

2606

Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT

NO. 2606 MAP

GEOLOGICAL EXAMINATION  
GEOCHEMICAL SURVEY  
MAGNETOMETER SURVEY

Jock, Rip, Joy, Mesky  
and  
Eric Claims

93A/11W, 12E  
LEEMAC MINES LTD. (N.P.L.)

# PRIMAC EXPLORATION SERVICES LIMITED

630 NESBITT THOMSON BLDG.,  
890 WEST PENDER STREET, VANCOUVER 1, B.C.



## C O N T E N T S

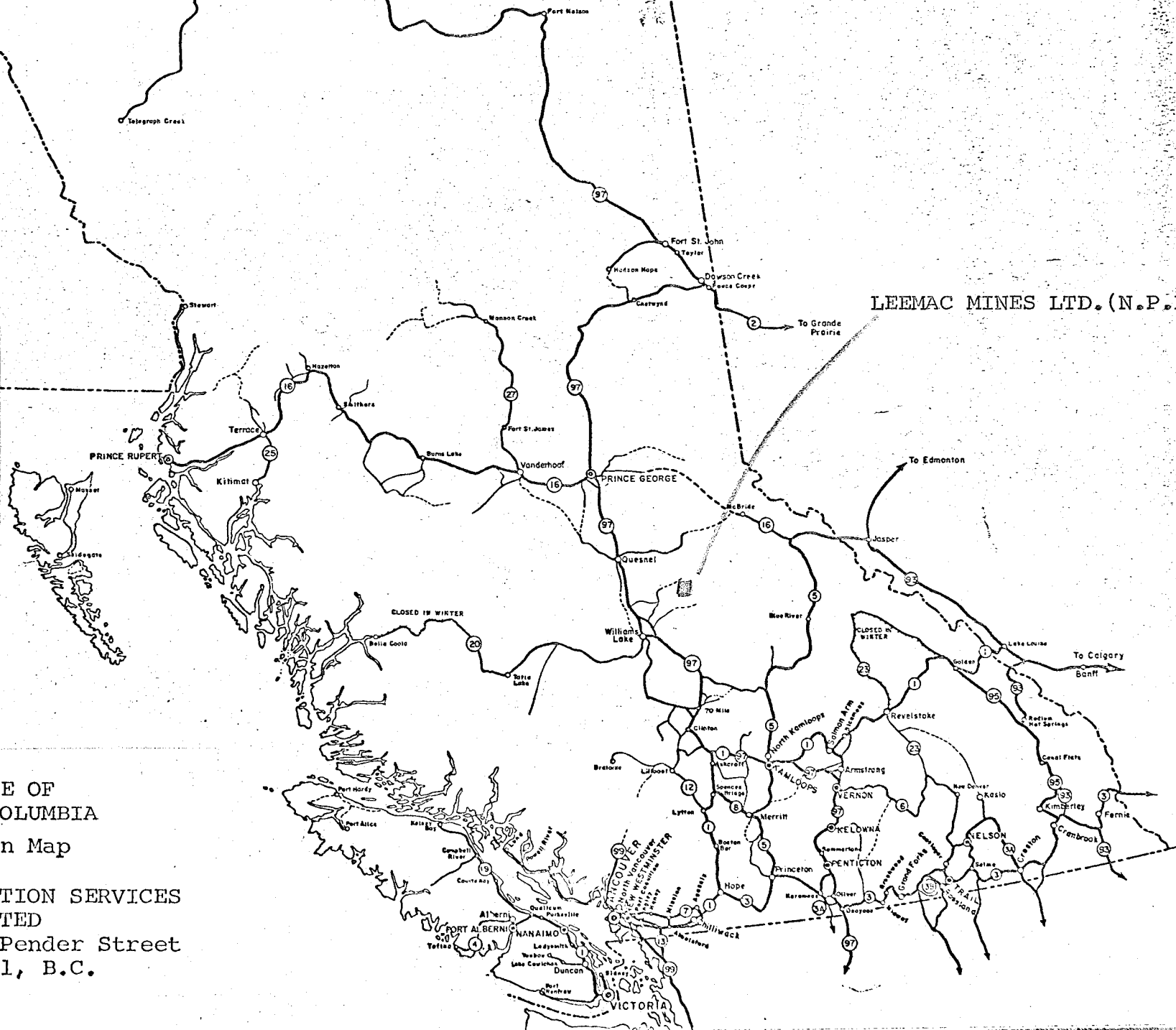
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| 1" = 400'                                 |             |

1/11

### Location Map

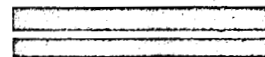
Vancouver 1, B.C.

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December 18, 1969

## INTRODUCTION

During June and July 1969 some fifty-six claims were staked near the Cedar Creek area in the vicinity of Likely, British Columbia. Along the creek, a few out-crops exhibit mineralization - mostly pyrite with some chalcopyrite. Those claims are well situated in an area where there are many structural disturbances and as a result, there may be some possibilities of mineralized zones of a structurally controlled nature.

## PROPERTY

The property consists of some fifty-six contiguous mineral claims as follows:

|                      |                             |
|----------------------|-----------------------------|
| Rip 1-21 inclusive,  | Record # 52845-61, 53744-47 |
| Joy 1-6 inclusive,   | Record # 52839-52844        |
| Jock 1-17 inclusive, | Record # 52822-52838        |
| Mesky 1-6 inclusive, | Record # 53748-53753        |
| Eric 1-6 inclusive,  | Record # 53483-88           |

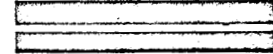
The above claims are recorded at the Mining Recorder's Office in Quesnel, British Columbia.

## LOCATION AND ACCESS

The property is situated approximately six miles east, south-east of the village Likely, British Columbia. Likely is some fifty-two miles from the One Hundred and Fifty Mile House, by a good gravel road. The property is accessible

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by a fair dirt road from Likely and it leads to the Cedar Dam, which is situated at the southern end of this property. Cedar Creek runs along the center of these claim groups.

## TOPOGRAPHY AND VEGETATION

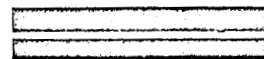
Elevation encountered on the property would be from 3000 feet to 3500 feet above sea level. The property lies in a valley between the Spanish Mountain on the east and Mount Warren on the west. The area of the property is forest-covered with sub-commercial and commercial fir, pine and alder. The climate is temperate, with a fairly heavy seasonal rainfall.

