2568

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 2568 MAP

REPORT ON
AN INDUCED POLARIZATION SURVEY
C AND Z CLAIM GROUPS
CHUTANLI LAKE AREA, BRITISH COLUMBIA

by

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

August 14, 1970

93F/7E

Surveys executed by
Rio Tinto Canadian Exploration Limited

Interpretation and report by
Seigel Associates Limited

CLAIMS:

Names	Record Numbers
C 95 to 126	76223 to 76254
C 145 to 154	81706 to 81715
C 167 to 170	81728 to 81731
Z 1 to 12	82379 to 82390
Z 23 and 24	82401 & 82402

LOCATION:

4 miles west of the west end of Chutanli Lake
NTS 93-F-7
124° 53° SW
Omineca Mining Division

DATES:

October 7 to October 10, 1969
June 11 to July 10, 1970

REPORT ON
AN INDUCED POLARIZATION SURVEY
C AND Z CLAIM GROUPS
CHUTANLI LAKE AREA, BRITISH COLUMBIA

INTRODUCTION:

During the period from October 7 to 10, 1969 and again from June 11 to July 10, 1970, geophysical field parties under the direction of Mr. H. Beckmann and Mr. D. Sexsmith executed an induced polarization survey on some C and Z Claims in the Chutanli Lake area, British Columbia. All personnel were on the staff of Rio Tinto Canadian Exploration Limited. Data plotting was carried out in the Rio Tinto offices and the resulting maps were submitted to Seigel Associates Ltd. for interpretation and reporting.

The property lies 4 miles west of the west end of Chutanli Lake in the Interior Plateau area of British Columbia. Access is by float aircraft to Chutanli Lake, thence by helicopter or foot to the claims. The topography of the survey area is hilly and treed. The claims covered in whole or part, by these surveys are listed on the title page of this report and are shown on DWG C-7055. These claims are held by Rio Tinto Canadian Exploration Limited.

Scintrex Mk VI 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 metallically conducting mineralization near the lines covered. In the present area such mineralization could include chalcopyrite, bornite, pyrite and other sulphide minerals. As well, metallic conductors such as magnetite and graphite can give chargeability responses not always distinguishable from sulphide mineralization. These latter anomalous sources are not expected to occur on this property.

SUMMARY

An induced polarization survey on the present property has revealed that the northern two-thirds of the survey area exhibits moderate to high chargeabilities. The amplitude of the present responses could arise from bedrock containing 1% to 5% by volume of metallically conducting mineralization such as sulphides, graphite or other minerals known to give induced polarization responses.

Based on resistivity and chargeability correlations as well as the known geology, an interpretation has been made delimiting areas underlain by two major rock types, the Hazelton metasediments and the intrusive Chutanli granodiorite.

Two areas are recommended for geological study and, possibly, diamond drilling. One area within the Hazelton Group coincides with a well substantiated geochemical anomaly while the other area is the only high chargeability zone apparently occurring with the granodiorite. Further induced polarization surveying and a magnetometer survey may be warranted.

TABLE OF CONTENTS

Introduction:- cont'd.

For the present survey five grid lines were laid out oriented north-south, each 3.2 line miles in length. The interline spacing varied from 1200' to 1600'.

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 = 200' and a = 400', the distance between observations being 200'.

GEOLOGY:

The geology of the area including and surrounding the present property is discussed in G.S.C. Memoir 324, "Nechako River Map-Area" by H.W. Tipper, 1963. The geology of the property has been studied by geologists on the staff of Rio Tinto Canadian Exploration Limited who have made their knowledge available to the writer.

The northern part of the survey area is believed to be mainly underlain by metasedimentary rocks of the Hazelton Group while the southern area is underlain by intrusive granodioritic rocks. Copper and molybdenum sulphides as well as pyrite are observed to occur with the Hazelton rocks.

The property was located as by a geochemical soil sampling programme, the results of which are given in a report by M.B. Mehrtens, Ph D., dated August, 1970. A significant copper and molybdenum anomaly has been located in the west-central part of the geophysical survey area.

PRESENTATION OF RESULTS:

The results of the surveys are shown on 7 accompanying plates, all on the scale of 1" = 400'.

Drawings IP-8077 and IP-8079 are chargeability Contour Plans for the 400' and 200' electrode spacing respectively. The actual chargeability values have been shown contoured with a 5.0 millisecond contour interval.

Presentation of Results:- cont'd.

Drawings IP-8078 and IP-8080 are resistivity contour plans for the 400' and 200' electrode spacings respectively. The apparent resistivity values are shown in ohm-metres and have been contoured with a 100 ohm-metre contour interval between 100 and 500 ohm-metres then upwards with a 500 ohm-metre interval.

Drawings IP8081 and IP-8082 show the results in profile form for the 400' and 200' electrode spacings respectively. The vertical scales for these profiles are 1" = 20 milliseconds for chargeability and 1" = 2000 ohm-metres for resistivity.

Drawing G-8093 is an interpretation of the geophysical results as well as interpreted contacts recommended for further investigation.

