude</u>	<u>Magnetics</u>	<u>Rate</u>	<u>Comments</u>
8 A	6096/99	0/20	160	Dir. 900g	x	Weak, poor correlation
9A	6198/02	100/30	150	Dir. 1500g	3	Double
10 A	6288/92	200/30	160	Dir. 900g	2A	
11 A	6383/87	20/10	175	Dir. 600g	3	Weak
12 A	6506/09	30/10	175	Dir. 1300g	x	Very poor
13 A	6597/600	50/20	175	Dir. 1300g	3	
14 A	6705/08	250/50	165	Dir. 2700g	2A	
15 A	6805/08	40/60	155	Dir. 1900g	3	
16 A	6908/11	170/70	155	Dir. 3000g	2A	
20 A	7318/21	70/20	175	Dir. 1800g	3	
21 A	7432/35	60/30	175	Dir. 500g	3	
22 A	7525/28	320/90	140	Dir. 1900g	2A	
23 A	7657/61	30/50	155	Dir. 1100g	3	
24 A	7756/59	40/60	140	Dir. 1800g	3	
25 A	7893/6	40/30	155	Dir. 600g	3	
26	Anomalous system crosses transmission line - anomalies probably masked					
27						
28						
29 A	8407/11	1/40	170	Dir. 4000g	3	
30 A	8564/67	-/170	140	Dir. 2400g	3	IP masked by mag neg effect
31 A	8628/33	200/70	135	Dir. 3400g	3	Strong
32 A	8814/20	160/140	130	Dir. 3000g	3	Double
33 A	8859/63	-/140	135	Dir. 3000g	3	Double
33 B	8863/67	90/07	135	N. Flank 3000g	3	Poss. mag followthrough

ACME GAS & OIL CO., LIMITED

Schedule of Claims Located in McArthur Township

<u>Claim No.</u>	<u>Days</u>	<u>Claim No.</u>	<u>Days</u>	<u>Claim No.</u>	<u>Days</u>
P-59905	20	P-67272	20	P-81398	20
P-59906	20	P-67273	20	P-81399	20
F-59907	20	P-67274	20	P-81400	20
P-59908	20	P-67275	20	P-81401	20
P-59909	20	P-79189	20	P-81402	20
P-59910	20	P-79190	20	P-81403	20
P-59911	20	P-79191	20	P-81404	20
P-59912	20	P-79192	20	P-81405	20
P-59913	20	P-79193	20	P-81406	20
P-59914	20	P-79194	20	P-81407	20
P-59915	20	P-79195	20	P-81408	20
P-59925	20	P-79196	20	P-81409	20
P-59926	20	P-79197	20	P-81410	20
P-59927	20	P-79198	20	P-81411	20
P-59928	20	P-79199	20	P-81412	20
P-59929	20	P-79200	20	P-81423	20
P-59930	20	P-79201	20	P-81424	20
P-59931	20	P-79202	20	P-81425	20
P-59932	20	P-79203	20	P-81462	20
P-59933	20	P-79204	20	P-81463	20
P-59934	20	P-79205	20	P-81464	20
P-59935	20	* P-79206	20	P-81465	20
P-67261	20	P-81266	20	P-81466	20
P-67262	20	P-81267	20	P-81467	20
P-67263	20	P-81268	20	P-81468	20
P-67264	20	P-81269	20	P-81469	20
P-67265	20	P-81270	20	P-81470	20
P-67266	20	P-81271	20	P-81471	20
P-67267	20	P-81272	20	* P-81265	20
P-67268	20	P-81273	20		
P-67269	20	P-81395	20	P-83425	20
P-67270	20	P-81396	20	P-83426	20
P-67271	20	P-81397	20	P-83427	20
				P-83428	20
				P-83429	20
				P-83430	20
				P-83431	20

There are 51 line miles flown over these claims.

ACME GAS & OIL CO., LIMITED

Schedule of Claims on which Survey is to be applied for an Airborne  
Geophysical Certificate

---

McArthur Township

Claim No.

