42G04SW0207 2.3283 MINNIPUKA

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REPORT

ON AN

AEROMAGNETIC SURVEY

WALLS AND MINNIPUKA TOWNSHIPS

ONTARIO

AMAX MINERALS EXPLORATION LTD.

RECEIVED
APR 30 1980
MINING LANDS SECTION

April, 1980

A. Watts
Geophysicist

Qualifications
2.2910

INTRODUCTION

During the month of October, 1979, Aerodat Limited undertook an aeromagnetic survey, covering a large proportion of Walls and Minnipuka Townships, Northern Ontario, for Amax Minerals Exploration Limited.

The purpose of the survey was to supplement the limited geological information available on the above mentioned townships, and to provide a high-quality database for further mineral exploration activity in the area.

Key personnel present for the duration of the survey were; A. Watts, Amax staff geophysicist and W. Boyko, operating manager for Aerodat Limited. Other personnel involved were:

G. Tremblay - Amax geologist
M. Watt - Helicopter pilot
W. Courier - Dataman

SURVEY PROCEDURE

The survey was flown at a line spacing of 200 metres. Survey airspeed averaged 120 km/h, and the aircraft - (Bell 206 Jet-Ranger helicopter) maintained an average terrain clearance of 70 metres, with the magnetometer sensor located 15 metres below the helicopter, approximately 55 metres above ground.

Survey equipment consisted of a Barringer AM-104 proton precession magnetometer, an Aerodat-Perle data acquisition system, a Hoffman radar altimeter a Geocam 35 mm flight path camera, and a Barringer 8-channel analogue recorder. All geophysical data were also recorded digitally on magnetic tape.

Flight path was recorded manually by an experienced navigator, and also automatically be 35 mm Geocam continuous strip camera. A base station magnetometer was established in the area to monitor local diurnal fluctuations.

DATA PRESENTATION

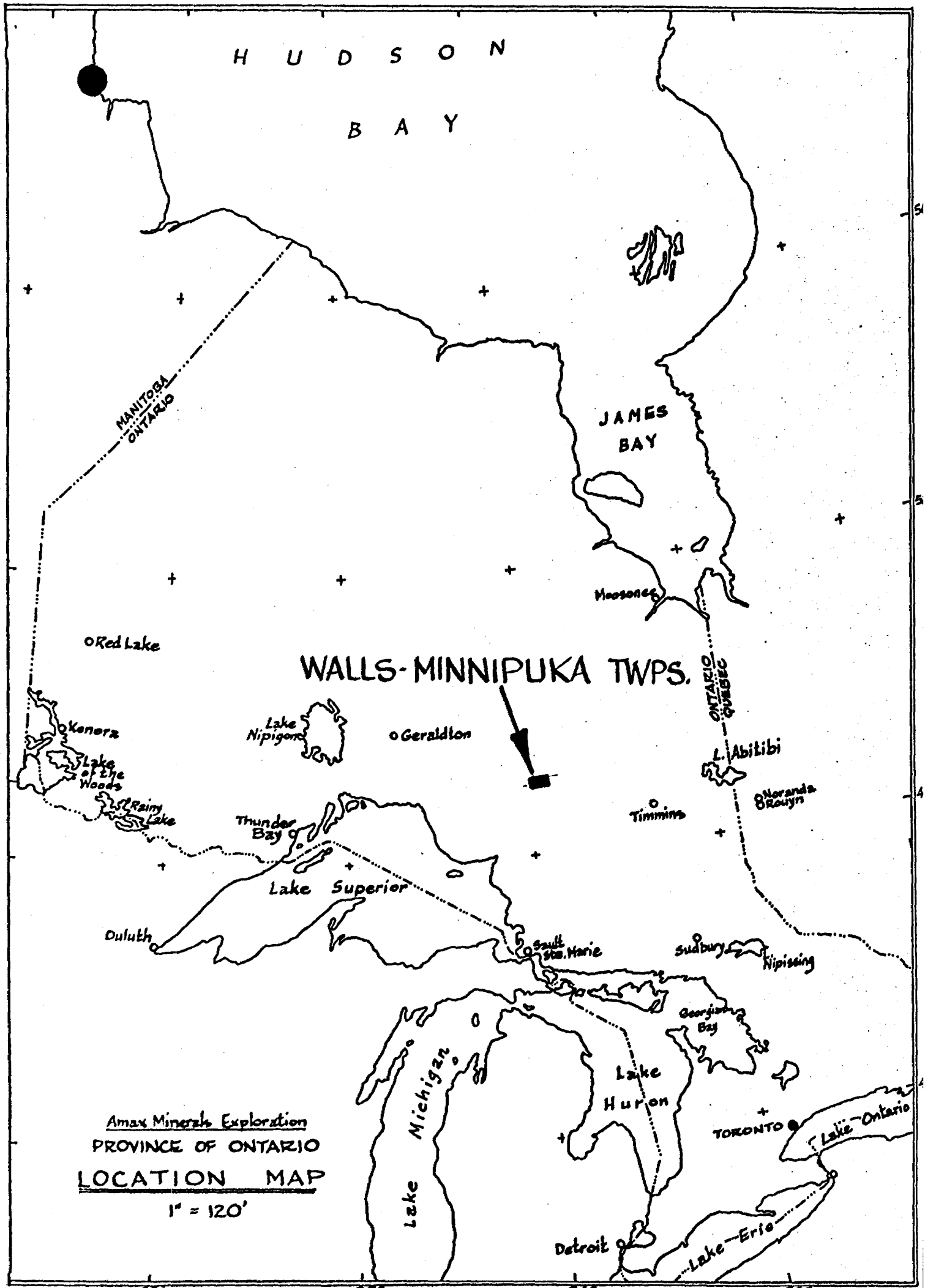
The aeromagnetic data is presented in computer contoured plan form. The data has been contoured at a nominal 20 gamma interval. Where steep magnetic gradients are encountered, over serpentinite and iron-formation for instance, the contouring interval is 100 gammas. No filtering has been carried out on the magnetic data.

