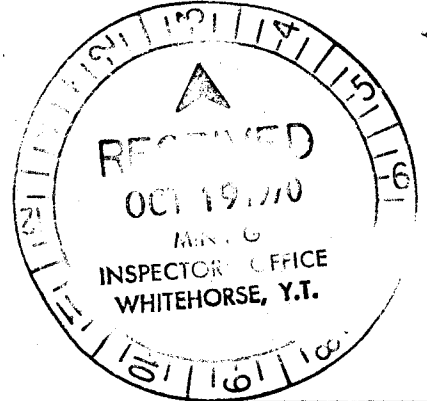
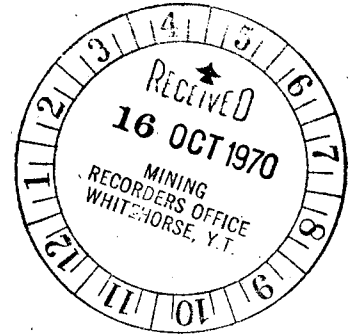


REPORT
on the
MARGUERITE LAKE MINES CLAIMS
CASINO AREA, DAWSON RANGE,
YUKON TERRITORY

for
NIPPON MINING OF CANADA LTD.



This report has been examined by the Geological Evaluation Unit and is recommended to the Commissioner to be considered as representation work in the amount of

\$21,183.22

J. B. Craig
Resident Geologist
Resident Mining Engineer

Considered as representation work under Section 53 (6) Yukon Quartz Mining Act.

by

R.W. PHENDLER, B.Sc., P.Eng.

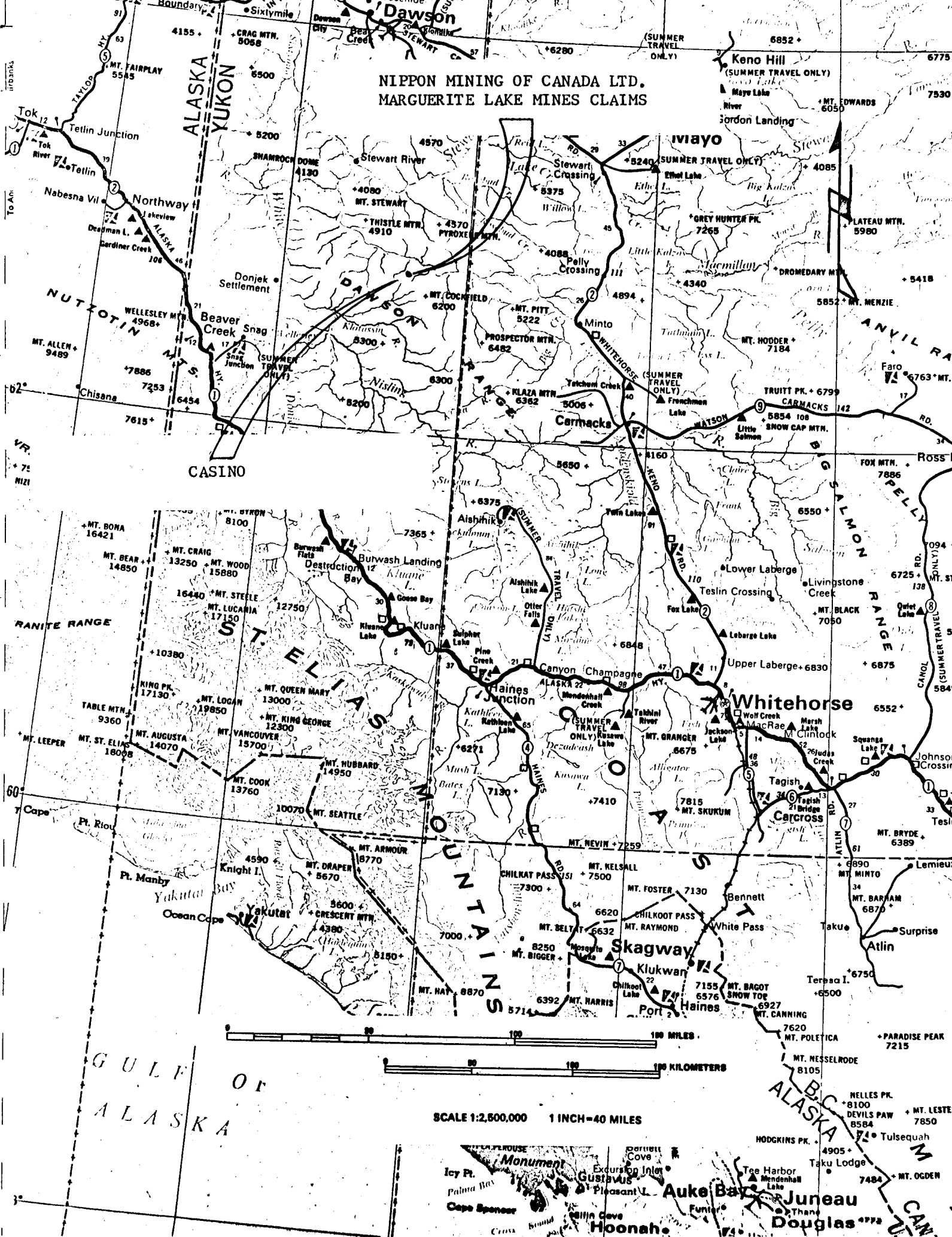
M.F. COWAN, M.Sc., P.Eng.

