

2336

GEOLOGICAL
AND
GEOCHEMICAL REPORT

JULY 10, 1969 - JULY 22, 1969.

ON

THE LINDA CLAIM GROUP

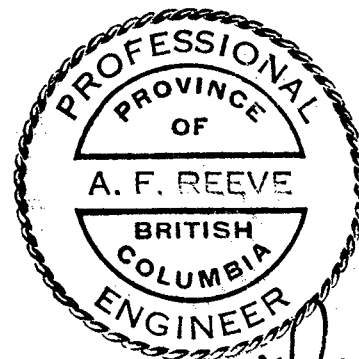
Kechika Area (NTS 94 L)
Liard Mining Division, British Columbia
58°00' N, 127°00' W, SE
Ten miles south of the confluence
of
Jackstone and Frog Rivers

BY

A. F. Reeve, P. Eng.

CORDILLERAN ENGINEERING LIMITED
1418 - 355 Burrard Street
Vancouver 1, B. C.

MARCH, 1970.



A. F. Reeve

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APPENDICES

APPENDIX "A" ILLUSTRATIONS:

Bound in report:

#1 Figure 1: Location Map, Frontispiece 250 mi = 1 "

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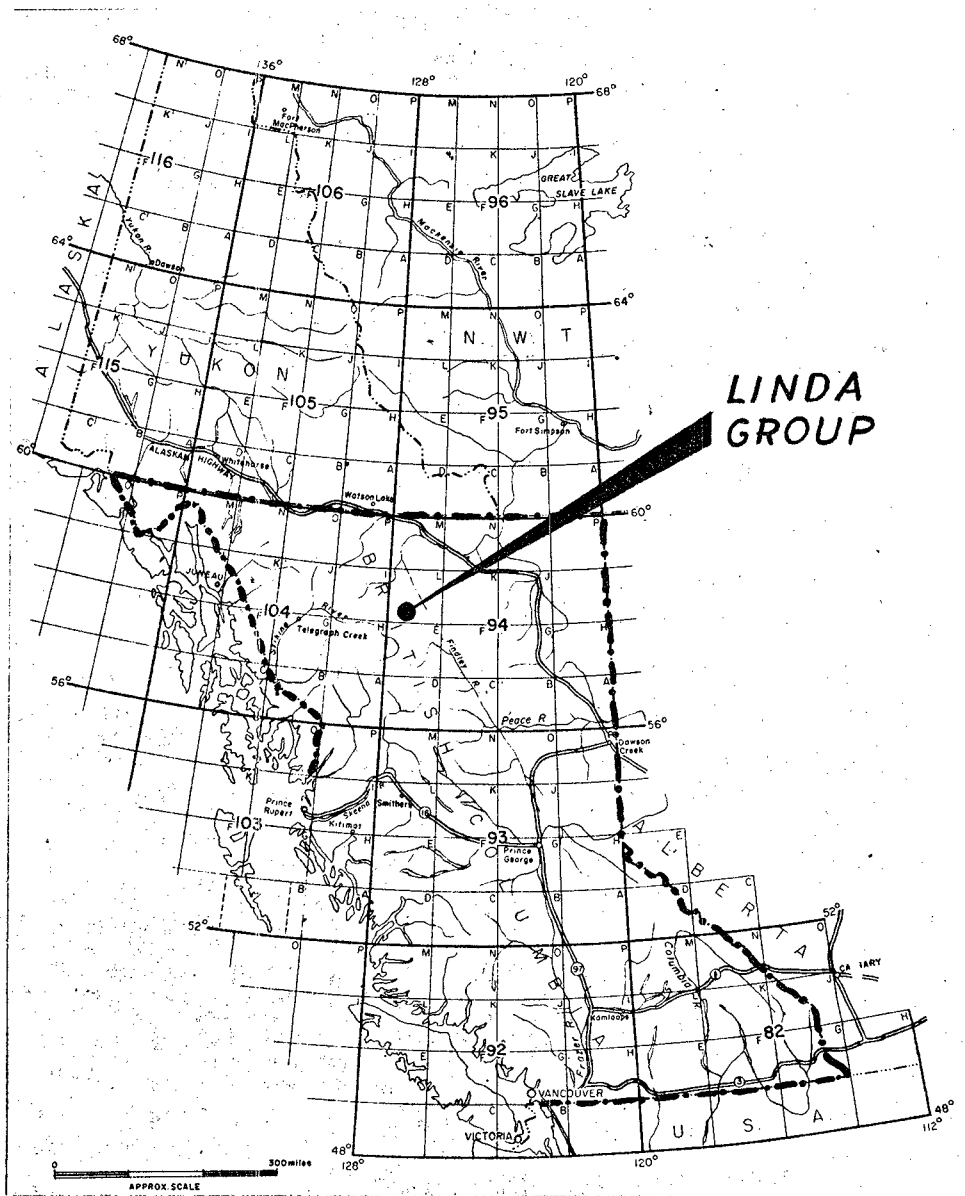
#2 Figure 2: Geology 400' = 1"
#3 Figure 3: Silver Content of Soil 400' = 1"
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Department of
Mines and Petroleum Resources
ASSESSMENT REPORT

NO. **2336** MAP.....



LOCATION MAP

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 1418 - 355 BURRARD ST.
 VANCOUVER 1, B. C.

MARCH, 1970

INTRODUCTION

This report describes the results of geological and geochemical investigations on the Linda lead-zinc-silver prospect. The work was conducted on behalf of Quebec Cartier Mining Company by Cordilleran Engineering Limited. Two men worked thirteen days on the property, from July 10, 1969 to July 22, 1969. The data are summarized on maps in the back cover pocket.

The report is submitted to the British Columbia Department of Mines to fulfill assessment requirements for 17 claims for 1 year from August 1, 1970.

PROPERTY

Name and No. of Claims	- Linda #1 - 17
Owner	- Cordilleran Engineering Limited
Date Recorded	- August 1, 1969.
Record Numbers	- 39074 - 39090
Assessment Anniversary	- August 1, 1970.

LOCATION

The prospect is located at 58°13' N and 127°09' W at the head of a small creek which flows easterly into Frog River in the Kechika Area (N.T.S. 94 L), Liard Mining Division, British Columbia.

HISTORY

This showing has been known for a number of years. There are two old and caved trenches totalling

HISTORY (Cont'd):

approximately 200 lineal feet, but no evidence of other work.

Eight stream sediment samples taken in 1968 from a three square mile drainage basin yielded anomalous metal values. This has been referred to as the "West Anomaly". Lead values ranged between 112 and 1500 ppm (regional background 35 ppm) and zinc 265 to 3500 ppm (background 175 ppm).

The Linda claims were staked in July, 1969 to protect the anomaly.

PHYSIOGRAPHY AND CLIMATE

The property is situated in a broad alpine meadow. Elevation on the claims range from 4500' to 6500' above sea level. The cirque meadow is bounded on the north, south and west by steep rock ridges. In the surrounding region exposed mountain ranges are drained by numerous fast-flowing, clear streams.

PHYSIOGRAPHY AND CLIMATE (Cont'd):

Temperatures range from -50° F to $+90^{\circ}$ F, and the precipitation is approximately 20" (5 feet of snow in the winter with frequent showers during the summer). The snow-free season is from beginning of June to the end of September.

1969 INVESTIGATIONS

Survey control on the claims was established by chained picket lines 400' apart, and aerial photographs.

Soil samples were taken at 200 foot intervals along the grid lines. Sampling density was increased where preliminary field tests showed high total heavy metal content.

A prospector's grub hoe was used to reach the enriched "B₁" horizon at an average depth of one foot. Samples of the finest material were hand-selected and bagged in numbered kraft paper sample bags. The samples were dried and analyzed in a field laboratory for total heavy metals; then for silver, lead, zinc, and manganese by the atomic

1969 INVESTIGATIONS (Cont'd):

absorption method in the laboratory of Bondar-Clegg and Co. Ltd., North Vancouver.

The geology was mapped by pace and compass traverses, tied to the picket line grid.

All results were summarized on maps at 1"=400' scale.

RESULTSREGIONAL GEOLOGY

The geology of the region is described on G.S.C. Map #42-1962, Kechika Sheet, by H. Gabrielse. The area in the general vicinity of the Linda prospect is occupied by a northwest trending belt of metasedimentary and volcanic rocks of Lower Paleozoic and Proterozoic age. These rocks lie along the east flank of the Cassiar Batholith (Cretaceous granodiorite, monzonite, diorite) and west of the Rocky Mountain Trench.

RESULTS (Cont'd):LOCAL GEOLOGY

(FIGURE 2)

The Linda property is underlain by biotite-sericite schist (phyllite), micaceous quartzite and granodiorite.

Mineralization consists of argentiferous galena, sphalerite, minor chalcopyrite, pyrite and pyrrhotite. A selected specimen assayed 13.22% Pb, 7.33% Zn and 3.5 oz/ton Ag. The best material is found in a 500' x 500' area where the overburden contains clusters of mineralized, frost-heaved boulders. The deposit appears to be controlled by tight folding and an easterly trending, steeply inclined fracture zone. In addition to the main showing on claim #9, sparse cubic pyrite, galena and fine manganese oxide occurs in the laminae of silicified biotite-sericite schists on claims #11, 13, 14 and 15. A fault exposed in the creek contains similar mineralization.