DISCUSSION OF RESULTS:

The chargeability results indicate that in the southern portion of the grid the background values are generally less than 10.0 milliseconds as may be expected from a granodioritic rock type. With this background a uniform subsurface distribution of 1% by volume of metallically conducting mineralization would be expected to add approximately 10.0 milliseconds to the background level. Since deposits of low concentrations of copper and molybdenum sulphides of sufficient dimensions may have economic significance, zones exhibiting chargeabilities in excess of 10.0 milliseconds and occurring within a low background area may be considered worthy of further investigation.

The chargeabilities in the northern part of the survey area are seen to range from approximately 20 milliseconds to in excess of 60 milliseconds. This moderate to high chargeability range is likely due to the equivalent of a content of from 1% to 5% by volume of metallically conducting material. Such responses are often observed over metasedimentary sections of the Hazelton Group where minerals such as pyrite, graphite, chlorite and sericite contribute to chargeability responses. With this background it is difficult or impossible to designate zones of greatest potential economic importance using induced polarization-resistivity results alone.

Resistivities in the southern part of the area range from several hundred to several thousand ohm-metres while those in the north are considerably lower, generally below 500 ohm-metres.

Discussion of Results:- cont'd.

The values for the 400' spacings are generally higher than those for the 200' spacings. These are the normal resistivity responses expected for the rock types occurring in the survey area which are covered by lower resistivity overburden. While the resistivity values can be affected by changes in the type or thickness of overburden, the correlation between the results for the two electrode spacings reveals that this is not a major factor on the present property.

The correspondence of low chargeability-high resistivity characteristics for the granite rocks and high chargeability-low resistivity for the Hazelton rocks permits an interpretation of the bedrock geology based on the geophysical results. The interpretation shown on DWG G-8093 reveals a large granodioritic body in the south joining the metasedimentary rocks along a well defined, apparently steeply dipping contact. To the north, within the area underlain by Hazelton Group, one fairly definite and two less definite 'intrusive' bodies have been interpreted.

CONCLUSIONS AND RECOMMENDATIONS:

The present results reveal that sufficient base metal sulphides for an orebody may occur anywhere north of the granodiorite-metasediment contact. With such widespread high responses it is not possible, on the basis of the present results alone, to indicate areas of optimum interest.

The well substantiated geochemical anomaly near claims C-111 and C-112 corresponds with sulphide showings within a high chargeability area. The present results do not reveal any highly preferred drill location within the anomalous zone, however, detailed induced polarization surveying would aid in determining near surface zones of highest metallically conducting content.

A zone of increased chargeabilities occurs south of the interpreted contact between 10 N and 20 N on L 14 E. Since these responses may indicate a body of granite rock containing 1% to 2% by volume of metallically conducting material, a geological investigation and further induced polarization surveying are warranted.

A magnetometer survey may be warranted to allow further interpretation of structure and rock types. Also, magnetic data may indicate zones of different magnetic susceptibilities within ex-

Conclusions and Recommendations:- cont'd.

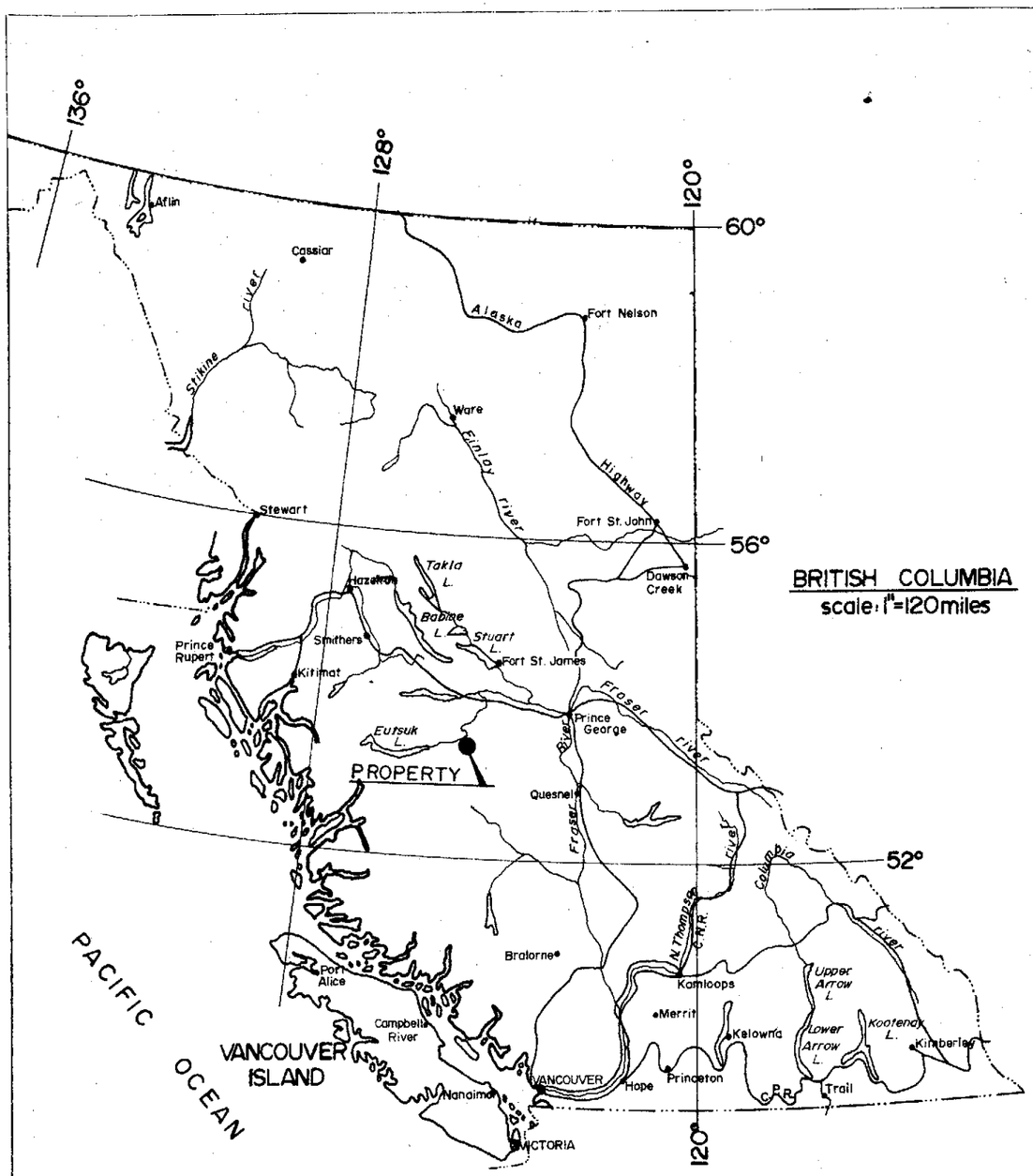
tensive bodies of sulphide mineralization. Such information may allow interpretation of zones of replacement or hydrothermal alteration.

