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EPORT

ON

AIRBORNE MAGNETOMETER SURVEY

ON

CLAIM GROUPS

OPEEPEESWAY LAKE AREA

SUDBURY DISTRICT, ONT.

INTRODUCTION

Airborne magnetic surveys were carried out over ten separate claim groups in the Opeepeesway Lake area, Sudbury District of Ontario.

A magnetic survey may directly indicate bodies of magnetite and pyrrhotite and thus provide targets for more detailed exploration. It may also enable the geologist to outline formation, detect faults and folds and thus direct attention to areas favorable for exploration. The object of the present airborne magnetic surveys was to indicate favorable areas for detailed ground exploration.

Although the claim groups are distributed in several townships and do not have common ownership, they are covered by one report as the work was done as one project. This also makes for a better interpretation of the results.

PROPERTIES AND LOCATION

The claim groups covered in the airborne magnetic survey are distributed through several townships in the Sudbury Mining Division. The townships involved are Raney, Denyes, Rollo, Swayze, Genoa, Marion and Mallard. A total of ten separate claim groups are involved and these are shown on three maps included with this report. The following is a description of each claim group involved in the survey.

GROUP NO. 1 - RANEY & DENYES TOWNSHIPS - SEE MAP NO. 1

This group actually is made up of two separate claim blocks but since it was surveyed as one block, it is being referred to as one group. It is owned by Claw Lake Molybdenum Mines and the location is the southern portion of Raney township and the northwest corner of Denyes township.

One group includes 42 claims in Raney township registered with the Department of Mines and Northern Affairs

under the following numbers:

S 255576 to S 255593 inclusive

S 278751 to S 278769

S 278692 to S 278693 "

S 278695 to S 278697 "

The other group includes 8 claims in Raney township and 21 claims in Denyes township registered as follows:

S 278711 to S 278719 inclusive

S 278771 to S 278790

GROUP NO. 2 - ROLLO TOWNSHIP - MAP NO. 1

This group consists of 20 claims situated in the southwest corner of Rollo township, about one mile east of Group No. 1. It is likewise owned by Claw Lake Molybdenum Mines.

The claims are registered under the following numbers:

S 278857 to S 278876 inclusive.

GROUP NO. 3 - DENYES TOWNSHIP - MAP NO. 1

Group No. 3 is owned by Claw Lake Molybdenum Mines and is situated in the northeast portion of Denyes township, some two miles south of Group No. 1.

This group consists of 41 claims registered under the following numbers:

S 278807 to S 278815 inclusive S 278796 to S 278797 " S 278799 to S 278806 " S 278517 to S 278526 " S 255946 to S 255948 " S 256709 to S 256711 " S 255950 (278850) S 256534 S 278798 S 255111 S 255105 to S 255106

GROUP NO. 4 - ROLLO & SWAYZE TOWNSHIPS - MAP NO. 1

This property is owned by Claw Lake Molybdenum

Mines and it consists of 25 claims. The group is situated
in the southeast corner of Rollo township (21 claims) and
the northeast corner of Swayze township (4 claims).

The claims are registered under the following numbers:

S 256730 to S 256741 inclusive S 278699 to S 278710 " S 278720

GROUP NO. 5 - GENOA & MARION TOWNSHIPS - MAP NO. 2

This group consists of 36 claims with 6 located in the northeast corner of Marion township and the remaining 30 in Genoa township. The claims are registered under the following numbers:

Marion Township: S 256025 to S 256030 inclusive

Genoa Township: S 256024
S 298934 to S 298938 inclusive
S 256032 - S 256033
S 256036 - S 256037
S 279869 to S 279875 "
S 279155 - S 279156
S 279882 to S 279887 "
S 279890 to S 279893 "
S 262257

GROUP NO. 6 - GENOA TOWNSHIP - MAP NO. 2

Group No. 6 is just southeast of Group No. 5 and is situated in the central part of Genoa township. It includes a total of 20 claims registered as follows:

S 265261 to S 265264 inclusive S 279167 to S 279171 " S 279173 to S 279175 " S 279180 - S 279181 S 279185 - S 279186 S 265273 to S 265276 "

GROUP NO. 7 - GENOA TOWNSHIP - MAP NO. 2

This group is southeast of Group 6 and includes 40 claims, as shown on Map No. 2. The claims are registered as follows:

S 279925 to S 279928 inclusive S 279914 S 279842 to S 279861 " S 279317 to S 279328 " S 278721 to S 278723 "

NOTE: 279319-20-25-26, 278723 were not covered however considering total area involved and fact that exact location of line is unknown, drofting could be olightly amended etc. let go so it tot grups for endels.

GROUP NO. 8 - MALLARD & MARION TOWNSHIPS - MAP NO. 3

The claim group is situated in the north-central portion of Mallard township and the south-central part of Marion township, as shown on Map No. 3. It consists of 20 claims registered as follows:

Marion Township: S 279389 to S 279394 inclusive

Mallard Township: S 279409 to S 279422

GROUP NO. 9 - MALLARD TOWNSHIP - MAP NO. 3

Group No. 9 is located southwest of Group 8 and consists of 25 claims registered as follows:

- S 292142 to S 292149 inclusive
- S 292152
- S 292155 to S 292170

GROUP NO. 10 - MARION TOWNSHIP - MAP NO. 3

Group No. 10 is situated northeast of Group No. 8 and consists of 19 claims registered as follows:

- S 256509 to S 256515 inclusive
- S 279127 to S 279136
- S 279138 S 279139

GEOLOGY

The geology of the area is shown on Preliminary Map.
P 675, published by the Ontario Department of Mines and

Northern Affairs, issued in 1971. The geology of some of the groups is also shown on Maps 44g and 2067, also published by the Ontario Department of Mines.

Claim groups 1, 2, 3 and 4 are located along a belt of metavolcanics and metasediments that trend in a general east-west direction across Swayze and Denyes townships.

The claim groups appear to be underlain largely by metavolcanic rocks that include tuffs, agglomerates and rhyolite, as well as so of the intermediate metavolcanics.

Numerous mineral occurrences containing gold, chalcopyrite and galena are known in the area.

Claim groups 5, 6, 7, 8, 9 and 10 are located some. 20 miles to the east of the other groups and they are underlain largely by a granite-diorite complex, granite, and in some cases, they cover the volcanic contact with the granite. These properties are in the Rush Lake area where Parr Mines made a copper discovery that suggested possibilities of a porphyry-copper type deposit in the intrusive rocks.

EQUIPMENT

The equipment used was a Gulf type fluxgate

magnetometer mounted with a continuous tape recorder. The magnetometer was built by Dominion Geophysics Ltd. and was mounted within the aircraft. The magnetometer operates on two scales, from 0 to 4,000 gammas and 0 to 10,000 gammas, and it can be readily switched from one scale to the other. A continuous magnetic profile is recorded on the tape so that immediate appraisal can be made of any magnetic anomalies and detail work can be readily carried out. The accuracy of the survey is approximately \$50\$ gammas as taken from the tape.

The equipment was mounted in a Beaver aircraft equipped with a gyro compass for more accurate flying.

All flying was done by Austin Airways Ltd. from their base in South Porcupine.

PROCEDURE

The flight lines were laid out in a north-south direction on a previously prepared base map on a scale of 4 inches to the mile. The base map showed the roads and topographic features and fiducial points were marked on the flight lines to coincide with these features, as shown on the accompanying map. This map was used in the

aircraft for flight control and was also used as the base for the final contoured map. The flight lines were laid out at approximate 1/8 mile intervals.

The crew consisted of two men and the pilot during the survey. The flying height was maintained as nearly as possible at 200 feet. The altitude control was by means of an altimeter but this was not attached to the recorder. Any variations in the altitude were relayed from the pilot to the operator. In flight, the operator marks all fiducial points on the tape as the aircraft flies over the points. Any other pertinent data, such as drift or variation in altitude, is also noted on the tape. It should be pointed out that the survey was carried out in relatively calm weather, thus avoiding any noticeable drift and variations in the profile due to excessive tilting of the aircraft. Diurnal measurements were not recorded as each group was flown in a short interval of time.

The surveys were carried out at two separate times as bad weather prevented completing the entire programme.

Groups 1, 2, 5, 6, 7, 8 and 9 were flown on October 29, 1971,

at which time approximately 400 line miles were flown including the turn arounds. The weather was still bad up to November 4 and the remainder of the programme was flown after freeze-up, between December 18 and 21.

DISCUSSION OF RESULTS

The magnetic results are presented as a contoured map on a scale of 1 inch to 1/4 mile and the contour interval used was 50 gammas. A brief description of the results on each claim group follows:

GROUP 1 - MAP NO. 1 - Total line miles of survey 52.1 miles.

The northern section of Group 1 shows fairly uniform magnetic readings with the greatest variation roughly 100 gammas. This indicates that the underlying rocks are fairly uniform and magnetic variations are probably due to variations in overburden depth. The contours are quite irregular and no trends can be observed.

The lower property shows a distinct north-south anomaly at the west end which may represent a fault or lineament. The balance of the property shows uniform magnetic readings.

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GROUP 2 - MAP NO. 1 - Total line miles survey - 20.5 miles.

This group is very similar to Group 1 with only minor variations in the magnetic intensity over the property.

