



31M04SW0041 2.2519 STRATHCONA

010

OCT 27 1977

PROJECTS UNIT

REPORT ON GEOLOGICAL MAPPING

LOWELL LAKE PROPERTY

September 30, 1977.  
Toronto, Ontario.

W.Paul Binney  
St. Joseph Explorations Ltd.

## INTRODUCTION

The Lowell Lake property consists of 47 contiguous claims optioned from L.Savard, Val d'Or, Quebec.

Geological mapping was done on the Lowell Lake property to outline the distribution of rock types, delineate zones of sulphide mineralization, and account for horizontal loop electromagnetic anomalies resulting from a winter survey. All areas of the claims were traversed using grid lines spaced a maximum of 100m apart for control.

## LOCATION AND ACCESS

The Lowell Lake property is located in Strathcona Township, NTS 31L/13, 31M/4 in the Sudbury Mining Division. This property is 5 to 7 kilometres south of the town of Temagami.

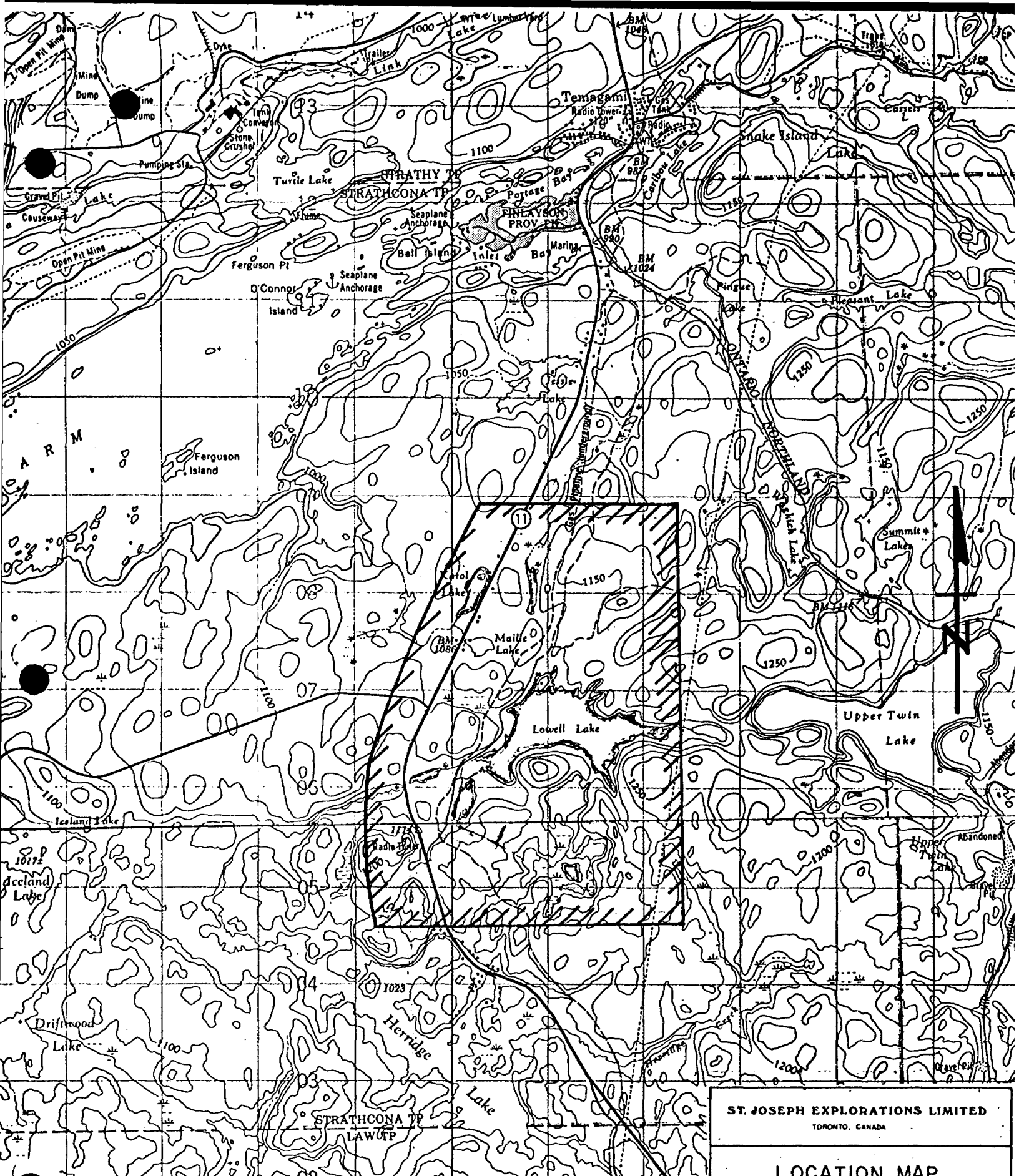
Access to the property is from Highway 11 and the Lowell Lake road which run through the western and central portions of the property respectively (see location map).

## HISTORY

Work has been carried out on ground covered by this property since 1955. Below is a summary of previous work:

1955 - Sylvante G.M.L.: - trenching and sampling of area north of Lowell Lake.

- Newkirk Mining Corporation: ground magnetic and EM resistivity and 5 short holes (269') drilled in Maille Lake area.



