

# 4290

1043/QW

GEOLOGICAL AND GEOCHEMICAL SURVEY

of the

G.P. MINERAL CLAIMS

ARCTIC LAKE

LIARD MINING DIVISION

Lat. 57°13'N

Long. 130°52'W

for

Department of Mines and Petroleum Resources ASSESSMENT REPORT No. <b>4290</b> MAP.....
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PHELPS DODGE CORPORATION OF CANADA LTD.

<u>Claim Name</u>	<u>Record Number</u>
G.P. 1 - 30	67922 - 67951

by

G. B. Phelps, P.Eng.

ATLED EXPLORATION MANAGEMENT LTD.  
Vancouver, B. C.

April, 1973

NTS 104G

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Figure 1 Location Map	After Page 1

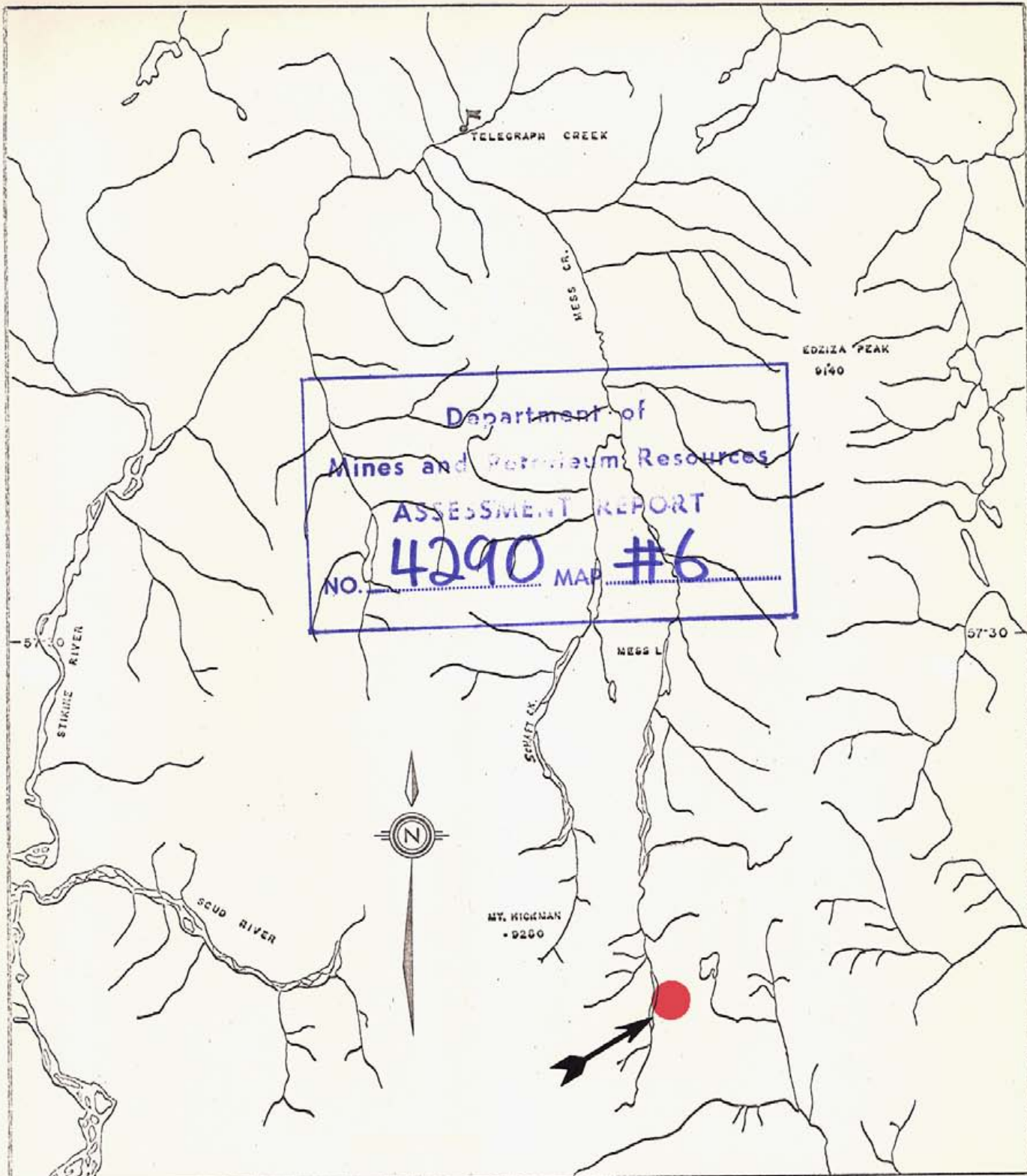
## INTRODUCTION

The G.P. group consists of 30 claims located two miles southwest of Arctic Lake, B. C. Atled Exploration Management Ltd. conducted a preliminary geological and geochemical survey on the claims over a 14 day period. This survey was at the request of Phelps Dodge Corporation of Canada Ltd.