RESULTS (Cont'd):GEOCHEMISTRY

(FIGURES 3,4, 5 and 6)

A total of 464 soil samples were collected and analyzed for lead, zinc, silver and manganese. Metal content ranged from 17 to 12500 ppm Pb, 43 to 5200 ppm Zn, 0.4 to 11.0 ppm Ag and 0.85 to 175000 ppm Mn.

1. From the plotted and contoured values it is evident that the anomalous area is almost completely cut off by low geochemical response. Barren ridge outcrops lie immediately west and south of the anomaly.
2. The distribution of Pb, Zn, Ag and Mn values is generally correlative. This indicates that the manganese may at least partially act as a scavenger in accumulating Pb, Zn and Ag ions. However, it should be noted that:
 - a) High concentrations of Pb-Zn-Ag do not always correspond with high Mn, and
 - b) the showings on claim #9 include the manganese silicate rhodonite and consequently the manganese oxide pyrolusite.
3. The soil anomalies and mineralized outcrops extend from the main showing as follows:

RESULTS - Geochemistry (Cont'd):

- a) 2000' northeasterly along the strike of a fault,
- b) 1600' east,
- c) 1600' northeast, and
- d) 1600' southeast.

SUMMARY AND CONCLUSIONS

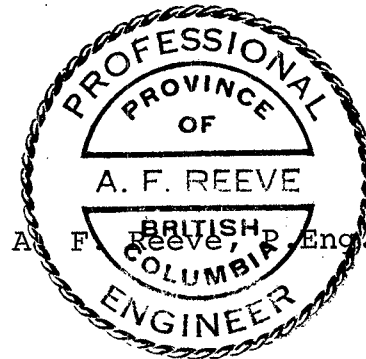
1. Mineral claims Linda #1-17 were acquired in 1969 to protect a lead-zinc-silver geochemical anomaly. The claims are located at $58^{\circ}13'$ N and $127^{\circ}09'$ W, ten miles south of the confluence of Jackstone and Frog Rivers.
2. Lead, zinc, silver and minor copper mineralization occur as lenses and in laminae of biotite-sericite schist, phyllite and micaceous quartzite.
3. Soil sampling produced a well defined Pb-Zn-Ag-Mn anomaly over 400' x 3000'.
4. Lateral extent of the anomaly is well marked but vertical continuity of the source is unknown. A vertical extension, however, is likely in the steeply inclined strata. For the deposit to be economic it is necessary that apparent grade improve considerably with depth.

RECOMMENDATION

It is recommended that an induced polarization survey be carried out to test the continuity of mineralization.

Respectfully submitted

CORDILLERAN ENGINEERING LIMITED



MARCH, 1970.

AFR/s

A handwritten signature in cursive script, identical to the one next to the seal, located in the bottom right corner of the page.

APPENDIX "B"

AFFIDAVIT IN

SUPPORT OF EXPENDITURES

Canada

Province of British Columbia

To Wit:

In the Matter of

The statement of expenditures for work performed on the Linda Group of mineral claims in the Liard Mining Division

I, Talis E. Kalnins, for Cordilleran Engineering Limited, of 1418 - 355 Burrard Street City of Vancouver in the Province of British Columbia.

Do Solemnly Declare that

Geological and geochemical investigation of the Linda Mineral claims was conducted under my supervision, July 10, 1969 - July 22, 1969.

The following costs were incurred:

Table with 2 columns: Description and Amount. Rows include Helicopter support, Food and living expenses, Geochemical analysis, Salaries (G. Smiley, P. Ngai), Office and drafting, and a TOTAL of \$2,541.00.

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 22nd day of April A.D. 19 70

[Handwritten signature]

[Handwritten signature: A. Jeannotte] A Notary Public in and for the Province of British Columbia A Commissioner for taking affidavits for British Columbia

Dated

19

In the Matter of

Statutory Declaration

Form No. Z 4 - 220

 WILLSON STATIONERS

APPENDIX "C"

WRITER'S CERTIFICATE

CORDILLERAN ENGINEERING LIMITED

1418-355 BURRARD STREET

VANCOUVER 1, B.C.

TELEPHONE: 681-8381

MINERAL EXPLORATION
MANAGEMENT AND
ENGINEERING CONSULTANTS— EASTERN OFFICE —
364 MCINTYRE STREET WEST
NORTH BAY, ONTARIO
705-474-3710WRITER'S CERTIFICATE

I, Albert F. Reeve, of Vancouver, B.C.
hereby certify that:

1. I am a geological engineer employed by Cordilleran Engineering Limited, of 1418, 355 Burrard Street, Vancouver.
2. I am a graduate of the Provincial Institute of Mining, Haileybury, Ontario, and received a Bachelor of Science degree in Geological Engineering from Michigan College of Mining & Technology, Houghton, Michigan, in 1961.
3. I am a certified member of the Association of Professional Engineers in the provinces of Ontario and British Columbia.
4. This report is based on field surveys undertaken on the Linda Claim group in July, 1969. The work was directed by T. E. Kalnins, B.Sc., geologist under my supervision.

CORDILLERAN ENGINEERING LIMITED



March, 1970.

APPENDIX "A"

ILLUSTRATIONS

<u>Figure 2:</u>	Geology	400'=1"
<u>Figure 3:</u>	Silver Content of Soil	400'=1"
<u>Figure 4:</u>	Lead Content of Soil	400'=1"
<u>Figure 5:</u>	Zinc Content of Soil	400'=1"
<u>Figure 6:</u>	Manganese Content of Soil	400'=1"

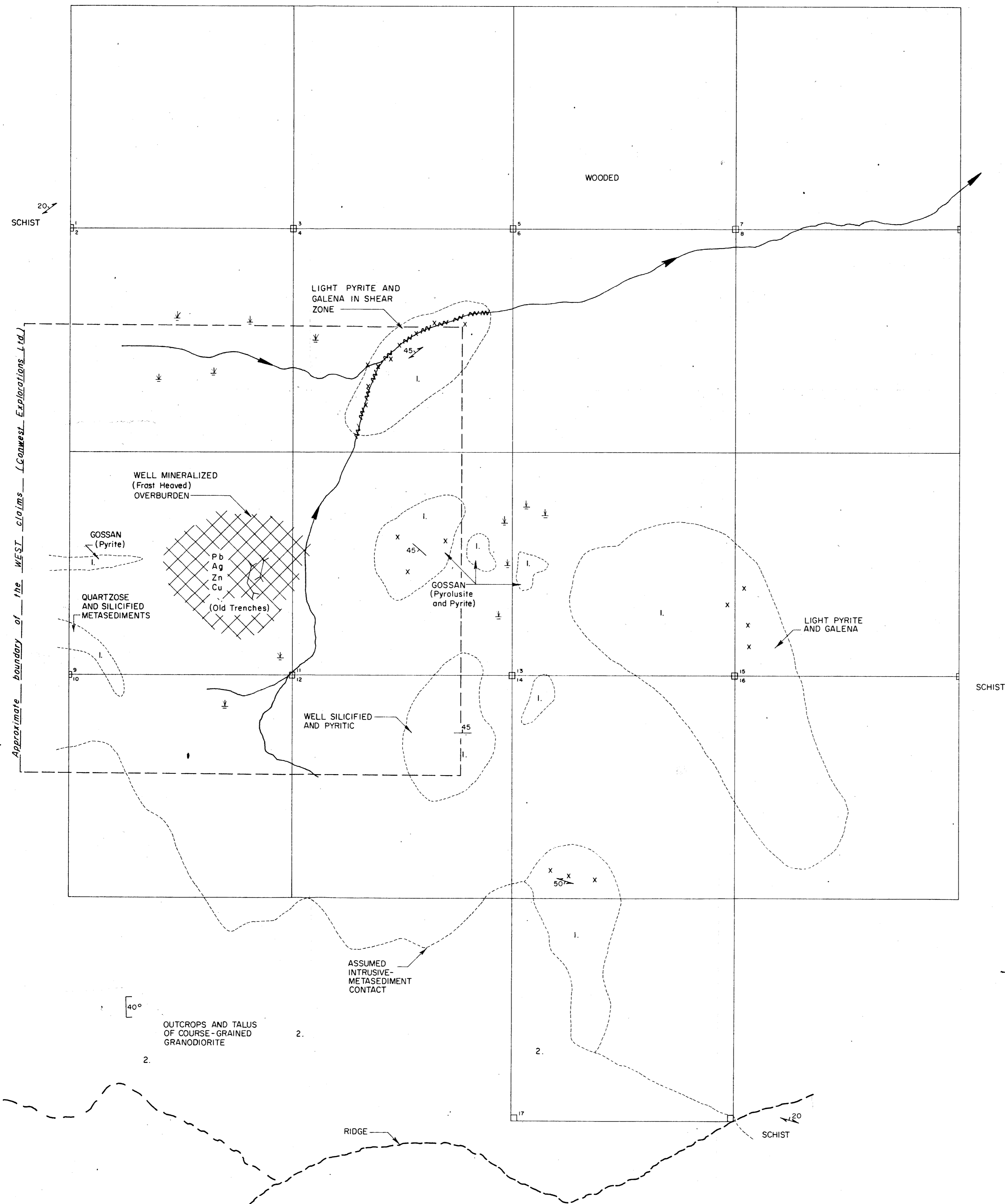
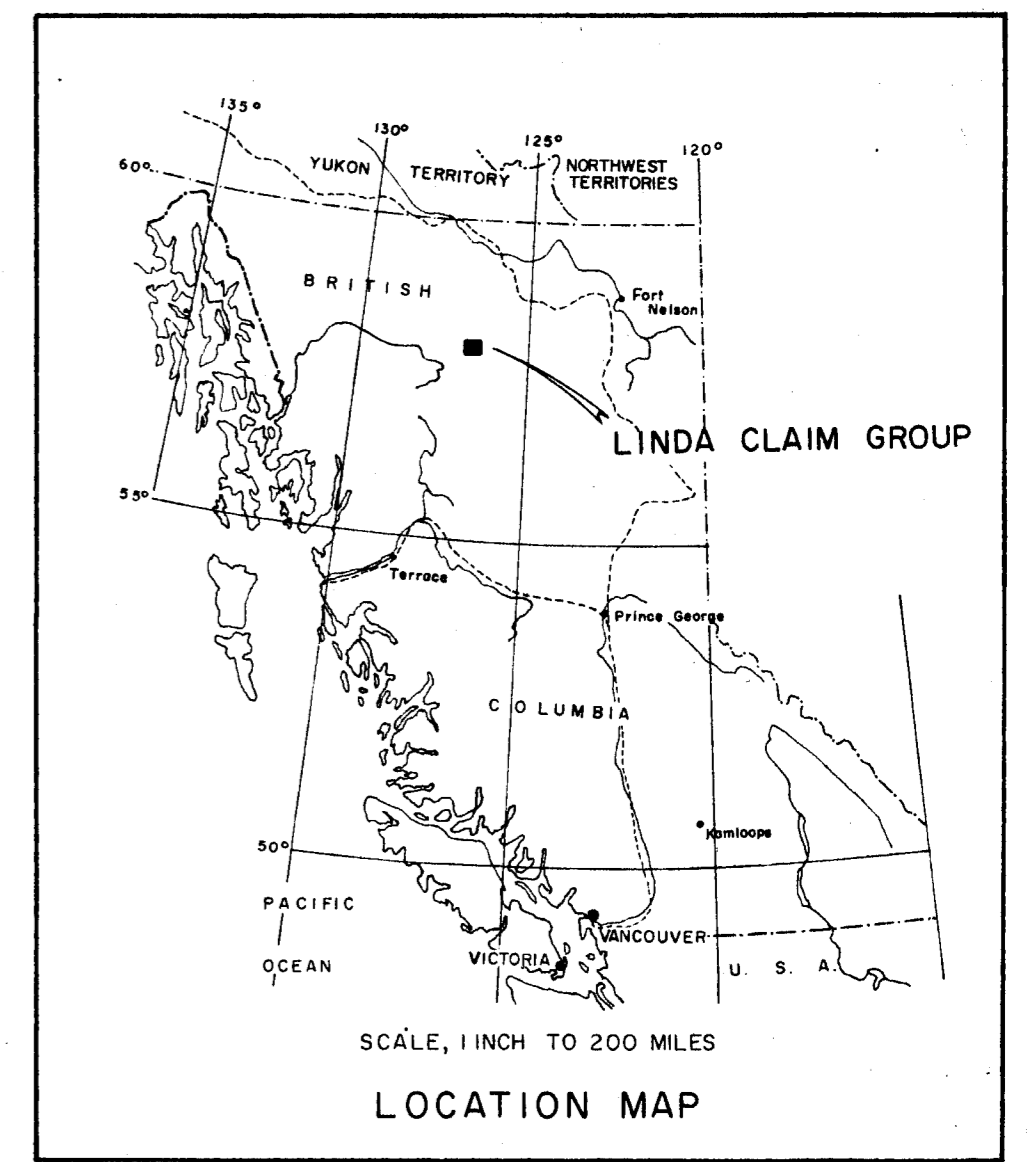
INSERT

