3707

GEOPHYSICAL REPORT

WHIPSAW CREEK PROPERTY

SIMILKAMEEN MINING DIVISION

BRITISH COLUMBIA

Lat. 49° 17' N, Long. 120° 45' W

By

E. J. Ballantyne, Jr.

December 21, 1971

Claims:	28 claims (Whip 1-8, Saw 1-8, Pick 1-6, Axe 1-6), owned by Texas Gulf Sulphur Co. Inc.
Location:	Approximately 16 miles southwest of Princeton, B. C. N.T.S. 92 H/7 E
Work done by:	Newmont Mining Corporation of Canada Limited
Work done between:	September 16 and October 1, 1971

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INTRODUCTION

The geophysical survey forming the basis of this report was performed under the field direction of Mr. Gordon Clark and supervised by Mr. E.J. Ballantyne, Jr. The survey was conducted between the dates of September 23 and October 1, 1971.

The purpose of the survey was to cover, with IP and Resistivity, that portion of the claim block not covered by previous surveys which contain Nicola volcanics near an intrusive contact.

Control for this survey was a grid of picket lines trending approximately north-northwest. Line spacing in general was 400 feet.

HISTORY

In 1960 and 1961, McPhar Geophysics Ltd. conducted IP and resistivity surveys on the claim block. In 1964 Canadian Aero Mineral Surveys Ltd. increased the coverage of the area. All of these surveys were designed to cover the porphyry intrusion in the area and few lines were surveyed over the Nicola volcanics. Follow-up drilling was mainly confined to the porphyry but one hole (69 W - 1) was collared in the volcanics to test the contact between the volcanics and the porphyry. This hole intersected significant values of copper mineralization in the volcanics at the contact.

In July 1971 Newmont Mining Corporation of Canada Limited optioned these claims from Texas Gulf Sulphur Co. Inc.

EQUIPMENT USED

The IP and resistivity surveys were conducted using Newmont designed and manufactured equipment. The transmitter is a 250 watt battery pack unit designed as such that it transmits an alternating square wave. The timing sequence is 2 seconds on, 2 seconds off, current reversal, 2 seconds on, 2 seconds off. The receiver is a remote sensing type. The primary voltage is measured during the current "on" time and used to calculate resistivities. During the current "off" time, an integrated secondary voltage is measured, normalised by the primary voltage, converted to the Newmont standard (3 : 3 : 1), and read directly as chargeability. Two pulses, or one complete cycle, are required for a chargeability reading. Readings are accumulated for several cycles and manually divided by the number of cycles to get an accurate average.

A detailed description of the receiver is presented in the Proceedings of the Symposium on Induced Electrical Polarization, February 18 and 19, 1967, University of California, Berkeley, in a paper titled "Considerations Concerning Measurement Standards and Design of Pulsed IP Equipment", Part II: "Induced Polarization Receiver" by George H. McLaughlin.

FIELD PROCEDURE

A grid of picket lines was cut bearing N 26° W, spaced 400' apart. Line E, from the old Texas Gulf grid was used as a baseline. Lines F and D, spaced 1000' to the north and south, were used as tie lines.

A pole-dipole array was used for the IP and resistivity surveys and is illustrated in Figure 1.

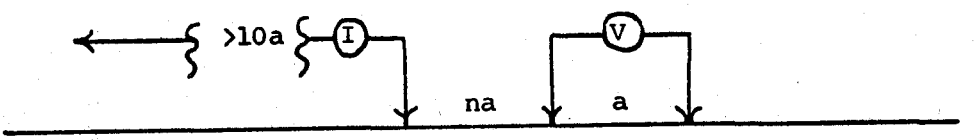


Figure 1

The value of a was set equal to 200 feet and profiles were made with a station spacing of 200 feet. In general, one expander, n = 1 to 4, was run on each line. The infinite current electrode was positioned perpendicular to the line of traverse at a distance of not less than 4,000 feet. A total of 4.7 line miles of profile IP were run.

PRESENTATION OF RESULTS

The profile resistivity and chargeability data are presented as contour maps attached to this report. These contour maps cover only that portion of the grid between D0 and F0 and 2E to 26W. Four widely spaced reconnaissance lines were also done (lines 10E, north parts of 6W, and 22W, G). All the data are presented as profiles attached to the report. The location of the resistivity and chargeability station is half way between the mid point of the potential electrodes and the near current electrode. See Figure 2. Expander data are presented as profiles plotted on log-log paper appended to this report. The near current electrode position (C_1) is given for each expander. All expand southward.

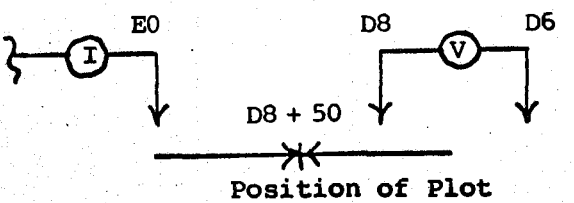


Figure 2

INTERPRETATION

Results of the IP and resistivity surveys indicate, in general, the contact between the porphyry to the south and the Nicola group to the north. The contact appears as a sharp gradient on both sets of data and coincides in general with the geological mapping.

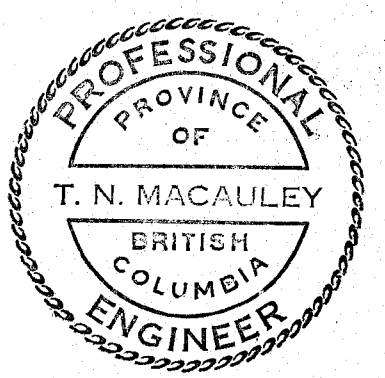
The profiles did not extend for any appreciable distance into the intrusive. However, it is noted that chargeabilities of the intrusive are less than 10 mv-sec/V with resistivities greater than 1,000 ohm-m.

In that area covered by the contour map the whole of the Nicola volcanics are considered anomalous. Chargeabilities, in general, exceed 100 mv-sec/V and values greater than 150 mv-sec/V are not uncommon. Resistivities in general are on the order of 200 - 300 ohm-m. In the swamp north of the intrusive contact chargeabilities exceed 180 mv-sec/V with resistivities being less than 100 ohm-m. The amplitude of these values may be attributed, in part, to the affect of the swamp but it is obvious that these values are not due entirely to the response of the swamp.

In general, the anomalous responses are attributed to finely disseminated pyrite, observed in outcrop. Since there is no known means of distinguishing pyrite and chalcopyrite with IP and resistivity, no specific drilling locations can be recommended on a geophysical basis. Since copper mineralization is known to exist in the volcanics, the whole of the area of the survey is considered to have potential.

The best procedure might be to drill a line of holes northward from the intrusive angling southward toward the contact. Line 14W is suggested due to the low resistivities appearing on that line indicating the possibility of more massive type mineralization. However, this is not an adamant recommendation and the line could be selected on the basis of ease of access and drilling set-ups.

EJB/gh



STATEMENT OF QUALIFICATIONS

I, E.J. Ballantyne, Jr., do hereby certify that I graduated with a Bachelor of Science degree in Mining Engineering, Geology Option, and a Master of Science degree in Mining Engineering from the University of Missouri at Rolla, formerly the Missouri School of Mines, in August 1961. My post graduate work was in geophysics.

From 1961 to October 1967 I worked as Exploration and Research Geophysicist for the New Jersey Zinc Company. From November 1967 to February 1970 I worked for Newmont Exploration Ltd. and served as Chief Geophysicist for Newmont Proprietary Limited in Australia. Since April 1970 I have been Chief Geophysicist for Newmont Mining Corporation of Canada Ltd.

E.J. Ballantyne Jr.

