ASSESSMENT REPORT ON GEOLOGY OF THE EMMONS LAKE OPTION DRYDEN AREA, ONT.

LOCATION AND ACCESSIBILITY:

This claim group is comprised of the following sixteen contiguous claims:

K 31286 - 31294 incl.
and K 31560 - 31566 incl.

located in the Turtlepond Lake area, District of Kenora, Kenora Mining Division. More specifically, the claim group surrounds Emmons Lake, 18 air miles south and a little east of Dryden on the Trans-Canada Highway and the Canadian Pacific Rlvy.

Access is obtained by roads belonging to the Dryden Paper Company approximately 34 miles from the town of Dryden. These are all-weather roads.

SURVEY DATA:

Mapping was carried out along picket lines spaced normally at 400 ft. intervals, and the results are shown on the accompanying 1"=200' map. An E.M. survey and a magnetometer survey was carried out at the same time as the mapping, and the results have been analysized and incorporated in this report. A detailed self potential survey has been compared with the detailed magnetic picture around the showings and the results are shown on accompanying 1"=25' maps along with a detailed map of the showing area on the same scale.

RESULTS:

The McPhar E.M. survey failed to pick up any good conductors, even over the showing, using several methods. The material in the trench is a good conductor where the mineralization is heavy, but most of the mineralization is finely disseminated and non-conductive.

MAGNETOMETER SURVEY:

The McPhar magnetic survey shows small sharp magnetic areas around the showings and in one or two other areas on the property.

Generally, however, the range is 200 to 300 gammas. The andesite country rock is little different, magnetically, from the diorite complex, supporting the writer's view that much of the diorite complex is re-crystallized volcanics. A north-south strike trend is apparent over the property, with distant folding in the andesite (checked geologically). Three gabbro dykes crossing line 21E, in claim K-31562 are slightly more magnetic than the surrounding diorite and their strikes may be determined.

Near the showings, detailed magnetic work defined an east-west magnetic low cutting across magnetic highs. The bulk of the known copper-nickel mineralization lies on the contact of this magnetic low.

The most significant structural feature of the magnetic survey, besides the folding in the andesite, is a distinct east-west trend seen along the northern edge of the claim group and south of Emmons Lake almost to the west boundary. Both of these structures occur in the diorite complex with no geological evidence of faulting. On line 0+0, about 2000 ft. S.W., however, there are some granitic dykes which show this E-W trend. The writer believes that the southern structure is due to such dyking, The E-W swing on the northern part of the property, however, is probably indicative of a major fold in the complex.

GENERAL GEOLOGY:

The rock types found on the property as seen in surface outcrops and the drill core are as follows, from apparent oldest to youngest:

Volcanics - Andesite, (or basalt), and Rhyolite.
"Intrusives" Gabbro and Quartz gabbro
Diorite and quartz diorite.
Diorite porphyry.
"Trap" dykes.
Granitic porphyry, aplite, quartz, etc.
Gabbro? dykes.

Volcanics: The volcanics are essentially intermediate to basic. Only one outcrop of rhyolite was noted, on the boundary of eastern claims K 31290 and K 31292. Generally massive and unsheared, volcanic textures such as amygdules and pillows were too deformed to give top determinations. In some outcrops, a slight re-crystallization was noted with the development of small feldspar phenocrysts giving the rock the appearance of fine grained phases

of the grey diorite porphyry. Particularly along the south-east shore of Emmons Lake, the boundary between the volcanics and diorite porphyry is very gradational. Large inclusions of the volcanics are found within the diorite complex.

Intrusives: The gabbro in outcrops along line 21E in claim K 31562 and the outcrop on the shore of Emmons Lake in claim K 31289, is medium grained, essentially pyroxene-hornblende with minro greyish-blue feldspar and some phases showing distinct blue quartz "eyes". The Ontario Dept. of Mines geological map classifies this rock as older than the granite-diorite complex. Although the outcrop on the Shore of Emmons Lake is cut by narrow aplite to pegmatitic dykes, the exposed contact between this gabbro and the diorite is too indefinite to judge which is older. In the drill core some sections of the medium grained diorite show more basic phases approaching in appearance the gabbro of these outcrops, so as far as the writer is concerned, the evidence that the gabbro on the Emmons Lake property is older than the diorite is not definite. In drill hole 9, a fine grained gabbroic-looking dyke shows chilled edges against the granite porphyry indicating later basic intrusives.

