REPORT OF ACTIVITIES

ON THE

TITTLEY PROPERTIES

IN

2.15084

BURROWS TOWNSHIP
SHINING TREE AREA
DISTRICT OF SUDBURY
ONTARIO

(NTS 41P/14SW)

Oakville, Ontario
April, 1993

H.Z. Tittley, P.Eng.

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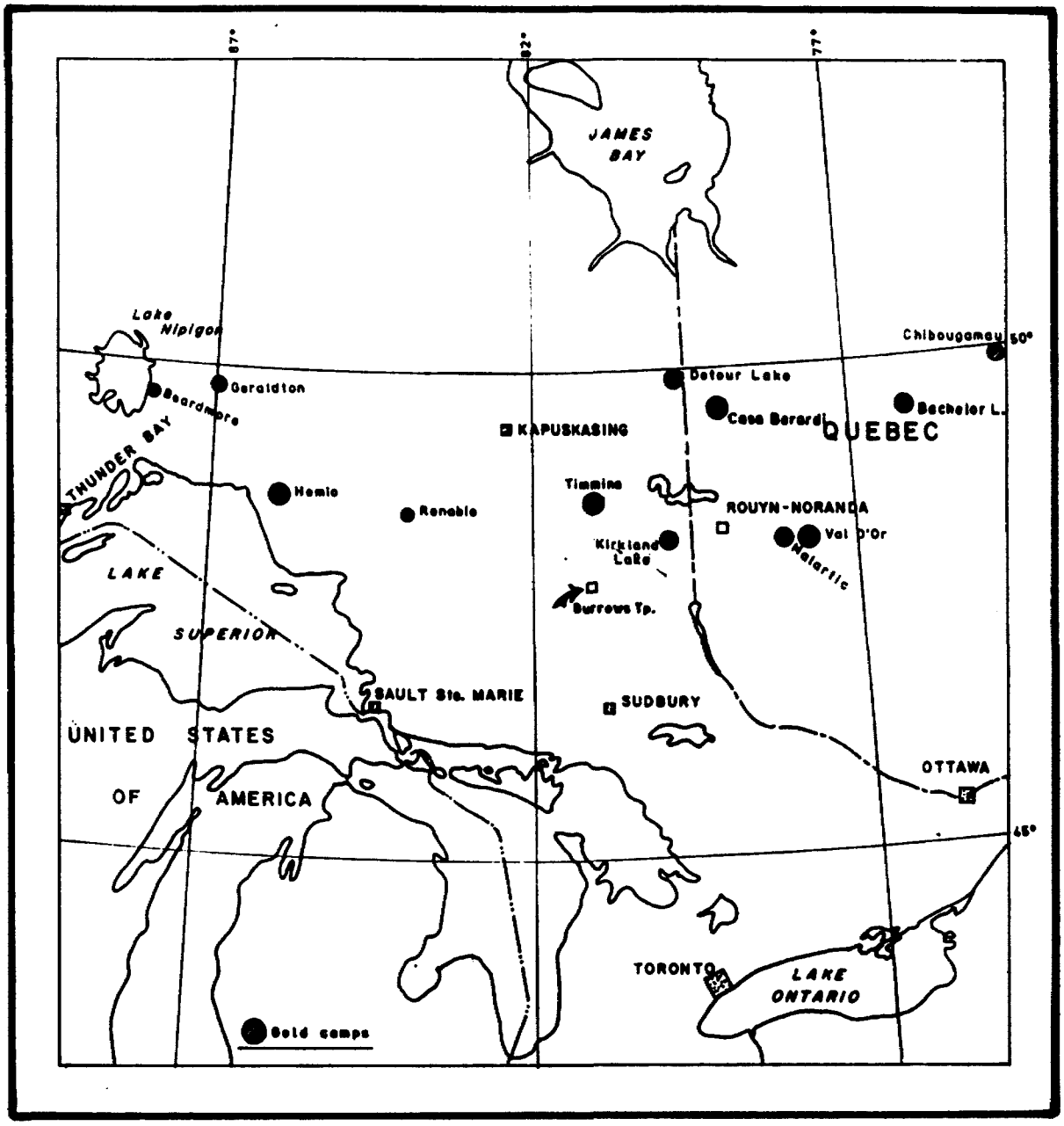

KEY MAP

TITTLEY Properties

Burrows Township

Larder Lake Mining Division
ONTARIO

Scale

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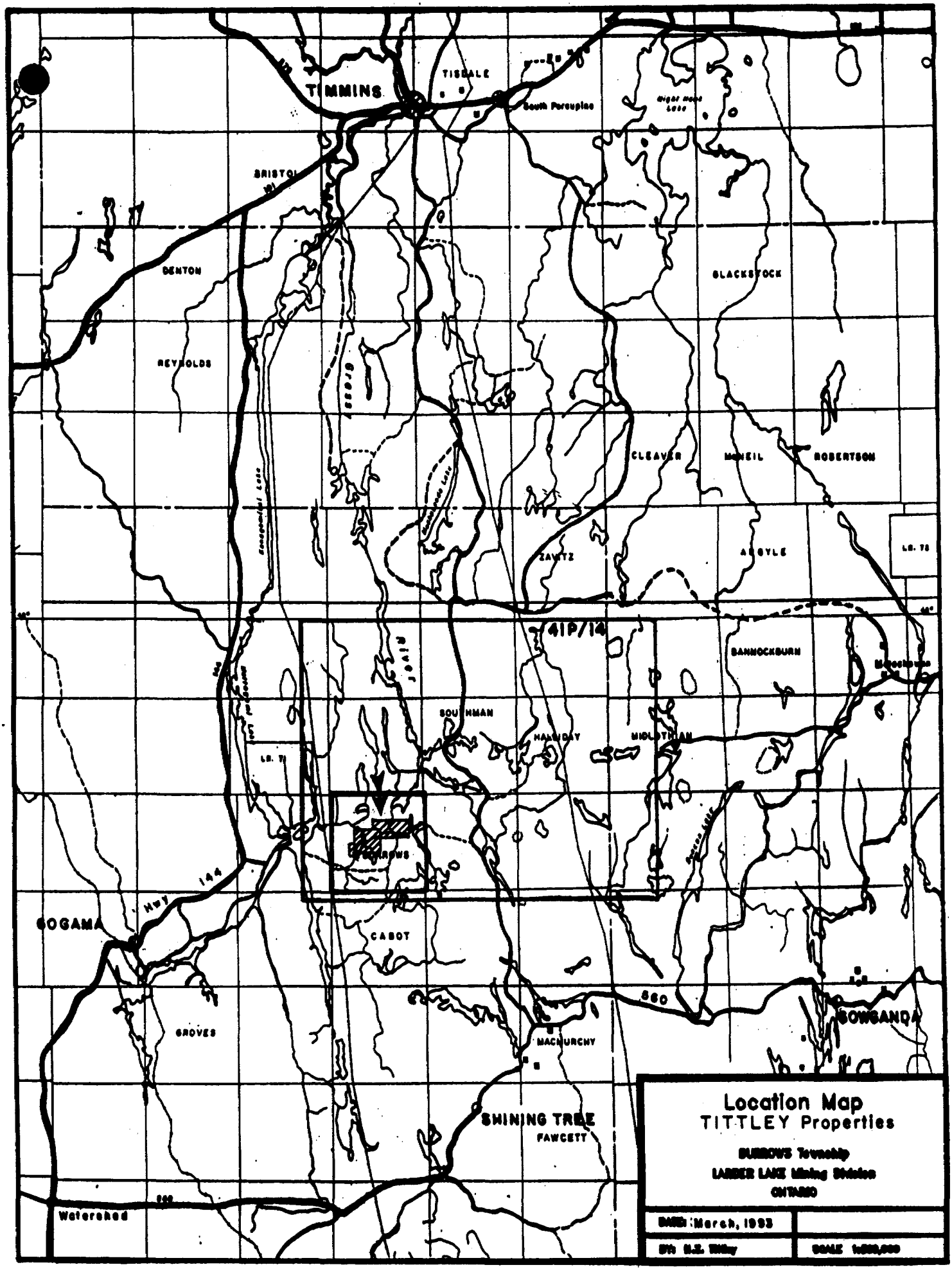
0 100 200 300 Km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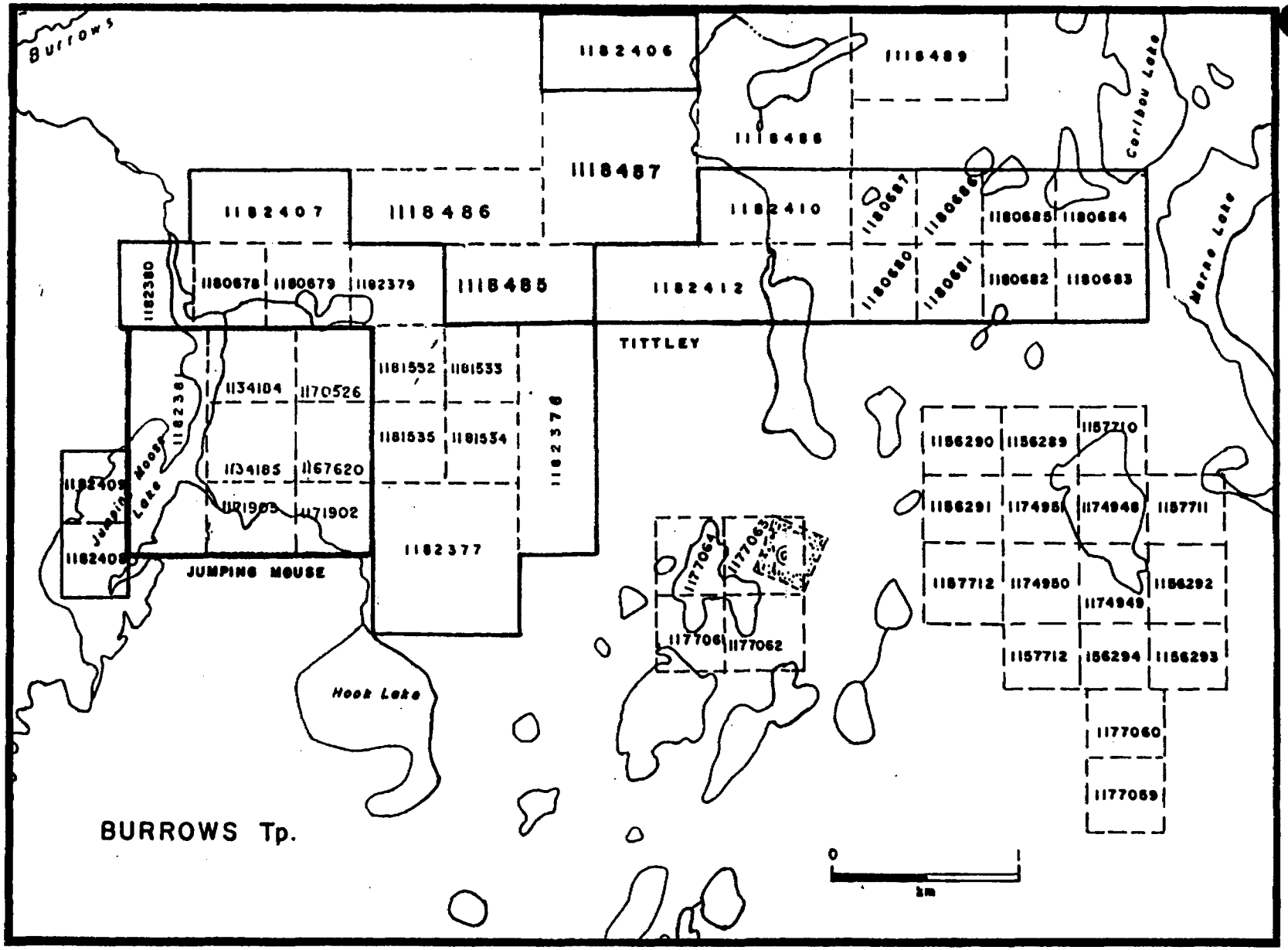
BURROWS Township
LARDER LAKE Mining Division
ONTARIO
DATE: March, 1993
BY: D.R. Tilley
SCALE 1:250,000



CLAIM MAP

TITTLEY Properties

LARDER LAKE Mining Division - ONTARIO

REPORT OF ACTIVITIES
ON THE
TITTLEY Properties
BURROWS TOWNSHIP
SHINING TREE AREA
ONTARIO

INTRODUCTION

Investigations consisting of geophysical surveys, geological mapping, prospecting, stripping, and topographic mapping were conducted on a group of 31 claims located in Burrows Township, Northeastern Ontario.

The effort was concentrated NE of Jumping Moose Lake and directed at locating the source of rich gold-bearing floats. Elsewhere, the reconnaissance examinations were conducted mainly to produce a broader geological background.

The work was carried out, in the fall of 1991 and summer of 1992, with financial assistance from OPAP Grants OP91-278, OP91-(Salo)? and OP92-201, totalling $23,000.

Detail ground magnetic, induced-polarization and self-potential surveys were conducted along 25 m- and 20 m-spaced lines. The geology was mapped along grid and claim lines with additional traverses over outcrop areas. Prospecting was largely confined to rocky ridges where outcrops were stripped, washed, drilled, blasted, cleaned, and sampled. Attempts at locating bedrock, or enlarging interesting exposures, were made with a skidder mounted backhoe.

The results of exploration conducted over a 41 year period were closely examined, re-processed and re-interpreted. After locating 16 of the 21 diamond drill-hole collar sites, in the field, a new geological base was established.

Government aeromagnetic data was acquired, for processing and viewing, with the aim of incorporating a broader area of interpretation.

These activities on the Tittley properties form the scope of this report which is submitted for assessment credits.

PROPERTY, LOCATION AND ACCESS

H. Z. Tittley, of Oakville Ontario, holds the Mineral Rights to an irregular block of 30 contiguous claims, and 1 separate claim, located in central Burrows Township, in the district of Sudbury, Northern Ontario. The township lies within the Cobalt Resident Geologist's territory.

Current claim status is as follows:

Number	Rec. Date	Units	Total Assmnt	Work Days
L-1 134 184	901022	1	$599.44	$400.00
L-1 134 185	901022	1	$677.20	$400.00
L-1 167 620	901022	1	$560.58	$400.00
L-1 170 526	901022	1	$850.27	$400.00
L-1 171 902	901219	1	$754.97	$400.00
L-1 171 903	901219	1	$376.22	$376.22
L-1 180 678	910531	1	$137.00	$137.00
L-1 180 679	910531	1	$137.00	$137.00
L-1 180 680	910531	1		
L-1 180 681	910531	1		
L-1 180 682	910531	1		
L-1 180 683	910531	1		
L-1 180 684	910531	1		
L-1 180 685	910531	1		
L-1 180 686	910531	1		
L-1 180 687	910531	1		
L-1 181 532	910531	1	$137.00	$137.00
L-1 181 533	910531	1	$137.00	$137.00
L-1 181 534	910531	1	$137.00	$137.00
L-1 181 535	910531	1	$137.00	$137.00
L-1 182 377	911010	4		
L-1 182 378	911010	3		
L-1 182 379	911010	1		
L-1 182 380	911010	1		
L-1 182 381	911010	3		
L-1 182 406	920618	2		
L-1 182 407	9212??	2		
L-1 182 408	920811	1		
L-1 182 409	920811	1		
L-1 182 410	920914	2		
L-1 182 412	920814	4		
TOTAL	31 claims	44 units		

PROPERTY, LOCATION AND ACCESS.....cont'd

The main block of claims extends from Marne Lake, in the east, to Jumping Moose Lake (JML) to the west. The second block is in the central part of the main group, but one claim north. It consists of 2 units and, for this report, is part of the overall property.

For most of the year, the property can be reached by road from the Watershed on highway 144, Elk Lake on highway 560 or from Timmins via the Papakomeka/Grassy Lake road. The latter runs from Timmins to a point 11 km E of Shining Tree on highway 560. Twenty-five kilometres N of this point, and only 1.5 km south of the Grassy River bridge, the Marne Lake road extends westerly.

After 8 km, the road enters the property near Caribou Lake. Two kilometres farther, the road turns sharply S. From this point it is 3 slow kilometres along a narrow bush road (Burrows Lake Road) to JML. Though the road is mostly solid base, and suitable for two wheel-drive trucks and vans, travel is mostly by all terrain vehicle.

When the Grassy River Road is not ploughed, in winter, the shortest land route is via Gogama and the Mattagami Indian Reserve. This necessitates crossing on the ice of Mattagami Lake and using the system of roads mentioned above or establishing a 3.5 km trail from the bottom of a deep bay near the Reserve.

By road, the claim group is 105 km from Timmins and 50 km from Shining Tree. Via the winter trail, it is 8 km to the Indian Reserve or 28 km to Gogama.

Small fixed-wing aircraft, available for charter in Gogama or Marquette township on highway 144, can light on JML.

PHYSIOGRAPHY

Central Burrows is almost evenly divided between flat marshes and dry areas that are both interspersed with widely separated rocky ridges. The western part of the property is transected by a northerly esker ridge, while the eastern part is mostly sand plain. The lowlands are either saturated slough, swamp, or muskeg. (see Figure 9)

The greatest topographic relief (70 m) is from the base of a stony kettle which is next to an outcrop ridge, north of JML.

The southeast township corner lies only 7 km N of the Height-of-Land. The eastern part of the property drains into Marne Lake and the Grassy River. The central part drains N into the Sinclair Lake and the Grassy River while, to the W, the waters flow towards Mattagami Lake and the Mattagami River. Both systems are part of the Mattagami-Moose River watershed which flows into James Bay and the Arctic.

Except for open muskegs and grassy meadows, the area is well forested with a forty year growth. Good stands of jackpine, white pine, and occasional red pine dominate the sandy areas while alder, alder-cedar, alder-ash, and, alder-cedar-spruce occupy the swamps. Open muskegs are usually found near lakes with spruce and larch muskegs occurring throughout the area.

HISTORY

Reconnaissance geological investigations were conducted by W.A. Parks in 1900 and A.P. Coleman in 1901. Systematic mapping of Burrows, Kemp, Mond, Cabot, Kelvin, and Natal townships was carried out by T.L. Gledhill in 1926. In 1975, N.W. Carter mapped in Cabot and Kelvin. A final geological report was published in 1986 by the Ontario Geological Survey. The data were later incorporated in a map of the Shining Tree Area at a scale of 1:50,000 and released by the OGS in 1987.

Most of Burrows township is covered by an extensive airborne aeromagnetic/electromagnetic survey, flown in 1989 and, published by the Provincial Government.

Following the 1950 discovery of a large gold-bearing float, a group of claims was staked along the NE side of JML.

In 1951, the property was optioned to the Dominion Gulf Co. who carried out a magnetic survey, geological mapping, trenching, and drilled four diamond drill holes. W.S.

Savage, then Resident Geologist in Kirkland Lake, reported on a visit to the property at the time.

HISTORY.....cont'd

In 1974, Hollinger Mines Ltd. optioned 23 claims from B.D. Sirola and added several claims to form a rectangular block centered NE of JML. Except for a detail grid, near the lake, the property was covered by widely spaced (500 m) N-S lines. Prospecting, mapping, magnetic and electromagnetic surveys were carried out over selected areas. In the following year, 4 diamond drill-holes were sunk, in the detailed area, near the lake. The reconnaissance work, that covers the central part of the present property, was not recorded for assessment credits.

In 1979, D.E. Sirola, B.D. Sirola and W.O. Karvinen acquired sixteen claims in the JML area. The following year, in the hope of locating the source of the rich floats, W.O Karvinen and Associates carried out detail overburden and bedrock investigations, including overburden trenching and blasting.

Newmont optioned the property in 1981 and acquired some 100 additional claims to form a block that arced from the SE to the SW parts of the township. The exploration program began with linecutting, ground geophysics consisting of magnetics and VLF electromagnetics, and geological mapping. Interesting areas were later examined with induced polarization (IP), horizontal loop electromagnetics (HLEM), and overburden sampling methods. They later drilled three holes on the present claims.

Two outcrop areas in the main float area, near the lake, were extensively stripped using heavy power equipment. Although this work seams only 4 to 5 years old, D.A. Daggett of Argentex reported that a bulldozer was taken to the property, in 1984, for stripping purposes.

HISTORY.....cont'd

In 1987, Argentex Resource Exploration Corporation held 127 claims that covered most of the Newmont ground. However all the work, consisting of geological mapping, humus geochemical sampling and diamond drilling, was concentrated in the float area E of JML. From ten holes, totalling 1227 m, 8 were drilled to test a zone of blue quartz-eye tuff, that was the postulated source of gold-silver-tellurium mineralization found in the floats.

The TITTLEY properties were acquired by staking and transfer. The first 6 claims, on the NE side of JML, were staked the day following their expiry after 11 years of record. In the spring of 1991, 6 were added to the E, and 2 along the N boundary.

Around this time, the block was prospected and mapped, using aerial photos. A Geotechnical Survey, with maps and report, was then filed for assessment credits. The eight most easterly claims were also stake during this period.

In the fall, under the new Mining Act, 5 claims containing a total of 12 units were added to the main group. Between late September and early November a program of linecutting, ground geophysics consisting of total field magnetic and gradiometric surveys, mapping, prospecting, and power stripping, was carried out.

HISTORY.....cont'd

Before embarking on a diamond drill program that would involve some 20 holes it was felt that more detailed information about the physical properties of the underlying formations N of the rich floats, would be an asset. A new grid of lines, that could serve the drilling, was established on JML, and land to the E. The lake was magnetically surveyed in March, 1992. The ground work began in June. It consisted of linecutting followed by total field magnetic, gradiometric, induced polarization, self potential and topographic surveys. Mapping and prospecting, blasting and sampling were also carried out.

Elsewhere, on the property and surrounding areas, mapping and prospecting were conducted along old grid lines, new claim lines, but mostly by using aerial photos.

All geophysical data were imputed to a computer, corrected, processed and plotted. In order to assist the interpretation, government aeromagnetic data, for Burrows township, were acquired, processed, viewed and interpreted.

REGIONAL GEOLOGY

The Shining Tree Area lies in the SW portion of the Archean Abitibi Subprovince of the Superior Province of the Canadian Shield. In NE Burrows, the rocks are covered by Paleoproterozoic sediments of the Huronian Supergroup. Everywhere they are cut by mafic dikes, and all formations are cut by NE diabase dikes.

The Shining Tree supracrustal assemblage extends northerly into SE Burrows township (see Figure 8). The rocks bounded by this assemblage, the Kenogamissi Batholith to the N, the Ramsey-Algoma complex to the W, and Huronian sediments to the E, appear to form a distinct unit. Compositionally, with felsic pyroclastic tuffs and fragmentals, lamprophyre, and sediments they appear more like units of the central Swayze belt that stretches 28 km in the Halcrow-Dale area.

The Burrows 'assemblage' consists of two bands that converge along the E shore of JML. The N band is some 3 km wide and trends 67°. It is composed primarily of felsic to ultramafic flows and related chemical and carbonaceous sediments. The westerly band strikes 39° and appears to contain similar formations. Rocks of the Shining Tree Assemblage, on the other hand, generally trend 58° through Burrows township.

Like other formations of the Shining Tree area the rocks area displaced northerly, along the active Mattagami River Fault, and re-emerge from the cover of Huronian sediments, in the northwestern part of Sothman township. Here again, they host gold mineralizations. See figure 8.

SURVEY METHODS

Linecutting

The 1991 grid consists of two sets of normal grid lines striking 15° and 75°. In the northern part, near the lake, the lines are E-W while to the S, they are N-S and extent to either the creek or the S boundary. With the exception of a short section, at 20 m intervals, the lines are spaced 25 m. Even 100 m lines extend beyond the detail area to the claim boundaries. Painted pickets were placed at 20 m station intervals.

The origin of the grid is at 1000N and 1000E which is located in the NW corner of claim 1171902. It totals 15.3 km.

The 1992 grid was established at 115° with both lines and stations at 20 m intervals. Secondary stations, consisting of small painted blocks, were later measured in, at 5 m intervals, to control the IP survey.

This grid originates from a point located 15 m grid S of the Argentex diamond drill-hole BA-87-5. This station is also designated 1000E/1000N. Three kilometres were surveyred over the lake and 4.2 km on land.

This grid will be used for drilling, as the lines do not trend with known diabase dikes. They are normal to the SE I-F band and related structures, and at 45° to the gold-bearing event which is responsible for the tuffaceous mafic blue quartz-eye stratigraphic unit. On 3 occasions previous investigators, on this property, have lost much information, about the drill target, while cutting diabase.

SURVEY METHODS.....cont'd

Magnetic

Total Field:

The total field magnetic surveys were conducted over the above grid using remote-sensing proton precession magnetometers. A Geometrics model G-826 was used in 1991, and a Barringer GM-120 unit, in 1992.

Readings were taken at 10 m intervals and corrected for diurnal variations by applying observed changes at bases that had been previously observed in a series of closed loops. They were usually repeated at 15 to 20 minute intervals. All are tied to a main base, located at 1000E/1450N on the 1991 grid, which has an assigned value of 58,970 nanoteslas.

A total of 2518 readings were recorded at 2250 stations.

Two attempts were made at surveying on JML. In mid-November 1991, ice conditions were found to be unsafe. By December snow conditions impeded access via the Grassy Lake Road.

Gradient:

Vertical magnetic gradients were recorded at every station in the detail area. During the observation, the sensor is raised 1.3 m to obtain a second reading which is subtracted from the first. A positive values indicates an underlying magnetic body. Some 1700 readings were thus taken.

All magnetic surveying in the detail area was performed by Eric Tittley and Hermann Tittley.

SURVEY METHODS.....cont'd

Induced Polarization

The induced-polarization survey was conducted over land only. Surveying was carried out at 5 m intervals using a Scintrex model IPC-8 battery-powered transmitter and a Scintrex model IPR-8 receiver. The Wenner configuration with an electrode separation of 15 m was used throughout. Measurements of the M or chargeability, the Vp or voltage potential, the SP or self-potential, and the applied current (A), were recorded at every station.