One small area of above normal values exists in the central part of the property near the south boundary. This trends northeast and may well represent a slightly more basic underlying rock formation. The same condition may exist at the east end of the property.

GROUP 3 - MAP NO. 1 - Total line miles survey - 28.5 miles

This claim group again has fairly uniform magnetic readings but they are roughly 100 to 150 gammas higher than those on groups 1 and 2. This is explained by the fact that it is underlain by mafic to intermediate metavolcanics as compared to the felsic rocks underlying the other groups. There appears to be a magnetic anomaly in the southwest corner of the property but its extent or trend cannot be determined as the survey terminates here. The geological map shows a gold-copper-lead occurrence in this area.

GROUP L - MAP NO. 1 - Total line miles survey - 20 miles.

This claim group appears to be underlain by felsic metavolcanic rocks but there is a distinct magnetic anomaly in the southwest corner of the property. This may possibly represent a more basic phase of volcanics in this portion of the property.

GROUP 5 - MAP NO. 2 - Total line miles survey - 28 miles.

This group shows a strong magnetic anomaly trending in an east-west direction and correlation with the geological map indicates this represents a band of iron formation.

The geological map also shows all of the southern part of the property to be underlain by granite. Magnetically, this portion is lower which is what one would expect from granite as contrasted to volcanics. However, there is a small anomaly of about 200 gammas on claim 279883 which could be of interest within the intrusive.

GROUP 6 - MAP NO. 2 - Total line miles survey - 14 miles.

This claim group has fairly uniform low magnetic

readings as compared to the other groups. Geologically, it appears to be entirely underlain by granite which would account for the lower readings. In the southwest corner there appears to be a north to northwest trending anomaly that may represent a diabase dyke as there are quite a few in the area.

GROUP 7 - MAP NO. 2 - Total line miles survey - 23 miles.

This claim block again is underlain by granite but the magnetic survey indicates two possible diabase dykes cutting across the claim group. The trend appears to be north-northeast but on such small coverage it is difficult to obtain an accurate trend.

GROUP 8 -' MAP NO. 3 - Total line miles survey - 13 miles.

As mentioned under geology, this group is largely underlain by an intrusive complex consisting of igneous and hybrid rocks. There are two interesting anomalous areas, one at the north and one at the south end of the property. Since we are looking for porphyry-copper type deposits, these are worthy of investigation.

GROUP 9 - MAP NO. 3 - Total line miles survey - 15 miles.

The magnetic readings are all slightly higher than group 8 to the northeast and they suggest a northerly trend. These higher readings probably represent the volcanic contact with the intrusive complex.

GROUP 10 - MAP NO. 3 - Total line miles survey - 25.5 miles.

The magnetic values in the west end of the property are flat whereas those in the east end are slightly higher. The trend here is about north-south and this again probably represents a geological contact.

CONCLUSIONS AND RECOMMENDATIONS

The airborne magnetic survey carried out on the ten claim groups outlined some geological contacts and more basic rock formations such as diabase dykes. Groups 5 to 10 are within the intrusive rocks of the Rush Lake area and some magnetic anomalies were found within the intrusive or along the contacts. These could be favorable for porphyry type mineralization and warrant further investigation.

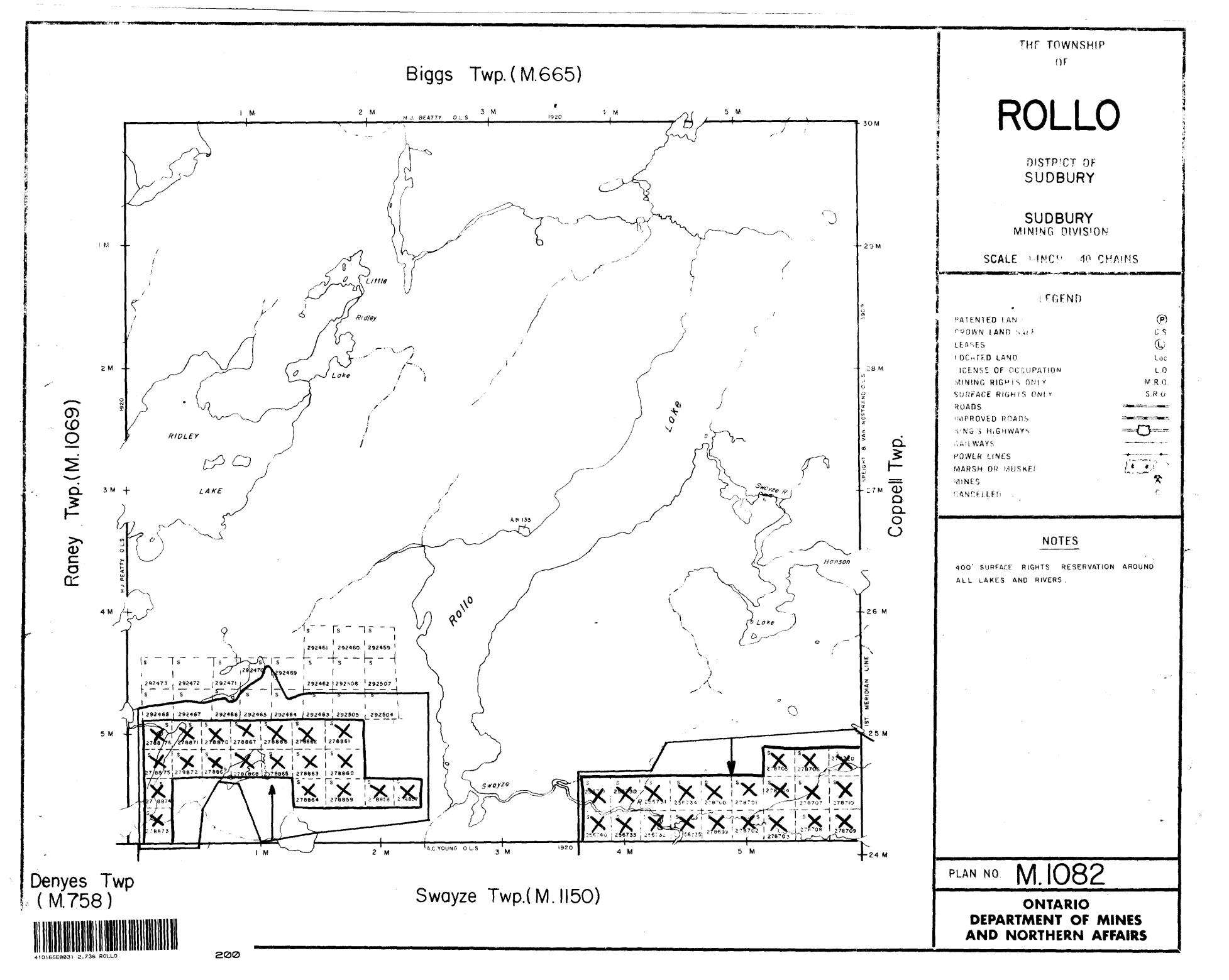
Prior to any ground investigation, the geophysical data should be closely correlated with any recent exploration in the area. This could be followed by prospecting and ground reconnaissance geophysical surveys of the anomalous areas indicated in the present survey.

