

1718

REPORT OF INDUCED POLARIZATION SURVEY
MAL-CHAL GROUP, ASPEN GROVE AREA, B.C.

FOR

CONSOLIDATED SKEENA MINES LIMITED

49° 120' N.E.

N. LAT. 49° 57' W. LONG. 120° 27'

PREPARED BY

BARRINGER RESEARCH LIMITED
304 CARLINGVIEW DRIVE
REXDALE, ONTARIO, CANADA

OCTOBER - 1968

LIST OF CONTENTS

	<u>PAGE</u>
List of Drawings	i
Introduction	1
Discussion of Results	2
Conclusions and Recommendations	6

LIST OF DRAWINGS

<u>DWG. NO.</u>	<u>TITLE</u>	<u>SCALE</u>
#1 5-208-1	Claims Group - Locality Plan	
#2 5-208-2	Induced Polarization and Resistivity Profiles	1"=400'
#3 5-208-3	Induced Polarization Contours	1"=400'
#4 5-208-4	Resistivity Contours	1"=400'

INTRODUCTION

The occurrence of copper mineralization in the Nicola volcanics adjacent to the granitic rocks of the Pennask intrusive group east of Aspen Grove has directed attention not only to the prospects themselves but to the potential of the general environment. Some surface prospecting and a limited amount of drilling has previously been undertaken to indicate that copper grades of 1.48% exist within the explored mineralization. To enlarge upon the possibilities inherent, an induced polarization survey has been carried out in the immediate vicinity and within the property known as the Mal-Chal group of claims (Dwg. No. 5-208-1). These latter are held by Consolidated Skeena Mines Limited, 1033 West Pender Street, Vancouver, B.C., under whose authority and direction the present programme was conducted.

The actual survey operations were carried out by Barringer Research Limited under contract, and were completed in the period 27th August - 3rd October 1968 by a crew led by Barringer geophysicist, Mr. R. Caven, B.Sc. The equipment employed was a 7.5 kva high-powered pulse transient (Huntec) unit with a 1 1/2 secs. current-on time and a 400 msec. reading interval. Traversing was effected with a pole-dipole array with a potential electrode spacing ("a") of 200', and a distance to the on-line current electrode of 400' (n=2). In addition, multi-spacing detailing (n=2, 4) was carried out in the sections encompassing the main showings. A total of 23.22 line miles of traversing was so completed at a cost of \$12,760.00 (see appendix). The results of this work form the subject of this report, the collected data being presented herewith in both profile and contour form at a scale of 1"=400'.

DISCUSSION OF RESULTS

It is immediately evident to the results (Dwg. No. 5-208-2) that two areas of polarization anomaly have been indicated within the grid area. These emerge in distinct contrast to a background established in the north-west sector where values in chargeability level out at about 2.0 msec. with little variation therefrom. The attendant resistivities, while showing more relief, tend to hew to an average of about 300 ohm-metres. While some of the low level of relief may be due to increased overburden thickness in this sector, nevertheless it is interesting to note that no observable change occurs in these background levels as the coverage apparently crosses on to the granitic rocks at line 24N. Indeed, all the present geophysical evidence suggests that whatever rock-type environment exists on line 24N is continuous with the adjacent environment south, and likely all the way south to about line 20S. For instance, the small resistivity feature at 20W on line 24N has almost a precise counterpart on line 16N, and lies on strike with a similar feature, albeit even smaller, on lines 0 and 4S at about 24W. This evident geophysical continuity can be interpreted in two ways, first that the granite on line 24 is either very thin close to its contact or that the contact itself lies further to the north, or second, that granitic rocks extend much further south than previously suspected. In view of the resistivity contrasts that do appear to the east and south as boundaries to the "background" area, the second alternative is the more appealing geophysically. However, such speculation is entirely within the context of the present limits of the coverage, and would be open to immediate revision if, for instance, the granite contact were to be picked up in resistivity in any extension of the survey on further lines north.

At the moment, the concept of an extended granite south from line 24 places the mineral showing area in an immediate contact setting. Here chargeabilities increase to a general high of 7 msec. but reaching to an individual peak of 12 msec. on line 4S. The latter along with the whole area of anomaly lies

more than 1000' east of previous drilling (at approximately OW/ON), and as such becomes a prime target for further investigation. To this end, additional traversing was carried out over the area using a n=4 array, and in one section (on 4S), a reverse array. This work indicates that not only may a downward extension to the general mineralization be presumed, but that discrete concentrations do occur. Notably this is seen on line 4S where the deeper n=4 spacing yielded two chargeability peaks in excess of 12 msecs. rising above the local background. What is rather odd about this result is that the intervening section between the peaks dropped not just to the background level of the setting, i.e. to about 7 msecs. as expected, but well below it, viz. to 1 msec. As this occurs on this one line only (cf. n=4 spacings on lines 8N, 0, 12S), it is concluded that a negative polarization superimposed on a positive occurs here as a strictly local phenomenon.

