MAGNETOMETER SURVEY

on the

B. S. WELSH PROPERTY

Cairo & Flavelle Twps., Ont.

Timmins, Ontario,

January 30, 1976.

R. J. Bradshaw, P. Eng.,

Consulting Geologist.

INTRODUCTION

Magnetic surveys have been completed on groups of 32 and 5 claims a few miles apart in Cairo and Flavelle Townships, Ontario, respectively.

Establishment of picket lines on the properties of G. S. Welsh et al began on December 1, 1975, and the survey work and grid was completed on January 14, 1976.

Information concerning the relative location of various rock types and structural lineaments is provided by the survey, thereby indicating those areas of relatively greater importance for precious and base metal mineralization.

PROPERTY, LOCATION AND ACCESS

In Cairo Township, 32 unpatented claims form the group, numbered as follows: L399235, L399236, L419264 to L419275 inclusive, L419325 to L419341 inclusive and L419344. This claim group is termed the "West Property" in this report.

Located in the central east sector of Cairo Township, east of the small community of Matachewan, the West Property is traversed by highway 66 providing excellent access.

In Flavelle Township, 5 unpatented claims numbered L401499, L401500, L418535, L418536, L418537, form the "East Property".

A few miles northeast of the West Property, this claim group is situated a few thousand feet north of highway 66.

PREVIOUS WORK

West Property - Geological mapping and a magnetic survey was completed over most of this property by Dominion Gulf in 1951.

The survey work was controlled by north picket lines where a north-northwest direction would provide greater accuracy. Orientation of the grid, the contour system, and lack of coverage over water-covered areas, contributed to a generalized interpretation of the geology. Approximately 10 per cent rock exposure is indicated in the area by the geological mapping.

In 1957, Geophysical Engineering & Surveys Ltd. completed a resistivity survey along the shore of St. Paul Lake, on the average, extending about 1000 feet inland. No significant anomalous condition was detected.

East Property

The writer is not aware of any previous work conducted on the East Property.

GEOLOGY

West Property - Map 2110, Powell and Cairo Townships, by H. L. Lovell of the Ontario Department of Natural Resources, is the main geological reference for the claim group.

It indicates that the claim group straddles the contact between the Cairo granite-syenite Stock to the north and Keewatin volcanics to the south. Paralleling highway 66, the contact strikes east-northeast. Numerous north trending diabase dykes intrude the granite-syenite and volcanic rocks. The extreme

northeast sector of the property is overlain by Cobalt sediments.

The most prominent feature of the property is a shear zone striking east-northeast about 1000 feet wide just north of the contact between volcanics to the south and the Cairo Stock. Faults striking north and northeast are common in the area.

Occurrences of gold, sulphides, and asbestos are associated with the main shear zone on the property. The writer is not able to comment on the relative importance of these mineral occurrences.

East Property - The geology of the east property is shown on map 2078 accompanying geological report 44 by J. C. G. Moore of the Ontario Department of Mines in 1966.

The entire property is indicated to be underlain by mafic and intermediate volcanic rocks which strike west and dip vertically or steeply north. Northerly trending diabase intrudes the volcanics on the east shore of Wyley Lake.

Copper-gold mineralization associated with quartz lenses, at the granite-volcanic contact, occurs just southwest of the property.

MAGNETIC SURVEY RESULTS AND INTERPRETATION

Plans at a scale of one inch to four hundred feet of the west and East properties show the magnetic survey results. A coloured plan greatly facilitates the interpretation. The instrument and survey method are described in the Appendix.

West Property - The magnetic values on the property range from less than 0 to over 6000 gammas. The magnetic background of the area is in the range of 1000 to 2000 gammas with well defined anomalous features above and below this range. An east-northeast trend of the underlying rocks is indicated by the isomagnetics.

Although a considerable number of north trending diabase dykes are apparently exposed on the south half of the property they do not generally exhibit an anomalous condition that can be identified.

According to the relative magnetic values the surveyed area has been divided into three main units, namely A, B and C. Unit A which corresponds to the shear zone on Ontario map 2110 is interpreted to represent tuffaceous volcanics, probably felsic to intermediate in composition, which have been considerably altered by granitization and faulting i.e. lineament Z. This interpretation is based on the magnetic characteristics. Ranging from 0 to 1000 gammas the unit forms an anomalous low which is very well defined and terminates abruptly to the east at Line 12 West. Neither the magnetic survey or geological map 2110 suggest that unit A is terminated or offset by faulting. Shear zones, 1000 feet wide, do not simply end abruptly as indicated by the magnetic and geological data. To the west, as indicated on plan 2110, unit A is shown to merge with volcanic rocks.

