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A REPORT

ON

AN INDUCED POLARIZATION SURVEY

Wolf Lake, Yukon Territory

FOR

ARCHER, CATHRO & ASSOCIATES LIMITED

Vancouver, British Columbia

BY

PETER E. WALCOTT & ASSOCIATES LIMITED

Vancouver, British Columbia

SEPTEMBER 1972

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INTRODUCTION

Between August 19th and 30th, 1972, Peter E. Walcott & Associates Limited carried out an induced polarization (I.P.) survey over a part of a property, located in the Wolf Lake area of the Yukon Territory, held by a group known as the Wolf Lake Joint Venture.

The survey was carried out over a handcut line grid, the lines of which were turned off at right angles from a N 45° E baseline, and which were chained and picketed at 100 foot intervals.

Measurements (first to second separation) of apparent chargeability (the I.P. response parameter) were made using the "pole - dipole" method of surveying with a 300 foot dipole. Simultaneaous measurements of apparent resistivity were also made.

The chargeability and resistivity data are presented on individual profiles bound in this report, and also in contour form on Maps W-159-1 to 4 that accompany this report.

PROPERTY, LOCATION AND ACCESS

The property is located in the Watson Lake Mining Division of British Columbia and consists of the following claims:

MUNG 1 - 20

The claims are situated on the west side of Wolf Lake straddling Wolf River.

Access is obtained by means of float plane from Whitehorse, about 110 airmiles to the west.

PREVIOUS WORK

Previous work on the property consists of geological prospecting and soil sampling carried out by Archer, Cathro & Associates Limited in the summer of 1972.

The results of this work are documented in a report by the staff of the forementioned company.

PURPOSE

The purpose of the survey was to investigate the possibility of a disseminated sulphide deposit as suggested by local appearances of mineralized float and by the favourable geological environment.

GEOLOGY

The reader is referred to the forementioned report by Archer, Cathro & Associates Limited.

SURVEY SPECIFICATIONS

The induced polarization (I.P.) survey was carried out using a pulse-type system manufactured by Huntec Limited of Toronto, Ontario. Measurements with this system are made in the time domain.

The system consists basically of three units: a receiver, a transmitter and a motor-generator. The transmitter, which provides a maximum of 7.5 kw d.c. to the ground, obtains its power from the 7.5 kw 400 cycle, three phase generator driven by a gasoline engine. The cycling rate of the transmitter is 1.5 seconds "current-on" and 0.5 seconds "current-off" with the pulses reversing continuously in polarity. The data recorded in the field consists of careful measurements of the current (I) in amperes flowing through electrodes C_1 and C_2, the primary voltage (V) appearing between the two potential electrodes, P_1 and P_2, during the "current-on" part of the cycle, and a secondary or overvoltage (V_s) appearing between P_1 and P_2 during the "current-off" part of the cycle.

The apparent chargeability (M_a) is calculated by dividing the secondary voltage by the primary voltage and multiplying by 400, which is the sampling time in milliseconds of the receiver unit. The apparent resistivity (P_a) in ohm-meters is proportional to the ratio of the primary voltage and the measured current, the proportionality factor depending on the geometry of the array used. The chargeability and resistivity obtained are called apparent as they are values which that portion of the earth sampled would have if it were homogeneous. As the earth sampled is usually inhomogeneous the calculated apparent chargeability and resistivity are functions of the actual chargeability and resistivity of the rocks.

The survey was carried out using the "pole-dipole" method of surveying. In this method the current electrode C_1 and the two potential electrodes, P_1 and P_2, are moved in unison along the survey lines. The spacing "na" (n an integer) between C_1 and P_1 is kept constant for each traverse at a distance roughly equal to the depth to be explored by that traverse, while that of P_1 - P_2 (the dipole) is kept constant at "a". The second current electrode C_2 is kept fixed at "infinity".

Thus, on a "pole-dipole array" traverse with an electrode spacing of 200 feet, a body lying at a depth of 100 feet will produce a strong response, whereas the same body lying at a depth of 200 feet will only just be detected. By running subsequent traverses at different electrode separations, more precise estimates can be made of depth, width, thickness and percentage of sulphides of causative bodies located by the I.P. method.

SURVEY SPECIFICATIONS cont'd

The survey was carried out using a 300 foot dipole and obtaining first and second separation measurements over the area surveyed.

DISCUSSION OF RESULTS

The results of the I.P. survey, as performed with a 300 foot dipole, shows most of the area surveyed to be anomalous, as indicated by the 5 millisecond contour on Maps W-159-3 & 4, based on the limited background chargeability values obtained.

Good correlation is obtained between the n = 1 and n = 2 results with slightly higher values and broader features on the latter.

Stronger responses are observed within the anomalous area and most probably represent an increase in the content and/or decrease in depth of burial of polarizable material. These are most apparent on the individual line profiles where an effort has been made to separate them (it should be noted here that, as it is not possible to locate an anomaly more accurately than half the spread length, the length of the indicated anomaly along the profiles should not be taken to represent the edges of anomalous material).

The resistivity survey did little except indicate overburden thickness and conductivity and bedrock conductivity.

Additional work done on Line 0 using a 100 foot dipole and taking first and second separation measurements showed an apparent double peak effect over the stronger anomaly indicating a possible narrow shallow causative source, and suggesting a deeper source for the weaker anomaly to the west.

This raises uncertainties as to the causative sources of the anomalies, i.e. could be caused by a series of narrow causative sources whose responses average together to give the broad response on the wider separations or they could have one inhomogeneous causative source with individual shallower offshoots containing more polarizable material. Unfortunately considerably more detail work would be required to resolve this ambiguity.

