



42B01SE0020 63.805 PENHORWOOD

010

63 805

REPORT ON GEOLOGICAL AND MAGNETOMETER
SURVEYS ON HORWOOD LAKE GROUP OF CLAIMS
PENHORWOOD TOWNSHIP, SUDBURY MINING DIVISION
PROVINCE OF ONTARIO.

Introduction:

The following report describes the geological and magnetometer surveys recently completed on the Canadian Johns-Manville claims located in the western section of Penhorwood Township, Sudbury Mining Division, Province of Ontario.

The original group, consisting of twenty-three claims, was staked by W. Scott and W. Charest during November of 1955 and were recorded and transferred to Canadian Johns-Manville Company Limited on December 8th of the same year. An additional claim was staked by L. Lean in January of 1956 and recorded and transferred on February 20th. During October of 1956 an additional four claims were staked by F. J. Eveleigh and transferred to this Company on November 5th. Prior to filing this work, ten of the fringe claims were dropped. This group now comprises eighteen claims. All tagging has now been completed.

A base line was established by transit starting from a point on the main line of the Canadian National Railway and was extended to the southwest and northeast to cover the claims block. Picket lines were established at 300 foot intervals and numbered pickets every 100 feet. Line cutting and chaining of this group was contracted to Jean Alix Company Limited, Val d'Or, Quebec.

Geological mapping of the group was conducted by R. Todd, a field geologist of Canadian Johns-Manville Company Limited, with the assistance of Jim Black. Rock outcrops were tied into the numbered pickets on the offset lines and base line by the pace and compass method. All prominent topographic features were noted during the survey and are shown on the accompanying plan.

The magnetometer survey was carried out by L. Allison, a geophysical operator for Canadian Johns-Manville Company Limited, with the assistance of J. Chisolm. Readings were observed using a Sharpe's D-I-M type magnetometer. Stations were spaced at 100 foot intervals.

Supervision and interpretation of this work was the responsibility of F. J. Evelegh, senior geologist with Canadian Johns-Manville Company Limited, Matheson, Ontario.

Property:

Eighteen claims are included in this group and are numbered as follows:-

S-93189
S-99846-47-48-49
S-91337-38-44047-48-49-50-51-52-53-54-55-56

These claims comprise approximately 720 acres.

Location and Accessibility:

The Horwood Lake group of claims is situated in Penhorwood Township, Sudbury Mining Division, Province of Ontario. The claims are on both sides of the Canadian National Railway, which passes through the group about three miles northwest of Tionaga and four miles southeast of Kukatush. The town of Timmins lies northeast of Kukatush from which it is approximately fifty miles by the Warren Lake Road.

Access to the group from Kukatush or Tionaga offers no difficulties, because of the convenient situation of the claims with respect to the Canadian National Railway. During the summer it is possible to travel by jeep from Storms Creek on the Warren Lake Road via Tionaga to Horwood Station. Access by plane to Hardiman Bay and thence from there to the north end by truck road is one and a half miles to Horwood Station.

Topography:

The area lies within the Pre-Cambrian peneplain which topographically possesses little relief. However, the claims group is not to be discounted as flat lying. Relatively high outcrop areas, dissected by numerous "gullies", characterize both the northeastern and southeastern parts of the group. A discontinuous ridge trends northeast - southwest through the map area. The higher ground is timbered by poplar, birch and balsam, while the low lying intervening areas are characterized by cedar swamps. Much of the surface is covered with

slow growth vegetation, and bush travel is often very slow. Only one creek, (in the northeast), is in the area and this flows northeast to the Nat River.

Previous Works:

This area was mapped by E. W. Todd and the results were published in 1924 in Vol. XXXIII, Part 6, - Annual Report of the Ontario Department of Mines. The general geology of the area is shown on Map #33-G - Groundhog River Area - on a scale of 1 inch equals one and a half miles. This map accompanies Todd's report.

Mapping was also carried out in this area by W. D. Harding and the results were published in 1938 in the Forty-Sixth Annual Report of the Ontario Department of Mines, Part II, entitled "Geology of the Horwood Lake Area."

As far as the writer could ascertain, no previous work has been conducted on this group of claims, although a considerable amount of exploration was carried out on claims in the vicinity of Horwood Lake in the search for gold and base metals.