## GENERAL STATEMENT AND REGIONAL GEOLOGY

The Cariboo mining division has attracted many prospectors to search for rich gold placer deposits for more than a century. Many placer gold deposits were found and operations were carried out successfully. Even today, small scale gold placer-operations are being carried out. But in the very recent years, mining companies and prospectors are moving into this area, with a slightly different object of finding copper prospects. Properties with a low, economically feasible grade and large tonnage, have taken the shape of producing mines in past few years in British Columbia. The steady increase in the price and demand for copper has induced many prospectors to look for such copper deposits and it is believed from the regional geology that the Cariboo division is best suited for this new venture. Many of the old workings in this area reveal copper mineralization, but since the copper value was very insignificant, it completely escaped the attention of the "Old Timers".

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The regional geology of this area is not simple. Multiple deformation has rendered most of the rocks schistose and tightly compressed in complex repetitive fold. Due to high metamorphism and by the intensity of hydrothermal alteration, many rock types have changed their original texture, structure and composition. Poor rock exposure in this area is the major reason for the difficulties in obtaining more information from geological mapping.

The south-eastern part of Cariboo district is underlain by complex metamorphic rocks of precambrian to the mesozoic era. Rocks of upper triassic to upper jurassic are predominant. Majority of the type of rocks in this area are the basic variety, of which dark green pyroxene-rich andesites of different textures are very common. It is believed that during the latter part of jurassic, rocks of acidic and intermediate character intruded these older formations along the plane of weakness and fault zones.

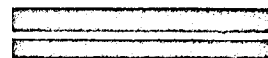
Structure in this area is highly complex but in general a broad antichinorium is reported. The axis thereof trends north-west and runs for several miles. Numerous drag folds are believed to be present in this area. The major fault systems trend north-west, which has developed many minor cross faults and fractures perpendicular to it.

## GEOLOGY

A great majority of this property is covered by an overburden of varying depths. Outcrops are scarce, but when noticed, they are mostly of volcanic andesitic group of rocks, believed to be of middle or upper jurassic age. This group consists of dark green pyroxene bearing andesitic agglomerate, breccia and minor tuff. These andesites are chloritized with an abundance of secondary epidote, which are mostly rich in

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pyroxenes. Chloritic schists and argillites were noticed in limited exposures along the Cedar Creek bed.

The structure in this area is characterized by the north-westerly trends of the major fault systems. The north-east boundary of this property is flanked by the major fault system in this area. There are few indications of less well developed fracture-systems striking north-east. These fractures could be contemporaneous to the major fault systems in this general area. Both, the government air-bornemagnetic map 1533-G and the ground magnetometer survey map, indicate a possible fault running through the middle of the property which coincides with the Cedar Creek. To sum up, Cedar Creek could be the expression of the existing fault. Since the mineralizations are mostly noticed along the creek bed, this fault and the adjacent areas could be of some economic interest.

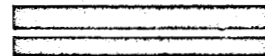
## MINERALIZATION

Some of these outcrops are heavily mineralized with pyrite. Mostly pyrite is disseminated, but sometimes cubes of 3/4" are also noticed. Fair amounts of chalcopyrite are associated with pyrite. Small valves of gold are present in some of the samples. These mineralizations appear to be structurally controlled as they are present along the shear zones, slips and joint planes. In places, pyrite is highly oxidized and appears rusty.

Some five miles east of these claims is situated the Cariboo Bell Mines Ltd. (N.P.L.), who have come up with a substantial tonnage with approximately 0.515% copper. Ardo Mines Ltd. (N.P.L.) is situated some five miles north-west and the recent drilling on their property has indicated good potentials.

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## WORK PERFORMED

In June 1969, about fifteen miles of line cutting had been carried out along with geochemical and magnetometer survey by Primac Exploration Services Limited. There were no indications of any previous work done on this property.

## GEOCHEMICAL SURVEY

Individual geochemical samples were extracted along the grid lines, using a stainless steel auger. These samples were obtained from an average depth of one foot, i.e., the soil immediately below the humus layer. Sampling at this horizon would minimize the abnormal concentration effects of vegetative material. The samples taken at one hundred foot intervals on the grid lines, were placed in manilla envelopes, air dried, catalogued and dispatched to the Crest Laboratories (B.C.) Ltd. of Vancouver for analysis. Under the supervision of Mr Alfred A Burgoyne, Geochemist, the samples were subjected to cold acid extraction and then analyzed by means of atomic absorption meter. Values of copper are expressed as parts per million and plotted on the grid map accompanying this report..

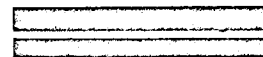
This geochemical survey was carried out by collecting soil samples along one base line running almost east-west and cross-lines running almost north-south. The sampling interval was one hundred foot and chemical tests were made for the copper content of the sample.

During the course of the survey one fairly large sized anomaly and at least four less prominent anomalous zones were picked up. These zones vary in strength from twice to ten times the general background.



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Anomaly I: This is the most prominent geochemical anomaly on this property. It has a north-east/south-west trend and has a dimension of seven hundred feet by one thousand feet, covering from east of 0+00 BL to slightly west of 4+00 BL at the stations 8+00 S to 15+00 S. The general level of this anomaly is two to fifteen times background.

There are a few weak geochemical anomalies outlined over this property. All of them have a definite east-westerly trend, but their level is only two to four times the background. If the grid lines were extended and geochemical surveys were continued, these weak anomalies could improve considerably.

## MAGNETOMETER SURVEY

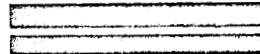
A magnetometer survey using the fluxgate Mf.1 instrument was carried over the pre-cut grid lines on this property. Readings were taken at every 100 feet intervals. These readings were plotted, contoured and submitted to Mr Jon G Baird, Geophysicist, of Seigel Associates Ltd., for his interpretation and comment, which is as follows:

"I have perused G.S.C. Map 3-1961, Geology, Quesnel Lake; G.S.C. Map 1533-g, airborne magnetometer survey, Hydraulic area, British Columbia and the results of a ground magnetometer survey executed by Primac Exploration Services on your Cedar Creek claim group.

