

KENNCO EXPLORATIONS, (CANADA) LIMITED  
REPORT ON THE AIRBORNE GEOPHYSICAL SURVEY  
AGUASABON AND CAIRNGORN LAKES AREAS

AND

PARTS OF TOWNSHIPS 81, 82 93



SCHREIBER AREA

010

THUNDER BAY MINING DIVISION

ONTARIO

1.00 SUMMARY

Interpretation of the 850 line miles of helicopter electromagnetic surveys performed by the Lockwood LHEM-200 system operating at a frequency of 4000 Hertz resulted in the selection of 55 anomalies or anomalous zones. Twenty-three of these anomalies are classified in the A and B categories and twenty-one in the C category. A total of 176 claims have been staked in fourteen claim blocks covering twenty-one anomalies.

The noise level of the equipment during this survey was between 10 and 20 parts per million and anomalies have been rated primarily on the basis of the in-phase to out-of-phase ratio with the shape of the response and its amplitude as secondary considerations. Many anomalies have coincident or closely associated magnetic anomalies and in such cases a plus factor is applied to the anomaly rating.

A number of negative in-phase responses were obtained in an area covered by Plate 4 which were considered to be mainly permeability effects and have not been rated.

An Airborne Geophysical Certificate is requested for the claims acquired subsequent to this survey.

Ground geophysical work has been recommended to follow-up the airborne indications covered by the fourteen claim blocks where a satisfactory explanation of the airborne anomalies cannot be obtained by prospecting and geological mapping.

## 2.00 INTRODUCTION

In the latter part of April and the early part of May, 1971, an airborne electromagnetic survey employing the Lockwood Survey Corporation Ltd. LHEM-200 unit was performed over three areas totalling about 850 line miles or about 170 square miles to the north, northeast and east of the town of Schreiber in the District of Thunder Bay, Ontario.

The objective of this work was to locate any economic deposits of heavy or massive sulphide mineralization which might occur in a near-surface location within the volcanic rock units of the region flown and, as a result of this survey and subsequent ground geological investigations, a total of 176 claims in fourteen claim groups were acquired to cover the most favourable geological and geophysical situations.

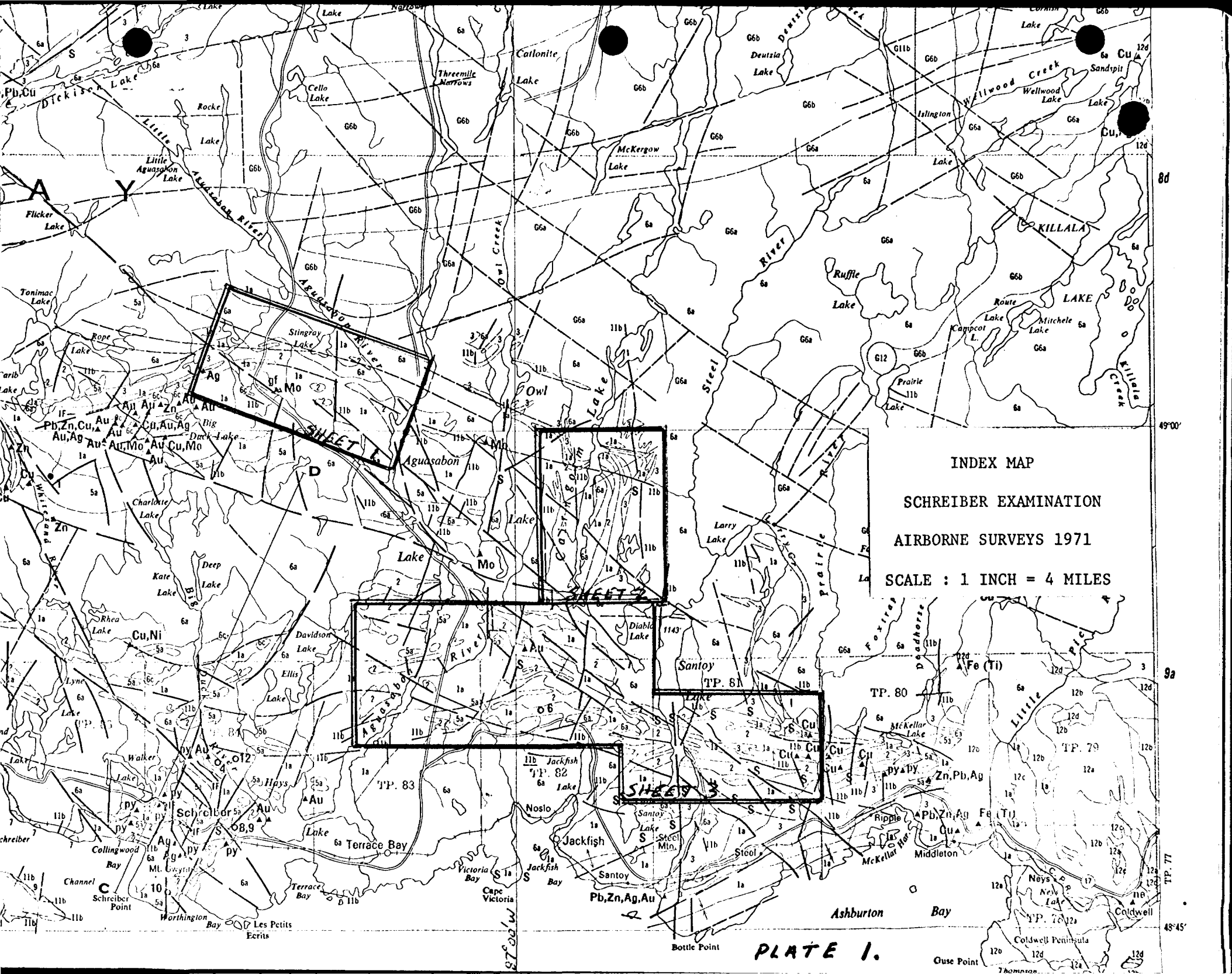
Ground geophysical work has been recommended for a number of anomalies in order to further assess the specific potentialities of the groups and, more generally, the potential of the region.

## 3.00 LOCATION AND ACCESS

One area is located about 16 miles north of Schreiber at about 49° 03' north latitude and 87° 10' west longitude and includes Aguasabon, Stingray and South Pine Lakes within its limits. It is mostly accessible by road from Schreiber and Terrace Bay.

A second area is centred about Cairngorm Lake about 18 miles northeast of Schreiber at about 48° 57' north latitude and 86° 56' west longitude. This area is readily accessible only by aircraft and the closest base is Rossport, some 15 miles to the west of Schreiber.

The third area lies mostly to the east of Schreiber and is bounded on the west by Davidson Lake and on the east by the Prairie River and cuts across the northern portions of Townships 81, 82 and 83. At the west end the area boundary is 10 miles northeast of Schreiber and at the east end about 20 miles east of Schreiber. Road access is generally good for most of this region from Highway No. 17 via roads established for timbering operations.



INDEX MAP

SCHREIBER EXAMINATION

AIRBORNE SURVEYS 1971

SCALE : 1 INCH = 4 MILES

PLATE I.

#### 4.00 TOPOGRAPHY

The region is fairly rugged when compared to other Precambrian areas of Ontario with the maximum relief varying up to about 1600 feet above mean sea level or 1000 feet above the level of Lake Superior. The greenstone areas present bolder relief than the granitic areas but, in general, the region is dissected by fault controlled southerly-trending glacial valleys and the neighbouring hills tend to have smooth north slopes, rounded tops and sheer cliffs on the south sides with much talus.

Glacial debris is not abundant but a terminal moraine is present near the south end of Owl Lake. Outcrop is fairly widespread with many of the best exposures on lake shores and in stream beds.

Fires have occurred throughout much of the region in the past but good stands of spruce and balsam with some jackpine are found. Birch and poplar with considerable undergrowth of moose maple and alder occur in burned over areas and low ground.

#### 5.00 GENERAL GEOLOGY

##### 5.10 Rock Types

All the areas flown during this survey have in common the fact that they consist essentially of a wide variety of intermediate to basic volcanics with varying quantities of acid volcanics mainly tuff and agglomerates.

At Cairngorm Lake some schists derived from sedimentary units are known and between Santoy and Bozema Lakes and south of Santoy Lake sediments consisting of conglomerate, quartzite and mica phyllites predominate. Several bands of iron formation are mapped south and east of Santoy Lake.

The only large area of basic intrusive rock is a diorite body intruding the volcanic sequence in the vicinity of Little Davidson Lake to the northwest of Jackfish Lake.

The greenstone belts are enclosed by various phases of granite, granite gneiss and syenite and a few porphyry intrusives have been mapped near South Pine Lake. Some pegmatite is found throughout the region but more particularly near Cairngorm Lake where the average level of metamorphism is in the amphibolite to granulite range as compared

to the general metamorphic level of epidote-amphibolite to amphibolite elsewhere in the volcanic belts.

Series of northerly and northwesterly-trending diabase dikes are the latest geological feature of the region and these dikes cut all other rock types.

Copper, molybdenum, gold and silver mineralization have been found within the survey area and lead, nickel and silver have been reported from adjacent areas.

#### 5.20 Structural Features

In detail, the geological structure is quite complex but in a general way the structure is represented by a series of isoclinal folds that are in some cases overturned. In the South Pine-Aguasabon Lakes area the fold trend is northwesterly and dips are steeply northeasterly while in the Cairngorm Lake area the rock trends are northerly and the dips steep and to the east with the exception of a flattening on the nose of a fold east of the northern portion of the lake.

