RI-69027

2194

Assessment Report of Geophysical Survey (Induced Polarization) Work Done on Continental Cinch Mines Ltd. Property Done For Can West Investments Ltd.

By

H.S. Lahman

P. Hirst

21 July through 2 November 1969

H.S. Lahman — 12/3/69 Date

P. Hirst — Dec. 9, 1969 Date

Geoscience Incorporated
199 Bent Street
Cambridge, Mass. 02141

December 1969

P.S. Hirst Dec. 9, 1969

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I. INTRODUCTION

Geoscience Incorporated performed an Induced Polarization survey of the Continental Cinch Mines Limited property. This work was performed for Can West Investments Limited. The survey took from 21 July through 2 November, 1969. A total of 49.4 line miles of reconnaissance and 4.9 miles of detail surveying was performed.

The survey was conducted with standard frequency domain IP equipment. The current generator was a Geoscience model T2800 transmitter and the signal receiver was a Geoscience model 401 receiver. A dipole-dipole electrode array was employed throughout the survey. For reconnaissance work the dipole length was 400 ft. and dipole separations of 1 and 2 were employed. Detail work was done with both 400 ft. and 100 ft. dipoles at dipole separations of 1, 2, 3, and 4.

The terrain was fairly rugged and the weather was poor for much of the survey. This hampered field operations considerably.

II. DISCUSSION OF RECONNAISSANCE RESULTS

No strong anomalies were encountered on this property. There were several weak anomalies. In almost any area except the Highland Valley, the weak anomalies encountered would be considered merely fluctuations in background. However, since past experience in the Highland Valley indicates that weak IP anomalies can be indicative of ore grade mineralization, these anomalies must be considered.

Enclosed with this report are two maps which show the apparent frequency effect and the metal conduction factor respectively. The wide range of values for the metal conduction factor primarily reflects variations in resistivity. There appear to be at least two distinct geologic units in the area. To the north and east in the area is a relatively low resistivity unit (less than 150 ohm-meters) while the western portion represents a more resistive unit (several hundred ohm-meters). In general the contour of MCF=10 probably closely follows the contact between these two geologic units.

There are four types of anomaly found on the property. These are, in order of probable decreasing significance: anomalies where both frequency effect and metal factor increase; anomalies where the frequency effect increases and the metal factor remains the same; anomalies of increased frequency effect and sharply decreased resistivity; and zones of increased frequency effect and sharply increased resistivity. There are several of each type of anomaly, as listed in Table I. For purposes of discussion only a few of the stronger examples are discussed.

There are two anomalies of the first type. They are both quite small in areal extent. The first is on line 56S at station 12E and the second is on line 32S in the vicinity of station 18E. Though these anomalies are quite small; they have the characteristic form of IP effects due to mineralized zones.

The second type is encountered on lines 36N and 4N at stations 8W to 16W. In this case the frequency effect has increased slightly while the metal factor has remained the same. The metal factor remains the same because the resistivity of the rock has increased slightly. In the case of low grade disseminated mineralization, this may not be significant, but if the target were massive metallic mineralization it would be a bad indication.

There are three anomalies of the third group. These all involve striking metal factor anomalies which are due to very low resistivities. The very low resistivities may have introduced electromagnetic coupling between transmitter and receiver. The effect of such coupling would be to increase the apparent frequency effect. Thus the small frequency effect anomalies may be due solely to measurement problems. Until these lines are checked with shorter dipoles or lower frequencies we cannot be sure whether these anomalies reflect geologic factors. These anomalies are found on line 84S at stations 8E and 16E, line 76S at stations 22-26E, and on lines 52S and 48S at station 12E.

The fourth type of anomaly occurs on lines 00 at 8W to 16W, 2E, and 20E and line 8N at 5E. They are characterized by increased frequency effect concurrent with sharply increased resistivity. This normally reflects a sharp decrease in porosity of the rock. In such cases a very small amount of mineralization can produce significant IP effects due to the substantially reduced number of pore passages. Such anomalies are rarely indicative of significant mineralization.

III. DISCUSSION OF DETAIL RESULTS

Detailed results were obtained with 400 ft. dipoles at dipole separations of 1, 2, 3, and 4 on lines 8N, 4N, 00, and 32S. The electrodes employed on these detail lines were offset by 200 ft. from the original reconnaissance electrode locations. In addition, some detail work was done with 100 ft. dipoles (dipole separations of 1, 2, 3, and 4) on lines 28S, 32S, and 36S. The detail work which was done was scheduled immediately after the northern portion of the grid was finished. Since the southern grid lines had not been done by reconnaissance at that time, it was impossible to schedule additional detail work for these lines.

The detail work done agrees quite well with the reconnaissance results. The one exception in this regard occurred on line 00 where the reconnaissance data yielded on isolated apparent frequency effect of 4.2%. The detail work in this area showed a slight frequency effect anomaly, but nothing on the order of 4.2%. The trace anomaly encountered in the detail work suggests that the reconnaissance electrodes were placed in a fortuitous position relative to a small, near-surface feature. This resulted in the large isolated reading in the reconnaissance data. In all other instances the detail work confirmed the existence and character of anomalies indicated by the reconnaissance data.

APPENDIX I

Line-by-Line Induced Polarization Results

INDUCED POLARIZATION SURVEY

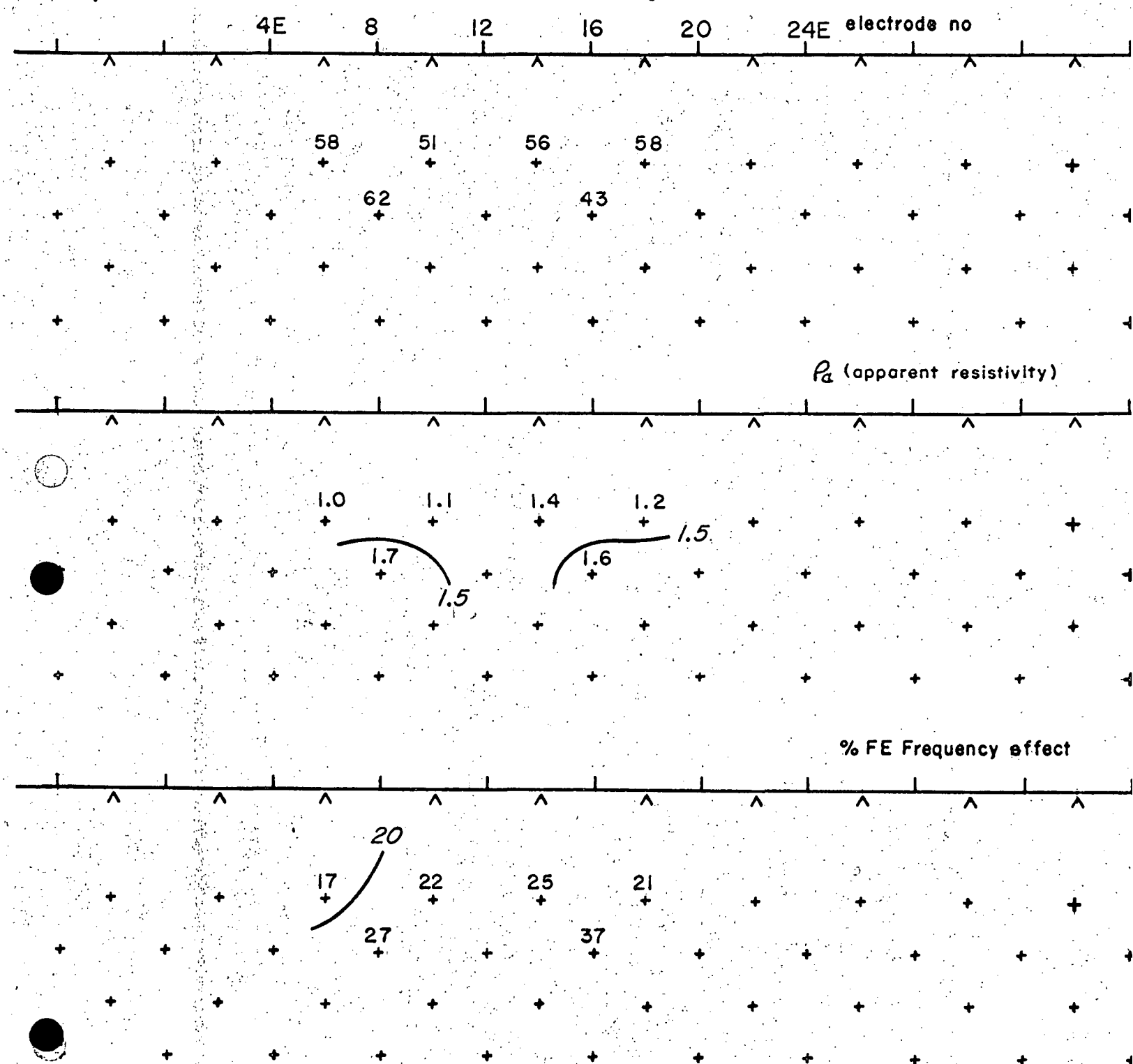
Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