T.M. Macauley

STATEMENT OF COST

Personnel	Duty	Dates Worked - 1971
D. H. Christie	Line Cutting	Sept. 16, 17, 18
C. P. Costin	Line Cutting	Sept. 16, 17, 18
G. W. Clark	Line Cutting I. P. Technician	Sept. 16, 17, 18, 20, 21 Sept. 22, 23, 25, 27, 28, 29, 30, Oct. 1
T. A. Blaine	Line Cutting I. P. Assistant	Sept. 16, 17, 20, 21 Sept. 22, 23, 25, 27, 28, 29, 30, Oct. 1
P. I. Fike	Line Cutting I. P. Assistant	Sept. 16, 17, 18, 20, 21 Sept. 22, 23, 25, 27, 28, 29, 30, Oct. 1
E. J. Ballantyne	Geophysicist Interpretation and Report Writing	Dec. 20, 21
E. Spensieri	Geologist Draughting and Report Preparation	Dec. 17, 21

Cost of Line Cutting and I. P. Survey:

4.7 Line-miles @ $500.00 per mile.....$2,350.00

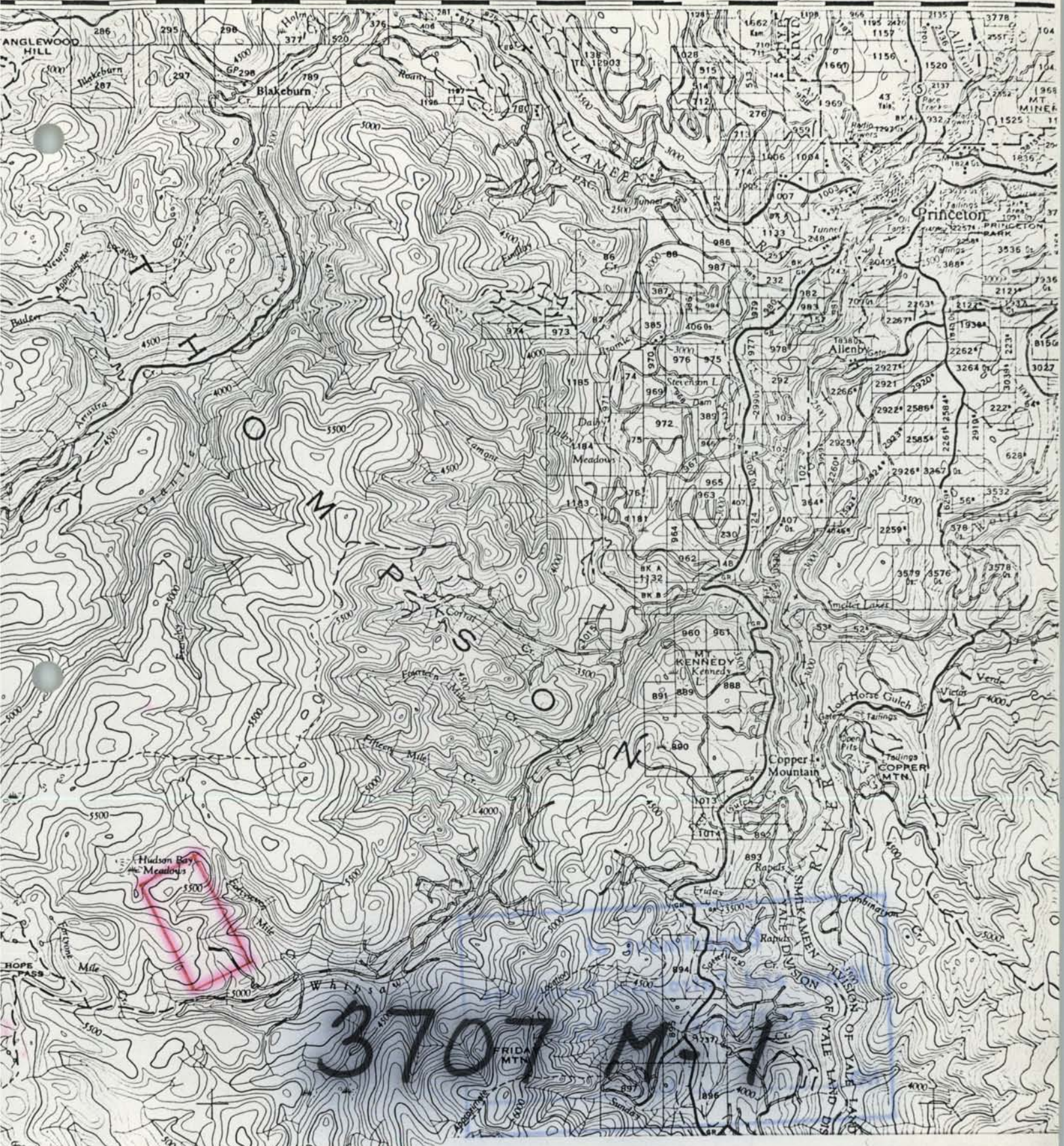
Declared before me at the City of Vancouver, in the Province of British Columbia, this 23 day of June 1972, A.D.

M. H. Desjardais

Joan Turner

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

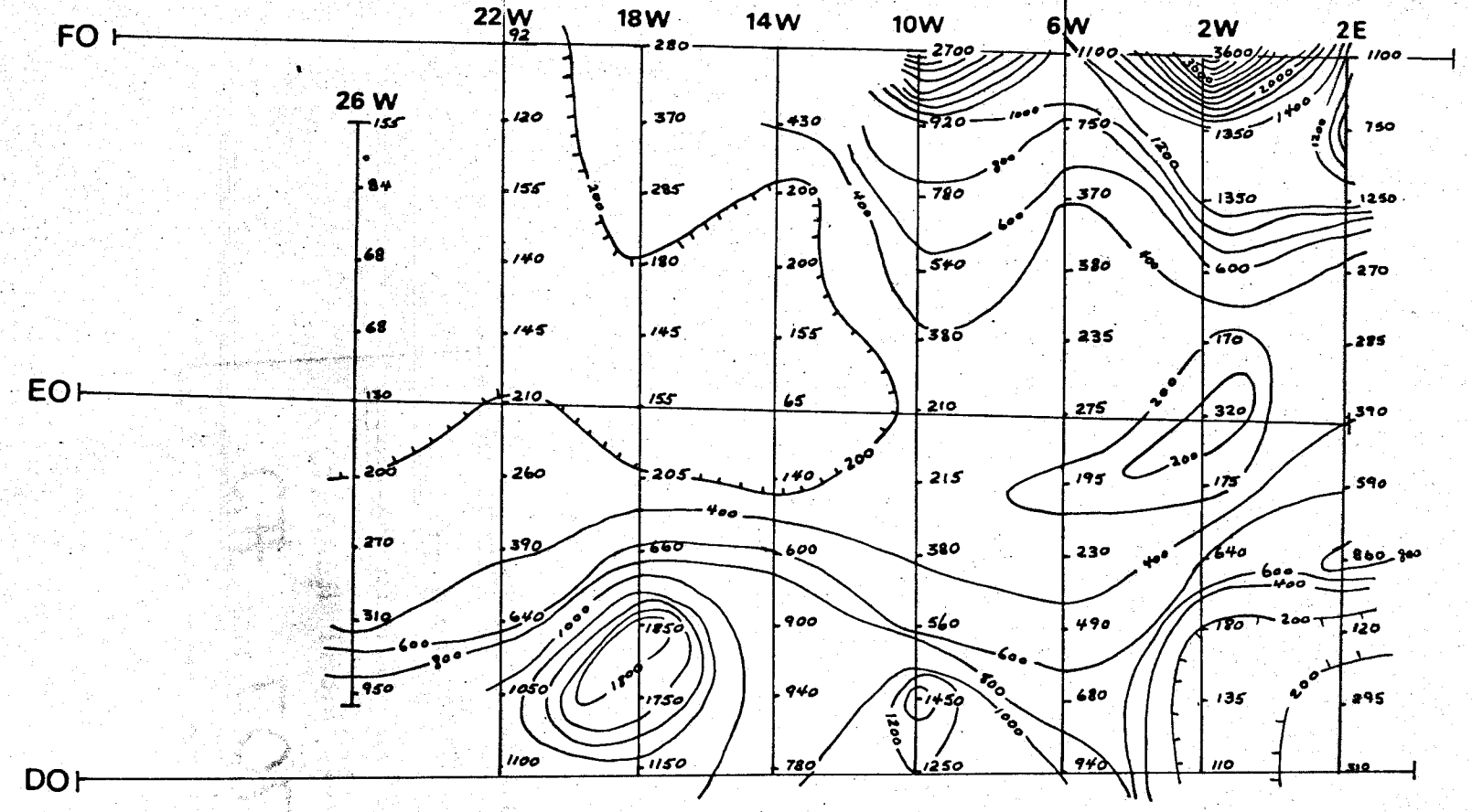
Sub - mining Recorder



LOCATION MAP
WHIPSAW CREEK PROPERTY
PRINCETON, B.C.