The survey was flown in two contiguous blocks, flight direction differing by 20 degrees between the two so as to maintain orthogonality with anticipated geological strike. Thus the data is presented on two separate maps, Map 1 and Map 2. Matching of contours in the overlap region of the two maps is good. A summary interpretation, representing the gross geological features outlined by the survey, and condensing the above two 1:15 000 maps into a single 1:50000 map, is also presented in the report.

EXPLORATION HISTORY

Prior to Amax Survey, the narrow volcanic belt passing through Walls and Minnipuka Townships had received scant attention. Only two drill holes had been recorded for assessment credit in Walls and none in Minnipuka. Possible drill pad locations can also be discerned in three locations on recent aerial photography. Government geology maps of the area are rather sketchy and most geological boundaries are inferred.

The present survey, with its attendant excellent resolution, represents a substantial addition in both the geological and geophysical sense, to the limited exploration database available before the survey.



Amax Minerals Exploration

PROVINCE OF ONTARIO

LOCATION MAP

1" = 120'

DISCUSSION OF RESULTS

The aeromagnetic contour map is notable for the number of linear features of both high and low susceptibility variety, produced. The high susceptibility features fall into two categories:

i) N.W. and N.E. trending diabase dykes

Most of the dykes display the former - (N-W) orientation, the only major NE trending dyke being situated toward the eastern edge of Map 1, approximately 600 metres east of Walls Lake. Many of the NW trending dykes on Map 1 branch off from this dyke and are substantially less magnetic 50-200γ(N-W) versus 200 - 400γ(N-E), above a background of 60,000 γ. On Map 2, virtually all dykes trend NW and do not display the same branching character evident on Map 1.

ii) EW trending Iron Formation

This geological unit forms several dominantly EW linear magnetic features, one of which can be traced the width of the entire two survey blocks. The latter horizon occurs immediately south of the CNR railway line on Map 1, and continues onto Map 2, where it thickens markedly at the western edge, i.e. between lines 1 and 23, and then abruptly narrows again from line 23 eastward, passing by the southern tip of Goat Lake. The many minor (100-200 metres) dislocations of this zone along strike on Map 2 suggest the presence of a number of parallel NNE striking faults.

A second major iron formation horizon occurs along the northern boundary of the survey block on Map 2. This horizon is substantially more magnetic than the unit mentioned above, and the contorted nature of the contours between lines 17 and 45 suggest a complex pattern of folding.

The majority of low susceptibility linear features occur on Map 2, along the axes of the most prominent lakes in the area i.e Goat and Little Goat Lake. Where these linears cross iron formation a dislocation generally occurs, the inference being that they are fault zones.

The strongest magnetic response recorded on the survey occurs immediately north of the drill-hole recorded by Sand River Gold Company on the Pichogen River. This drill-hole intersected magnetite-rich serpentinite, which is therefore the attributed source of this ovoid magnetic feature.