Unit B is divided into three sub-units, namely B, B1 and B2. Each sub-unit displays different magnetic characteristics but

all are interpreted to represent phases of the syenite intrusive. Unit B corresponds to the magnetic background, 1000 to 2000 gammas; unit B1 north of unit A is in the range of 1500 to 2500 gammas while B2 ranges from 2000 to 5000 gammas.

Along the south boundary of the property, unit C generally ranging from 1500 to over 7000 gammas represents the intermediate to mafic volcanic rocks exposed in this area.

Based on the magnetic patterns, three directions of faulting on the property have been identified and termed X, Y and Z.

Extending northerly from the west end of St. Paul Lake, a series of parallel faults, termed X, are readily identified over a width of 800 feet. Southerly warping of unit A, the granitized volcanic tuff, has occurred in the fault zone. Northerly striking fault X1, in the centre of the property, displays little lateral displacement.

Faults termed Y, which strike northeasterly, with left hand movement, appear to be subsidiary to the northerly striking X system.

Finally, the fault termed Z strikes east-northeast within unit A. This fault readily apparent from the magnetic pattern and, identified on plan 2110 at Morrison Lake, likely accounts, in part, for unit A being described as a shear zone. It is likely that fault Z is the refracted extension of fault Y where Y encounters unit A.

East Property - The magnetic values on this claim group range from 700 to over 6000 gammas. The magnetic background appears to be in the 1000 to 1500 gammas range. A generally westerly trend of the isomagnetics is apparent.

Although the property is interpreted to be underlain by volcanics on map 2076, this is not entirely supported by the magnetic survey. The magnetic values on the west half of claim L401499 probably represent tongues of syenite from the southwest. The remaining portion of the property as judged from geological-magnetic data appears to be underlain by volcanics.

The relative isolation, shape and size of a lenticular magnetic high, termed A on the accompanying plan, suggests that it may represent magnetic mineralization associated with base metals.

CONCLUSIONS

West Property - An interpretation of the magnetic survey has resulted in some clarification of the complex geology present in this area.

The area described as a 1000 foot wide shear zone in syenite adjacent to the Cairo Stock volcanic contact is interpreted to represent granitized volcanics. Felsic to intermediate tuff, altered by granitization, subsequently cut by a sub-parallel fault (Z) would have the appearance of a shear zone.

The north trending faults at the west end of St. Paul Lake correspond to the south extension of the Browning Lake fault. Several gold occurrences are located adjacent to this fault which obviously extends southwards to eventually merge with the Montreal River-Whiskeyjack Creek fault. Where the Browning Lake fault intersects the Cairo Stock-volcanic contact is considered to be the most important area on the property for precious or base metal mineralization.

East Property - A magnetic anomaly termed A on the accompanying plan displays characteristics suggesting that it may be associated with base metal mineralization.

RECOMMENDATIONS

West Property - It is recommended five claims, namely L419334, L419335, L419338, L419339, L419340, in the southwest sector of the property, be investigated in detail for precious-base metal mineralization.

It is suggested that a grid complimentary to the present one be established to facilitate the investigation. An amount of $1500 would be adequate for grid establishment and electromagnetic survey work in this area. An additional amount of $2500 should be allocated for prospecting, trenching and sampling.

East Property - It is recommended that an electromagnetic survey be completed on magnetic anomaly A to determine if conductive

sulphides are present. A maximum amount of $350 would be required for this work.

Respectfully submitted,

SHIELD GEOPHYSICS LIMITED,

R. J. Bradshaw, P. Eng.,
Consulting Geologist.

Timmins, Ontario,
January 30, 1976.