In the third case, folds seem to be more open and a series of parallel anticlines and synclines with steep dips and a general west to northwest trend have been mapped. The only exception is the southwest trend which prevails to the southeast of Jackfish Lake.

Faults are numerous and seem to have two predominant directions; one set trending northwesterly and the other set northerly. In addition, it is likely that shearing is present parallel to the axis of the major folds in the volcanic belts. The last mentioned would be nearly contemporaneous with the folding while the first two mentioned sets of faults appear to be later than the major period of deformation.

#### 6.00 WORK PERFORMED

In the period April 30, 1971 to May 15, 1971 a combined aerolelectromagnetic and aeromagnetic survey was performed for Kennco Explorations, (Canada) Limited by Lockwood Survey Corporation Limited, 1450 O'Connor Drive, Toronto 16, Ontario over an area of approximately 170 square miles including portions of Townships 81, 82 and 83 plus

adjacent areas about Agassabon and Cairngorm Lakes in the Thunder Bay Mining Division of the District of Thunder Bay.

The survey totalled 850 line miles and was performed by a Jet Ranger Helicopter CP-SJH. Line spacing for the survey was 1000 feet and terrain clearance for the towed bird varied between 100 and 150 feet above ground.

#### 6.10 Description of Instruments

The electromagnetic data were recorded by the LHEM-200 electromagnetic system, the magnetic data by a Gulf Mark III total field fluxgate magnetometer and vertical control was measured by an APN-1 radio altimeter. The electromagnetic, APN-1 and fiducial timing data were recorded on one chart with a tape speed of 1 in per second while the magnetic and fiducial timing data were recorded on a second chart at a tape speed of three inches per minute. The actual flight path was recorded on film with a frame interval of 1.5 seconds.

The LHEM-200 electromagnetic system consists of two vertical coaxial coils mounted in a 30-foot towed bird and operating at a frequency of 4000 Hertz. It measures the strength of the secondary fields created in conductors to an accuracy of about ten parts per million of the primary field for both the in-phase and out-of-phase components.

An earth conductor must usually give a response of greater than 20 p.p.m. before it can be satisfactorily recognized and the in-phase to out-of-phase ratio is the best measure of relative conductivity X width factors with a high ratio indicating a high factor.

The Gulf Mark III fluxgate magnetometer has a scale sensitivity of about five gamma at the 1200 gamma full scale sensitivity used and measures the earth's total magnetic field intensity.

#### 6.20 Survey Procedure and Map Compilation

Terrain clearance for the helicopter was maintained throughout the survey between 200 and 250 feet above terrain with the towed bird at a level of 100 to 150 feet above terrain. Lines were flown alternatively in opposite directions at an interval of approximately 1000 feet.

Electromagnetic data were plotted on a controlled mosaic constructed from one inch equals one mile photography and reproduced on a scale of 2000 feet equal to one inch and transferred to transparent plans following interpretation. Aeromagnetic data were not compiled.

Flight path recovery was accomplished by comparing prints of the flight film with the mosaic in order to locate fiducial points approximately one mile apart.

6.30 Data for Airborne Certificate

Following completion of the airborne surveys and preliminary ground investigations a total of 176 claims were staked in fourteen claim blocks to cover 21 of the anomalous zones. These claims are held in the name of Kennco Explorations, (Canada) Limited and an Airborne Geophysical Certificate is requested on the basis of this survey to permit deferment of the assessment work due with respect to these claims.

The claim data are as follows;

| <u>CLAIM NUMBERS</u>                                   | <u>ANOMALIES COVERED</u>       | <u>NO. OF CLAIMS</u> |
|--|--------------------------------|----------------------|
| <u>Claim Block A - Township 83</u>                     |                                |                      |
| TB-326792 to TB-326797                                 | Anomaly 1                      | 6                    |
| <u>Claim Block B - Aguasabon Lake</u>                  |                                |                      |
| TB-326777 to TB-326781                                 | Anomalies 6 and 7              | 9                    |
| TB-326787 and TB-326788                                |                                |                      |
| TB-326855 and TB-326856                                |                                |                      |
| <u>Claim Block C - Aguasabon River and Township 82</u> |                                |                      |
| TB-326732 to TB-326740                                 | Anomalies 18, 19, 20<br>and 21 | 59                   |
| TB-326759 to TB-326762                                 |                                |                      |
| TB-326807 to TB-326852                                 |                                |                      |
| <u>Claim Block D - Township 81</u>                     |                                |                      |
| TB-326863 to TB-326871                                 | Anomaly 27                     | 9                    |
| <u>Claim Block E - Township 81 and 82</u>              |                                |                      |
| TB-326782 to TB-326786                                 | Anomaly 22                     | 10                   |
| TB-326927 to TB-326931                                 |                                |                      |

\* Mining Claims TB. ~~326865, 326866 + 326871~~ are not covered. Lst 9<sup>o</sup> of

| <u>CLAIM NUMBERS</u>  | <u>ANOMALIES COVERED</u> | <u>NO. OF CLAIMS</u> |
|---|--------------------------|----------------------|
| <u>Claim Block F - Township 81</u><br>TB-326857 to TB-326862  | Anomaly 24               | 6                    |
| <u>Claim Block G - Cairngorm Lake</u><br>TB-326882 to TB-326902   | Anomalies 37, 38 and 39  | 21                   |
| <u>Claim Block H - Cairngorm Lake</u><br>TB-326903 to TB-326906<br>TB-326919 and TB-326920  | Anomaly 40               | 6                    |
| <u>Claim Block I - Cairngorm Lake</u><br>TB-326907 to TB-326918   | Anomalies 41 and 42      | 12                   |
| <u>Claim Block J - Cairngorm Lake</u><br>TB-326921 to TB-326926   | Anomaly 43               | 6                    |
| <u>Claim Block K - Upper Aguasabon Lake</u><br>TB-326741 to TB-326743<br>TB-326746 to TB-326751<br>TB-326753 to TB-326758<br>TB-326789 to TB-326791 | Anomaly 47               | 18                   |
| <u>Claim Block L - Upper Aguasabon Lake</u><br>TB-326771 to TB-326776   | Anomaly 46               | 6                    |
| <u>Claim Block M - Upper Aguasabon Lake</u><br>TB-326767 to TB-326770   | Anomaly 45               | 4                    |
| <u>Claim Block N - Upper Aguasabon Lake</u><br>TB-326763 to TB-326766   | Anomaly 44               | 4                    |

The total of 176 claims are held in the name of Kennco Explorations, (Canada) Limited, and are located in the Thunder Bay Mining Division.

## 7.00 GEOPHYSICAL INTERPRETATION

### 7.10 General

A careful perusal of the electromagnetic flight tapes has resulted in the selection of 55 anomalous zones or groups of anomalous zones which have been plotted on a scale of one inch equals 2000 feet on overlays of the flight mosaic. Instrumental, geological and turbulence effects have generally produced a "noise" level of about twenty parts per million and locally, overburden and topographical effects have produced much larger effects which are fairly readily identified by the low ratios of the in-phase to out-of-phase responses. It is always possible that a valid sulphide conductor could be masked by any of these effects but the problem of investigating all such possibilities is insurmountable.

The position of the anomaly peak is indicated by a cross on the flight line and the in-phase response in p.p.m. shown in the top half of a circle adjacent to the cross with the in-phase to out-of-phase response ratio shown in the bottom half of the circle. The magnitude of any coincident magnetic anomaly is shown beside the anomaly position and the possible trend of the conductor is shown by a dashed line. Only anomalies with reasonably sharp and narrow responses have been classified. Some broad anomalies have been omitted as non-significant and those anomalies showing a reverse in-phase response due to permeability effects have been plotted but not classified. These permeability effects are most evident in an area in the central portion of Plate 4 and a regional east-west or northwest to southeast trend is apparent. However, very few of these anomalies display much out-of-phase response and appear to be predominantly permeability responses. These responses however, do not show great consistency from line to line.

### 7.20 Interpretation Procedure

The conductivity - thickness rating of the conductor as expressed by the in-phase to out-of-phase response ratio has been given first priority in the classification and followed closely by the amplitude of the in-phase response. The latter is not as diagnostic as it is highly dependent on the height of the bird above the conductor, a factor strongly dependent on the depth of overburden. A plus factor is applied to an anomaly where a magnetic anomaly is very closely associated or coincident with a conductor and the intensity of the magnetic anomaly is not so great that it suggests an oxide iron formation occurrence. The limits of the conductivity rating, the response classification and the conductor rating data are shown in Table I.

### 7.30 Interpretation Results

On the basis of the interpretation limits outlined above, 23 anomalies or 41.8 percent fall into the A and B categories and warrant strong consideration for further investigations while 21 anomalies or 38.2 percent fall into the C category and warrant only moderate consideration. The remaining 11 anomalies would need some special geological feature to warrant additional work.

Of the 55 rated anomalies, 42 or 76.4 percent have a close or coincident magnetic association of such a character that pyrrhotite could be the cause and the chances of sulphide mineralization being the cause of the conductor are therefore somewhat higher.

The classification data of the 55 electromagnetic anomalies are shown in Table II and a summary of the anomaly ratings in Table III. While the final rating is somewhat subjective, a sincere attempt has been made to be consistent and it should be kept in mind that all the anomalies rated are fairly sharp and distinct. Only in the case of some multiple anomalies, will the sharpness feature be somewhat less significant.

### 8.00 CONCLUSIONS

Many of the anomalies which have been given A & B ratings fall within environments where acid volcanic rocks or their metamorphic equivalents have been mapped. While the grade of metamorphism varies considerably throughout the region from epidote-amphibolite and amphibolite in the south to granulite in some parts of the Cairngorm Lake region, all these conductors warrant serious consideration until geologic data can be accumulated which will clarify their mode of occurrence. The C rated conductors also merit consideration on a somewhat less urgent basis. It is probable that ground geophysical work and drilling will be necessary to complete the investigations of many of the anomalous zones.

