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PROJECTS  
SECTION

REPORT ON THE EXPLORATION ACTIVITIES  
PERFORMED ON THE JOINT VENTURE PROJECT  
OF  
INTERNATIONAL MOGUL MINES LIMITED  
AND  
RAYROCK MINES LIMITED  
LOCATED IN  
MANN AND NEWMARKET TOWNSHIPS  
PORCUPINE MINING DIVISION, PROVINCE OF ONTARIO  
BY  
M.E.M. CONSULTANTS LIMITED  
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July 31 , 1973

REPORT ON THE EXPLORATION ACTIVITIES  
OF  
INTERNATIONAL MOGUL MINES LIMITED  
AND  
RAYROCK MINES LIMITED

SUMMARY

The exploration activities of International Mogul Mines Limited and Rayrock Mines Limited on their joint venture holdings, situated in Mann and Newmarket Townships, Porcupine Mining Division in the Province of Ontario, consisted of detailed vertical loop electromagnetic, magnetic and geological surveys. Limited horizontal loop electromagnetic traverses were surveyed over selected vertical loop anomalies.

Some lithochemical work was conducted on the ultramafic rocks and on the enclosing volcanic rocks of the "A" and "B" copper-zinc bearing sulphide zones.

The results of these surveys and test work are depicted on the plans which accompany this report and described more fully in the body of the report.

CONCLUSIONS

A compilation of all the known geological data, obtained from surface mapping and records documenting the results of the previous exploratory work on the property reveals an arcuate structural feature. This feature is composed of acid volcanics as a core enveloped by a wide band of ultramafic rocks.

The acid volcanics consist of rhyolitic flows and pyroclastics, all

related to a principal volcanic centre, probably located in the southwest quarter of Mann Township. The volcanics host two sulphide zones, designated as "A" and "B" and contain significant values in copper and zinc. Previous exploration of these zones failed to indicate the presence of an economic mineral deposit. Further exploration of these particular zones does not appear to be warranted at this time. Lithogeochemical investigations of several drill holes which cross-sectioned these sulphide zones did not materially add to the geological knowledge about these zones. Several vertical loop electromagnetic conductors are present within this volcanic sequence. Although they are not exceptional quality anomalies, they are nevertheless of the magnitude and in the conductivity range which merit investigation by diamond drilling. The particular electromagnetic anomalies in the category are V-5, V-23, V-24 and V-28.

Wrapped around this volcanic assemblage in the form of an arc, there is a succession of gabbroic and ultramafic rocks. The gabbroic rocks appear to be limited to a central band on the property and these may represent sub-aerial basic flows. Overlying these, the volcanics are more typical sub-aqueous andesitic flows.

Within the gabbroic - andesitic rocks, numerous sill-like bodies of peridotite are present, probably representing alpine-type of intrusives. The largest of the ultramafic bodies trends diagonally across the north central part of the property. This body is interpreted to represent a regional dyke, occupying a deep crustal fissure. Southerly from this dyke, the peridotite

sills are generally narrow, elongated bodies, although one or more may well be sheet-like in form.

Formation dips appear to be flattish in the order of 30 to 60 degrees, confirming the overall low angle arc structure. Geochemical sampling of certain of the ultramafic bodies on the property reveals that the average background is in the order of 250 p.p.m. sulphide nickel. Values in excess of 1000 p.p.m. sulphide nickel are present and these are considered as anomalous. These anomalous values were noted primarily near the margins of the bodies suggesting that enrichment to ore proportions could well be present. However, as over ninety percent (90%) of the ultramafic bodies are covered by overburden, other methods must be utilized to define exploration targets.

Within the gabbro-ultramafic sequence, numerous vertical loop electromagnetic anomalies were outlined, and these may be reflecting zones of nickel mineralization. Particular anomalies in this category are V-6, V-7, V-9, V-10, V-15, V-16, V-17, V-18, V-19, V-20, V-21, V-22, V-25, V-26 and V-27. However, anomalies V-6, V-7, V-9, V-10, V-17, V-18, V-21 and V-22 are the more significant and are worthy of further investigation.

Situated on the outside rim of the arc-like volcanic-ultramafic complex and in basic volcanics are several vertical electromagnetic zones, namely V-11, V-12, V-13 and V-14 which exhibit conductivity qualities as produced by sulphide mineralization. Anomaly V-14 is the premier target worthy of investigation by diamond drilling. Success in the investigation

of this target would naturally dictate evaluation of the others.

#### RECOMMENDATIONS

It is recommended that the next phase <sup>is</sup> ~~is~~ the exploration of the subject acreage <sup>in</sup> ~~in~~ the form of diamond drilling. Initially, twelve (12) holes are recommended for a total of 6,000 feet.

The details of the proposed holes, etc. are detailed in appendix I of this report, which follows.

The overall estimate of cost of this drilling program is at \$ 60,000.00 maximum.

PROPERTY, OWNERSHIP, ETC.

International Mogul Mines Limited and Rayrock Mines Limited, through a joint venture agreement, control a total of 117 contiguous, unsurveyed and unpatented mining claims in the townships of Mann and Newmarket, Porcupine Mining Division, in the Province of Ontario.

Thirty-six (36) of the claims are under option from Jonsmith Mines Limited. These claims are numbered as follows:

P-61334 to P-61337 incl.  
 P-61343 to P-61346 "  
 P-68494 to P-68496 "  
 P-68499  
 P-68500, P-68501  
 P-68503 to P-68505 incl.  
 P-68507 to P-68509 "  
 P-68512, P-68513, P-68518 and P-68519  
 P-68524 to P-68526 incl.  
 P-68530 to P-68532 "  
 P-68537 to P-68539 "  
 P-68540 to P-68542 "

Eighty-one (81) claims are wholly owned by the joint venture partners and these were acquired by staking. They are numbered as follows:

358265 to 358284 incl.  
 358219 to 358254 "  
 358256 to 358258 "  
 347865 to 347886 "

The area of the claim group totals approximately 4,680 acres.

LOCATION, ACCESS, ETC.

The claims are located in the southeast quarter of Mann and the southwest quarter of Newmarket townships. These townships are subdivided and consequently, the legal description of individual claims are described

as fractions of particular lots in a concession.

Various means of access to the subject claim group are available and these are as follows:

1. By a loose surface, dry weather road and swamp trail from Highway 11, which for the major part, follows a line common to concessions 1 and 2 in Newmarket Township. The distance from Highway 11 to the central part of the subject property is about eight (8) miles. This access route is best used during the winter months.
2. By a fair gravel road from Dugwal, Ontario, (on Highway 610) which leads to a dam site on the Frederick House River, in the northern part of Little Township and thence by a winter road to the western segment of the property. This distance along this route is about 24 miles. Again, this access route is best utilized during the winter season, as there is no bridge across the Frederick House River.
3. By helicopter from Timmins, Ontario, a distance of 28 air miles. This means of access to the property is by far the most convenient.

The surface of the property is heavily forested and swampy. Although the property is dissected by numerous bush roads and trails, travel is difficult.

Topographically, the property is quite flat.

Outcrop areas are sparse and represent only about 2 percent of the area.

### REGIONAL GEOLOGY

From a regional viewpoint, the area north to northeast of Timmins and about twenty miles north of the Destor-Porcupine Pipestone faults, contains an elliptical arrangement of ultramafic bodies which is suggestive of a domal structure. The central part of this domal structure is occupied primarily by volcanic rocks with a preponderance of felsic varieties.

A granitic stock and other smaller satellite granitic bodies intrude this dome-like structure. These intrusives probably occupy old volcanic centres and related fissures.

The Newmarket - St. John granite stock lies to the northeast of the inferred domal ultramafic-volcanic structure.

### PROPERTY GEOLOGY AND STRUCTURE

The subject acreage straddles an interbanded assemblage of acid to basic volcanics and pyroclastics, gabbro and ultramafic rocks. In plan this assemblage is arcuate in shape. The core of this assemblage consists essentially of acid flows and pyroclastics and proceeding in a northeasterly direction from the core, the succession is gabbroic-ultramafic rocks interbanded with basic flows.

The strike of the rocks in the western part of the property is essentially east-west and dips are flattish 35 to 50 degrees north. Progressing in an easterly direction, there is a marked strike change to a north-south



direction and dips appear to be steeper in the order of 50-75 degrees.

The western margins of the arcuate structured complex is truncated by a transverse (N.E. - S.W.) regional fault.

The gabbroic and ultramafic rocks appear to be emplaced as either flows or intrusive, or for that matter, may well be represented as both flows and intrusives.

The upper ultramafic body or sill has the resemblance to a fissure intrusive, as it can be traced in an easterly direction into the adjoining townships of Newmarket and McCart. The major portion of the ultramafics are discontinuous lense-like bodies, diagnostic of intrusives.

Several oblique (N.W. - S.E.) faults are obvious and these tend to produce right-handed offsetting movement.

#### ECONOMIC GEOLOGY

Two sulphide zones carrying an appreciable content of copper-zinc in pyroclastic rocks are present on the property.

The main occurrence ("A" zone) outcrops in the southwest part of claim P-61334 and extends into the adjoining acreage. This zone was explored by Cunigold Mines Limited in 1945. Trenching and packsack drilling was the main type of work conducted.

In 1964, Jonsmith Mines Limited acquired acreage in Mann Township following the Texas Gulf Sulphur base metal discovery in Kidd Township. Their acquisition included the Cunigold Mines Limited occurrence. Following

geophysical and geological surveys, Jonsmith completed 14 diamond drill holes into the occurrence. This drilling established the presence of a series of pyrite-pyrrhotite sulphide bands in a sequence of acid pyroclastics and flows adjacent to gabbro-peridotite sill-like bodies. Some of the pyroclastic bands are graphitic. The mineralization was traced for a strike length of about 5,000 feet. Copper-zinc metal values in the core intercepts were all sub-economic, but a few holes contained enrichment over narrow widths. The drilling established a N 65° W strike to the zone, with dips in a northerly direction of about 40-45°. The zone was tested to an average depth of 550 to 600 feet. One hole tested the central part of the zone at a depth of 1,200 feet.

The second sulphide zone ("B" zone) occurs on claim 217761, which adjoins Jonsmith claim P-61336. In the outcrop, pyrite-pyrrhotite occurs in graphitic acid pyroclastics, in contact with peridotite. This occurrence was investigated by four diamond drill holes. Copper-zinc values were low, and sulphide content was quite variable. The zone was established to strike east-west and dipping 40° north.

In the south part of claim P-61335, disseminated nickeliferous sulphides are present in peridotite. The occurrence has been exposed by trenching. The overall sulphide content is in the 2-4 percent range, although small clusters of sulphides are present. A chip sample of the peridotite, which excluded the coarse sulphides, assayed 1020 p.p.m. sulphide nickel. The average background of the ultramafic in the subject area, based on

limited sampling, appears to be in the order of 250 - 300 p.p.m.

sulphide nickel.

Within the large gabbro outcrop on claims 347885, 358265 and 358274, numerous quartz veins were noted. However, these appear to be devoid of any metallic mineralization.

A brief summary of the best intersections obtained in the drilling of the "A" sulphide occurrence which borders the subject acreage is as follows:

<u>Hole No.</u>	<u>From</u>	<u>To</u>	<u>Length</u>	<u>oz./Ag</u>	<u>% Cu</u>	<u>% Zn</u>	<u>% Ni</u>
JS-1	680.0	682.0	2.0 ft.	-	1.19	-	0.02
	916.5	918.3	1.8	0.10	0.12	7.02	-

Remarks: In this hole the main sulphide bands were intersected at the following footages:

432.5-452.5; 469.0 - 475.5; 639.0 - 643.0;  
680.0 - 682.6; 884.0 - 921.0; 1,623.0 - 1,279.0

JS-2	338.0	343.0	5.0 ft.	0.16	0.19	1.88	-
	448.5	499.5	51.0	-	0.22	1.68	-

Remarks: In this hole, the main sulphide bands were intersected at the following footages:

333.0 - 359.0; 423.4 - 499.5

JS-4	1,143.5	1,149.5	5.5 ft.	0.27	1.57	1.14	-
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Remarks: In this hole, the main sulphide bands were intersected at the following footages:

157.5 - 162.5; 302.6 - 351.0; 686.0 - 689.0;  
1099.0 - 1123.0; 1139.0 - 1115.6; 1278.0 - 1356.5;  
1388.3 - 1403.0

<u>Hole No.</u>	<u>From</u>	<u>To</u>	<u>Length</u>	<u>oz./Ag</u>	<u>% Cu</u>	<u>% Zn</u>	<u>% Ni</u>
JS-5	510.0	515.5	5.5 ft.	-	0.16	1.93	0.06
	544.0	548.5	4.5	0.12	0.14	0.92	-

Remarks: The main sulphide bands in this hole were intersected at the following footages:

40.0 - 46.0; 496.5 - 553.2; 606.0 - 675.0

JS-11	420.0	424.6	4.6 ft.	0.09	0.46	1.72	-
	518.0	523.5	5.5	0.11	0.35	3.05	-

Remarks: The main sulphide bands in this hole were intersected at the following footages:

396.0 - 423.0; 500.8 - 549.0; 620.5 - 680.0

JS-15	671.0	682.0	11.0 ft.	0.11	0.20	0.91	-
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Remarks: The main sulphide bands in this hole were intersected at the following footages:

439.0 - 451.0; 632.0 - 639.0; 666.0 - 732.6

The main sulphide bands intersected in the holes which cross-section the "B" sulphide zone are as follows:

<u>Hole No.</u>	<u>Sulphide Intercepts</u>
JS-6	119.0 - 150.6 ft.
JS-7	250.0 - 478.0 "
JS-9	101.0 - 237.0 "
JS-10	470.0 - 651.3 "

Copper and zinc metal values were much lower in this zone than in the "A" zone. The latter is considered to be stratigraphically lower in the volcanic sequence.

## HISTORY OF PREVIOUS EXPLORATORY PROGRAMS

Previous exploratory work on the subject acreage, in chronological order, is summarized as follows:

- 1945 Cunigold Mines Limited performed trenching and packsack drilling on claim P-61334.
- 1953 Dominion Gulf drilled one hole on each of claims 358237, P-68494, 358222 and 347869. Two other vertical holes which failed to reach bedrock were drilled on claims 358219 and 347875.
- 1964 Jonsmith performed geological and geophysical surveys and 18 drill holes, totalling 13,034 feet. The drilling was centred mainly on claims P-61334 and P-61335.

