

REPORT ON  
INDUCED POLARIZATION SURVEY  
ON CORTINA CLAIMS  
BABINE LAKE AREA, BRITISH COLUMBIA  
ON BEHALF OF  
NITTETSU MINING COMPANY LTD.

932/16W

by

P. J. Fominoff, B.A.Sc.

and

Jon G. Baird, B.Sc., P.Eng.

October 20, 1970

CLAIMS:

Name

CORTINA 1 - 51

LOCATION:

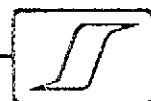
Babine Lake area, British Columbia  
About 3.5 miles west of Topley Landing  
Omineca Mining Division  
126° 54' NE

DATES:

August 25 to August 28  
and September 8, 1970.

TABLE OF CONTENTS

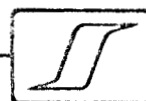
	<u>Page No.</u>
SUMMARY	
INTRODUCTION	1
GEOLOGY	2
DISCUSSION OF RESULTS	3
CONCLUSIONS AND RECOMMENDATIONS	5
PLATES:	
(in text)	
X' Plate 1 - Property Location Map	1" = 4 miles
(in envelope)	
XV Plate 2 - Chargeability and Resistivity Profiles Plan Map; Claims, Survey Lines and Anomalous Areas	1" = 400' 1" = 1500'



### SUMMARY

The reconnaissance induced polarization survey has revealed two areas of increased chargeability responses which may be indicative of sulphide mineralization or of other minerals known to give induced polarization responses.

Geological and geochemical investigations are recommended to determine if these areas may indeed contain economic type sulphide mineralization. If these investigations prove favourable, further induced polarization surveying should be carried out to obtain more quantitative information about the increased chargeability sources in order to establish locations for diamond drill holes.



REPORT ON  
INDUCED POLARIZATION SURVEY  
ON CORTINA CLAIMS  
BABINE LAKE AREA, BRITISH COLUMBIA  
ON BEHALF OF  
NITTETSU MINING COMPANY LTD.

INTRODUCTION

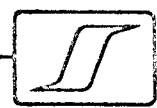
During the period August 25 to August 28, and on September 8, 1970, a geophysical field party under the direction of Mr. Peter Fominoff, B.A.Sc., executed an induced polarization survey in the Babine Lake area, British Columbia on behalf of Nittetsu Mining Company Ltd.

The property lies about 3.5 miles west of Topley Landing, B.C., and is reached by driving 8 miles over a good gravel road. Glacial drift covers most of the surface of the property and topographic relief is moderate.

The claims covered, in whole or part, by this survey are listed on the title page of this report and are shown on Plate 2 on a scale of 1" = 1500'. These claims are held by Nittetsu Mines Ltd.

Seigel Mk VII time-domain (pulse-type) induced polarization equipment has been employed on this property. The transmitting unit had a rating of 2.5 kw. and equal on and off times of 2.0 seconds. The receiving unit was a remote, ground-pulse type triggered by the rising and falling primary voltages set up in the ground by the transmitter. The integration of the transient polarization voltages takes place for 0.65 seconds after a 0.45 second delay time following the termination of the current on pulse.

The purpose of an induced polarization survey is to map the subsurface distribution of metallicly conducting mineralization beneath



the grids covered. In the present area such mineralization could include chalcopyrite, molybdenite, pyrite and other metallic sulphide minerals. Metallic minerals such as graphite and magnetite as well as non-metallic minerals such as chlorite and sericite can give responses not always distinguishable from sulphide mineralization.

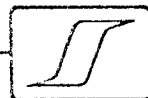
The three electrode array was employed for the survey. For this electrode array, one current electrode and two potential electrodes traverse the profiles with an interelectrode spacing called "a". The second or "infinite" current electrode is placed a distance greater than 5a from the measuring point which is defined as the midpoint between the moving current electrode and the near potential electrode. For the present survey observations were taken for  $a = 400'$ .

On the Cortina property uncut claim lines oriented north-south at 3000' intervals, and one road running northwest-southeast were surveyed. Stations were chained with a 400' wire during the execution of the survey. Station intervals were 400' for the reconnaissance survey and 200' for detailing regions of increased chargeabilities. The survey totalled 8.6 line miles.

