

2683 A

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 2683 A MAP.....

REPORT ON
AN INDUCED POLARIZATION SURVEY
C AND Z CLAIM GROUPS
CHUTANLI LAKE AREA, BRITISH COLUMBIA
PART 1

by

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

October 26, 1970

Surveys executed by
Rio Tinto Canadian Exploration Limited

Interpretation and report by
Seigel Associates Limited

CLAIMS:

<u>Names</u>	<u>Record Numbers</u>
C 95 to 126	76223 to 76254
C 145 to 180	81706 to 81741
Z 1 to 18	82379 to 82390
Z 23 to 30	82401 to 82408
Z 35 to 40	82413 to 82418

LOCATION:

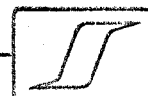
4 miles west of the west end of Chutanli Lake
NTS 93-F-7
124° 53° SW
Omineca Mining Division

DATES OF FIELD SURVEY:

October 7 to October 10, 1969
June 11 to August 13, 1970

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(in text)	
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- Claims Location Map	1" = 1 mile
(in envelope)	
#2 DWGS G-8102-1 - Geological Map	1" = 400'
#3 G-8102-2	
#4 DWGS IP-8098-1 -- Chargeability Contour Plan	1" = 400'
#5 IP-8098-2 200' Electrode Spacing	
#6 DWGS IP-8096-1 - Chargeability Contour Plan	1" = 400'
#7 IP-8096-2 400' Electrode Spacing	
#8 DWGS IP-8099-1 - Resistivity Contour Plan	1" = 400'
#9 IP-8099-2 200' Electrode Spacing	
#10 DWGS IP-8097-1 - Resistivity Contour Plan	1" = 400'
#11 IP-8097-2 400' Electrode Spacing	
#12 DWGS IP-8100-1 - Chargeability Profiles	1" = 400'
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#17 DWG M-6052 - Magnetometer Profiles	1" = 400'
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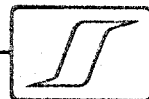
SUMMARY

The present induced polarization survey has revealed that a large portion of the survey area is underlain by rocks containing from 1% to 5% by volume of metallicly conducting material. With such widespread high responses it is not possible, on the basis of the present results alone, to indicate areas of optimum interest.

Interpretation of the chargeability and resistivity results has allowed the postulation of an important contact between intrusive rocks and rocks of the Hazelton Group.

Detailed exploration, including drilling, has already been carried out in an area north of the postulated contact where increased chargeabilities coincide with anomalous soil geochemical values. Further investigation in this area would depend on assay values.

Further exploration on the property could consist of detailed geochemical sampling in the belt immediately north of the interpreted contact and east of the zone which has already been drilled.



p. 1

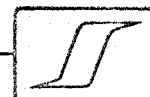
REPORT ON
AN INDUCED POLARIZATION SURVEY
C AND Z CLAIM GROUPS
CHUTANLI LAKE AREA, BRITISH COLUMBIA

INTRODUCTION

During the period from October 7 to 10, 1969 and again from June 11 to August 13, 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 Limited for interpretation and reporting. A report by J. G. Baird dated August 14, 1970 covers the data available to July 10th.

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 L-6010-A. 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.

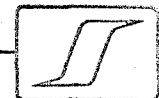


The purpose of an induced polarization survey is to map the subsurface distribution of metallicly conducting mineralization near the lines covered. In the present area such mineralization could include chalcopyrite, bornite, pyrite and other sulphide minerals. As well, metallic conductors such as magnetite and graphite and non-metallic minerals such as chlorite and sericite can give chargeability responses not always distinguishable from sulphide mineralization.

A total of approximately 20 line miles of reconnaissance surveying was carried out on north-south grid lines spaced from 1200' to 1600' apart. In addition two east-west lines approximately 7000' in length and 3000' apart were covered. In an area of interest in the central part of the grid two intermediate lines each about 3500' in length were covered. The locations of the survey lines are shown on the accompanying plates. In all, approximately 25.5 line miles of survey were executed.

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'. About one line mile of profile was covered with a = 100' and a 100' station interval.

A magnetometer survey totalling 3 line miles has been carried out in the central part of the grid using a Scintrex MF-1 vertical force fluxgate magnetometer. The reading accuracy of this instrument is ± 5



gammas for the scale used to take most of the observations.

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. The accompanying DWGS G-8102-1 and -2 show the outcrops mapped by Rio Tinto geologists. The descriptive logs of three drill holes located in the central part of the grid have also been made available to the writer.

The northern part of the survey area is believed to be mainly underlain by metasedimentary and volcanic 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.

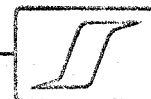
The property was located by a geochemical soil sampling programme, the results of which are given in a report by M. B. Mehrtens, Ph.D., dated August, 1970. A significant copper and molybdenum anomaly has been located in the central part of the geophysical survey area.

PRESENTATION OF RESULTS

The results of the induced polarization survey are shown on 12 accompanying plates, all on the scale of 1" = 400'.

Drawing IP-8098-1, -2 and IP-8096-1, -2 are chargeability contour plans for the 200' and 400' electrode spacings respectively. The actual chargeability values have been shown contoured with a 5.0 millisecond contour interval.

Drawings IP-8099-1, -2 and IP-8097-1, -2 are resistivity contour



plans for the 200' and 400' electrode spacings respectively. The apparent resistivity values are shown in ohm-meters. The 100, 300, 500, 1000, 2000, 3000, 4000, etc. contours have been shown.

Drawings IP-8100-1 and -2 show the chargeability results in profile form. The vertical scale is 1" = 20.0 milliseconds.

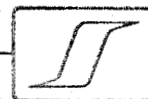
Drawings IP-8101-1 and -2 show the resistivity profiles with a vertical scale of 1" = 2000 ohm-meters.

Drawing M-6051 and Drawing M-6052 are magnetometer contour and profile plans respectively. The contour interval is 200 gammas from 0 to 1000 gammas thence the interval is 1000 gammas. The vertical scale for the profiles is 1" = 1000 gammas.