The airborne magnetometer survey reveals a distinct north-westerly trending magnetic gradient lying just west of your property which would normally be interpreted as a contact between rock types of different magnetic susceptibilities. The geology map shows the entire area of the aeromagnetic sheet to be underlain by Triassic and Jurassic rocks, mostly volcanics, intruded in places by Jurassic

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or Cretaceous acidic intrusives. No change in rock type has been mapped which may correspond to the abrupt change in magnetic susceptibility.

A mapped intrusive about five miles west of your property is characterized by a circular magnetic high of the order of 2000 gammas relief. The base metal sulphide deposit being developed by Cariboo Bell Mines Ltd. lies within this intrusive.

Various linear magnetic features are seen on the airborne magnetic map, some of which may reveal faults. One weakly defined lineament trends east-west just north of the Cariboo Bell Intrusive and traverses your property in the vicinity of Cedar Creek.

The limited ground magnetometer survey carried out by Primac Exploration Services reveals a total magnetic relief of the order of only 300 gammas. There is no distinct contour pattern so that no interpretations as to rock types or lineaments can be made.

There is an association of magnetite with chalcopyrite in the Cariboo Bell deposit. If such a deposit may occur on the Cedar Creek claims, an extension of the ground magnetometer survey may therefore be warranted. The east-west trending lineament near Cedar Creek is a very subtle feature on the airborne map and may not be seen on a ground survey. On the other hand, some magnetic features associated with ore mineralization may not be discernable from an airborne survey. Predicated on a geological appraisal, further ground magnetometer surveying may be in order. It is considered however that the induced polarization method may be the most efficient technique to directly locate a large tonnage, low grade base metal sulphide deposit"

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## CONCLUSION AND RECOMMENDATIONS

From the GSC reports and by the personal visit to the area, this property is well situated lithologically and structurally. The geochemical survey revealed some distinctive anomalies and they have to be followed by bulldozer trenching. Because of fairly heavy overburden, much information could not be obtained from the geochemical survey. Moreover, the ponds and muskegs within this property have badly hindered a complete reconnaissance survey throughout the property. The magnetometer survey has revealed us very little structural information. In order to assess this property's economical potential, bulldozer trenching has to be done. This should be followed by a detailed geological mapping at 1"=400' scale. An Induced Polarization survey may be carried out to outline mineralized zones. This exploratory work would involve an expenditure of approximately \$27,500.00 as outlined below:

|                             |                    |
|-----------------------------|--------------------|
| Bulldozer Stripping         | \$ 8,000.00        |
| Geological Mapping          | \$ 5,000.00        |
| Induced Polarization Survey | \$ 6,000.00        |
| Camp Supplies               | \$ 3,000.00        |
| Engineering                 | \$ 3,000.00        |
| Contingency                 | <u>\$ 2,500.00</u> |
|                             | \$27,500.00        |
|                             | =====              |

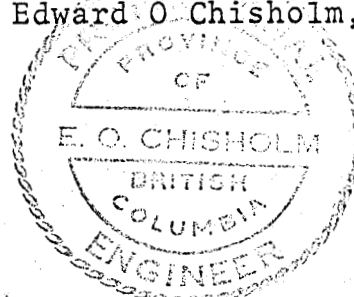
Depending upon the results of this program, the property may be drilled to evaluate its economical potential.

Respectfully submitted,

S Venkataramani, M.Sc.CPG.

*S Venkataramani*

*E O Chisholm*  
Edward O. Chisholm, P.Eng.



# C E R T I F I C A T E

I, Edward O Chisholm of the City of Vancouver in the Province of British Columbia, hereby certify that:

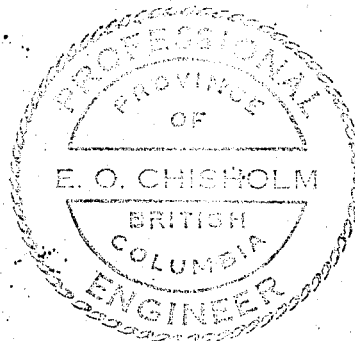
1. I am a geologist with offices at 821-602 West Hastings Street, Vancouver, B.C.
2. I am a graduate of the University of Toronto, Ontario, Master of Arts, 1945.
3. I am a member of the Associations of Professional Engineers of the Province of Ontario and British Columbia.
4. I have no direct interest or indirect interest in either the property or securities of Leemac Mines Ltd.(N.P.L.) or its affiliates, nor do I expect to receive any such interest.
5. This report is based on examination of company records, maps and a general knowledge of the geology of the area.

DATED AT VANCOUVER, BRITISH COLUMBIA

January 22, 1970

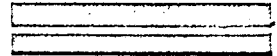


Edward O Chisholm, P.Eng.



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890 WEST PENDER STREET, VANCOUVER 1, B.C.



## C E R T I F I C A T E

I, S Venkataramani, of Vancouver, British Columbia, do hereby certify that:-

1. I am a geologist with my office located at #630-890 West Pender Street, Vancouver 1, British Columbia.
2. I am a graduate geologist with a Master of Science Degree from the University of Madras, India.
3. I am a certified professional geologist belonging to the Amercian Institute of Professional Geologists, Golden, Colorado, U.S.A.
4. I have been practising my profession for over eight years.
5. I have no direct or indirect interest, nor do I expect to receive any interest directly or indirectly in this property or securities of Leemac Mines Ltd. (N.P.L.).
6. This report is based on my personal visit to the property and from the published geological literature.

Vancouver, British Columbia  
January 22, 1970

S Venkataramani, M.Sc.CPG.