M. F. Cowan
Commissioner of the Territory

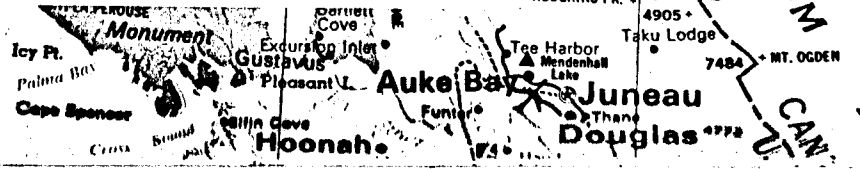
Vancouver, B.C.

September 10th, 1970.

NIPPON MINING OF CANADA LTD.
MARGUERITE LAKE MINES CLAIMS



SCALE 1:2,500,000 1 INCH=40 MILES



15° 59

139° 00

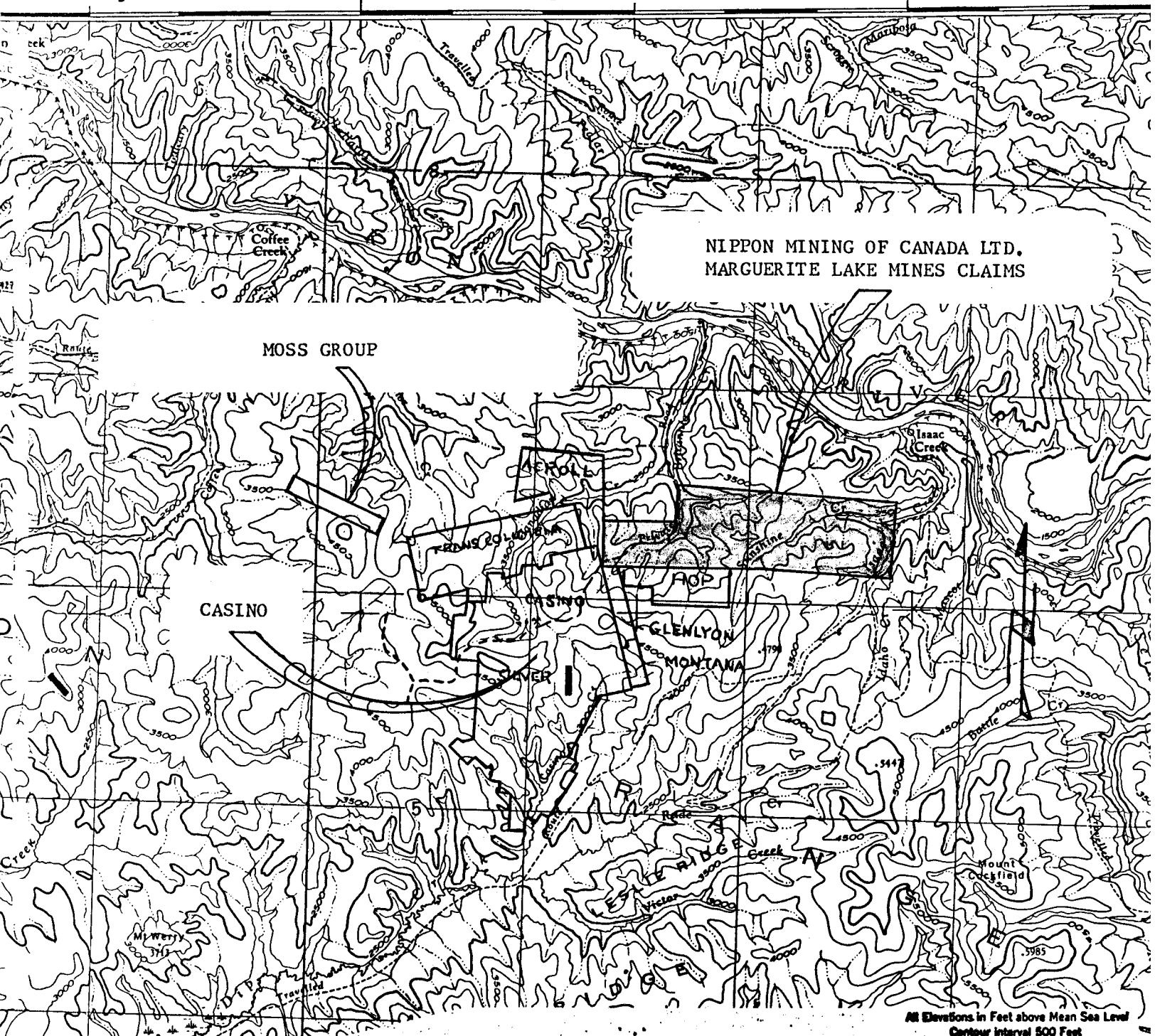
61

45

62

30

63



NIPPON MINING OF CANADA LTD.
MARGUERITE LAKE MINES CLAIMS

MOSS GROUP

CASINO

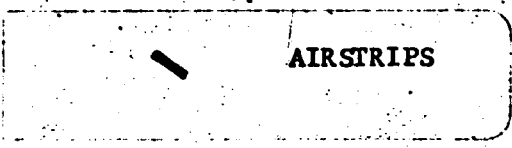
GLENLYON
MONTANA

SNAG

YUKON TERRITORY

All Elevations in Feet above Mean Sea Level
Contour Interval 500 Feet

Universal Transverse Mercator Projection



Scale 1:250,000

1 inch to 4 Miles Approximately

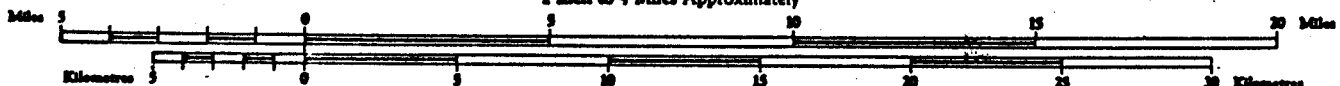


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Fig. 1 - Geological-Geochemical Map - Marguerite Lake Mines Claims - 1" = 800'	Back of Report
Fig. 2 - Geological-Geochemical Map - Marguerite Lake Mines Moss Group - 1" = 800'	"
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SUMMARY AND CONCLUSIONS

The Marguerite Lake Mines claims presently under option to Nippon Mining of Canada Ltd. consist of 2 groups totalling 262 claims. They are located 187 air miles northwest of Whitehorse in central Yukon Territory. The groups lie 7 miles northwest of and from 4 to 14 miles northeast of the mineralized zone at Casino Mines Ltd. It has not, as yet, been ascertained whether the Casino mineralized zone is of commercial tonnage and grade.