date OCT. '69

line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 400'
operators

location B. C, CANADA
map ref.
line no. 84S
bearing



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SML FLD WORKSHEET

INDUCED POLARIZATION SURVEY

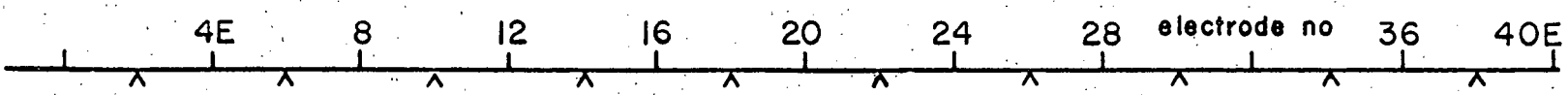
Geoscience Incorporated

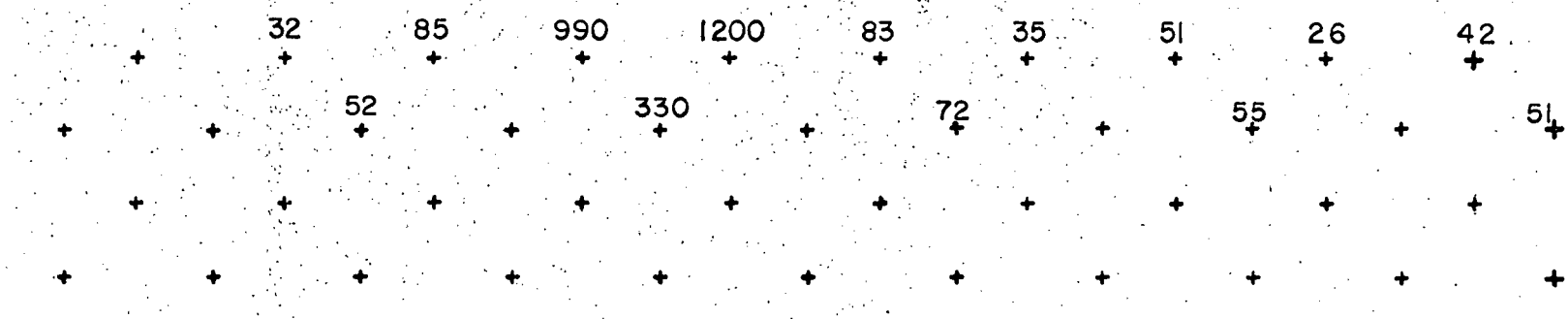
199 BENT STREET, CAMBRIDGE, MASS, 02141

date OCT. '69

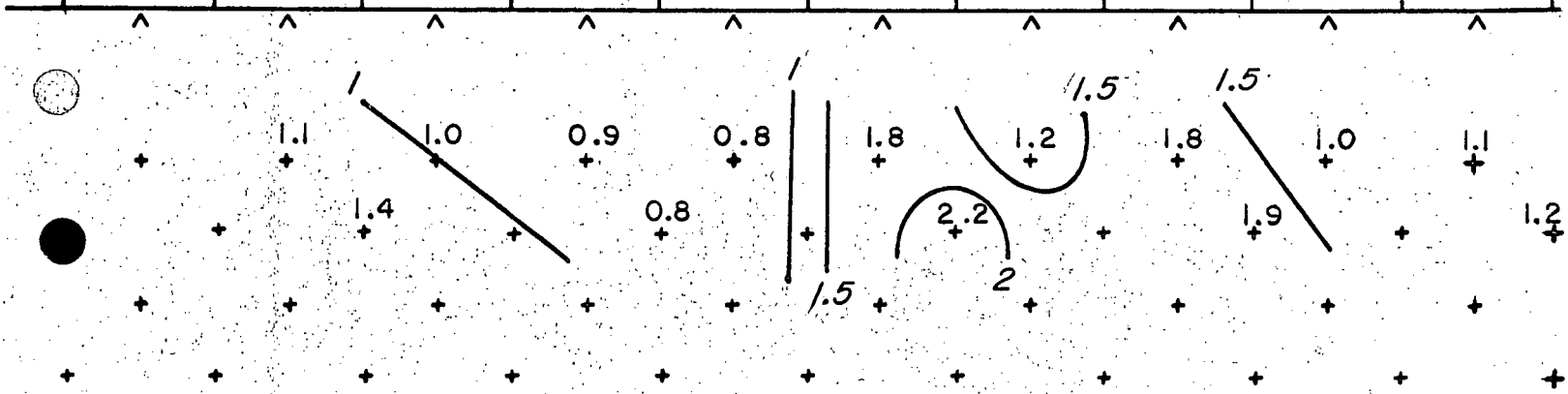
line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 76 S
bearing

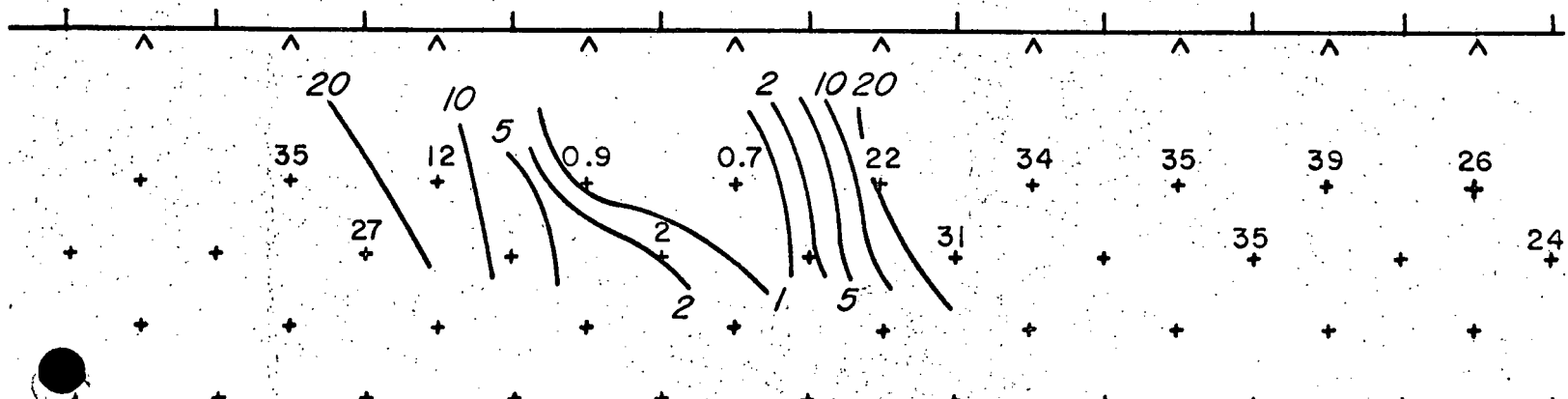




ρ_a (apparent resistivity)



% FE Frequency effect



$(M.F.)_a$ Metal Factor

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INDUCED POLARIZATION SURVEY

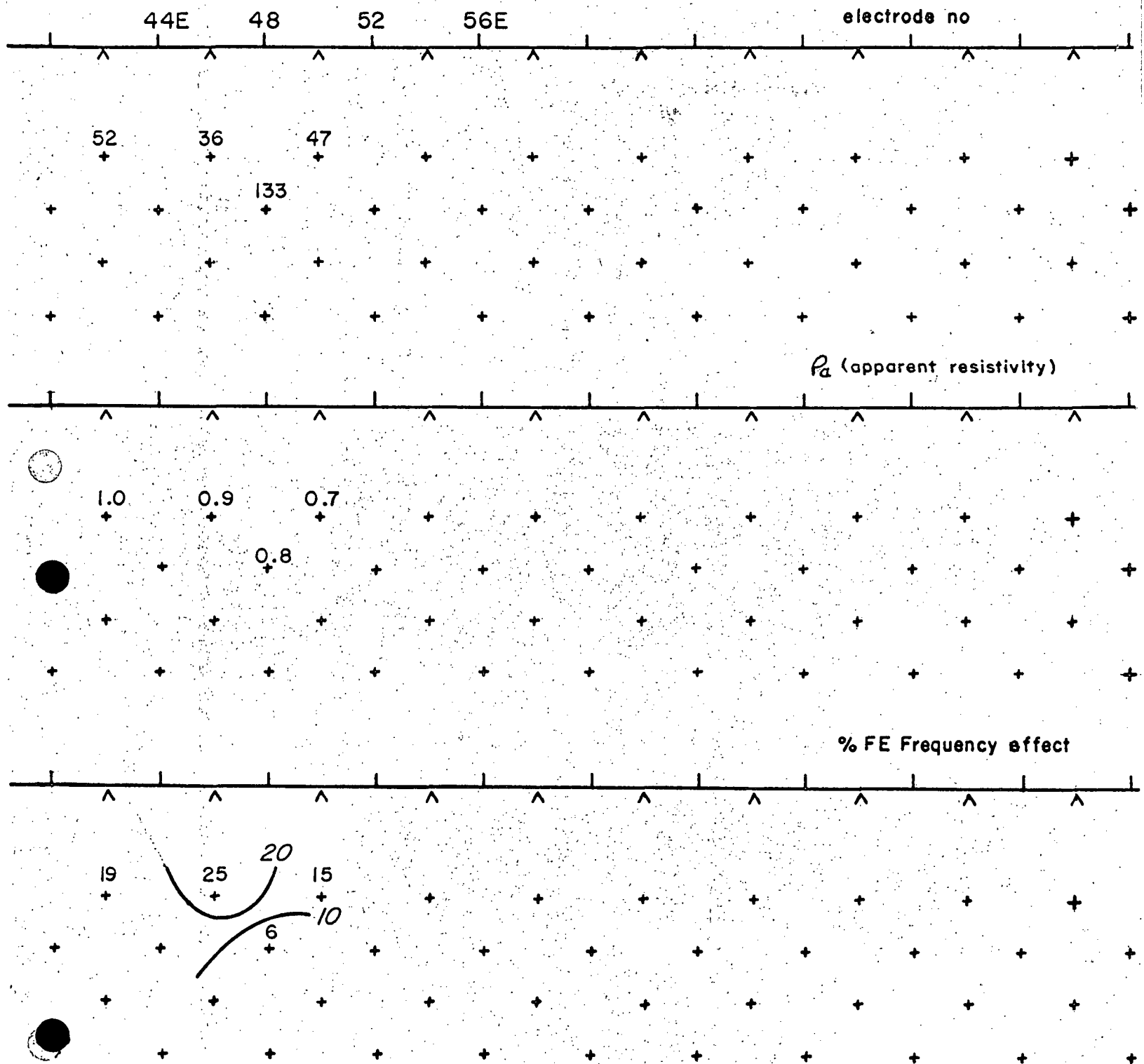
Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

date OCT. '69

line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 400'
operators

location B. C. CANADA
map ref.
line no. 76 S
bearing



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SML FLD WORKSHEET

INDUCED POLARIZATION SURVEY

Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 68 S
bearing

date OCT. '69

4E 8 12 16 20 24 28 electrode no 36 40E

32 22 130 64 60 29 54 37 75
30 80 39 31 50

ρ_a (apparent resistivity)

