

GEOLOGICAL, GEOCHEMICAL, GEOPHYSICAL & PHYSICAL INVESTIGATION

From July 15th to November 15th, 1967

of

THE HAIL "L", "M", "N" AND "O" CLAIM GROUPS

KAMLOOPS MINING DIVISION, BRITISH COLUMBIA

51° 00' N. - 119° 00' W. - NW

6 Miles S.W. of Vavenby, B.C.

for



QUEBEC CARTIER MINING COMPANY

by

J.W. Stollery, P.Eng.,  
Geological Engineer

Cordilleran Engineering Limited,  
400, 837 West Hastings Street,  
Vancouver 1, B. C.

May, 1968

1612  
PART 1 OF 2

1612

PART "A"

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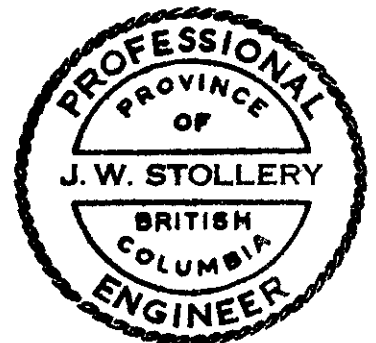


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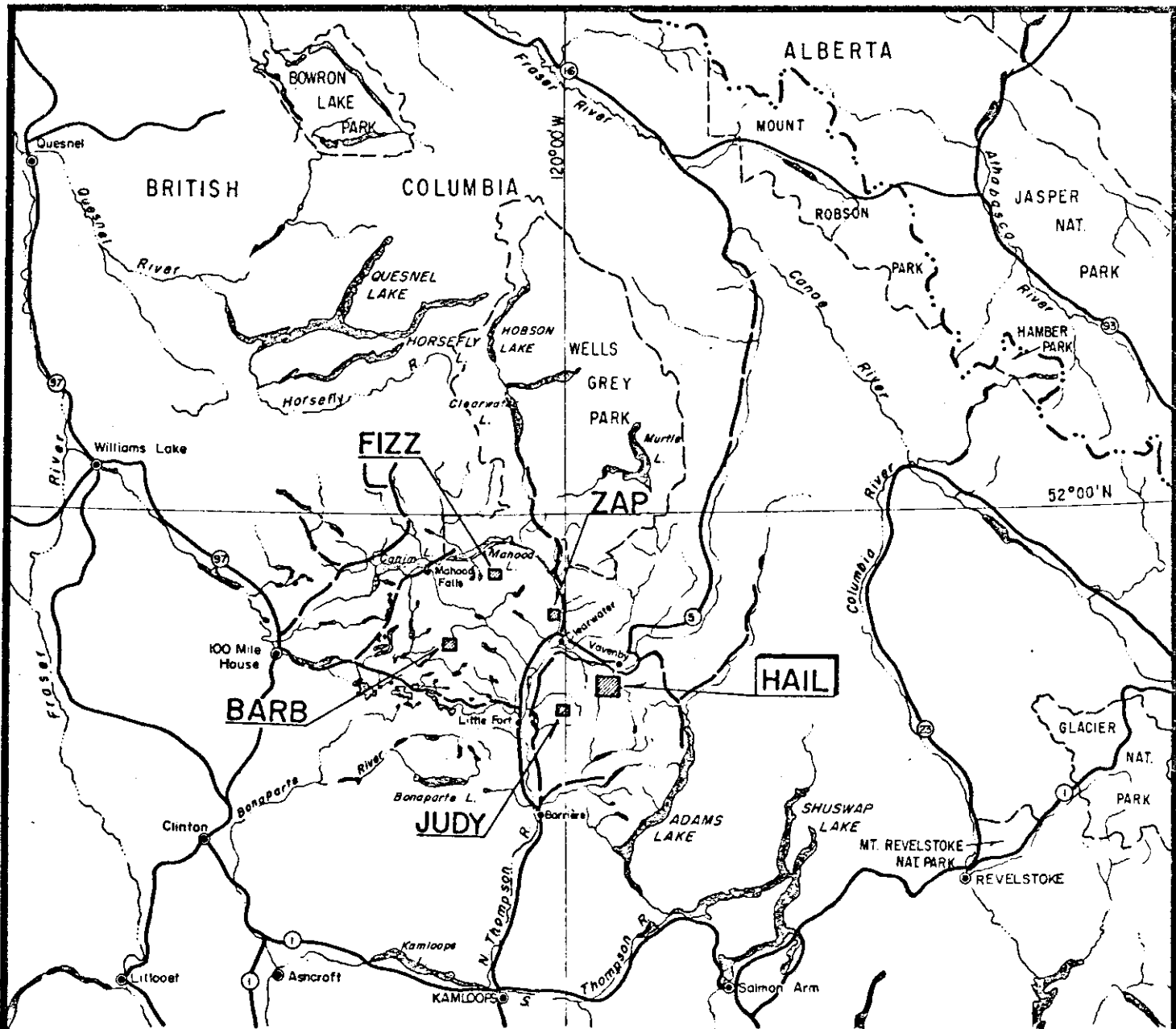
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QUEBEC CARTIER MINING COMPANY  
 LOCATION PLAN  
 MINERAL PROPERTIES

KAMLOOPS MINING DIVISION BRITISH COLUMBIA

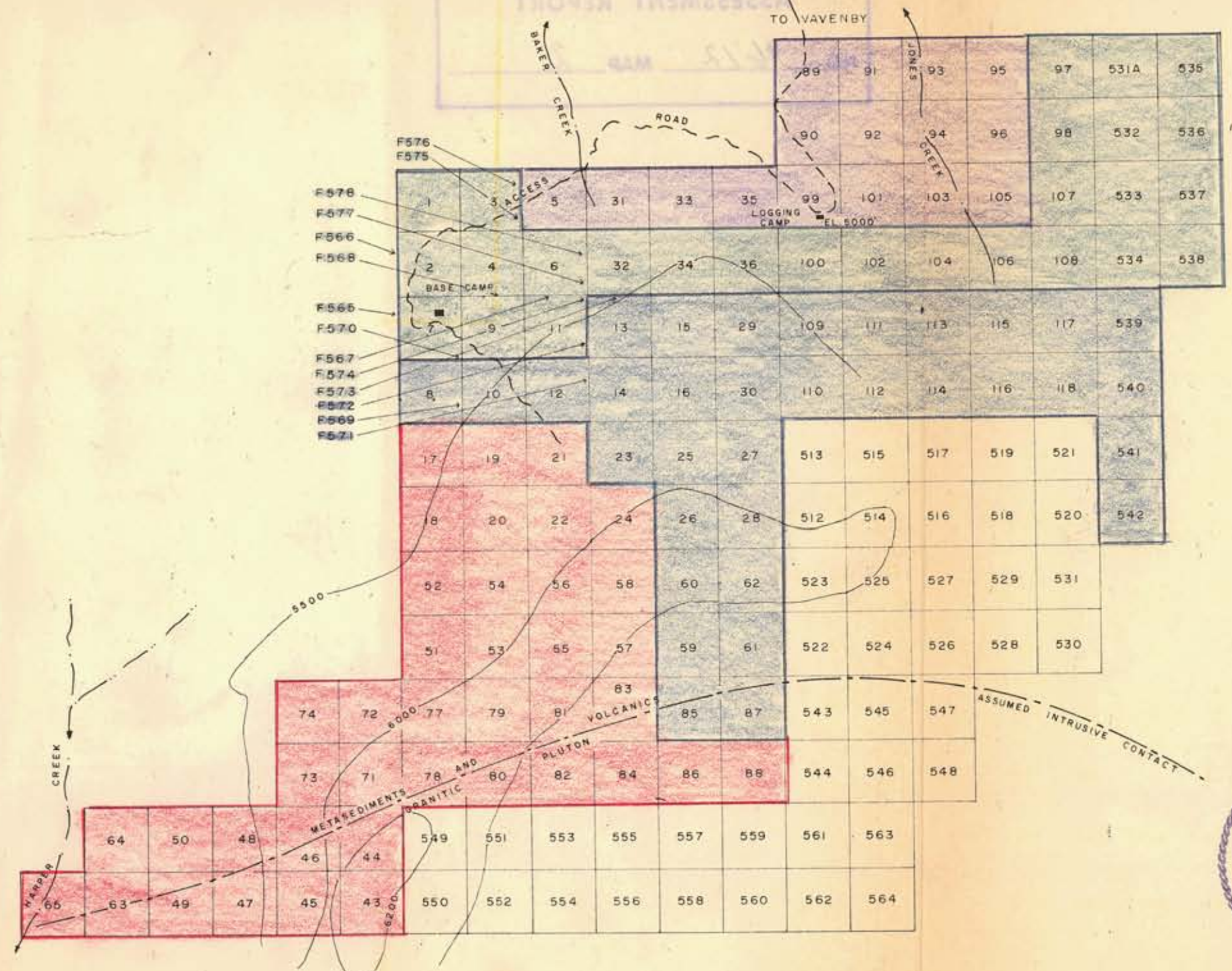


BY  
 CORDILLERAN ENGINEERING LIMITED  
 400 - 837 W. HASTINGS ST. VANCOUVER 1, B.C.

JANUARY, 1968

FIG. No. 1

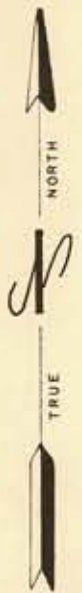
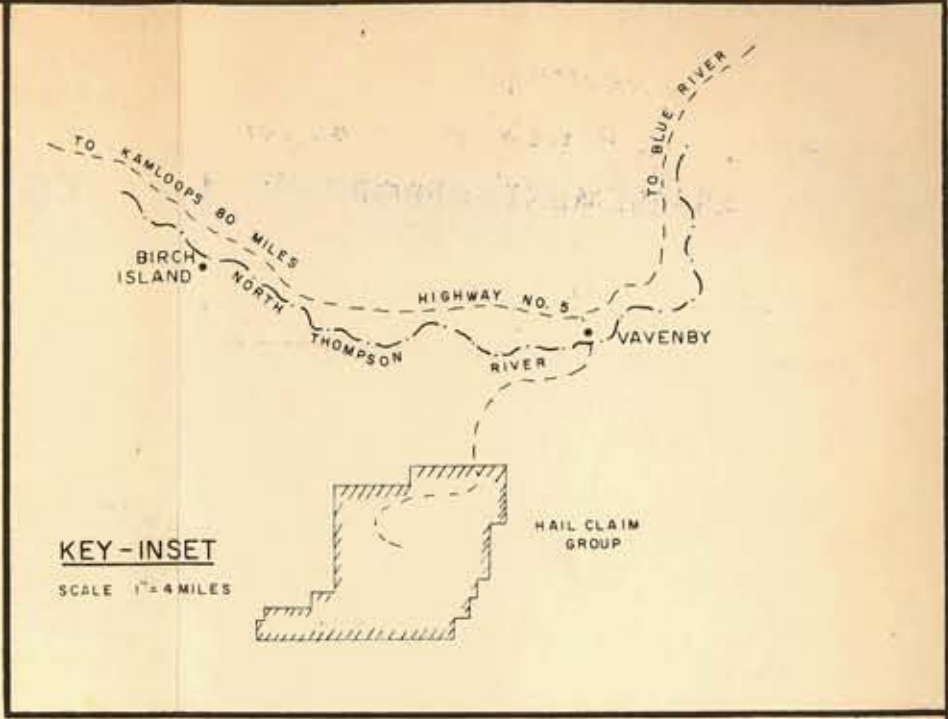
Department of  
 Mines and Petroleum Resources  
 ASSESSMENT REPORT  
 V.L.R. MAP



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GROUPING  
 L   
 M   
 N   
 O

**LEGEND**  
 F567 FRACTIONAL CLAIMS



SCALE 1" = 3000'

Figure #2

QUEBEC CARTIER MINING COMPANY  
  
 HAIL CLAIM GROUP  
 VAVENBY AREA  
  
 KAMLOOPS M.D. BRITISH COLUMBIA  
 TO ACCOMPANY REPORT BY J.W. STOLLERY  
 MAY 1968

## INTRODUCTION

This report is based on detailed geological, geochemical and geophysical work conducted on the Hail claim group between July 15, 1967 and November 15, 1967.