LARGE

FORMAT

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⑤ LF



- EXPLANATION**
- 1 PROTEROZOIC AND LOWER PALEOZOIC (?) Phyllite, micaceous quartzite, and biotite sericite schist.
 - 2 CRETACEOUS Biotite, quartz, monzonite and granodiorite.
 - AREA OF OUTCROPS
 - CLAIMLINE AND POST
 - RIDGE
 - CREEK AND DIRECTION OF FLOW
 - SWAMP
 - FAULT
 - 50 STRIKE AND DIP OF BEDDING
 - 30 STRIKE AND DIP OF SCHISTOSITY
 - 40 STRIKE AND DIP OF JOINTS
 - TRENCH
 - x MINERALIZATION

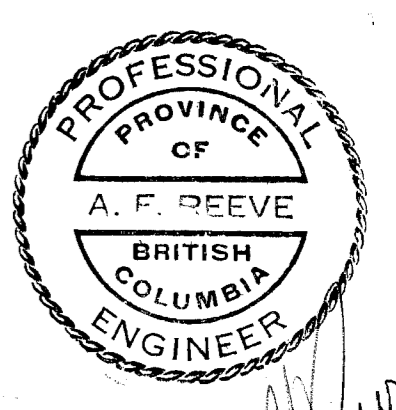
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Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 2336 MAP #2

QUEBEC CARTIER MINING COMPANY
GEOLOGY
LINDA CLAIM GROUP
KECHIKA AREA (NTS 94L)

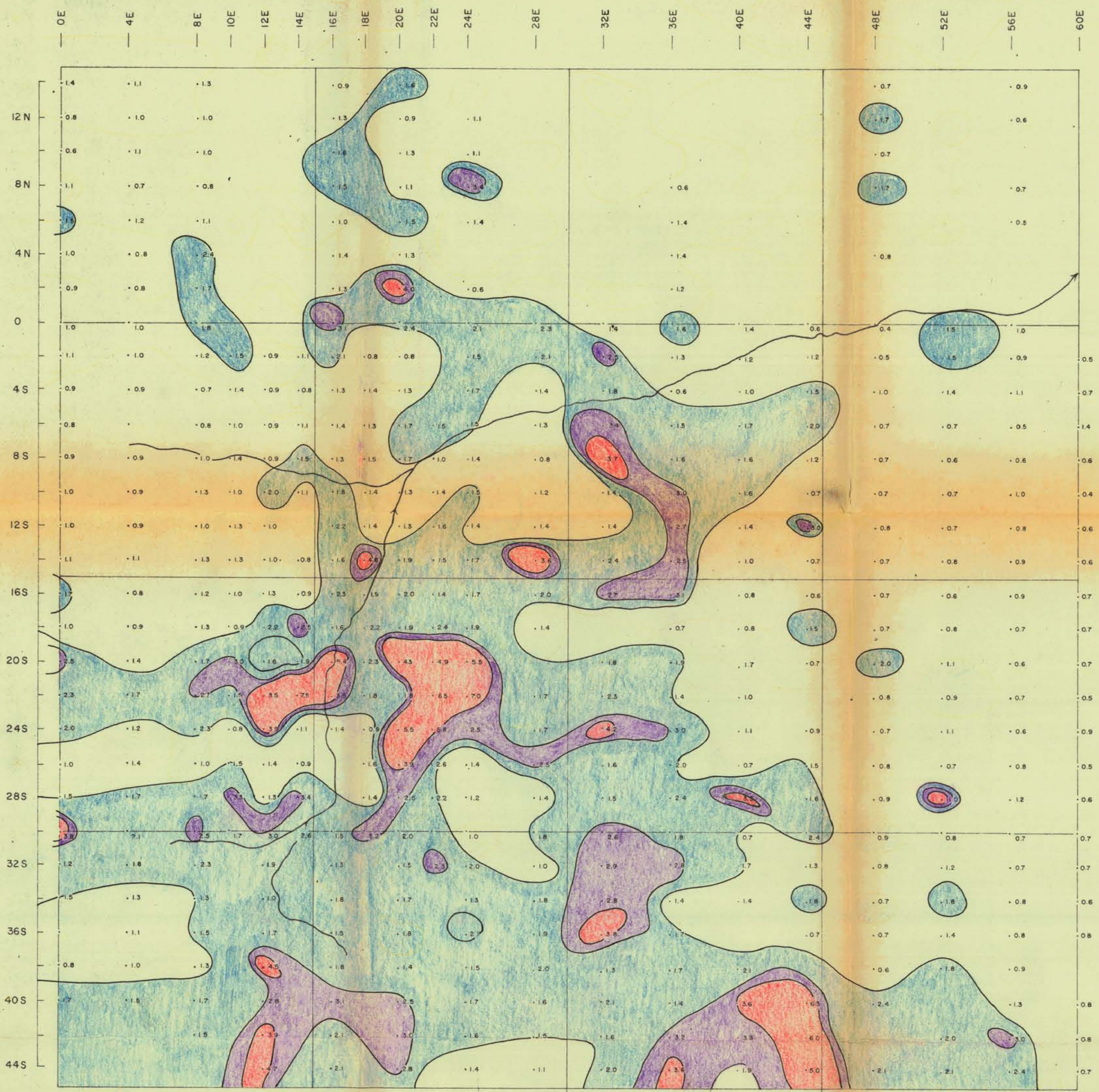
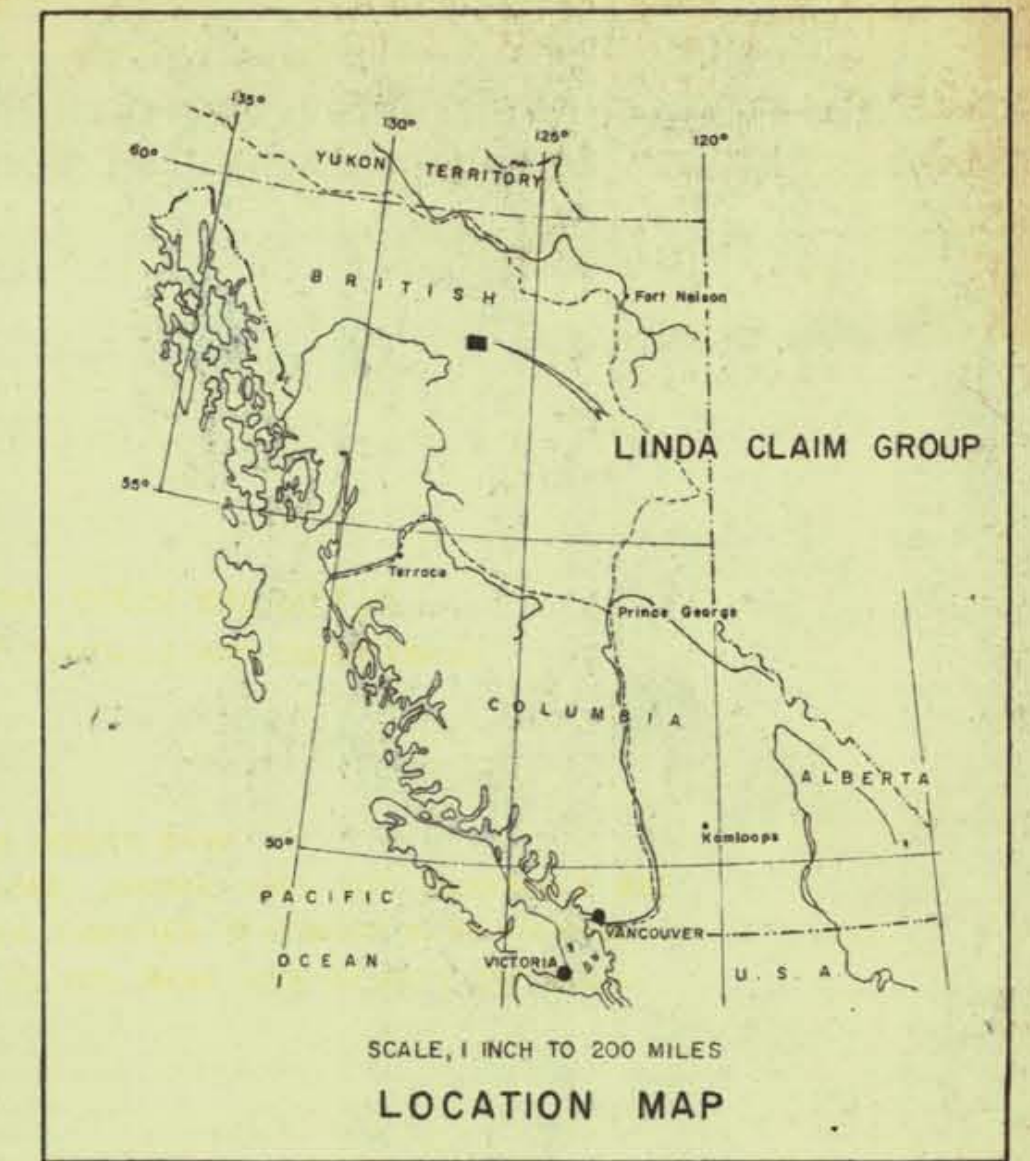
LIARD MINING DIVISION BRITISH COLUMBIA
SCALE 1" = 400 FEET