Since 76.4 percent of the anomalies have a close or coincident magnetic association it is probable that many of these anomalies contain significant amounts of pyrrhotite and therefore occur in a sulphide-bearing environment which may contain values in economic metals.

In general, the magnetic records are quite disturbed and it is evident that magnetic minerals, both pyrrhotite and magnetite are quite common in the region.

9.00 RECOMMENDATIONS

On the basis of these data, it has been recommended that the class A, B and C anomalies be thoroughly investigated to determine the amount of work, if any, performed over them by previous operators and where such work has been inconclusive or where little work has been performed, the areas should be staked, mapped geologically and prospected.

Elimination of anomalies on the basis of previous work performed and where ground is held by other interests has left 21 anomalies still of interest which have been covered by 176 claims in 14 claim groups. Where these conductors cannot be adequately assessed by mapping and prospecting, it is recommended that ground geophysical work be performed to locate the conductors and to determine their characteristics in more detail. Drilling would be a natural result of the successful completion of this phase of the investigations.

Toronto, Ontario  
October 7, 1971.

  
H.W. FLEMING, M.A., P. Eng.

10.00      REFERENCES

1.            O.D.M. Geological Circular No. 4 - Preliminary Report on the Geology of the Jackfish - Middleton Area by J.W.R. Walker, 1956.
2.            O.D.M. Geological Report No. 50 - Geology of the Jackfish - Middleton Area by J.W.R. Walker, 1967.
3.            O.D.M. Geological Map No. 2107 - Jackfish - Middleton Area. Scale  $\pm$  1 inch = 1/2 mile.
4.            O.D.M. Geological Map No. 2112 - Cairngorm Lake Area. Scale : 1 inch = 1/2 mile.
5.            O.D.M. Geological Compilation Series Map No. 2137 - Nipigon-Schreiber Sheet - Scale : 1 inch = 4 miles.
6.            O.D.M. Forty-Seventh Annual Report 1938, Part IX-Schreiber Area by E.A. Harcourt and M.W. Bartley. Scale : 1 inch = 1/2 mile.
7.            O.D.M. Forty-Ninth Annual Report 1940, Part VII - Geology of the Big Duck-Aguasabon Lakes Area by M.W. Bartley. Scale : 1 inch = 1/2 mile.

11.00      ENCLOSURES

- Table I            Parameter Limits for Rating of Anomalies.
- Table II           List of Anomalies - Characteristics and Ratings.
- Table III          Summary of Anomaly Ratings.
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- Plate 1.            Index Map - Airborne Survey of Schreiber Area, 1971. Scale: 1 inch = 4 miles.
- Plate 2.            Airborne EM Survey, Schreiber Area, District of Thunder Bay. Scale : 1 inch = 2000 feet, Sheet 1.
- Plate 3.            Airborne EM Survey, Schreiber Area, District of Thunder Bay. Scale : 1 inch = 2000 feet, Sheet 2.
- Plate 4.            Airborne EM Survey, Schreiber Area, District of Thunder Bay. Scale : 1 inch = 2000 feet, Sheet 3.

TABLE IPARAMETER LIMITS FOR RATING OF ANOMALIESCONDUCTIVITY RATING

|                                |            |   |           |
|--------------------------------|------------|---|-----------|
| In-phase to out-of-phase ratio | < 0.5      | = | Very Poor |
|                                | 0.6 to 1.0 | = | Poor      |
|                                | 1.1 to 2.0 | + | Moderate  |
|                                | 2.1 to 3.0 | = | Good      |
|                                | > 3.0      | = | Excellent |

RESPONSE CLASSIFICATION

|                   |            |   |           |
|-------------------|------------|---|-----------|
| In-phase Response | 20 to 50   | = | Low       |
|                   | 51 to 100  | = | Moderate  |
|                   | 101 to 200 | = | High      |
|                   | > 200      | = | Very High |

CONDUCTOR RATING

- A = Excellent
- B = Good
- C = Moderate
- D = Poor
- E = Very Poor

A plus (+) factor is added where magnetic correlation or association is present.

TABLE  
LIST OF ANOMALIES - CHARACTERISTICS AND RATINGS

| ZONE | INTERCEPT  | CONDUCTIVITY                    | RESPONSE               | MAGNETIC CHARACTERISTIC | RATING         |
|------|--|---------------------------------|------------------------|-------------------------|----------------|
| 1    | Intermittent- Lines 7 & 9                            | Moderate                        | Low to Moderate        | Associated              | C              |
| 2    | One Line - Line 2                                    | Moderate                        | High                   | 190 gamma               | C <sup>+</sup> |
| 3    | Two Lines - Lines 4 & 5                              | Moderate                        | Moderate               | Associated              | C              |
| 4    | One Line - Line 9                                    | Moderate                        | Low                    | 70 gamma                | D <sup>+</sup> |
| 5    | Three Line Intermittent<br>Lines 12, 13 & 15         | Poor to Moderate                | Low                    | 160-220, 980 gamma      | C <sup>+</sup> |
| 6    | Two Lines - Lines 12 & 13                            | Poor and Excellent              | Low and High           | 100 and 300 gamma       | B <sup>+</sup> |
| 7    | One Line - Line 12                                   | Moderate                        | Moderate               | 160 gamma               | C <sup>+</sup> |
| 8    | One Line Multiple - Line 14                          | Moderate and Good               | Low                    | 80 and 240 gamma        | D <sup>+</sup> |
| 9    | Two Line Multiple - Lines<br>17 & 18                 | Poor and Excellent              | Low and Moderate       | 80 and 200 gamma        | C <sup>+</sup> |
| 10   | Three Lines - Lines 17, 18 &<br>19.                  | Poor to Moderate                | Low to Moderate        | 20, 60 and 460 gamma    | C <sup>+</sup> |
| 11   | Three Lines - Multiple<br>Lines 17, 18 & 19.         | Moderate to Good                | Moderate               | 50, 220 and 400 gamma   | C <sup>+</sup> |
| 12   | One Line - Line 21                                   | Excellent                       | Very High              | 1240 gamma              | A <sup>+</sup> |
| 13   | One Line - Line 21                                   | Very Poor                       | Low                    | 310 gamma               | F <sup>+</sup> |
| 14   | One Line - Line 26                                   | Moderate                        | Moderate               | 100 gamma               | C <sup>+</sup> |
| 15   | One Line - Line 25                                   | Moderate                        | Moderate               | 1180 gamma              | C <sup>+</sup> |
| 16   | One Line - Line 28                                   | Moderate                        | Moderate               | None                    | C              |
| 17   | One Line - Line 32                                   | Moderate                        | Low                    | 620 gamma               | D <sup>+</sup> |
| 18   | Five Line, Intermittent<br>Multiple - Lines 31 to 35 | Poor, Moderate and<br>Excellent | Low, Moderate and High | Variable Magnitudes     | B <sup>+</sup> |

| ZONE | INTERCEPT  | CONDUCTIVITY          | RESPONSE              | MAGNETIC CHARACTERISTIC   | ATING          |
|------|--|-----------------------|-----------------------|---------------------------|----------------|
| 19   | Four Line, Intermittent Multiple - Lines 38 to 41    | Moderate to Excellent | Low to High           | Variable Magnitudes       | B <sup>+</sup> |
| 20   | One Line - Line 46                                   | Moderate              | Low                   | 290 gamma                 | D <sup>+</sup> |
| 21   | Six Line Intermittent, Lines 45, 47 to 51.           | Poor to Moderate      | Low to Moderate       | Variable Magnitudes       | C <sup>+</sup> |
| 22   | Three Line - Lines 59 to 61                          | Moderate to Good      | Low                   | 220 to 1160 gamma         | D <sup>+</sup> |
| 23   | One Line - Line 61                                   | Moderate              | Moderate              | None                      | C              |
| 24   | Two Line - Lines 68 & 69                             | Moderate and Good     | Moderate and High     | 340 and 350 gamma         | B <sup>+</sup> |
| 25   | Three Line - Lines 74 to 76                          | Moderate to Excellent | Moderate to Very High | 490 to 3000 gamma         | B <sup>+</sup> |
| 26A  | Two Line Intermittent - Lines 74 and 77.             | Excellent             | Moderate              | None                      | B              |
| 26B  | Two Line Intermittent - Lines 80 and 82              | Good and Excellent    | Moderate              | Associated                | B              |
| 26C  | Two Line - Lines 86 & 87                             | Good and Excellent    | Moderate              | 140 and 270 gamma         | B <sup>+</sup> |
| 27   | Three Line - Possibly Multiple, Lines 66 to 68       | Moderate              | Low to Very High      | 50 to 460 gamma           | B <sup>+</sup> |
| 28   | Four Line Intermittent Multiple, Lines 68,70,71 & 73 | Very Poor to Moderate | Low to High           | Variable and Intermittent | C              |
| 29   | One Line - Line 74                                   | Excellent             | Moderate              | 190 gamma                 | B <sup>+</sup> |
| 30   | One Line Multiple - line 82                          | Moderate to Excellent | Moderate to High      | 150 to 820 gamma          | B <sup>+</sup> |
| 31A  | Four Line Multiple - Lines 76 to 79                  | Poor to Good          | Low to High           | Variable Magnitudes       | B <sup>+</sup> |
| 31B  | Three Line Multiple - Lines 80 to 82                 | Moderate to Excellent | Moderate to High      | Variable Magnitudes       | B <sup>+</sup> |