By occupying 1395 stations, 1170 points were read over a total distance of 6975 m.

In 60% of the area, covered by sand and gravel, stations were prepared for improved electrical contact. At every 5 m station, a 10 cm hole was dug and filled with heavy brine. Water was hauled by all terrain vehicle from a dock near camp. Altogether, some 120 kg of salt and about 3000 litres of water were poured at some 830 stations.

Throughout the survey, E. Tittley operated the IP transmitter and H. Tittley operated the IP receiver. D. Recoskie advanced the two remaining electrodes.

SURVEY METHODS.....cont'd

Self Potential

Several zones of high self-potential gradients were noted during the IP survey. With the Wenner method the resolution of these anomalies requires summing consecutive 15 m values. Since the data were irregular, it was deemed more accurate to perform a survey using the long wire method.

This was effectively accomplished using a 400 m spool of insulated wire equipped with an electrical take-off connection, a digital multitester, and two porous electrodes.

Surveying was performed over a two day period by H. Tittley and E. Tittley. Altogether, 532 stations at 5 m interval, 109 stations at 10 m interval, and 8 stations at 25 m interval were recorded over a total distance of 4090 m.

All readings are corrected to a series of bases that were previously established at the points of intersection with the 1000N base line.

Due to time constraints only certain grid lines, in the northern part of the grid, could be surveyed. For the same reason, the 6 westerly lines were read at the wider 10 m spacing.

SURVEY METHODS.....cont'd

Topographic

Preparing a proposal for a recommended diamond drill program requires that all selected drill sites be viable. To this end, a rudimentary topographic survey was carried out, primarily to map the esker ridge in the detail area.

H. Tittley ran the survey with a pocket inclinometer. Changes in elevation were calculated, from a set of tables, by measuring the vertical angle between the tops of various pickets. The elevation of intervening stations were interpolated and also noted. The survey was run in a series of closed loops and corrections were applied in proportion to slope. About 3000 m of grid lines were thus surveyed.

Elevations are based on the 1:20,000 Ontario Basic Map of the area. Datum is 348 m for Jumping Mouse Lake and 361 m for the top of the outcrop ridge to the E.

SURVEY METHODS.....cont'd

Mapping

All the mapping was carried out by this writer. The main purpose is to map the geology, but by locating and mapping old drill collars, trenches, pits, claim posts, and other signs of exploration activity, the layout of old grids can be accurately established (see map 'Vertical Magnetic Gradient'). All related data can then be inserted in the compilation.

Both detail grids were mapped by sketching on standard gridded paper. Elsewhere all traverses were traced out on transparent aerial photo overlays. Observations were noted in field books. At most sites, time and effort was needed to strip larger sections of bedrock. Most outcrops either contain multiple rock types, display complex flow patterns or are too highly polished for easy sampling.

Twenty kilometres of traversing were done on the detail grids and 23 km on the overall property and adjacent lands.

An additional 20 km of traverses were made by all terrain vehicle.

Seventy samples were collected, and are listed in 6 pages at the end of the report.

Ideal conditions, especially the leafless period in the spring and fall of 1991, were encountered during most of the mapping.

SURVEY METHODS.....cont'd

Prospecting

Nearly all prospecting activity was confined to the Jumping Mouse Property claims near JML. It consisted mainly of exposing the bedrock, drilling 60 to 150 cm holes with a gasoline powered Atlas Copco Cobra plugger, setting dynamite blasts, cleaning out pits, and sampling. On average, these 'Pops' represent the removal of no more than 0.3 m3 or 1 ton.

Ten blasts were made in 1991 and an equal amount the following year.

Power Stripping

Heavy mechanical work was carried out with a backhoe-mounted CanCar skidder owned by D. Crites of Connaught, Ontario. The equipment was operated by Larry J. Salo on a part time basis.

Stripping was done at two localities to enlarge bedrock exposures and at 5 sites to search for and expose bedrock.

DATA PRESENTATION

Magnetic Survey

Total Field:

The results of the total field magnetic survey are plotted and contoured on accompanying Map **Aa** entitled 'Magnetic Survey' at a scale of 1:1000.

Intensities range between 57,109 and 83,750 nanoteslas. In such high gradients, readings are often poorly reproducible due to positioning errors. Consequently, in the area of considerable overlap, between the 1991 1000E baseline and the lake, most of the 1991 readings were omitted from the plan. Instead readings taken at regular intervals, between the 1992 grid lines, are inserted.

Since current efforts are considered as follow-up to all previous exploration work, the Newmont 1981 magnetic data are also incorporated, to cover the entire map area.

All data, including Newmont surveys, were imputed to a computer spread sheet and transferred to ASCII files. Using a griding program written by E. Tittley, the data were then processed, viewed and manipulated with I*Power Vision Imaging System software. Though hard copies are not available, the visual information was used to assist the final interpretation.

Using the spreadsheet, quasi 'Regionals' and 'Residuals' were calculated for the main portions of the 3 detail grids. Figures 1 to 3 are plans of the Regionals at half scale, or 1:2000.

DATA PRESENTATION.....cont'd

Gradient:

The magnetic gradients are plotted on map **Ab** entitled 'Vertical Magnetic Gradients' at the appropriate scale of 1:1000.

The range is from +880 to -3200 nT. Such strong gradients result in poorly reproducible observations which, in this case, are in the more critical areas. Consequently the data are presented as zones. Positive gradients are enclosed by a contour that approximates the zero value, and therefore contacts, while a second inner contour surrounds peak positive responses. The third outline encompasses peak negatives, regardless of intensity. Twenty positive anomalies, labelled **A** to **T**, have thus been outlined on the plan.

In some instances, large, and sometimes buried, magnetic glacial erratics (often diabase) will produce a single positive gradiometric response. When this occurs on consecutive lines, there is the appearance of a broader anomaly. Anomalies with this possibility are not labelled on the map.

DATA PRESENTATION.....cont'd

Induced-Polarization

All IP field data were inserted in a computer spread sheet where the resistivity and Metal Factor components were calculated and converted to ASCII files.

Using a grid conversion program, written by E. Tittley, data were then transformed to arbitrary N-S co-ordinates, converted to a plotter file, and plotted on a Hiplot DMP-52 plotter. Contouring was done manually by H. Tittley.

Chargeability (M):

The chargeability data, or **M** component of the IP survey, are plotted and contoured on Plan **Ba**, entitled 'Chargeability', at a scale of 1:1000. For ease of presentation, the values have been factored by 10. Except for poorly-repeatable minor negative values, the values ranges from a background of 5 in the southern part to 39.1 in the eastern part.

Resistivity:

The results of the resistivity survey are plotted and contoured on Plan **Bb** entitled 'Resistivity'. The apparent resistivity values in ohm/metres were derived from the equation $\rho = 2\pi(V/I)a$, where **a** is the 15 metre separation.

DATA PRESENTATION.....cont'd

Metal Factor (MF):

Metal Factor values are plotted and contoured on Plan Bc at the proper 1:1000 scale. The chargeability (M) is normally divided by the resistivity times 1000 but, on the accompanying plan, the (MF) is again multiplied by ten to facilitate plotting.

Self-Potential

The results of the self-potential survey are presented on plan C. The data are plotted and contoured, with all negative contour values shown in brackets. Range is from -359 to +121 millivolts.

Topography

The results of the topographic survey are plotted and contoured on accompanying map D entitled 'Topography' at a scale of 1:1000. Contours are at 10 decimetre intervals and labelled as decimetres above 300 metres. Total relief above JML is 125 dm (41 feet).

DATA PRESENTATION.....cont'd

Mapping - Geology

Regional:

The accompanying map entitled 'Geology' at a scale of 1:10,000 is based on the study of privately processed aeromagnetic data, assessment files, recent aerial photos (June 1991) and, traversing by this writer.

The traverses are showm as heavy dotted lines on the Geology map.

The base is derived from 2 enlarged Ontario Basic Maps. It covers some 6,200 hectares in central Burrows and eastern Mattagami townships.

Detail:

The detail map of the geology in the JML area is the combined results of recent detail mapping and detail geophysics, as well as some geophysics carried out by previous operators. The map is entitled 'Geology'. It is at a map scale of 1:1000. For purposes of clarity, the grid lines are not all drawn. They are shown, at the same scale, on the 2 magnetic survey maps however.

The map includes all, or part of, 10 claims. It covers a square of 94 hectares.

DATA PRESENTATION.....cont'd

Prospecting

Physical prospecting activity is limited to percussion drilling followed by blasting and the cleaning out of pits for sampling. Though some of this work was intended to examine mineralized zones, the same amount was to obtain better samples for geological insight.

The 20 blast sites are shown on the detail geological map as BS-1 to BS-20.

Power Stripping

The 7 sites that were excavated with a backhoe are labelled Trench 1 to Trench 7 on the detail geology map. The dimensions of each excavation is shown in metres below each label. L is the length of the trench or stripping, W is the width and D is the depth. Being of such small dimensions, they are not necessarily drawn to scale.

SURVEY RESULTS

Magnetics

Total field:

Through their detail nature, the magnetic surveys greatly enhance the perception of underlying geological complexities. Much of the interpreted results are shown on the detail geological map which accompanies this report.

All areas above 5,000 nT reflect iron-formation. Individual anomalies ranging up to 3,000 Nt are probably due to diabase dikes. The circular anomaly, located between the '91 1000N B.L. and the creek, peaks at 3510 Nt. This suggests a higher magnetic susceptibility than diabase dikes. The feature is described further in the following section on magnetic gradients.

Interestingly, the magnetic background under the lake is some 450 Nt lower, to the N of the ' 92 1000N baseline, than to the S; excluding the effects of the northerly diabase dike. Evidence in the form of large angular boulders, located along the shoreline, suggests that at least one of these sections is underlain by felsic tuffs.

The northerly increase in magnetic susceptibility surrounding the main float area, and a northeasterly-trending discontinuity further N, are features that are not explained in the logs of six underlying diamond drill holes. This writer believes they may be associated with garnetization. This from of alteration begins near the main floats and intensifies progressively N. Four millimetre garnets, comprising 25% of the rock, occur at various sites along the S margin of the main iron-formation belt.

SURVEY RESULTS.....cont'd

Gradient:

The results of the gradiometric survey show some 30 positive anomalies that are mostly related to individual magnetic bodies.

Of the 21 labelled anomalies, 8 extend over bedrock and 3 are drill-hole intersected. Of the former, B and F are due to diabase in the form of dikes. Silicified rocks, or a chill margin, were seen in a small exposure at the N end of anomaly I. Therefore, diabase is also the expected cause.

Anomaly G, located along the S boundary of the map, lies immediately N of exposed ultramafic fragmental rocks. The unit which is moderately to weakly magnetic is well outlined by this survey.

The N part of anomaly M was intersected in diamond drill-hole 87-5 (BA87-5). An 18 m section of *strongly magnetic* talc schist followed by a 10 m of *magnetic* talc-tremolite schist, with bands of magnetite I-F in between, cause this anomaly.

Though anomaly Q and the western part of anomaly J cut the strata at 35°, and are quite noticeable from the total field (see Total Field above), they are not readily explained in the drill logs of 7 diamond drill-holes in this area.

Line 1025E crosses anomaly R over an outcrop of highly garnetiferous pyroclastic rocks. Disseminated magnetite, here as well as along anomaly J are responsible for the low magnetic gradients.

Gradient:.....cont'd

Anomaly U crosses the new 1000N B.L. over outcrop. There is some pyrrhotite that can account for the positive gradient, but the mineralization trends with the baseline. The western part of anomaly U probably has a different source.

The S part of T follows an outcrop of mafic volcanic rocks near the pond. Newmont mapped a narrow band of interflow komatiites that could explain the anomaly.

The following is a summary of the 12 remaining 'blind' anomalies.

A

This anomaly, which is also a prominent total field anomaly, is due to a mafic intrusion of unknown origin. As mentioned earlier, the susceptibility is above that which is generally considered normal for the northerly-trending diabase dikes. Iron-formations, in this area, invariably produce negative gradients. This fact, combined with the overall negative gradient responses, may indicate a Nipissing Diabase sheet. Near the top of the 1st and 2nd Hollinger diamond drill holes, diabase was intersected over an average thickness of 28 m. Farther down, in Newmont's first hole, diabase was intersected across a thickness of 19 m; after intersecting 5 m higher in the hole. Neither of these first 2 holes is covered by the gradiometric survey, but the second Hollinger hole (75-2 or BU1-75-2)is however, and there are no positive gradients to indicate the presence of a diabase dike.

If anomaly A is not due to a surfacing Nipissing Diabase sheet, it is probably a mafic plug. With the profusion of lamprophyric material, the area should be of interest to diamond miners.

Gradient:.....cont'd

C

Anomaly C is a feature that responds to the geophysical methods employed thus far. It is described further as anomaly A in the sections on 'Chargeability' and 'Metal Factor'. As a lesser Self-Potential response, which tends to preclude massive sulphides, the anomaly is expected to originate from strong disseminations of pyrite, pyrrhotite and magnetite.

D

Several floats consisting of highly magnetic garnetiferous schist were unearthed around 150 m SSE of this anomaly. The well leached boulders, with an aggregate weight of approximately 1200 pounds, appear to be derived from a single piece. The source is believed to be anomaly D. A similar unit, with up to 5 mm garnets, also occurs along the I-F contact more than 400 m to the SE. It is intersected in diamond drill-hole 75-2 (BU1-75-2 in files).

L

The central portion of this anomaly is on line 940E, near the lake. It coincides with the second highest induced-polarization chargeability response. Again, sulphide iron-formation containing py, po and magnetite are expected.

Gradient:.....cont'd

The remaining anomalies E, H, K, M, N, O, P and the N part of T are of unknown origin.

Interestingly, the overall trend presented by the arcuate patterns of C, the negative anomaly between C and M, M, and anomaly E, along the shore, suggest a feature which coincides with the main axis of low resistivities. In the southern part at least, the feature lies in a bedrock depression as determined from drill-hole information. As mentioned above, hole 87-5 intersected 18 m of talc schist and 10 m of talc-tremolite schist across this zone.

Induced-Polarization

The purpose of the survey was to resolve a broad zone of IP responses that was outlined a decade ago during reconnaissance investigations.

The source of the high-grade gold is a quartz vein that contains up to 22% sulphides (mainly pyrite) with 5% of the wallrock consisting of cubic pyrite. This grade of mineralization is expected to be weak to moderately responsive to the IP effect. The survey indicates corresponding anomalies throughout a broad area N of the rich floats.

Induced Polarization.....cont'd

Chargeability (M):

The chargeability or (M) component outlined 12 anomalies over a broad area located N of the main gold floats; none of which has been tested to date. Magnetic surveys show they are mostly associated with a broad belt of iron-formations.

The main anomalies, ranging up to 35 (M) are labelled A to N on plan Ba.

- A -

This anomaly lies in a northerly-trending bedrock valley only 200 m up-ice from the main gold-bearing floats. It extends for 100 m in an arc that follows a S and southwesterly limb of the main iron-formation.

The lack of strong self-potential suggests the absence of massive sulphides. The accompanying positive gradiometric anomaly indicates disseminated magnetite.

- B -

Anomaly B lies along the westerly arm of a bedrock trough near JML. The association with a very strong magnetism (11,000 Nt), a strong self-potential anomaly (-359 mV) and low resistivity, despite the sandy terrain, indicates massive sulphides. Similar pyrrhotite, pyrite and magnetite mineralization occurs in a trench to the E.

Chargeability (M).....cont'd

- C -

Strong values ranging up to 35 (M) were recorded near the E shore of JML. The anomaly which is central to an interpreted bedrock depression, remains open under the lake.

Owing to the shallow angle with the grid lines, geophysical correlation of this anomaly is trying. It correlates poorly with strong magnetic and gradiometric anomalies, and a self-potential anomaly that parallels the lake.

- D -

This anomaly is not readily apparent on the map because it is essentially along the grid lines. It is, however, well defined on three profiles that were read over 1991 grid lines. Lines 1450N, 1475N and 1500N were surveyed from the '91 1000E baseline to the lake.

These results, which are shown as profiles in Figures 4 to 5 at the end of the report, indicate that the anomaly generally correlates with higher resistivities and follows a due N-S magnetic trough. A map of the vertical gradient, calculated from government aeromagnetic data, clearly shows a combined N-S dike and fault between Jumping Moose and Hook lakes. The northerly projection of this feature appears to be through this anomaly.

Under certain circumstances, diabase dikes reportedly respond to the IP effect. Unless it is quite narrow, the magnetometer gradient survey does not indicate a magnetic diabase dike through this area.

Chargeability (M).....cont'd

- E -, - F -, - G -, - H -, and - I -

These 5 SE-trending anomalies are a series of peaks within a broader zone which is situated directly up-ice form the auriferous floats.

Sulphide-rich I-F bands are the likely cause.

- J -

Anomaly J lies along the N contact of the main SE-trending IF belt. It was traced 600 m easterly during earlier IP and EM surveys.

A 1951 diamond drill hole intersected the zone at a depth of 80 m and 10 m E of line 1200E. It reportedly encountered 3.5 m of banded iron-formation with pyrrhotite, pyrite and a little chalcopyrite. Nearby rocks include a '*talc-chlorite-carbonate, chloritic and silicified mafic lavas, grey feldspar porphyry and lamprophyre dikes, plus* evidence of alteration in the form of *actinolite*'.

- K -

This feature is situated between 5 and 55 m N of the I-F belt. It is a kidney-shaped anomaly located at the S margin of a high resistivity zone which corresponds to the prominent outcrop ridge.

Although this anomaly has a low Metal Factor, due to high resistivities, it undoubtedly originates from a bedrock source.

Chargeability (M):.....cont'd

- L -

Anomaly **L** is due to massive po and py which occur in a 21 m-wide band of I-F that is exposed in a stripped outcrop 50 m to the SE.

Based on glacial striae, the anomaly is not up-ice from the main gold floats. However, it crosses a NE ravine that extends into the gold float area and which, along with other similar-trending features, may be the result of limited ice movements during deglaciation.

- M - and - N -

These weak chargeability responses appear to lie outside the main I-F belt. Anomaly **M** was also detected during Newmont's IP survey in 1981. Anomaly **N** is directly up-ice and nearest the gold-rich floats, i.e. 150 m.

Such anomalies approach a minimum viable size, but could still represent 50,000 tons of material lying within 50 m of surface.

Chargeability (M):.....cont'd

- SW area -

Chargeabilities, averaging less than twice background, were recorded towards the S end of lines 1080E, 1100E and the N end of line 900E on the '91 Grid. Greater than 3 times background readings were recorded here by Newmont, and up to 40 m S.

The anomaly follows the E and ESE slopes of the esker ridge. It is magnetically invisible, but coincides with lower resistivities (>4000 ohms/m) and consequently produces an (MF) value which is 3 times normal.

Based on geological compilation the zone lies within mafic volcanics and immediately N of felsic pyroclastic belt.

Resistivity:

Plan **Bb** shows the resistivity survey results to be mostly governed by the surface material. The resistive areas W of the '91 1000E baseline correspond to sand and gravel ridges while, E of the baseline, they mainly reflect areas of bedrock exposure. An exception is towards the lake on the 1000N B.L. where, apart from one narrow slough, the area is mostly glacial material but of low resistivity. Underlying conductivity is due to po and py as mentioned above under 'Chargeability (M)'.

The most prominent feature is a linear low resistivity axis which extends north-northwesterly across the survey area. The overall strike is towards the gold floats and, directionally, only 3° lower than the average glacial striae. As mentioned earlier, there is evidence of a string of positive vertical gradient anomalies trending along this same axis.

Induced Polarization.....cont'd

Metal Factor:

Anomalies derived from calculating the Metal Factor (MF) are labelled, more or less in the same order as the chargeability anomalies, on Plan Bd. The following is a description of the major anomalies.

- A -

This anomaly combines (M) anomalies A and E. It is 1200 long, 50 m wide and peaks at 30 times background. Such a broad zone of metallic mineralization lying directly up-ice from the main gold floats make this anomaly a priority as the source of the floats, notwithstanding a central magnetic portion as outlined by the gradiometer survey. The rich gold floats are non-magnetic. Magnetic sulphide I-F, found near the floats, have the required physical characteristics however. On assay, the material gave 0.034 ounces of gold per ton.

- B -, - C -, and - D -

Anomalies B, C and D coincide with the same (M) responses from which they are derived.

- E - and - F -

These anomalies are western and eastern extensions of (M) anomaly F.

- G -

Coincides with (M) anomalies M and H.

Metal Factor (MF):.....cont'd

- H -

Coincides with chargeability anomalies I and J.

- I -

This up-ice anomaly is nearest the floats. It is a much larger feature than the weak chargeability anomaly N from which it is derived.

- J -

The IP (M) component did not distinguish a coincident anomaly. It is probably partly mathematically produced via the low resistivity axis across this area. Argentex drill hole 87-5 (BA87-5) cut *2 m of sulphide-oxide facies IF carrying 15-20% py*. This is the main cause of the anomaly.

- K -

This anomaly is the product of lower resistivity associated with a topographic slough in an area of moderate chargeabilities. The casing of a Dominion Gulf hole is located 25 m S and oriented to intersect the central part of the anomaly. Drill logs for DDH 51-2 report '*dark, talcose, chloritic andesite*' through the anomalous zone.

- L -

This anomaly with a peak value reaching 117 times background represents the northern part of the same (M) anomaly. As mentioned above, chargeability anomaly L is due to bands of pyrrhotite and pyrite in a broad IF.

SURVEY RESULTS.....cont'd

Self-Potential

Since the SP phenomenon exists only above the water table, like resistivity, much of the survey results are due to surface features.

The labelled anomalies on Plan C are selected to correspond with the chargeability (M) anomalies shown on plan Ba.

- B -

This anomaly peaks at -359 Mv which normally represents massive sulphides or graphite. It is directly coincident with a 12,229 nT anomaly. Higher IP values, however, were obtained on the adjacent line 1000E to the W.

It occurs at the intersection of two diverging broad belts of iron-formations. One band trends 11½° while the other strikes southeasterly at 115°.

The anomaly transects the main esker ridge.

- C -

The S part of anomaly C coincides with a magnetic zone that straddles the boundary between (M) anomalies C and D. Overall it parallels the shore line, which indicates that the complete outline is constrained by the lake.

Self-Potential.....cont'd

- I -

The cause of this S-P anomaly is unclear. It is situated between two outcrops. The E outcrop contains around 2% disseminated sulphides while, to the W, a small outcrop on the road is barren.

Since the chargeabilities remain high throughout this area, and since the anomaly occurs between two iron-formations, it is probably the result of combined voltages.

Some nearby rocks carry similar small blue quartz-eyes to those in rich gold floats.

- K -

Anomaly K is situated N of the main iron-formation belt and immediately E of the same chargeability anomaly with which it is probably linked.

It peaks at -88 Mv over a coincident 600 nT anomaly and a weak (M) response.

A diamond drill hole with a visible casing bottomed at a depth of 100 m near this area. The last 27 metres encountered '*amphibolite, grey feldspar porphyries, a grey feldspar porphyry dike, green biotite gneiss and siliceous greenstone*'. Forty metres E of this area, andesite in the form of 40 cm pillows, was observed throughout a 5 m exposure.

Self-Potential.....cont'd

- L -

Line 1100E on the '91 grid was read with the SP unit, in a sense, to calibrate the unit and establish background. The massive po. and py. mineralization, that responded well with IP, produced a distinctive -175 mV anomaly.

As mentioned earlier, the strike of the deglaciation pattern places this area is on strike with the main floats.

- P -

This anomaly consists of a decrease of 50 mV at the N end of lines 1140E and 1160E.

Early IP work located an anomaly of unknown source, only 35 m farther N.

- Q -

While conducting the IP survey, appreciable SP gradients were recorded along this section of lines 900E, 925E and 950E.

Drilling shows the area to be underlain with moderately garnetiferous felsic fragmental tuffs cut by lamprophyre. Assays of minor sulphide intersections gave gold values, in ounces per ton, of .006, .01, .03, and farther S, .08 and .20; the last respectable value being across 1.1 m.

SURVEY RESULTS.....cont'd

Topography

The topographic survey results will contribute significantly to the next exploration phase. Apart from assisting in the selection of viable diamond drill-hole sites, drill roads, and water-supply lines, it can help determine the depth of overburden, when combined with the bedrock map.

Mapping - Geology

Regional:

As with the detail mapping both ground and airborne geophysics played an important role in the geological interpretation of central Burrows. Mapping near the granite contact, to the north, and west of Jumping Moose Lake shows a broader distribution of supracrustal rocks than shown publicly before.

A detail description of the formations, based on laboratory work, is available from Newmont reports in government Assessment Files (see REFERENCES). Whole rock analyses of 34 samples generated Jensen Cation Plot, AFM, ACF and A'FK ternary diagrams.

The oldest supracrustal rocks are metamorphosed ultramafic volcanic formations of peridotitic to basaltic komatiitic composition, and pillowed massive mafic volcanics of magnesia-rich to iron-rich tholeiitic composition. These are overlain by pyroclastic rocks of tholeiitic to calc-alkaline intermediate to felsic affinity. Ferruginous sediments consisting of sulphide, silicate, carbonate, and oxide iron-formations are interspersed amongst the volcanics. Probable lithic sediments include phases of the felsic tuffs, and carbonaceous (graphitic) material.

Regional:.....cont'd

Felsic porphyry, syenite, lamprophyre and fine-grained mafic dikes intrude the above rocks. The area is cut by a swarm of northerly diabase dikes that range up to 30 m in width.

Felsic intrusive rocks belong to a batholith of dioritic to granitic composition. It extends over several townships westerly into the Swayze greenstone belt.

The following is a table of principal lithologies for central Burrows township.