SCALE 1" = 2 MILES

T. Macaulay



Units: ohm-metres

scale 0' 500'

NEWMONT MINING CORP. OF CANADA LTD.

Whipsaw Project

Similkameen Mining Division - British Columbia

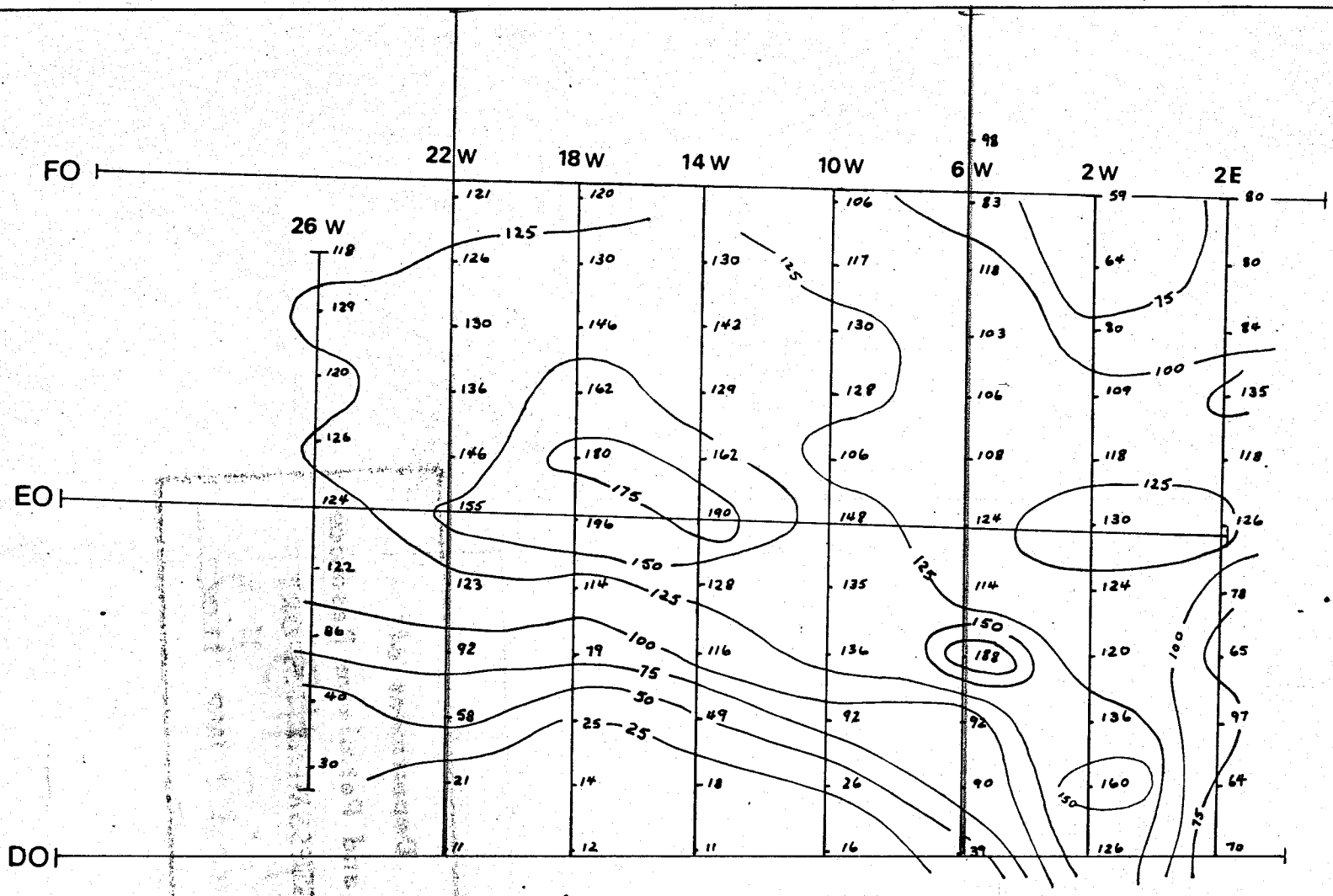
RESISTIVITY MAP

Array - 200' Pole-Dipole N = 1

Position of plot

December 21, 1971

N.T.S. 92 H 7



NEWMONT MINING CORP. OF CANADA LTD.