The claims under discussion are underlain by Precambrian metasediments, Klotassin granodiorite, quartz feldspar porphyry, siliceous quartz diorite, and minor andesite (dykes). Mineralization consists of occasional specks of pyrite.

Soil sampling indicates the presence of four widely-spaced copper anomalies along the contact between the metasediments and the granodiorite. The largest of these anomalies is 1800' long and is of unknown width. Values are greater than 90 ppm Cu as compared to a local background of 0-24 ppm Cu and a threshold of 25-44 ppm. Values greater than 60 ppm Cu are considered anomalous.

RECOMMENDATIONS

It is recommended that detailed geochemical and geological surveys be carried out over an area 15,000' x 3000' (equal to 20 claims) covering the metasediment-granodiorite contact from anomaly "A" to anomaly "C". (See Fig. 1.) Control lines should be run at 400' intervals and soil samples should be taken at 100' stations. If it is desirable that a smaller area be detailed, it is recommended that anomalies "A" and "B" only be covered. This would reduce the following estimate by about 50%.

ESTIMATED COST - DETAIL SURVEY

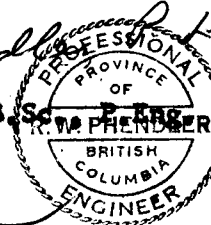
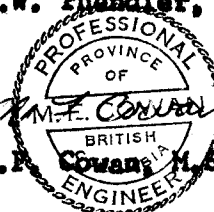
1. Linecutting - 20 claims x 1 mile x \$150/mile	\$3,000
2. Geochemical sampling - 52 samples per claim @ \$2.00/sample for taking & \$1.10 for assay (analysis 90¢ + 20¢ preparation) = \$3.10/sample - 52 x \$3.10	3,224
3. Detail geological mapping	1,500
4. Report preparation	<u>500</u>
	\$8,224
10% contingencies	<u>822</u>
Total	\$9,046

Respectfully submitted,

BACON & CROWHURST LTD.

R.W. Phendler
R.W. Phendler, B.Sc., P.Eng.

M.F. Cowan
M.F. Cowan, M.Sc., P.Eng.



INTRODUCTION

At the request of Nippon Mining of Canada Ltd. and Mitsui and Company (Canada) Ltd., Bacon & Crowhurst Ltd. undertook to examine and appraise two groups of claims totalling 262 claims in west central Yukon. It was proposed to carry out geological mapping, prospecting and soil sampling.

The ground was traversed by compass and chain at approximately 1500' intervals. Mapping of outcrop and float was carried out and soil samples were taken on 400 foot spacings. Stream sediment samples were taken where creeks were crossed.

An attempt was made to locate claim posts but this was difficult because of poor staking. Only rarely were claim location lines suitably marked by blazes or flagging. It is felt that sufficient claim posts were found to show approximate claim boundaries.

Field personnel arrived in Whitehorse on August 1st, 1970, and returned to Vancouver on August 20th.

While waiting for air transportation from the Casino airstrip on August 19th, R.W. Phendler was able to arrange for a visit to the Casino property during which he examined various rock types present in the vicinity of the mineralized zones on the Casino property.

All traverses were run by R.W. Phendler, P.Eng., or M.F. Cowan, P.Eng.

LOCATION AND ACCESS

The Marguerite Lake Mines claims are in the Dawson Range of west central Yukon Territory, 187 air miles northwest of Whitehorse. Elevations are between 2000' and 4200' above sea level. The area is traversed by numerous creeks which flow northward to the Yukon River about six miles away.

The claims lie within the Whitehorse Mining Division and comprise the main Marguerite Lake Mines group (238) and the Moss group (24 claims) located ten miles to the west.

The main Marguerite Lake Mines claim group is traversed by an eleven mile all-weather road that runs northward from Casino to the Yukon River. This road is used to transport freight to Casino during the summer months. During the winter months road access to Casino is by a 140 mile road from Burwash Landing at Mile 1095 on the Alaska Highway.

At the present time, there is access by fixed-wing aircraft to an airstrip at Casino where helicopter charter service has been available during the summer months. Helicopter landing pads have been established at strategically-located points on the ground under discussion.

PROPERTY AND OWNERSHIP

Nippon Mining of Canada Ltd. holds options from Marguerite Lake Mines Ltd. on the following claims:

<u>Name</u>	<u>No. of Claims</u>
Moss 1 to 24 inclusive	24
Mar 1 to 26 "	26
Mar 28 to 49 "	22
Ram 1 to 40 "	40
Arm 1 to 32 "	32
Monte 1 to 48 "	48
Carlo 1 to 44 "	44
Folly 1 to 22 "	22
Freds 17 to 20 "	<u>4</u>
Total	262

The Moss, Mar, Ram and Arm claims were staked in the fall of 1969 under the direction of Mr. H.E.D. Atkinson of Marguerite Lake Mines Ltd. The Monte, Carlo, Folly and Freds claims were staked in late 1969 for the S. Radvak interests by White, Hosford & Impey Ltd., an engineering survey organization based in Whitehorse. These claims, it is believed, were sold to Marguerite Lake Mines Ltd. in early 1970.

