

2702

Telephone: Office 685-2914
Res. 224-7309

R. H. SERAPHIM ENGINEERING LIMITED
Geological Engineering

316

427-470 GRANVILLE STREET
VANCOUVER 2, B.C.

GEOPHYSICAL REPORT
INDUCED POLARIZATION SURVEY
FISH LAKE (NEAR TASEKO LAKE)

CLINTON M.D.

on

Claims held by

TASEKO MINES LTD.

NATIONAL TRUST COMPANY LTD.

Optioned to

NITTETSU MINING CO. LTD.

by

R.H. SERAPHIM, Ph.D. P.Eng.

Nov. 10, 1970.

CLAIMS

RECORD NO's

BJ 22,24, BB 41 to 44 inc. 18438,18440, 12872-12875

being part of group No. 2 which includes

BJ 1,3,5,7,9,11,13 to 36 18417,19,21,23,25,27,18429-18452
BB 21 to 24, 41 to 44, 61,63 12852-55, 12872-75, 13172, 13174

LOCATION

1 mile north of FISH LAKE, which is 10 miles north
of TASEKO LAKE, and at $123^{\circ} 51^{\circ}$ S.W.

Dates - June 16 to July 24, 1970.

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Department of
Mines and Petroleum Resources
ASSESSMENT REPORT

NO. 2702 MAP.....

R. H. SERAPHIM ENGINEERING LIMITED

Geological Engineering

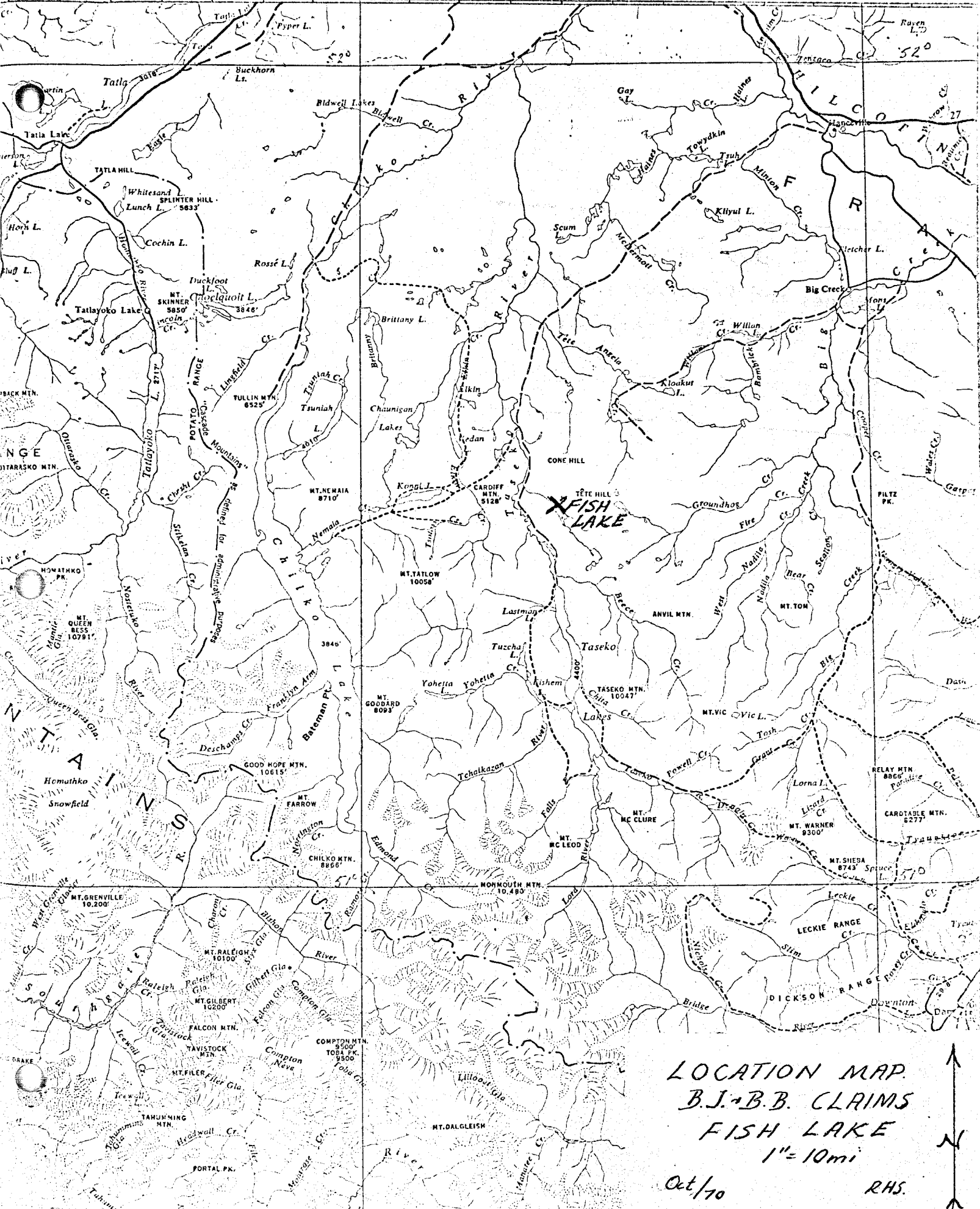
316
470 GRANVILLE STREET
VANCOUVER 2, B.C.

SUMMARY and CONCLUSIONS

The detailed induced polarization survey on the claims shows two anomalies. These lie on the east and west rims of a gravel filled north trending trough. Diamond drilling on claims to the north, on or near extensions of the anomalous areas, showed sub-ore copper mineralization. The trough itself does not provide an induced polarization anomaly, but this may be because the deep overburden precludes the testing of a sufficient amount of bedrock.

INTRODUCTION

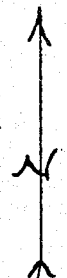
An induced polarization survey was conducted over some of the BB and BJ claims near Fish Lake, close to Taseko Lake, between June 16 and July 24, 1970. The survey is a continuation of one completed on some others of the BB claims, which survey is the subject of a similar report dated July 15, 1970. Nittetsu Mining Co. Ltd has the claims under option, and Nittetsu's chief



LOCATION MAP.
 B.J. & B.B. CLAIMS
 FISH LAKE
 1" = 10mi

Oct/70

RHS.

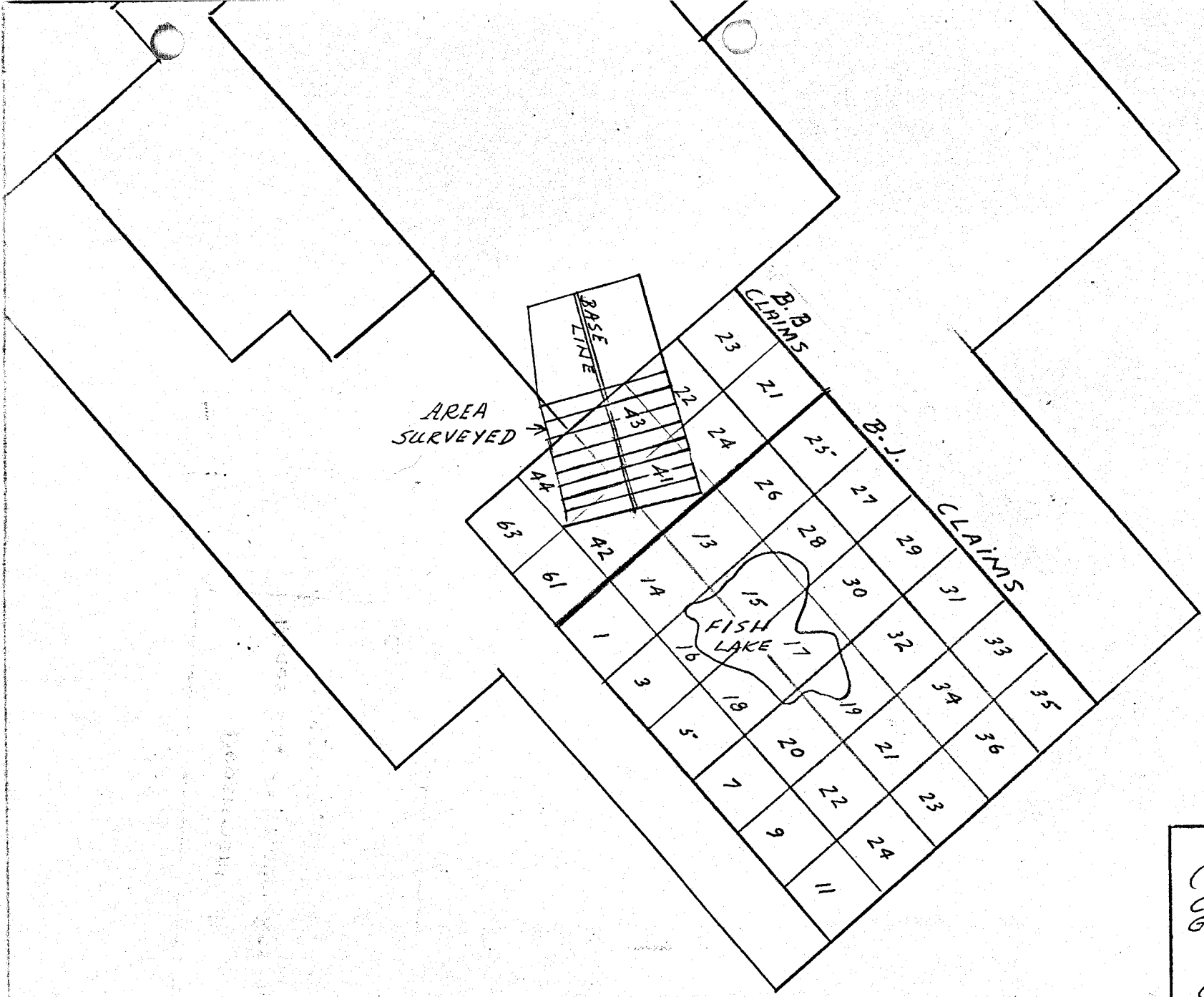


geophysicist, Mr. Akio Okamura, directed the work, assisted by Mr. Taiji Sakaino. The writer, Dr. R.H. Seraphim, inspected the work on site on July 15, 1970, and has discussed the procedure and results with Mr. Okamura. The survey was completed to explore the extent and intensity of the pyrite-chalcopyrite mineralization exposed in a number of trenches and old drill holes, as shown on the Plan of Survey.