LITHOLOGICAL UNITS FOR CENTRAL BURROWS TOWNSHIP

LATE PRECAMBRIAN

MAFIC INTRUSIVE ROCKS
- Diabase

MIDDLE PRECAMBRIAN

MAFIC DIKES
- Diabase with saussuritized feldspars
- Lamprophyre
- Fine grained dikes with glassy shards

EARLY PRECAMBRIAN

FELSIC INTRUSIVE ROCKS
- Syenite
- Granite-granodiorite, feldspar porphyry
- Diorite

MAFIC INTRUSIVE ROCKS
- Gabbro
- Peridotite

CHEMICAL SEDIMENTARY ROCKS
- Sulphide iron-formation
- Carbonate iron-formation
- Silicate iron-formation
- Magnetite iron-formation

SEDIMENTARY ROCKS
- Greywacke
- Carbonaceous sediment, graphitic tuff

FELSIC VOLCANIC ROCKS
- Tuff, serecite schist
- Massive rhyolite
- Fragmental, lapilli tuff

INTERMEDIATE VOLCANIC ROCKS
- Lapilli tuff, dacite tuff
- Fragmental

MAFIC VOLCANIC ROCKS
- Mafic blue quartz-eye tuff
- Interflow sill, flow (hypabbysal)
- Mg-tholeiitic basalt
- Fe-tholeiitic basalt

ULTRAMAFIC VOLCANIC ROCKS
- Ultramafic flow breccia
- Komatiite

Mapping - Geology.....cont'd

The following is a summary of the rocks units encountered on the TITTLEY properties and surrounding areas.

ULTRAMAFIC VOLCANIC ROCKS

Komatiites

These rocks occur across a 400 m width SE of the Tittley ground. They trend northwesterly and, magnetically, extend to within 300 m of the property. Based on aeromagnetics, a second NW belt that extends to within 100 m of the SE corner of the property, is interpreted. Ultramafic and gabbroic rocks were also mapped in the centre of claim 1182377, in the S part of the property.

Within the detail area there is an exposure of moderately magnetic ultramafic unit, situated along the creek, south of the '91 1000N baseline. It displays up to 2 cm angular and sub-angular fragments along a brownish weathered surface. Magnetic data indicate that the unit strikes northerly, is 15 m wide and some 120 m long.

Ultramafic rocks of komatiitic composition were intersected in 2 diamond drill holes put down under the North Pond, and between the North Pond and Jumping Moose Lake (JML).

Mapping - Geology.....cont'd

MAFIC VOLCANIC ROCKS

Mafic volcanic rocks form the dominant lithology on the combined present properties. Amphibolitization is most evident in the more northerly outcrops, and especially in the migmatite zone which straddles the northern part of JML.

Iron-rich tholeiitic basalts

These rocks are best exposed on the main outcrop ridge NE of JML. The area is entirely within a crescent outlined by 2 folded bands of iron-formation (I-F). The flows range from greyish-green to dark green and show weak lamination suggesting either foliation or a tuffaceous origin. They are cut, in a chevrony pattern, by narrow lamprophyres (15 cm). Narrower aphanitic glassy mafic dikes, one diabase dike and, in the southern part, a feldspar porphyry with abundant 5 mm blue quartz-eyes also intrude the lavas.

Darker, less foliated material occurs in 2 places outside the main crescent. One is a prominent outcrop near the E end of the North Pond. The other is at 1500S/100W on the Newmont grid. At this latter site, the rocks have a knobby appearance that is usually seen in structurally deformed zones.

None of the andesite W of the main body of JML shows evidence of amphibolitization that is expected towards the granitic terrain. In hand sample they are also classed as Fe-tholeiites.

MAFIC VOLCANIC ROCKS.....cont'd

Magnesia-rich tholeiitic basalt

According to Newmont studies, most of the mafic volcanic rocks that are interlayered with the I-F and immediately S of the main I-F band, in the JML area, are Mg-tholeiites. They are deep green, well foliated, and regularly display small opalescent blue quartz-eyes. This writer considers these non-magnetic rocks part of the I-F package.
Andesites situated south of the creek running into JML are more highly foliated and amphibolitized than the Fe-tholeiites above. Newmont work identifies these rocks as Mg-tholeiites also. The level of amphibole is the distinguishing characteristic however.

Dioritic flow (sill), Gabbro (hypabyssal)

This is a coarse-grained andesite. It is invariably mapped as gabbro by many searchers. Usual characteristics are homogeneity, barrenness and lack of magnetism.

It is best exposed where it forms the creek bed in the central part of claim 1171902. Mapping indicates a cone-shaped mass of 20 by 40 m in faulted contact with andesite to the south. The latter are well lineated in a NE direction. It is not clear, north of the fault, wether the dioritic flow is a sill or a dike. This writer favours gradual contacts and therefore the unit is interflow material. The outcrops N of '91 1000E/1000N, and north of the diabase, along the shore line, contain such transitional material.

Based on descriptions, similar rocks were encountered in the most northerly drill holes, and outcrops 3 km to the E. The latter are near the SW shore of a NS lake (Ottereyes Lake) situated in the mid-eastern part of the property.

MAFIC VOLCANIC ROCKS.....cont'd

Mafic blue quartz-eye tuff

Karvinen first recognized the unit in 1981. Because of the blue quartz-eyes, it became the postulated source of the gold-bearing floats. After discovering related gold mineralization, it temporarily became a focus of search. During the last drilling by Argentex, the zone was intersected in 6 holes. Gold values of .006, .007, .008, .01, .03, .05, .08, .14 and .20 ounces of gold per ton were encountered across widths ranging up to 1.5 m.

The mafic tuff averages 6 m wide, is stratiform, strikes 67°, and central to a band of felsic to intermediate, massive and tuffaceous volcanic rocks. It is normally hosted in pyroclastics consisting of lapilli tuffs with interbedded fragmental layers.

It was collectively described as a dark green hornblende tuff with a chloritic matrix and 1 to 3 mm rounded blue quartz-eyes. *It has good fabric, an occasional 'glomeroporphyritic' texture, and is often more tuffaceous (than diabasic) towards the bottom.* Where it has been exposed, i.e. around 1100N between lines 800 and 900E and on line 1075E, it is usually magnetic. In the most westerly exposure, the tuff contains 5% pyrite and 1% pyrrhotite, in long parallel 2 mm-wide seams. These help impart a distinct well laminated appearance.

After locating most of the drill collars in the field, and preparing sections, the mafic blue quartz-eye tuff was plotted. It is a tabular stratiform unit that extends easterly, from JML, across the property. Early ground magnetics indicate that it extends another kilometre east, and processed aeromagnetics suggest it is 6 to 9 km long. Mapping east of the Jumping Mouse Property, by Hollinger in 1975 and Newmont in 1981, located only one outcrop of mafic tuffs. It is situated 1800 m east of the lake, along the projected strike of the BQE unit. In this area the parallel I-F lies 700 m north and continues for 2 km easterly.

Mafic Blue Quartz-eye Tuff.....cont'd

Study of diamond drill logs and assay results suggest that the BQE is not the principal gold-bearing stratum. From assays taken of the more promising mineralization (excluding ore grade samples), 31 taken in the BQE averaged 206 ppb Au, while 14 of the overlying 6 m of felsic pyroclastics averaged 341 ppb Au (see Figure 7). Tuff beds, that average 60 m in width, are the host rocks at Madsen in the Red Lake Gold Camp of Ontario. Some 2.5 million oz Au were recovered from *amphibole and biotite* tuffs that stretch over a few kilometres.

Drill hole 51-3 bottomed after intersecting 10 m of *amphibolite with abundant blue opalescent quartz eyes* below a band of I-F. Although the unit is described as having a *dioritic texture*, it may be of similar origin.

INTERMEDIATE VOLCANIC ROCKS

Dacites were encountered only during the reconnaissance mapping, on the west side of JML. Elsewhere, rocks that are so classed are the most subject to revision. In the field, volcanic rocks are usually classed as intermediate either because of alteration or interlayering. The problem is also evident when comparing assessment data, particularly core logs, filed by various searchers. As the felsic rocks, near JML, become more mafic, the change is noted by classing them as dacites. Likewise when the mafic rocks to the north appear lighter, possibly because of alteration, they are also classed as dacites. Yet, in hand sample, the rocks are unrelated.

The light greenish-grey well bedded rocks, that occur in the NW corner of claim 1182377, were tentatively identified as intermediate tuffs. Upon closer examination, they may be included with sediments however.

Mapping - Geology.....cont'd

FELSIC VOLCANIC ROCKS

Three parallel belts with volcanogenic rocks of felsic affinity are recognized in central Burrows; all are in the JML area. They trend 72° and are separated by 700 and 1000 m.

The major units are: coarse pyroclastics, massive rhyolite and fine sericite schist of tuff. At the base (north) is a dark fragmental and lapilli tuff which is overlain by progressively lighter and progressively finer-grained material of similar composition. Next is massive yellowish rhyolite, then tuff or schist. The latter is very fine-grained, talcky, pale yellowish-green, and serecitic.

The north belt lies between the pond and the NE end of JML. It was intersected over a length of 80 m at the base of diamond drill-hole 81-1 (B-81-1). It consists of the sericitic schist or tuff interlayered with intermediate and mafic bands. Two angular erratics of this material were found long the lake shore, 100 m south of camp. They weigh around 150 kg and sit on exposed mafic lavas.

All units are present in the eastern part of the central belt. They occur, in the sequence described above, over a 6 ha area E of JML. Only the upper fine tuff or schist was seen on the W side of the lake.

In 1981, Newmont mapped felsic fragmental lapilli tuffs along the creek that flows into the southern end of JML. They also mapped *massive felsic unstratified tuff* along their 00 base line, W of Hook Lake. These two sites are connected by an aeromagnetic low which is the basis for postulating a third felsic volcanic belt.

MAPPING - GEOLOGY.....cont'd

SEDIMENTS

Argillite was mapped in only one outcrop located at the south end of Ottereyes Lake. This is 700 S of the eastern part of the property. There are no signs of extensive sedimentary deposits in the central part of Burrows township.

CHEMICAL SEDIMENTARY ROCKS

Burrows township is intersected by a 10 km band of iron-formations that is deflected 42° through the JML area. The ENE arm is 4 km long and strikes 23°. The SSW arm extends for 6 km and strikes around 203°. The 2 bands intersect in a tightly folded area east of JML. It is the area of detail investigations and the only place where formations were examined.

Sulphide facies iron-formation was intersected in every diamond drill hole directed at a geophysical conductor. Hole 75-1 (BU1-75-1) also cut considerable graphite, thus explaining the broad anomaly in this area.

Several facies of I-Fs are present. The following is a description of the more prominent types, based on drill core examinations at government Core Libraries, and field evidence.

CHEMICAL SEDIMENTARY ROCKS.....cont'd

Sulphide iron-formation

Sulphide I-F is easily recognized by a strong geophysical response, especially magnetism associated with conductivity and chargeability.

Across the SW corner of claim 1167620, the overall belt of iron-formations is 160 m wide, and strikes SE. The richest sulphides occur in a 22 m-wide band along the SW margin. The SW contact in turn, is at 52° to the felsic pyroclastics, and apparently, of intrusive nature. On the north side, the rocks are well foliated mafic flows with sections carrying tiny blue quartz-eyes.

Northeast of the detail area, across the NE corner of claim 1167620, there is a sub-parallel band of iron formation which has been outlined by geophysics. Accompanying good conductivity and chargeability responses suggest rich sulphide accumulations.

Sulphide iron-formations are often characterized by a central core of massive pyrrhotite with adjacent bands and seams of pyrite.

Carbonate iron-formation

Carbonate facies I-F occurs in outcrop along the road, south of line 1300N. The location is the site of Trench 7. Brown weathering, probably due to ankerite, is evident as the site was stripped and the rocks have been exposed for several years. The formation lies within the SE-trending belt. It is at least 10 m wide and consists of minor random qtz/carb veins and wavy but strataform 1 cm bands of magnetite. The north contact is with mafic volcanics. Minor well developed crenulations indicate a sheared contact.

CHEMICAL SEDIMENTARY ROCKS.....cont'd

Silicate iron-formation

Highly contorted rich silica beds are exposed on a 70 m^2 surface located between the 2 streams south of the '91 1000N baseline. The site is referred to as the 'Island Showing' in earlier reports on the Jumping Mouse Property. An early sample of weakly mineralized (cp) secondary quartz gave 0.34 oz Au/t. On the present map, it is shown as BS-1 (Blast Site 1). Seven metres south, another blast (BS-2) was made to investigate a flat rock displaying similar material plus a few bands of magnetite. The explosion clearly demonstrated that the rock was a glacial erratic. Subsequent geophysical results do not support the presence of I-F in this area. It is concluded that the entire mass, equivalent to 1300 tons, was glacially transported 330 m, exactly down-ice (65° in this area), from the east side of a smaller outcrop at BS-10. Here, identical rocks are associated with a long band of drilled and geophysically interpreted I-F.

Wether it is folded into the sulphide band, as interpreted from magnetics, and shown on the map, is rather tenuous.

Magnetite iron-formation

All magnetic anomalies exceeding 4000 gammas are interpreted as magnetite or oxide facies iron-formations. The 3 main bands are in the N-central part of claim 1134185, the S-central part of claim 1170526, and near the SW corner of claim 1181535, towards the E boundary of the detail map sheet.

Mapping - Geology.....cont'd

ULTRAMAFIC INTRUSIVE ROCKS

Peridotite

As mentioned above, ultramafic rocks occur along the creek, in the S-central part of the large-scale map. From the small exposure, the rock appears to be intrusive. It is fine-grained, moderately magnetic and, on the weathered surface, it displays up to 23 mm leached angular fragments.

The combined total field and vertical gradient magnetic anomalies indicate that the intrusion is 15 m wide and extends 75 m northerly. Though not completely resolved by the geophysics, it probably extends 45 m S for a total length of 120 m.

MAFIC INTRUSIVE ROCKS

Gabbro

The only gabbro encountered so far is in a short specimen of drill core at the Ministry of Northern Development & Mines Drill Core Library in Kirkland Lake. The sample is reportedly from a 27 m section of *META-ANDESITE TUFF (CHLORITE SCHIST)* intersected around 100 m in the second Hollinger hole. The drill logs do not indicate intrusive material within the volcanic unit. Hole 72-2 (BU1-72-2) is in the SE quarter of the map.

Two hundred and fifty metres SW of Ottereyes Lake, Newmont mapped a complex outcrop with mafic flows, syenite, diabase and gabbro. The material is probably of volcanic affinity, but the generally high magnetic background may indicate a mafic intrusion.

MAFIC INTRUSIVE ROCKS.....cont'd

Vertical gradient anomaly 'A' is about the most accurately defined feature outlined by the detail surveys. Because of reproducibility and positive sign, the anomaly is least likely due to I-F. Essentially, the anomaly has 2 components. It consists of an easterly-trending body of medium susceptibility which is intruded by a more intensely magnetic, near cylindrical, body. The host is 120 m long and 35 m wide. The plug has a diameter of 22 m. Magnetically, the broader unit is comparable to the peridotite that occurs 70 m SW, while the plug is more magnetic than the diabase dikes. The broader feature is in faulted contact with a possible major break, as, it transects the area separating the two main volcanic belts.

Considering that for 700 m northwards the rocks are heavily laced with lamprophyres, there is the possibility of a diatreme. The anomaly is in low saturated ground which agrees with younger and softer rocks.

FELSIC INTRUSIVE ROCKS

Granite

Mapping did not reveal any real area of massive granite. All intrusive granitoid rocks were found in migmatitic zones. Most are along the shores of JML, particularly around the N arm.

Strongly foliated granitoids occur at the north end of the W bay of JML, and along the power line, in Mattagami township, to the SW. At the latter site foliation is NNW.

FELSIC INTRUSIVE ROCKS.....cont'd

Feldspar porphyry

Feldspar porphyry, quartz feldspar porphyry, and felsic dikes with an average width of 1 m were intersected on 11 occasions in drill-holes.

Grey feldspar porphyry with abundant 5 mm blue quartz-eyes was exposed by stripping between lines 1080E and 1100E around 1055N (Trench 6). The contacts are not well exposed, but the intrusion appears to be 3 m wide and strikes NNE. On the east side, are mafic volcanics. On the west side, trenching exposed a graphic soft pale-green talc chlorite schist. Three hundred and fifty metres NNE, a *'grey porphyritic dike in talc-chlorite and talc-chlorite-carbonate zones'* was intersected in a drill hole. A porphyry dyke striking 20° can connect the two areas.

Syenite

Syenite is widely dispersed in central Burrows. The largest exposure is on open ground, 250 m SW of Ottereyes Lake. It was mapped by Newmont in the S part of a complex 75 m outcrop. Other formations are gabbro, volcanic flows and diabase. A smaller outcrop to the north is interpreted by Newmont as belonging to a 400 m X 150 m plug.

In the detail area, syenite was encountered in four holes over lengths ranging from 75 to 400 cm. Hole 87-1 intersected *1 to 4 m sections of mafic syenite* over a total distance of 7 m. No syenite is reported from an earlier, and lower, hole however.

Located at the base of the W outcrop ridge, and facing the creek, the rocks are pale lavender, aphanitic, and cherty. Although they are shown as felsite, on the map, they are probably altered syenite.

Typical pink syenite, probably in the form of a dike and with finely disseminated pyrite, is exposed near the number 2 post of claim 1134185.

Syenite.....cont'd

Frost-heaved syenite boulders, not exceeding 50 kg, occur near 1300E on the '91 1000N B.L.

These syenites fall within a 60 m-wide band that trends in the general direction of the above mentioned plug near Ottereyes Lake.

MAFIC DIKES

Early mafic dikes

Diamond drilling on the Tittley Jumping Mouse Property intersected mafic dikes, of neither diabasic or lamprophyric composition, on 32 occasions. The average true width is 40 cm and the distribution is roughly the same as for the lamprophyres.

One dike cuts the outcrop at 1014E/1090N in an irregular fashion. The presence of small (1 to 3 mm) shards are a characteristic which permitted recognition from drill logs. It is shown on the map as a 'Feeder Dike' paralleling the 1000E base line.

A similar dike occurs 9 km to the south in Cabot township. It was encountered in association with native silver-cobalt-nickel arsenide mineralization by M.W. Carter of the OGS during a mapping project in 1975. He labelled it "Cobalt"-type, as in adjacent townships similar NNW-trending dikes were observed cutting Cobalt Group rocks. Carter believes they can be regarded as Nipissing-type and carry silver-cobalt-nickel mineralization. He also recommends that they be prospected where they show evidence of hydrothermal alteration.

MAFIC DIKES.....cont'd

Diabase

In the 20 holes drilled on the property, diabase was intersected 20 times. Besides the ophitic texture and magnetism, the rock is often recognized by occasional clots of pale green saussuritized feldspar which can reach centimetric proportions and become abundant.

Owing to their nature, the dikes can normally be interpreted from surveys of the vertical magnetic gradient (gradiometric). However, diabase that was intersected, over a core length of 32 m, in diamond drill hole 75-2 (BU1-75-2), is not well outlined on the survey plan. There is some suggestion of a diabase sheet, as mentioned above under 'Early mafic dikes'. It would most probably be Nipissing Diabase in this area.

Lamprophyre

Lamprophyre was intersected on 57 occasions in 16 of the 19 holes drilled in the detail area. The average width is 32 cm.

Exposures are confined to the two east bedrock ridges (E of 1000E base line). The dikes usually form chevrony patterns that stretch in all directions. Around 1225N on the '91 grid they are well exposed near the road. The smooth outcrop consists of highly garnetiferous lapilli tuff.

Lamprophyre found by either drilling or in outcrop is mostly confined to 7 hectares situated north of the main E-W break, and the 1000N base line. The zone is due NS, around 110 m wide, and about 600 m long. Elsewhere, lamprophyre dikes and lamprophyric material were encountered in drill holes along the SE-trending I-F belt.

SURVEY RESULTS.....cont'd

Quaternary Geology

The eastern part of the property is covered by glaciofluvial outwash deposits. The JML area, in the western part of the property, is central to a broad expanse of glaciolacrustine and organic deposits. This area is transected by a northerly-trending braided esker that accounts for the hummocky terrain through the northern and eastern parts of the lake. (see Figure 9)

Although till is not shown on government maps (See Figure 11), it has been examined in the area east of JML.

Most of the exploration over the past 43 years was conducted in search of the source of the rich gold-bearing floats. In modern terms, nearly $500,000 were expended in the Jumping Moose Lake Area. Consequently some effort was directed at examining the glacial debris, especially the tills and their mobility.

The author visited the property in the company of Uly Wagner (glaciologist, Esso Minerals) in 1975. W.O. Karvinen, Ph.D., examined the till, in 1980, while studying the source of the gold floats (see REFERENCES). In 1981, with the help of Dr. Heikki Hirvas of the Geological Survey of Finland, he sampled the till for Newmont Exploration, optionees.

The overall conclusion is that the floats originated near 1400N on the 1000E base line. The area is 120 m E of camp and is believed to be covered with 2 to 3 m of glacial debris. Inexplicably, the area has never been tested.

Quaternary Geology.....cont'd

A different approach to the study of glacial transport was used during the current investigations. Most important is the realization that the 'floats' found on the Jumping Mouse Property are actually giant glacial erratics ranging up to nearly 1000 tons. They are actually blocks that were probably frost-heaved between minor ice surges. These 'boulders' are in sharp contrast to 95% of the boulders that are mostly 6 kg rounded granites. (See Figures 10 and 11)

All major surface erratics in the detailed area were located. Based on geophysics, it is possible to conclude that a ≈63 ton block of I-F, located near the main gold floats, is an erratic, and, to a lesser degree, it can also be shown that the Island Showing is a ≈922 ton erratic (see Silicate iron-formation, above). The latter was 'discovered' during the preliminary stages and reported on previously. Later, it was partly stripped and blasted. It is shown as BS-1 on the map.

Trench 2 was excavate to determine the nature of exposed sericitic schist or felsic tuff. It revealed to be a ≈77 ton float.

The outcrop situated 40 m S of #2 post, claim 1134185 was not map by previous operators, probably in the belief that it was not bedrock. Now, realizing the magnitude of mobile blocks, it is possible to imagine that all exposed rocks in this area are erratics. This is made easier considering they compliment neither the geological and geophysical picture.

Excluding the gold floats, 9 major erratics were located. They consist of I-F, mafic tuff, felsic tuff and diabase. All can be traced northerly to a source on the property. This is especially true of the enormous silicate I-F at BS-1. Identical material is found on the east side of the outcrop at BS-10 which is along the central I-F band.

The erratics near BS-7 are most likely derived from the uniform magnetic body outlined by the vertical gradient anomaly D.

Quaternary Geology.....cont'd

Calculations based on the average direction and distance of transport, which is 172° and 272 m respectively, place the source of the gold in the same stratigraphic horizon and 70 m east of the postulated source as determined by Karvinen and other glaciologists. The area possesses all the physical characteristics found in the rich gold floats.

At present, the floats occur as a mound of boulders ranging up to 5 tons individually. Originally, it was probably in the form of a ≈247 ton block. In recent years, it was drilled, blasted and, much of it, carted away.

Mineralization

Gold is the most quested mineral on the Tittley properties In situ ore grade values were obtained in 2 dissimilar geological environments, while high grade and very rich values are confined to glacially transported floats.

Formerly, the mafic blue quartz-eye tuff was examined in outcrop and drill core in the belief that it was the source of the gold-bearing floats. The seven highest gold values obtained range from 0.01 to 0.20 oz Au/t across an average width of 0.67 m. Three potential ore grade samples, assaying between 0.08 and 0.20 oz Au/t, averaged 0.94 m in width. A bedrock sample taken from the westerly outcrop assayed 0.021 oz Au/t and 0.085% Cu.

As mentioned earlier, the BQE is not the principal gold host. More promising mineralization occurs in the overlying 6 m of felsic pyroclastics. Average of the 2 strata is 268 ppb Au across a total width of 13 m. (See Figure 7)

The richest bedrock sample from the Jumping Mouse Property, and possibly all of Burrows township, ran 0.387 oz Au/t and 0.008% Cu. It is from the "Island Showing' in the central part of claim 1171902. Since the assay was made however, it was realized that the sample may have been contaminated during preparation, and that its source is probably mobile.

Mineralization.....cont'd

It can probably be assumed that sulphides are present in all I-F bands, and mainly pyrite. Pyrrhotite is confined primarily the bands of sulphide facies ironstone, accounting for the strong conductive responses. Chalcopyrite in small quantities appears to be pervasive, but with some increase in heavier sulphides. During the 1980 program, Karvinen exposed beds of massive to disseminated pyrite across the I-F in the SW corner of claim 1167620. According to reports, they are gold-bearing. One 4.5 m thick bed of massive sulphides with <½% chalcopyrite was bulk sampled, but the results are not given.

Since the main gold floats were largely decimated over the past 43 years, a reliable description must be based on early accounts. The following are excerpts from reviewed documentation.