| ZONE | INTERCEPT   | CONDUCTIVITY          | RESPONSE              | MAGNETIC CHARACTERISTIC | PITTING        |
|------|---|-----------------------|-----------------------|-------------------------|----------------|
| 31C  | Six Line Multiple -<br>Lines 83 to 88   | Poor to Excellent     | Low to Very High      | Variable Magnitude      | A <sup>+</sup> |
| 32   | One Line Multiple -Line<br>84   | Moderate              | Moderate              | 260 and 390 gamma       | C <sup>+</sup> |
| 33   | Seven Line Intermittent<br>Multiple - Lines 85, 86,<br>87, 88, 89, 90 and 92. | Moderate to Excellent | Moderate to Very High | Variable Magnitudes     | A <sup>+</sup> |
| 34   | Five Line Multiple -<br>Line 85 to 89   | Moderate to Excellent | Moderate to Very High | Variable Magnitudes     | A <sup>+</sup> |
| 35   | One Line - Line 82  | Moderate              | Moderate              | 900 gamma               | C <sup>+</sup> |
| 35 A | One Line - Line 83  | Poor                  | Moderate              | 1510 gamma              | D <sup>+</sup> |
| 36   | One Line - Line 79  | Poor                  | Low                   | None                    | B              |
| 37   | One Line - Line 116   | Moderate              | Low                   | 1030 gamma              | D <sup>+</sup> |
| 38   | Three Line - Lines<br>111 to 113  | Moderate              | Moderate              | 440 to 980 gamma        | C <sup>+</sup> |
| 39   | Three Line Multiple -<br>Line 106 to 108.                                     | Poor to Moderate      | Low to Moderate       | 220 to 410 gamma        | D <sup>+</sup> |
| 40   | Two Line - Lines 100 &<br>101   | Good                  | Moderate              | Associated              | B              |
| 41   | Two Line Multiple -<br>Lines 94 and 95  | Moderate              | Moderate to High      | 40 gamma locally        | C              |
| 42   | One Line Multiple -<br>Line 95  | Good to Excellent     | High                  | 20 gamma                | B <sup>+</sup> |
| 43   | Three Lines - Line 93<br>to 95  | Moderate to Excellent | Moderate to Very High | 30 to 40 gamma          | B <sup>+</sup> |
| 44   | Two Lines - Line 165 &<br>166   | Moderate              | Moderate to High      | 260 and 800 gamma       | C <sup>+</sup> |

| ZONE | INTERCEPT                                | CONDUCTIVITY          | RESPONSE         | MAGNETIC CHARACTERISTIC | ING            |
|------|--|-----------------------|------------------|-------------------------|----------------|
| 45   | One Line - Line 160                      | Good                  | Moderate         | None                    | B              |
| 46   | Three Lines - Lines 151<br>to 153        | Moderate              | Low to Moderate  | 90 to 340 gamma         | C <sup>+</sup> |
| 47   | Six Line Multiple -<br>Lines 138 to 143  | Poor to Good          | Low to High      | Variable Magnitudes     | B <sup>+</sup> |
| 48   | Nine Line Multiple -<br>Lines 124 to 132 | Moderate to Excellent | Low to Very High | Variable Magnitudes     | A <sup>+</sup> |
| 49   | One Line - Line 126                      | Moderate              | Moderate         | None                    | C              |
| 50   | One Line - Line 124                      | Moderate              | Low              | None                    | D              |

TABLE III

SUMMARY OF ANOMALY RATINGS

|   | <u>No.</u> | <u>Percentage</u> |
|---|------------|-------------------|
| A <sup>+</sup> = 12, 31C, 33, 34, 48                                      | 5          | 9.0%              |
| A = None  | 0          | 0.0%              |
| B <sup>+</sup> = 6, 18, 19, 24, 25, 26C, 27, 29, 30, 31A, 31B, 42, 43, 47 | 14         | 25.5%             |
| B = 26A, 26B, 40, 45  | 4          | 7.3%              |
| C <sup>+</sup> = 2, 5, 7, 9, 10, 11, 14, 15, 21, 32, 35, 38, 44, 46       | 14         | 25.5%             |
| C = 1, 3, 16, 23, 28, 41, 49  | 7          | 12.7%             |
| D <sup>+</sup> = 4, 8, 17, 20, 22, 35A, 37, 39                            | 8          | 14.6%             |
| D = 50  | 1          | 1.8%              |
| E <sup>+</sup> = 13   | 1          | 1.8%              |
| E = 36  | <u>1</u>   | <u>1.8%</u>       |
| Total   | 55         | 100.0%            |

Upper Aguasabon Lake Area (M.-2519)

AREA OF  
Claim *Map*  
**LOWER  
AGUASABON LAKE**

DISTRICT OF  
THUNDER BAY

THUNDER BAY  
MINING DIVISION

SCALE: 1-INCH = 40 CHAINS

**LEGEND**

- PATENTED LAND Ⓞ
- CROWN LAND SALE Ⓢ
- LEASES Ⓣ
- LOCATED LAND Ⓛ
- LICENSE OF OCCUPATION Ⓛ.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 —

**NOTES**

- 400' Surface Rights Reservation around all Lakes & Rivers.
- Flooding Rights to Contour 985 On Aguasabon Lakes Reserved to H.E.P.C. of Ontario. File: 132730.
- Flooding Rights on Owl Lake Reserved to H.E.P.C. of Ontario to 15' above present water level. File: 110752.
- River, Bed and Flats On Aguasabon River Reserved to 20' above present water level south of Loc. JK309 for flooding. File: 110752 Vol. 6.

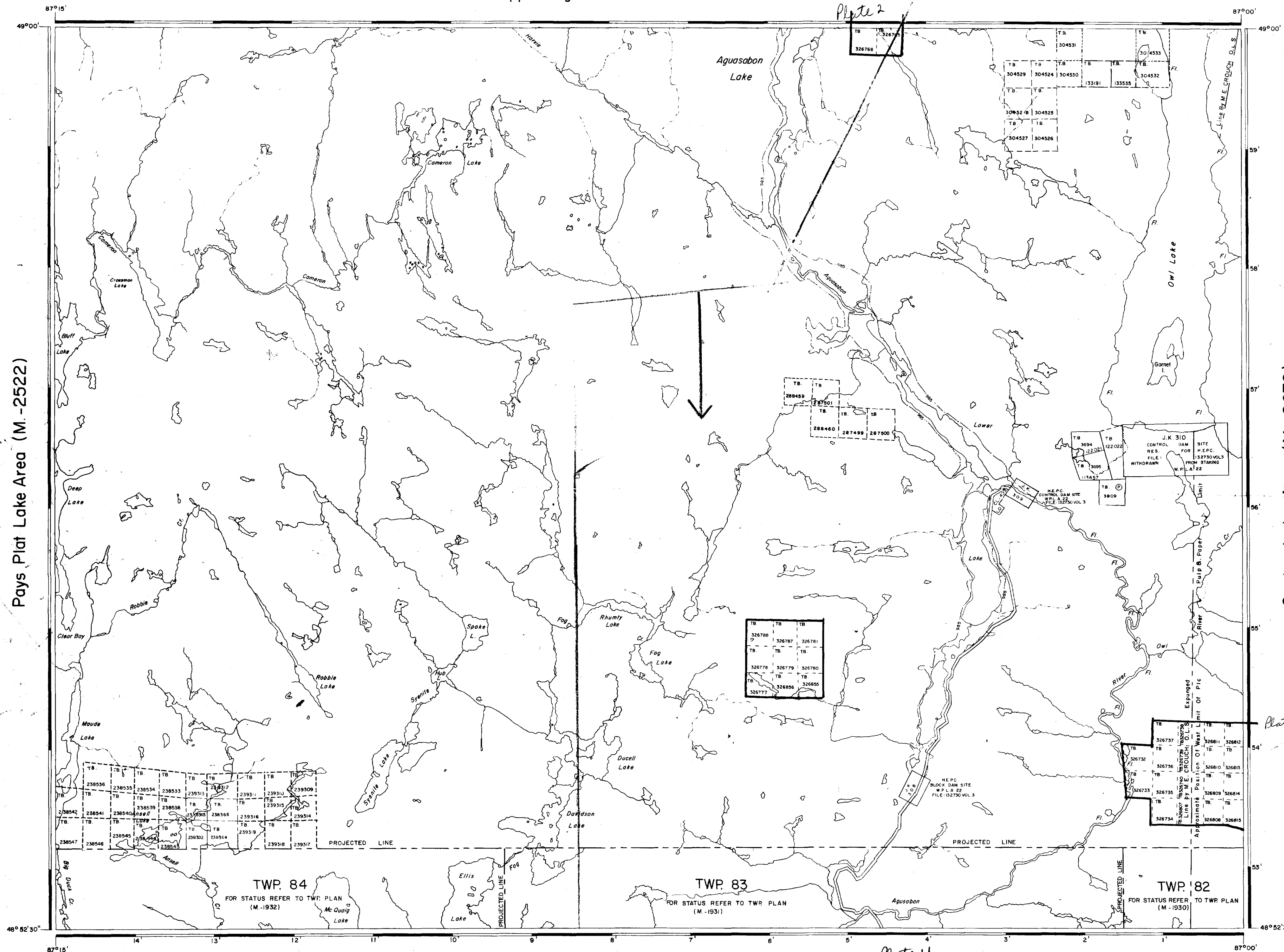
*Airborne  
Certificate  
2.649*

DATE OF ISSUE  
NOV - 9 1971  
ONT. DEPT. OF MINES  
AND NORTHERN AFFAIRS

NATIONAL TOPOGRAPHIC SERIES 42 D 14

PLAN NO. M. 2518

ONTARIO  
DEPARTMENT OF MINES  
AND NORTHERN AFFAIRS



*Plate 2*

*Plate 4*

*Plate 4*

Pays Plat Lake Area (M.-2522)

Santoy Lake Area (M.-2676)

TWP. 84  
FOR STATUS REFER TO TWP. PLAN  
(M.-1932)

TWP. 83  
FOR STATUS REFER TO TWP. PLAN  
(M.-1931)

TWP. 82  
FOR STATUS REFER TO TWP. PLAN  
(M.-1930)

M.S.218

M.S.218

TOMBIGBON LAKE

TOMBIGBON LAKE

M.S.218

M.S.218



M.2676

M.2676

Plate 3

AREA OF  
*Claim Map*  
**SANTOY LAKE**

DISTRICT OF  
THUNDER BAY

THUNDER BAY  
MINING DIVISION

SCALE: 1-INCH = 40 CHAINS

**LEGEND**

- PATENTED LAND Ⓟ
- CROWN LAND SALE C.S.
- LEASES Ⓞ
- LOCATED LAND L.C.
- 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 ⓧ

**NOTES**

400' reserve around all lakes and rivers  
to Dept. of Lands & Forests.

