INDUCED POLARIZATION SURVEY REPORT

ON PROPERTY OF

STELLAKO MINING COMPANY LIMITED

KAMLOOPS MINING DIVISION
SPENCES BRIDGE
BRITISH COLUMBIA

801358

Claims:

Price 1 to 36 inclusive
Price 47 to 58 "
Price 152 to 158 "
Price 163 to 166 "
Yubet 1 to 8 "
Ruby 13 to 21 inclusive and 26
Ruby Fr 1, 4, and 5
Fractions #3 to #6

which are located approximately ten miles east of Spences Bridge, B. C.

The surveys were carried out during the period October 26 to December 20, 1965.

The field work was under the supervision of Mr. R. Pild Geophysicist.

The report was written by Mr. E. B. Nicholls, P. Eng., Geophysicist.

SULMAC EXPLORATION SERVICES LIMITED

JANUARY 24, 1966

INDUCED POLARIZATION SURVEY REPORT

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JANUARY 24, 1966

INDEX

Introduction

During the period October 26th to December 20, 1965, an induced polarization survey was carried out over a portion of the property held by Stellako Mining Co. Ltd., in the Highland Valley area, British Columbia.

The survey was conducted by Sulmac Exploration Services Limited for Noranda Exploration Company who had an option on the claim group. The field work was carried out under the supervision of Mr. R. Pild, Geophysicist.

The line grid was established prior to the geophysical survey by Noranda Exploration Company. Due to a number of factors, including instrument breakdown, the survey took longer than was originally planned, and was curtailed by Noranda on December 20, 1965.

Results of the survey are shown on the maps accompanying this report.

Summary & Recommendations

An induced polarization survey was carried out over the central part of the property held by Stellako Mining Co. Ltd. at Roscoe Lake, Highland Valley, British Columbia.

No major anomalous zone was indicated by the reconnaissance survey which was carried out using an electrode separation of 200 feet. However, a number of small anomalous conditions were indicated by the survey.

Some of these small anomalies are one point anomalies and are due to very small variations near to one of the electrodes and are, therefore, not worthy of further investigation. The other anomalies may be due to small mineralized zones of very limited extent that are located on or near to the survey line. As the zones do not appear on more than one line, they are very minor and do not warrant further investigation. Even the main mineralization showing on the property gave a very weak I.P. response, and in fact it was not considered anomalous. This implies that the mineralization of the showing is in all probability confined to the surface and has very little depth extent.

The survey has, therefore, indicated that the mineralized showings found on the property appear to have limited depth extent and that any other zone within the survey area is also of limited size. However, only a small area of the property was covered by the present survey, thus it is possible that better targets may be located within the unsurveyed part of the property.

Property, Location & Access

The property discussed in this report comprises 93 contiguous claims located in the Highland Valley area of British Columbia. These claims are listed as follows:

Price 1 to 36 inclusive

Price 47 to 58 "

Price 152 to 158 "

Price 163 to 166 "

Yubet 1 to 8 inclusive

Ruby 13 to 21 inclusive, and 26

Ruby Fr 1, 4, and 5

Fractions #3 to #6

The I.P. survey was conducted over the central portion of this group and was restricted to claims Price 11, 19 to 25, 54, Yubet 4 to 8, Ruby 23 & 24, #5 FR, and #6 FR.

The claim group is readily accessible via a bush road from Highway #8. The turn-off to the bush road is located 15 miles south of Spences Bridge.

Method of Survey and Instrument Data

I.P. Electrode Array

The data were obtained using the "three-electrode" array. This array consists of one current electrode (C_1) and two potential electrodes (P_1 and P_2) which are moved together along the survey line. The second current electrode (C_2) is fixed at "infinity". A basic electrode spacing of 200 feet was used; detail work was carried out using 100 and 400 foot electrode spacings.

I.P. Instrument

The instrument used was of the pulse-type and is similar in design and operation to that described by R.W. Baldwin in "A Decade of Development in Overvoltage Survey", A.I.M.E. Transactions, Vol. 214, 1959. Power for the unit is obtained from a Briggs and Stratton 4 H.P. motor coupled to a 400 c.p.s. generator which provides a maximum of 1500 watts d.c. to the ground. The cycling rate is 1.5 seconds current on and 0.5 seconds current off, the pulses reversing continuously in polarity. The data collected consists of measurement of the current (I) flowing through C_1 and C_2 and of the primary voltage (V_p) between P_1 and P_2 during the 'current on' period. During

the 'current off' period the overvoltage appearing between P_1 and P_2 is measured. This gives a measurement of the polarization (Vs) in milliseconds. The "apparent chargeability" in milliseconds is calculated by dividing the polarization (Vs) by the primary voltage (Vp). The "apparent resistivity" in ohm-meters is obtained by dividing the primary voltage Vp by the current I, and multiplying by a proportionality factor which depends on the geometry of the array used.

I.P. Data

The line grid established throughout the property prior to the I.P. survey was based on lines 400 feet apart with pickets at 100 foot intervals along the lines. The I.P. survey was carried out over a total of 11.1 miles of line including the detail work. Due to instrument breakdown and ground conditions, 1.5 miles, on lines 0, 4S, 8S and 12N, were re-surveyed, as was 0.5 miles of detail on line 4S.

Discussion of Results

A reconnaissance I.P. survey was carried out over a line grid established in the area of the mineralized showings. The survey did not cover the whole property, but was confined to

the central portion where the showings are to be found. The trench over the main mineralized showing is located on the base-line at Line 0+00. The data obtained during this survey is shown on the 'chargeability' and 'resistivity' maps accompanying this report. In addition to the reconnaissance work a limited amount of detail survey was carried out over anomalous areas, where the chargeability readings were at least twice the back-ground values. Unfortunately, the background values varied considerably. This variation is probably partly due to the varying ground conditions experienced throughout the time of the survey.

Over the main mineralized showing, the I.P. survey gave very weak anomalous conditions, indicating that there was little or no depth to the mineralization. However, a number of anomalies were located by the reconnaissance survey. These are shown on the 'chargeability' map by cross-hatching. Unfortunately, many of these anomalies are one point anomalies caused by localized conditions near to one of the electrodes and, therefore, do not warrant further investigation.

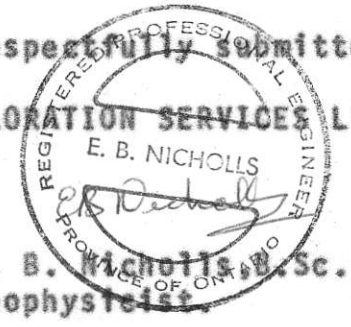
The other anomalies indicated by the survey appear to be due to very narrow bodies of a few feet in width

and small in length as they do not extend across more than one line. These anomalies may be caused by small, mineralized bodies that may or may not lie on the line surveyed, but close to it and not large enough to have an effect on the lines surveyed on either side. Such an anomaly was found on line 0+00 between 9E and 14E. Detail work using 50, 100, 400 foot electrode spacings was carried out over it. The data obtained indicated the cause to be a small localized source. The lines on either side showed that the zone did not extend in length. The other anomalous conditions located are more than likely caused by the same type of body.

The I.P. survey, then, has indicated a number of anomalies that could be caused by small mineralized zones. However, these zones do not warrant further investigation at this time. It must be pointed out that only the central portion of the property was surveyed and it is possible that the targets outlined to date are not the best within the claim group.