LOCATION. ACCESS. TOPOGRAPHY. GEOLOGY

The location map shows the location of the property relative to Taseko Lake. The property is reached from Williams Lake by a rough road, or by float plane, landing on Fish Lake. The region is part of the Chilcotin Plateau, and is only a few miles east of the Coast Range. Relief on the survey area is in the order of 100 feet; much of the survey area is meadow and swamp.

Intensely altered intrusives of dioritic feldspar porphyry intrude andesitic and argillaceous? tuffs. Tertiary volcanics, exposed along the west limit of the surveyed area, overlie these rocks. The intrusives are strongly fractured and altered with sericite, silica, clay minerals, and some gypsum. The resulting rocks are very incompetent. Pyrite, chalcopyrite, magnetite, and pyrrhotite mineralization occur as dissemination and on fracture planes.



FISH LAKE
 (NEAR TASEKO)
 Claims and I.P.
 Grid for Group 2
 3000' = 1"
 Oct/70
 R.H.S.
 after J.B.

SURVEY METHOD

The location and extent of the surveyed grid is shown on the Plan of Survey. The station interval is 100 feet on grid lines at 300 ft intervals. The instruments used were a Phase Lock Induced Polarization Receiver Model R 5280, and an Induced Polarization Transmitter Model T 2800, both made by Geoscience Inc., of 199 Bent St., Cambridge, Mass., U.S.A. The transmitting unit has a rating of 1.8 k.w. The dipole-dipole electrode configuration, with electrode dipoles of 100 ft and 200 ft was used, and several dipole separations, (nx) at 100, 150, 200, 250 and in places 300, 400, and 500 were read. The current was transmitted at two frequencies, 0.3 cps and 3.0 cps. The impedance of a system which can be polarized will vary with frequency, and therefore if the ground can be polarized, the impedances measured will vary with the frequencies used. This Per Cent Frequency Effect is expressed as $\frac{R1 - R2}{R1} \times 100$ where R1 and R2 are the apparent resistivities at the lower and higher frequencies respectively. The resultant Apparent Per Cent Frequency Effect for each of the dipole separations is plotted on the pseudo section along each grid line.

The Apparent Resistivity, (in ohm-feet), was also measured, and shown on the same plate. Also shown is the Apparent Metal Factor, which is obtained by dividing the Apparent Per Cent Frequency Effect by the Apparent Resistivity. This procedure accentuates the Induced Polarization anomalies in areas of low resistivity.

RESULTS

The anomalous areas are indicated on the accompanying plan and pseudo-sections. The background values of Apparent Per Cent Frequency Effect did not exceed 3% in general, and they did increase with depth. The apparent resistivity is 200 to 500 ohm-feet near surface, and it also increased with depth. The strongest anomalous zone was found on lines 300N, 000N, 300S, 600S, and 900S, where the Apparent Per Cent Frequency Effect exceeds 10% in places, and the Apparent Resistivity is low. A weaker anomaly exists to the west on lines 000, 300S, and 600S, and it has not been tested by drilling. Actually, the depth to bedrock in the gravel filled trough between the anomalies may be the only reason that the weaker anomaly was not found to join up with and the part of the larger anomaly.

November 10, 1970.


Dr. R.H. Seraphim, P.Eng.

APPENDIX B

EVIDENCE OF EXPENDITURES INCURRED

Name and Address	Position	Rate	Days Worked	Period	Total Salary
W. Raymond -1015-470 Granville	Leader	\$650/M + Board + D.O.	30	June 25-July 25	\$838.50
L. Goyette -1015-470 Granville	Cook	\$650/M + Board + D.O.	20	June 25-July 15	588.24
H. Buchholz -1015-470 Granville	Helper	\$550/M + Board + D.O.	30	June 25-July 25	713.50
J. Gabel -1015-470 Granville	Helper	\$450/M + Board + D.O.	30	June 25-July 25	598.50
B. Holmes -1015-470 Granville	Helper	\$450/M + Board + D.O.	30	June 25-July 25	588.50
L. Swanson -1015-470 Granville	Helper	\$450/M + Board + D.O.	30	June 25-July 25	588.50
R. White -1015-470 Granville	Helper	\$450/M + Board + D.O.	30	June 25-July 25	588.50
L. Brown -1015-470 Granville	Cook	\$650/M + Board + D.O.	10	July 16-July 25	270.74
T. Sakaino - 404-470 Granville	Geophysical Asst.	\$393/M	30	June 25-July 25	393.00
A. Okamura - 404-470 Granville	Geophysicist	\$411/M	30	June 25-July 25	411.00
Total					<u>\$5,578.98</u>

R. H. Deakin

APPENDIX A

STATEMENT OF COSTS OF THE INDUCED POLARIZATION SURVEY

Salaries (as per Appendix B - includes Supervision)	\$5,578.98
Groceries - \$5.00 per man day @ 270 man days	1,350.00
Camp Equipment Rental	375.00
Camp Construction, Supplies, and Equipment	523.09
Truck Rental W.G.S.	120.00
Truck Rental Tilden	213.54
Transportation, Travel	524.52
Overhead @ 0.2 (Salaries and Groceries)	<u>1,224.99</u>
Total	<u>\$ 9,910.12</u>

R.H. Scapin

APPENDIX C

STATEMENT of OPERATOR'S QUALIFICATIONS

Mr. Akio Okamura, the geophysical operator, for the subject geophysical survey, is a graduate of The Mining Industry Course, with specialization in geophysics, from Kyoto University, Japan. He has had eighteen years experience as a geophysical operator, all with Nittetsu Mining Co.

Mr. Taiji Sakaino, the assistant to Mr. Okamura, is a graduate surveyor from Waseda College, Japan. He has had twenty-five years experience as a surveyor, all with Nittetsu Mining Co.

R. H. DeGroot

DOMINION OF CANADA:
PROVINCE OF BRITISH COLUMBIA.

To Wit:

In the Matter of Cost of an Induced Polarity
Survey on the BJ claims 1,3,5,7,9,11, and 13 to 36
BB claims 21 to 24, 41 to 44, 61 and 63
(Group No. 2) Fish Lake Area, Clinton M.D.

British Columbia

I, R.H. SERAPHIM

of 4636 West 3rd Ave., Vancouver, B.C.

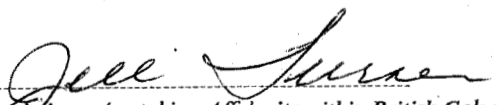
in the Province of British Columbia, do solemnly declare that a detailed induced polarity survey involving a total of 29,100 feet was completed on claims BJ 22, BJ 24 and BB 41 to 44 incl., as per the attached report at a total cost of \$9,910.12, (Nine Thousand Nine Hundred and Ten dollars and Twelve cents) between the dates of June 16 and July 24, 1970 inclusive. The costs are claimed for assessment credits of \$8,000 as shown on the application, a copy of which is attached.

Personnel engaged in the survey were W. Raymond, L. Goyette, H. Buchholz, J. Gabel, B. Holmes, L. Swanson, R. White, L. Brown, T. Sakaino, and A. Okamura, as shown in Appendix B.

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 *12*
day of *November* 1970, A.D.

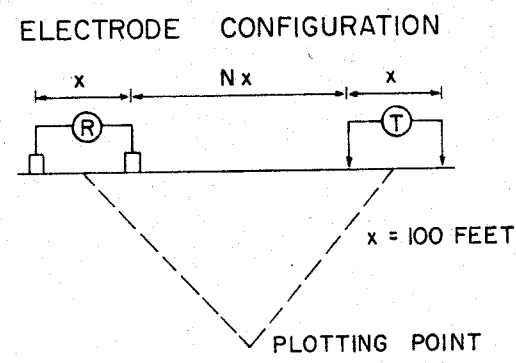
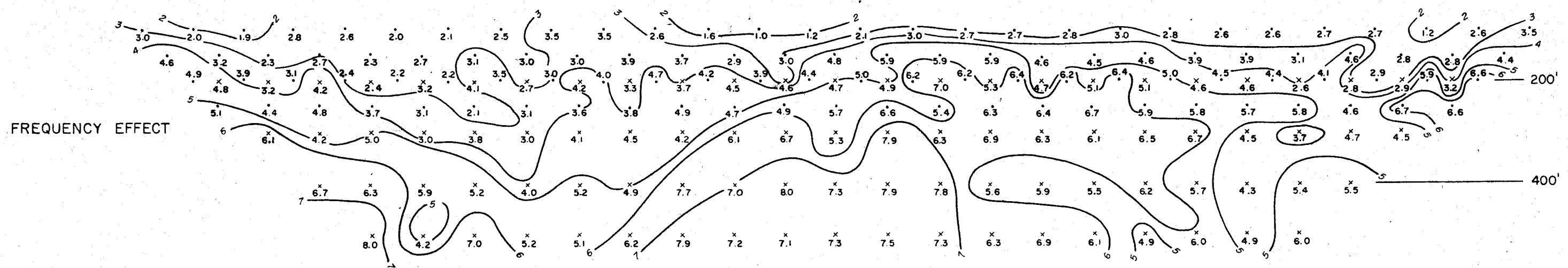



A Commissioner for taking Affidavits within British Columbia or
A Notary Public in and for the Province of British Columbia.