*Airborne Certificate*

2.649

**DATE OF ISSUE**

NOV - 9 1971

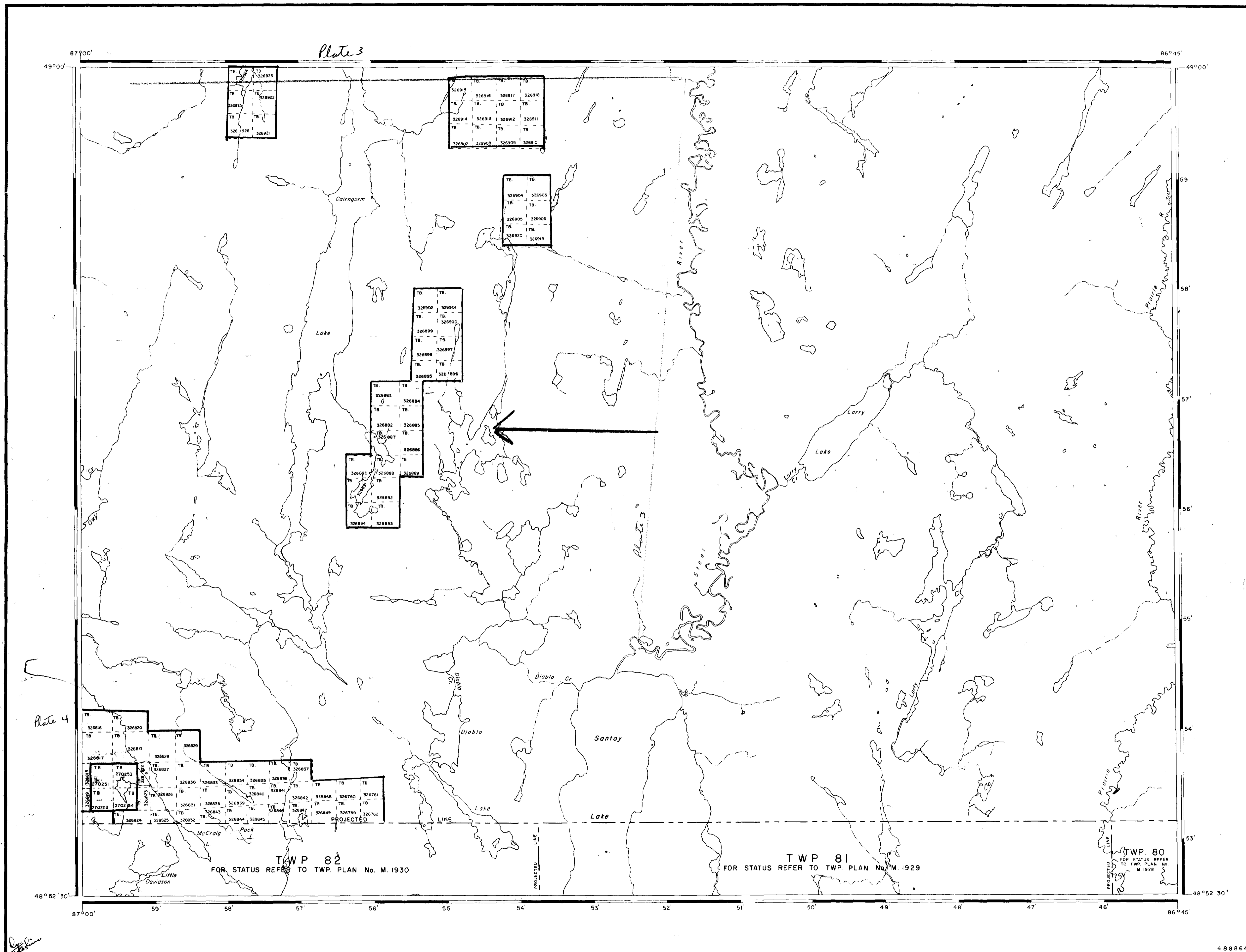
ONT. DEPT. OF MINES  
AND NORTHERN AFFAIRS

NATIONAL TOPOGRAPHIC SERIES 42 D 15

PLAN NO. **M.2676**

**ONTARIO**  
**DEPARTMENT OF MINES**  
**AND NORTHERN AFFAIRS**

488864



TWP 82  
FOR STATUS REFER TO TWP. PLAN No. M. 1930

TWP 81  
FOR STATUS REFER TO TWP. PLAN No. M. 1929

TWP 80  
FOR STATUS REFER  
TO TWP. PLAN No.  
M. 1928



M.2676

M.2676

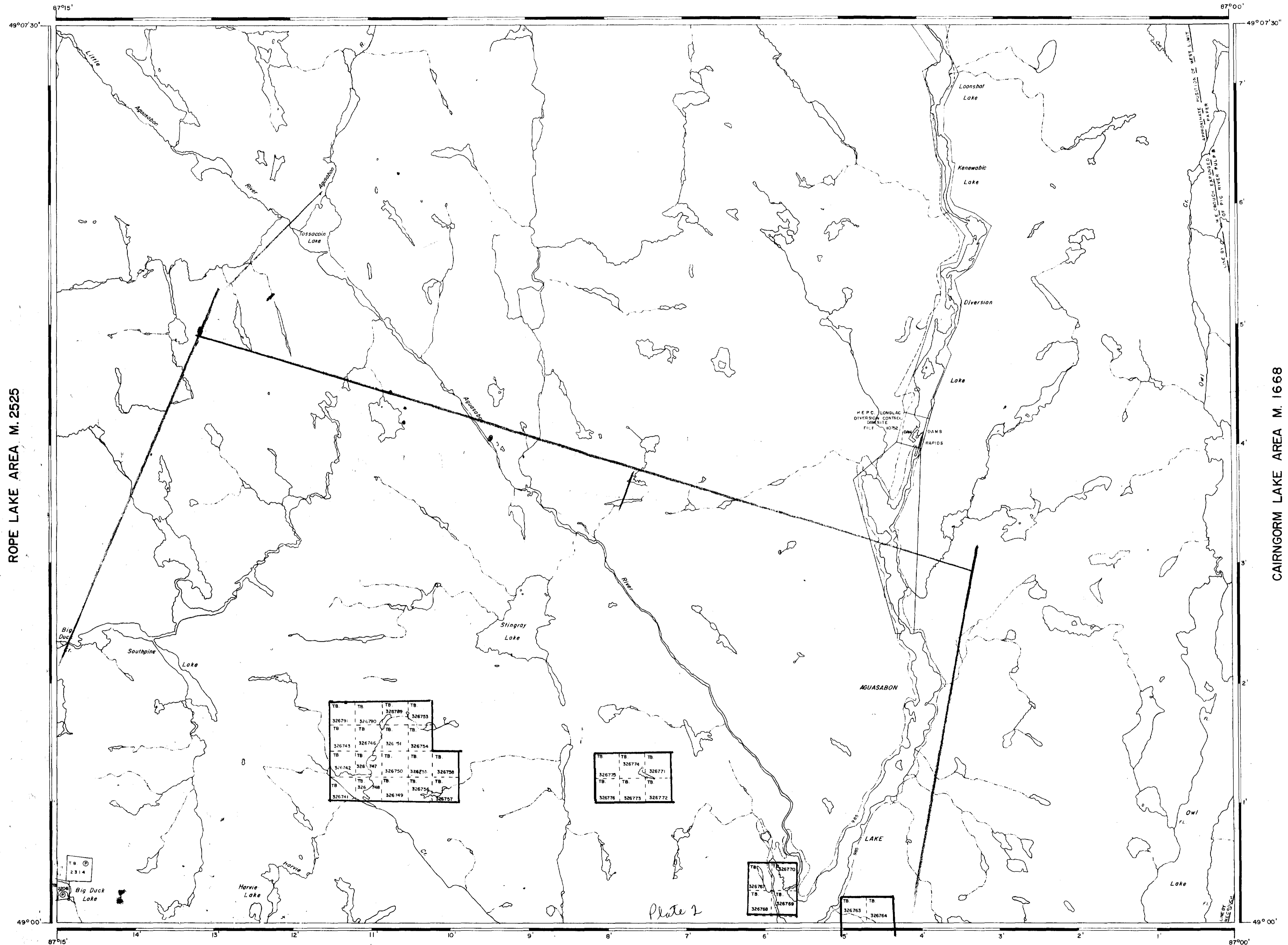
219

UPPER AGUASABON LAKE

219

ROPE LAKE AREA M. 2525

CAIRNGORM LAKE AREA M. 1668



AREA OF  
*Claim* UPPER Map  
 AGUASABON LAKE

DISTRICT OF  
 THUNDER BAY

THUNDER BAY  
 MINING DIVISION

SCALE: 1-INCH = 40 CHAINS

LEGEND

|                       |        |
|-----------------------|--------|
| PATENTED LAND         | Ⓟ      |
| CROWN LAND SALE       | C.S.   |
| LEASES                | Ⓛ      |
| 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' Reserve around all Lakes and Rivers  
 In Dept. of Lands & Forests

Flooding Rights To Contour 985 On Aguasabon  
 Lakes Reserved To H.E.P.C. Of Ontario. File: 132730.

