

712

REPORT ON  
GEOPHYSICAL SURVEYS  
KINSKUCH LAKE, BRITISH COLUMBIA

The survey was conducted over the property of Forest Kerr Mines Ltd. (N.P.L.) whose claims are as follows:

- King #1 - 142 inclusive
- Core #1 - 18 "
- Kin #1 - 8 "
- Reina Blanca #2-6 inclusive and #8
- Kinskuch #5 and 6
- Kinskuch Fr
- Woodland
- M.S.
- Grizzly
- Lavender #1

which are located a few miles north of Alice Arm, British Columbia (129°, 55°)

The field work was under the supervision of project manager A. M. Frew--

The report was written by Mr. E. B. Nicholls, Geophysicist.

The survey was conducted during the period June 10th to August 31st, 1965.

SULMAC EXPLORATION SERVICES LIMITED

SEPTEMBER 16, 1965

**GEOPHYSICAL REPORT  
ON THE PROPERTY OF  
FOREST KERR MINES LTD. (N.P.L.)**

**KINSKUCH LAKE, ALICE ARM  
SKEENA MINING DIVISION  
PROVINCE OF BRITISH COLUMBIA**

**SULMAC EXPLORATION SERVICES LIMITED**

**SEPTEMBER 16, 1965**



GEOPHYSICAL REPORT  
ON THE PROPERTY OF  
FOREST KERR MINES LTD. (N.P.L.)

KINSKUCH LAKE, ALICE ARM  
SKEENA MINING DIVISION  
PROVINCE OF BRITISH COLUMBIA

Introduction

During the period June 12th to August 31st, 1965, Induced Polarization (I.P.) and magnetometer surveys were carried out by Sulmac Exploration Services Limited over a portion of a group of claims held under option by Forest Kerr Mines Ltd. (N.P.L.).

The claims are located some 15 miles north of Alice Arm, British Columbia, in the Skeena Mining Division. Due to the extremely unseasonable weather experienced this year the field season was very limited. Snow was five feet deep on June 12, 1965, when the camp was established, and did not disappear from the lower elevations until mid-July. Snow and freezing temperatures returned at the end of August, bringing the field season to an early end for this year.

Prior to the survey, picket lines were laid out. The relative locations of these are shown on the maps accompanying this report. The work was carried out under the supervision

of A. Frew, project manager, and E. B. Nicholls, Geophysicist. The results obtained from these surveys are shown on the maps and profiles located at the rear of this report.

#### Summary & Recommendations

A magnetometer and an Induced Polarization survey were carried out over the property of Forest Kerr Mines Ltd. (N.P.L.) located near Alice Arm, British Columbia. The magnetometer survey did not indicate any major anomalous zone. This survey indicated the area to be of fairly uniform low magnetic relief and, therefore, suggesting that the underlying rocks are probably all of one type.

Three anomalous areas were located by the I.P. survey which warranted further detailed investigation. As no magnetic anomaly is associated with these zones it is thought that the cause of the anomaly is mainly due to sulphide mineralization. The detail work carried out confirmed the reconnaissance results.

It is considered that disseminated sulphides in unknown quantities (probably 6% sulphides by volume) are the cause of the anomalies. Within the zones more massive concentrations may occur. Calculations show that the cause of the

anomaly comes close to bedrock surface and that it has good depth extent.

Further investigation of these anomalous zones by drilling is strongly recommended. As the zones are fairly broad this drilling should be in the form of cross-sectioning.

Property, Location and Access

The group of claims discussed in this report are shown on a map accompanying this report and are listed as follows:

King #1 - 142 inclusive  
Cora #1 - 18           "  
Kin #1 - 8             "  
Reina Blanca #2-6 inclusive and #8  
Kinskuch #5 and 6  
Kinskuch Fr  
Woodland  
M.S.  
Grizzly  
Lavender #1

A total of 181 mining claims.

The claims are located around the southern half of Kinskuch Lake which is 4 miles long and 1 1/2 miles wide. Kinskuch Lake is located 15 miles due north of Alice Arm, B. C. at an altitude of 3750 feet.

Topography around the lake is fairly rugged. This tended to slow the progress of the geophysical surveys.

Access to the property can be made by float planes direct from Prince Rupert, B. C., during the time the lake is free from ice. At other times helicopter transportation is the only means of access to the property.

#### Method of Survey and Instrument Data

The surveys were carried out over a line grid system of 400 foot spaced lines and 100 foot stations. The baseline of the grid was established in an east-west direction and the traverse lines were turned off at right angles. Due to the short season, all the claim group was not surveyed at this time. A total of 28.2 miles of line was picketed.

#### I.P. Electrode Arrays

The I.P. data were obtained using the "three-electrode array". This array consists of one current electrode ( $C_1$ ), two potential electrodes ( $P_1$  and  $P_2$ ) being moved along the survey line. The second current electrode ( $C_2$ ) remained fixed at "infinity".

A basic electrode spacing of 200 feet was used for the reconnaissance survey. Additional information was obtained over anomalous areas using electrode spacings of 100 feet and 400 feet. The station interval along the lines was 100 feet.

#### I.P. Instrument

The instrument used was of the pulse-type and is similar in design and operation to that described by R. W. Baldwin in "A Decade of Development in Overvoltage Survey", A.I.M.E. Transactions, Vol. 214, 1959. Power for the unit is obtained from a Briggs and Stratton 4 H.P. motor coupled to a 400 c.p.s. generator which provides a maximum of 1500 watts d.c. to the ground. The cycling rate is 1.5 seconds current on and 0.5 seconds current off, the pulses reversing continuously in polarity. The data collected consists of measurement of the current (I) flowing through  $C_1$  and  $C_2$  and of the primary voltage ( $V_p$ ) between  $P_1$  and  $P_2$  during the 'current on' period. During the 'current off' period the overvoltage appearing between  $P_1$  and  $P_2$  is measured. This gives a measurement of the polarization ( $V_s$ ) in milliseconds. The "apparent chargeability" in milliseconds is calculated by dividing the polarization ( $V_s$ ) by the primary voltage ( $V_p$ ). The "Apparent resistivity" in



ohm-meters is obtained by dividing the primary voltage  $V_p$  by the current  $I$ , and multiplying by a proportionality factor which depends on the geometry of the array used.

#### I.P. Data

A total of 19.6 miles of survey was completed using the three various electrode spacings.

The results of the survey are shown as contour maps of 'chargeability' and 'resistivity' for the basic 200 foot electrode spacing at a scale of 400 feet to an inch. Results of the detail work are shown as profiles. These profiles have a horizontal scale of one inch to two hundred feet. The "apparent chargeability" is plotted at a vertical scale of 8 milliseconds per inch. The "apparent resistivity" is plotted to a vertical scale of 500 ohm-meters per inch.

#### Magnetometer Survey

This survey was conducted over 23.3 miles of line, using a Sharpe A-2 magnetometer. The sensitivity of the instrument was 20 gammas per scale division. The results obtained were plotted and contoured on a map at a scale of 400 feet to the inch.

## Discussion of Results

### Magnetometer Survey

This survey shows the area to be one of fairly uniform magnetic relief, indicating the underlying rocks to be mainly of one group. One or two localized readings higher than background are to be noted; these are probably due to more basic formations. The area surveyed indicated no magnetic anomaly and therefore no concentrate of magnetite.

### Induced Polarization Survey

The variations in the apparent resistivities obtained during the survey may be ascribed to changes in the overburden thickness and in the overburden and bedrock resistivities.

The data of the 200 foot electrode spacing indicates that the background values of the chargeability over the area surveyed are fairly high, in the order of 3.5 milli-seconds. This may be due to widely spaced mineralization within the various rock types. The reconnaissance survey located three areas worthy of further investigation. These zones are identified on the accompanying maps by the numbers 1, 2, and 3. Zone 1 is located across the main baseline

between lines 4E to 20E; Zone #2 is located across the south ends of lines 9W to 12E. Both these zones are still open to the east. The third anomalous area is located across the lake from Zone #2 and may be the western extension of this zone. Detail work using 100 foot and 400 foot electrode spacings was carried out over these three anomalous areas.

Anomalous zone #1 is located in an area where no previous exploration work has been carried out. The zone shows a strike length of 2,000 feet and is still open to the east and west. Calculations carried out on the data obtained show that the causative body comes to bedrock surface, has a width of some 600 feet and considerable depth extent. Sulphide mineralization in the amount of 5-10% by volume could be the cause of the anomaly.

The second zone located across the southern end of lines 0, 4E, 8E, and 12E is not completely delineated. This anomalous zone has similar characteristics to those of Zone #1 and it is, therefore, thought to be caused by a similar body. The western extension of the zone crosses the small peninsula where mineralization is known to occur, both from outcrops and previous drilling.

The third zone is located across the lake from the second zone and may be an extension of it. Only a limited amount of survey was carried out in this area, however this work indicated that the causative body was probably sulphide mineralization in similar quantities as expected in the other anomalous areas.

In conclusion, the Induced Polarization survey located three fairly extensive anomalous areas. These zones appear to be due to sulphide mineralization in amounts of approximately 6% by total volume. In order to determine the nature of this mineralization it is recommended that each zone be investigated by diamond drilling.

Respectfully submitted,

SULMAC EXPLORATION SERVICES LIMITED



September 16, 1965

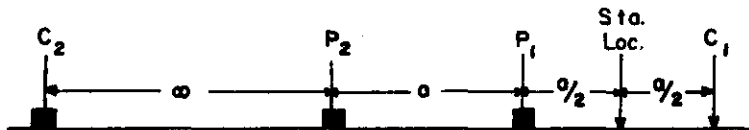
APPENDIX

The following personnel were employed on the survey during the dates indicated:

E. B. Nicholls	Chief Geophysicist	June 11-24/65 incl. July 19, 27, Aug. 5, 26, Sept. 3 & 7
A. M. Frew	Project Manager	June 1- August 31/65 incl.
G. Hill	Magnetometer Operator	June 10 - August 31/65 incl.
A. Guernier	I.P. Operator	June 26 - Aug. 31/65 incl.
S. McCurdy	Geophysical assistant	June 26 - Aug. 31/65 incl.
G. Steger	" "	July 22 - Aug. 31/65 incl.
M. Morrison	" "	July 22 - Aug. 31/65 incl.
A. Pape	" "	June 10 - July 23/65 incl.
T. Sypher	" "	June 10 - July 23/65 incl.
D. Gray	" "	June 10 - 20/65 incl.
D. Grant	Draughtsman	Aug. 30, Sept. 1, 2, 3, 7, 8, 13-17 incl.

# LEGEND

## INDUCED POLARIZATION SURVEY



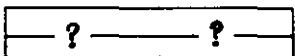
### PROFILES



AREA OF SPECIAL INTEREST



AREA OF INTEREST



AREA OF POSSIBLE INTEREST

## MAGNETOMETER SURVEY

### PROFILE



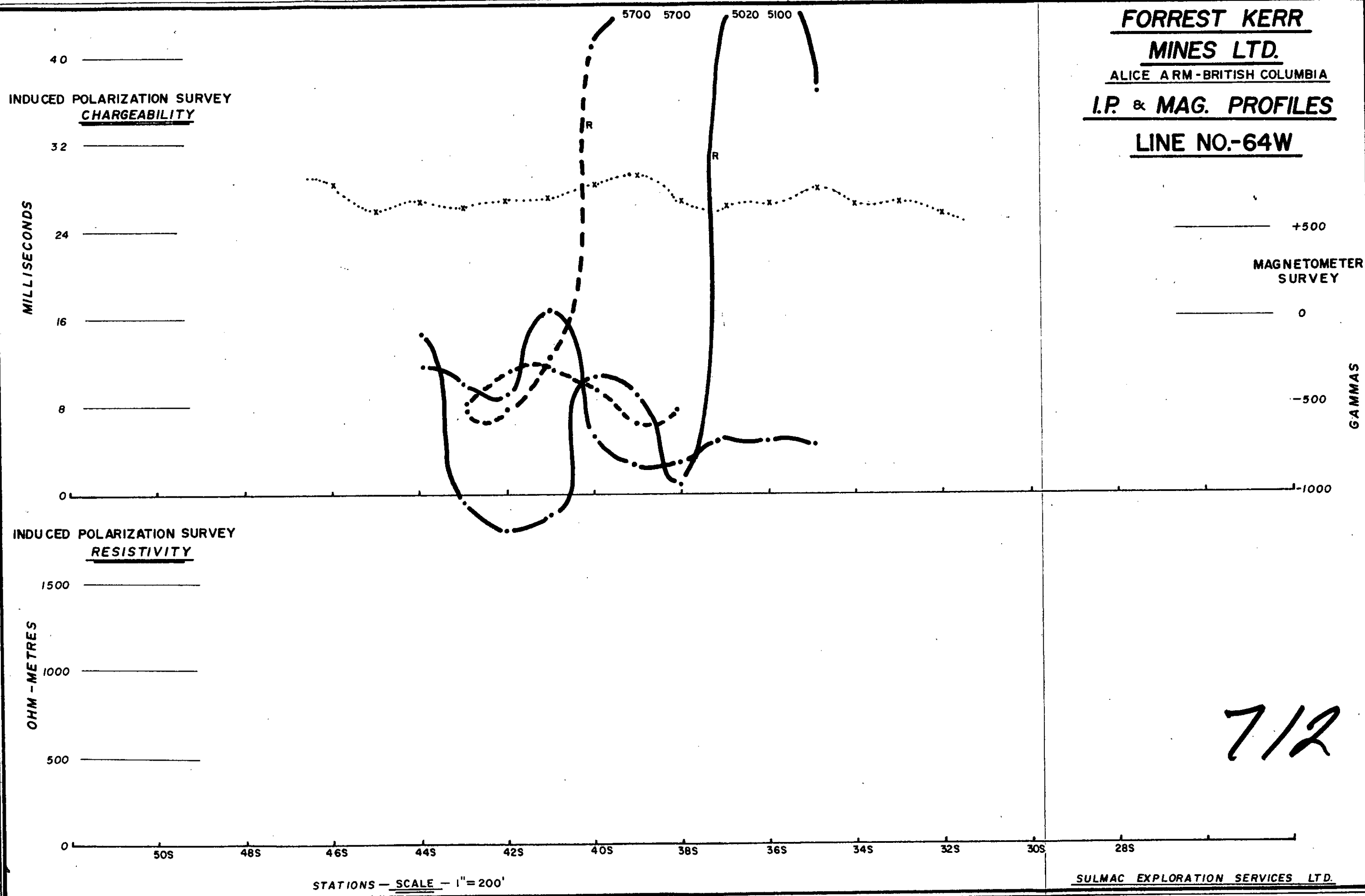
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ALICE ARM - BRITISH COLUMBIA