#### GEOLOGY

The geology of the area surrounding the present claims is shown on G.S.C. Map 671-A, Houston, on the scale of 1" = 4 miles. As well, the B. C. Minister of Mines Annual Report for 1965 gives a good discussion of the geology of Newman Peninsula and the Granisle copper deposit which lies about ten miles north of the present property.

The G.S.C. Map shows the area to be heavily overburden covered, however some granite and volcanic outcrop occurs along the Fulton River



and over the western part of the property. Both volcanic rocks of the Hazelton Group and granite have been mapped to the north and south of the property. It would appear most likely that the present property is largely underlain by volcanic rocks with possibly some granite in the northwest corner. Small intrusives may occur within the volcanics.

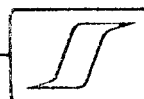
Two types of ore deposits may occur in the Babine Lake area. A prime target would be a disseminated sulphide copper deposit such as the Granisle ore body occurring within an intrusive rock type. A target of secondary interest would be a lode deposit occurring in the volcanic rocks.

DISCUSSION OF RESULTS

Plate 2, on the scale of 1" = 400' shows the chargeability (induced polarization characteristic of the rock) and resistivity results in profile form. The vertical scales for these profiles are 1" = 10.0 milliseconds for chargeability and 1" = 500 ohm-meters for resistivity. Also Plate 2 contains a plan map of the claims and survey lines on a scale of 1" = 1500'.

The chargeability profiles reveal that the background chargeability ranges from 3.0 to 6.0 milliseconds. This is a normal non-metallic background range for most rock types. With this background a uniform subsurface distribution of 1% by volume of metallicly conducting mineralization would be expected to add approximately 10.0 milliseconds to the observed responses. Chargeabilities in excess of about 10.0 milliseconds would be considered worthy of further investigation since deposits of very low concentrations of copper and molybdenum of sufficient dimensions may have economic significance.

Two regions where chargeabilities rise above 10.0 milliseconds



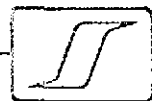
have been noted in this survey. One region is on Claim Line 3 from 23 N to 37 N, and the other is on Claim Line 4 from 13 S to 24 S. The region on Claim Line 3 has been named Area 1 and the region on Claim Line 4 has been called Area 2. The locations of both areas are shown on Plate 2.

In Area 1 the peak chargeability is 20.0 milliseconds and in Area 2 it is 30.0 milliseconds. The bedrocks underlying Area 1 thus may contain approximately 2% by volume of metallicly conducting material, while those near Area 2 may contain about 3% by volume of sulphides, graphite or other minerals which give rise to increased chargeability responses.

The two areas being on adjacent lines may be the effect of the same source striking northwest-southeast. However, because of the great distance between the survey lines, the different form and amplitude of the profiles as well as the different resistivity characteristics, this possibility would have to be investigated by surveying intermediate lines.

Since the present coverage is of a reconnaissance nature only, there are insufficient data to make precise quantitative interpretations as to the areal extent, attitude, depth below surface and metallicly conducting content of the bodies giving rise to the increased chargeabilities.

Modest chargeability increases are noted on Claim Line 1 at the extreme north end and between 18 N and 30 N. There are also some chargeability increases from 62 N to 82 N on Road No. 4. The amplitudes of these increases are below 10.0 milliseconds therefore the sources may



be either very deep, adjacent to the line or may contain less than 1% by volume of metallicly conducting material. Although these chargeability increases are modest in amplitude, if geological and geochemical data are encouraging, they may warrant further consideration.

The range of resistivities over the whole grid area is from about 150 ohm-meters to about 1300 ohm-meters, however the resistivity of most of the grid is approximately 200 ohm-meters.

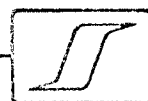
In Area 2 there are some increases in resistivity within the region of increased chargeability responses. However, there is no distinct resistivity characteristic associated with the increased chargeabilities in Area 1.

The profiles show at least two areas of increased resistivity which do not have any correlating chargeability responses. Resistivity variations may be caused by variations in the type or depth of overburden or by varying bedrock resistivities. For example, an intrusive rock type in the volcanics may give rise to resistivity increases. Further resistivity observations with multiple electrode spacings would allow interpretation as to the cause of the observed increased resistivities.

#### CONCLUSIONS AND RECOMMENDATIONS

Reconnaissance induced polarization surveying has revealed two areas of increased chargeability responses that may be underlain by rocks containing 2% to 3% by volume of metallicly conducting material, possibly sulphide mineralization.