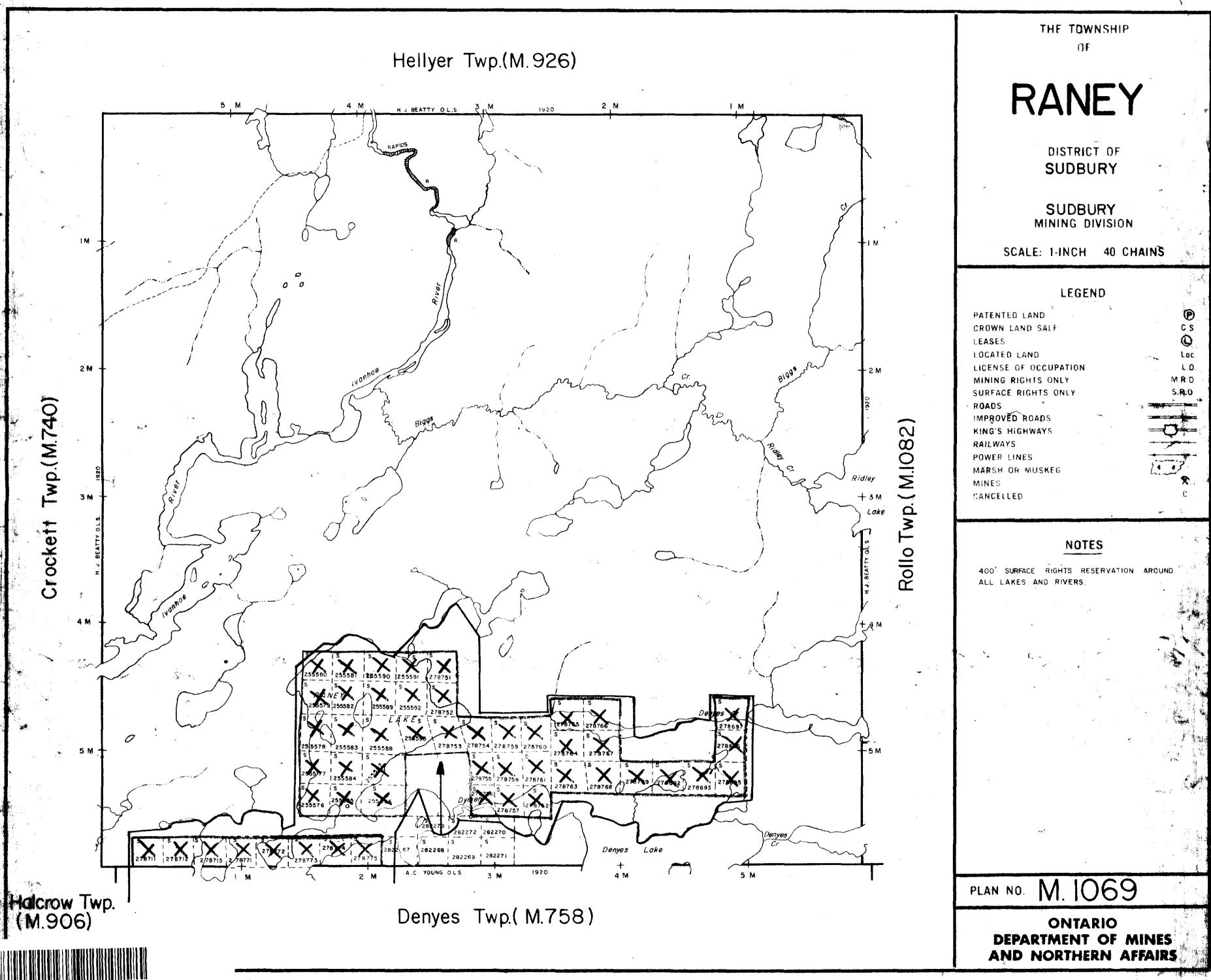
Respectfully submitted,

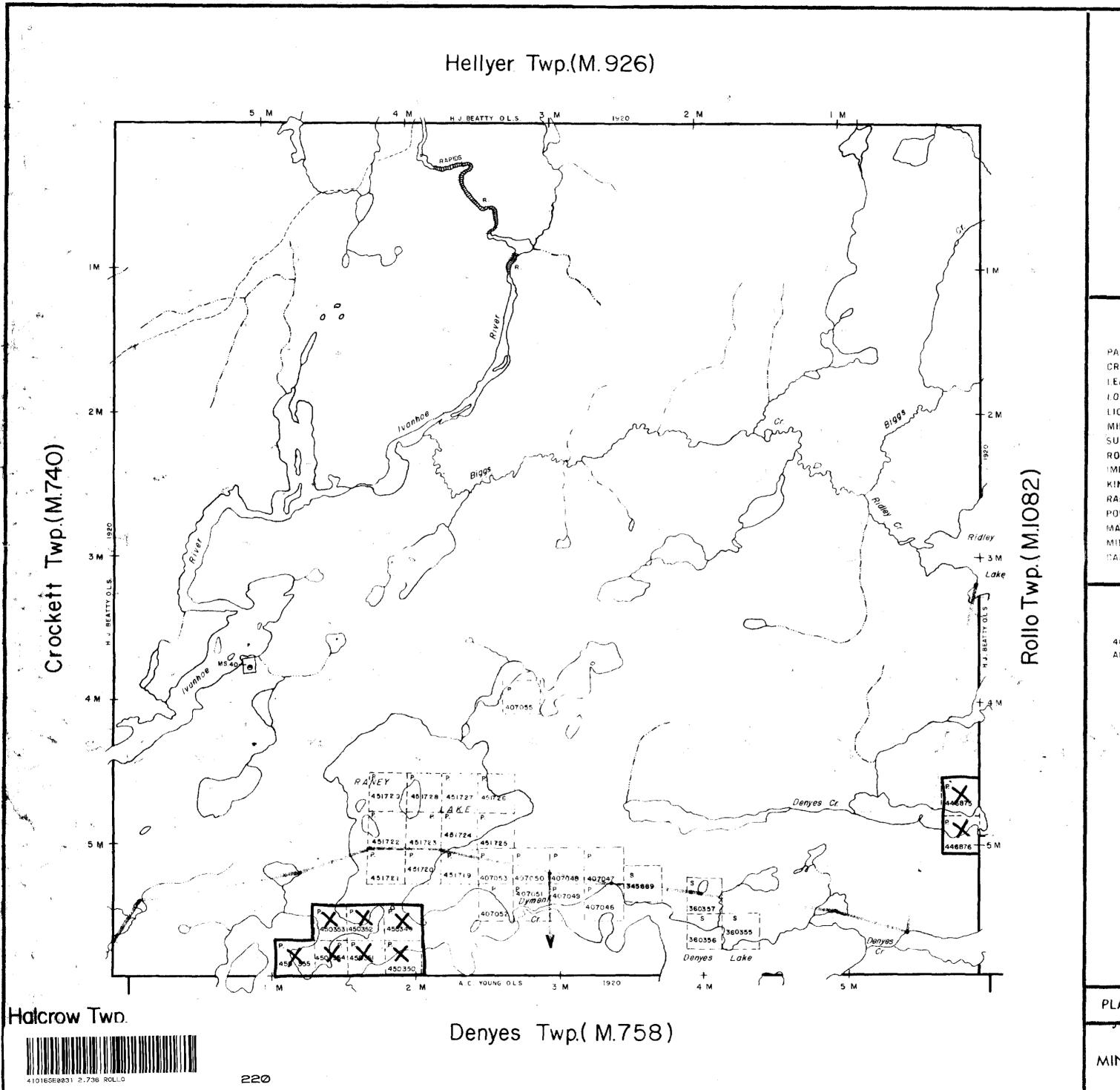
PROSPECTING GEOPHYSICS LTD.

H.J. Bergmann, P. Eng.

Montreal, Que. January 8, 1972.







THE TOWNSHIP

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RANEY

DISTRICT OF SUDBURY

PORCUPINE MINING DIVISION

SCALE: 1-INCH 40-CHAINS

LEGEND

PATENTED LAND
CROWN LAND SALE
LEASES
LOCATED LAND
LICENSE OF OCCUPATION
MINING RIGHTS ONLY
SURFACE RIGHTS ONLY
ROADS
IMPROVED ROADS
KING'S HIGHWAYS
RAILWAYS
POWER LINES
MARSH OR MUSKEG
MINES
CANCELLED