The present program by International Mogul Mines Limited and Rayrock Mines Limited consists of detailed magnetic and vertical loop electromagnetic surveys, geological mapping and limited geochemical studies.

## DISCUSSION OF THE RESULTS OF THE PRESENT EXPLORATION PROGRAM

A system of picket lines was established over the entire property at 400 foot intervals. The direction of the lines was orientated so as to trend across the general geological strike. The layout of these lines was based upon correlation of previous work and a regional geological study. A total of 117.0 miles of picket line was cut and chained. This system of picket lines, formed the base from which all exploratory work was conducted.

MAGNETIC SURVEY

The magnetic survey was performed using the Sharpe MF-1 fluxgate magnetometer. Readings were taken at 50 foot stations along all picket lines. All readings were corrected for diurnal variations. Magnetic readings were contoured to express to the best advantage, the main lithological units, etc. underlying the subject acreage.

Examination of the coloured magnetic maps reveals that the map area is dominated by considerable linear magnetic highs, which are interpreted to represent ultramafic flows or sills. In the western portion of the subject area, these sills vary in width from 100 to 500 ft. The enclosing rocks are of considerably lower magnetic susceptibility and are assumed to represent felsic volcanics, rather than the more basic types.

In the western part of the property, magnetics indicate that the ultramafic bodies are considerably greater in width and the widest body is in the order of 1700 feet, trending NW - SE. This body probably represents a dyke occupying a steep crustal fissure. Southwesterly from this body, the magnetics are much broader and within this broad mass, numerous lows are present, suggesting a more flattish dip to the sill-like masses. The magnetic contrast bordering the ultramafic rocks is in the range of 1000 - 1500 gammas, suggesting that they are more of the basic composition, rather than felsic.

On claims 61337, 61344 and 68526, there are several small magnetic

enclosures, which appear to be correlated to ultramafic bodies. These are interpreted to be caused by magnetite or in part sulphides in volcanics or gabbroic flows.

The structural trends and the disposition of the ultramafic bodies on the property are vividly portrayed by the magnetic survey. From an economic viewpoint, the ultramafics are unquestionably favourable loci for hosting nickel bearing sulphide deposits.

#### ELECTROMAGNETIC SURVEY

The electromagnetic survey was performed using the McPhar 1000/5000 vertical loop E.M. unit. Transmitter stations were staggered and coverage from individual transmitters was limited to spreads of 600 - 800 feet.

Horizontal loop E.M. traverses were surveyed over several of the vertical loop conductors, particularly in those instances where depth of overburden was not a critical factor. Coil separation in this survey was 300 feet.

The results of these surveys are depicted on plans which accompany this report. A great number of conductors were outlined, many are one or two line responses. These conductors were analysed according to length, magnitude of response, conductivity, magnetic correlation and geological environment. As a result, twenty-eight (28) conductors were identified on the accompanying maps of possible interest and accordingly were designated as V 1 to V 28. Out of the 28 conductors, 12 were considered as possibly reflecting mineralization of interest and these warrant further investigation.

E.M. Anomaly V-1

This anomaly lies along the border of claim P-61335 and 61336 and extends into the adjoining acreage controlled by Lorne Berry, Haileybury, Ontario. The magnitude of this response is quite variable along strike and conductivity is fair to good. Horizontal loop E.M. traverses across the conductor confirms its good conductivity. This conductor was investigated by four diamond drill holes and it is attributed to graphitic pyroclastics containing appreciable content of sulphides with low values in copper and zinc. The zone outcrops on the Berry acreage. Further investigation of this conductor is not warranted.

E.M. Anomalies V-2, V-3 and V-4

These are two and one line anomaly responses respectively indicating limited strike length to the conductors. Anomaly V-2 appears to be caused by a conductive shear, whereas V-3 and V-4 are unaccounted for at this time. Because of the limited strike length of V-3 and V-4, any investigation of them should be deferred.

E.M. Anomaly V-5

This anomaly lies along the south boundary of claims P-61344 and P-68573. The anomaly is about 1400 feet in length and exhibits poor to good conductivity along strike. There is no appreciable magnetic correlation and the conductor appears to occur in felsic volcanics, bounded by gabbroic rocks. There is horizontal loop E.M. correlation to the zone only at section 84 W. It would appear that this zone is caused by sulphides or graphitic sediments. One drill hole is warranted to investigate this zone at section 84 W.



E.M. Anomaly V-6

This conductor occurs on claims P-68530 and P-68539, striking in an east-west direction. It is about 1800 feet in length and conductivity is quite variable, in the poor to moderate range. The conductor is situated within an ultramafic body. The best response of the anomaly is at section 24 W and 28 W. A horizontal loop E.M. traverse along line 28 W indicates no appreciable response with this method. It is considered that the anomaly may be caused by a low content of sulphides in the ultramafic. This conductor should be investigated by one drill hole at section 28 W.

E.M. Anomaly V-7

This conductor is essentially a one line response located about 1000 feet south of Anomaly V-6. This one line response could be of greater strike length, particularly if the responses on lines 16 W and 20 W represent the same zone. Conductivity of the zone is in the moderate range. The anomaly lies at the contact of peridotite and volcanics. Further investigation of this anomaly by drilling is warranted.

E.M. Anomaly V-8

This conductor lies along the west boundary of claim 358256. It is a low intensity response and there is no appreciable magnetic correlation to the zone. Investigation of this anomaly is not warranted at this time.

E.M. Anomaly V-9

This conductor lies along the north part of claims 68504 and 68500. The anomaly is about 2100 feet in length and lying within an ultramafic body. High and low frequency responses are displaced except at two points only along the axis of the conductor, where they are coincident. Conductivity is in the

fair to moderate range. A drill hole across this anomaly at section 12 E is warranted.

E.M. Anomaly V-10

This anomaly lies essentially in the south part of claim 358242. It is about 2000 feet in length. Although of weak magnitude, conductivity features are moderate to good. The conductor lies in the hangwall portion of a wide ultramafic sill within 200 feet of the volcanic contact. Further investigation of this anomaly by drilling is warranted.

E.M. Anomalies V-11, V-12, V-13 and V-14

These anomalies are all located in the northeast part of the property of Mann Township. They lie in a volcanic sequence of rocks and situated about 1500-2000 feet north of a large ultramafic intrusive sill. The magnitude of these anomalies are all in the 2 to 4 degree range, which is not strong. However, ratios of low to high frequency responses indicate moderate to good conductivity, suggestion some depth to source. Anomalies V-11 and V-13 lie in the bed of a lake, and could possibly reflect overburden or shear zone responses.

It is concluded that anomaly V-14 is worthy of investigation by diamond drilling and should this anomaly prove to be caused by mineralization then anomalies V-11, V-12 and V-13 would warrant investigation.

E.M. Anomaly V-15

Qualities and characteristics of this anomaly are comparable to V-10. It is located in a similar geological environment and consequently any positive results in the drilling of anomaly V-10 would enhance its merits.

E.M. Anomaly V-16

This is a weak, low intensity response of about 800 feet in length. The anomaly occurs entirely in ultramafics. Because of the low magnitude of this anomaly, and conductivity features, it must be considered as shear zone effect. In view of this, merits of this target must be downgraded considerably.

E.M. Anomalies V-17, V-18, V-19, V-20 and V-21

All these conductors occur within ultramafics or the contact zone of volcanics and ultramafics at the crest of the arc-structure. Conductors V-19 and V-20 are weak responses, whereas V-17, V-18 and V-21 are considerably stronger and exhibit fair to good conductivity features. The conductors occur in ultramafics. Anomalies V-17 and V-18 were surveyed with horizontal loop equipment at sections 8 N and 0 respectively. No anomalies were detected with this method. It can be concluded that the vertical loop responses are due to either conductive shears or overburden. However, it must be pointed out that sulphide bearing zones may not be detected by the horizontal loop method by virtue of their low sulphide content and depth to source. In other words, the vertical loop E.M. technique is a far superior system than H.E.M. in search of mineral deposits possessing these two main characteristics.

Therefore, conductors V-17, V-18 and V-21 are worthy of investigation by diamond drilling.

E.M. Anomalies V-22, V-23, V-24, V-25, V-26, V-27 and V-28

These anomalies are all clustered in the southwest part of the property in Mann Township. Geologically, they lie near the volcanic-ultramafic gabbro contact.

Anomaly V-22 is about 3300 feet long and may in reality consist of two en-echelon conductors. The northerly 800 feet of this zone lies in volcanics or gabbro. At section L 24 S, E.M. response and conductivity are fair to good. A drill hole across the central portion of the anomaly is warranted.

The southerly 2300 feet of anomaly V-22 occurs almost entirely in ultramafics, and the response along section L 52 S is moderate to good. A drill hole completed in the 1950's cored entirely in peridotite. From all information, it would appear that this hole was mid-way between conductors V-26 and V-22. A drill hole at section L 52 S across the southern part of anomaly V-22 is warranted.

Anomaly V-23 is located 1000 feet north of V-22. The central part of the conductor exhibits the better magnitude and conductivity. It lies between two arcuate shaped peridotite sills. The enclosing rocks are either volcanics or gabbro. A drill hole across this anomaly at section L 24 S is recommended.

Anomaly V-24 is a relatively low magnitude response lying in acid volcanics about 800 feet from the main ultramafic mass. This anomaly appears to be caused by overburden effects.

Anomalies V-25, V-26 and V-27 are low magnitude responses and from a conductivity viewpoint, these are rated as only poor to fair. Anomalies V-26 and V-27 occur within the peridotite mass, whereas V-25 transgresses the inferred volcanic-peridotite contact.

Anomalies V-24, V-25, V-26 and V-27 must be downgraded in priority until additional information concerning the adjoining E.M. responses is available.

Anomaly V-28 is about 2000 feet long and for the most part, it is a low magnitude response. Geologically it appears to be situated in the volcanic sequence within which the "A" sulphide zone is located. The response on section L 52 S is well defined and conductivity features are good. One exploratory drill hole is warranted in this conductor.

In summary, vertical loop electromagnetic anomalies V-5, V-6, V-9, V-10, V-14, V-17, V-18, V-22, V-23 and V-28 are rated as the better exploration targets on the property. Anomalies V-7, V-11, V-12, V-15, V-24, V-25, V-26 and V-27 are considered as of secondary interest and these would be worthy of re-assessment, should exploration of the higher priority targets be ascertained to be caused by economic metallic mineralization.

#### LITHOGEOCHEMISTRY

Nickel - In a preliminary attempt to assess the ultramafic bodies on the property, a few of the outcrops as well as certain of the cores of ultramafic intersections obtained in the Jonsmith drilling were sampled for nickel content present as sulphides, by atomic absorption spectrometry following leaching with a mixture of ascorbic acid and hydrogen peroxide.

In three of the outcrop areas sampled, the average background values appear to be in the order of 250 to 300 p.p.m. nickel. Sampling of a peridotite sill along the western boundary of claim 347878 revealed a nickel content increase towards the footwall content of the sill with gabbro. There is no physical evidence of this change, except for a slight change in colour of the sill from dark green to a brown green. In the southern part of claim 61335, disseminated nickeliferous sulphides were noted in lobe of peridotite, jutting out from the main mass. A sample of the peridotite, excluding any obvious sulphide mineralization, assayed 1020 p.p.m. nickel.

Sampling of drill holes JS-24-6 - 8 -15 - 16 showed erratic above background values in nickel. The above background nickel values appear to vary across the sill and in no instance was there any preferential zoning noted. However, it should be pointed out that the initial sampling was quite limited and the actual density of samples was far too low to establish meaningful figures.

However, a systematic application of this sampling method, utilizing a percussion overburden drilling technique would provide the necessary density of samples and corresponding meaningful geochemical data to assess the ore potential of the ultramafic rocks on the property.

Copper-Zinc - A preliminary litho-geochemistry test was conducted on three drill holes which provided the most complete cross-section across the "A" and "B" copper-zinc bearing sulphide zones on the property. The object of the test was to ascertain whether or not the characteristic hydro-

thermal alteration halos were present, commonly associated with volcanogenic sulphide deposits. In this study, oxides of  $\text{SiO}_2$ ,  $\text{MgO}$ ,  $\text{Na}_2\text{O}$  and  $\text{K}_2\text{O}$  in and adjacent to the sulphide zone are compared to relatively unaltered calc-alkaline suite of volcanic rocks. Standard oxide ratio diagrams have been prepared for the Abitibi volcanic rocks and these diagrams are considered applicable to the Timmins area volcanic rocks.


Comparisons are made of gains and losses of the various oxides which are calculated from variation diagrams, using the  $\text{SiO}_2$  content of each sample as reference. Idealized anomalous zones are exemplified by gains in  $\text{MgO}$  and  $\text{K}_2\text{O}$  and losses in  $\text{Na}_2\text{O}$  respectively. These changes reflect chloritization, sericitization and soda leaching. Silicification also produces similar effects on the variation diagrams.

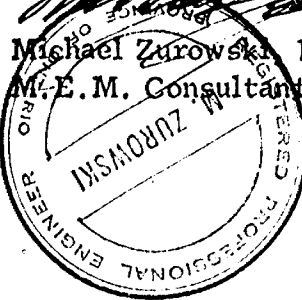
A study of the data which was accumulated from this limited litho-geochemical work is summarized as follows:

1. The percentage of gains and losses of the various oxides from normal background values are much too small to provide idealized characteristic anomalies. This in part could be explained by the fact that the sulphide mineralization is not massive, as is so characteristic of the volcanogenic deposits and consequently, the characteristic idealized anomalies are not easily discernible.
2. The multitude of ultramafic intrusives in the vicinity of the sulphide zones appears to have caused pervasive serpentization of the volcanic rocks, consequently, this has a tendency to mask  $\text{MgO}$  and other oxide alterations strictly attributable to hydrothermal causes.

It is concluded that although the lithochemical approach is a valid one as an exploration tool, the results obtained in the subject test case are not sufficiently definitive to be utilized at this stage of the exploration of the property.