"The main zone of float lies in the east central portion of claim 414865. One large float of milky to orange stained and rusty quartz assays up to 7.0 oz Au/t with some native gold being noted. Other qtz floats from the area generally ran NIL, with the exception of a magnetic sample which yielded 0.10 oz Au/t. This suggests that there is possibly some connection between the presence of gold values and the iron-formation". (Alexander 75)

"One grab sample they took (Dominion Gulf) is reported to have assayed 2.85 oz. Au/ton". (Bowden 82)

"Comparing mineralized zones with till, heavy mineral non-magnetic and magnetic fractions, gold is generally anomalous in the non-magnetic heavy mineral fraction indicating that the gold mineralization is not exposed and ... is not in the magnetic zones. This indicates that gold is in either sulfide facies or sulfide carbonate ironstones or in mineralized altered host rock. If gold was tie up in quartz it would likely have been carried off during heavy media separation". (Bowden 82)

"Large boulders (>3 m) with vein quartz carrying gold mineralization were found in Burrows township during logging operations in the late 1940's." (Karvinen 81)

Mineralization.....cont'd

"The mineralized boulders are predominantly vein quartz with some carbonate in country rock of chloritic mafic volcanic and chloritic blue quartz-eye tuff. Pyrite is common, and in some, particularly in high grade boulders, the predominant sulphide is chalcopyrite. They are generally angular and range in size from a few inches to over 4 feet. Samples assayed from these boulders averaged 0.27 oz Au/ton". (Karvinen 81)

"The numerous high-grade vein quartz boulders are located in hummocky till along a north-south ridge." (Karvinen 81)

"A large jagged block of rusty float (about the size of a small car) was found in 1950 near the northwest corner of claim S-55400 (in the centre of the group). The rock appears to have been a basic volcanic with well developed gneissosity cut by an irregular series of quartz veins some of which are up to 6" in width. The quartz is well pyritized and contains visible gold. Fine stingers of a silvery white mineral which might be a telluride can also be seen. One grab sample is said to have given a gold assay of over $100.00 per ton." (3.0 oz Au/t) (Savage 52)

While working at Hollinger this writer encountered a boulder field, in low saturated ground, with many limonite-stained quartz boulders. They ranged in size from 2 to 10 kg. and usually contained < ½% sulphides and from 0.12 to 0.75 oz/t Au. The polished side of a respectable 4 kg sample, carrying minor sulphides and 0.37 oz/t Au, still displays a characteristic orange tint. Samples of the large floats, with pyrite in translucent quartz, ran 8, 13 and 22 oz/t Au.

There is mention, in the Assessment Files, of a sample which contained 20 oz Ag/t with a gold/silver ratio of 1:4.

Mention of tellurium (tellurides) is encountered several times in assessment records, but always without evidence of follow up investigations. The terms 'brassy' and 'silvery', used to describe some mineralization, apply to several telluride minerals. Altaite, a lead telluride, is one of the more common tellurides in the Kirkland Lake gold deposits. The principal silver tellurides, that could account for the silver, are petzite [$(Ag,Au)_2Te$], hessite (Ag_2Te), krennerite [$(Au,Ag)Te_2$] and sylvanite ($AuAgTe_4$).

Mineralization.....cont'd

Assuming the gold is also derived from tellurides, the more likely minerals would be petzite, krennerite and sylvanite. Krennerite is the more proximal; it occurs at the former Ashley Mine, 44 km NE.

Results from samples, taken by the Resident Geologist and examined at the Temiskaming Testing Laboratories, indicate that the gold is not in the form of a telluride. It was verbally communicated to this writer that, following microprobe analysis, most of the gold is micron-size and in the quartz.

The following are results of four samples submitted for tellurium assay. For the sake of comparison some of the values shown below have been mathematically derived. (see List of Samples)

	Te	Au	Cu	Ag	Pb
-HT-1	@985 ppm	13.98 oz/t	-	-	-
*HT-1	520 ppm	10.20 oz/t	460 ppm	323 ppm	200 ppm
-HT-2	@2150 ppm	36.96 oz/t	-	-	-
-HT-3	@16 ppm	-	-	-	-
*BU1-7	520 ppm	3.08 oz/t	-	321 ppm	200 ppm

* Chemex Labs, Vancouver
@ Ontario Geological Survey, Toronto Labs.
\- Temiskaming Testing Laboratories.

Structure

The structural geology of central Burrows becomes progressively more complex has investigations proceed. This is especially true of the Jumping Moose Lake area, where the sedimentary-volcanic belt has been ruptured and rotated 21°. It also appears to have been shortened through tight folding. What was previously considered a sharp fold, is now viewed as a structural break (see Plan F of the detail geology). Furthermore, diabase dikes trending around 149° through the volcanic sequences of Burrows and Cabot are deflected about 16° easterly through the volcanic belt.

Structure.....cont'd

The two belts are separated through the central part of JML. Though an E-W break through the area is suggested by a strong magnetic low, it has not been identified in the outcrop area which extends from the creek to the 1000N base line. At blast site 8 (BS8), which is only 28 m south of the projected break, the rocks are the most heavily carbonanitized, and appear vertically foliated.

An enigmatic characteristic of the Jumping Mouse Property is that foliation can often be observed in vertical section only; somewhat like tall grass. It is easy to perceive underlying pressures. This is observed in outcrops to the NE, at BS-7, to the W and, to a lesser degree, in outcrops near hole 87-6, to the N.

The combination of privately processed provincial aeromagnetic data and published government maps indicate a northeasterly-trending fault through the N end of JML. The feature also has a topographic expression, suggesting a broad zone of softer rocks, or an active fault. Parallel topographic lineaments occur up to 1. km farther N in suspected granitoid terrain.

Prior to past summer activities, HZT prospecting acquired recent government aeromagnetic data for Burrows township. Dighem Surveys & Processing Inc., of Mississauga, then processed the data and produced coloured 1:20 k maps of the total field and first vertical derivative. The maps were further enlarged to 1:10k and used extensively to assist the geological interpretation. (Plan F)

One of the more salient feature is a N-S dike/fault between Jumping Moose and Hook lakes. The feature coincides with a pronounced N-S magnetic trough when projected into the detail area. Complete absence of any positive ground magnetic gradient, however, indicates that either the dike is no longer magnetic, or that only the structural component is present. Figures 4,5 and 6 show the IP profiles across that zone.

Other faults and shears, interpreted from the various data, are shown on the 2 accompanying geological maps.

SURVEY RESULTS.....cont'd

Prospecting

Nearly all prospecting activities are more closely related to the mapping than the search for mineral showings. This is mainly due to the paucity of outcrops. In such a neglected township, the mineral potential can be determined more readily by establishing a geological base.

Blasting and trenching were only carried out in the detail area near JML. Samples were collected from most of the visited sites. Where interesting mineralizations were encountered, part of the sample was assayed. The results are table in a List of Samples at the end of the report.

Five samples of lake-bottom sediments, collected from the central channel in the northern part of JML, gave < 5 ppb Au and < 0.1 Te when assayed.

Power Stripping

Trench 1 The in-situ quartz found beneath a large pile of quartz boulders does not appear to be a definite vein structure. The rocks are intensely silicified. Though they could be affected by, they are not part of the sedimentary I-Fs. At the northern end, at swamp level, the rocks are in contact with a very soapy talc-chlorite schist. The mineralization is mainly py. It is heaviest, up to 3%, along the quartz margins.

Samples BU-64 and BU-65, collected at this site, gave 204 ppb and trace Au respectively.

Trench 2 It was determined that the exposed sericite schist is part of a ≈77 ton glacial; erratic.

Trench 3 Excavations were carried out over a high resistivity anomaly outlined by a Newmont survey in 1981. Bedrock was not encountered. Fine sand to a depth of 2.5 m is the probable cause of the anomaly.

Power Stripping.....cont'd

Trench 4 The removal of a light soil veneer revealed a distinct purplish-grey rock with weak black irregular bans and well developed glacial striae.

Blasted (BB-7) sample BU-71 is a syenitic feldspar porphyry. Phenocrysts range up to 2 mm, and there are occasional blue quartz-eyes. Only one sulphide speck is visible ion the hand sample.

Trench 5 No bedrock was found in this 3 m excavation. Interestingly though, the gravel appears to be a rusty till.

Trench 6 A small area was stripped and trenched to uncover a small domal exposure of BQE porphyry. Though the contacts were not well exposed the intrusion appears to be 3 m wide and strikes NNE. To the E are mafic volcanics. On the west side, trenching exposed a graphic soft pale-green talc chlorite schist.

The average size of the trenches is 20 cubic metres. Their location and dimensions are shown on the geological map.

CONCLUSIONS

Meticulous field studies in the Jumping Moose Lake area combined with thorough re-examination of previous work in central Burrows reveal promising areas for the discovery of economic mineral deposits.

Indications are that the rich gold-bearing glacial erratic block was transported from a 1500 m^2 area which centres near 1400N on the '91 1000E base line. The source is under a few metres of overburden. It consists of Au-Ag-Te ore that ranges up to 37 oz/t Au, 22 oz/t Ag and 4 lbs/t Te. The area is 325 m north of the floats.

Within 400 m north of the float there are 11,000 m^2 of iron-formations, and 30,000 m^2 within a radius of 600 m.

Considering that only 4 I-F floats were encountered, it can be postulated that gold also occurs in other parts of the broader structural complex.

There is evidence of 6 km-long auriferous stratigraphic unit. It consists of felsic pyroclastics and a mafic blue quartz-eye tuff, with a combined average of 268 ppm Au. Widths of 1.1 m running 0.20 oz/t Au have been obtained from the zone.

There is also evidence of a pipe-like structure. It occurs near the centre of local deformation, and a zone of multiple lamprophyres. Many of these features are associated with diamondiferous diatremes. In not too distal townships, lamprophyres were determined to be unusually young.

RECOMMENDATIONS

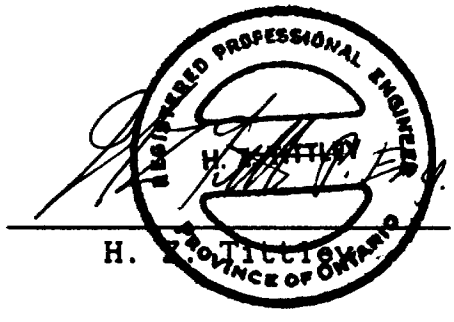
The purported source of the rich gold floats should be tested by diamond drilling. It should be part of a program that involves testing several features within the broad chargeability zone that lies up-ice from the floats. Drilling should also be conducted on the ice of Jumping Moose Lake to test the major contact and weak conductive responses. Holes should be short, not exceeding 50 m, on land. Such a project involves a minimum of 20 holes.

The auriferous blue quartz-eye stratigraphic horizon should be delineated by detail geophysics, over a distance of 1300 m, through the central part of the property. This should be accomplished by extending the 1000N base line and establishing a grid of lines at 40 m intervals. Magnetic, gradiometric (manual), and VLF surveys should follow. Outcrop areas and possible outcrop areas, that are noted during the surveys, should be prospected and mapped later.

A 20 m vertical diamond drill hole should be sunk at 1072E/975N on the '91 Grid, to check the composition of the magnetic plug.

* * * * *

Respectfully submitted,



H. E. Tittley

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TITTLEY Properties 1991 Grid

Burrows Township - MAGNETIC SURVEY - East-West Grid - Calculated Regional, B2 = (A1+A2+A3+B1+B2+B3+C1+C2+C3)/9

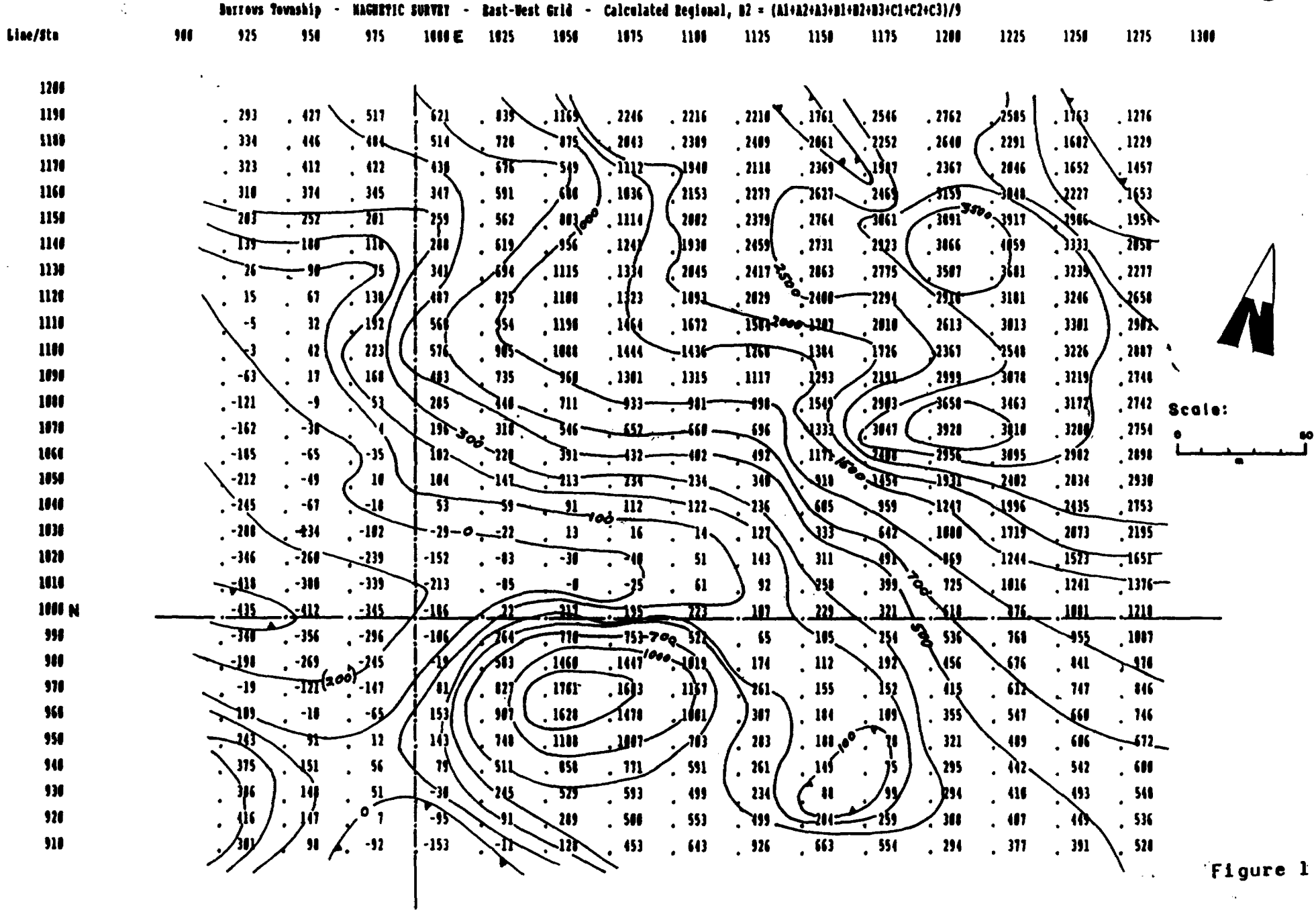


Figure 1

TITTLEY Properties 1991 Grid

North-South Grid - Magnetic Survey -- Calculated regional, B2 = (A1+A2+A3+B1+B2+B3+C1+C2+C3)/9