The diorite and quartz diorite is a complex mixture, very variable in grain size. Some areas have crystals up to 1/4" in diameter, suggesting pegmatitic facies. Some of the finer grained phases have developed feldspar phenocrysts and are difficult to differentiate from the diorite porphyry. The porphyritic quartz diorite of hole 4 is a near vertical dyke, where as much of the diorite and quartz diorite occurs interbedded with andesite in the area of the mineral showings. The structure suggests that much of the diorite complex is sill-like, or, as the writer believes, much of the diorite is recrystallized volcanics. The coarser diorite appears to be the oldest phase as it is seen brecciated and dyked by finer grained diorite, and particularly by the finer grained diorite porphyry. Numerous diorite porphyry dykes are found, varying from a few inches to 12 or 15 feet in width. However, as noted above, some large massive greyish porphyry outcrops may be andesite.

A few "trap" dykes are seen on surface around the camp area and near the showing. They are cut by pegmatitic aplite. Fine grained, dark grey in colour, and vertical, their relationship to the grey porphyry dykes is not clear.

The silicious porphyry is definitely intrusive. Actually the term granite porphyry refers to the more silicious rock but there appears to be a general gradation through granodiorite to diorite porphyry. In places the granite porphyry cuts the grey diorite porphyry; elsewhere one outcrop may contain silicious and non-silicious porphyyy with no definite contact. Aplite sills and

dykes are common in certain areas, particularly around the mineral showings, and a few bull quartz stringers and veins were noted during mapping.

Packsack drilling:

Nine vertical holes and one angle hole were put down as shown on the accompanying maps. The sulphide mineralization encountered is finely disseminated over core lengths up to 25 feet or so, with some heavier concentration over a few inches, in places. The mineralization occurs in the medium grained diorite and to a lesser extent in the coarse diorite and quartz diorite. Strangely enough, diorite porphyry was not recognized as such in the drill holes although occuring in surface outcrop near the showings. The granite porphyry shows very little mineralization, and the andesite is barren of anything but disseminated pyrite. The siliceous aplites are mineralized to a minor extent, generally with chalcopyrite. In hole 10, one of the late gabbro? dykes has scattered mineral and was included in the sampling.

Structural Interpretation:

Detailed geological, magnetic and self potential work around the showing indicates that the rocks have a north-south strike with a flat dip to the west. There are some near vertical northwest striking quartz diorite and granite porphyry dykes with an easterly dip, and concentrations of sulphides occur at or near these contacts in places. However the larger bodies of sulphides appear to have the north-south strike and flat dip of the rocks.

There is a definite relationship between some of the sulphide concentrations and the granite porphyry in that heavier sulphides (and better values) occur at places close to the porphyry. (Note the log of hole 1). However, this does not hold true in all cases, and the granite porphyry is not an indicator of ore. Under the right structural conditions the porphyry has acted as a dam with resulting enrichment of the mineralization.

The important structure is a curving east-west cross fold which has wrinkled the north-south striking, west dipping diorite-andesite complex. The sill-like body of granite porphyry shown on the cross-section through holes 1, 9 and 8, indicates that this cross fold is anticlinal, and the fact that this porphyry does not outcrop, or show in holes 2 and 10, indicates that the cross-fold may have tilted the layered complex to an easterly dip and this given the sulphide zones a plunge to the east under the lake.

This structural interpretation is based on the assumption the granite porphyry in holes 1, 9 and 8 is a sill. However, as a sill it would be expected to come to surface or be present in holes 5, 6 or 7, where the dip of the rocks, (in section) is to the north-west. However, if the porphyry is merely a flat, rolling sheet, the dip of the rocks may not have been reversed to the east but the evidence for a cross fold is still well illustrated by the self potential and magnetic pictures. It will be noted that the more negative anomalous potential agrees remarkably well with the magnetically low areas and that the best mineralization is along the contact of the magnetic high underlying the base line from 0+0 to 0+75E.

The self potential low agrees with the magnetic low for 175 to 200 feet south-west of the base line around line 0+50W, indicating that mineralization extends in that direction. There is a similar agreement along the assumed east contact of the large porphyry dyke, and on the base line at 1+50W.

