

# ASSESSMENT REPORTS

**MAP No.** 105-K-6 **TYPE OF WORK:** Geochemical & Geophysical

REPORT FILED UNDER	Kim Explorations Ltd.		
DATE PERFORMED	July-August 1967	DATE FILED:	
LOCATION - LAT.	62° 23' N	Vangorda Creek, Y.T.	
LONG.	133° 30' W		
CLAIM Nos.	10-16,	95036-	95051
	17-24,	95456-	95463
	25-30,	95052-	95057
	31-37,	Y10535-	Y10541
WORK DONE BY	J. Mackie, P.Eng., Alrae Explorations Ltd.		
WORK DONE FOR	Kim Explorations Ltd.		
REMARKS	10 claims appear to be underlain by favorable chlorite schist band. North-central portion: magnetic, geochemical (Cu, Pb, Zn) & EM anomalies; recommend diamond drilling. Central portion: geochemical anomalies only. Merits further attention.		
			\$4,704.15

Report on Geochemical Survey and  
an Electromagnetic Survey on the  
Jo 1 to 37 Mineral Claims of  
KIM EXPLORATIONS LTD.  
Vangorda Creek Area, Y. T.

Jo 1	to 16	Record Numbers	95036	to	95051
Jo 17	to 24	Record Numbers	95456	to	95463
Jo 25	to 30	Record Numbers	95052	to	95057
Jo 31	to 37	Record Numbers	Y10535	to	Y10541

Claim Sheet 105-K-6  
Whitehorse Mining Division

Surveys Carried Out From July 31,  
to August 11, 1967 inclusive

Submitted by: J. Mackie, P. Eng.

DOMINION OF CANADA  
PROVINCE OF BRITISH COLUMBIA  
To Wit:

In the Matter of

I. Rae G. Jury

of 844 W. Hastings Street, Vancouver 1, B. C.

in the Province of British Columbia, do solemnly declare that the time and cost distribution for the geochemical and electromagnetic surveys on the Jo 1-37 mineral claims of Kim Explorations Ltd. is as follows:

Labour\*

J. Mackie - Supervision Vancouver, B. C.	\$ 850.00
B. Garner - Electromagnetic Instrument Operator Vancouver, B. C.	363.75
P. Cumberbirch - Geochemical Sampler Vancouver, B. C.	255.00
D. Smallman - Geochemical Sampler Haileybury, Ontario	255.00
* All personnel worked from July 31 to August 11, 1967, inclusive.	
Transportation - Ground 4x4 rental	225.00
- Air	150.00
EM rental (Ronka EM 16 s/n 51)	150.00
Laboratory preparation and analysis of soil samples for Pb, Zn and Cu (Barringer Research)	1,845.40
Camp costs - 48 man days x \$7.50/man day	360.00
Miscellaneous	250.00
	<u>\$ 4,704.15</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 16th  
day of February 1968, A.D.

W. David Bhat

A Commissioner for taking Affidavits for British Columbia  
A Notary Public in and for the Province of British Columbia



Department of  
Indian Affairs and  
Northern Development

Resource and  
Economic Development  
Group

Ministère des  
Affaires indiennes et  
du Nord canadien

Bureau des ressources  
et du développement  
économique

Box 1767,  
Whitehorse, Y.T.

RESTRICTED

MR. G. A. McINTYRE  
MINING RECORDER  
WHITEHORSE MINING DISTRICT

Whitehorse district  
recording office

M.I. M-252

April 5, 1968.

Report on Geochemical Survey &  
Electromagnetic Survey on  
JO 1 to 37 Mineral Claims - Vangorda Creek Area  
Kin Explorations Ltd.  
July 31 to August 11, 1967 inclusive  
by J. Mackie, P. Eng.

On the recommendation of the Resident Geologist and the Mining Inspector  
I hereby authorize you to accept this report as representation work under  
Section 53 (1) of the Yukon Quartz Mining Act to the value of Four Thousand  
Seven Hundred and Four Dollars and Fifteen Cents (\$4,704.15).

  
James Smith,  
Commissioner.

/RAM

Attach.

cc: Chief, Resource Management Division  
Attention: Geological Evaluation Unit

Central Mining Records

Resident Geologist



# ALRAE EXPLORATION LTD.

844 WEST HASTINGS STREET, VANCOUVER 1, B.C. TELEPHONE 681-9381

Kim Exploration Ltd.  
848 W. Hastings Street  
Vancouver 1, B. C.

RE: JULY/AUGUST 1967

Invoice No. 67 - 427

Re: Electromagnetic and Geochemical Survey  
Jo mineral claims.

Personnel:

J. Mackie, Geologist - July 31 - Aug. 11/67	\$ 850.00
B. Garner	363.75
P. Cumberbirch	255.00
D. Smallman	255.00
	<u>\$ 1,723.75</u>

Disbursements:

<u>Transportation</u> - Ground - 4x4	\$ 225.00	
- Air	150.00	
Camp costs	360.00	
Equipment rental - EM Ronka 16 10 days	150.00	
Assays - Barringer Research (as attached)	1,845.40	
Miscellaneous Hardware and Soil Sampling Supplies	<u>250.00</u>	<u>2,980.40</u>
		<u>\$ 4,704.15</u>

ALRAE EXPLORATION LTD.  
844 W. HASTINGS ST.,  
VANCOUVER 1, B.C.