Drawings G-8104-1 and -2 are an interpretation of the geophysical results showing areas of high and low resistivities and chargeabilities as well as a contact interpreted from the results of the magnetic survey.

DISCUSSION OF RESULTS

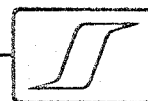
The chargeability results indicate that in the southern and extreme eastern portions of the grid the background values are generally less than 10.0 milliseconds as may be expected from a granodioritic rock type. With this background a uniform subsurface distribution of 1% by volume of metallicly conducting 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 20.0 milliseconds to in excess of 60.0 milliseconds. This moderate to high chargeability range is likely due to the equivalent of a content of from 1% to 5% by volume of metallicly 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. The steep gradients of the 200' and 400' electrode spacing profiles and the high chargeability observations where 100' electrode spacings have been used indicate that the overburden is likely not more than 25' deep over much of the grid.

Resistivities in the southern part of the area range from several hundred to several thousand ohm-meters while those in the north are considerably lower, generally below 500 ohm-meters. On the eastern and western sides of the survey area the resistivities are lower still, ranging from tens of ohm-meters to about 200 ohm-meters. The values for the 400' spacings are generally slightly higher than those for the 200' spacings which may arise if there is a thin layer of lower resistivity overburden overlying higher resistivity bedrocks. 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 reveal that this is not a major factor on the present property.

Generally acidic intrusive rocks are expected to exhibit increased resistivities and low uniform chargeabilities in comparison with metasedimentary and metavolcanic rock types such as the rocks of the Hazelton Group. The coincident chargeability and resistivity contact



shown on DWGS G-8104-1 and -2 near 30 N to 40 N on lines 14 E to 42 W is interpreted to be an important geological contact between intrusive rocks on the south and Hazelton Group rocks on the north. It is noted however, that up to about 1000' north of this contact granodiorite has been observed in outcrops and intercalated with Hazelton rocks in drill holes. A belt just north of the interpreted contact may therefore be a transition zone between the two rock types although the geophysical results indicate that the subsurface down to a depth of approximately 300' likely contains a greater percentage of Hazelton rocks than intrusive rocks.

Farther north of the contact three northwesterly trending increased resistivity zones which correlate partly with decreased chargeability responses may indicate locations where the intrusive comes near surface or, alternatively, changes in the character of the Hazelton rocks.

Since no outcrops have been mapped in the east part of the grid, it is difficult to conjecture as to the type of low chargeability-low resistivity rock underlying the east ends of L 70 N and L 98 N. Such responses could occur if the overburden depth were in excess of about 250'.

The results of the magnetometer survey allow the interpretation of a northwesterly trending contact between material of uniform magnetic character on the southwest and material exhibiting slightly higher background intensities and sharp local relief in excess of 1000 gammas on the northeast. The local highs in the area northeast of the contact are interpreted to arise from narrow near surface magnetic bodies. The location of the interpreted contact is shown on DWG G-8104-1.



p 1

CONCLUSIONS AND RECOMMENDATIONS

The present induced polarization survey has revealed that a large portion of the survey area is underlain by rocks containing from 1% to 5% by volume of metallicly conducting material. With such widespread high responses it is not possible, on the basis of the present results alone, to indicate areas of optimum interest.

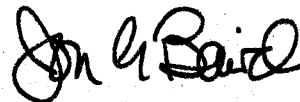
Interpretation of the chargeability and resistivity results has allowed the postulation of an important contact between intrusive rocks and rocks of the Hazelton Group.

Detailed exploration, including drilling, has already been carried out in an area north of the postulated contact between 40 N and 60 N and between L 28 W and L 42 W, where increased chargeabilities coincide with anomalous soil geochemical values. Further investigation in this area would depend on assay values.

Further exploration on the property could consist of detailed geochemical sampling in the west immediately north of the interpreted contact and east of the zone which has already been drilled.