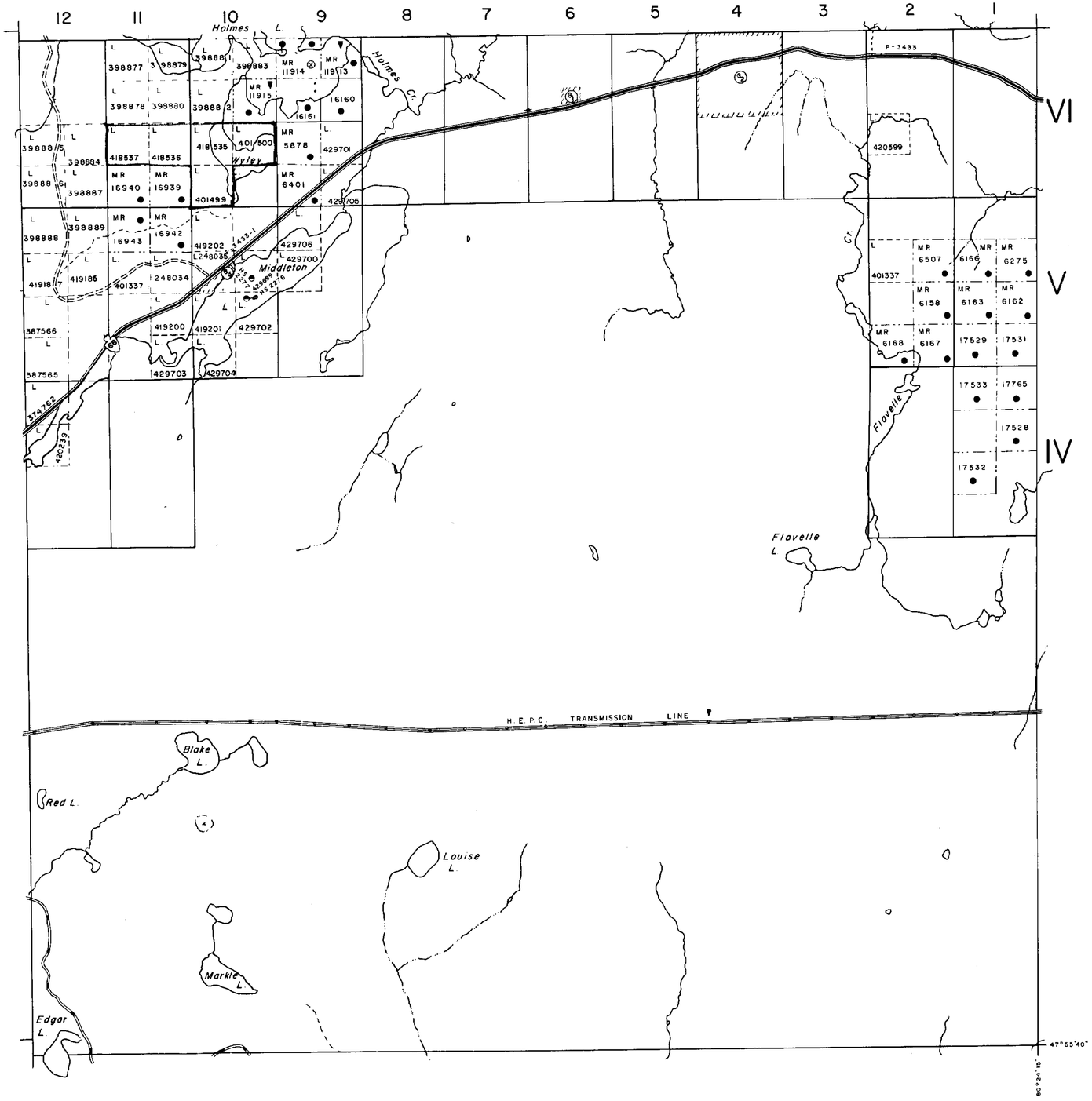
NOTES

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

The subdivision of this Township into lots and concessions is partially annulled. December 3rd 1963

(6₁) M.T.C. Gravel Pit 203
(6₂) M.T.C. Gravel Pit 199
(6₃) M.T.C. Pit 1394

HOLMES Tp. M. 224



CAIRO Tp. M. 210

GROSS Tp. M. 487

WILLISON Tp. M.259

LEGEND

- HIGHWAY AND ROUTE No.
- OTHER ROADS
- TRAILS
- SURVEYED LINES: TOWNSHIPS, BASE LINES, ETC.
- LOTS, MINING CLAIMS, PARCELS, ETC.
- UNSURVEYED LINES: LOT LINES
- PARCEL BOUNDARY
- MINING CLAIMS ETC.
- RAILWAY AND RIGHT OF WAY
- UTILITY LINES
- NON-PERENNIAL STREAM
- FLOODING OR FLOODING RIGHTS
- SUBDIVISION
- ORIGINAL SHORELINE
- MARSH OR MUSKEG
- MINES