The geo investigations were accompanied by physical work in the form of trenching and diamond drilling.

The above work is submitted to the British Columbia Department of Mines to satisfy assessment requirements as follows: (see figure 2).

Hail "L" Group	-	16 claims	-	2 years
" "M" "	-	38 "	-	5 "
" "N" "	-	37 "	-	5 "
" "O" "	-	40 "	-	1 "

This report, because of the great amount of information available, has been divided into Part "A" and Part "B". Part "A" contains the written portion while Part "B" contains a series of maps.

## BACKGROUND

Copper mineralization was discovered in June 1966 as a result of prospecting and geochemical reconnaissance. At the time there was no evidence of previous exploration in the area presently occupied by the Hail claim group.

In 1966 work on the property consisted of prospecting, limited geochemical sampling, and construction of an access trail. One trench was excavated and sampled. In 1967 a more detailed programme was carried out, including drilling, sampling and mapping.

Immediately west of the Hail property a group of claims is owned by Noranda Explorations Ltd. These were staked in April 1966 apparently as a result of geochemical reconnaissance. Noranda excavated several bulldozer trenches in 1967 and it is reported that some drilling is planned for 1968. The mineralized zones on the Hail group and on Noranda's ground are similar and adjacent.



PROPERTY

The Hail group consists of 159 full sized claims and 14 fractional claims.

Claim Name	Record No.	Assessment Anniversary	Registered Owner
Hail #1 to #36	58405 to 58440	July 13, 1968	A.F. Reeve F.M.C. #70949
Hail #43 to #66	58441 to 58464	" " "	"
Hail #71 to #74	58465 to 58468	" " "	"
Hail #77 to #80	58469 to 58480	" " "	"
Hail #89 to #118	58814 to 58843	July 22, 1968	"
Hail #512 to #531	61074 to 61093	Oct. 4, 1968	"
Hail #531A	66569	Aug. 8, 1968	"
Hail #532 to #540	66570 to 66578	" " "	"
Hail #541 and #542	66581 and 66582	Sept. 21, 1968	"
Hail #543 to #564	66583 to 66604	Oct. 3, 1968	Cordilleran Engineering F.M.C. #70950
<u>Fractions</u>			
Hail #565 to #578	66659 to 66672	Oct. 19, 1968	"

The grouping arrangement has been set out on Forms "b" and "I" of the Mineral Act submitted separately from this report.

LOCATION

51° 30' N. latitude  
119° 43' W. longitude.  
4000' to 6300' above sea level  
- 7 miles SW of the village of  
Vavenby, B.C.

ACCESS

Vavenby is 360 miles NNE of Vancouver via the Trans Canada and Yellowhead Highways, and on the main line of the C.N.R.

About 1-1/2 miles west of Vavenby on the south side of the Thompson River, a 9-mile access road, passable by 4-wheel drive vehicles, rises 4,000' to a campsite on the property.

CLIMATE:

The property is free of snow from mid June to mid October. Winter temperatures reach a minimum of -30° F. and the total annual snowfall is about 250 inches. Summers are dry and warm.

PHYSIOGRAPHY

The Hail claim group occupies the rounded summit and north face of a mountain which rises to 6300' A.S.L. The slopes are not steep except in the valley at the head of Jones Creek. The mountain side is thickly timbered with spruce, balsam and dense deciduous underbrush. The summit is covered by more open stands of spruce and balsam broken by grassy alpine marshes and meadows. The entire property is covered by a mantle of glacial debris and semi residual rubble up to several tons of feet thick. Outcrop is very sparse and scattered.

Numerous small creeks and freshets drain into Jones, Lute and Harper Creeks which flow into the North Thompson River. During the period of mid July to mid September many of these small secondary drainage courses are dry and water for exploration purposes is in short supply.

Very large volumes of water for mining and metalurgical purposes would be available from the North Thompson River 5 miles north of the property.

SUMMARY OF EXPLORATION WORK COMPLETED

1. Control Grid - cut and surveyed from July 13 to  
September 10, 1967.  
Base line 3 ft. wide - 9.5 miles  
Picket lines - 76 miles
2. Geological mapping @ 1" = 800'  
Detail north of 00 base line  
Reconnaissance south of 00 base line
3. Geochemical soil sampling - approximately 2500 samples  
were taken from the B<sub>1</sub> soil horizon. All  
samples were analysed for copper and zinc.
4. Magnetic survey - 450,000 line feet of ground magnetic  
survey traverses were run. The vertical com-  
ponent of the total field was observed at 50'  
intervals using a Sharpe M.F.-1 fluxgate  
magnetometer.
5. Diamond drilling - Six NQ sized diamond drill holes  
were bored for a total of 1,792 feet.
6. Trenching - Six bulldozer trenches were excavated  
for a total length of 4,400 feet.

SUMMARY OF EXPLORATION WORK COMPLETED (cont'd.)

7. Rock sampling - The following samples, averaging 10' in length, were taken and analysed for copper with selected check assays for precious metals:

Drill core	-	174	samples
Drill sludge	-	124	"
Surface channels	-	31	"

A representative composite sample (50#) of surface material and a similar composite of drill core (75#) were taken for preliminary metallurgical tests.

## GEOLOGY

### Regional

The geology of the region is described on G.S.C. Map #48-1963 (1" = 4 mi.)

The Hail group lies in a belt of foliated metasedimentary and lesser volcanic rocks. They are of upper Paleozoic Age and are part of the "Cache Creek Assemblage". Immediately to the south a large plutonic mass of granite and granodiorite cuts the paleozoic strata.

### Geology of the Hail Claim Group

A geology map of the property @ 1" = 800', figure 3, is included in Part "B", Figure 3.

### Lithology and Stratigraphy

The property is underlain by a sequence of metasedimentary rocks. Lithologic features and folia have a general east-west trend and dip moderately northward.

These rocks have been divided into five lithologic units as follows: thin sections were cut from five representative specimens and descriptions of these are included in Appendix A.

Lithology and Stratigraphy (cont'd.)

Unit 1 - is composed of quartz-feldspar-chlorite gneiss with minor amounts of quartz-sericite-chlorite schist and quartzite. These rocks have a crude layering of light and dark minerals, are coarser in grain size and contain feldspar and some hornblende in contrast with the rest of the Hail metasediments. In some areas the layering, or foliation, becomes indistinct and the rocks resemble intermediate, intrusives. In such cases they are referred to as diorite gneiss. This rock unit strikes approximately east-west and is confined to the area south of the 60 S base line.

Unit 2 - lies immediately north of Unit 1 and is composed of quartz-mica "Augen" schist with minor sericitic quartzite. The quartz-mica schist is characterized by rounded or elliptical quartz eyes which lie in a matrix of finer grained sericite and quartz. Unit 2 is probably only a slightly more metamorphosed equivalent of the quartz-sericite schist in Unit 3. The quartz-sericite schist in Unit 2 has distinct quartz eyes. Under the microscope it can be seen that quartz and sericite tend to become separated into distinct bands or segregations. The quartz-sericite schist of Unit 3 tends to be more homogeneous.

Lithology and Stratigraphy (cont'd.)

Unit 3 - consists primarily of quartz-sericite schist, sericitic quartzite and green-grey phyllite with lesser amounts of black, phyllitic slate. These rock types grade into one another with varying proportions of quartz and sericite, however, rock outcrops are so sparse that Unit 3 cannot be subdivided. All the rocks in this unit are slightly calcareous - except the black slate. From an examination of thin sections it appears that some of the carbonate is primary, occupying layers and segregations parallel to the foliation of the schist and phyllite. Rocks within this unit contain varying amounts of chlorite (0 - 10%) and some are more properly described as quartz - sericite - chlorite schists; however this distinction was only made in logging the diamond drill core.

Unit 4 - occupies only a small area in the north-east corner of the Hail group. It consists of quartz - chlorite - sericite schist and some metamorphosed tuffaceous rocks which have been collectively called greenschists. These are greenish in colour and carry appreciably more chlorite than Unit 3. They are also slightly calcareous.



Lithology and Stratigraphy (cont'd.)

Unit 5 - is only found in the extreme northeast corner of the Hail property. It consists of massive blue-grey crystalline limestone. In one outcrop thin laminations can be seen. These strike approximately parallel to the schistosity and foliation observed elsewhere on the property.

It seems probable that the rocks underlying the Hail group were originally a sequence of impure sediments which have acquired their present characteristics by being subjected to low grade regional metamorphism. The rocks in the extreme south of the map area (quartz - feldspar - chlorite gneiss, diorite gneiss) were originally a sequence of graywackes and arkosic sediments; those in the center argillaceous sandstones and shales, and the more chloritic types in the northeast tuffs and tuffaceous shales and siltstones.

Several outcrops of a medium grained, porphyritic diabase were seen on the property, however the scarcity of outcrops prevents mapping these rocks in detail.

### Lithology and Stratigraphy (cont'd.)

Irregular stringers and dikes of pegmatite cut Units 3 and 4 in a number of places. These usually consist of quartz, coarse grained K-feldspar and large crystals of an unknown carbonate mineral (probably a mixture of Mg, Fe, Ca carbonate). This mineral does not react with cold dilute HCl but effervesces with hot concentrated HCl giving a residue of yellow iron chloride. Quartz veins and stringers are fairly common and in the central area they generally carry small amounts of the carbonate mineral. In addition to the quartz veins, some silicification of the schists and phyllites was noted in the areas of trenching.

### Structure

Most of the rocks found on the Hail property exhibit a prominent foliation which strikes approximately east-west and dips gently to the north. Minor crenulations along the foliation planes are fairly common. However, no folding was observed in the field. Although tight folding has been observed elsewhere in the Clearwater area, folds are not prominent because of poor exposures and lack of critical marker beds. Jointing is quite common and there appears to be two prominent sets of fractures; one striking north to northwesterly and

Structure (cont'd.)

the other northeasterly - both sets dip steeply east and west. Some faults and shears were observed in the areas of stripping, however no faults can be traced for any distance because of the lack of exposures. Most fault zones seen in the trenches trend roughly east-west.

Economic Geology

Copper appears to be the only important commodity. It occurs principally as chalcopyrite and, to a lesser extent, as carbonates near the surface. Other metallic minerals found on the Hail group are, in order of their abundance, - pyrite, magnetite, pyrrhotite, minor sphalerite and galena, and a few traces of molybdenite.

Pyrite was found in 75% of all outcrops. It occurs as disseminations, sub-massive aggregates, coatings on foliation planes, and in quartz veins. In the long trench on line 5600 west several concordant lenses of sub massive pyrite contain some magnetite pyrrhotite and minor chalcopyrite. They are one to two feet thick.

Magnetite - a concordant sheet of sub massive magnetite, 12 feet thick, occurs in a trench at 600 S 5600 W. Several boulders of the same material were found

Magnetite (cont'd.)

nearby. The iron oxide is bluish-black in colour; it has a fine sugary texture and is quite friable.

Calena and Sphalerite occur as minor accessories of some quartz veins.

Traces of Molybdenite were seen in a few pieces of drill core.

Copper Mineralization - chalcopyrite appears to have been introduced later than pyrite and magnetite. It occurs in three ways:

1. As thin coatings on joints and fractures.
2. As irregular blobs and stringers in quartz veins.
3. As tiny leaf-like specks on rock foliation planes.

The third mode accounts for most of the copper present. This is only apparent below the oxidized zone. (10 - 15').

Malachite and bright red-brown limonite are found with chalcopyrite near the bedrock surface. At one location the copper content of surface material appears to have been enriched by copper carbonates.

### Economic Geology (cont'd.)

The volume and general shape of the mineralized zone or zones is unknown. Two broad areas of interest have been defined by soil sampling. They are the "M" and "K" geochemical anomalies, see Part "B" (figures 3 and 4).

The "M" anomaly has a lateral extent of 7800' x 3000' and has not been extensively explored.

Considerable trenching, drilling and sampling has been done on the "K" anomaly which occupies an area of about 10,000' x 2,500' along the west boundary of the property. It extends an unknown distance onto the Noranda claims.

### Results of Sampling ("K" Anomaly)

Assay results are summarized on figure 4, Part "B".

Two hundred five drill core and channel samples, averaging 10' in length, were taken in an area 3200' x 1200'. None of the samples were barren. The average copper content was .26%.