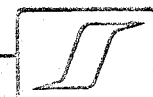
Respectfully submitted,

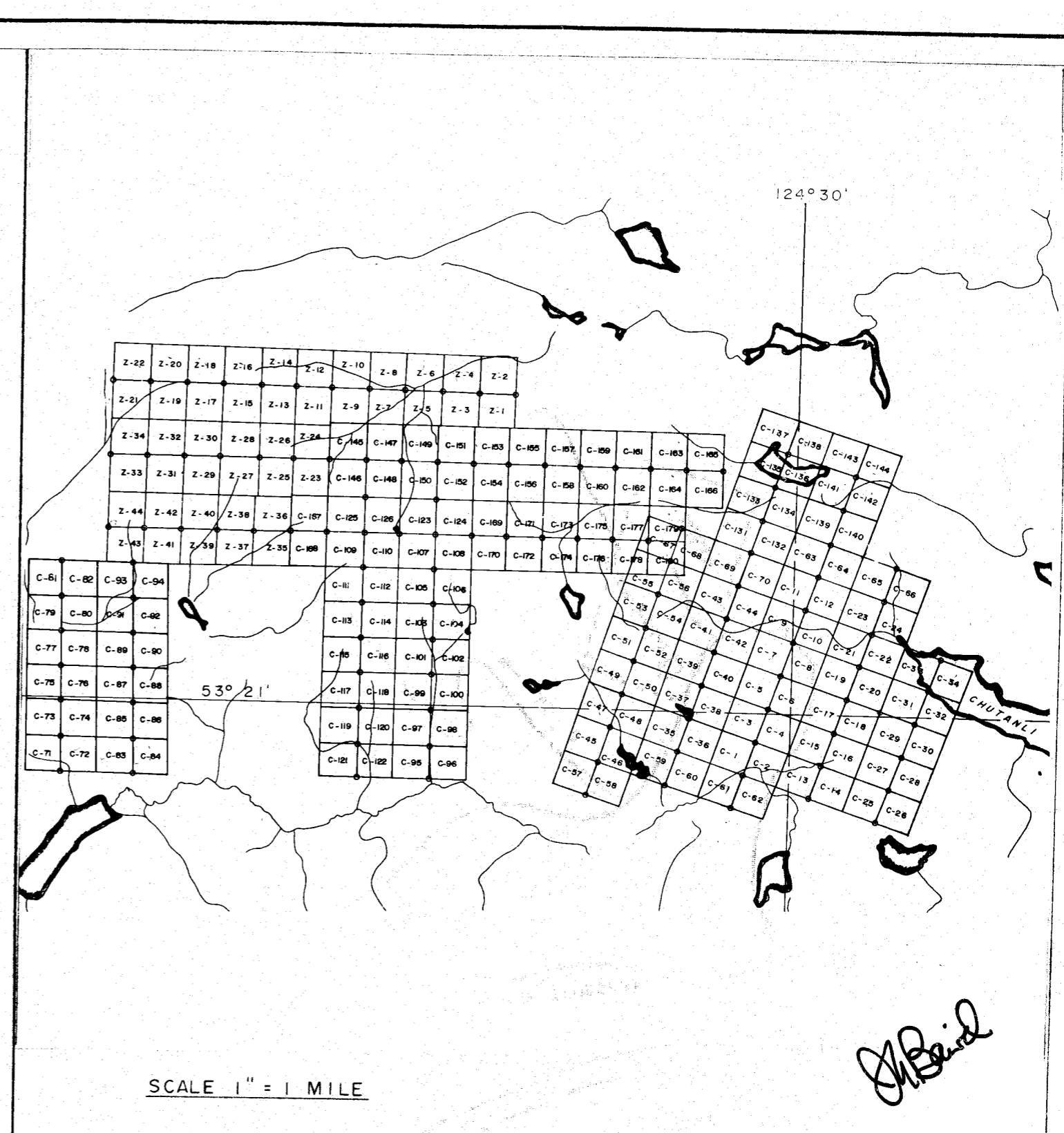
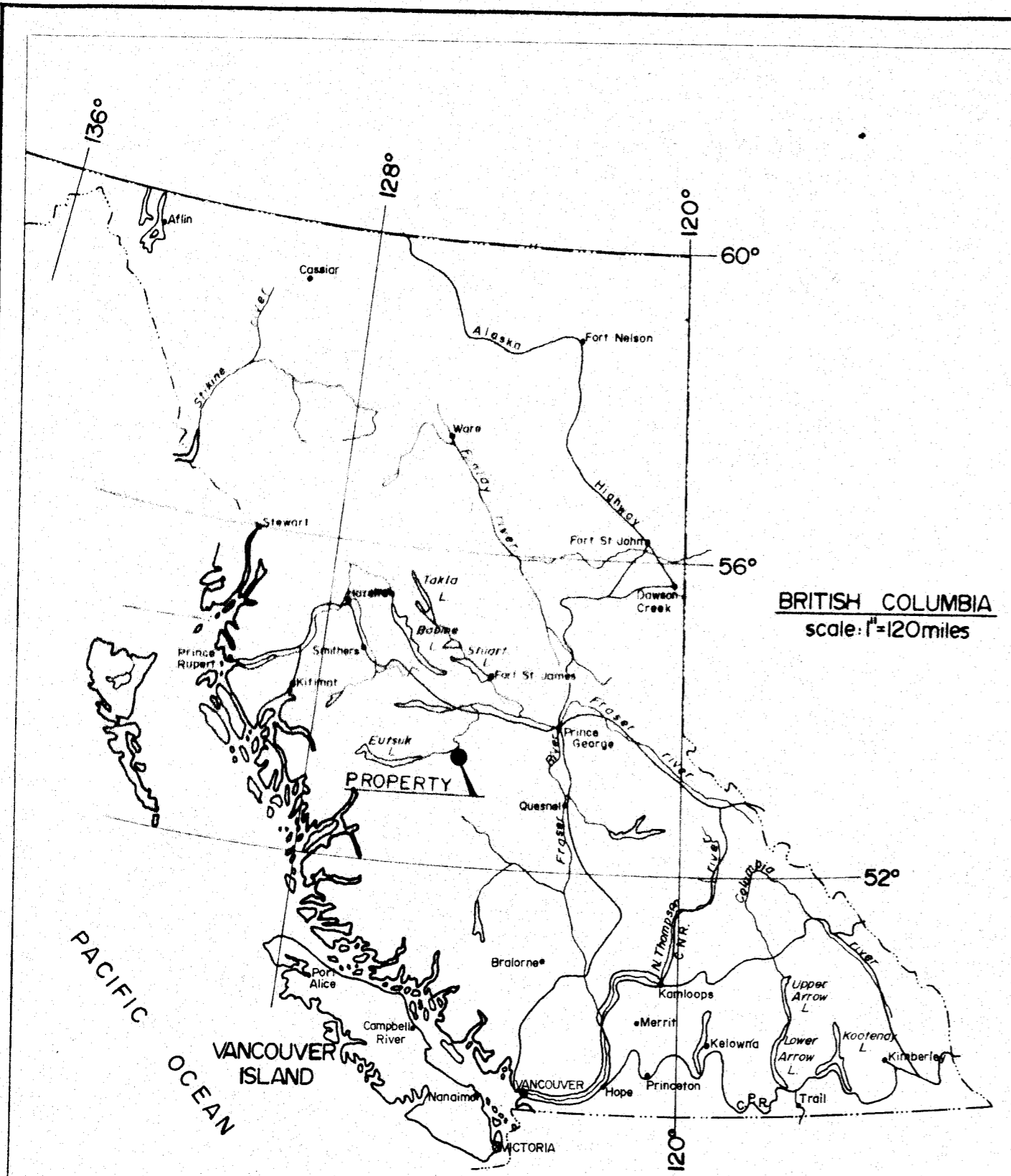
SEIGEL ASSOCIATES LIMITED



