



42A12NE0550 2.846 MACDIARMID

Geomagnetic Survey  
Macdiarmid #3

Hollinger Mines Limited

Introduction:

During the latter part of 1971, and early in 1972, a geomagnetic survey was conducted over the Macdiarmid #3 group in Macdiarmid Township. The survey was performed, to yield a better understanding of the geology, through magnetic associations. The claims requiring assessment credit include: P.255214-222 incl.; P.255519 and P.255955-956.

Location and Access:

The property is located approximately sixteen miles northwest of Timmins in midwest Macdiarmid Township. Access is by either boat or ski-equipped aircraft along the Mattagami River in the summer months. In the winter months the Surgeon Falls power line road is accessible by any vehicle, to within a couple of miles of the property by snowmobile.

Topography:

The Mattagami River cuts the eastern portion of the group and continues northward into Reid Township. There is some relief near the river banks, with the sandy ridges supporting stands of poplar. Away from the river there is very little relief and the main vegetation is black spruce. Overburden depths are quite variable in the area with records of up to 184 feet to the north of the property. There is some outcrop to the west of the property although within the boundaries the property is drift covered.

Geology:

The preliminary publication by the Ontario Department of Mines, combined with available assessment data, indicates that the group is underlain by Keewatin volcanics, intruded by a younger mafic-ultramafic complex. Some Matachewan and Keweenawan diabase dykes are also noted in the area.

APRIL, 1972

The Keewatin sequence includes both flows and pyroclastics of rhyolitic, dacitic and andesitic material. The ultramafic complex is comprised of diorites, gabbros, peridotites, dunites and serpentinites.

A major structural break, indicated as the Mattagami River Fault, is interpreted to traverse the central portion of the property in a north-northwesterly direction. Some speculation concerning the amount of displacement involved, has suggested that the westerly block has been displaced from four to six miles south, having a vertical relief of 2100 feet with respect to the east block.

Previous Work:

In 1947, INCO drilled eight holes on their 35 claims which extend south and west of the present Hollinger property. All of the holes intersected the ultrabasic complex, with the southernmost hole cutting the ultrabasic-andesite contact. Later, in 1960, two more holes were drilled, one just south of our property and the second just west of our present group. Both of these holes intersected the ultrabasic complex as well, except that the second hole contained some brecciated gabbro with conductive graphitic zones.

In 1964, Bruce Presto Mines drilled seven holes on their 35-claim group along the Mattagami River. Two holes were drilled on the east side of the river intersecting diabase and gabbro interbedded with acid to basic volcanics. Some conductive graphitic horizons are also mentioned. West of the river, near the southern extent of the ultrabasic, some acid volcanics and diabase, with some graphite were encountered before reaching the peridotite. The three northernmost holes were drilled to intersect the ultrabasic complex. The rocks were described as sheared dunites and peridotites, with some magnetite and chrysotile, and cut by occasional syenite dykes.

To the east of the Hollinger group, Regincourt Mines Limited performed geophysical surveys on their eight claim group. The

magnetic (Sharpe's A-2) survey yielded only background values. The electromagnetic (Ronka MK IV, 300 foot separation) survey outlined three weak anomalous zones striking northwest. No further work is recorded.

In 1968, Mespi Mines acquired eighty-seven claims in the vicinity - the western extent of that group being adjacent to the east boundary of the Hollinger property. Magnetic (MF-1) and electromagnetic (Crone VEM) surveys were conducted over the property. The magnetic survey outlined a variable magnetic relief with occasional diabase dykes. The western most results of the Mespi work are plotted on the accompanying plan. The VEM survey outlined seven definite conductors. One hole was emplaced just north of the Hollinger group (M68-1), and intersected andesitic flows and tuffs, diorite and a conductive graphitic horizon containing minor sulphides. The second hole, further south, encountered dacitic flows and fragmentals with no apparent conductive material.

In 1964, North Rankin Nickel Mines Limited held forty-three claims to the north and west. Magnetic (MF-1) and electromagnetic (Ronka MKIV, 300 foot separation) surveys were conducted over the group. The magnetics outlined six diabase dykes and several, small northwesterly trending elliptical bodies interpreted as basic to ultrabasic intrusives. A strong northerly trending magnetic low is also outlined in the western portion of the group. The electromagnetic survey outlined twelve anomalies, six of which were attributed to overburden. Eight drill holes were emplaced encountering acid to intermediate volcanics with some ultrabasics and diabase. Two holes (1 and 2) do not contain any conductive material. The remainder of the holes contain varying amounts of conductive graphitic material.