1.5 1.5
1.0 1.0 1.1 1.7 1.5 1.3 1.2 1.0 1.0
1.3 1.9 1.8 1.2 1.2

% FE Frequency effect

10 20 20
31 46 8 27 25 45 22 27 13
43 24 46 39 24

$(M.F.)_a$ Metal Factor

continued from sheet ____ on sheet ____

SML FLD WORKSHEET

INDUCED POLARIZATION SURVEY

Geoscience Incorporated

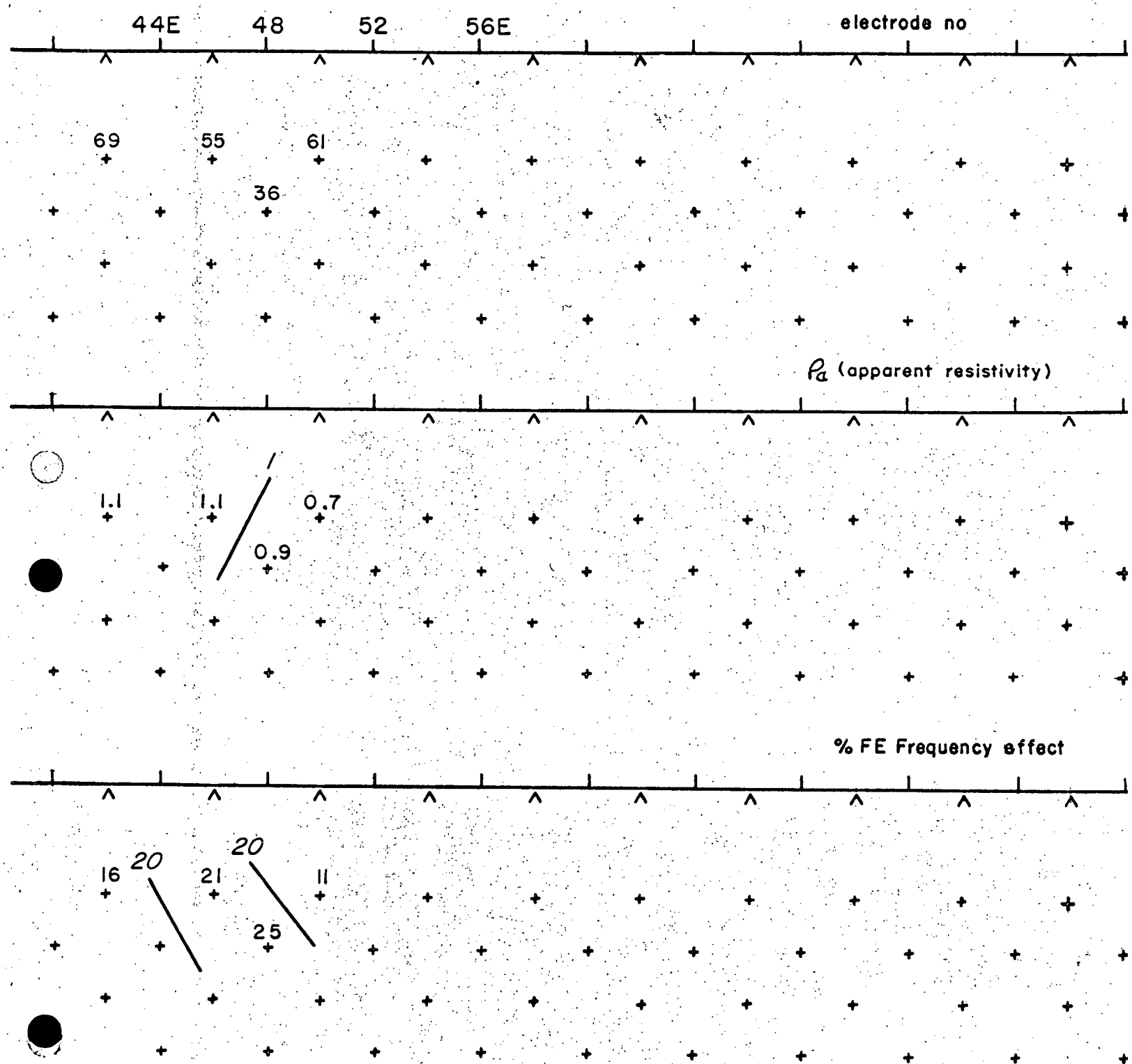
199 BENT STREET, CAMBRIDGE, MASS, 02141

line location CONTINENTAL CINCH — location B. C. CANADA — date OCT. '69

frequencies 3 & .3 cps — map ref.

dipole length 400' — line no. 68 S

operators — bearing



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INDUCED POLARIZATION SURVEY

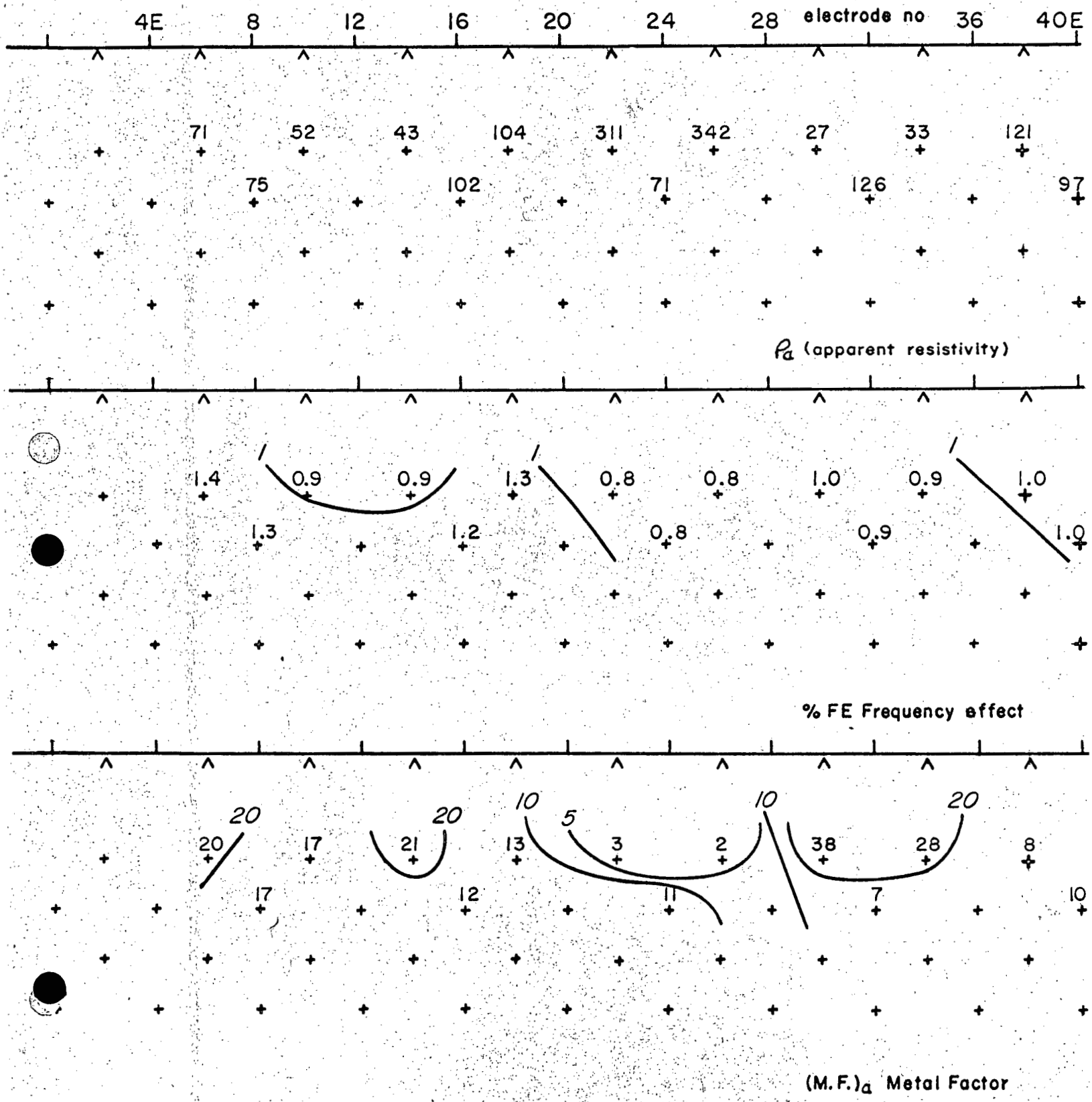
Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