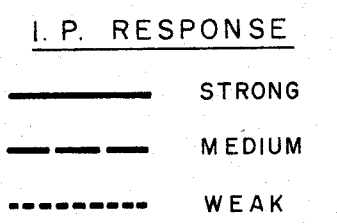
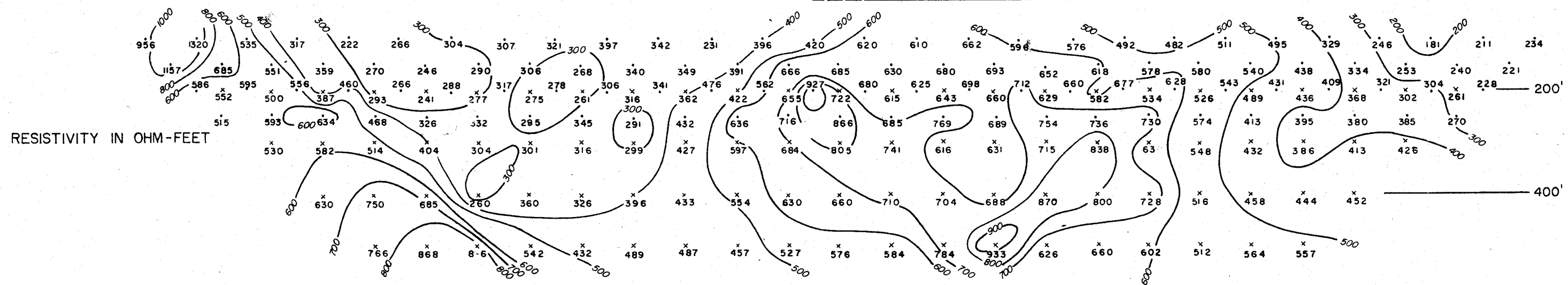
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Sub-mining Recorder

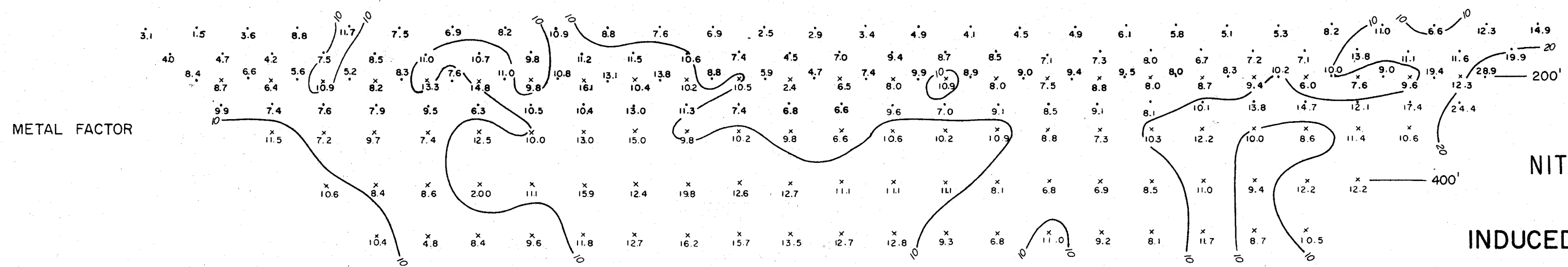
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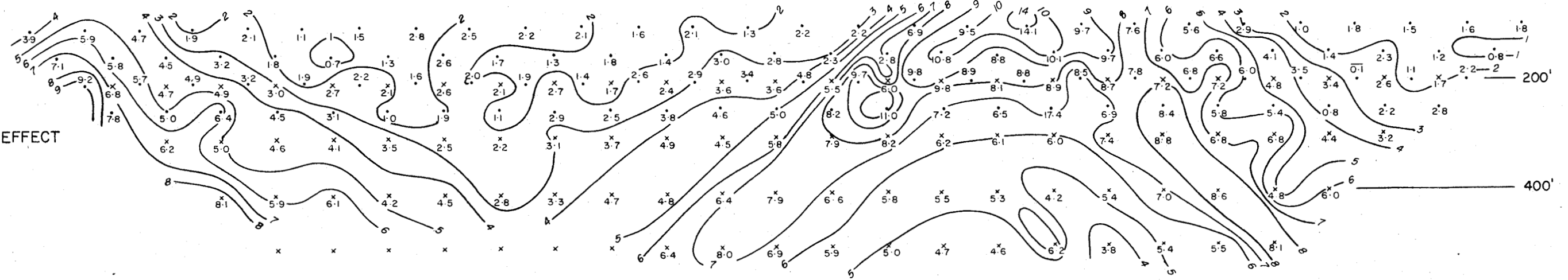
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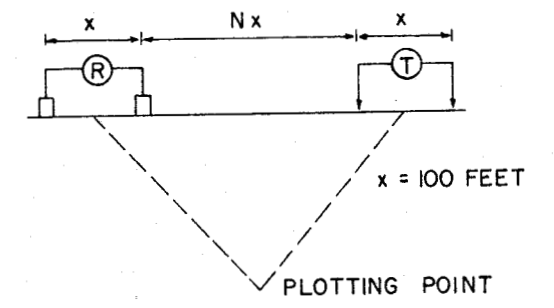
NITTETSU MINING CO. LTD.
 FISH LAKE PROJECT
INDUCED POLARIZATION PROFILES
 SCALE: 1" = 200'
R. H. Cleghorn
 LINE 3+00 N

15W 14W 13W 12W 11W 10W 9W 8W 7W 6W 5W 4W 3W 2W 1W 0 1E 2E 3E 4E 5E 6E 7E 8E 9E 10E 11E 12E 13E 14E 15E

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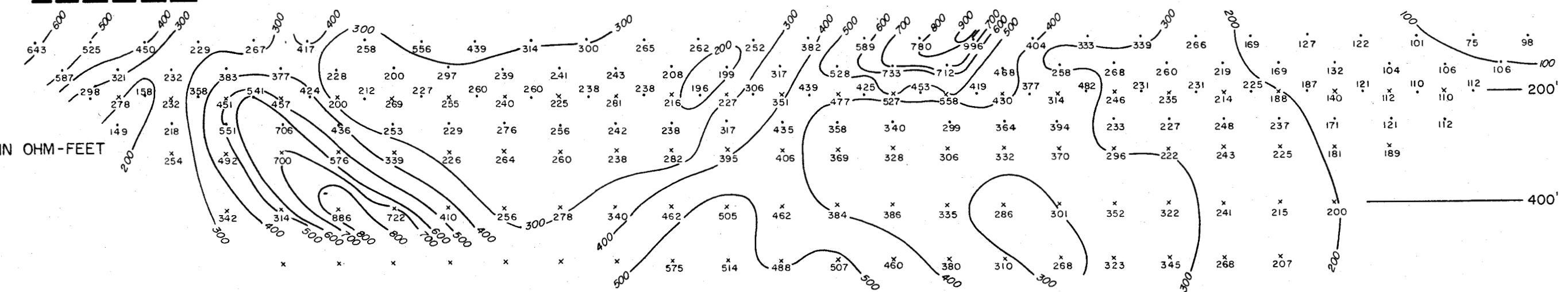


ELECTRODE CONFIGURATION



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RESISTIVITY IN OHM-FEET

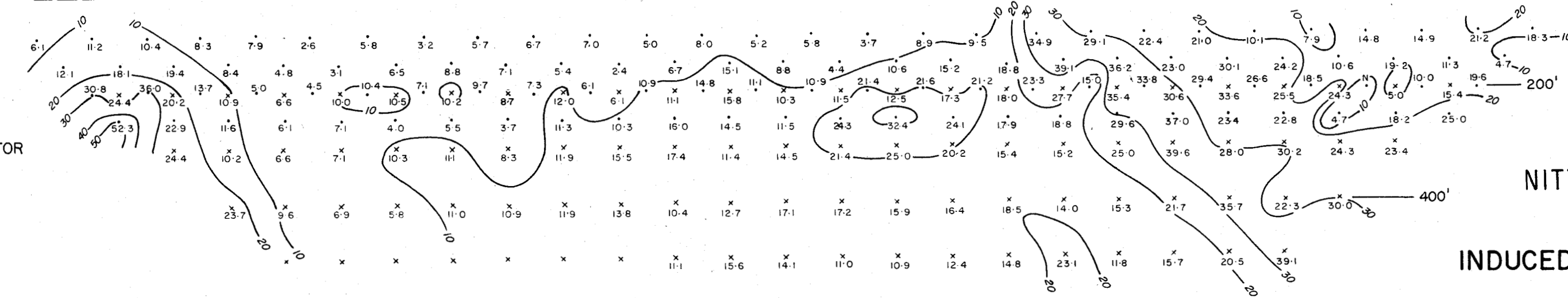


I. P. RESPONSE

- STRONG
- - - - - MEDIUM
- WEAK

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METAL FACTOR



NITTETSU MINING CO. LTD.