*R. J. Garma*

GEOLOGY  
Exploration

CONSULTANTS  
Development

MINING  
Production



304 CARLINGVIEW DRIVE  
 REXDALE, ONTARIO, CANADA  
 PHONE: 416-677-2491  
 CABLE: BARESEARCH

ADVANCED TECHNIQUES AND INSTRUMENTATION FOR THE EARTH SCIENCES

DATE: August 31, 1967

PROJECT: 210.03

PERIOD COVERED:

PROGRESS BILLING:

SHIPPING REPORT:

WORK REPORT: 292A

FED. SALES TAX: N/A

ONT. SALES TAX: N/A

- Alree Explorations Limited  
 846 West Hastings Street  
 • Vancouver, B. C.

TERMS: NET

AUTHORITY: Mr. A. Burton

TO: Geochemical Analysis:

700 Samples analysed for total lead, zinc	@ \$1.50 each	1,050.00
700 Soil Sample Preparations	@ \$ .20 each	140.00
		<hr/>

1,190.00  
 =====

Report Number 292A issued on August 31, 1967

INVOICE N<sup>o</sup> 2490



# BARRINGER RESEARCH LIMITED

304 CARLINGVIEW DRIVE  
REXDALE, ONTARIO, CANADA  
PHONE: 416-677-2491  
CABLE: BARESEARCH

ADVANCED TECHNIQUES AND INSTRUMENTATION FOR THE EARTH SCIENCES

DATE: September 20, 1967

PROJECT: 210.03

- Alras Explorations Limited
- 846 W. Hastings Street
- Vancouver, B. C.

PERIOD COVERED:

PROGRESS BILLING:

SHIPPING REPORT:

WORK REPORT: 351

FED SALES TAX: N/A

ONT. SALES TAX: N/A

TERMS: NET

AUTHORITY: J. Mackie

TO: Geochemical Analysis:

310 Samples analysed for HCl Copper @ \$1.00 each

310.00  
\*\*\*\*\*

Report Number 351 issued on September 18, 1967

INVOICE No 2568



# BARRINGER RESEARCH LIMITED

304 CARLINGVIEW DRIVE  
REXDALE, ONTARIO, CANADA  
PHONE: 416-677-2491  
CABLE: BARESEARCH

ADVANCED TECHNIQUES AND INSTRUMENTATION FOR THE EARTH SCIENCES

DATE: October 12, 1967

PROJECT: 210.03

PERIOD COVERED:

PROGRESS BILLING:

SHIPPING REPORT:

WORK REPORT: 352

FED. SALES TAX: N/A

ONT. SALES TAX: N/A

. Alrae Explorations Limited  
846 W. Hastings Street  
. Vancouver, B. C.

TERMS: NET

AUTHORITY: J. Mackie

TO: Geochemical Analysis:

157 Samples analysed for total lead, total zinc, HCl copper	@ \$2.00 each	314.00	
157 Soil Sample Preparations	@ \$ .20 each	31.40	
			345.40

Report Number 352 issued on October 6, 1967

INVOICE N° 2650



Report on a Geochemical Survey  
and an Electromagnetic Survey on the  
Jo 1 to 37 Mineral Claims of  
KIM EXPLORATIONS LTD.  
Vangorda Creek Area, Y. T.

ALRAE EXPLORATION LTD.

GEOLOGICAL SURVEY  
4  
APR 3 1968  
Resident Geologist  
Whitehorse, Y. T.

January 31, 1968

This report has been examined by  
the Geological Survey Unit.  
Approved as to accuracy by:

*P.C. Yindlay*

Approved as to value as a mineral  
claim (S 470411)

*R.F. Pustan*

Approved as to the work  
done by the Survey on Quartz  
mineral claims.

*James Smith*  
Geological Survey of Canada

TO PROTECT OUR CLIENTS, THE PUBLIC AND OURSELVES, ALL REPORTS ARE SUBMITTED AS THE CONFIDENTIAL PROPERTY OF CLIENTS AND  
AUTHORIZATION FOR PUBLICATION OF STATEMENTS, CONCLUSIONS AND EXTRACTS FROM OUR REPORTS MUST RECEIVE OUR WRITTEN APPROVAL

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## INTRODUCTION

The Jo claim group of Kim Explorations Ltd. consists of 37 contiguous, full size mineral claims, situated in the Rose Creek Valley, four miles northwest of Anvil Mining. Corp. Ltd's Faro deposit.

At the present time Anvil is readying its deposit, which contains in excess of 60 million tons of lead-zinc-silver ore grading 9% combined lead-zinc and 1 oz. of silver per ton, for production. The ore occurs in a chlorite schist near the contact with the Anvil Batholith. A similar geological setting exists on the Jo group of Kim Explorations Ltd.

Kim requested Alrae Exploration Ltd. to investigate their favourably situated Jo claims for lead-zinc deposits similar to the Faro occurrences. A field program consisting of geochemical and electromagnetic surveys was carried out, utilizing a grid which has been cut for a magnetometer survey the previous year. Field work was performed by Alrae personnel from July 31 to August 11, 1967, under the supervision of the author.

## CONCLUSIONS AND RECOMMENDATIONS

Weak to moderate anomalous conditions have been outlined in the central and north-central portion of the Jo claims. The north-central portion of the group, in which magnetic, geochemical and electromagnetic anomalies have been outlined, should be further investigated by a diamond drilling program to determine the causes of the anomalous situations. Attention should also be given to the central portion of the group where only geochemical anomalies are evident.

### LOCATION AND ACCESS

The claims are situated at latitude 62°23' and longitude 133°30' as shown on claim sheet 105-K-6, Whitehorse Mining Division. This site is four miles northwest of Anvil's Faro ore deposits.