Line Cutting and Surveying:

During the early part of October of 1956, E. Rowley and two assistants turned off a base line trending N50°E starting at a point on the Canadian National Railway 3800 feet west of Horwood Station. This base line was extended to the northeast and southwest for a total distance of 7100 feet. Right-angled offset lines were established at 300 foot intervals. Line cutting and chaining was contracted to Jean Alix Company Limited, Val d'Or, Quebec, and this work was conducted during the period October 15th to November 1st, 1956 inclusive.

During the course of this contract a total of 22.2 miles of line was out and chained. This mileage is divided as follows:

Picket lines	20.9 miles
Base lines	1.3 miles

Geological Survey:

The outcrops on the property described in this report, were mapped by

R. Todd and Jim Black, during the period November 6th to 19th, 1956. Mapping was carried out from offset picket lines spaced at 300 foot intervals and the results are shown on the accompanying plan on a scale of 1 inch equals 400 feet.

The following "Table of Formations" is taken from the Fifty-Ninth Annual Report of the Ontario Department of Mines, entitled "Geology of the Keith-Muskego Townships Area", and compiled by V. K. Prest:-

GENOZOIC

Pleistocene:

Glacio-fluvial sands and gravels
Till

PRECAMBRIAN

Matachewan:

Diabase

Algoman:

Quartz veins, carbonate veins
Lamprophyre
Granite, granite gneiss; granodiorite, hornblende-quartz diorite, syenite; porphyries

Algoman (?):

Feldspar porphyry
Granite porphyry, associated feldspar porphyry
quartz-feldspar porphyry
Felsite and felsite breccia
Quartz porphyry and quartz porphyry breccia

Haileyburian (?):

Serpentinite
Granodiorite, quartz diorite, diorite, gabbro

Keewatin (?):

Feldspar porphyry, granite porphyry

Keewatin:

Banded iron formation
Conglomerate, arkose
greywacke, argillite; phyllite, slate
Acidic volcanics and associated intrusives; minor
dioritic tuffs and dikes; derived schists
Intermediate to basic volcanics and associated
intrusives; minor acidic volcanics and sediments;
derived schists.

The basic volcanics which comprise the majority of the rocks exposed are probably the oldest in the area and of Keewatin Age. They are highly schistose and contain a high proportion of mafic minerals. They probably represent basic andesites or basalts. No evidence of mineralization was noted other than minor disseminated pyrite flakes. In the northwestern part, where the volcanics are found exposed, they appear richer in hornblende. Proximity

to the granite contact to the north and west of this section may indicate that the lavas have to some extent undergone local thermal metamorphism in addition to the regional metamorphism which affects the Keewatin volcanics throughout the area.

In the extreme northeastern part of the group there is a small occurrence of a fine grained, grey, silicified tuff.

Ultrabasics: In the northeastern and southeastern sections of these claims, the rocks exposed are mainly basic and ultrabasic intrusives - gabbro and serpentinite. The gabbro, which is a coarse grained, white weathering type, lies to the southeast of the base line north of the railway and strikes northeast - southwest. The serpentinite lies to the southeast of the gabbro. It is for the most part a fine to medium grained, medium coloured serpentinitized peridotite and weathers brown. Serpentinization has not been intense and no development of chrysotile asbestos was noted. The same rock type occurs in the southeastern claims, mostly in claim S-91356. The strike of the ultrabasics parallels that of the regional schistosity. No ultrabasic outcrops were found in the central claims and it is not certain whether these two ultrabasic occurrences are separate intrusions or are part of the one sill. The lavas which are in contact with the serpentinitized peridotite have also undergone some slight serpentinitization. Thin section examination of these "serpentinized volcanics" may be necessary to delineate the ultrabasic volcanic contact.

Granite: One or two small granite exposures are found to the northwest of the railway. The rock is a pink, coarse grained hornblende granite, grading into granite gneiss.

Matachewan: Diabase, cutting the Keewatin lavas, was found in one small dike in the central part of the group north of the railroad. The exposure is small and the dike strikes N55°E.

Magnetometer Survey:

A magnetometer survey was conducted over the Horwood Lake group of

claims by L. Allison with the assistance of J. Chisolm, during the period November 3rd to December 5th, 1956. Magnetic readings were recorded using a Sharpe's D-I-M type instrument. This magnetometer had been calibrated in such a manner that readings approximate those obtained when using a Watts Type Vertical Variometer. This instrument was checked on the Government Magnetic Base Station at Matheson and a gamma value of 1220 corresponded to an absolute value of 57,559-15 gammas.