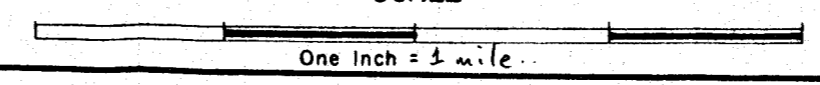
Jon G. Baird, B.Sc., P.Eng.
Geophysicist

Vancouver, B. C.
October 26, 1970

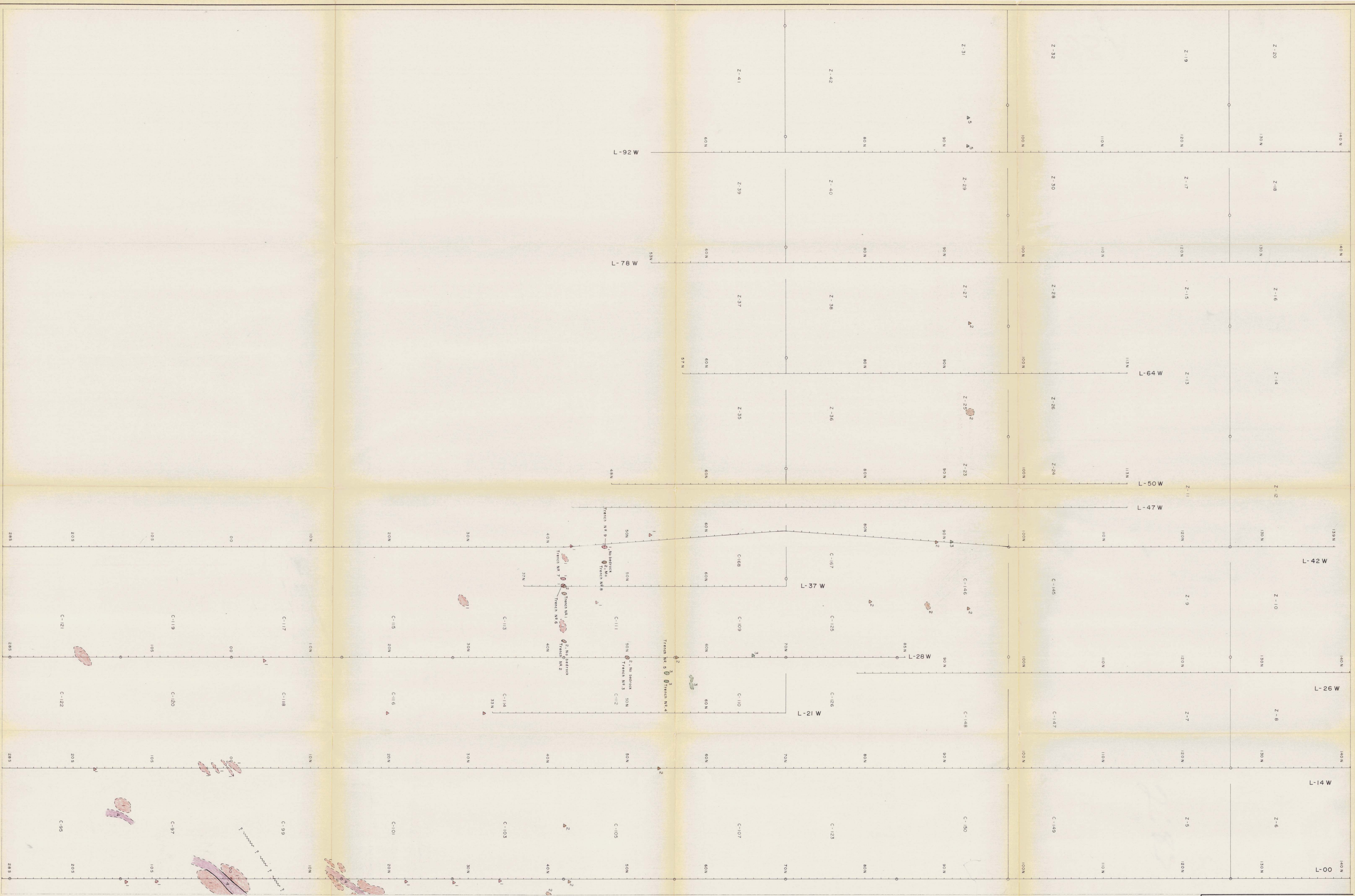




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2683 A

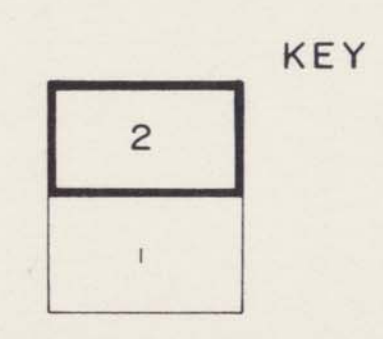


RIO TINTO CANADIAN EXPLORATION LTD.	
CHUTANLI LAKE PROJECT B.C.	
LOCATION MAP	
AUG. 70	DWG. L-6010A



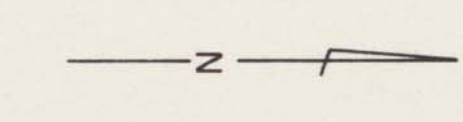
Department of
 Mines and Technical Surveys
 Assessment Report
 No. 4432