The claim tags for all claims were provided to the Bacon & Crowhurst Ltd. field crew when the present survey was partially completed; the poorly-marked claim lines dictated that the men not spend their time searching for posts. Consequently, only the Moss claims, which were located on open slopes, were tagged. It is clear that Marguerite Lake Mines will have to set up a tagging party, as suggested by Mr. G. Laycraft's letter of August 6th, 1970, to Mr. H.E.D. Atkinson.

The principal claim group (238) covers an area approximately ten miles long and two miles wide, the long dimension striking west.

HISTORY

Exploration parties of the Hudson's Bay Company were active in the region as early as 1843 but the first geological information was not forthcoming until G.M. Dawson's visit in 1887. With the Klondike gold rush of 1898 the whole Yukon territory received much more attention by prospectors and government mapping crews. Many of the tributaries of the Yukon River were explored for placer gold and probably led to the staking of the first lode claim in 1901. Small scale placer mining for gold and tungsten over the ensuing years was carried out, particularly along Canadian Creek, and molybdenite was noted during these operations.

In 1916 D.D. Cairnes of the Geological Survey of Canada published a geological map and report of the region. He noted the intense leaching and alteration of the Casino stock and mentioned the presence of pegmatitic and porphyritic rocks cut by numerous quartz veins and stringers.

Galena veins were discovered on Casino Creek in 1964 and were explored between that year and 1967.

Stream sediment and soil sampling carried out between 1967 and 1969 led to diamond drilling, which indicated the presence at Casino of disseminated chalcopyrite and molybdenite in a quartz rich stock. Geophysical work at Casino has not been extensive.

In the late summer and fall of 1969 extensive claim staking was carried out in the area surrounding the Casino stock in hopes that areas with similar geological environment would be discovered.

Published aeromagnetic maps are available for the area on a scale of 1" = 1 mile.

GEOLOGY AND MINERALIZATION

(See Fig. 1)

The Marguerite Lake Mines claims are situated within a broad section of the west central Yukon Territory that was unglaciated during the last ice age. Consequently, geological mapping is facilitated by the scattered but abundant, residual bedrock fragments over most of the area.

The area in which the Marguerite Lake Mines claims are located lies along the northeast margin of the Klotassin batholith which marks the northeast side of the Coast Range granitic intrusive complex. The Klotassin batholith is granodioritic in composition and is characterized by large euhedral hornblende crystals and abundant biotite. It is generally medium to coarse grained, medium grey in colour, and is in contact with the older Yukon Group metasediments. These metasediments, the regional trend of which correlates approximately with the aeromagnetic trend in the area, exhibit considerable lithologic variety and no attempt was made to break them down into mappable units. The most prominent types are banded quartzites, gneissoid quartzite, quartz mica schist and hornblende paragneiss. Marmorized limestone (marble) was also noted close to the contact with the Klotassin granodiorite. This contact lies along the centre of the main (Marguerite Lake Mines) claim group and trends in a general east-west direction. Where most clearly evident (along the Casino-Yukon River road), the

contact is irregular with granitic sills and dykes intruding the metasediments and partly digested xenoliths of sediments are found within the granodiorite.

An easterly striking andesite dyke was found close to the western limit of the Marguerite Lake Mines main claim group.

Small, randomly-oriented zones of quartz feldspar porphyry and felsite were found throughout the ground under investigation and minor specks of associated pyrite were also found. No other sulphides were noted in either the metasediments or the granodiorite. A sample of blue-grey quartz from stringers within the metasediments assayed less than 0.01 oz. Ag and less than 0.003 oz. Au per ton.

The Moss claim group is underlain by Klotassin granodiorite intruded by a northerly-striking band of fine to medium-grained quartz diorite with occasional specks of pyrite. The westernmost claims are underlain by metasediments.

During the course of geological mapping, about 50 hand specimens of rocks were collected from both claim groups. Their locations are clearly marked on the accompanying geological-geochemical maps (Figs. 1 & 2) and are in the offices of Bacon & Crowhurst Ltd., Vancouver.

GEOCHEMICAL SURVEY

In conjunction with the reconnaissance geological mapping, soil samples were taken at 400 foot intervals along lines spaced approximately 1500 feet apart. Soil samples were obtained by digging small pits with a mattock to expose suitable soil beneath the humus layer. A total of 786 soil and silt samples was taken and of these, 75 were from the Moss group. No significant anomalous copper concentrations are apparent on the Moss group.

Soil and silt samples were collected in kraft paper bags and sent to a commercial laboratory (Barringer Research Limited) where they were dried and analyzed for their copper content by atomic absorption spectrometry. Results are in parts per million copper.

The results of the 711 samples taken on the main Marguerite Lake Mines claim group were analyzed by computer by Chemex Labs, North Vancouver, and their statistical properties are as follows:

<u>From</u>	<u>To</u>	<u>No. of Readings</u>	<u>%</u>	<u>Cumulative %</u>
<u>ppm Cu</u>				
0	4	1	0.14	0.14
5	9	5	0.70	0.84
10	14	101	14.21	15.05
15	19	157	22.08	37.13
20	24	143	20.11	57.24
25	29	74	10.41	67.65
30	34	72	10.13	77.78
35	39	38	5.34	83.12
40	44	30	4.22	87.34
45	49	19	2.67	90.01
50	54	15	2.11	92.12
55	59	18	2.53	94.66
60	64	7	0.98	95.84
65	69	5	0.70	96.34
70	74	10	1.41	97.75
75	79	3	0.42	98.17
80	440 (max.)	<u>13</u>	1.83	100.00
Total		711		

Summary

<u>From</u>	<u>To</u>	<u>No. of Readings</u>	<u>%</u>
<u>ppm Cu</u>			
0	24	407	57.24
25	44	244	30.10
45	59	52	7.32
60	440 (max.)	38	5.34

From this it is evident that background in the claim area is less than 24 ppm copper; that values between 45 and 59 can be considered to be in the threshold range, and that values greater than 60 ppm are anomalous.