Respectfully submitted,

  
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July 31, 1973



APPENDIX I

PROPOSED DRILL HOLE LOCATIONS

<u>Hole</u>	<u>Departure</u>	<u>Latitude</u>	<u>Bearing</u>	<u>Dip</u>	<u>Length</u>
73-1	L 84+00 W	2+00 N of B.L. 6	south	50°	400 feet
73-2	L 28+00 W	23+00 N of B.L. 6	south	50°	400 feet
73-3	L 24+00 W	13+00 N of B.L. 6	south	50°	400 feet
73-4	L 12+00 E	13+00 N of B.L. 6	south	50°	500 feet
73-5	L 20+00 N	32+00 W of B.L. 5	S 50° W	55°	550 feet
73-6	L 4+00 N	6+50 W of B.L. 5	S 50° W	55°	550 feet
73-7	L 8+00 N	16+50 W of B.L. 7	west	55°	550 feet
73-8	B.L. 1	38+00 E	west	55°	550 feet
73-9	L 16+00 S	6+50 W of B.L. 3	west	50°	500 feet
73-10	L 24+00 S	11+50 W of B.L. 2	west	50°	500 feet
73-11	L 52+00 S	6+50 W of B.L. 2	west	50°	550 feet
73-12	L 52+00 S	33+50 W of B.L. 2	west	50°	<u>550 feet</u>
					6,000 feet

SUMMARY OF GEOPHYSICAL STATISTICS

A. Picket Lines Cut and Chained

Base lines	13.0
Tie lines	5.0
Picket lines	<u>99.0</u>
	117.0

B. Magnetic Survey

Line miles surveyed	99.0
Stations read	10,300

C. Electromagnetic Survey

Vertical Loop Survey - miles read	98.0
Horizontal Loop Survey - miles read	4.5

APPENDIX III

STATEMENT OF EXPENDITURES

1.	Claim staking, recording, etc.	\$ 4,630.75
2.	Linecutting	12,401.20
3.	Geophysical surveys	11,392.28
4.	Geochemistry	588.80
5.	Drafting	1,425.00
6.	Consulting	5,250.00
7.	Equipment rental	2,216.66
8.	General Field	5,725.22
9.	Transportation	<u>1,471.00</u>
		<u>\$45,100.91</u>

APPENDIX IVGEOCHEMICAL RESULTS - ULTRAMAFIC SAMPLING

<u>Drill Hole</u>	<u>Footage</u>	<u>% Sulphide Ni</u>	<u>Remarks</u>
JS-6	240 - 256	1100 p.p.m.	hanging wall segment of ultramafic sill overlying "B" sulphide zone
	256 - 273	950	
	281 - 300	900	
	300 - 320	620	
	320 - 340	1100	
	340 - 362	860	
JS-8	87 - 107	520	footwall segment of ultramafic sill north of "A" sulphide zone
	107 - 127	820	
	127 - 147	1260	
	147 - 164	1320	
JS-16	44 - 54	220	as in JS-8
	54 - 65.5	110	
JS-15	225.5 - 244	960	hanging wall segment of ultramafic sill overlying "A" sulphide zone
	244 - 264	980	
	264 - 288	40	
	288 - 303	900	
JS-2	35 - 45	1430	Cross-section of ultramafic sill overlying "A" sulphide zone, same sill as in hole JS-15
	45 - 55	1500	
	55 - 65	310	
	65 - 80	660	
	141 - 161	1350	
	171 - 192	20	
	192 - 212	30	
	212 - 232	40	
JS-4	56 - 71	520	same sill as in holes JS-8 and JS-16
	71 - 91	280	
	91 - 111	220	
	111 - 131	800	
	131 - 152	120	

LITHOGEOCHEMICAL RESULTS

Drill Hole JS-15

Across segment of "A" sulphide zone

<u>Footage</u>	<u>MgO%</u>	<u>K<sub>2</sub>O%</u>	<u>Na<sub>2</sub>O%</u>	<u>P. P. M.</u>	
				<u>Zn</u>	<u>Cu</u>
303 - 323	-4.3	+0.1	-0.2	62	116
323 - 353	+0.5	+0.1	-1.7	30	46
353 - 373	+1.0	+2.9	-2.4	46	88
373 - 393	+1.2	-1.0	-1.1	46	80
393 - 413	+1.7	-2.9	-2.6	54	110
413 - 433	+1.6	-2.0	-2.5	98	35
433 - 451	+1.3	+0.9	-3.3	150	54
451 - 472	-1.1	+1.0	-1.0	460	245
472 - 492	-1.2	+0.3	-1.2	100	1150
492 - 512	-1.4	+0.4	-1.5	40	235
512 - 532	+2.5	+0.8	-2.2	150	180
532 - 552	-	+0.6	-	75	96
552 - 572	+4.3	+0.1	-4.2	20	5
572 - 592	+1.4	+0.5	-2.7	32	26
592 - 612	-1.4	+0.9	-2.1	20	3
612 - 632	+2.3	+0.6	-3.7	45	6
632 - 652	+0.9	+0.8	-1.9	470	500
652 - 672	-1.6	+0.5	-0.9	450	270
672 - 692	-	+0.6	-	11500	1100
692 - 712	-	+1.7	-2.5	550	550
712 - 732.6	+0.5	-0.2	-2.8	4000	1550

Drill Hole JS-6

across "B" sulphide zone

71 - 91	+3.5	+1.0	-3.75	80	68
91 - 111	+2.5	-0.3	-2.45	40	82
111 - 131	+1.5	+0.6	-2.35	850	170
131 - 144.6	+0.9	+4.0	-3.90	1750	275
144.6 - 157.6	+0.2	+5.2	-3.8	1100	150

Drill Hole JS-2.  
across segment of "A" sulphide zone

<u>Footage</u>	<u>MgO%</u>	<u>K<sub>2</sub>O%</u>	<u>Na<sub>2</sub>O%</u>	<u>P.P.M.</u>	
				<u>Zn</u>	<u>Cu</u>
237 - 257	-2.5	+0.7	-0.1	100	92
257 - 277	+0.8	+0.9	-2.7	125	180
277 - 297	+3.3	+0.2	-3.0	190	160
297 - 317	+6.2	+0.7	-1.3	105	88
317 - 337	+4.7	-1.2	-4.2	24	56
333 - 359	+4.1	-0.1	-3.3	390	360
359 - 383.4	+0.6	+0.7	-3.2	40	35
383.4 - 403.4	+1.2	+0.9	-4.4	34	5
403.4 - 423.4	-0.4	+1.2	-3.2	70	18
423.4 - 439.0	+3.8	-2.2	-4.0	850	350
439 - 459	+1.8	-1.1	-3.9	11000	1250
459 - 479	SiO <sub>2</sub> content too low			22000	1150
479 - 499	dto.			12500	2500
499 - 519	+0.8	-0.4	-0.7	750	80
519 - 539	+0.3	+2.5	-2.4	140	52
539 - 563	+0.4	+3.4	-2.1	165	28

Note: + or - indicates gain or loss of oxides in sample as calculated from standard variation diagrams.

GEOPHYSICAL - GEOI  
TECHNICAL L



900  
RECEIVED  
JAN 14 1974

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.

PROJECTS  
SECTION

Type of Survey Geophysical and Geological  
Township or Area Mann and Newmarket Township  
Claim holder(s) International Mogul Mines Limited  
Author of Report M. Zurowski, B.Sc., P.Eng.  
Address 34 Adelaide St. West, Toronto M5H 1L8  
Covering Dates of Survey Feb. 5, 1973 to July 31, 1973  
(linecutting to office)  
Total Miles of Line cut 117.0

MINING CLAIMS TRAVERSED  
List numerically

See attached list

(prefix) (number)

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

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

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

DATE: Jan. 10/74 SIGNATURE: [Signature]  
Author of Report or Agent

PROJECTS SECTION

Res. Geol. \_\_\_\_\_ Qualifications 63.1047  
Previous Surveys L.D. see attached sheet

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

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

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

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

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

TOTAL CLAIMS 81

OFFICE USE ONLY

If space insufficient, attach list

Show instrument technical data in each space for type of survey submitted or indicate "not applicable"

### GEOPHYSICAL TECHNICAL DATA

#### GROUND SURVEYS

Number of Stations 10882 Number of Readings 10882  
 Station interval 50 feet in magnetics - 100 feet in electromagnetics  
 Line spacing 400 feet  
 Profile scale or Contour intervals 500 gammas in magnetics, 1000 & 5000 freq. anomalies  
(specify for each type of survey) " " Electromagnetics

#### MAGNETIC

Instrument Sharpe MF-1 fluxgate magnetometer  
 Accuracy - Scale constant n.a.  
 Diurnal correction method progressive extension method  
 Base station location n.a.

#### ELECTROMAGNETIC

Instrument McPhar 1000/5000 vertical loop E.M. unit  
 Coil configuration vertical  
 Coil separation 600-800 foot spreads from transmitter  
 Accuracy n.a.  
 Method:  Fixed transmitter  Shoot back  In line  Parallel line  
 Frequency 1000, 5000  
(specify V.L.F. station)  
 Parameters measured V.L. tilt angle

#### 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 \_\_\_\_\_



MINING CLAIMS TRAVERSED

347865	358224	358251
347866	358225	358252
347867	358226	358253
347868	358227	358254
347869	358228	358256
347870	358229	358257
347871	358230	358258
347872	358231	358265
347873	358232	358266
347874	358233	358267
347875	358234	358268
347876	358235	358269
347877	358236	358270
347878	358237	358271
347879	358238	358272
347880	358239	358273
347881	358240	358274
347882	358241	358275
347883	358242	358276
347884	358243	358277
347885	358244	358278
347886	358245	358279
358219	358246	358280
358220	358247	358281
358221	358248	358282
358222	358249	358283
358223	358250	358284

TOTAL - 81 CLAIMS

Hanna Twp.

THE TOWNSHIP OF






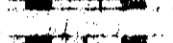

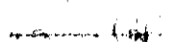
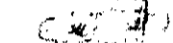
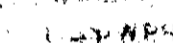

**MANN**

DISTRICT OF COCHRANE

PORCUPINE MINING DIVISION

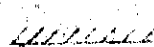
SCALE: 1-INCH=40 CHAINS

LEGEND

- PATENTED LAND 
- CROWN LAND SALE 
- LEASES 
- LOCATED LAND 
- LICENSE OF OCCUPATION 
- ROADS 
- IMPROVED ROADS 
- RAILWAYS 
- POWER LINES 
- MARSH OR MUSKOG 
- WATER POWER RESERVE 

NOTES

400' Surface Rights Reservation around all Lakes and Rivers.