*S Venkataramani*

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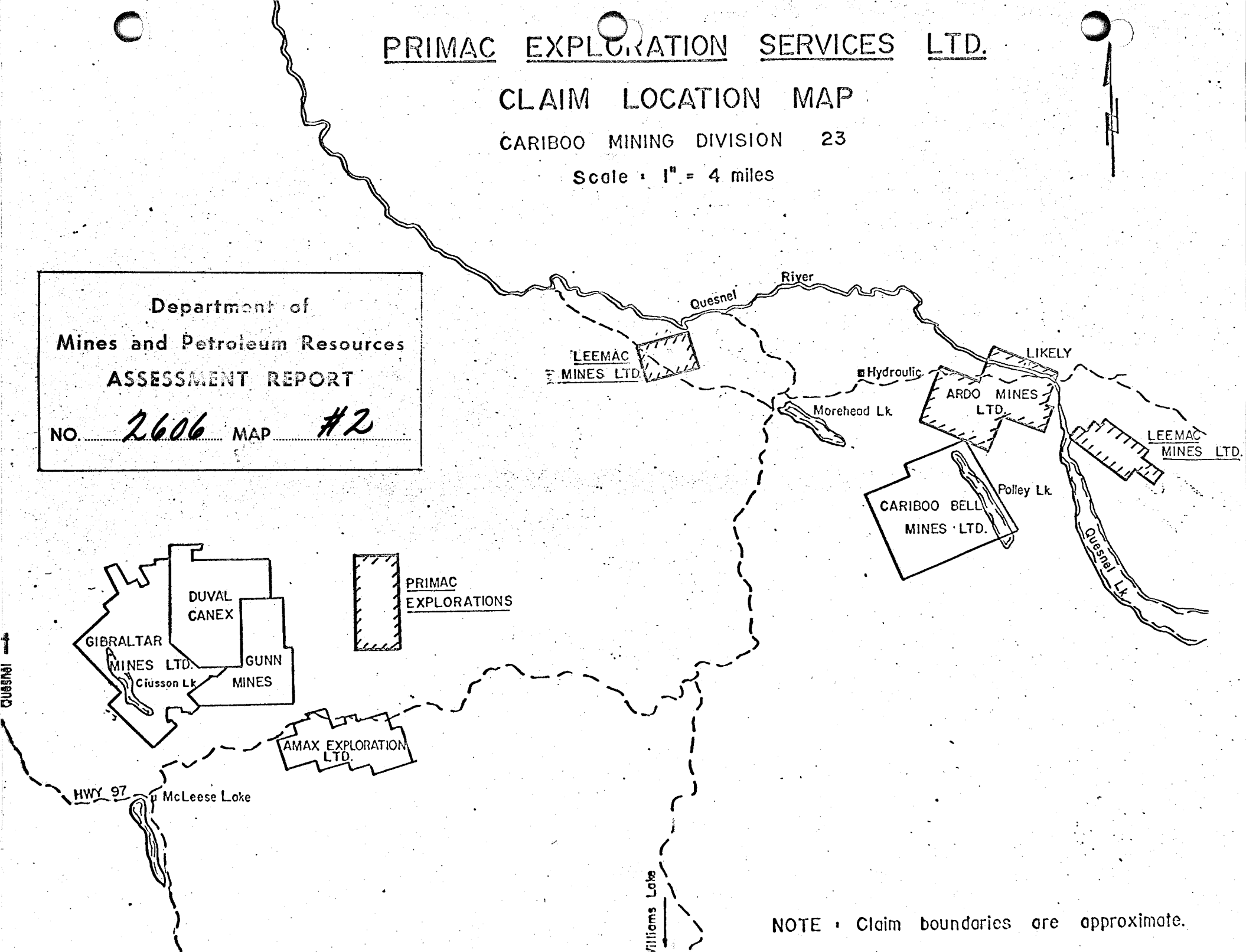
## CLAIM LOCATION MAP

CARIBOO MINING DIVISION 23

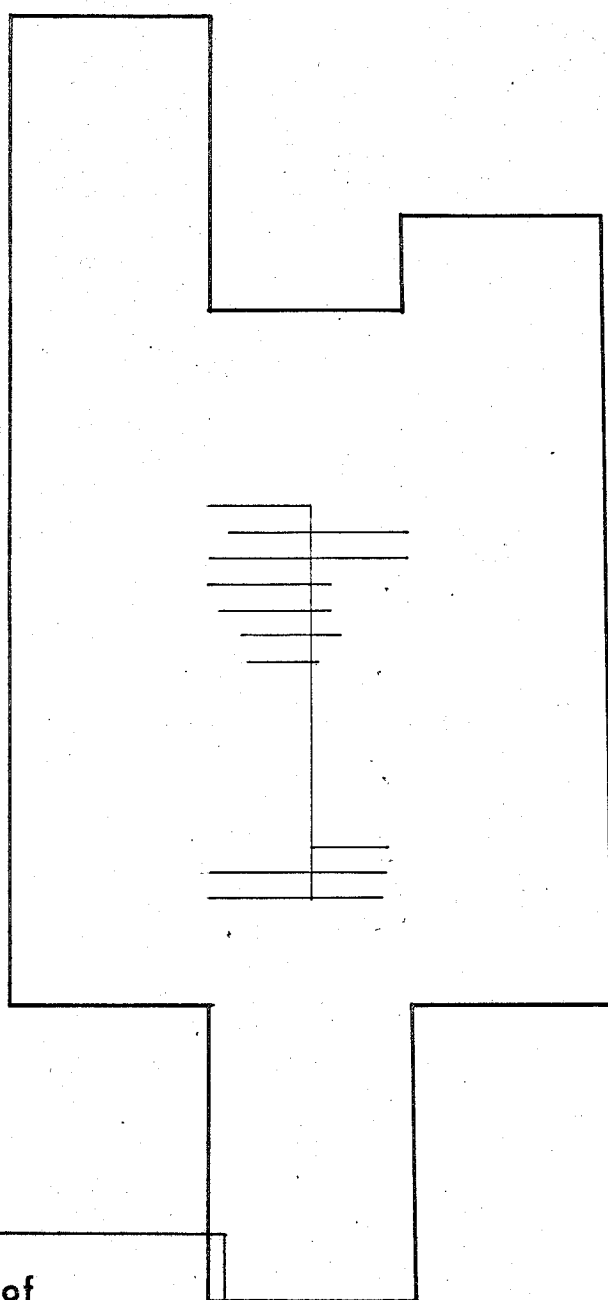
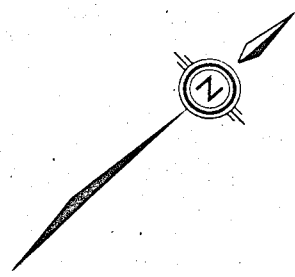
Scale : 1" = 4 miles

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NO. 2606 MAP #2



NOTE : Claim boundaries are approximate.