Respectfully submitted,

SULMAC EXPLORATION SERVICES LIMITED



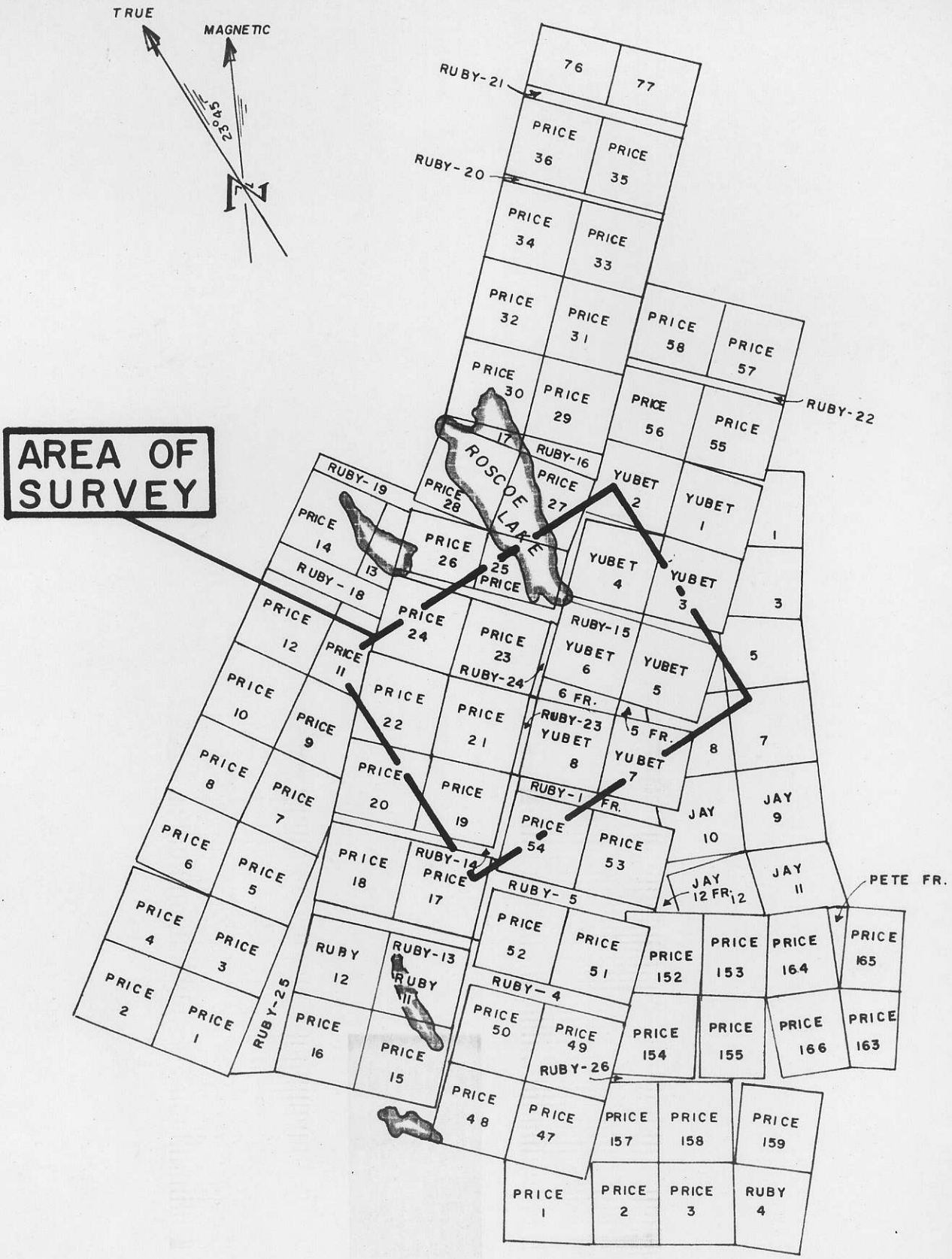
E. B. Nicholls, B.Sc., P.Eng.,
Geophysicist.

January 24, 1966

APPENDIX

Personnel employed on survey:

E. B. Nicholls	Chief Geophysicist	Nov. 1, 22, 1965 Jan. 20, 21, & 24/66
R. Pild	Geophysicist	Oct. 26 - Dec. 12/65 inclusive
E. Bauman	Geophysical Operator	Dec. 1 - 20/65, incl.
F. Lemoine	" Assistant	Oct. 26 - Dec. 20/65 inclusive
P. Heroux	" "	" "
M. Morrison	" "	" "
D. Grant	Draftsman	Dec. 9, 13, 30/65 Jan. 11, 14, 17 & 20/66



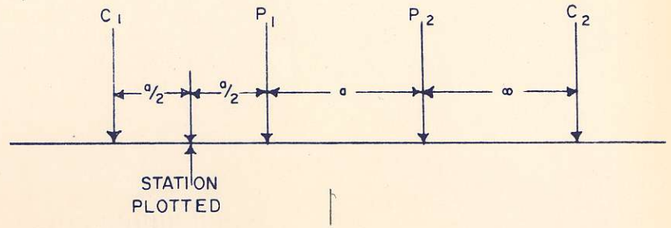
REGISTERED P. ENGINEER
E. B. NICHOLLS
E B Nicholls
PROVINCE OF ONTARIO

STELLAKO MINING CO. LTD.

BRITISH COLUMBIA

CLAIM LOCATION MAP

SCALE — 1" = 1/2 MILE



RESISTIVITY
Ohm-metres (2 per Logarithmic Cycle)

1000
900
800
700
600
500
400
300
200
100

6W 5W 4W 3W 2W 1W 0+00 1E 2E 3E 4E 5E 6E 7E 8E 9E 10E 11E 12E 13E 14E 15E 16E 17E 18E 19E 20E 21E

a=400
a=200
a=100
a=50

CHARGEABILITY
Milliseconds (1"=5 milliseconds)

18
16
14
12
10
8
6
4
2
0

6W 5W 4W 3W 2W 1W 0+00 1E 2E 3E 4E 5E 6E 7E 8E 9E 10E 11E 12E 13E 14E 15E 16E 17E 18E 19E 20E 21E

a=50
a=200
a=400
a=100

POSSIBLE ZONE OF INTEREST

HORIZONTAL SCALE - 1"=200'

NOTE

INDUCED POLARIZATION PROFILES

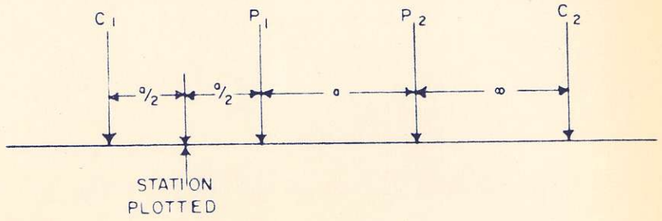
CHARGEABILITY	RESISTIVITY	
●——●	●– – –●	a = 400
●——●	●– – –●	a = 200
·——·	·– – –·	a = 100
·——·	·– – –·	a = 50

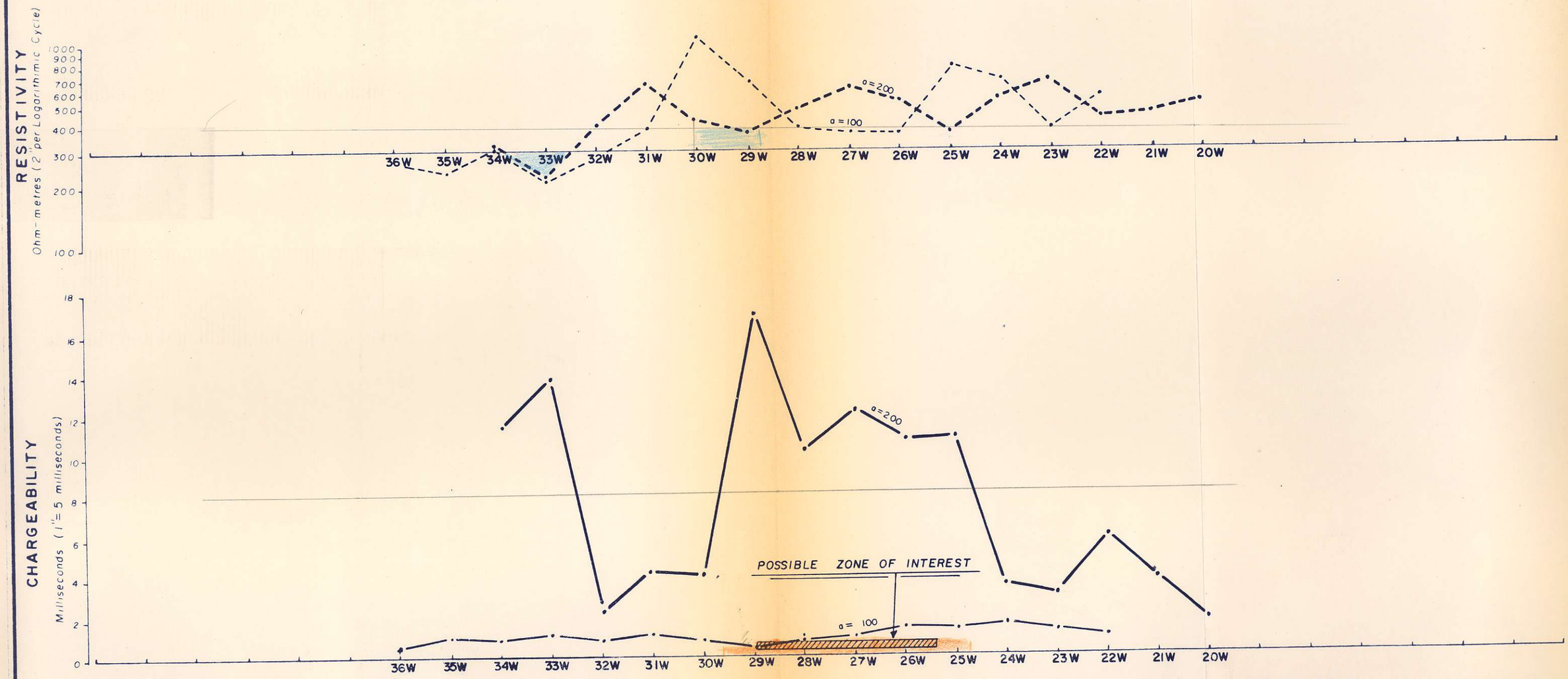
STELLAKO MINING CO. LTD.