Water Power Reserve shown thus 

MINING LANDS  
 DATE OF ISSUE  
 JAN 15 1974  
 MINISTRY OF NATURAL RESOURCES

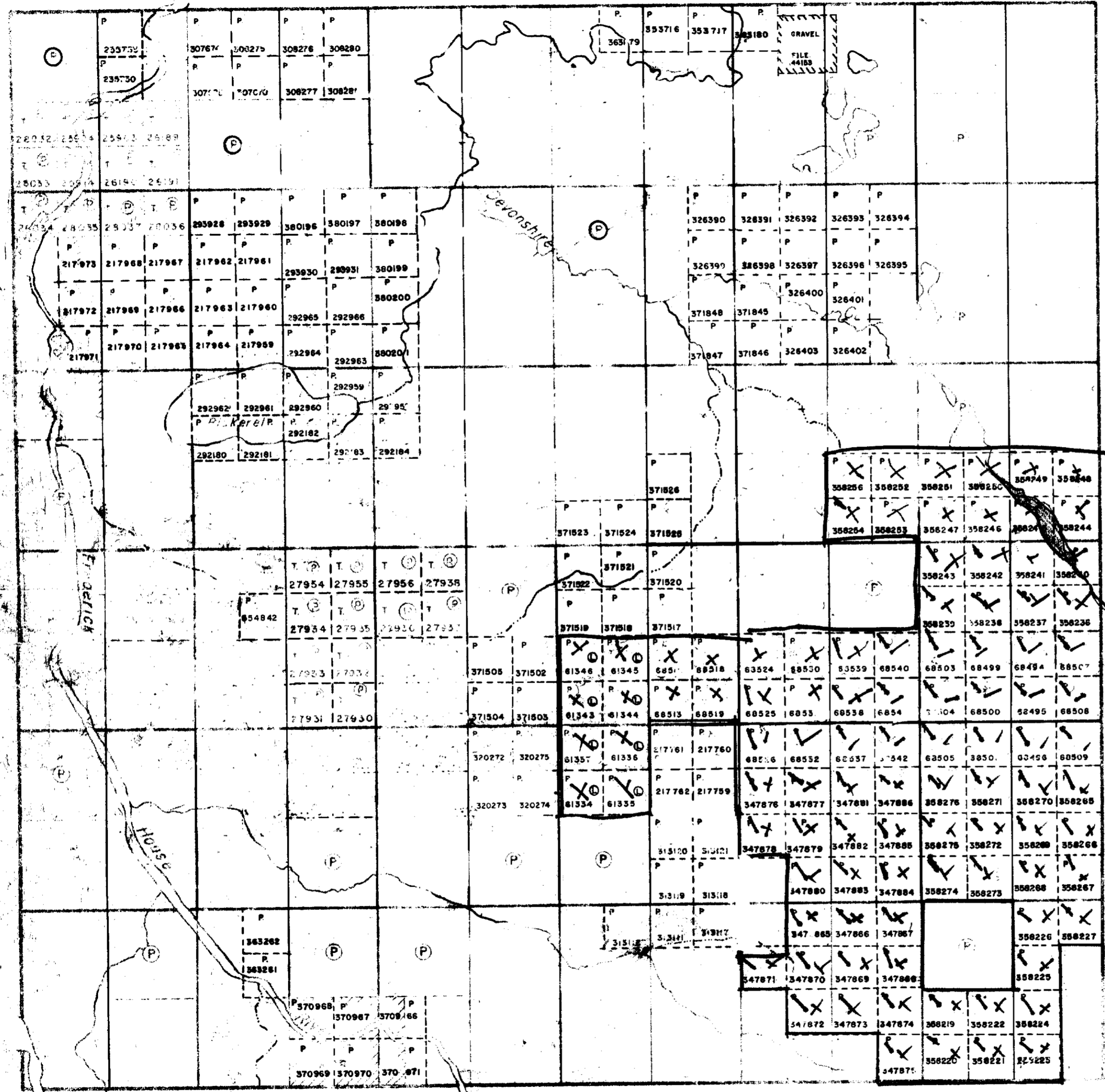
File - 2.1391

PLAN NO - M 54

ONTARIO  
 MINISTRY OF NATURAL RESOURCES  
 SURVEYS AND MAPPING BRANCH

VI  
V  
IV  
III  
II  
I

Newmarket Twp

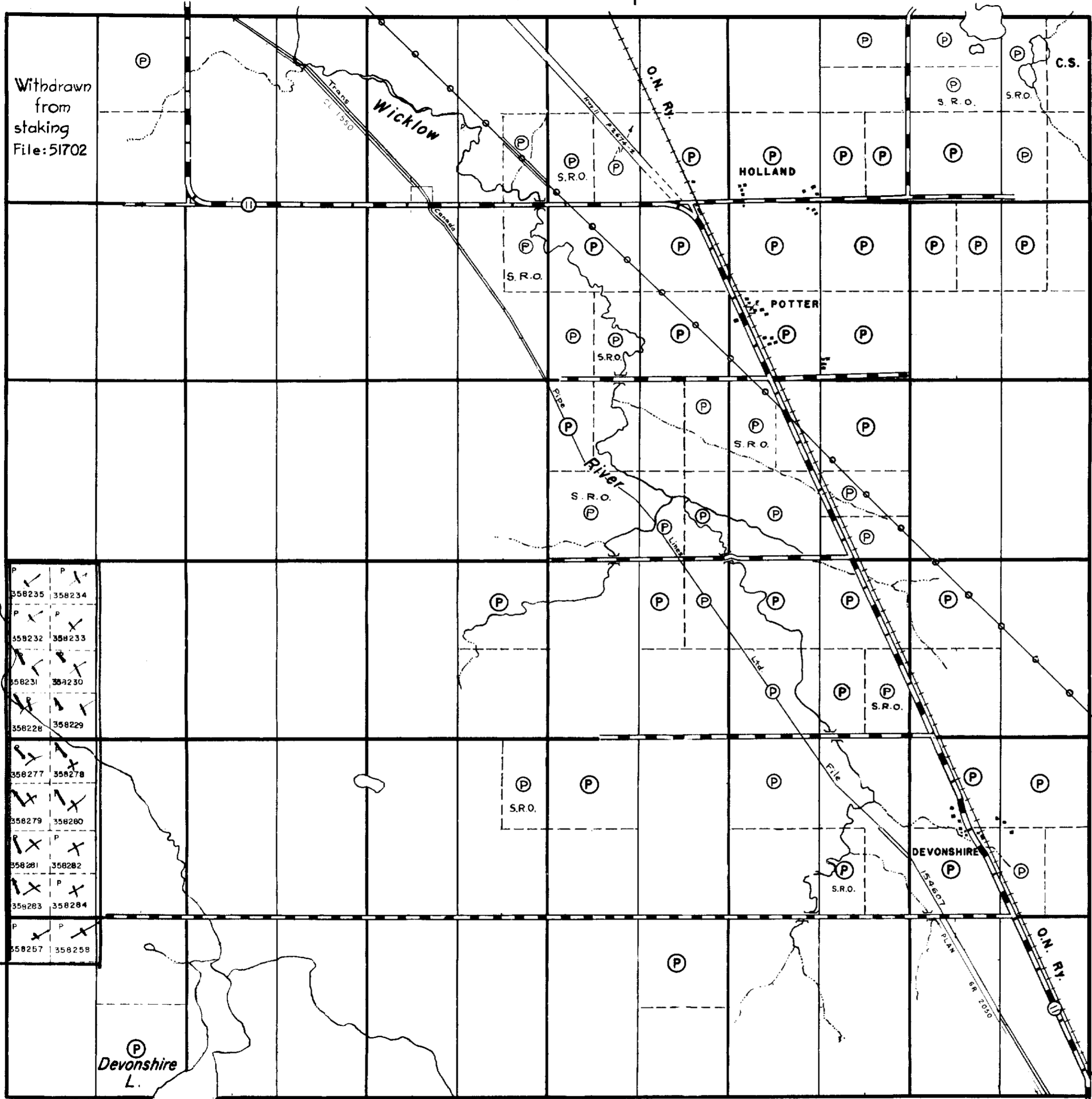


Little Twp.

1 = Geological  
 / = geophysical



St. John Twp.



Mann Twp.

358235	358234
358232	358233
358231	358230
358228	358229
358277	358278
358279	358280
358281	358282
358283	358284
358257	358258

Devonshire L.

12 11 10 9 8 7 6 5 4 3 2 1

Mc Cart Twp.

VI

V

IV

III

II

I

Aurora Twp.

THE TOWNSHIP OF  
OF  
**NEWMARKET**

DISTRICT OF COCHRANE

PORCUPINE 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.
ROADS	— — — — —
IMPROVED ROADS	— — — — —
RAILWAYS	— + — + — + — + —
POWER LINES	— o — o — o — o —
MARSH OR MUSKEG	(wavy lines)

NOTES

M.R.O. : Mineral Rights Only

400' Surface Rights Reservation around all Lakes and Rivers.

MINING LANDS -  
DATE OF ISSUE  
JAN 15 1974  
MINISTRY OF NATURAL RESOURCES

File - 2.1391

PLAN NO. - M-557

ONTARIO  
MINISTRY OF NATURAL RESOURCES  
SURVEYS AND MAPPING BRANCH



42A155W0513 2.1391 MANN



INTERNATIONAL MOGUL MINES LIMITED  
MANN AND NEWMARKET TOWNSHIPS  
PORCUPINE MINING DIVISION  
— O N T A R I O —

**GEOLOGICAL PLAN**

0 400 800 1200 1600 Feet

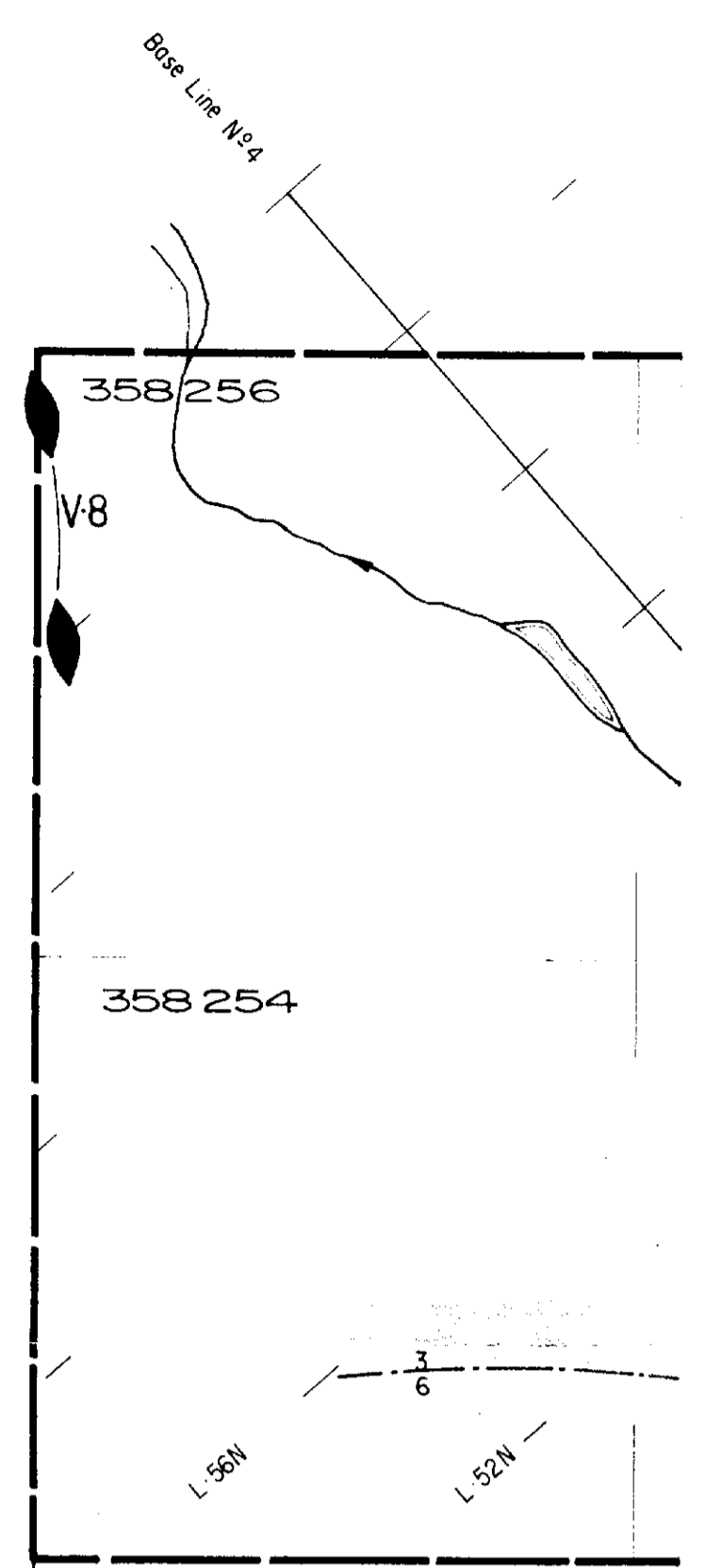
*Michael J. Zurek*



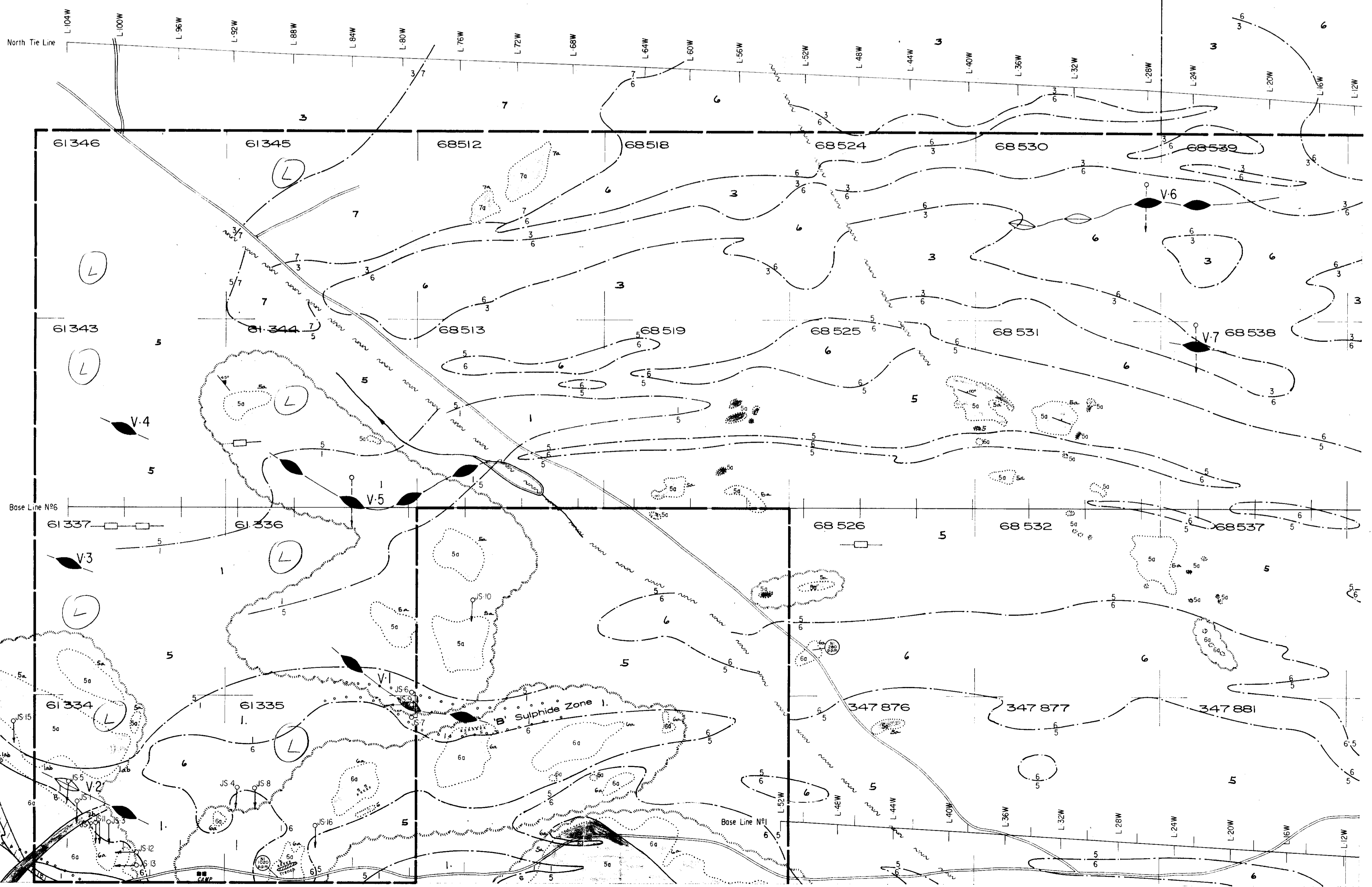
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CONC. IV.

CONC. III.