**I.P. & MAG. PROFILES**

**LINE NO.-64W**



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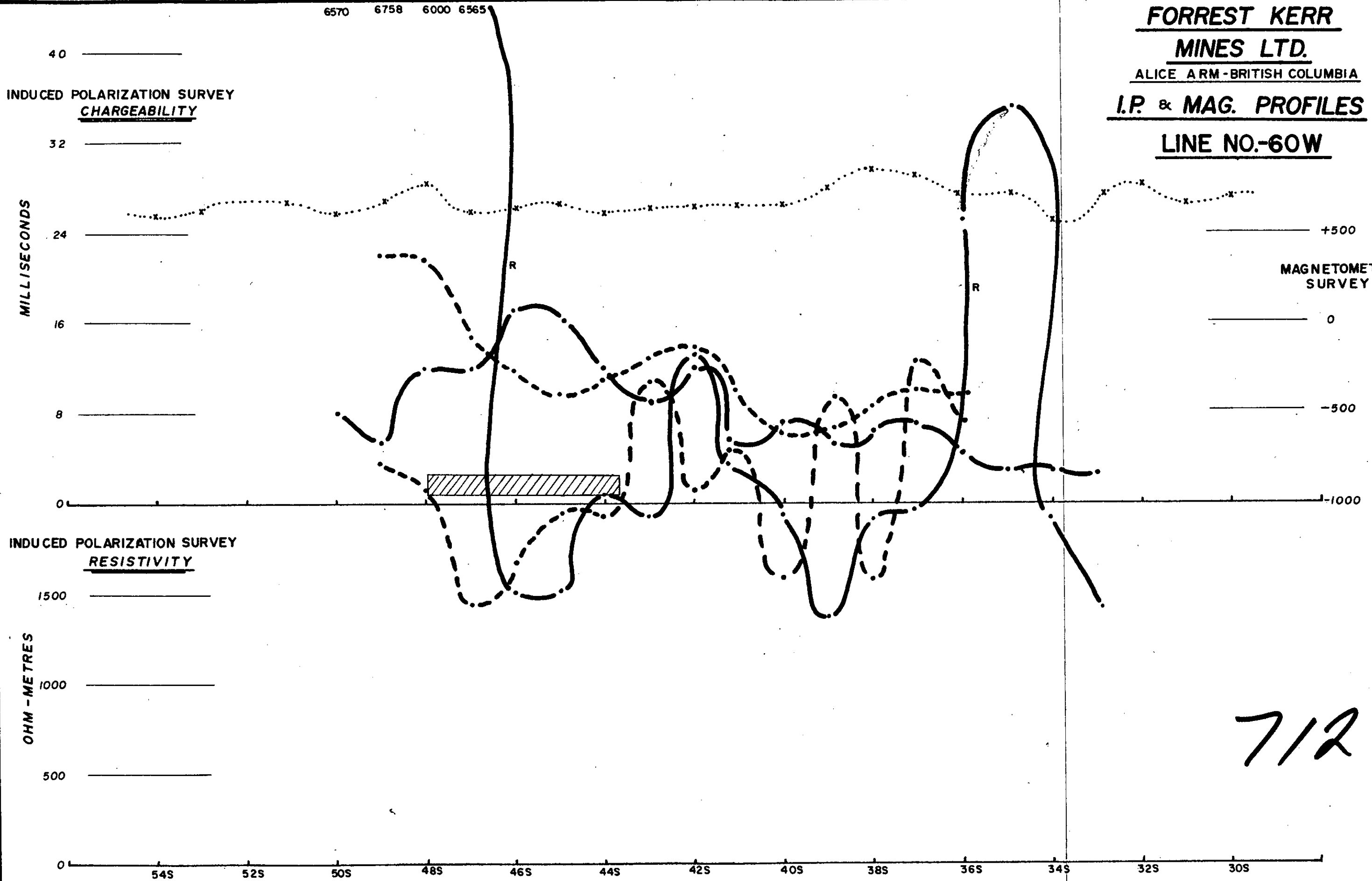
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**I.P. & MAG. PROFILES**

**LINE NO.-60W**



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**I.P. & MAG. PROFILES**

**LINE NO.-56W**

INDUCED POLARIZATION SURVEY  
CHARGEABILITY

MILLISECONDS

40  
32  
24  
16  
8  
0

+500  
0  
-500  
-1000

MAGNETOMETER SURVEY

GAMMAS

INDUCED POLARIZATION SURVEY  
RESISTIVITY

OHM - METRES

1500  
1000  
500  
0

58S 56S 54S 52S 50S 48S 46S 44S 42S 40S 38S 36S 34S 32S 30S

STATIONS - SCALE - 1" = 200'

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712

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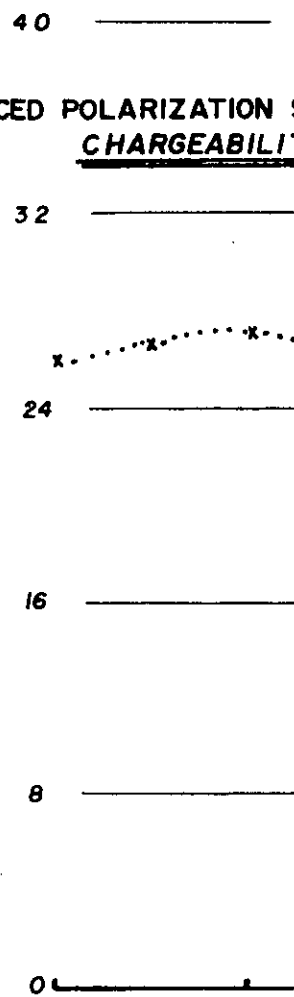
ALICE ARM - BRITISH COLUMBIA

**I.P. & MAG. PROFILES**

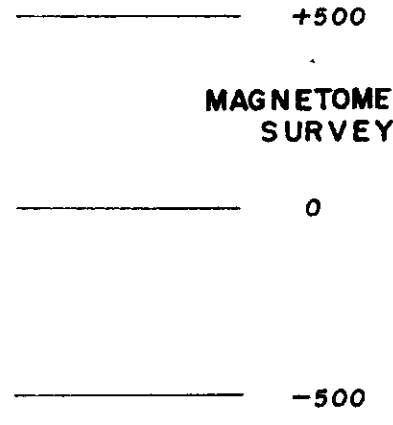
**LINE NO.-52W**

INDUCED POLARIZATION SURVEY  
CHARGEABILITY

MILLISECONDS



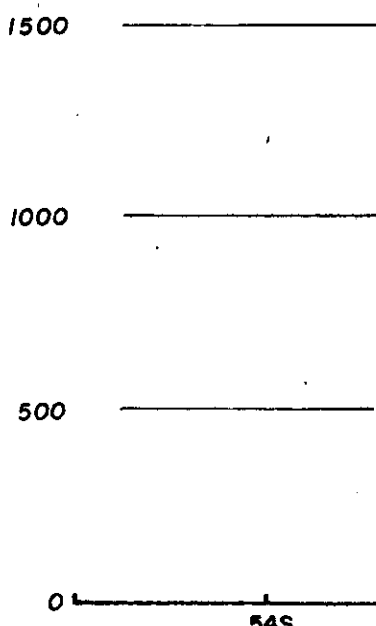
MAGNETOMETER SURVEY



GAMMAS

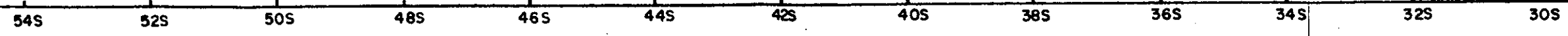
INDUCED POLARIZATION SURVEY  
RESISTIVITY

OHM - METRES



?

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STATIONS — SCALE — 1" = 200'

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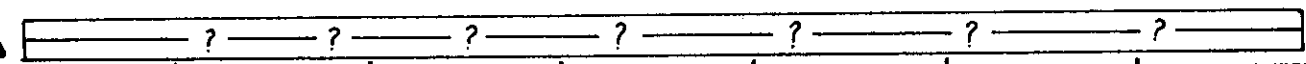
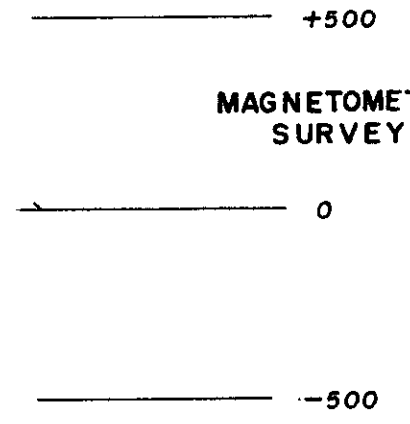
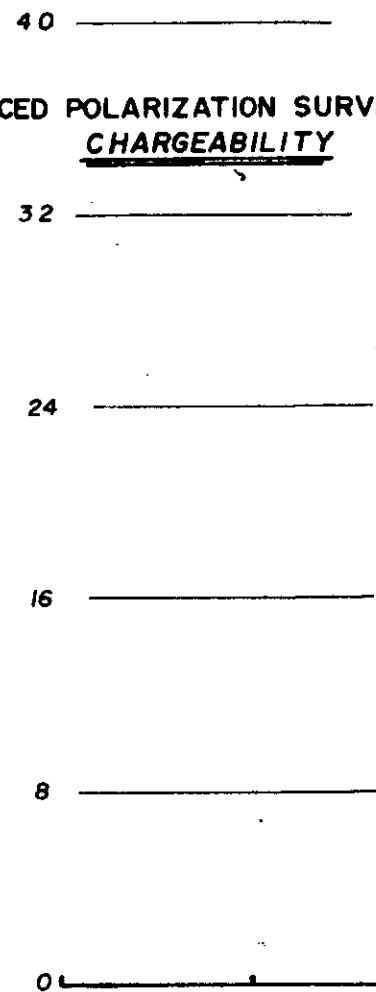
ALICE ARM - BRITISH COLUMBIA

**I.P. & MAG. PROFILES**

**LINE NO.-48W**

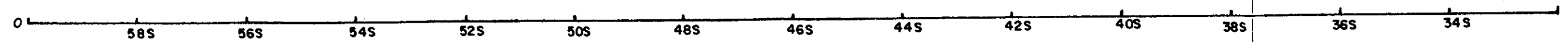
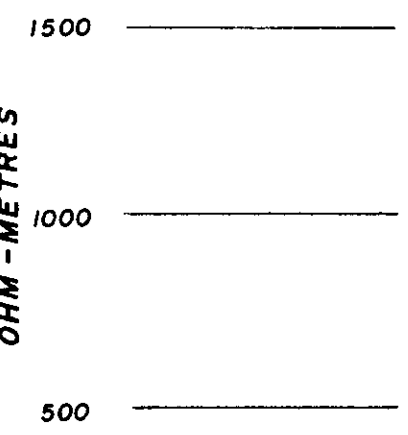
INDUCED POLARIZATION SURVEY  
CHARGEABILITY

MILLISECONDS



INDUCED POLARIZATION SURVEY  
RESISTIVITY

OHM - METRES



STATIONS - SCALE - 1" = 200'