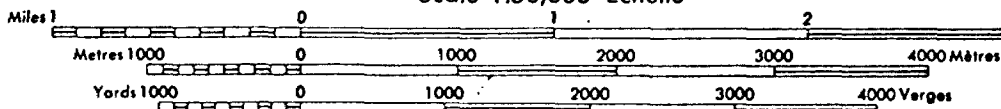
ST. JOSEPH EXPLORATIONS LIMITED  
TORONTO, CANADA

### LOCATION MAP

SCALE 1"=

APPROX LAT & LONG OF LOWER RT COR OF DWG	PROJECT NO 189	SHEET NO
— — — — — LATITUDE	REPORT NO	OF
— — — — — LONGITUDE		NTS 31M±

Scale 1:50,000 Échelle



History (cont'd)

- 1956 - Trembor M.L.: ground EM and 'radiograph' surveys and geological mapping. 5 holes (1434') were drilled at south end of small lake about 305m. SW of Lowell Lake. Only minor sulphides were encountered.
- E.McWilliam: 3 holes (168') were drilled in area immediately south of ground held by Trembor M.L.
- 1969 - Vinnie M.L.: geological mapping, soil geochemistry (Hg) survey and magnetic survey in Maille Lake area.
- 1971 - Riocanex: examination of property, samples analysed for ScO<sub>2</sub>, TiO<sub>2</sub>, K<sub>2</sub>O, Na<sub>2</sub>O, Au, Cu, Zn.
- 1972 - Manbar M.L.: VLF and magnetic surveys in area S and SW of Lowell Lake.
- 1974 - Copperfields (Teck): VLF EM and magnetic surveys on SW part of Lowell Lake.
- 1975 - Umex: examination of property and several samples assayed.
- 1977 - St. Joseph Explorations Ltd: horizontal loop EM survey conducted over current claim group.

GEOLOGYGeneral Statement

The Lowell Lake claims are underlain by mafic and minor felsic volcanic rocks of Archean age. These volcanics are bounded on the west by the Iceland Lake pluton and Nipissing diabase and to the east are overlain by Huronian sediments and Nipissing diabase. Two major east-trenching faults cut all the rock types.

Rock Types

The oldest rocks observed in the field area are Archean volcanics. Dark grey to black, fine-grained, chloritic mafic rocks, usually basaltic in composition, are the most common volcanic rocks. Particularly good examples of pillowed basalt are observed from L21N to L26N and in the Highway 11 roadcuts near L3 + 50E. The remaining portion of the mafic volcanics is massive and structureless.

Geology (cont'd)Rock Types (cont'd)

In the vicinity of Maille Lake and to the south of the Lowell Lake fault, there are thin beds of tuffaceous felsic rocks. These light grey, siliceous, white weathering rocks range from dacite to rhyolite in composition. It is a common feature of the Lowell Lake area that about these felsic rocks there is an area of silicic alteration in the mafic rocks. An important economic association is trenches exposing pyrrhotite-chalcopyrite mineralization in the felsic rocks.

The north-trending belt of volcanic rocks is intruded on the west by quartz diorite and granite of the Iceland Lake pluton. There is also a smaller area of granite south of Lowell Lake from 6+00E to 8+00E on L 0+00 to L 3+00S. In the Highway 11 roadcuts in the vicinity of L1+00N and also along L1+00N, it is possible to observe the marginal phases of intrusion with a progression from west to east and north of massive quartz diorite to quartz diorite with blocks of mafic volcanics to granitic dykes cutting mafic volcanics.

In addition to granite, the volcanic rocks are also intruded by a variety of porphyritic rocks, the most common being feldspar porphyry dykes. Outcrops along Highway 11 in the vicinity of L6+00S suggest that feldspar porphyry, seen cutting the quartz diorite at this location, is younger than the granitic intrusive. In addition to feldspar porphyry there are also quartz and quartz-feldspar porphries. They occur only in the vicinity of the Maille Lake showings and south of Lowell Lake on L1+00S. The phenocrysts in the porphyries are 1 to 5mm in size (average 2mm) and occur in a fine-grained, light-grey, siliceous matrix. In contrast, quartz diorite porphyry (Fd) has 7 to 10mm sodic-plagioclase phenocrysts in a finer-grained crystalline matrix. This rocks type outcrops only in a limited portion of the south grid.

Geology (cont'd)Rock Types (cont'd)

Hornblende-bearing feldspar porphyry (Fe) has been included with porphyritic rock types on the basis of lithology, however, outcrop data suggests that at least some of the hornblende feldspar porphyry is due to contact metamorphism of mafic volcanic rocks by feldspar porphyry dykes.

One of the major problems in the Lowell Lake area is the recognition of Archean mafic intrusions and their separation from metamorphosed mafic volcanic rocks and younger Nipissing age mafic intrusives. Two mafic dykes cut both granitic and volcanic rocks. Their relative high relief and consistent 340° bearing made recognition possible. More of a problem were the mafic sills, believed to be Archean, which outcrop in the Maille Lake area and to the north. These thin sheetlike masses are relatively flat lying and occur in areas of low relief. In most cases they are indistinguishable from Nipissing diabase.

Overlying all of the aforementioned rocks are Huronian sediments, primarily polymictic paraconglomerate and varved siltstone. These sediments occur in the eastern part of the claim group and form a 30 to 75m thick unit dipping east at a low angle (less than 30°).

A thick (greater than 50m) Nipissing diabase sill outcrops in the southern part of the field area, covering the volcanic rocks. To the north-east the diabase cuts Huronian sediments.