P-91814  
P-91815  
P-91816  
P-91817  
P-91818  
P-91819  
P-91572  
P-91573  
P-91574  
P-91575  
P-91576  
P-91577

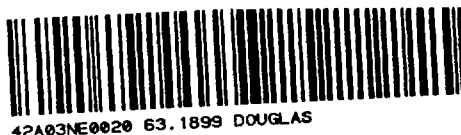
Claim No.

P-91590  
P-91591  
P-91592  
P-91593  
P-91594  
P-91595  
P-91596  
P-91597  
P-91598  
P-91599  
P-91600

There are approximately 12 miles of line flown over these claims.

The survey covers a total of 125 line miles flown at 1/8th mile intervals.

REPORT  
AIRBORNE MAGNETIC  
OF PART  
McARTHUR TOWNSHIP  
FOR  
ACME GAS AND OIL COMPANY LTD.



I. PRELIMINARY

During the last week of January 1966, this company performed an airborne magnetic survey for Acme Gas and Oil Company Limited over the southern part of McArthur Township, near Timmins, in the Porcupine Mining District of Ontario.

A total of 125 line miles was flown on lines spaced at one-eighth mile intervals, and oriented N22°E. Mean terrain clearance was 150 feet.

The equipment used was an Elliott magnetic aspect tube magnetometer, installed in this company's Otter aircraft, registration CF-IGM. This magnetometer measures total field and has a sensitivity of approximately 5 gammas. The noise level is some 24 gammas, and the results were recorded on a Texas Instruments rectilinear recorder.

Canadian Aero Mineral Surveys personnel employed on this project were as follows:

Project Manager	-	G. A. Curtis, Ottawa, Ont.
Pilot	-	G. Deluce, Ottawa, Ont.
Navigator	-	D. Sarazin, Ottawa, Ont.
Equipment Operator	-	T. Peacock, Ottawa, Ont.
Data Compiler	-	G. Granger, Ottawa, Ont.
Draftsman	-	P. Tallyhoe, Ottawa, Ont.

The project was under the supervision of D. M. Wagg, a Professional Engineer registered in the Province of Ontario.



A plan map at the scale of 1" = 1320 feet accompanying this report shows flight path plotted on a base prepared from an air-photo laydown. The magnetic results are shown in contoured form, with a contour interval of 50 gammas.

## II. GEOLOGY

This area is covered by O.D.M. preliminary Map No. P-141 "Timmins Sheet". The area surveyed lies on and south of a granite contact with basic volcanics. The latter are apparently intruded by ultrabasics and ENE faults are shown trending through the north central part of the area. Two bands of iron formation are noted in the south central boundary of the area, which trend NNW into the area.

## III. MAGNETIC RESULTS

The magnetic pattern outlines the granite contact on the north boundary of the surveyed area, and a probable granite or acidic intrusive in the southwest corner of the township.

A band (consisting probably of several parallel zones) of iron formation is clearly outlined by the magnetics. The strike of this band swings from ESE on the west side of the area, to almost south on the south boundary of the area.

The intermediate zone between this probable iron formation and the granite to the north shows results characteristic of volcanics probably intruded locally by basic intrusives. Little

evidence exists of the ENE trending faults indicated on the geologic map, indicating the probability that these are minor localized faults, An acid intrusive, probably granitic, is noted at the east edge of McArthur Lake.

IV. CONCLUSIONS AND RECOMMENDATIONS

This area would appear to warrant ground checking along the iron formation for the possibility of sulphides. In addition, ground EM work could be considered for the basic intrusives indicated along the granite contact to the north.

Respectfully submitted,

*Don M. Wagg*

OTTAWA, Ontario,  
February 10, 1966.

Don M. Wagg., P.Eng., (Ontario)  
Geophysicist.