In 1964, Mistango River Mines Limited held 37 claims in northwest Macdiarmid, which overlapped on the previous North Rankin Nickel property. Magnetic (MF-1) and electromagnetic (Ronka MK IV, 300 foot separation) surveys were conducted over part of the property. The magnetic survey mainly outlined the large ultrabasic complex which has a crude northwesterly trend across the property. From drilling results, the ultrabasic complex

appears to be overlain, in part, by acid to intermediate volcanics. Seven electromagnetic anomalies, with good to excellent conductivity, were outlined on the property and verified with some later VEM work. In 1967, four holes were drilled on the property, intersecting graphitic conductors in rhyolitic volcanics with some ultrabasic and minor andesite.

In 1968 and 1969, Noranda worked in the same area on their nine claim group which adjoins the Hollinger property on the west. The McPhar Fluxgate survey outlined one diabase dyke with otherwise background values. The electromagnetic survey (McPhar VLEM) located two long conductors which were presumed to be stratigraphic and graphitic. No further work is recorded.

Two drill holes are recorded by Texas Gulf Sulphur in the area. To the northwest, one hole intersected a zone of graphitic sediments. To the west, a second hole intersected andesite and rhyolite tuff with some conductive graphitic material. In the latter hole, there was minor disseminated pyrrhotite, throughout.

#### Personnel:

The field survey was performed by R. Collins, of Timmins, on a contract basis with Hollinger Mines Limited. Drafting of the plans was done by W.B. Caughell and interpretation by the author. The latter are employed by Hollinger Mines Limited.

#### Instruments Used:

The survey was conducted using two A.B.E.M. MZ-4, torsion wire magnetometers, manufactured by the A.B.E.M. Company of Stockholm, Sweden. These magnetometers are variometers for measuring the vertical component of the earth's magnetic field.

The readings are taken by rotating a micrometer screw until the torque applied to a torsion wire, which holds a magnet, is sufficient to return the magnet to a zero position. Graduations on the micrometer drum are noted during an observation.

At every station it is necessary to level the tripod-mounted instrument and orient it in a constant direction, to minimize the effects of improper levelling adjustments.

Survey Method:

All of the instrument readings were obtained along cut and measured picket lines, spaced 400 feet apart. In the main portion of the group the lines strike at 10 degrees, while near the river there is some additional crossgridding at 100 degrees.

After base value and drift calculations, the readings were plotted on the grid system and then contoured.

Results of the Survey:

The most prominent magnetic features in the area are the ultrabasic intrusives. One zone lies along the southwest boundary of the property while the others appear to be associated with the Mattagami River Fault complex. Two, weaker, westerly trending magnetic highs on the west side of the Mattagami River may be part of the ultrabasic intrusions which are associated with cross fracturing near the main fault. This would be substantiated by the INCO drilling if one may presume that they were testing the electromagnetic anomaly "A". At present the INCO hole is only located by claim posts, so an error of 200 feet could easily be accommodated.

The remainder of the property is interpreted to be underlain by volcanics, ranging in composition from rhyolitic to andesitic. The Mespi drilling to the north indicates that that area is largely underlain by andesitic volcanics which appears to extend southwards to the Bruce Presto holes which encountered dacites and rhyolites. The separation here may be equivalent to the magnetic low in the southeast corner of the sheet.

The southwest portion of the group is apparently underlain by andesite as indicated by the outcrop to the west. Further north, however, there is a zone of rhyolitic and dacitic volcanics, which is presumed to extend from the west.

Conclusions:

The magnetic survey conducted, outlines a major zone of ultrabasic intrusives, probably associated with the Mattagami River Fault.