FISH LAKE PROJECT

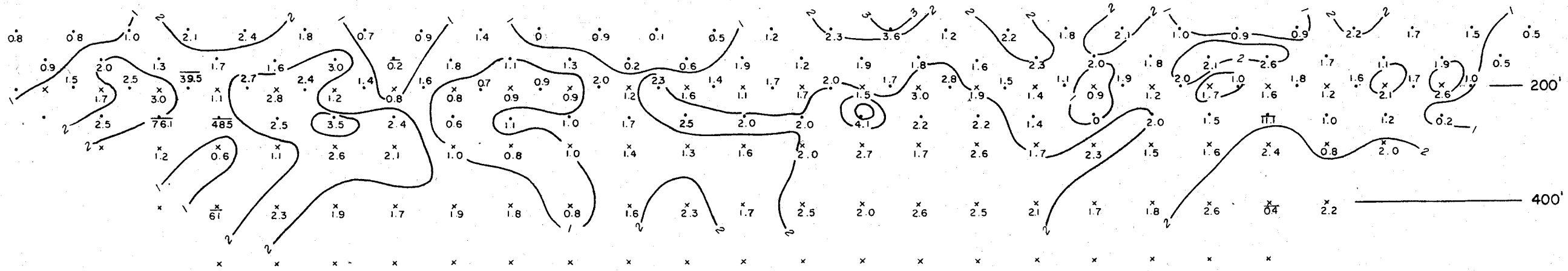
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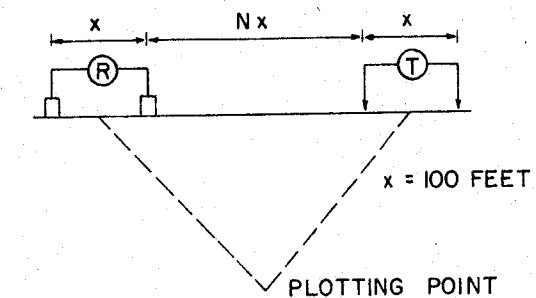
R. H. Bergman
LINE 6+00 S

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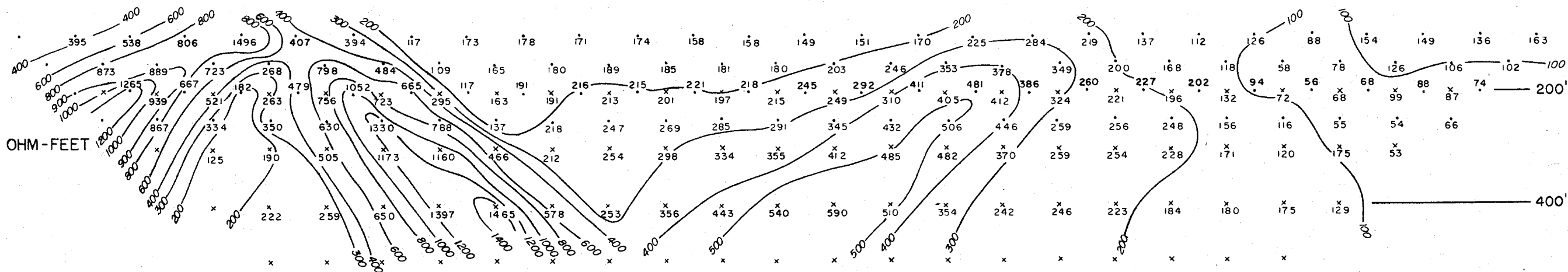


ELECTRODE CONFIGURATION



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RESISTIVITY IN OHM-FeET

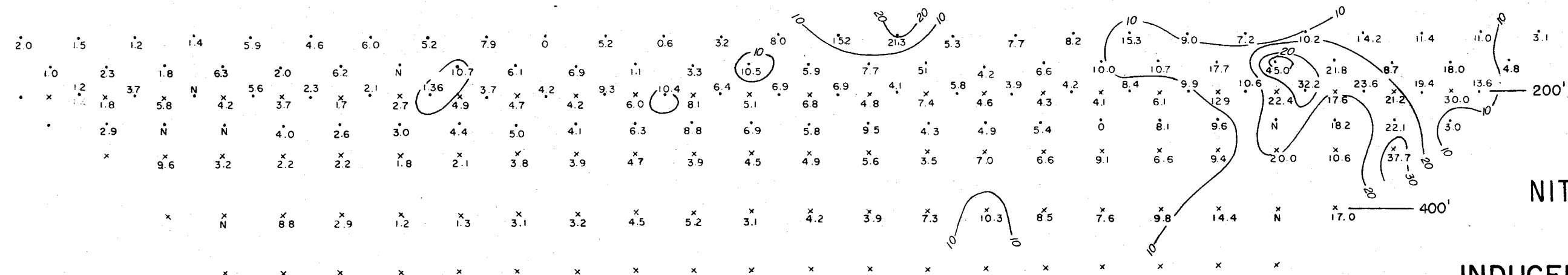


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METAL FACTOR



NITTETSU MINING CO. LTD.

FISH LAKE PROJECT

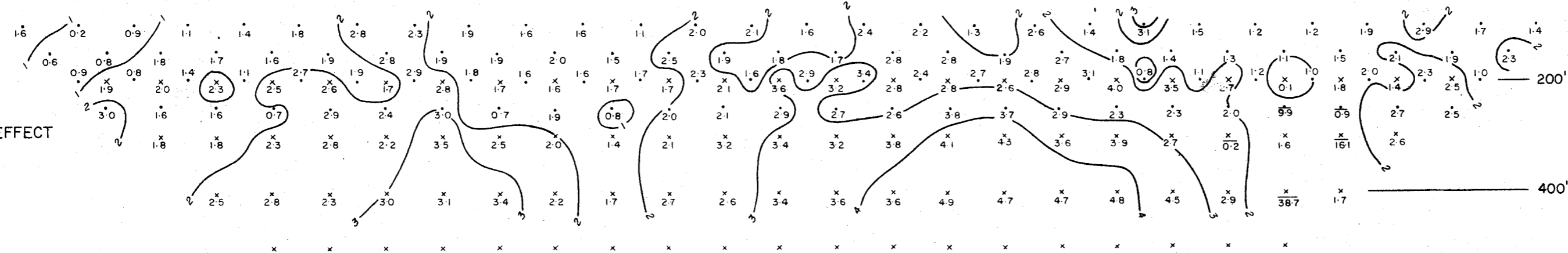
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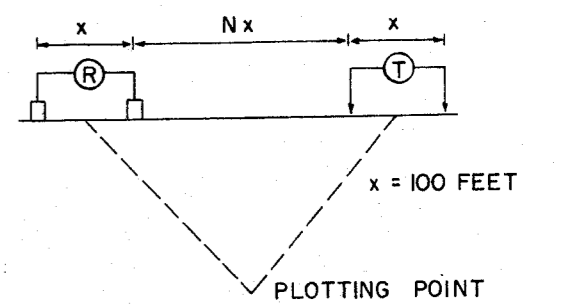
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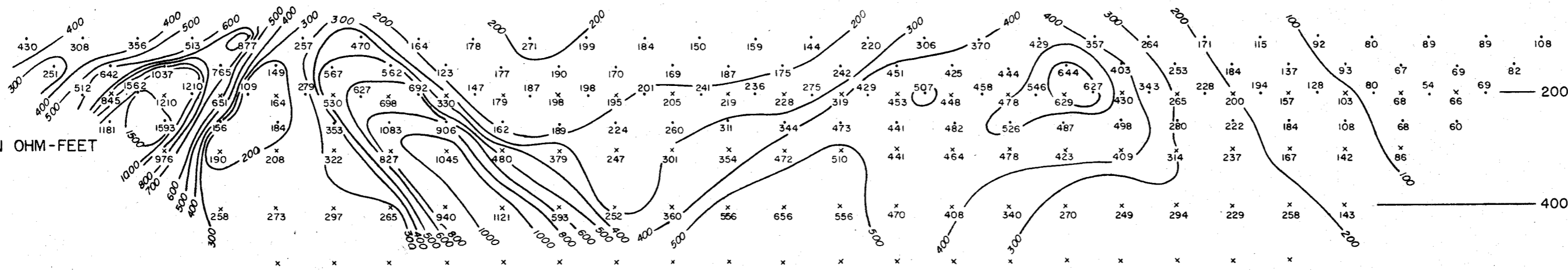


ELECTRODE CONFIGURATION



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RESISTIVITY IN OHM-FEET

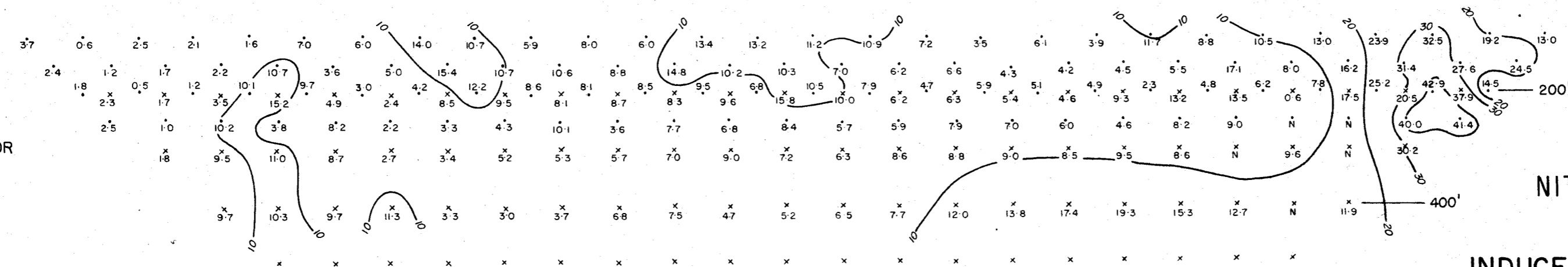


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METAL FACTOR



NITTETSU MINING CO. LTD.

