

5950

GEOCHEMICAL REPORT

on a

SOIL GEOCHEMISTRY SURVEY

CANNELL CLAIM

CANNELL CREEK, KAMLOOPS M.D.
BRITISH COLUMBIA

92 I/15E

#5950

CANNELL

Cannell Claim:

17.5 miles N35W of Kamloops
50° 120° NW

N.T.S. - 92 I/15E

Report by:

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Geophysicist
GEOTRONICS SURVEYS LTD.
307-475 Howe Street,
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for:

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Department of
Mines and Petroleum Resources
ASSESSMENT REPORT

August 23, 1976

NO. 5950 MAP

Geotronics Surveys Ltd.

Vancouver, Canada

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SUMMARY

The 20 unit Cannell Claim is located on Cannell Creek about 17.5 miles N35W of the City of Kamloops. Access is by the Pass Lake dirt road and thence along the Cannell Creek road. The terrain varies from relatively flat to rock bluffs and tree cover consists of conifers.

The Cannell Claim is a restaking of the Dog Claims which itself is a staking of the old Allies showings which were previously explored for gold. The mineralization consists of pyrite, chalcopyrite, bornite, and galena within quartz veins. These veins are within dark grey porphyry dykes cutting serpentine of the Cache Creek group. Overlying the Cache Creek rocks around the Dog claims are Tertiary volcanics of the Kamloops Group.

Previous work consists of trenches, adits, and shafts during the 20's and 30's and, more recently, a magnetic and VLF-EM survey, limited soil sampling, and limited geological mapping.

The purpose of the soil geochemistry survey was to further delineate the 1973 soil geochemistry anomalies and to locate

probable areas of copper-gold mineralization within porphyry dykes.

The soil samples were taken every 100 feet on 200-foot or 400-foot lines and the samples tested for gold and copper. The results were statistically analyzed, plotted, and contoured.

CONCLUSIONS

1. The main anomalous zone, labelled A, consists of copper-gold mineralization likely occurring within porphyry dykes striking mainly north-south and east-west.
2. As seems to be shown by the soil anomalies, the heavily worked area 900 feet west of the cabins was out of the main zone of mineralization.
3. Anomaly B, 3,800 feet south of the main zone, also seems to reflect copper-gold mineralization. This anomaly shows promise in that it is open to the south.

RECOMMENDATIONS

1. The anomalies, especially as reflected by the gold results, should be diamond drilled by -45° holes. Lineation a-a' should be drilled first followed by lineations b-b', c-c', and d-d'. The actual spotting of the holes should be done in the field, preferably by a geological engineer, so as to take the best advantage of the topography.

2. Based upon the results of the diamond drilling, the other anomalies should be investigated, especially anomaly B. This may entail further staking to the south.

GEOCHEMICAL SURVEY
on a
SOIL GEOCHEMISTRY SURVEY
CANNEL CLAIM
CANNELL CREEK, KAMLOOPS M.D., B.C.

INTRODUCTION AND GENERAL REMARKS:

This report discusses the survey procedure, compilation of data, and the interpretation of a soil geochemistry survey carried out over the Cannell Claim during June and July 1976. The soil samples were tested for gold and copper.

The field work was carried out under the supervision of the writer. A total of 866 samples were picked up.

The soils survey was a follow-up on a soils survey carried out by Larry Sookochoff, P.Eng., during the spring of 1973 when 245 samples were picked up. The survey was carried out only around the old Allies workings and a few strong anomalies were delineated. The object, therefore, of the present survey was to define the limits of the original anomalies and to locate additional ones. It was hoped that these anomalies represent areas of gold-copper mineralization as was seen in the well-mineralized float rock upon which the original exploration of

the 1920's and 1930's was based.

The exploration on this property is mainly for gold and therefore the samples were tested for gold. However, because of its low dispersion rate and because of the detection limits of the testing procedure, a gold soil anomaly can be missed. Therefore, since copper mineralization occurs with the gold, and since there was little additional cost, the samples were also tested for copper.

PROPERTY AND OWNERSHIP

The Cannell Claim consists of 20 units described as follows and as shown on figure 1.

| <u>Name</u> | <u>Record No.</u> | <u>Expiry Date</u> |
|-------------|-------------------|--------------------|
| Cannell | 52 (6) | June 17, 1976 |

The property is wholly owned by Yamoto Industries Ltd. (N.P.L.) of Vancouver, British Columbia.

LOCATION AND ACCESS

The Cannell Claim is located on Cannell Creek, 17.5 air miles

N35W of Kamloops.

The geographical coordinates are $50^{\circ} 53'$ N latitude and $120^{\circ} 34'$ W longitude.

Access to the property is by the Pass Lake dirt road to Pass Lake. This road starts approximately one mile north of the city centre of North Kamloops along the west side of the North Thompson River. From the agricultural research station at Pass Lake, one travels northwesterly for 0.6 of a mile where one turns west and travels a further 5.2 miles N.W. to the Cannell Claim over a logging road.