Whipsaw Project

Similkameen Mining Division - British Columbia

CHARGEABILITY MAP

Array - 200' Pole-Dipole N=1

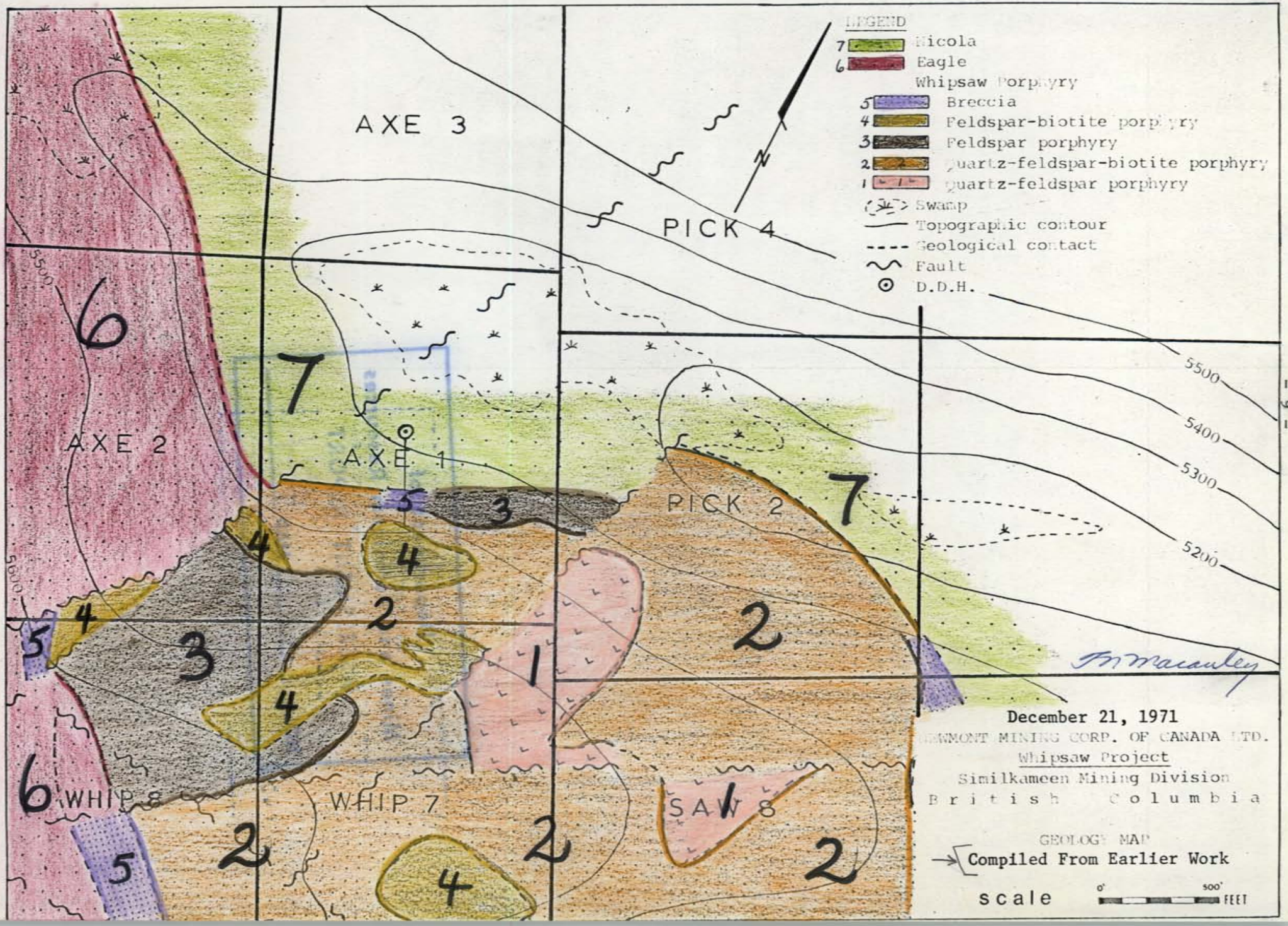
Units: milli volt-seconds / volt

scale 0' 500'

December 21, 1971

Position of plot

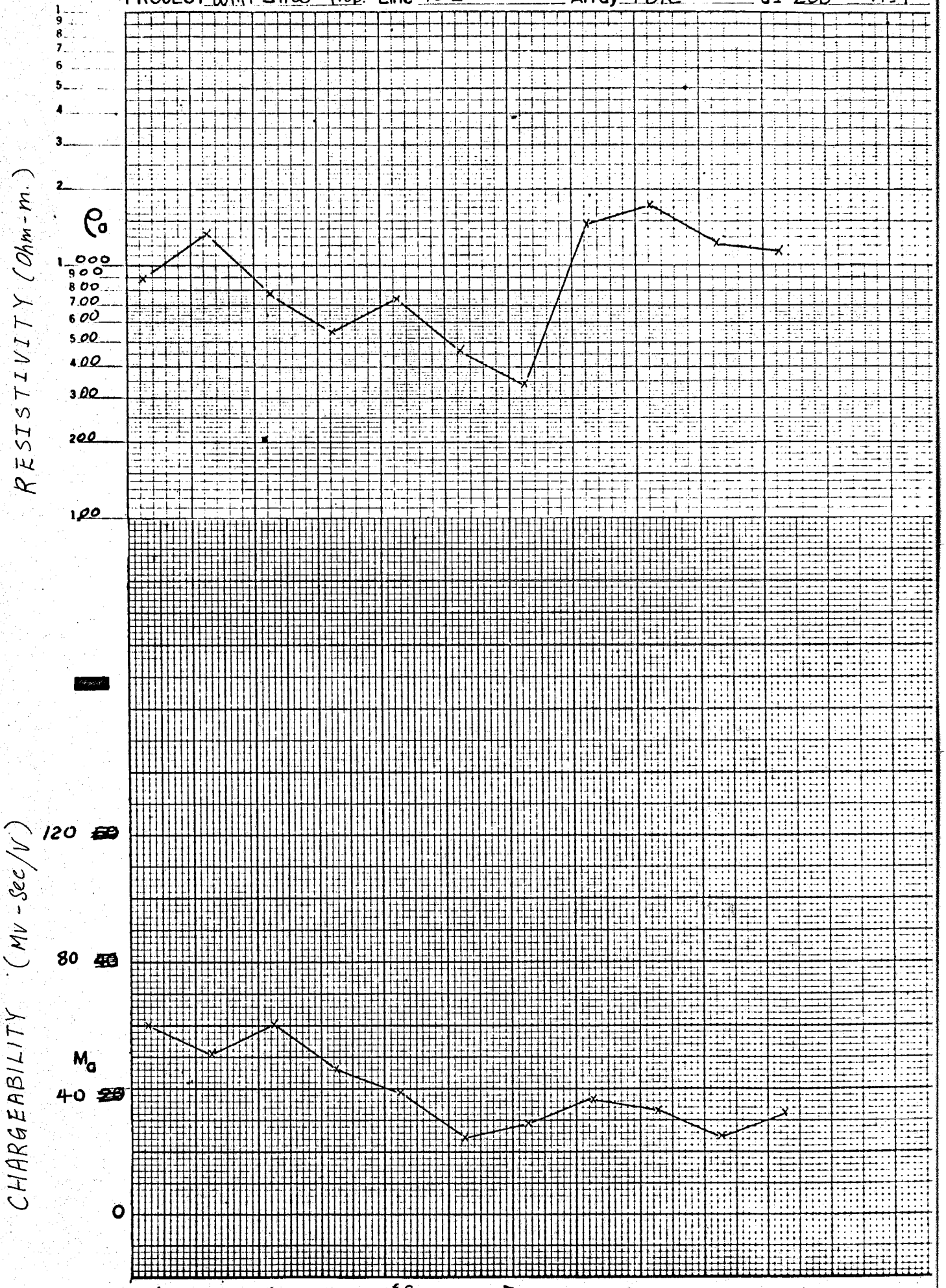
N.T.S. 92 H 7


LEGEND
7 Nicola
6 Eagle
Whipsaw Porphyry
5 Breccia
4 Feldspar-biotite porphyry
3 Feldspar porphyry
2 Quartz-feldspar-biotite porphyry
1 Quartz-feldspar porphyry
Swamp
Topographic contour
Geological contact
Fault
D.D.H.
AXE 3
PICK 4
AXE 2
AXE 1
PICK 2
WHIP 8
WHIP 7
SAW 8
5500
5400
5300
5200
5600
December 21, 1971
HOMMONT MINING CORP. OF CANADA LTD.
Whipsaw Project
Similkameen Mining Division
British Columbia
GEOLOGY MAP
Compiled From Earlier Work
scale
0' 500' FEET