The largest single magnetic feature on either of the survey maps is the pear-shaped positive magnetic anomaly which occupies the central portion of Map 2 from lines 26 to 87. From reconnaissance geology carried out in the vicinity of Goat Lake, this feature would appear to relate to a granitic intrusion. Granites seldom exhibit as distinct a magnetic signature as is the case here, and magnetite contamination from surrounding iron formation is a possible source for the enhanced magnetic response. Reconnaissance geology indicates that most of the magnetically bland portions of Map 2 are a combination of non-magnetic basic to intermediate volcanics and/or metasedimentary units. Government geology maps infer the presence of intrusive granite in the Map 1 survey area, the contact of which approximates the portions of the Map 1 below background (60,000 γ) level; but areas of similar magnetic tenor in Map 2 area are occupied by basic to intermediate volcanics. Limited geological checking on the ground might resolve this discrepancy.

CONCLUSIONS AND RECOMMENDATIONS

The aeromagnetic survey has succeeded in outlining numerous geological features, most of which can be related to specific geologic rock types i.e. diabase dykes, iron formation, serpentinite, and granite.

The diabase dykes and the iron-formation horizons, which form three quasi-parallel zones on Map 1, two on Map 2, form a complex crosscutting pattern, especially at the eastern edge of Map 1. Faulting is suggested on Map 2, where easily recognisable iron formation is displaced in several places along strike.

The magnetic contour map should prove invaluable for regional geological correlations when the area is further investigated on the ground.