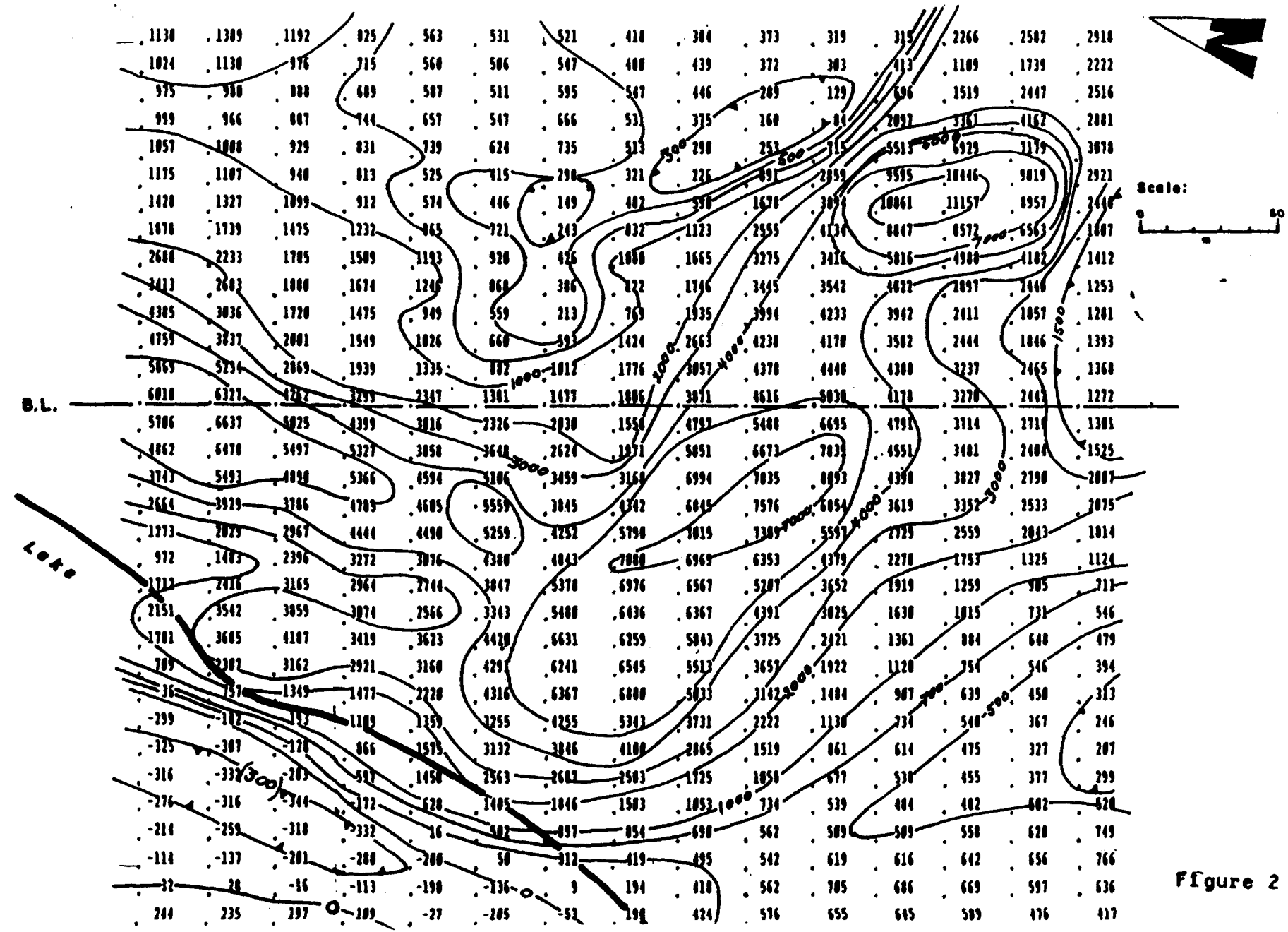


Figure 2

TITTLEY Properties - Burrows Township 1992 Grid

Calculated Regional B3=(A1+A2+A3+B1+B2+B3+C1+C2+C3)/9

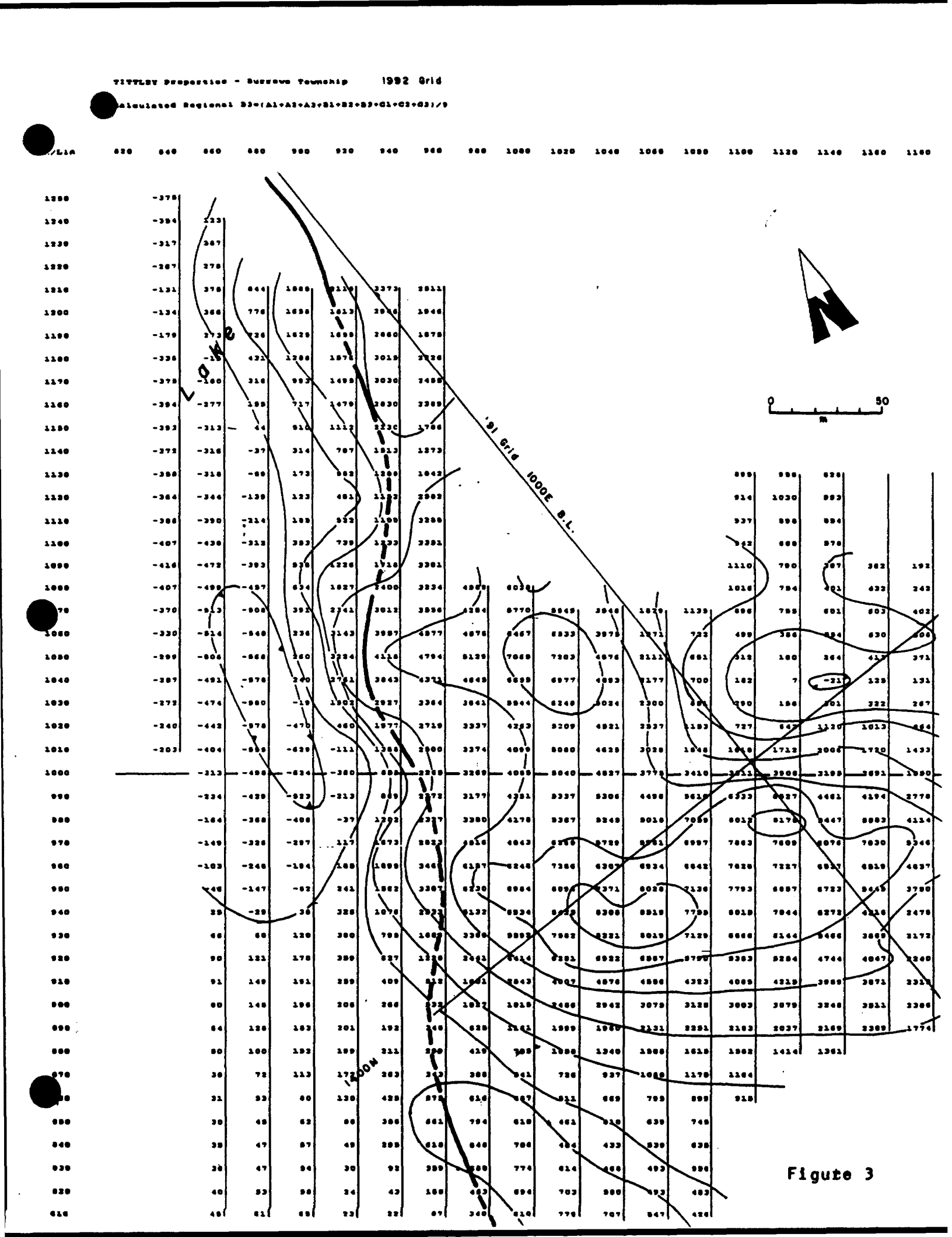


Figure 3

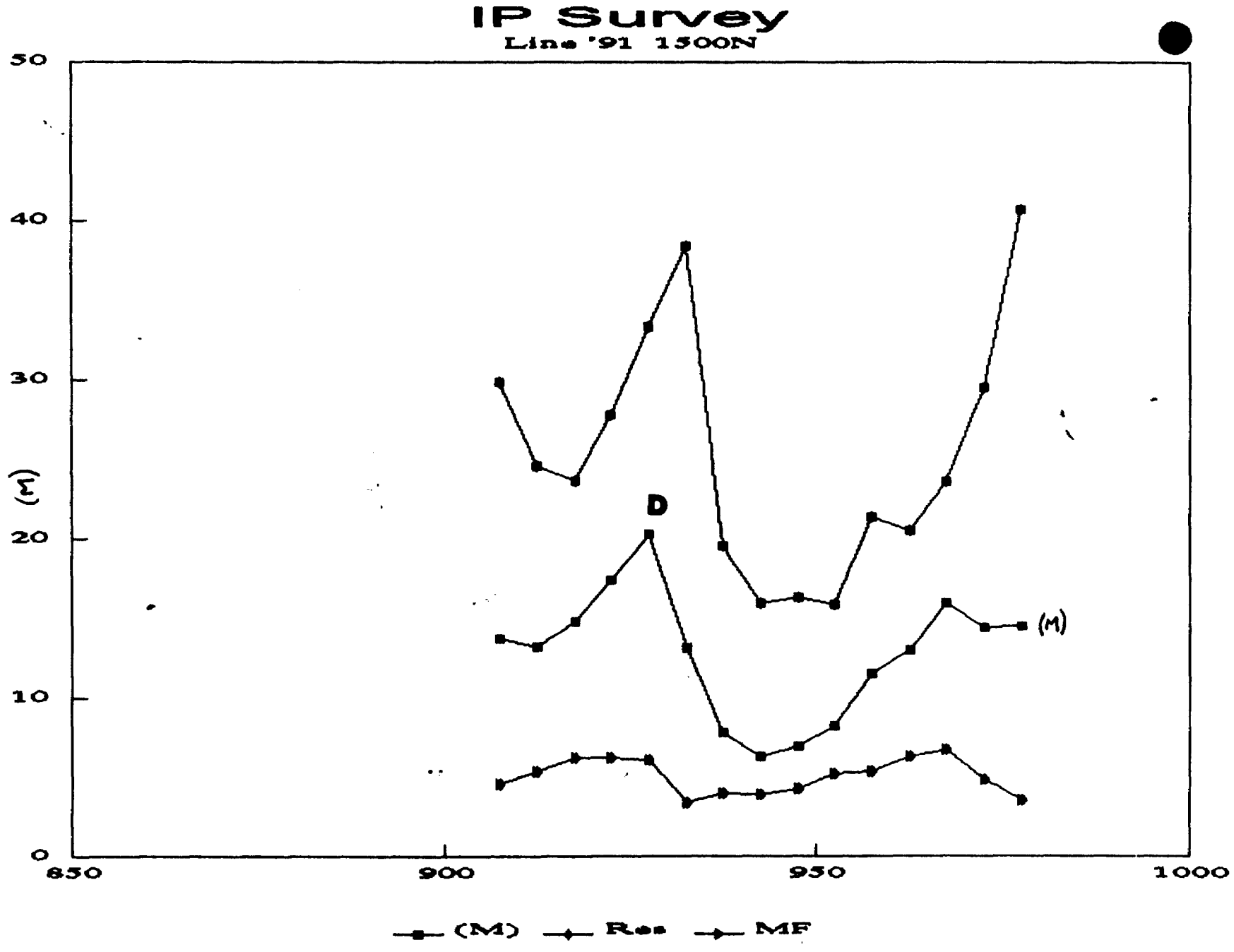

IP Survey
Line '91 1500N
50
40
30
20
10
0
(Ω)
D
(M)
850
900
950
1000
(M)
Res
MF

Figure 4

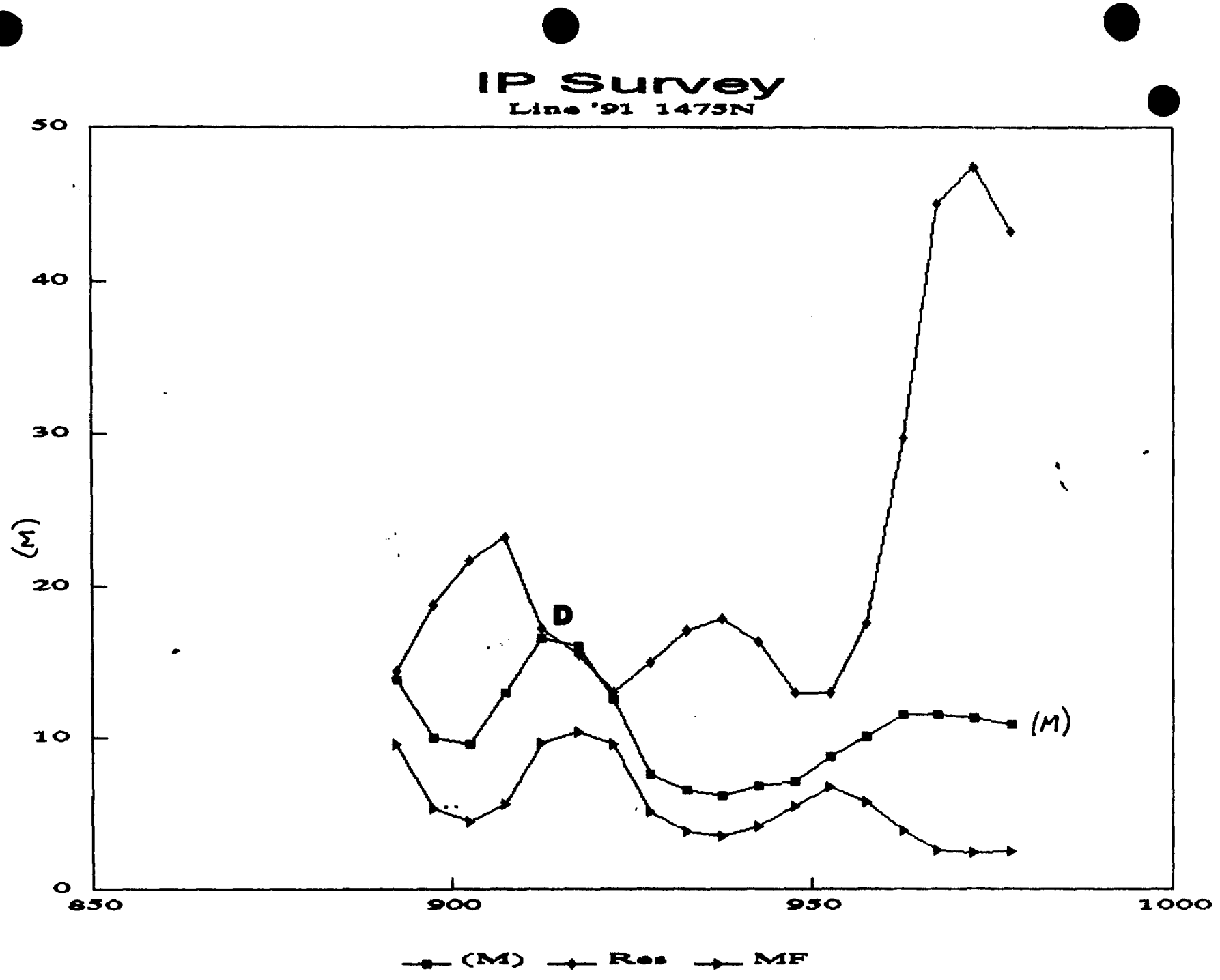

IP Survey
Line '91 1475N
50
40
30
20
10
0
(M)
D
(M)
850
900
950
1000
(M)
Res
MF

Figure 5

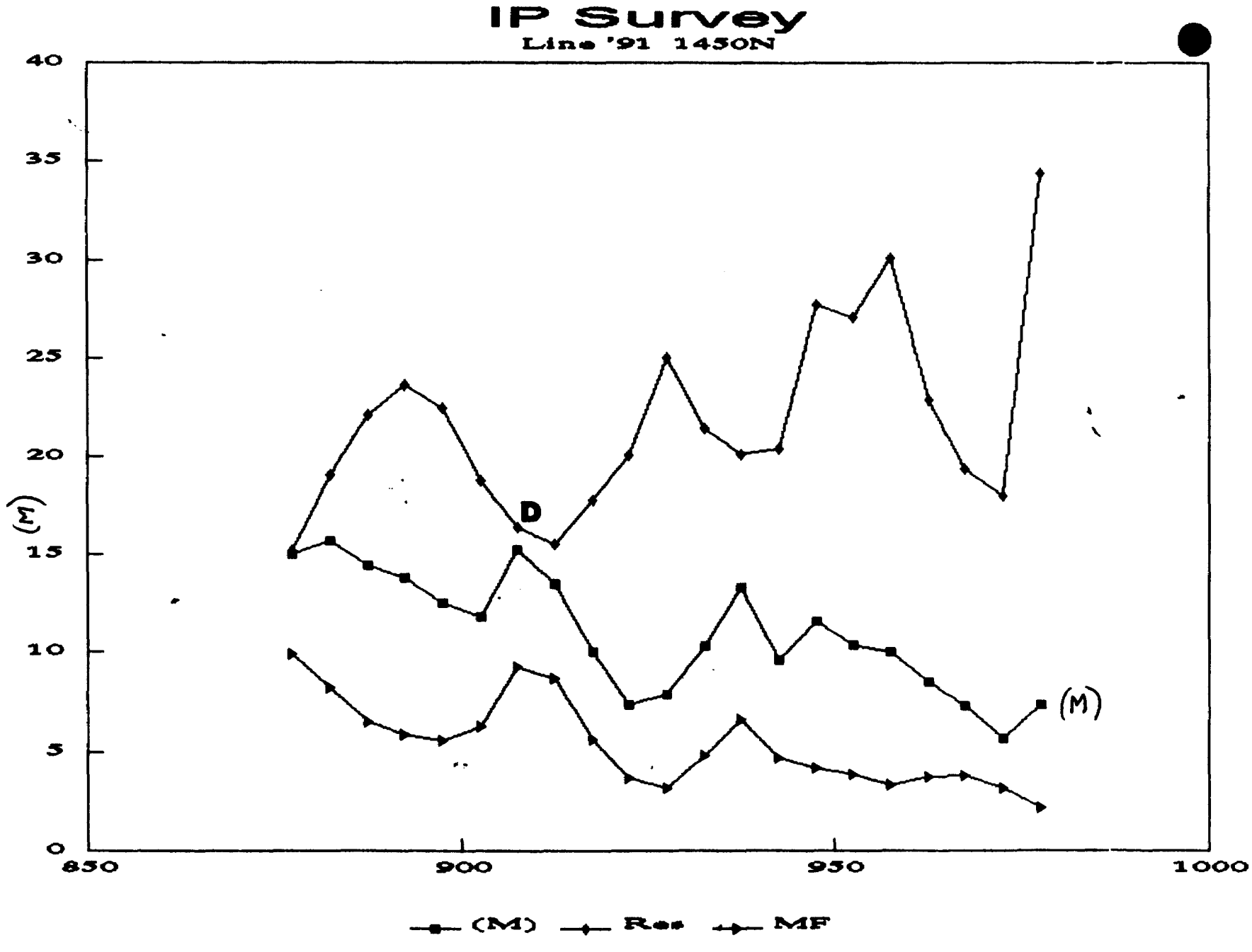

IP Survey
Line '91 1450N
40
35
30
25
20
15
10
5
0
(Σ)
D
(M)
850
900
950
1000
(M)
Res
MF

Figure 6

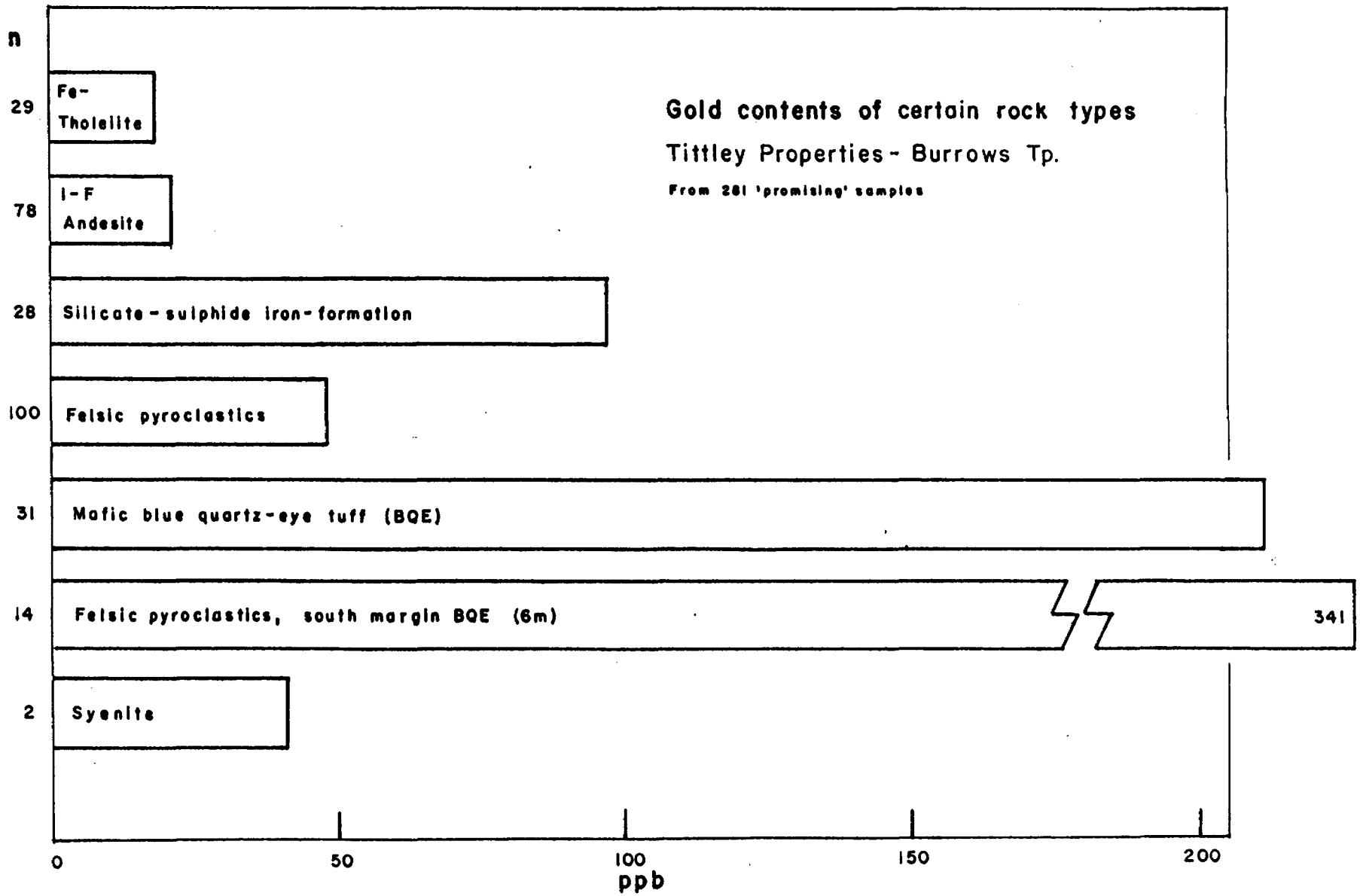
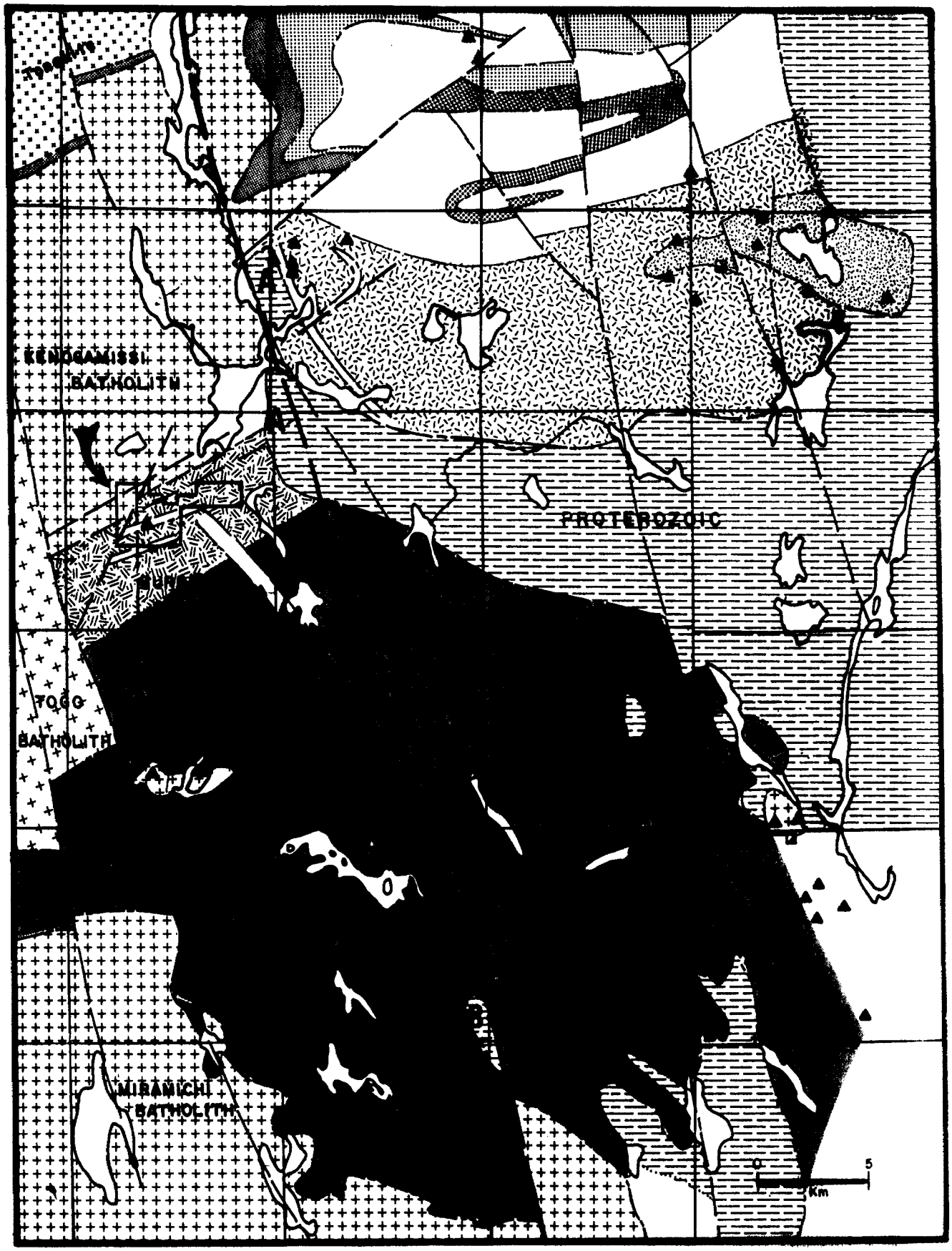

n
29
Fe-
Tholeiite
78
I-F
Andesite
28
Silicate-sulphide iron-formation
100
Felsic pyroclastics
31
Mafic blue quartz-eye tuff (BQE)
14
Felsic pyroclastics, south margin BQE (6m)
341
2
Syenite
0
50
100
150
200
ppb
Gold contents of certain rock types
Tittley Properties - Burrows Tp.
From 281 'promising' samples

Figure 7



BASIC STRATIGRAPHY & STRUCTURE

younger

Midlothian
Holliday
Shining Tree
Tisdale Middle Fm.
Granitoids

Assemblages

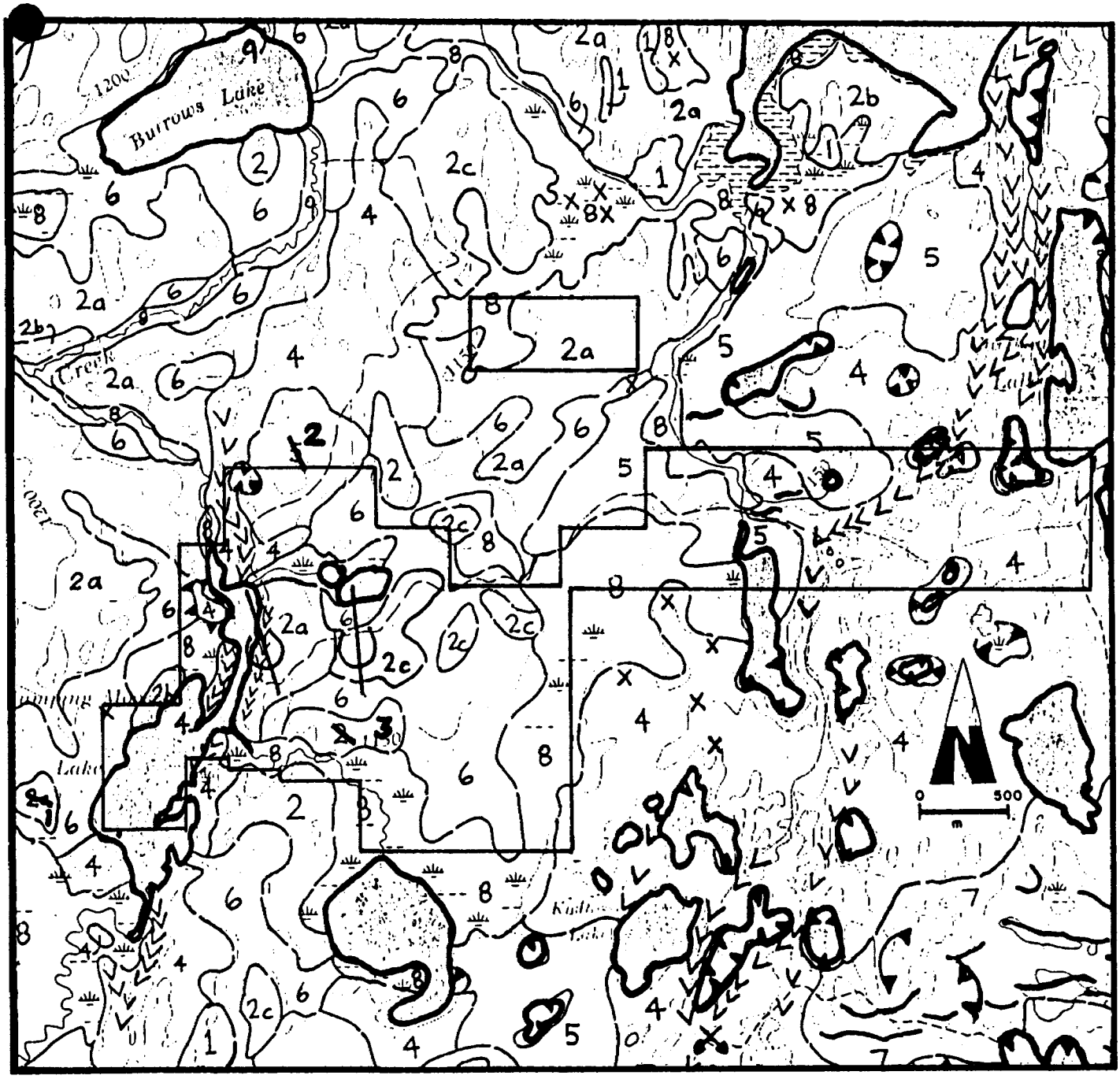
Zavitz-Hutt Mg tholeiites
Zavitz-Hutt Fe tholeiites
Burrows Mg tholeiites
Burrows Fe tholeiites
Tisdale Lower Fm.
English
Deloro Upper felsic
Beemer
Deloro Upper mafic

▲ Gold occurrence
Gold mine

TITTLEY Properties

after Carter '87, Hrabi & Helmstaedt '91

Figure 8



1-Bedrock, 2-Bedrock-drift complex, 3-Till, 4-Ice-Contact Stratified drift, 5-Glaciofluvial Outwash deposits
6-Glaciolacustrine deposits, 7-Eolian, 8-Organic deposits, 9-Alluvial deposits, X-Outcrop After OGS P.3166 '90

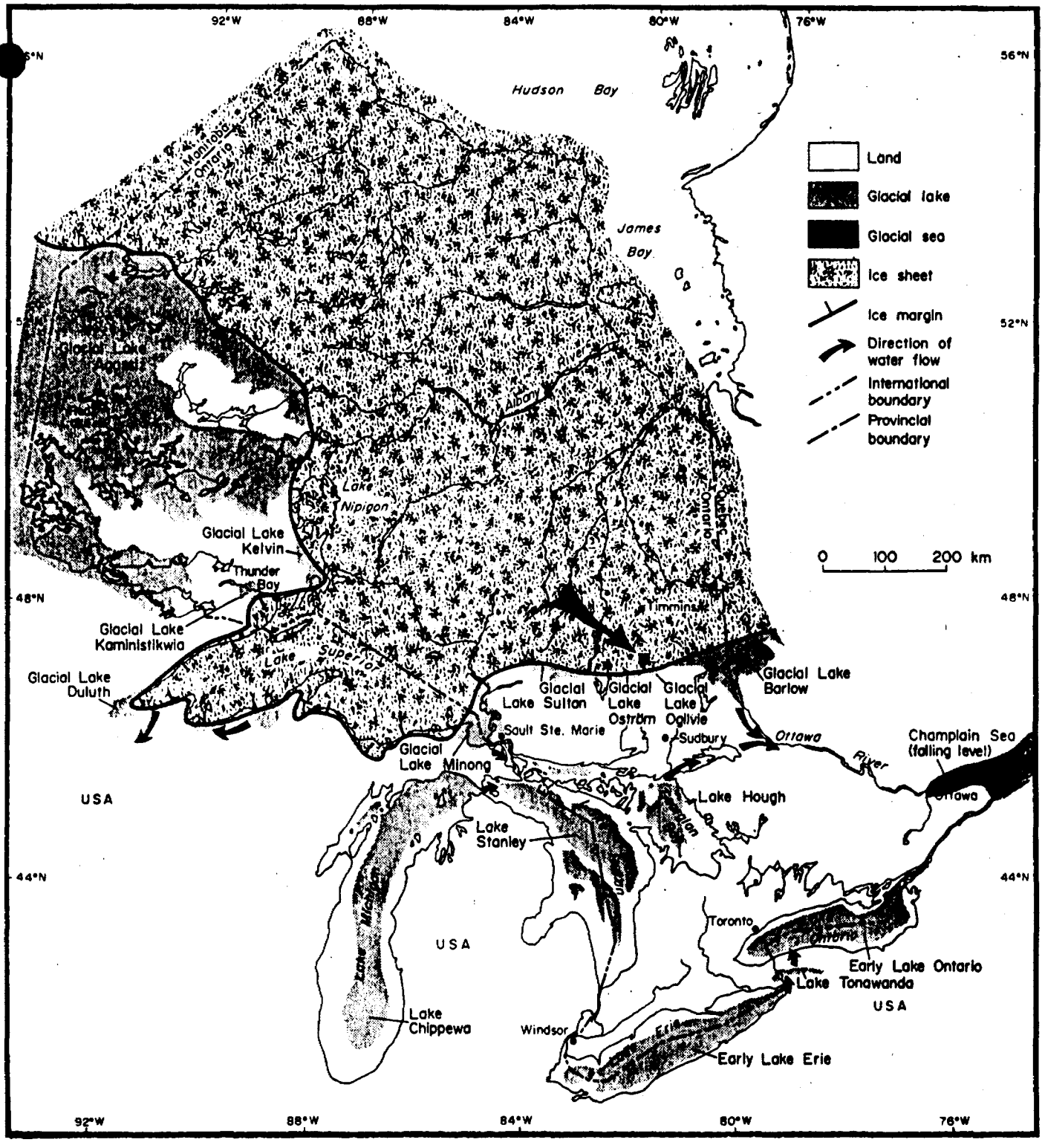
Quaternary Geology

TITTLEY Properties

Burrows Township

Larder Lake Mining Division
ONTARIO

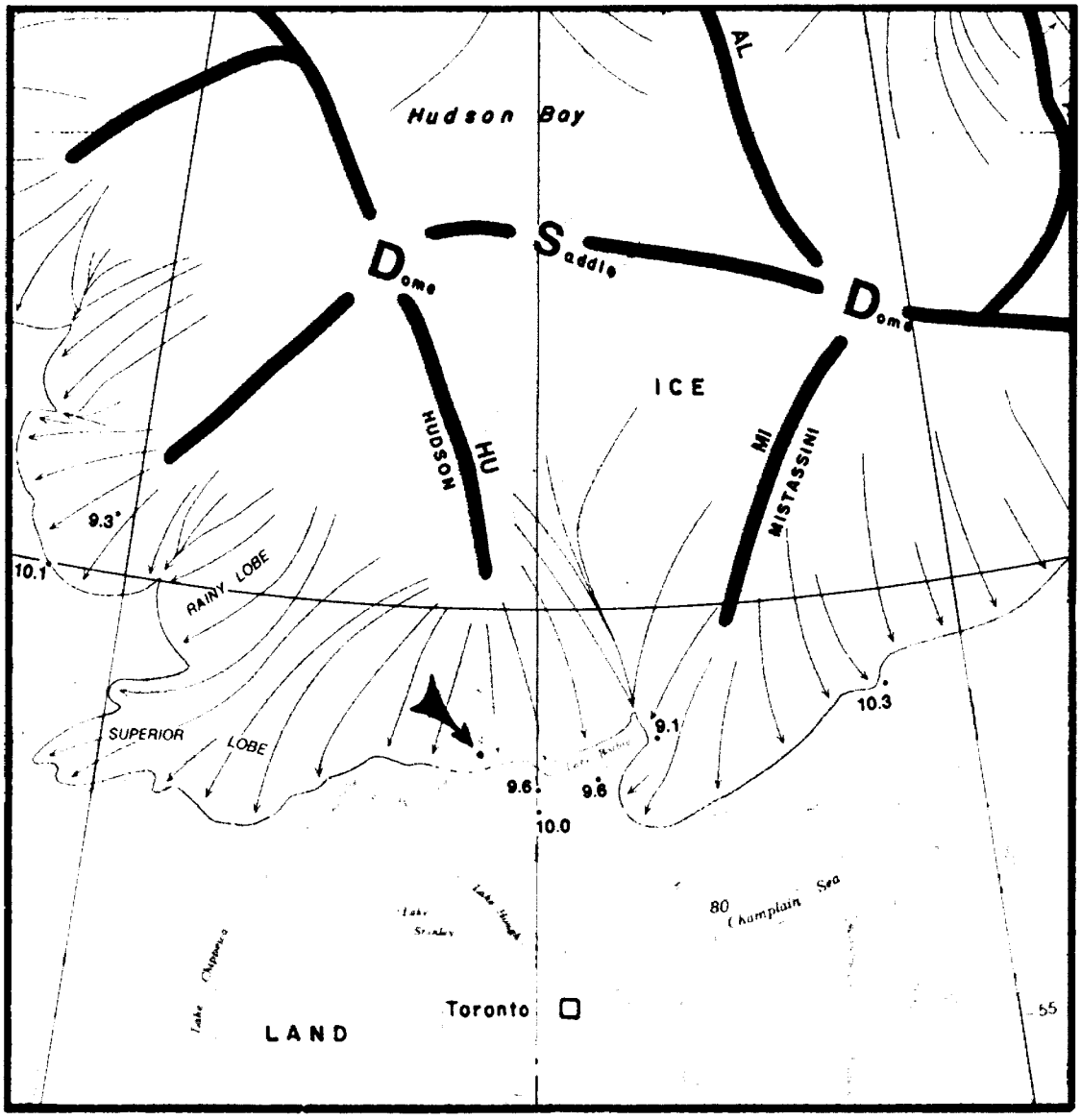
Figure 9



Deglaciation of Ontario: the beginning of the Holocene with the Marquette advance approximately 10 000 years ago. Many sources were used in the construction of the paleogeographic map presented, except where noted.