Oct. 1, 71

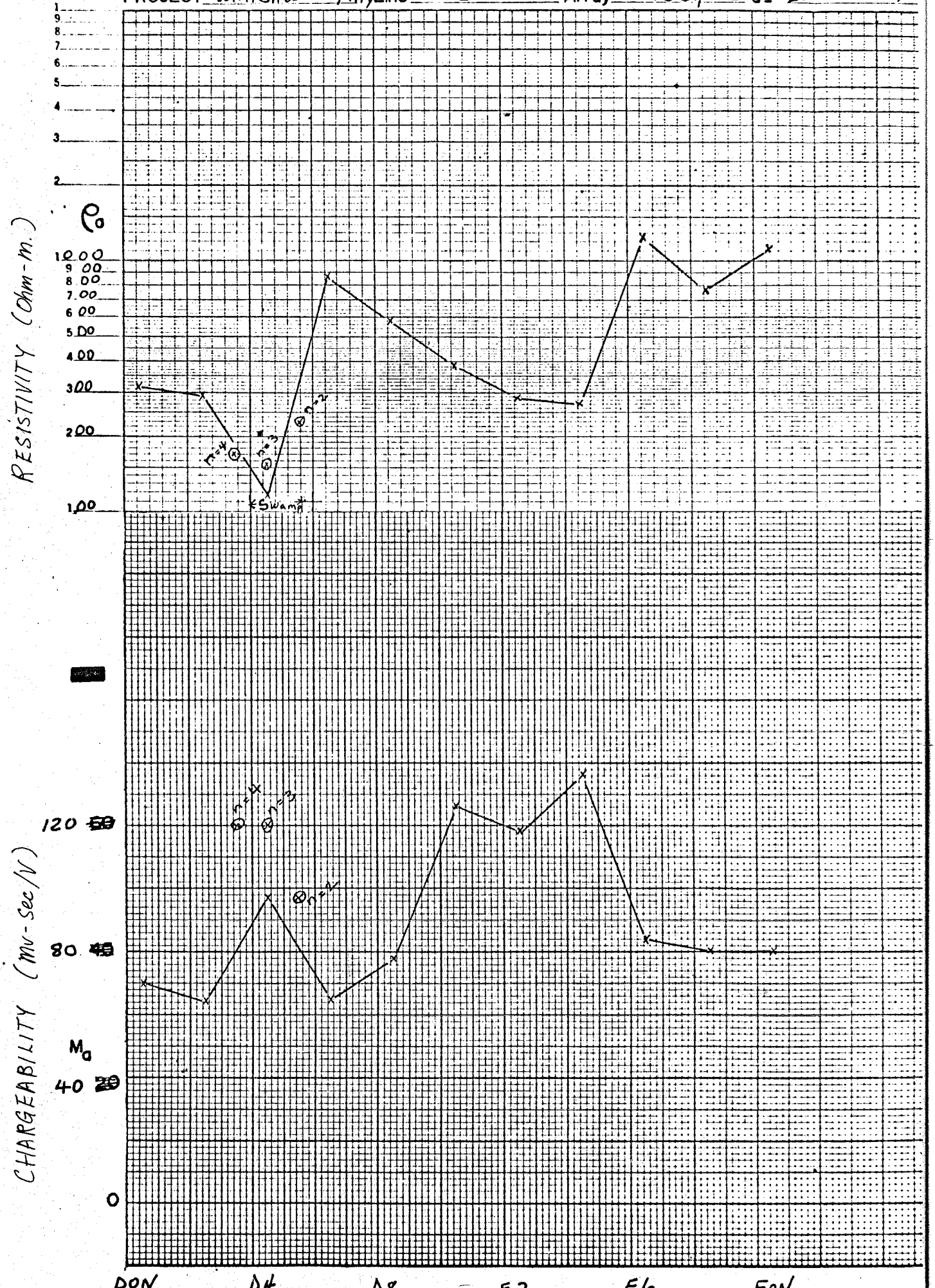
N.T.S. 92H 7

PROJECT WHIPSAW Prop. Line 10E Array Pole a = 200 n = 1



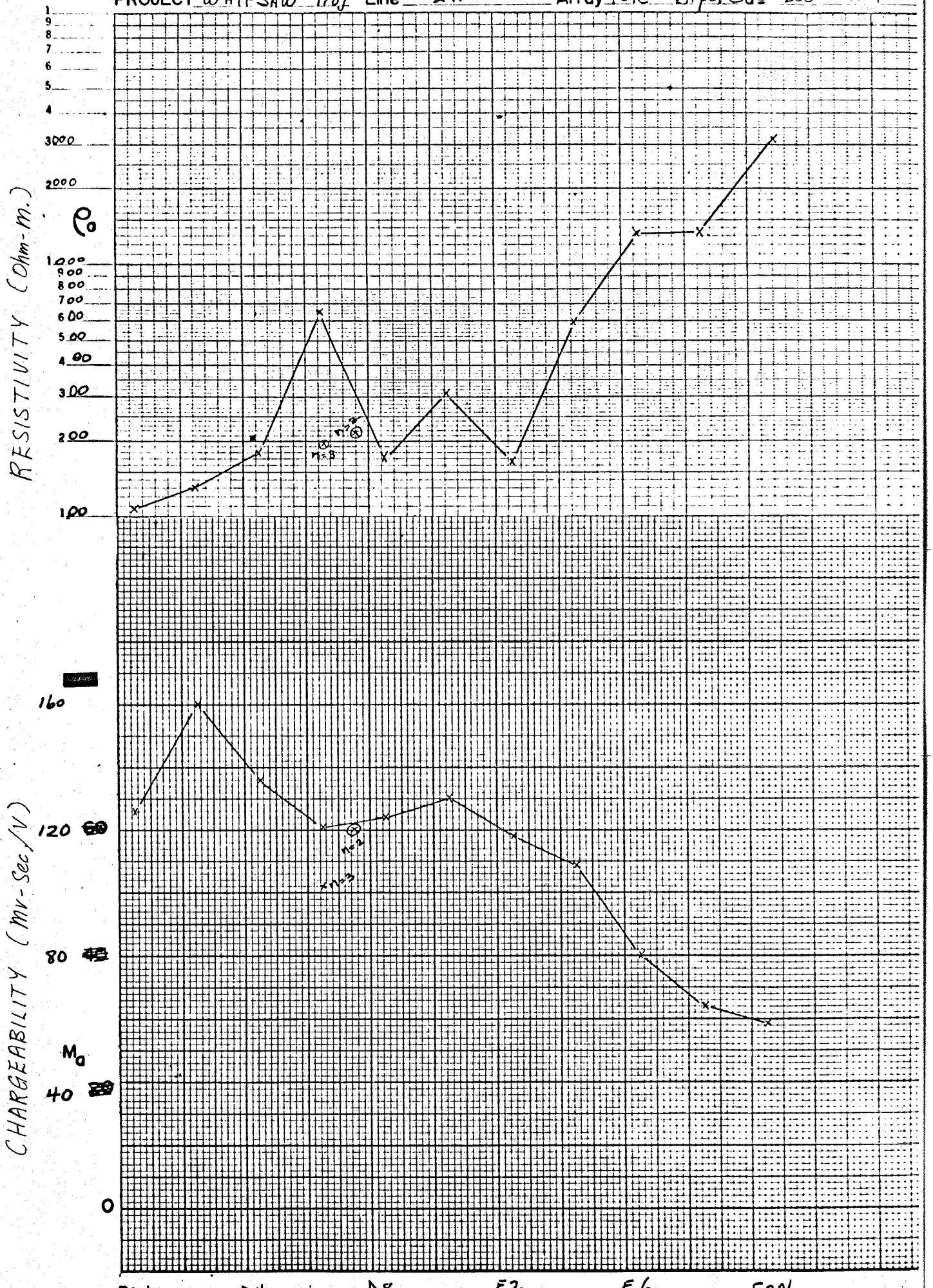
N.T.S. 92 H7 Sept. 30, 71

PROJECT WHIPSAW Property Line 2E Array Pole Dipole a = 200 n = 1



N.T.S. 92 H 7 Sept. 30, 71

PROJECT WHIPSAW Proj. Line 2W Array Pole - Dipole a= 200 n=1



N.T.S. 92 H 7

PROJECT WHIPSAW Proj Line 6 W Array Pole-Dipole a = 200 n = 1 Current Line Date Sept. 28/71 Operator G. Clark Equipment 250 Watt-TX

RESISTIVITY (Ohm-m.)