Structure

The Lowell Lake property is characterized by rocks having a low dip, in many cases being almost flat lying. At the north end of the claim group (L21N to L26N) undeformed pillowed lavas can be observed that indicate tops are up.

Geology (cont'd)Structure (cont'd)

The most prominent structural feature on the Lowell Lake property is two east-trending faults, the Lowell Lake fault and the Temagami road fault. These normal faults cross-cut the entire claim group and offset all the major rock types - volcanics, plutonics and tillite.

Another set of faults, more local in extent, trend roughly north-west and offset the tillite-volcanic contact. The large offsets of the tillite could be caused by small vertical displacements due to the low dip of the rocks.

There are open folds in the vicinity of Maille Lake. In this area the felsic rocks have a very low dip and these open folds serve to give the rocks a wide lateral extent. In the southern part of the property there is a large scale fold (centred about L1+50E). The rocks on one limb trend north and dip east and on the other limb trend east and dip south. This fold is shown by a rotation in the foliations and a change in orientation of a sulphide-bearing felsic volcanic unit.

Mineralization

A series of mineralized pits and outcrops were observed south of the Lowell Lake fault and in the vicinity of Maille Lake. These showings fall into two major categories: 1) by far the most common, and important, occurrences are those of massive to disseminated pyrrhotite and pyrite with minor contained chalcopyrite and sphalerite. This mineralization is associated with felsic rocks or, less commonly, silicified mafic rocks. The mineralized horizons can be traced for distances up to 1 km and are greater than 1 m in thickness in many locations. A list of pit locations with Cu and Zn average grades are shown below:

Geology (cont'd)Mineralization (cont'd)

<u>PIT LOCATION</u>	<u>% Cu</u>	<u>% Zn</u>	<u>COMMENTS</u>
L13+50N 4+50W	0.13	0.17	Pits by Maille Lake
2+63W	0.22	0.18	Pits by Maille Lake
2+30W	0.40	0.11	Pits by Maille Lake
L12+50N 2+83W	0.16	0.01	Pits by Maille Lake
2+75W	0.73	0.01	Pits by Maille Lake
L10+50N 0+73W	0.19	0.02	Pits by Maille Lake
L9+50N 1+00W	0.18	0.28	Pits by Maille Lake
L9+00N 0+55W	0.37	0.06	Pits by Maille Lake
L0+00N 0+41E	0.32	0.28	Pits S of Lowell Lake fault
L1+00S 1+00E	0.10	0.22	Pits S of Lowell Lake fault
L5+00S 1+19E	0.34	0.36	Pits S of Lowell Lake fault
L1+00E 6+57N	0.08	0.02	Following are on South Grid
4+12N	0.51	0.29	
4+00N	0.18	0.05	
L1+00E Highway 11	0.19	0.34	
L1+00E 0+72N	0.03	0.09	
L2+50E 0+00N	0.09	0.16	
L4+00E 0+75N	0.82	0.02	

Although Au, Ag and Pb were also analysed no significant concentrations were noted.

2) Two small occurrences were noted in brecciated mafic volcanics. In both cases, the breccia was infilled with calcite and irregular patches of pyrrhotite and chalcopryrite. These showings are on the north shore of Maille Lake and on the gas pipeline at L18+00N.



CONCLUSIONS and RECOMMENDATIONS

Detailed mapping of the Lowell Lake property has resulted in the recognition of several felsic horizons of economic interest. These occur to the east and south of Maille Lake and south of the Lowell Lake fault. The horizontal loop electromagnetic survey (W.Ng-See-Quan, April, 1977) indicated an anomaly on line 4+00E, south grid. Due to its coincidence with a chalcopyrite bearing massive sulphide horizon at L4+00E and 0+75N this anomaly should be tested by drilling. Further geophysical work is suggested covering the felsic horizons by Maille Lake and south of Lowell Lake. These may not have been adequately covered by the horizontal loop electromagnetic due to the shallow dip of the rock units.

If suitable targets can be outlined in these areas of interest using geophysical or other techniques then drilling is warranted.

Respectfully submitted

WPB\*MS

W.Paul Binney M.Sc.

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Respectfully submitted

*W. Paul Binney*  
W. Paul Binney M.Sc.

WPB\*MS



**GEOPHYSICAL - GEOLOG  
TECHNICAL DAT**



31M04SW0041 2.2519 STRATHCONA

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**TO BE ATTACHED AS AN APPEN  
FACTS SHOWN HERE NEED NOT BE REPEATED IN REPORT  
TECHNICAL REPORT MUST CONTAIN INTERPRETATION, CONCLUSIONS ETC.**

Type of Survey(s) Geological  
 Township or Area Strathcona  
 Claim Holder(s) St. Joseph Explorations Ltd.  
 Survey Company St. Joseph Explorations Ltd  
 Author of Report W. Paul Binney  
 Address of Author 90 Eglinton Ave W., Suite 505, Toronto  
 Covering Dates of Survey June 9/77 - Sept 30/77  
 (linecutting to office)  
 Total Miles of Line Cut \_\_\_\_\_

**MINING CLAIMS TRAVERSED**  
List numerically

SEE ATTACHED LIST  
(prefix) (number)

**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 \_\_\_\_\_  
 - Radiometric \_\_\_\_\_  
 - Other \_\_\_\_\_  
 Geological 20  
 Geochemical \_\_\_\_\_

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

Magnetometer \_\_\_\_\_ Electromagnetic \_\_\_\_\_ Radiometric \_\_\_\_\_  
(enter days per claim)