The largest section sampled was 1000' long and 300' deep, from 500 south to 1500 south on line 5800 west. This includes 94 10' core samples in drill

Results of Sampling ("K" Anomaly) (cont'd.)

holes #3, #4 and #5. The average copper content of the section is .20%.

The best sections 55 feet or more in length are as follows:

Drill hole #1	- 110' to 250'	- 140'	- .42% Cu.
" "	#1 - 280' to 356'	- 76'	- .41% Cu.
" "	#3 - 140' to 280'	- 140'	- .29% Cu.
" "	#5 - 22' to 90'	- 78'	- .58% Cu.
" "	#6 - 40' to 170'	- 130'	- .36% Cu.
Surface Cut #2	-	- 110'	- .51% Cu.
" "	#1 -	- 55'	- .33% Cu.
" "	#3 -	- 140'	- .29% Cu.
Total length of best sections		- 869'	
Average grade of best sections		-	<u>.39% Cu.</u>

GEOCHEMISTRY

Detailed contour maps showing the results of soil sampling can be found in Part "B". Figures 6 and 7 show the copper content of soil samples and figures 8 and 9 the zinc content.

Twenty-five hundred soil samples were taken from the B<sub>1</sub> horizon and analysed for copper and zinc. The sample points were at 200' intervals on lines 800' apart. Additional detail was done in areas of interest by sampling on lines 400' apart.

Standard sampling precautions were observed. Total copper and zinc values were determined by hot acid leaching and analysis by atomic absorption spectrometry.

Zinc values in general were very low and did not suggest any important zinc mineralization on the property and only served to doubly emphasize the copper anomalies.

Copper values in the soil produced two large areas of interest; the "M" and "K" anomalies, (figures 3 and 4) Part "B". Background is in the area of 50 - 75 p.p.m. Cu.

GEOCHEMISTRY (cont'd.)

Within the "K" anomaly many of the copper values exceed 1000 p.p.m. with the maximum being 17,100. Subsequent drilling and stripping indicated that high copper content in soils indicates buried copper sulphide mineralization in a very general way. In some cases copper content of the soil exceeds bedrock values.

Within the "M" anomaly only a few copper values exceed 500 p.p.m., the maximum being 2900.

Tracing copper mineralization directly by soil sampling has been effective where the depth of glacial overburden is up to 5'. It is expected that, in areas covered by more than 10 feet of drift, the effectiveness of soil sampling is partially or completely limited. Overburden on the property is estimated to have a maximum thickness of about 20'.



MAGNETIC SURVEY

Approximately 9,000 observations of the vertical component of the total field were made with a fluxgate magnetometer, at 50' intervals on N-S lines 800' apart. All readings were corrected for daily and diurnal variations. The interpreted results are shown on figures 3 and 4, Part "B" and detailed contour maps, figures 10 and 11.

Magnetometer survey work was carried out to augment geological information in drift covered areas. Electrical geophysical methods such as "E.M." and induced polarization were not employed because the detection of copper sulphides would be masked by the effects of pyrite which is very widespread on the property.

The arbitrary magnetic background is +200 to +400 gammas. There is a negative gradient of 200 gammas from the north to south property boundary. The north and south extremities of the survey area are magnetically very smooth or "quiet" with local relief in the order of a few tons of gammas.

A magnetic feature 1500' to 2000' in width crosses the central part of the property from east to west. It is a complex of local, sharply erratic

MAGNETIC SURVEY (cont'd.)

anomalies, with relief of more than 1000 gammas. These features are most numerous in the general vicinity of the "K" copper anomaly, and lie entirely within rock Unit #3. Drilling and stripping in the vicinity of 600 S and 5600 west indicates that these local magnetic features may be caused by small lenses of submassive magnetite. Their distribution strongly suggests a stratigraphic origin.

Figures 10 and 11, Part "B" do not show all the grid lines nor any of the points where magnetic observations were made. These details were eliminated from the computer program so that interpretation of the results would not be obscured.

DRILLING

Drill hole locations are shown on figures 3, 4 and 5, Part "B" and assay results on figure 4.

Six diamond drill holes were bored using "NQ" wire line drilling equipment. Some work was also done with "BQ".

	<u>BQ</u>	<u>NQ</u>
Hole diameter	2-23/64"	2-63/64"
Core diameter	1-7/16"	1-7/8"

<u>Hole No.</u>	<u>Co-ordinates</u>	<u>Azmuth</u>	<u>Anglo</u>	<u>Depth</u>
1	1450N - 5500W	170°	-45°	356'
2	" - "	75°	"	153'
3	575S - 5600W	195°	"	401'
4	450S - "	195°	"	151'
5	1200S- "	195°	"	396'
6	1500N- 4600W	160°	"	<u>335'</u>
Total drilling -				<u>1,792'</u>

Core recovery was in excess of 95% in both BQ and NQ sizes.

Sludge samples were taken from 5 holes using an electric 1:16 sludge splitter and cotton filter bags.

DRILLING (cont'd.)

Assays of sludge samples were slightly higher but generally consistent with results from core.

Five of the holes were inclined at  $45^{\circ}$  and directed generally southward to cut the rock foliation about normally. A sixth hole was bored (#2) at  $-45^{\circ}$  eastward to cut mineralized fractures which are steeply inclined and have trends of NNW and NNE.

The drill core was not split. The laminated nature of the rock causes it to yield along the folia planes when placed in a core splitter; producing numerous disc-like fragments. For this reason the whole core was bagged in 10-ft. lengths for assaying. All crushed rejects have been retained and stored.

During the period from mid July to mid September, water for diamond drilling is in short supply.

TRENCHING

Six trenches were cut for a total length of about 4,400' with a 1961 model D-6 caterpillar tractor equipped with hydraulic blade. No ripping tools were used. It was possible to cut 2 to 3 feet into the bedrock except where it was extremely siliceous. The average depth of the cuts is 4 feet.

Where bedrock was exposed, the trench bottom was cleaned out by hand, channel samples were then cut and bagged in 10-foot lengths for assaying. No blasting was required.

METALLURGICAL TESTING

Two samples were taken as described below and sent to Lakefield Research of Canada Limited, Lakefield, Ontario for preliminary metallurgical testing.

Method of Sampling

Crushed assay rejects were sampled. The rejects were stored in 15# bags each representing 10 feet of drill core or surface channel samples.

The metallurgical samples were taken by scooping an equal measure of rock from each bag.

Sample #1 - 75 pounds of drill core.

Source - Drill hole #1 110' to 250'

" " #1 280' to 356'

" " #5 22' to 90'

" " #6 40' to 170'

" " #3 140' to 280'

Sample #2 - Surface material channel samples

Source - Cut #S-2 - 0' to 110'

RESULTS

These preliminary tests indicate that the sulphide ore is quite amenable to concentration, and that a concentrate assaying 25.82 per cent Cu. with a recovery of 83 per cent of the copper may be obtained with a reasonably simple flowsheet and with a ratio of concentration of 86:1.

Further work may show that appreciable additional recovery could be realized from the cleaner tailing.

The oxide copper ore did not respond well to flotation and further testing would be required to improve grade and recovery indications.

This work was completed at a cost of \$1,376.44.

## SUMMARY AND CONCLUSIONS

Copper mineralization was discovered in the area presently occupied by the Hail claim group, in June 1966 as a result of helicopter supported prospecting and geochemical reconnaissance.

The property is located 100 miles north of Kamloops, British Columbia, near the Yellowhead Highway and the main line of the C.N.R. There is no evidence that previous exploration work has been done here.

In late 1966 a rough access road was advanced onto the property and additional prospecting, geochemical work and a limited amount of trenching was done. In 1967 a detailed programme of geological, geophysical and geochemical surveys was carried out; followed by 4,400 line feet of trenching and 1,792 feet of diamond drilling.

A similar copper discovery (April 1966) is currently being explored by Noranda Explorations Ltd. immediately adjacent to the Hail group.



SUMMARY AND CONCLUSIONS (cont'd.)

1. Two thousand sixty feet of 10-foot drill core and channel samples were taken in an area 3200' long x 1200' wide on the west side of the property. Copper is the only commodity of importance. The average copper content of these samples was .2%. The best sections range from 55 feet to 140 feet in length and total 869 feet. The average grade of these is .4% copper. It is estimated that a very large volume of material grading about .45% Cu. with a very low stripping ratio would justify serious economic consideration.
2. Work completed to date suggests that geochemical soil sampling followed by bulldozer trenching is the most effective exploration method.
3. Two large areas of interest on the property have been developed by soil sampling and require further exploration. They are as follows:
  - a) The "K" geochemical anomaly is 10,000 x 2500' along the west boundary of the property. All of the rock sampling completed to date has been done in this area.
  - b) The "M" geochemical anomaly is approximately 3000' x 7800' and lies on east central part of the claims. Very little follow-up work has been done in this area.

SUMMARY AND CONCLUSIONS (cont'd.)

4. Geophysical exploration by electrical methods is limited by the pyritic environment. Magnetic survey work has been useful in outlining a number of gross geological features. The significance of these is not fully understood.
  
5. Geological analysis of the mineralized zones is difficult because bedrock is not generally well exposed. Chalcopyrite occurs as disseminations fracture coatings, and with quartz veins in grey-green to buff coloured quartz sericite - chlorite schists and phyllites. The mineralization does not appear to be stratiform nor is it directly related to any well defined geological feature. The metasedimentary rock unit in which it occurs is locally quite extensive.
  
6. Additional exploration work is justified on the Hail claim group to:-
  - a) extend and outline mineralization indicated on the "K" geochemical anomaly,
  
  - b) to evaluate the "M" geochemical anomaly in a preliminary way.

RECOMMENDATION

The following exploration programme is suggested for the Hail claim group in 1968.

Phase I

1. Improve 3 miles of access road.
2. Trenching
  - a) Cut and sample about 15,000' of bulldozer trenches on the "K" anomaly.
  - b) Cut about 7,500' of bulldozer trenches on the "M" anomaly to evaluate its significance.
3. Geology & Geochemistry

Complete detailed geological mapping on the south part of the property.

Carry out additional soil sampling on the "K" anomaly southward and in the vicinity of the Noranda boundary.

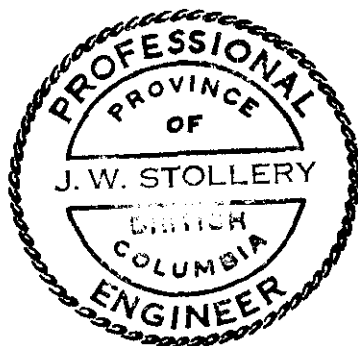
Phase II

Carry out a minimum of 5,000' of diamond drilling contingent upon the success of Part 2(a), Phase I.

RECOMMENDATION (cont'd.)Costs of Recommended Programme


The cost of Phase I of this work has been included in general estimates for 1968 exploration work in British Columbia, which has been forwarded previously.

Phase II would cost about \$60,000.



Respectfully submitted

CORDILLERAN ENGINEERING LIMITED

  
John W. Stollery

May, 1968.

P E T R O G R A P H Y

by J.M. Dawson

Ten thin sections were made from specimens representing the various rock types found on the Hail property. The following is a description of the main types.

Specimen #H-10Location: 12N, 52W (near base camp)

Megascopic description: Grey-brown, fine-grained platy rock with prominent foliation planes; some thin bands of quartz visible; sericite prominent on foliation surfaces; some chalcopyrite present on joint surfaces; some limonite and malachite present on foliation surfaces.

Microscopic description:Composition

Equidimensional, anhedral quartz grains	Quartz	65%
lying in a groundmass of sericite. Some	Sericite	26%
quartz tends to be concentrated in layers	Chlorite	7%
separated by quartz-sericite layers;	Carbonate	1%
schistosity quite prominent; minor shear-	Opaque (mainly	
ing parallel to schistosity, chlorite and	pyrite)	1%
carbonate aligned in direction of foliation.		

Name: Quartz-sericite schist.

PETROGRAPHY (cont'd.)Specimen #H-7Location: 30S, 32E

Megascopeic description: Grey-brown, schistose rock, very fine-grained matrix with eyes of quartz up to 1/2 cm. in diameter irregularly disseminated through matrix; on weathered surface harder quartz crystals stand out above the quartz-sericite matrix; mica prominent on foliation planes; slight effervescence with cold dilute HCl; no limonite or other alteration products.