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Between August 19th and 30th, 1972, Peter E. Walcott & Associates Limited carried out a limited induced polarization survey over a property managed by Archer, Cathro & Associates Ltd.

The Property, i.e. the Mung claims, is located in the Wolf Lake area of the Yukon Territory.

The I.P. survey showed most of the area surveyed to be anomalous based on limited background values.

Stronger responses were observed within this anomalous area.

Additional work done with smaller dipoles suggested a narrow causative source for the strong anomaly on Line 0, raising ambiguity as to the possible causative sources of the anomalies as discussed in the previous section.

As a result the writer believes that, as the geological setting is supposed to be that of a porphyry environment, the causative source is most probably sulphide mineralization inhomogeneously distributed throughout the anomalous area.

He therefore recommends that the anomalous area be investigated by borehole techniques.

Drilling locations should be selected based on the above results plus those of ground magnetic and geochemical surveys, and geological investigations believed to have been carried out (the usefulness of the latter two might be in some way suspect as it is understood that the area is entirely drift covered although some geochemical response could be expected in light of the shallow depth of burial of the anomaly on Line 0).

One 60° hole should be collared on Line 0 and drilled westwards so as to intersect 22 E at 100 feet perpendicularly below the surface.

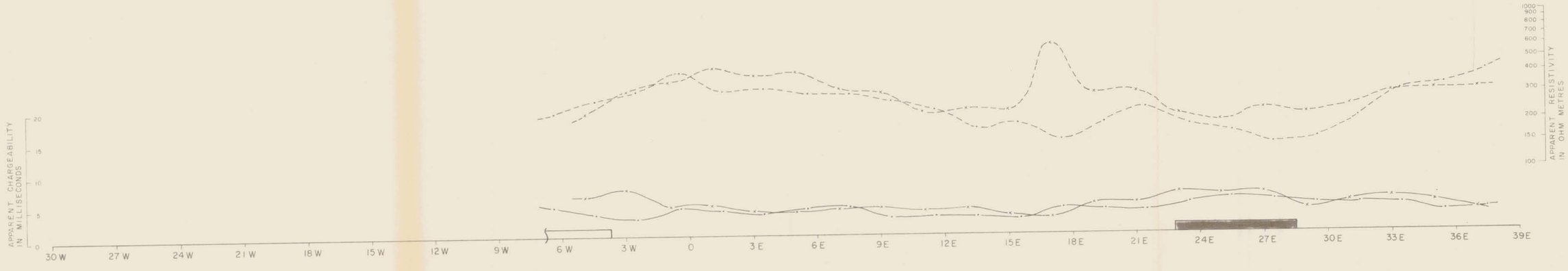
Should encouraging results be obtained then the I.P. coverage should be extended to properly delineate the anomalous area.

Respectfully submitted,

PETER E. WALCOTT & ASSOCIATES LIMITED

Peter E. Walcott, P.Eng.
Geophysicist

Vancouver, B.C.
September 1972



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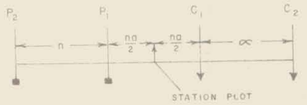


C_1 is to the West for Lines 20S — 20N

CHARGEABILITY RESISTIVITY

a = 300'

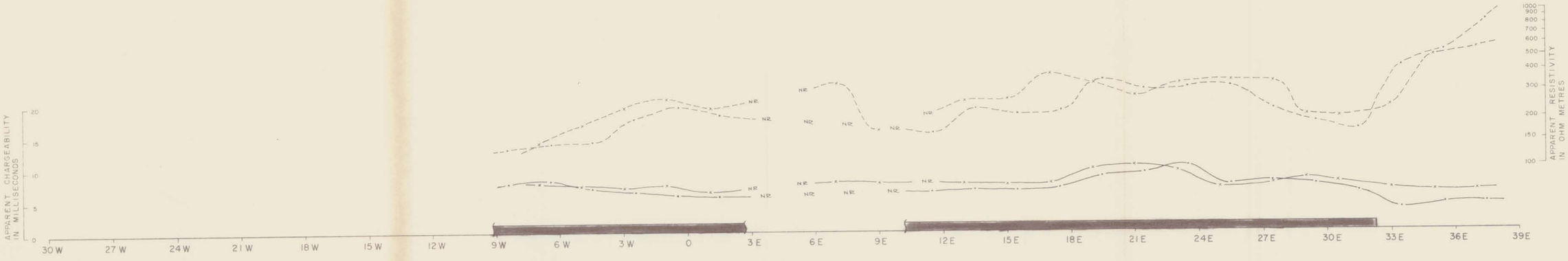
a = 600'

WOLF LAKE JOINT VENTURE

INDUCED POLARIZATION SURVEY
PROFILES OF APPARENT
CHARGEABILITY AND RESISTIVITY

LINE 20S

SCALE: 1 INCH = 300 FEET



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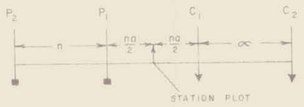


C_1 is to the West for Lines 20S — 20N

CHARGEABILITY RESISTIVITY

a = 300'