Schedule of Claims Located in McArthur Township

<u>Claim No.</u>	<u>Days</u>	<u>Claim No.</u>	<u>Days</u>	<u>Claim No.</u>	<u>Days</u>
P-59905	20	P-67272	20	P-81398	20
P-59906	20	P-67273	20	P-81399	20
F-59907	20	P-67274	20	P-81400	20
P-59908	20	P-67275	20	P-81401	20
P-59909	20	P-79189	20	P-81402	20
P-59910	20	P-79190	20	P-81403	20
P-59911	20	P-79191	20	P-81404	20
P-59912	20	P-79192	20	P-81405	20
P-59913	20	P-79193	20	P-81406	20
P-59914	20	P-79194	20	P-81407	20
P-59915	20	P-79195	20	P-81408	20
P-59925	20	P-79196	20	P-81409	20
P-59926	20	P-79197	20	P-81410	20
P-59927	20	P-79198	20	P-81411	20
P-59928	20	P-79199	20	P-81412	20
P-59929	20	P-79200	20	P-81423	20
P-59930	20	P-79201	20	P-81424	20
P-59931	20	P-79202	20	P-81425	20
P-59932	20	P-79203	20	P-81462	20
P-59933	20	P-79204	20	P-81463	20
P-59934	20	P-79205	20	P-81464	20
P-59935	20	* P-79206	20	P-81465	20
P-67261	20	P-81266	20	P-81466	20
P-67262	20	P-81267	20	P-81467	20
P-67263	20	P-81268	20	P-81468	20
P-67264	20	P-81269	20	P-81469	20
P-67265	20	P-81270	20	P-81470	20
P-67266	20	P-81271	20	* P-81471	20
P-67267	20	P-81272	20	* P-81265	20
P-67268	20	P-81273	20	P-83425	20
P-67269	20	P-81395	20	P-83426	20
P-67270	20	P-81396	20	P-83427	20
P-67271	20	P-81397	20	P-83428	20
				P-83429	20
				P-83430	20
				P-83431	20

There are 51 line miles flown over these claims.

Adams Twp. - M.261

THE TOWNSHIP OF  
OF

McARTHUR

DISTRICT OF  
TIMISKAMING

PORCUPINE  
MINING DIVISION

SCALE 1-INCH = 40 CHAINS

LEGEND

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

NOTES

This township lies within the  
TEMAGAMI PROVINCIAL FOREST  
400' Surface Rights Reservation around  
all lakes and rivers