date OCT. '69

line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 60S
bearing



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INDUCED POLARIZATION SURVEY

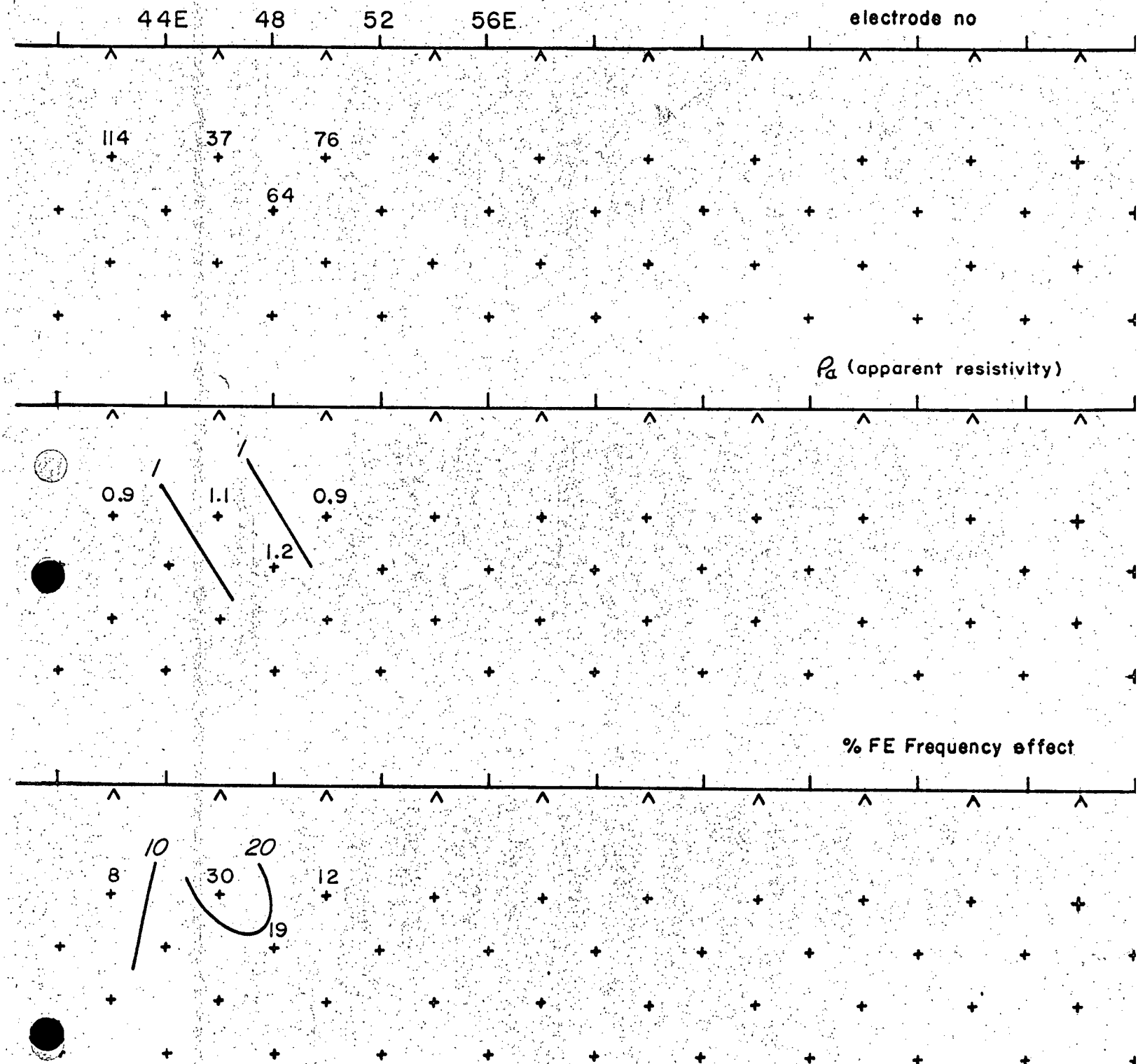
Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 60 S
bearing

date OCT. '69



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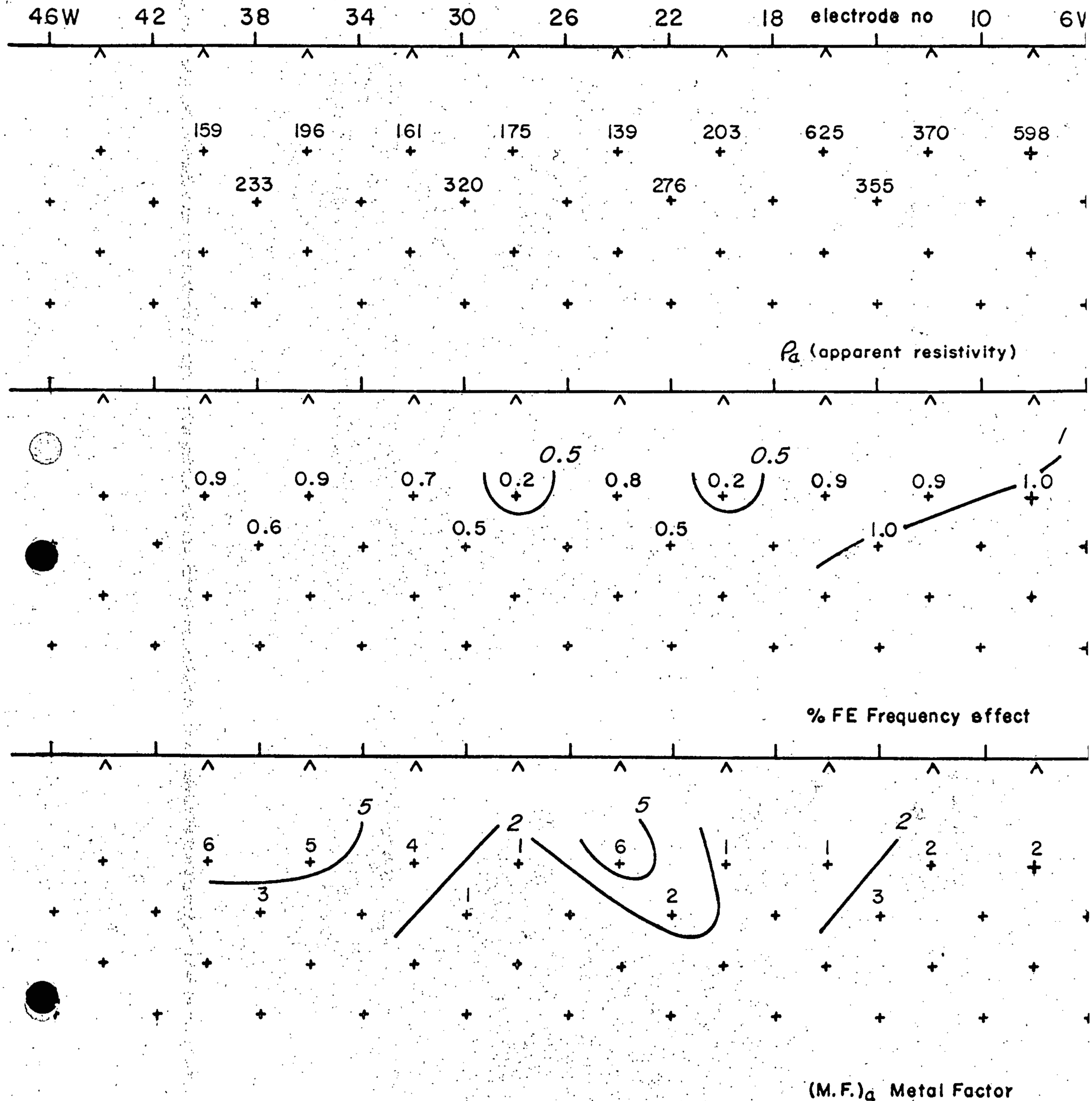
INDUCED POLARIZATION SURVEY

Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

date SEPT. '69

line location CONTINENTAL CINCH
location B.C. CANADA
frequencies 3 & .3 cps
map ref.
dipole length 400'
line no. 52 S
operators
bearing



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INDUCED POLARIZATION SURVEY

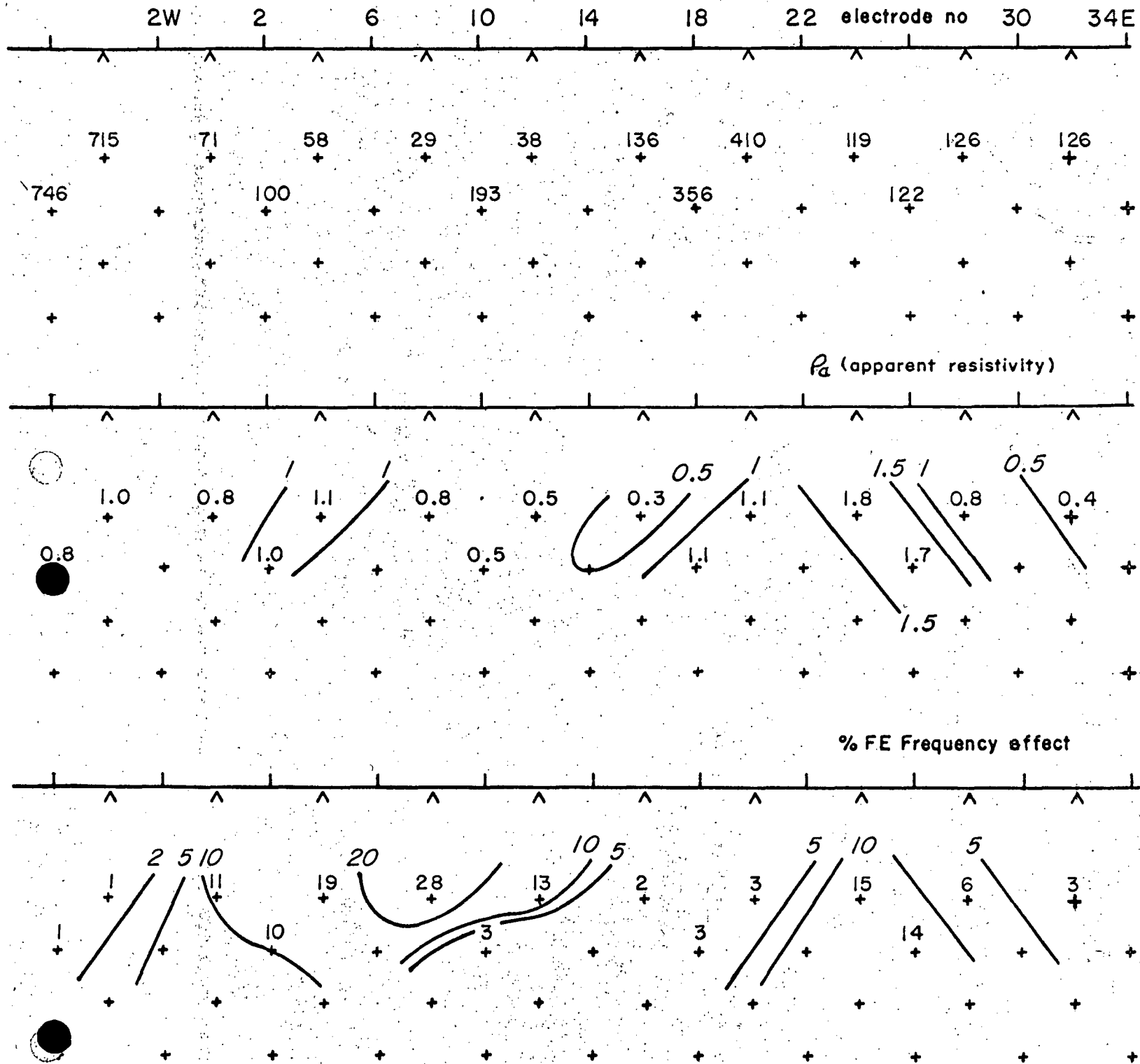
Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

date SEPT. '69

line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 52S
bearing



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INDUCED POLARIZATION SURVEY

Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

date SEPT. '69

line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 52S
bearing

38E 42 46 50 54 58E electrode no

66 73 104 160 113
124 28 68

ρ_a (apparent resistivity)