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NO. 2606 MAP #3

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**GRID LOCATION**

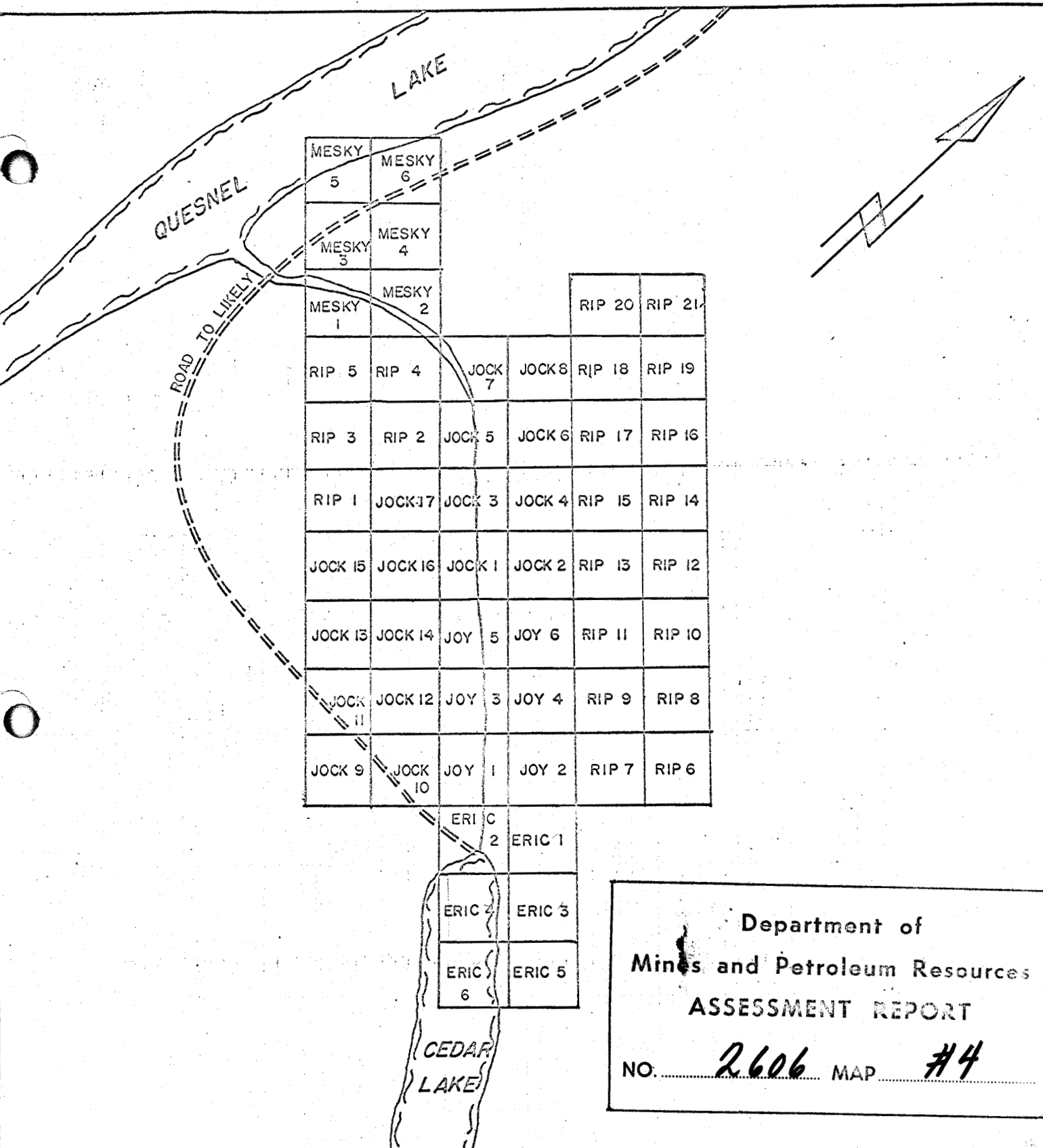
MESKYY, JOY, JOCK, RIP & ERIC CLAIMS

LIKELY AREA  
CARIBOO M.D., B.C.

SCALE  
FEET 3000 0 3000 6000 FEET

PRIMAC EXPLORATION SERVICES LTD.