The base control station, established on line 0+00 at the base line and having a fixed value of 2656 gammas, was tied into our main Penherwood Base Station at Tentcamp Lake. This station has a fixed value of 2049 gammas. Three temporary control stations were established on the claims group and are described as follows:-

I. C. S. #1 - on the base line at 27+00W - value 3704 gammas

I. C. S. #2 - on the base line at 18+00E - value 1783 gammas

I. C. S. #3 - on the base line at 45+00E - value 3899 gammas

Readings were observed on control and/or base stations at least four times per day as a check on the working condition of the instrument and the daily diurnal variation.

During the course of this survey a total of 1,113 magnetic readings was recorded.

The results of the magnetometer survey are depicted on the accompanying plan on a scale of 1 inch equals 400 feet. Contour lines of equal magnetic intensity have been drawn at 500 gamma intervals from 0 to 2,000 and at 1,000 gamma intervals from 2,000 to 6,000 gammas. Interpretation has been based on a study of the contoured magnetometer map, Todd's geological plan, aerial photographs and regional geology.

Interpretation of the magnetic results over these claims has been rendered extremely difficult due to the paucity of rock exposures and the intense alteration observed in the basic volcanics, intrusives and ultrabasic rocks. However, after a study of the results over highly altered rocks on claims groups in the central and northern sections of Penhorwood Township, a fairly accurate geomagnetic plan has been drawn up for the Horwood Lake block of claims.

A sill-like body of serpentized peridotite striking approximately N50°E has been interpreted as extending along the base line over almost the entire length of the map area. Widths range from 75 to 1100 feet. The magnetic intensity over the ultrabasic zone varies from 2,000 to over 7,000 gammas. It should be noted that rock outcrops mapped on claims S-91353 and S-91356, adjacent to the base line, are shown on the accompanying geologic plan as andesitic type volcanics and described as showing evidence of serpentinization. From the magnetic data these exposures have been interpreted as highly altered slightly serpentized peridotites - similar to those occurring on the Jehann South Extension Group. Thin section work will be required to definitely establish the origin of these rocks.

In the southwestern section of the map area a small intrusion of ultrabasic rocks has been mapped. Magnetic readings over these serpentized peridotite exposures range in value from 1200 to 4000 gammas. Due to intense carbonate and talc alteration and subsequent loss of iron oxide these ultrabasic rocks are very weakly magnetic and consequently extremely difficult to differentiate from the andesites and gabbros in the map area.

Several small intrusions of presumed ultrabasic rocks have been interpreted as occurring throughout the claims group. These small occurrences are situated to the southeast of the large sill. Magnetic readings over these small lenses range in value from 2000 to over 6000 gammas.

Magnetic readings over the volcanics and basic intrusive vary in magnetic intensity from 500 to 2000 gammas. Due to the similarity of the magnetic values over these two rock types it has been impossible to differentiate between them on the basis of magnetic information alone.

Minor bodies of granite have been interpreted as occurring in the map area. Magnetic intensity over these acidic intrusives varies from +500 to -500 gammas. These are offshoots from the large granite mass surrounding the claims group.

Structurally, the schistosity observed in the andesitic outcrops strike approximately N10°E and dips 50° to 55° north. One strong cross structure has been inferred from the magnetic results striking approximately N10°W and displacing the ultrabasic sill 200 feet.

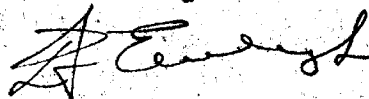
Conclusions and Recommendations:

Magnetometer and geological surveys have been completed on the Horwood Lake Group of claims which are underlain by acid, basic and ultrabasic rock types.