SPENCES BRIDGE – BRITISH COLUMBIA

INDUCED POLARIZATION SURVEY

LINE NO.- 0+00





HORIZONTAL SCALE - 1" = 200'

NOTE

INDUCED POLARIZATION PROFILES.

CHARGEABILITY	RESISTIVITY	
———	- - - -	a = 400
———	- - - -	a = 200
———	- - - -	a = 100
———	- - - -	a = 50

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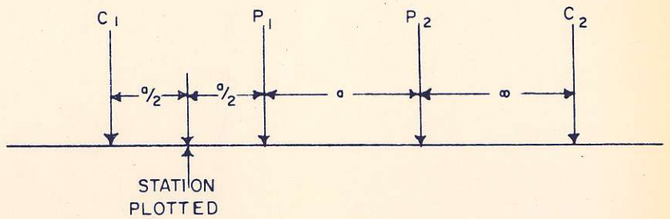
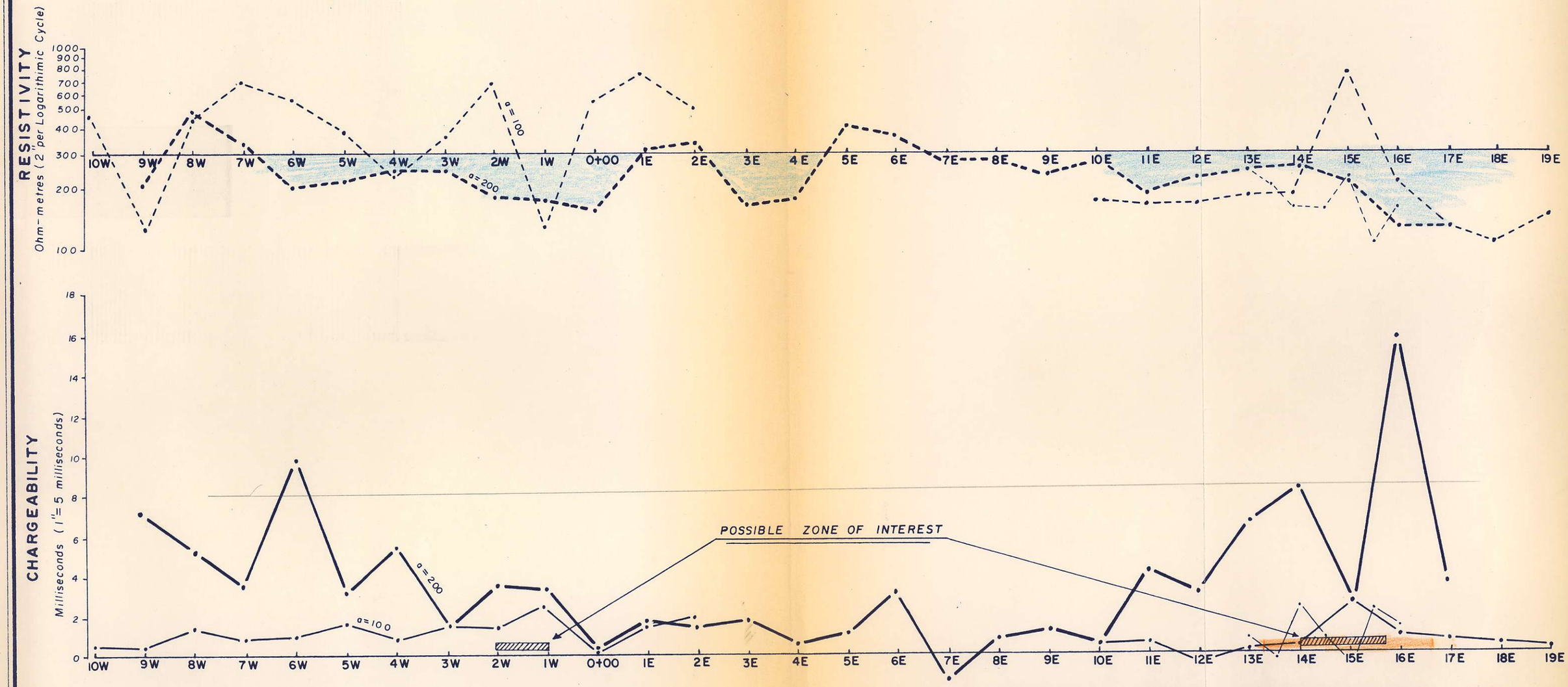
SPENCES BRIDGE - BRITISH COLUMBIA

INDUCED POLARIZATION SURVEY

LINE NO. - 4S(W)





HORIZONTAL SCALE - 1"=200'

NOTE

INDUCED POLARIZATION PROFILES

CHARGEABILITY	RESISTIVITY	
•——•	•– – –•	a = 400
·——·	·– – –·	a = 200
·——·	·– – –·	a = 100
·——·	·– – –·	a = 50

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SPENCES BRIDGE - BRITISH COLUMBIA

INDUCED POLARIZATION SURVEY

LINE NO.- 4S(E)

Summary Sulmac I.P. work to forward Feb 1/66 for correction of invoice Jan/66 w Tom Walker

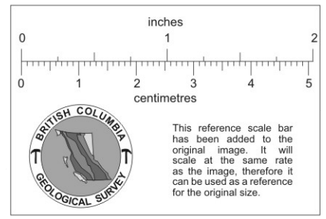
Line				
ON -	8E - 20E	2800' Detail		
	4W - 4E	800' Detail		
2S -	10E - 18E	~~1800'~~ Recce	200' spread.	800'
4S -	10E - 22E	1200' Detail.		
16N -	12W - 2W.			1000'
	12W - 30W	Recce (Gradient Array)		1800'
	2W - 20E	Recce		1800'
12N -	0 - 30W	Recce.		3000'
	0 - 20E	Recce		2000.
24N -	2W - 20E	Recce.		2200'
	4W - 2W			200'
20N -	2W - 20E	Recce		2200'
	2W - 30W	Recce		2800'
32N -	9W - 30W	Recce		2100'
ON -	36W - 4E	Recce.		4000'
	8E - 20E	Recce.		1200'
4S -	34W - 28E	Recce.		6200'
4N -	34W - 20E	Recce.		5400'
8N -	30W - 20E	Recce.		5000'
8S -	2W - 14W.	Recce.		1200'
	30W - 0	Recce.		3000
→ ~~3~~2S -	36W - 20W.	Recce.	200' spread	1600'
→ 10S -	8W - 8E.	Recce.	a = 200.	1600'
→ 4S -	36W - 22W.	Recce (Repeat)	a = 200.	1400'
→ 4S -	11W - 1E	a = 100' Detail.		1200'
→ 6S -	36W. - 23W.	Recce.	a = 200.	1300'
→ 6S -	19W - 8W	~~100'~~ Detail 100'	-	1100'