Significant anomalies were found in four locations (A, B, C and D) on or close to the granodiorite-metasediment contact. No gossan was observed at these locations. The most significant anomaly, B, which is 1800' long, shows 5 consecutive samples with values greater than 90 ppm copper.

The presence of permafrost with associated thick humus material on north-facing slopes may have some effect on the soil response as 3 of the 4 anomalies found in the present survey lie on permafrost-free, south-facing slopes. These anomalies should be further investigated by additional, closer spaced, geochemical sampling in conjunction with detailed geological mapping.

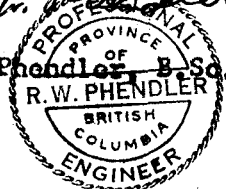
No anomalous soil conditions were found to exist in the location where Geological Survey of Canada aeromagnetic maps indicate the presence of a magnetic high.

The possibility exists that contact metamorphic skarn type mineralization is present and is the cause of the geochemical anomalies. However, minor pyrite specks associated with quartz porphyry float was found 800' southeast of anomaly "A" within the main granodiorite mass. The anomaly on the contact could therefore be related to this porphyry-type mineralization. Quartz porphyry float was also found a few hundred feet east of Anomaly "D". No pyrite was observed.

CERTIFICATION

I, Roy William Phendler, of the City of Vancouver in the Province of British Columbia, HEREBY CERTIFY AS FOLLOWS:

1. That I am a registered Professional Engineer in the Province of British Columbia, No. 4421.
2. That I am a graduate of McGill University, Montreal, Quebec, with a Bachelor of Science degree in geology.
3. That I have practiced my profession as geologist continuously for the past seventeen years in Quebec, Ontario, Saskatchewan and British Columbia in Canada; in some of the western U.S.A.; Mexico; and Peru and Colombia in South America.
4. That I have no interest directly or indirectly in the mineral claims of Marguerite Lake Mines Ltd., nor do I expect to receive any.
5. That the information contained herein was compiled during examination of the ground between August 1st and August 20th, 1970.

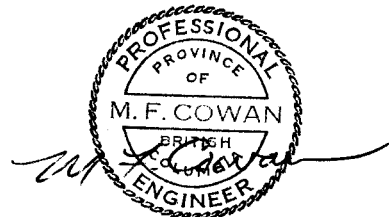
R. W. Phendler, P. Eng
R.W. Phendler, B.Sc., P.Eng.
The seal is circular with a double-line border. The text inside the seal reads: "PROFESSIONAL OF BRITISH COLUMBIA ENGINEER" around the perimeter, and "R.W. PHENDLER" in the center.

Vancouver, Canada.
September 10th, 1970.

CERTIFICATION

I, Michael F. Cowan, of the City of Vancouver
in the Province of British Columbia, DO HEREBY CERTIFY THAT

1. I am a registered Professional Engineer in the Province of British Columbia.
2. I am a graduate of Michigan Technological University, Houghton, Michigan, with a Bachelor of Science degree (1963) in Geological Engineering.
3. I am a graduate of Queen's University, Kingston, Ontario, with a Master of Science degree (1966) in Geology.
4. I have been practising my profession as a geological engineer since 1963 in Ontario, British Columbia, Northwest Territories, Yukon Territory, Alaska, and Montana.
5. I have no interest directly or indirectly in the mineral claims of Marguerite Lake Mines Ltd., nor do I expect to receive any.
6. The information contained herein was compiled during examination of the ground between August 1st and August 20th, 1970.



M.F. Cowan, M.Sc., P.Eng.

Vancouver, Canada,
September 10th, 1970.

APPENDIX A

Names and addresses of all persons employed in performing the work:

1. R.W. Phendler, B.Sc., P.Eng.
1720 - 1055 W. Hastings St.,
Vancouver, 1, B.C.
2. M.F. Cowan, M.Sc., P.Eng.,
1720 - 1055 W. Hastings St.,
Vancouver, 1, B.C.
3. S.I. MacKay,
2676 Oliver Crescent,
Vancouver, 8, B.C.
4. D. Atkinson,
c/o Marguerite Lake Mines Ltd.,
1604 - 1177 W. Hastings St.,
Vancouver, 1, B.C.
5. J. Brian,
c/o General Delivery,
Whitehorse, Y.T.

APPENDIX B

TABLE OF GEOLOGICAL FORMATIONS

Tertiary (?) - Quartz porphyry or rhyolite.

Jurassic or later - Klotassin granodiorite and allied granitic rock types.

Precambrian and later - Yukon Group metasediments, quartz mica schist and gneiss, hornblende paragneiss, quartzite and limestone

October 13th, 1970.

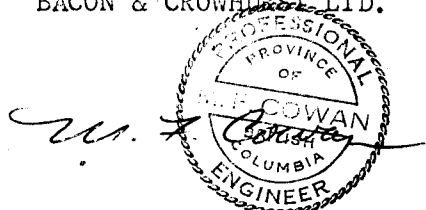
ADDENDUM

During the period September 28th to October 6th, tractor trenching was done on Mar claims 44 and 49. The trenches were mapped and soil samples were taken at 100' intervals along their up-slope edges. The attached maps show the locations and configurations of the trenches, and the geology and results of the soil sampling.