1.0 0.9 0.4 0.6 0.4
1.2 0.9 0.9
1 0.5 0.5

% FE Frequency effect

15 12 4 4 4
10 32 13
20 10
10 5

$(M.F.)_a$ Metal Factor

continued from sheet ____ on sheet ____

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INDUCED POLARIZATION SURVEY

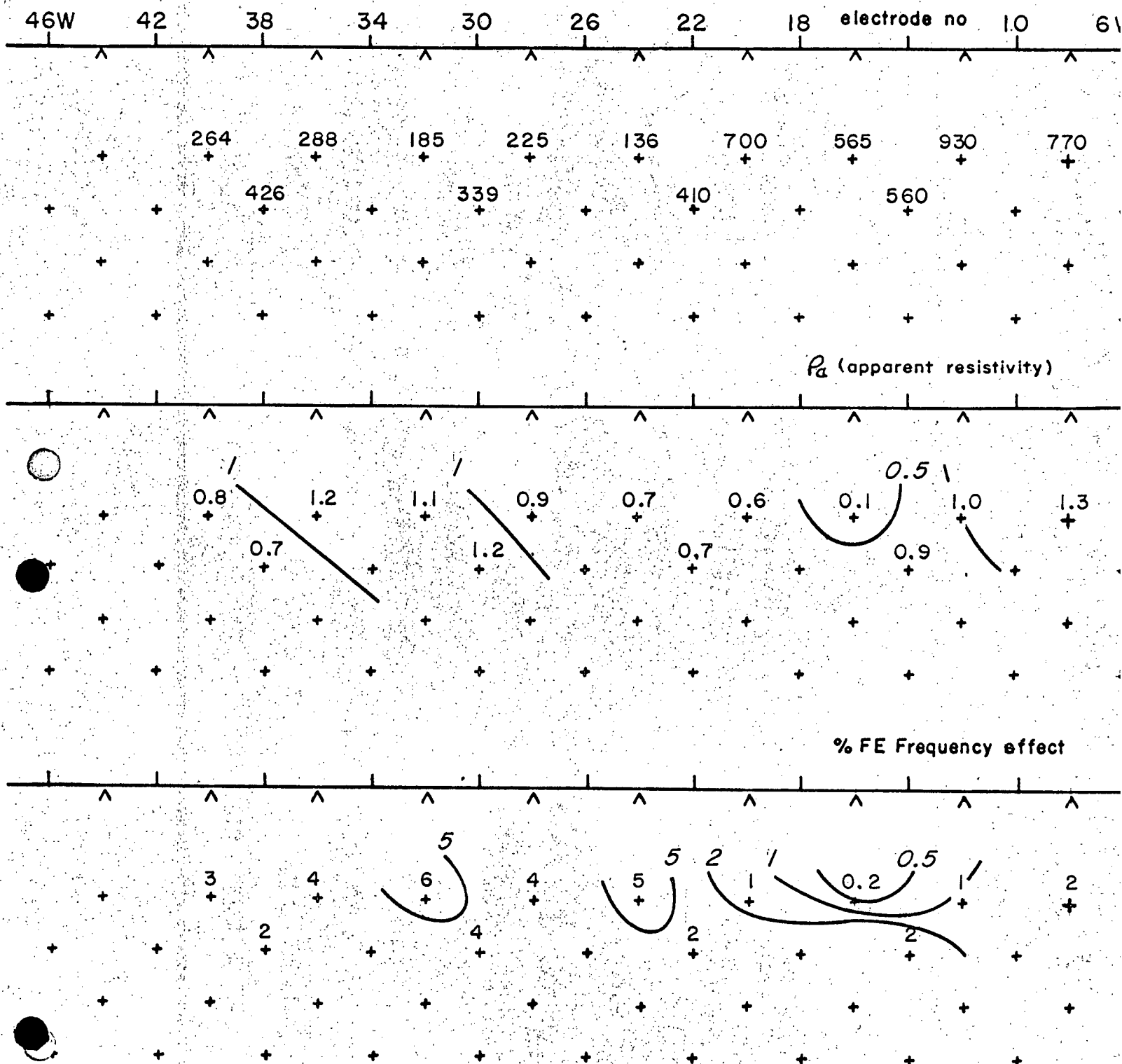
Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

date SEPT. '69

line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 48S
bearing



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INDUCED POLARIZATION SURVEY

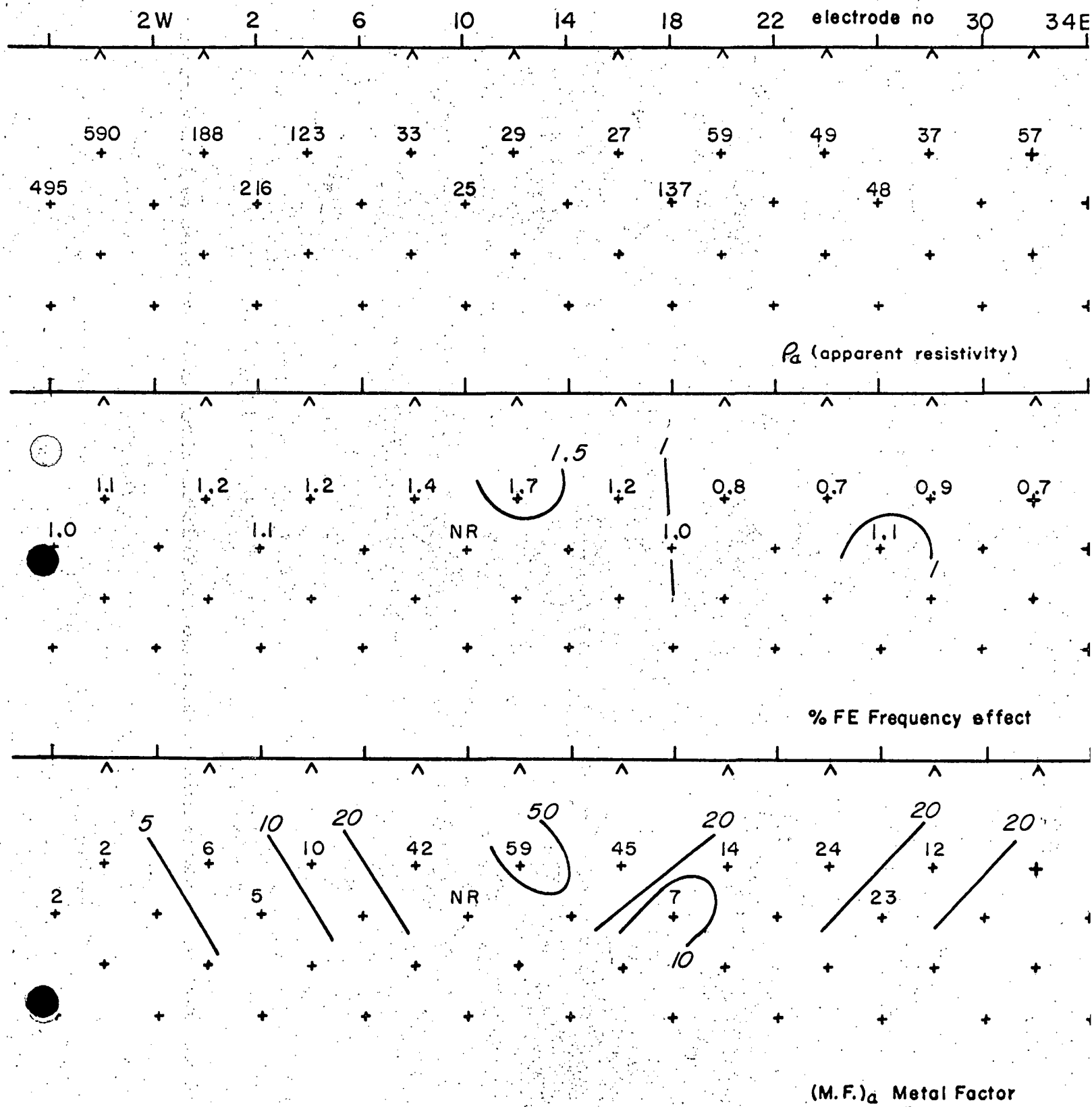
Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