If geological and geochemical investigations are encouraging, further induced polarization surveying employing 200' and 400' electrode





spacings and 200' station intervals along a grid of 500' spaced lines may be warranted. A detailed survey of this type would yield quantitative information about the size, depth, attitude and content of metallicly conducting material comprising the source of the increased chargeabilities. Precisely located diamond drill holes could then be recommended.

Respectfully submitted,

SEIGEL ASSOCIATES LIMITED

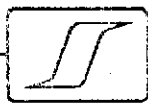
*P. J. Fominoff per JGB*

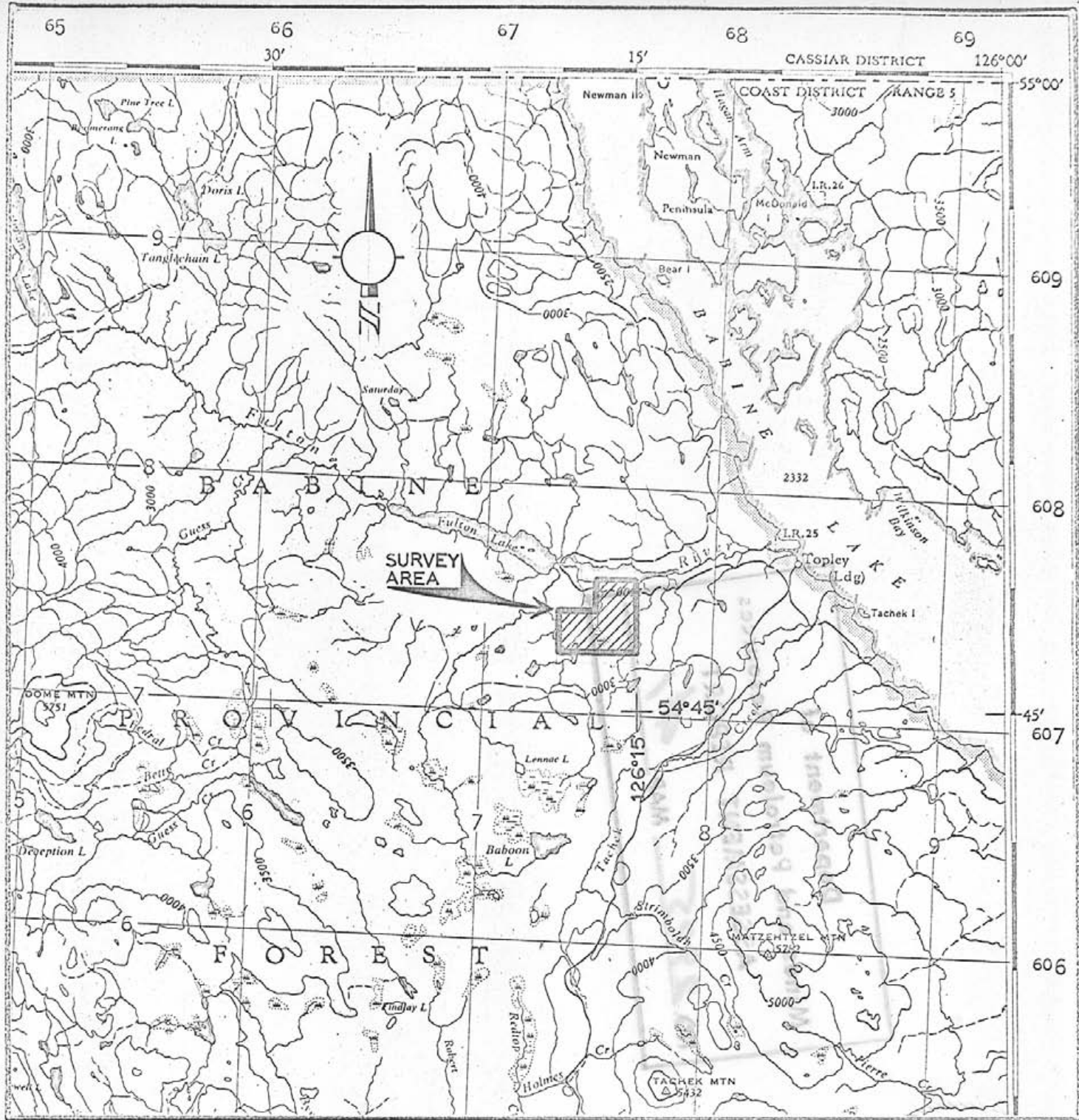
P. J. Fominoff, B.A.Sc.  
Geophysicist

*Jon G. Baird*

Jon G. Baird, B.Sc., P.Eng.  
Consulting Geophysicist

Vancouver, B.C.  
October 20, 1970

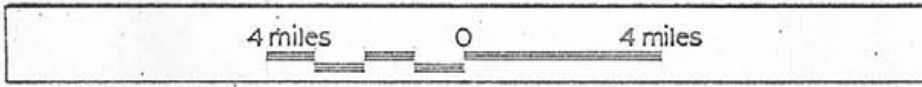




NITTETSU MINING CO. LTD.

LOCATION MAP  
 - CORTINA GROUP -  
 BABINE LAKE AREA / BRITISH COLUMBIA

*Handwritten signature: J. Baird*



Survey by  
 SEIGEL ASSOCIATES LTD.  
 August 1970

PLATE 1

DOMINION OF CANADA:  
PROVINCE OF BRITISH COLUMBIA:  
To WIT:

**In the Matter of**

a geophysical survey on behalf of  
Nittetsu Mining Company Limited

I, L. A. Merrifield for Seigel Associates Limited  
of 750 - 890 West Pender Street, Vancouver

in the Province of British Columbia, do solemnly declare that an induced polarization survey has been executed on CORTINA 1 - 51 claims, Babine Lake area, British Columbia between August 25 to August 28 and September 8, 1970. The following expenses were incurred:

(1) Wages:			
	P. Fominoff	5 days @ \$35.00/day	\$175.00
	R. Gibbons	5 days @ \$27.50/day	137.50
	C. Portmann	5 days @ \$27.50/day	137.50
	F. Gfeller	5 days @ \$27.50/day	137.50
	O. Bangeter	5 days @ \$27.50/day	137.50
			<u>137.50</u>
			\$725.00
(2)	Transportation and shipping to the job.		236.77
(3)	Transportation on the job.		189.09
(4)	Food and living expenses.		346.01
(5)	Use of geophysical equipment		
		5 days @ \$60.00/day	300.00
(6)	Paid to Seigel Associates Limited to cover geophysicist's supervision, calculating, plotting and fairdrawing data and preparation of final reports.		<u>899.04</u>
			\$2,695.91