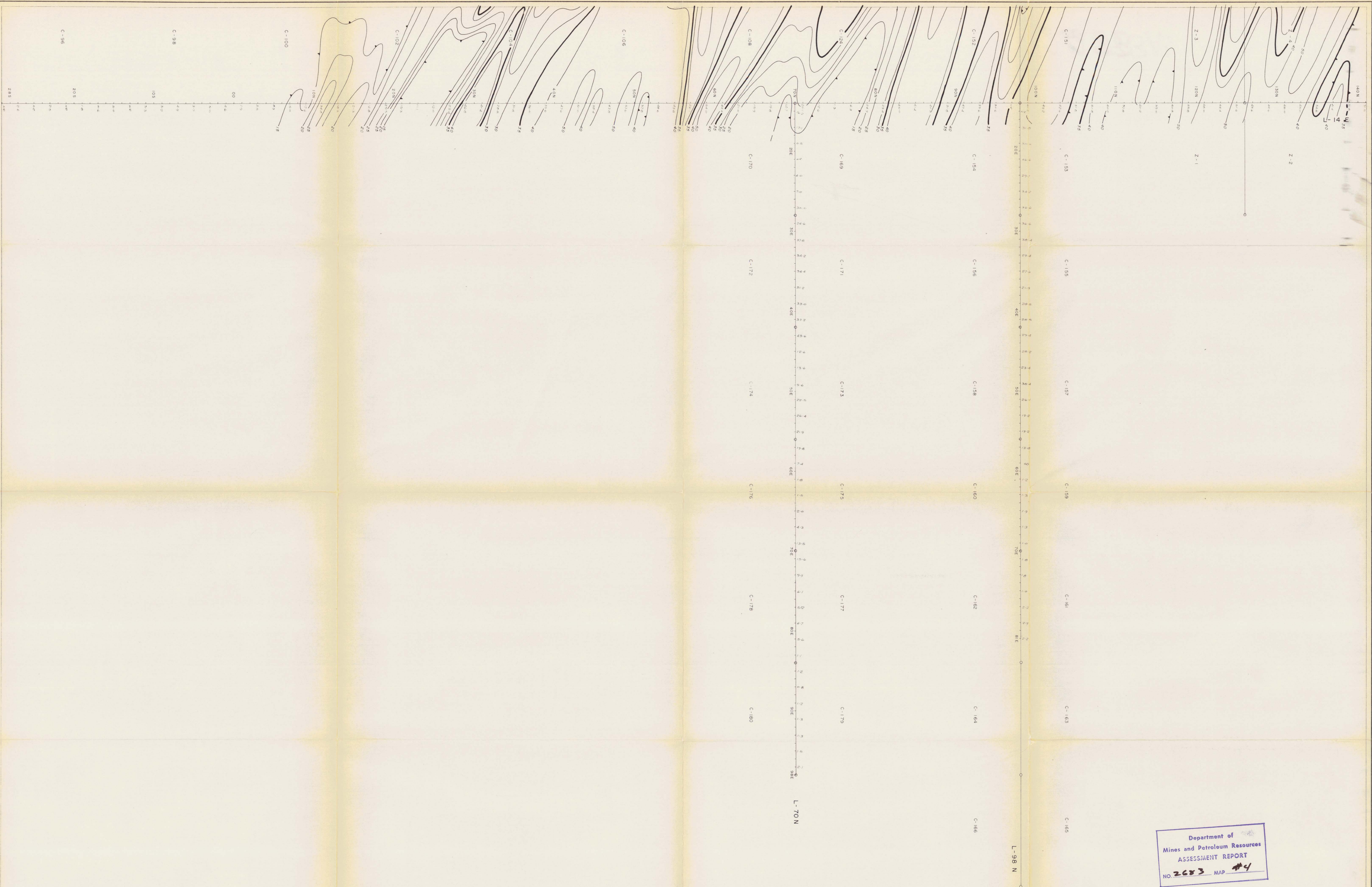
NOTE - For legend see sheet no. 1.



N.T.S.
 93-F-7
2683 A
 SCALE
 One Inch = 400 Feet

RIO TINTO CANADIAN EXPLORATION LIMITED		
CHUTANLI LAKE PROJECT, 'C&Z' CLAIMS, B.C.		
GEOLOGICAL MAP		
SEPT, 70	GB/rwr	DWG. G-8102-2





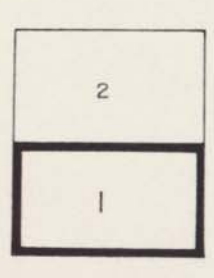
Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 2683 MAP #4

Legend

Value in Milliseconds	Contour Interval
15	5 & 10 Milliseconds
20	"
25	"
30	"
35	"
40	"
50	"

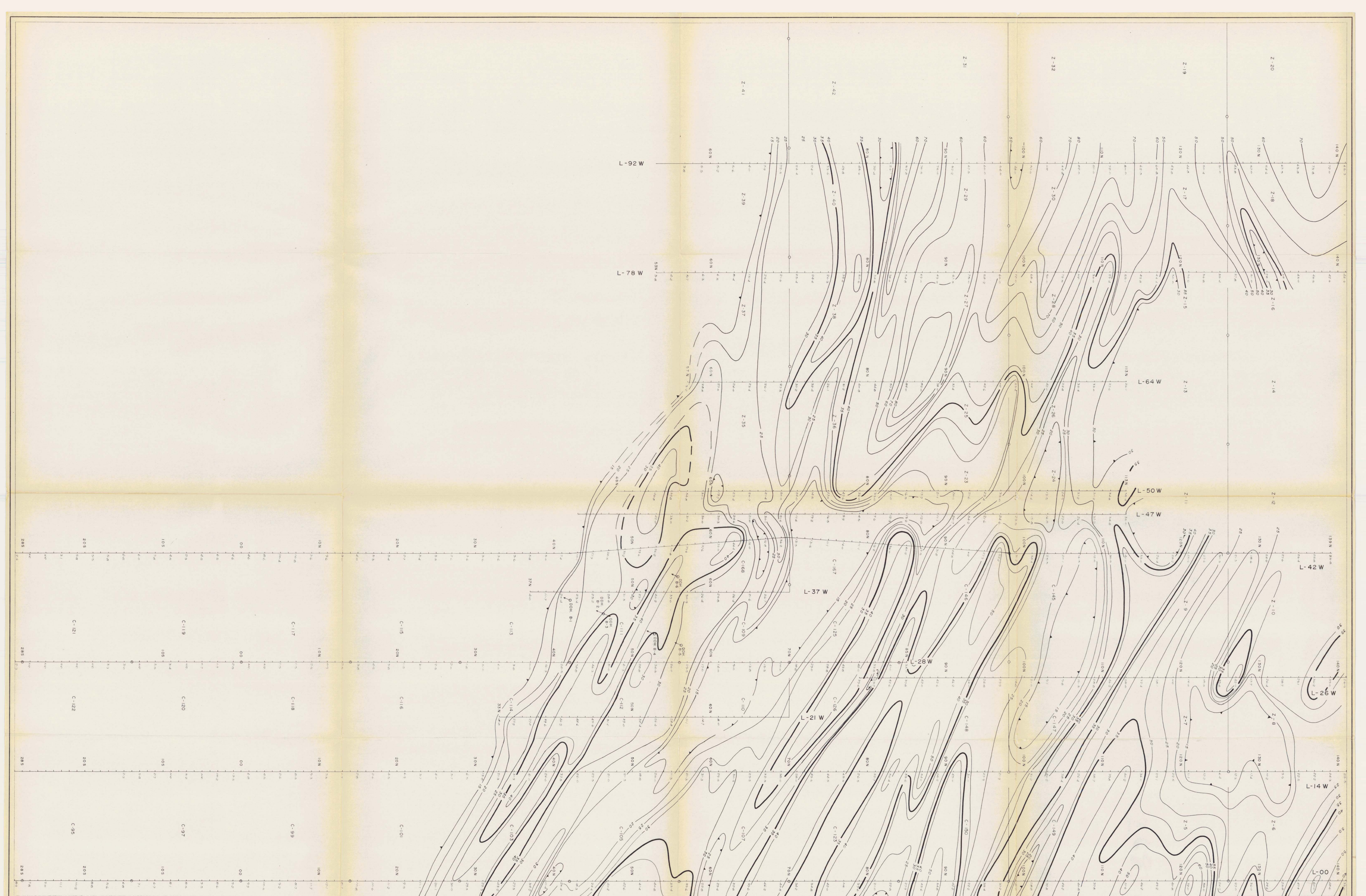
Chargeability low
NOTE: Three electrode array