Microscopic description:Composition

The rock is more gneissic than H-10;	Quartz	60%
minerals in bands and irregular segrega-	Sericite	30%
tions; large quartz eyes display strain	Chlorite	5%
extinction; the edges of these crystals	Carbonate	3%
are irregular and embayed; the sericite-	Pyrite, )	2%
quartz matrix flows around these larger	Magnetite )	
crystals. Chlorite is confined to long,	& Feldspar)	
narrow streaks; carbonate in small segre-		
gations or with clumps of small quartz		
crystals; magnetite rims found on crystals		
of pyrite - replacing them.		

Name: Quartz-sericite "Augen" schist.

PETROGRAPHY (cont'd.)Specimen #H-8Location: 61S, 72E

Megascopeic description: Dark grey, well foliated rock; looks gneissic as light and dark minerals separated into bands and stringers; slight effervescence with cold dilute HCl; chlorite is the dominant mineral on foliation planes.

<u>Microscopic description:</u>	<u>Composition</u>
Definite gneissic texture with bands of	Quartz 50%
fine grained quartz grains between	Chlorite 25%
larger irregular layers of hornblende;	Hornblende 15%
hornblende is highly altered, much of it	Sericite 4%
is replaced by chlorite; small segregations	Feldspar 3%
of carbonate in the chlorite - hornblende	Carbonate )
rich layers; chlorite also occurs as fibrous	and ) 2%
masses paralleling the gneissosity; minor	Epidote )
epidote and sericite in groundmass.	Opaques )
	(mostly ) 1%
	Pyrite) )

Name: Quartz - chlorite - hornblende gneiss.

PETROGRAPHY (cont'd.)Specimen #H-2Location: 72E, 80S

Megascopic description: Medium to coarse grained intrusive-looking rock; less prominent foliation than H-8; individual plates of mica visible on foliation surfaces; looks intermediate in composition; slight effervescence with dilute HCl.

Microscopic description:Composition

No gneissosity of foliation seen in	Quartz	30%
this section; feldspar consists of both	Feldspar	50%
plagioclase and orthoclase, so highly	Chlorite	18%
altered that plagioclase composition	Carbonate, )	2%
cannot be determined. About 10% of the	Epidote )	
K-feldspar is perthitic; feldspar as	and )	
well as quartz grains are rounded and	Opauques )	
sutured; much sericite makes up the		
interior of large feldspar crystals;		
chlorite is found in large greenish		
masses, epidote associates with it;		
this is probably due to breakdown of		
hornblende(?)		

Name: Diorite gneiss



PETROGRAPHY (cont'd.)Specimen #H-9Location: Diamond Drillhole #5

Megascopic description: Grey-brown, very thinly layered phyllite; splits very readily along foliation planes; on these surfaces only a sheen of fine grained micaceous minerals can be seen. On the foliation surfaces tiny grains of chalcopyrite and pyrite are flattened "leaf-like" parallel to the foliation.

Microscopic description:Composition

Texture is foliated, but there is no separation of minerals into bands;	Quartz	60%
quartz grains are all roughly equal in size, sericite not segregated into layers; light green chlorite is randomly distributed; in this section carbonate is mainly filling cross fractures; it is accompanied by some secondary silica.	Sericite	25%
	Chlorite	9%
	minor constituents	
	(Pyrite,	
	Chalcopyrite	
	Plagioclase)	
		1%

Name: Phyllite or low grade quartz sericite schist.

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**CORDILLERAN ENGINEERING LIMITED**

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400-837 WEST HASTINGS STREET

VANCOUVER 1, B.C.

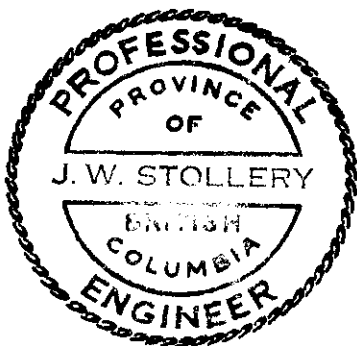
TELEPHONE: 685-0167

MINERAL EXPLORATION  
MANAGEMENT AND  
ENGINEERING CONSULTANTS— ASSOCIATES —  
BONDAR-CLEGG & COMPANY LTD.  
GEOCHEMISTSWRITER'S CERTIFICATE


I, John W. Stollery, of Vancouver, B.C.

hereby certify that:

1. I am a geological engineer residing at 702, 1275 Haro Street, with an office at 400, 837 West Hastings Street.
2. I am a graduate of the Provincial Institute of Mining, Haileybury, Ontario (1958) and received a Bachelor of Science degree from Michigan Technological University, Houghton, Michigan, (1961).
3. I am a certified member of the Association of Professional Engineers of Ontario and British Columbia.
4. I am the author of this report and supervised the work described herein.



CORDILLERAN ENGINEERING LIMITED

  
John W. Stollery, P.Eng.,  
Geological Engineer

May, 1968.

Vancouver, B.C.

CONTRACTORS AND PERSONNEL

Cordilleran Engineering Limited, - 400, 837 W. Hastings St., Vancouver 1, B.C.	Geological Consultants
J.W. Stollery, P.Eng. A.F. Reeve, P. Eng. J.M. Dawson, B.A. M.A. T.E. Reid M. Shuler F. O'Grady D. Fraser C. Britch R. Franta	Geological Engineer Geological Engineer Geologist Camp Manager Geophysical Technician Geophysical Assistant Geochemical Technician Geochemical Assistant Cook
Rockland Contractors Ltd., Vancouver, B.C.	Diamond Drilling Contractor
Bert Marcil Dan Ellis Paul Belley Gary Pinkerton	Runner Runner Helper Helper
Jean Alix Company Ltd., Val D'Or, Quebec	Line Cutting Contractors
Simon Quallet Gilles Grondin Raymond Larouche Edouard Norisette Johnny Robert	
Harold Rottacker, Clearwater, B.C.	Bulldozing Contractor
Bondar-Clegg & Company, Vancouver, B.C.	Geochemists
Lakefield Research of Canada Limited Lakefield, Ontario	Metallurgical Consultants
A.G.Scobie, P.Eng.	

STATEMENT OF EXPENDITURES

<u>Diamond Drilling</u>	1,792 feet	Oct. 31st to Nov.15th/67	\$ 19,257.62	
<u>Line Cutting</u>	June 24th to Sept. 10th, 1967			
	Base Line	9½ miles		
	Cross "	76 miles		10,440.00
<u>Trenching</u>	Sept. 15th to Nov. 15th, 1967			
	D6 Cat	307.75 hrs. @ \$16.00/hr.		4,924.00
<u>Geochemical Analysis and Sampling</u>	Aug. 7 to Oct. 1/67			
	2,500 samples @ \$1.55/sample		\$ 3,875.00	
Labour - Technician	1½ mos. x 500		750.00	
Assistant	1½ mos. x 450		<u>675.00</u>	5,300.00
<u>Magnetometer Survey</u>	Aug. 1st to Sept.15th/67			
Rental	1½ mos. x \$200.00		300.00	
Labour Technician	1½ mos. x \$550.00		825.00	
Assistant	1½ mox. x 500.00		<u>750.00</u>	1,875.00
<u>Geological Mapping</u>	July 15th to Oct. 15, 1967			
Geologist	3 months @ \$800.00/month			2,400.00
Metallurgical Testing				1,376.44
<u>General Support</u>	July 15th to November 15, 1967			
Cordilleran Engineering Ltd. - Consultants				
60 man-days @ \$70.00/day				4,200.00
Camp Manager	4 mos. @ \$650.00/month		2,600.00	
Cook -	4 mos. @ 575.00/month		2,300.00	
Drafting Services			1,800.00	
Food (120 man-days @ \$4.00 - 8 man average)			3,840.00	
Supplies & Equipment			2,200.00	
General Overhead			1,300.00	
Truck Rental (4 mos. @ \$325.00)			<u>1,300.00</u>	19,540.00
			Total Expenditure:	\$ 65,113.06

Note: Apply \$44,700.00 to cover assessment requirements as detailed on Form B and Form I of the Department of Mines and Petroleum Resources.

**Canada**

Province of British Columbia

**To Wit:****In the Matter of**

the statement of expenditures for  
work performed on the Hail Mineral  
Claims in the Kamloops Mining Division

**I,** JOHN W. STOLLERY, of 400, 837 W. Hastings Street  
City of Vancouver in the Province of British Columbia.

**Do Solemnly Declare that**

1. The geochemical, geological, geophysical and physical investigation of the Hail "L", "M", "N" and "O" Claim Groups was carried out under my supervision.
2. The Statement of Expenditures set out in Appendix "D", Part "A" of my Report "Geological, Geochemical, Geophysical and Physical Investigation from July 15th, 1967 to November 15th, 1967, of the Hail "L", "M", "N" and "O" Claim Groups", truly represents the amounts expended on the said claims.

**And** I make this solemn Declaration conscientiously believing it to be true, and knowing that it is of the same force and effect as if made under oath, and by virtue of the Canada Evidence Act.

**Declared** before me

at Vancouver

in the Province of British Columbia.

this 3<sup>rd</sup> day of

July A.D. 19 68



A P P E N D I X E

STATUTORY DECLARATION  
IN SUPPORT OF EXPENDITURES

A P P E N D I X D

STATEMENT OF EXPENDITURES

A P P E N D I X C

CONTRACTORS AND PERSONNEL



A P P E N D I X B

AUTHOR'S CERTIFICATE

A P P E N D I X A

PETROGRAPHY

by

J.M. Dawson

# CORDILLERAN ENGINEERING LIMITED

400-837 WEST HASTINGS STREET

VANCOUVER 1, B.C.

TELEPHONE: 685-0167

MINERAL EXPLORATION  
MANAGEMENT AND  
ENGINEERING CONSULTANTS

— ASSOCIATES —  
BONDAR-CLEGG & COMPANY LTD.  
GEOCHEMISTS

September 3, 1968.

Mr. D.J. Warren,  
Deputy Mining Recorder,  
Court House,  
Kamloops, B. C.

Dear Sir:

Thank you for your letter of August 22nd, 1968 which requested the following information:

1. Soil samples were taken either with pick and shovel or soil auger depending upon the depth of organic material above the "B" horizon. Samples were placed in 3½" x 6" standard high wet strength kraft paper bags, carefully packaged in cardboard cartons and forwarded to Bondar-Clegg & Company, North Vancouver, B.C. for analysis.

The samples were dried and sieved in the laboratory of Bondar-Clegg & Co. Samples are dried in infra-red ovens and sieved to produce a minus 80 mesh fraction in stainless steel sieves. The -80 mesh fraction is subjected to hot acid extraction with final analysis by atomic absorption methods.

2. The magnetometer survey was conducted using a Sharpe MF-1 flux-gate magnetometer which measures the vertical component of the earth's magnetic field. The operator was Mr. M.M. Shuler, a very capable 4th year Electrical Engineering student at U.B.C. who was trained by our company and worked under our supervision.

3. With regard to the charge of three months geologists' time to map the property, we would like to mention that:

- (a) Weather conditions were not always favourable.
- (b) The terrain especially in the northern area of the property which was detail mapped is steep and exceptionally heavily timbered.
- (c) Access to most parts of the property was by foot only.

4. The charged "General Overhead" under General Support includes such items as truck operating expense, travelling expense, freight, telephone and telegraph, storage facilities at Vavenby, etc.

We would like to mention that out of a total expenditure of over \$65,000.00 we are only applying \$44,700.00 to assessment work. This was done to ensure that no indirect cost would be included.

Mr. D.J. Warren - page 2.

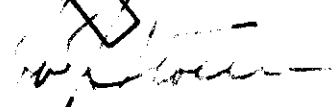
5. With regard to this item, we are not clear as to whether it is necessary to submit additional affidavits or not.

We trust that the foregoing will be acceptable and allow you to approve our assessment application and ask your permission to attach a copy of this correspondence to our report as an addendum.

We are returning the report under separate cover.

Yours very truly,

CORDILLERAN ENGINEERING LIMITED

  
J.W. Stollery, P. Eng.

Enc.