The fact that the E.M. shows no conductor in this area may be attributed to the lack of any sizeable bodies of sulphides, but in the writer's opinion it can be due to the disseminated non-conductive nature of the mineralization. The weakness of the self potential anomaly, a phenomenum which is not fully understood, may also be due to the poor conductivity. Nevertheless the self potential has outlined an area of potential sulphide-bearing rock and has also outlined the structure- the north-south strike, the cross fold, the porphyry contact - with satisfying clarity.

A puzzling feature is the cause of the strong magnetic high along the base line from 0+0 to 0+75E. The rock types underlying this area as seen in outcrop and in holes 3 and 4 are similar in appearance to the rest of the area. If there is a basic gabbro-like body at depth it must have a much higher magnetite content than the known gabbro areas south of Emmons Lake. The sharpness of the magnetic high indicates that the causative body is not very deep.

The cross fold with which the mineralization is associated is a relatively minor structure, although it may extend, and expand, under the lake.

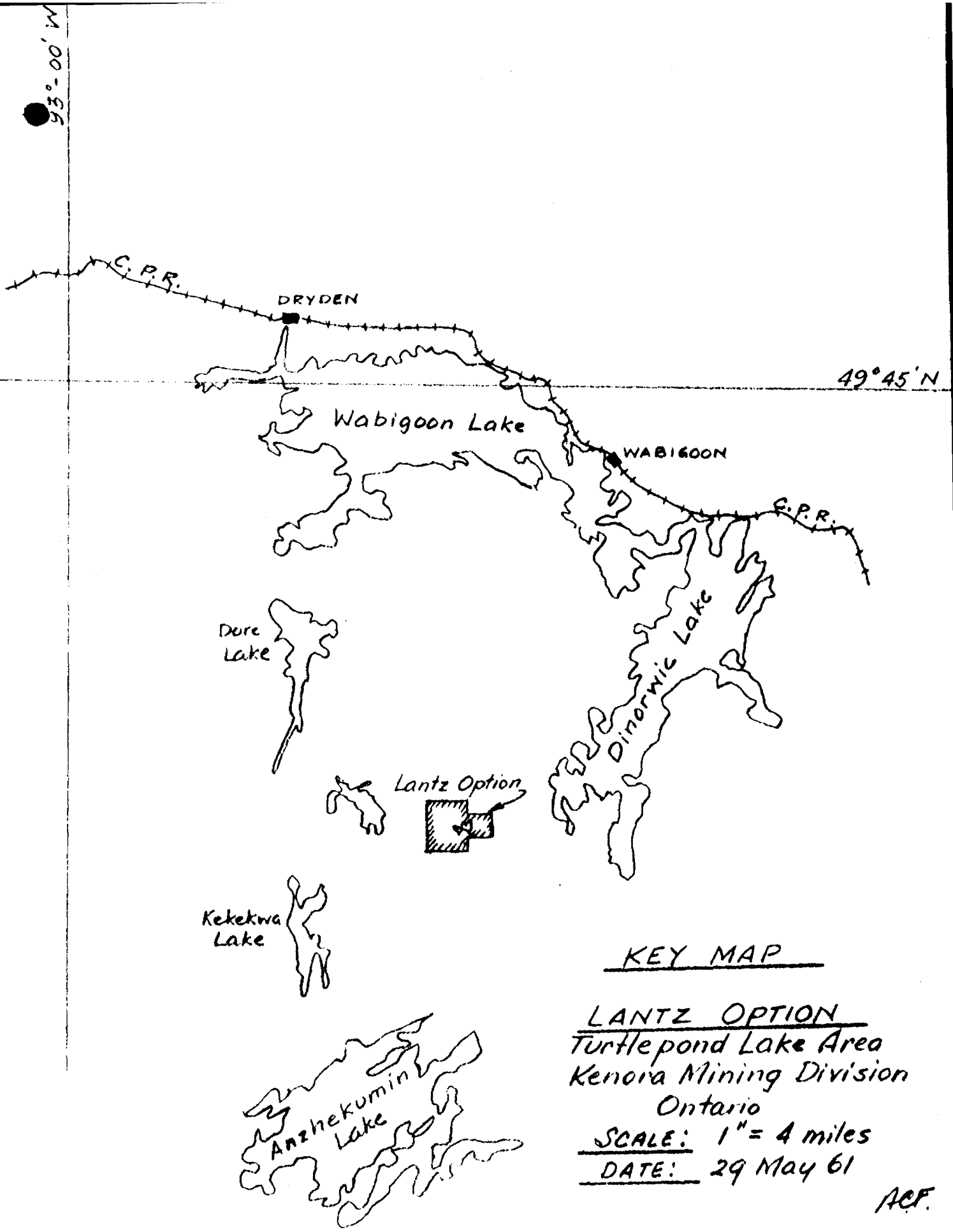
Turning to the larger structures indicated on the property by the geological and the magnetic surveys, the most interesting area, in the writer's opinion, is on the south side of Emmons Lake. Here the long east-west magnetically-indicated