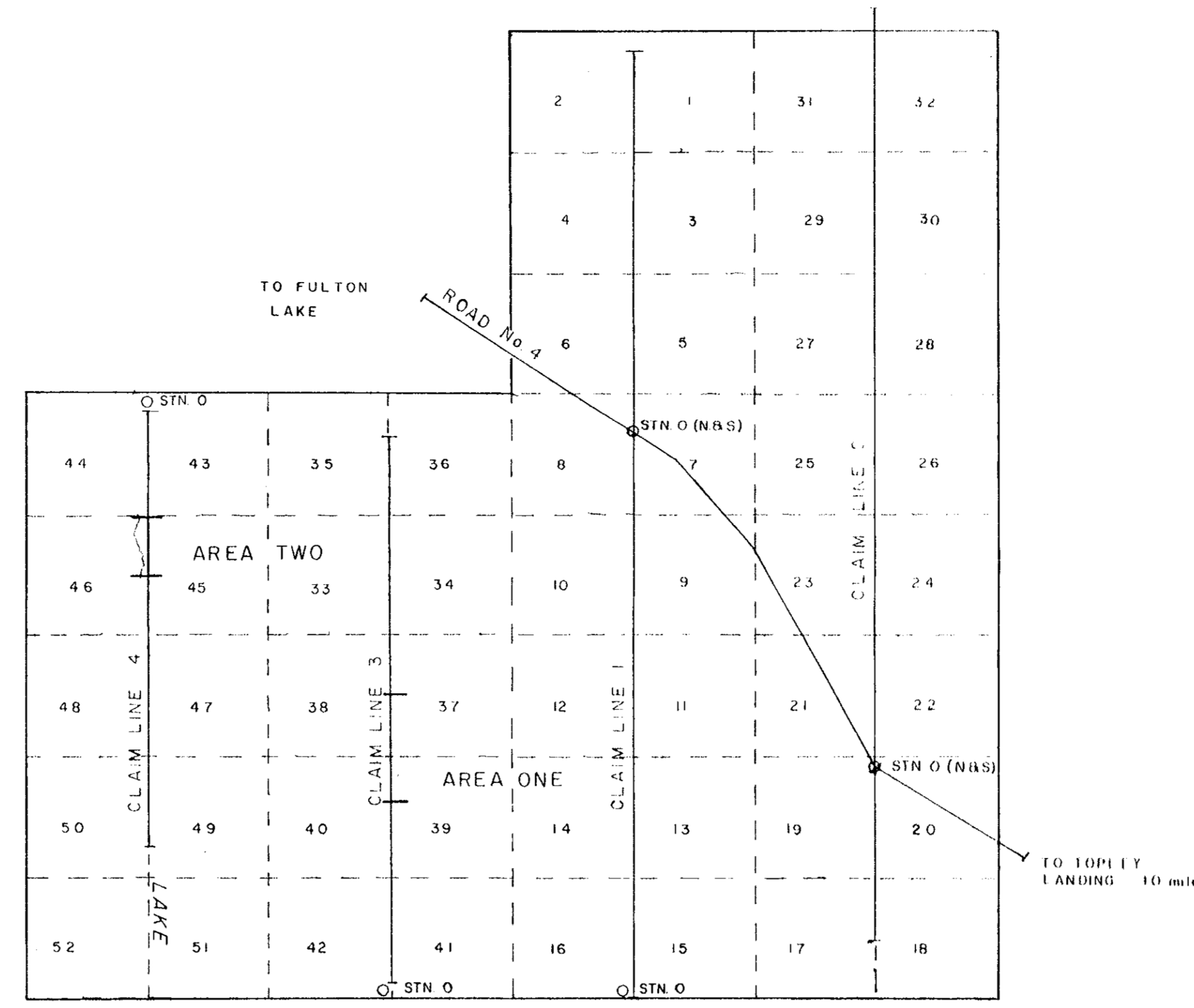
And I make this solemn declaration conscientiously believing it to be true, and knowing that it is of the same force and effect as if made under oath and by virtue of the "Canada Evidence Act."

Declared before me at the City  
of Vancouver, in the  
Province of British Columbia, this 18th  
day of February, 1971, A.D.