400 SURFACE RIGHTS RESERVATION AROUND ALL LAKES AND RIVERS.

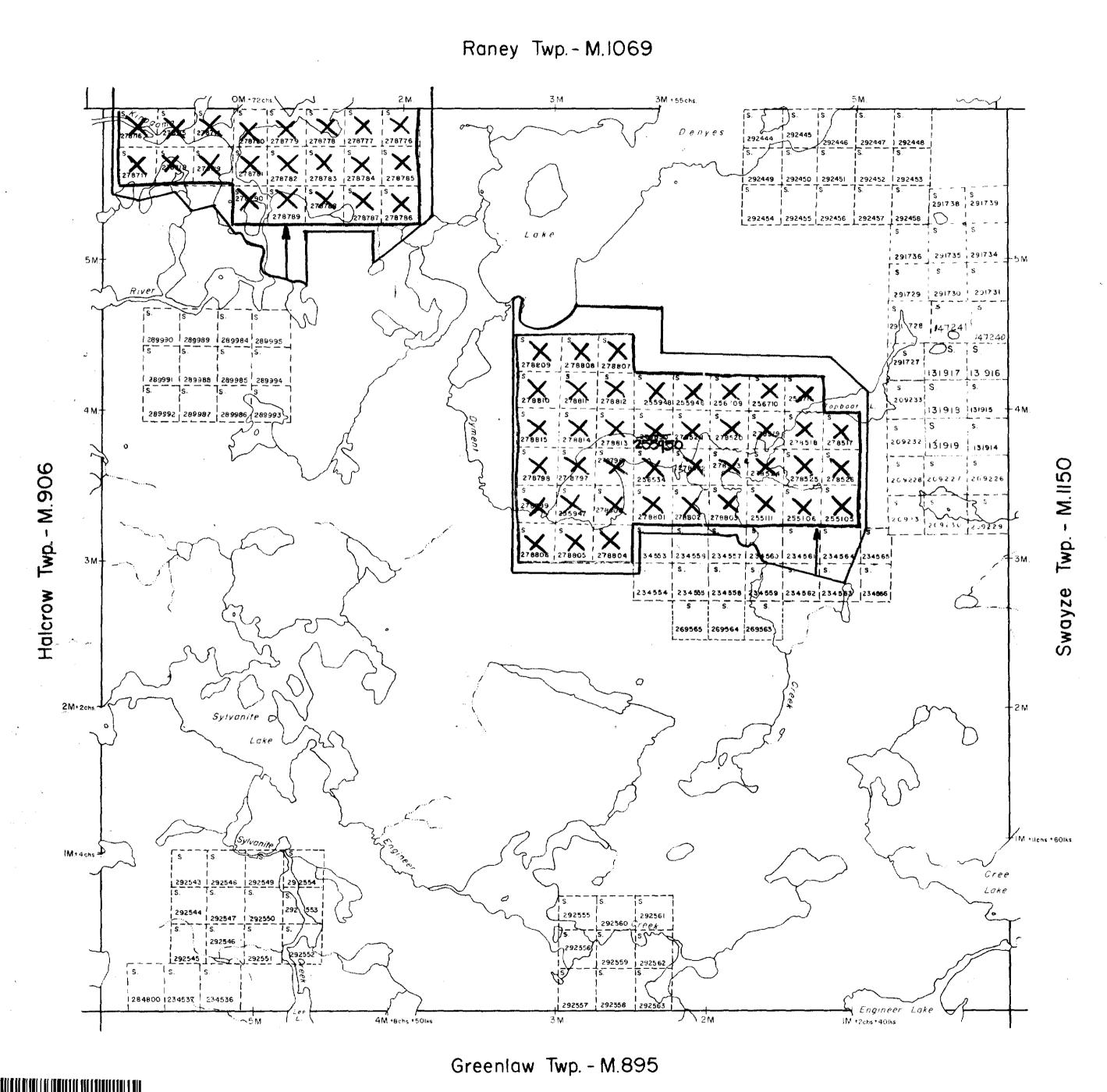
JUL - 8 1976
SURVEYS AND MAPPING

PLAN NO. M. 1069

T1370

MINISTRY OF NATURAL RESOURCES

SURVEYS AND MAPPING BRANCH



THE TOWNSHIP OF

DENYES

DISTRICT OF SUDBURY

SUDBURY MINING DIVISION

SCALE: 1-INCH = 40 CHAINS

LEGEND

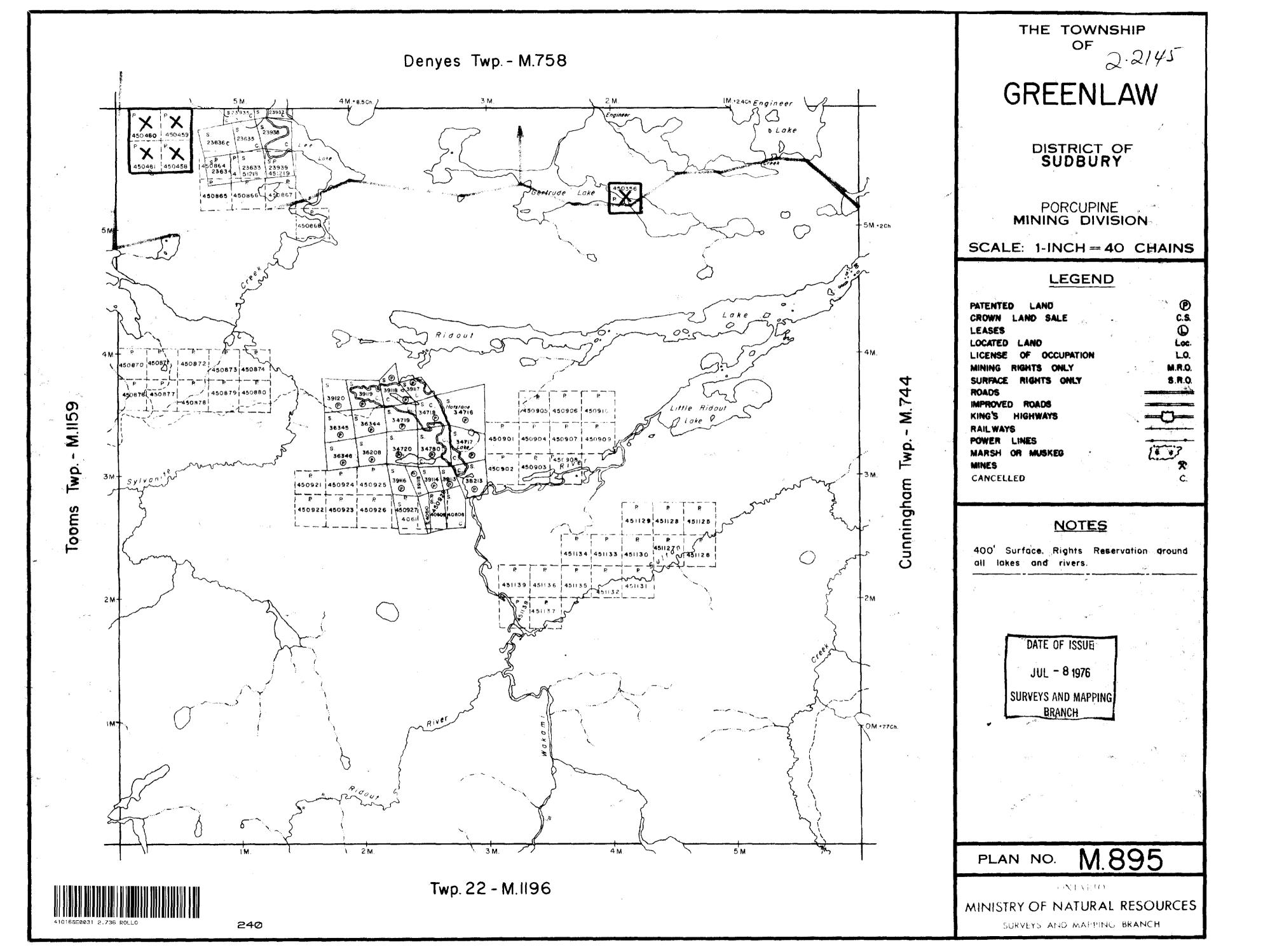
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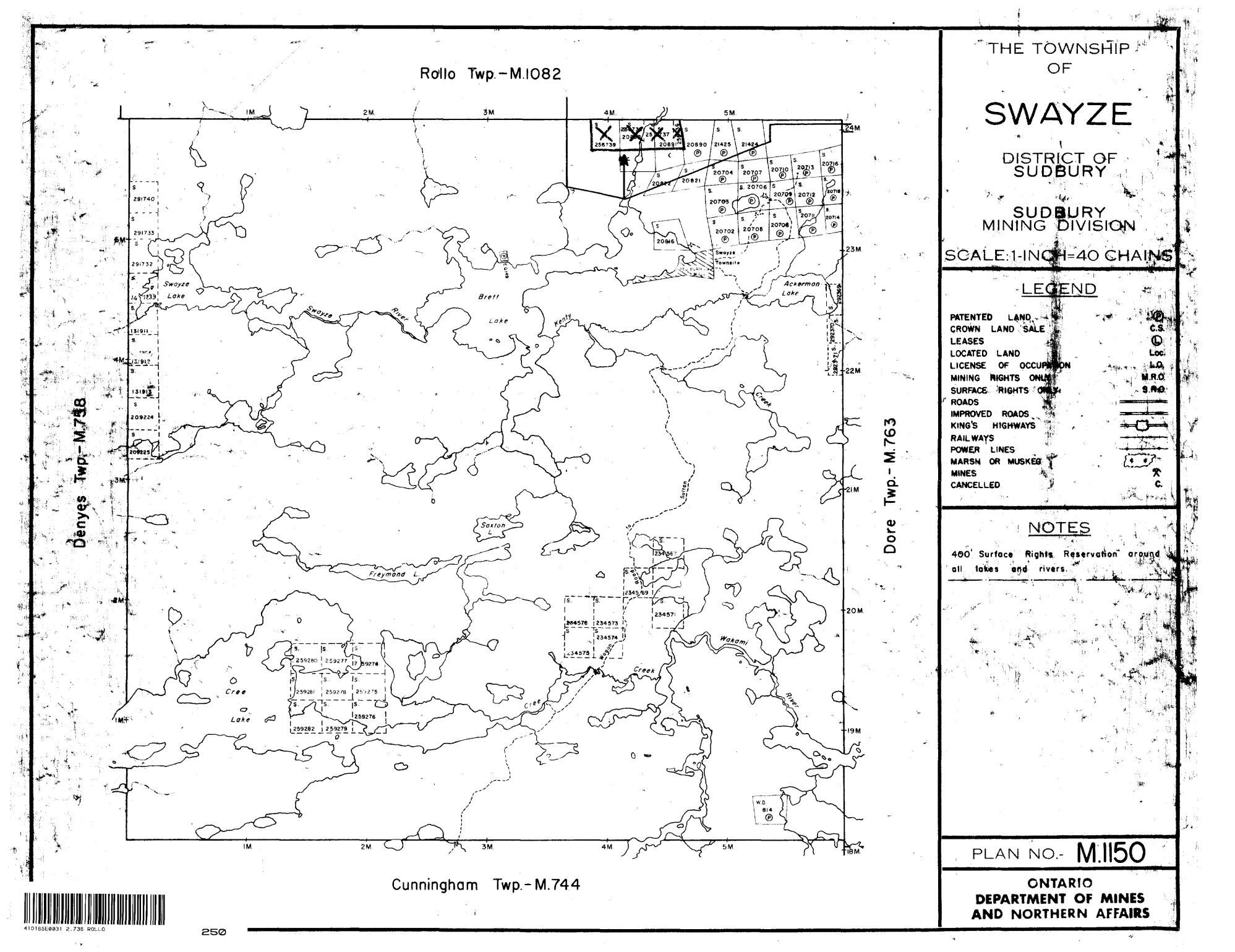
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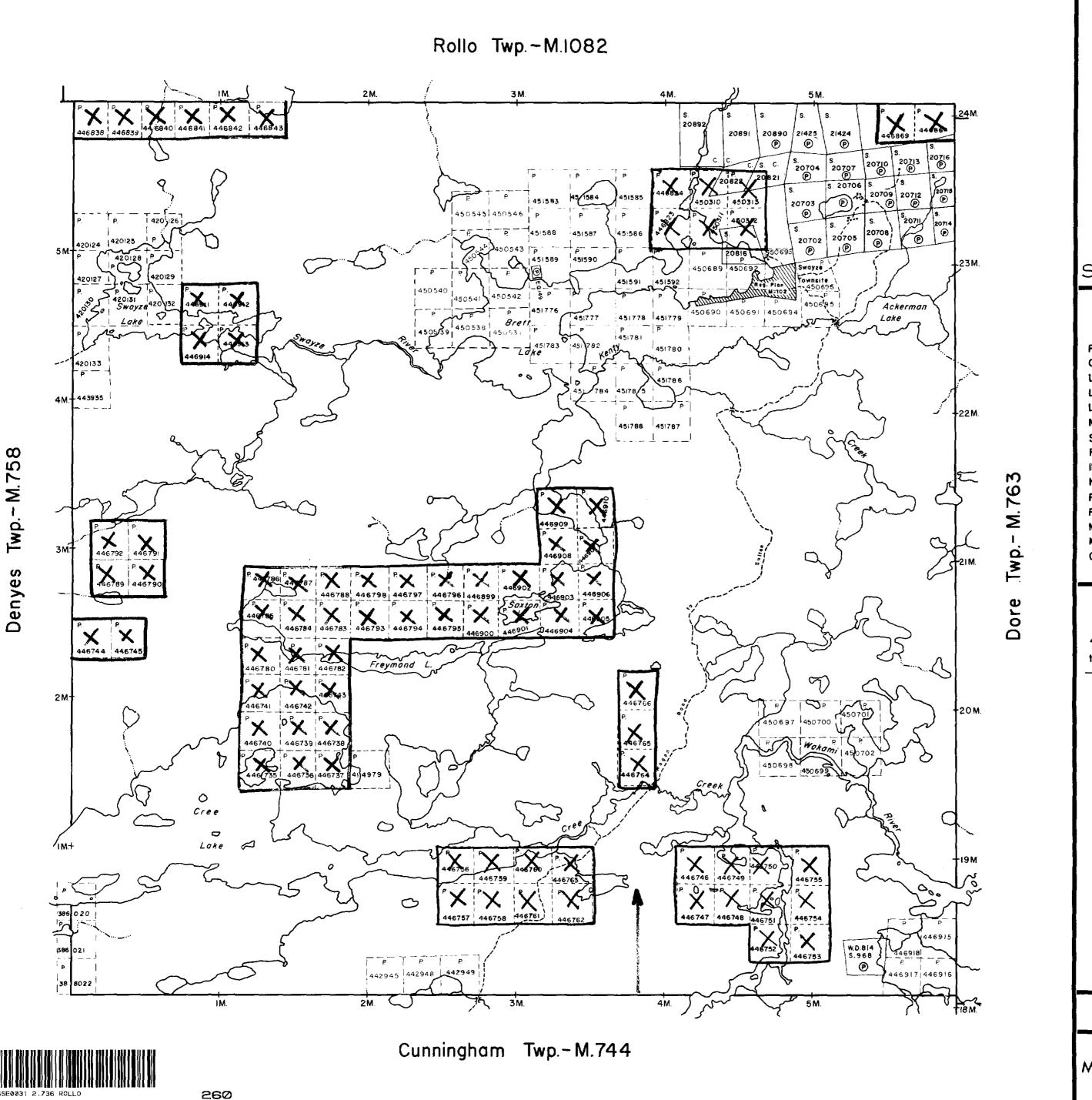
400' Surface Rights Reservation around all lakes and rivers.