## SUMMARY

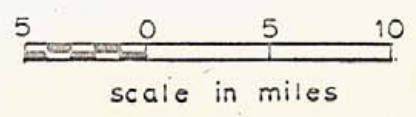
The geological and geochemical survey located significant copper mineralization and two large anomalous areas. Numerous outcrops contain tetrahedrite, chalcophyrite and minor bornite with secondary azurite and malachite.

Two anomalous areas are located north and south of the main mineralized zone. The strike of the two anomalies and main mineralized zone roughly parallels the contact of the adjacent granitic intrusive. It has not been determined if the anomalous areas are extensions of the mineralized area. A more detailed geochemical and geological survey is required. Much of the area is covered by glacial debris, but preliminary geological mapping has shown widespread copper mineralization. Detailed mapping is necessary to determine the full extent and continuity of the mineralization.



PHELPS DODGE CORPORATION  
 of CANADA LTD.  
 SCHAFT CREEK B.C.  
 GP CLAIMS  
 PROJECT 129  
 LIARD MINING DIVISION

LOCATION MAP



### CONCLUSION

An additional work programme is definitely warranted. Detailed geochemical and geological surveys should be conducted over the mineralized and anomalous areas. Other mineralized areas on the claims warrant further investigation.

A magnetometer survey should determine the location of the sediment-intrusive contact under the concealed areas.

### GEOGRAPHY

#### Location

The G.P. group is located 19 miles southeast of Schaft Creek, B. C., and 57 miles south of Telegraph Creek. The claims are on a high plateau, on the east side of Mess Creek, two miles southwest of Arctic Lake.

Co-ordinates are 57°13' north latitude, 130°52' west longitude.

#### Access

Access to the claim area is by regularly scheduled air service to Schaft Creek. A helicopter is based at Schaft Creek airstrip. The helicopter can transport and supply the survey party camp from Schaft Creek.

Topography

The Arctic Lake region is an area of low relief at an elevation of 4,500 to 5,000 feet. The western edge of the plateau descends very steeply approximately 1,000 feet into the Mess Creek Valley.

All of the claims area is above the tree line, and is easily traversed although glacial debris covers much of the bedrock.

The Mess Creek fault scarp on the west side of the claims is very steep, and the rugged topography hinders detailed work.

The climate is cold. The best time for exploration is during July, August and early September. Some snow remains all year, and much of the area is still snow covered through June.

Water

There are several small ponds and a lake on the claim group so there is ample water for any future drilling requirements.

CLAIMS

Thirty claims were staked in August, 1972. They were recorded on September 1, 1972.

<u>Claims</u>	<u>Record Number</u>	<u>Expiry Date</u>
G.P. 1 - 30	67922 - 67951	September 1, 1973

### GEOLOGY

The G. P. claims lie on the west side of a granitic intrusive. The intrusive varies in composition from granite to quartz monzonite, but is a leucogranite in the G. P. claim area. The granite is medium to coarse grained and very low in mafic minerals. This unit has been classified as Jurassic and/or Cretaceous in age by the G.S.C.

Tertiary basalt flows cover the intrusive and other units to the east on claims G. P. 8, 10, 12, 30.

Limestone and dolomite units lie west of the intrusive, but the contact has not been examined. According to the G.S.C. these limestones and dolomites are Permian in age.

Jurassic shale and arkose units overlying the limestone occur on G. P. 19 west of the intrusive and on G. P. 1 and 2.

Jurassic arkose and conglomerate with some volcanic units outcrop on G. P. 1 and 2 and on the claims to the north. Amygdaloidal basalt and conglomerate occur on the west side of the claims of G. P. 4 and 6. These units are based on preliminary mapping. More geological mapping is required to differentiate these units and determine the exact age relationships.

Outcrops are not extensive because a cover of glacial debris conceals much of the area, and not all the area was examined due to time limitations. Significant amounts of mineralization were found on many of the outcrops examined, although the area has not been mapped in detail.