The significance of this latter effect is important to the interpretation of the whole section. It is considered that the apparent negative polarization is due to the effects of the array as it passes over a single source buried from between 200-400' from surface underlying the traverse section 14E to 16E. Not quite consistent with this inference is the n=2 spacing result, inasmuch as the second peak does not clearly emerge as expected when the current electrode crosses the source. However since the response from the potential dipole has been obtained at a position compatible with this spacing and source polarization, the suppressed current electrode response is not particularly damaging to the interpretation. Thus accepting this concept, the reason why a finite body of polarization is localized to the line 4S section, and perhaps to 8S, but not elsewhere, is worth attention, and it is in this context that substantial significance may be attached to an abrupt change in the locus across line 4S of the resistivity contrast which in effect borders the low background area to the west. If as suggested this contrast is a geologic contact, between granites to the west, and Nicola group rocks to the east, then the evident deformation about line 4S could be caused by fracturing and faulting thereby

providing a potential control to mineral localization. Indeed from the contour plan (Dwg. No. 5-208-4) it is not difficult to postulate a fault axis bearing roughly WNW as shown, with an inherent lateral movement in the sense south side west. In this position, the axis closely flanks the main IP source on line 4S. Moreover, previous drilling is also close to this break, but on the west side of the resistivity contact and thus presumably in granitic rocks. It is to be noted that the polarization relief at this point is not great, but can be considered equivalent to the 7 msec. background in the general anomaly area on the east side of the contact.

All this suggests an enlarged area of mineralization extending along a controlling structure from the drilled section into a contact zone at the edge of a possible granite. In view of the copper mineralization already revealed by drilling, this is a promising situation demanding an expanded drill-testing in the area.

Towards the south of the grid, high chargeabilities are encountered over a wide section of lines. These are accompanied by increased but highly variable resistivities. Because of the extent and strength of polarization anomaly prevalent here (peak values up to 22 msec.), there seems little doubt that block units are involved pertinent to a rock-type group. Outcropping of both argillaceous sediments and impure limestones carrying finely disseminated pyrite observed on lines 48S to 60S fit the role, and without geochemical expression to discriminate any particular section therein, there would appear little merit inherent to the geophysical profiles. Thus it may be assumed from this result that sediments essentially underlie all the southern section of the grid area, varying in their pyritic and/or carbonaceous content, but otherwise not possessing any great interest. This view would change of course if the northern anomaly area yields encouraging drill results, and it was shown that the granite contact nearby there does indeed exist. Then further exploration of the contact would become a priority, and its possible tracing south to this southern sedimentary environment would make any anomalies in the contact zoneworth reconsideration. On present evidence, the low background area in the northwest sector of the grid could extend off the east end of lines 24S, etc.

One further anomaly that attracted passing attention was the very weak, broad chargeability high at 40W on line 8N. Correlating with a slight resistivity low, it did not show any improved characteristics with the deeper spacing. Lying in the region of low background, presumably in granite, it does not at this point represent any more than a minor change in the local setting, and as such has minimal interest.

CONCLUSIONS AND RECOMMENDATIONS

From the evidence of the geophysical data it is concluded that at least one major rock-type change occurs in the grid area. The chances are that this change occurs between Pennask granite and Nicola Group volcanics and sediments, the latter generally being marked by increased chargeabilities and resistivities, albeit highly variable.

The presence of known copper mineralization on the line 4S section in close proximity to the presumed contact gives stature to an anomalous chargeability area that lies to the east approximately 1000', and particularly to two peakings that emerge above their local backgrounds on what might be a common structural axis linking them to the previous drilled mineralization. It is recommended therefore that this new evidence of potential mineral localization be test drilled, and to an extent that the nature of the setting and the probabilities on strike may be indicated. For this purpose, the following holes are sited:

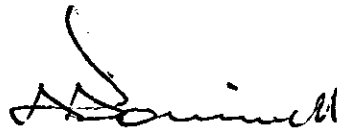
Collar : 10+00E/4+00S
Bearing : grid east
Depression : -45°
Est. Length : 450'

Collar : 14+00E/4+00S
Bearing : grid east
Depression : -70°
Est. Length : 600'

While no order of priority is intended for these two holes, both should be drilled, independent of the results of the other. However, since it is unknown, an exception must be made for geologic dip, which, if found to be running with the holes as presently laid out would require that both collars

be re-sited. Given that interesting mineralization is revealed in these initial holes, considerable possibilities would of course present themselves. In this case, it is recommended that the next immediate testing be laid out to intersect structure as it has been postulated and may exist in the vicinity.