AUGUST, 1970



# LOCATION MAP

MESKYY, JOY, JOCK, RIP & ERIC CLAIMS

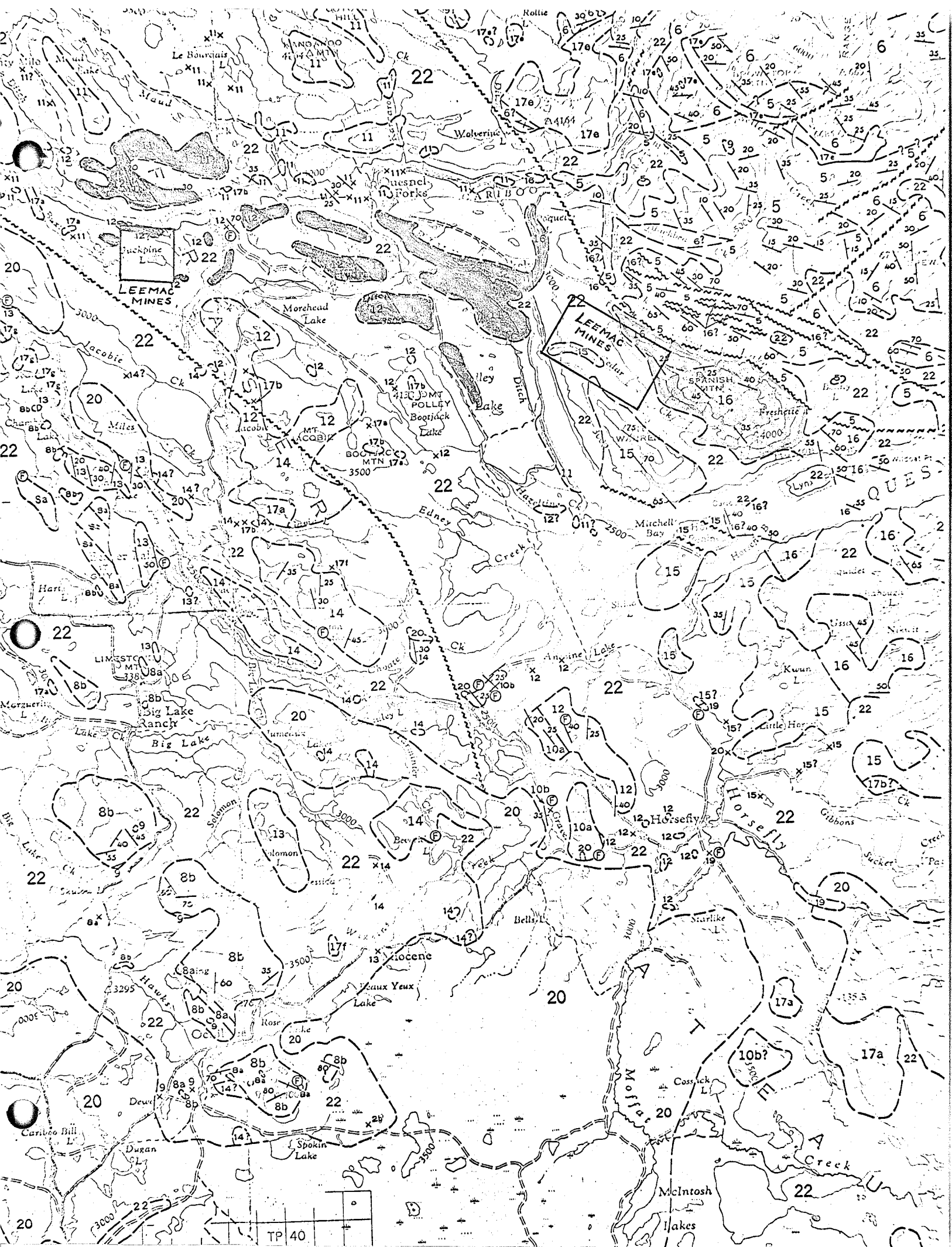
LEEMAC MINES LTD.

LIKELY AREA  
CARIBOO M.D., B.C.

PRIMAC EXPLORATION SERVICES LTD.

SCALE 1" = 3000'





# LEGEND

## QUATERNARY

### PLEISTOCENE AND RECENT

- 22 Glacial deposits and recent alluvium; till, gravel, sand, silt, and clay; few if any bedrock exposures

### TERTIARY AND QUATERNARY PLEISTOCENE AND EARLIER

- 21 Basaltic breccia and tuff; minor flows

### TERTIARY MIOCENE AND/OR LATER

- 20 Basaltic flows; minor tuff, conglomerate, and sandstone

### PALEOCENE (?) TO MIOCENE (?)

- 19 Sandstone, shale, and tuff

### PALEOCENE AND/OR EOCENE

- 18 Brown and buff rusty weathering dacite and rhyolite

## JURASSIC AND/OR CRETACEOUS AND (?) EARLIER

- 17 17a, hornblende-biotite and biotite-quartz monzonite and granodiorite, minor hornblende-biotite syenite and monzonite; 17b, hornblende-biotite syenite and monzonite; 17c, hornblende diorite; 17d, muscovite granite and quartz monzonite including pegmatite; 17e, gneissose biotite granodiorite, altered and gneissose diorite, and augen granite (part of unit 17e may be Palaeozoic); 17f, trachyte porphyry (may be volcanic); 17g, green andesite and fine-grained diorite (may be volcanic)

## JURASSIC (?) AND CRETACEOUS (?)

### MIDDLE JURASSIC (?) TO CRETACEOUS (?)

- 16 Green andesitic tuff, agglomerate, and flows; minor argillite, chert, and conglomerate

## JURASSIC

### MIDDLE (?) AND/OR UPPER (?) JURASSIC

- 15 Dark green pyroxene-bearing andesitic agglomerate, breccia, and flows; minor tuff; may be equivalent to unit 14

- 14 Green pyroxene-bearing andesitic agglomerate, breccia, and flows; minor tuff, argillite, and limestone; may be equivalent to unit 15

### LOWER JURASSIC (?)

- 13 Purplish brown, brown, and grey pebble and cobble conglomerate and sandstone; soft, friable, black and brown, carbonaceous shale, green shale; minor black limestone

### LOWER JURASSIC

- 12 'Purple' volcanic rocks; purplish brown, dark grey, and rarely green pyroxene-bearing andesitic agglomerate, breccia, and flow; may contain analcite near contacts with units 10 and 11; minor limestone, argillite, and conglomerate

## TRIASSIC AND/OR JURASSIC

### UPPER TRIASSIC AND/OR LOWER JURASSIC

(may include MIDDLE JURASSIC)

- 11 Green pyroxene bearing andesitic flows, agglomerate, and breccia; conglomerate, argillite, and limestone

## TRIASSIC

### UPPER TRIASSIC

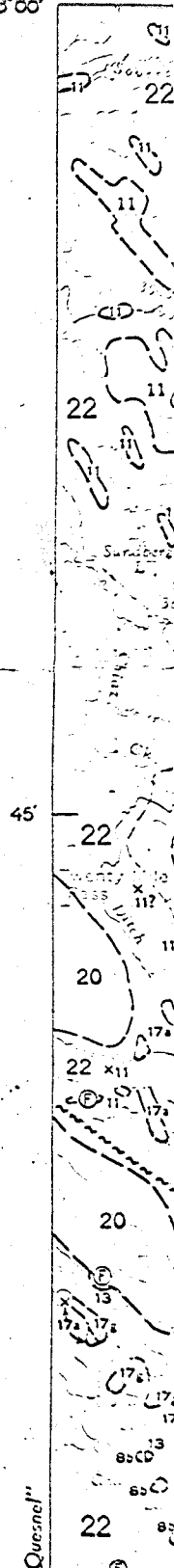
- 10 10a, green and purplish brown pebble and cobble conglomerate and sandstone; 10b, green andesitic volcanic rocks, andesitic