PLAN NO. M.758

ONTARIO
DEPARTMENT OF MINES
AND NORTHERN AFFAIRS







THE TOWNSHIP

OF 2.2/45

SWAYZE

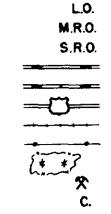
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NOTES

400' Surface Rights Reservation along the shores of all lakes and rivers.

DATE OF ISSUE

JUL - 6 1976

SURVEYS AND MAPPING

BRANCH

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MINISTRY OF NATURAL RESOURCES

SURVEYS AND MAPPING BRANCH

NOTES

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

DATE OF ISSUE

JUL - 6 1976

SURVEYS AND MAPPING

BRANCH

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DISPOSITION OF CROWN LANDS

TYPE OF DOCUMENT

PATENT, SURFACE & MINING RIGHTS

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MINING RIGHTS ONLY

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LICENCE OF OCCUPATION

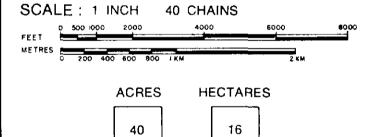
CROWN LAND SALE

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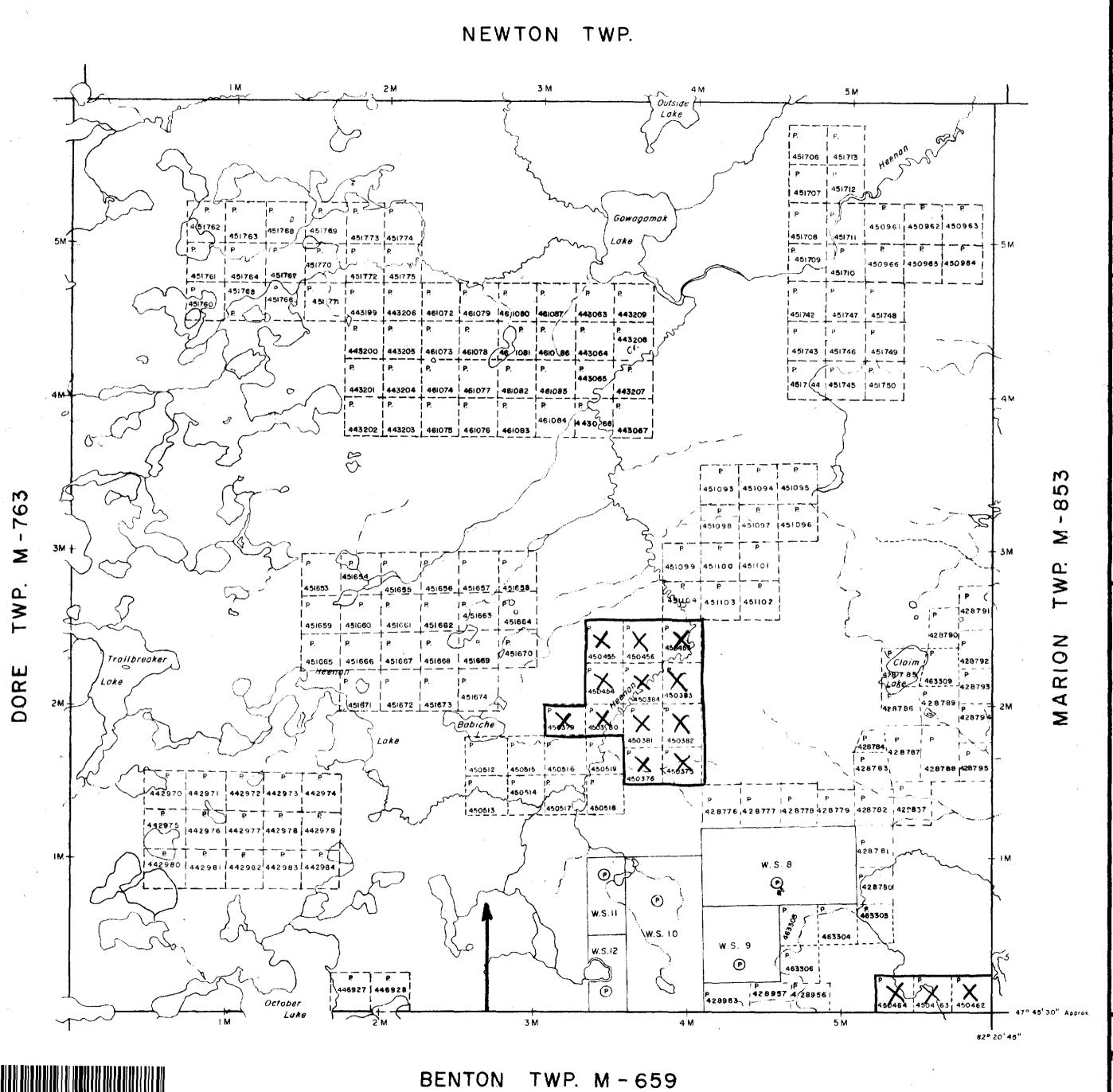
Date

Ministry of Natural Resources

Ontario Surveys and Mapping Branch

Whitney Block
Queen's Park, Toronto

M. 763



THE TOWNSHIP

OF 2.2145

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DISTRICT OF SUDBURY

PORCUPINE MINING DIVISION

SCALE: 1-INCH 40 CHAINS

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NOTES

400' Surface rights reservation around the shores of all lakes and rivers.