BARRINGER RESEARCH LIMITED



J. B. Boniwell
Chief Geophysicist

JBB:np



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 25, 1968

PROJECT: 208.35

PERIOD COVERED:

PROGRESS BILLING: 2

SHIPPING REPORT:

WORK REPORT:

FED. SALES TAX: N/A

ONT. SALES TAX: N/A

- Consolidated Skeena Mines Limited
1st Floor
- 1033 W. Pender Street
Vancouver 1, B.C.

TERMS: NET

AUTHORITY: Contract Agreement dated August 20, 1968

re: Induced polarization survey, Mal-Chal claims, Aspen Grove, B.C.

Period : 27th August - 3rd October 1968

As per contract -

38 days @ \$345.00

\$13,110.00

Mobilization

250.00

\$13,360.00

less: 2 days breakdown @ \$300.00

600.00

Total Cost

\$12,760.00

less: Progress Billing #1, our invoice #4111
of October 15, 1968

10,255.00

\$2,505.00

=====

INVOICE N^o 4149

In the Matter of

MAL-CHAL GROUP MINERAL CLAIMS,
NICOLA MINING DIVISION

To Wit:

I, ROGER J. CAVEN

of Barringer Research Limited, 304 Carlingview Drive, Toronto, Canada,

in the Province of ^{Ontario} ~~British Columbia~~ do solemnly declare that

1. I am a Geophysicist and I did and I supervised induced polarization survey on the Mal-Chal Group of Mineral Claims situate in the Nicola Mining Division from on or about the 27th day of August, 1968, to on or about the 3rd of October, 1968.

2. The aforesaid work consisted of the followings:-

38 days survey at \$345.00	\$13,110.00
Mobilization	250.00
	<hr/>
	13,360.00
Less 2 days breakdown at \$300.00	600.00
	<hr/>
Total Cost	\$12,760.00

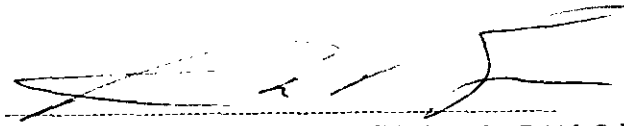
3. All the aforesaid work was done for:-
Consolidated Skeena Mines Ltd.,
1st Floor,
1033 W. Pender Street,
Vancouver 1, B.C.

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 **Town**
of **Merritt**, in the
Province of British Columbia, this **7th**
day of **November, 1968**, A.D.



Roger J. Caven


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

BARRINGER RESEARCH LIMITED
304 Carlingview Drive,
Rexdale, Toronto, Ontario.

Chief Gold Commissioner,
Victoria, B.C.

November 7th, 1968.

Dear Sir:

Re: Roger J. Cavén - Geophysicist

The following is a statement of qualifications of Mr. Roger J. Cavén, Geophysicist who is employed by our Company and who did an Induced Polarization Survey of the Mal-Chal Group of Mineral Claims in the Nicola Mining Division:-

Graduated from University of Toronto, May 1967, B.A.Sc., Engineering Science (formerly Engineering Physics), Geophysics option.

Membership Association:

Associate Member of the Engineering Institute of Canada
Registered as Engineer in Training Association of Professional Engineers of Ontario.

Associate Member at the Society of Exploration Geophysicists.

Associate Member of the Canadian Association of Physicists, Earth Science Division.

Age: 37 years.

Experience with Geological Survey of Canada, Department of Public Works of Canada and presently with Barringer Research Ltd.

He intends to apply for registration as Geophysicist in British Columbia as soon as possible.

Yours truly,

Barringer Research Limited.

Per: 

BARRINGER RESEARCH LIMITED
304 Carlingview Drive,
Rexdale, Toronto, Ontario.

Consolidated Skeena Mines Ltdl,
1st Floor,
1033 W. Pender Street,
Vancouver 1, B.C.

November 7th, 1968.

Re: Mal-Chal Group Mineral Claims

The following personnel were working on the Induced Polarization Survey on the Mal-Chal Group of Mineral Claims, Nicola Mining Division near Aspen Grove, B.C., during the period from August 27th to October 3rd, 1968:-

Roger J. Cavén, Geophysicist, Party Chief,
Instrument Operator, August 27th to October
3rd,

Richard Finley, Field Helper and Transmitter
Operator - August 27th to ~~October 3rd~~
September 4th.

Stuart Fahey, Field Helper and Transmitter
Operator - August 27th to September 18th.

Nigel Buist, Field Helper and Transmitter
Operator - August 27th to September 11th.

Michael Howard, Field Helper and Transmitter
Operator - September 5th to September 19th.

Charles England, Field Helper - September 13th
to September 26th.