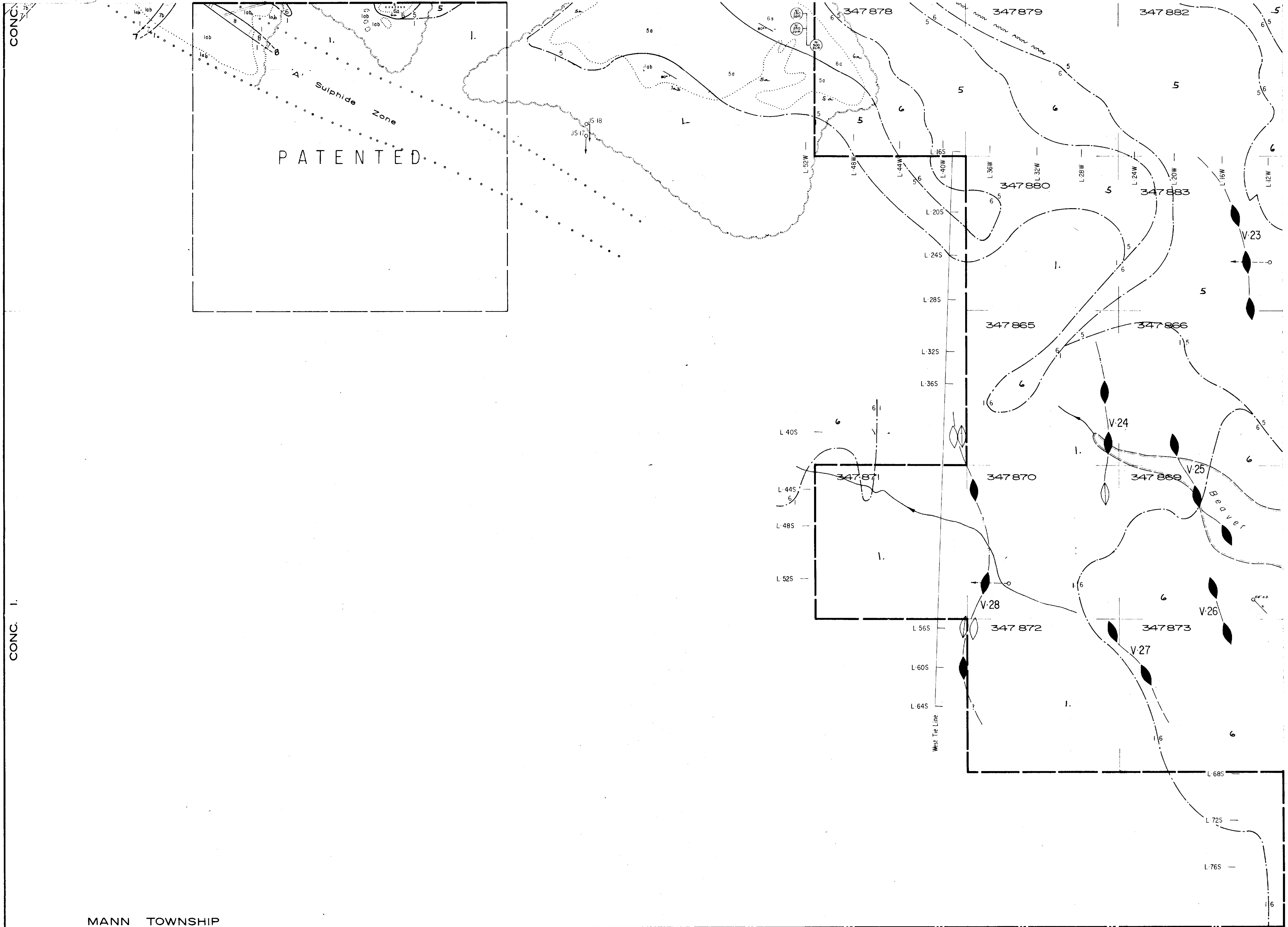


PATE



230

II.



MANN TOWNSHIP  
LITTLE TOWNSHIP

SW. SHEET

LOT 6

LOT 5

LOT 4

LOT

# L E G E N D

**ROCK TYPES:**

9	Diabase
8	Basic dykes
7	Granite - 7a; Porphyry dyke - 7b
6	Peridotite - 6a; Pyroxenite - 6b
5	Gabbro - 5a; Diorite - 5b
4	Iron formation - 4a; Greywacke - 4b
3	Pyroclastics and fragmentals - 3a; Basic volcanic flows - 3b
2	Pyroclastics and fragmentals - 2a; Intermediate volcanic flows - 2b
1	Pyroclastics and fragmentals - 1a; Acid volcanic flows - 1b

**SYMBOLS:**

	Outcrop
	Geological contact defined, assumed, geophysically inferred
	Fault assumed
	Strike and dip of bedding
	Bottom of hill
	Diamond drill hole completed - vertical, inclined
	Recommended diamond drill hole
	Sulphide mineralization
	Sulphide zone
	Axis of vertical loop anomaly
	Sulphide nickel content expressed as p.p.m., determined by cold ascorbic acid extraction method
	Trend of significant ground magnetic anomaly, unrelated to ultramafic rocks





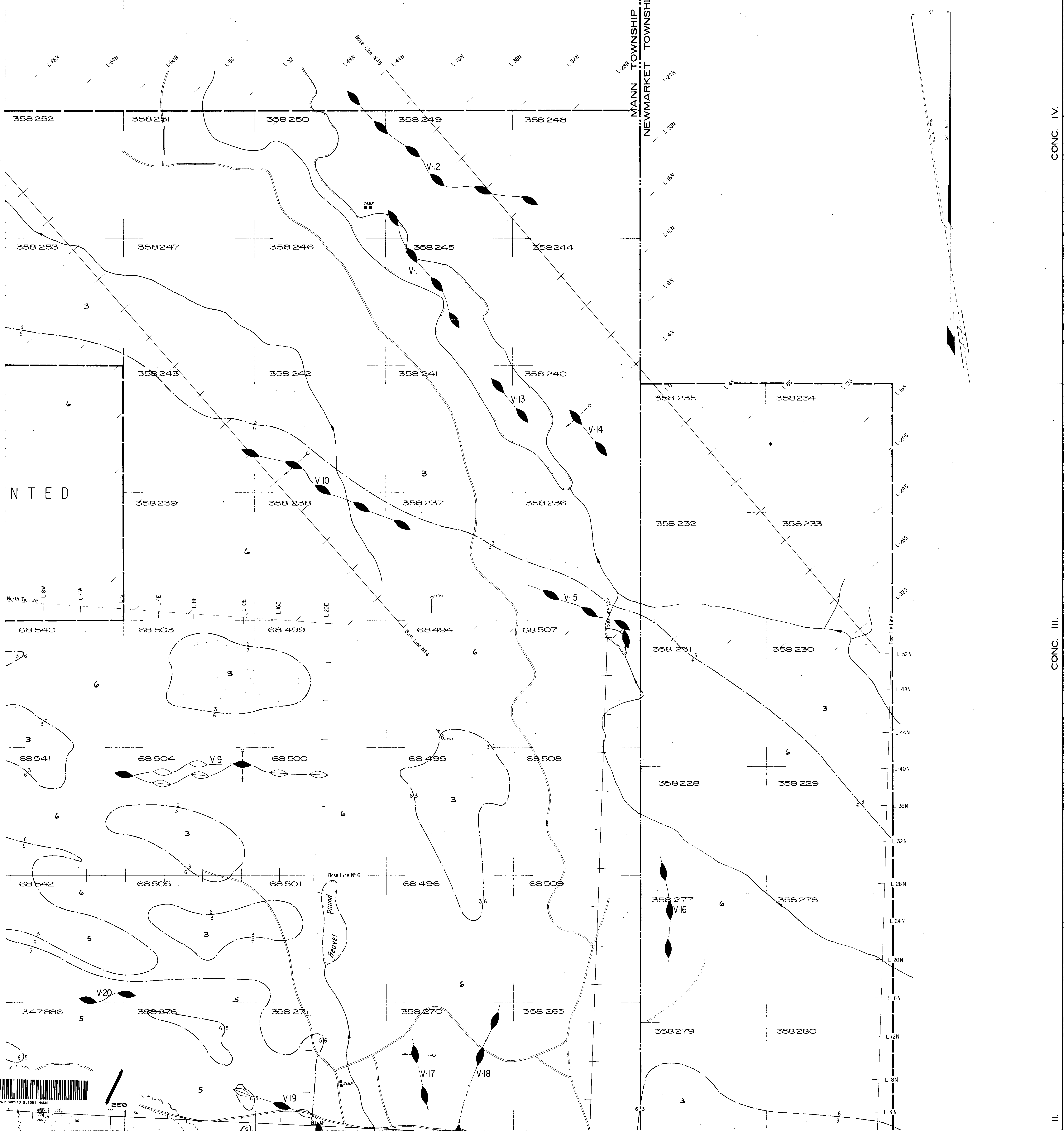
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LOT 2

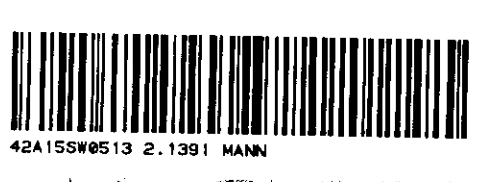
LOT 1

LOT 12

MANN TOWNSHIP  
NEWMARKET TOWNSHIP



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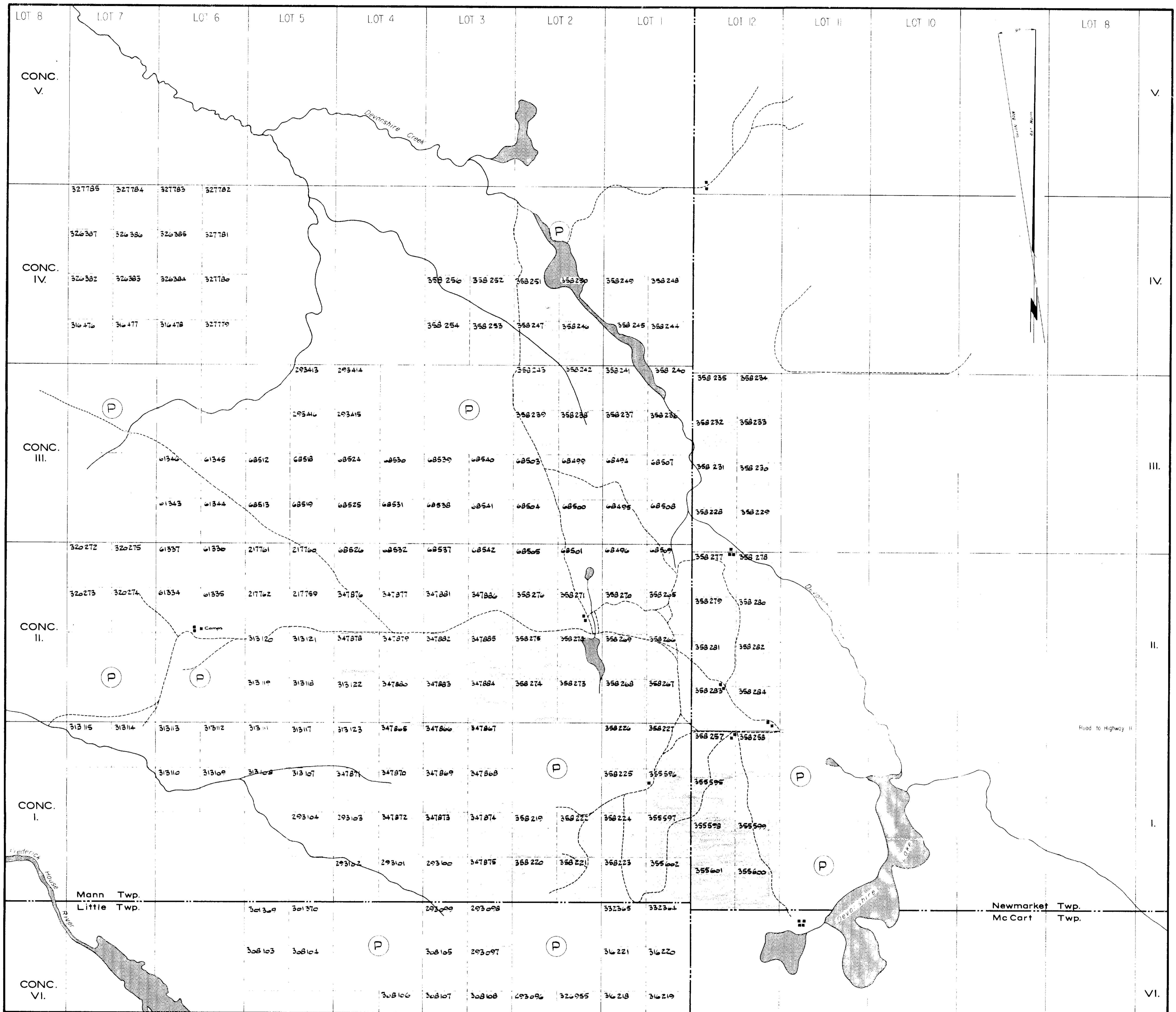


250

CONC. IV.

CONC. III.

II.

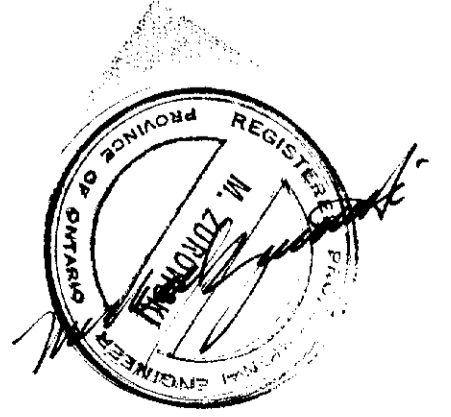


**LAND OWNERSHIP**

- P Patented land
- International Mogul Mines Limited
- Grismith option
- Noranda Exploration
- Amax Exploration
- L. Berry