Pass Lake is accessible by a two-wheel drive vehicle all year around, the road being kept open in winter. A four-wheel drive vehicle is recommended from Pass Lake to the property during summer months and a skidoo during winter months.

PHYSIOGRAPHY

The property is found at the southern end of the Tranquille Plateau which forms part of the physiographic unit known as the Thompson Plateau. The terrain varies from gentle on the northeastern and southwestern parts of the property to steep

on the sides of gullies. The elevation varies from 3,800 feet along the southern portion of Cannell Creek to 4,700 feet along the western, eastern, and northern perimeters of the property, which gives a relief of 900 feet.

Cannell Creek is the main water drainage of the area and flows southeasterly approximately through the center of the claim. Sydney Lake, about 1,700 feet long, is found a few thousand feet to the northwest of the claim.

The property lies within Tranquille forest with the major vegetation consisting of pines, spruce and other conifers.

Pleistocene ice occupied the Thompson Plateau and thus much of the claims area is probably covered by glacial drift which could become quite deep over the flatter areas.

The climate is semi-arid with annual precipitation varying from 11 to 12 inches. Temperatures vary from the high extreme in summer of around 100°F . to the low extreme in winter of around -30°F ., though the usual temperature during the summer days would be 60°F . to 80°F . and that in winter 20°F . to 40°F .

HISTORY OF PREVIOUS WORK

This property was previously known as the Allies Group upon which work was done in exploration for gold during the 1920's and 1930's. At this time several trenches, shafts and adits were dug out.

The property was staked as the Dog Claims in 1969-70 and in 1973, magnetic, VLF-EM, limited soil sampling and limited geological surveys were carried out.

GEOLOGY

The geological description of the property is taken from Cockfield and Saleken. (See Selected Bibliography).

Much of the general area is underlain by Tertiary volcanics of the Kamloops Group. These consist of rhyolites, andesites and basalts with associated tuffs, breccias and agglomerates.

Forming a window in the Tertiary volcanics and underlying much of the Dog claims are rocks of the Carboniferous Cache Creek group. This group in this area consists of argillite, quartzite, hornstone, limestone, sheared conglomerate,

breccia, greenstone, and serpentine. The units have a northwest trend with varied dips

Cutting the Cache Creek rocks but not the Kamloops volcanics are light grey and dark grey porphyry dykes. The dark grey porphyry is a dense rock with phenocrysts of hornblende and feldspar.

The mineralization of the Allies prospect occurs as pyrite, chalcopyrite, bornite and galena within quartz veins which occur within the dark grey porphyry dykes. Up to 1.42 oz/ton of gold has been assayed with the sulphides.

Many of the claims in the area were staked during the "Afton rush." The property of Afton Mines Ltd. is located south of Kamloops Lake. The main copper mineral is native copper and the tonnage so far blocked out is 40 million of 0.65% copper. This as well as other copper occurrences in the area occur within both the Iron Mask batholith and the older intruded Nicola rocks close to the batholith. Generally, they are veins, impregnations, stockworks, and mineralized shear zones within the country rock with the principle copper minerals being chalcopyrite, bornite and native copper, as well as some chalcocite, cuprite, azurite and malachite.

SURVEY PROCEDURE

The soil samples were taken every 100 feet on 200-foot lines, and on 400-foot lines outside the area of main interest. The samples were taken with a D-handled shovel and the horizon sampled was B, the color of which varied from dark brown to light brown to red. The depth the sample was taken from varied from 4 inches to 15 inches. Samples were placed in brown wet-strength paper bags with grid co-ordinates marked thereon.

TESTING PROCEDURE

All samples were tested by Acme Analytical Laboratories of Burnaby, B.C. The sample is first thoroughly dried and then sifted through a -80 mesh screen. For copper, 1 gram of the sifted material is then put into a test tube with subsequent measured additions of a solution of perchloric and nitric acid. This mixture is next heated for a certain length of time. The parts per million (ppm) copper is then measured by atomic absorption. For gold, 10 grams of the sifted material is put into a test tube, ignited, and treated with a hot aqua regia acid for a certain length of time. An aliquot of the solution is then taken and the gold extracted with MIBK. The parts per billion (ppb) gold is then measured by atomic absorption and background corrected.

TREATMENT OF DATA

The values in ppm copper were grouped into logarithmic intervals of 0.10. The cumulative frequency for each interval was then calculated and then plotted against the correlating interval to obtain the logarithmic cumulative frequency graph as shown on Figure 2.

The coefficient of deviation, indicative of the range or spread of values was calculated to be 0.21 a somewhat low figure. Therefore, the range of values is rather narrow. This statistical parameter is indicative of how well the element has been mechanically or chemically dispersed. Considering the lower than average value, one could then say dispersion rate is rather low.