Personnel and supplies were trucked from Whitehorse to a trailer on the Rae group of Kim, six miles southeast of the Faro campsite. Living quarters were established at the trailer. Personnel commuted daily by truck to within three miles of the work site and thence by foot.

### TOPOGRAPHY AND VEGETATION

The claim block occupies a south-facing slope, extending from Rose Creek to treeline. The hillside has a uniform slope of approximately 45 degrees. Most of the group is covered by stands of spruce and balsam, commonly one to three feet in diameter. Buckbrush and willow are common in all open spaces and creek bottoms.

### CLAIM DATA

Kim Explorations Ltd. owns the Jo 1 to 37 contiguous, full size mineral claims, as shown on claim sheet 105-K-6, Whitehorse Mining Division, Y.T. Record numbers of the claims are as follows:

<u>Claim Name</u>	<u>Record Number</u>
Jo 1 to 16	95036 to 95951
Jo 17 to 24	95456 to 95463
Jo 25 to 30	95052 to 95057
Jo 31 to 37	Y10535 to Y10341

### HISTORY

A line cutting program and magnetometer survey were carried out by Alrae on the group during the summer of 1966. The results of this survey are contained in a report by J. Mackie and R. Philp (Report on a Magnetometer Survey on the Jo 1 to 37 Mineral Claims of Kim Explorations Ltd., November 21, 1966). A number of

magnetic anomalies were outlined which warranted further attention to determine if they are related to economic mineralization.

### GEOLOGY

General geology of the Anvil - Vangorda area is characterized by a northwest - southeast trending belt of metamorphosed sedimentary and volcanic rocks, bounded on the northeast by granitic rocks of the Anvil Batholith and on the southwest by the Tinta Fault. The metamorphosed rocks dip southwesterly. Mississippian and Mid-Cretaceous ages have been tentatively assigned to the metamorphic and granitic rocks, respectively by the Geological Survey of Canada (Roddick and Green, Map 13-1961, Tay River, Yukon Territory).

The Faro deposits of Anvil and Vangorda deposits of Vangorda Mines Ltd., which represent in excess of 70 million tons of material grading 9% combined lead-zinc and 1 oz. of silver, are confined to a chlorite schist within the larger sequence of metamorphic rocks. Geological mapping by the Geological Survey of Canada indicates that the chlorite schist band which contains the Faro and Vangorda deposits underlies much of the Jo block of claims.

At the Vangorda deposit, according to Chisholm (Methods and Case Histories in Mining Geophysics, Geophysical Exploration of a Lead-Zinc Deposit in Yukon Territory, Edward O. Chisholm, 1957), the ore deposit comprises an overlapping series of horizontal lenses of sulphides that appear to replace a favourable sedimentary bed. The ore deposit is a fine grained aggregate of approximately 60% sulphides in a siliceous matrix. The minerals, in order of abundance, are pyrite, sphalerite, galena, pyrrhotite, chalcopyrite, arsenopyrite, magnetite and marcasite.

## GEOCHEMICAL SURVEY

### (i) Field Procedure

The geochemical survey carried out was a program of soil sampling. Samples were collected on all lines at 100 foot intervals except in the Rose Creek bottom. They consisted primarily of residual soil underlying the organic and volcanic ash layer. Permafrost was generally encountered inches below the volcanic ash layer. Approximately 27-1/2 line miles of grid were sampled.

### (ii) Laboratory Procedure

Initially, alternate samples from all grid lines were analysed for lead and zinc and alternate samples from every other grid line were analysed for copper. Upon receiving these results, further samples were sent for lead, zinc and copper analysis to give more detail over selected areas. The laboratory analysis was performed by Barringer Research of Toronto.

After drying and screening to -80 mesh, the metals were extracted by a hot HNO<sub>3</sub>-HCl solution. The quantities of each metal in a sample were determined by atomic absorption spectrographic analysis. Contoured laboratory results for lead, zinc and copper are shown on figures 3, 4 and 5, respectively.

### (iii) Interpretation

Background values for lead, zinc and copper are less than 30, 100 and 40 parts per million, respectively. Coincident, anomalous areas for the three metals have been outlined in the central portion and the northern portions of the claim block. Each area consists of a number of small, weak to moderate geochemical anomalies. Other isolated anomalies are also apparent.

The northern anomalous zone is in the same area as the series of small, but intense magnetic anomalies outlined in 1966.

They cover an area approximately 4,000 feet long by 1,500 feet wide, trending in a northwest - southeast direction.

The central zone has a trend similar to the northern zone, measuring approximately 2,500 feet long by 1,000 feet long, however, it is not associated with abnormal magnetic characteristics.

The small areal extent of individual anomalies suggests that the causative bodies are very local. However, the effects of permafrost and depth of overburden make it impractical to compare these anomalies to the Vangorda deposit.

#### ELECTROMAGNETIC SURVEY

##### (1) Type of Instrument

A Ronka EM-16 instrument was employed. This instrument utilizes the signals from very low frequency radio stations which are in contact with offshore submarines. The radio stations have vertical antennae, the currents in which induce concentric horizontal magnetic fields. When these induced fields meet conductive bodies in the ground, secondary fields result. The vertical components of these secondary fields are measured by the EM-16.

The instrument is a sensitive receiver tuned to the frequency band of the VLF station and consists of two coils, one vertical and the other horizontal. These coils have separate inputs. When the signal from the vertical coil is minimized by physical tilting, the angle is an accurate measure of the real component of the secondary field (in phase reading). The remaining signal is balanced by a measured percentage of a signal from the second coil. This compensation signal is a measure of the quadrature vertical signal.

For interpretive purposes, the actual readings are plotted using suitable scales, and curves constructed to determine the location of any conductive zones.