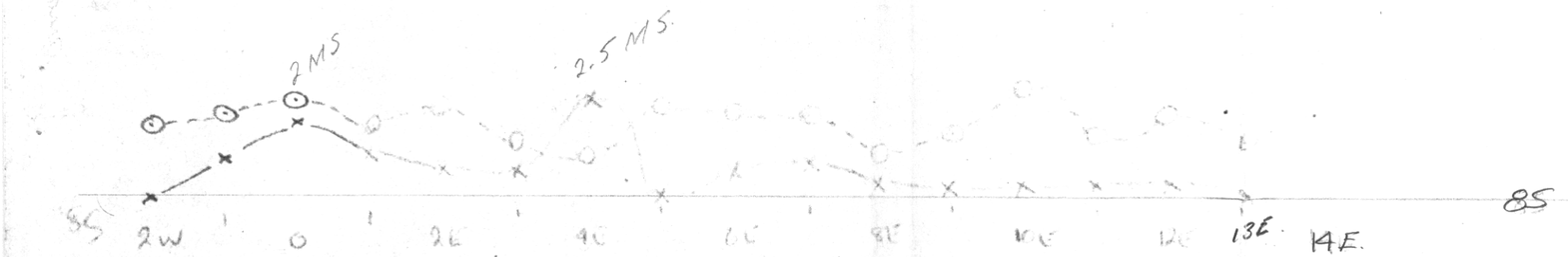
TOTAL Recce Miles - 9.54 miles @ 350.00

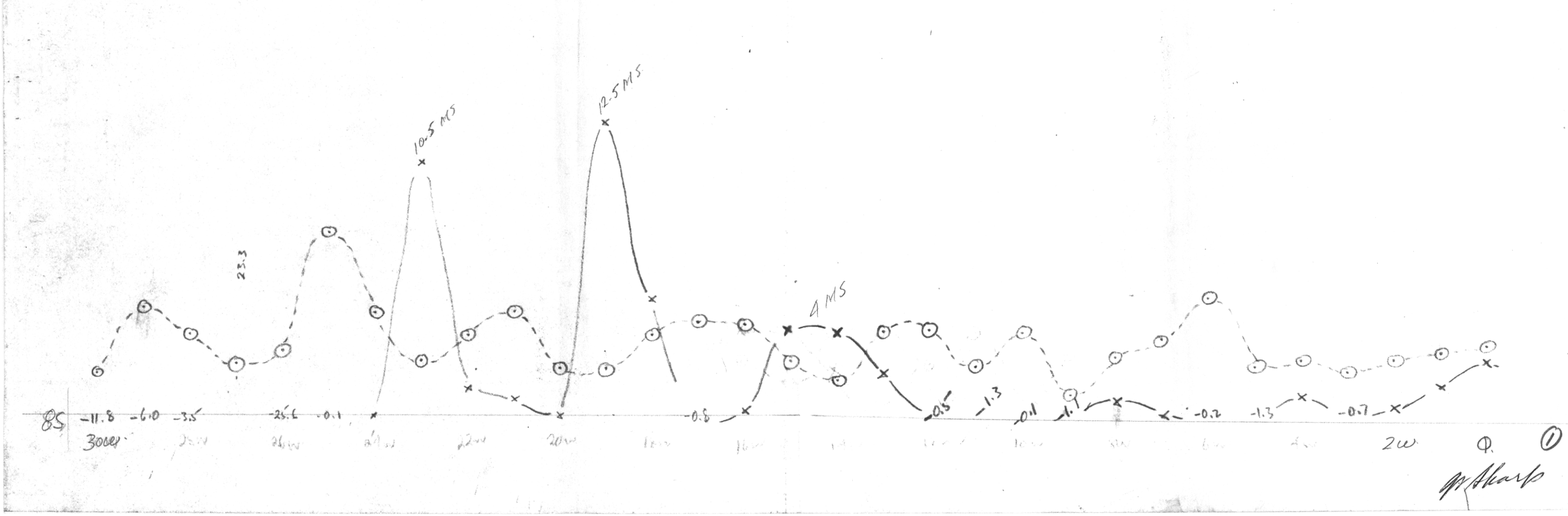
TOTAL. Detail footage - 7100 ~~[illegible]~~ ft. 4 days looks fair for detail @ 225.00/day

plus 1250.00 report + drafting charges.

Ma: 1" = 4 mass. x—x
Ca: 1" = 500 ohm-m o—o
3 mag. C. to W
a = 200'







DETAIL

a = 200 ft x —— x ma
⊙ - - - ⊙

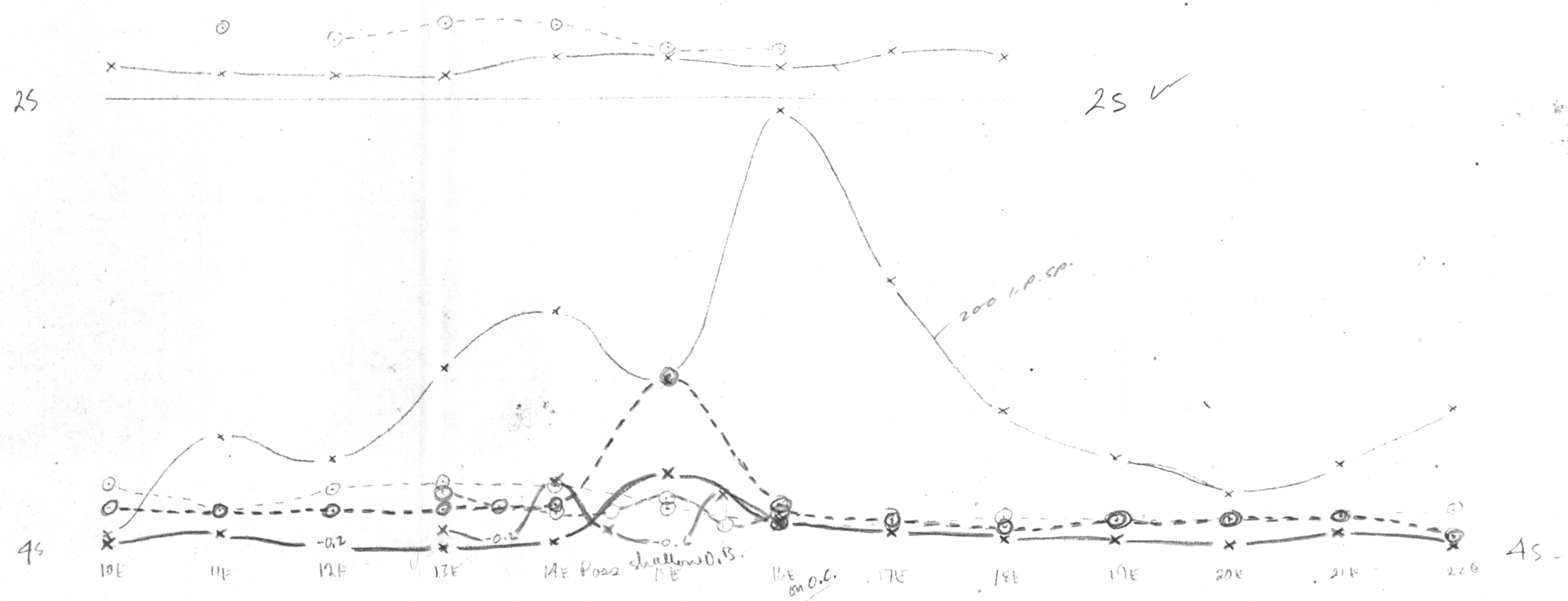
a = 100 ft ma x ——
pa ⊙ - - ⊙

a = 50 ft ma x —— x
pa O - - - O

1" = 4 msec
1" = 500 ohm m

horiz scale 1" = 100 ft.

3 array C, Low



W. Akarpa

(2)

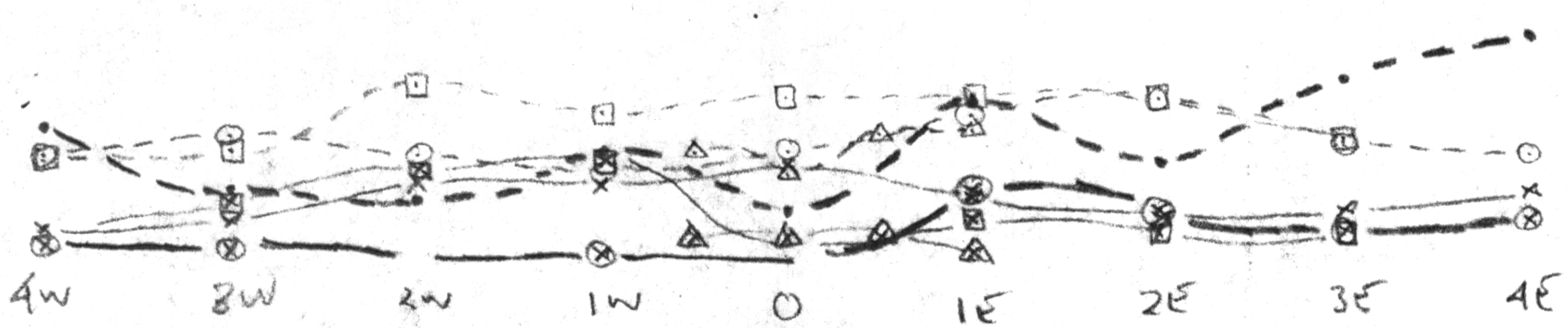
Rec'd Dec. 8/65

m_a : 1" = 4 msec.
ρ_a : 1" = 500 ohm-m
C, to W 3 array

DETAIL

a = 50 ft. m_a ρ_a
a = 100 ft. m_a ρ_a
a = 200 ft. m_a ρ_a
a = 400 ft m_a ρ_a

horiz scale 1" = 100 ft.