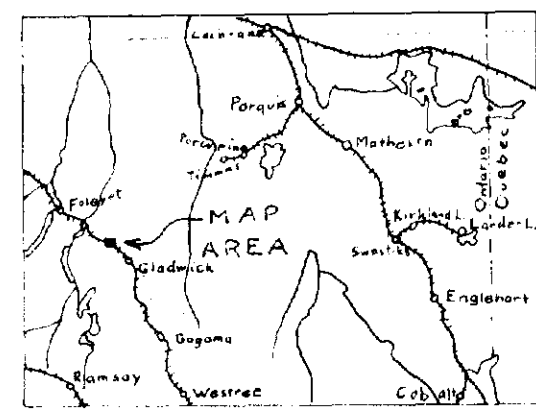
The ultrabasic occurrences are the only features in the map area of interest at the present time. Due to the size and intensity of the sill-like intrusions of serpentized peridotite, further exploratory work is warranted. I would recommend detailed magnetometer surveying over the main sill with lines spaced at 100 foot intervals and readings recorded every 25 feet. This work should be conducted using the Sharpe's A-2 type instrument. Detailed geological mapping and prospecting should be carried out in conjunction with this survey.



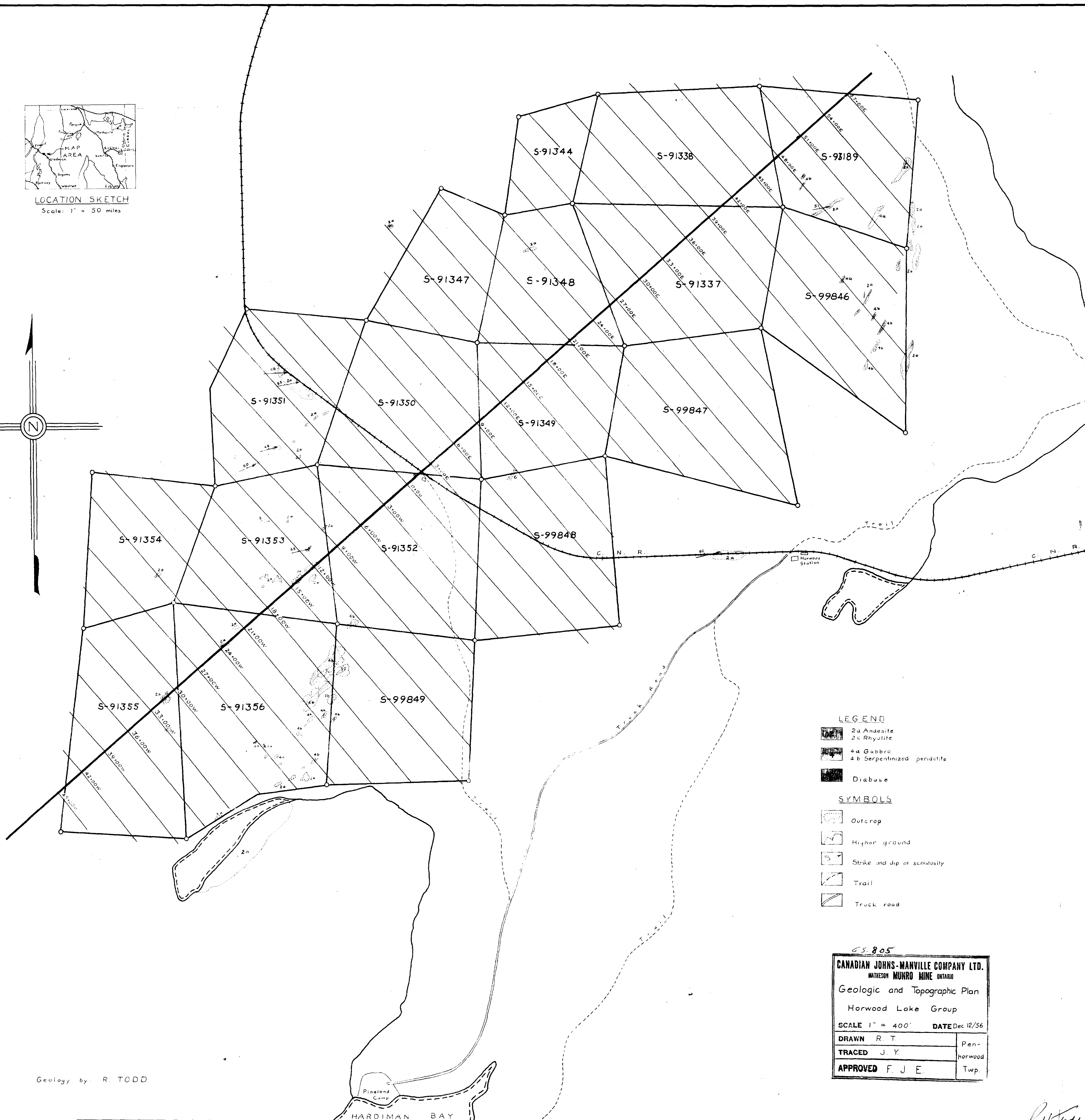
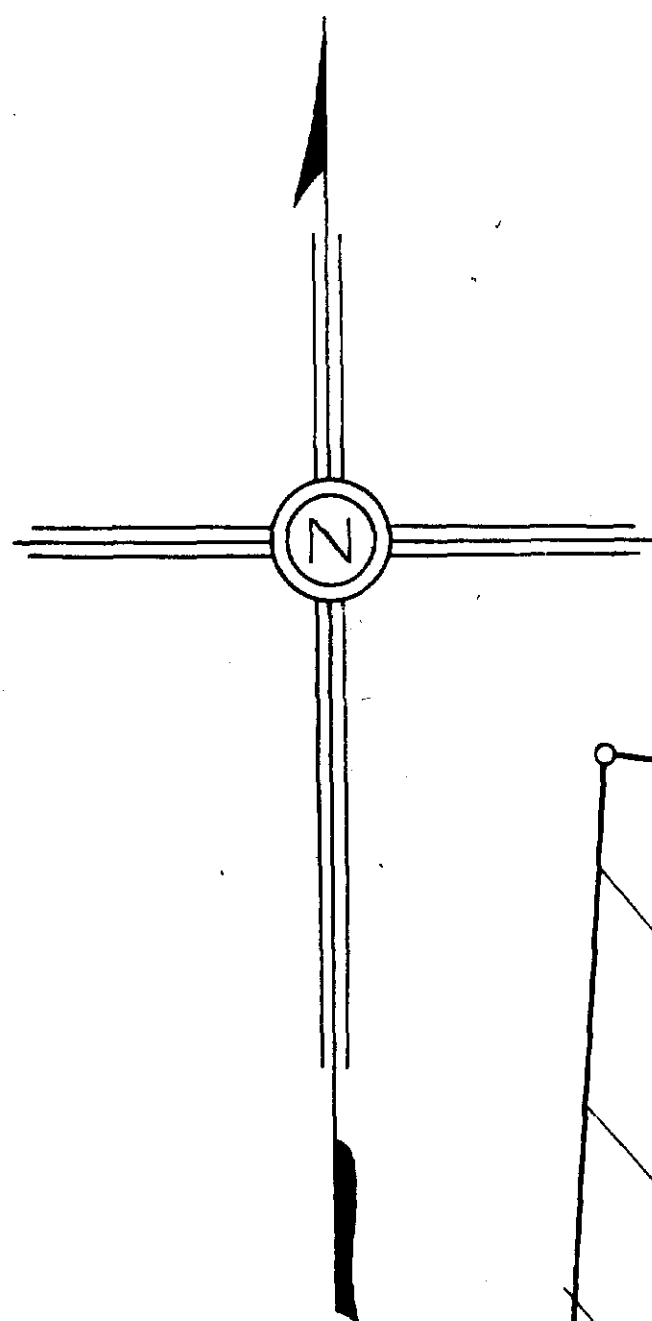
R. V. Todd,
Field Geologist.