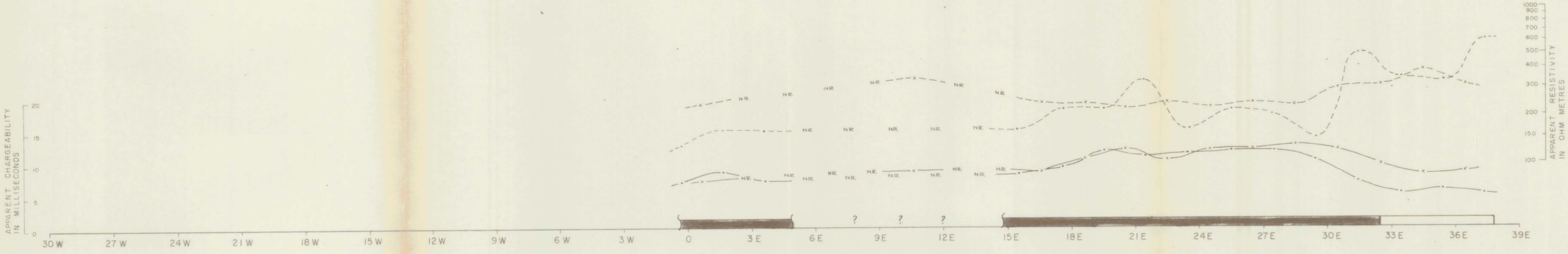
a = 600'

WOLF LAKE JOINT VENTURE

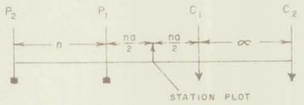
INDUCED POLARIZATION SURVEY
PROFILES OF APPARENT
CHARGEABILITY AND RESISTIVITY

LINE 10S

SCALE: 1 INCH = 300 FEET



POLE - DIPOLE ARRAY



C_1 is to the West for Lines 20S — 20N

CHARGEABILITY RESISTIVITY

a = 300'

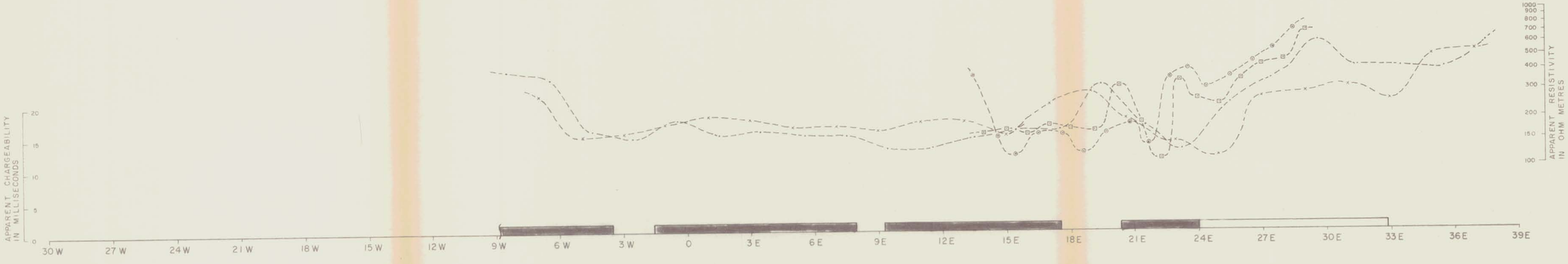
a = 600'

WOLF LAKE JOINT VENTURE

INDUCED POLARIZATION SURVEY
PROFILES OF APPARENT
CHARGEABILITY AND RESISTIVITY

LINE 5S

SCALE: 1 INCH = 300 FEET



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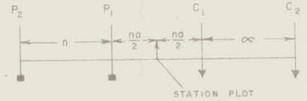


C_1 is to the West for Lines 20S — 20N

RESISTIVITY

- a = 100', n = 1
- a = 100', n = 2
- a = 300', n = 1
- a = 300', n = 2

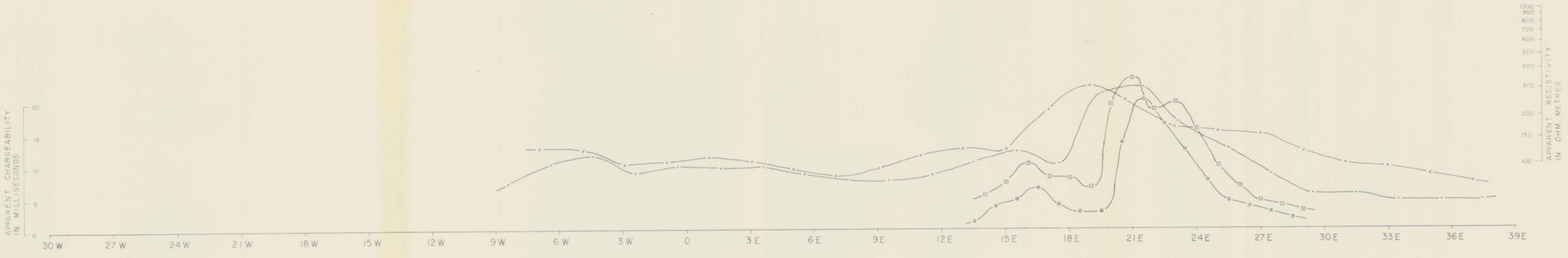
WOLF LAKE JOINT VENTURE

INDUCED POLARIZATION SURVEY

PROFILES OF APPARENT RESISTIVITY

LINE 0+00

SCALE: 1 INCH = 300 FEET



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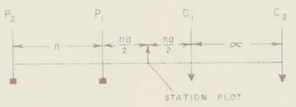