structure, believed to be due to porphyry dyking, intersects the gabbro area around line 21E, and the north-south striking body of porphyry in the south-west bay. It may be assumed that the nickel mineralization is associated magmatically with some basic intrusive, so that any areas of gabbro are worthy of examinations. The large east-west structure trend and the presence of granite porphyry, both a part of the known mineral occurrence, plus the areal association with gabbro, pinpoints this area. Detailed self potential work was not carried out here, unfortunately, but earlier reconnaisance showed weak anomalous conditions along the shore near the granite porphyry - diorite contact where line 9E approaches the lake east of the main base line, and another weak self potential anomaly, corresponding to a very weak E.M. cross over, was found on line 0+0 near the E-W granite porphyry dykes around 2000 ft. S.W. At the time these weak anomalies were not taken seriously, but after the weak results around the showings, and in view of the association with the porphyry and the east-west structure, these anomalies may be indicative of important mineralization.

S.V. Burr

S.V. Burr

September 7, 1960.



KEY MAP

LANTZ OPTION
Turtlepond Lake Area
Kenora Mining Division
Ontario

SCALE: 1" = 4 miles
DATE: 29 May 61

ACF.

McPHAR GEOPHYSICS LIMITED

REPORT ON MAGNETIC AND EM SURVEYS EMMONS LAKE PROPERTY, KENORA DISTRICT, ONTARIO FOR NEW CONSOLIDATED CANADIAN EXPLORATION LIMITED

1. INTRODUCTION

At the request of Mr. A. C. Forrest, Assistant Manager of New Consolidated Canadian Exploration Limited, a magnetic and electromagnetic survey was carried out on a group of claims at Emmons Lake in the Dryden-Wabigoon Area, District of Kenora. The object of the survey was to investigate the possibility that good-sized bodies of heavy (Ni-Cu) sulphide mineralization, similar to the showing near Emmons Lake, might occur in the diorite intrusive in this locality.

The general geology of the area is described in Ontario Department of Mines report Vol. L, Part II, 1941 and shown on the accompanying Map No. 50E. The helpful co-operation of Stan Burr at the property was much appreciated.

2. DISCUSSION OF RESULTS

It was requested that both horizontal and vertical loop electromagnetic methods be tried out, and also magnetometer

observations, in the vicinity of the known showing.

Three types of McPhar electromagnetic apparatus were used - REM and HEM (Vertical and Horizontal loop reconnaissance units), and also the large dual-frequency (1000 and 5000 cps) vertical loop unit. The magnetometer was a Sharpe Model A-2 of the Schmidt type with a sensitivity of approximately 20 gamma to the scale division.

The EM survey with all three units gave essentially negative results over the showing and in its general vicinity. The results on the detail grid with 100 foot lines are shown on the accompanying Map No. E-2763, and it will be noted that all readings are zero. In addition to this, some very detailed work with readings taken at ten foot intervals over the showing, gave some small "dip angles" (maximum 2-1/2 degrees) with a "cross-over" at the showing. This indicates that the sulphide body is of very limited extent in depth or length.

The 400 foot grid which is shown on Map No. E4633 covered approximately 16 miles of line, using the "broadside" method. No "dip angles" of any significance were noted, and thus it is very unlikely that any substantial bodies of conductive sulphide exist in the locality covered.

The magnetometer observations covered approximately 14 miles of lines and the results of this survey are shown as magnetic contours on Map No. M-4632. This map, along with the two EM maps, is included in this report folder.

It will be noted from the magnetometer readings that there are a number of small, and in most instances, erratic magnetic anomalies within the area covered by the survey. In the southwest corner of the claim group, there is a magnetic high (5000 + gamma) crossing the claim boundary on Line 5E. Incidentally, no electromagnetic response was obtained in this locality.