DISPOSITION OF CROWN LANDS

TYPE OF DOCUMENT	SYMBOL
PATENT, SURFACE & MINING RIGHTS	●
" SURFACE RIGHTS ONLY	◒
" MINING RIGHTS ONLY	◓
LEASE, SURFACE & MINING RIGHTS	■
" SURFACE RIGHTS ONLY	◪
" MINING RIGHTS ONLY	◨
LICENCE OF OCCUPATION	▼
CROWN LAND SALE	C.S.
ORDER-IN-COUNCIL	OC
RESERVATION	(R)
CANCELLED	(X)
SAND & GRAVEL	(S)

SCALE : 1 INCH = 40 CHAINS

FEET 0 500 1000 2000 4000 6000 8000
METRES 0 200 400 600 800 1 KM 2 KM

ACRES	HECTARES
40	16

TOWNSHIP 2.2061

FLAVELLE

DISTRICT
TIMISKAMING
MINING DIVISION
LARDER LAKE

Ministry of Natural Resources
Ontario Surveys and Mapping Branch

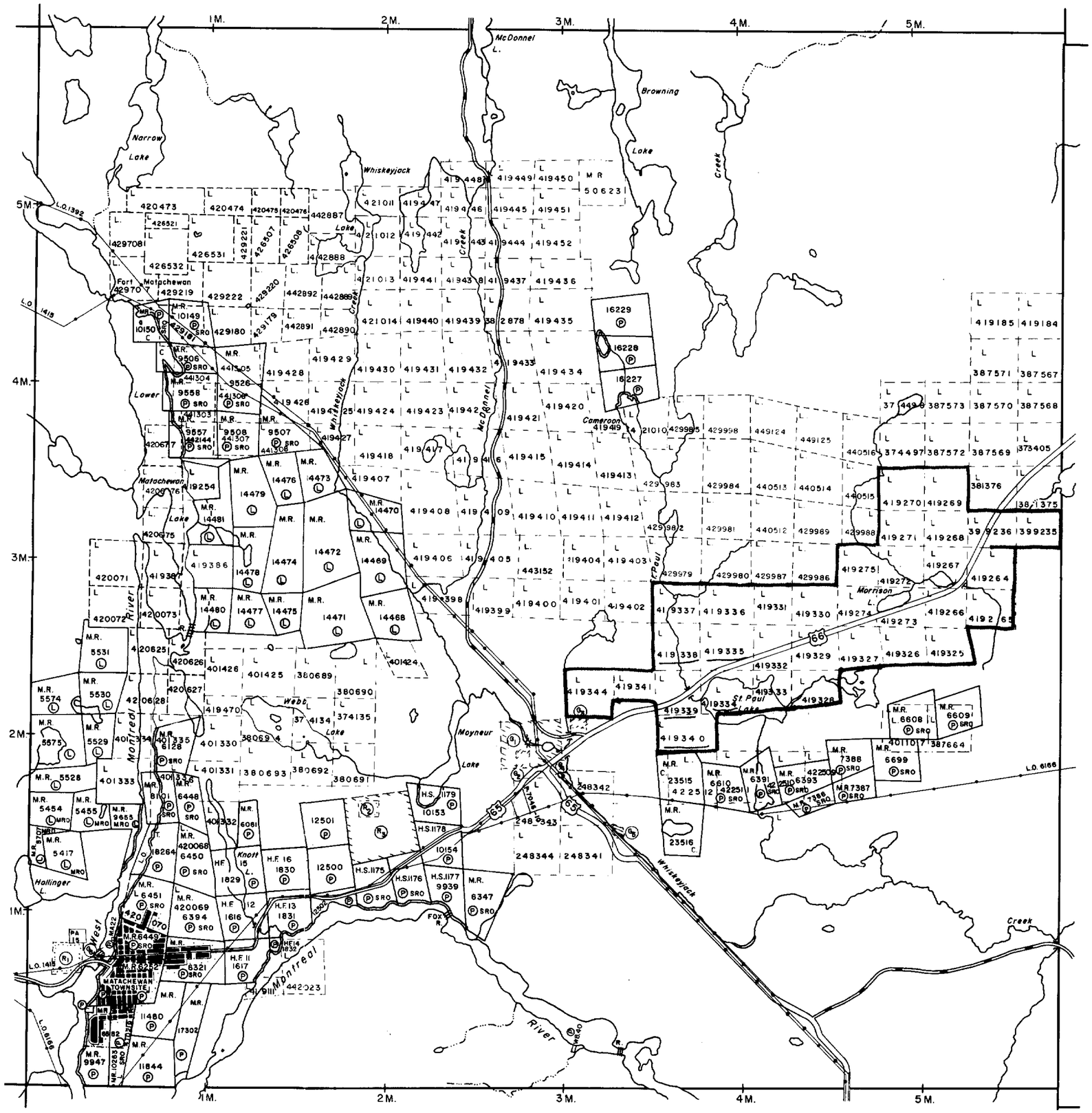
Date Feb '73
Whitney Block Queen's Park, Toronto
Plan No. M. 220