Respectfully submitted,

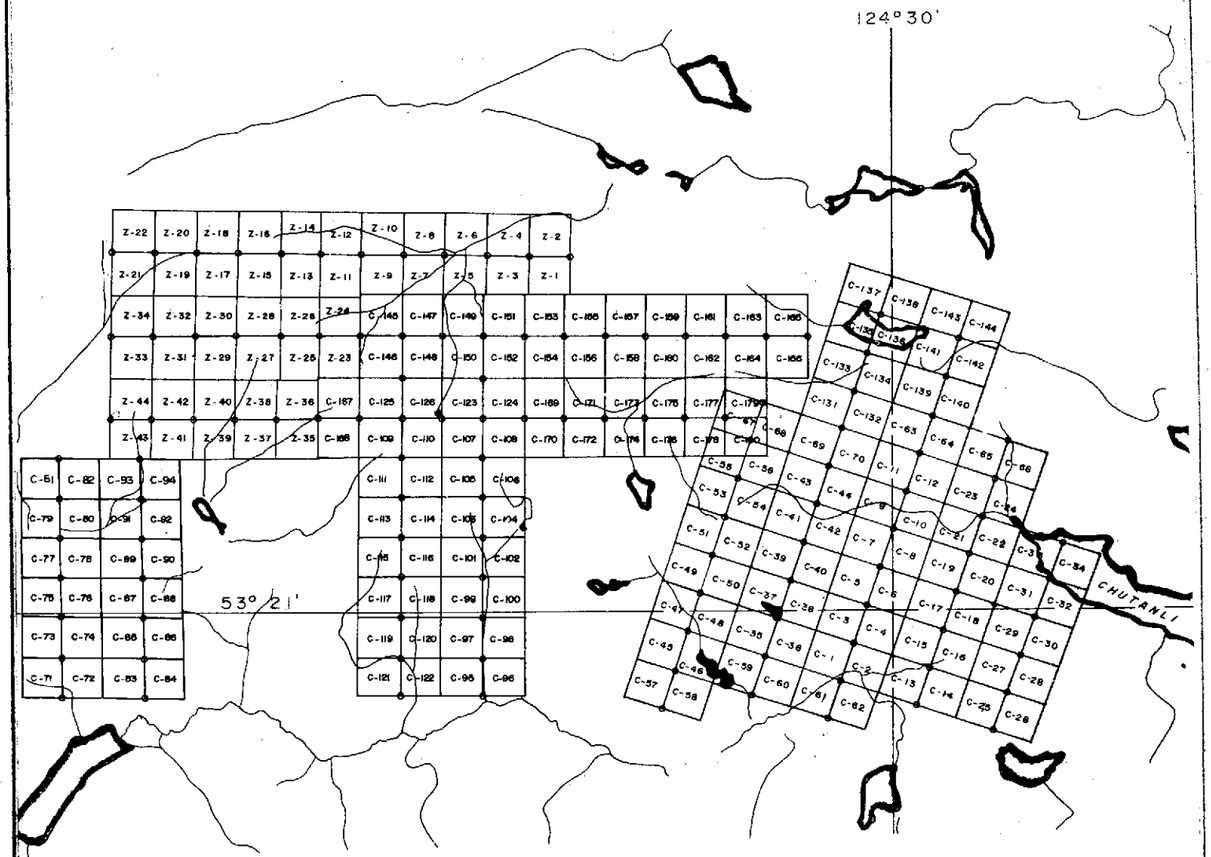
SEIGEL ASSOCIATES LIMITED

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

Vancouver, B.C.
August 18, 1970.