For CURRENT STAKE location see DWG-IP-8100-1,2 or IP-8101-1,2



N.T.S.
93-F-7
2683A
SCALE
One Inch = 400 Feet

RIO TINTO CANADIAN EXPLORATION LIMITED
CHUTANLI LAKE PROJECT, 'C & Z' CLAIMS, B.C.
CHARGEABILITY CONTOUR PLAN
200' SPACING
SEPT, 70 DS /rwr DWG. IP-8098-1



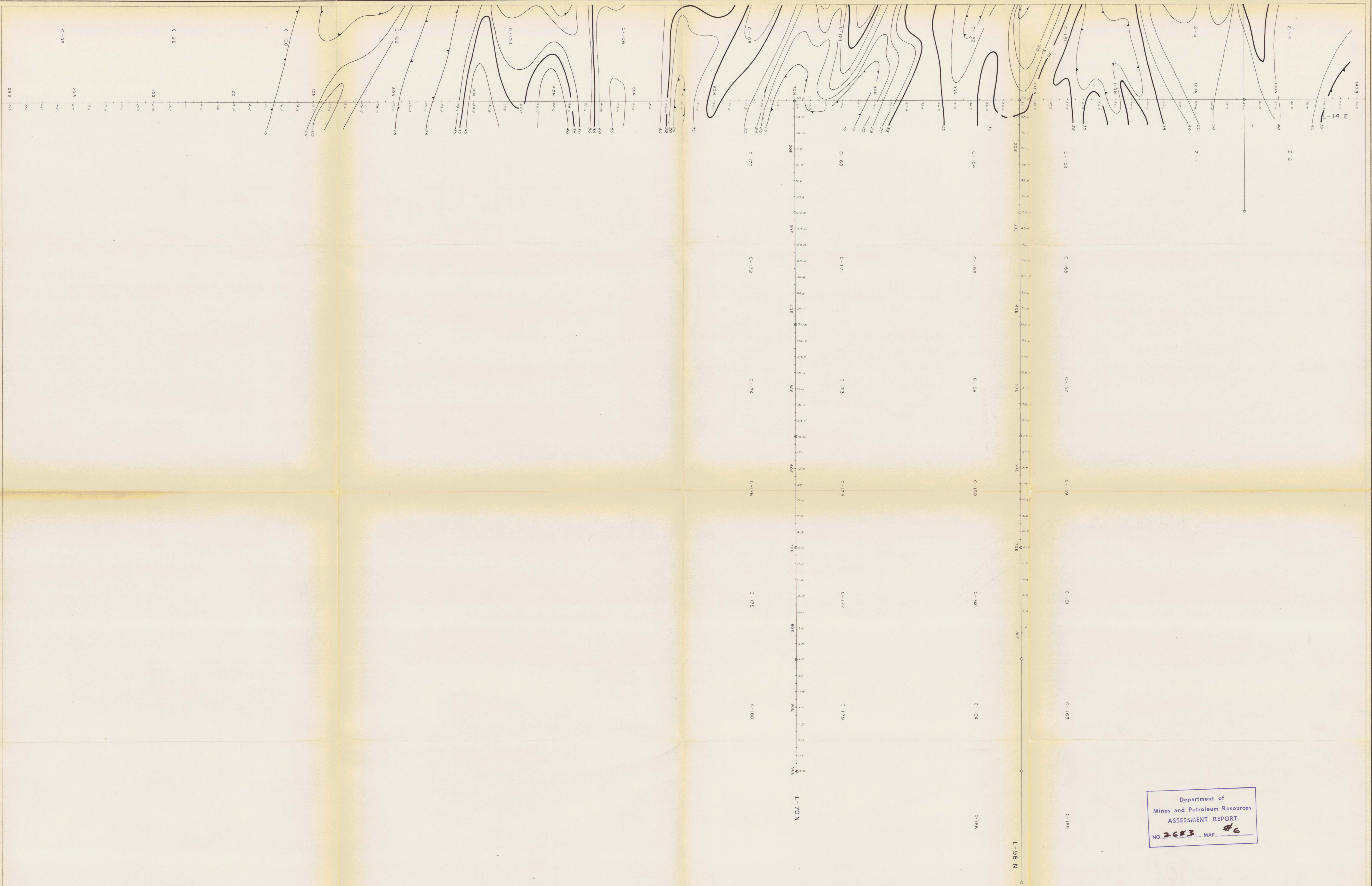
NOTE: For legend see SHEET No. 1

2
1

N.T.S.
93-7-7
2683 A
SCALE
One Inch = 400 Feet

RIO TINTO CANADIAN EXPLORATION LIMITED
CHUTANLI LAKE PROJECT, 'C&Z' CLAIMS, B.C.
CHARGEABILITY CONTOUR PLAN
200' SPACING
SEPT, 70 DS/rwr DWG. IP-809B-2