Ivan Brunet, Field Helper - September 17th
to September 26th,

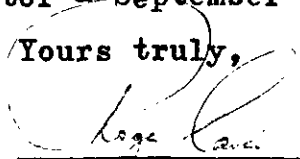
John Johnston, Field Helper and Transmitter
Operator - September 20th to October 3rd.

David Henry, Physicist, 2 I.C., Instrument
Operator - September 23rd to October 3rd.

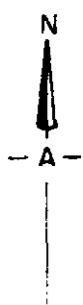
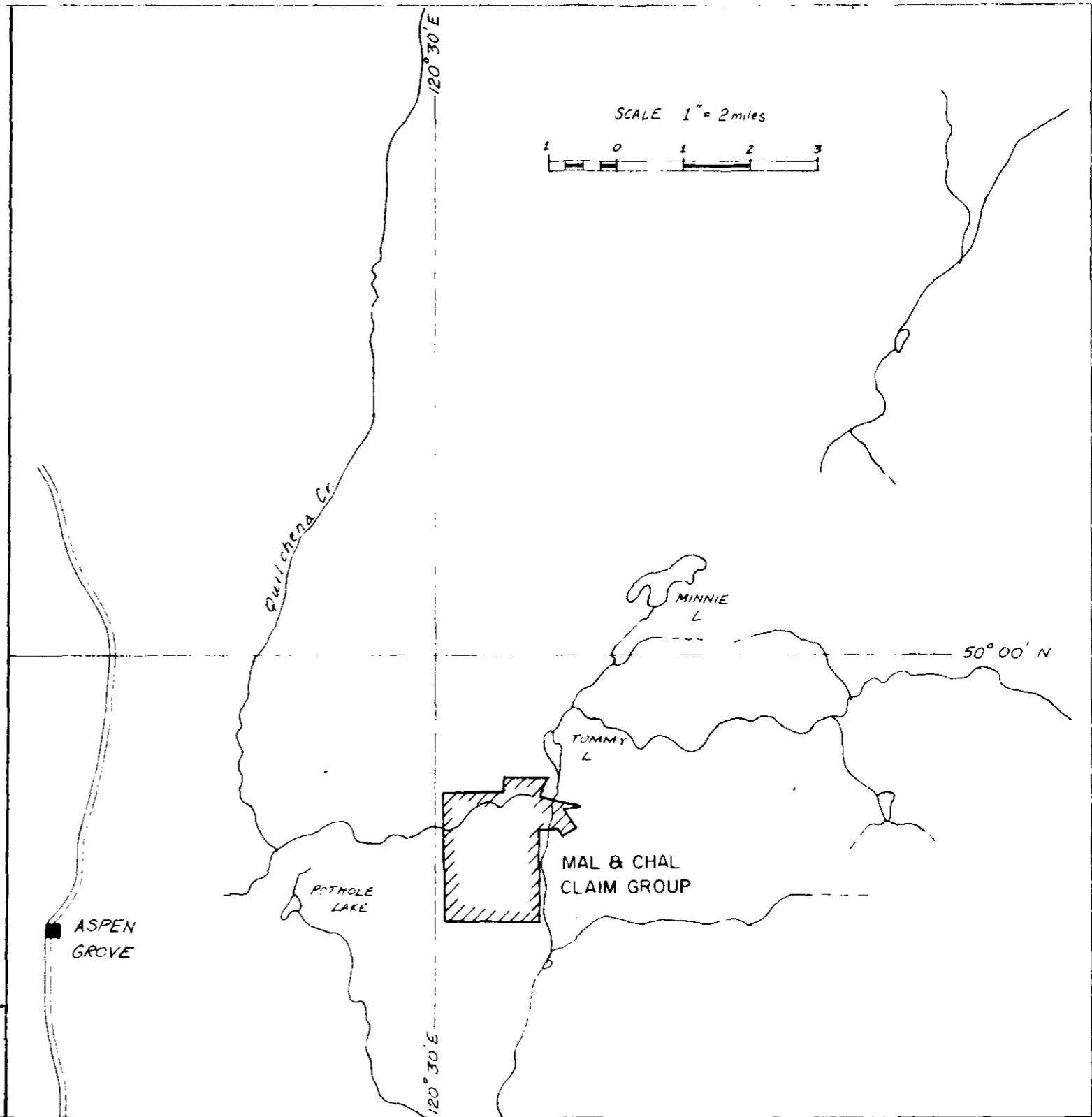
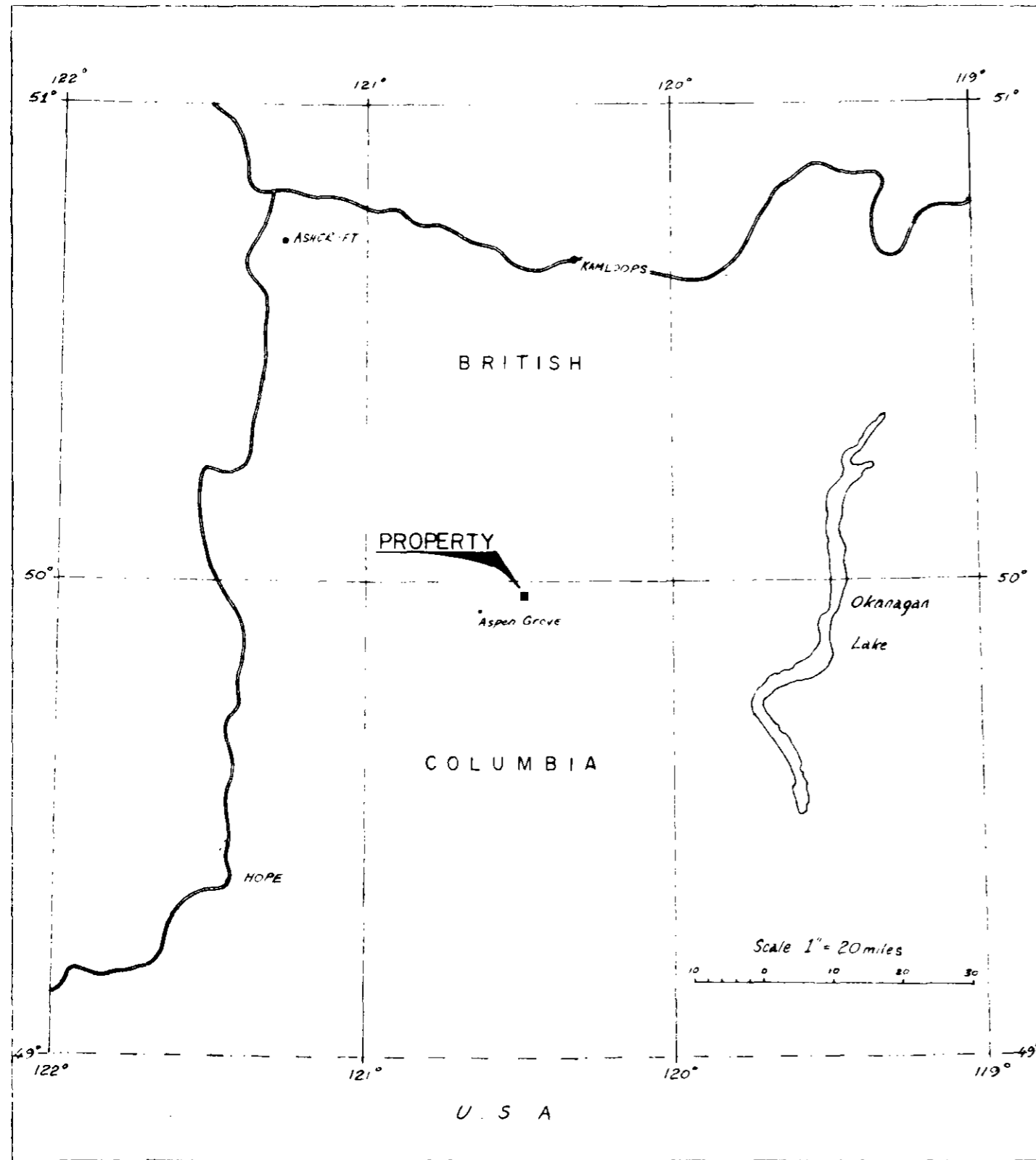
Stuart Connacher, Field Helper and Transmitter
Operator - September 27th to October 3rd.