The graph for copper shows the mean background value to be about 13 ppm taken at the 50% level. The sub-anomalous threshold value (a term used by the writer to denote the minimum value that is not considered anomalous but still important as an indicator of mineralization) is taken at one standard deviation from the mean background value which is at the 16% level and is in this case 21 ppm. The anomalous threshold value is two standard deviations away at the 2 1/2% level and is on this property 32 ppm.

The graph shows a break at the 20% level which therefore indicates that there is an excess of high copper values on the TT Claim. This is usually the case where copper sulphide mineralization occurs.

The copper soil data was plotted on sheet 1 at a scale of 1" to 400 feet. The data was then contoured at an interval of one standard deviation. This gave contours of 20, 32, 50, and 75 ppm. The 20 ppm sub-anomalous threshold contour was dashed in whereas the anomalous contours were drawn in solid.

The soil geochemistry results for gold could not be statistically analyzed for the background and anomaly parameters since most of the data reflected non-detectable gold. That is, the amount of gold within the soil was below the detectable limits of the testing method, in this case, 10 parts per billion (ppb).

The parameters were then determined by 'eyeballing' the data, plotted on sheet 2 at 1" = 400 feet. The sub-anomalous value was felt to be 10 ppb, the detection limit. This was contoured by a 5 ppb dashed contour which assumed the less than 10 ppb values to be 0. Values 20 ppb and over were felt to be anomalous. The anomalous contours were drawn in solid at a logarithmic interval to give contours at 20, 40, 80, 160, and 320 ppb.

DISCUSSION OF RESULTS

As can be seen on sheets 1 and 2, the prime anomalous zone still remains within the area of original soil sampling of 1973.

However, what the additional soil sampling has done is -

1. close off and detail the original anomalies.
2. locate additional anomalies.
3. give more credibility to the original data by giving a better determination of the threshold values.

As shown by the copper and gold maps, the area of highest interest is that around and southeast of the old workings. This whole area has been labelled A.

The gold and copper anomalies within this zone correlate very well together, except that the copper appears more or less as one large anomaly and the gold appears as several linear-type anomalies. The highly probable explanation of this is that the gold anomalies reflect porphyry dykes mineralized with both copper and gold. Because of the greater mobility of the copper ion, the copper soil anomaly spreads out from the various sources to show up as one larger anomaly rather than several linear-type, as the gold anomalies are.

The writer has drawn dashed lines through the various gold anomalies that he feels best reflect dyke-type mineralization. The most interesting of these lineations strike either east-

west or north-south, which is the same direction as the 2 major fault structures that cross in the area of the showing as interpreted from the government aeromagnetics.

The most promising of the lineations is that labelled a-a' because of its good intensity and length. Several values range from 40 to 265 ppb gold and its length is at least 1,500 feet. It could well extend further north and further south beneath the Tertiary basalt. Indeed, this could be said for any of the anomalies within this area.

Lineations b-b', c-c', and d-d' are also felt to be quite promising of reflecting gold-copper mineralization.

It is interesting to note that the 3 adits 900 feet west of the cabins are pretty well located out of the copper gold anomalous zone, and that these 3 adits encountered porphyry dykes that contained either low-grade mineralization, or no mineralization.

Soil anomalous zone A correlates very well with VLF-EM anomaly A. The VLF-EM anomaly seems to surround the soil anomaly and therefore probably is reflecting the edges of a broad conductive zone within which occurs the mineralized porphyry dykes.

Gold-copper anomaly B is worthy of further interest mainly because of its correlation between the gold and the copper and also because of the 2 high gold values of 40 and 180 ppb, respectively. It occurs on the south end of the property and is therefore open to the south.

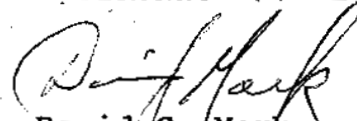
Anomaly C is small and is a copper anomaly only. However, it contains the highest copper value on the property of 110 ppm. Since the anomaly occurs along Cannell Creek, it could be the result of downward ion migration.

Anomaly D is also only a copper anomaly. It occurs in an area where trenches were dug within a gossanous zone. This anomaly is open to the southwest.

Other than the soils correlation with VLF-EM anomaly A, there is generally poor correlation between the other VLF-EM and soil geochemistry anomalies. A copper anomaly and a gold anomaly correlates with the northeast half of VLF-EM anomaly B.

There is virtually no correlation between the soil geochemistry anomalies and the magnetics.

Respectfully submitted,
GEOTRONICS SURVEYS LTD.


David G. Mark
Geophysicist

August 23, 1976

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T.R. Tough & Associates Ltd. January 13, 1976

GEOPHYSICIST'S CERTIFICATE

I, DAVID G. MARK, of the City of Vancouver, in the Province of British Columbia, do hereby certify:

That I am a Consulting Geophysicist of Geotronics Surveys Ltd., with offices at 307-475 Howe Street, Vancouver B.C.