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ALICE ARM-BRITISH COLUMBIA

**I.P. & MAG. PROFILES**

**LINE NO.-44W**

40 \_\_\_\_\_  
INDUCED POLARIZATION SURVEY  
CHARGEABILITY

32 \_\_\_\_\_

MILLISECONDS

24 \_\_\_\_\_

16 \_\_\_\_\_

8 \_\_\_\_\_

0 \_\_\_\_\_

\_\_\_\_\_ +500  
MAGNETOMETER  
SURVEY

\_\_\_\_\_ 0

\_\_\_\_\_ -500

GAMMAS

\_\_\_\_\_ -1000

INDUCED POLARIZATION SURVEY  
RESISTIVITY

1500 \_\_\_\_\_

OHM-METRES

1000 \_\_\_\_\_

500 \_\_\_\_\_

0 \_\_\_\_\_

712

52S

50S

48S

46S

44S

42S

40S

38S

36S

34S

STATIONS — SCALE — 1" = 200'

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**I.P. & MAG. PROFILES**

**LINE NO.- 6W**

INDUCED POLARIZATION SURVEY  
CHARGEABILITY

MILLISECONDS

40  
32  
24  
16  
8  
0

+500  
MAGNETOMETER SURVEY  
0  
-500  
-1000

GAMMAS

INDUCED POLARIZATION SURVEY  
RESISTIVITY

OHM - METRES

1500  
1000  
500  
0

40S 38S 36S 34S 32S 30S 28S 26S 24S 22S 20S 18S 16S 14S 12S

STATIONS - SCALE - 1" = 200'

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**I.P. & MAG. PROFILES**

**LINE NO.- 4W**

INDUCED POLARIZATION SURVEY  
CHARGEABILITY

MILLISECONDS

40  
32  
24  
16  
8  
0

MAGNETOMETER SURVEY

+500  
0  
-500  
-1000

GAMMAS

INDUCED POLARIZATION SURVEY  
RESISTIVITY

OHM - METRES

1500  
1000  
500  
0

42S 40S 38S 36S 34S 32S 30S 28S 26S 24S 22S 20S 18S 16S 14S

STATIONS — SCALE — 1" = 200'

712

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**I.P. & MAG. PROFILES**

**LINE NO.-2W**

INDUCED POLARIZATION SURVEY  
CHARGEABILITY

MILLISECONDS

40  
32  
24  
16  
8  
0

MAGNETOMETER SURVEY

+500

0

-500

GAMMAS

-1000

INDUCED POLARIZATION SURVEY  
RESISTIVITY

OHM - METRES

1500  
1000  
500  
0

712

42S 40S 38S 36S 34S 32S 30S 28S 26S 24S 22S 20S 18S 16S 14S

STATIONS — SCALE — 1" = 200'

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ALICE ARM - BRITISH COLUMBIA

I.P. & MAG. PROFILES

LINE NO. - '0+00' (N)

INDUCED POLARIZATION SURVEY  
CHARGEABILITY

MILLISECONDS

40

32

24

16

8

0

MAGNETOMETER  
SURVEY

0

-500

-1000

GAMMAS

INDUCED POLARIZATION SURVEY  
RESISTIVITY

OHM - METRES

1500

1000

500

0

12S 10S 8S 6S 4S 2S 0 2N 4N 6N 8N 10N 12N 14N 16N

STATIONS - SCALE - 1" = 200'

SULMAC EXPLORATION SERVICES LTD.

1808

+500



712



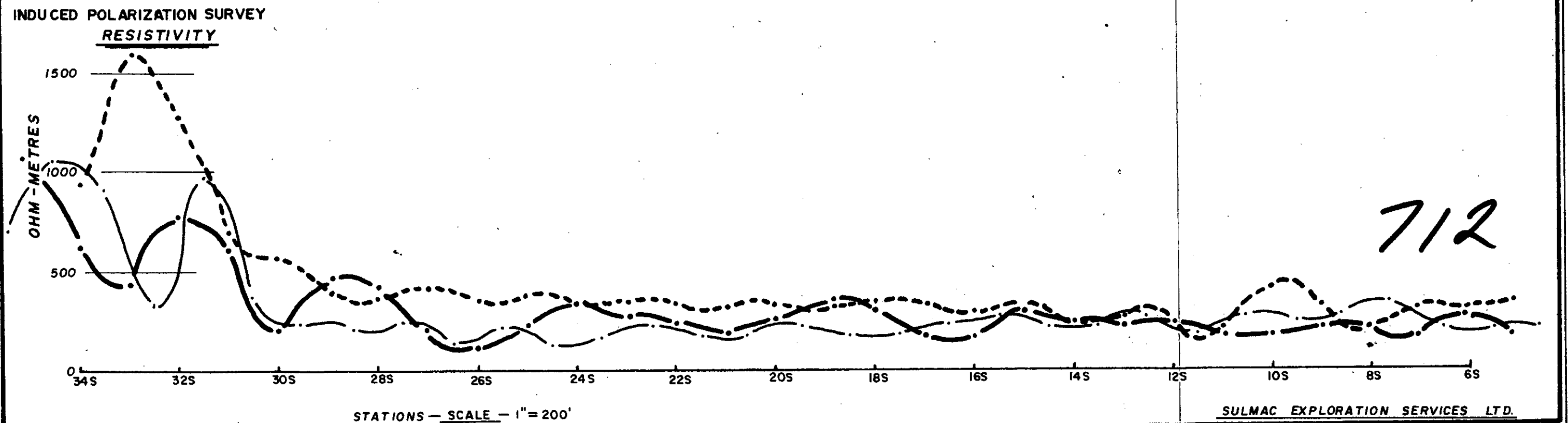
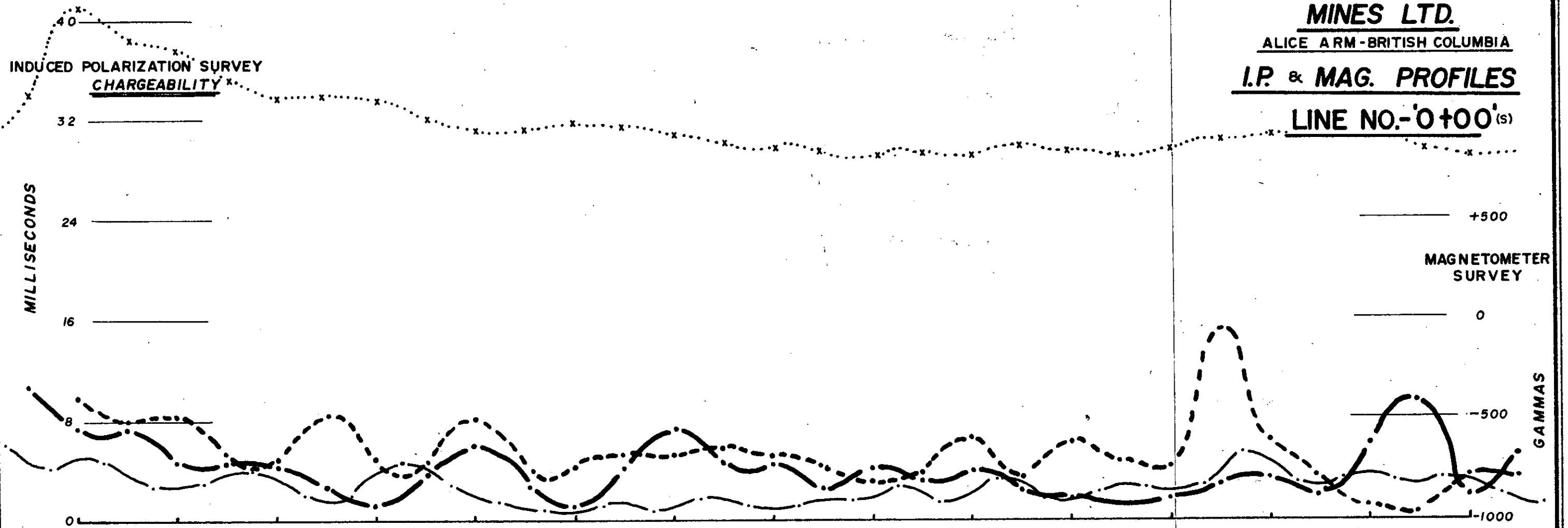
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**I.P. & MAG. PROFILES**

**LINE NO. - 0+00' (S)**



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**I.P. & MAG. PROFILES**

**LINE NO.- 4E (N)**

40  
INDUCED POLARIZATION SURVEY  
CHARGEABILITY

32

MILLISECONDS

24

16

8

0

INDUCED POLARIZATION SURVEY  
RESISTIVITY

1500

OHM - METRES

1000

500

0

MAGNETOMETER  
SURVEY

0

-500

-1000

GAMMAS

712

16S 14S 12S 10S 8S 6S 4S 2S 0 2N 4N 6N 8N 10N 12S

STATIONS - SCALE - 1" = 200'

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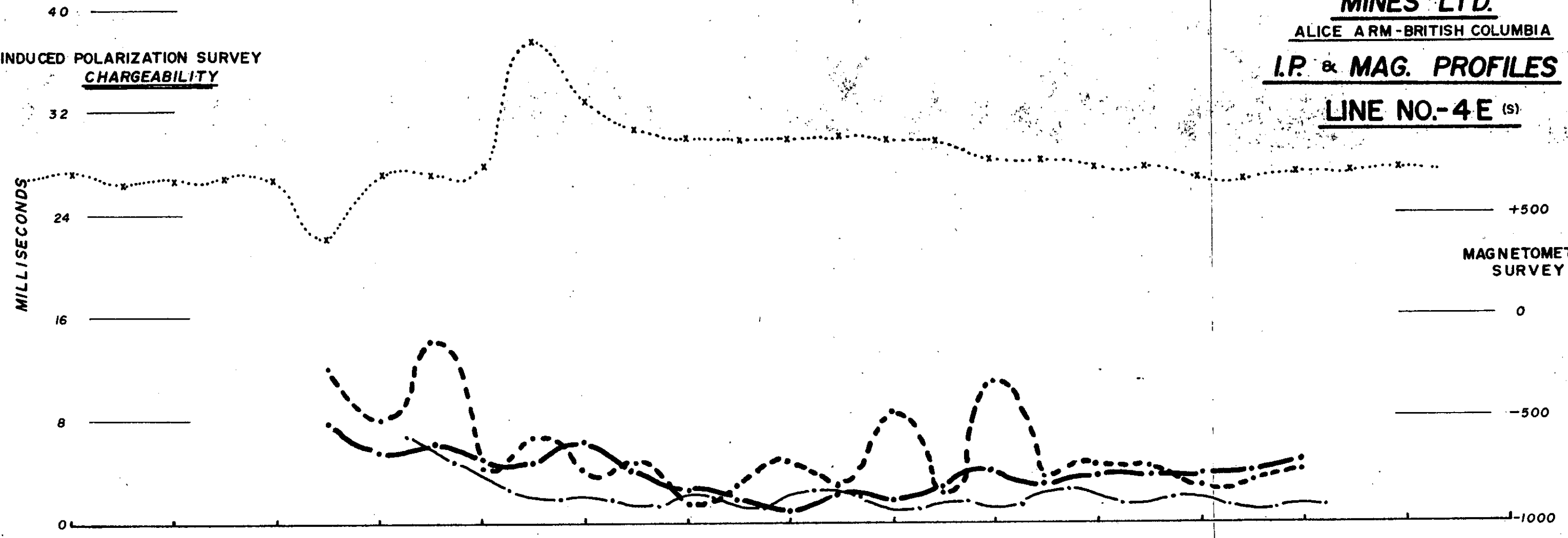
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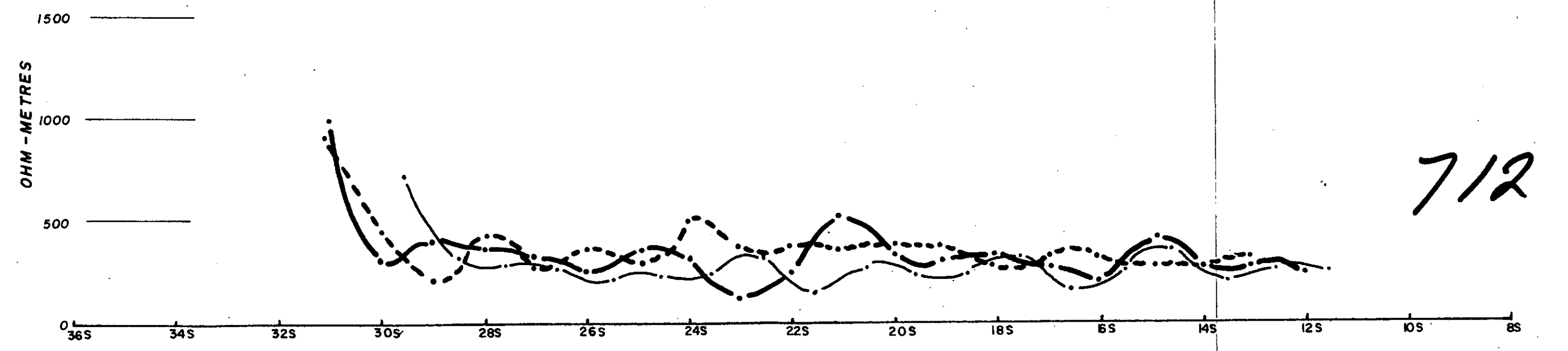
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**LINE NO.-4E (S)**