1
9
8
7
6
5
4
3000
2000
ρ_a
1000
900
800
700
600
500
400
300
200
100
200

n=4
n=3
n=2

CHARGEABILITY (mv-Sec./v)

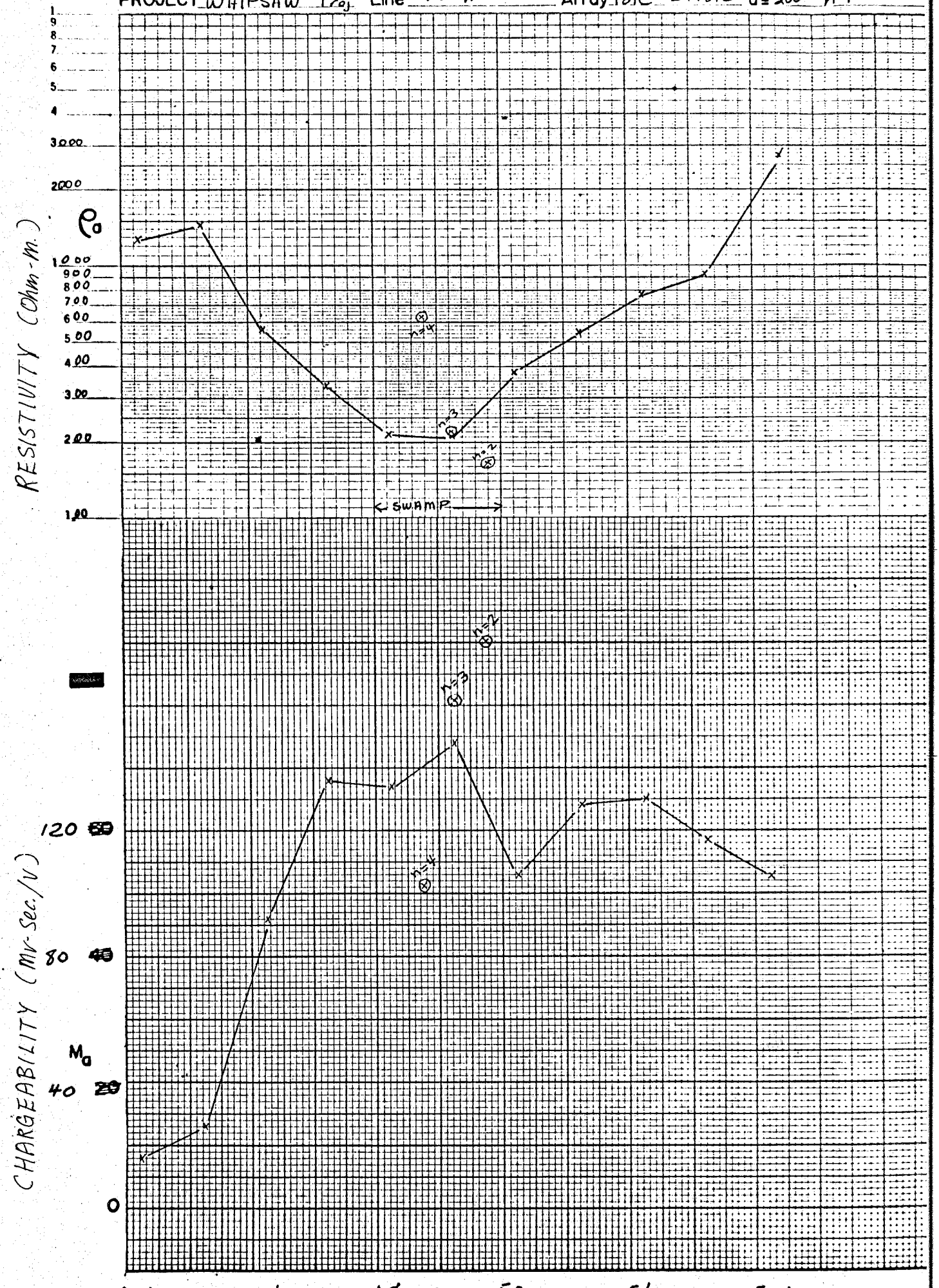
160
120
80
M_a
40
0

n=4
n=3
n=2

DON D4 D8 E2 E6 F0 F4 F8 G2 G6 H0 H4

N.T.S. 92 H 7 Sept. 30, 71

PROJECT WHIPSAW Proj. Line 10 W Array Pole - Dipole a = 200 n = 1

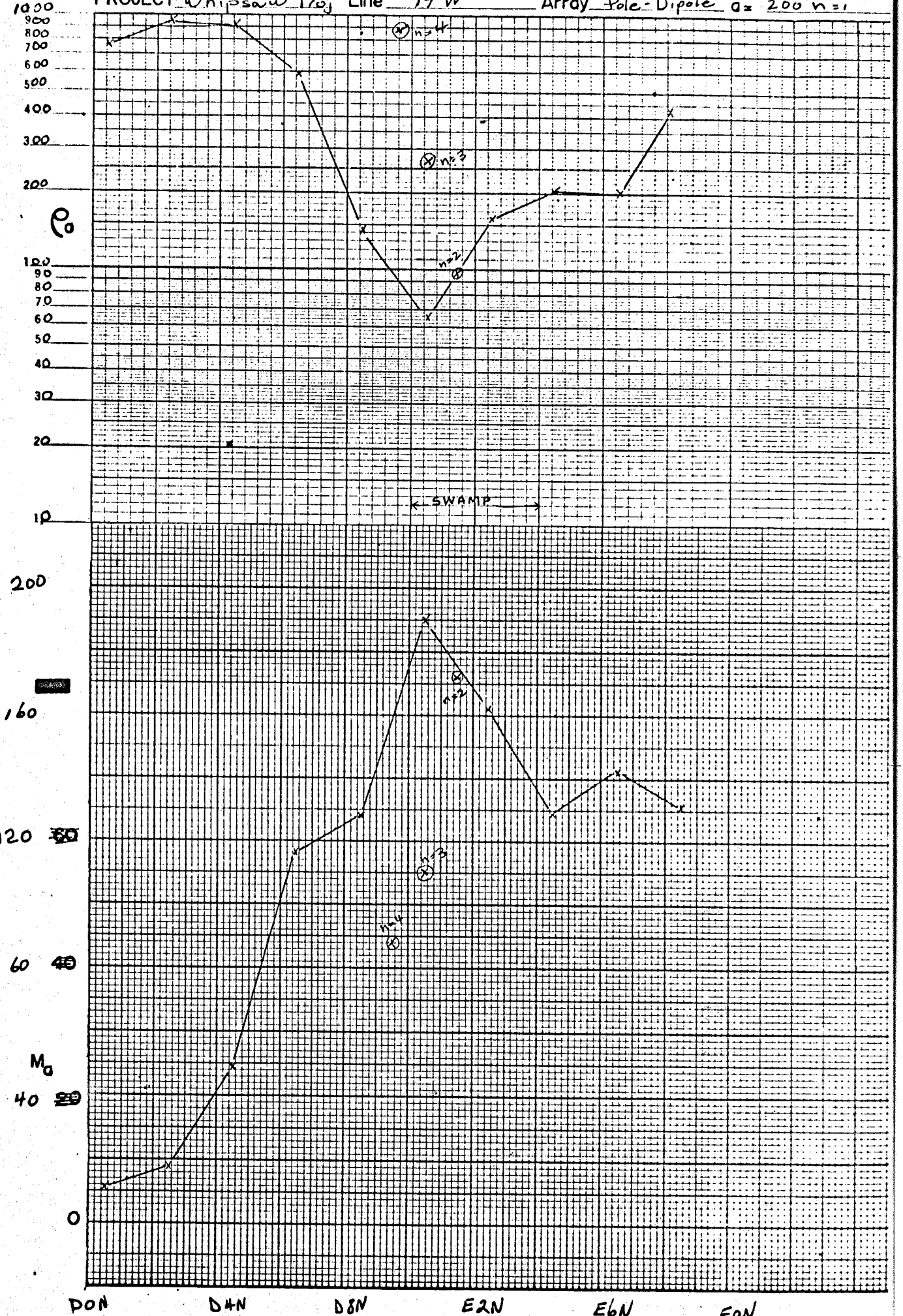


92 H 7

N.T.S.