Respectfully submitted,

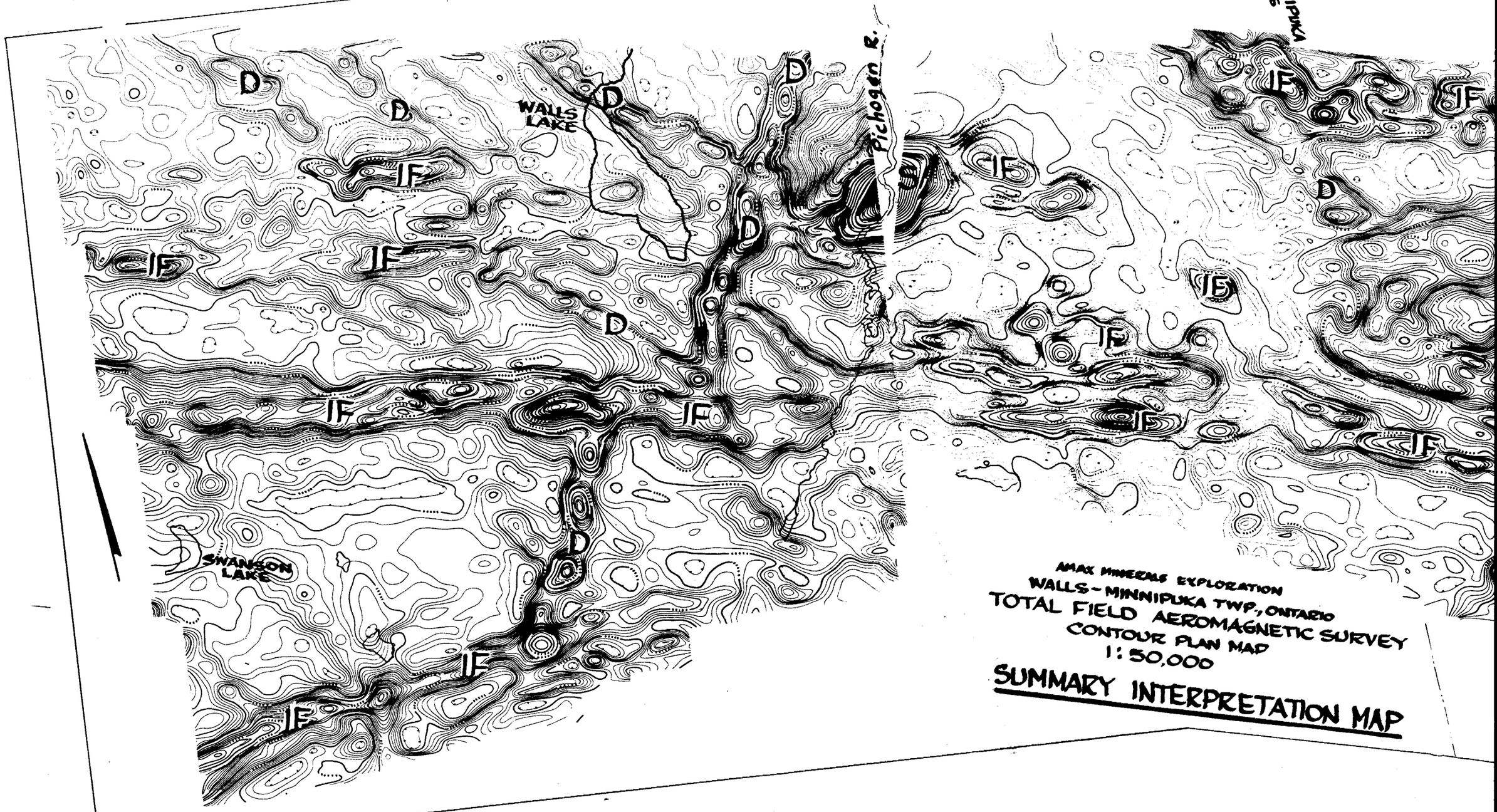
A. Watts

A. Watts

SCHEDULE OF CLAIMS

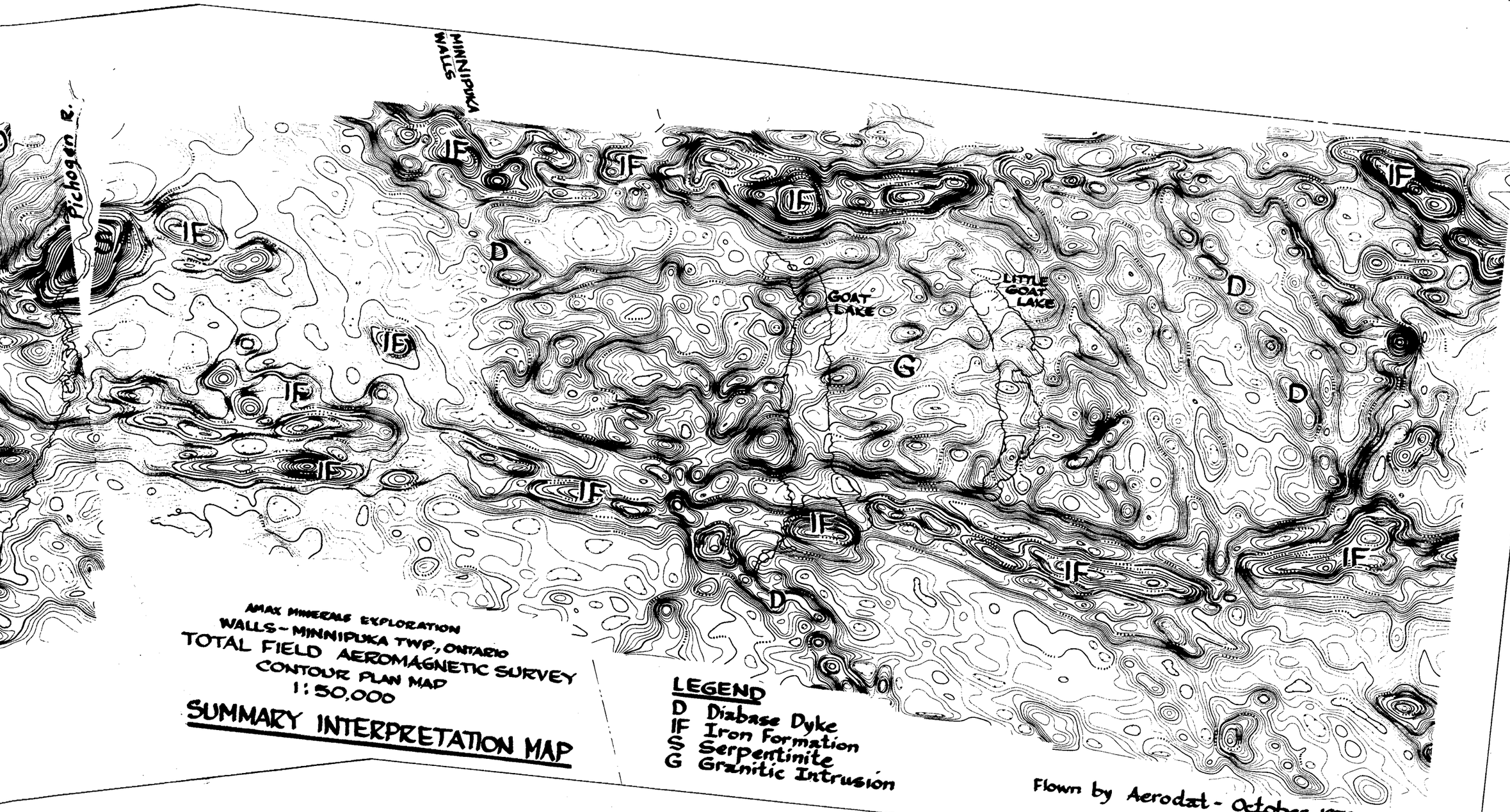
Our Reference		
1039-01 (Walls-1)	549526 549527 549528 549529 549530 549531	(6)
1039-02 (Walls-2)	549308 549309 540310 549446 549447 549448 549449 549450 386845 386846 386847	(11)
1039-03 (Walls-3)	549532 549533 549534 549535	(4)
1039-04 (Walls-4)	549451 549452 549453 549454 386840 386841 386842 386843 386844	(9)
1039-05 (Walls-5)	549314 549315 549316 549317 549318 549319 549320 386830 386831 386832 386833 386834 386835 386836	(14)
1039-06 (Walls-6)	549321 549322 549323 549324 549325 549486 549487 386837 386838	(9)
1039-07 (Walls-7)	549536 549537 549538 549539 386828 386829	(6)
1039-08 (Walls-8)	549312 549313 386839	(3)
1030-09 (Minni-1)	549455 549456 549457 549458 549459 549460 549461 549462 549463 549464 549465 549466 549467 549468 549469 549470 549471 549472 549473 549474 386854 386855 386856 386857 386858	(25)
1039-10 (Minni-2)	549551 549552	(2)
1039-11 (Minni-3)	549553 549554	(2)
1039-12 (Minni-4)	549488 549489 549490 549491	(4)
1039-13 (Minni-5)	549540 549541 549542 549543 549544 549545 549546 549547 549548 549549 549550 386848 386849 386850 386851 386852 386853	(17)