Flooding Rights On Owl Lake Reserved To H.E.P.C.  
 Of Ontario To 15' Above Present Water Level. FILE: 132730

Aguasabon River Area Control Traverse By Phillips  
 & Renner O.L.S. March 1947.

*Airborne  
 Certificate  
 2.649*

DATE OF ISSUE

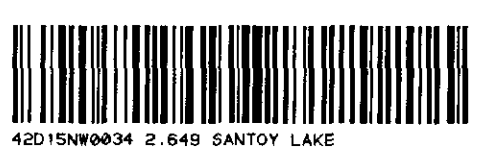
NOV 10 1971

ONT. DEPT. OF MINES  
 AND NORTHERN AFFAIRS  
 NATIONAL TOPOGRAPHIC SERIES 42E 3

PLAN NO. M. 2519













ONTARIO  
 DEPARTMENT OF MINES  
 AND NORTHERN AFFAIRS

LOWER AGUASABON LAKE AREA M. 2518

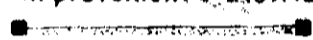


THE TOWNSHIP  
OF  
*Claim 83 Map*  
DISTRICT OF  
THUNDER BAY  
THUNDER BAY  
MINING DIVISION  
SCALE: 1 INCH = 40 CHAINS

**LEGEND**


- PATENTED LAND 
- CROWN LAND SALE 
- LEASES 
- LOCATED LAND 
- LICENSE OF OCCUPATION 
- ROADS 
- IMPROVED ROADS 
- KING'S HIGHWAY 
- RAILWAYS 
- POWER LINES 
- MARSH OR MUSKEG 
- MINES 

**NOTES**

Terrace Bay Improvement District shown thus: 

Reserve Flooding Rights to Contour 905 G.S.C. on Aguasabon River & Big Duck Creek, for H.E.P.C. of Ont., File 132730

Reserve for Crown Purposes, Aguasabon River Bed Extending Southerly from Aguasabon Lake to Lake Superior, Together with the River Flats Thereof to an Elevation 20' above the Natural Water Level. *W.P.L. 22*

400 Reserve to Dept of Lands & Forests shown thus: 

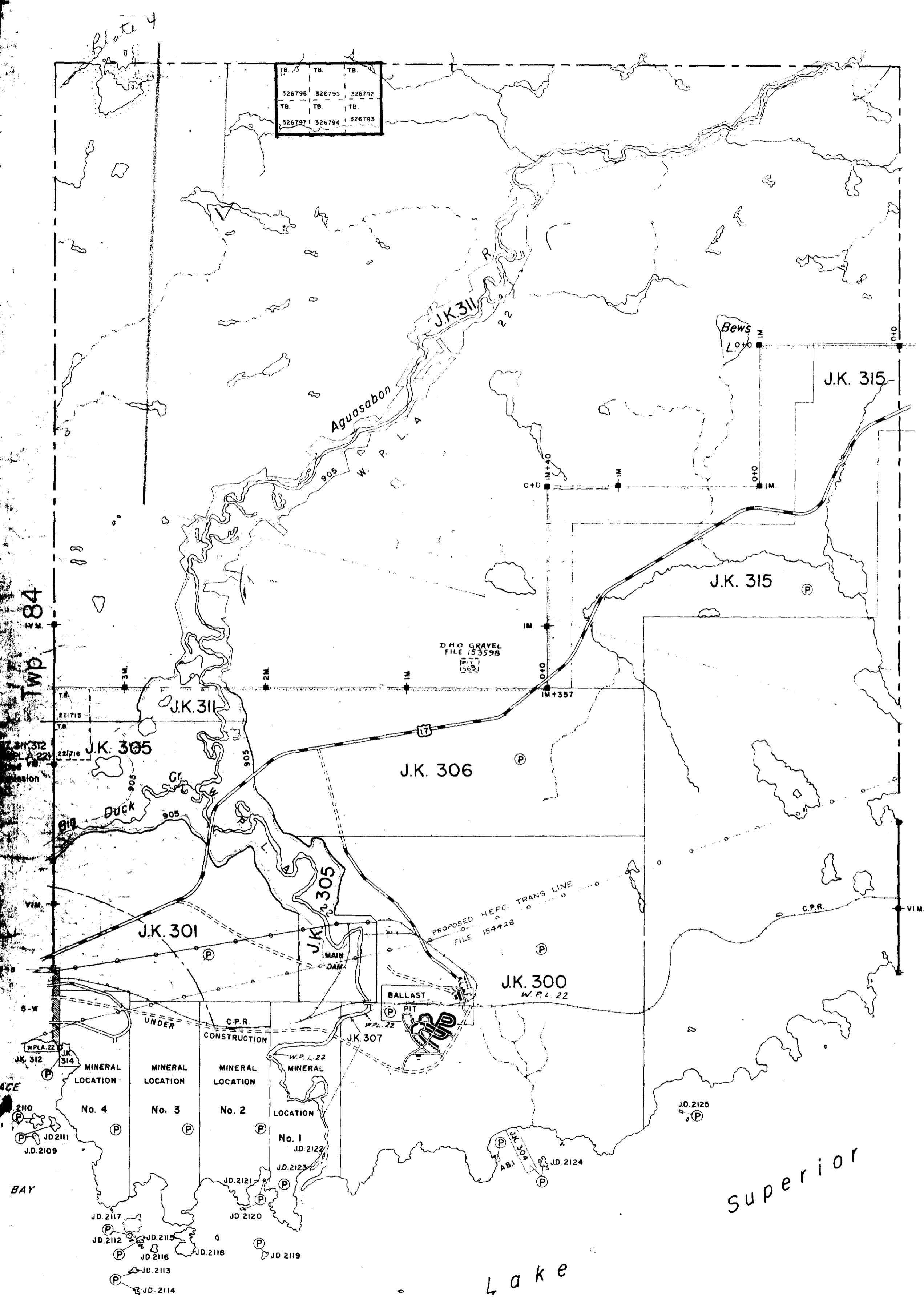
LAND UNDER LAKE SUPERIOR WITHDRAWN FROM STAMINA RECORD IN COUNCIL DATED APRIL 30, 1912