date SEPT. '69

line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 48S
bearing



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SML FLD WORKSHEET

INDUCED POLARIZATION SURVEY

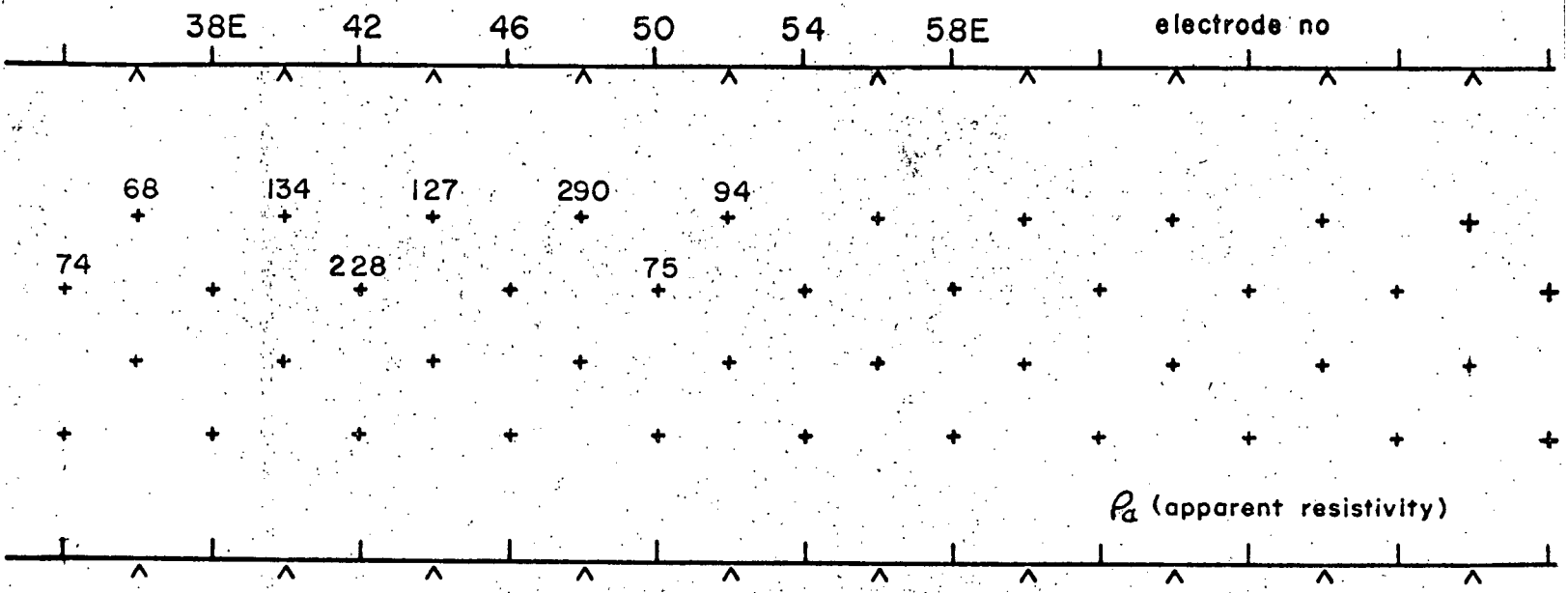
Geoscience Incorporated

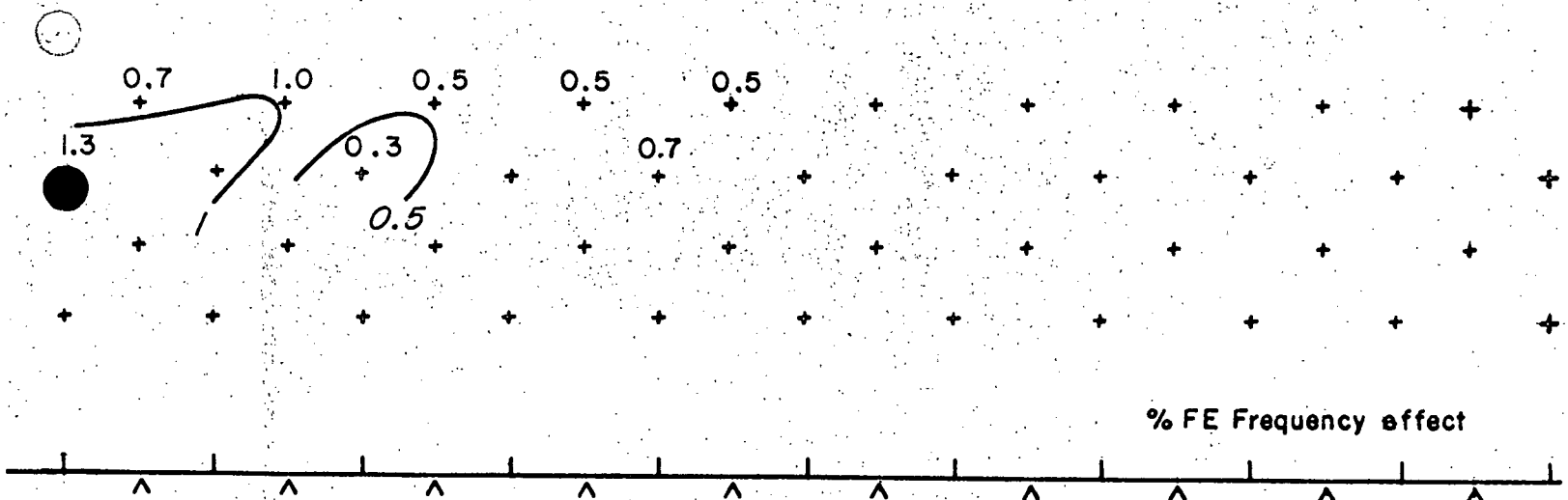
199 BENT STREET, CAMBRIDGE, MASS, 02141

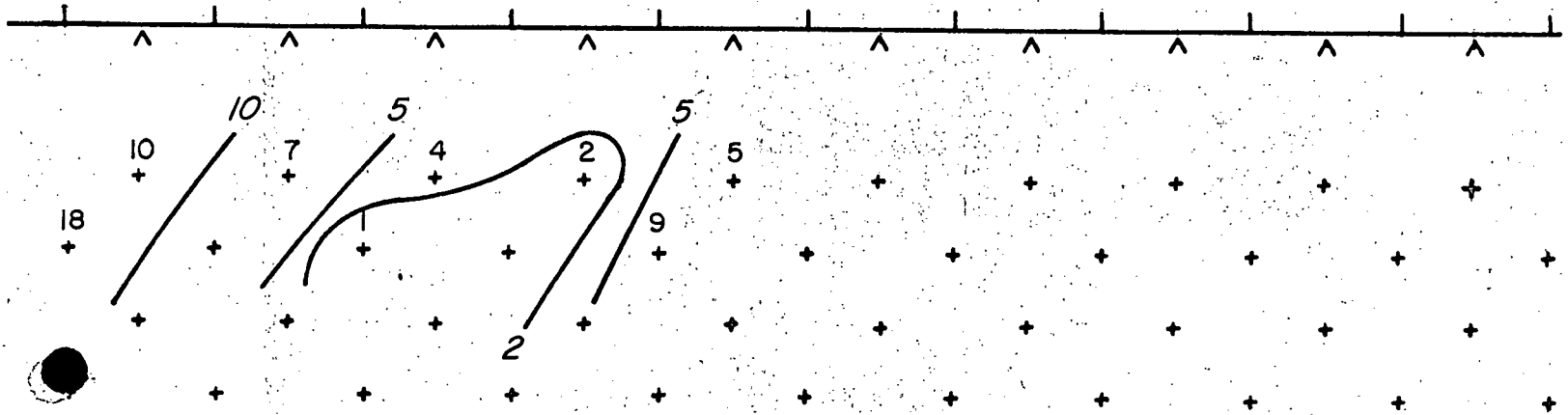
date SEPT. '69

line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 48 S
bearing







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INDUCED POLARIZATION SURVEY

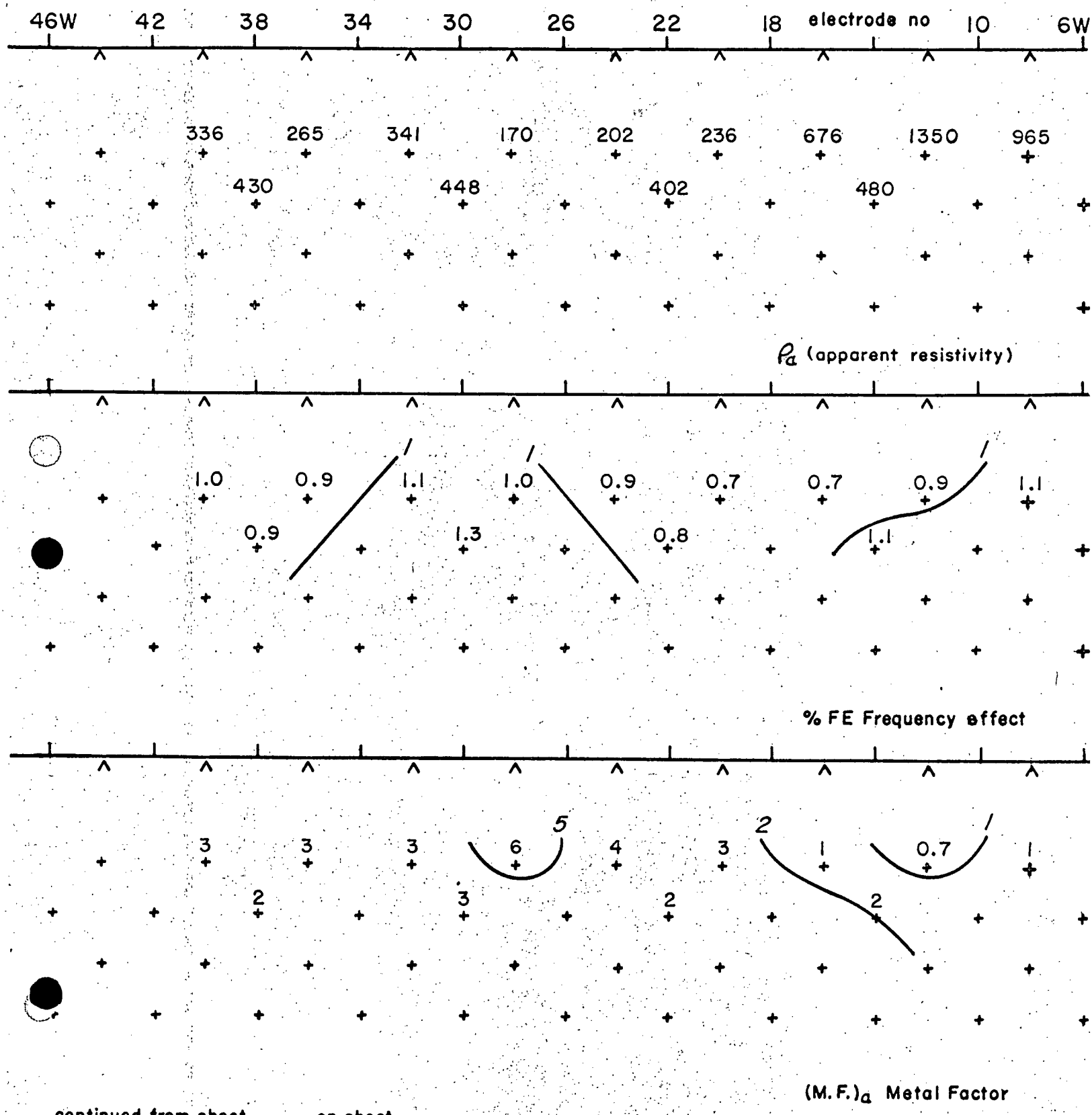
Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