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1418-355 BURNARD ST. VANCOUVER, CANADA



OCTOBER, 1969

FIG. 2.



EXPLANATION

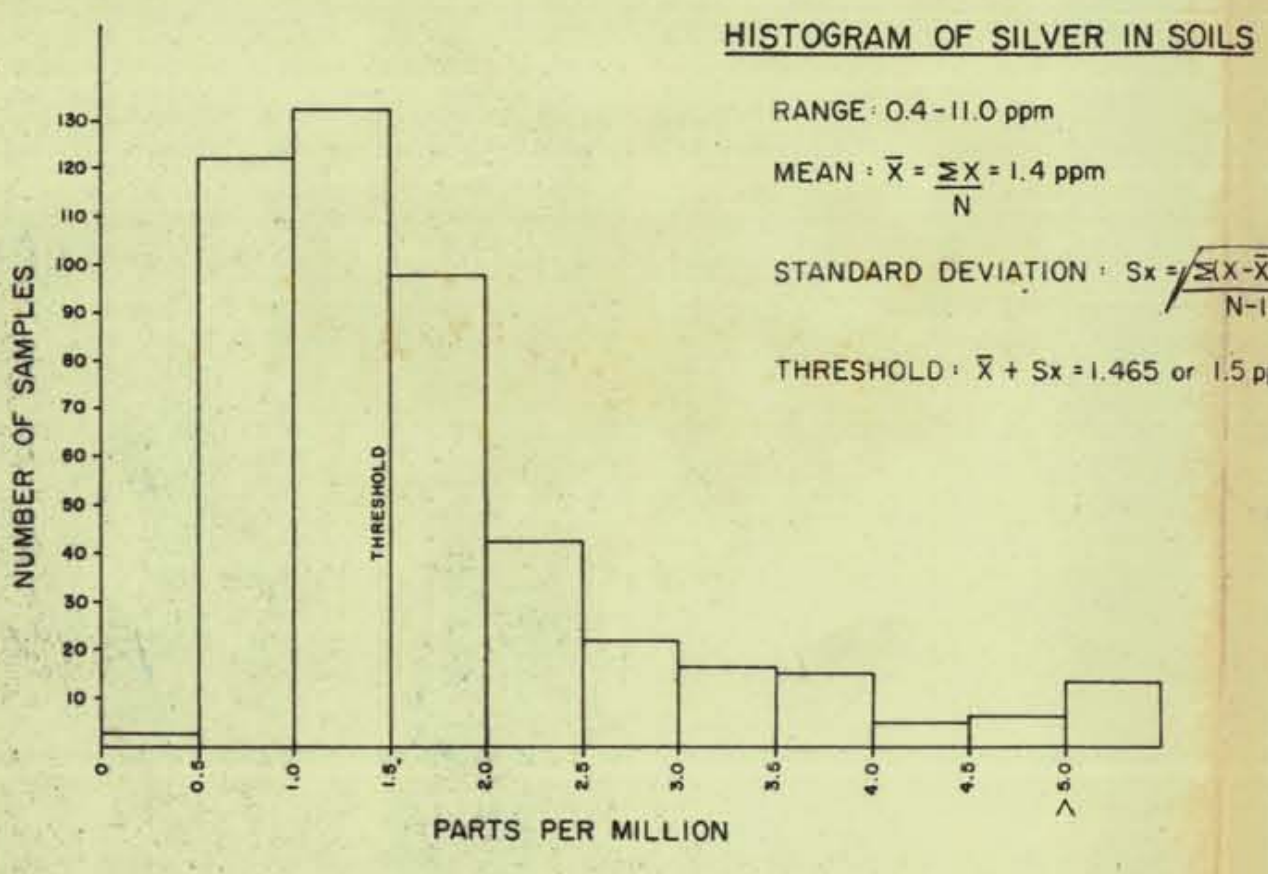
SILVER CONCENTRATION
IN PARTS PER MILLION (PPM.)

- 0 - 1.4 PPM. - BACKGROUND
- 1.5 - 2.4 PPM. - WEAKLY POSITIVE
- 2.5 - 3.4 PPM. - STRONGLY POSITIVE
- 3.5 PPM. OR GREATER - ANOMALOUS

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. **2336** MAP **#3**

ANALYSIS RECORDED ON THIS MAP WERE DONE ON SOILS COLLECTED BY PICK AND HAND FROM THE ENRICHED B-HORIZON AT AN AVERAGE DEPTH OF ONE FOOT. THE FINEST, ORGANIC-FREE SOIL OBTAINABLE WAS COLLECTED IN KRAFT PAPER SAMPLE BAGS.

GEOCHEMICAL ANALYSTS AND CONSULTANTS
BONDAR - CLEGG AND CO. LTD.