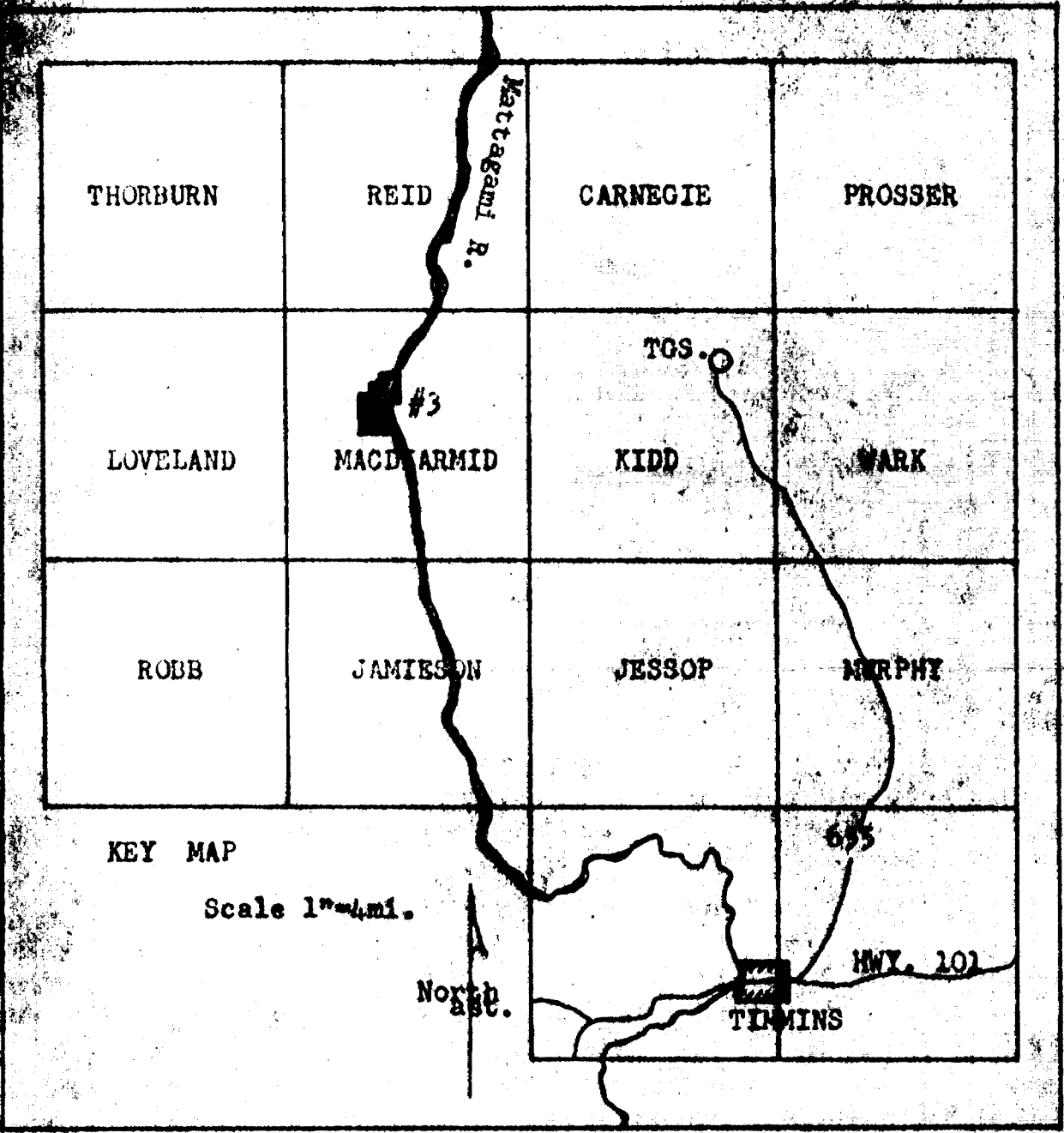
Ground electromagnetic surveys have been undertaken and a more detailed conclusion will follow with that report.

Bibliography:

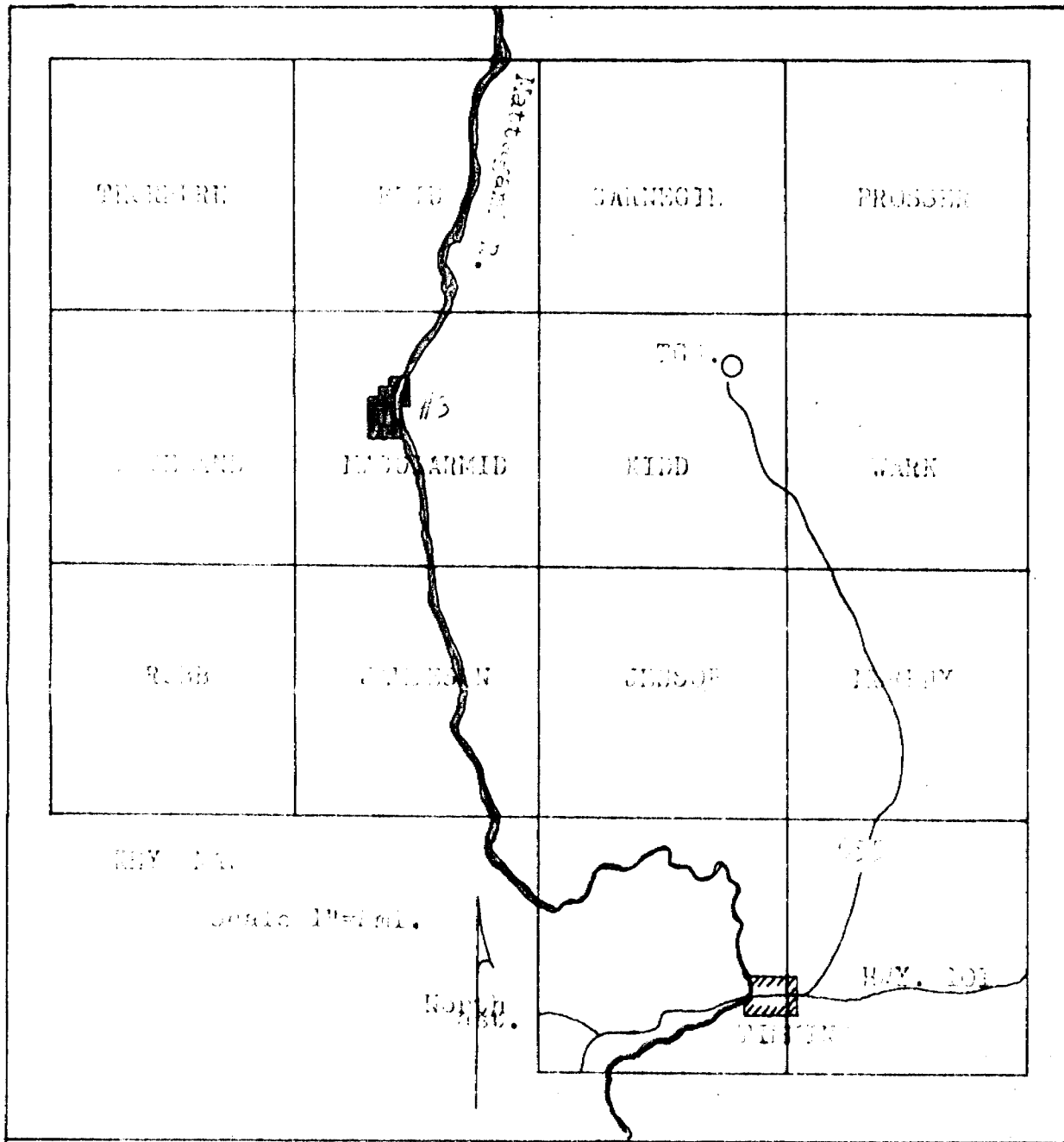
1. Ontario Department of Mines Preliminary Map, P.26;  
"Macdiarmid Township", 1" =  $\frac{1}{4}$  mile; 1957  
.....Berry, L.G., Ferguson, S.A.
2. Assessment files - Resident Geologist's Office.

*Dale R. Alexander*  
**HOLLINGER MINES LIMITED**  
**TIMMINS, ONTARIO**

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GEOPHYSICAL - GEOLOG  
TECHNICAL DAT



900

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

APR 28 1972

PROJECTS  
SECTION

Type of Survey Magnetic  
Township or Area Macdiarmid #3, Macdiarmid Twp.  
Claim holder(s) Hollinger Mines Limited  
Box 320, Timmins, Ontario  
Author of Report D. R. Alexander  
Address c/o Hollinger Mines Limited, Timmins, Ont.  
Covering Dates of Survey May 18/71 to Mar. 20/72.  
(linecutting to office)  
Total Miles of Line cut 11 miles

MINING CLAIMS TRAVERSED	
List numerically	
(prefix)	(number)
P-	255214
	255215
	255216
	255217
	255218
	255219
	255220
	255221
	255222
	255369
	255519
	255955
	255956
<b>TOTAL CLAIMS</b> <u>13</u>	