**COPY**

OUR FILE \_\_\_\_\_

YOUR FILE \_\_\_\_\_

ADDRESS YOUR REPLY

TO Mining Recorder



Court House,  
Kamloops, B.C.,

August 22, 1968.

Mr. A.F. Reeve,  
400-837 W. Hastings St.,  
Vancouver 1, B.C.

Dear Sir:

In connection with the Geochemical-geophysical-geological Report filed on July 10th, I wish to advise that before the report can be approved the following information is required:

1. Additional data is required on soil sampling procedure:
  - a. By what instrument was the sample taken; for example, auger, spade, etc?
  - b. How were the samples packaged?
  - c. How were the samples dried and screened?
  - d. Were the tests made in the field or in a laboratory?
  - e. By what person or laboratory were the soil samples tested?
2. The make and model of the fluxgate magnetometer must be given and the qualifications of the operator, if other than Mr. Stollery.
3. The charge of three months geologist's time for the grid mapping of an area approximately 1.5 miles by 3 miles plus reconnaissance of an equal area seems excessive. Why was so much time required?
4. What is included in the charge "general overhead"? Indirect costs are not accepted for assessment credits.
5. Credit for diamond drilling and trenching should be applied for separately as "physical work".

Appendix C ←

MF-1  
slope  
flux gate  
mud sensor  
weather  
transducer

Appendix D ←

The report, in duplicate, is returned herewith for inclusion of these corrections.

Yours truly,

D.J. Warren,  
Deputy Mining Recorder.

RC/rg  
Encs.

GEOLOGICAL, GEOCHEMICAL, GEOPHYSICAL & PHYSICAL INVESTIGATION

From July 15th to November 15th, 1967

of

THE HAIL "L", "M", "N" AND "O" CLAIM GROUPS

KAMLOOPS MINING DIVISION, BRITISH COLUMBIA

51° 00' N. - 119° 00' W. - NW

6 Miles S.W. of Vavenby, B. C.

for



QUEBEC CARTIER MINING COMPANY

by

J.W. Stollery, P.Eng.,  
Geological Engineer

Cordilleran Engineering Limited,  
400, 837 West Hastings Street,  
Vancouver 1, B. C.

May, 1968

PART 2 OF 2

1612

GEOLOGICAL, GEOCHEMICAL, GEOPHYSICAL & PHYSICAL INVESTIGATION

From July 15th to November 15th, 1967

of

THE HAIL "L", "M", "N" AND "O" CLAIM GROUPS

KAMLOOPS MINING DIVISION, BRITISH COLUMBIA

51° 00' N. - 119° 00' W. - NW

6 Miles S.W. of Vavenby, B.C.

for

QUEBEC CARTIER MINING COMPANY

by

J.W. Stollery, P.Eng.,  
Geological Engineer

Cordilleran Engineering Limited,  
400, 837 West Hastings Street,  
Vancouver 1, B. C.

May, 1968

PART "B"

TABLE OF CONTENTS

FIGURE 3	- Geology Plan	Scale 1" = 800'
FIGURE 4	- Plan of "K" Anomaly showing Geochemical, Geophysical and Assay Results	Scale 1" = 400'
FIGURE 5	- Claim Map showing Location of Trenches, Diamond Drill Holes and Grid Layout.	Scale 1" = 800'
Figure 6	- Plan showing Copper Content of Soil Samples (East Half)	Scale 1" = 400'
Figure 7	- Plan showing Copper Content of Soil Samples (West Half)	Scale 1" = 400'
Figure 8	- Plan showing Zinc Content of Soil Samples (East Half)	Scale 1" = 400'
Figure 9	- Plan showing Zinc Content of Soil Samples (West Half)	Scale 1" = 400'
Figure 10	- Magnetic Plan (East Half)	Scale 1" = 400'
Figure 11	- Magnetic Plan (West Half)	Scale 1" = 400'

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**LEGEND**

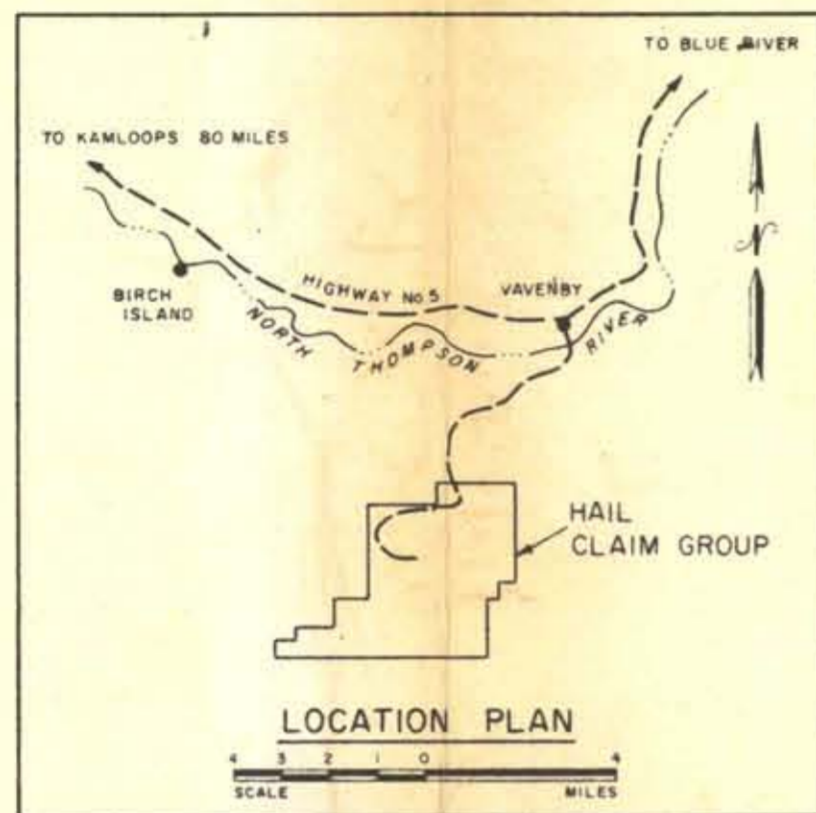
- ① QUARTZ - FELDSPAR - CHLORITE GNEISS, DIORITE GNEISS
- ② QUARTZ - MICA "AUGEN" SCHIST, SERICITIC QUARTZITE
- ③ GREEN - GRAY PHYLLITE, QUARTZ - SERICITE SCHIST, SERICITIC QUARTZITE, BLACK PHYLLITIC SLATE
- ④ GREEN SCHIST, QUARTZ - CHLORITE - SERICITE SCHIST
- ⑤ BLUE - GRAY CRYSTALLINE LIMESTONE

- GEOLOGICAL CONTACT INFERRED
- ↗ ATTITUDE OF FOLIATION, SCHISTOSITY
- ↘ ATTITUDE OF FRACTURES

- x Cu MINERAL OCCURRENCE
- Cu... COPPER
- Pb... LEAD
- Zn... ZINC
- Fe... IRON MAGNETITE
- Py... PYRITE

- OUTLINE OF GEOCHEMICAL ANOMALY
- ZONE OF MAGNETIC ANOMALIES

- OUTCROP
- - - TRENCH
- DIAMOND DRILL HOLE
- == ROAD
- ▨ PROPERTY BOUNDARY
- CLAIM POSTS & LOCATION LINES



**NOTES**

- GEOLOGY: MAPPING INCOMPLETE SOUTH OF 00 BASELINE.
- GEOCHEMISTRY: AREAS OUTLINED INDICATE CONCENTRATIONS GREATER THAN 100 P.P.M. Cu.
- MAGNETICS: AREAS OUTLINED INDICATE TOTAL RELIEF GREATER THAN 1000'. (BACKGROUND +200' TO +400').



*J.W. Stollery*

To accompany report by J.W. Stollery, P.Eng., on the Hail Claim Group at Vavenby, B.C., Kamloops Mining Division, dated May, 1968

**QUEBEC CARTIER MINING COMPANY  
GEOLOGY PLAN  
HAIL CLAIM GROUP**

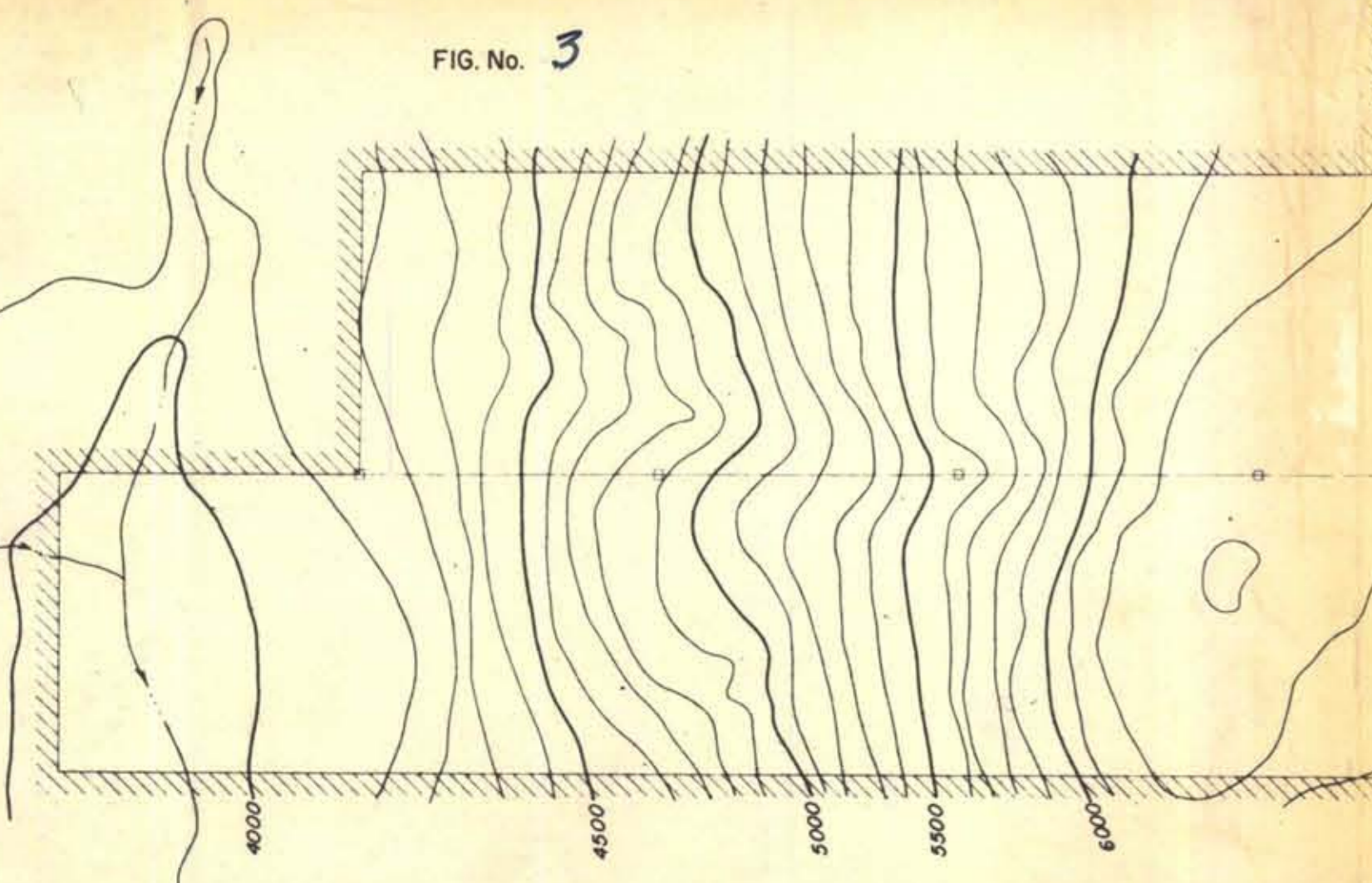
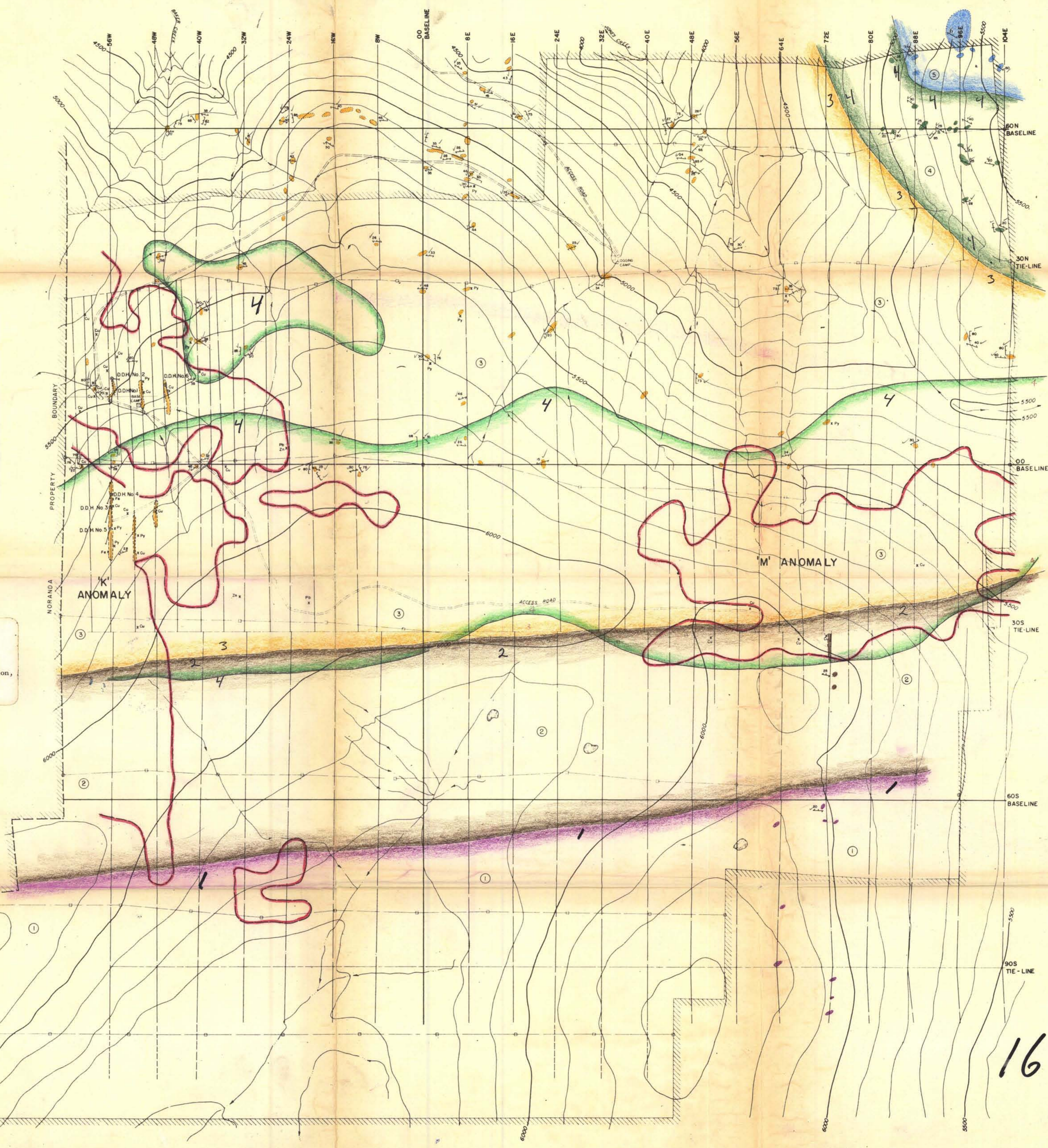
KAMLOOPS MINING DIVISION BRITISH COLUMBIA