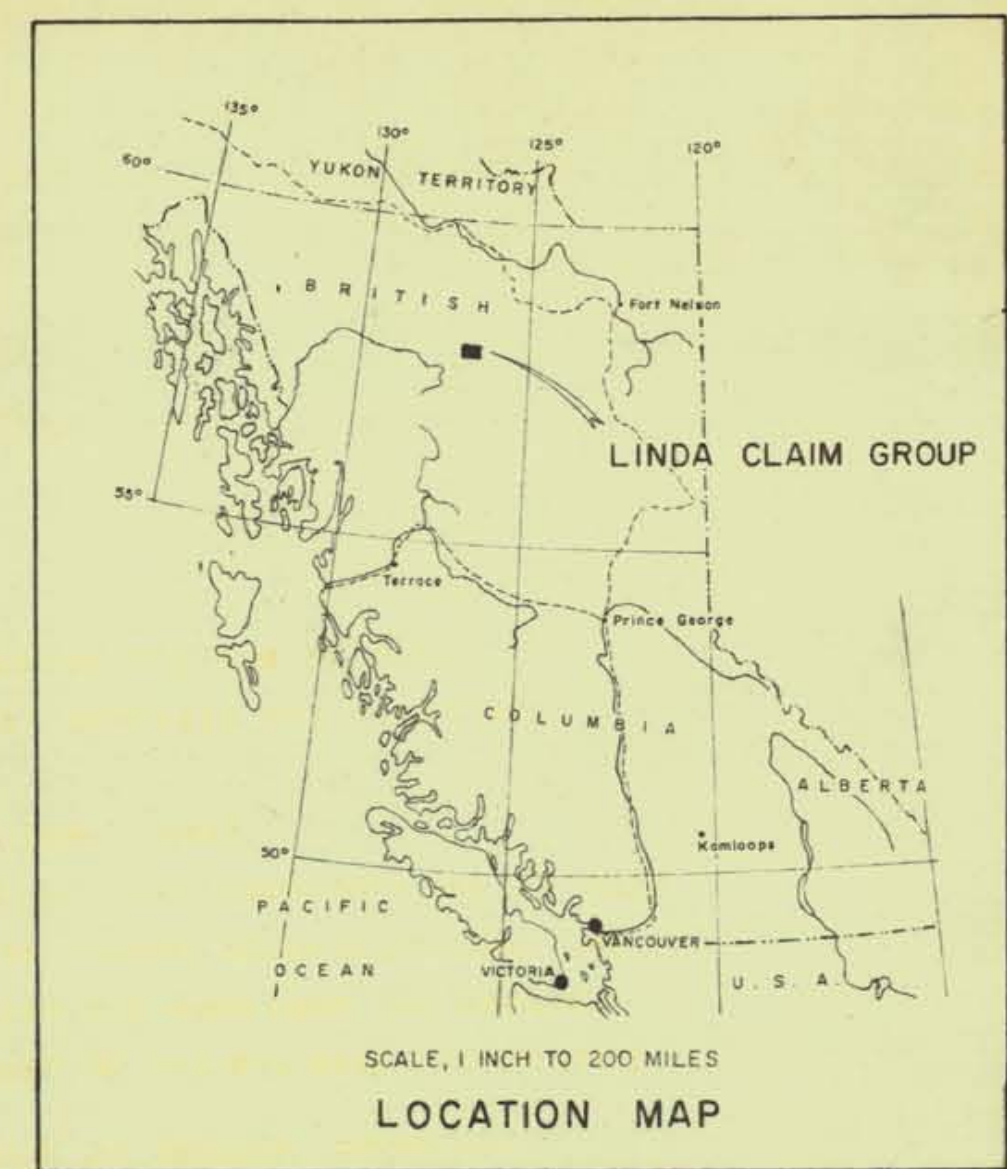
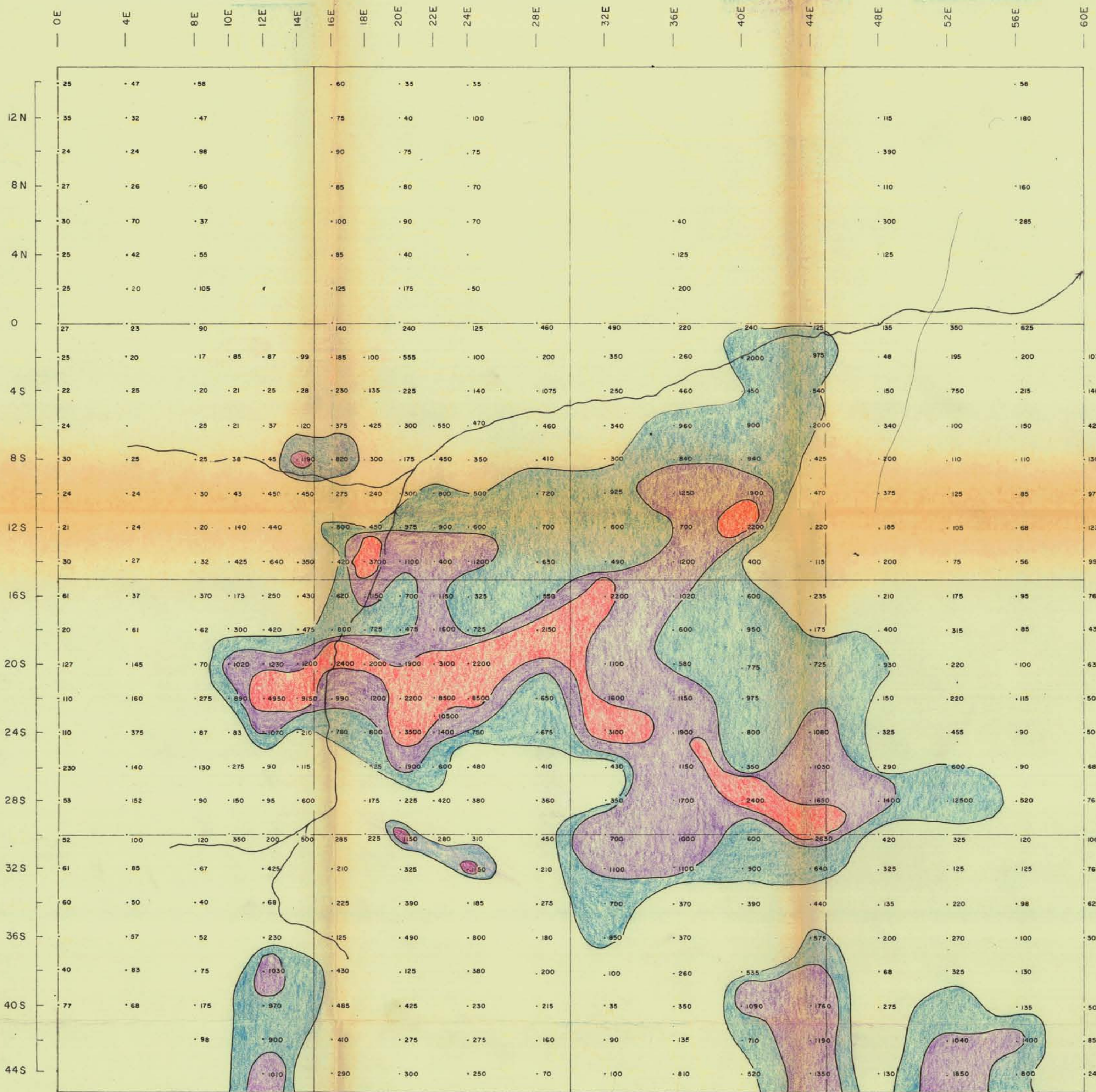
2336

QUEBEC CARTIER MINING COMPANY
SILVER CONTENT OF SOIL SAMPLES
LINDA CLAIM GROUP
KECHIKA AREA (NTS 94L)

LIARD MINING DIVISION, BRITISH COLUMBIA
SCALE 1" = 400 FEET
BY
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OCTOBER, 1969



Department of
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 NO. **2336** MAP **#4**

EXPLANATION

- LEAD CONCENTRATION
IN PARTS PER MILLION (P.P.M.)**
- 0-549 P.P.M. - BACKGROUND
 - 550-999 P.P.M. - WEAKLY POSITIVE
 - 1000-1999 P.P.M. - STRONGLY POSITIVE
 - 2000 P.P.M. OR GREATER - ANOMALOUS

ANALYSIS RECORDED ON THIS MAP WERE DONE ON SOILS COLLECTED BY PICK AND HAND FROM THE ENRICHED B-HORIZON AT AN AVERAGE DEPTH OF ONE FOOT. THE FINEST, ORGANIC-FREE SOIL OBTAINABLE WAS COLLECTED IN KRAFT PAPER SAMPLE BAGS.

GEOCHEMICAL ANALYSTS AND CONSULTANTS
 BONDAR-CLEGG & CO. LTD.

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QUEBEC CARTIER MINING COMPANY

LEAD CONTENT OF SOIL SAMPLES
 LINDA CLAIM GROUP
KECHIKA AREA (NTS 94L)