DATE OF ISSUE  
OCT 25 1966  
ONTARIO DEPT. OF MINES

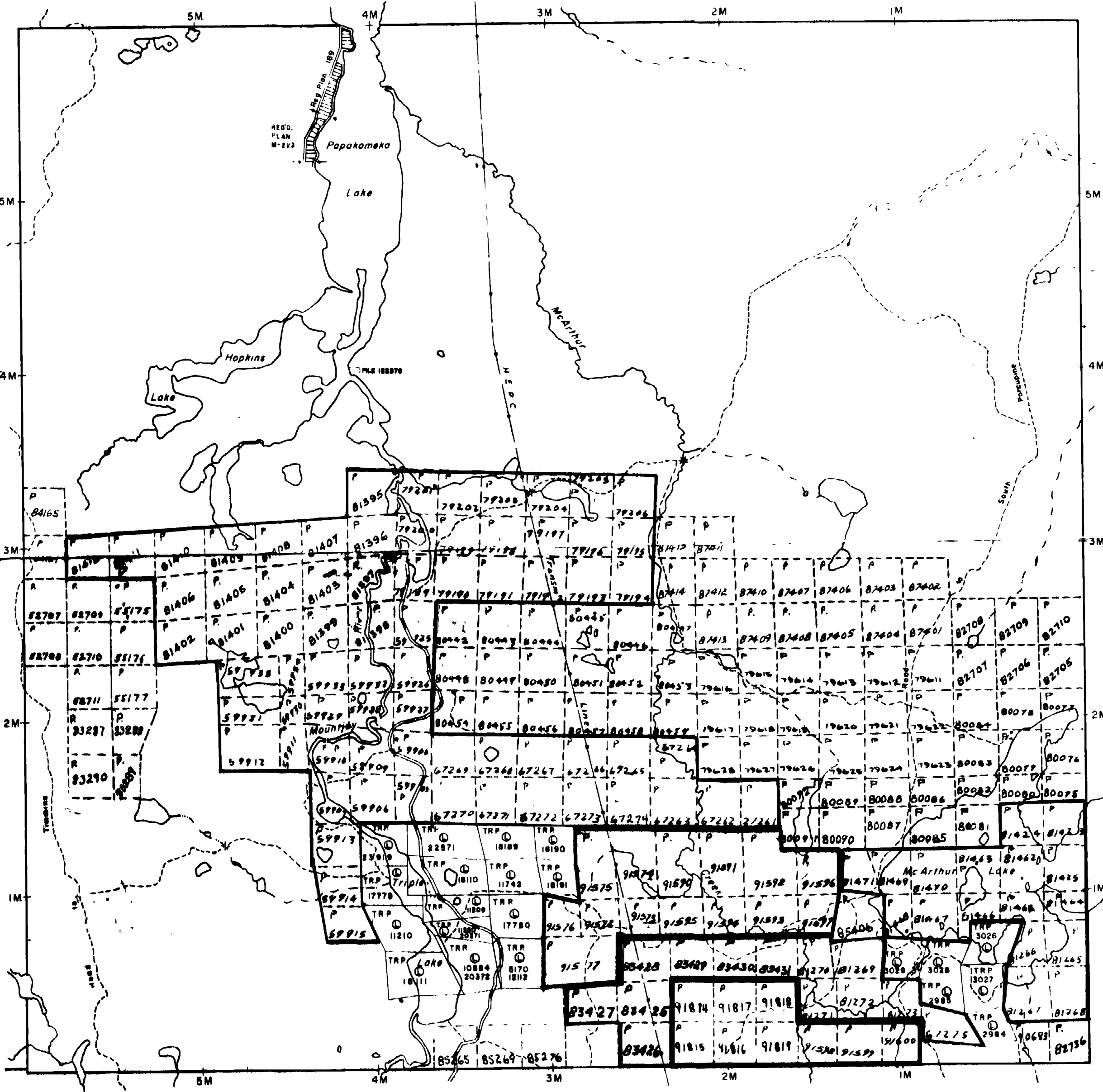
PLAN NO. - M.298

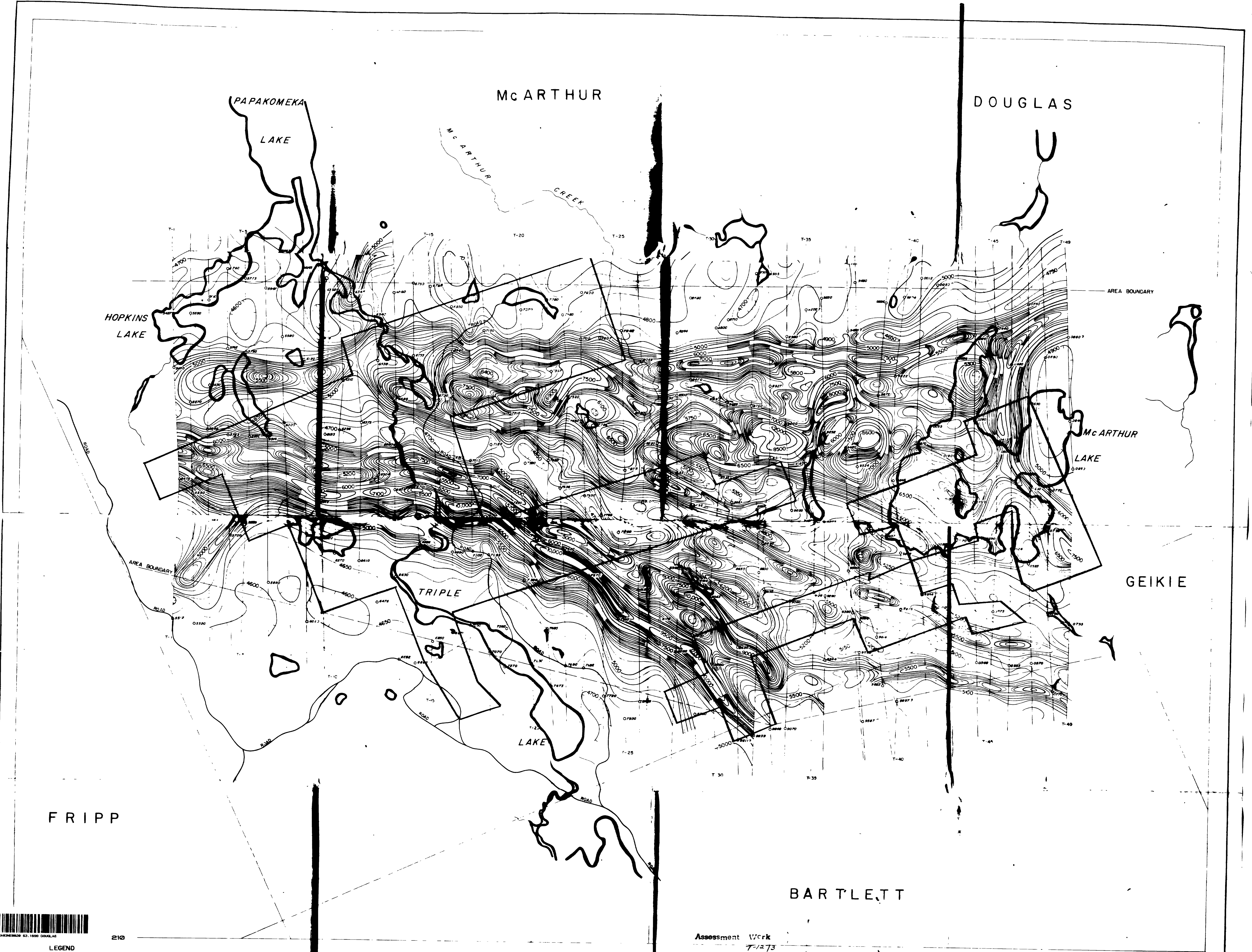
DEPARTMENT OF MINES  
— ONTARIO —

Frapp Twp. - M.281

Douglas Twp. - M.274

Bartlett Twp. - M.262





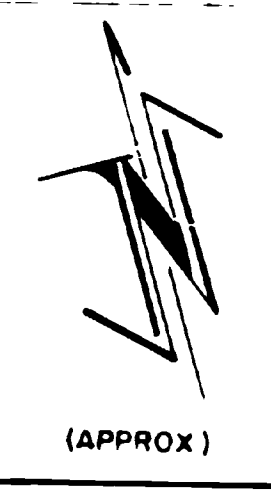
210

- LEGEND**
- CONTOUR INTERVAL 50 GAMMAS
  - 500 GAMMA CONTOUR
  - 100 GAMMA CONTOUR
  - 25 GAMMA CONTOUR
  - MAGNETIC LOW