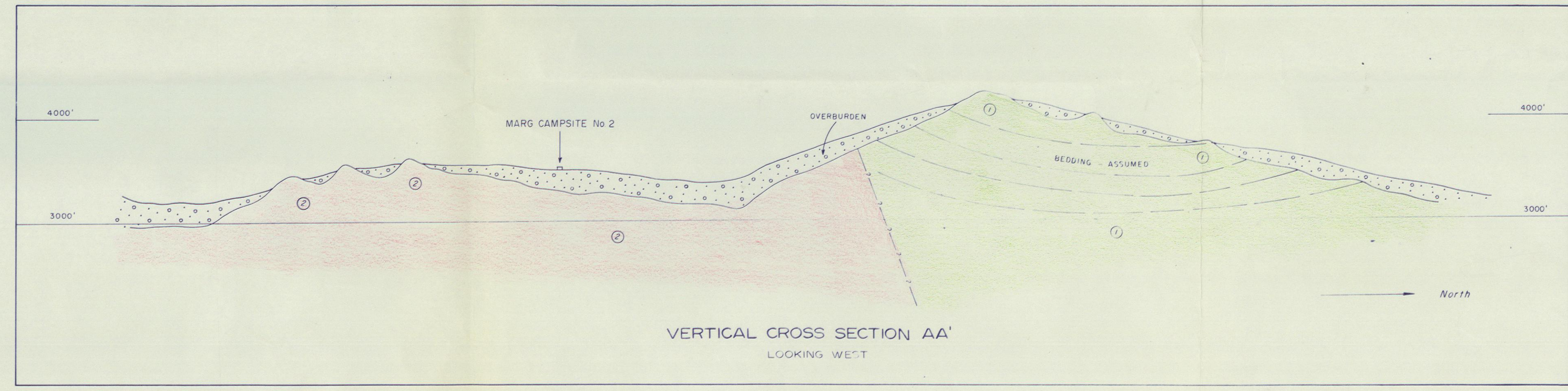
Evidence for the source of the "A" anomaly (Fig. 1) was not found in Trench #1. A small section of rusty skarn occurs in Trench #2 which cuts the "B" anomaly. A grab sample of the skarn assayed 0.04% Cu although no sulphides were visible in it. Small lenses of similar skarn carrying very low grade copper are probably the source of the soil geochemical anomalies "A" and "B".

Respectfully submitted,

BACON & CROWHURST LTD.



M.F. Cowan, M.Sc., P.Eng.



- LEGEND**
- Quartz Feldspar Porphyry, Felsite
 - Kiamasson Gneiss
 - ▨ Metasediments, Quartz Mica Schist, Gneiss, Marble, Paragneiss, Quartzite, Limestone
 - Geological Contact, Inferred
 - Outcrop
 - × Flot
 - Claim Plot, Observed
 - Geochemical Soil Sample
 - Geochemical Stream Sediment Sample
 - Rock Specimen
 - + Spot Elevation
 - Geochemical Sample - 60 ppm Cu +
 - " " " 45-59 ppm Cu
 - " " " 25-44 ppm Cu
 - " " " 0-24 ppm Cu
 - Claim Group Outline

WORK DONE BY
R. P. King
 R. P. KING
 112 BROADVIEW AVE.
 VANCOUVER, B.C.

NIPPON MINING OF CANADA LTD.
GEOLOGICAL & GEOCHEMICAL MAP
 MARGUERITE LAKE MINES CLAIMS
 DAWSON RANGE, YUKON TERRITORY
 SCALE 1"=800'
 FEET 0 100 200 300 400 500 600 700 800 900 1000
 SEPT. 1970
 BACON & CROWHURST LTD.
 VANCOUVER, CANADA