INDUCED POLARIZATION SURVEY  
CHARGEABILITY



INDUCED POLARIZATION SURVEY  
RESISTIVITY



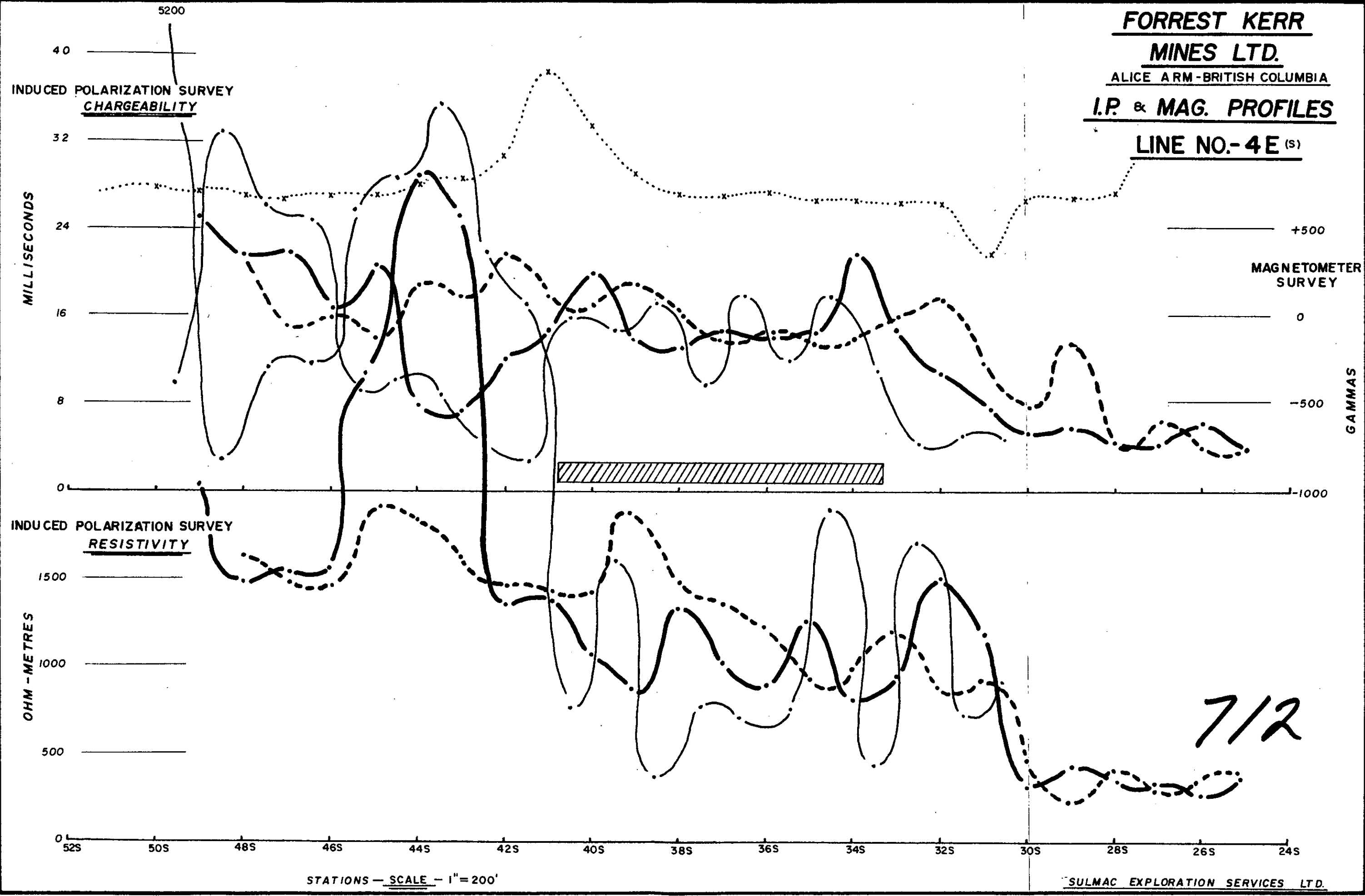
712

STATIONS — SCALE — 1" = 200'

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**ALICE ARM - BRITISH COLUMBIA  
I.P. & MAG. PROFILES**

**LINE NO.-4E (S)**



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ALICE ARM - BRITISH COLUMBIA

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**LINE NO.-8E (N)**

INDUCED POLARIZATION SURVEY  
CHARGEABILITY

MILLISECONDS

40  
32  
24  
16  
8  
0

MAGNETOMETER SURVEY

GAMMAS

+500  
0  
-500  
-1000

INDUCED POLARIZATION SURVEY  
RESISTIVITY

OHM-METRES

1500  
1000  
500

712

10S 8S 6S 4S 2S 0 2N 4N 6N 8N 10N 12N 14N 16N 18N

STATIONS - SCALE - 1" = 200'

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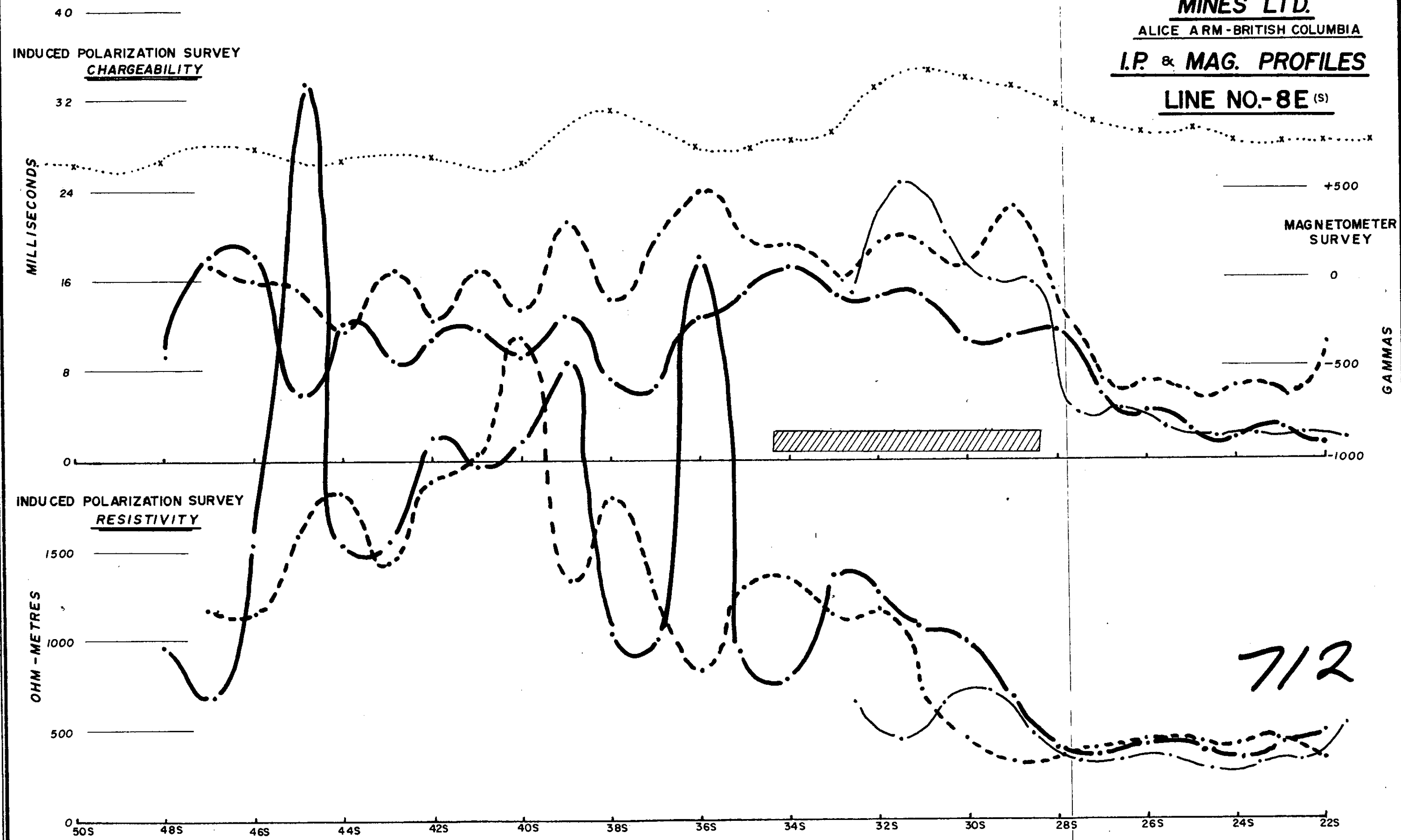
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ALICE ARM - BRITISH COLUMBIA

**I.P. & MAG. PROFILES**

**LINE NO.-8E (S)**



712

STATIONS — SCALE — 1" = 200'

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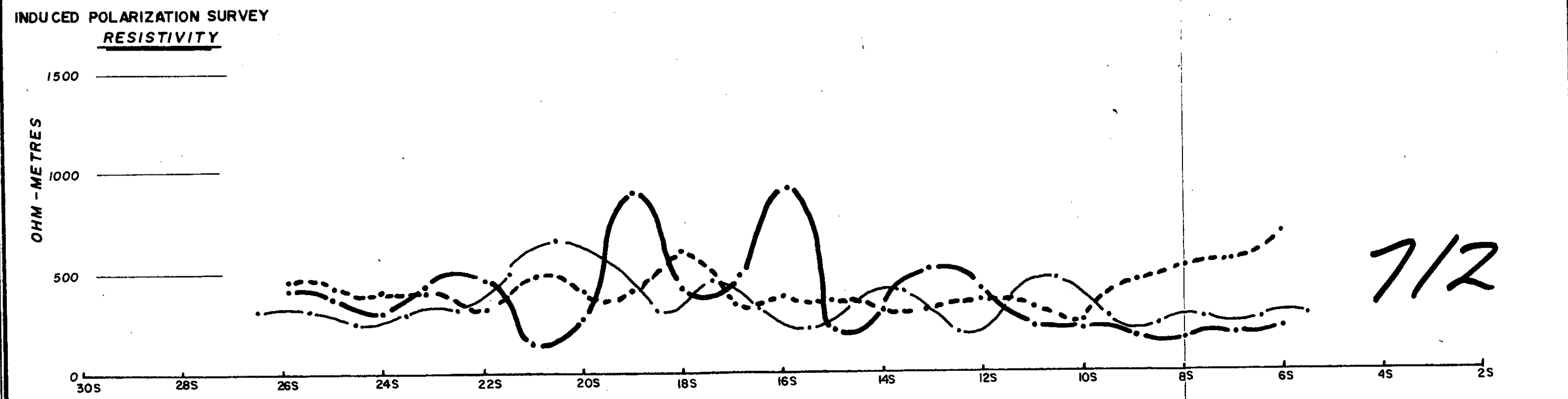
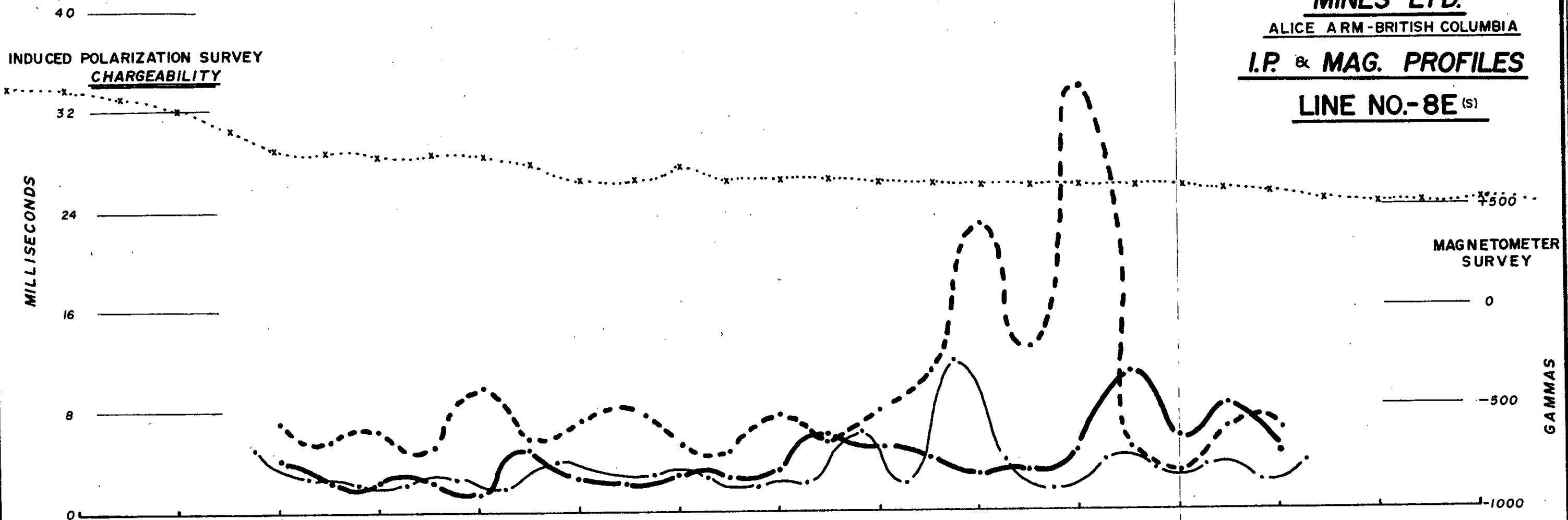
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ALICE ARM - BRITISH COLUMBIA