DATE: Sept 30/77 SIGNATURE: W. Paul Binney  
Author of Report or Agent

Res. Geol. \_\_\_\_\_ Qualifications \_\_\_\_\_

**Previous Surveys**

File No.	Type	Date	Claim Holder

**TOTAL CLAIMS** \_\_\_\_\_

If space insufficient, attach list

OFFICE USE ONLY

Mining Claims Traversed

S 437824	S 438464
S 437825	S 438465
S 437826	S 438466
S 437827	S 438467
S 437828	S 438468
S 437829	S 438469
S 437830	S 438470
S 437831	S 438471
S 437832	S 438472
S 437833	S 438473
S 437694	S 438474
S 437697	S 446576
S 437698	S 446577
S 437699	S 446578
S 437700	S 446579
S 437701	S 446580
S 437702	S 446581
S 437703	S 446582
S 437704	S 446583
S 437895	S 446584
S 437896	S 446585
S 437897	
S 437898	
S 437899	
S 437937	
S 437946	

Total Claims = 47

**NOTES**

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

**SAND and GRAVEL**

- ① Gravel File 132830
- ② Gravel File 146693

Sand and gravel in this township reserved until further notice.

**AREAS WITHDRAWN FROM STAKING**

S.R. - SURFACE RIGHTS      M.R.-MINING RIGHTS

Section	Order No.	Date	Disposition	File
① 43 (R.S.O 1970)	W 70/76	13/12/76	S R	146693

Island 25 (Bell Id.) - all Crown land reserved. File 68120  
 " 27 - " " " " " 181119  
 " 49 (O'Connor) - " " " " " 181200

Islands in Lake Timagami NOT OPENED FOR STAKING.

This Township lies within THE CORPORATION OF THE IMPROVEMENT DISTRICT OF TEMAGAMI. File 176049.

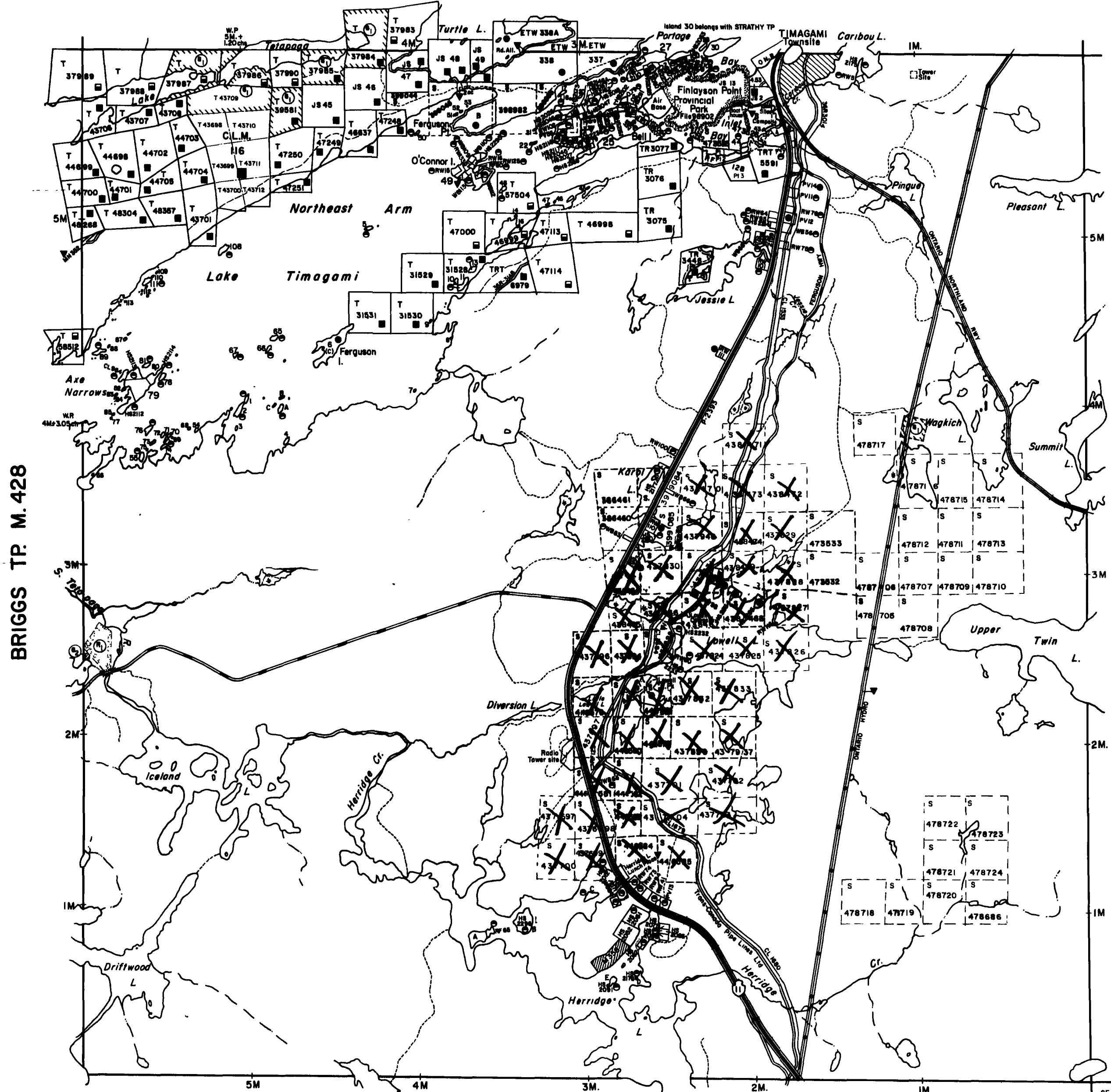
**DATE OF ISSUE**  
**OCT 28 1974**  
**SURVEYS AND MAPPING**  
 Branch