Copper mineralization occurs as grains and blebs of tetrahedrite, chalcopyrite and rarely bornite in limestone and dolomite and in brecciated areas. Azurite and malachite occur in weathered outcrops.

#### GEOCHEMICAL SURVEY

##### Survey Completed

A geochemical soil and silt sampling programme was conducted simultaneously with the geological mapping. A total of 25 silt and 85 soil samples were taken. The samples were analysed for copper, lead and zinc. The anomalous zinc samples were also analysed for silver.

Method of Analysis: Instrumental - Atomic  
Absorption

Extraction:  $\text{HClO}_4$  and  $\text{HNO}_3$

Detection: Techtron AA<sub>4</sub> and AA<sub>5</sub>

The area of known copper mineralization was not sampled since the purpose of the preliminary survey was to locate new anomalous areas.



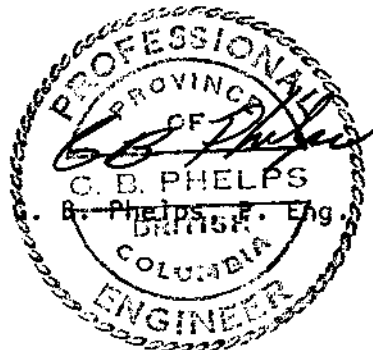
Survey Results

Two new anomalous areas were found which may be extensions of the main mineralized zone. Anomalous values were set at +60 p.p.m. for copper, 200 p.p.m. for zinc, + 40 p.p.m. for lead and + 0.4 p.p.m. for silver.

The main mineralized area and the two anomalies strike about N15°E. It is roughly parallel to the strike of the granite contact. The anomalous areas on the two base lines are over 2,000 feet long. The strike length of the two anomalies and main mineralized area is over one mile. A detailed survey is necessary to establish continuity between them.

There is little mobilization of the metal ions in this area because of the alkaline soil and long winters. The ground here may be frozen for nine months. Therefore, these anomalous samples probably indicate mineralization very close to the sample area. A detailed geochemical survey with close sample spacing will be necessary in this type of environment. The survey should be run with grid line spacing initially at 400 feet and sample spacing at 200 feet. Additional detailing may be necessary.

Respectfully submitted,



DOMINION OF CANADA:  
PROVINCE OF BRITISH COLUMBIA.  
To Wit:

In the Matter of COSTS INCURRED IN COMPLETION OF THE  
EXPLORATION PROGRAM REPORTED IN GEOLOGICAL AND GEOCHEM-  
ICAL SURVEY OF THE GP MINERAL CLAIMS, ARCTIC LAKE B.C.  
LIARD MINING DIVISION, APRIL, 1973

I, PAT HENRY

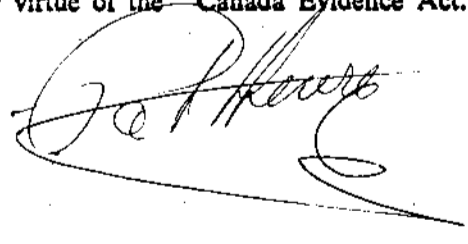
of VANCOUVER, B.C.

in the Province of British Columbia, do solemnly declare that THE FOLLOWING ARE THE MINIMUM EXPENDITURES  
INCURRED IN CARRYING OUT THE EXPLORATION PROGRAM.

PERSONNEL			
P. Henry -	14 days @ \$50/day	\$ 700.00	
G. Delisle -	14 days @ \$50/day	700.00	
K. Buchanan-	2 days @ \$75/day	<u>150.00</u>	\$ 1,550.00
FOOD AND ACCOMMODATION			
30 man days	@ \$12/day		360.00
TRANSPORTATION			
B2 Helicopter V.I.H.	12 hours @ \$150/hour		1,800.00
ASSAYING & ANALYSES			
110 samples Cu, Zn, Pb, Ag		\$ 242.00	
200 samples total basemetals		<u>200.00</u>	442.00
REPORT AND MAP PREPARATION			
			<u>650.00</u>
			<u>\$ 4,802.00</u>