Near the showing, magnetic readings are very erratic, confirming the limited extent of the visible sulphide showing.

3. RECOMMENDATIONS

Although the electromagnetic and magnetic traverses strongly suggest the absence of any substantial bodies of heavy sulphide mineralization in the survey area, there is still the possibility of disseminated mineralization of economic significance.

Quartz diorite is perhaps the favorite host rock for disseminated Ni-Cu sulphide mineralization and in this connection, I understand from a conversation with Mr. A. C. Forrest that at least some mineralization of this type is present in the locality surveyed. This type of mineralization would not respond to electromagnetic induction methods, but should give a good response to "induced polarization." If the Ni-Cu values are high in relation to total sulphide content (i.e. high concentration ratio), an IP reconnaissance survey over Emmons Lake and selected surrounding locations can be definitely recommended if tests on samples of the known disseminated mineralization

are not discouraging.

McPHAR GEOPHYSICS LIMITED

Stanley Davidson
(per R.A.B.)

Stanley Davidson,
Geologist.

Dated: September 16, 1960.

McPHAR GEOPHYSICS LIMITED

GENERAL NOTES ON THE McPHAR ELECTROMAGNETIC METHOD

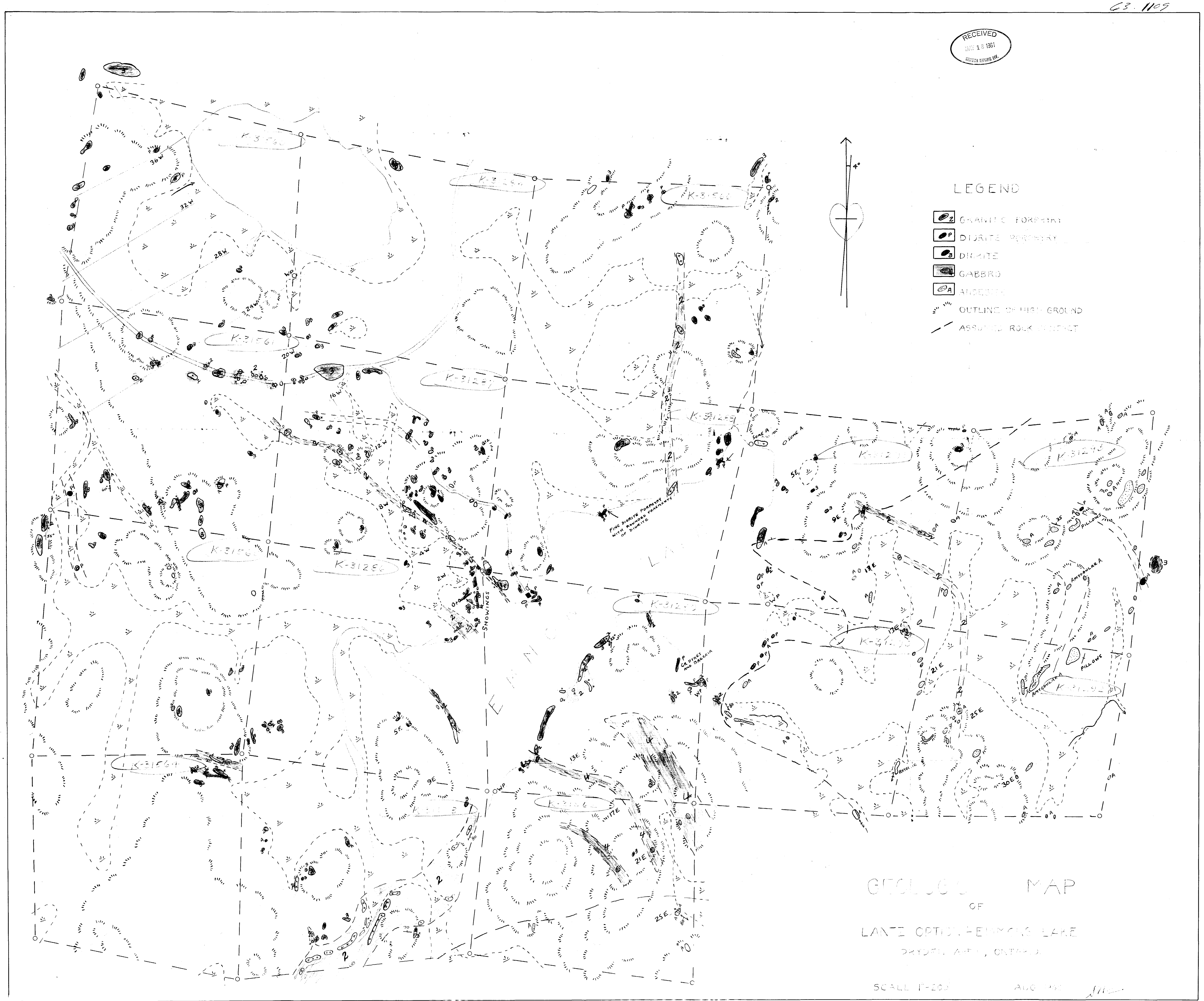
Electromagnetic measurements are made in terms of "dip angles" and are recorded in degrees. The dip angles measure the amount of distortion of the primary (applied) electromagnetic field caused by secondary fields associated with currents induced in sub-surface electrical conductors. These angles are plotted in degrees on the accompanying maps either beneath or to the right of the station from which each observation was taken. Where a minus sign precedes a number, the angle of dip is to the west or south; the absence of a sign preceding a number indicates an easterly or northerly dip angle.