**I.P. & MAG. PROFILES**

**LINE NO.-8E (S)**



STATIONS — SCALE — 1" = 200'

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**MINES LTD.**

ALICE ARM - BRITISH COLUMBIA

**I.P. & MAG. PROFILES**

**LINE NO.- 12E (N)**

INDUCED POLARIZATION SURVEY  
CHARGEABILITY

MILLISECONDS

40

32

24

16

8

0



MAGNETOMETER SURVEY

GAMMAS

+500

0

-500

-1000

INDUCED POLARIZATION SURVEY  
RESISTIVITY

OHM - METRES

1500

1000

500

0 20S 18S 16S 14S 12S 10S 8S 6S 4S 2S 0 2N 4N 6N 8N

STATIONS - SCALE - 1" = 200'

712



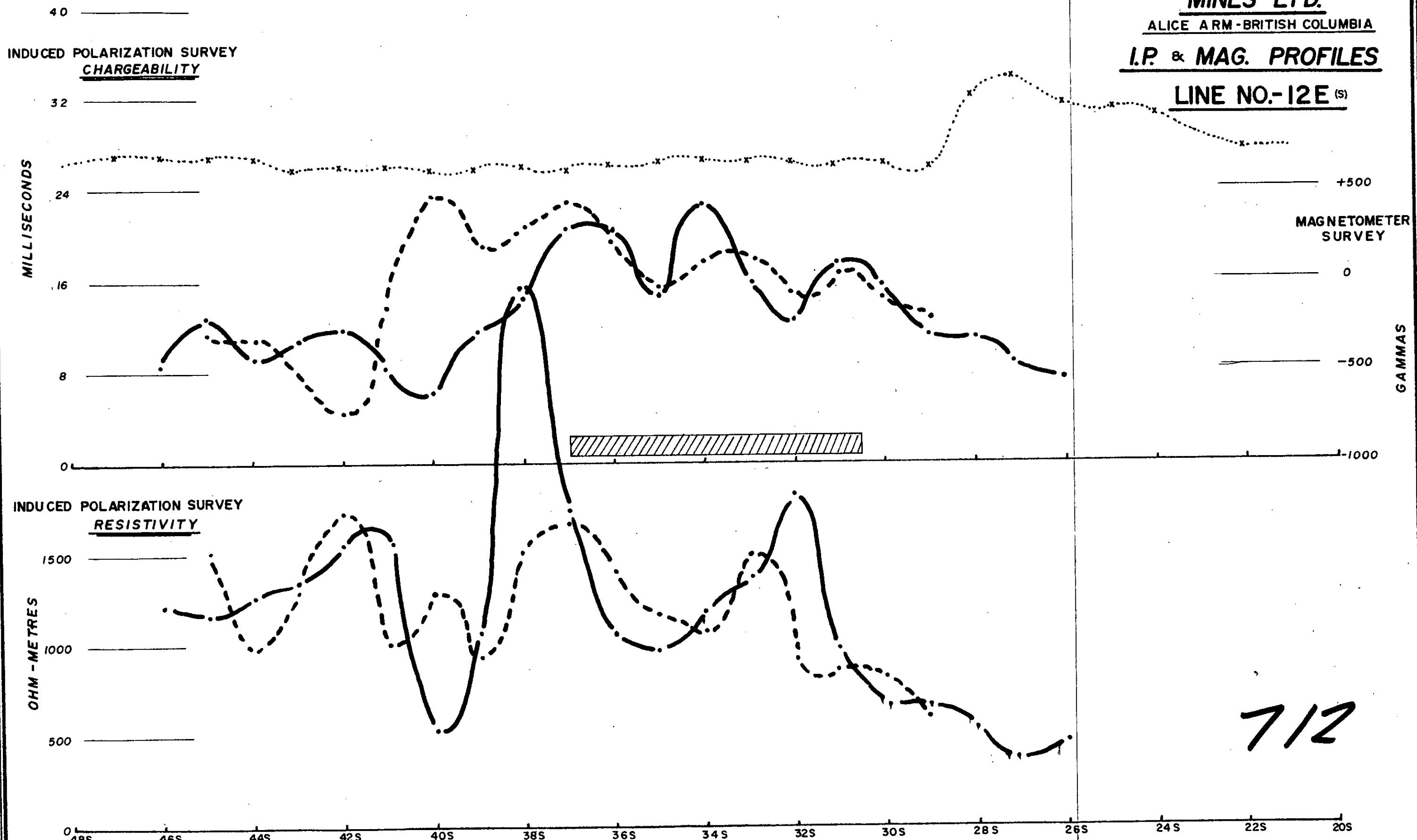
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**MINES LTD.**

ALICE ARM - BRITISH COLUMBIA

**I.P. & MAG. PROFILES**

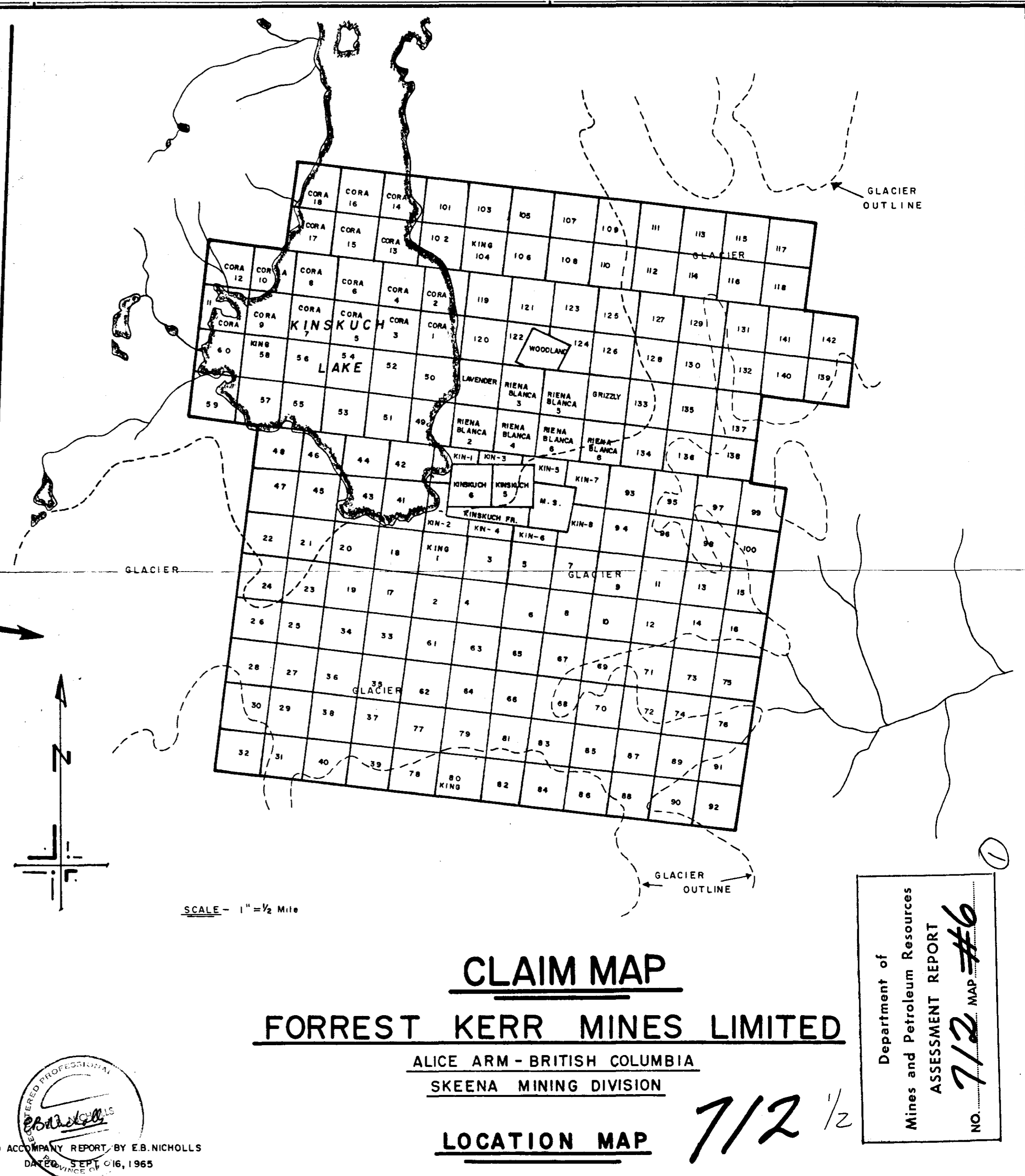
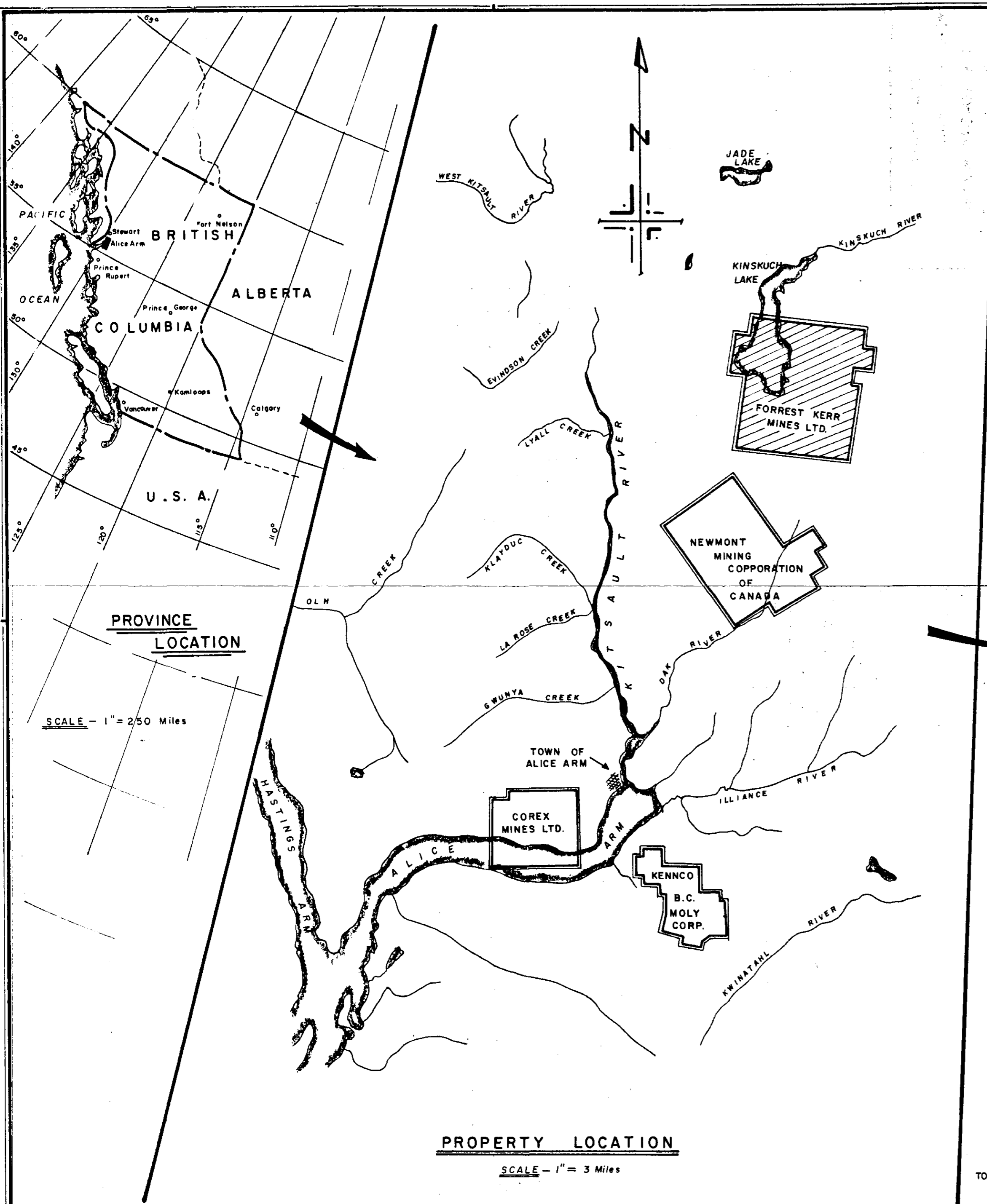
**LINE NO.-12E (S)**



STATIONS — SCALE — 1" = 200'

SULMAC EXPLORATION SERVICES LTD.