I further certify:

1. I am a graduate of the University of British Columbia (1968) and hold a B.Sc. degree in Geophysics.
2. I have been practising in my profession for the past eight years and have been active in the mining industry for the past eleven years.
3. I am an active member of the Society of Exploration Geophysicists and a member of the European Association of Exploration Geophysicists.
4. This report is compiled from data obtained from a soil sampling survey carried out under the supervision of myself, during June and July, 1976 on the Cannell Claim.
5. I am a director of Yamoto Industries Ltd. and hold 10,000 shares in escrow of such company. I have no other direct or indirect interests in the properties or securities of this company.


David G. Mark
Geophysicist

August 23, 1976

CERTIFICATE OF EXPENSES

I, David G. Mark, Manager of Geotronics Surveys Ltd., certify the following costs were incurred in carrying out a soil sampling survey on the Cannell Claim on Cannell Creek in the Kamloops M.D., B.C. The survey started June 14, 1976 and was completed on July 14, 1976.

Field

| | |
|-----------------------------------------------------------------|--------------|
| 2 men, geophysical technician & helper, for 78 hours @ \$35/hr. | \$ 2,730.00 |
| Room & board, 8 days @ \$20/day | 160.00 |
| 4-wheel drive rental, 8 days @ \$40/day | 320.00 |
| Survey supplies | <u>25.00</u> |
| | \$ 3,235.00 |

Lab

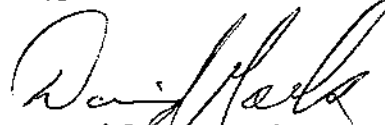
| | |
|-------------------------------------------|-------------|
| Soil testing, 866 samples @ \$3.25/sample | \$ 2,814.50 |
|-------------------------------------------|-------------|

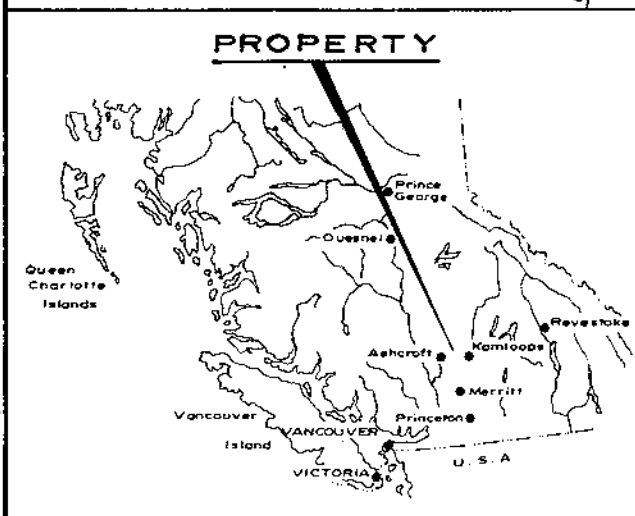
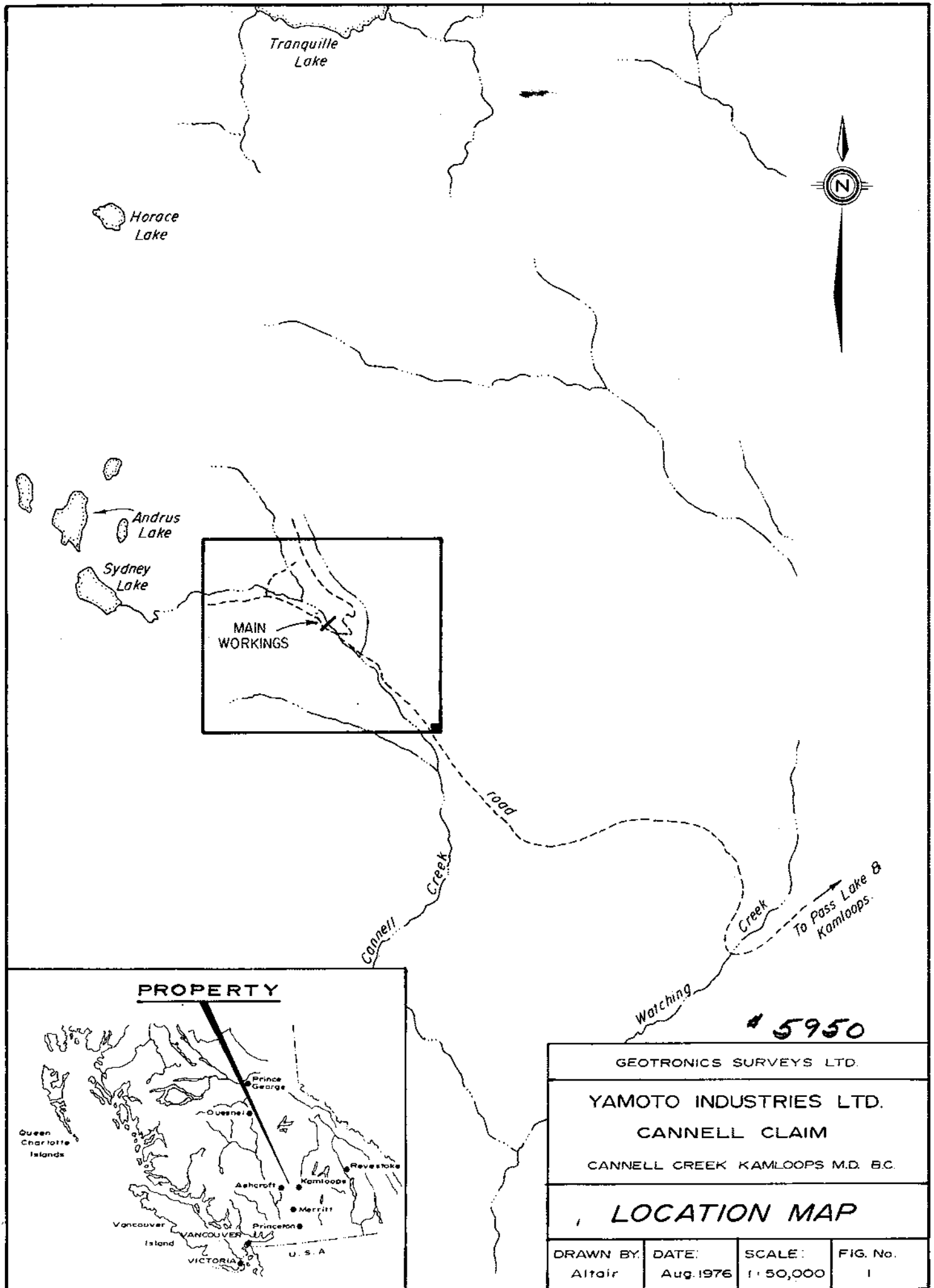
Report