INTERNATIONAL MOGUL MINES LIMITED  
 MANN AND NEWMARKET TOWNSHIPS  
 PORCUPINE MINING DIVISION  
 — O N T A R I O —

**CLAIM HOLDINGS**

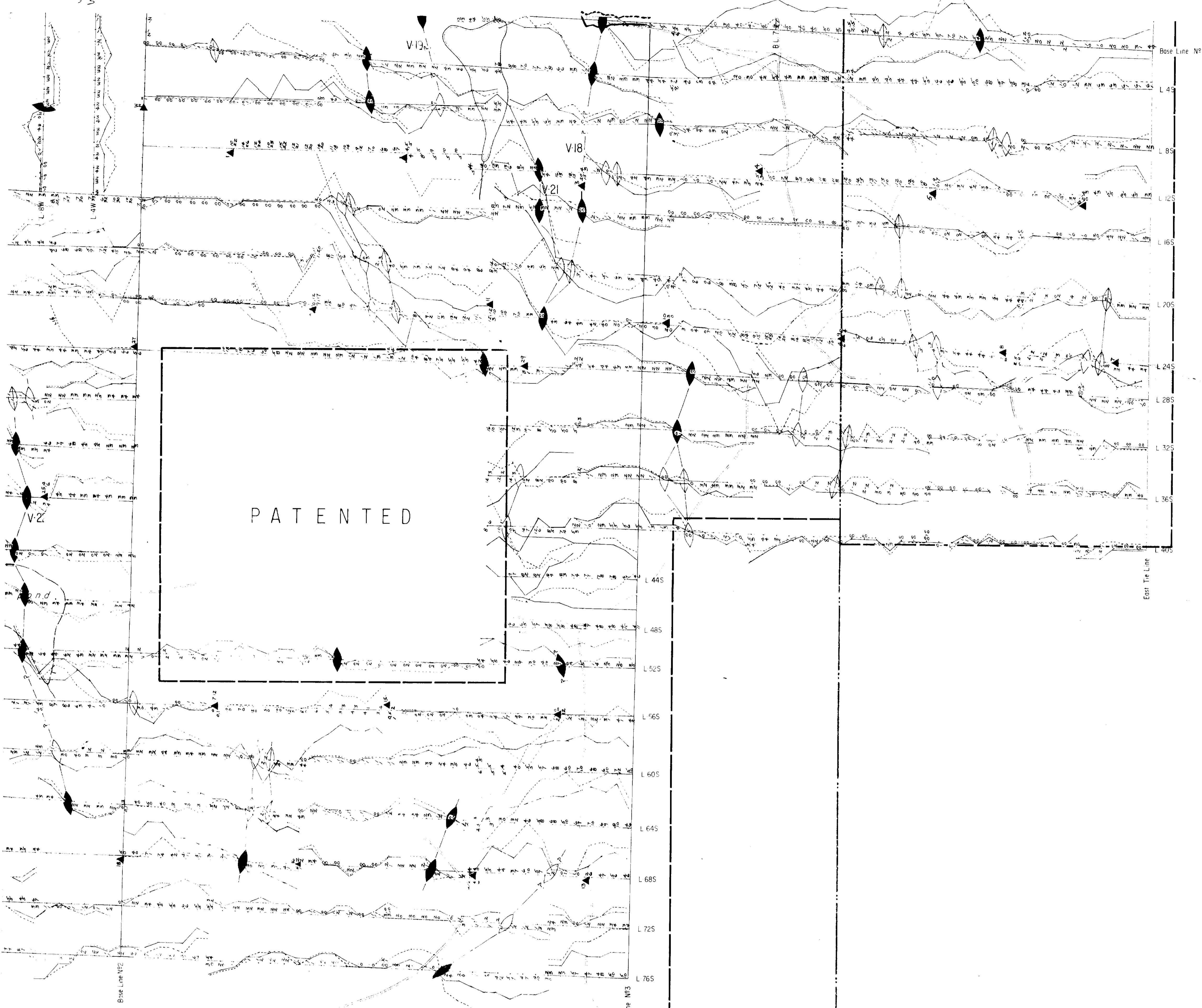


Scale: 1 inch = 1320 feet

February 1973







Road to Highway 11

NEWMARKET TOWNSHIP  
McCART TOWNSHIP

3 LOT 2 LOT 1 LOT 12 SE. SHEET

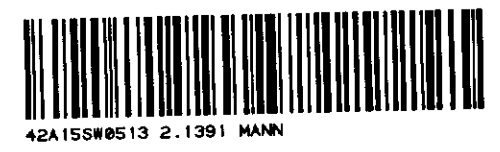
# L E G E N D

### VERTICAL LOOP ANOMALY DESIGNATION

- ▲<sup>22</sup> Transmitter location
- Axis of coincident 5,000-1,000 frequency anomaly
- Axis of 1,000 frequency anomaly
- ◊— Axis of 5,000 frequency anomaly
- ⊥<sup>5</sup> Vertical loop tilt angle readings; west and north tilts to the right of picket line, east and south tilts to the left of picket line. Tilt readings at station are low and high respectively

- High frequency profile
- Low frequency profile

Profile scale: 1 inch = 10°



270

### HORIZONTAL LOOP ANOMALY DESIGNATION

- +— Profile of inphase response
  - Profile of out of phase response
- Instrument used: McPHAR SS-1 Electromagnetic unit  
RONKA MARK IV. Electromagnetic unit

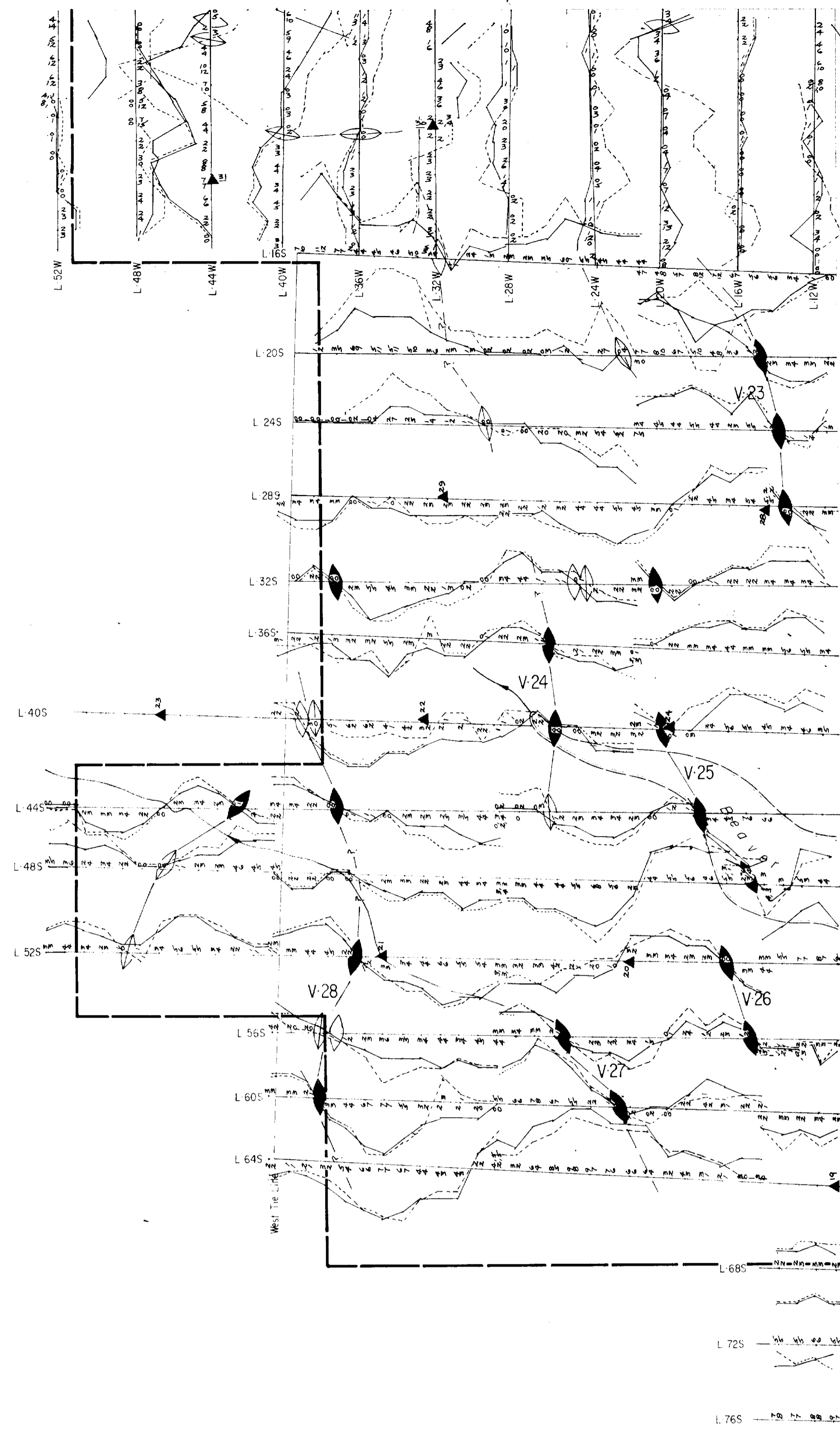
INTERNATIONAL MOGUL MINES LIMITED  
MANN AND NEWMARKET TOWNSHIPS  
PORCUPINE MINING DIVISION  
— O N T A R I O —

## ELECTROMAGNETIC SURVEY



211391  
*Michael Baranski*

P A T E N T E D



MANN TOWNSHIP  
LITTLE TOWNSHIP

SW. SHEET

LOT 6

LOT 5

LOT 4

LOT

# L E G E N D

## VERTICAL LOOP ANOMALY DESIGNATION

- ▲<sup>22</sup> Transmitter location
- Axis of coincident 5,000-1,000 frequency anomaly
- Axis of 1,000 frequency anomaly
- ◊— Axis of 5,000 frequency anomaly
- ⊥<sub>5</sub> Vertical loop tilt angle readings; west and north tilts to the right of picket line, east and south tilts to the left of picket line. Tilt readings at station are low and high respectively
- ▲— Low frequency profile
- ▲- High frequency profile

Profile scale: 1 inch = 10°

## HORIZONTAL LOOP ANOMALY DESIGNATION

- +— Profile of inphase response
  - +— Profile of out of phase response
- Instrument used McPHAR SS-I Electromagnetic unit  
RONKA MARK IV. Electromagnetic unit

*Handwritten:* 2.1391  
*Vertical Loop Anomaly*



4241588513 2.1391 MANN

2-1391  
Michael J. Zaworski

# L E G G E N D

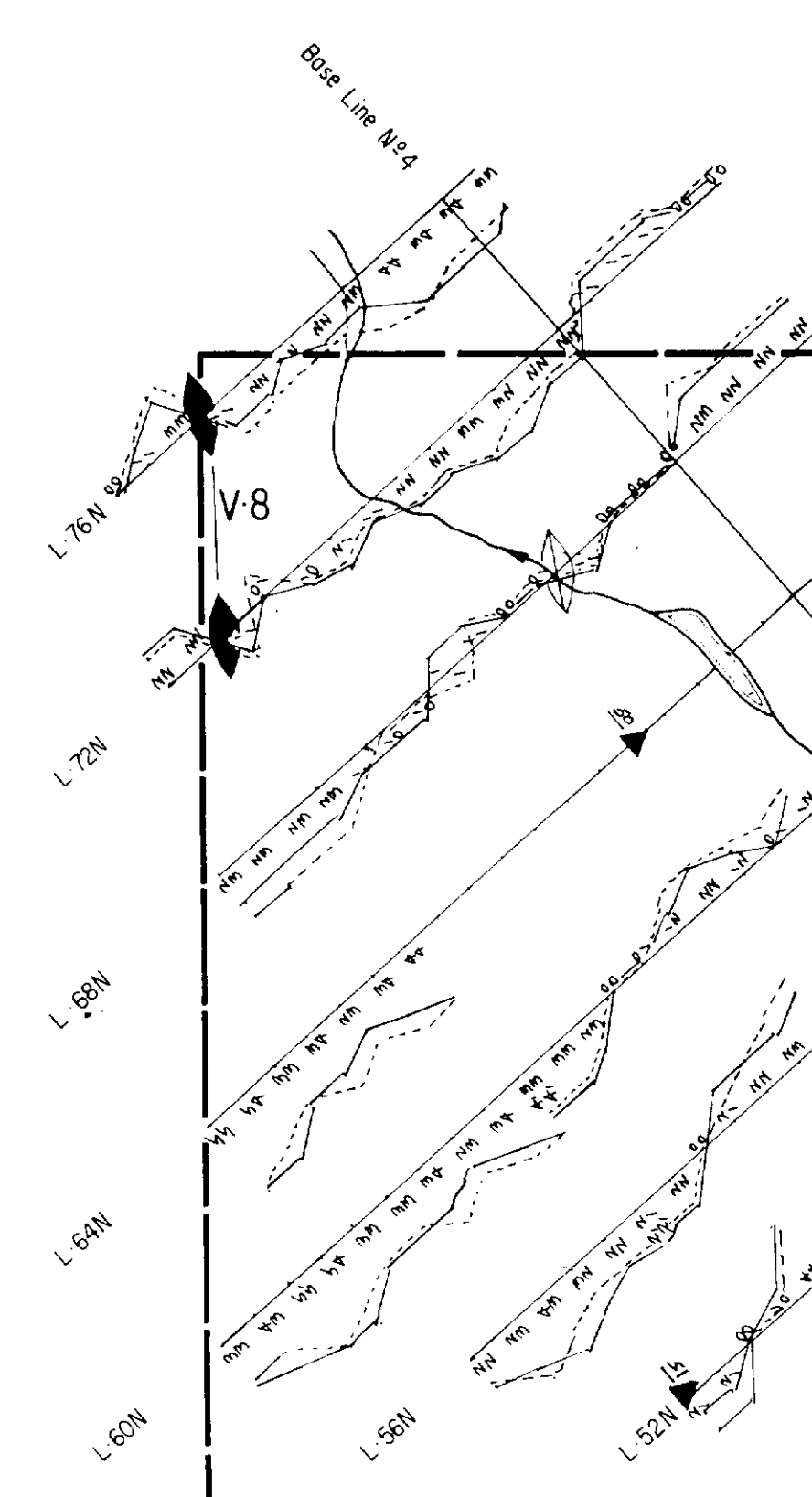
## VERTICAL LOOP ANOMALY DESIGNATION

- ▲<sup>22</sup> Transmitter location
- Axis of coincident 5,000-1,000 frequency anomaly
- Axis of 1,000 frequency anomaly
- ◉— Axis of 5,000 frequency anomaly
- |<sub>10</sub> Vertical loop tilt angle readings; west and north tilts to the right of picket line, east and south tilts to the left of picket line. Tilt readings at station are low and high respectively
- Low frequency profile
- High frequency profile