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200

**STRATHY TP. M.596**



BRIGGS TP. M.428

RIDDELL TP. M.578

**LAW TP. M.529**

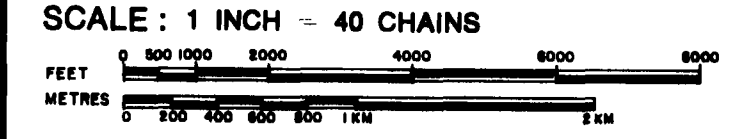
SE CORNER co-ordinates  
 LAT 46°58'20" APPROX  
 DEP 79°45'20"

**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	⊙
CANCELLED	⊗
SAND & GRAVEL	⊕



ACRES	HECTARES
40	16

TOWNSHIP 2.2519  
**STRATHCONA**  
 DISTRICT NIPISSING  
 MINING DIVISION SUDBURY

Ministry of Natural Resources  
 Ontario Surveys and Mapping Branch

Date MAY 1974      Plan No. M.595  
 Whitney Block  
 Queen's Park, Toronto

MIDDLE PRECAMBRIAN  
 Mafic Intrusive Rocks (Nipissing Type)  
 11a Quartz-bearing diabase, gabbro  
 11b Quartz diorite  
 Huronian Supergroup  
 Cobalt Group  
 Gowganda Formation

10a Greywacke, siltstone, argillite  
 10c Polymictic conglomerate  
 10e Varved siltstone, minor pebbles

EARLY PRECAMBRIAN (ARCHEAN)  
 Mafic Intrusive Rocks  
 9a Altered diorite and diabase, dykes and sills<sup>①</sup>  
 9b Chloritic mafic dykes  
 9c Biotitic lamprophyre

Intermediate to Felsic Intrusive Rocks  
 Hypabyssal Felsic Intrusive Rocks  
 7a Quartz porphyry  
 7b Quartz-feldspar porphyry  
 7c Feldspar porphyry  
 7d Quartz diorite porphyry  
 7e Hornblende-bearing feldspar<sup>②</sup>

Granitic Intrusive Rocks  
 6a Quartz monzonite  
 6b Hornblende trondhjemite  
 6c Hornblende quartz diorite; diorite  
 6g Andesite, felsite, pegmatite  
 6h Granite  
 6j Gabbrodiorite

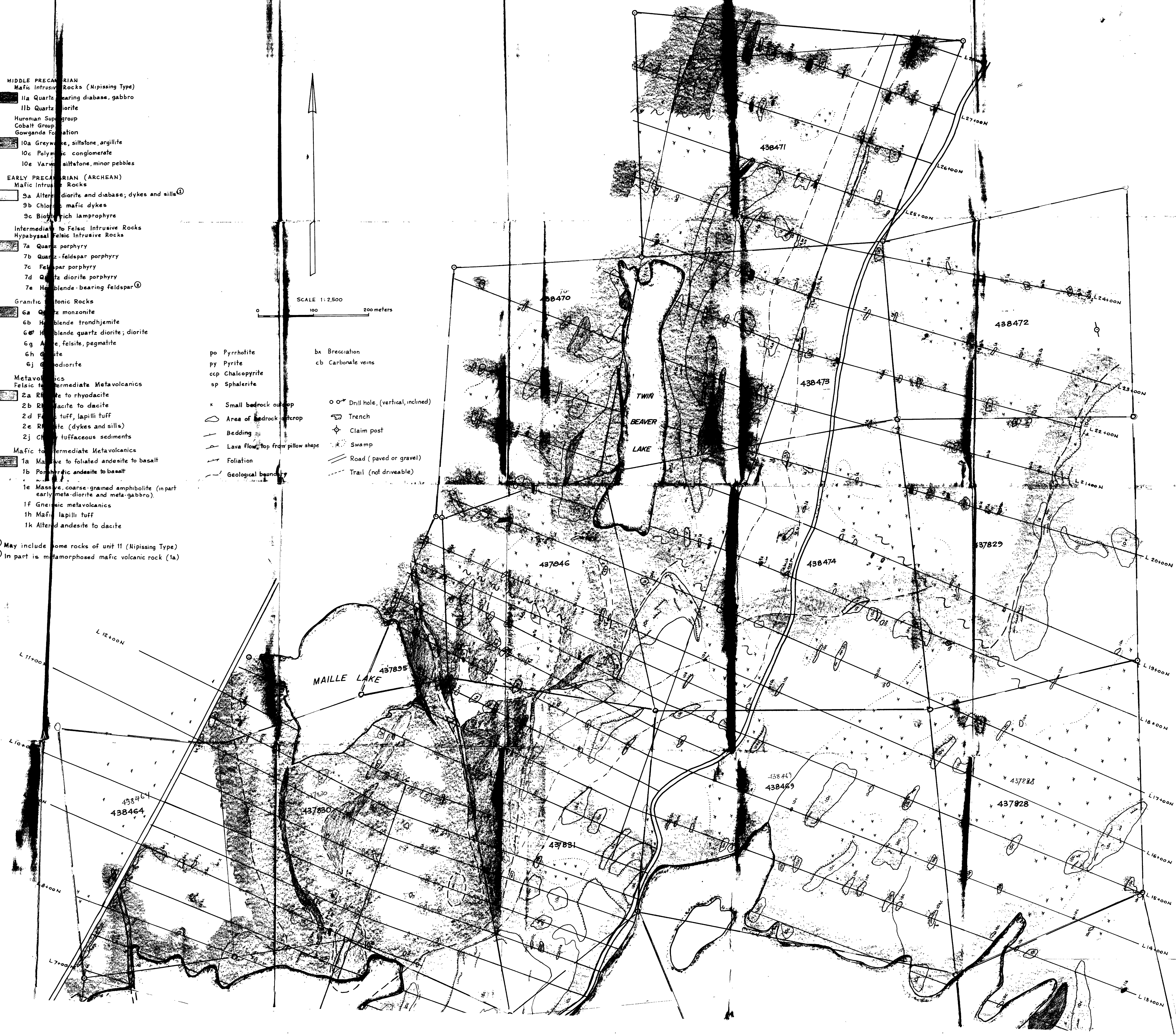
Metavolcanics  
 Felsic to Intermediate Metavolcanics  
 2a Rhyolite to rhyodacite  
 2b Rhyodacite to dacite  
 2d Felsic tuff, lapilli tuff  
 2e Rhyolite (dykes and sills)  
 2j Cherty tuffaceous sediments