BY CORDILLERAN ENGINEERING LIMITED  
400 - 837 W. HASTINGS ST. VANCOUVER 1, B.C.

DECEMBER, 1967

Department of Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 1117  
MAP 3



1612

DIAMOND DRILL CORE AND SLUDGE ASSAYS

DEPTH IN FEET	HOLE No 1 336 FEET		HOLE No 2 155 FEET		HOLE No 3 401 FEET		HOLE No 4 151 FEET		HOLE No 5 336 FEET		HOLE No 6 335 FEET	
	CORE	SLUDGE	CORE	SLUDGE	CORE	SLUDGE	CORE	SLUDGE	CORE	SLUDGE	CORE	SLUDGE
0 - 10	.21		.21		.12		.03		.50		.14	
10 - 20	.15		.31	.36	.08		.03		.70	.67	.34	.18
20 - 30	.25		.29	.29	.18		.03	.02	.55	.33	.13	.16
30 - 40	.21		.26	.32	.09	.23	.05	.05	.61	.56	.31	.25
40 - 50	.18		.25	.27	.09	.10	.09	.09	.29	.39	.27	.33
50 - 60	.14		.34	.32	.13	.21	.08	.11	.63	.85	.33	.36
60 - 70	.21		.11		.07	.13	.10	.13	.90	.80	.37	.38
70 - 80	.06		.17		.24	.33	.15	.20	.43	.45	.46	.49
80 - 90	.30		.12		.23	.64	.22	.25	.15	.32	.40	.49
90 - 100	.19		.10		.10	.14	.35	.40	.23	.19	.35	
100 - 110	.41		.06		.14	.24	.16	.18	.20	.32	.18	.21
110 - 120	.44		.27		.18	.17	.17	.27	.25	.23	.37	.27
120 - 130	.48		.41		.07	.14	.52	.42	.29	.33	.42	.53
130 - 140	.52		.37		.33	.25	.30	.38	.13	.23	.55	.54
140 - 150	.59		.20		.20	.26			.03	.07	.36	.49
150 - 160	.37		.31		.15				.05	.09	.56	.51
160 - 170	.43		.26		.18	.27			.15	.21	.16	.19
170 - 180	.38		.34		.40				.13	.06	.08	
180 - 190	.38		.35		.23				.12	.11	.18	.19
190 - 200	.43		.30		.31				.13	.09	.12	.13
200 - 210	.35		.50		.55				.13	.09	.12	.13
210 - 220	.53		.23		.27				.13	.09	.12	.13
220 - 230	.23		.22		.11				.05	.18	.37	.31
230 - 240	.42		.30		.28				.04	.06	.37	.39
240 - 250	.18		.21		.16				.24	.34	.03	.03
250 - 260	.10		.34		.23				.17	.12	.10	.09
260 - 270	.19		.18		.29				.11	.11	.08	.10
270 - 280	.42		.15		.15				.05	.09	.22	.21
280 - 290	.53		.22		.25				.08	.07	.11	.17
290 - 300	.25		.35		.23				.16	.14	.21	.22
300 - 310	.36		.14		.32				.22	.23	.22	.23
310 - 320	.50		.09		.25				.18	.20	.02	.04
320 - 330	.27		.26		.28				.17	.21	.02	.04
330 - 340	.11		.22		.21				.10	.18		
340 - 350	.45		.09		.24				.09	.09	.14	.17
350 - 360	.68		.10		.13				.10	.10		
360 - 370			.09		.18				.09	.09	.14	.17
370 - 380			.08		.15				.08	.09	.14	.17
380 - 390			.06		.12				.06	.09	.14	.17
390 - 400												

SURFACE SAMPLES ASSAYS

CUT No. 1	CUT No. 2	CUT No. 3
0 - 10 NW .58	0 - 10 S .53	0 - 10 S .25
11 - 25 .09	10 - 20 .56	10 - 20 .48
25 - 35 .25	20 - 30 .73	20 - 30 .12
35 - 40 .37	30 - 40 .63	30 - 40 .31
40 - 48 .27	40 - 50 .45	40 - 50 .35
48 - 55 SE .41	50 - 60 .37	50 - 60 .34
AVERAGE 55', 33% Cu	60 - 70 .35	60 - 70 .29
	70 - 80 .56	70 - 80 .15
	80 - 90 .37	80 - 90 .25
	90 - 100 .73	90 - 100 .38
	100 - 110 .35	100 - 110 .40
	COMPOSITE .39	110 - 120 .45
	AVERAGE 110', 51% Cu	120 - 130 .29
		130 - 140 N .21
		AVERAGE 140', 29% Cu

LEGEND

- GEOCHEMICAL VALUES, PARTS PER MILLION COPPER IN THE 'B' SOIL HORIZON. VALUES EXCEEDING 100 PPM ARE CONTOURED.
  - MAGNETIC ANOMALY
  - BULLDOZER TRENCH
  - SAMPLE CUT
  - DIAMOND DRILL HOLE (ALL HOLES - 45°)
  - ATTITUDE OF FOLIATION, SCHISTOSITY
- INTENSITY OF MINERALIZATION
- 4 GREATER THAN .50% Cu
  - 3 .41 TO .50% Cu
  - 2 .31 TO .40% Cu
  - 1 .21 TO .30% Cu
  - LESS THAN .21% Cu
- Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 1612 MAP 4

NOTES

MAGNETICS: AREAS OUTLINED INDICATE TOTAL RELIEF GREATER THAN 1000' (BACKGROUND +200' TO +400')

To accompany report  
by  
J.W. Stollery, P.Eng.,  
on the  
Hail Claim Group at  
Vavenby, B.C., Kamloops Mining Division,  
dated May, 1968

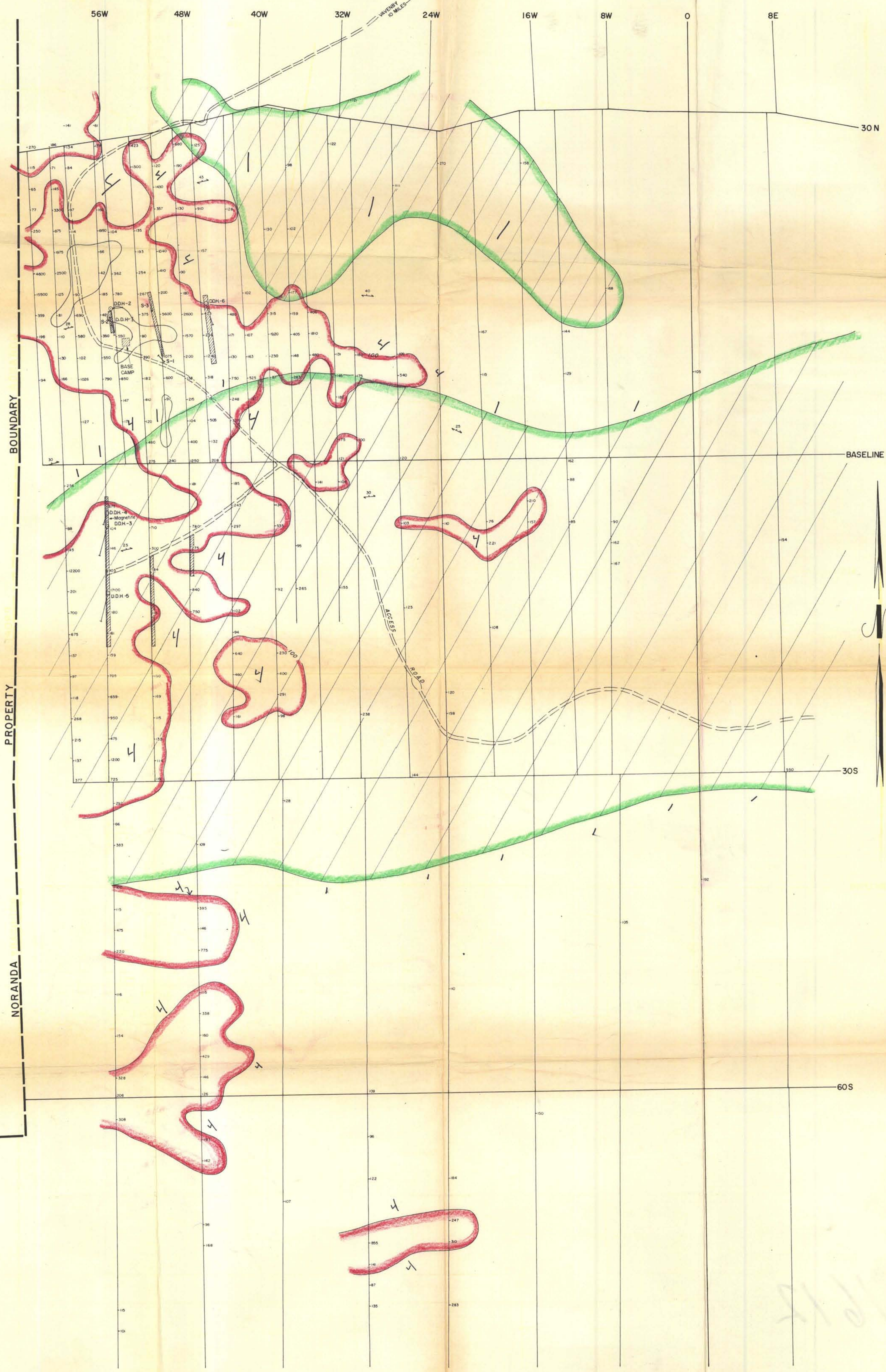


QUEBEC CARTIER MINING COMPANY  
PLAN OF 'K' ANOMALY  
SHOWING GEOCHEMICAL, GEOPHYSICAL  
AND ASSAY RESULTS  
HAIL CLAIM GROUP  
KAMLOOPS MINING DIVISION BRITISH COLUMBIA

BY  
CORDILLERAN ENGINEERING LIMITED  
400-837 W. HASTINGS ST. VANCOUVER 1, B.C.