*Airborne Certificate 2649*

DATE OF ISSUE  
NOV 1 1971  
ONT. DEPT. OF MINES  
AND NORTHERN AFFAIRS

PLAN NO. - M 1931

ONTARIO  
DEPARTMENT OF MINES  
AND NORTHERN AFFAIRS

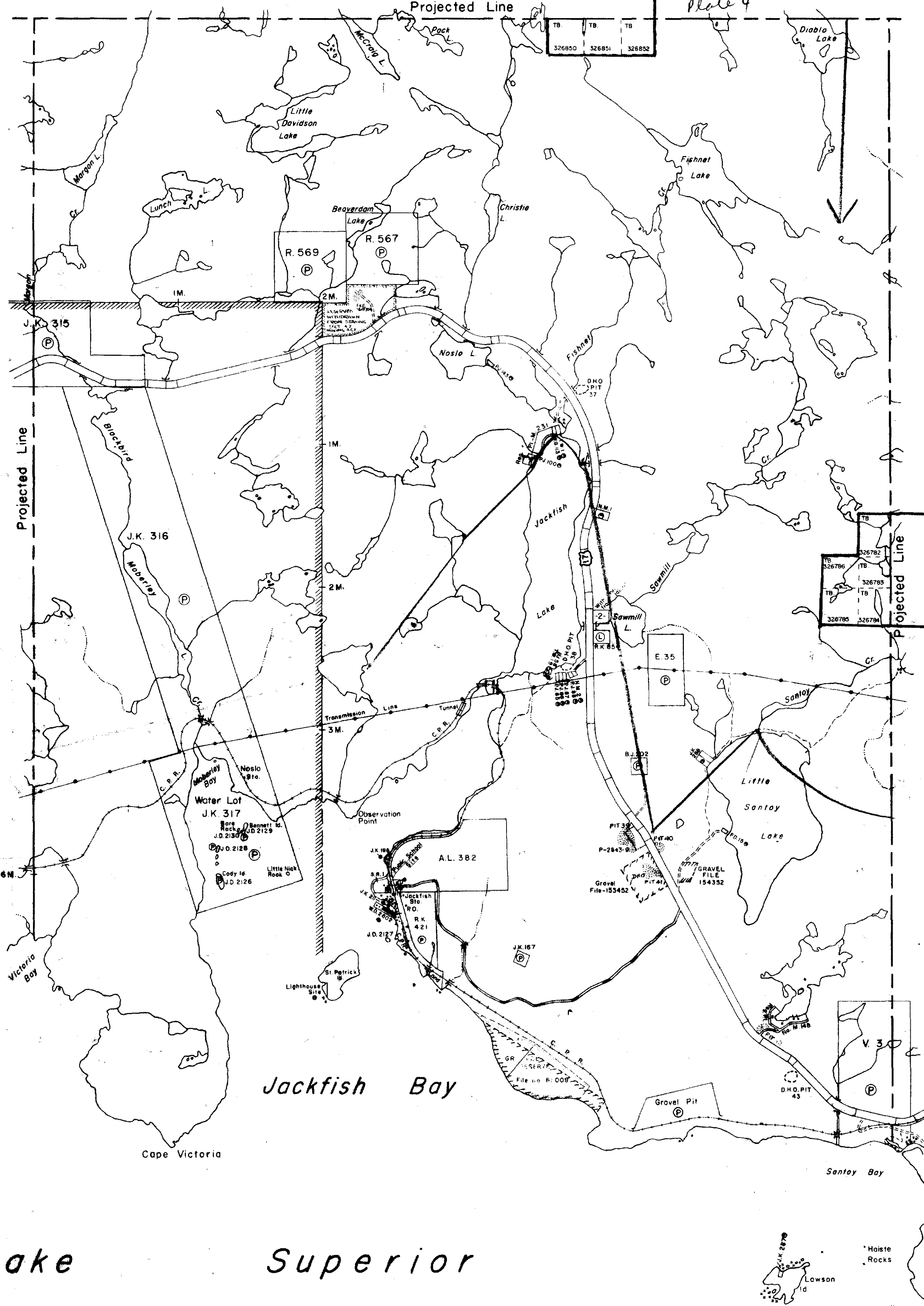


Lower Aguasabon Lake Area - M.2518

Santoy Lake Area - M.2676

Township 83 - (M.1931)

Township 81 - (M.1929)



THE TOWNSHIP OF

Claim 82 Map

DISTRICT OF THUNDER BAY

THUNDER BAY MINING DIVISION

SCALE: 1-INCH = 40 CHAINS

LEGEND

|                       |        |
|-----------------------|--------|
| PATENTED LAND         | Ⓟ      |
| CROWN LAND SALE       | C.S.   |
| LEASES                | Ⓛ      |
| 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             |        |

NOTES

400' Surface Rights Reservation around all Lakes and Rivers.

Improvement District of Terrace Bay shown thus:

Parcels patented for Surface Rights Only shown thus: Ⓟ

Parcels patented for Surface & Mining Rights shown thus: Ⓛ

Land under the waters of Lake Superior, withdrawn from staking by -O.C. - Apr 30, 1912.

Airborne Certificate 2.649

DATE OF ISSUE  
NOV 1 1971  
ONT. DEPT. OF MINES  
AND NORTHERN AFFAIRS

PLAN NO. M.1930

ONTARIO DEPARTMENT OF MINES AND NORTHERN AFFAIRS



SANTOY LAKE M-2676

Plate 4

TOWNSHIP

Claim 81 Map

DISTRICT OF THUNDER BAY

THUNDER BAY MINING DIVISION

SCALE: 1-INCH = 40 CHAINS

LEGEND

- PATENTED LAND Ⓟ or ●
- PATENTED FOR SURFACE RIGHTS ONLY Ⓟ or ●
- LEASES ○
- LICENCE OF OCCUPATION L.O.
- CROWN LAND SALE C.S.
- LOCATED LAND Loc
- CANCELLED C
- MINING RIGHTS ONLY M.R.O.
- SURFACE RIGHTS ONLY S.R.O.
- HIGHWAY & ROUTE NO. — 3 —
- ROADS — — —
- TRAILS — · — · —
- RAILWAYS — + — + —
- POWER LINES — — — —
- MARSH OR MUSKEG ~ ~ ~
- MINES ✕

† used only with summer resort locations or when space is limited

NOTES

400' Surface Rights Reservation around the shores of all lakes & rivers

Land under Lake Superior withdrawn from Staking by Order-in-Council dated April 30, 1912