FISH LAKE PROJECT

INDUCED POLARIZATION PROFILES

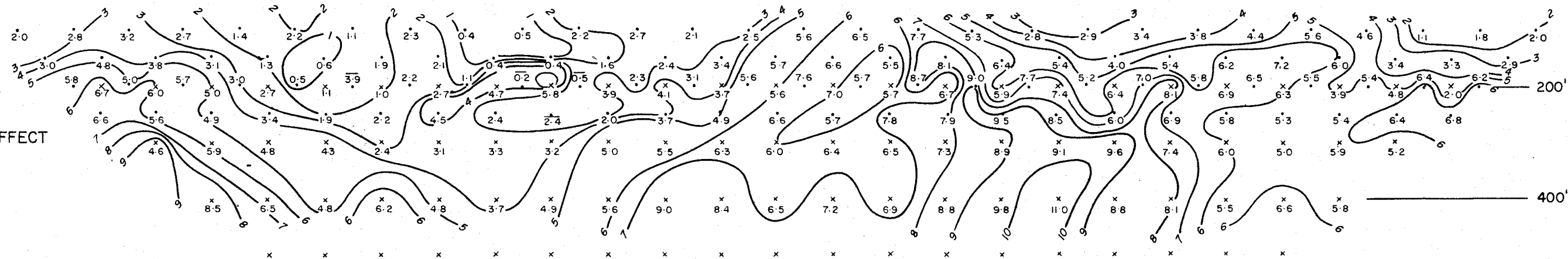
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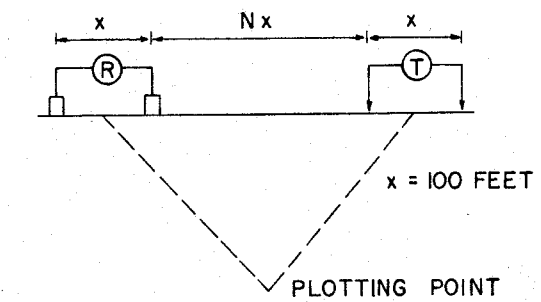
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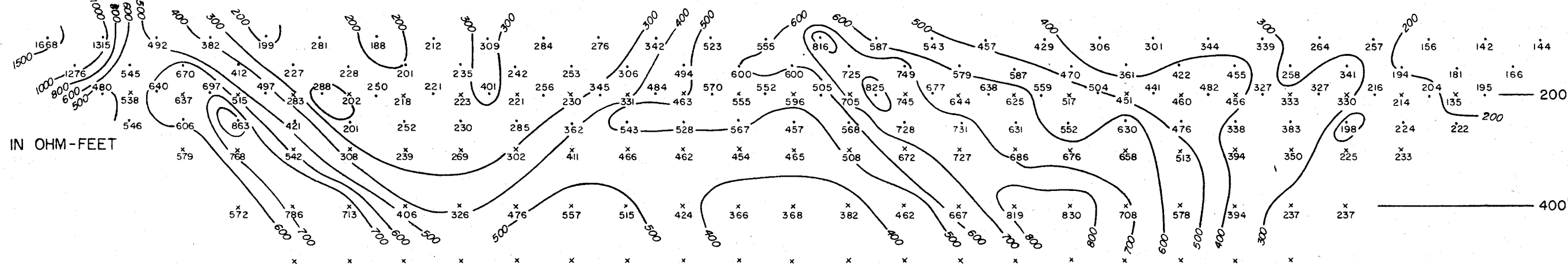


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RESISTIVITY IN OHM-FeET

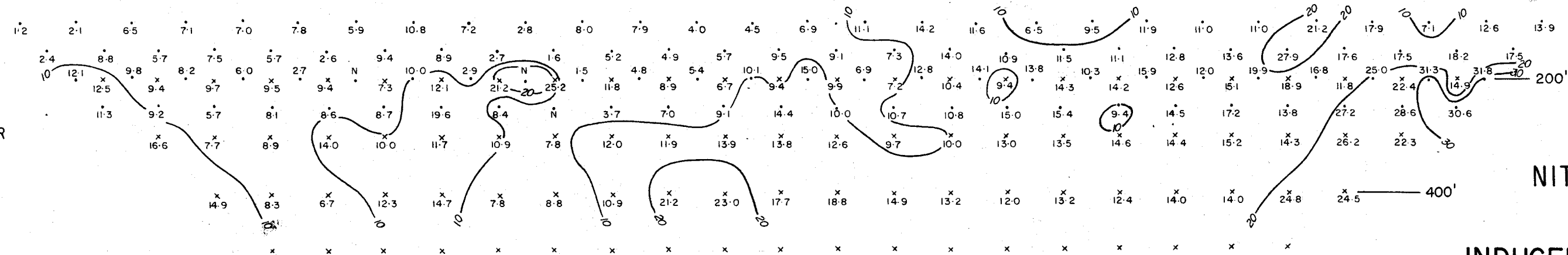


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METAL FACTOR



NITTETSU MINING CO. LTD.

FISH LAKE PROJECT

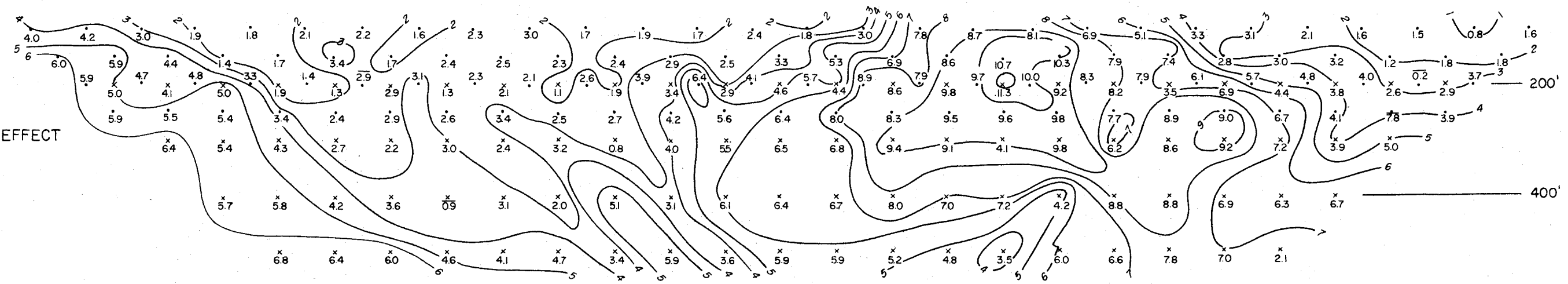
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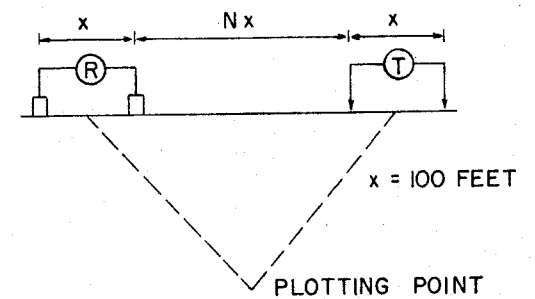
K.H. Reagh
LINE 0+00

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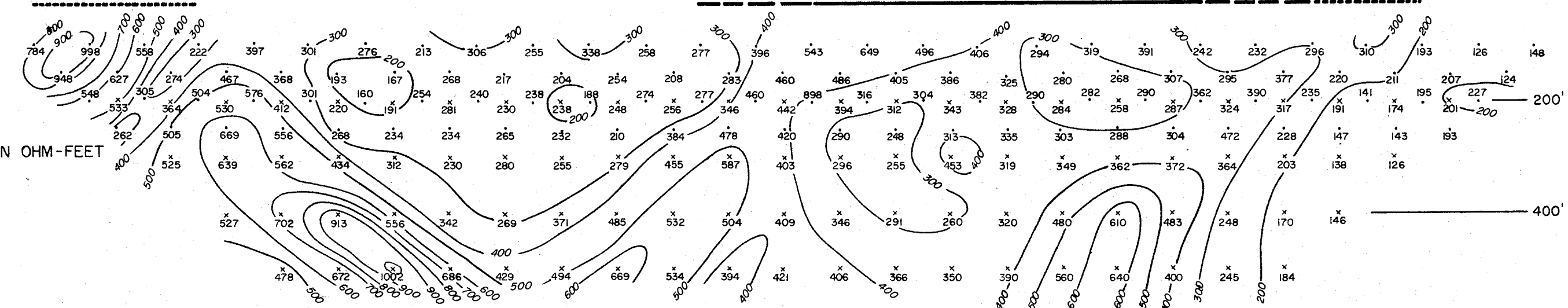


ELECTRODE CONFIGURATION



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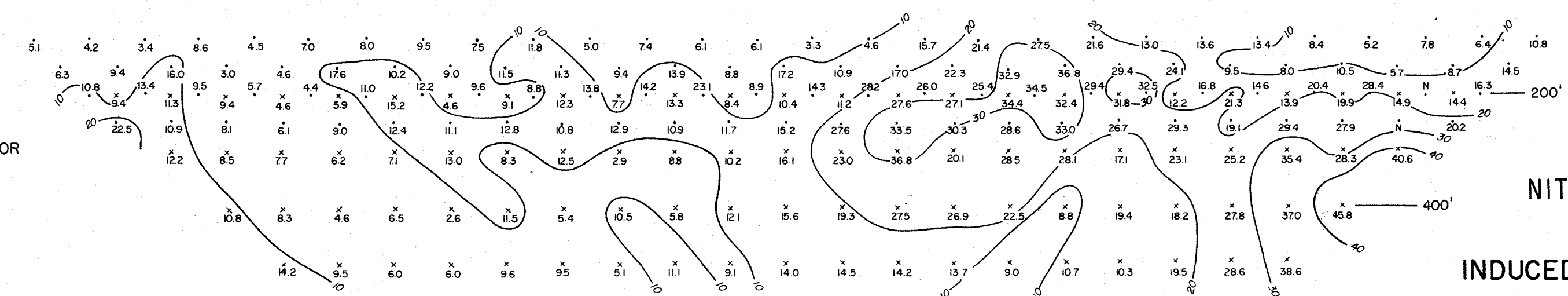
RESISTIVITY IN OHM-FEET