DATE OF ISSUE

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SURVEYS AND MAPPING

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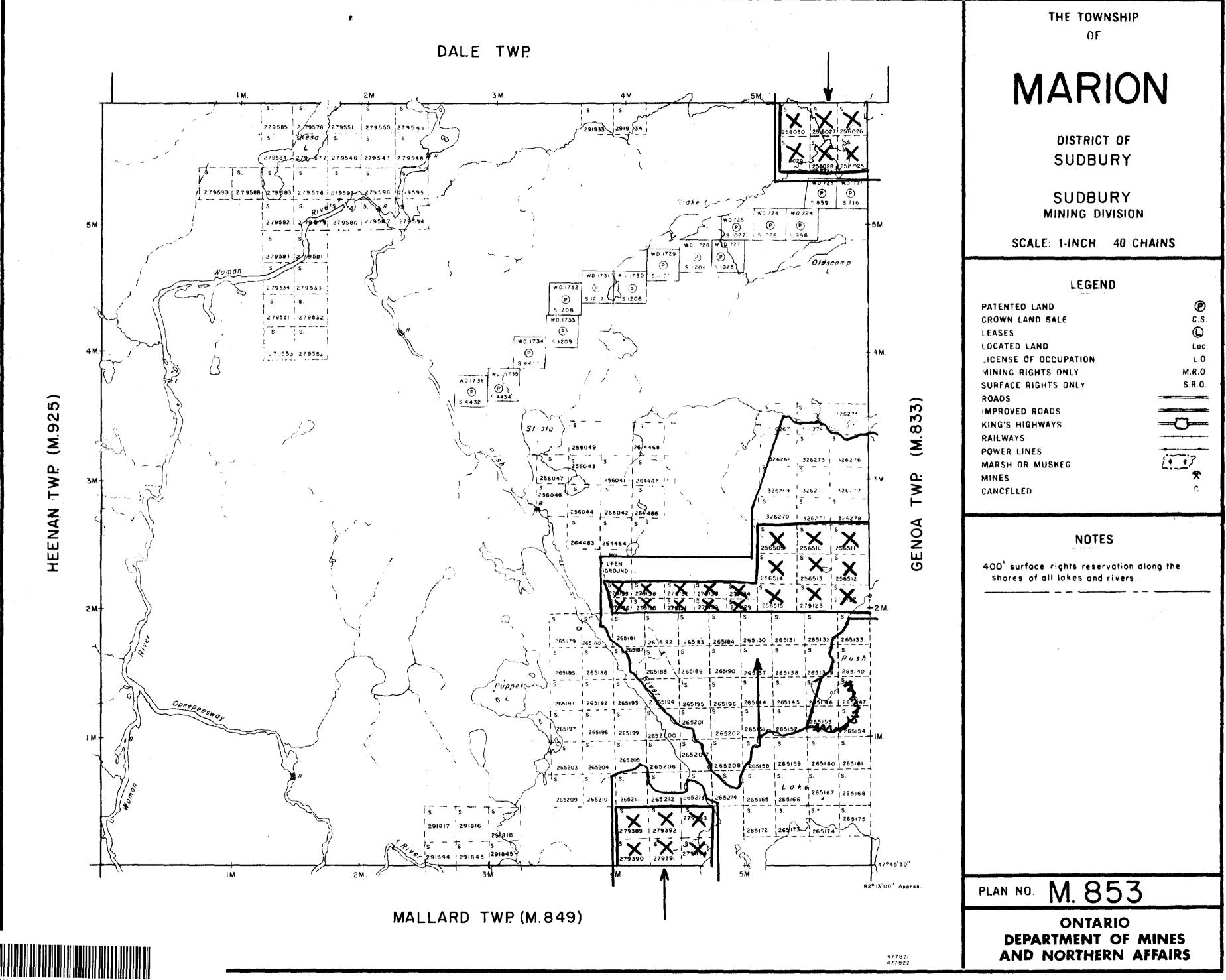
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MINISTRY OF NATURAL RESOURCES

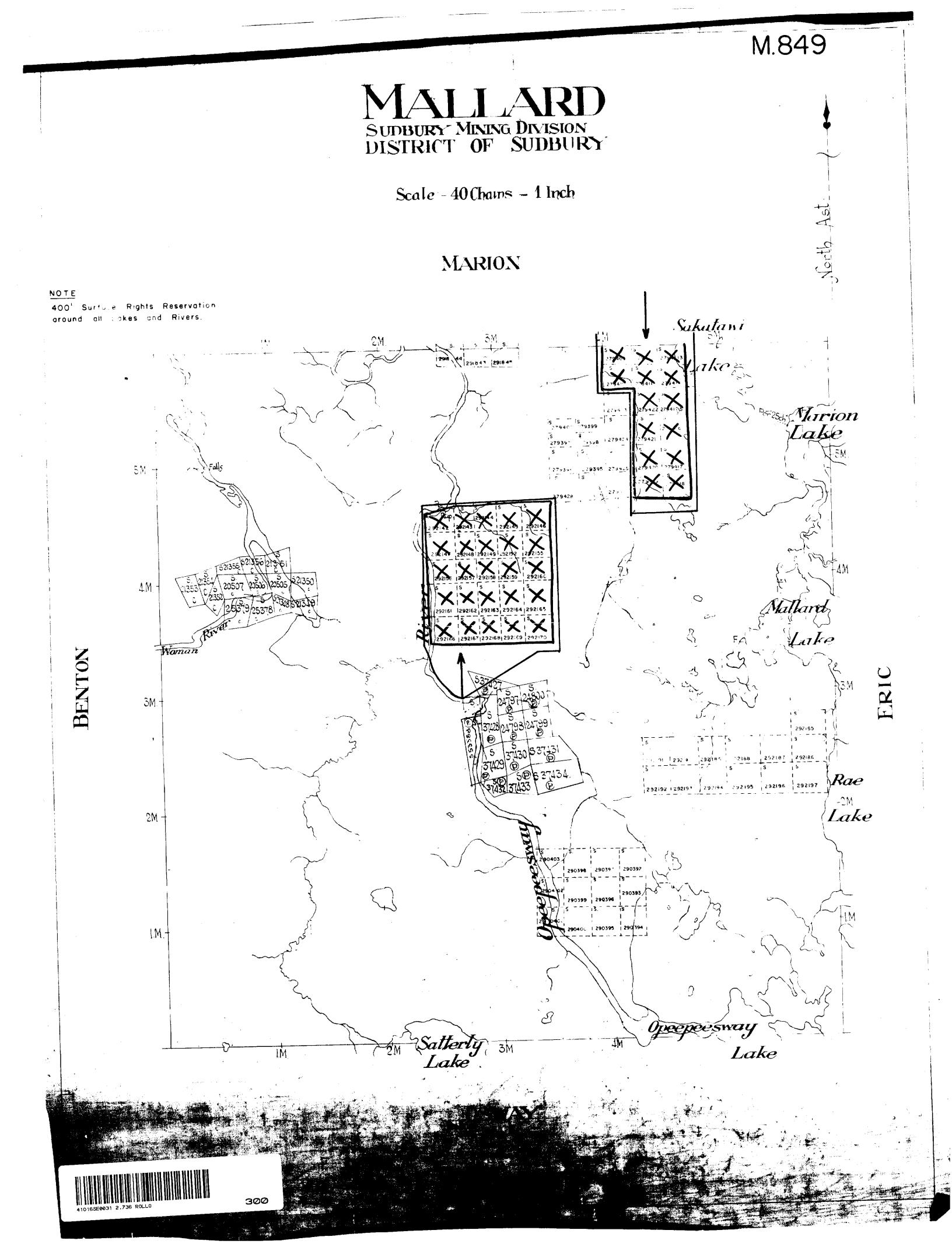
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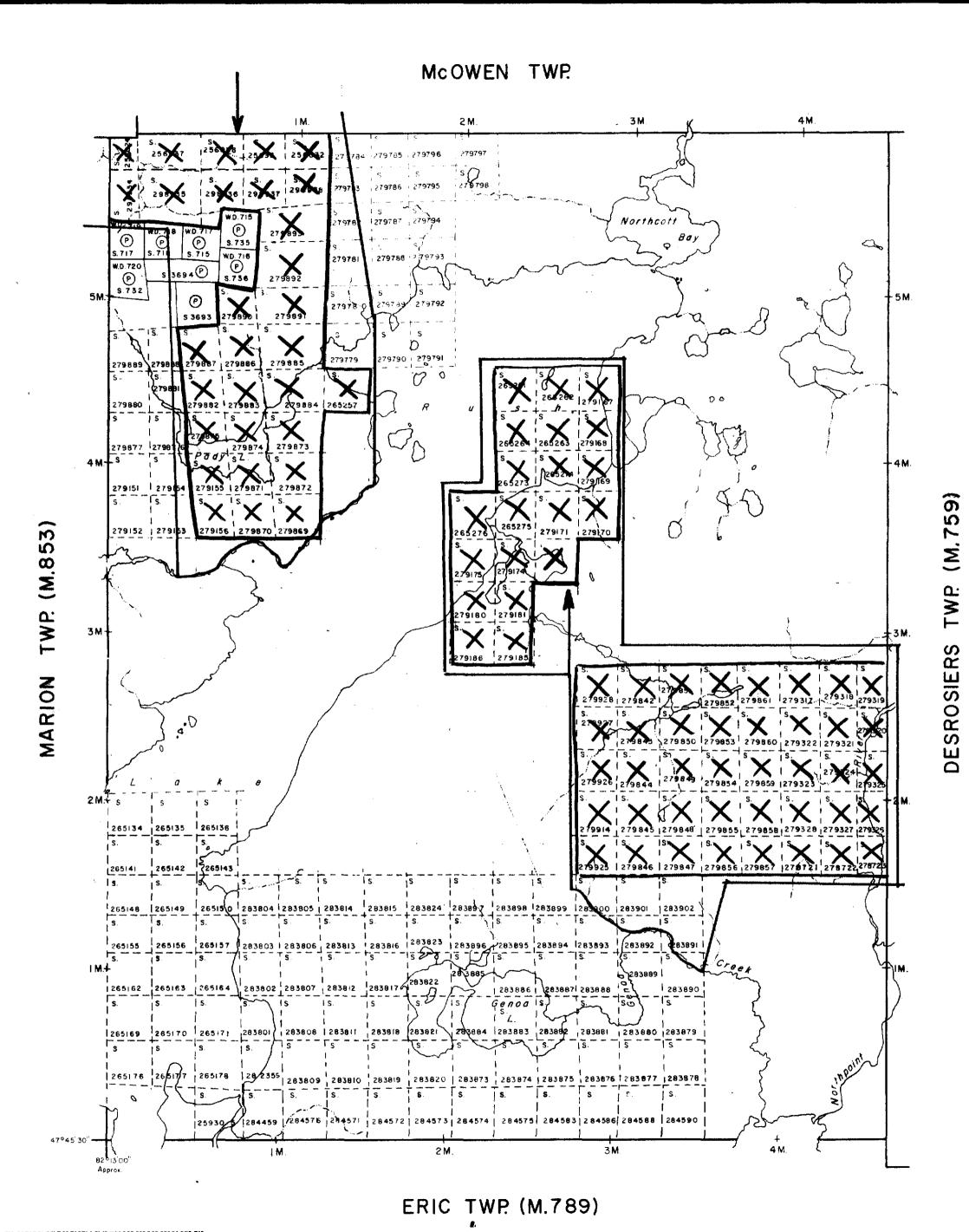
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THE TOWNSHIP OF