C_1 is to the West for Lines 20S — 20N

CHARGEABILITY

a = 100', n = 1

a = 100', n = 2

a = 300', n = 1

a = 300', n = 2

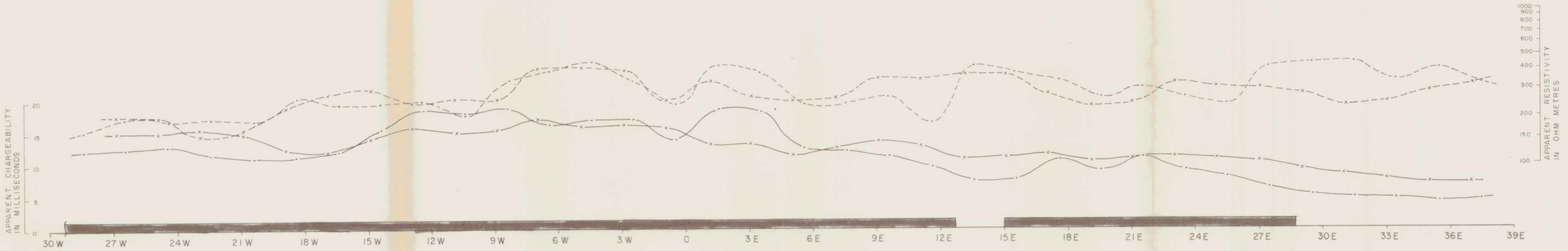
WOLF LAKE JOINT VENTURE

INDUCED POLARIZATION SURVEY

PROFILES OF APPARENT CHARGEABILITY

LINE 0+00

SCALE: 1 INCH = 300 FEET



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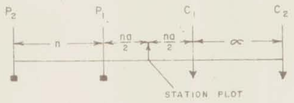


C_1 is to the West for Lines 20S — 20N

CHARGEABILITY RESISTIVITY

a = 300'

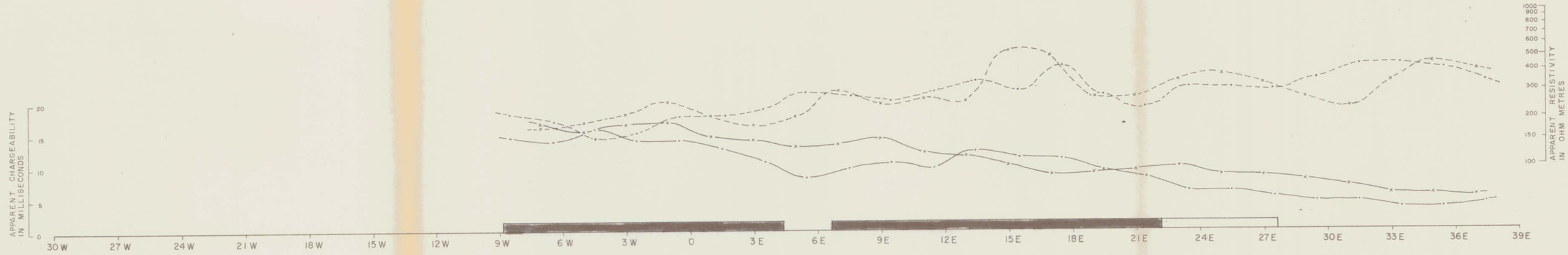
a = 600'

WOLF LAKE JOINT VENTURE

INDUCED POLARIZATION SURVEY
PROFILES OF APPARENT
CHARGEABILITY AND RESISTIVITY

LINE 5N

SCALE: 1 INCH = 300 FEET



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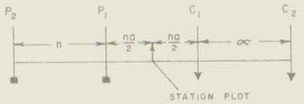


C_1 is to the West for Lines 20S — 20N

CHARGEABILITY — RESISTIVITY

a = 300'

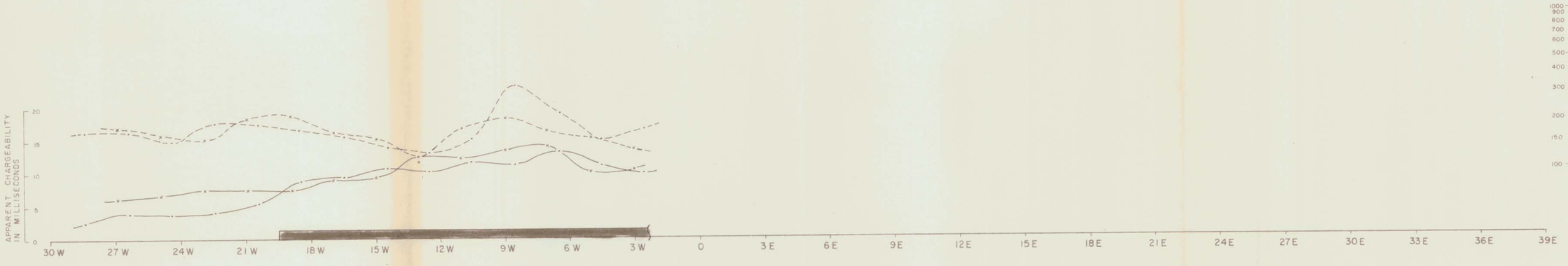
a = 600'

WOLF LAKE JOINT VENTURE

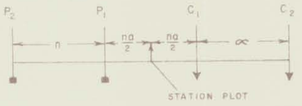
INDUCED POLARIZATION SURVEY
PROFILES OF APPARENT
CHARGEABILITY AND RESISTIVITY

LINE ION

SCALE: 1 INCH = 300 FEET



POLE - DIPOLE ARRAY



C_1 is to the West for Lines 20S — 20N

CHARGEABILITY RESISTIVITY

a = 300'

a = 600'