BRITISH COLUMBIA
scale: 1"=120miles



SCALE 1" = 1 MILE

J.M. Baird

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NTS
93 - F - 7, 8

SCALE
One Inch =

RIO TINTO CANADIAN EXPLORATION LTD.

CHUTANLI LAKE PROJECT B.C.

LOCATION MAP

AUG. 70 /rwr DWG. L-6010A

QUALIFICATIONS OF GEOPHYSICAL STAFF MEMBERS OF RIO TINTO CANADIAN EXPLORATION LIMITED

H. BECKMANN

Background is primarily electronics (Radio College of Canada).

Starting as Instrument Operator, I have worked with Rio Tinto Canadian Exploration Limited since late 1955 under the supervision of several geophysicists (H. Winkler, D. M. Wagg, J. B. Boniwell and at present with Dr. H. O. Seigel as Consultant).

I have operated and taken part in surveys involving airborne E.M. and Mag., gravity and S.P. and also down-hole I.P. and E.M. and interpreted results obtained by above mentioned instruments. For the past five years, I have been in charge of geophysical surveys for Rio Tinto Canadian Exploration Limited.

D. N. SEXSMITH

Mr. D. N. Sexsmith has worked for Rio Tinto Canadian Exploration Limited for the past five (5) years under the supervision of H. Beckmann.

With an electronics background (Radio College of Canada) he has operated instrumentation on I.P., E.M., Turam, Gravity and Mag. surveys. He is familiar with interpretation of results obtained, for on the spot decisions in the field. He has been a party chief on geophysical surveys for the past three years.

H. Beckmann

July 20, 1970

H. Beckmann

Z-16 Z-14 Z-12

Z-15 Z-13 Z-11

Z-28 Z-26 Z-24

Z-27 Z-25 Z-23

Z-38 Z-36 C-167

Z-37 Z-35 C-168

C-172 C-171 C-156 C-155 Z-1 Z-2

C-170 C-169 C-154 C-153

L-4 W L-2 W L-00 L-2 E

L-28 W L-14 W L-14 E

Legend:

- Value in Milliseconds
- Chargeability contour interval 5 Milliseconds
- 5 Millisecond contour interval
- 10 " " "
- 15 " " "
- 20 " " "
- 25 " " "
- 30 " " "
- 35 " " "

Chargeability low
Three electrode array
Electrode spacing a = 400'
CURRENT STAKE location see DWG - IP-8081

N

N.T.S
93-P-7

SCALE
400' 0' 400' 800' 1200' 1600'
One Inch = 400 Feet

2568 D.Baird

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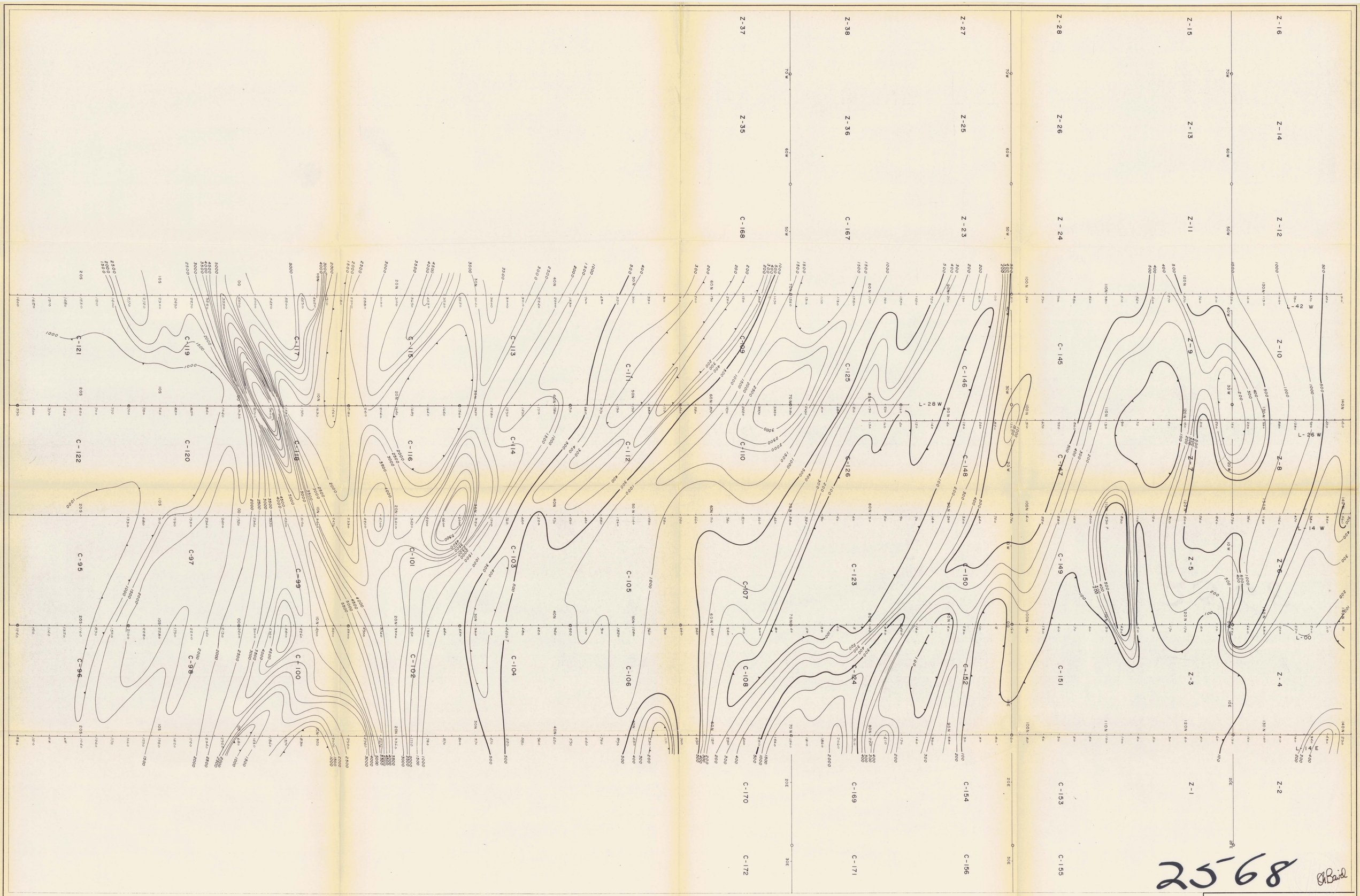
CHUTANLI PROJECT B.C.