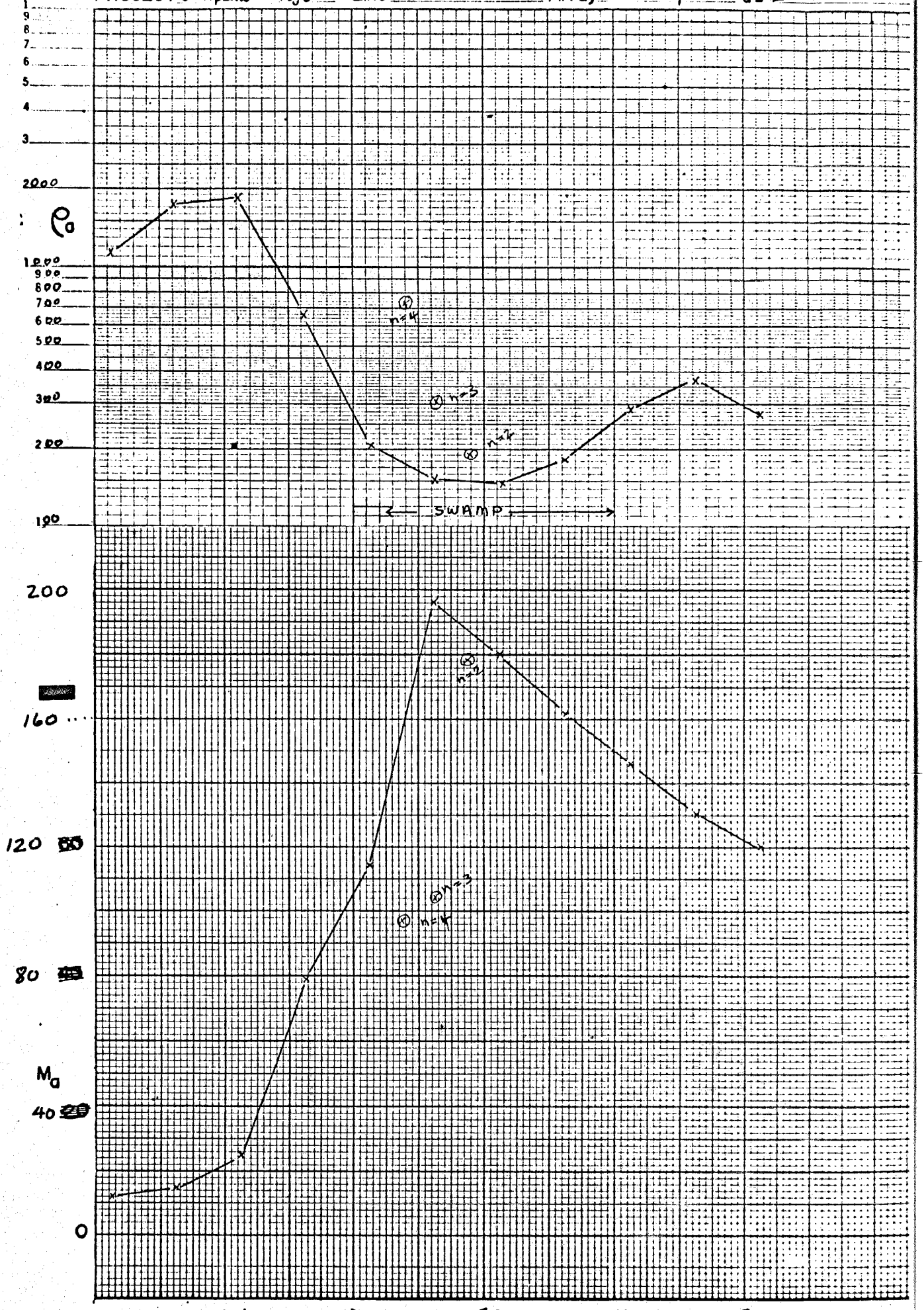
Sept. 27, 71

PROJECT Whipsaw Proj Line 14W Array Pole-Dipole a= 200 n=1



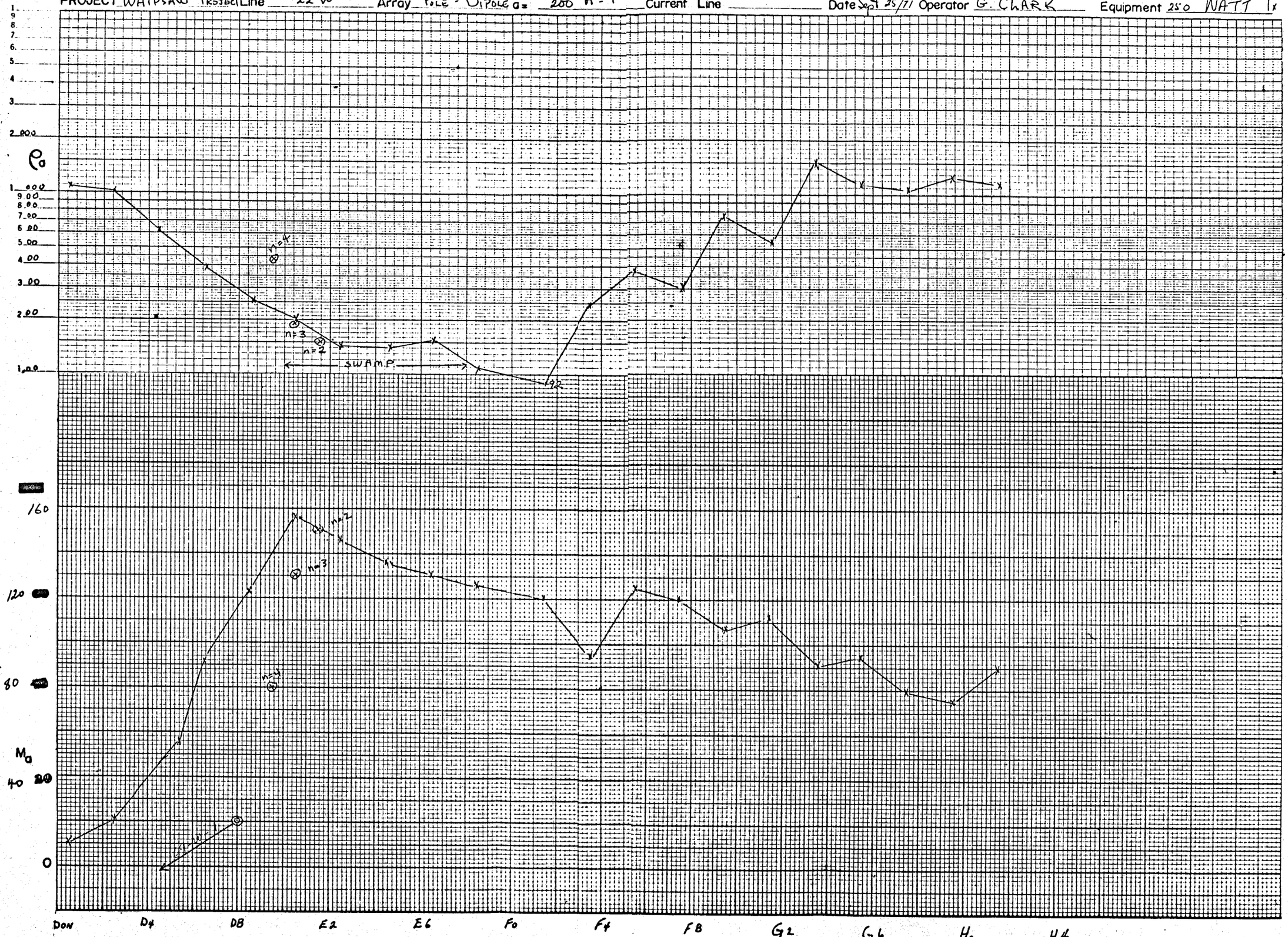
N.T.S. 92 H 7 Sept. 25, 71

PROJECT Whipsaw Project Line 18W Array Pole-Dipole a = 200 n = 1



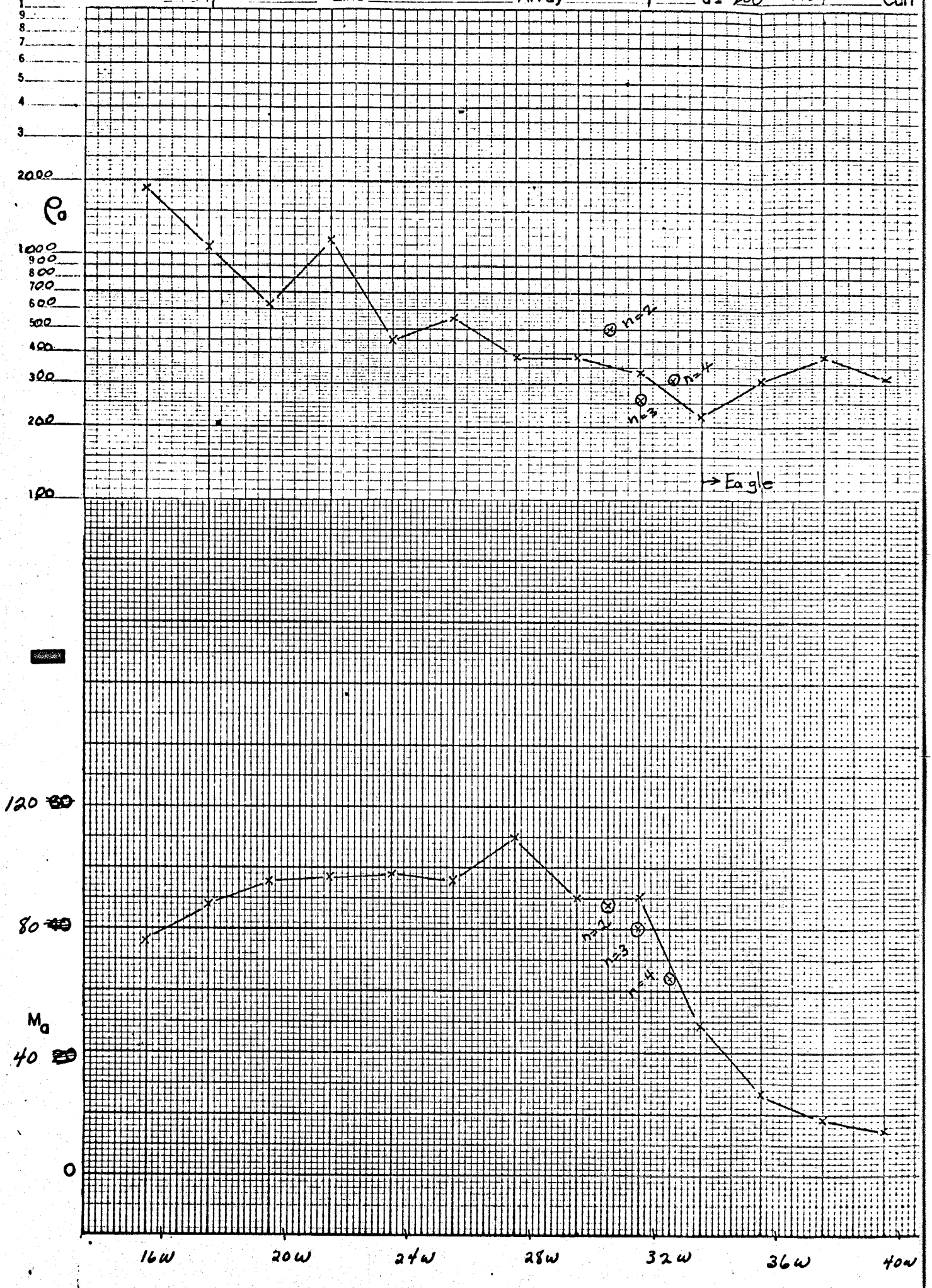
N.T.S. 92H7

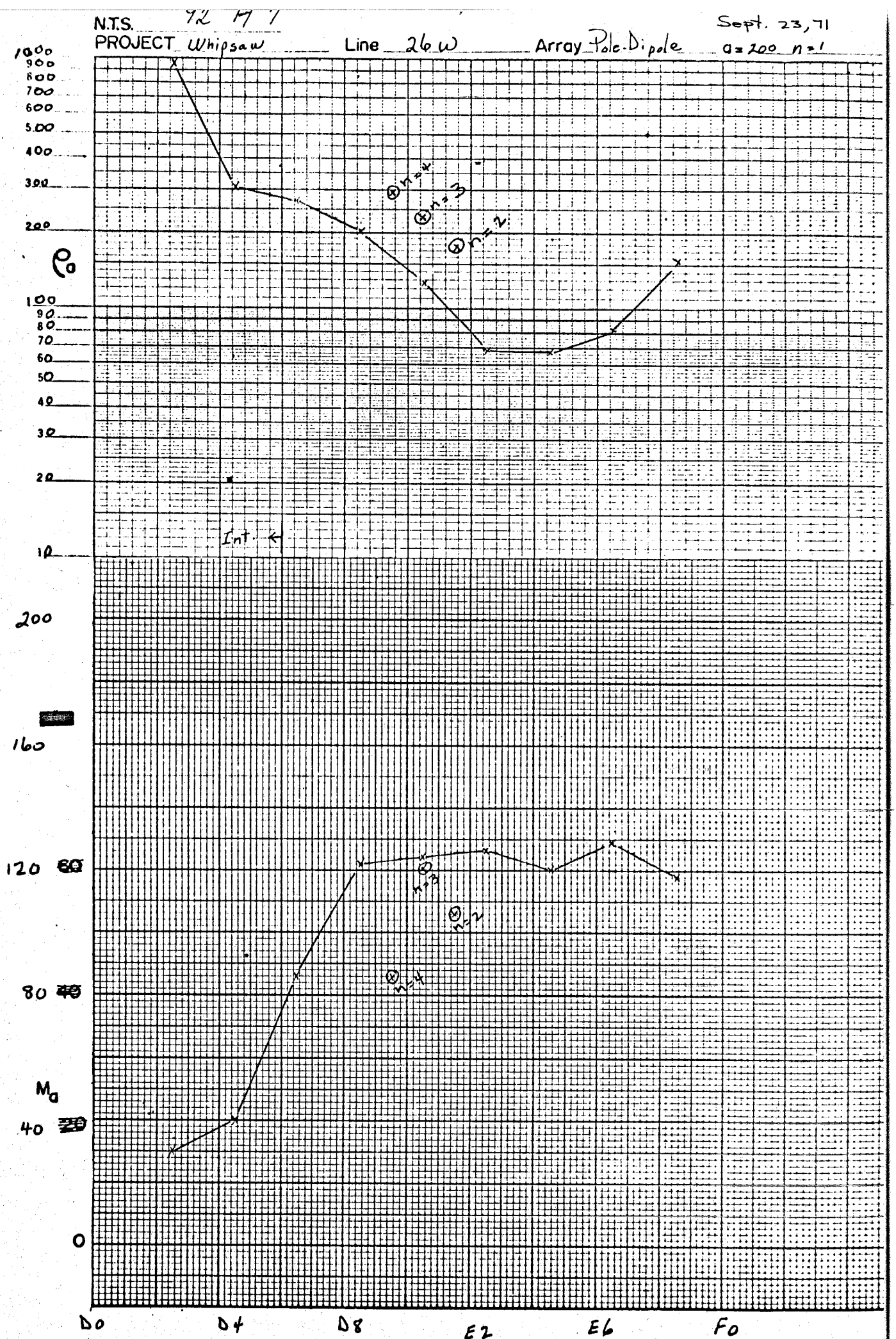
PROJECT WHIPSAW Project Line 22 W Array POLE - DIPOLE a = 200 h = 1 Current Line _____ Date Sept 25/71 Operator G. CHARK Equipment 250 WATT Tx



N.T.S. 1A 1/1

PROJECT Whipsaw Line G Array Pole Dipole Sept. 25, 71 a = 200 n = 1 Curr




N.T.S. 92 H 7
Sept. 23, 71
PROJECT Whipsaw
Line 26W
Array Pole-Dipole
a = 200 n = 1
1000
900
800
700
600
500
400
300
200
ρ_a
100
90
80
70
60
50
40
30
20
Int
10
200
160
120
80
40
M_a
40
20
0
n=4
n=3
n=2
n=3
n=2
n=4
D0
D4
D8
E2
E6
F0