| | |
|-------------------------------------|---------------|
| Geophysicist, 10 hours @ \$25/hour | 250.00 |
| Office helper, 11 hours @ \$10/hour | 110.00 |
| Drafting & printing | 250.00 |
| Typing, xeroxing, and compilation | <u>105.00</u> |
| | \$ 715.00 |

| | |
|-------|-------------|
| Total | \$ 6,764.50 |
|-------|-------------|

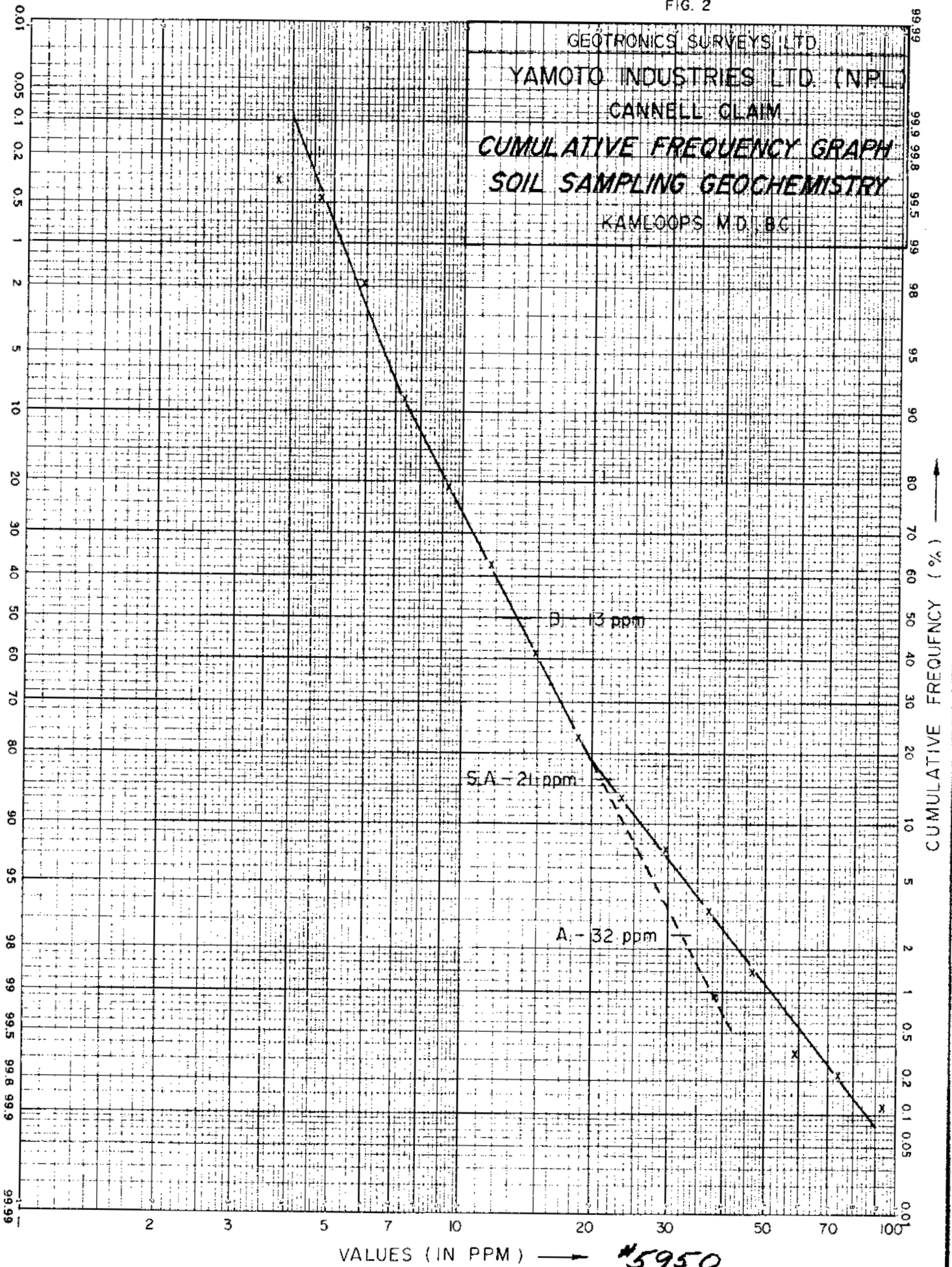
Respectfully submitted
 GEOTRONICS SURVEYS LTD.