F. J. Eveleigh,
Sr. Geologist.



LOCATION SKETCH
Scale: 1" = 50 miles



- LEGEND**
- 2a Andesite
 - 2c Rhyolite
 - 4a Gabbro
 - 4b Serpentinized peridotite
 - Diabase
- SYMBOLS**
- Outcrop
 - Higher ground
 - Strike and dip or schistosity
 - Trail
 - Truck road

63.805

CANADIAN JOHNS-MANVILLE COMPANY LTD.
MATHESON MUNRO MINE ONTARIO

Geologic and Topographic Plan
Horwood Lake Group

SCALE 1" = 400' DATE Dec 12/56

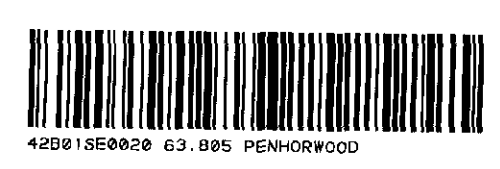
DRAWN R. T.	Pen-
TRACED J. Y.	horwood
APPROVED F. J. E.	Twp.

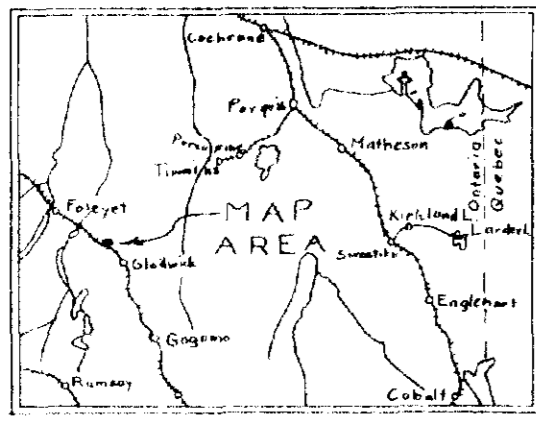