CENOZOIC

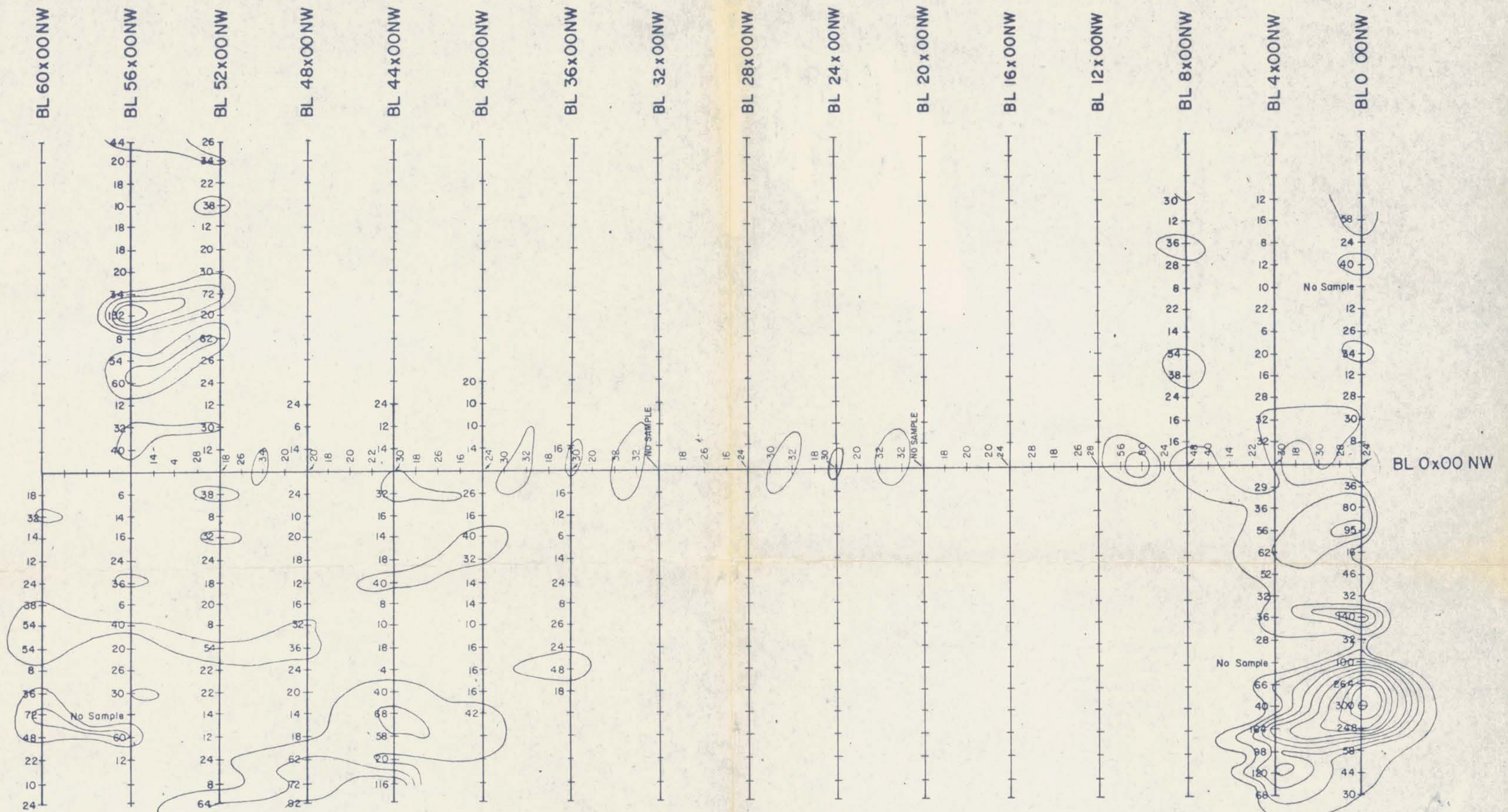
MESOZOIC

PRELIM

122° 00'  
53° 00'







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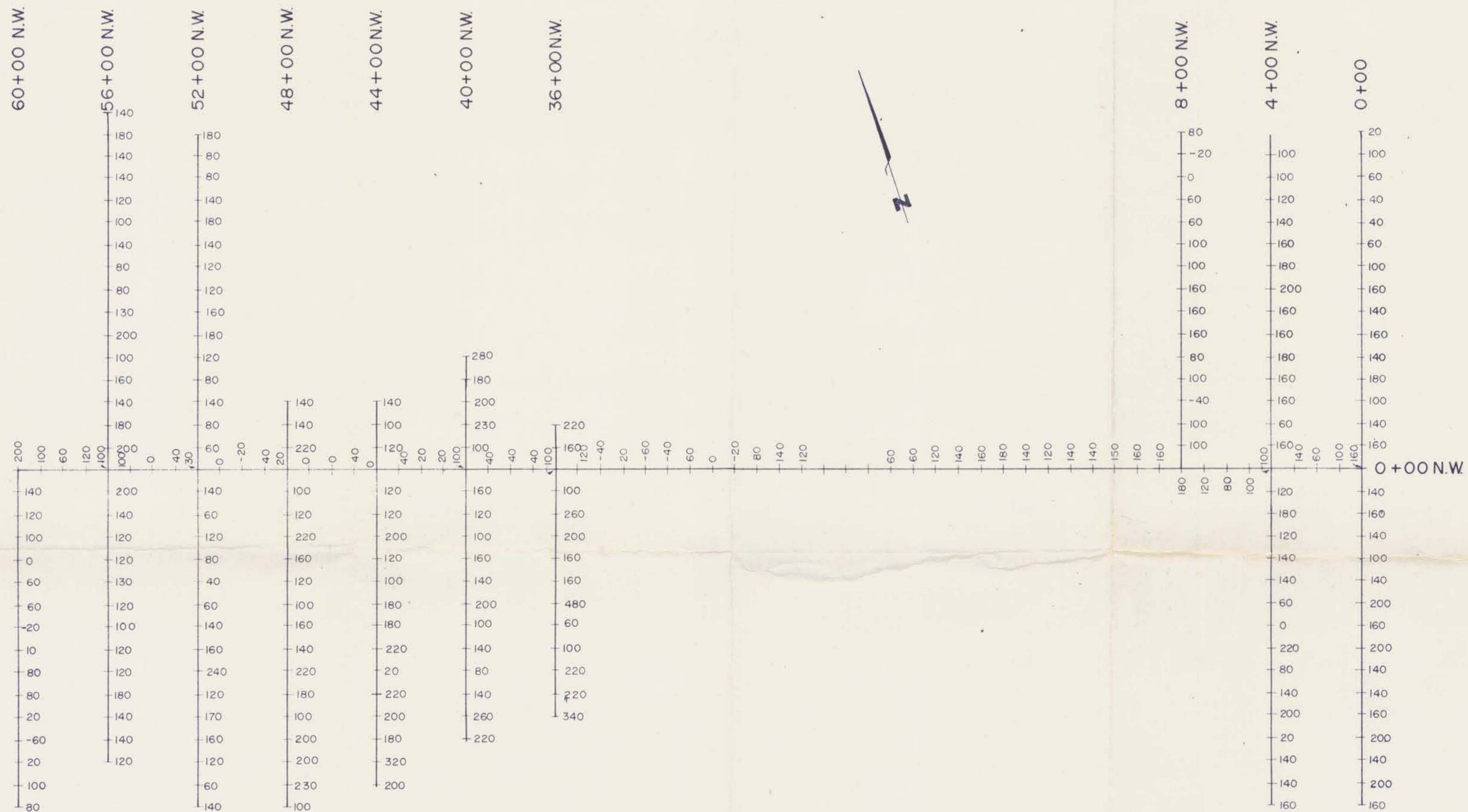
2606