 David G. Mark
 Geophysicist



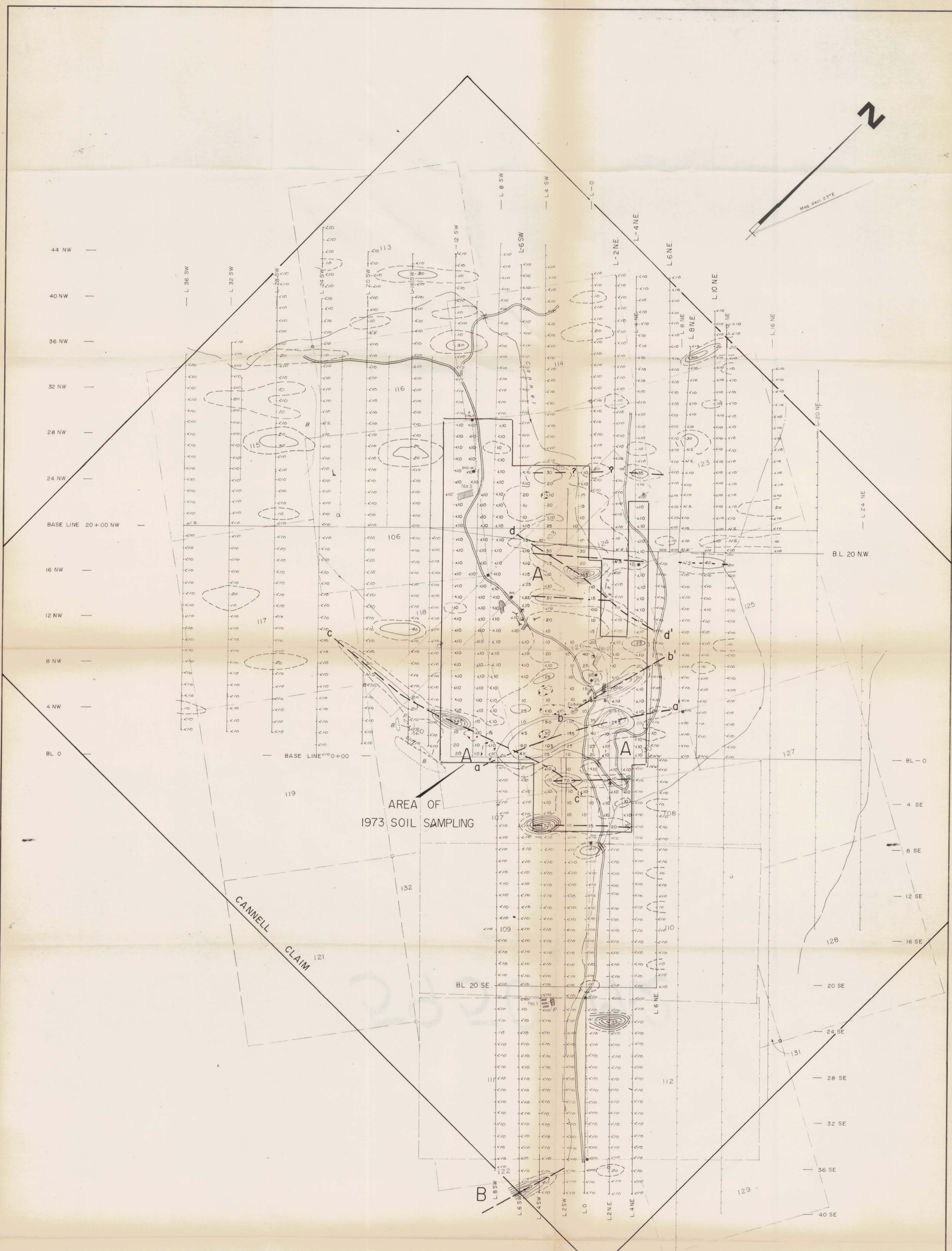
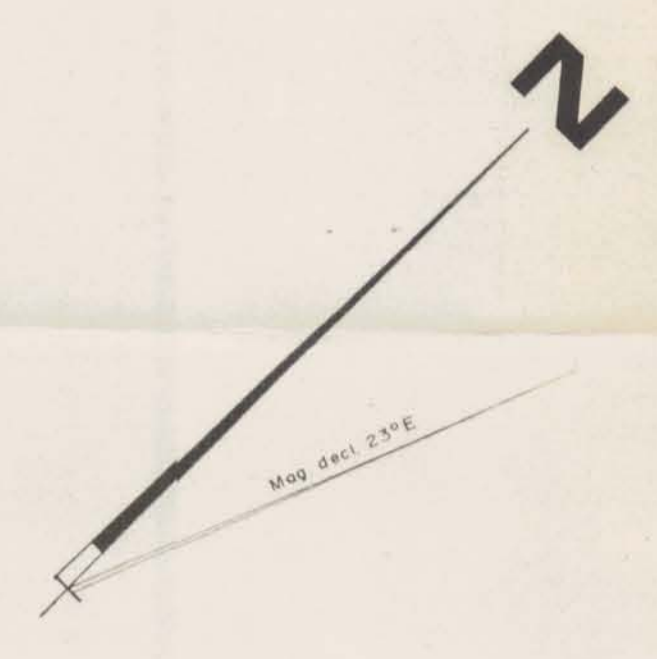
| | | | |
|----------------------------------|-----------|-----------|----------|
| GEOTRONICS SURVEYS LTD. | | | |
| YAMOTO INDUSTRIES LTD. | | | |
| CANNELL CLAIM | | | |
| CANNELL CREEK KAMLOOPS M.D. B.C. | | | |
| LOCATION MAP | | | |
| DRAWN BY: | DATE: | SCALE: | FIG. No. |
| Altair | Aug. 1976 | 1: 50,000 | 1 |