(ii) Field Procedure

Readings were taken using the signals from VLF station NAA operating at 17.8 kilocycles. Readings were taken at 100 foot intervals along alternate crosslines as shown on Fig. 6. The in phase values are plotted in degrees and the quadrature values in percentages. A total of 14-1/2 miles of grid lines were tested.

The instrument was oriented northwards.

(iii) Interpretation

A few very weak crossovers, indicative of poor conductors were outlined as shown on Fig. 6. These crossovers could be caused by weakly conductive sulphide zones or shear zones.

Respectfully submitted:

*J. A. C. Mackie*  
J. A. C. Mackie, P. Eng.

APPENDIX "A"

TIME AND COST DISTRIBUTION

Labour\*

J. Mackie - Supervision Vancouver, B. C.	\$ 850.00
B. Garner - Electromagnetic Instrument Vancouver, B. C. Operator	363.75
P. Cumberbirch - Geochemical Sampler Vancouver, B. C.	255.00
D. Smallman - Geochemical Sampler Haileybury, Ontario	255.00

\* All personnel worked from July 31 to August 11, 1967, inclusive.

Transportation - Ground 4x4 rental	225.00
- Air	150.00
EM rental (Ronka EM 16 s/n 51)	150.00
Laboratory preparation and analysis of soil samples for Pb, Zn and Cu (Barringer Research)	1,845.40
Camp costs - 48 man days x \$7.50/man day	360.00
Miscellaneous	<u>250.00</u>
	<u>\$ 4,704.15</u>

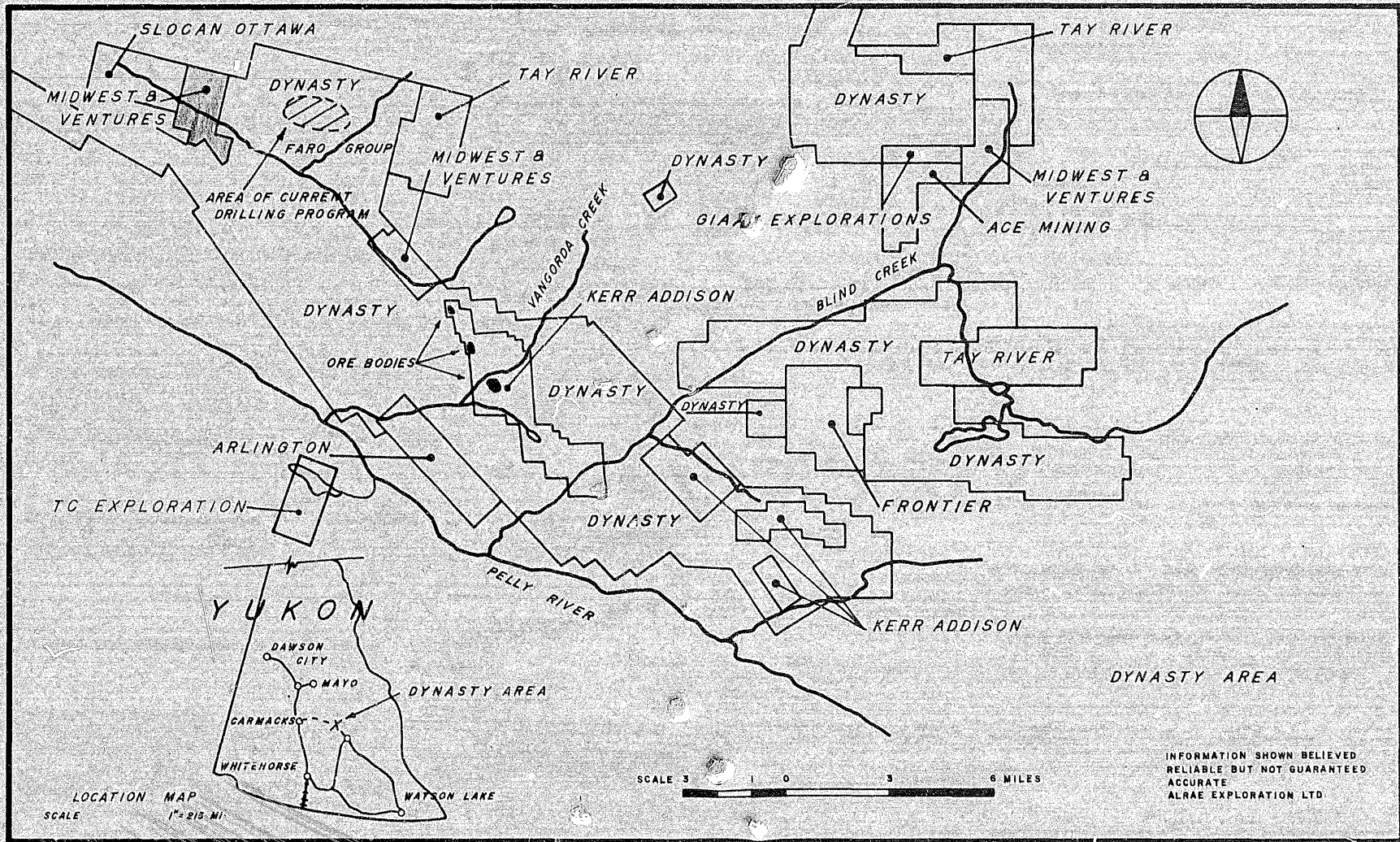
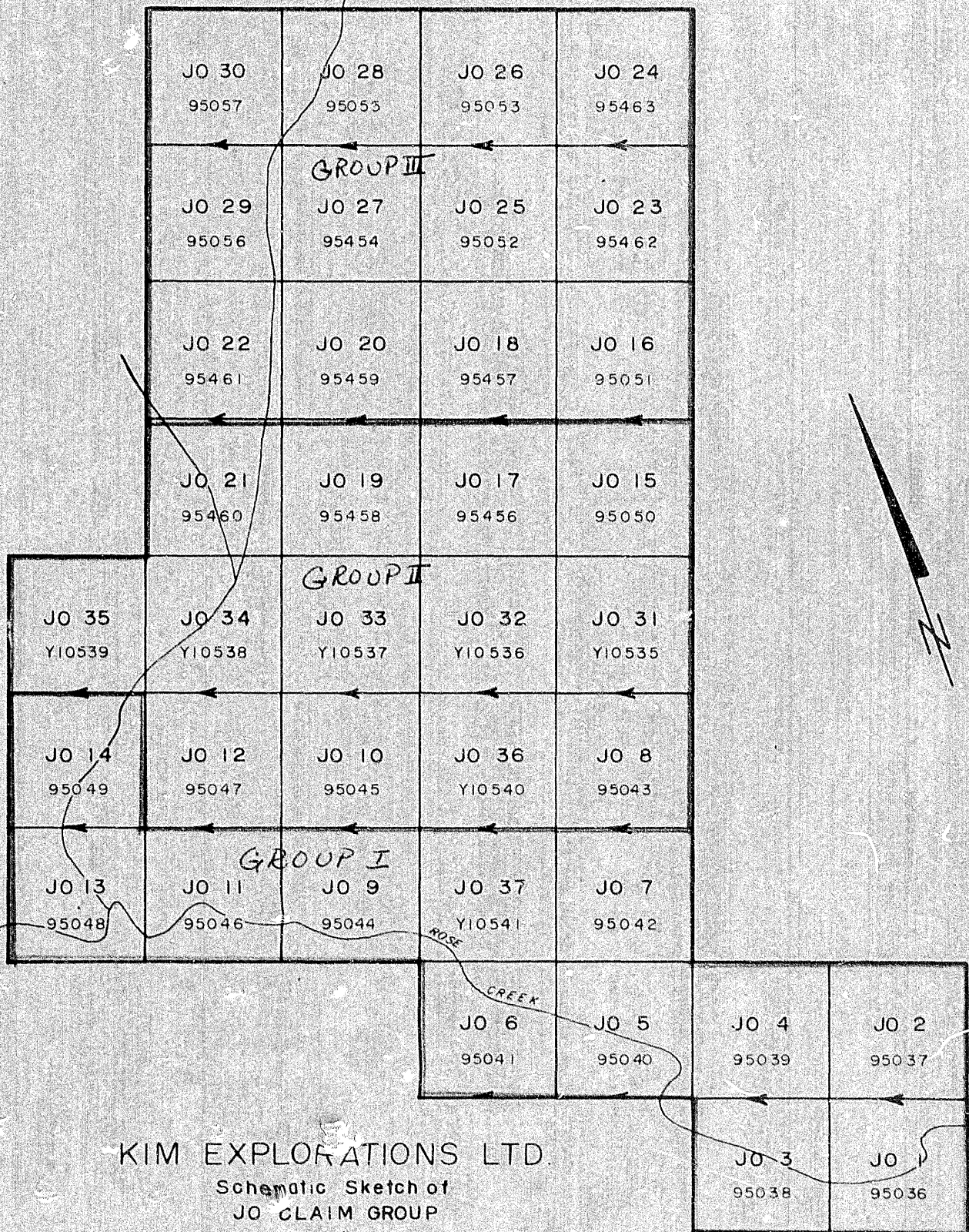