712



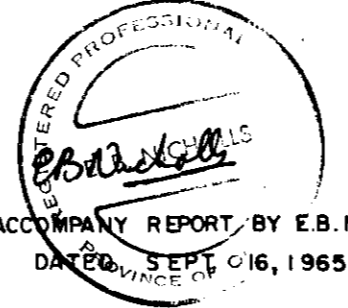
**CLAIM MAP**  
**FORREST KERR MINES LIMITED**

**Alice Arm - BRITISH COLUMBIA**  
**SKEENA MINING DIVISION**

**LOCATION MAP**

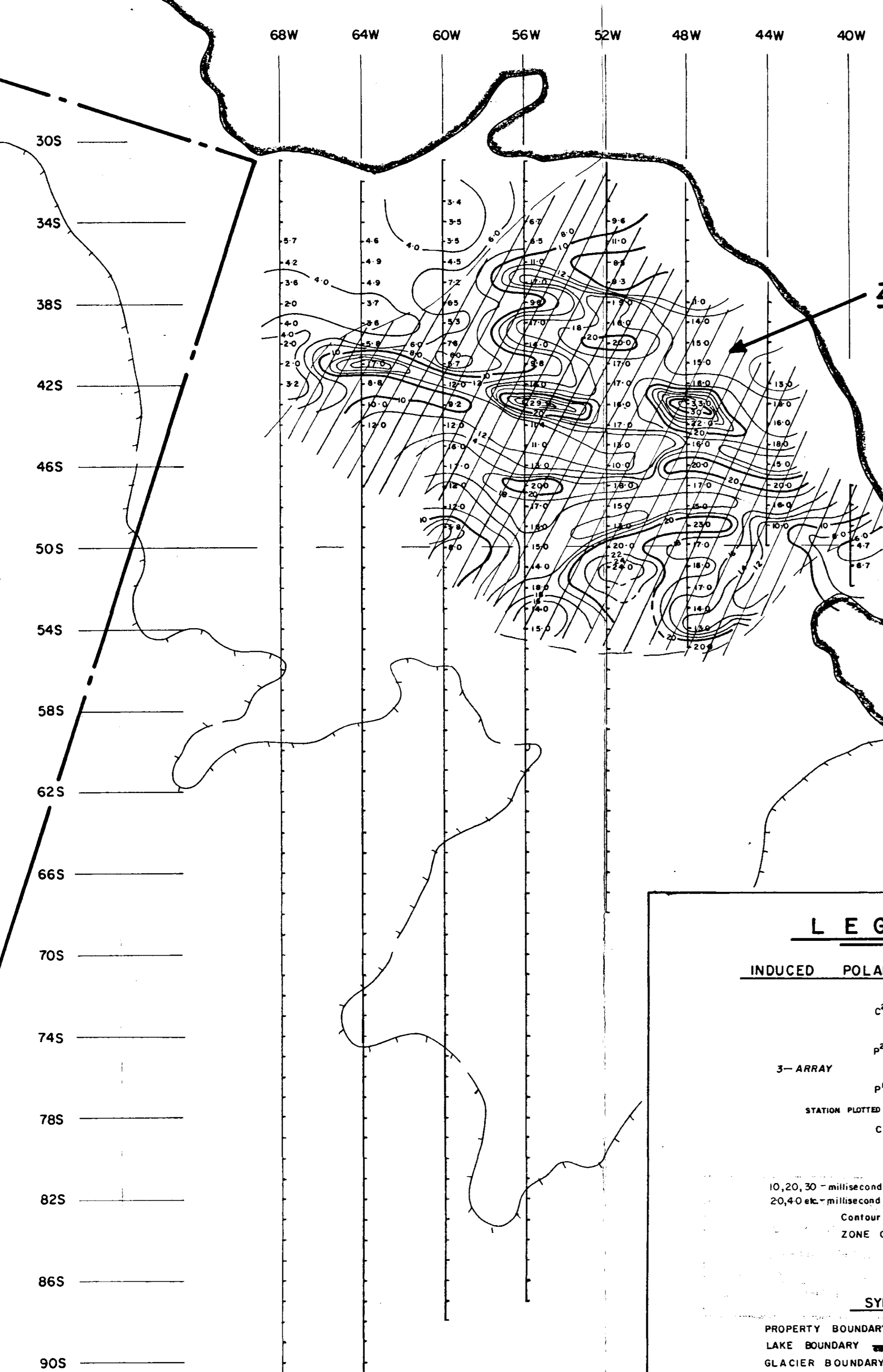
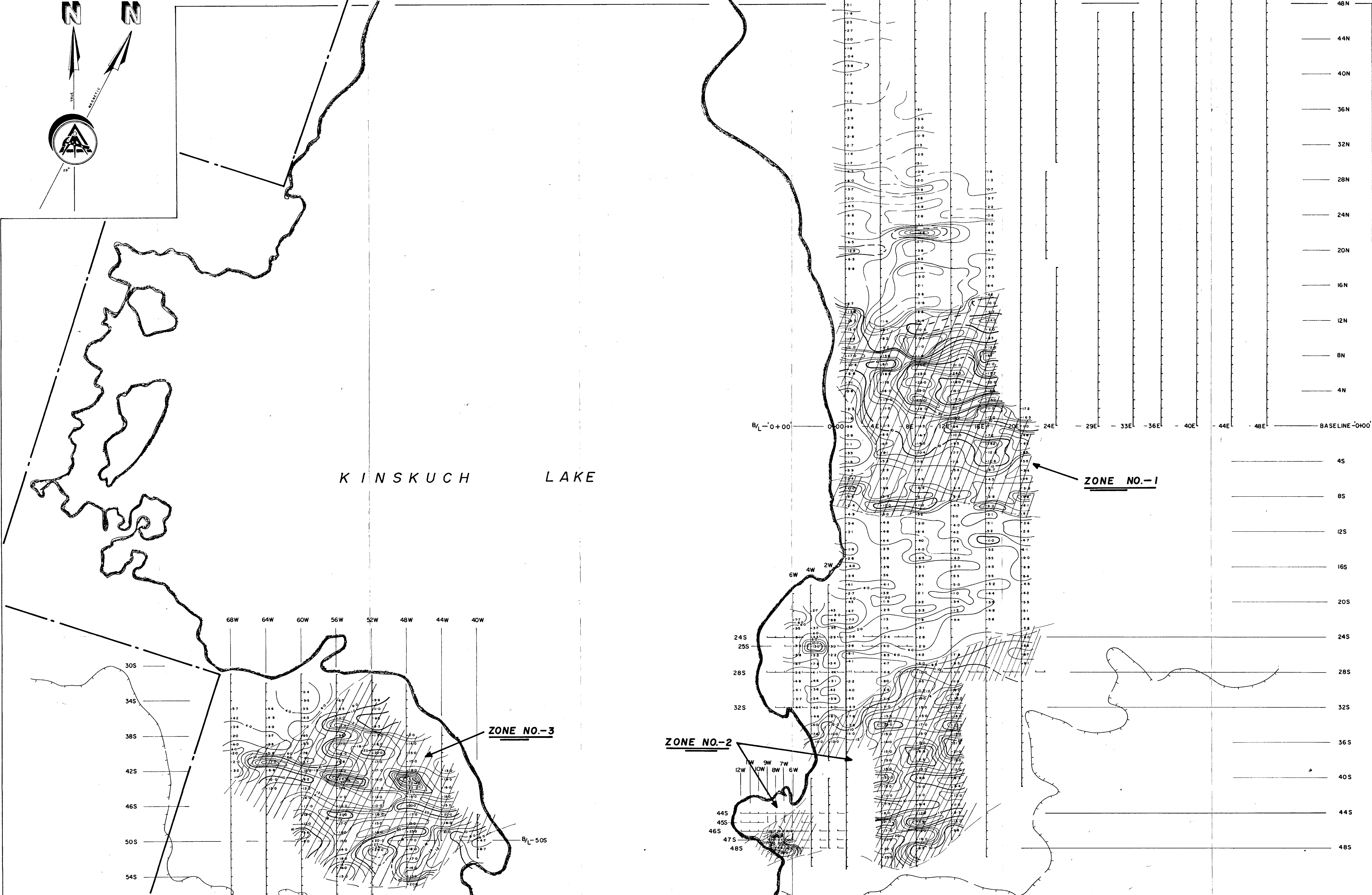
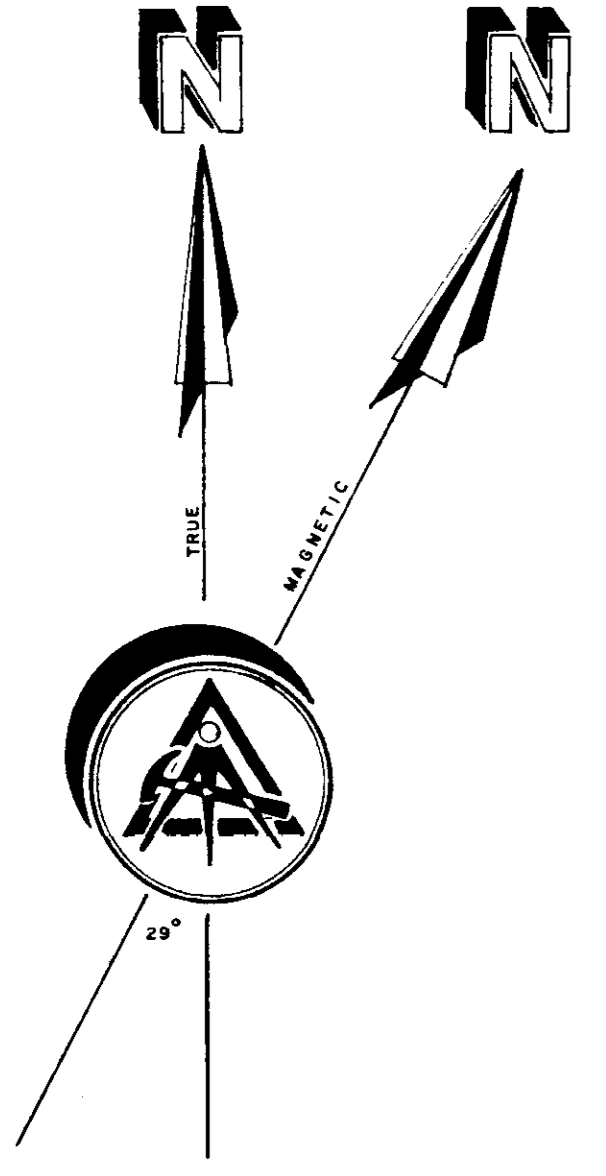
SULMAC EXPLORATION SERVICES LIMITED

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TO ACCOMPANY REPORT BY E.B. NICHOLLS  
DATE: SEPT 16, 1965

Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 712 MAP #6



**LEGEND**

INDUCED POLARIZATION SURVEY

3-ARRAY  
STATION PLOTTED

TRAVEL LINE AND STATIONS

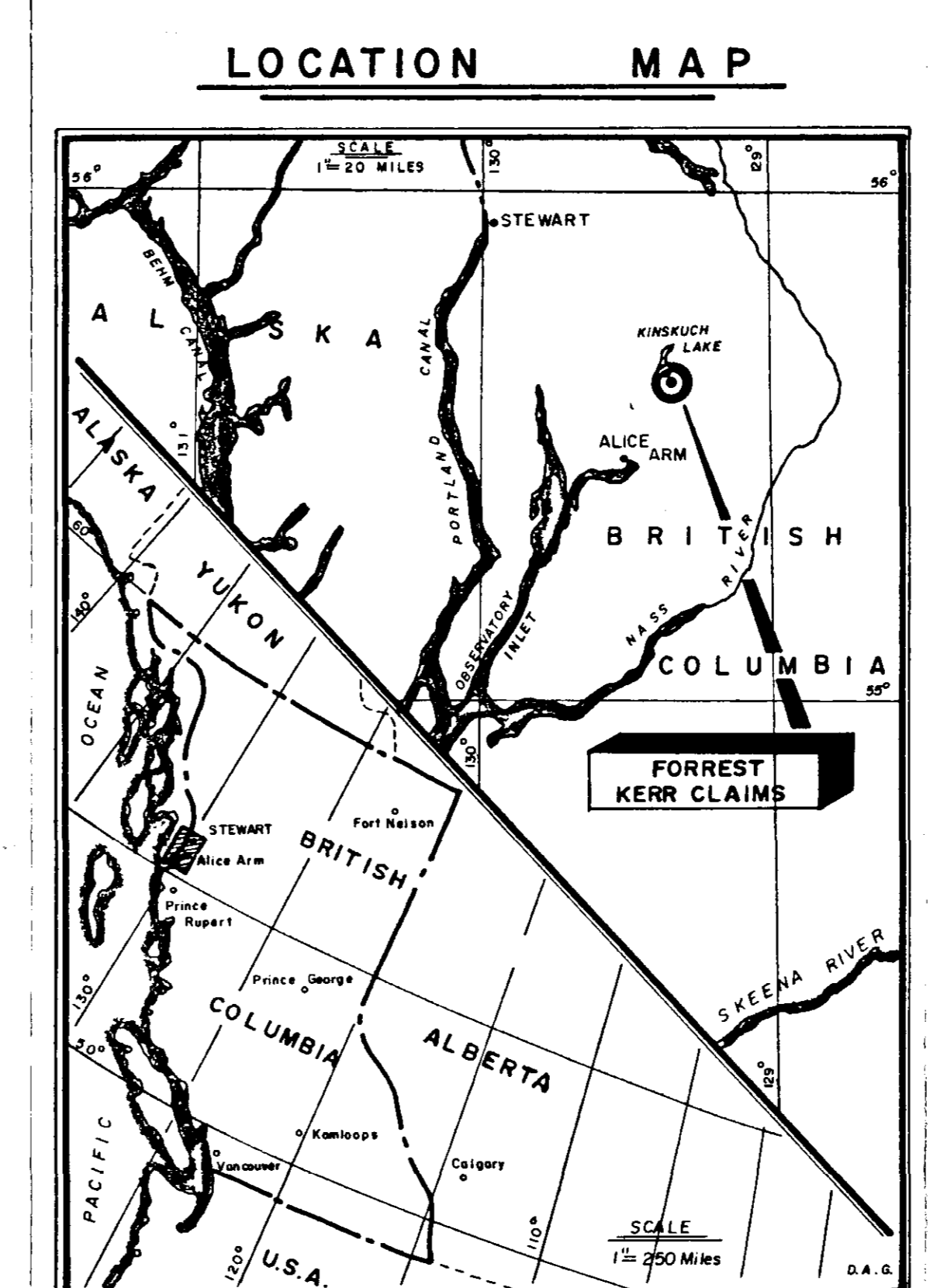
1:200

10, 20, 30 - millisecond Contour  
20, 40 etc. - millisecond Contour  
Contour Interval - 20 Milliseconds  
ZONE OF INTEREST