Transmitting coil locations are termed "setups"; each one being marked on the maps with a triangle and bearing a code number. Several lines are traversed with the receiving coil when the transmitting coil is at any one location; the readings on these lines are related to the corresponding setup by the code at the end of each series of readings.

"Conductor-axes" are marked on the maps according to the legend. They are, in general, vertical projections to the surface of the upper extremities of electrically-conductive bodies.

Electromagnetic anomalies can result from sulphide mineralization, graphitic schists, carbonaceous sediments and, on occasion, fault zones. Apropos of this it is to be noted that disseminated sulphide mineralization consisting entirely of discrete particles is not a conductor at the normal frequencies used for practical geophysical exploration. Consequently,

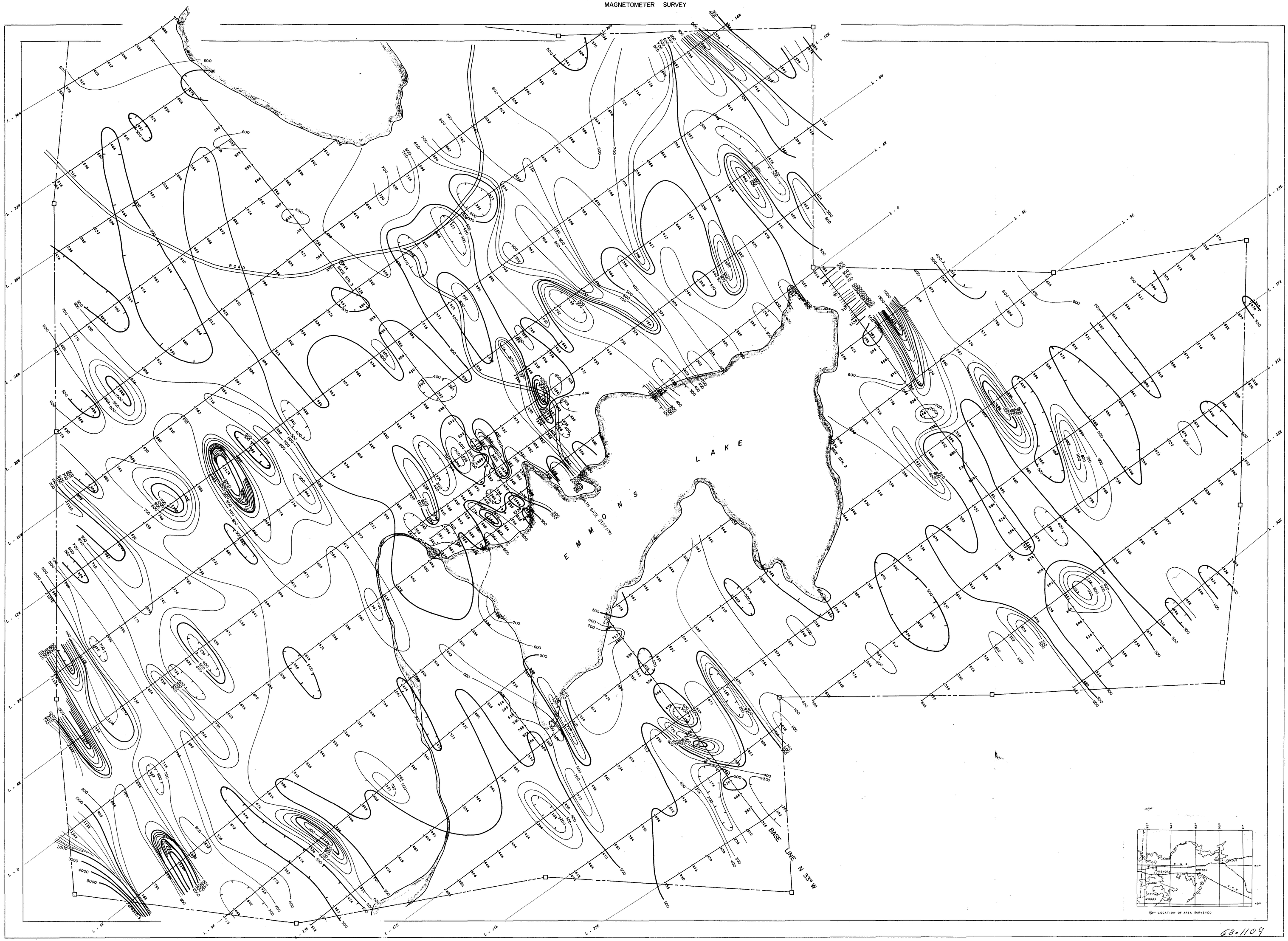
exploration of a property subsequent to an electromagnetic survey should be based not only on the indicated electromagnetic anomalies, but should take into account all the geologic and physiographic data that can be obtained.