FIGURE No 1

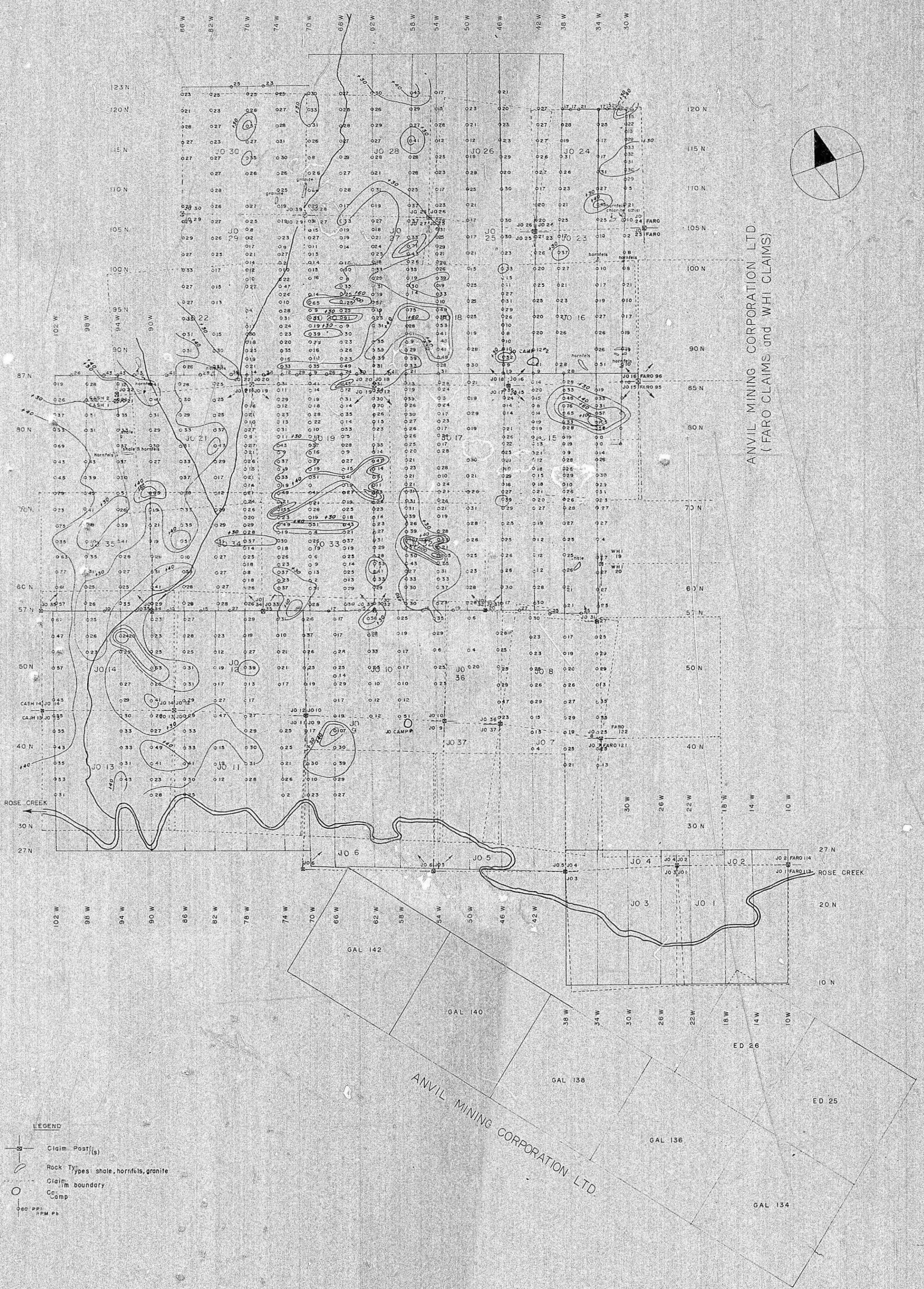


KIM EXPLORATIONS LTD.

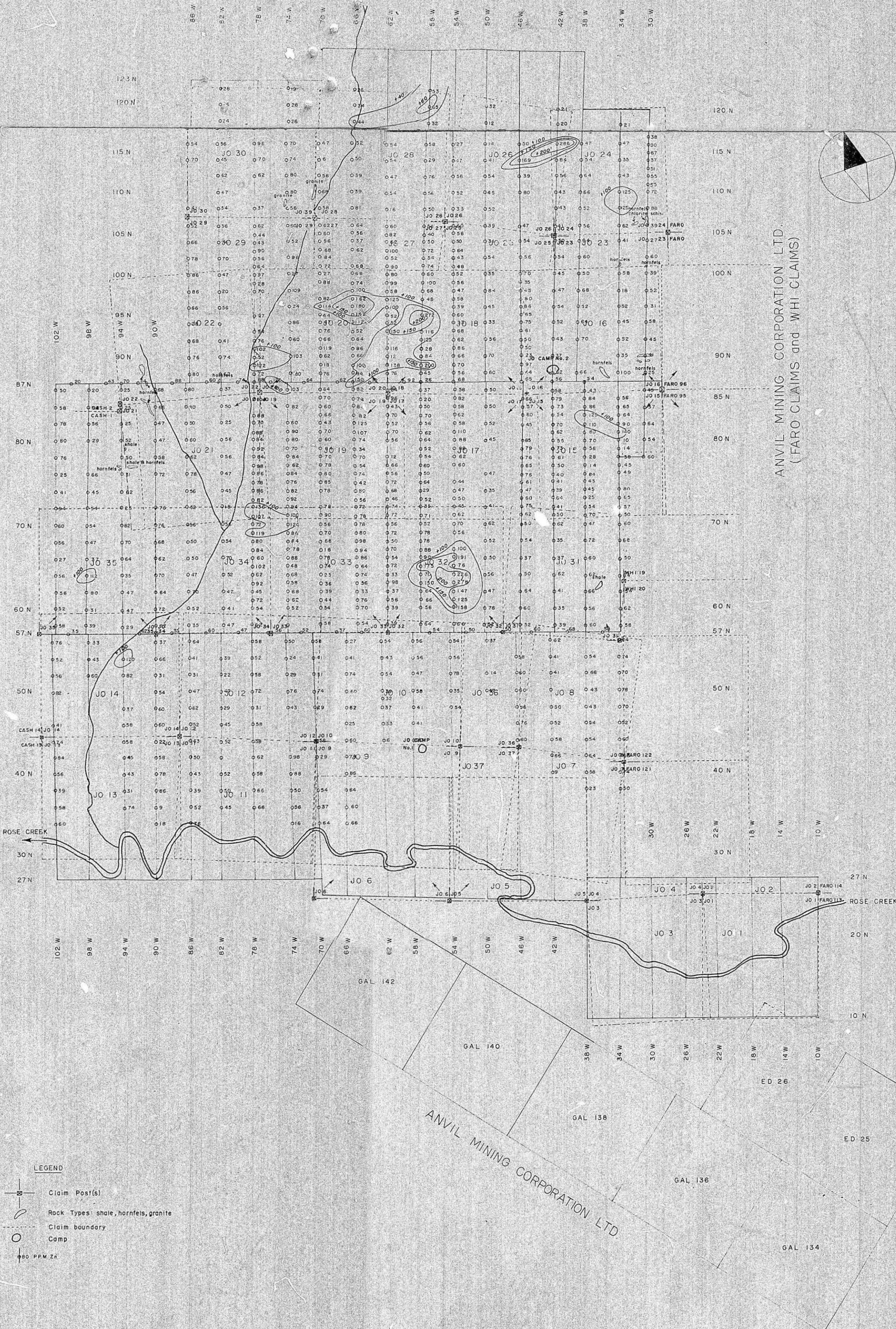
Schematic Sketch of  
JO CLAIM GROUP

SCALE 1" = 2000'