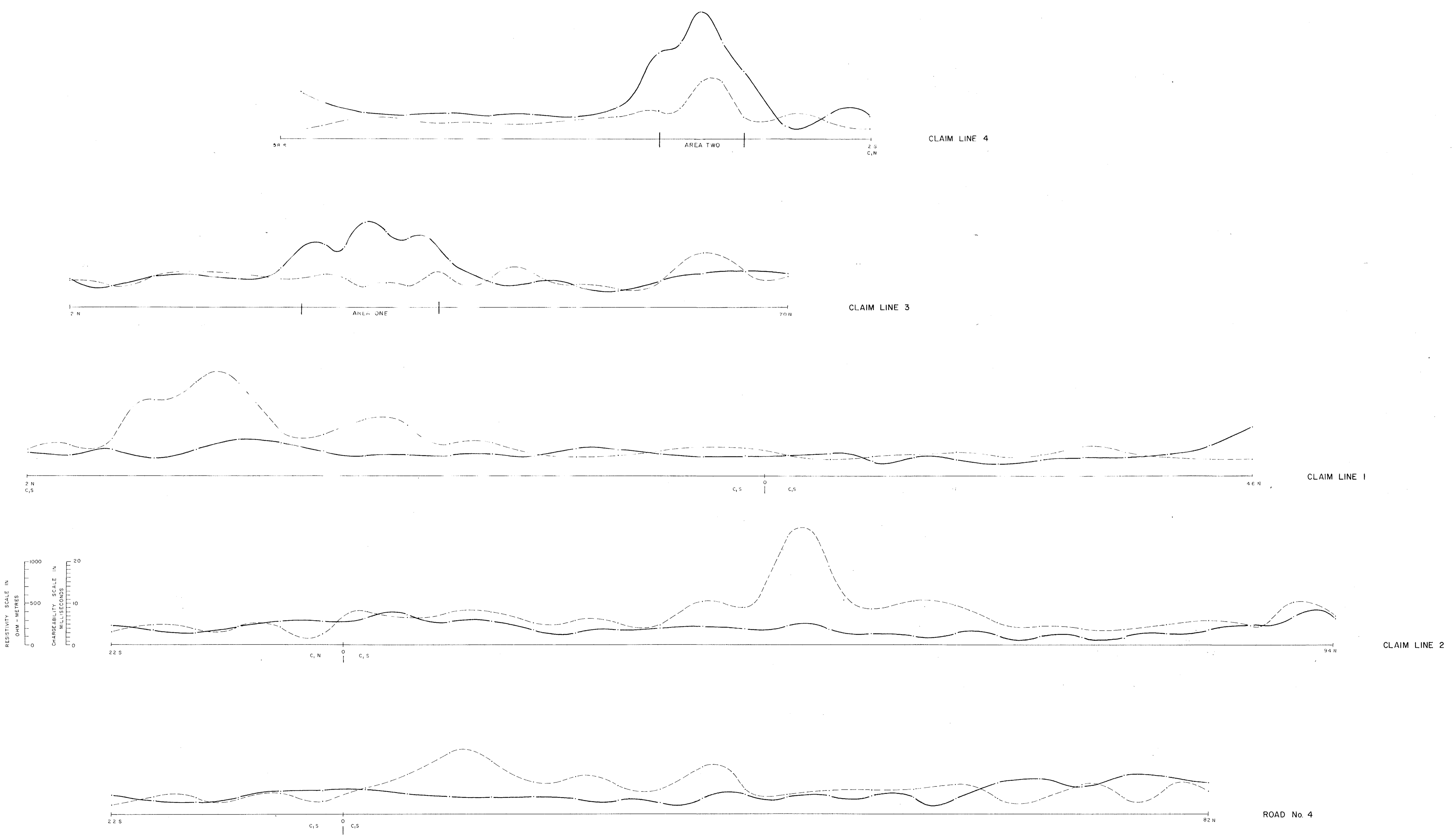
*L.A. Merrifield*

*Jean Turner*  
A Commissioner for taking Affidavits within British Columbia or  
A Notary Public in and for the Province of British Columbia.

SUB - MINING RECORDER



CORTINA CLAIM GROUP  
APPROXIMATE SCALE 1" = 1500'



2975 M-2

PLATE 2

NITTETSU MINING CO. LTD.

CORTINA GROUP

BABINE LAKE AREA, BRITISH COLUMBIA

INDUCED POLARIZATION SURVEY

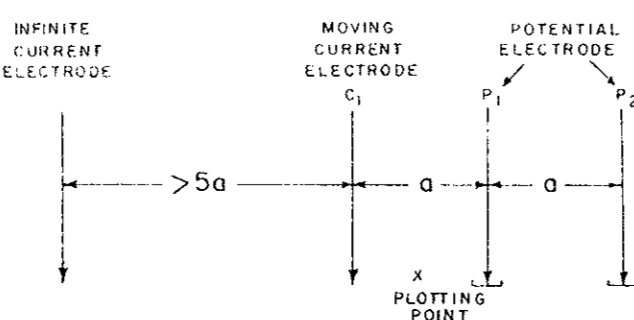
LEGEND

CHARGEABILITY SCALE: 1" = 10 MILLISECONDS  
ELECTRODE SPACING: 0 + 400'

RESISTIVITY SCALE: 1" = 500 OHM-METRES  
ELECTRODE SPACING: 0 + 400'

NOTES

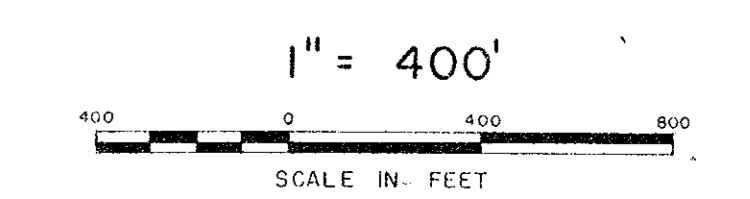
SCINTREX MARK VII INDUCED POLARIZATION INSTRUMENTATION  
THREE ELECTRODE ARRAY



C, NORTH OR SOUTH AS INDICATED (C,S,C,N)

TO ACCOMPANY A GEOPHYSICAL REPORT BY  
P.J. FOMINOFF AND J.G. BAIRD DATED OCTOBER 20, 1970

Department of  
Mines and Technical Resources  
ASSESSMENT REPORT  
NO. 2775  
Map 42



SURVEY BY SEIGEL ASSOCIATES LIMITED  
AUGUST 1970

*JBaird*