TITTLEY Properties

Figure 10



PALEOGEOGRAPHY 10 000 years before present

TITTLEY Properties

Scale: 1:12.5M

GSC Map 1703A, 1987

Figure 11

TITTLEY Propreties - Burrows Township, Ontario

SAMPLING, Rocks and Mineralization

91 Grid

No.	East	North	DESCRIPTION	Au oz	Ag oz	Cu %	Te
HT-3	1132	910	Island Showing Qtz w/dark non-metal mineral & minor cp	0.39		0.01	15.7ppm
BU-51	1132	912	Island Showing (Sample 1-3-A) Quartz vein, portion w/heaviest black opaque mineral	0.009			
BU-56	1132	912	Island Showing Qtz vein portion low in dark opaque mineral; with sample BU-51 above.	0.037			
BU-57	1132	896	South Island showing, poss float Well min. (10% py) banded I-F; mainly siliceous as Main Isld Show, but w/1 cm bands of magnetite. (Samples 6-13-A & C)	0.104			
BU-58	1069	1283	North end E strip area (Sample 1-1-A) N margin of IF, silicified andesite w/3% sulphide from a 10 cm band to S towards I-F.	0.031			
BU-58a	1069	1283	North end E strip area (Sample 1-1-C) Highly crenulated mafic rock immediately N of I-F, suggesting important E-W shear zone.				
BU-59	1069	1283	North end E strip area (Sample 1-1-B) Country rock with 1-2% py	0.007			
BU-61	1132	912	Island showing Massive sulphides.	Tr			
BU-62	1132	912	Island showing Copper-rich portion of qtz vein with considerable sulph. in qtz	Tr			
BU-63	1132	912	Island showing I-F-type quartz with 2% sulphides.	0.007			
BU-64	1073	1226	Qtz vein trench, East stripping area Rich sulphide splash from S end of trench.	0.006			

SAMPLING, Rocks and Mineralization

91 Grid

No.	East	North	DESCRIPTION	Au oz	Ag oz	Cu %	Te
BU-65	1075	1230	Qtz vein trench, East stripping area Splashes of fine py cubes from N side of main qtz vein.	Tr			
BU-66	962	1249	Old trench - Blast #8 Bedded dk garnetiferous tuff with 45% qtz flooding, 1-2% py-po with some py in quartz.	0.002	Nil	0.012	
BU-67	962	1248	Old trench - Blast #8 I-F, heavy sulph portion w/qtz flooding 65% py, 5% po.	0.008	Tr	0.025	
BU-68	962	1248	Old trench - Blast #8 I-F mineralization, garnet mafic tuff w/qtz & sulph bands (as 66 & 67 above)				
BU-69	1134	1170	Old stripping - Blast #5 (To be examined and sampled)				
BU-70	1028	1246	Old stripping - Blast #9 Massive highly carbonatized volcanic rock of probable mafic origin, minor very finely disseminated sulphides.				
BU-71	938	1215	Power stripping #4 - Blast #7 Highly alter'd wkly fol purplish-grey rock w/weak porphyritic appearence. Purple tinge distrib irregularly.				
BU-72	1077	1135	Old stripping - Blast #4 Good elongated fragmental appearence in outcrop which is not too visible in blasted samples. Also, the zone has magnetic portions, does not appear felsic in hand sample, minor py.				
BU-73	1142	1247	Old stripping area - Blast #10 I-F w/diss & narrow seams mag & occ po.				
BU-74	1177	939	Blast #3 Greyish & pale-green volcanic rock w/considerable mm & cm calcite veinlets Fol mainly vertical, suggesting underlying thermal source. Wkly fol, rare fracture pattern. Narrow irregular 10 cm inclusions containing light-coloured fragments. Carbonatized sections with sulphides including cp along slips & seams. All apparently overlying a harder carb unit with distinct large phenocrysts. Poss. I-F margins. (Samples 11-1-A & 6-10-A&B)				

SAMPLING, Rocks and Mineralization

91 Grid

No.	East	North	DESCRIPTION	Au oz	Ag oz	Cu %	Te
BU-75	1256	999	East outcrop ridge Mildly foliated hornblendite occurr. as a blob or 10 cm zone in andesite. Outcrop surface displays many flow features. Approx 1% mainly py generally trending with foliation. NB: No surface evidence of foliation				
BU-76	1256	997	Knobby andesite with poss heavy calcite, including pinkish. Odd fabric to be compared with UM near creek.				
BU-77	1154	888	Sheared non-magnetic hornblende gabbro. Sheared andesite to south.				
92-10	180m N of #2 clm 1120406		Weakly amphibolitized volcanic Light-green chloritic sections Assay specimen = 50% glassy qtz, minor venining & up to 1cm py blebs	Nil			
92-11	270m N of #2 clm 1120406		Weakly foliated f.g. very dark mafic volcanic rock w/<½% sulph streaks Moderately magnetic				
92-12	180m E & 40m 112046 #3		F.g. schistose amphibolitized folded mafic vol w/ conformable qtz veinlets in folds & few pervasive elong py blebs. Faintly magnetic spots. Alteration to biotite-phlogopite	Tr			
92-17	Small reef W side JML		Mod foliated dk grn amphilitic, non-magnetic rock w/no visible sulp				
92-18	-411	897	Tin Buttes Area Massive to weakly foliated rhyolite w/somewhat pinkish alteration & py cubes				
92-19 '92	-702 -303	1125 -25	Tiwn Buttes Area From N pt of 12m wide shear zone w/qtz carb vein. ¼ sample = sugary qtz veining w/no sulp. ¾ = dk hornblend w/40% sulp, mainly py.	0.007			
92-20 '92	-702 -303	1125 -25	Twin Buttes Area From N part of 12m wide shear zone w/qtz -carb vein w/mainly sugary qtz & some glassy qtz containing rare py cubes & one cp splash. Gangue is grn amph to chlorite. Carb is ankerite.	0.002			
92-21 92	-702 -304	1124 -25	Twin Buttes Area From S pt of 12m wide shear zone w/qtz Olivine hornblende rock w/50% sulp consist mainly of py as net texture & similar in weathered appearence to rich Au-sulp float.	0.002			

SAMPLING, Rocks and Mineralization

91 Grid

No.	East	North	DESCRIPTION	Au oz	Ag oz	Cu %	Te
92-22	-702	1124	Twin Buttes Area	Tr			
'92	-304	-25	From S pt of 12m wide shear zone w/qtz Coarse hornb w/elongated 1.5cm seams of up to 80% py. (Note, this is one of most common rock type in shear zone area).				
92-23	-700	1114	Twin Buttes Area	0.004			
'92	-310	-17	From central pt qtz-shear zone Generally glassy qtz blob from vein w/minor py cubes in qtz as well as pinkish albite. Minor pale-grn actinolit				
92-24	-702	1125	Twin Buttes Area	Tr			
'92	-303	-25	From N pt of 12m wide shear zone w/qtz 4cm sugary qtz vein w/minor cp specks 30% sample is grn hornblende schist w/10% sulp				
92-25	-699	1114	Twin Buttes Area	0.002			
'92	-310	-16	From central pt qtz-shear zone 6cm sugary qtz vein w/occ py cubes 20% sample is grn hornblende schist w/minor sulp				
92-26	-800	1050	Twin Buttes Area,				
'92	-424	-50	Massive carb (calc) mafic vol Non-mag, no sulp				
92-27	-805	1073	Twin Buttes Area,				
'92	-410	-70	Same base of ridge as 86-26 Weakly foliated dioritic Va				
92-29	-699	1114	Twin Buttes Area	Nil			
'92	-310	-16	E pt central Qtz vein - Massive qtz weakly min py cubes				
92-30	-702	1115	Twin Butes Area	Nil			
'92	-311	-19	W pt central qtz vein - Massive qtz				
92-31	-702	1120	Twin Buttes Area	Nil			
'92	-307	-22	N qtz vein - massive qtz				
92-32	-492	948	Twin Buttes Area	Nil			
'92	-300	250	Area of large qtz boulders & min floats quartzite w/up to 3mm py cubes				
92-33	865	1107	West stripping Area, Pit #1 S contact zone of BQE Pnk & grn trans material of Vr aff. Glassy qtz & qtz vein \sulp specks Minor sulp througout	0.002			
92-34	865	1107	West stripping Area, Pit #1 S contact zone of BQE Mass wht qtz \very minor to nil sulp Thin 3mm coating of grn (chlorite ?)	Tr			

SAMPLING, Rocks and Mineralization

91 Grid

No.	East	North	DESCRIPTION	Au oz	Ag oz	Cu %	Te
92-35	865	1107	West stripping Area, Pit #1 S contact zone of BQE Pnk trans material \occ py blebs & qtz flooding \minor sulp	Tr			
92-36	865	1107	West stripping Area, Pit #1 S contact zone of BQE Similar 92-35 above, but \prominent 1.5cm X 9cm mostly py splashes	0.003			
92-37	Mattagami L rd, Burrows tp.		Where road crosses secondary ck W of Jumping Moose ck. Minor qtz vein with considerable sulp splashes, dacitic.	Tr			
92-38	Mattagami L rd, Burrows tp.		First bend in power line rd going N of Mattagami L road Massive & cherty mafic volcanic considerable sulp stain. Minor sulph Wide silicification, brecciated appearence.	Tr			
92-39	858	1112	Blast 12, W stripping area, E of dike Mass barren sugary qtz, no visible sulp	Nil			
92-40	824	1106	Blast 11, W stripping area, W of dike N margin BQE zone Bull & limonite-stain qtz w/5% sulp	Nil			
92-41	1050	1208	Blast 13, N pt E stripping area Vein qtz w/good py splashes primarily in wallrock. Minor py & cp in the glassy & limonite-stain qtz	Nil		56 ppm	
92-42	1076	1126	Blast 15, Fragmental stripping area BQE material w/1cm qtz vein w/5% py mainly as large splashes.	Nil			
92-43	1081	1133	Fragmental stripping area Pure glassy wht qtz	Nil			
92-44	1070	1174	Blast 14, Prominent N-S o/c Well bedded felsic tuff or sediment w/1% py as minor conformable seams.	Nil			
92-45	1129	1135	E I-F stripping area Sample from frag zone intermixed w/I-F close to BQE Minor qtz & large py blebs or x-tals in dk amphibolitic rock (No witness)	Nil			
92-46	1065	1219	Blast 16 - Mafic garnet tuff w/15-20% py primarily as up to 3mm cubes. Some py in sugar qtz vein that makes up 50% of sample.	Tr		26 ppm	

SAMPLING, Rocks and Mineralization

91 Grid

No.	East	North	DESCRIPTION	Au oz	Ag oz	Cu %	Te
92-47	1062	1220	Blast 17 - Garnet mafic tuff w/25% py mainly as 2mm cubes.	Nil		48 ppm	
92-48	1063	1221	Blast 18 - w/65% mainly cubic py w/up to 18mm cubes in qtz or qtz feldspar vein w/considerable pinkish feldspar or albite. <3% magnetite in splashes up to 4mm.	Nil			
92-49	1062	1023	Blasts 19 & 20 - Silicified rock w/very minor py.	Nil		33 ppm	
92-55	-33	1192	Claim 1182409, 48m NW post 3 Weathered skin-tone (under moss) Fesic tuff to lineated felsite				
92-56	51	1345	Claim 1182409, 250m N post 3, bdy Mafic volcanics				
92-57	196	1347	Claim 1182409, center, 140m E of W bdy, 80m W of lake. Frost heave - mafic volcanic w/py cubes & chlorite schist. Similar main Au float.				
92-58	1053	1347	Low o/c in centre of road. Wkly fol dk volcanic.				
92-59	1118	1206	Inside boomerang volcanic belt. Very massive dioritic mafic volcanic.				
92-60	1148	1197	Inside boomerang volcanic belt. Sample w/reddish py cubes in minor pnk & wht vein all in dioritic mafic vol.				
92-61	1144	1294	I-F belt - Limonite-stained qtz vein with sulphides & lacy magnetite. Very similar Island Showing				
92-62	1300	2570	Claim 1182407, 250m E post 4 Top of world - Prob mafic vol alt'd to gabbroic texture. Up to 2cm wide qtz w/minor sulph. From large flat o/c area of dioritic or gabbroic mafic vol. Dk fg mag band.				

Ontario

Ministry of Northern Development and Mines

Ontario Geological Survey

77 Grenville Street
11th Floor
Toronto, Ontario
M7A 1W4
Telephone 965-1337

Geoscience Laboratories Report

Issued to:

MR H TITTLEY
273 SNOWDEN ROAD
OAKVILLE, ONTARIO
L6L 3Y6

0054-91

SAMPLE BUI-7
BURROWS

IDENTIFICATION

One sample containing a pink mineral thought to be garnet was submitted for identification.

Visual examination of this mineral indicated that it was a potassium feldspar. An x-ray diffraction pattern of the mineral identified it as albite. This suggests that the original potassium feldspar has been replaced by the albite.

This completes all analytical work on samples entered in your name on 26 March 1991

Fee Received: no charge

Peter Lightfoot

Peter Lightfoot, Acting Chief

Hugh de Souza

Hugh de Souza, A/Supervisor
26 March 1991

Ministry of Northern Development and Mines
Ontario
Ontario Geological Survey
Geoscience Laboratories
77 Grenville Street
11th Floor
Toronto, Ontario
M7A 1W4
Telephone: 1 - 416 - 965 - 1337

Mr. H. Tittley
273 Snowden Road
Oakville
Ont L6L 3Y6

0132-91

Sample	Au (ppb)
BUI-13	<2
BUI-14	6
BUI-31	375
BUI-8	3

This is an interim report for samples entered in your name on Jun 25,1991; additional work will follow as soon as possible.

Please refer to certificate 0132-91 if you have any questions.
Fees Received: Coupon

Peter C. Lightfoot
Acting Chief

91/07/18

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers
5175 Timberlea Blvd., Mississauga,
Ontario, Canada L4W 2S3
PHONE: 416-624-2806

To: TITTLEY, H. Z. **

273 SNOWDEN ROAD
OAKVILLE, ONTARIO
L6L 3X6

Project :
Comments: ATTN: H. Z. TITTLEY

Burrows JMP

Page Number :1
Total Pages :1
Certificate Date: 21-AUG-91
Invoice No. :19120086
P.O. Number :

CERTIFICATE OF ANALYSIS A9120086

SAMPLE DESCRIPTION	PREP CODE		Au FA g/tonne
BV1-7	205	294	104.90
HT -1	205	294	346.7

Adriana Alexandru

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers

5175 Timberlea Blvd., Mississauga,
Ontario, Canada L4W 2S3
PHONE: 416-624-2806

To: TITTLEY, H. Z.

273 SNOWDEN ROAD
OAKVILLE, ONTARIO
L6L 3X6

Project :
Comments: ATTN: H. Z. TITTLEY

Burrows T1P

Page Number :1
Total Pages :1
Certificate Date: 21-AUG-91
Invoice No. :19120088
P.O. Number :

CERTIFICATE OF ANALYSIS A9120088

SAMPLE DESCRIPTION	PREP CODE		Au ppb FA+AA
BV1-34A	205	294	520
BV1-34B	205	294	160
BV1-35	205	294	1080

CERTIFICATION: Adriana Alexandru

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers
5175 Timberlea Blvd., Mississauga,
Ontario, Canada L4W 2S3
PHONE: 416-624-2806

To: TITTLEY, H. Z.

273 SNOWDEN ROAD
OAKVILLE, ONTARIO
L6L 3X6

Project :
Comments: ATTN: H. Z. TITTLEY

Page Number :1
Total Pages :1
Certificate Date: 12-SEP-91
Invoice No. :19120087
P.O. Number :

CERTIFICATE OF ANALYSIS A9120087

SAMPLE DESCRIPTION	PREP CODE		Te %
RV1-7	299	--	0.052
HT -1	299	--	0.052

CERTIFICATION: Luciana Alexandre

Ministry of
Northern Development
and Mines

Ontario

Temiskaming
Testing
Laboratories

P.O. Box 799
Presley St.
Cobalt, Ontario
P0J 1C0
(705) 679-8313

Report Number

CB 11890

Laboratory Report

Date Oct. 9, 1991

Issued To: Mr. Herman Tittley, 273 Snowden Road, Oakville, Ont. L6L 3X6

Sample Number	Gold Oz. Per Ton	Silver Oz. Per Ton	
BU-51	0.009		
-52	2.984		
-53	0.019		
-54	0.027		
-55	9.549		
-56	0.037		
-57	0.104		
-58	0.031		
-59	0.007		
-60	13.569		

Fees Received Charged 10 coupons card #1149

for J. Ireland
A/Manager

Ministry of
Northern Development
and Mines

Temiskaming
Testing
Laboratories

P.O. Box 799
Presley St.
Cobalt, Ontario
P0J 1C0
(705) 679-8313

Report Number

CB 11903

Date Oct. 21, 1991

Laboratory Report

Issued To: Herman Tittley, 273 Snowden Road, Oakville, Ont. L6L 3X6

Sample Number	Gold Oz. Per Ton	Silver Oz. Per Ton	
BU-61	Trace		
-62	Trace		
-63	0.007		
-64	0.006		
-65	Trace		

Fees Received Charged 5 coupons card #1150

C. M. Naylor for J. Ireland
A/ Manager

Ontario

Ministry of Northern Development and Mines

Ontario Geological Survey
Geoscience Laboratories

Trace Element Analysis

Geologist	FOR:	Sheet No.	Job No.	Trace Form 5
T. T. L	Herman Tittley 273 Snowden Road Oakville, Ont. L6L 3X6	1 of 1	ASSAYS JUNE-26-91	

Field Sample No.	Br	Cl	F	I	Hg	U	Cd	Mo	Sn	Se	Te	Ge
HT-1											955M	
HT-2											150M	
HT-3											15.7M	
Method*											GFAA	
Analyst											BBB/Rad	

Work Completed: D. Richards

Date: Nov 15/91

*Methods: A Atomic Absorption; C Colorimetric; M ICP-MS; F U.V. Fluorescence; X X-Ray Fluorescence; I ICP-OES

Units: P Percent; (M) Parts per million (default); B Parts per billion; C See Comment sheet

0014 (85/10)

Ontario
Ministry of
Northern Development
and Mines

**Temiskaming
Testing
Laboratories**

P.O. Box 799
Presley St.
Cobalt, Ontario
P0J 1C0
(705) 679-8313

Report Number

CB 11969

Laboratory Report

Date Nov. 19, 1991

Issued To: Mr. Herman Tittley, 273 Snowden Road, Oakville, Ont. L6L 3X6

Sample Number	Gold Oz. Per Ton	Silver Oz. Per Ton	Cu%
BU-66	0.002	Nil	0.012
BU-67	0.008	Trace	0.025

Fees Received Charged 6 coupons card #1151, 1154

B. McNaught for J. Ireland
A/Manager

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers

5175 Timberlea Blvd., Mississauga,
Ontario, Canada L4W 2S3
PHONE: 416-624-2806

To: TITTLEY, H. Z.

273 SNOWDEN ROAD
OAKVILLE, ONTARIO
L6L 3X6

Project :
Comments:

Page Number :1
Total Pages :1
Certificate Date: 07-APR-92
Invoice No. :19212656
P.O. Number :
Account :JIA

CERTIFICATE OF ANALYSIS A9212656

SAMPLE	PREP CODE	Ag FA oz/T	Pb %
BVI-7	214 --	7.70	0.02
HT-1	214 --	7.76	0.02

CERTIFICATION:

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221

To: TITTLEY, H. Z.

273 SNOWDEN ROAD
OAKVILLE, ONTARIO
L6L 3X6

Project :
Comments:

Page Number :1
Total Pages :1
Certificate Date: 17-MAY-92
Invoice No. :19214495
P.O. Number :
Account :JIA

CERTIFICATE OF ANALYSIS A9214495

SAMPLE	PREP CODE	Au ppb FA+AA	Te ppm
JM-1	217 --	< 5	< 0.1
JM-2	217 --	< 5	< 0.1
JM-3	217 --	< 5	< 0.1
JM-4	217 --	< 5	< 0.1
JM-5	217 --	< 5	< 0.1

CERTIFICATION:

Ministry of
Northern Development
and Mines

Ontario

**Temiskaming
Testing
Laboratories**

P.O. Box 799
Presley St.
Cobalt, Ontario
P0J 1C0
(705) 679-8313

Report Number

CB 12088

Laboratory Report

Date July 2, 1992

Issued To: Herman Z. Tittley, HZT Prospecting, 273 Snowden Road, Oakville, Ontario L6L 3X6

Sample Number	Gold Oz. Per Ton	Silver Oz. Per Ton	Cu%
DUF-1	Trace		0.842
92-10	Nil		
92-12	Trace		

Fees Received Charged 4 coupons card #1155

E. McNaught for J. Ireland
A/ Manager

Form 1097 (86/05)

Ministry of
Northern Development
and Mines

Ontario

**Temiskaming
Testing
Laboratories**

P.O. Box 799
Presley St.
Cobalt, Ontario
P0J 1C0
(705) 679-8313

Report Number

CB 12107

Laboratory Report

Date July 9, 1992.

Issued To: H.Z. Tittley, HZT Prospecting, Cantry Store, Shinning Tree, Ont. P0M 2X0

Sample Number	Gold Oz. Per Ton	Silver Oz. Per Ton	
92-19	0.007		
-20	0.002		
-21	0.002		
-22	Trace		
-23	0.004		
-24	Trace		
-25	0.002		
-26	0.346		

Fees Received Charged 8 coupons card #1156(L. Salo) & 1159

for F. Basa
A/ Manager

Form 1097 (86/05)

Ontario

Ministry of
Northern Development
and Mines

Temiskaming
Testing
Laboratories

P.O. Box 799
Presley St.
Cobalt, Ontario
P0J 1C0
(705) 679-8313

Report Number

CB 12125

Laboratory Report

Date July 27, 1992

Issued To: HZT Prospecting, 273 Snowden Road, Oakville, Ont. L6L 3X6

Sample Number	Gold Oz. Per Ton	Silver Oz. Per Ton	
92-29	Nil		
92-30	Nil		
92-31	Nil		
92-32	Nil		

Fees Received Charged 4 Coupons Card #1158

for F. Basa
A/ Manager

Form 1097 (86/05)

Ministry of
Northern Development
and Mines

Ontario

.emiskaming
Testing
Laboratories

P.O. Box 799
Presley St.
Cobalt, Ontario
P0J 1C0
(705) 679-8313

Report Number

CB 12161

Laboratory Report

Date August 17, 1992

Issued To: Mr. H. Tittley, HZT Prospecting, 273 Snowden Road, Oakville, Ont. L6L 3X6

Sample Number	Gold Oz. Per Ton	Silver Oz. Per Ton	
92-33	0.002		
-34	Trace		
-35	Trace		
-36	0.003		

Fees Received Charged 4 coupons card #1158

E. McNaught for F. Basa
A/Manager

Ministry of
Northern Development
and Mines

Ontario

Timiskaming
Testing
Laboratories

P.O. Box 799
Presley St.
Cobalt, Ontario
P0J 1C0
(705) 679-8313

Report Number

CB 12167

Laboratory Report

Date August 18, 1992

Issued To: Mr. Herman Tittley, HZT Prospecting, 273 Snowden Road, Oakville, Ont. L6L 3X6

Sample Number	Gold Oz. Per Ton	Silver Oz. Per Ton	
92-37	Trace		
92-38	Trace		

Fees Received Charged to Coupon Card #1158

L. M. Naught for F. Basa
A/ Manager

Ministry of
Northern Development
and Mines

Ontario

Timiskaming
Testing
Laboratories

P.O. Box 799
Presley St.
Cobalt, Ontario
P0J 1C0
(705) 679-8313

Report Number

CB 12194

Laboratory Report

Date Sept. 4, 1992.