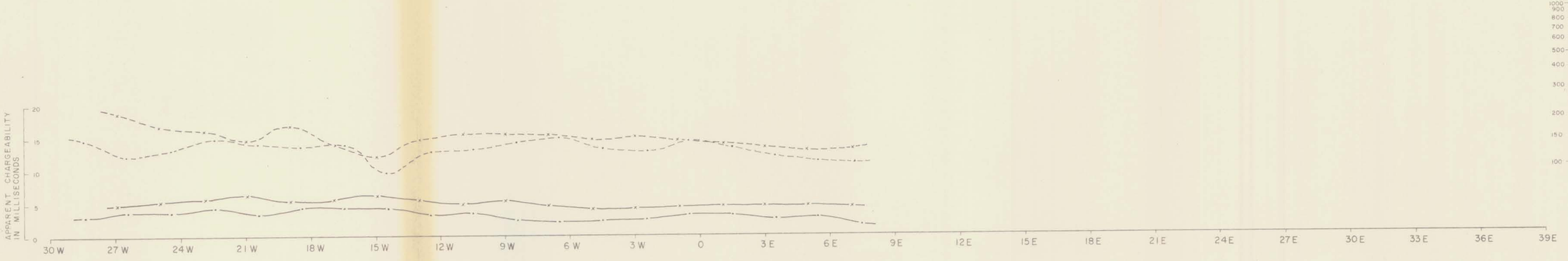
WOLF LAKE JOINT VENTURE

INDUCED POLARIZATION SURVEY

PROFILES OF APPARENT CHARGEABILITY AND RESISTIVITY

LINE 12+50N

SCALE: 1 INCH = 300 FEET



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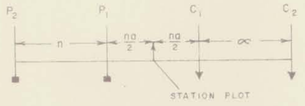


C_1 is to the West for Lines 20S — 20N

CHARGEABILITY RESISTIVITY

a = 300'

a = 600'

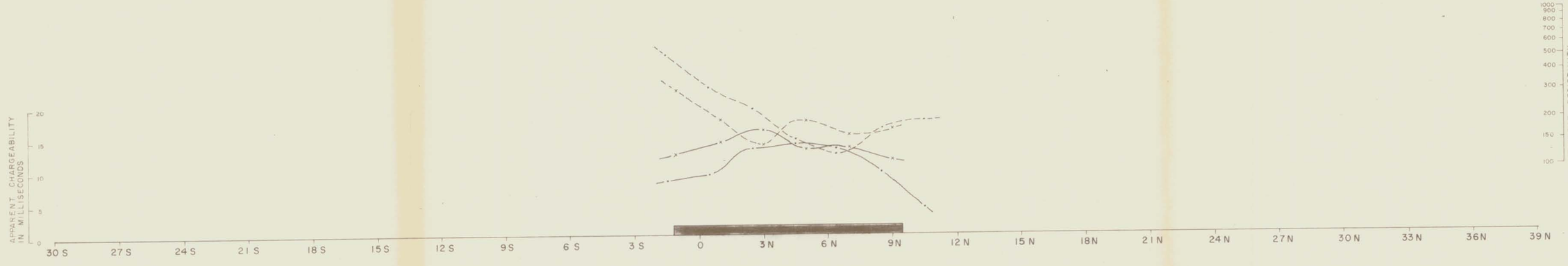
WOLF LAKE JOINT VENTURE

INDUCED POLARIZATION SURVEY

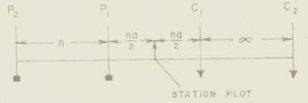
PROFILES OF APPARENT CHARGEABILITY AND RESISTIVITY

LINE 20N

SCALE: 1 INCH = 300 FEET



POLE - DIPOLE ARRAY



C_1 is to the West for Lines 20S — 20N

CHARGEABILITY RESISTIVITY

a = 300'

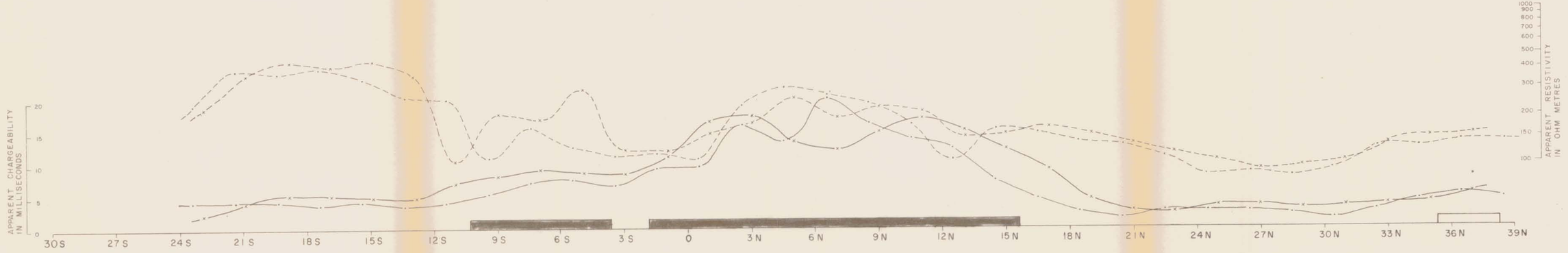
a = 600'

WOLF LAKE JOINT VENTURE

INDUCED POLARIZATION SURVEY
PROFILES OF APPARENT
CHARGEABILITY AND RESISTIVITY

LINE 30 W

SCALE: 1 INCH = 300 FEET



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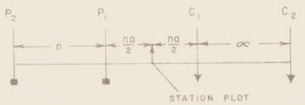


C_1 is to the West for Lines 20S — 20N

CHARGEABILITY RESISTIVITY

a = 300'