RECORD NO. 2683
CHUTANLI LAKE PROJECT
MINES AND PETROLEUM BRANCH
Department of
Geological Survey of Canada

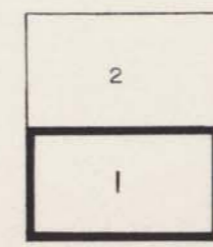


Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 2683 MAP #6

Legend
Value in Milliseconds
Contour interval 5 & 10 milliseconds

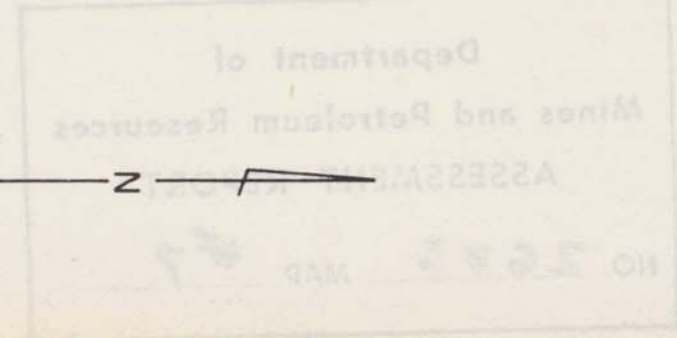
15	Millisecond Contour Interval
20	"
25	"
30	"
35	"
40	"
50	"

NOTE Three electrode array
Electrode spacing at 400 feet
For CURRENT STAKE location see DWG. IP-8100-1,2 or IP-8101-1,2



N.T.S.
95'-F-7
2683A
SCALE
One Inch = 400 Feet

RIO TINTO CANADIAN EXPLORATION LIMITED
CHUTANLI LAKE PROJECT, 'C & Z' CLAIMS, B.C.
CHARGEABILITY CONTOUR PLAN
400' SPACING
SEPT, 70 D.S. /rwr DWG. IP-8096-1