LIARD MINING DIVISION, BRITISH COLUMBIA

SCALE 1" = 400 FEET
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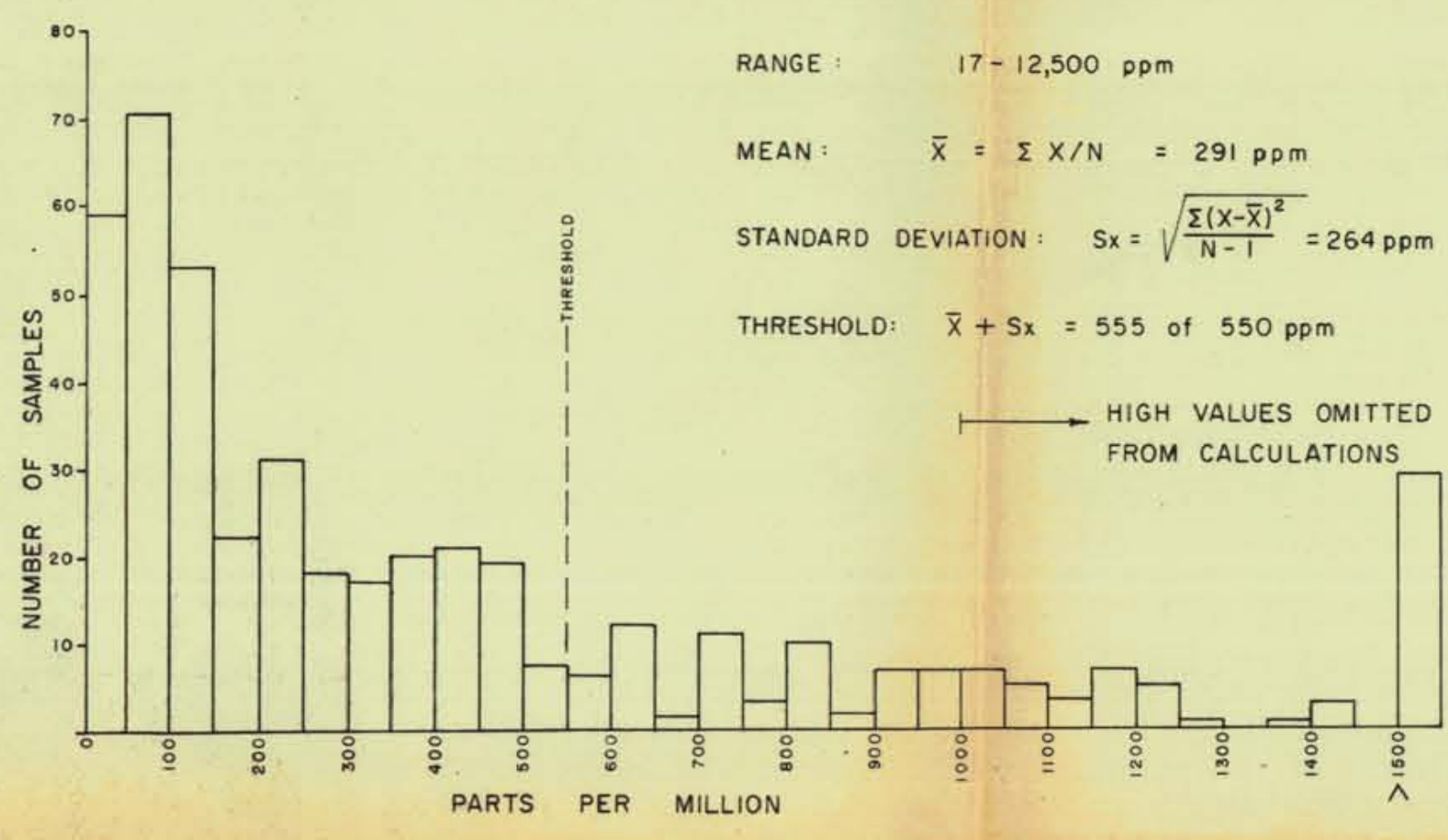
OCTOBER, 1969

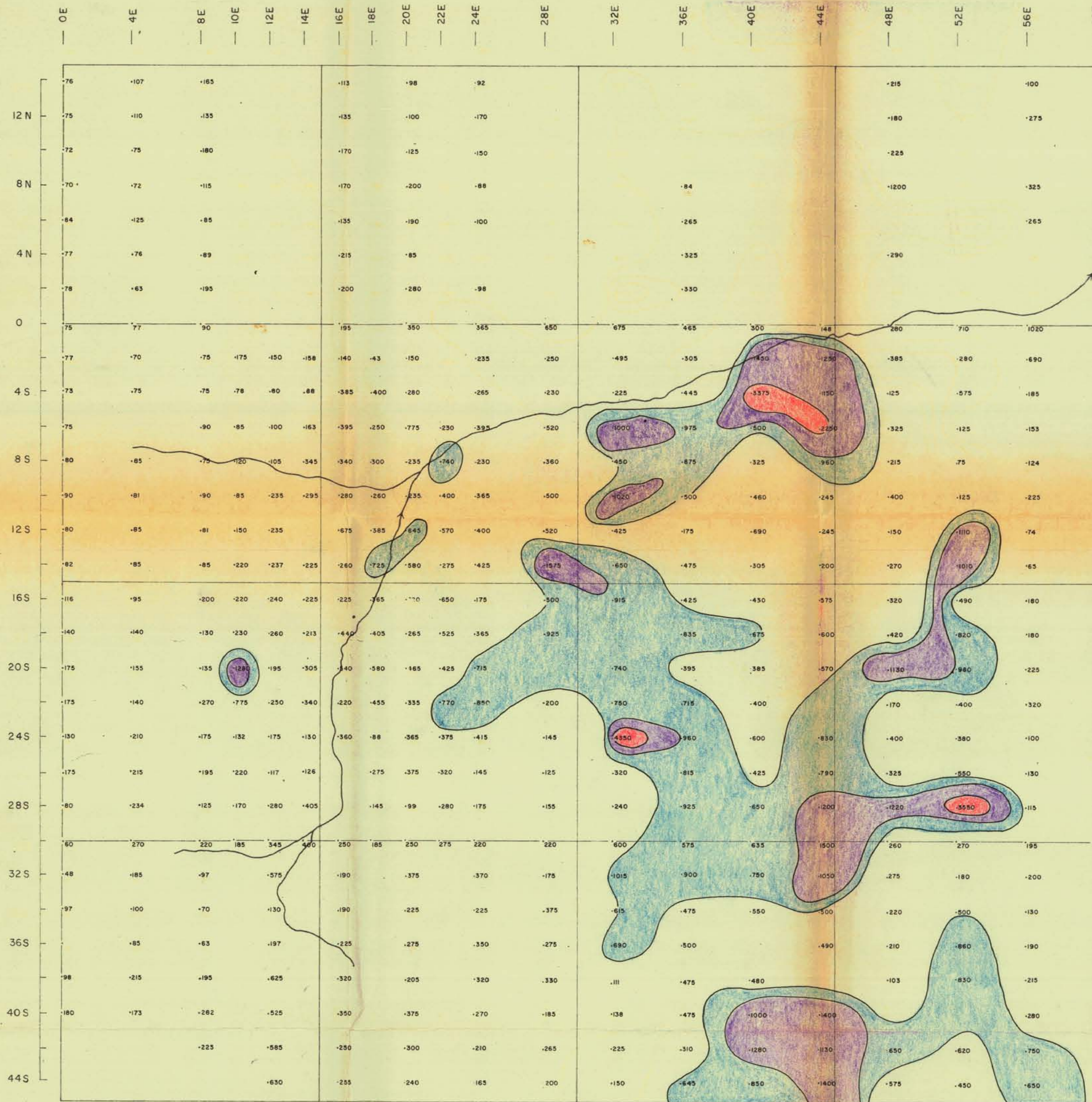
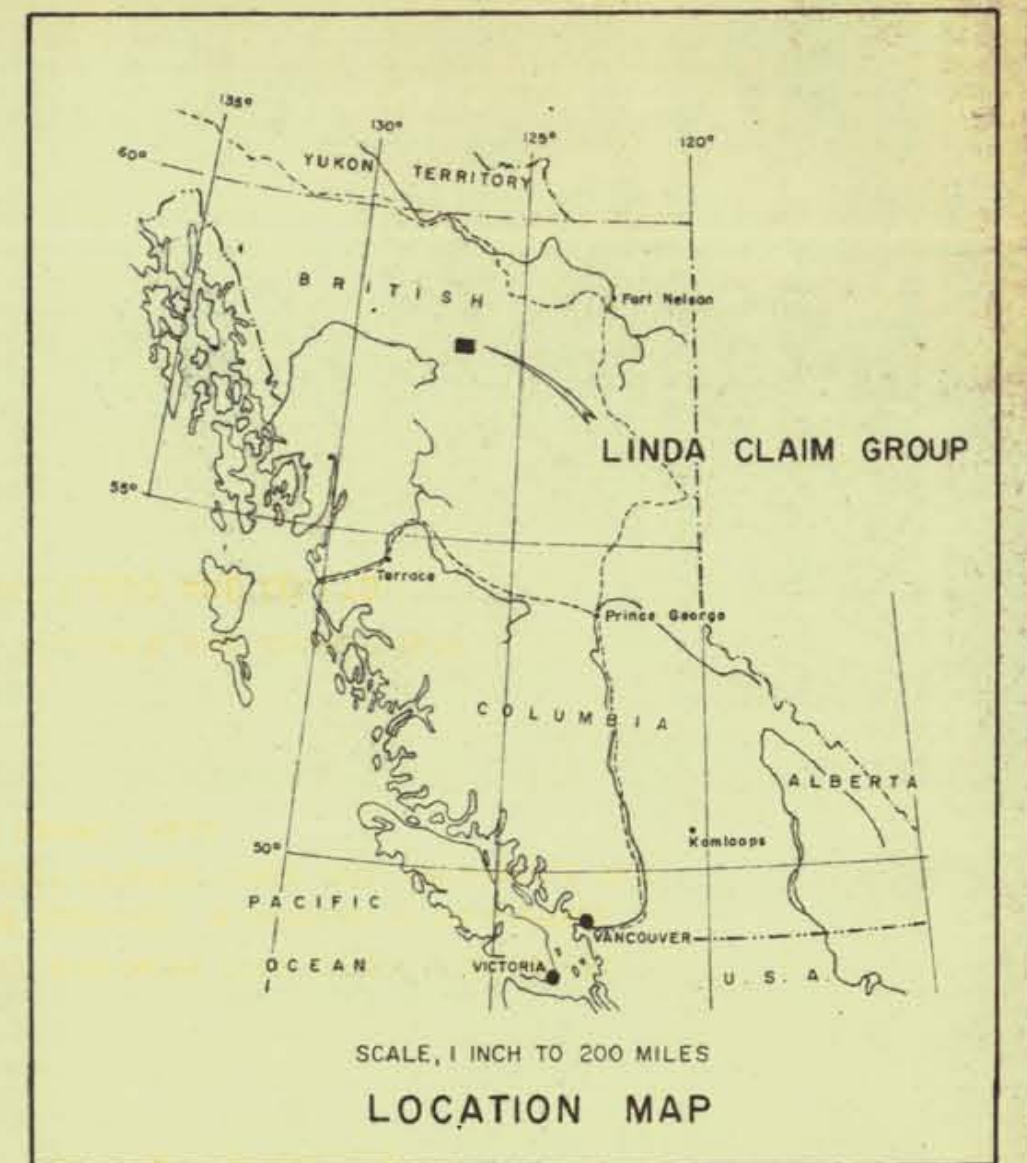


FIG. 4.