LEEMAC MINES LIMITED (N.P.L.)

CEDAR CREEK,  
CARIBOU MINING DISTRICT, B.C.  
GEOCHEMICAL SURVEY PLAN

|                   |                       |
|-------------------|-----------------------|
| SCALE: 1" = 400'  | DRAWN BY: D. ELMS     |
| C.I. (Cu) = 30ppm | DATE: SEPTEMBER, 1969 |





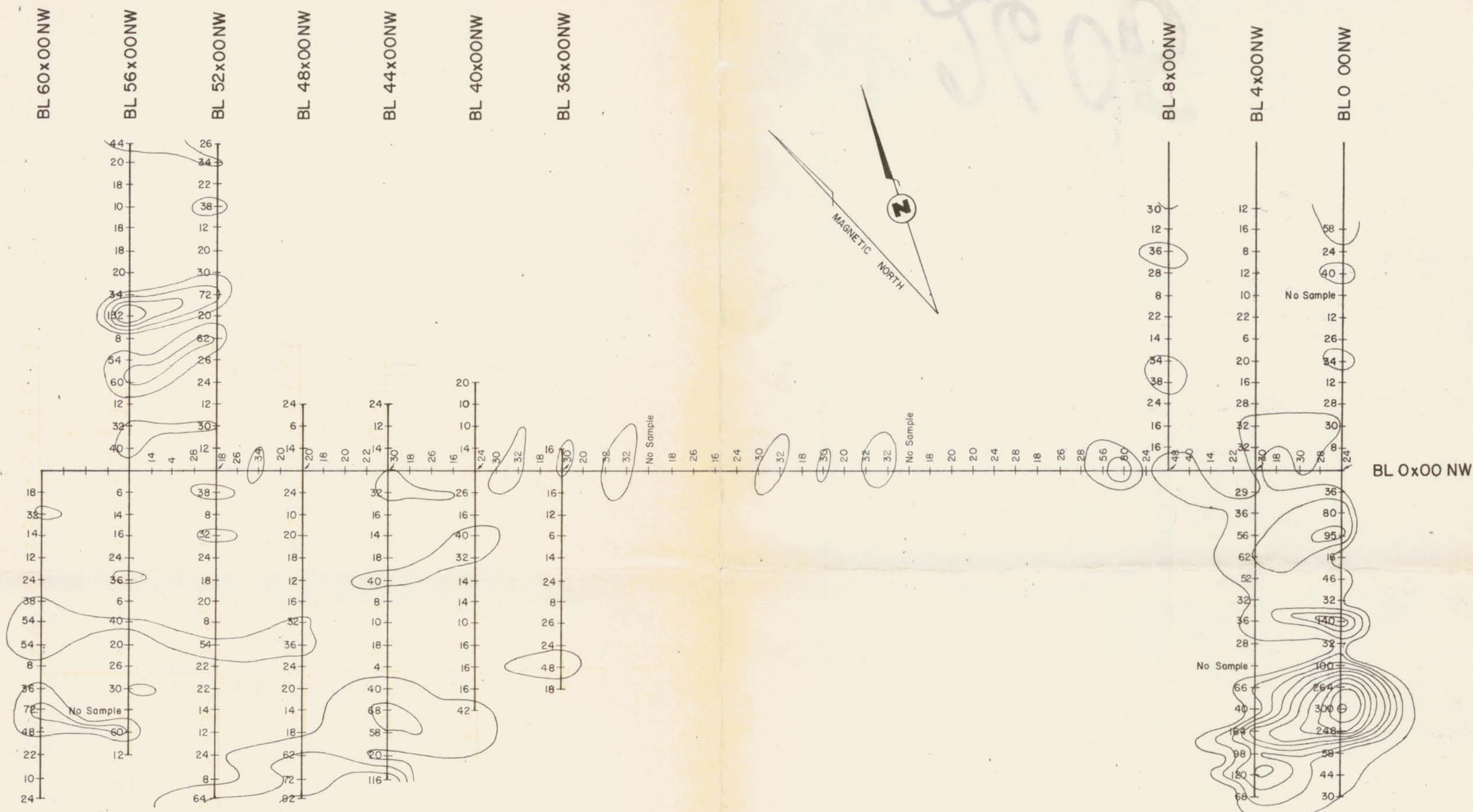
Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 2606 MAP #7

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CEDAR CREEK - LIKELY AREA  
CLAIM MAP  
CARIBOU MINING DISTRICT, B.C.  
MAGNETOMETER SURVEY PLAN  
BY PRIMAC EXPLORATION SERVICES

SCALE: 1" = 400'  
C.I. =  
DRAWN BY: D. ELMS  
DATE: NOVEMBER, 1969





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NO. 2606 MAP #6

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CEDAR CREEK,  
CARIBOU MINING DISTRICT, B.C.  
GEOCHEMICAL SURVEY PLAN

SCALE: 1" = 400'  
C.I. (Cu) = 30ppm

DRAWN BY: D. ELMS  
DATE: SEPTEMBER, 1969