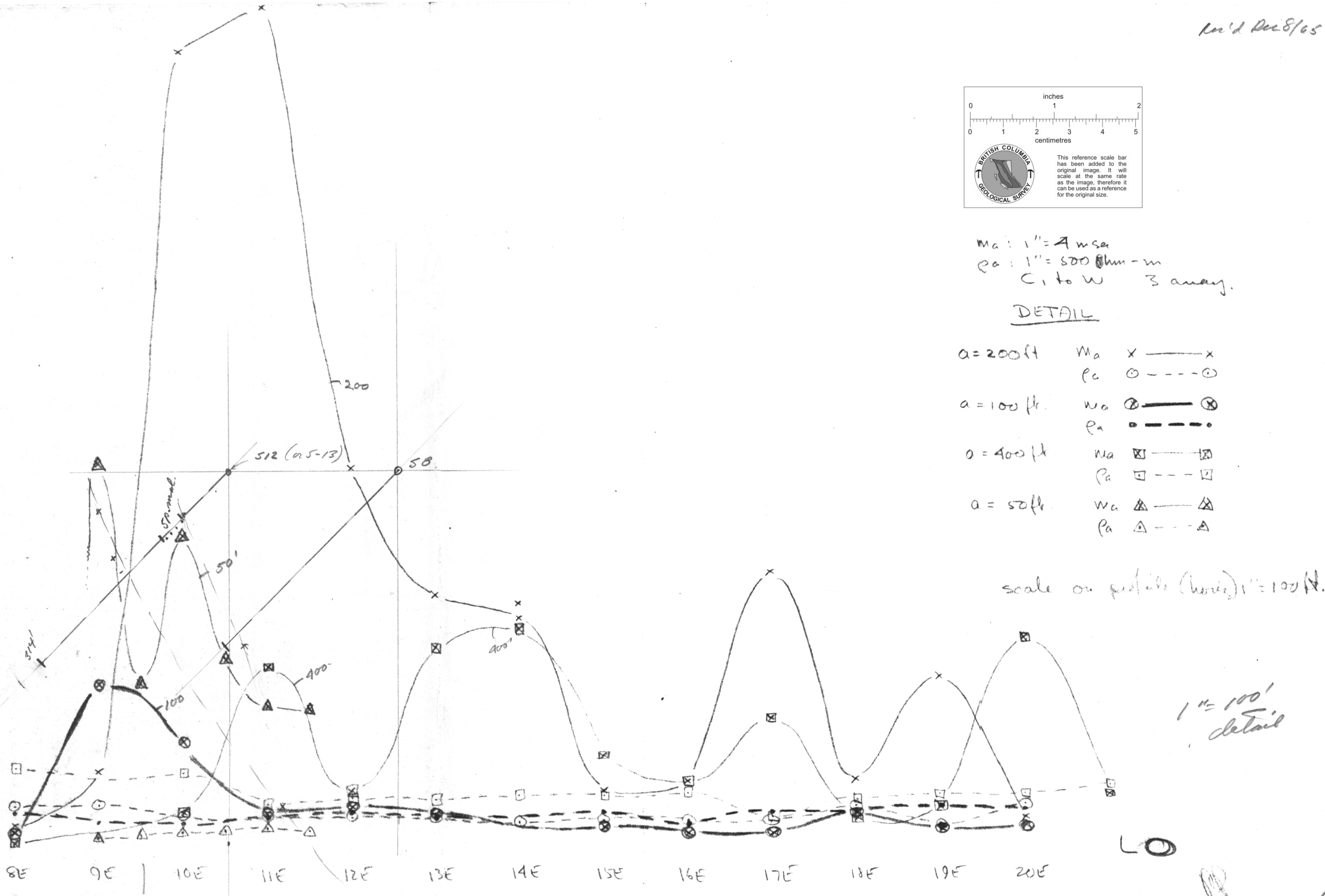


LO-N

W. Sharp

4

Rec'd Dec 8/65



W. Sharp

5


Rec'd Dec 8/65
Ma: 1" = 4 msec x—x
Pa: 1" = 500 ohm-m ⊙---⊙
C1 to W
a = 200 ft
Line 24+00 pos. 32+00
Line 20+00
Line 16+00
Line 12+00
Ma: 1" = 4 msec x
Pa: 1" = 500 ohm-m ⊙
C1 to W
a = 200 ft
BL
3.5 MS
8N
4N
WEST
EAST
36W
34W
32W
30W
28W
26W
24W
22W
20W
18W
16W
14W
12W
10W
8W
6W
4W
2W
0
2E
4E
10E
12E
14E
16E
18E
20E
inches
centimetres
BRITISH COLUMBIA GEOLOGICAL SURVEY
This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.
W. Sharp
6

Reid Res. 8/65

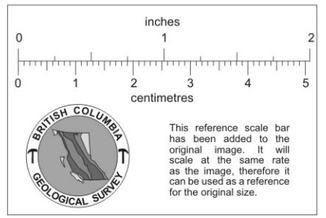
a = 200 ft

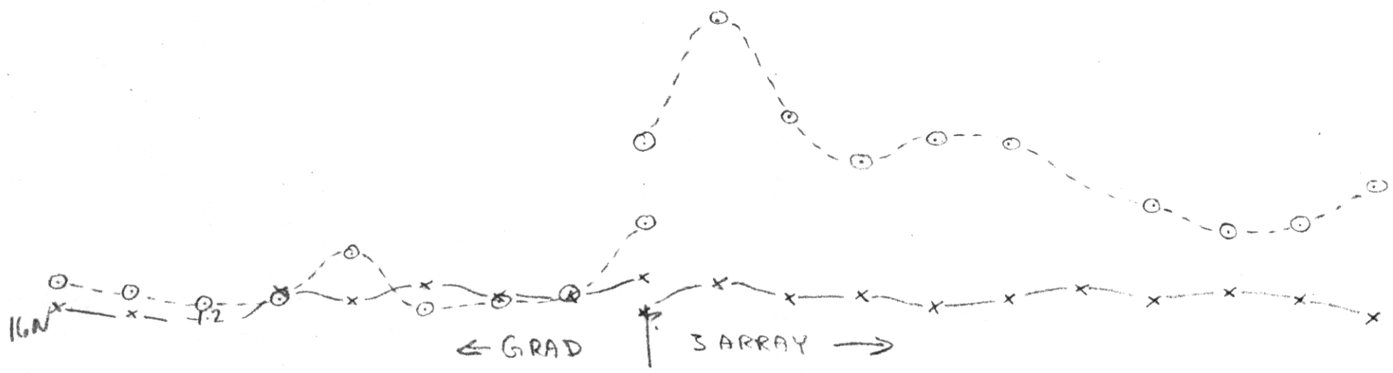
Ma : 1" = 4 m sec x ——— x

fe : 1" = 5000 ohm-m ⊙ - - - ⊙

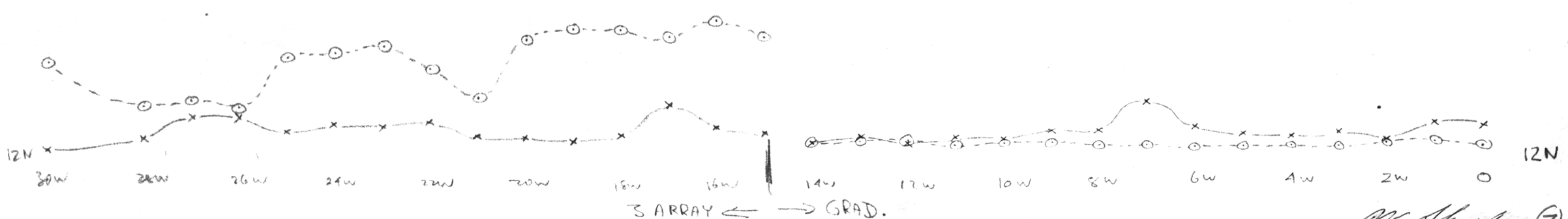
3 ARRAY C, to W.

GRAD. ARRAY Δ = 2500 ft.