DECEMBER, 1967

FIG No. 4



1612

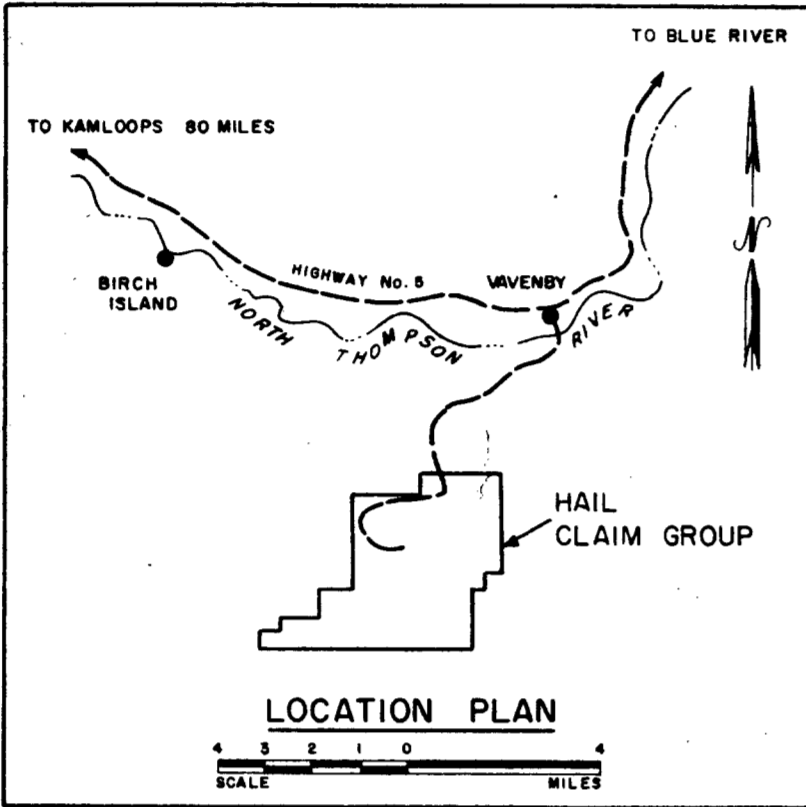
**LEGEND**

**GROUPS**

GROUP	ASSESSMENT ANNIVERSARY	NUMBER OF CLAIMS
'A' HAIL 89 - 118, 29, 35, 36	JULY 22, 1968	33
'B' HAIL 1-7, 11, 13-16, 23-28, 30-34, 55, 57-62, 80-88	JULY 13, 1968	40
'C' HAIL 8, 10, 12, 17-22, 43-54, 56, 71-74, 77-79, 63-65	JULY 13, 1968	32
'D' HAIL 512-531	OCT. 4, 1968	20

**INDIVIDUAL CLAIMS**

HAIL 531 A - 540	AUG. 8, 1968	10
HAIL 541 & 542	SEPT. 21, 1968	2
HAIL 543 - 564	OCT. 3, 1968	22
HAIL 565 F - 578 F	OCT. 19, 1968	14
<b>TOTAL NUMBER OF CLAIMS</b>		<b>173</b>



To accompany report  
by  
J.W. Stollery, P.Eng.,  
on the  
Hail Claim Group at  
Vavenby, B.C., Kamloops Mining Division  
dated May, 1968.

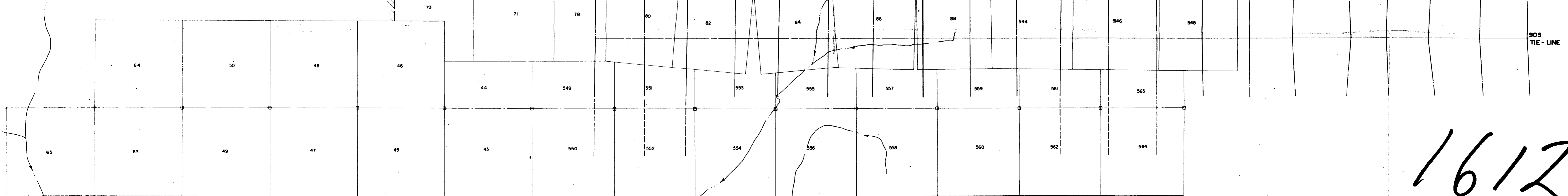
Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
1612 MAP 5

**QUEBEC CARTIER MINING COMPANY  
CLAIM MAP  
HAIL CLAIM GROUP**

KAMLOOPS MINING DIVISION BRITISH COLUMBIA

BY  
**CORDILLERAN ENGINEERING LIMITED**  
400 - 837 W. HASTINGS ST. VANCOUVER 1, B.C.  
DECEMBER, 1967

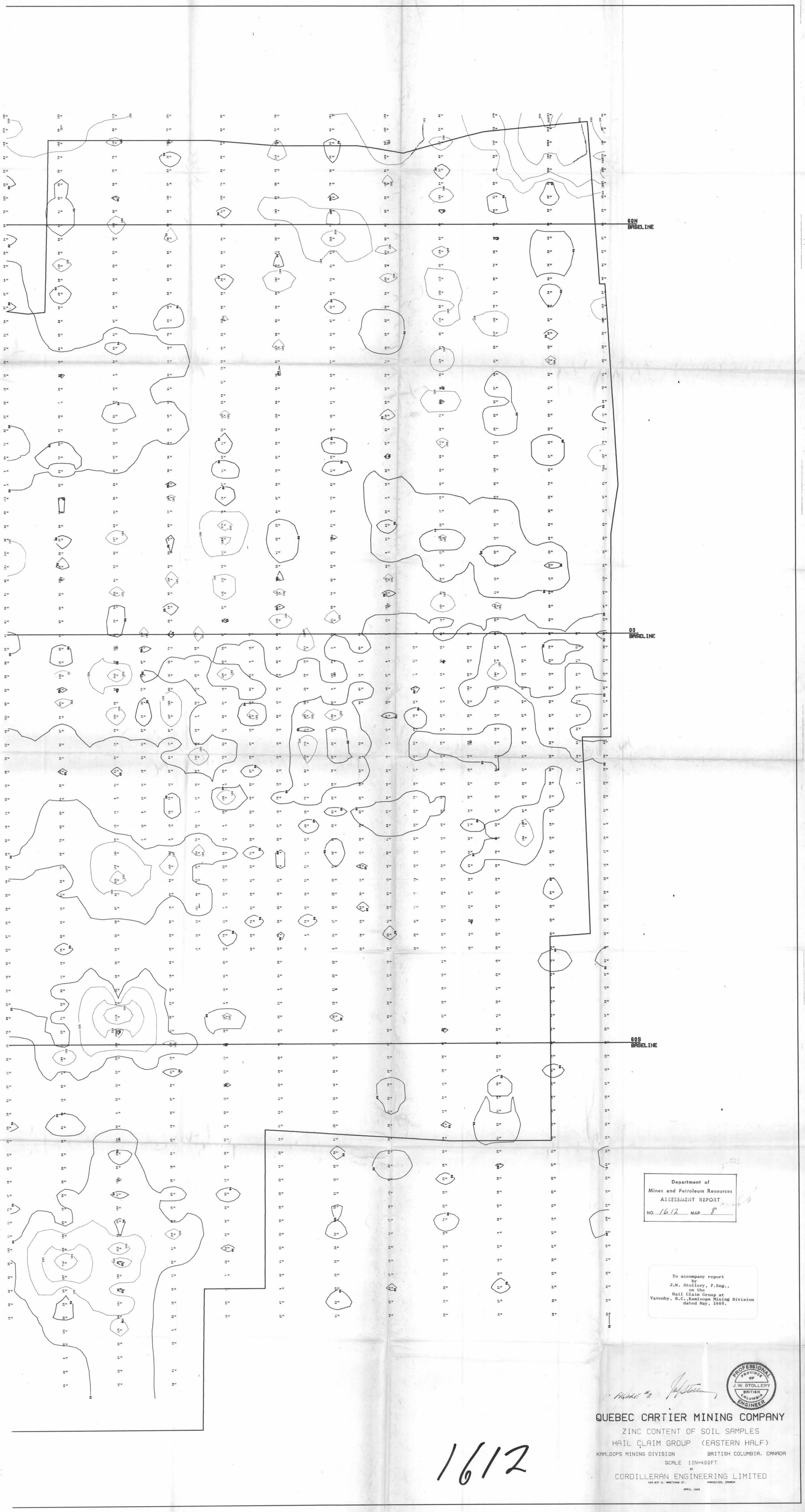
FIG. No. 5



1612







60N  
BASELINE

60  
BASELINE

60S  
BASELINE

Department of  
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ASSESSMENT REPORT  
NO. 1612 MAP 8

To accompany report  
by  
J.W. Stollery, P.Eng.,  
on the  
Hail Claim Group at  
Vavenby, B.C., Kamloops Mining Division  
dated May, 1965.

*Map 8*  
*J.W. Stollery*  
PROFESSIONAL  
ENGINEER  
OF  
BRITISH  
COLUMBIA

QUEBEC CARTIER MINING COMPANY  
ZINC CONTENT OF SOIL SAMPLES  
HAIL CLAIM GROUP (EASTERN HALF)  
KAMLOOPS MINING DIVISION BRITISH COLUMBIA, CANADA  
SCALE 1IN=400FT  
BY  
CORDILLERAN ENGINEERING LIMITED  
151-827 W. HASTINGS ST. VANCOUVER, CANADA  
APRIL, 1965

1612

Benson-Inhner  
Kamloops, B.C.