date SEPT. '69

line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 44S
bearing



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SML FLD WORKSHEET

INDUCED POLARIZATION SURVEY

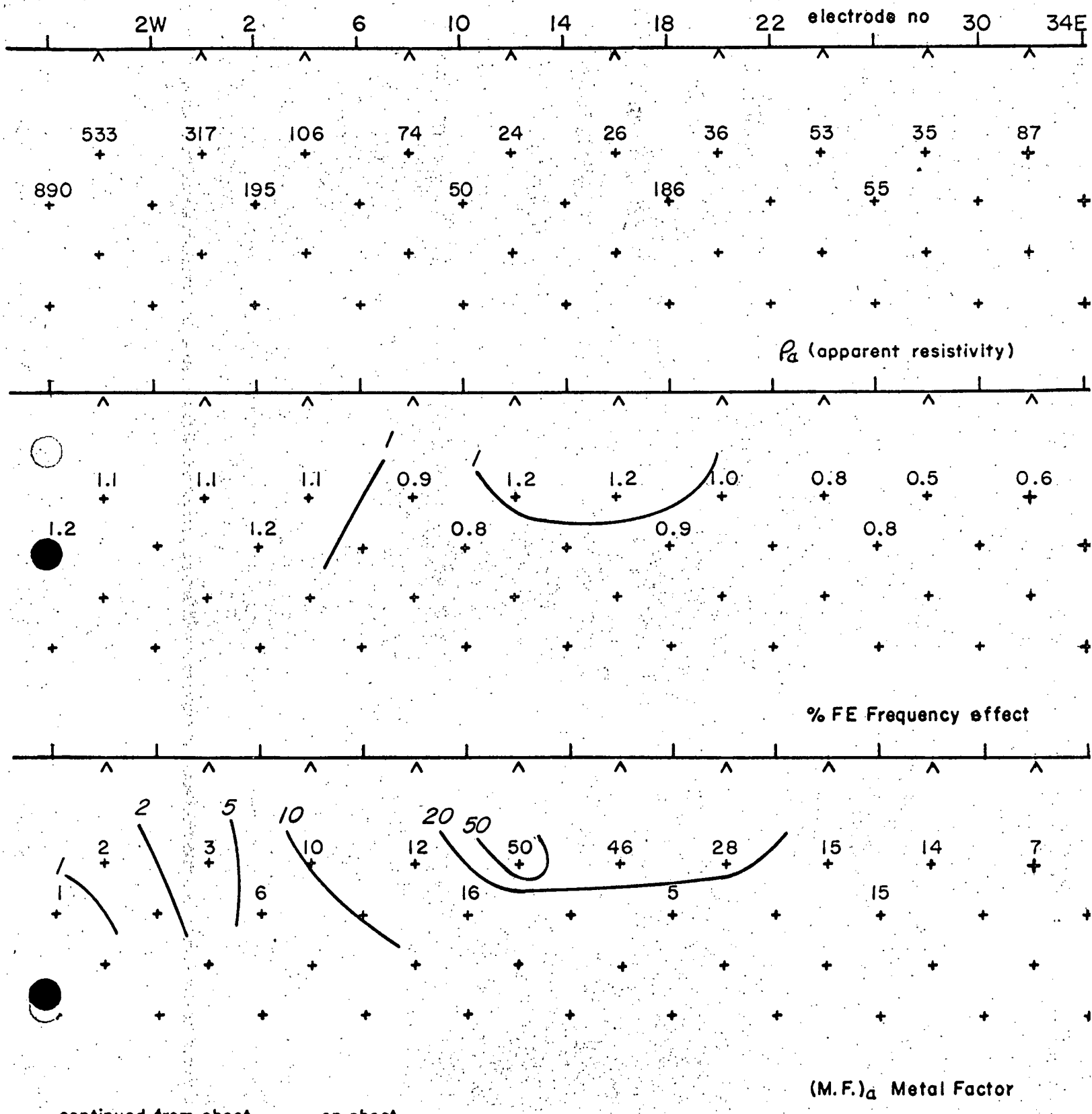
Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