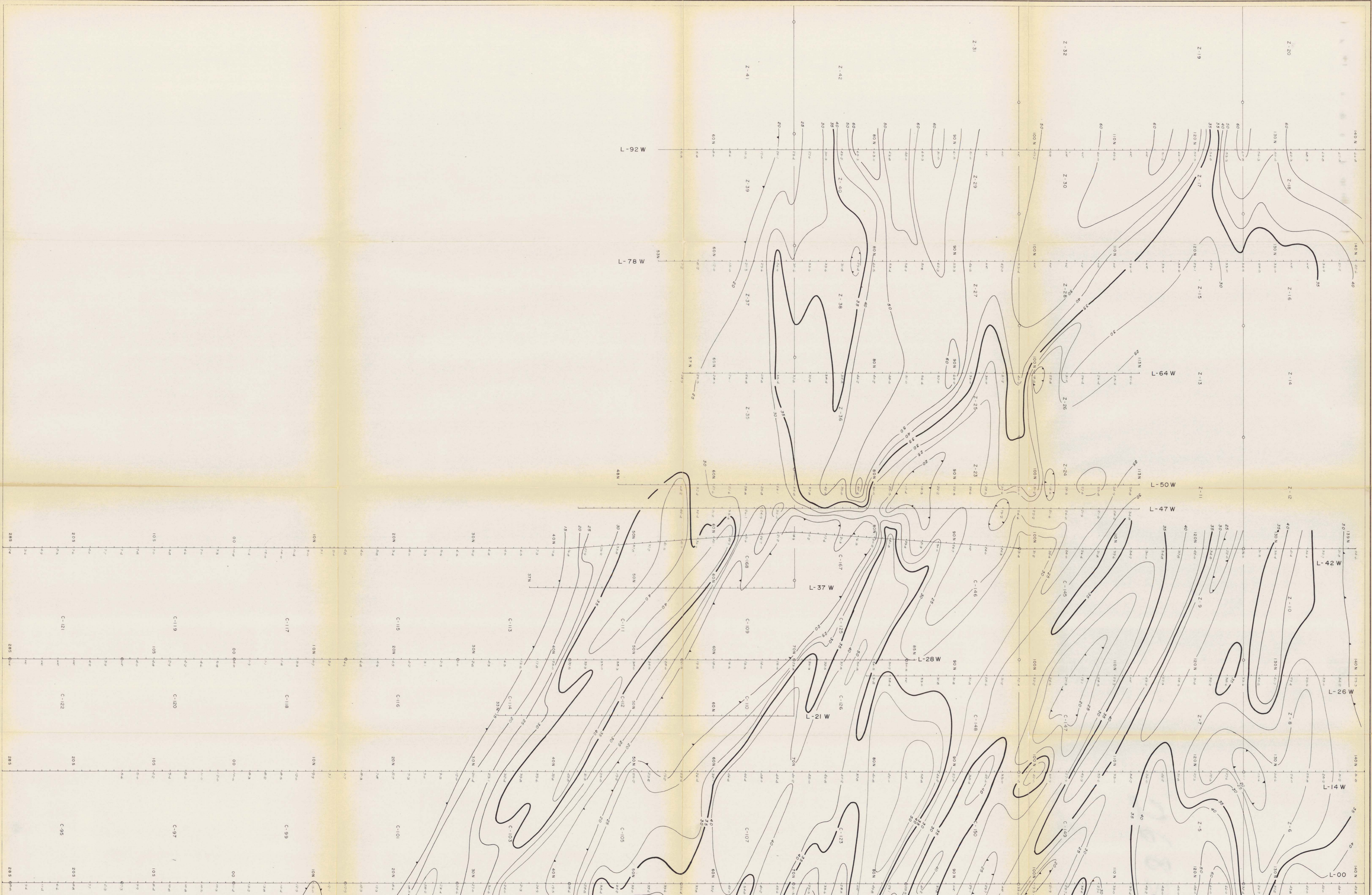


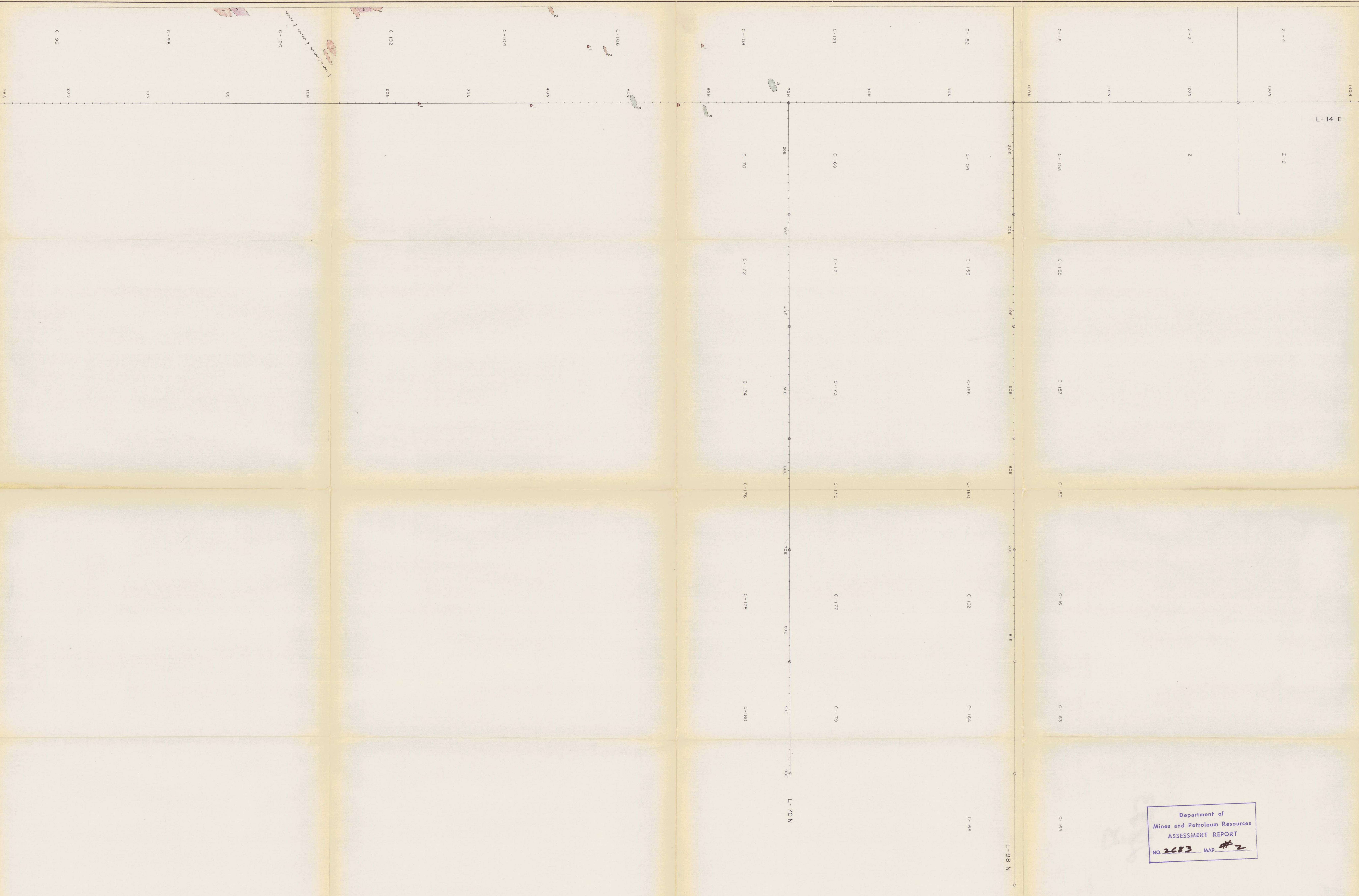
NOTE: For legend see SHEET NO. 1

2
1

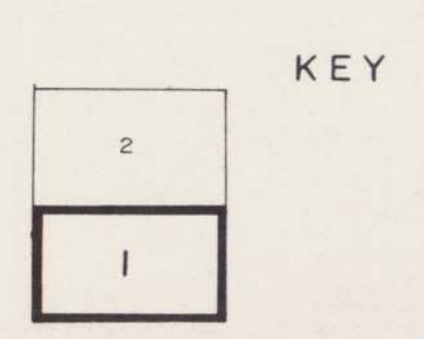
NTS
93-8-7
2683 A
SCALE
One Inch = 400 Feet

RIO TINTO CANADIAN EXPLORATION LIMITED
CHUTANLI LAKE PROJECT, 'CBZ' CLAIMS, B.C.
CHARGEABILITY CONTOUR PLAN
400' SPACING
SEPT., 70 DS/rwr DWG. 1P-8096-2





- Legend**
- 1 Grandiorite
 - 2 Sediments
 - 3 Andesite
 - 4 Diorite 2 dike fine grained
 - 5 Shale
 - Outcrop
 - △ Float
 - Fault



Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 2683 MAP # 2

N.T.S.
93-F-7
2683A
SCALE
0' 400' 800' 1200' 1600'
One Inch = 400 Feet

RIO TINTO CANADIAN EXPLORATION LIMITED
CHUTANLI LAKE PROJECT, 'C B Z' CLAIMS, B.C.
GEOLOGICAL MAP
SEPT, 70 GB/rwr DWG. G-8102-1