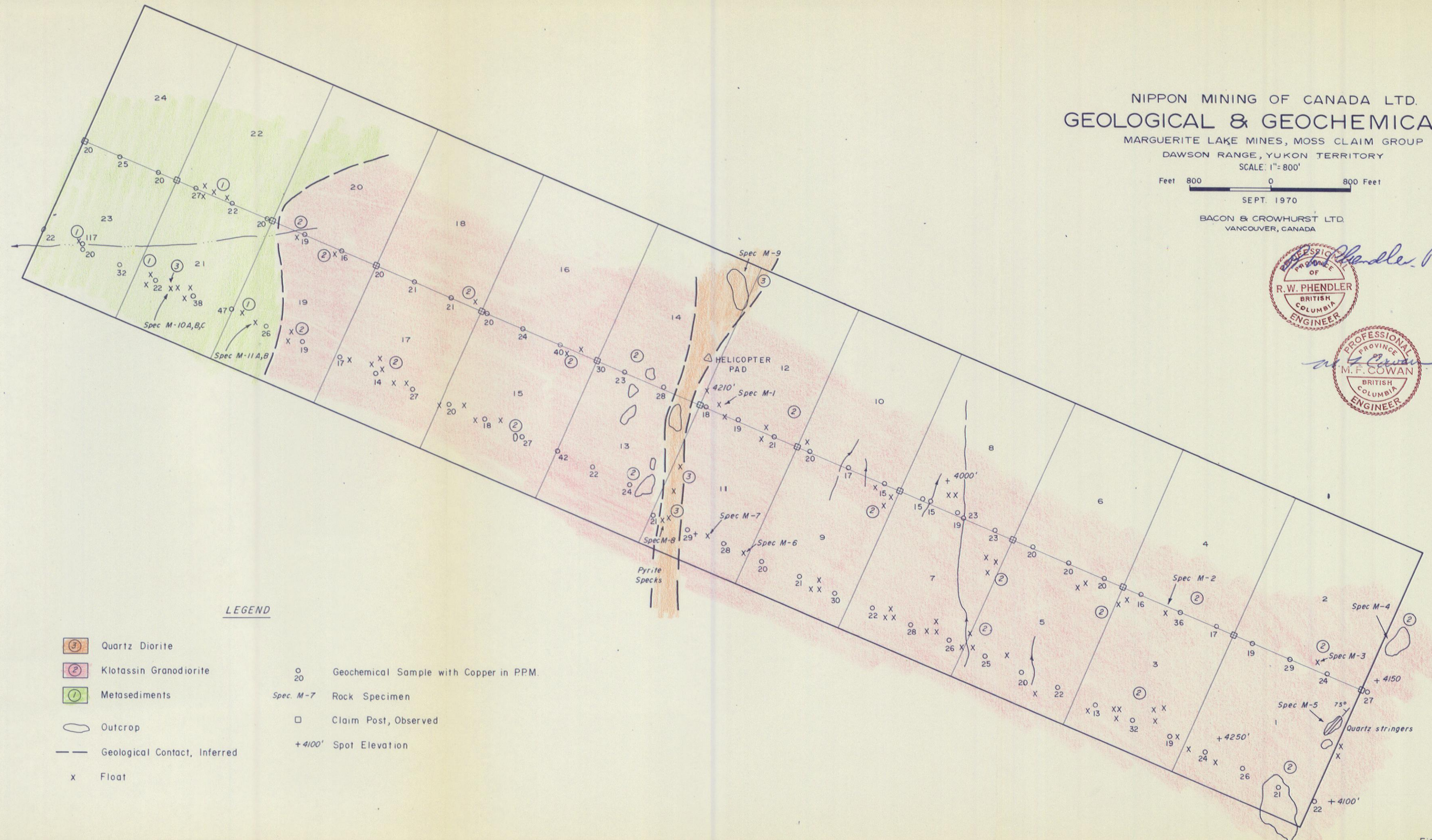
NIPPON MINING OF CANADA LTD. GEOLOGICAL & GEOCHEMICAL MAP

MARGUERITE LAKE MINES, MOSS CLAIM GROUP
DAWSON RANGE, YUKON TERRITORY
SCALE: 1"=800'

Feet 800 0 800 Feet

SEPT. 1970

BACON & CROWHURST LTD.
VANCOUVER, CANADA



LEGEND

- | | |
|------------------------------|--|
| Quartz Diorite | Geochemical Sample with Copper in PPM. |
| Klotassin Granodiorite | Rock Specimen |
| Metasediments | Claim Post, Observed |
| Outcrop | Spot Elevation |
| Geological Contact, Inferred | |
| Float | |