- I. P. RESPONSE
- STRONG
 - - - - - MEDIUM
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15W 14W 13W 12W 11W 10W 9W 8W 7W 6W 5W 4W 3W 2W 1W 0 1E 2E 3E 4E 5E 6E 7E 8E 9E 10E 11E 12E 13E 14E 15E

METAL FACTOR

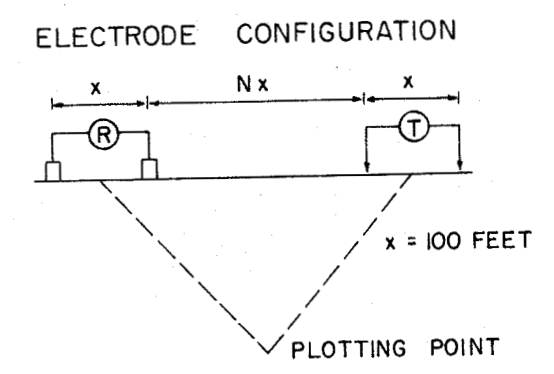
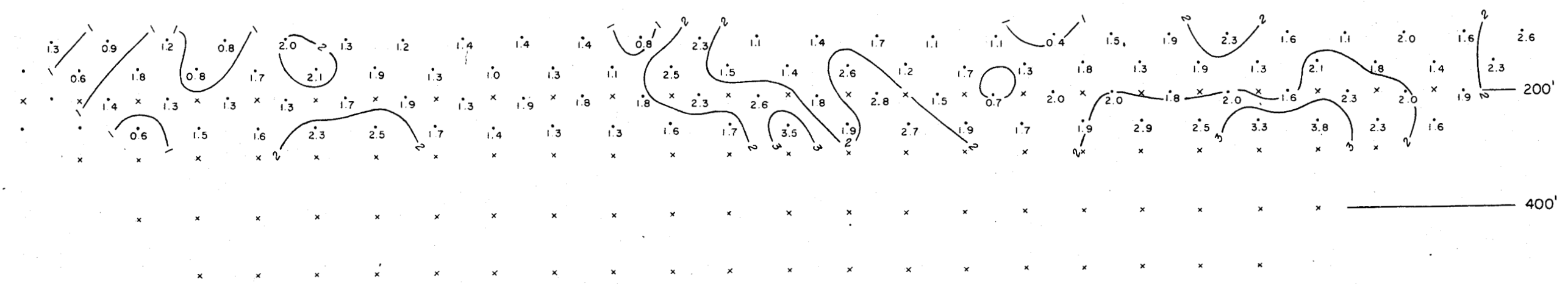


NITTETSU MINING CO. LTD.
 FISH LAKE PROJECT
 INDUCED POLARIZATION PROFILES

SCALE: 1" = 200'
R. H. [Signature]
 LINE 3+00S

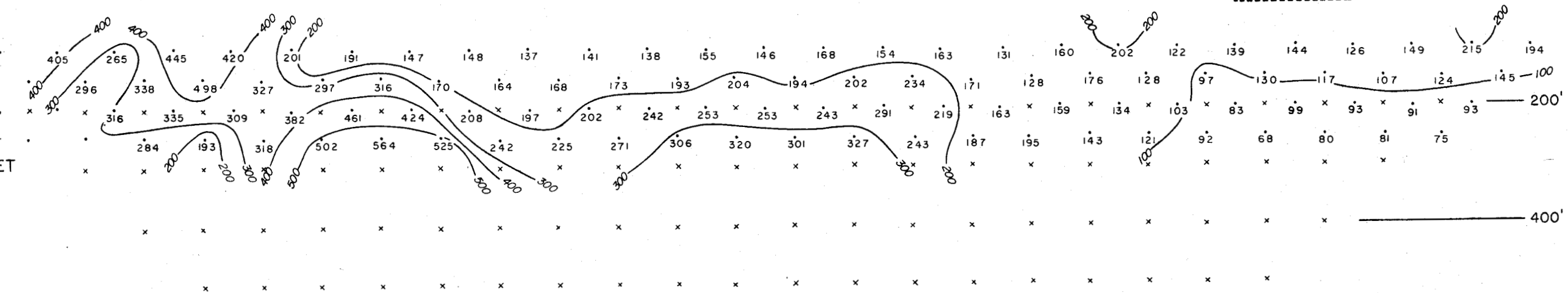
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FREQUENCY EFFECT



15W 14W 13W 12W 11W 10W 9W 8W 7W 6W 5W 4W 3W 2W 1W 0 1E 2E 3E 4E 5E 6E 7E 8E 9E 10E 11E 12E 13E 14E 15E

RESISTIVITY IN OHM-FEET



I. P. RESPONSE

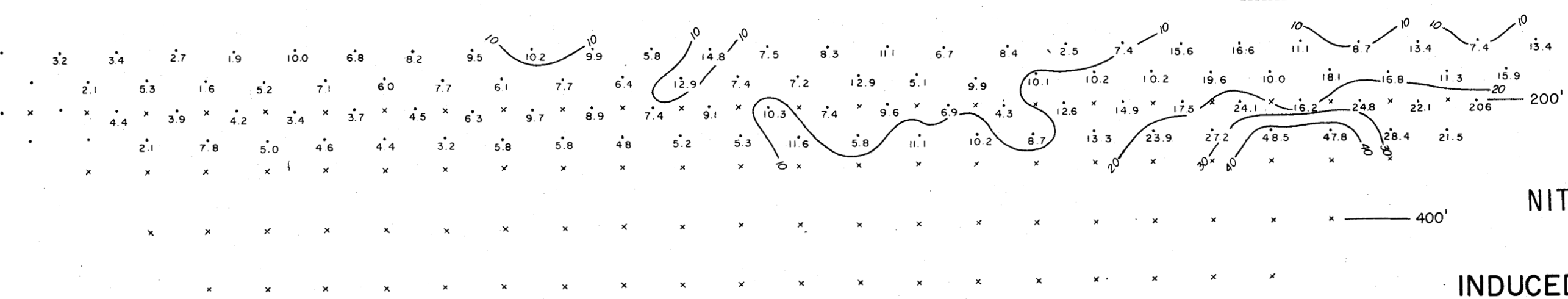
————— STRONG

- - - - - MEDIUM

..... WEAK

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METAL FACTOR



NITTETSU MINING CO. LTD.

FISH LAKE PROJECT

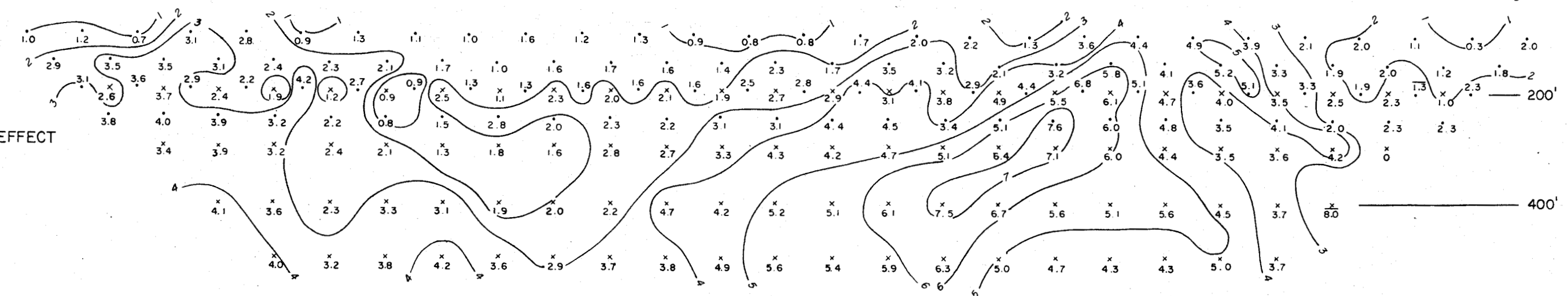
INDUCED POLARIZATION PROFILES

SCALE: 1" = 200'

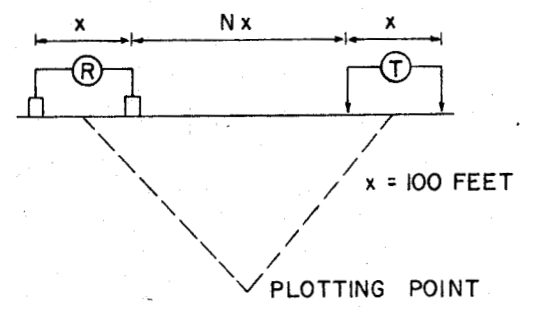
L. H. DeGhann
LINE 18+00 S

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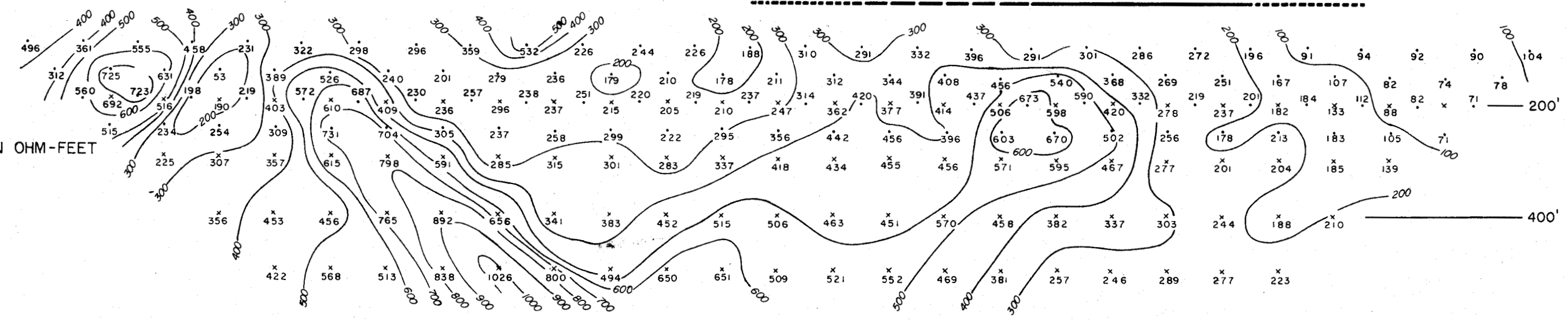
FREQUENCY EFFECT