CHARGEABILITY CONTOUR PLAN

400' SPACING

JULY, 70 | DS / rwr | DWG. IP- 8077



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Legend:

Z = Value in Ohm-meters

Contour interval 100 & 500 Ohm-meters

100	Ohm-meter contour interval
200	" " "
300	" " "
400	" " "
500	" " "
1000	" " "
1500	" " "

Resistivity low

Three electrode array

Electrode spacing a = 400'

CURRENT STAKE location see DWG. IP-8081

N.T.S
93-F-7

SCALE
400' 0' 400' 800' 1200' 1600'
One Inch = 400 Feet

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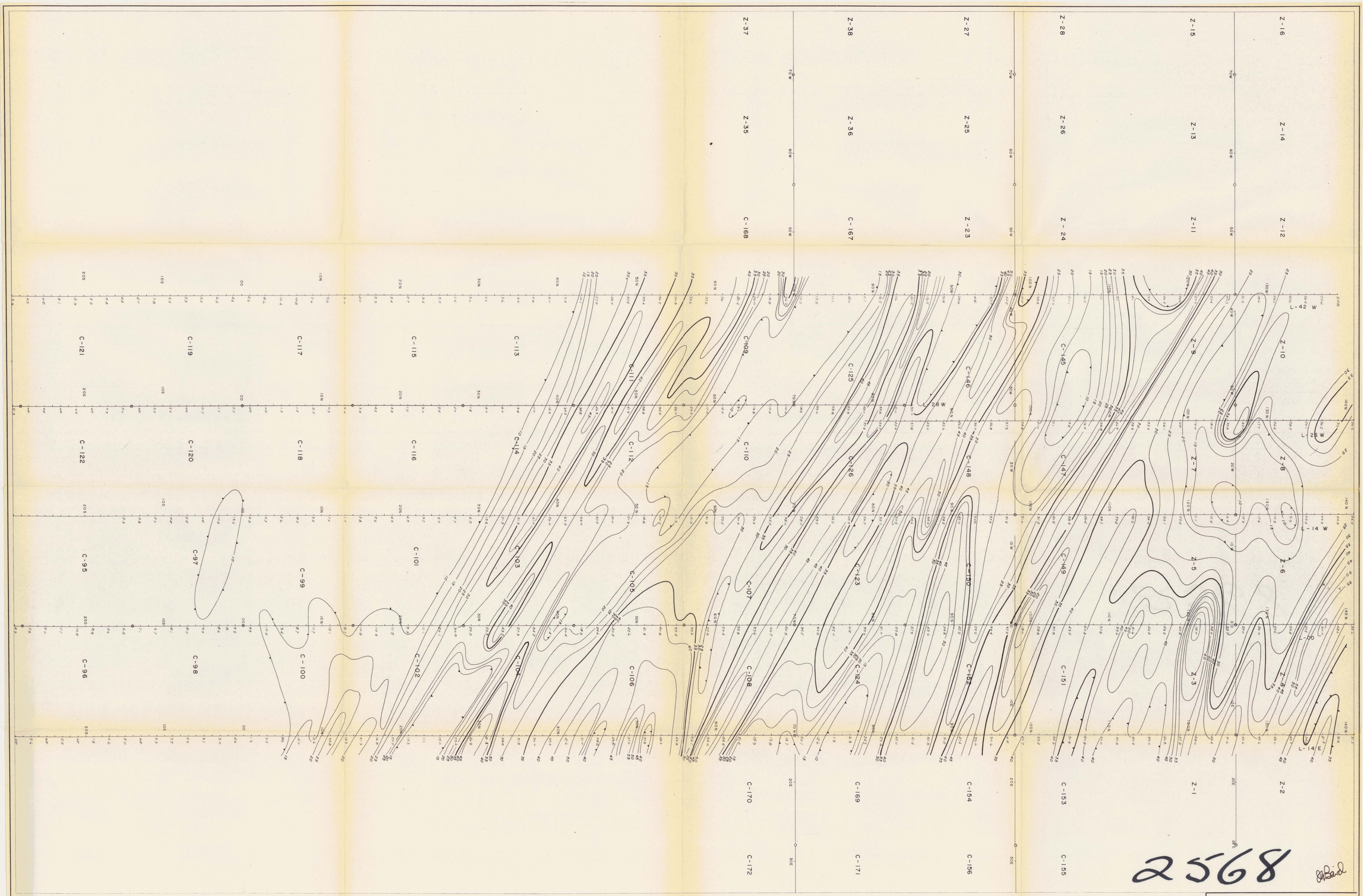
CHUTANLI PROJECT B.C.