GENOA

DISTRICT OF SUDBURY

SUDBURY MINING DIVISION

SCALE: 1-INCH 40 CHAINS

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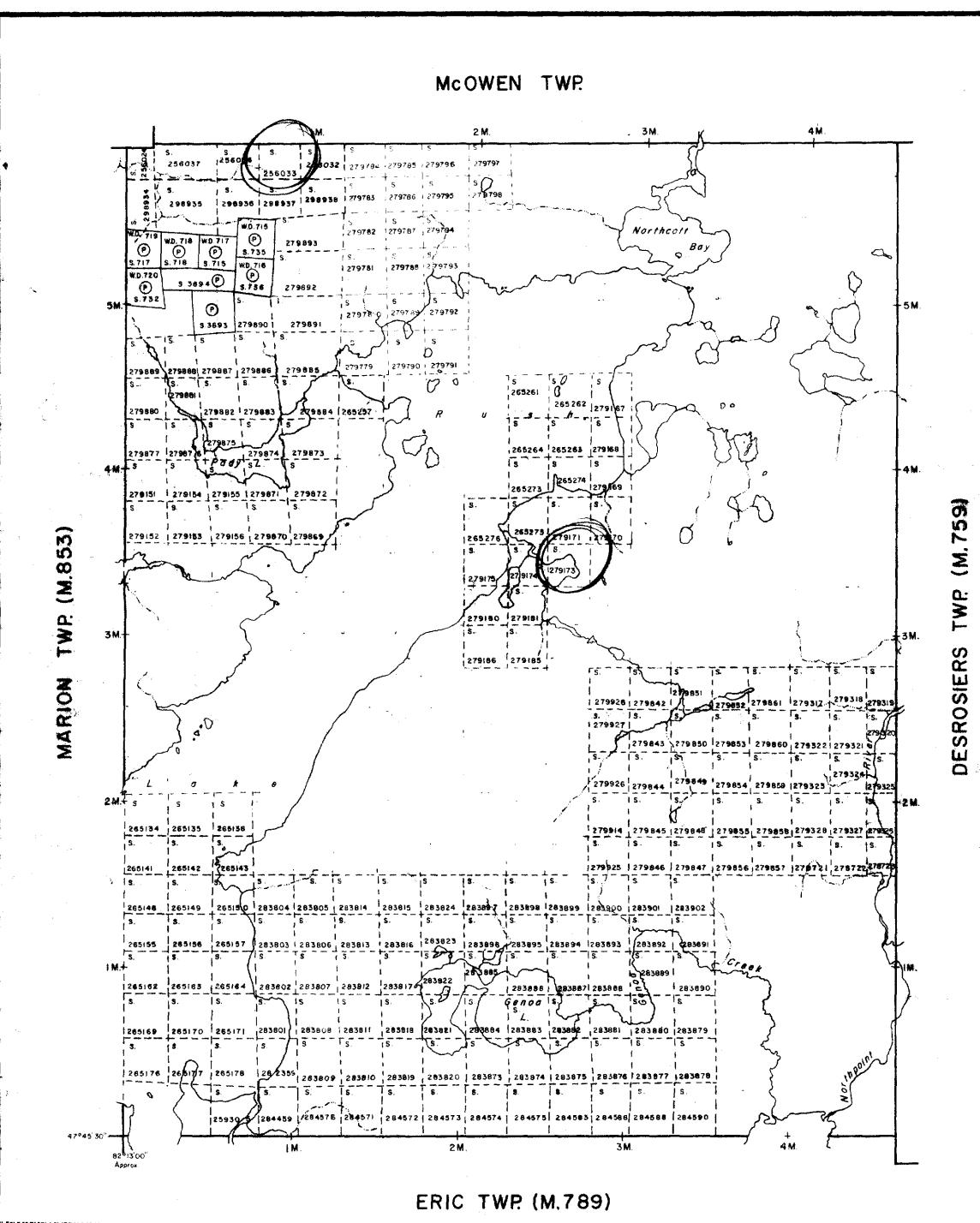
NOTES