Airborne Certificate

2.649

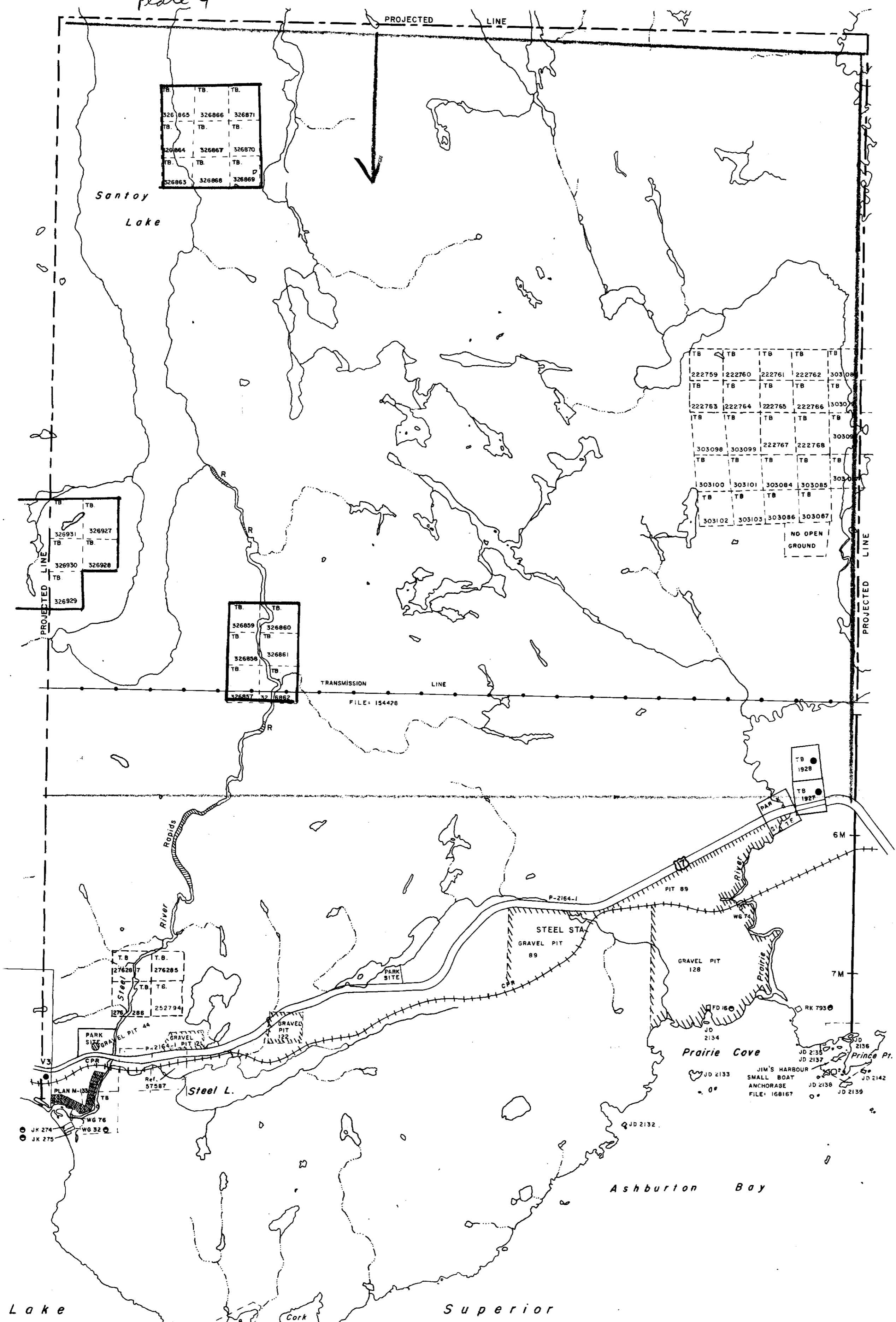
DATE OF ISSUE

NOV 10 1971

ONT. DEPT. OF MINES AND NORTHERN AFFAIRS

PLAN NO. M-1929

ONTARIO DEPARTMENT OF MINES AND NORTHERN AFFAIRS



TWP 82 M-1930

TWP 80 M-1928

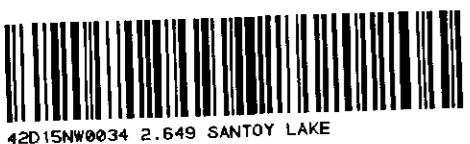
Lake

Superior

Ashburton Bay

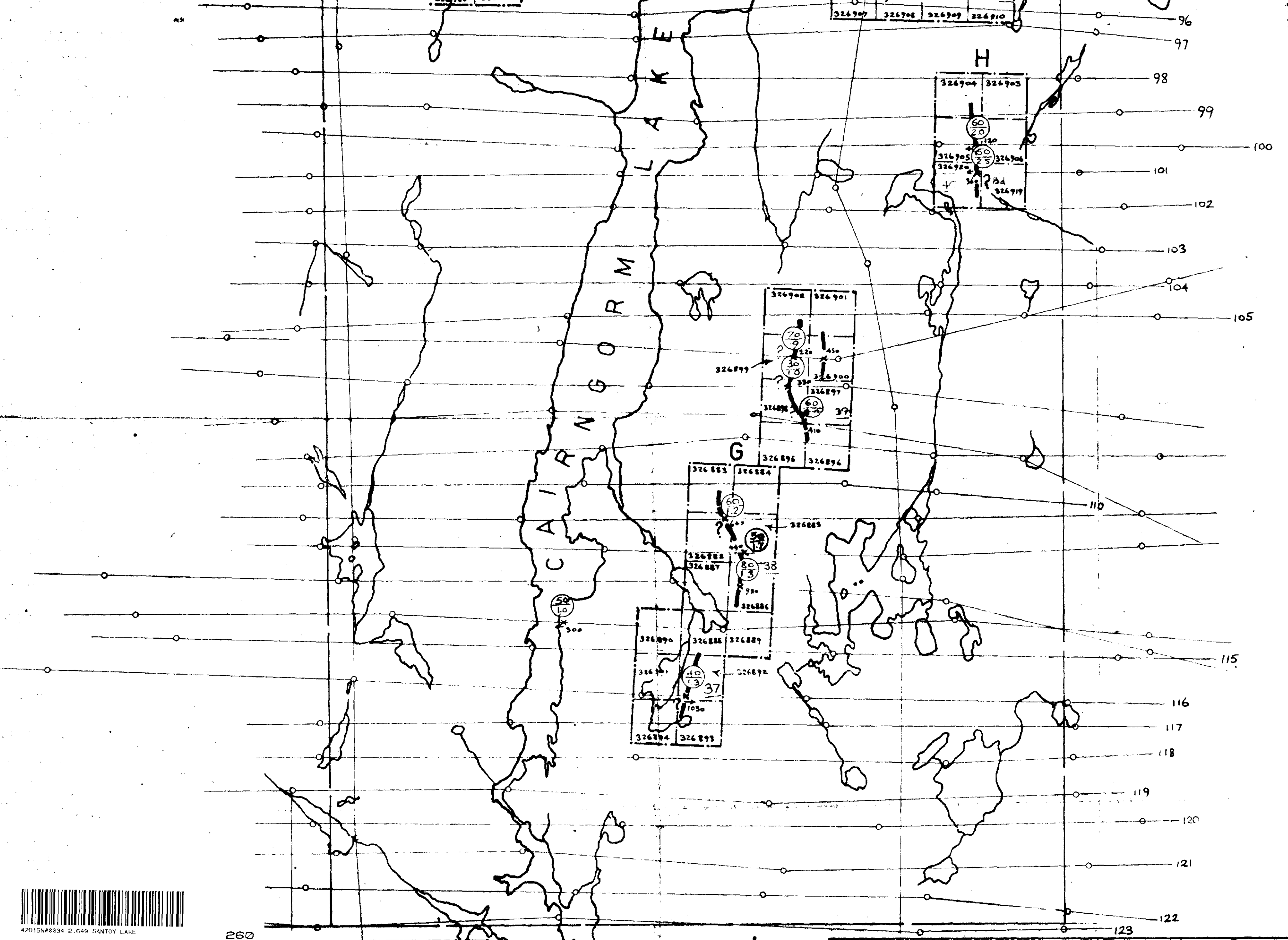
SMALL BOAT ANCHORAGE FILE: 168167

86°45' 49°45'



42015N0034 2.649 SANTOY LAKE

250



260

| LEGEND |  |
|--------|--|
| ---    | TOWNSHIP BOUNDARY                          |
| ---    | SURVEY BOUNDARY                            |
| ---    | CLAIM BOUNDARY                             |
| o      | FIDUCIAL POINT                             |
| —92    | FLIGHT LINE                                |
| —220   | ANOMALY PEAK WITH COINCIDENT MAGNETIC PEAK |
| ○      | ANOMALY CHARACTER                          |
| ○      | IN-PHASE RESPONSE                          |
| ○      | IN-PHASE/OUT-OF-PHASE RATIO                |
| ○      | ANOMALY CAUSED BY PERMEABILITY             |
| ○      | IN-PHASE RESPONSE                          |
| A      | CLAIM BLOCK REFERENCE                      |

2.649

KENNCO EXPLORATIONS, (CANADA) LIMITED  
**AIRBORNE EM SURVEY**  
 SCHREIBER AREA  
 DISTRICT: THUNDER BAY 2649

Scale 1" : 2000 ft.  
 Lockwood LH EM-200 Unit  
 May 1971  
 Compiled and interpreted  
 by H.W. FLEMING

**PLATE 3.**

*H.W. Fleming*  
2649

2-647  
(159-2-0241)

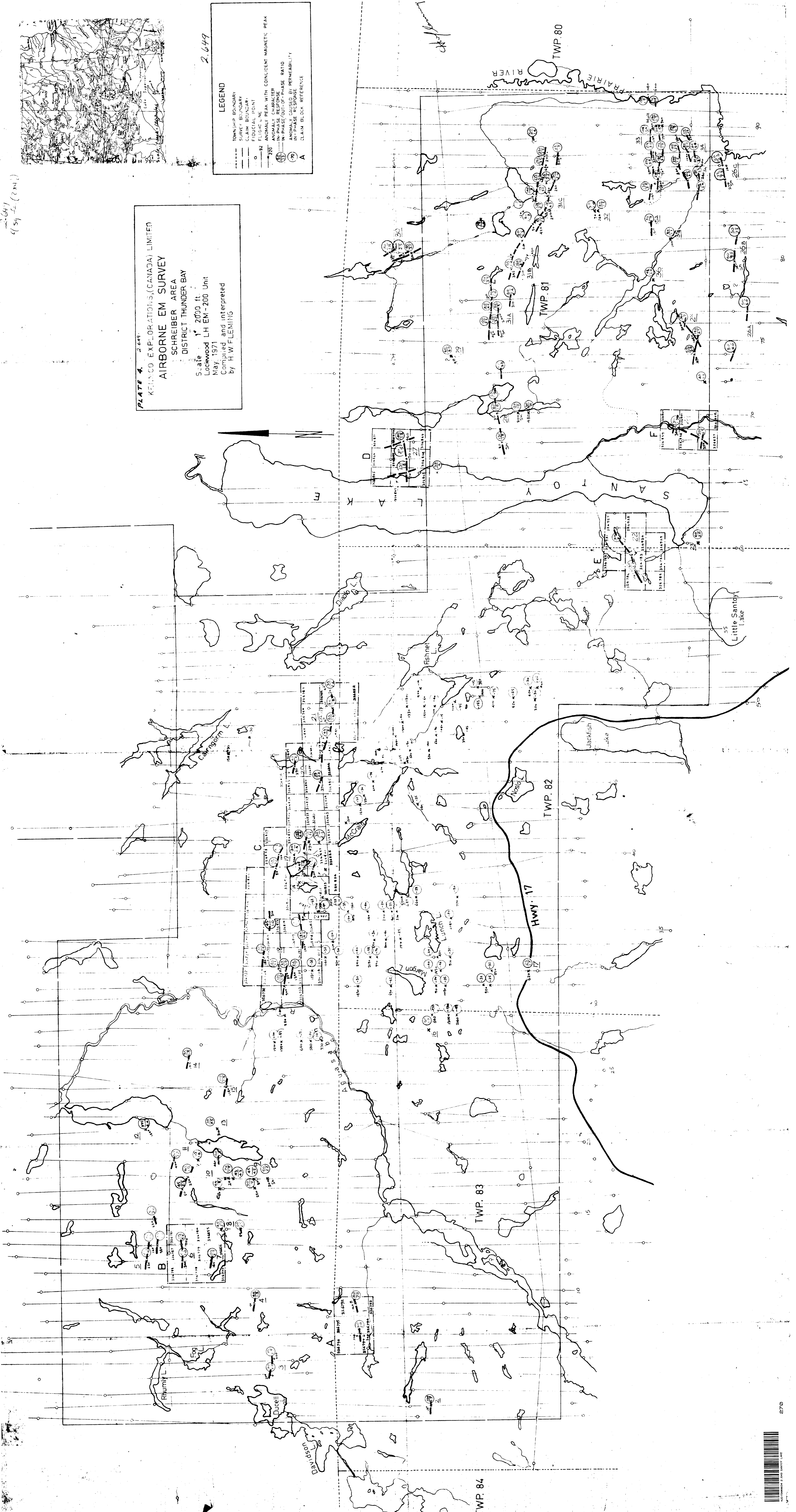
2.649

PLATE 4 2649  
 KENNEDY EXPLORATIONS (CANADA) LIMITED  
 AIRBORNE EM SURVEY  
 SCHREIBER AREA  
 DISTRICT THUNDER BAY

Scale 1" = 2000 ft  
 Lockwood LH EM-200 Unit  
 May 1971  
 Compiled and interpreted  
 by H W FLEMING

**LEGEND**

TOWNSHIP BOUNDARY  
 COUNTY BOUNDARY  
 CLAIM BOUNDARY  
 FIDUCIAL POINT  
 32 FLIGHT LINE  
 220  
 ANOMALY PEAK WITH COINCIDENT MAGNETIC PEAK  
 ANOMALY CHARACTER  
 ANOMALY CAUSED BY PERMEABILITY  
 ANOMALY CAUSED BY IN-PHASE RESPONSE  
 ANOMALY CAUSED BY OUT-OF-PHASE RATIO  
 IN-PHASE RESPONSE  
 CLAIM BLOCK REFERENCE



**LEGEND**

- TOWNSHIP BOUNDARY
- SURVEY BOUNDARY
- CLAIM BOUNDARY
- o FIDUCIAL POINT
- 92 FLIGHT LINE
- 220 ANOMALY PEAK WITH COINCIDENT MAGNETIC PEAK
- ANOMALY CHARACTER
- IN-PHASE RESPONSE
- IN-PHASE/OUT-OF-PHASE RATIO
- ANOMALY CAUSED BY PERMEABILITY IN-PHASE RESPONSE
- A CLAIM BLOCK REFERENCE

2.649

KENNCO EXPLORATIONS, (CANADA) LIMITED  
**AIRBORNE EM SURVEY**  
 SCHREIBER AREA  
 DISTRICT THUNDER BAY

Scale : 1" : 2000 ft.  
 Lockwood LH EM-200 Unit  
 May 1971  
 Compiled and interpreted  
 by H.W.FLEMING

**PLATE 2.**