HISTOGRAM OF LEAD IN SOILS

RANGE: 17-12,500 ppm
 MEAN: $\bar{X} = \sum X/N = 291$ ppm
 STANDARD DEVIATION: $S_x = \sqrt{\frac{\sum (X-\bar{X})^2}{N-1}} = 264$ ppm
 THRESHOLD: $\bar{X} + S_x = 555$ of 550 ppm





EXPLANATION

ZINC CONCENTRATION
IN PARTS PER MILLION (PPM)

- 0-629 PPM - BACKGROUND
- 630-999 PPM - WEAKLY POSITIVE
- 1000-1999 PPM - STRONGLY POSITIVE
- 2000 PPM OR GREATER - ANOMALOUS

Department of
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ASSESSMENT REPORT
NO. **2336** MAP **#5**

ANALYSIS RECORDED ON THIS MAP WERE DONE ON SOILS COLLECTED BY PICK AND HAND FROM THE ENRICHED B-HORIZON AT AN AVERAGE DEPTH OF ONE FOOT. THE FINEST, ORGANIC-FREE SOIL OBTAINABLE WAS COLLECTED IN KRAFT PAPER SAMPLE BAGS.

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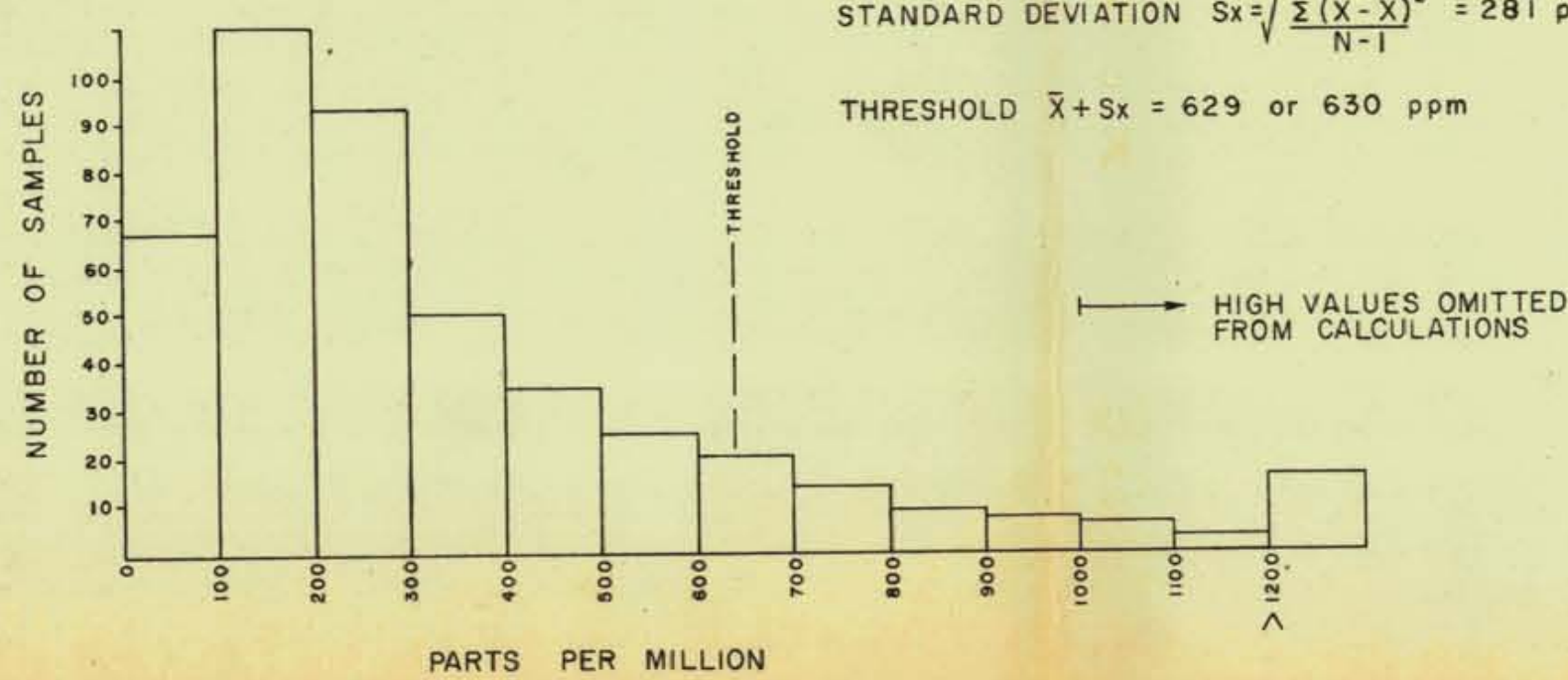
HISTOGRAM OF ZINC IN SOILS

RANGE: 43 - 5200 ppm

MEAN: $\bar{X} = \frac{\sum X}{N} = 348$ ppm

STANDARD DEVIATION $S_x = \sqrt{\frac{\sum (X - \bar{X})^2}{N-1}} = 281$ ppm

THRESHOLD $\bar{X} + S_x = 629$ or 630 ppm



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QUEBEC CARTIER MINING COMPANY

ZINC CONTENT OF SOIL SAMPLES

LINDA CLAIM GROUP

KECHIKA AREA (NTS 94L)

LIARD MINING DIVISION, BRITISH COLUMBIA

SCALE 1" = 400 FEET

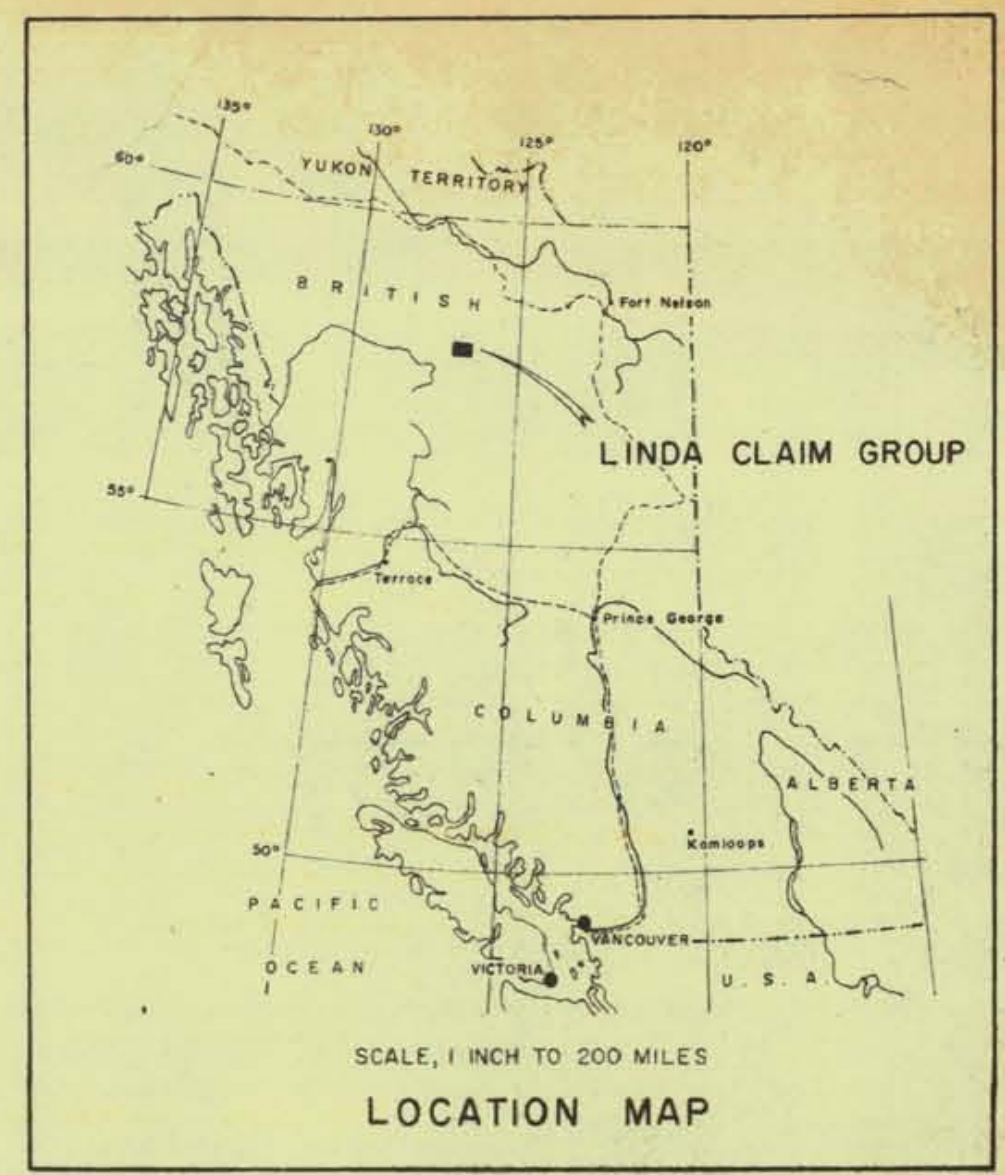
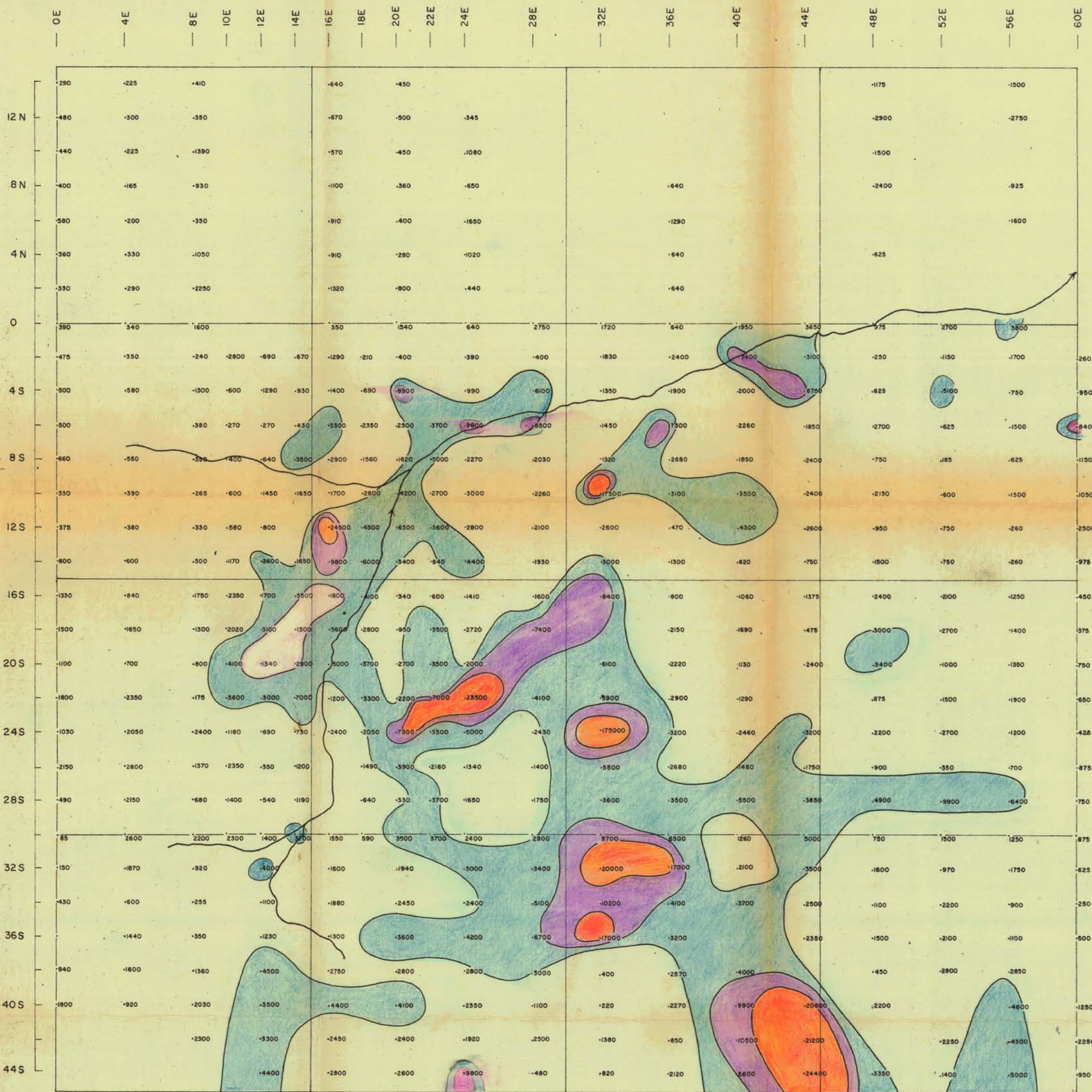
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NO. **2336** MAP **#6**