RESISTIVITY CONTOUR PLAN

400' SPACING

JULY, 70 | DS / rwr | DWG. IP-8078



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Legend:

384 Value in Milliseconds

Contour interval 5 Milliseconds

5 Milliseconds contour interval
10 " " "
15 " " "
20 " " "
25 " " "
30 " " "
35 " " "

Chargeability low
Three electrode array
Electrode spacing a = 200 feet
CURRENT STAKE location see DWG-IP-8082

N.T.S.
93-F-7

SCALE
400' 0' 400' 800' 1200' 1600'
One Inch = 400 Feet

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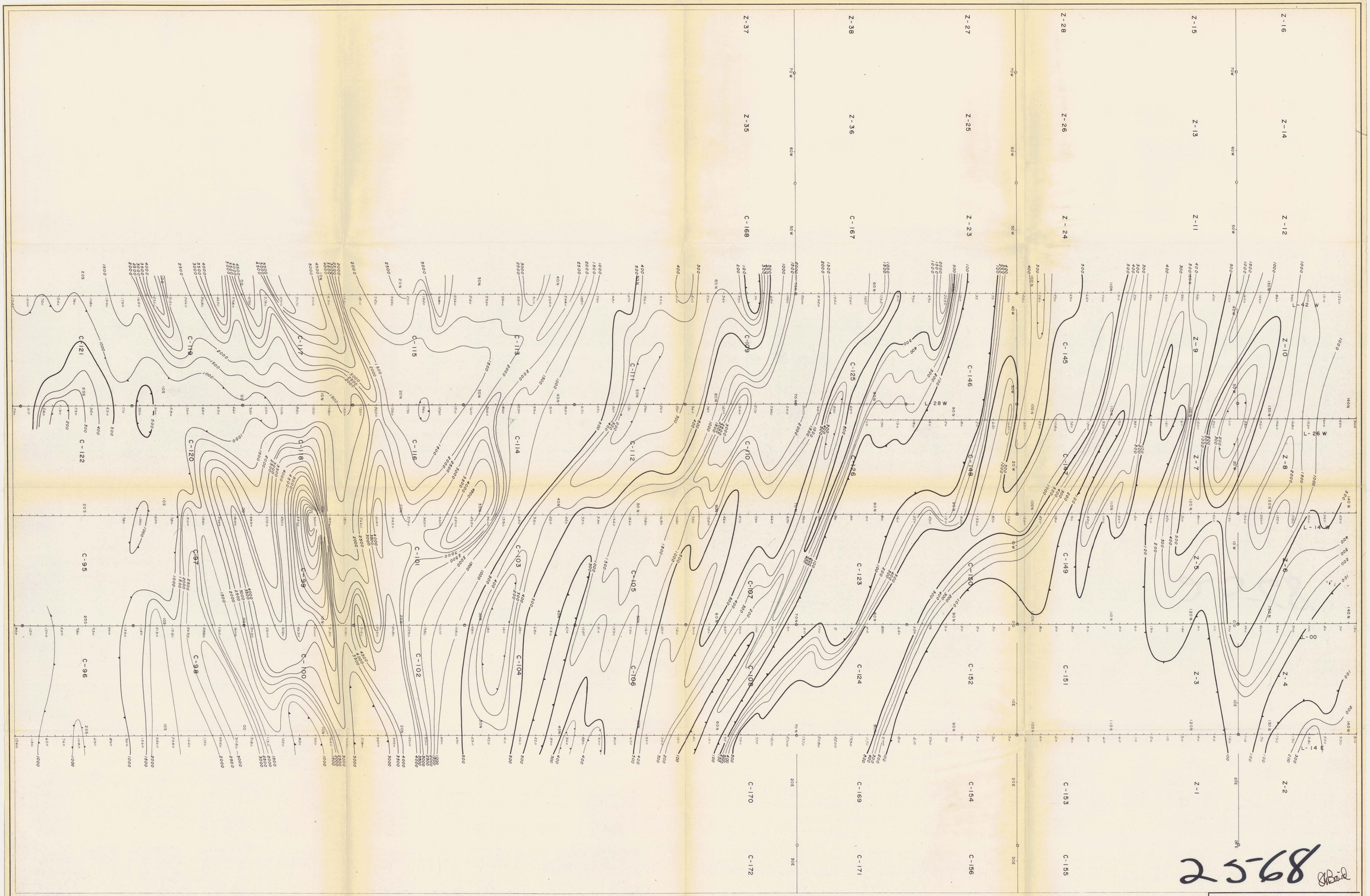
CHUTANLI PROJECT B.C.