Alma Twp.- M.202

Powell Twp. - M.241

Flavelle Twp. - M.220

Kimberley Twp.- M.226



THE TOWNSHIP OF 2.2061

CAIRO

DISTRICT OF
TIMISKAMING

LARDER LAKE
MINING DIVISION

SCALE: 1-INCH = 40 CHAINS

LEGEND

PATENTED LAND	(P)
CROWN LAND SALE	C.S.
LEASES	(L)
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' Surface Rights Reservation along the shores of all lakes and rivers

AREAS WITHDRAWN FROM STAKING

S.R.- SURFACE RIGHTS M.R.- MINING RIGHTS

	Section	Order No.	Date	Disposition	File
	V.H.F. Tower cabin site			S.R.	15376 v.2
R1, R2	42(R.S.O.'60)		1/8/68	S.R.	177224
R3	43(R.S.O.'70)	W.69/74	7/1/75	S.R.	177224

SAND and GRAVEL

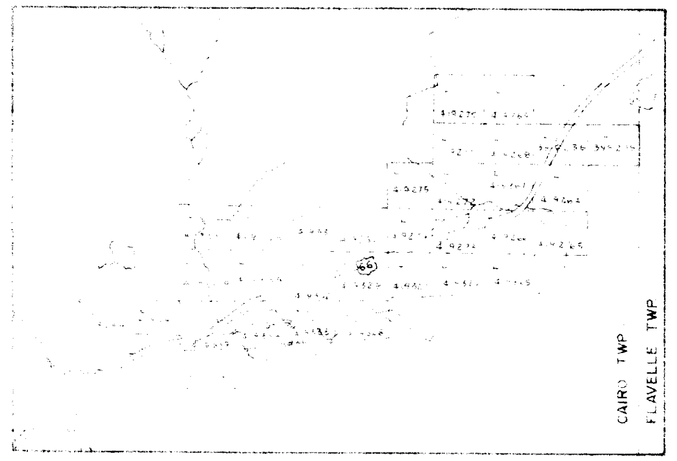
S1	M.T.C. Gravel Pit 206	S2	M.N.R. Gravel File 127307
S4	M.T.C. Gravel Pit 1313	S5	Gravel Pit 205
S3	Gravel Pit 204, File 127307	S6	Gravel Pit

PLAN NO. M.210

ONTARIO
MINISTRY OF NATURAL RESOURCES
SURVEYS AND MAPPING BRANCH

KEY MAP

one inch to one half mile



LEGEND

- Measurement station along picket line
- Relative value of the vertical component of the earth's magnetic field in gammas
- Base station location
- Magnetic contour
- Magnetic depression

INSTRUMENT: Sharpe M.F.-1 fluxgate magnetometer; model no. 321.