FIG. 2



G-54
LOGARITHMIC PROBABILITY

GRAPHIC COMPUTER SYSTEMS LTD.
MADE IN CANADA



- LEGEND**
- Survey line
 - Claim line
 - Claim post (assumed, located)
 - Road
 - Creek
 - Adit
 - Trench
 - Shaft
 - Outcrop

- GEOLOGY**
- B Basalt
 - P Porphyry

NOTE: VALUES ARE IN PPB (Au)
 <10 - less than 10 ppb

CONTOURS

- 5 ppb (assumes <10 ppb is 0)
- 20, 40, 80, 160, 320 ppb

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
 No. **5950** MAP #2

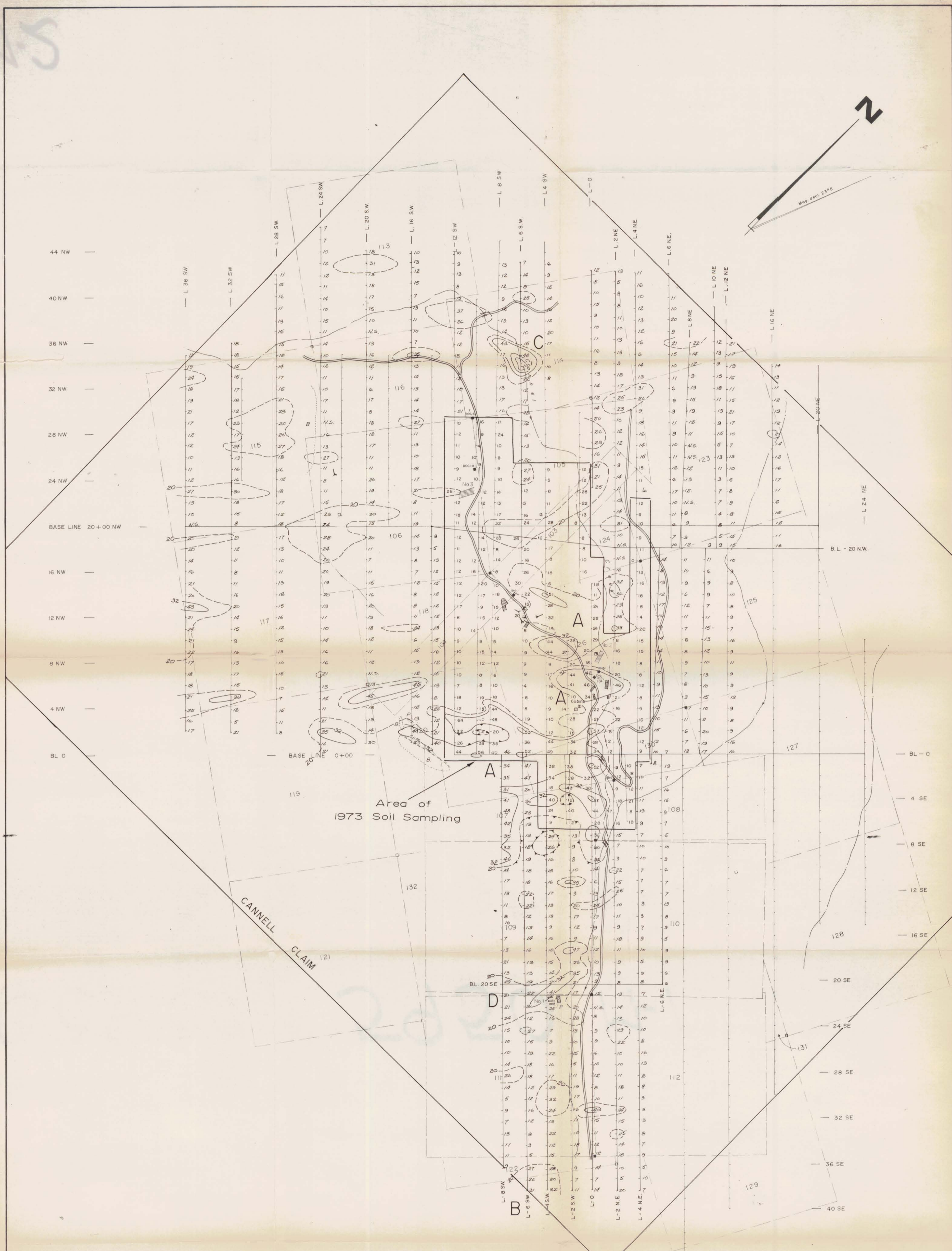
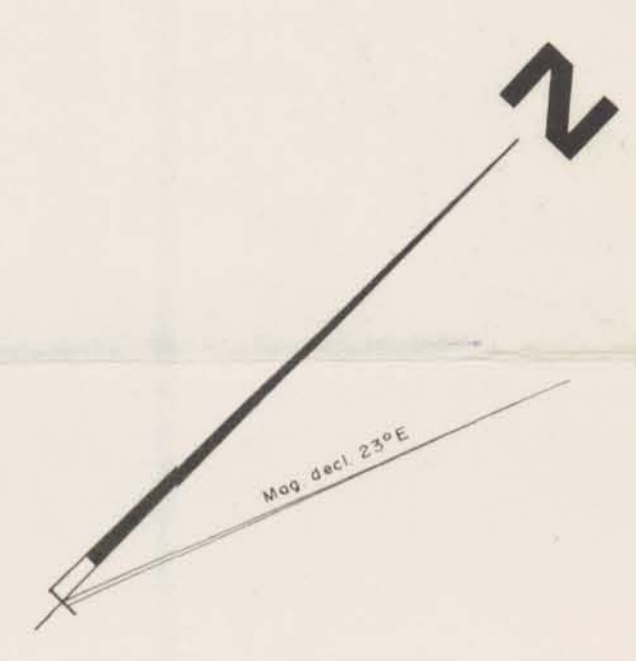
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YAMOTO INDUSTRIES LTD. (N.P.L.)
 CANNELL CLAIM
 KAMLOOPS M.D., B.C.
SOIL GEOCHEMISTRY - Gold
DATA & CONTOURS

| | | | | |
|-----------------------|--------------------|-------------------|------------------|------------|
| PDT DRAFTING SERVICES | SCALE 1" = 400' | DATE JULY 1976 | JOB No. 76-33 | SHEET 2 |
|-----------------------|--------------------|-------------------|------------------|------------|

0292

5950 M-2



Area of 1973 Soil Sampling

- LEGEND**
- Survey line
 - Claim line
 - Claim post (assumed, located)
 - Road
 - Creek
 - Adit
 - Trench
 - Shaft
 - Outcrop

- GEOLOGY**
- B. Basalt
 - P. Porphyry
- CONTOURS**
- 20 ppm.
 - 32, 50, 75 ppm

PARAMETERS

- Background - 13 ppm.
- Sub-anomalous threshold - 20 ppm.
- Anomalous threshold - 32 ppm.

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 5950 MAP #1

To accompany Geochemical Report by David G. MARK, geophysicist.

| | | | |
|-----------------------------------------------------------|--------------------|-------------------|-----------------|
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| YAMOTO INDUSTRIES LTD. (N.P.L.) | | | |
| CANNELL CLAIM KAMLOOPS M.D., B.C. | | | |
| SOIL GEOCHEMISTRY - Copper DATA & CONTOURS | | | |
| PDT DRAFTING SERVICES | SCALE 1" = 400' | DATE JULY 1976 | JOB No 76-33 |
| | | | SHEET 1 |

5950 M-1

0292