If space insufficient, attach list

SPECIAL PROVISIONS CREDITS REQUESTED	Geophysical	DAYS per claim
ENTER 40 days (includes line cutting) for first survey.	-Electromagnetic	<u>40</u>
ENTER 20 days for each additional survey using same grid.	-Magnetometer	
	-Radiometric	
	-Other	
	Geological	
	Geochemical	

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

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

DATE: April 25/72 SIGNATURE: Dale R. Alexander  
Author of Report

OFFICE USE ONLY

PROJECTS SECTION  
Res. Geol. LD Qualifications L142  
Previous Surveys \_\_\_\_\_

Checked by \_\_\_\_\_ date \_\_\_\_\_

GEOLOGICAL BRANCH \_\_\_\_\_

Approved by \_\_\_\_\_ date \_\_\_\_\_

GEOLOGICAL BRANCH \_\_\_\_\_

Approved by \_\_\_\_\_ date \_\_\_\_\_

## GEOPHYSICAL TECHNICAL DATA

### GROUND SURVEYS

Number of Stations 901 Number of Readings 1097  
Station interval 100'  
Line spacing 400'  
Profile scale or Contour intervals \_\_\_\_\_  
(specify for each type of survey)

### MAGNETIC

Instrument ABEM-MZ-4 Serial #4539, Serial #4599  
Accuracy - Scale constant Sensitivity #4539 - 9.9 gammas/S.D. #4599 - 10.1 gammas/S.D.  
Diurnal correction method 3 point tie in on Base Lines.  
Base station location \_\_\_\_\_

### ELECTROMAGNETIC

Instrument \_\_\_\_\_  
Coil configuration \_\_\_\_\_  
Coil separation \_\_\_\_\_  
Accuracy \_\_\_\_\_  
Method:  Fixed transmitter  Shoot back  In line  Parallel line  
Frequency \_\_\_\_\_  
(specify V.L.F. station)

Parameters measured \_\_\_\_\_

### GRAVITY

Instrument \_\_\_\_\_  
Scale constant \_\_\_\_\_  
Corrections made \_\_\_\_\_  
Base station value and location \_\_\_\_\_

Elevation accuracy \_\_\_\_\_

### INDUCED POLARIZATION -- RESISTIVITY

Instrument \_\_\_\_\_  
Time domain \_\_\_\_\_ Frequency domain \_\_\_\_\_  
Frequency \_\_\_\_\_ Range \_\_\_\_\_  
Power \_\_\_\_\_  
Electrode array \_\_\_\_\_  
Electrode spacing \_\_\_\_\_  
Type of electrode \_\_\_\_\_

REID TWP. - M.575











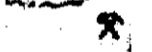
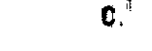



THE TOWNSHIP OF  
OF  
**MACDIARMID**

DISTRICT OF  
COCHRANE

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 MUSKOG 
- MINES 
- CANCELLED 

NOTES

- 400' surface rights reservation around all lakes and rivers.
- Flooding rights to areas along Mattagami River reserved to H.E.R.C. - L.O. 7085

2.846

DATE OF ISSUE

MAY 1972

ONTARIO DEPT. OF MINES  
AND NORTHERN AFFAIRS

PLAN NO. **M.294**

ONTARIO  
DEPARTMENT OF MINES  
AND NORTHERN AFFAIRS

LOVELAND TWP. - M.293

KIDD TWP. - M.291

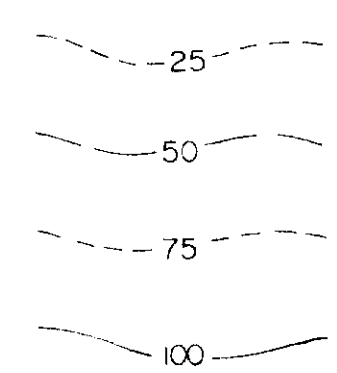
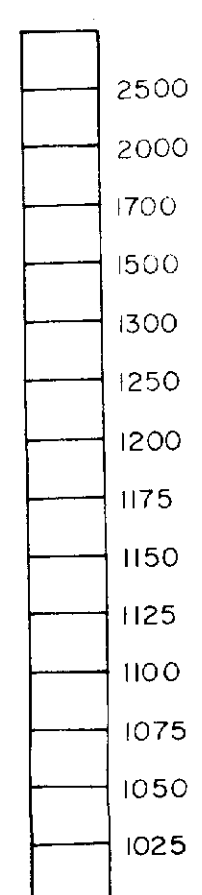
JAMIESON TWP. - M.288