16 N.



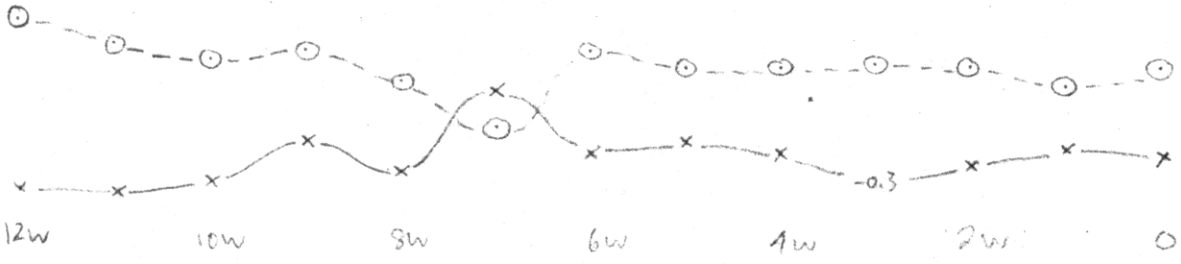
W. Sharpe (7)

Via : 1" = 4 m sec × —— ×

ρ_a : 1" = 500 ohm-m ⊙ - - - ⊙

3 array a = 200 ft

C, tow

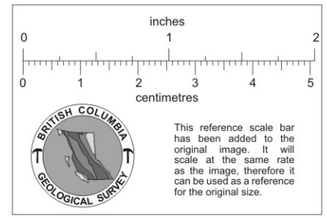


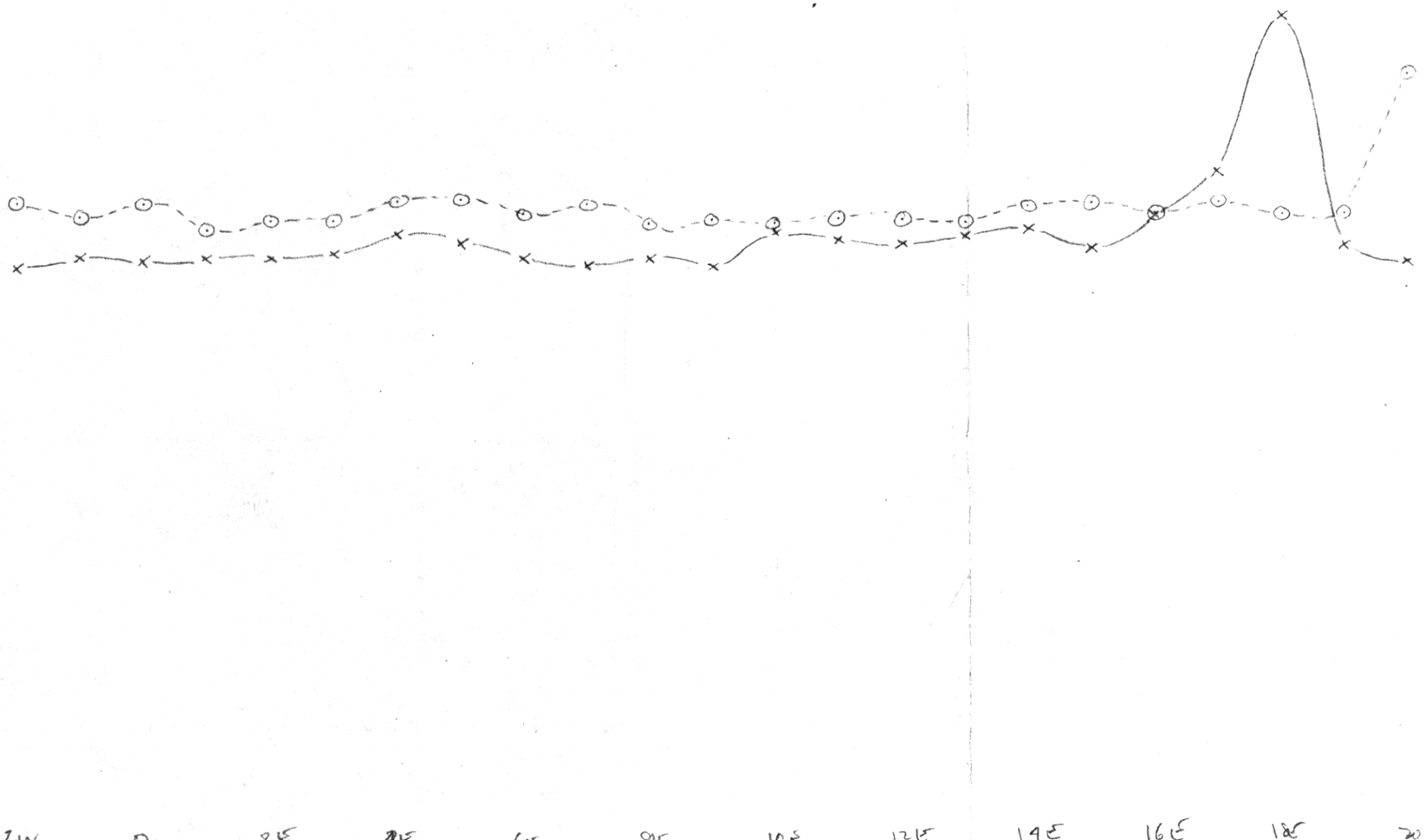
200' sp.

16N

W. Sharpe (8)

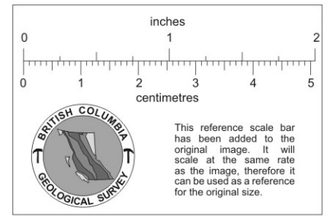
Wa: 1" = 4mea x ⟶
fa: 1" = 500 ohm-m ⊙ - - - ⊙
3 anay C. to W
a = 200 ft.

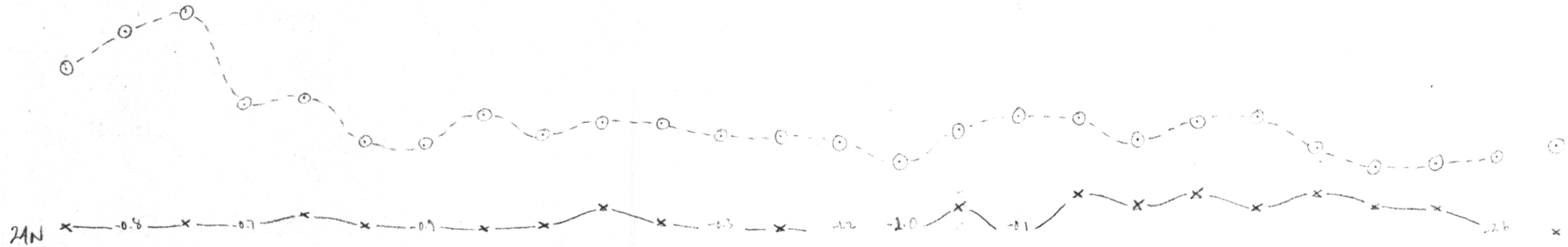


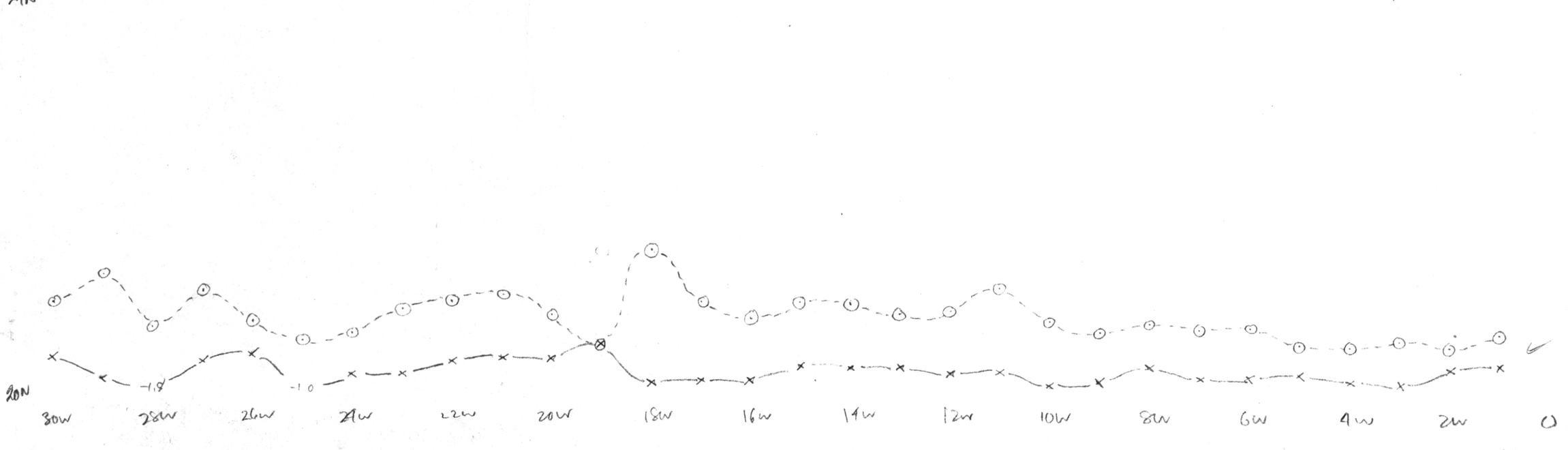


W. Sharpe (9)

Ma: 1" = 4 mi. x ——→
Pa: 1" = 500 ft. in 0 - - - ⊙
Barany C. to W
a = 200 ft.