Total of 112 claims



AMAX MINERALS EXPLORATION
WALLS - MINNIPUKA TWP., ONTARIO
TOTAL FIELD AEROMAGNETIC SURVEY
CONTOUR PLAN MAP
1:50,000

SUMMARY INTERPRETATION MAP



AMAX MINERALS EXPLORATION
WALLS - MINNIPUKA TWP., ONTARIO
TOTAL FIELD AEROMAGNETIC SURVEY
CONTOUR PLAN MAP
1:50,000

SUMMARY INTERPRETATION MAP

LEGEND

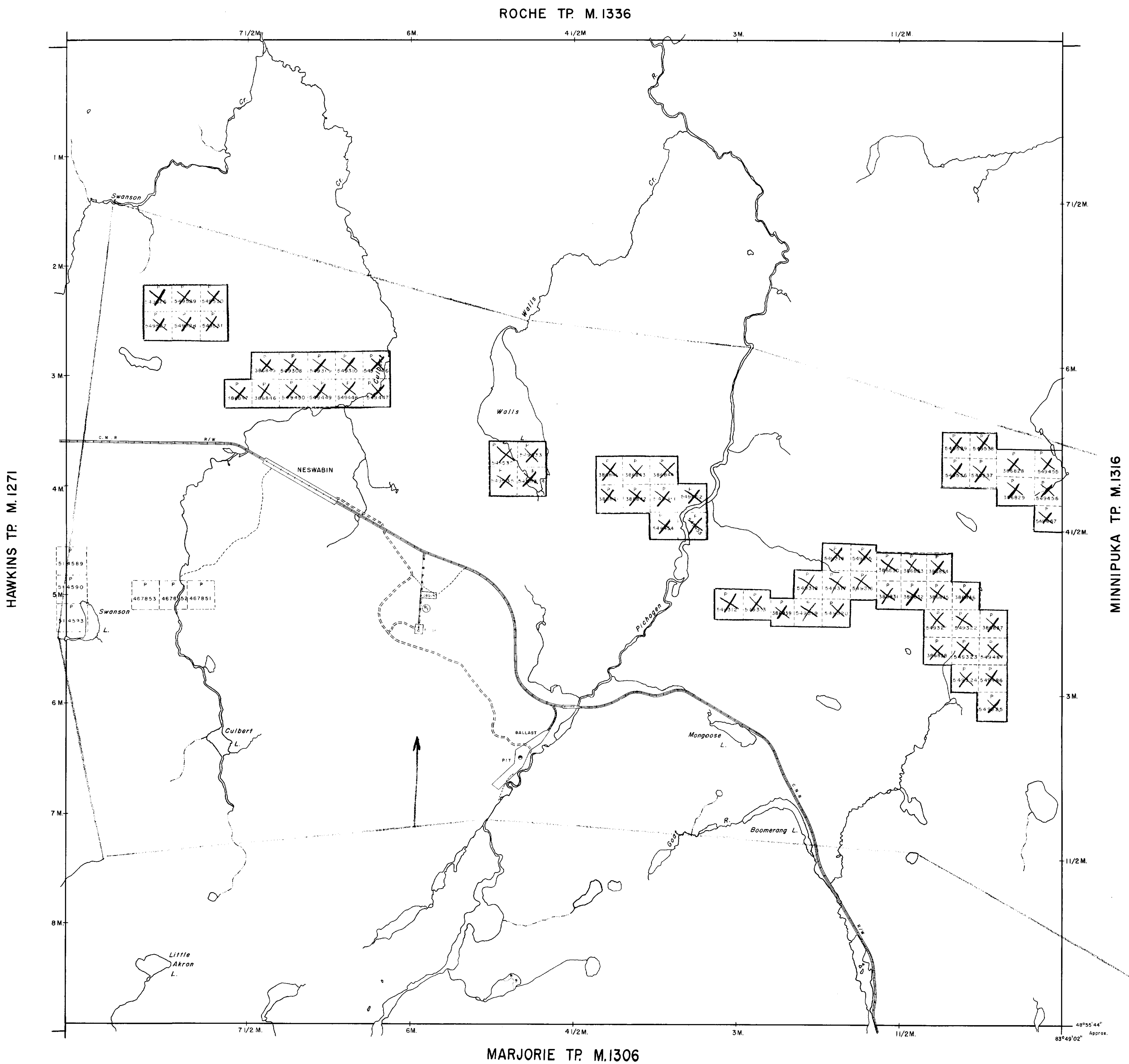
D Diabase Dyke
IF Iron Formation
S Serpentinite
G Granitic Intrusion

Flown by Aerodat - October 1979.

NOTES

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

(R) Crown Reserve [illegible] 8th, 1962 [illegible] 160705 [illegible] Right of way, tower, and cabin.)



DATE OF ISSUE
APR 30 1990
SURVEYS AND MAPPING BRANCH

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
- ORIGINAL SHORELINE
- MARSH OR MUSKEG
- MINES

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	▼
CROWN LAND SALE	C.S.
ORDER-IN-COUNCIL	OC
RESERVATION	(R)
CANCELLED	(X)
SAND & GRAVEL	(G)

SCALE: 1 INCH = 40 CHAINS

FEET 0 500 1000 2000 4000 6000 8000

METRES 0 200 400 600 800 1 KM 2 KM

ACRES	HECTARES
40	16

TOWNSHIP 2.3283

WALLS

DISTRICT **ALGOMA**

MINING DIVISION PORCUPINE

Ministry of Natural Resources
Ontario
Surveys and Mapping Branch

Date

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PELLETIER TWP.

WALLS TWP.

BYNG TWP.

LEGGE TWP.

8M. 7M. 6M. 5M. 4M. 3M. 2M 1M.

7.5M. 6M. 4.5M. 3M. 1.5M.

8M. 7M. 6M. 5M. 4M. 3M. 2M. 1M.

6M. 4.5M. 3M. 1.5M.

River

Goat

Little

Goat River

Goat Lake

Little Goat Lake

North Dishnish Lake

1 Mile

1 Mile

1 Mile

1 Mile

R1

THE TOWNSHIP OF 2.3283 MINNIPUKA

DISTRICT OF ALGOMA

PORCUPINE 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 around all lakes and rivers.

Areas withdrawn from staking under Section 43 of the Mining Act (R.S.O. 1970).

Order No	File	Date	Disposition
(R1)	w.37/78	188518 JULY 18, 1978	S.R.O.

SAND AND GRAVEL

(Q) QUARRY PERMIT

DATE OF ISSUE
APR 30 1980
SURVEYS AND MAPPING BRANCH

PLAN NO.- M-1316

ONTARIO
MINISTRY OF NATURAL RESOURCES
SURVEYS AND MAPPING BRANCH

42G04SW0207 2.3283 MINNIPUKA

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