Contour interval: 100 gammas up to 1000 gammas
500 " " " 3000 "
1000 " over 3000 "

INTERPRETATION

A	Granitized volcanics (tuff ?)
B, B1, & B2	Phases of syenite
C	Volcanic rocks
X, X1	North faults
Y	Northeast faults
Z	East-northeast fault

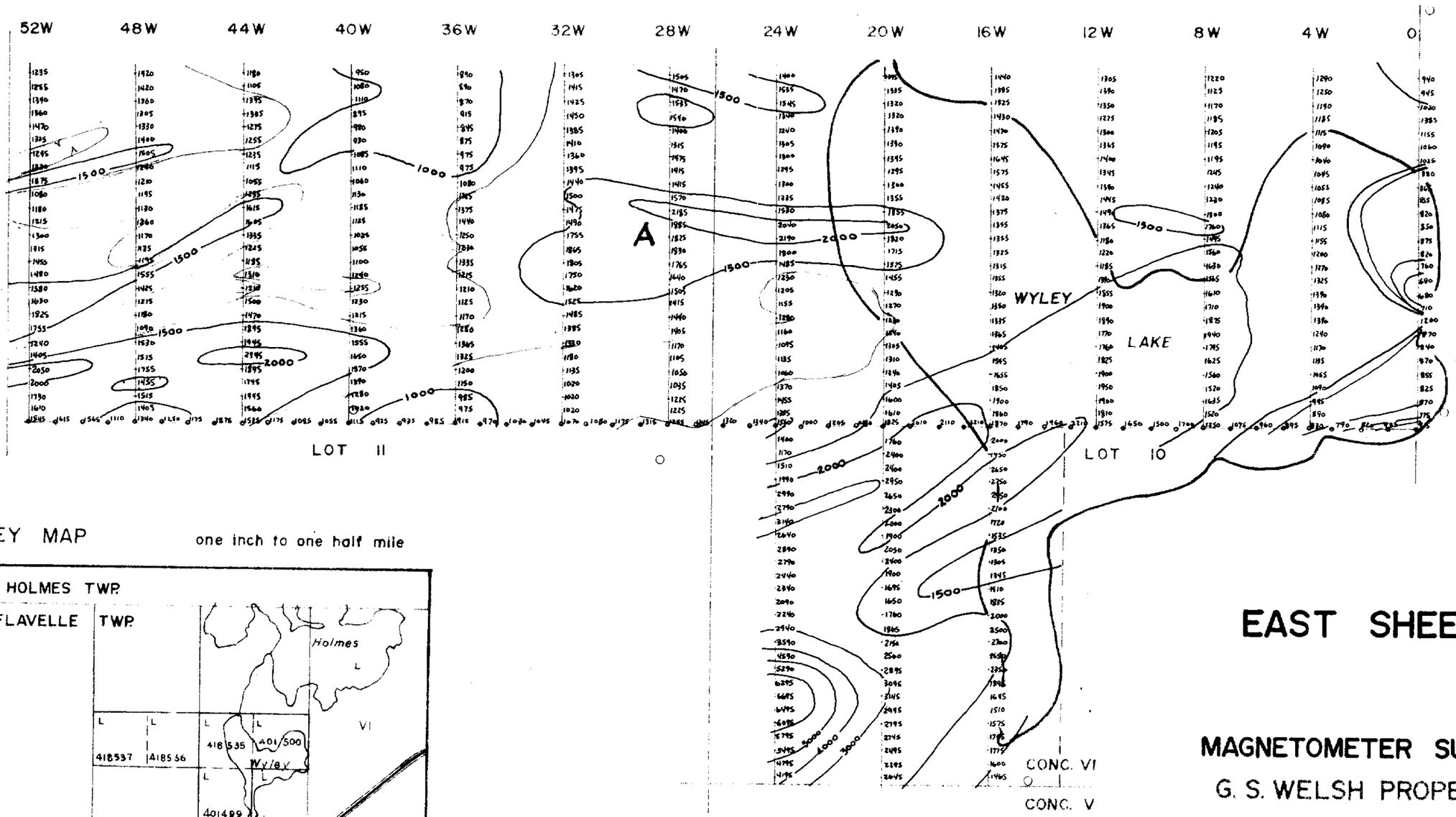
WEST SHEET

MAGNETOMETER SURVEY
ON THE
G. S. WELSH PROPERTY
CAIRO TOWNSHIP, ONTARIO

BY
SHIELD GEOPHYSICS LIMITED

SCALE
0 400 800 1200
FEET

JANUARY 1976



KEY MAP

one inch to one half mile

For LEGEND see West Sheet.

EAST SHEET

MAGNETOMETER SURVEY

G. S. WELSH PROPERTY

FLAVELLE TWP., ONTARIO

by SHIELD GEOPHYSICS LIMITED

Scale one inch to four hundred feet

JANUARY 1975

Jan 30/76