**SYMBOLS**

PROPERTY BOUNDARY (APPROX.)  
LAKE BOUNDARY  
GLACIER BOUNDARY

Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 712 MAP #7



TO ACCOMPANY REPORT BY E.B. NICHOLS DATED SEPT. 16, 1965

**FORREST KERR MINES LIMITED**

ALICE ARM - BRITISH COLUMBIA  
SKEENA MINING DIVISION

**INDUCED POLARIZATION SURVEY**

**CHARGEABILITY**

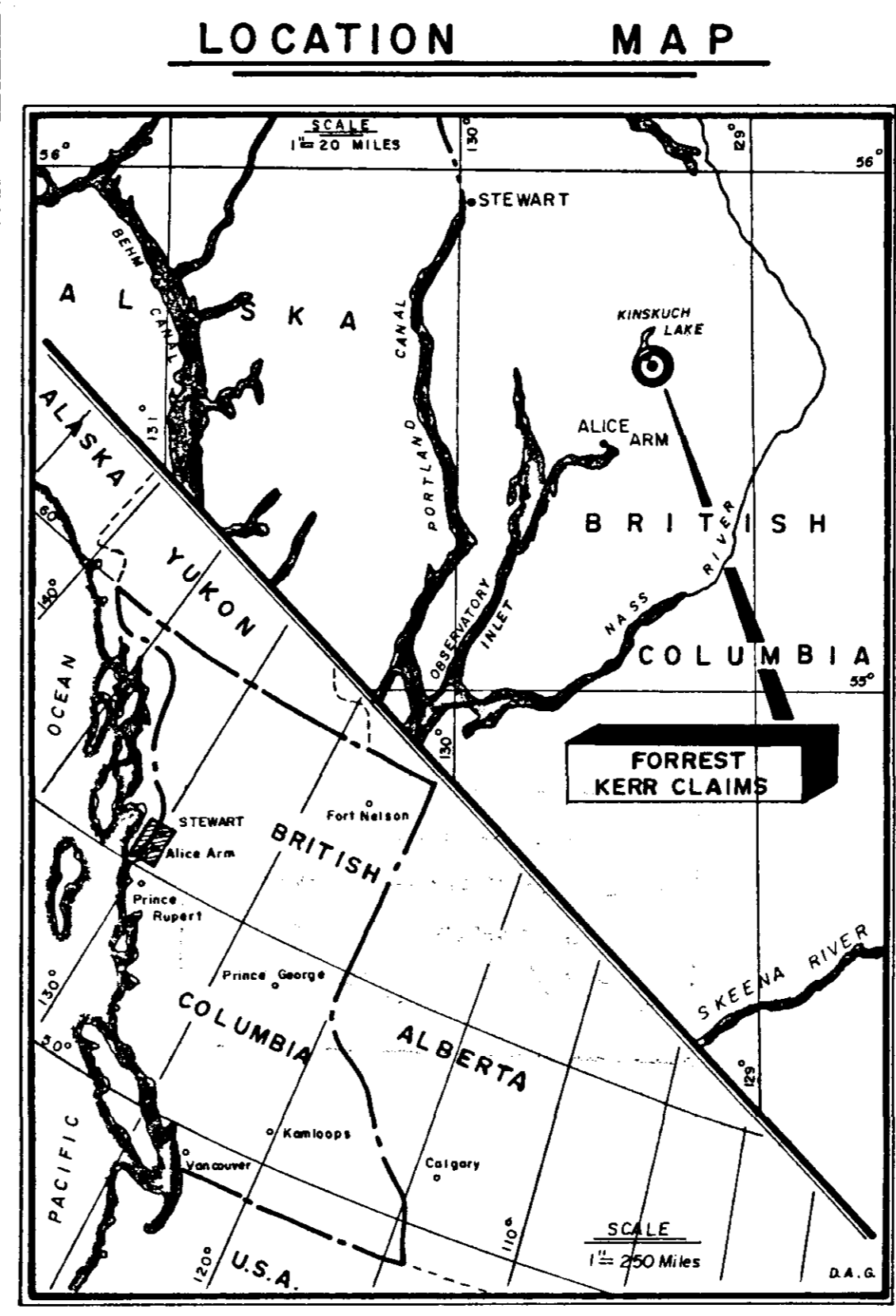
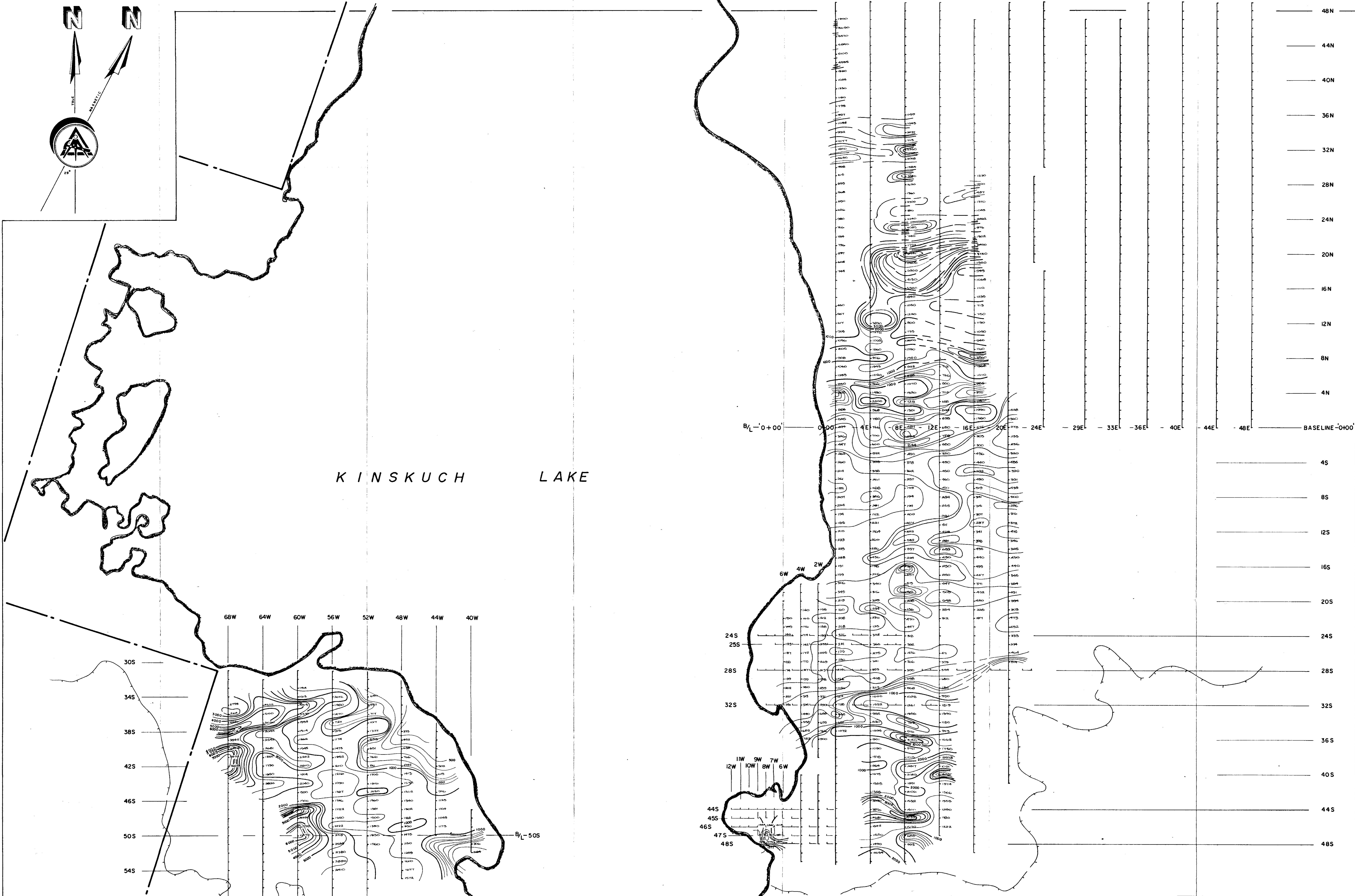
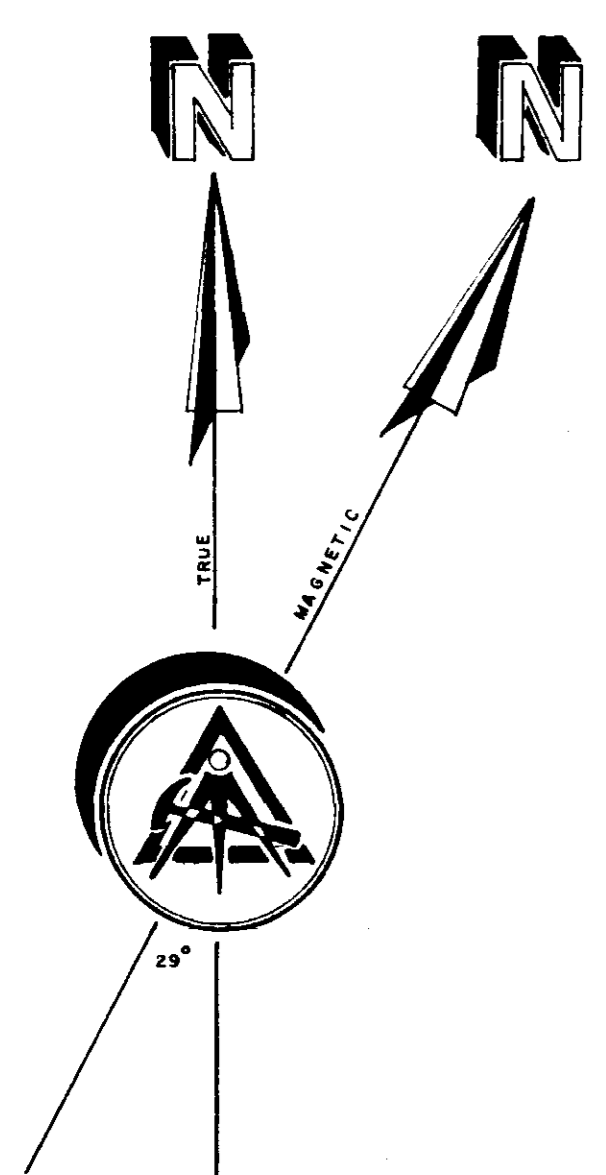
**712 1/2**

SULMAC EXPLORATION SERVICES LIMITED  
JULY-SEPT-1965

Scale  
One Inch = Four Hundred Feet

Drawn By: D.A. GRANT





**LEGEND**

INDUCED POLARIZATION SURVEY

3-ARRAY  
 TRAVERSE LINE AND STATIONS  
 STATION PLOTTED

$\sigma = 200$   
 Contour Interval 100 ohm-metre (from 0-1000)  
 500 ohm-metre (from 1000)

100,200,500 etc. ohm-metre Contour  
 1000 ohm-metre Contour

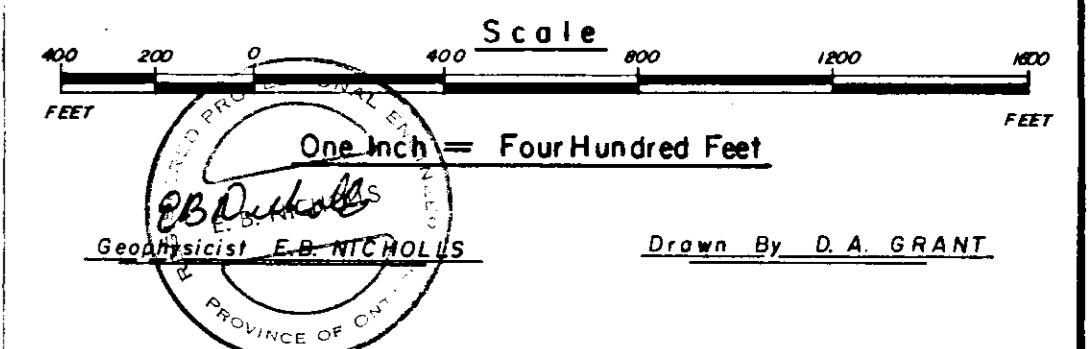
**SYMBOLS**

PROPERTY BOUNDARY (APPROX.)  
 LAKE BOUNDARY  
 GLACIER BOUNDARY

Department of  
 Mines and Petroleum Resources  
 ASSESSMENT REPORT  
 NO. 712 MAP #8