FLAGSTONE (LEE CLAIMS)



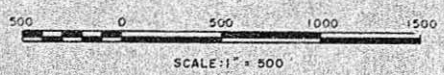
FLAGSTONE (LEE CLAIMS)



ANVIL MINING CORPORATION LTD.  
(FARO CLAIMS and WHI CLAIMS)

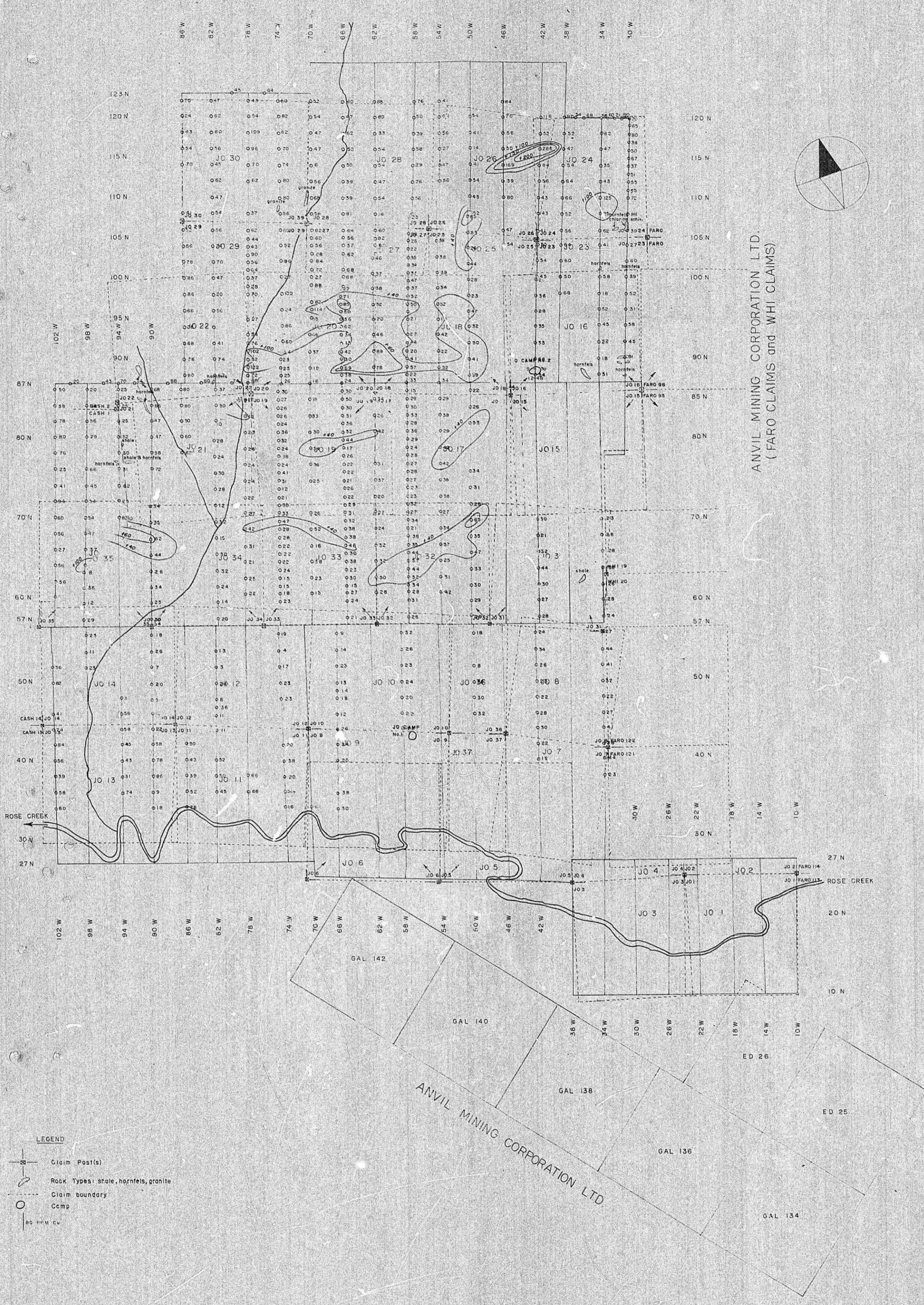
LEGEND

- Claim Post(s)
- Rock Types: shale, hornfels, granite
- Claim boundary
- Camp
- 100 PPM Zn



KIM EXPLORATIONS LTD.	
DYNASTY AREA-JO CLAIM GROUP GEOCHEMISTRY RESULTS-ZINC	
<b>ALRAE EXPLORATION LTD.</b> GEOLOGISTS AND ENGINEERS VANCOUVER, B. C.	
DESIGNED: R. MACBEAN	SCALE: 1" = 500'
DRAWN: M.R.L.	HOR: VERT
CHECKED: J.M.	DATE: OCTOBER 1967
ALRAE EXP. LTD. DWG. No. 950-6	JOB No.
FIGURE No. 4	REV.