Geology by R. TODD

Pinelands Camp
HARDIMAN BAY

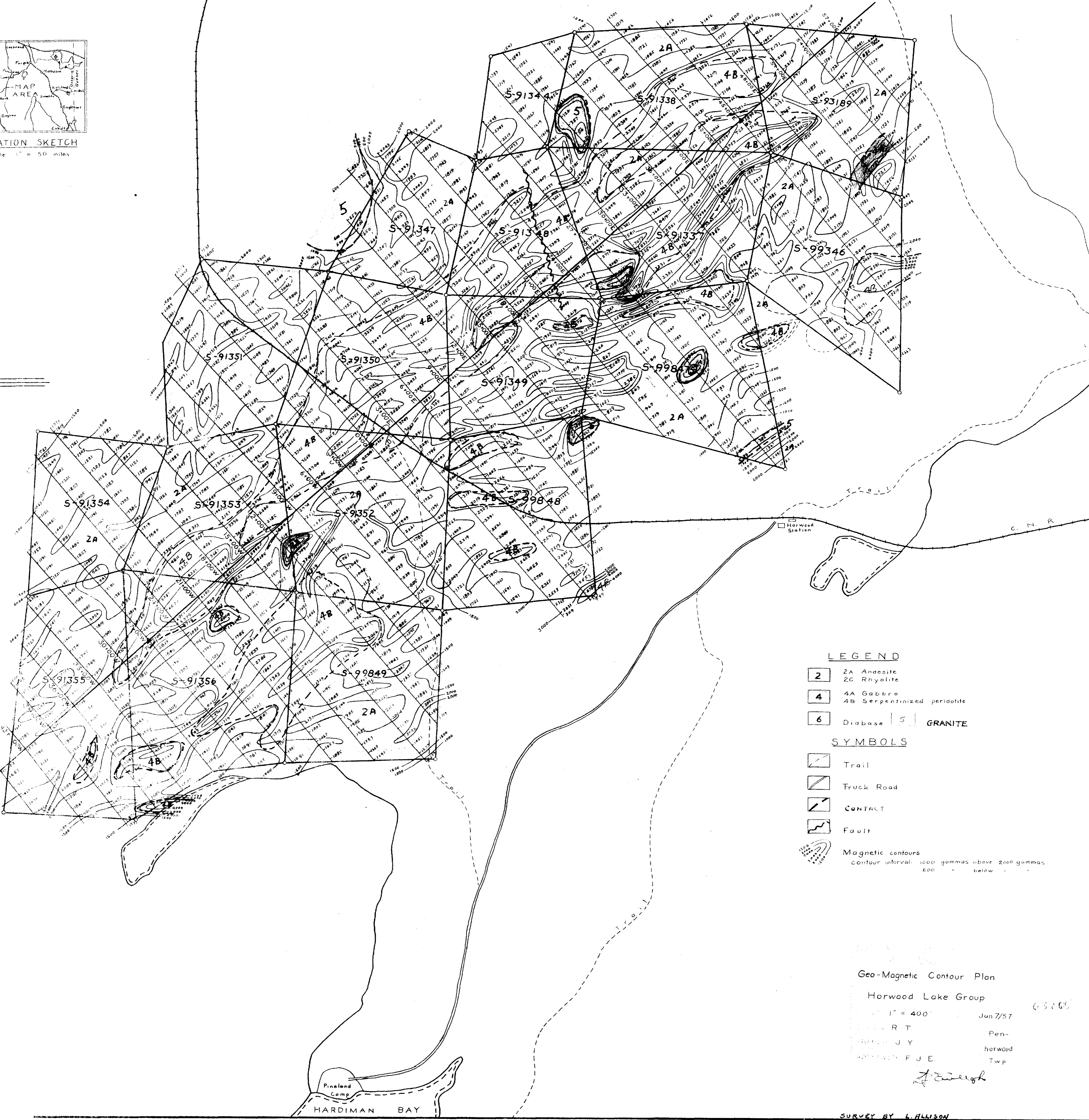
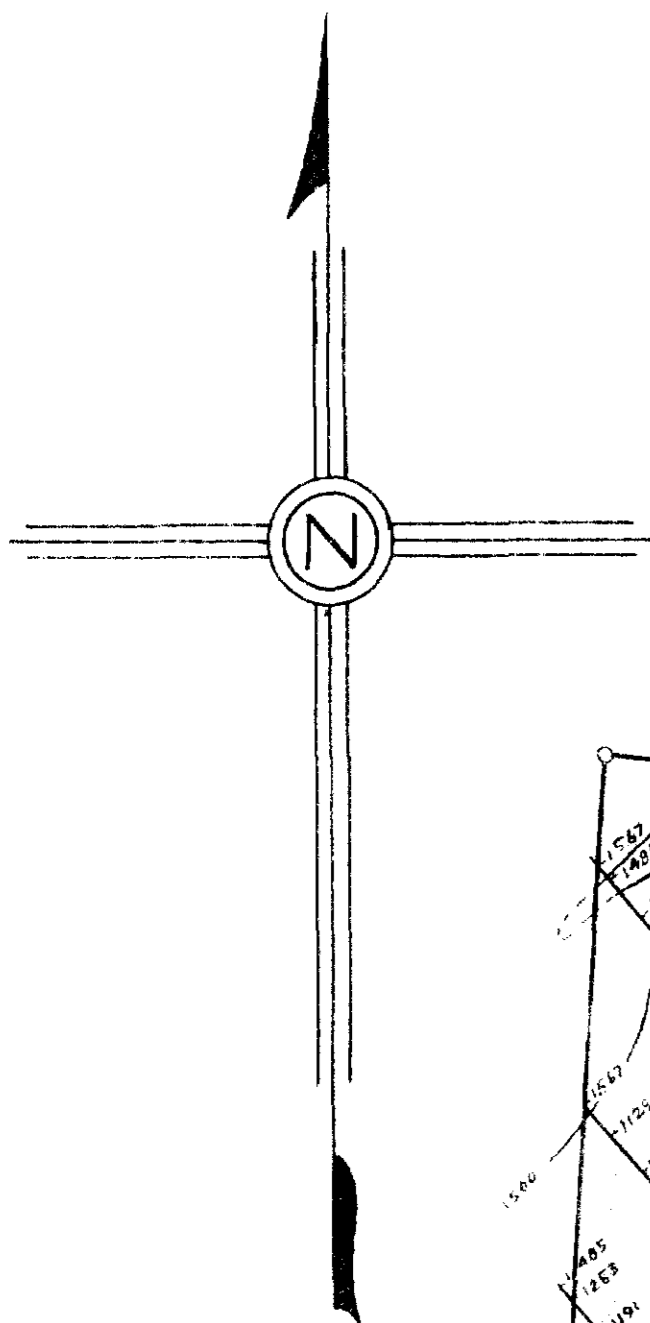
R. W. Todd

File 63-805





LOCATION SKETCH
Scale 1" = 50 miles



LEGEND

- 2 2A Andesite
2C Rhyolite
- 4 4A Gabbro
4B Serpentinized peridotite
- 6 Diabase
- 5 GRANITE

SYMBOLS

- Trail
- Truck Road
- CONTACT
- Fault
- Magnetic contours
Contour interval: 1000 gammas above 2000 gammas
500 " below

Geo-Magnetic Contour Plan
Horwood Lake Group

Scale 1" = 400' Jun 7/57
R T Pen-
J Y horwood
F J E Twp

L. Allison

SURVEY BY L. ALLISON