CHARGEABILITY CONTOUR PLAN

200' SPACING

JULY, 70	DS / rwr	DWG. IP - 8079



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Legend:

400 Value in Ohm-meters

Contour interval 100 & 500 Ohm-meters

100 Ohm-meter contour interval
200 " " "
300 " " "
400 " " "
500 " " "
1000 " " "
1500 " " "

Resistivity low
Three electrode array
Electrode spacing a = 200'
CURRENT STAKE location see DWG. IP-8082

N.T.S
93-F-7

SCALE
400' 0' 400' 800' 1200' 1600'
One Inch = 400 Feet

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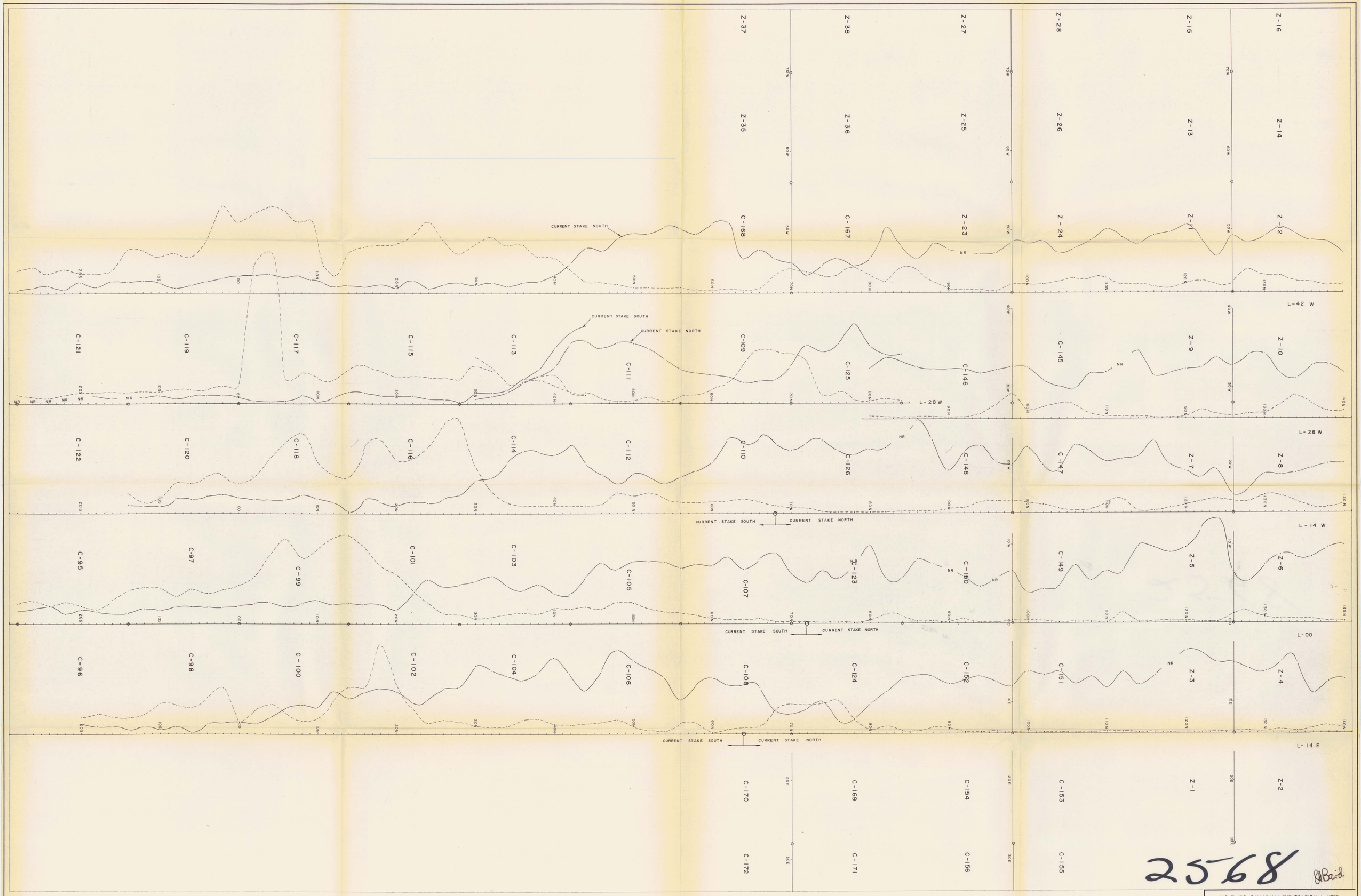
CHUTANLI PROJECT B.C.
RESISTIVITY CONTOUR PLAN
200' SPACING
JULY, 70 | DS / rwr | DWG. IP-8080



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Legend:

Chargeability profile scale 1" = 20 Milliseconds ——————

Resistivity profile scale 1" = 2000 Ohm-meters - - - - - -

NOTE: Electrode spacing a = 400 feet
Three electrode array

NR - NO READING

N.T.S.
93-F-7

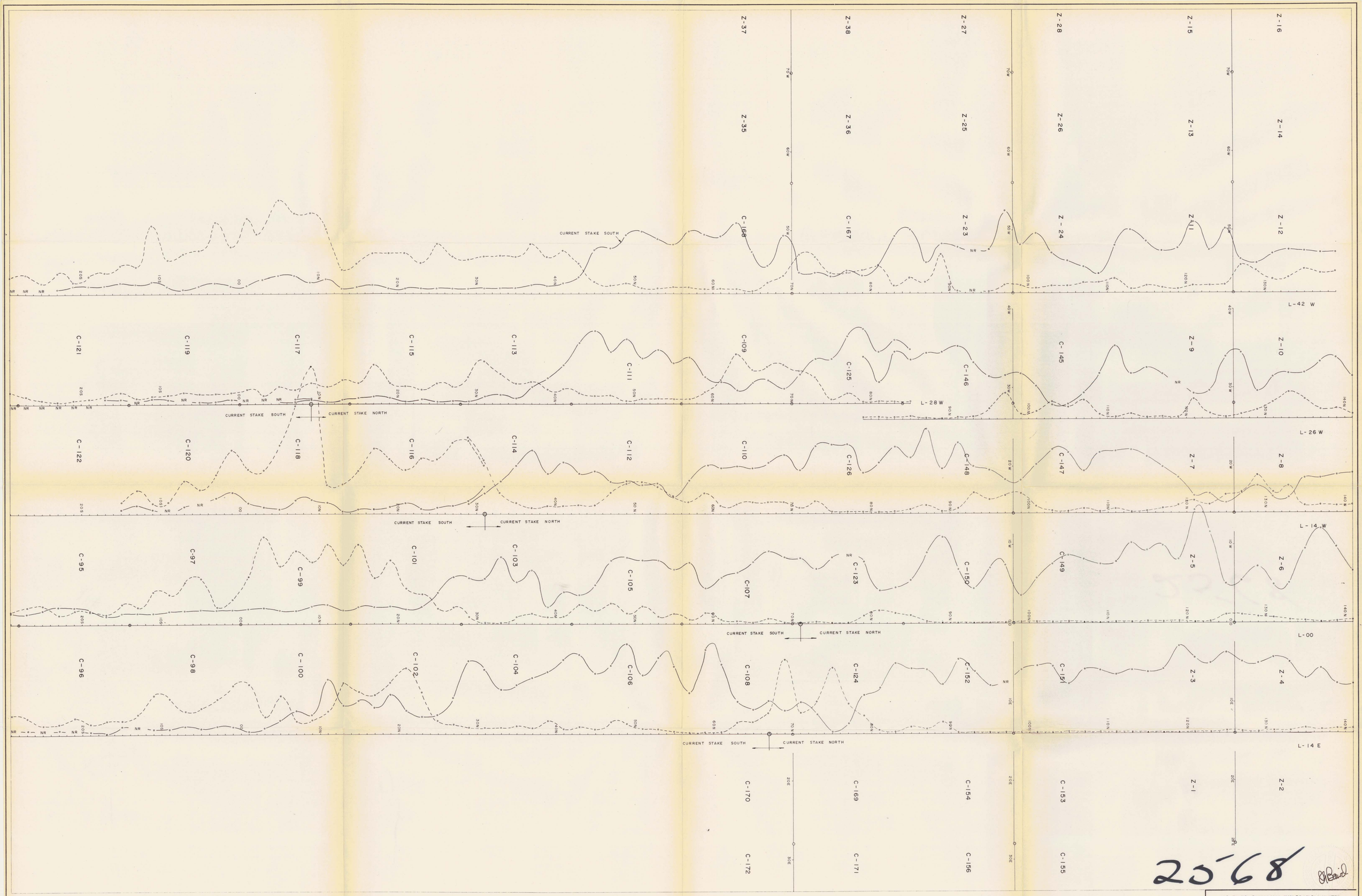
SCALE
400' 0' 400' 800' 1200' 1600'
One Inch = 400 Feet

RIO TINTO CANADIAN EXPLORATION LIMITED

CHUTANLI PROJECT

CHARGEABILITY & RESISTIVITY PROFILE
400' SPACING

JULY, 70 DS



Z

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Legend:

Chargeability profile scale 1" = 20 Milliseconds o——o——o

Resistivity profile scale 1" = 2000 Ohm-meters o- - -o- - -o

NOTE: Electrode spacing a = 200 feet

Three electrode array

NR - NO READING

N.T.S
93-F-7

SCALE

400' 0' 400' 800' 1200' 1600'

One Inch = 400 Feet

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CHUTANLI PROJECT B.C.

CHARGEABILITY & RESISTIVITY PROFILE PLAN

200' SPACING

JULY, 70 | DS / rwr | DWG. IP-8082

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O.M. Bond

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Legend

Contact (Well defined)

Contact (Less defined)

X X X Higher resistivity - lower chargeability rock type probably ACIDIC INTRUSIVE

V V V Lower resistivity - higher chargeability rock type probably METAVOLCANICS

Zone of interest

N

N.T.S
93-F-7

SCALE
400' 0' 400' 800' 1200' 1600'
One Inch = 400 Feet

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CHUTANLI PROJECT B.C.

COMPILATION MAP

JULY, 70 | JB / rwr | DWG. G-8093

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