Profile scale: 1 inch = 10°

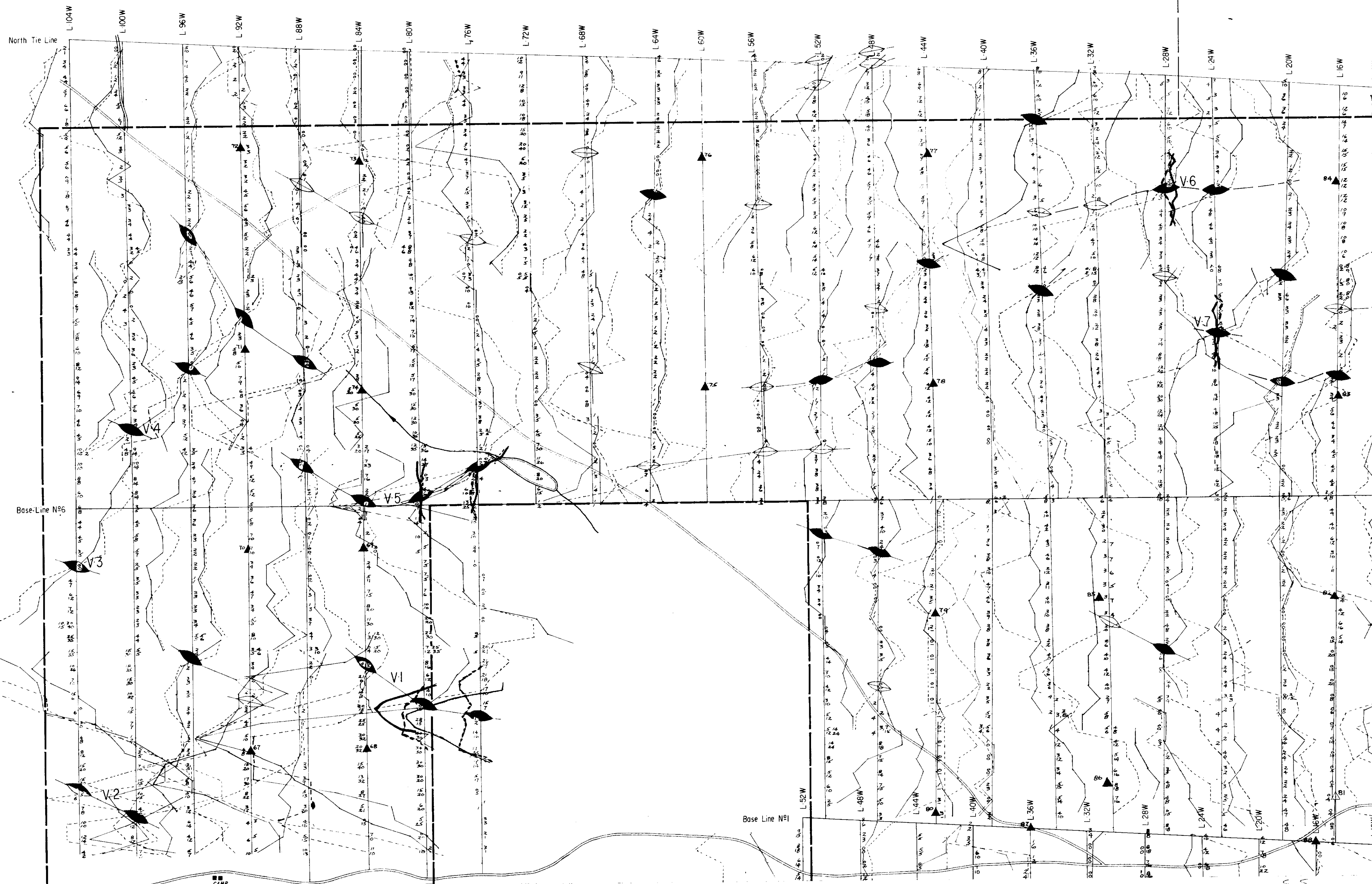
## HORIZONTAL LOOP ANOMALY DESIGNATION

- Profile of inphase response
  - Profile of out of phase response
- Instrument used: McPHAR SS-1 Electromagnetic unit  
RONKA MARK IV. Electromagnetic unit



P A T E

CONC. III.





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**VERTICAL LOOP ANOMALY DESIGNATION**

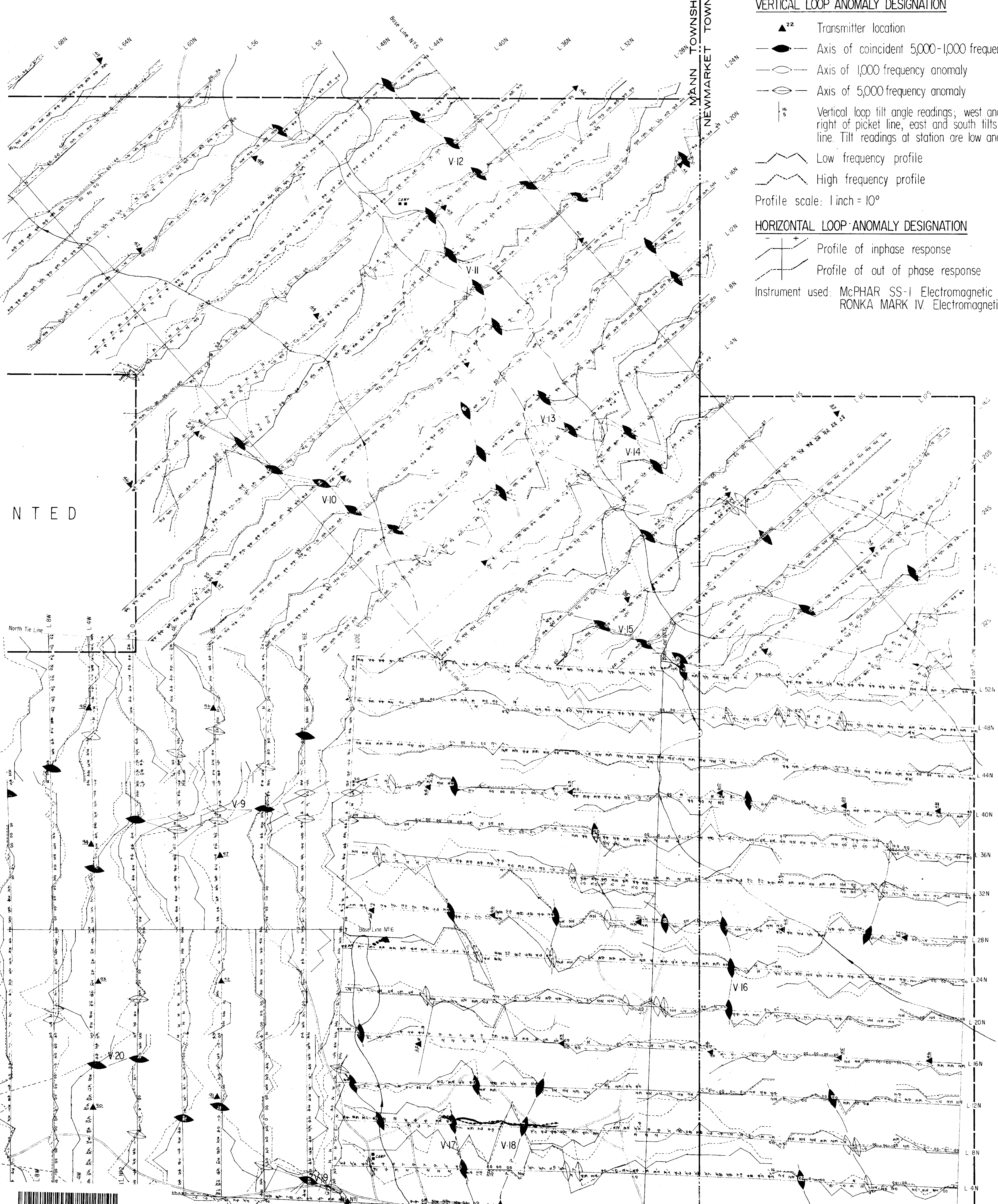
- ▲ 22 Transmitter location
- Axis of coincident 5,000-1,000 frequency anomaly
- Axis of 1,000 frequency anomaly
- ◊— Axis of 5,000 frequency anomaly
- Vertical loop tilt angle readings; west and north tilts to the right of picket line, east and south tilts to the left of picket line. Tilt readings at station are low and high respectively
- Low frequency profile
- High frequency profile

Profile scale: 1 inch = 10°

**HORIZONTAL LOOP ANOMALY DESIGNATION**

- Profile of inphase response
- Profile of out of phase response

Instrument used: McPHAR SS-1 Electromagnetic unit  
RONKA MARK IV. Electromagnetic unit



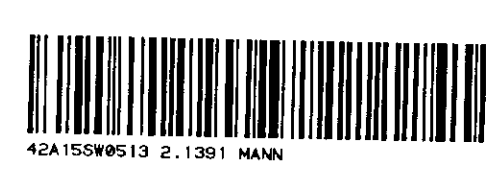
NTED

North Tie Line

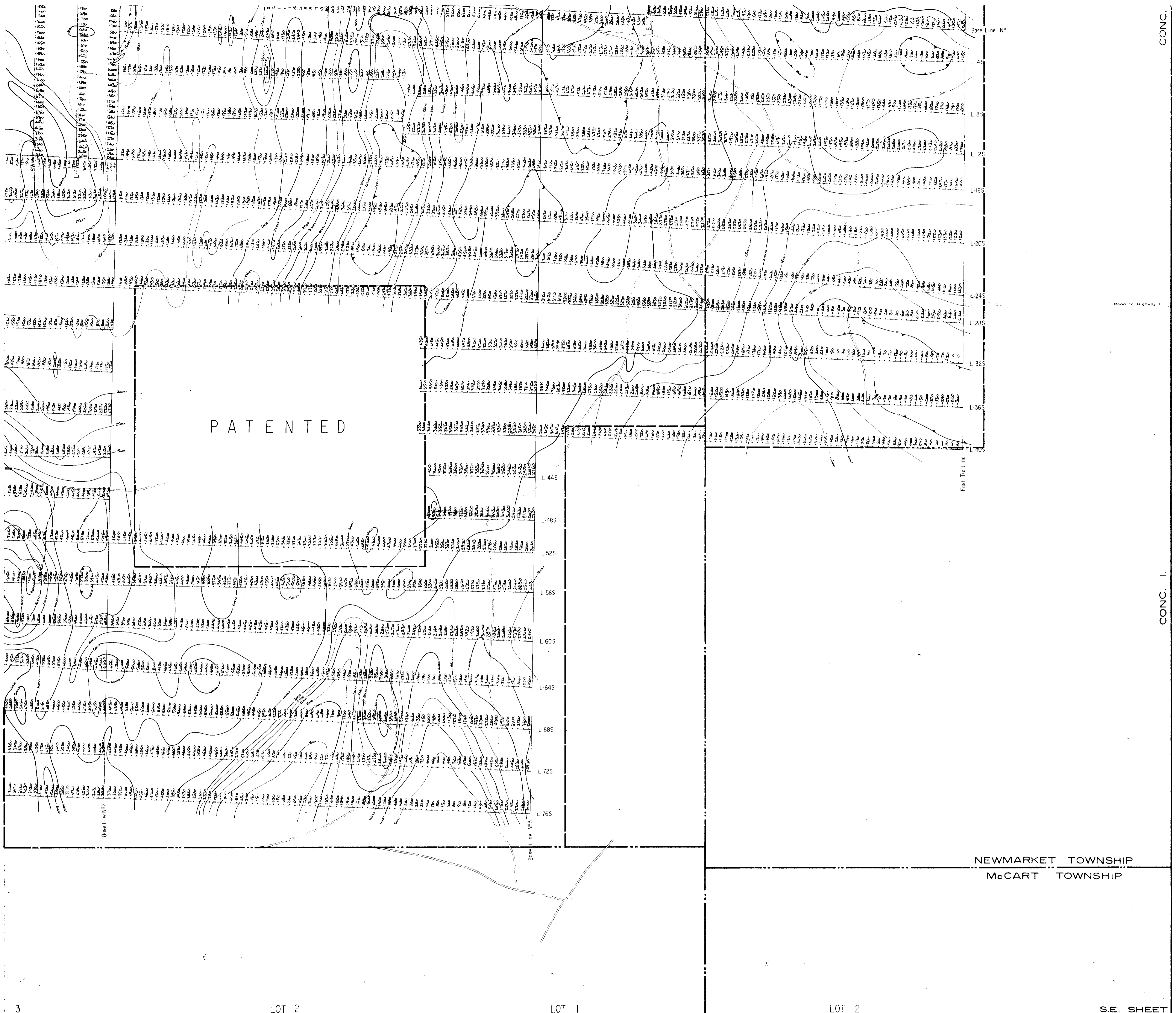
CONC. IV

2-1391

CONC. III











PATENTED

NEWMARKET TOWNSHIP  
McCART TOWNSHIP

3      LOT 2      LOT 1      LOT 12      SE. SHEET

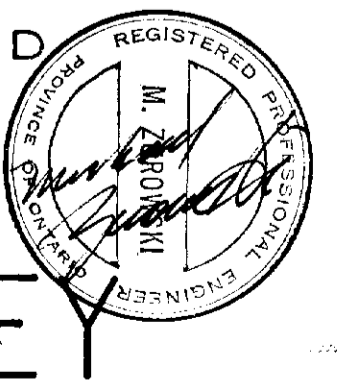
EET      LOT 6

# LEGEND

-  Relative value of the vertical component of the earth's magnetic field in gammas
-  Magnetic contour line
-  Magnetic low
-  Property boundary

INTERNATIONAL MOGUL MINES LIMITED  
MANN AND NEWMARKET TOWNSHIPS  
PORCUPINE MINING DIVISION  
— ONTARIO —

# MAGNETOMETER SURVEY

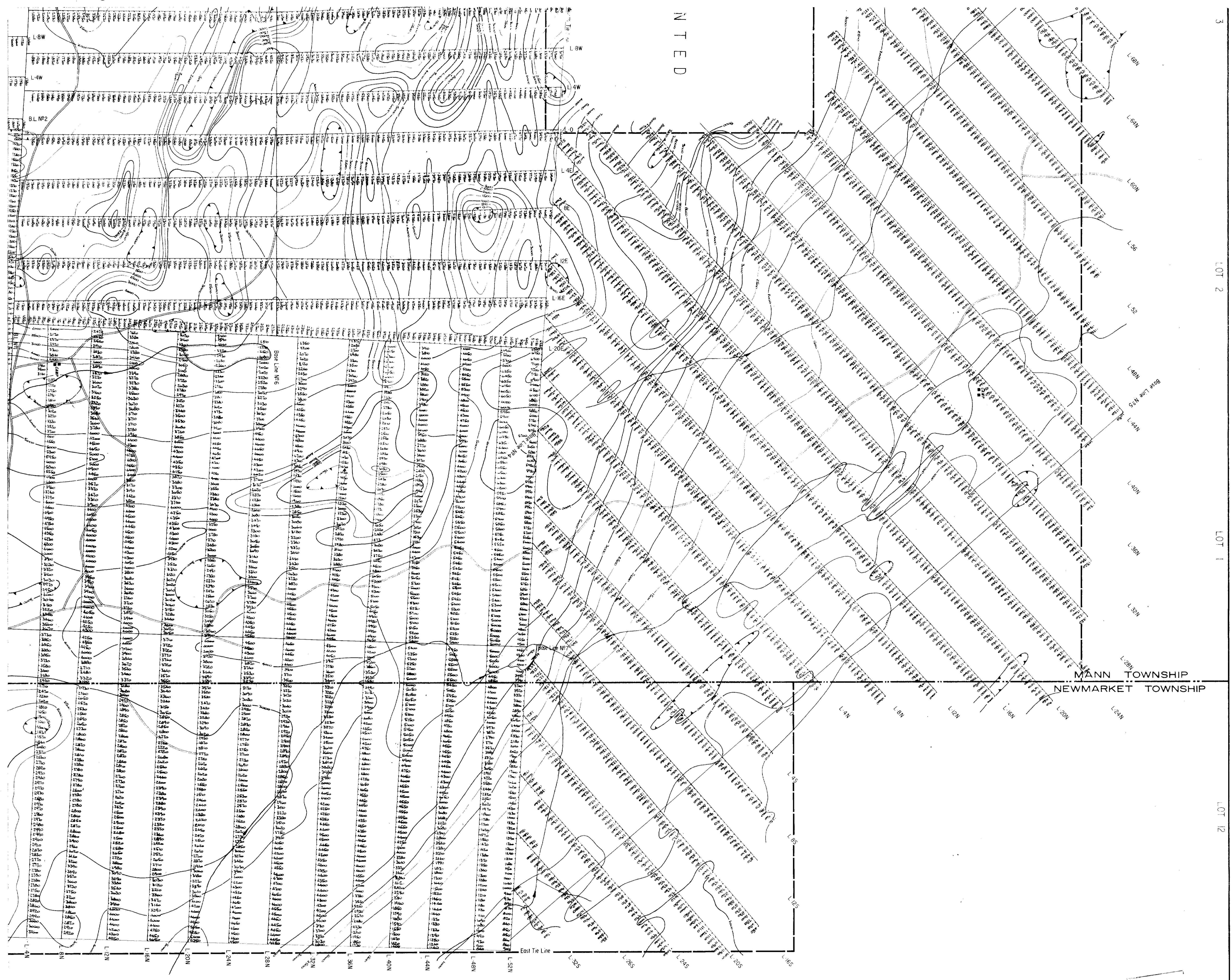


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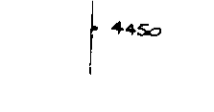
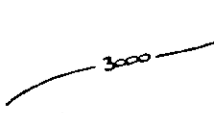