ELECTRODE CONFIGURATION



RESISTIVITY IN OHM-FEET

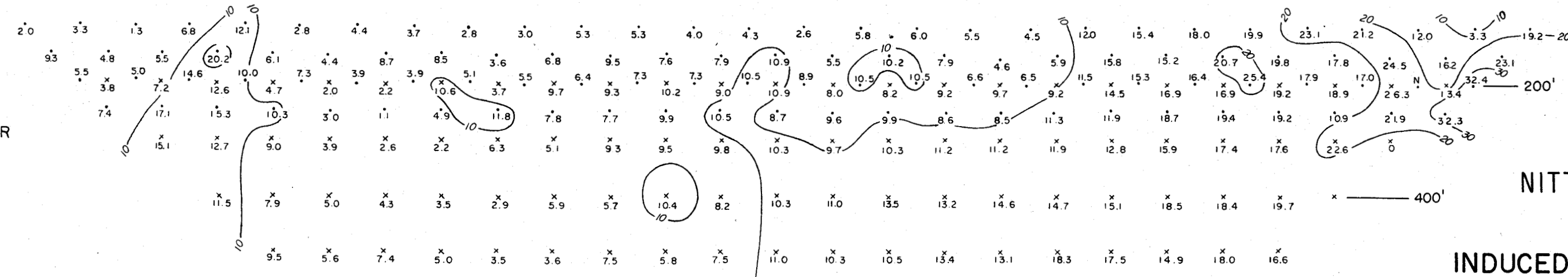


I. P. RESPONSE

- STRONG
- - - - MEDIUM
- WEAK

15W 14W 13W 12W 11W 10W 9W 8W 7W 6W 5W 4W 3W 2W 1W 0 IE 2E 3E 4E 5E 6E 7E 8E 9E 10E 11E 12E 13E 14E 15E

METAL FACTOR



NITTETSU MINING CO. LTD.

FISH LAKE PROJECT

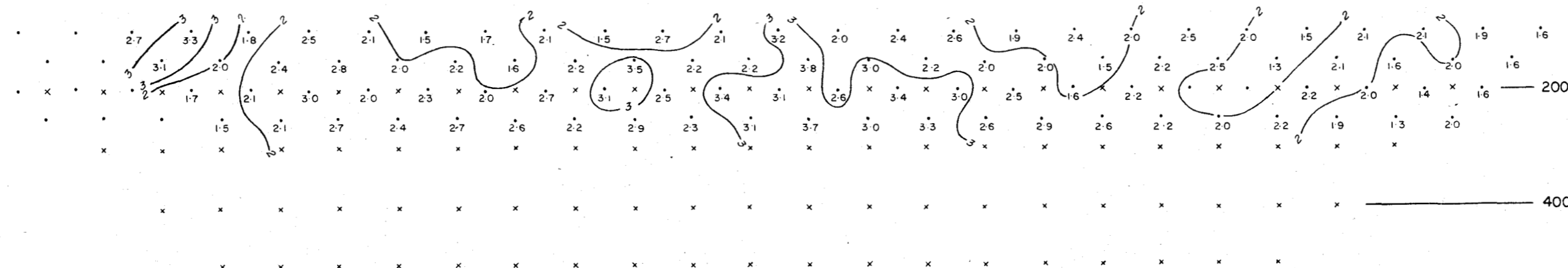
INDUCED POLARIZATION PROFILES

SCALE: 1" = 200'

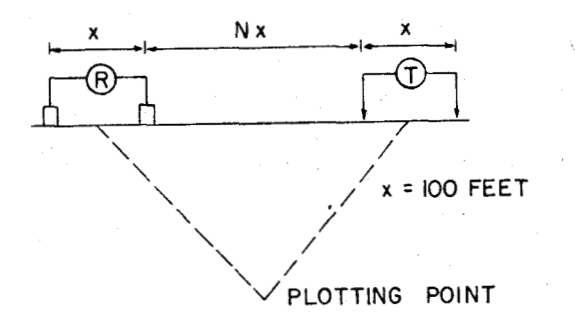
R. H. Pennington
LINE 9+00 S

15W 14W 13W 12W 11W 10W 9W 8W 7W 6W 5W 4W 3W 2W 1W 0 1E 2E 3E 4E 5E 6E 7E 8E 9E 10E 11E 12E 13E 14E 15E

FREQUENCY EFFECT

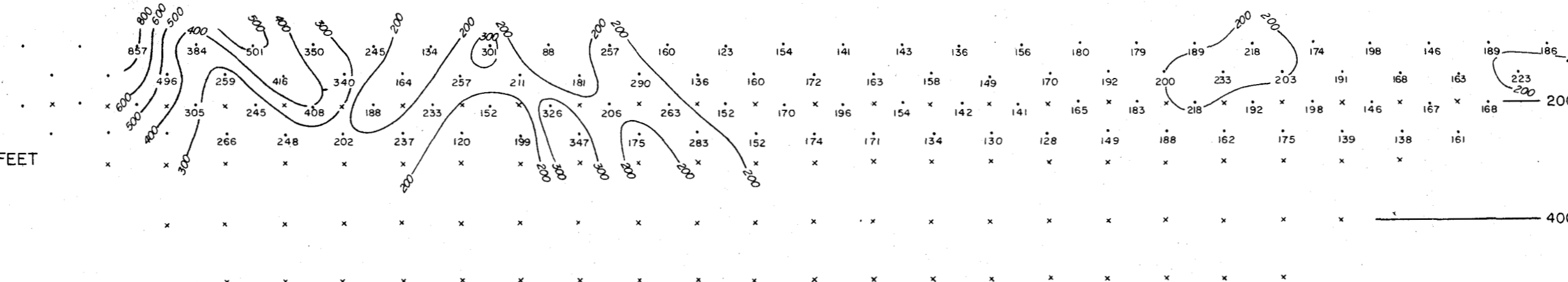


ELECTRODE CONFIGURATION



15W 14W 13W 12W 11W 10W 9W 8W 7W 6W 5W 4W 3W 2W 1W 0 1E 2E 3E 4E 5E 6E 7E 8E 9E 10E 11E 12E 13E 14E 15E

RESISTIVITY IN OHM-Feet

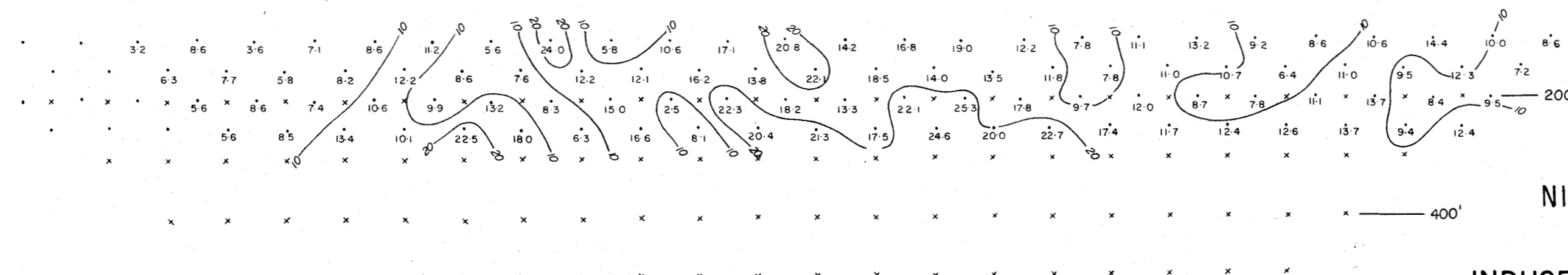


I. P. RESPONSE

- STRONG
- - - - MEDIUM
- WEAK

15W 14W 13W 12W 11W 10W 9W 8W 7W 6W 5W 4W 3W 2W 1W 0 1E 2E 3E 4E 5E 6E 7E 8E 9E 10E 11E 12E 13E 14E 15E

METAL FACTOR



NITTETSU MINING CO. LTD.