DWG. M 4632

McPHAR GEOPHYSICS LIMITED

MAGNETOMETER SURVEY



68-1109

NEW CONSOLIDATED CANADIAN EXPLORATION, LIMITED

EMMONS LAKE — KENORA M.D.

DRYDEN — ONTARIO

SCALE

200 100 50 0 200 400 600 800 1000 FEET

One Inch = Two Hundred Feet

NOTE

CONTOUR INTERVAL 100γ

500γ INTERVAL

100γ INTERVAL

RELATIVE LOW

DRAWN D.R.S.

DATE AUGUST 1960

APPROVED

S.D.

DATE Sept 12/60

DWG. M 4632

NEW CONSOLIDATED CANADIAN EXPLORATION, LIMITED

EMMONS LAKE
DRYDEN
ONTARIO

KENORA M.D.

SCALE

One Inch = Two Hundred Feet

N

LEGEND

TRANSMITTER LOCATION
RECEIVER TRAVERSE AND READINGS. 1000 C.P.S.
0 -03 RECEIVER TRAVERSE AND READINGS 5000 C.P.S.

NOTE: CORRESPONDING TRANSMITTER IS INDICATED AT THE END OF EACH SERIES OF READINGS

220

SYMBOLS

1000 C.P.S. 5000 C.P.S.

CONDUCTOR AXIS ESTABLISHED
POSITION OF CONDUCTOR AXIS
EXISTENCE OF CONDUCTOR AXIS UNCERTAIN.
SUGGESTED TEST DRILL HOLE

DRAWN: D.R.S
DATE: AUG 1960
APPROVED

DATE: Sept 12/60

S.R.