Issued To: HZT Prospecting, 273 Snowden Road, Oakville, ONt. L6L 3X6

Sample Number	Gold Oz. Per Ton	Silver Oz. Per Ton	Cu Ppm
92-39	Nil		
92-40	Nil		
92-41	Nil		56
92-42	Nil		
92-43	Nil		
92-44	Nil		
92-45	Nil		
92-46	Trace		26
92-47	Nil		48
92-48	Nil		
92-49	Nil		33
92-50	0.797		274
92-51	0.009		112
92-52	0.057		87

Fees Received Charged 19 Coupons Card 1158, 1150 & 1160 and balance

B. McNaught for Manager

Form 1097 (86/05)

900

Ontario

Ministry of Northern Development and Mines

Ministère du Développement du Nord et des Mines

Geoscience Approvals Section
933 Ramsey Lake Road
6th Floor
Sudbury, Ontario
P3E 6B5

Telephone: (705) 670-5853
Fax: (705) 670-5863

Our File: 2.15084
Transaction #: W9380.00100
.00102

September 23, 1993

Mining Recorder
Ministry of Northern
Development and Mines
4 Government Road East
Kirkland Lake, Ontario
P2N 1A2

Dear Madam:

RE: APPROVAL OF ASSESSMENT WORK SUBMITTED FOR PROSPECTING, GEOLOGY AND GEOPHYSICS ON MINING CLAIMS L1182406 ET AL IN BURROWS TOWNSHIP

A Notice of Deficiency was not issued on this Report of Work prior to the 90 day deemed approval date and as outlined in subsection 6(5) of the Mining Act Regulations this Report of Work is **deemed approved** as of **AUGUST 10, 1993.** The Assessment credits are as listed on the original submission.

Please indicate this approval on your records.

If you require further information please contact Lucille Jerome at (705) 670-5855.

Yours sincerely,

Ron C.Gashinski
Senior Manager, Mining Lands Section
Mining and Land Management Branch
Mines and Minerals Division

LJ/dm

cc: Resident Geologist
Kirkland Lake, Ontario

Assessment Files Library
Toronto, Ontario

Ministry of Northern Development and Mines
Ontario

GAO

Report of Work Conducted Before Recording Claim

Mining Act

Transaction Number: W9380.00100

Personal information collected on this form is obtained under the authority of the Mining Act. This information will be used for correspondence. Questions about this collection should be directed to the Provincial Manager, Mining Lands, Ministry of Northern Development and Mines, Fourth Floor, 159 Cedar Street, Sudbury, Ontario, P3E 6A5, telephone (705) 670-7264.

2.15084

Instructions:
- Please type or print and submit in duplicate.
- Refer to the Mining Act and Regulations for requirements of filing assessment work or consult the Mining Recorder.
- A separate copy of this form must be completed for each Work Group.
- Technical reports and maps must accompany this form in duplicate.
- A sketch, showing the claims the work is assigned to, must accompany this form.

Recorded Holder(s)		Client No.
HERMANN Z. TITTLEY		202200
Address		**Telephone No.**
273 SNOWDEN ROAD OAKVILLE ONTARIO L6J 2K0		416 847-3141
Mining Division	**Township/Area**	**M or G Plan No.**
LARDER LAKE	BURROWS TWP.	G-957
Dates Work Performed From: FIELD: ~~July 04/91~~ FIELD + OFFICE: JULY, 1991	To: JULY, 1992 ~~APRIL 1993~~ APRIL 18, 1993	

Work Performed (Check One Work Group Only)

	Work Group	Type
	Regional Surveys	
	Prospecting	PROSPECTING, MAPPING - GEOLOGY

Total Assessment Work Claimed on the Attached Statement of Costs $ 57[illegible]

Note: The Minister may reject for assessment work credit all or part of the assessment work submitted if the recorded holder cannot verify expenditures claimed in the statement of costs within 30 days of a request for verification.

Persons and Survey Company Who Performed the Work (Give Name and Address of Author of Report)

Name	Address
HERMANN Z. TITTLEY	273 SNOWDEN ROAD OAKVILLE ONTARIO
ERIC TITTLEY	273 SNOWDEN ROAD OAKVILLE ONTRIO

(attach a schedule if necessary)

Certification of Beneficial Interest * See Note No. 1 on reverse side

	Date	Recorded Holder or Agent (Signature)
I certify that at the time the work was performed, the claims covered in this work report were recorded in the current holder's name or held under a beneficial interest by the current recorded holder.	May 7 '93	[signature]

Certification of Work Report

I certify that I have a personal knowledge of the facts set forth in this work report, having performed the work or witnessed it during and/or after its completion, and the annexed report is true.

Name and Address of Person Certifying		
HERMANN Z TITTLEY 273 SNOWDEN ROAD OAKVILLE ONTARIO		
Telepone No.	**Date**	**Certified By (Signature)**
416 847-3141	May 7, 1993	[signature]

For Office Use Only

Total Value Cr. Recorded	Date Recorded	Mining Recorder	Received Stamp
Applied #1901 Reserve #4031.	May 12/93 LP	[signature]	RECEIVED LARDER LAKE MINING DIVISION MAY 12 1993 TIME 10:35 a
	Deemed Approval Date: Aug. 10/93	Date Approved	
	Date Notice for Amendments Sent		

0240 (03/91)

Claim Number	Number of Claim Units	Value of Work Done on Land Subsequently Staked as this Claim	Value Applied to this Claim: From Work Done on Land Subsequently Staked as this Claim	Value Applied to this Claim: From the Allowable 25% of the Survey Costs from Adjacent Crown Land	Value Applied to this Claim: Total Applied to this Claim	Value Assigned from this Claim	Reserve: Work to be Claimed at Future Date
1102406	2	415.27	415.27		401.00	0	14
1102407	2	890.00	890.00		300.00	0	590.00
1102408	1	1246.74	1246.74		300.00	0	946.74
1102409	1	2076.49	2076.49		300.00	0	1776.49
1102410	2	949.42	949.42		300.00	0	649.42
1102412	4	356.92	356.92		300.00	0	56.92
	6	5932.97			1901.00	0	4031.97
	Total Number of Claims 12 units	Total Value Work Done on Subsequently Staked Land			Total Applied	Total Assigned	Total Reserve

Credits you are claiming in this report may be cut back. In order to minimize the adverse effects of such deletions, please indicate from which claims you wish to prioritize the deletion of credits. Please mark (✓) one of the following:

1. ☑ Credits are to be cut back starting with the claim listed last, working backwards.
2. ☐ Credits are to be cut back equally over all claims contained in this report of work.
3. ☐ Credits are to be cut back as priorized on the attached appendix.

In the event that you have not specified your choice of priority, option one will be implemented.

Note 1: Examples of beneficial interest are unrecorded transfers, option agreements, memorandum of agreements, etc., with respect to the mining claims.

0240 (03/91)

Ontario

Ministry of
Northern Development
and Mines

M[illegible]re du
Dé[illegible]ppement du Nord
et des mines

Statement of Costs for Assessment Credit

État des coûts aux fins du crédit d'évaluation

Mining Act/Loi sur les mines

Transaction No./N° de transaction
W9380.00100

Personal information collected on this form is obtained under the authority of the **Mining Act**. This information will be used to maintain a record and ongoing status of the mining claim(s). Questions about this collection should be directed to the Provincial Manager, Minings Lands, Ministry of Northern Development and Mines, 4th Floor, 159 Cedar Street, Sudbury, Ontario P3E 6A5, telephone (705) 670-7264.

Les renseignements personnels contenus dans la présente formule sont recueillis en vertu de la **Loi sur les mines** et serviront à tenir à jour un registre des concessions minières. Adresser toute quesiton sur la collece de ces renseignements au chef provincial des terrains miniers, ministère du Développement du Nord et des Mines, 159, rue Cedar, 4e étage, Sudbury (Ontario) P3E 6A5, téléphone (705) 670-7264.

1. Direct Costs/Coûts directs

Type	Description	Amount Montant	Totals Total global
Wages Salaires	Labour Main-d'oeuvre	2022.50	
	Field Supervision Supervision sur le terrain		2022.50
Contractor's and Consultant's Fees Droits de l'entrepreneur et de l'expert-conseil	Type FIELD	600.00	
	OFFICE	1200.00	
			1800.00
Supplies Used Fournitures utilisées	Type FIELD: Markers, tapeline, Cord ect	182.55	
	OFFICE	68.26	
			685.81
Equipment Rental Location de matériel	Type BOAT + MOTOR	270.00	
	ATV	165.00	
			435.00
	Total Direct Costs Total des coûts directs		4943.31

2. Indirect Costs/Coûts indirects

** **Note:** When claiming Rehabilitation work Indirect costs are not allowable as assessment work.
Pour le remboursement des travaux de réhabilitation, les coûts indirects ne sont pas admissibles en tant que travaux d'évaluation.

Type	Description	Amount Montant	Totals Total global
Transportation Transport	Type TRUCK/GAS	238.29	
	LABOUR/TRAVEL	2025.00	
Food and Lodging Nourriture et hébergement		157.49	
Mobilization and Demobilization Mobilisation et démobilisation		75.00	
	Sub Total of Indirect Costs Total partiel des coûts indirects		2495.78
	Amount Allowable (not greater than 20% of Direct Costs) Montant admissible (n'excédant pas 20 % des coûts directs)		988.66
	Total Value of Assessment Credit (Total of Direct and Allowable Indirect costs) / **Valeur totale du crédit d'évaluation (Total des coûts directs et indirects admissibles**		5931.97

Note: The recorded holder will be required to verify expenditures claimed in this statement of costs within 30 days of a request for verification. If verification is not made, the Minister may reject for assessment work all or part of the assessment work submitted.

Note : Le titulaire enregistré sera tenu de vérifier les dépenses demandées dans le présent état des coûts dans les 30 jours suivant une demande à cet effet. Si la vérification n'est pas effectuée, le ministre peut rejeter tout ou une partie des travaux d'évaluation présentés.

Filing Discounts

1. Work filed within two years of completion is claimed at 100% of the above Total Value of Assessment Credit.

   Work filed three, four or five years after completion is claimed at 50% of the above Total Value of Assessment Credit. See calculations below:

Total Value of Assessment Credit	Total Assessment Claimed
× 0.50 =	

Remises pour dépôt

1. Les travaux déposés dans les deux ans suivant leur achèvement sont remboursés à 100 % de la valeur totale susmentionnée du crédit d'évaluation.

2. Les travaux déposés trois, quatre ou cinq ans après leur achèvement sont remboursés à 50 % de la valeur totale du crédit d'évaluation susmentionné. Voir les calculs ci-dessous.

Valeur totale du crédit d'évaluation	Évaluation totale demandée
× 0,50 =	

Certification Verifying Statement of Costs

I hereby certify:
that the amounts shown are as accurate as possible and these costs were incurred while conducting assessment work on the lands shown on the accompanying Report of Work form.

that as RECORDED HOLDER I am authorized
(Recorded Holder, Agent, Position in Company)

to make this certification

Attestation de l'état des coûts

J'atteste par la présente :
que les montants indiqués sont le plus exact possible et que ces dépenses ont été engagées pour effectuer les travaux d'évaluation sur les terrains indiqués dans la formule de rapport de travail ci-joint.

Et qu'à titre de _____ je suis autorisé
(titulaire enregistré, représentant, poste occupé dans la compagnie)

à faire cette attestation.

Signature	Date
	May 7, 9[illegible]

0212 (04/91)

Nota : Dans cette formule, lorsqu'il désigne des personnes, le masculin est utilisé au sens neutre.

Ministry of Northern Development and Mines
Ontario

G.A.O.

Report of Work Conducted After Recording Claim

Mining Act

Transaction Number: W9380.00182

Personal information collected on this form is obtained under the authority of the Mining Act. This information will be used for correspondence. Questions about this collection should be directed to the Provincial Manager, Mining Lands, Ministry of Northern Development and Mines, Fourth Floor, 159 Cedar Street, Sudbury, Ontario, P3E 6A5, telephone (705) 670-7264.

2.15084

Instructions:
- Please type or print and submit in duplicate.
- Refer to the Mining Act and Regulations for requirements of filing assessment work or consult the Mining Recorder.
- A separate copy of this form must be completed for each Work Group.
- Technical reports and maps must accompany this form in duplicate.
- A sketch, showing the claims the work is assigned to, must accompany this form.

Recorded Holder(s): HERMANN Z. TITTLEY		Client No.: 202200
Address: 273 SNOWDEN ROAD OAKVILLE ONTARIO		Telephone No.: 416 847-3141
Mining Division: LARDER LAKE	Township/Area: BURROWS TWP.	M or G Plan No.: 6-959
Dates Work Performed From: ~~JULY 1, 1992~~ JULY 24, 1991 To: ~~APRIL 19, 1993~~ APRIL 18, 1993		

Work Performed (Check One Work Group Only)

	Work Group	Type
	Geotechnical Survey	LINECUTTING, GEOPHYSICS, MAPPING - GEOLOGY, TOPIGRAPHIC SURVEY
	Physical Work, Including Drilling	
	Rehabilitation	
	Other Authorized Work	
	Assays	
	Assignment from Reserve	

Total Assessment Work Claimed on the Attached Statement of Costs $ 54,625

Note: The Minister may reject for assessment work credit all or part of the assessment work submitted if the recorded holder cannot verify expenditures claimed in the statement of costs within 30 days of a request for verification.

Persons and Survey Company Who Performed the Work (Give Name and Address of Author of Report)

Name	Address
H.Z. TITTLEY ERIC TITTLEY	273 SNOWDEN ROAD OAKVILLE ONTARIO " " " " "
D. RECOSKIE	213 MARTIN STREET PORCUPINE ONTARIO
L. SALO J-A SALO	RR#1 CONNAUGHT ONTARIO " " "
J. SALO A. AUBE	" " " 407 WILCOX STREET TIMMINS ONTARIO

(attach a schedule if necessary)

Certification of Beneficial Interest * See Note No. 1 on reverse side

	Date	Recorded Holder or Agent (Signature)
I certify that at the time the work was performed, the claims covered in this work report were recorded in the current holder's name or held under a beneficial interest by the current recorded holder.	MAY 10, '93	[signature]

Certification of Work Report

I certify that I have a personal knowledge of the facts set forth in this Work report, having performed the work or witnessed same during and/or after its completion and annexed report is true.

Name and Address of Person Certifying: HERMANN Z. TITTLEY 273 SNOWDEN ROAD, OKVILLE ONTARIO

Telepone No.	Date	Certified By (Signature)
416 847-3141	MAY 10, 1993	[signature]

For Office Use Only

Total Value Cr. Recorded	Date Recorded	Mining Recorder	Received Stamp
Applied $20,636. Reserve $33,989.	May 12/93	[signature]	LARDER LAKE MINING DIVISION '93 MAY 12 AM 10 35
	Deemed Approval Date: May. 10/93	Date Approved	
	Date Notice for Amendments Sent		

0241 (03/91)

RECEIVED

Work Report Number for Applying Reserve	Claim Number (see Note 2)	Number of Claim Units	Value of Assessment Work Done on this Claim	Value Applied to this Claim	Value Assigned from this Claim	Reserve: Work to be Claimed at a Future Date
	1134184	1	12,400	202	6198	6000
	1134185	1	18,190	124	8066	10000
	1167620	1	6664	240	424	6000
	1170526	1	3824	0	824	3000
	1171902	1	10,379	46	3333	7000
	1171903	1	3168	425	754	1989
	1180678	1	0	664	0	0
	1180679	1	0	664	0	0
	1180680	1	0	401	0	0
	1180681	1	0	401	0	0
	1180685	1	0	401	0	0
	1180686	1	0	401	0	0
	1180687	1	0	401	0	0
	1181532	1	0	664	0	0
	1181533	1	0	664	0	0
	1181534	1	0	664	0	0
	1181535	1	0	664	0	0
	Total Number of Claims		Total Value Work Done	Total Value Work Applied	Total Assigned From	Total Reserve

CONT'D

0241 (03/91)

Credits you are claiming in this report may be cut back. In order to minimize the adverse effects of such deletions, please indicate from which claims you wish to priorize the deletion of credits. Please mark (✓) one of the following:

1. ☑ Credits are to be cut back starting with the claim listed last, working backwards.
2. ☐ Credits are to be cut back equally over all claims contained in this report of work.
3. ☐ Credits are to be cut back as priorized on the attached appendix.

In the event that you have not specified your choice of priority, option one will be implemented.

Note 1: Examples of beneficial interest are unrecorded transfers, option agreements, memorandum of agreements, etc., with respect to the mining claims.

Note 2: If work has been performed on patented or leased land, please complete the following:

I certify that the recorded holder had a beneficial interest in the patented or leased land at the time the work was performed.

Signature

Date May 11 93

Work Report Number for Applying Reserve	Claim Number (see Note 2)	Number of Claim Units	Value of Assessment Work Done on this Claim	Value Applied to this Claim	Value Assigned from this Claim	Reserve: Work to be Claimed at a Future Date
	1182377	4	0	3201	0	0
	1182378	3	0	2401	0	0
	1182379	1	0	801	0	0
	1182380	1	0	801	0	0
	1182381	1	0	2401	0	0
	1182407	2	0	801	0	0
	1182408	1	0	401	0	0
	1182409	1	0	401	0	0
	1182410	2	0	801	0	0
	1182412	4	0	1601	0	0
	27	37 units	54,625	20,636	19,599	33,989
	Total Number of Claims		Total Value Work Done	Total Value Work Applied	Total Assigned From	Total Reserve

0241 (03/91)

Credits you are claiming in this report may be cut back. In order to minimize the adverse effects of such deletions, please indicate from which claims you wish to priorize the deletion of credits. Please mark (✓) one of the following:

1. ☑ Credits are to be cut back starting with the claim listed last, working backwards.
2. ☐ Credits are to be cut back equally over all claims contained in this report of work.
3. ☐ Credits are to be cut back as priorized on the attached appendix.

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Note 2: If work has been performed on patented or leased land, please complete the following:

I certify that the recorded holder had a beneficial interest in the patented or leased land at the time the work was performed.

Signature

Date May 10 '93

Ministry of Northern Development and Mines

Ontario

Report of Work Conducted After Recording Claim

Mining Act

A.F.R.O.

Transaction Number: N9380.00101

Personal information collected on this form is obtained under the authority of the Mining Act. This information will be used for correspondence. Questions about this collection should be directed to the Provincial Manager, Mining Lands, Ministry of Northern Development and Mines, Fourth Floor, 159 Cedar Street, Sudbury, Ontario, P3E 6A5, telephone (705) 670-7264.

Instructions:
- Please type or print and submit in duplicate.
- Refer to the Mining Act and Regulations for requirements of filing assessment work or consult the Mining Recorder.
- A separate copy of this form must be completed for each Work Group.
- Technical reports and maps must accompany this form in duplicate.
- A sketch, showing the claims the work is assigned to, must accompany this form.

Recorded Holder(s): HERMANN Z. TITTLEY		Client No.: 202200
Address: 273 SNOWDEN ROAD OAKVILLE ONTARIO		Telephone No.: 416 847-3141
Mining Division: LARDER LAKE	Township/Area: BURROWS TWP.	M or G Plan No.: G-959
Dates Work Performed: From: ~~JULY, 1991~~ SEP. 25/91	To: APRIL 1, 1993	

Work Performed (Check One Work Group Only)

	Work Group	Type
	Geotechnical Survey	POWER STRIPPING, PERCUSSION DRILLING, BLASTING, SAMPLING
	Physical Work, Including Drilling	+ Assays
	Rehabilitation	
	Other Authorized Work	
	Assays	~~73 @ 735.97~~
	Assignment from Reserve	9427

Total Assessment Work Claimed on the Attached Statement of Costs $ ~~$306.44 923.97~~ = 9210

Note: The Minister may reject for assessment work credit all or part of the assessment work submitted if the recorded holder cannot verify expenditures claimed in the statement of costs within 30 days of a request for verification.

Persons and Survey Company Who Performed the Work (Give Name and Address of Author of Report)

Name	Address
H.Z. TITTLEY	273 SNOWDEN ROAD OAKVILLE ONTARIO
LARRY SALO	RR#1 CONNAUGHT ONTARIO
D. CRITES	GENERAL DELIVERY CONNAUGHT ONTARIO

(attach a schedule if necessary)

Certification of Beneficial Interest * See Note No. 1 on reverse side

I certify that at the time the work was performed, the claims covered in this work report were recorded in the current holder's name or held under a beneficial interest by the current recorded holder.	Date: MAY 10 '93	Recorded Holder or Agent (Signature):

Certification of Work Report

I certify that I have a personal knowledge of the facts set forth in this Work report, having performed the work or witnessed same during and/or after its completion and annexed report is true.

Name and Address of Person Certifying: HERMANN Z TITTLEY 273 SNOWDEN ROAD OAKVILLE ONTARIO		
Telepone No.: 416 847-3141	Date: MAY 10, '93	Certified By (Signature):

For Office Use Only

Total Value Cr. Recorded: Applied $3806 Reserve $~~5571~~ 5621	Date Recorded: May 12/93 KS	Mining Recorder:	MINING DIVISION RECEIVED 93 MAY 12 AM 10 35
	Deemed Approval Date: ~~May 12/93~~	Date Approved: June 25/93	RECEIVED 93 MAY 12 AM 10 35
	Date Notice for Amendments Sent		RECEIVED

0241 (03/91)

Work Report Number for Applying Reserve	Claim Number (see Note 2)	Number of Claim Units	Value of Assessment Work Done on this Claim	Value Applied to this Claim	Value Assigned from this Claim	Reserve: Work to be Claimed at a Future Date
	1134184	1	566	0	554	12
	1134185	1	5750	0	1636	4444
	1171902	1	2168	0	693	1475
	1171903	1	377	0	369	8
	1180682	1	0	401	0	0
	1180683	1	0	401	0	0
	1180684	1	0	401	0	0
	1181532	1	566	0	554	12
	1182407	2	0	801	0	0
	1182408	1	0	401	0	0
	1182409	1	0	401	0	0
	1182410	2	0	400	0	0
	1182412	4	0	600	0	0
						5621
	13	18 units	~~9240~~ 9427	3806	3806	~~5424~~
	Total Number of Claims		Total Value Work Done	Total Value Work Applied	Total Assigned From	Total Reserve

Credits you are claiming in this report may be cut back. In order to minimize the adverse effects of such deletions, please indicate from which claims you wish to priorize the deletion of credits. Please mark (✓) one of the following:

1. ☑ Credits are to be cut back starting with the claim listed last, working backwards.
2. ☐ Credits are to be cut back equally over all claims contained in this report of work.
3. ☐ Credits are to be cut back as priorized on the attached appendix.

In the event that you have not specified your choice of priority, option one will be implemented.

Note 1: Examples of beneficial interest are unrecorded transfers, option agreements, memorandum of agreements, etc., with respect to the mining claims.

Note 2: If work has been performed on patented or leased land, please complete the following:

I certify that the recorded holder had a beneficial interest in the patented or leased land at the time the work was performed.

Signature: [signature]

Date: May 10 '93

0241 (03/91)

Ontario

Ministry of Northern Development and Mines

Ministère du Développement du Nord et des mines

Statement of Costs for Assessment Credit

État des coûts aux fins du crédit d'évaluation

Mining Act/Loi sur les mines

Transaction No./N° de transaction: W9380.00101

Personal information collected on this form is obtained under the authority of the **Mining Act**. This information will be used to maintain a record and ongoing status of the mining claim(s). Questions about this collection should be directed to the Provincial Manager, Minings Lands, Ministry of Northern Development and Mines, 4th Floor, 159 Cedar Street, Sudbury, Ontario P3E 6A5, telephone (705) 670-7264.

Les renseignements personnels contenus dans la présente formule son recueillis en vertu de la **Loi sur les mines** et serviront à tenir à jour un registre des concessions minières. Adresser toute quesiton sur la collece de ces renseignements au chef provincial des terrains miniers, ministère du Développement du Nord et des Mines, 159, rue Cedar, 4e étage, Sudbury (Ontario) P3E 6A5, téléphone (705) 670-7264.

1. Direct Costs/Coûts directs

Type	Description	Amount Montant	Totals Total global
Wages Salaires	Labour Main-d'oeuvre	320.00	
	Field Supervision Supervision sur le terrain		320.00
Contractor's and Consultant's Fees Droits de l'entrepreneur et de l'expert-conseil	Type L SALO	1400.00	
	H. TITTLEY	2400.00	
			3800.00
Supplies Used Fournitures utilisées	Type Assay FIELD	119.71	933.97
	OFFICE	42.01	
			161.72
Equipment Rental Location de matériel	Type SKIDDER/BACKHOE	1560.00	
	ATV	330.00	
	PLUGGER	750.00	2640.00
	Total Direct Costs Total des coûts directs		6921.72

933.97
7856.69

2. Indirect Costs/Coûts indirects

** **Note:** When claiming Rehabilitation work indirect costs are not allowable as assessment work.
Pour le remboursement des travaux de réhabilitation, les coûts indirects ne sont pas admissibles en tant que travaux d'évaluation.