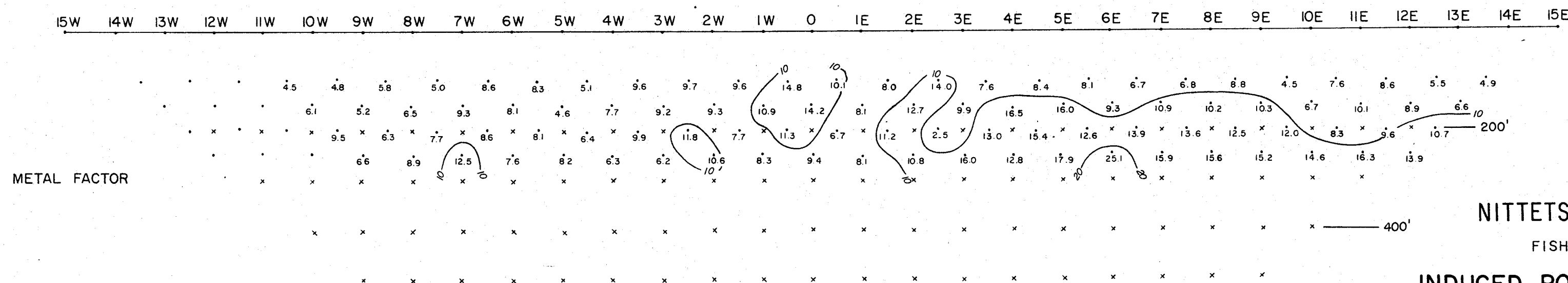
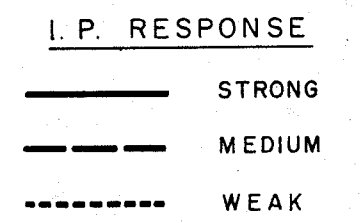
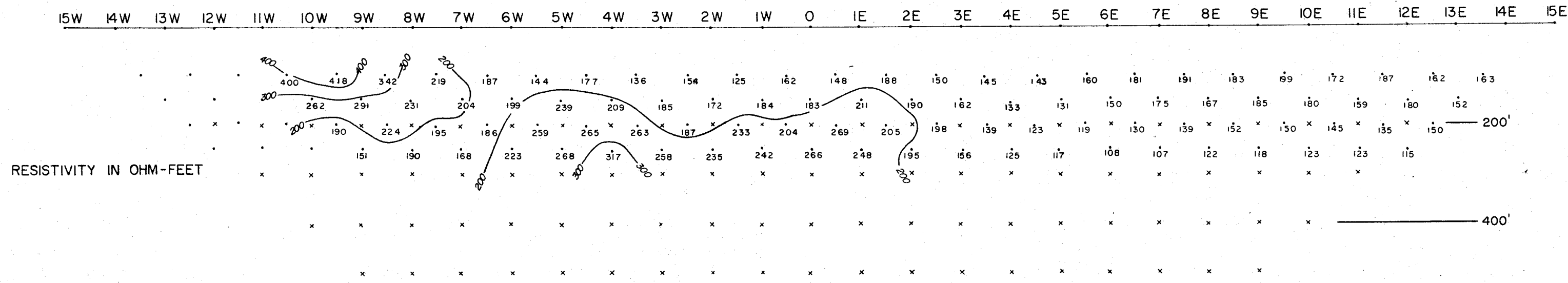
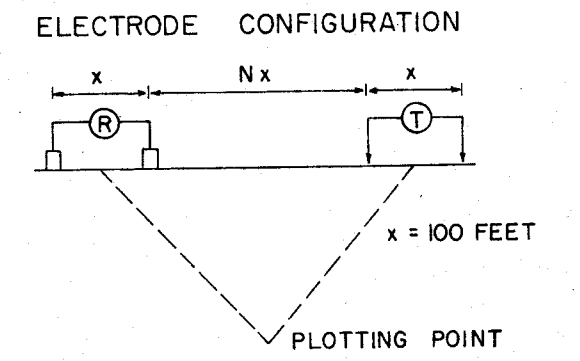
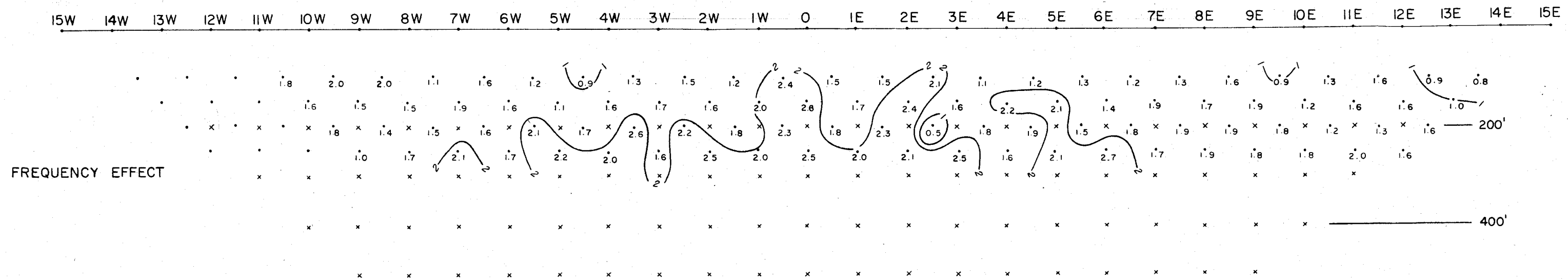
FISH LAKE PROJECT

INDUCED POLARIZATION PROFILES

SCALE: 1" = 200'

R. H. Reighin

LINE 24+00 S



NITTETSU MINING CO. LTD.

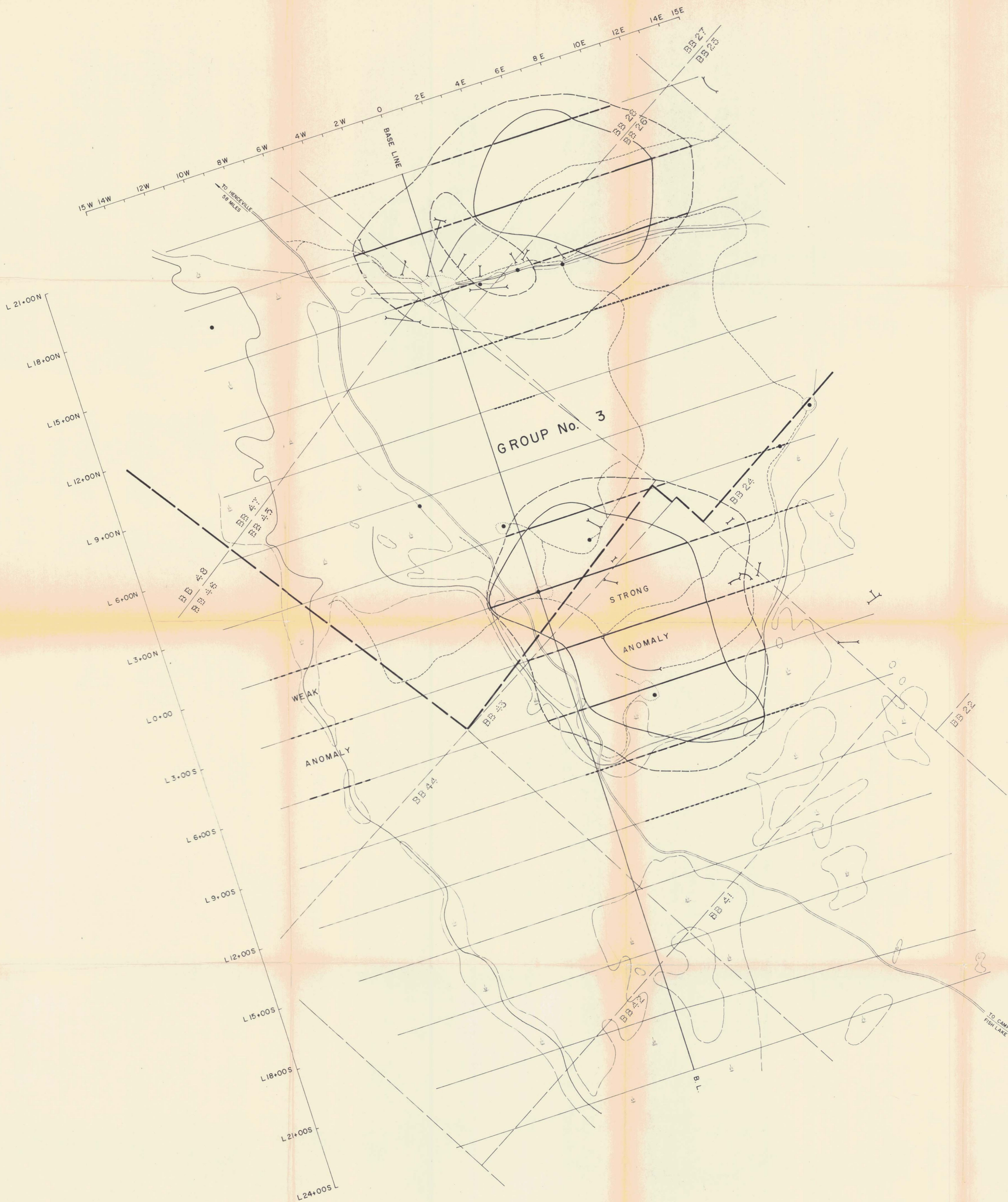
FISH LAKE PROJECT

INDUCED POLARIZATION PROFILES

SCALE: 1" = 200'

R. H. Densham

LINE 21+00 S



LEGEND:

- ROAD
 - POOR ROAD
 - BULLDOZER TRENCH
 - BULLDOZER CLEARING
 - SWAMP
 - CREEK
 - CLAIM LOCATION LINE
 - ASSUMED CLAIM LOCATION LINE
 - DRILL SITE, DIAMOND OR PERCUSSION
- NOTE: ALL FEATURES SKETCHED FROM GRID STATION
- I. P. RESPONSE:
- STRONG
 - MEDIUM
 - WEAK

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 2702 MAP #3

NITTETSU MINING CO. LTD.
FISH LAKE PROJECT
INDUCED POLARIZATION SURVEY
SCALE: 1" = 200'
R. H. SERAPHIM ENG. LTD.

NOV. 10, 1970 R. H. SERAPHIM

TO ACCOMPANY REPORT BY R.H. SERAPHIM ON THE FISH LAKE CLAIMS
NEAR TASEKO LAKE, CLINTON M.D. DATED NOVEMBER 10, 1970.

2702 m3

R.H. Seraphim