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

PLAN NO. M.833

ONTARIO
DEPARTMENT OF MINES
AND NORTHERN AFFAIRS





THE TOWNSHIP OF

GENOA

DISTRICT OF SUDBURY

SUDBURY MINING DIVISION

SCALE: 1-INCH 40 CHAINS

LEGEND

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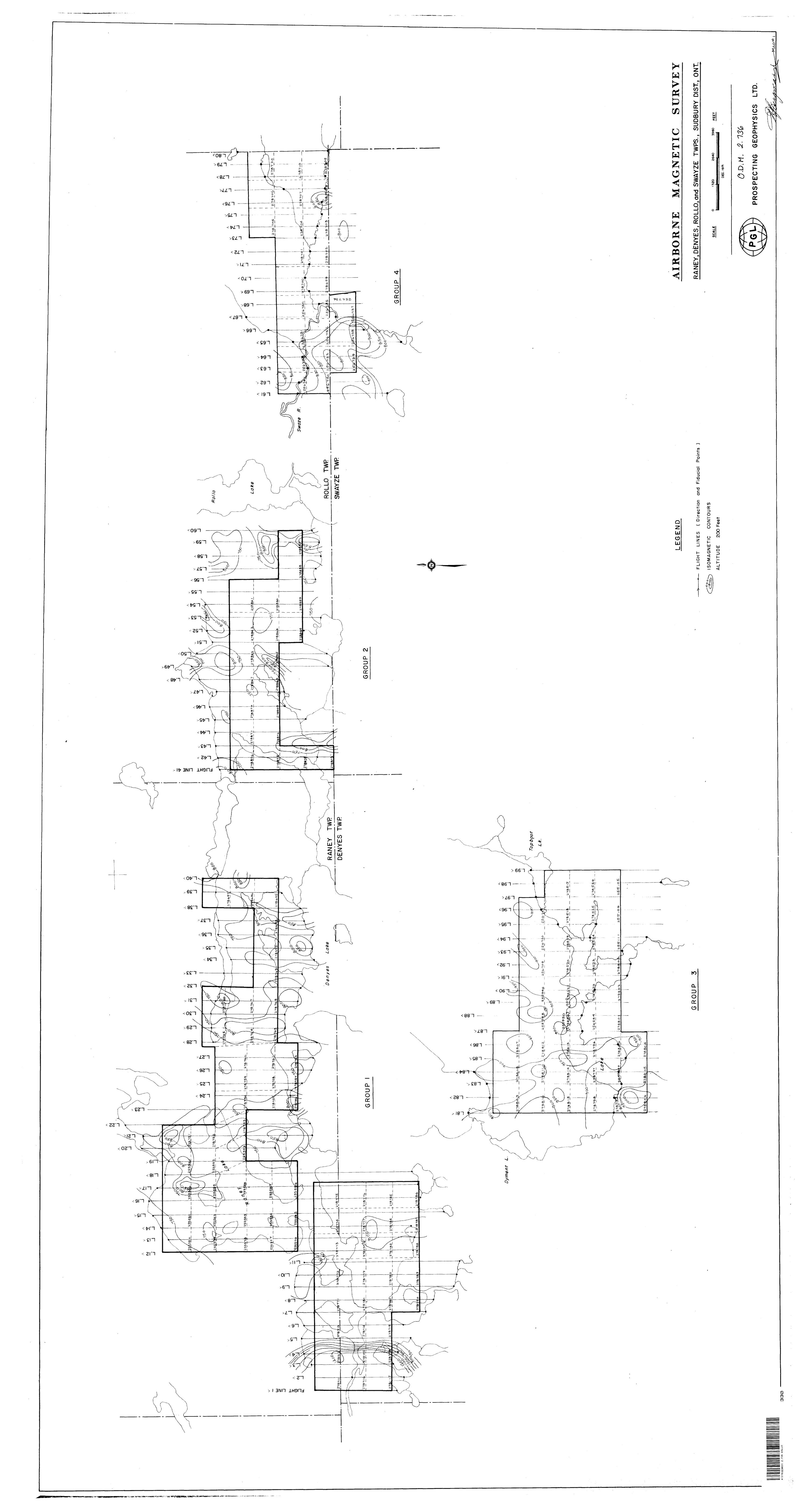
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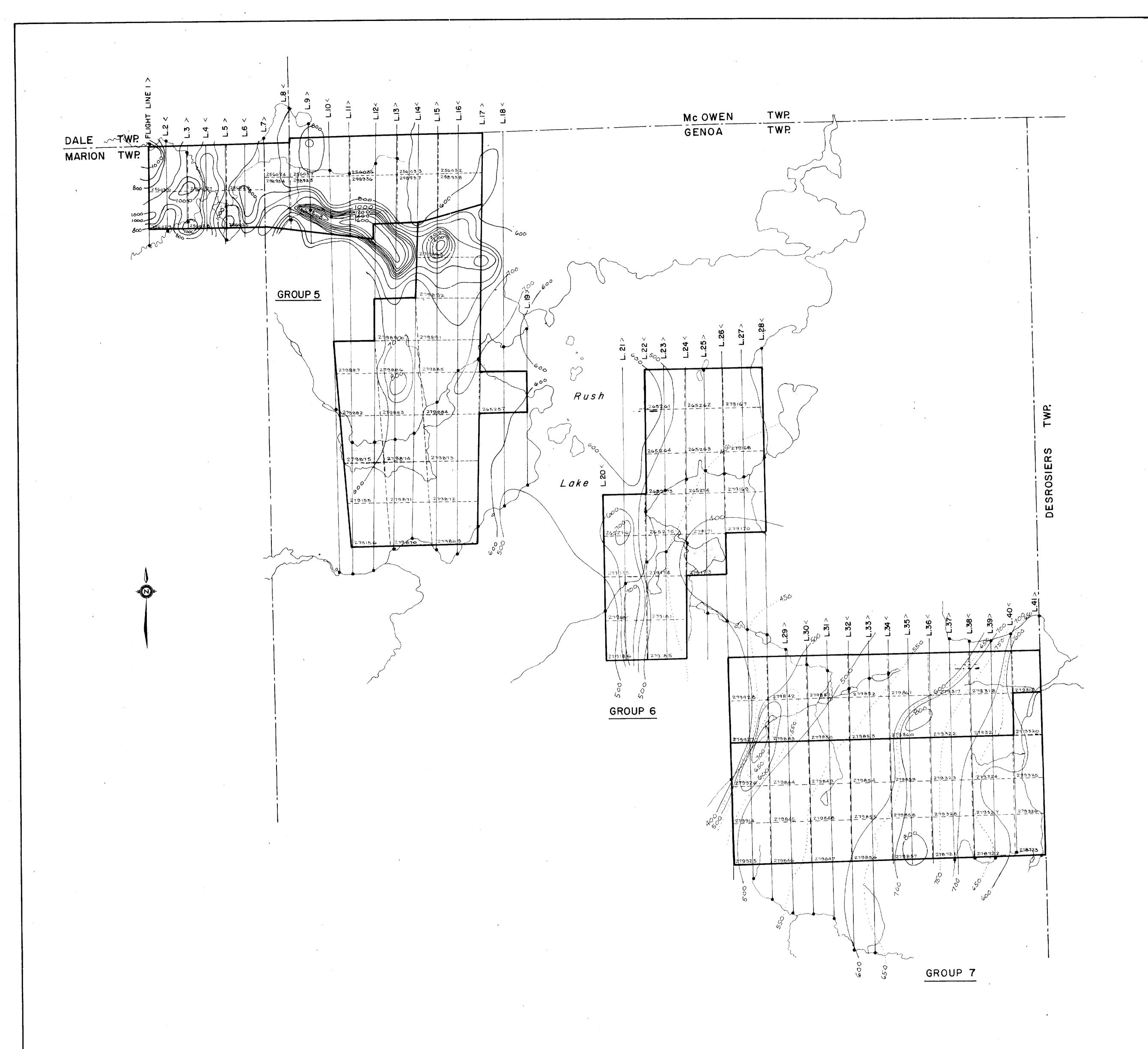
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ONTARIO
DEPARTMENT OF MINES
AND NORTHERN AFFAIRS







AIRBORNE MAGNETIC SURVEY

GENOA and MARION TOWNSHIPS, SUDBURY DISTRICT, ONT.

NOV. 1971

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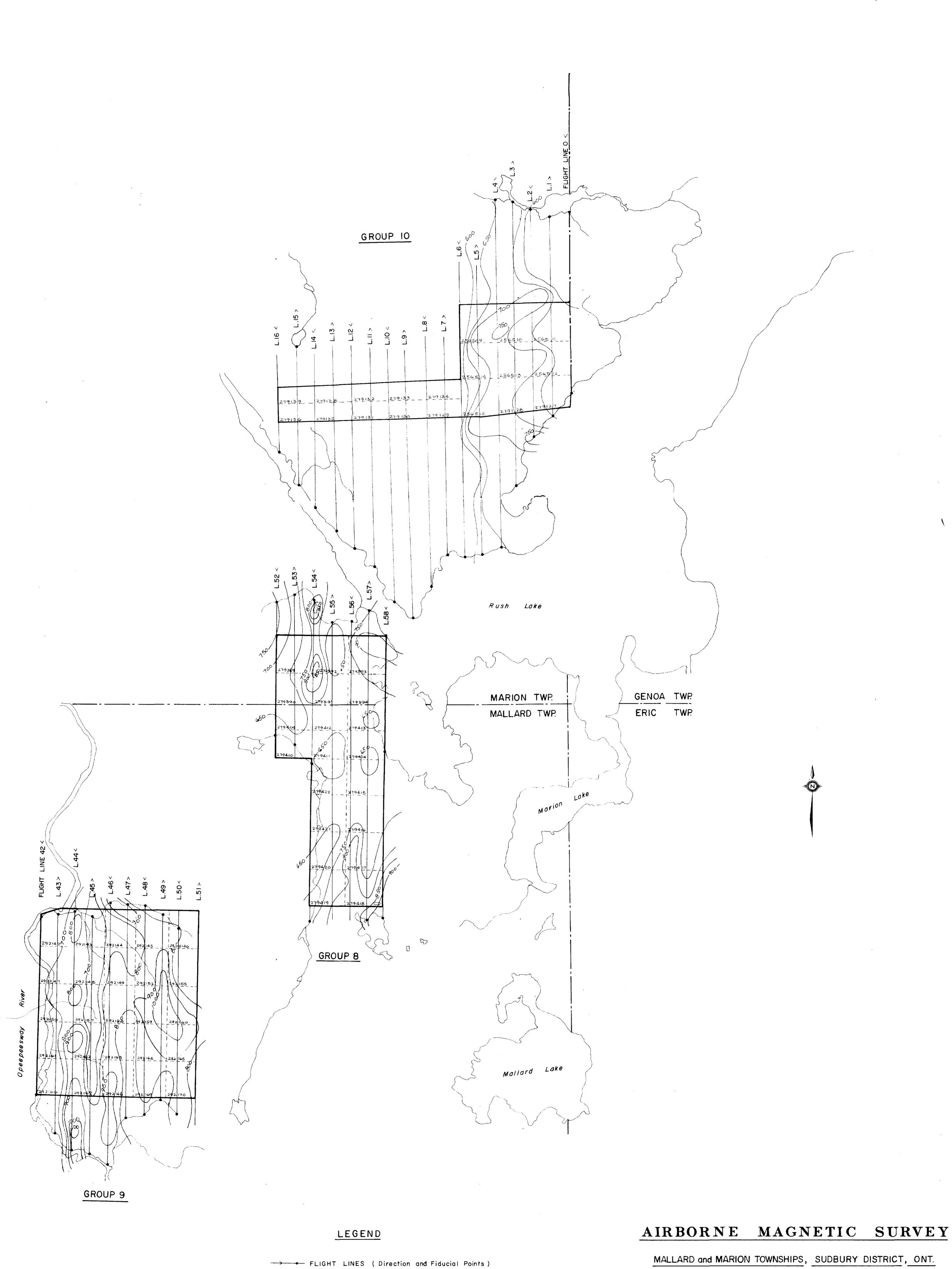
PROSPECTING GEOPHYSICS LTD.

LEGEND

FLIGHT LINES (Direction and Fiducial Points)

ISOMAGNETIC CONTOURS

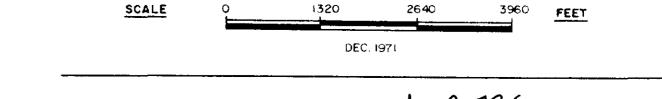
ALTITUDE 200 Feet



ISOMAGNETIC CONTOURS

ALTITUDE 200 Feet

MALLARD and MARION TOWNSHIPS, SUDBURY DISTRICT, ONT.





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