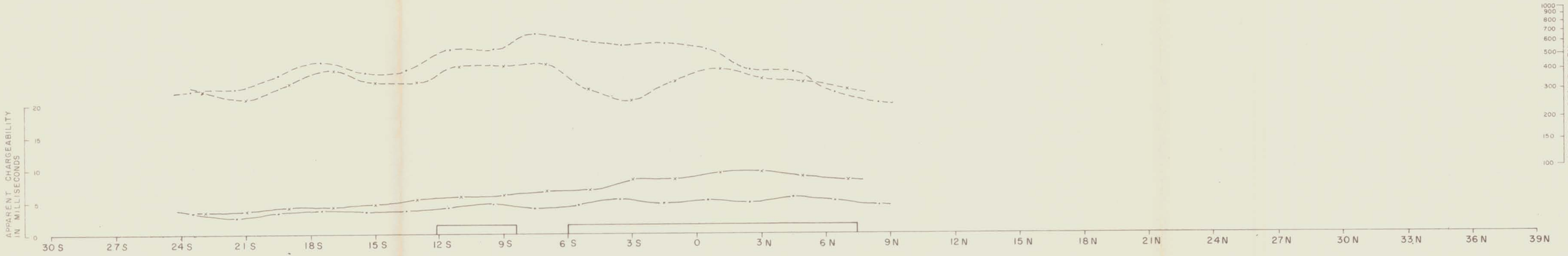
a = 600'

WOLF LAKE JOINT VENTURE

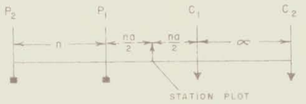
INDUCED POLARIZATION SURVEY
PROFILES OF APPARENT
CHARGEABILITY AND RESISTIVITY

LINE BLO

SCALE: 1 INCH = 300 FEET



POLE - DIPOLE ARRAY



C_1 is to the West for Lines 20S — 20N

CHARGEABILITY RESISTIVITY

a = 300'

a = 600'