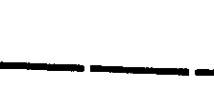
N T E D



EET

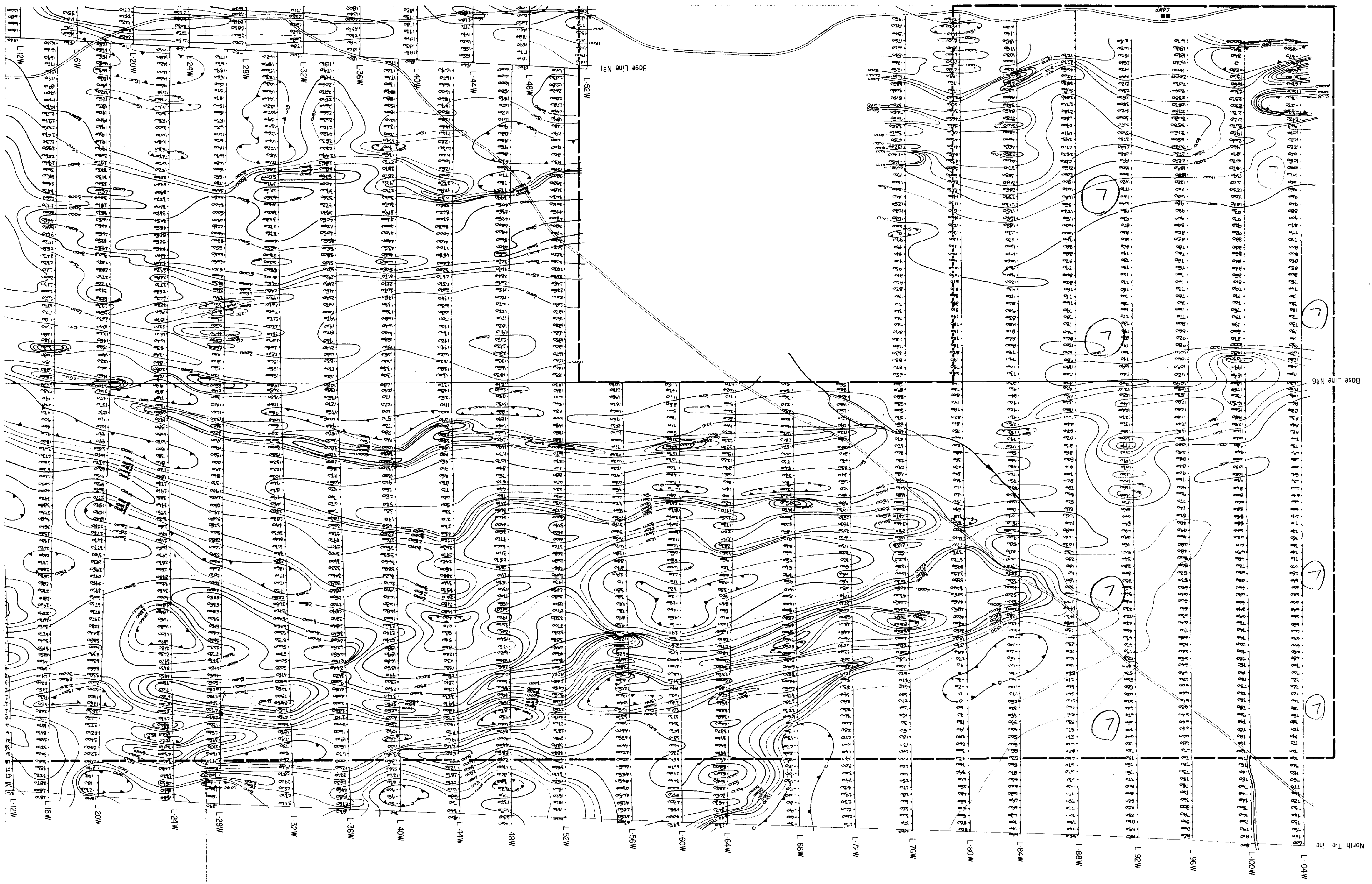
LOT 6

# LEGEND

-  Relative value of the vertical component of the earth's magnetic field in gammas
-  Magnetic contour line
-  Magnetic low
-  Property boundary



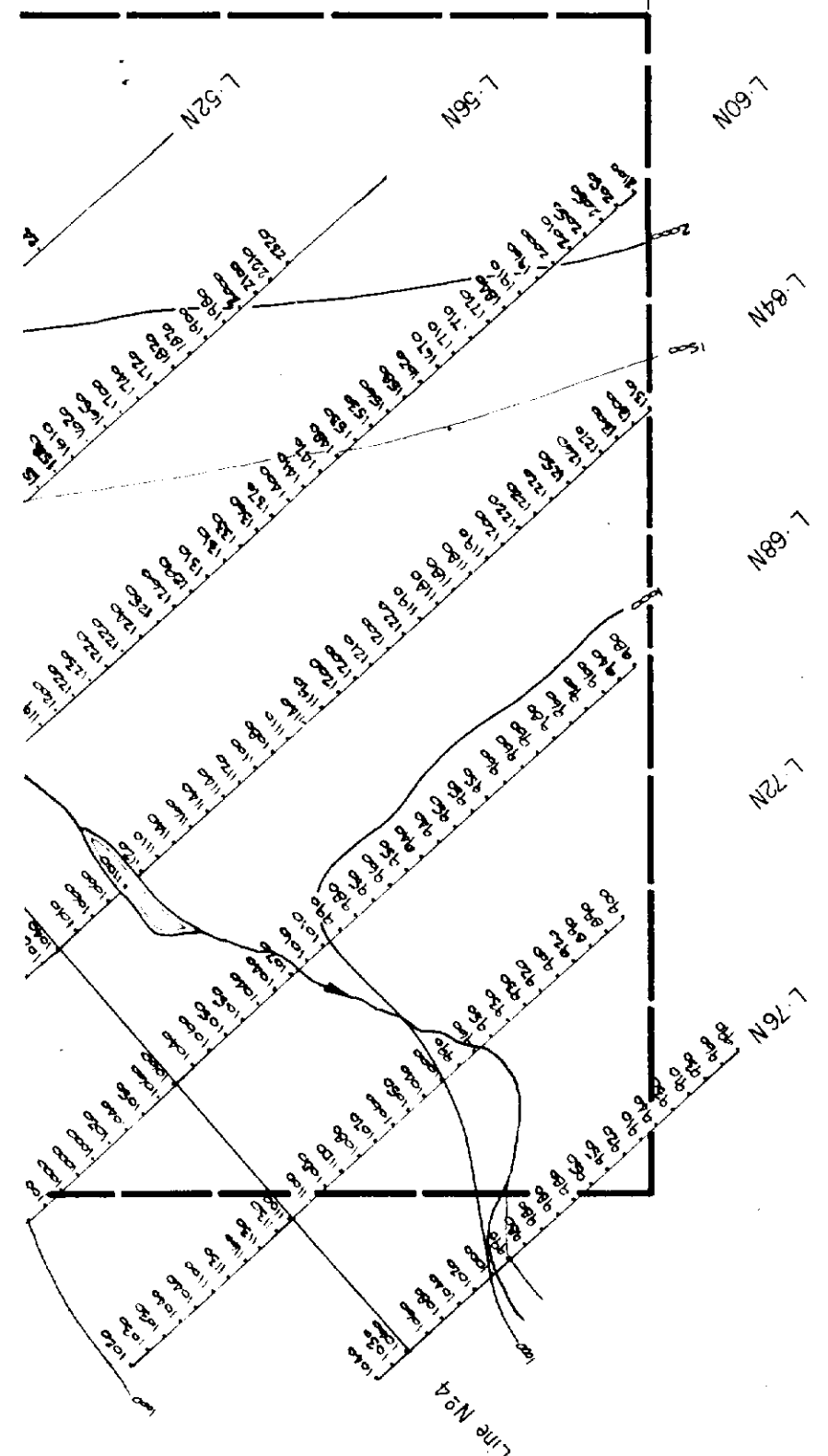




9 LOT 7

# LEGEND

- Relative value of the vertical component of the earth's magnetic field in gammas
- Magnetic contour line
- Magnetic low
- Property boundary



LOT 4 LOT 5 LOT 6

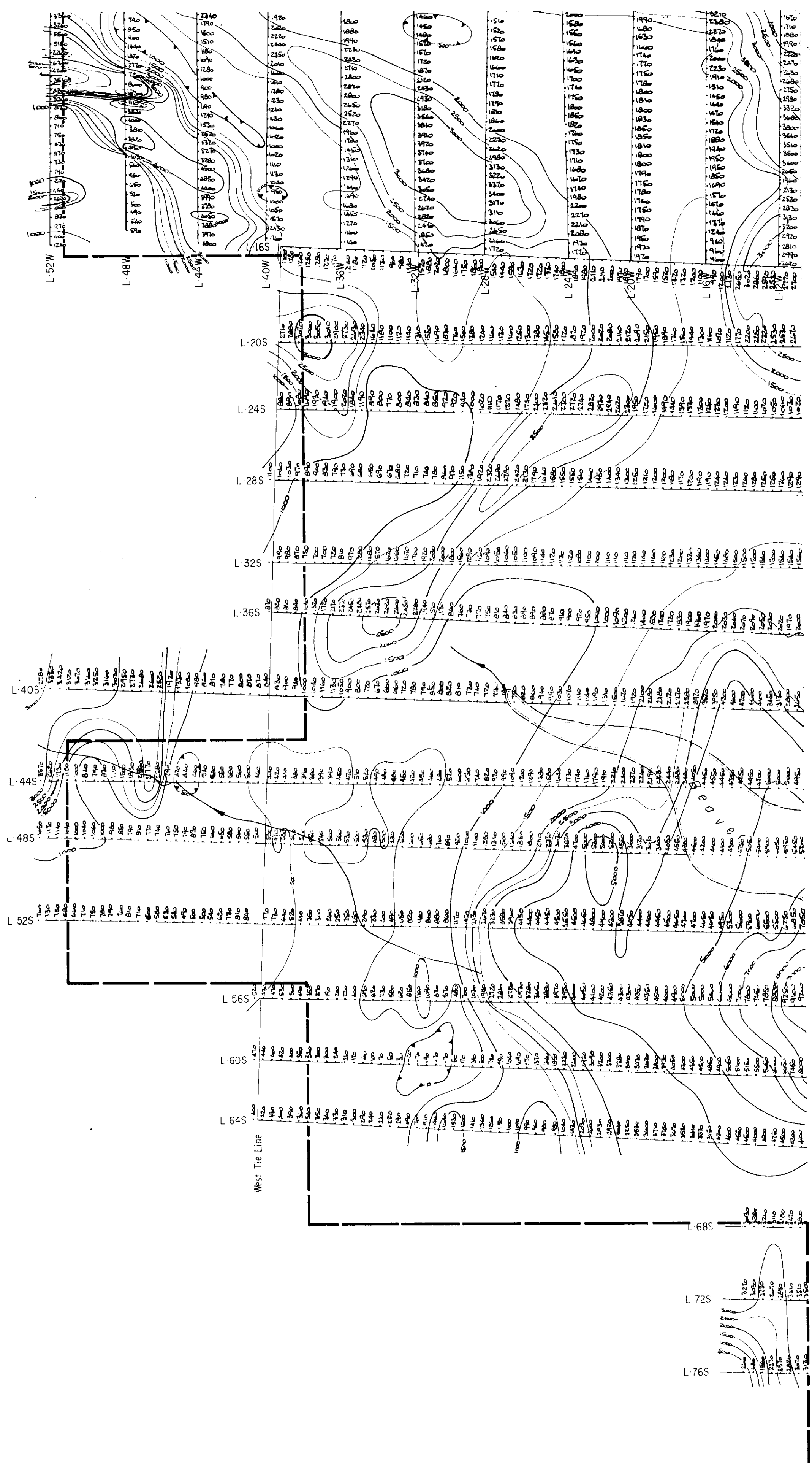


P A T E

CONC.

PATENTED

CONC. I.



MANN TOWNSHIP  
LITTLE TOWNSHIP

SW. SHEET

LOT 6


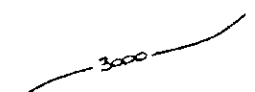
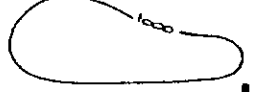

LOT 5

LOT 4

LOT

21391

# LEGEND

-  Relative value of the vertical component of the earth's magnetic field in gammas
-  Magnetic contour line
-  Magnetic low
-  Property boundary