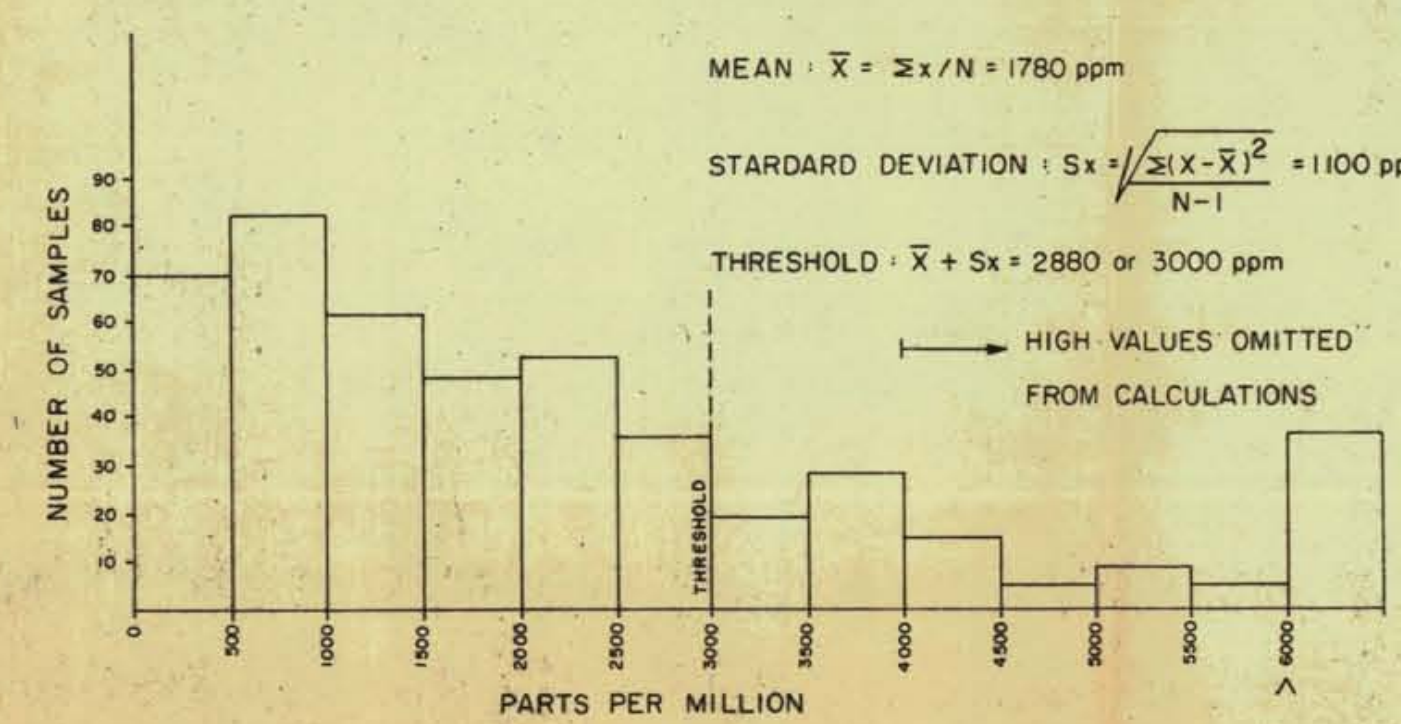
- EXPLANATION**
- MANGANESE CONCENTRATION
IN PARTS PER MILLION (PPM)
- 0-2999 PPM - BACKGROUND
 - 3000-6999 PPM - WEAKLY POSITIVE
 - 7000-14999 PPM - STRONGLY POSITIVE
 - 15000 PPM OR GREATER - ANOMALOUS

ANALYSIS RECORDED ON THIS MAP WERE DONE ON SOILS COLLECTED BY PICK AND HAND FROM THE ENRICHED B-HORIZON AT AN AVERAGE DEPTH OF ONE FOOT. THE FINEST, ORGANIC-FREE SOIL OBTAINABLE WAS COLLECTED IN KRAFT PAPER SAMPLE BAGS.

GEOCHEMICAL ANALYSTS AND CONSULTANTS
BONDAR - CLEGG AND CO. LTD.

HISTOGRAM OF MANGANESE IN SOILS

RANGE : 85 - 175000 ppm
 MEAN : $\bar{x} = \sum x / N = 1780$ ppm
 STANDARD DEVIATION : $S_x = \sqrt{\frac{\sum (x - \bar{x})^2}{N - 1}} = 1100$ ppm
 THRESHOLD : $\bar{x} + S_x = 2880$ or 3000 ppm

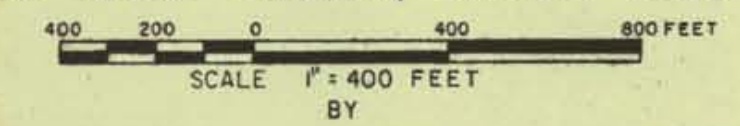


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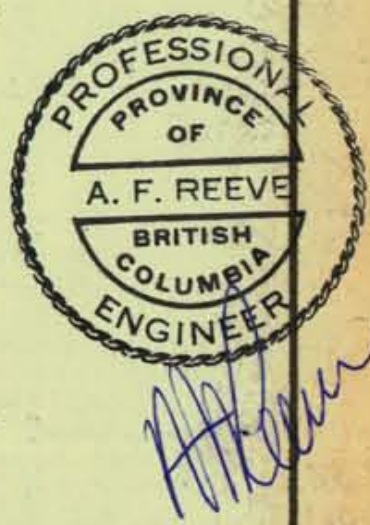
QUEBEC CARTIER MINING COMPANY

MANGANESE CONTENT OF SOIL SAMPLES
LINDA CLAIM GROUP
KECHIKA AREA (NTS 94L)

LIARD MINING DIVISION, BRITISH COLUMBIA



BY
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OCTOBER, 1969