Emil Nagy, Electronics Technician, Field Helper
and Transmitter Operator - September 28th to
October 3rd.

Yours truly,



Roger J. Cavén



CONSOLIDATED SKEENA MINES LTD. (N.P.L.)
 MAL CHAL CLAIM GROUP, ASPEN GROVE, B.C.

LOCALITY PLAN

1707 map 01

Work undertaken by
 BARRINGER RESEARCH LTD, Toronto, Canada.

SEPT. 1968

DWG. 5-208-1

BARRINGER RESEARCH LIMITED
304 Carlingview Drive,
Rexdale, Toronto, Ontario.

Chief Gold Commissioner,
Victoria, B.C.

November 7th, 1968.

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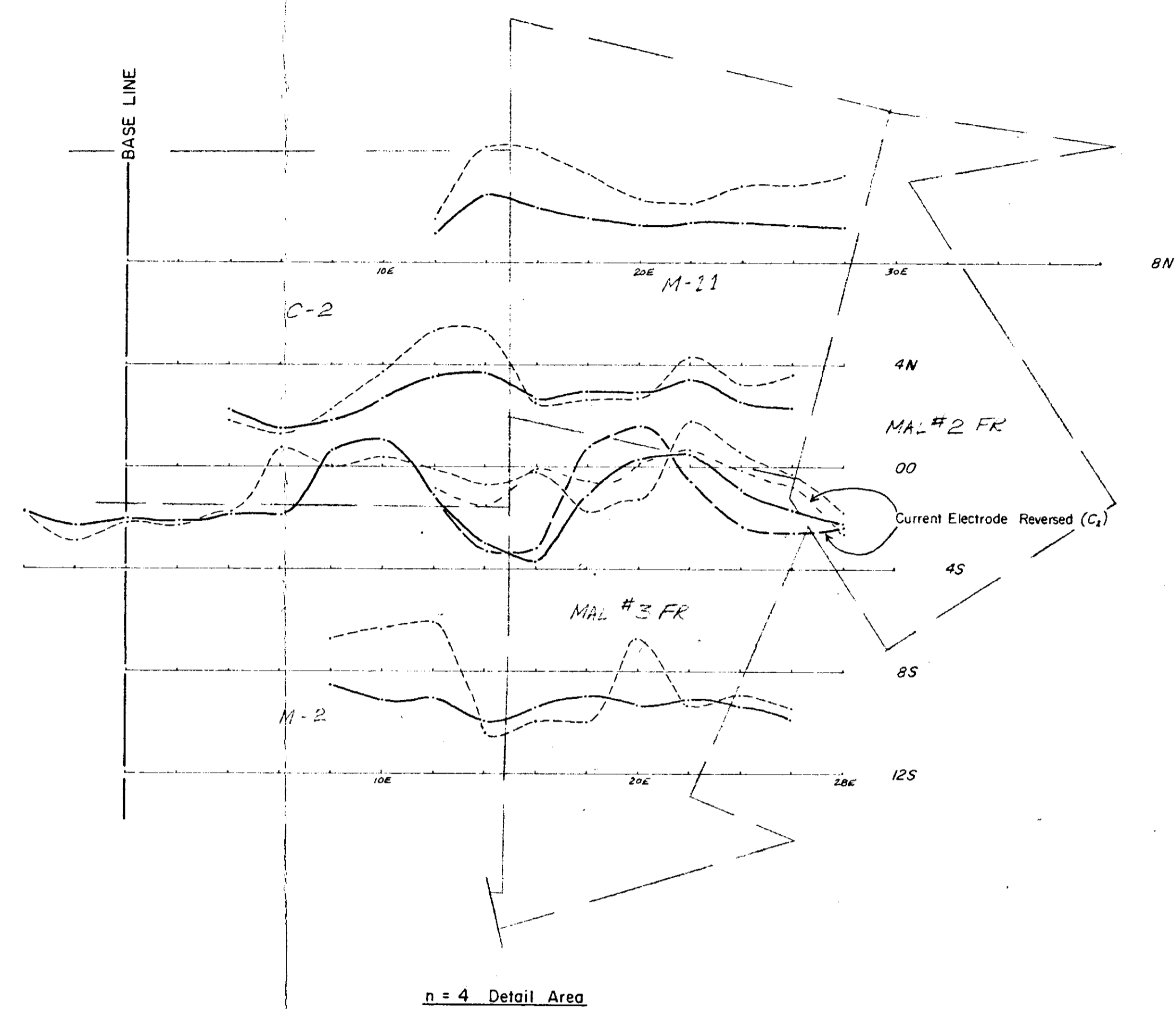
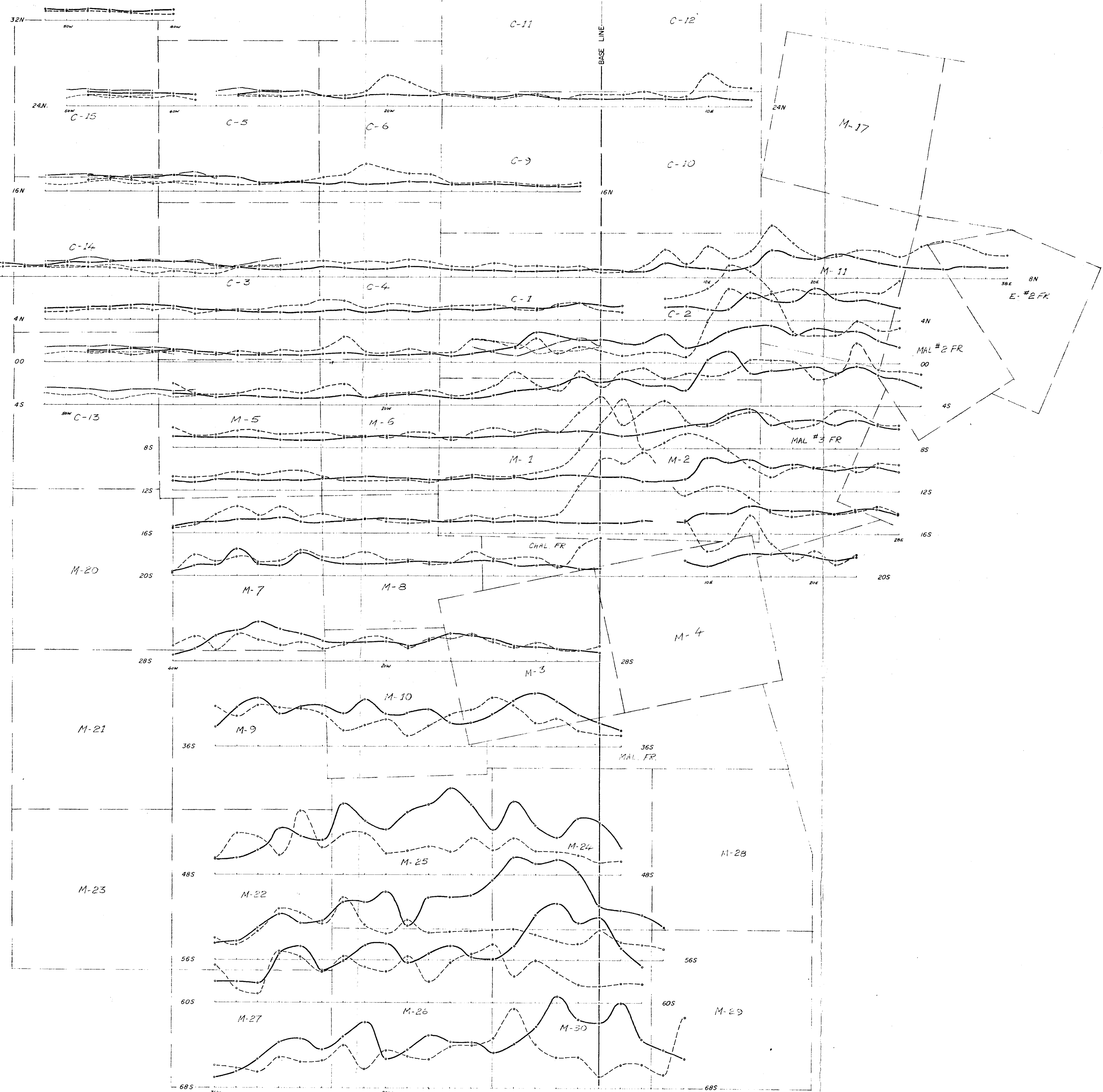
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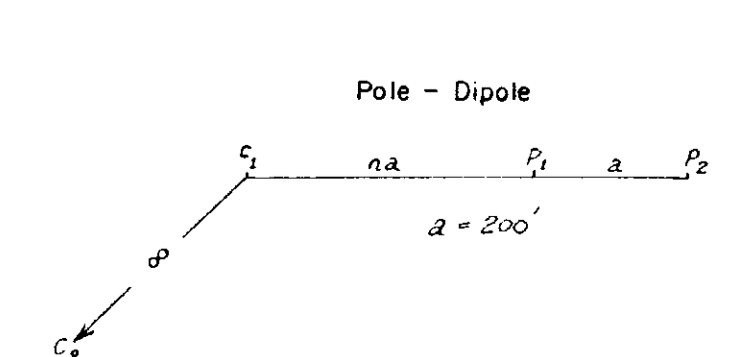
Yours truly,