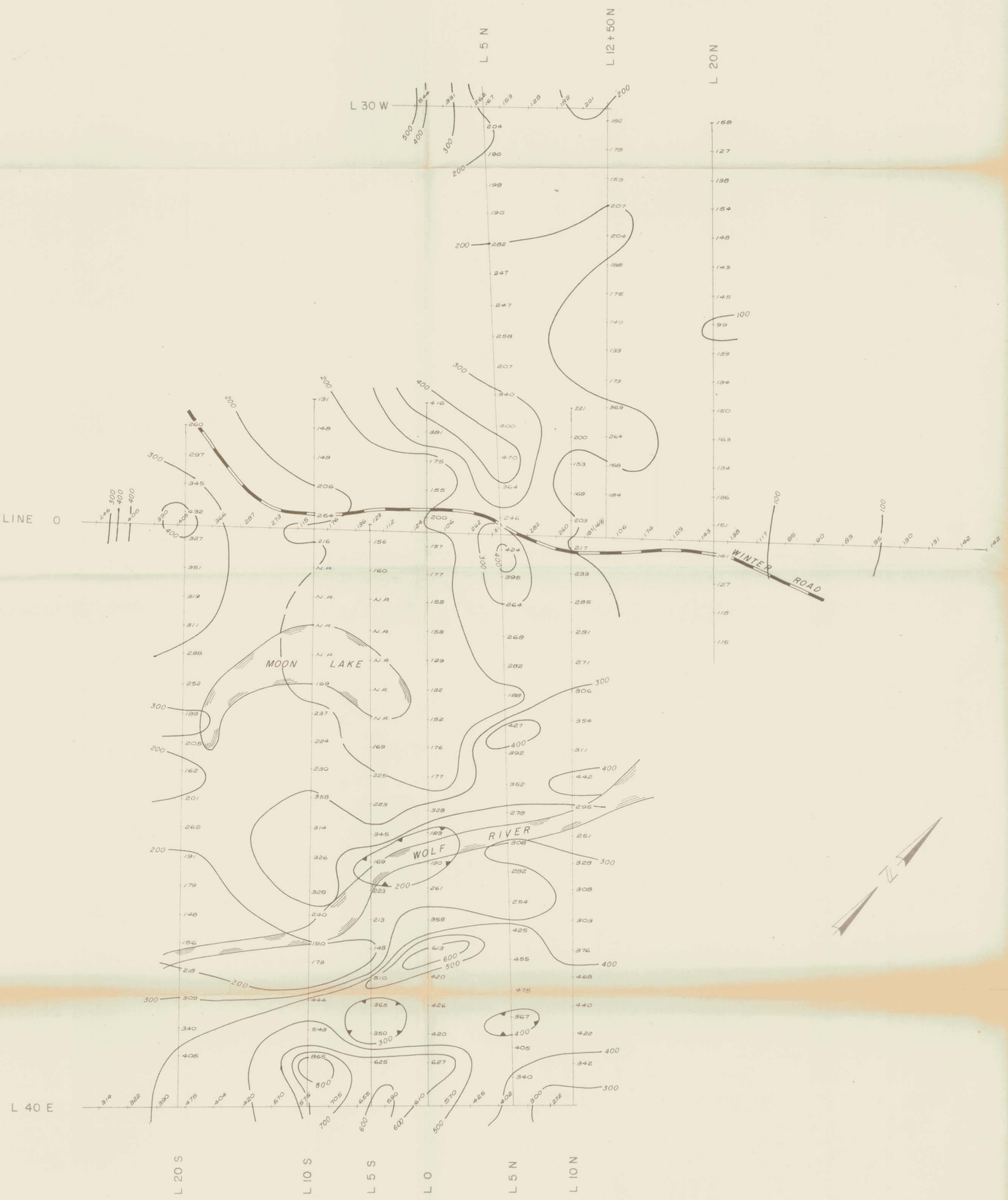
WOLF LAKE JOINT VENTURE

INDUCED POLARIZATION SURVEY

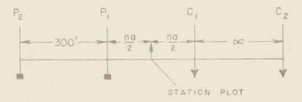
PROFILES OF APPARENT CHARGEABILITY AND RESISTIVITY

LINE 40E

SCALE: 1 INCH = 300 FEET



POLE - DIPOLE ARRAY



C_1 is to the West for Lines 20S → 20N

RESISTIVITY IN OHM-METRES

340

STATION PLOT

300 100 OHM-METRE CONTOURS

WOLF LAKE JOINT VENTURE

MUNG CLAIMS, WOLF LAKE AREA, YUKON TERRITORY

INDUCED POLARIZATION SURVEY

CONTOURS OF APPARENT RESISTIVITY

a = 300', n = 1

SCALE : 1 INCH = 400 FEET

400 200 0 400 800 1200
FEET FEET

MAP No. W - 159 - 1

TO ACCOMPANY A REPORT BY
PETER E. WALCOTT, P. Eng.
DATED - SEPTEMBER, 1972

PETER E. WALCOTT & ASSOC. LTD.

AUGUST, 1972

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA PETER E. WALCOTT

POLE - DIPOLE ARRAY

C_1 is to the West for Lines 20S → 20N

RESISTIVITY IN OHM-METRES

380 — STATION PLOT

300 — 100 OHM-METRE CONTOURS

N

WOLF LAKE JOINT VENTURE

MUNG CLAIMS, WOLF LAKE AREA, YUKON TERRITORY

INDUCED POLARIZATION SURVEY

CONTOURS OF APPARENT RESISTIVITY

a = 300', n = 2

SCALE : 1 INCH = 400 FEET

400 200 0 400 800 1200 FEET

MAP No. W - 159 - 2

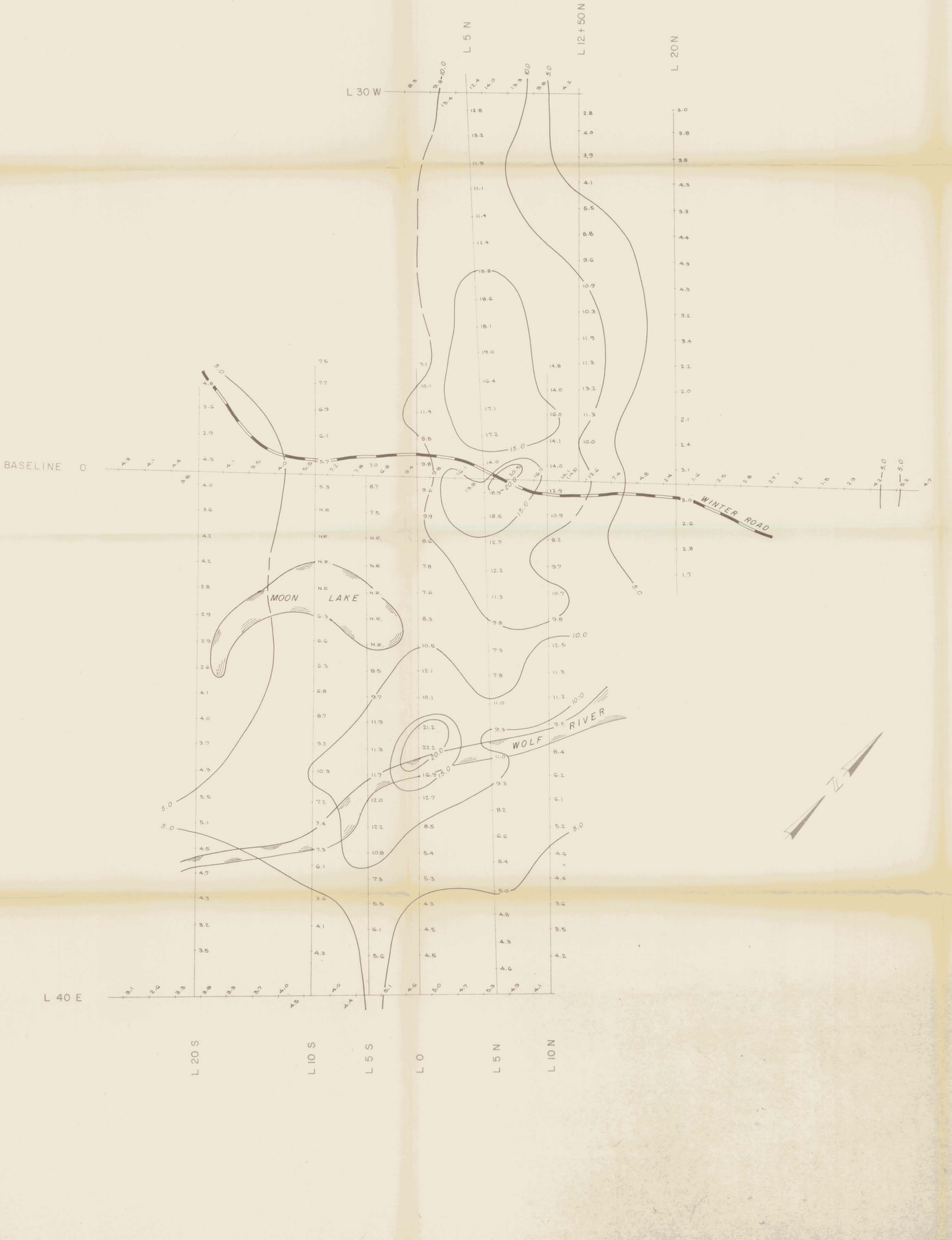
TO ACCOMPANY A REPORT BY PETER E. WALCOTT, P. Eng.