QUEBEC CARTIER MINING COMPANY

ZINC CONTENT OF SOIL SAMPLES

HAIL CLAIM GROUP (WESTERN HALF)

KAMLOOPS MINING DIVISION BRITISH COLUMBIA, CANADA

SCALE 1IN=400FT

CORDILLERAN ENGINEERING LIMITED

100-837 S. WESTERN ST. VANCOUVER, BRITISH COLUMBIA, CANADA

PROJ. 1248

Figure #9

*J. W. Stollery*



60N  
BASELINE

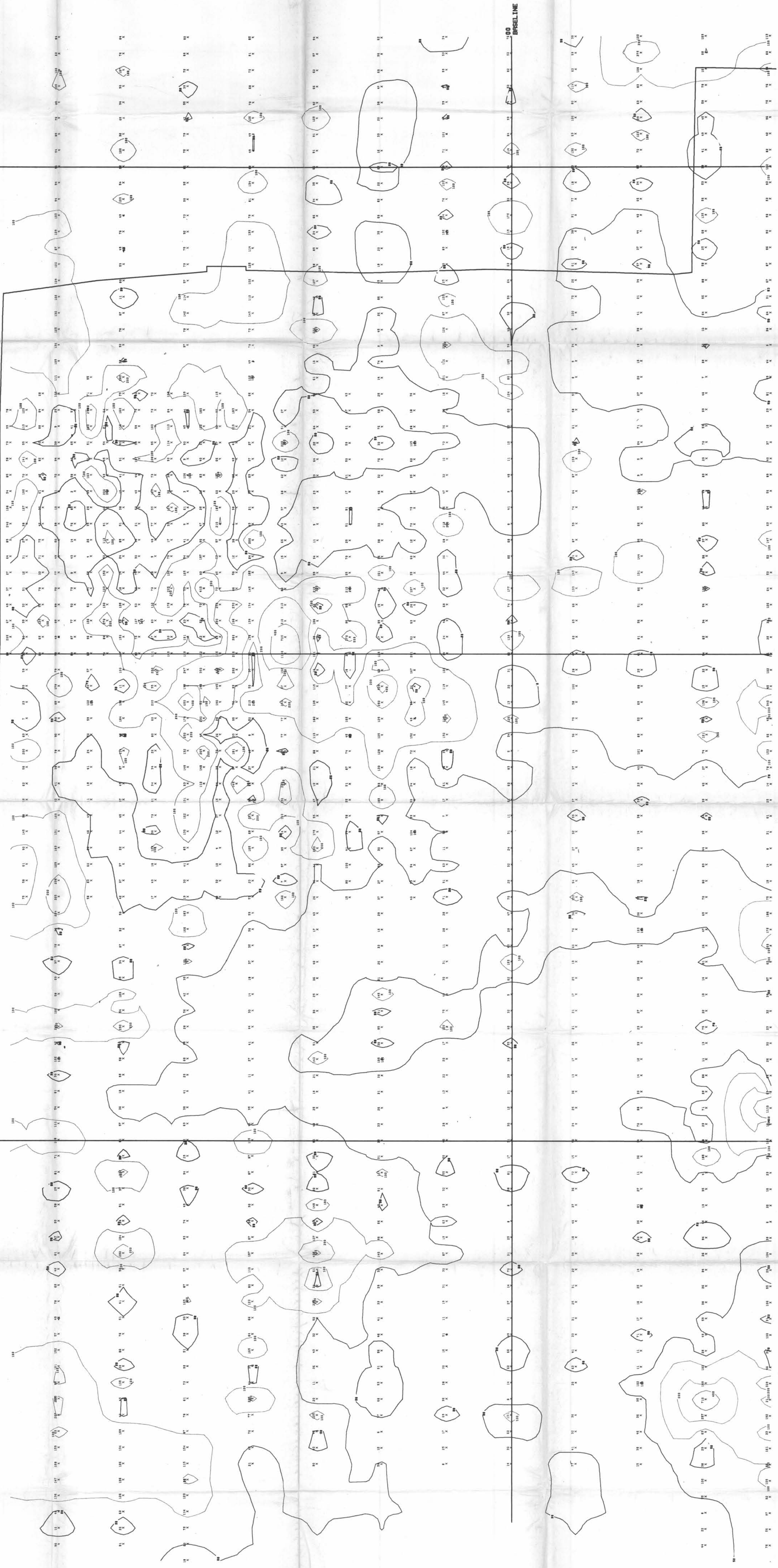
To accompany report  
by  
J.W. Stollery, P.Eng.,  
on the  
Hail Claim Group at  
Vavenby, B.C., Kamloops Mining Division  
dated May, 1968.

Department of  
Mines and Petroleum Resources  
ACCESSIBILITY REPORT

NO. 1612 MAP 9

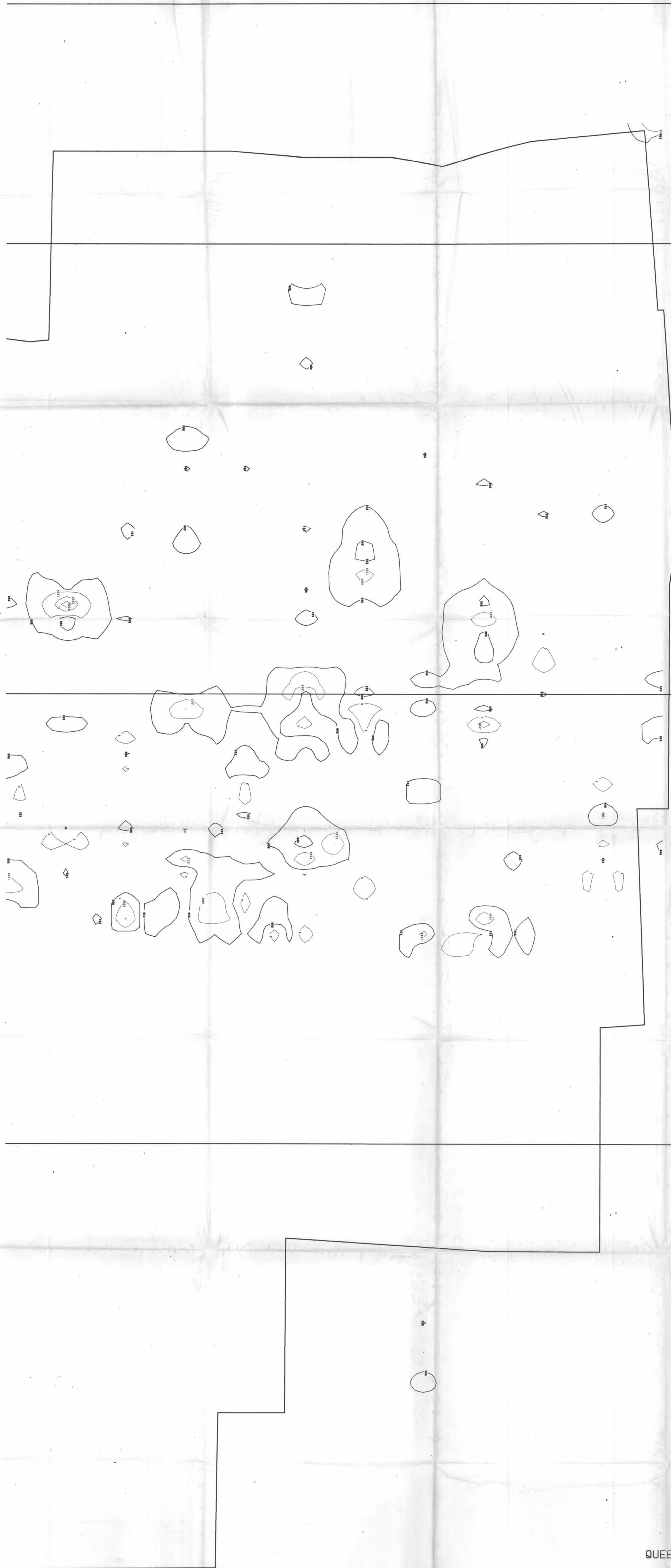
60  
BASELINE

60S  
BASELINE



1612

Benson-Lehner Corporation  
100-837 S. WESTERN ST. VANCOUVER, BRITISH COLUMBIA, CANADA



Department of  
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ASSESSMENT REPORT  
NO. 1612 M.P. 10

To accompany report  
by  
J.W. Stollery, P.Eng.,  
on the  
Hail Claim Group at  
Vavenby, B.C., Kamloops Mining Division  
dated May, 1968.



*J.W. Stollery*

FIGURE 10

QUEBEC CARTIER MINING COMPANY  
MAGNETIC PLAN (VERT COMPONENT)  
HAIL CLAIM GROUP (EASTERN HALF)  
KAMLOOPS MINING DIVISION BRITISH COLUMBIA, CANADA  
SCALE 1 IN = 400 FT  
BY  
CORDILLERAN ENGINEERING LIMITED  
102-917 W. WATLING ST. VANCOUVER, CANADA  
APRIL 1968

1612



QUEBEC CARTIER MINING COMPANY

MAGNETIC PLAN (VERT COMPONENT)  
HAIL CLAIM GROUP (WESTERN HALF)  
KAMLOOPS MINING DIVISION BRITISH COLUMBIA, CANADA  
SCALE 1IN=400FT  
BY  
CORDILLERAN ENGINEERING LIMITED  
142-437 W. HASTINGS ST. VANCOUVER, CANADA  
APRIL 1968

FIGURE 11



*J.W. Stollery*

To accompany report  
by  
J.W. Stollery, P.Eng.,  
on the  
Hail Claim Group at  
Yavenby, B.C., Kamloops Mining Division  
dated May, 1965.

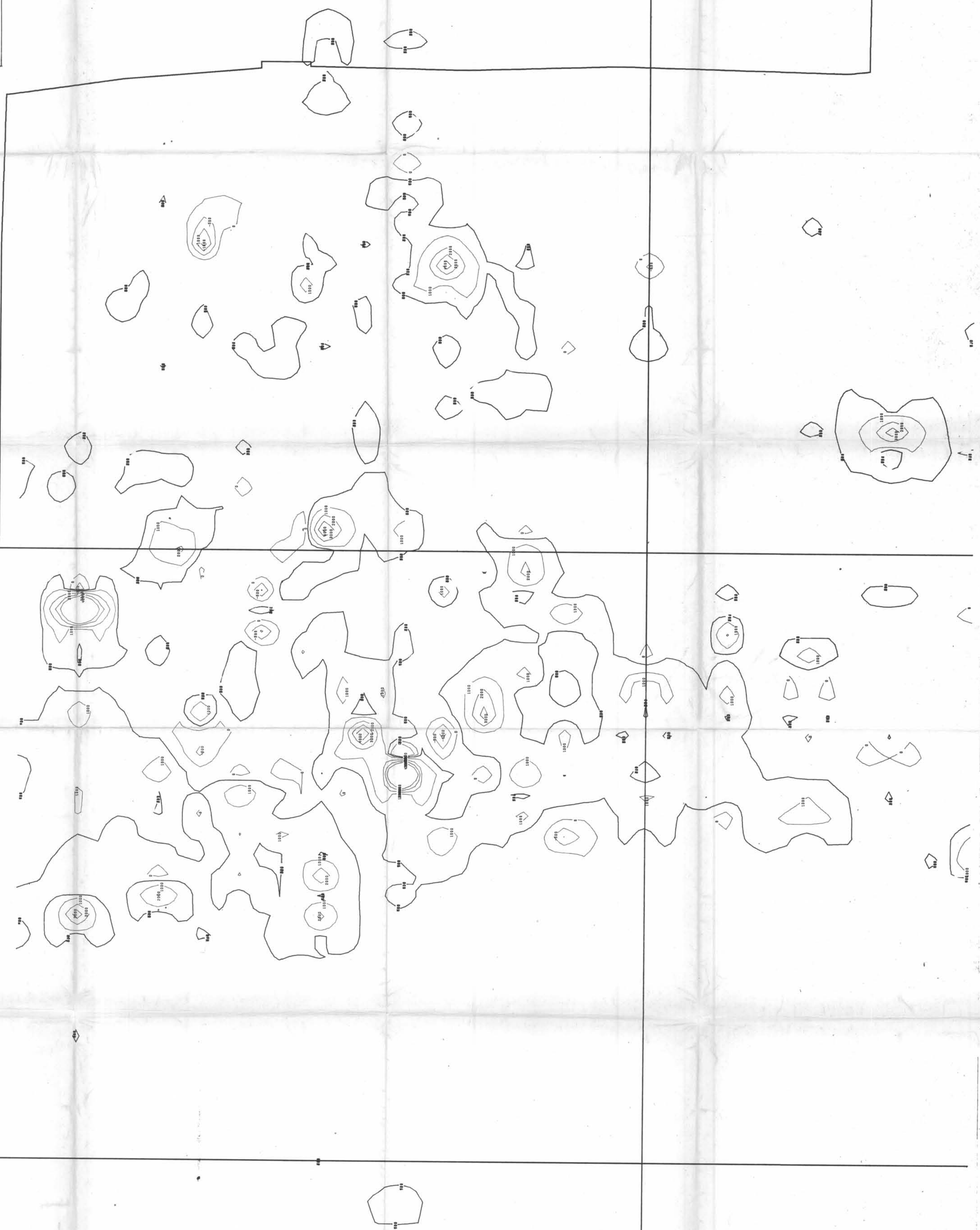
60N  
BASELINE

60  
BASELINE

Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 1612 MAP 11

00  
BASELINE

60S  
BASELINE



1612

benson-lehner corporation  
1425 W. 14th St. Vancouver, B.C. V6P 1A1  
benson-lehner corporation  
1425 W. 14th St. Vancouver, B.C. V6P 1A1  
benson-lehner corporation  
1425 W. 14th St. Vancouver, B.C. V6P 1A1  
benson-lehner corporation  
1425 W. 14th St. Vancouver, B.C. V6P 1A1