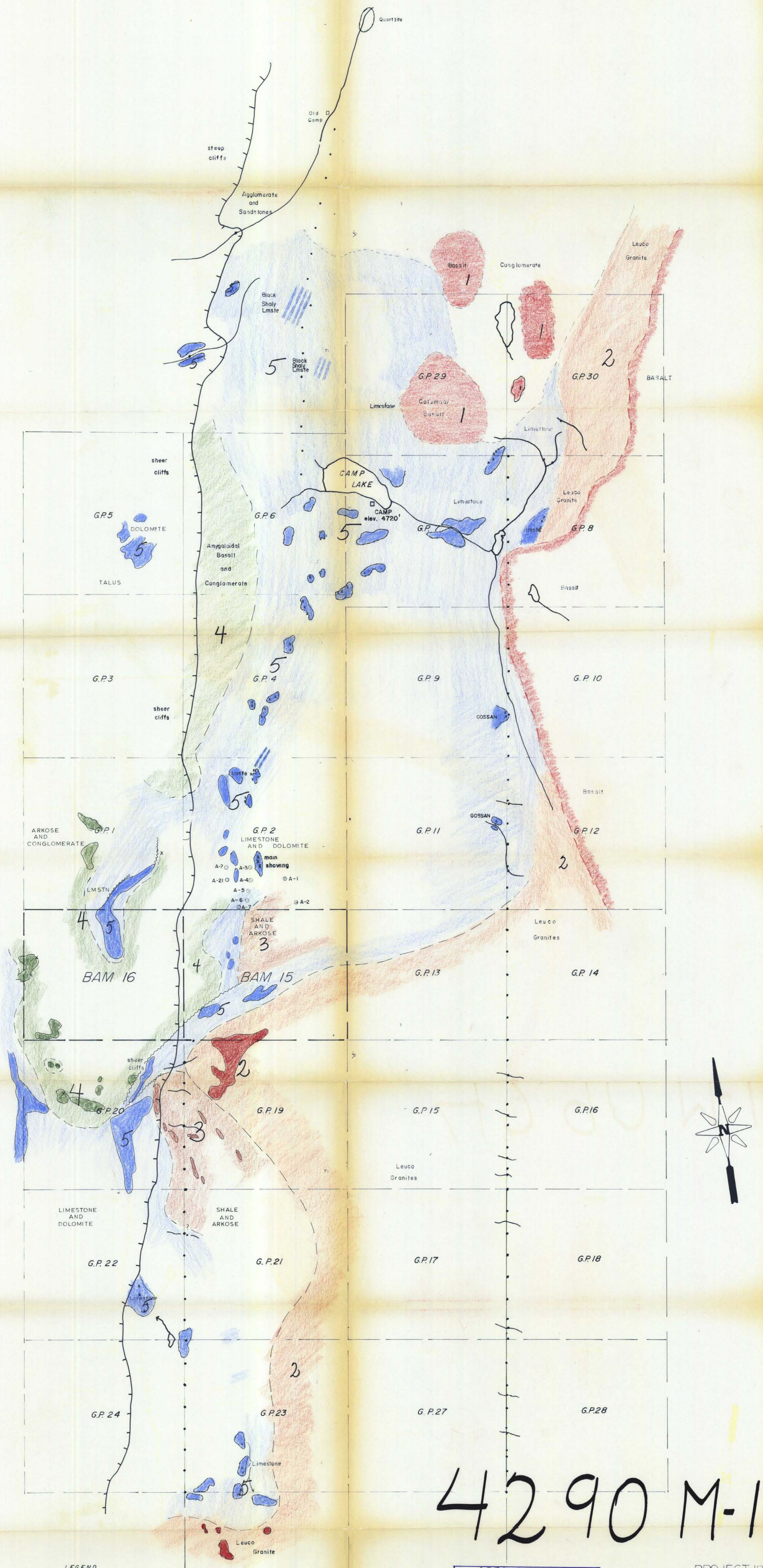
And I make this solemn declaration conscientiously believing it to be true, and knowing that it is of  
the same force and effect as if made under oath and by virtue of the "Canada Evidence Act."

Declared before me at the City  
of Vancouver, in the  
Province of British Columbia, this 11  
day of May 1973, A.D.



John J. ...  
A Commissioner for taking Affidavits for British Columbia or  
A Notary Public in and for the Province of British Columbia.