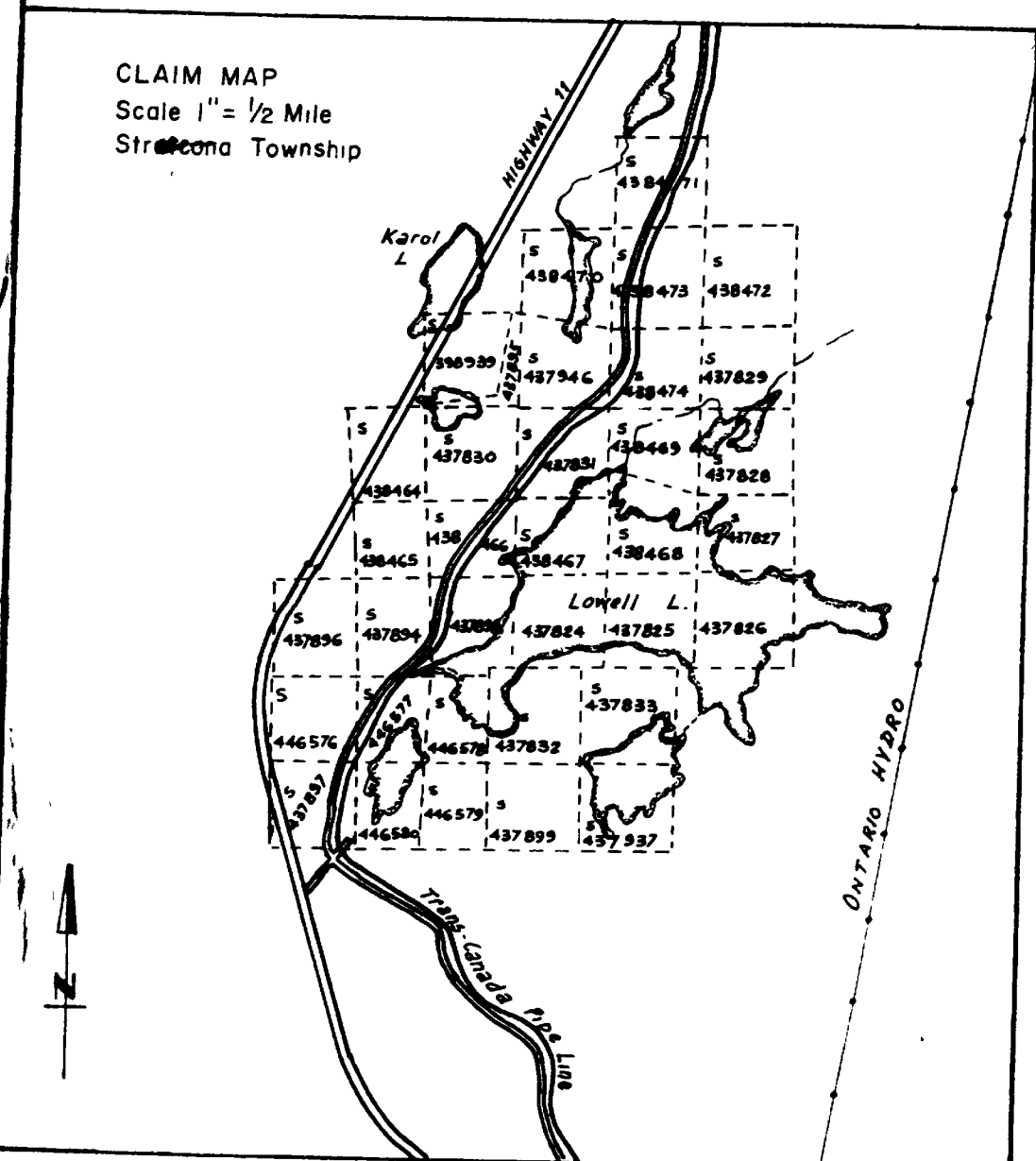
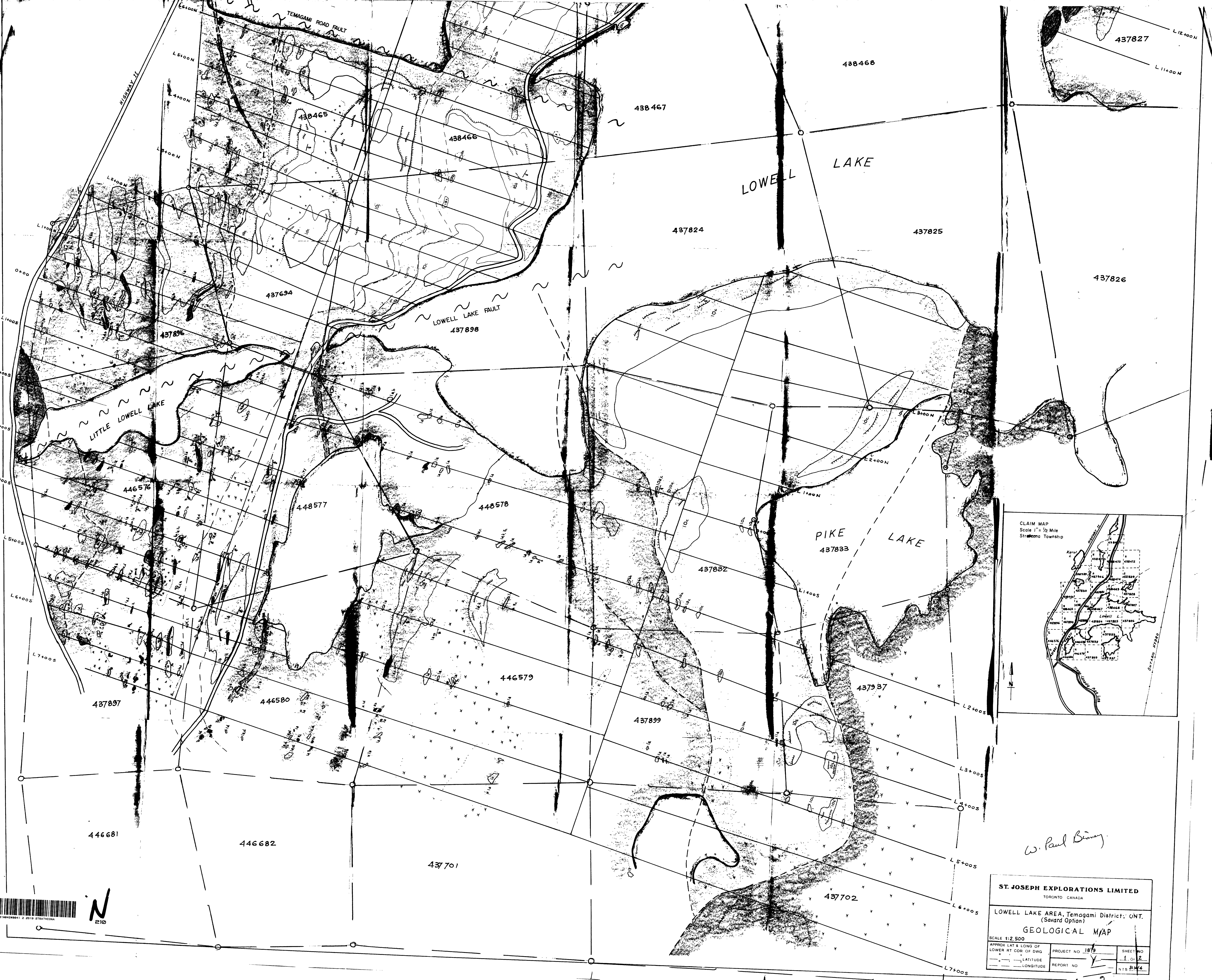
Mafic to Intermediate Metavolcanics  
 1a Massive to foliated andesite to basalt  
 1b Porphyritic andesite to basalt  
 1e Massive, coarse-grained amphibolite (in part early meta-diorite and meta-gabbro)  
 1f Gneissic metavolcanics  
 1h Mafic lapilli tuff  
 1k Altered andesite to dacite