**FORREST KERR MINES LIMITED**  
 ALICE ARM - BRITISH COLUMBIA  
 SKEENA MINING DIVISION

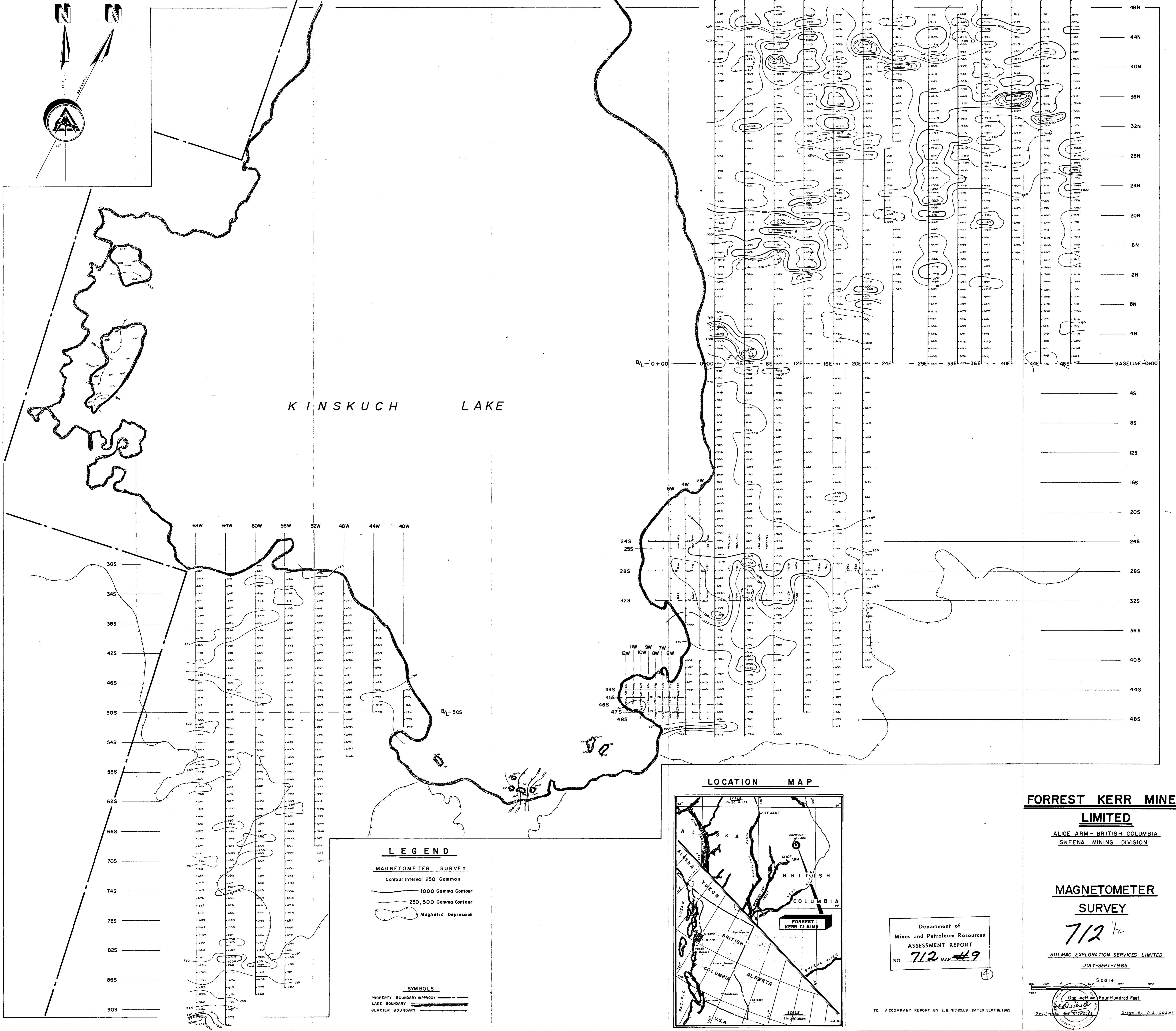
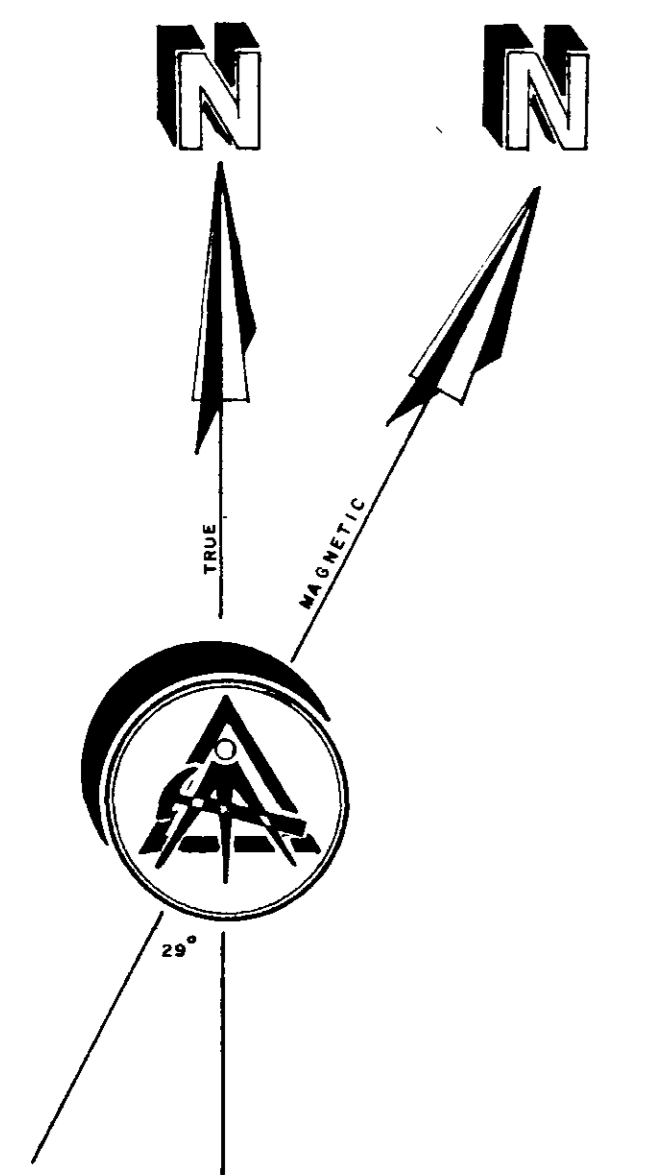
**INDUCED POLARIZATION SURVEY**  
**RESISTIVITY 712 1/2**  
 SULMAC EXPLORATION SERVICES LIMITED  
 JULY-SEPT-1965



TO ACCOMPANY REPORT BY E. B. NICHOLS DATED SEPT 16, 1965

Drawn By: D. A. GRANT





K I N S K U C H      L A K E

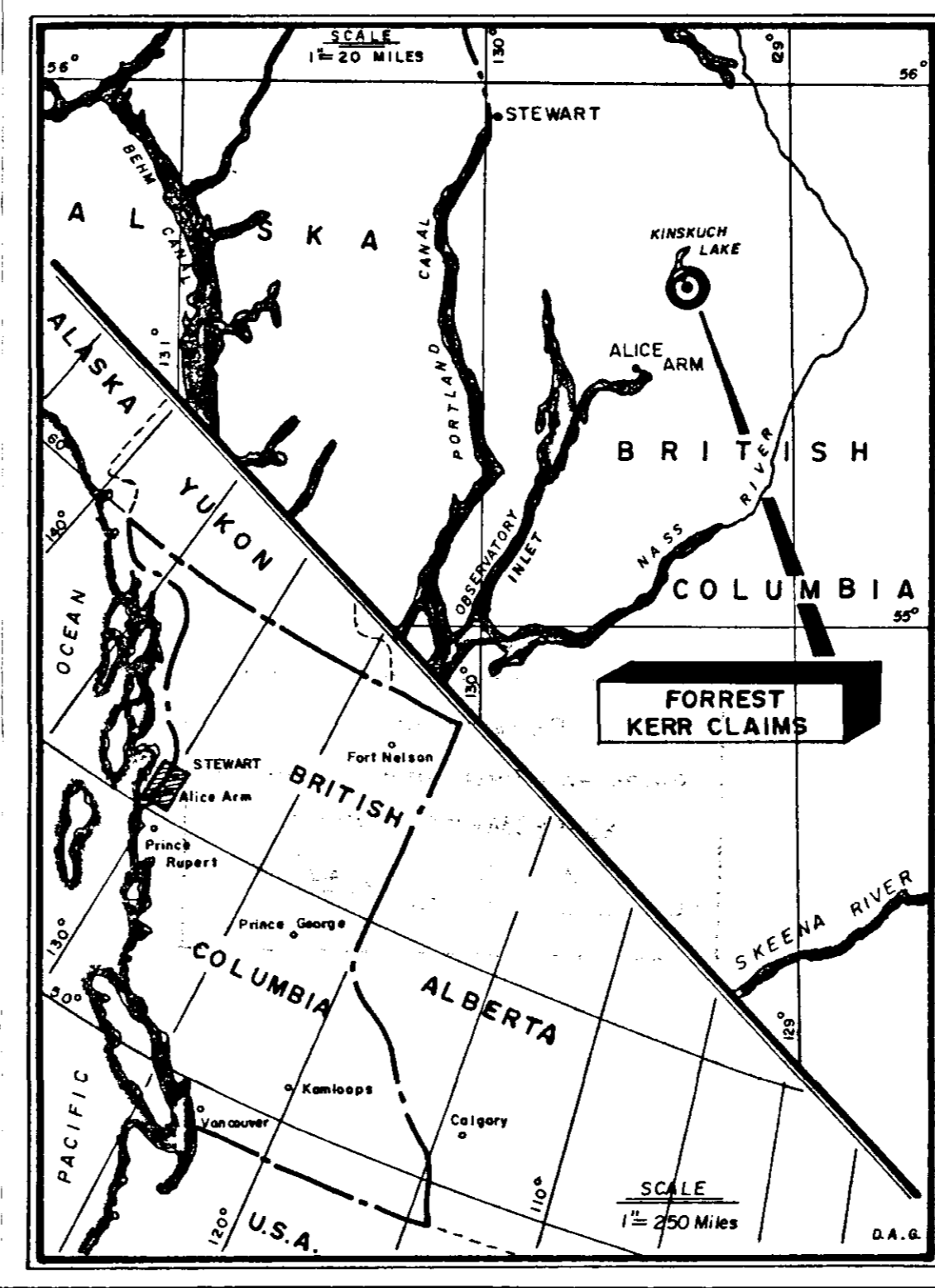
**LEGEND**

- MAGNETOMETER SURVEY**
- Contour Interval 250 Gammas
  - 1000 Gamma Contour
  - 250,500 Gamma Contour
  - ⊖ Magnetic Depression

**SYMBOLS**

- PROPERTY BOUNDARY APPROX
- LAKE BOUNDARY
- GLACIER BOUNDARY

**LOCATION MAP**



Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. **712 MAP #9**

**FORREST KERR MINES**

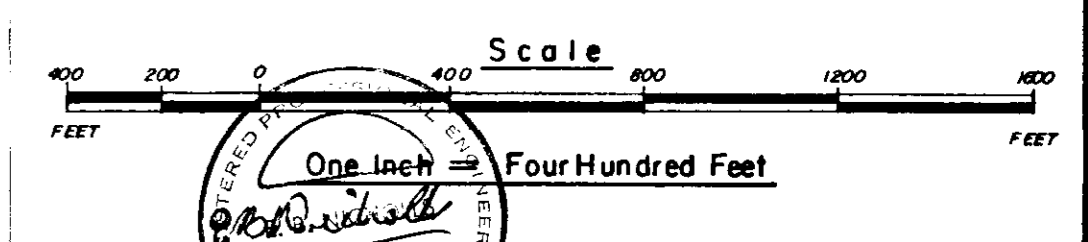
**LIMITED**

ALICE ARM - BRITISH COLUMBIA  
SKEENA MINING DIVISION

**MAGNETOMETER SURVEY**

**712 1/2**

SULMAC EXPLORATION SERVICES LIMITED  
JULY-SEPT-1965



TO ACCOMPANY REPORT BY E.B. NICHOLS DATED SEPT. 16, 1965

Geophysical Services Limited  
Drawn By: G.A. GRANT