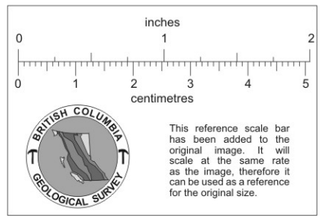
W. Harpa

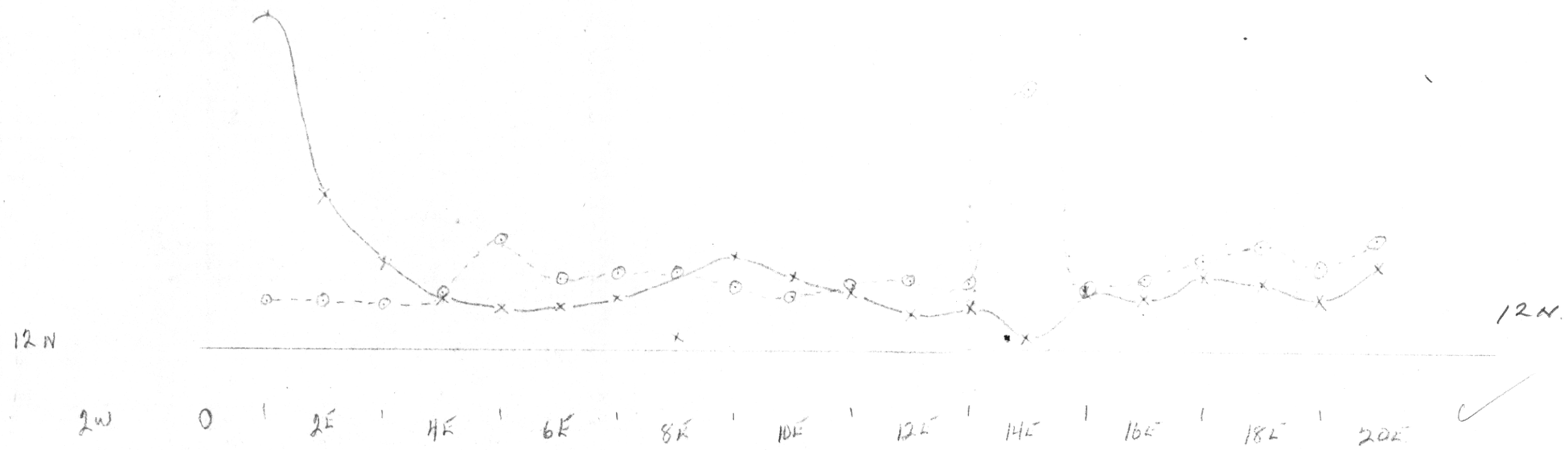
Plan: 1"=4 [illegible] x — x

Pen: 1" = [illegible]

3 [illegible]

a = 200 SA





(11)

W. Sharpe.

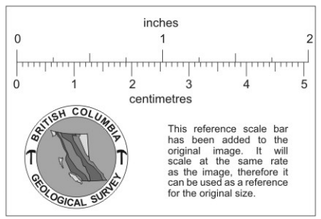
Rec'd Dec 10/65

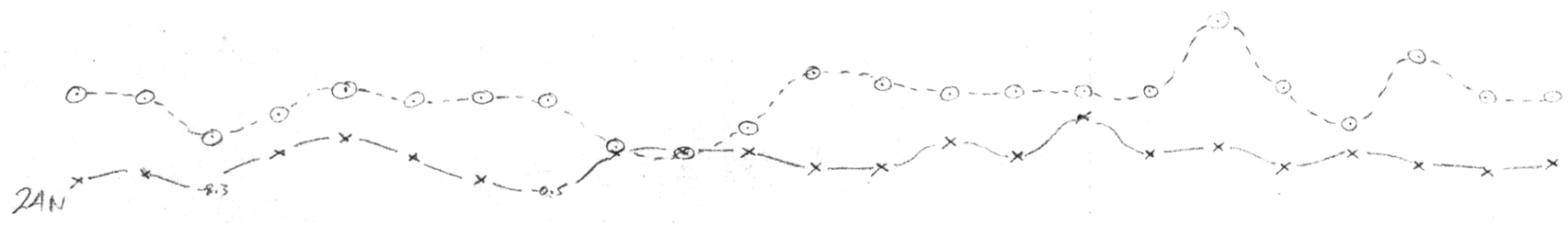
Mag: 1" = 4 mgs x ——— x

Pot: 1" = 500 ohms o - - - o

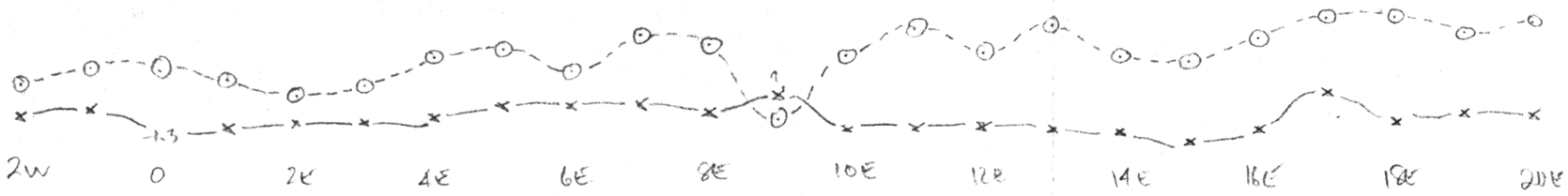
3 amps C. tow

a = 200 ft.





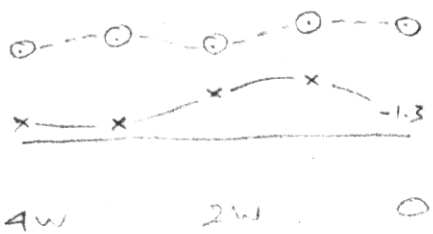
24N ✓



20N

W. Sharpe (12)

Rec'd Dec 10/15



L 24N

L24N cont'd

(13)