Barringer Research Limited.

Per: 



1718
map 02



LEGEND

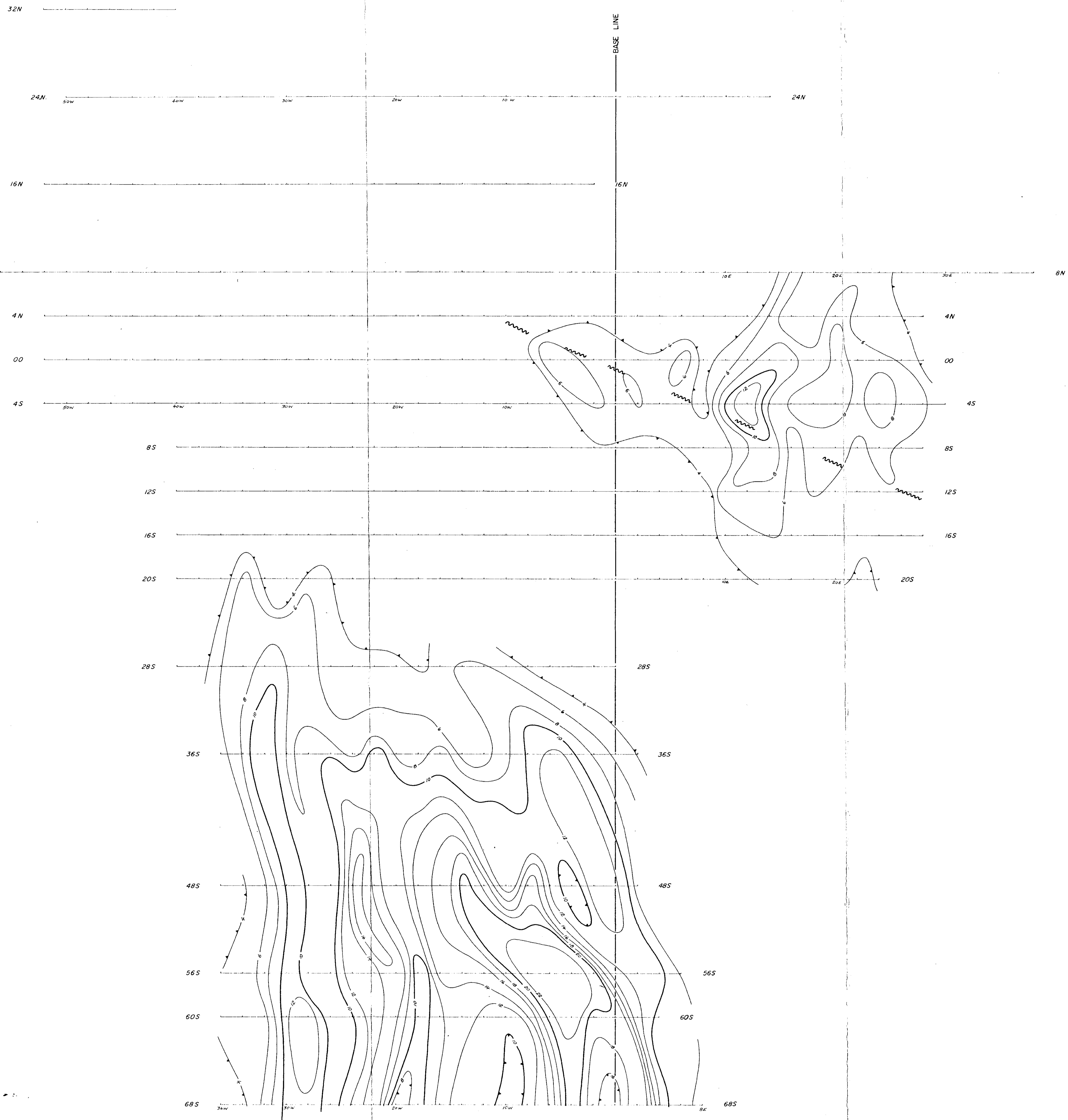
- (n=2) Chargeability - Scale 1" = 10miliseconds
- - - (n=4)
- (n=2) Resistivity - Scale 1" = 1000 ohm metres
- - - (n=4)

Department of
Mines and Geotechnical Resources
ASBESTOS
NO. 1718 2

1718

CONSOLIDATED SKEENA MINES LTD (NPL)	
MAL CHAL CLAIM GROUP, ASPEN GROVE, B.C.	
INDUCED POLARIZATION & RESISTIVITY SURVEY	
POLE - DIPOLE	
SEPTEMBER 1968	Scale 1" = 400'
DWG. 5-208-2	

Work undertaken by
BARRINGER RESEARCH LTD, Toronto, Canada.



1718

Department of
 Mines and Petroleum Resources
 ASSESSMENT REPORT
 NO. 1718 MAP 3

1718 map 03

LEGEND
 Contour interval 2 millisees
 — 10 Contour
 - - - 2 Contour
 ○ Depression
 ~~~~~ Postulated Fault

Work undertaken by  
 BARRINGER RESEARCH LTD, Toronto, Canada.

CONSOLIDATED SKEENA MINES LTD. (NPL.)  
 MAL CHAL CLAIM GROUP, ASPEN GROVE, B.C.  
 CHARGEABILITY CONTOURS  
 α = 200' n = 2  
 SEPTEMBER 1968 Scale 1" = 400' DWG. 5-208-3



**LEGEND**  
 Contour interval 500 ohm metres  
 1000 Contour  
 500 Contour  
 Depression  
 Postulated Fault

Department of  
 Mines and Petroleum Resources  
 ASSESSMENT REPORT  
 NO. 1718 MAP 4

1718

1718  
 MAP 04

CONSOLIDATED SKEENA MINES LTD (NPL.)  
 MAL CHAL CLAIM GROUP, ASPEN GROVE, B.C.  
**RESISTIVITY CONTOURS**  
 a = 200' n = 2  
 SEPTEMBER 1968 Scale 1" = 400' DWG. 5-208-4

Work undertaken by  
 BARRINGER RESEARCH LTD, Toronto, Canada