Fig. 2

MAR 45
CLAIM POST

MAR 44

TO YUKON RIVER

CS • ppm Cu in soil

② GRANODIORITE, QUARTZ DIORITE

③ METASEDIMENTS

52 MILES TO CASINO CAMP

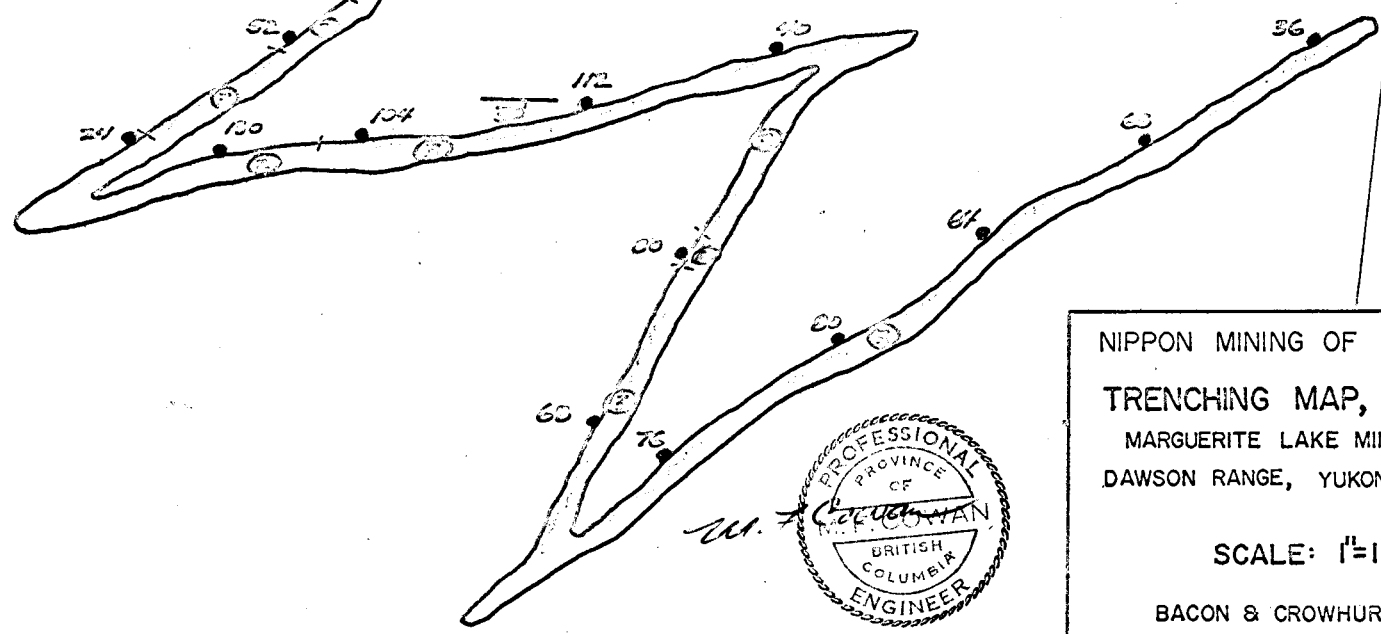
ROAD

TRENCH I

TRENCH I

TOTAL LENGTH	690yd
AVERAGE WIDTH	50yd
AVERAGE DEPTH	1-44yd

MAR 46

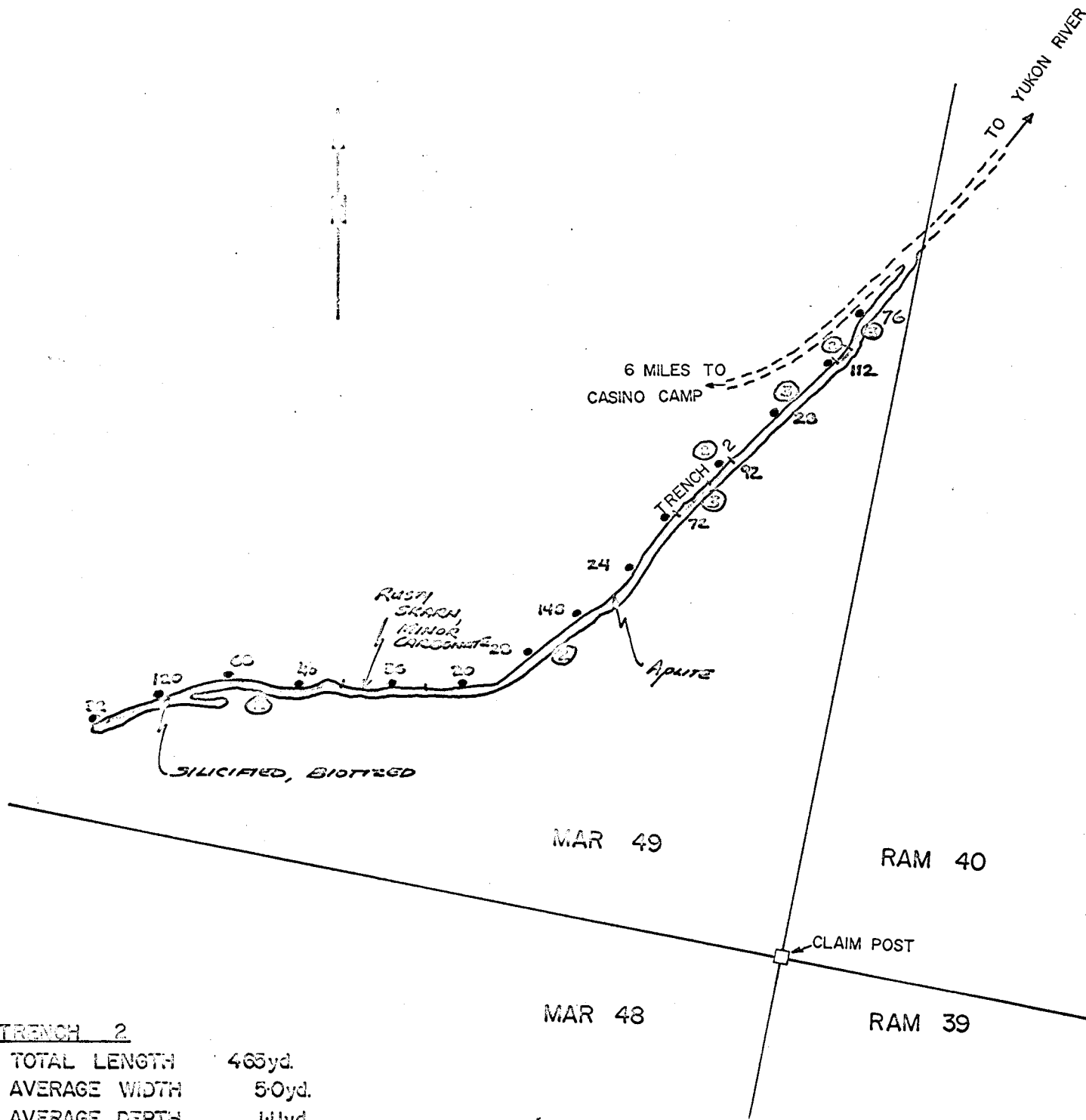


NIPPON MINING OF CANADA LTD
 TRENCHING MAP, TRENCH I
 MARGUERITE LAKE MINES CLAIMS
 DAWSON RANGE, YUKON TERRITORY

SCALE: 1"=100'

BACON & CROWHURST LTD
VANCOUVER, CANADA

FIG. 4



TRENCH 2

TOTAL LENGTH 465 yd.
 AVERAGE WIDTH 5.0 yd.
 AVERAGE DEPTH 1.1 yd.

• 40 PPM CU IN SOIL

② GRANODIORITES, QUARTZ DIORITES

③ METASEDIMENTS

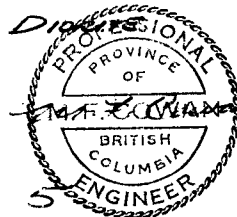


FIG 5

NIPPON MINING OF CANADA LTD
 TRENCHING MAP, TRENCH 2
 MARGUERITE LAKE MINES CLAIMS
 DAWSON RANGE, YUKON TERRITORY

SCALE: 1"=200'

BACON & CROWHURST LTD
 VANCOUVER, CANADA