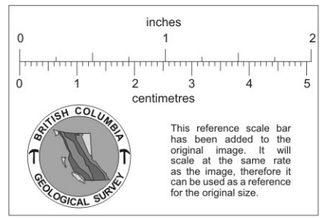
W. Alexander

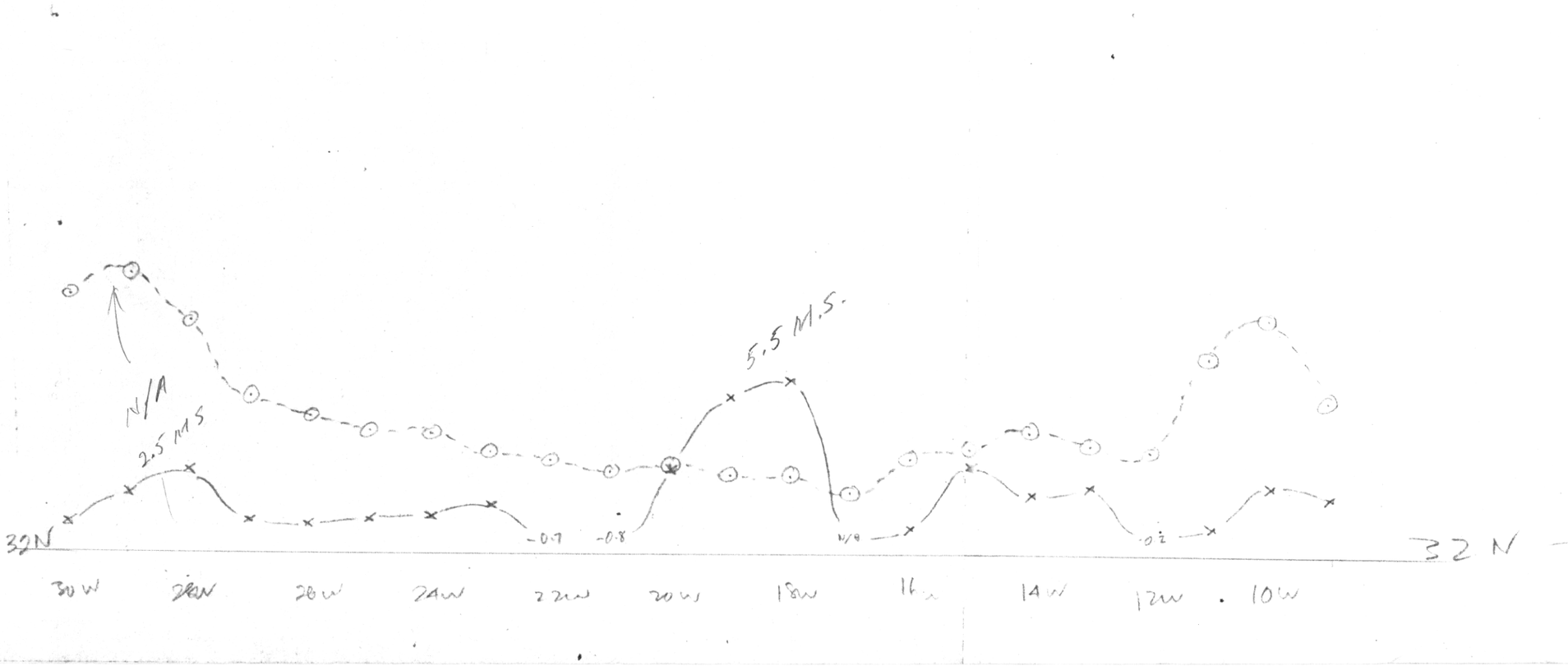
Mx : 1" = 1 mesh x —— x

Pe : 1" = 100 ohm-m ⊙ - - - ⊙

3 arrays C, P, W

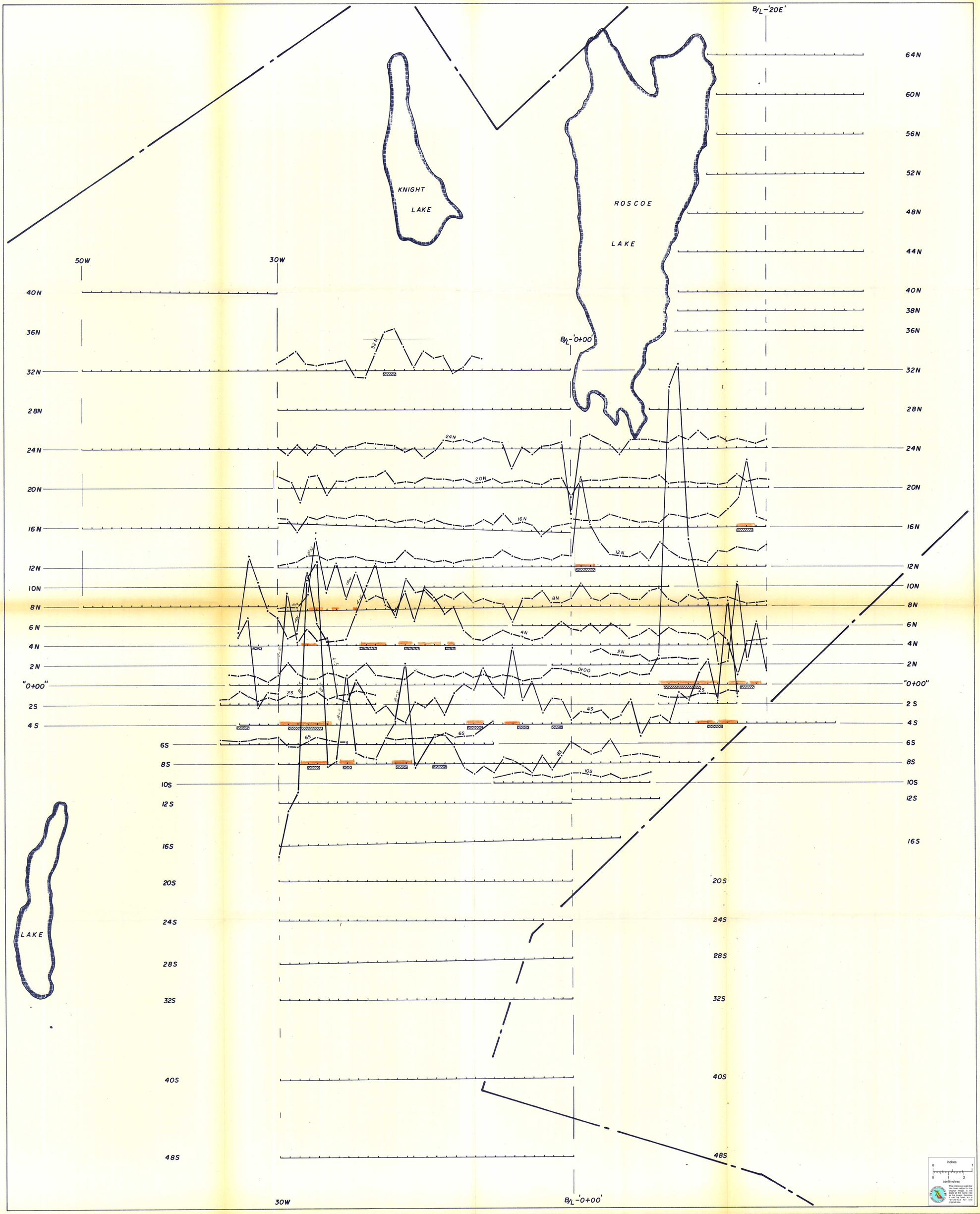
a = 200 ft.

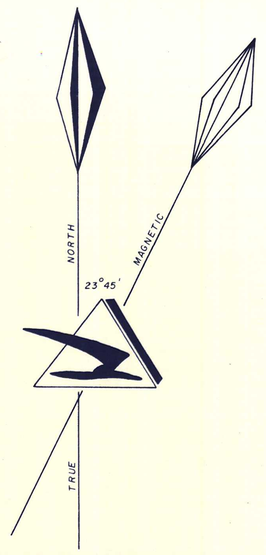




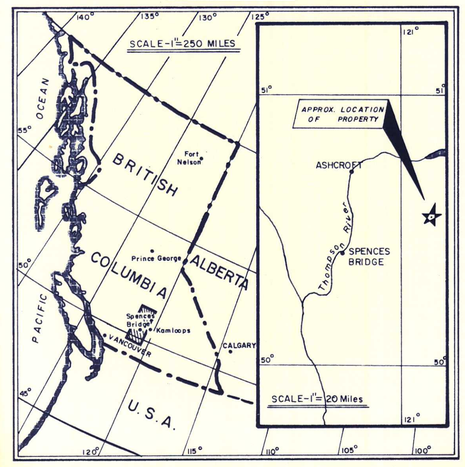
(14)

W. Sharpe

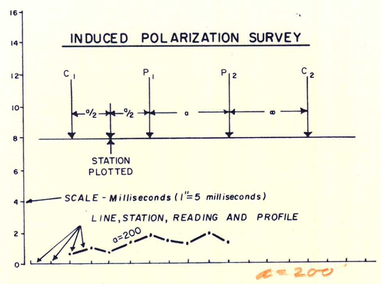




LOCATION MAP



LEGEND



MAP SYMBOLS

LAKE OUTLINE

PROPERTY BOUNDARY

TO ACCOMPANY REPORT BY E. B. NICHOLLS
DATED JAN. 24, 1966

STELLAKO MINING CO. LTD.

SPENCES BRIDGE - BRITISH COLUMBIA.
KAMLOOPS MINING DIVISION

INDUCED POLARIZATION SURVEY

CHARGEABILITY

SULMAC EXPLORATION SERVICES LIMITED
NOV-DEC-1965

Scale
One Inch = Four Hundred Feet

GEOPHYSICIST E.B. NICHOLLS

DRAWN BY O.A. GRANT

KNIGHT LAKE

ROSCOE LAKE

LAKE

B/L-'20E'

B/L-'0+00'

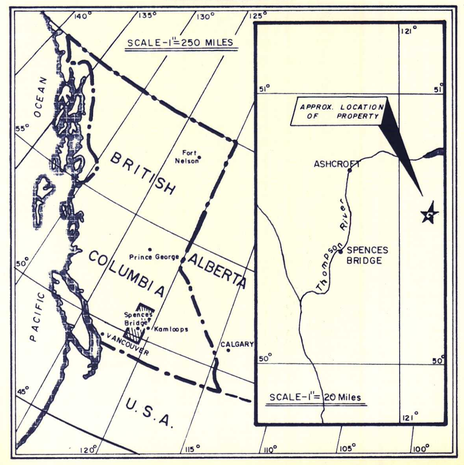
50W

30W

64N
60N
56N
52N
48N
44N
40N
38N
36N
32N
28N
24N
20N
16N
12N
10N
8N
6N
4N
2N
"0+00"
2S
4S
6S
8S
10S
12S
16S
20S
24S
28S
32S
40S
48S

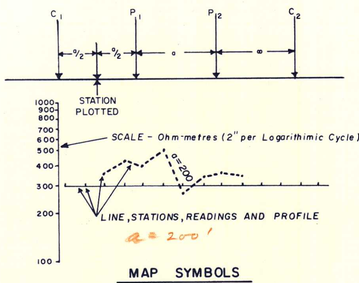
NORTH
MAGNETIC
23°45'
TRUE

LOCATION MAP



LEGEND

INDUCED POLARIZATION SURVEY



MAP SYMBOLS

LAKE OUTLINE

PROPERTY BOUNDARY

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STELLAKO MINING CO. LTD.

SPENCES BRIDGE - BRITISH COLUMBIA.
KAMLOOPS MINING DIVISION

INDUCED POLARIZATION SURVEY

RESISTIVITY

1"=400'

SULMAC EXPLORATION SERVICES LIMITED
NOV-DEC.-1965

Scale
One Inch = Four Hundred Feet

GEOPHYSICIST E.B. NICHOLLS

DRAWN BY D.A. GRANT