Type	Description	Amount Montant	Totals Total global
Transportation Transport	Type TRUCKS/GAS	395.78	
	LABOUR/TRAVEL		
	H. TITTLEY	800.00	
			1195.78
Food and Lodging Nourriture et hébergement	OFFICE	97.69	
	GROCERIES	36.45	
	TRAVEL	38.40	172.74
Mobilization and Demobilization Mobilisation et démobilisation	H. TITTLEY	1200.00	
	L. SALO	350.00	1550.00
	Sub Total of Indirect Costs Total partiel des coûts indirects		2918.34
	Amount Allowable (not greater than 20% of Direct Costs) Montant admissible (n'excédant pas 20 % des coûts directs)		1571.14 ~~1384.34~~
	Total Value of Assessment Credit (Total of Direct and Allowable Indirect costs) / **Valeur totale du crédit d'évaluation (Total des coûts directs et indirects admissibles)**		~~9306.06~~ 9427

Note: The recorded holder will be required to verify expenditures claimed in this statement of costs within 30 days of a request for verification. If verification is not made, the Minister may reject for assessment work all or part of the assessment work submitted.

Note : Le titulaire enregistré sera tenu de vérifier les dépenses demandées dans le présent état des coûts dans les 30 jours suivant une demande à cet effet. Si la vérification n'est pas effectuée, le ministre peut rejeter tout ou une partie des travaux d'évaluation présentés.

Filing Discounts

1. Work filed within two years of completion is claimed at 100% of the above Total Value of Assessment Credit.
2. Work filed three, four or five years after completion is claimed at 50% of the above Total Value of Assessment Credit. See calculations below:

Total Value of Assessment Credit	Total Assessment Claimed
× 0.50 =	

Remises pour dépôt

1. Les travaux déposés dans les deux ans suivant leur achèvement sont remboursés à 100 % de la valeur totale susmentionnée du crédit d'évaluation.
2. Les travaux déposés trois, quatre ou cinq ans après leur achèvement sont remboursés à 50 % de la valeur totale du crédit d'évaluation susmentionné. Voir les calculs ci-dessous.

Valeur totale du crédit d'évaluation	Évaluation totale demandée
× 0,50 =	

Certification Verifying Statement of Costs

I hereby certify:
that the amounts shown are as accurate as possible and these costs were incurred while conducting assessment work on the lands shown on the accompanying Report of Work form.

that as RECORDED HOLDER (Recorded Holder, Agent, Position in Company) I am authorized to make this certification

Attestation de l'état des coûts

J'atteste par la présente :
que les montants indiqués sont le plus exact possible et que ces dépenses ont été engagées pour effectuer les travaux d'évaluation sur les terrains indiqués dans la formule de rapport de travail ci-joint.

Et qu'à titre de _____ (titulaire enregistré, représentant, poste occupé dans la compagnie) je suis autorisé à faire cette attestation.

Signature

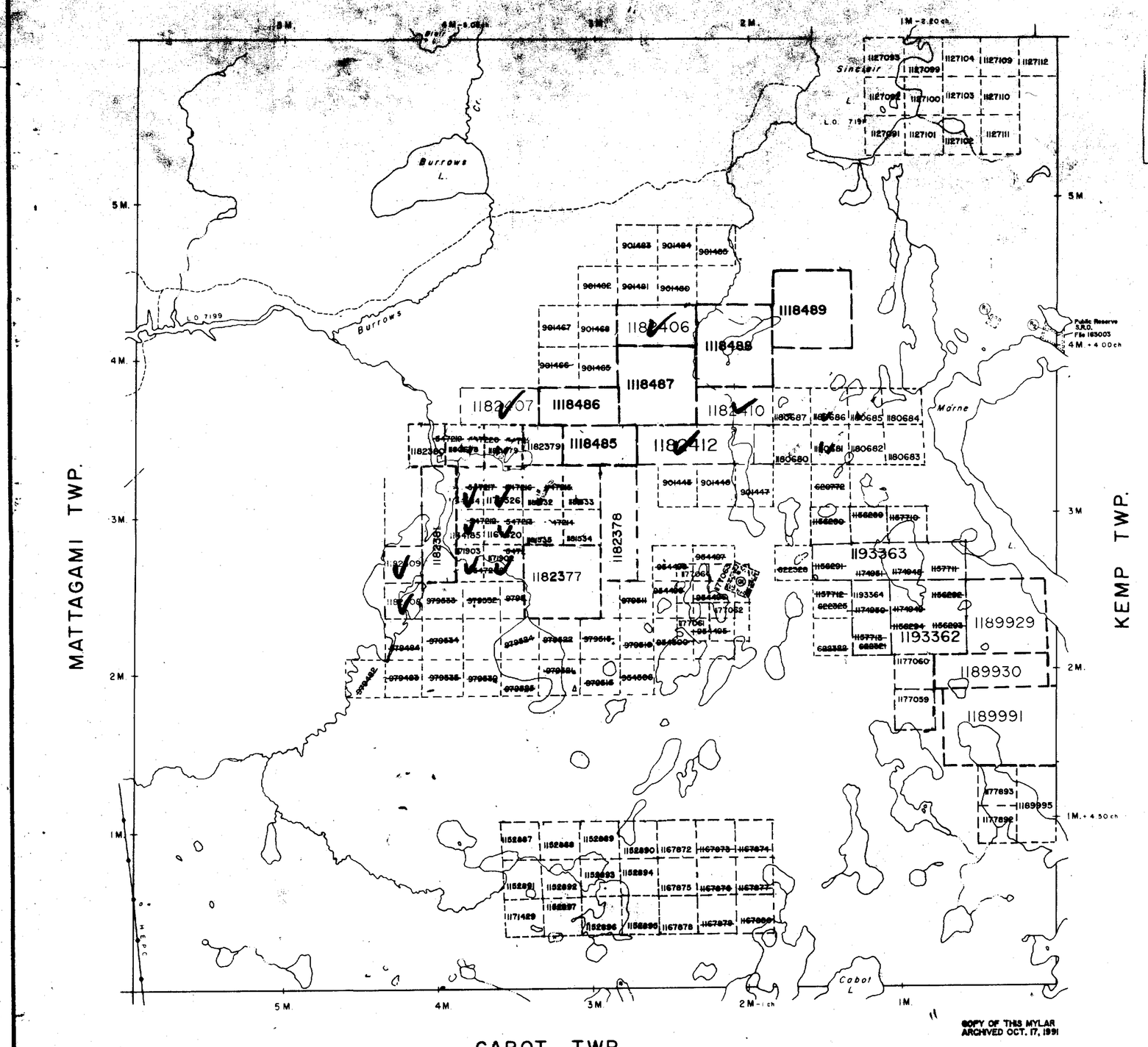
Date: May 6, '93

0212 (04/91)

Nota : Dans cette formule, lorsqu'il désigne des personnes, le masculin est utilisé au sens neutre.

geology reference - COBALT
RESIDENT GEO.

NURSEY TWP.



THE INFORMATION THAT APPEARS ON THIS MAP HAS BEEN COMPILED FROM VARIOUS SOURCES, AND ACCURACY IS NOT GUARANTEED. THOSE WISHING TO STAKE MINING CLAIMS SHOULD CONSULT WITH THE MINING RECORDER, MINISTRY OF NORTHERN DEVELOPMENT AND MINES, FOR ADDITIONAL INFORMATION ON THE STATUS OF THE LANDS SHOWN HEREON.

CIRCULATED MARCH 13th 1990

THE TOWNSHIP
OF

BURROWS

DATE OF ISSUE
JUN 24 1993

DISTRICT OF
SUDBURY

LARDER LAKE
MINING RECORDER'S OFFICE

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 around all lakes and rivers.

Flooding rights to elev. 113' on Sinclaire Lake to H.E.P.C. L.O. 7191. File 1162 vol 4.

Flooding rights between elev. 1070' and the high water mark on Burrows Creek to H.E.P.C. L.O. 7199. File 36881.

SAND and GRAVEL

(R) MNR GRAVEL RESERVE SC21
Areas withdrawn from staking under Section 43 of the Mining Act, R.S.O. 1970.

Order No.	File	Date	Disposition
(R) W 66/76	188517	19/11/76	S.R.O.
(R) PUBLIC RESERVE	163003		S.R.O.

△ TRAPLINE CABIN

PLAN NO. G-959

DEPARTMENT OF MINES
— ONTARIO —

Magnetic Survey

TITTLEY Properties
BURROWS Township
District of SUDBURY
LARDER LAKE Mining Division
ONTARIO

BY: H.Z. Tittley	Contoured: H.Z.T.
DATE: February, 1993	SCALE, 1 : 1000

SCALE
0 50 100

Main magnetic base 58,970

Rich gold-float area

1000N Base Line

H. Z. TITTLEY
REGISTERED PROFESSIONAL ENGINEER
PROVINCE OF ONTARIO

2.15084

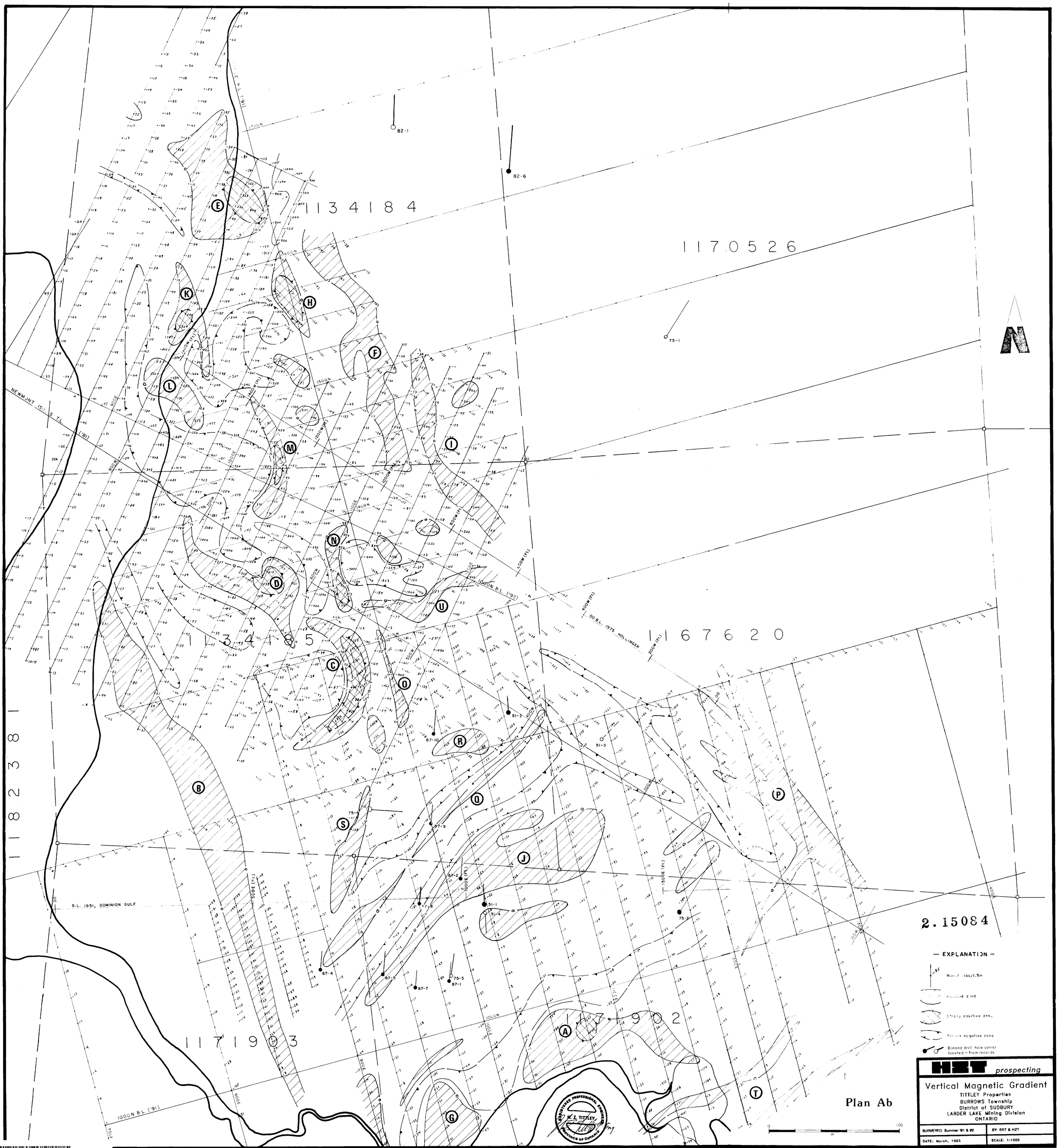
82377

113418400

170526

167620

117900



1134184
1170526
1134185
1167620
1182381
1171903
1171902
Jumping Moose Lake
1000E B.L. ('91)
1000N B.L. ('92)
1000N B.L. ('91)
Line 1000E ('92)
A
B
C
D
E
F
G
H
I
J
K
L
M
N
Rich gold-float area
N
CONTOURS
ΔM
30 300
25 250
20 200
18 180
16 160
14 140
12 120
10 100
8 80
6 60
4 40
0 100m
SCALE
EXPLANATION
230
Instruments: Scintrex IPC-8/250 transmitter
Scintrex IPR-8 receiver
41P14SW9502 2.15084 BURROWS
2.15084
H. Z. TITTLEY
REGISTERED PROFESSIONAL ENGINEER
PROVINCE OF ONTARIO
PLAN Ba
prospecting
Chargeability
Induced-Polarization Survey
JUMPING MOUSE PROPERTY
BURROWS Township, ONTARIO
SURVEYED by: H.Z. Tittley
SURVEYED: Jul - Aug '92
TITTLEY Properties
DATE March, 1993

1134184

1170526

1182381

1134485

1167620

2.15084

1171902

1171903

1000E B.L. ('91)

1000N B.L. ('92)

Jumping Moose Lake

Line 1000E ('92)

1000N B.L. ('91)

Rich gold-float area

CONTOURS

Calculated ohms/metre

30K
25K
20K
15K
10K
8K
6K
4K
3K
2K
1.5K
1K

0 100m
SCALE

EXPLANATION

240

Instruments: Scintrex IPC-8/250 transmitter
Scintrex IPR-8 receiver

— LEGEND —

Major low axes

PLAN Bb

HZT prospecting

Resistivity

Induced-Polarization Survey

JUMPING MOUSE PROPERTY

BURROWS Township, ONTARIO

SURVEYED by: H.Z. Tittley	SURVEYED: Jul – Aug '92
TITTLEY Properties	DATE: March, 1993

REGISTERED PROFESSIONAL ENGINEER
H. Z. TITTLEY
PROVINCE OF ONTARIO

41P14SW9502 2.15084 BURROWS

1134184

1170526

1000E B.L. (91)

1000N B.L. ('92)

1182381

1334854

Jumping Moose Lake

Line 1000E ('92)

1167620

CONTOURS

50 100 200 300 400 500 600 700 1000 2000 2500 3000

2.15084

Rich gold-float area

1171902

1171903

1000N B.L. ('91)

0 100m

SCALE

EXPLANATION

41P14SW9502 2.15084 BURROWS

250

SOLUTION: (M/Ρa)10⁴

PLAN Bc

HZT prospecting

Metal Factor

Induced-Polarization Survey

JUMPING MOUSE PROPERTY

BURROWS Township, ONTARIO

SURVEYED by: H.Z.Tittley	Surveyed: Jul – Aug '92
TITTLEY Properties	DATE: March, 1993

REGISTERED PROFESSIONAL ENGINEER H.Z. TITTLEY PROVINCE OF ONTARIO

1000E B.L. '91 Grid

1000N B.L. '92 Grid

Line 1000E '92 Grid

1000N B.L. '91 Grid

Jumping Moose Lake

1134184

1170526

1134185

1167620

1171903

1171902

Rich gold-float area

CONTOURS

100
75
50
25
0
-25
-50
-75
-100
-200
-300

EXPLANATION

Base line

41P14SW9502 2.15084 BURROWS

260

0 100
m

Plan C

Self-Potential Survey

JUMPING MOUSE PROPERTY
BURROWS Township
District of SUDBURY
LARDER LAKE Mining Division
ONTARIO

BY: H.Z. Tittley	TITTLEY Properties
DATE: March, 1993	SCALE, 1 : 1000

REGISTERED PROFESSIONAL ENGINEER
H. Z. TITTLEY
PROVINCE OF ONTARIO

2.15084

Jumping Moose Lake

1134184

1170526

1182381

1134185

1167620

1171903

1167902

Lake elevation: 348 m

Contour datum: 480 dm

100OE B.L. ('91)

1700N

600N

900E

1000E

1400N

1100E

1200E

1000N B.L. ('92)

1300N

1500N

1000N B.L. ('91)

1100N

1200N

Camp

Road

Jackpine

Poplar

Alder

Giant alder

Spruce

Birch

Balsams

Ash

Open meadow

Rich gold-float area

0 100m

SCALE

N

PLAN D

HZT prospecting

Topography

JUMPING MOUSE PROPERTY

BURROWS Township, ONTARIO

SURVEYED by: H.Z. Tittley	SURVEYED: Jul – Aug '92
TITTLEY Properties	DATE: March, 1993

REGISTERED PROFESSIONAL ENGINEER H.Z. TITTLEY PROVINCE OF ONTARIO

2.15084

Geology

JUMPING MOUSE PROPERTY
BURROWS Township
District of SUDBURY
LARDER LAKE Mining Division
ONTARIO

BY: H.Z. Tittley	TITTLEY Properties
DATE: February, 1993	SCALE, 1 : 1000

Plan E

SCALE
50
0
100

LEGEND

LATE MAFIC INTRUSIVE ROCKS
72 Diabase dyke

MAFIC INTRUSIVE ROCKS
65 Mafic dyke
64 Lamprophyre

FELSIC INTRUSIVE ROCKS
56 Syenite
55 Felsite
54 Feldspar porphyry
53 Granite

MAFIC INTRUSIVE ROCKS
42 Gabbro
41 Peridotite

CHEMICAL SEDIMENTARY ROCKS
28 Sulphide iron-formation
27 Silica-rich iron-formation
21 Iron formation
20 Geophysically interpreted I-f

FELSIC VOLCANIC ROCKS
16 Rhyolite

INTERMEDIATE VOLCANIC ROCKS
15 Dacite

MAFIC VOLCANIC ROCKS
14 Hypabasal flow, dioritic
13 Ultramafic flow
12 Andesite
11 Basalt

SYMBOLS

a Massive
b Foliated
c Schistose
d Sheared
e Tuffaceous
f Lapilli
g Fragmental
h Agglomeritic
i Pillowed
j Amygdaloidal
k Vesicular
l Altered
m Silicified
n Sericitized
o Carbonatized
p Lineated
q Albatized
r Blue quartz eye
s Sausuratized
t Brecciated
u Garnetiferous
v Hornblend rich
w Porphyritic
x aphanitic
y Chloritized

▲ float
→ glacial striae
0.05 / 0.40 gold assay, (oz/t) / width in metres
BUI-29 sample No.
BS-3 blasting site
Trench 7 power trenching site
power stripping site
high chargeability zone
detail area


Plan F
HZT prospecting
Geology
TITTLEY Properties & Area
BURROWS Township
District of SUDBURY
LARDER LAKE Mining Division
ONTARIO
Base: OBM
Scale, 1:10,000
Compiled: H.Z. Tittley
Date: February, 1993
SCALE
JUMPING MOUSE PROPERTY
Burrows Lake
Mattagami Lake
Sinclair Lake
Fault Lake
Caribou Lake
Marne Lake
Hook Lake
Jumping Mouse Lake
MATTAGAMI Twp.
BURROWS Twp.
Road
Topographic lineament
1182406
1182407
1182410
1182412
1182379
1182377
1182579
1181532
1181533
1181534
1181535
1170526
1182409
1180680
1180681
1180682
1180683
1180684
1180685
1180686
1180687
5,297,000
5,295,000
5,291,000
465,000E
470,000E
00 B.L. NEMONT '81
2.15084
290

Plan G
2.15084
prospecting
Traverses
TITTLEY Properties & Area
BURROWS Township
District of SUDBURY
LARDER LAKE Mining Division
ONTARIO
Base: OBM
Scale, 1:10,000
Compiled: H.Z. Tittley
Date: February, 1993
SCALE
JUMPING MOUSE PROPERTY
Burrows Lake
Hook Lake
Caribou Lake
Fault Lake
Marne Lake
Jumping Mouse Lake
Mattagami Lake
MATTAGAMI Twp
BURROWS Twp
1182406
1182407
1182410
1182412
1182579
1180678
1180679
1180680
1180681
1180682
1180683
1180684
1180685
1180686
1180687
1170526
1181532
1181533
1181534
1181535
1182379
1182377
1182409
1182408
1182380
1182381
1167620
1171904
H. Z. TITTLEY

300

Jumping Moose Lake

CONTOURS

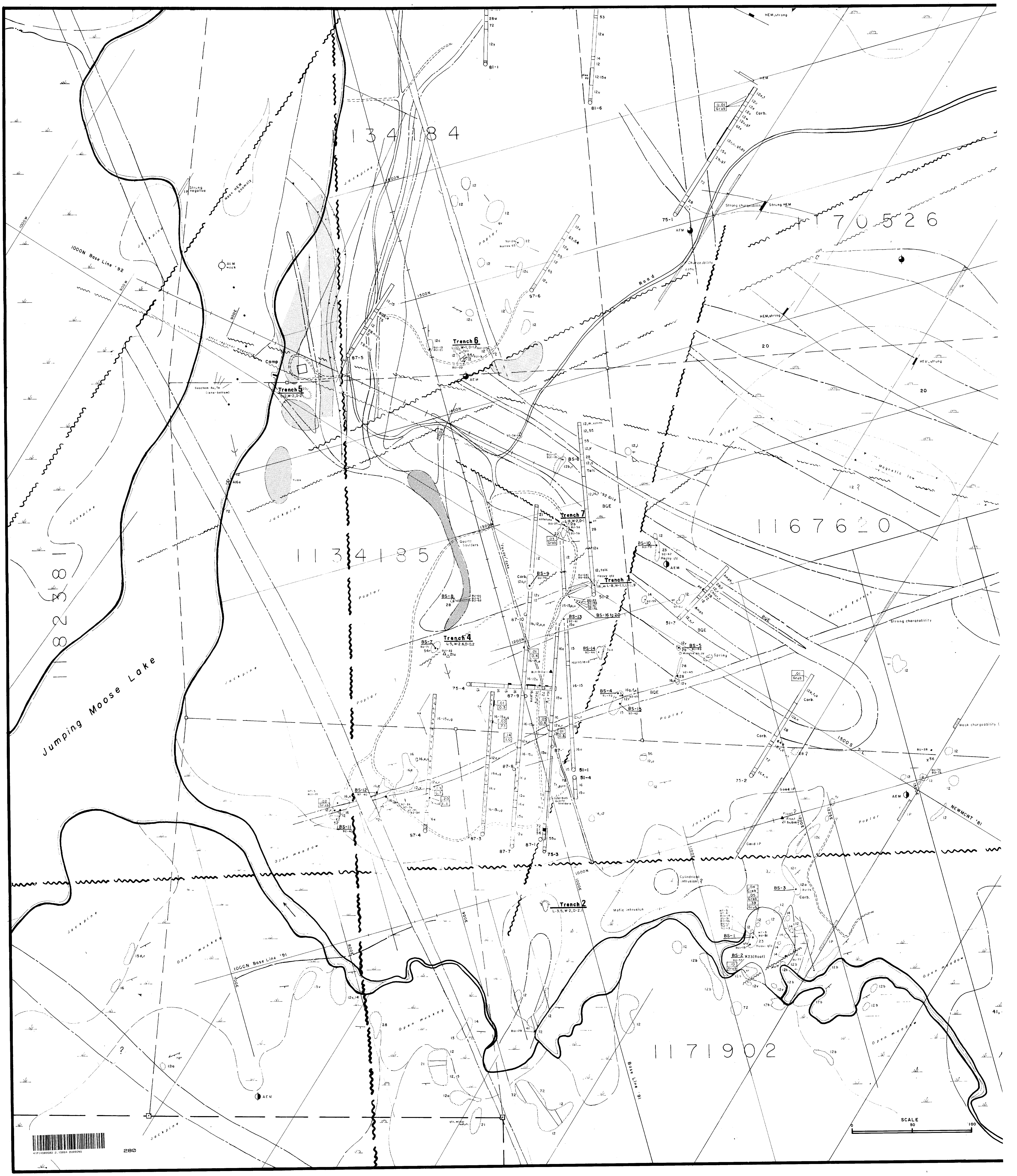
15,000
10,000
7000
5000
4000
3000
2000
1500
1000
700
500
400
300
200
100
0 - 58,000
-100
-200
-300
-400
-500
-600

1000N B.L.

Main magnetic zone

Rich gold-float area

SCALE
0 50 100



134184
1134185
1170526
1167620
1171902
1182381
Jumping Moose Lake
Trench 1
L-8, W-1.1, D-0.9
Trench 2
L-3.5, W-2, D-2.1
Trench 4
L-5, W-2.6, D-0.2
Trench 5
L-2, W-2, D-2
Trench 6
L-10, W-1, D-1.2
Trench 7
L-8, W-2, D-1
1000N Base Line '92
1000N Base Line '91
Base Line '91
'92 Grid
NEWMONT '81
1500 S T.L.
Road
Camp
Weak HEM anomaly
Strong IP negative
After regional magnetics
Geochem Au, Te (lake-bottom)
AEM weak
HEM, strong
Strong chargeability
Strong HEM
Chargeability zone
Weak chargeability
Magnetic low
Good IP
Cylindrical intrusion ?
Mafic intrusion
Quartz boulders
'Feeder' dyke
Heavy qtz
Massive po, py
Spring
Float ?
Frost 21 heave ?
Jackpine
Poplar
Alder
Mixed forest
Open meadow
Open muskeg
BS-1
BS-2
BS-3
BS-4
BS-5
BS-6
BS-7
BS-8
BS-9
BS-10
BS-11
BS-12
BS-13
BS-14
BS-15
BS-16 to 20
75-1
75-2
75-3
75-4
81-1
81-6
87-1
87-3
87-4
87-5
87-6
87-7
87-8
87-9
87-10
51-1
51-2
51-3
51-4
SCALE
0
50
100
41P14SW9502 2.15084 BURROWS
280