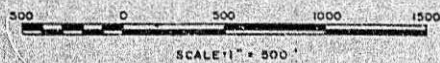
FLAGSTONE (LEE CLAIMS)



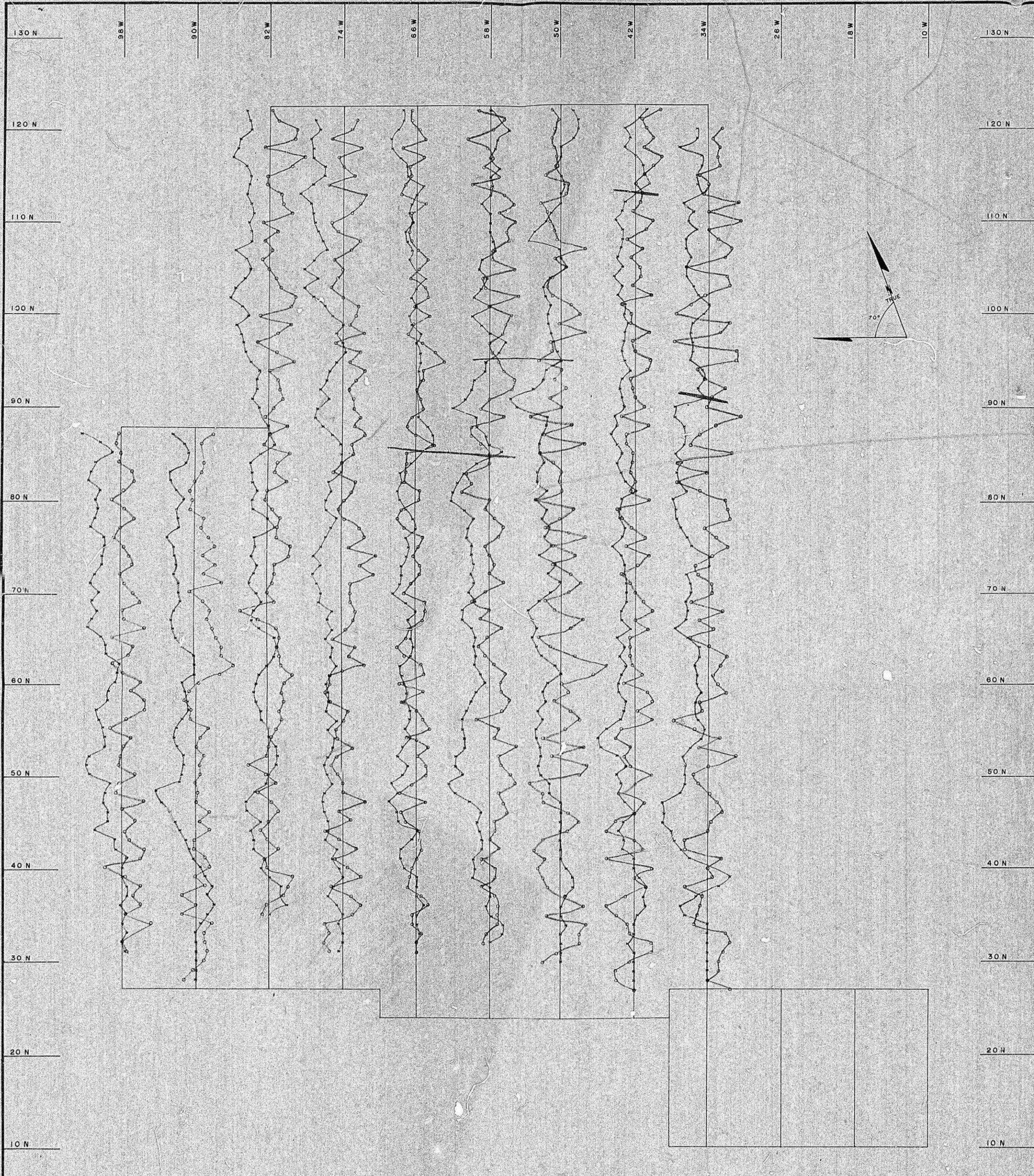
ANVIL MINING CORPORATION LTD.  
(FARO CLAIMS and WHI CLAIMS)

LEGEND

- Claim Post(s)
- Rock Types: shale, hornfels, granite
- Claim boundary
- Camp
- 80 ppm Cu



KIM EXPLORATIONS LTD.	
DYNASTY AREA-JO CLAIM GROUP	
GEOCHEMISTRY RESULTS-COPPER	
<b>ALRAE EXPLORATION LTD.</b>	
GEOLOGISTS AND ENGINEERS VANCOUVER, B. C.	
DESIGNED: R. MACBEAN	SCALE: 1" = 500'
DRAWN: M.R.L.	HOR. YERT.
CHECKED: J.M.	DATE: OCTOBER 1967
ALRAE EXP. LTD. DWG. No. 950-	JOB No.
FIGURE No. 5	



**LEGEND**

- NULL (1" = 20%)
- QUADRATURE (1" = 20%)
- POSITIVE — NEGATIVE
- DRAWING is meant to be looked at from RIGHT-HAND SIDE.
- CRASSER

NOTE ALL READINGS TAKEN FACING NORTHWARDS

<b>KIM EXPLORATIONS LTD.</b>	
ROSS RIVER AREA-JO CLAIM GROUP EM PROFILES	
ALBAE EXPLORATION LTD. GEOLOGISTS AND ENGINEERS VANCOUVER, B.C.	
DESIGNED... J.M.	SCALE: HOR. 1" = 500'
DRAWN... M.R.L.	VERT. See LEGEND
CHECKED... J.M.	DWG. No. 950-20
DATE... SEPTEMBER 1987	INSTRUMENT: RONKA EM-16 No. 51
FIGURE No. 6	