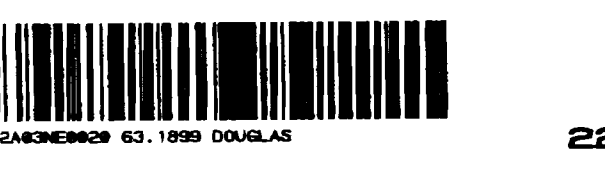
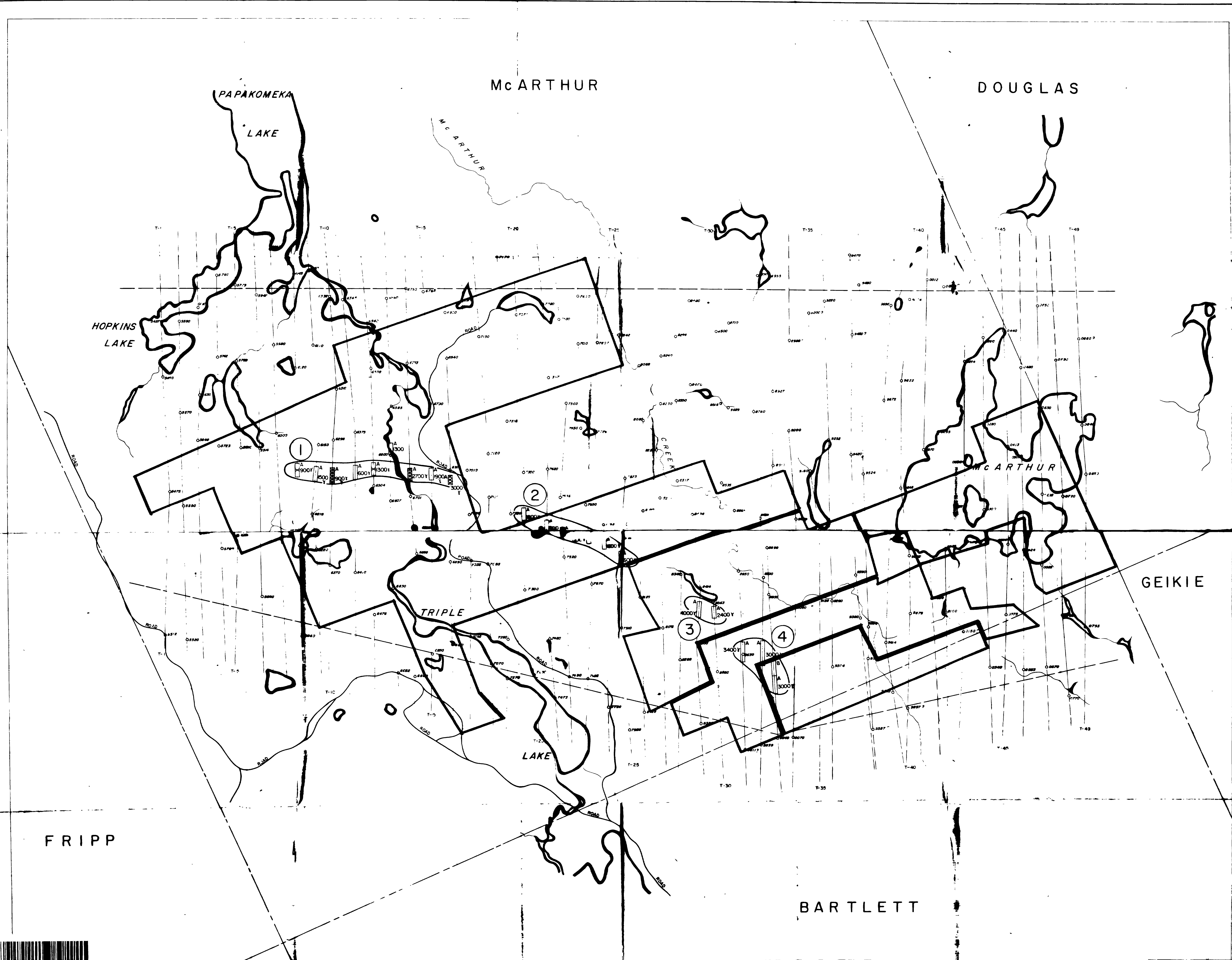
- MEAN TERRAIN CLEARANCE 150 FEET
- FLIGHT LINE SPACING 1/8 MILE
- RIVERS AND LAKE
- HORIZONTAL CONTROL BASED ON PHOTO AERIAL PHOTO

AIRBORNE MAGNETOMETER SURVEY  
**McARTHUR TOWNSHIP AREA**  
 ONTARIO  
 ACME GAS & OIL CO. LIMITED  
 SCALE 1 INCH = 1/4 MILE (APPROX)

Assessment Work  
 T-1273



CANADIAN AERO  
*Aerial Survey* LTD.  
 OTTAWA & TORONTO, ONTARIO



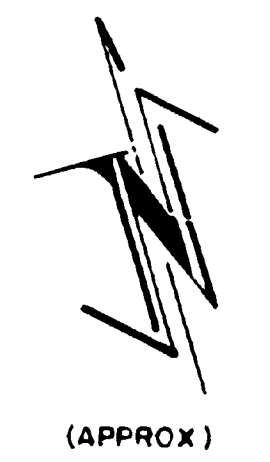
LEGEND

- 1 A ANOMALY
- 1 B ANOMALY
- 2 A ANOMALY
- 2 B ANOMALY
- 3 ANOMALY
- X Type ANOMALY

MEAN TERRAIN CLEARANCE 100 FEET  
 FLIGHT LINE SPACING 1/8 MILE  
 RIVERS AND LAKES  
 HORIZONTAL CONTROL BASED ON PHOTO LAYDOWN

AIRBORNE ELECTROMAGNETIC SURVEY  
**McARTHUR TOWNSHIP AREA**  
 ONTARIO  
 ACME GAS & OIL CO. LIMITED  
 SCALE 1 INCH = 1/4 MILE (approx)

Assessment Work  
 T-1273



CANADIAN AERO  
*Aerial Surveys* LTD.  
 OTTAWA & TORONTO, ONTARIO