DWG. E 4633

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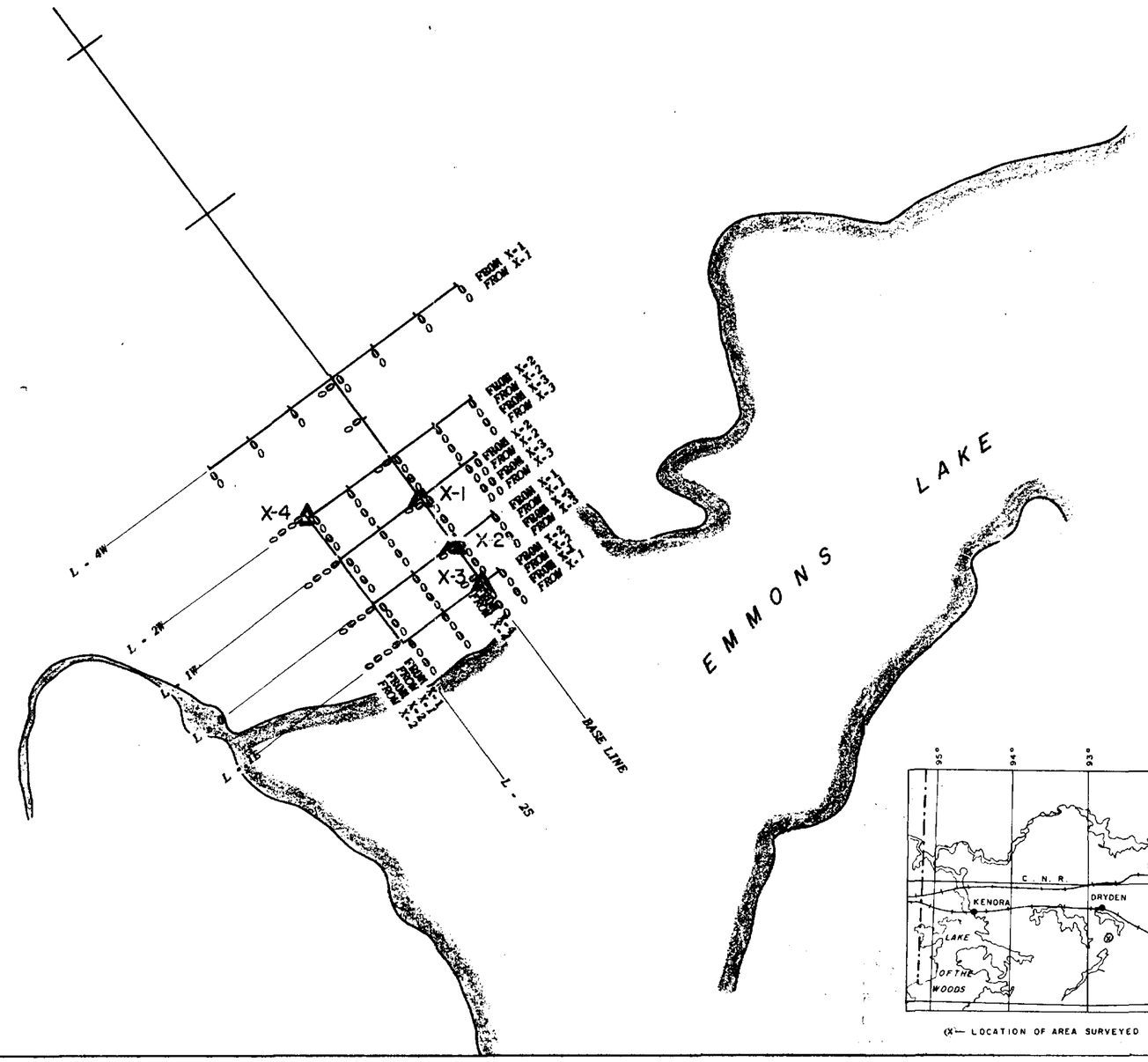
McPHAR GEOPHYSICS LIMITED

ELECTROMAGNETIC SURVEY

DWG. E 2763

McPHAR GEOPHYSICS LIMITED

ELECTROMAGNETIC SURVEY



(X— LOCATION OF AREA SURVEYED

63-1109

N

LEGEND

TRANSMITTER LOCATION

RECEIVER TRAVERSE AND READINGS. 1000 C.P.S.

RECEIVER TRAVERSE AND READINGS 5000 C.P.S.

TE: CORRESPONDING TRANSMITTER INDICATED AT THE END OF EACH RIES OF READINGS

NEW CONSOLIDATED CANADIAN EXPLORATION, LIMITED

EMMONS LAKE — KENORA M.D.

DRYDEN — ONTARIO

SCALE

200 150 100 50 0 200 400 600 800 1000 FEET

One Inch = Two Hundred Feet

SYMBOLS

1000C.P.S.	5000C.P.S.	
		CONDUCTOR AXIS ESTABLISHED
	?——?	POSITION OF CONDUCTOR AXIS UNCERTAIN.
?	?- - -?	EXISTENCE OF CONDUCTOR AXIS UNCERTAIN
		SUGGESTED TEST DRILL HOLE

DRAWN: D.R.S.

DATE: AUGUST 1960

APPROVED:

S.D.

DATE: Sept 12/60

W. Ivan Jordan

DWG. E 2763

52F10SE0048 63.1109 TURTLEPOND LAKE