Sub-mining Recorder



4290 M-1

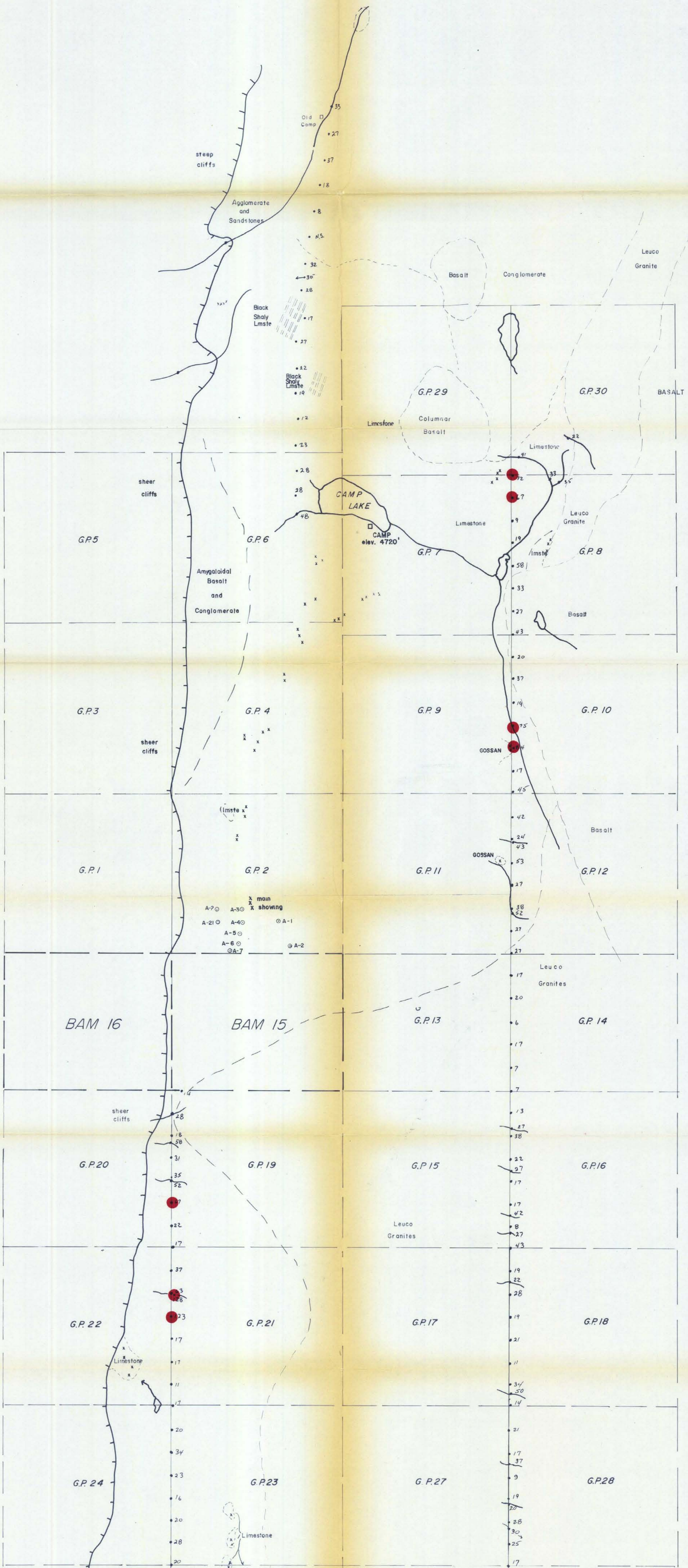
- LEGEND**
- At, D.D.H.
  - xx MINERALIZATION Tetrahedrite Chalcopyrite
  - SOIL SAMPLE
  - SILT
  - STEEP CLIFFS
  - Tertiary — BASALT
  - Jurassic - Cretaceous — LEUCOGRANITE
  - Jurassic — SHALE AND ARKOSE
  - Jurassic — ARKOSE AND CONGLOMERATE
  - Jurassic — AMYGDALOIDAL BASALT AND CONGLOMERATE
  - Permian — LIMESTONE AND DOLOMITE

Rock Ages as Mapped by G.S.C. OPEN FILE No. 68



AREA 1  
 Department of  
**PHelps DODGE CORPORATION OF**  
 Mines and Technical Resources  
 ASSESSMENT REPORT CANADA  
 4290 #1 MESS CREEK, B.C.  
 Arctic Lake  
**PRELIMINARY GEOLOGY MAP**  
 LIARD MINING DIVISION N.T.S. 1046-  
 ATLED EXPLORATION MANAGEMENT LIMITED  
 DATE: OCT, 1972 DATA: j.p.a.  
 SCALE IN FEET  
 400 200 0 200 400 800