① May include some rocks of unit 11 (Nipissing Type)  
 ② In part is metamorphosed mafic volcanic rock (1a)

po Pyrrhotite	bx Brecciation
py Pyrite	cb Carbonate veins
ccp Chalcopyrite	
sp Sphalerite	
x Small bedrock outcrop	○ Drill hole, (vertical, inclined)
Area of bedrock outcrop	⊖ Trench
Bedding	⊕ Claim post
Lava flow, top from pillow shape	⊙ Swamp
Foliation	— Road (paved or gravel)
Geological boundary	- - - Trail (not drivable)

SCALE 1:2,500  
 0 100 200 meters





*W. Paul Binney*

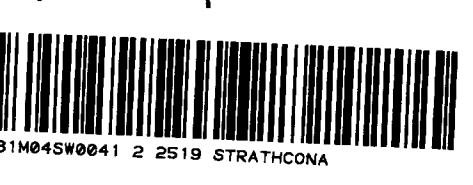
**ST. JOSEPH EXPLORATIONS LIMITED**  
 TORONTO CANADA

LOWELL LAKE AREA, Temagami District, ONT.  
 (Savard Option)

**GEOLOGICAL MAP**

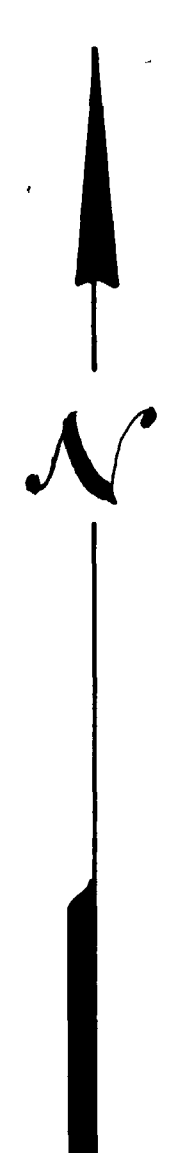
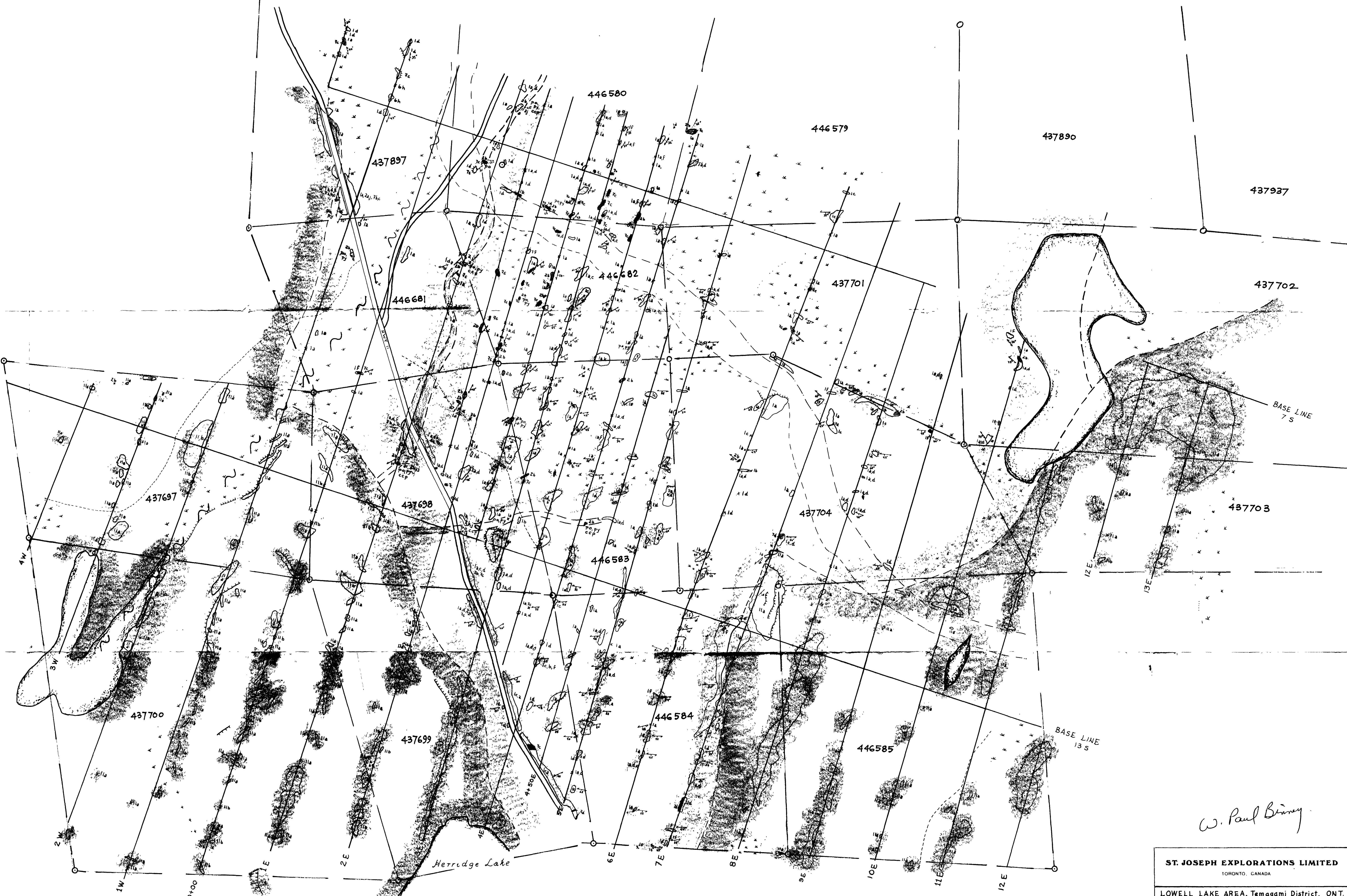
SCALE 1:2 500

APPROX LAT & LONG OF LOWER RT COR OF DWG	PROJECT NO. 1879	SHEET NO. 1 OF 2
LATITUDE	REPORT NO.	NTS 311/4
LONGITUDE		



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2019  
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*W. Paul Birney*

<b>ST. JOSEPH EXPLORATIONS LIMITED</b> TORONTO, CANADA			
LOWELL LAKE AREA, Temagami District, ONT. (Savard Option)			
<b>GEOLOGICAL MAP</b>			
SCALE 1:2,500			
APPROX LAT & LONG OF LOWER RT COR OF DWG	PROJECT NO. <b>189</b>	SHEET NO. <b>2 OF 2</b>	
— — — — — LATITUDE	REPORT NO. _____	NTS <b>31M/4</b>	
— — — — — LONGITUDE			