DATED - SEPTEMBER, 1972

PETER E. WALCOTT & ASSOC. LTD.

AUGUST, 1972

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA PETER E. WALCOTT



POLE - DIPOLE ARRAY

C_1 is to the West for Lines 20S → 20N

CHARGEABILITY IN MILLISECONDS

3.6

STATION PLOT

15.0 5.0 MILLISECOND CONTOURS

WOLF LAKE JOINT VENTURE

MUNG CLAIMS, WOLF LAKE AREA, YUKON TERRITORY

INDUCED POLARIZATION SURVEY

CONTOURS OF APPARENT CHARGEABILITY

a = 300', n = 1

SCALE : 1 INCH = 400 FEET

400 200 0 400 800 1200 FEET

MAP No. W - 159 - 3

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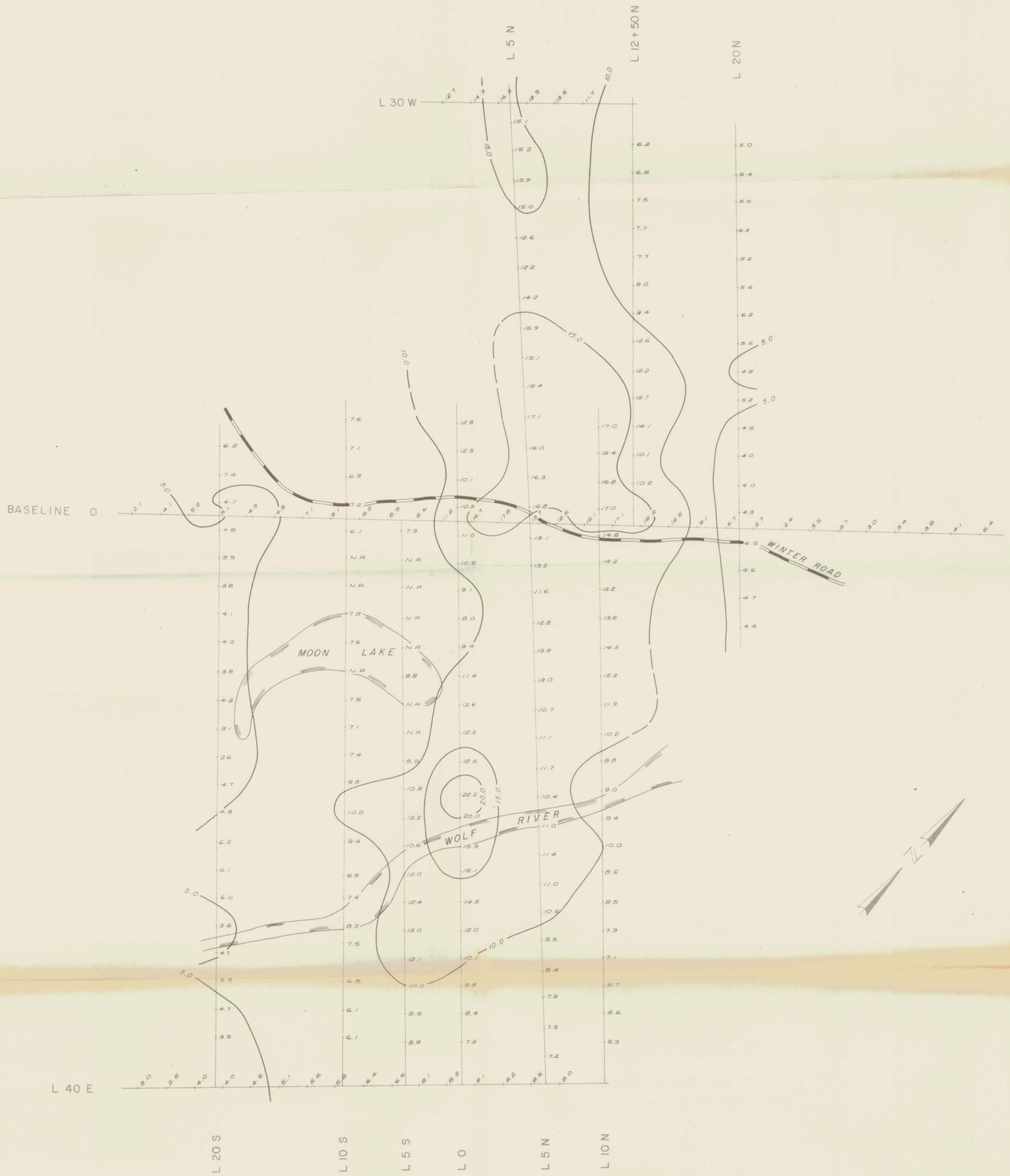
PETER E. WALCOTT, P. Eng.
DATED - SEPTEMBER, 1972

PETER E. WALCOTT & ASSOC. LTD.

AUGUST, 1972

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA PETER E. WALCOTT



POLE - DIPOLE ARRAY

C_1 is to the West for Lines 20S → 20N

CHARGEABILITY IN MILLISECONDS

3.5

STATION PLOT

15.0 — 5.0 MILLISECOND CONTOURS

WOLF LAKE JOINT VENTURE

MUNG CLAIMS, WOLF LAKE AREA, YUKON TERRITORY

INDUCED POLARIZATION SURVEY

CONTOURS OF APPARENT CHARGEABILITY

a = 300', n = 2

SCALE : 1 INCH = 400 FEET

400 200 0 400 800 1200 FEET

MAP No. W - 159 - 4

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PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA PETER E. WALCOTT