LEGEND

Contour intervals in gammas:



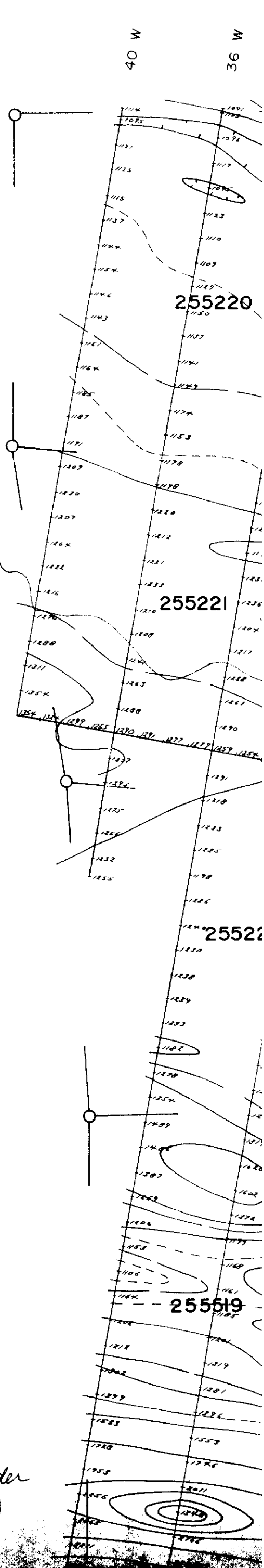
AST.