PROJECT 129



**LEGEND**

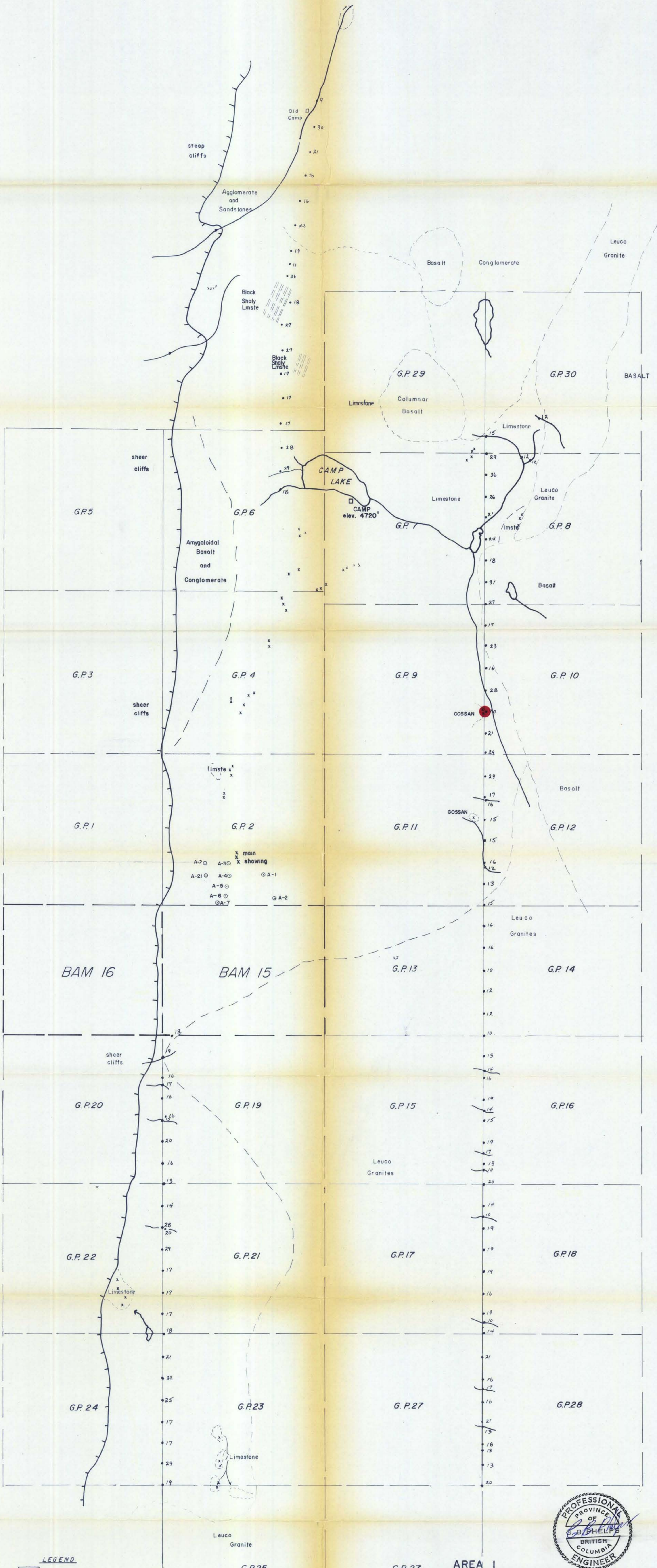
- At, D.D.H.
- xx MINERALIZATION Tetrahydrate Chalcopyrite
- SOIL SAMPLE
- SILT SAMPLE
- ANOMALOUS VALUE + 60 P.P.M.



Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 4290 MAP #2

PROJECT 129  
PHELPS DODGE CORPORATION OF  
CANADA  
MESS CREEK, B.C.  
Arctic Lake  
GEOCHEMICAL RECONNAISSANCE  
COPPER

LIARD MINING DIVISION  
ATLÉD EXPLORATION MANAGEMENT LIMITED  
DATE: OCT, 1972  
SCALE IN FEET  
400 200 0 200 400 800  
N.T.S. 1046-  
DATA: J.P.A.



- LEGEND**
- A1, D.D.H.
  - xx MINERALIZATION TETRAHEDRITE  
Chalcopyrite
  - SOIL SAMPLE
  - SILT SAMPLE
  - ANOMALOUS VALUE + 40 P.P.M.