HOLLINGER MINES LTD.  
GEOMAGNETIC SURVEY  
MACDIARMID TWP

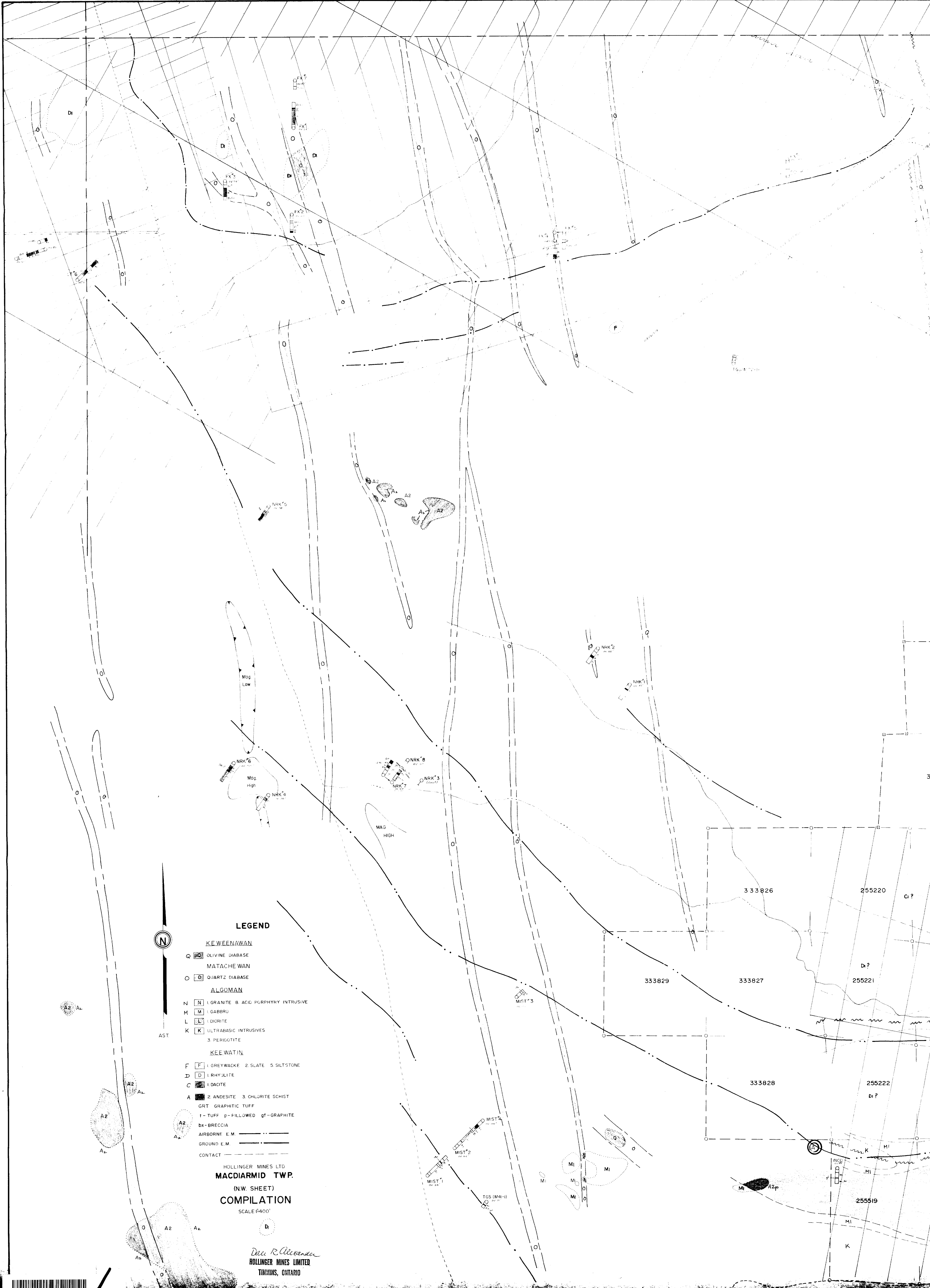
SCALE: 1 INCH TO 400 FEET

N.W. Sheet

*Dale R. Alexander*  
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**LEGEND**

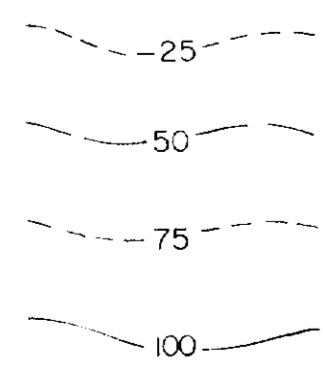
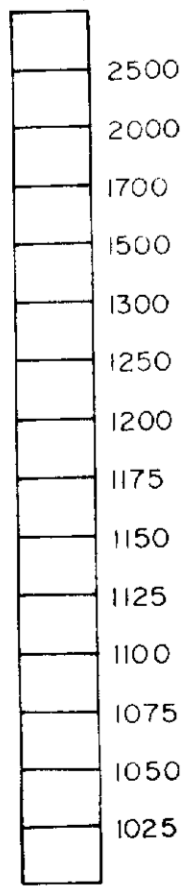
- KEEWENAWAN**
- Q [Symbol] OLIVINE DIABASE
  - M [Symbol] MATACHE WAN
  - O [Symbol] QUARTZ DIABASE
- ALGOMAN**
- N [Symbol] 1. GRANITE 2. ACID PORPHYRY INTRUSIVE
  - M [Symbol] 1. GABBRO
  - L [Symbol] 1. DIORITE
  - K [Symbol] ULTRABASIC INTRUSIVES
  - 3. PERIDOTITE
- KEEWATIN**
- F [Symbol] 1. GREYWACKE 2. SLATE 3. SILTSTONE
  - D [Symbol] 1. RHYLITE
  - C [Symbol] 1. DACITE
  - A [Symbol] 2. ANDESITE 3. CHLORITE SCHIST
  - GRT GRAPHITIC TUFF
  - t - TUFF p - FOLLOVED qf - GRAPHITE
  - bx - BRECCIA
  - AIRBORNE E.M. [Symbol]
  - GROUND E.M. [Symbol]
  - CONTACT [Symbol]



HOLLINGER MINES LTD.  
**MACDIARMID TWP.**  
 (NW SHEET)  
**COMPILATION**  
 SCALE 1:400'

*Don R. Alexander*  
 HOLLINGER MINES LIMITED  
 TIMMINS, ONTARIO

LEGEND  
Contour intervals in gammas:



AST.

HOLLINGER MINES LTD.  
GEOMAGNETIC SURVEY  
MACDIARMID TWP  
SCALE: 1 INCH TO 400 FEET

N.W. Sheet

*Doc R. Alexander*  
HOLLINGER MINES LIMITED  
TIMBARS, ONTARIO