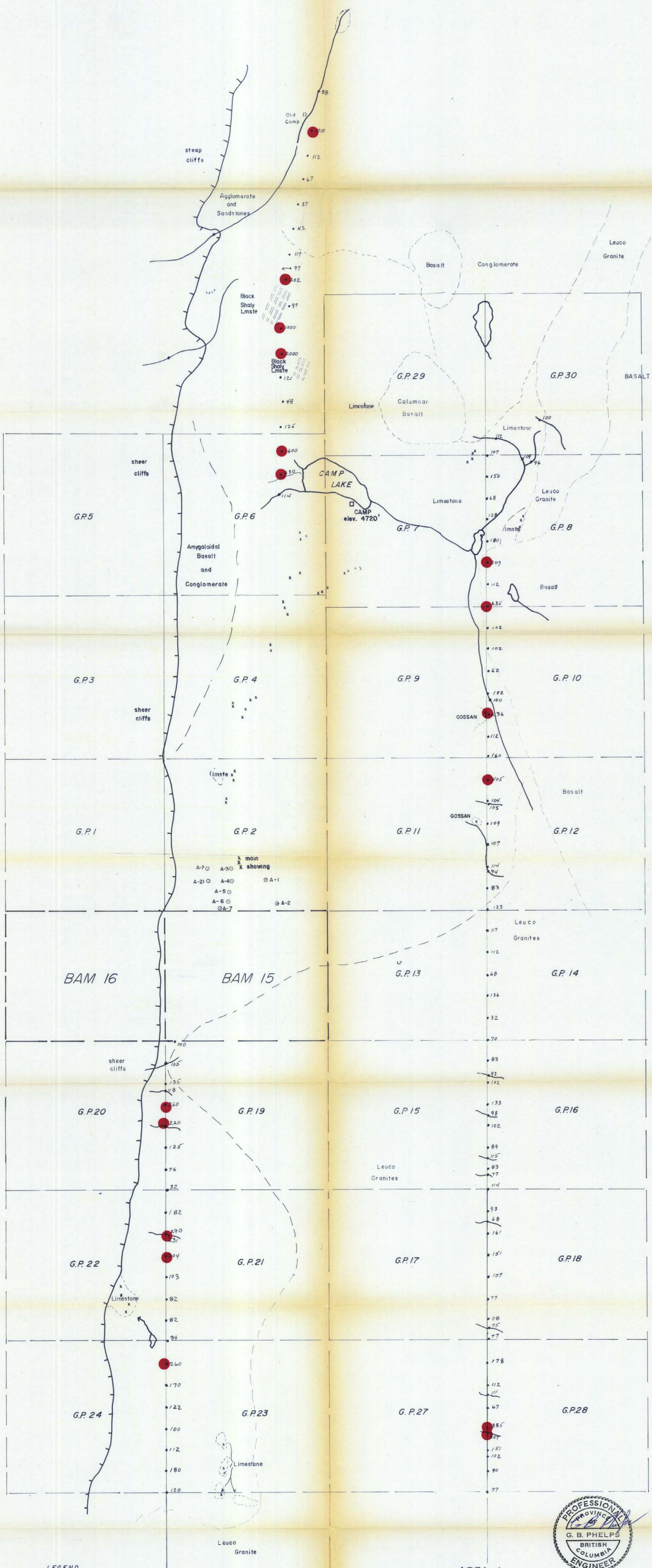
Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 4290 MRP #3



AREA 1  
**PHELPS DODGE CORPORATION OF CANADA**  
MESS CREEK, B.C.  
**Arctic Lake**  
GEOCHEMICAL RECONNAISSANCE  
**LEAD**

LIARD MINING DIVISION  
ATLÉD EXPLORATION MANAGEMENT LIMITED  
DATE: OCT, 1972  
N.T.S. 1046-  
DATA: j.p.R.





**LEGEND**

- At, D.D.H.
- xx MINERALIZATION TETRAHEDRITE Chalcopyrite
- SOIL SAMPLE
- ▭ SILT SAMPLE
- ANOMALOUS VALUE + 200P.P.M.

Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 4290 MAP #4

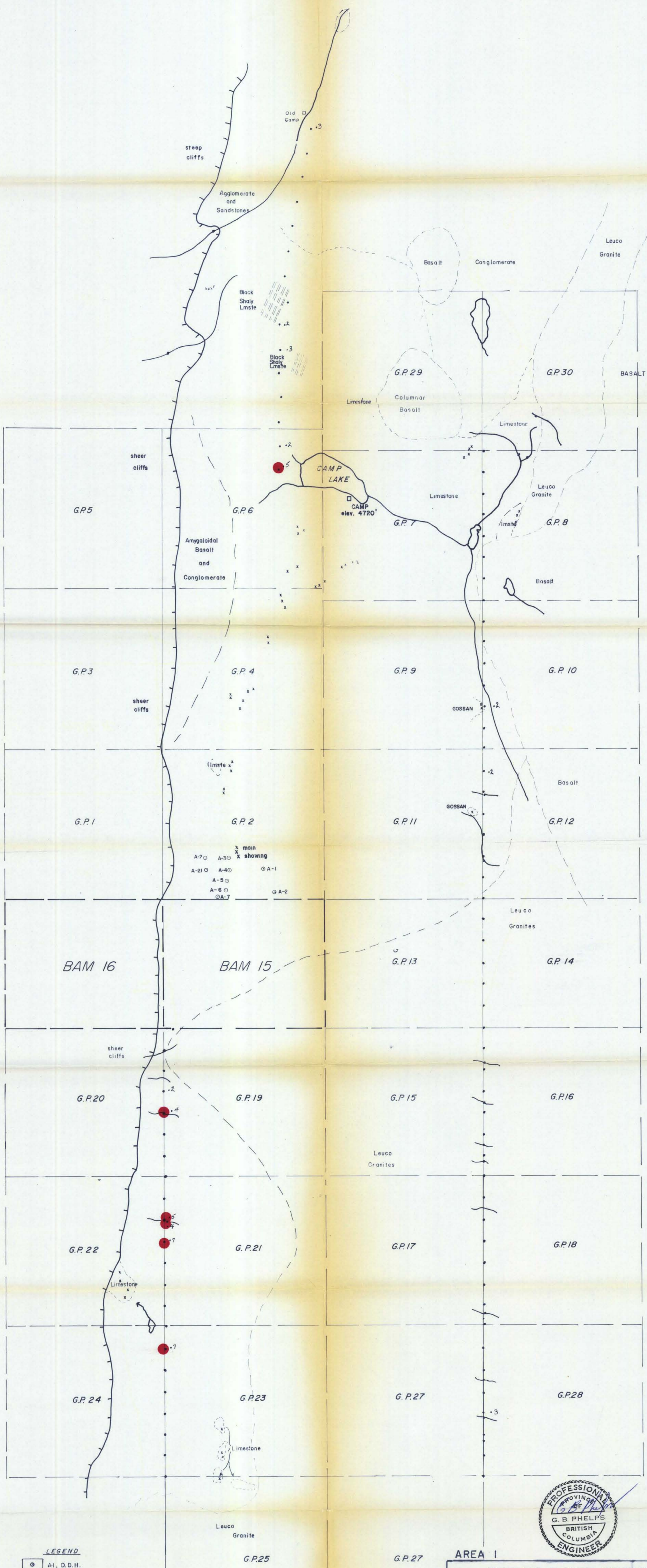


AREA I  
**PHELPS DODGE CORPORATION OF CANADA**  
MESS CREEK, B.C.  
**Arctic Lake**  
GEOCHEMICAL RECONNAISSANCE

PROJECT 129

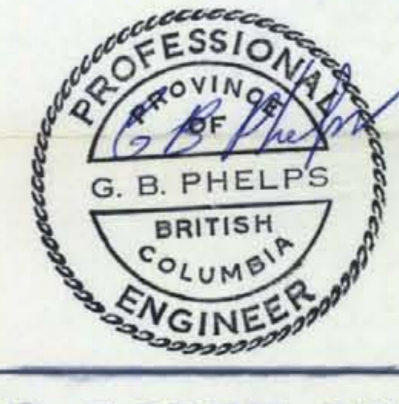
LIARD MINING DIVISION  
ATLÉD EXPLORATION MANAGEMENT LIMITED  
DATE: OCT, 1972  
N.T.S. 1048-  
DATA: J.P.A.





**LEGEND**

○	A-1, D.D.H.
xx	MINERALIZATION TETRAHEDRITE Chalcopyrite
•	SOIL SAMPLE
—	SILT SAMPLE
●	ANOMALOUS VALUE + .4 P.P.M.



Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 4290 MAP #5

AREA I  
**PHELPS DODGE CORPORATION OF CANADA**  
MESS CREEK, B.C.  
**Arctic Lake**  
GEOCHEMICAL RECONNAISSANCE  
**SILVER**

LITARD MINING DIVISION  
ATLIED EXPLORATION MANAGEMENT LIMITED  
DATE: OCT, 1972  
SCALE IN FEET  
400 200 0 200 400 800  
N.T.S. 1046-  
DATA: j.p.a.

PROJECT 129