date SEPT. '69

line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 44 S
bearing



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FIELD WORKSHEET

INDUCED POLARIZATION SURVEY

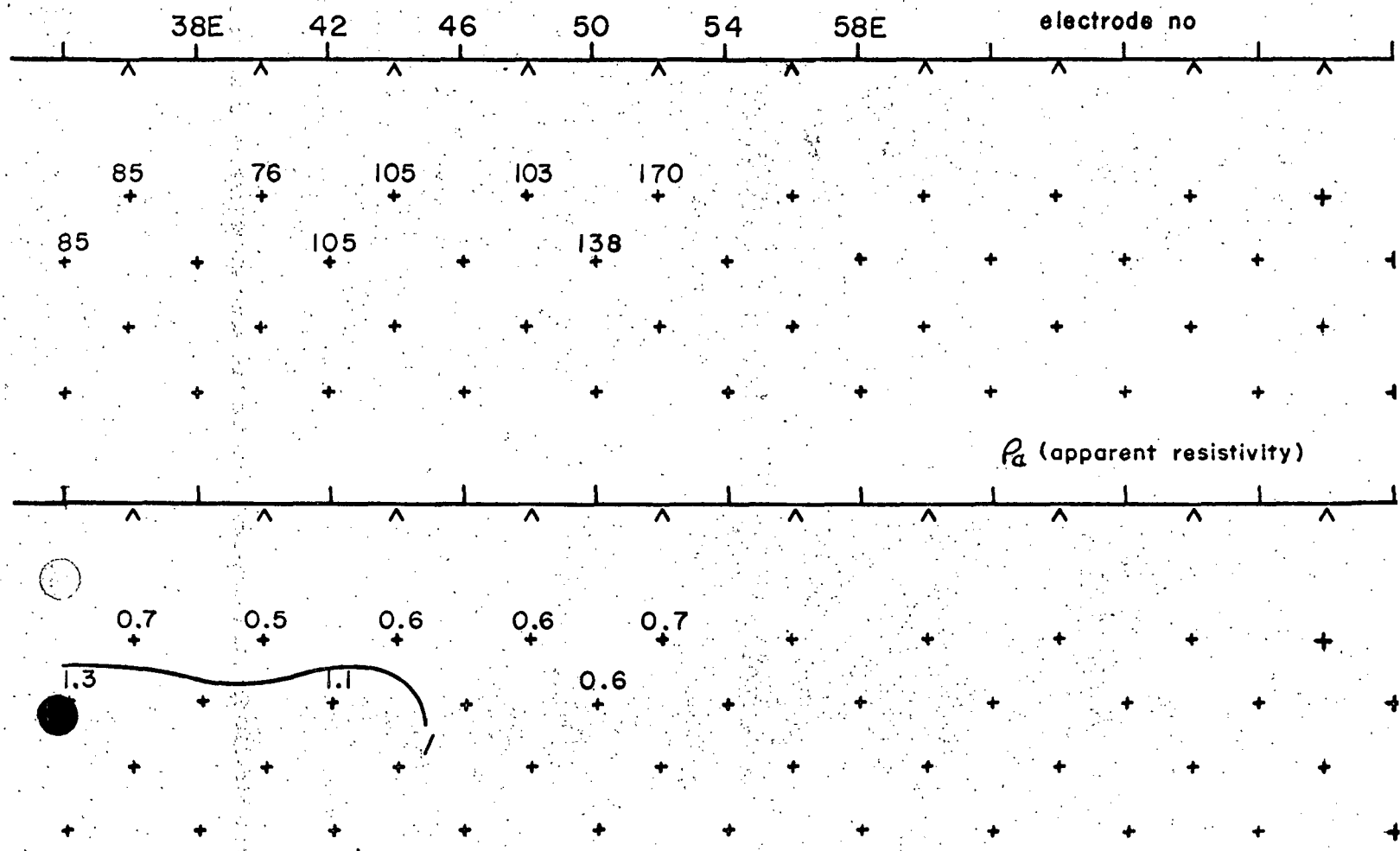
Geoscience Incorporated

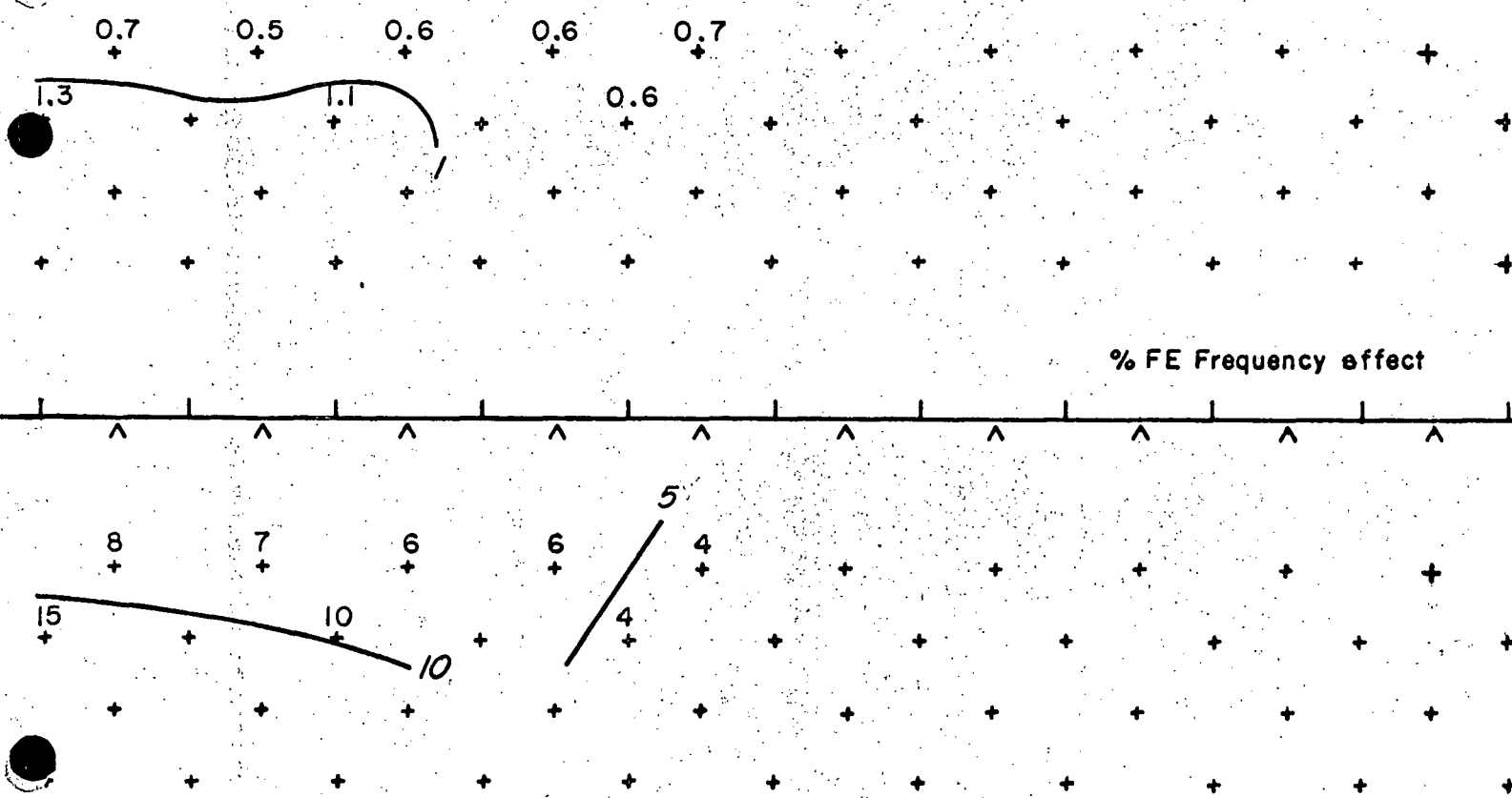
199 BENT STREET, CAMBRIDGE, MASS, 02141

date SEPT. '69

line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 44 S
bearing





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SML FLD WORKSHEET

INDUCED POLARIZATION SURVEY

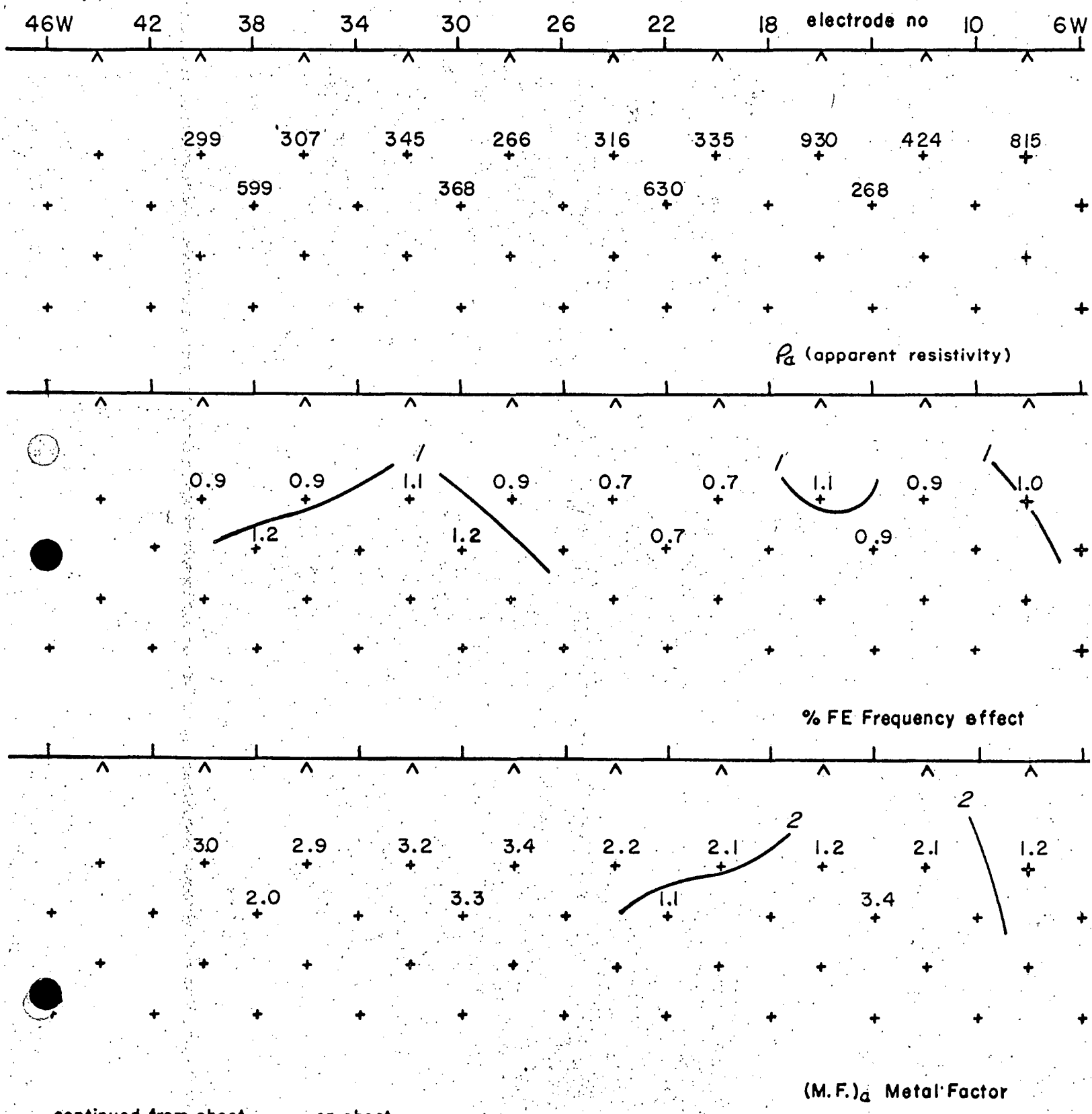
Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

date SEPT. '69

line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 40S
bearing



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SMI: FLD WORKSHEET

INDUCED POLARIZATION SURVEY

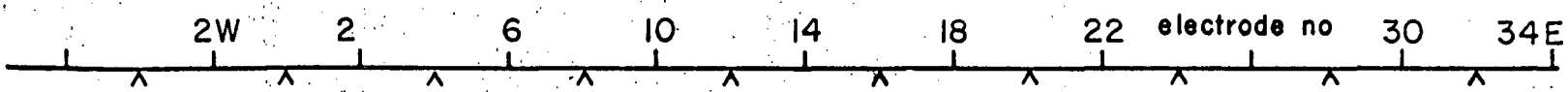
Geoscience Incorporated

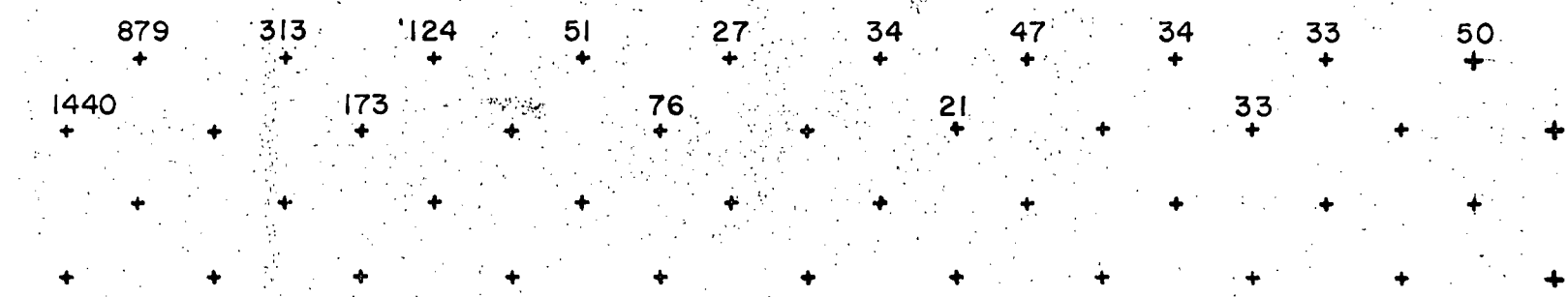
199 BENT STREET, CAMBRIDGE, MASS, 02141

line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 400'
operators

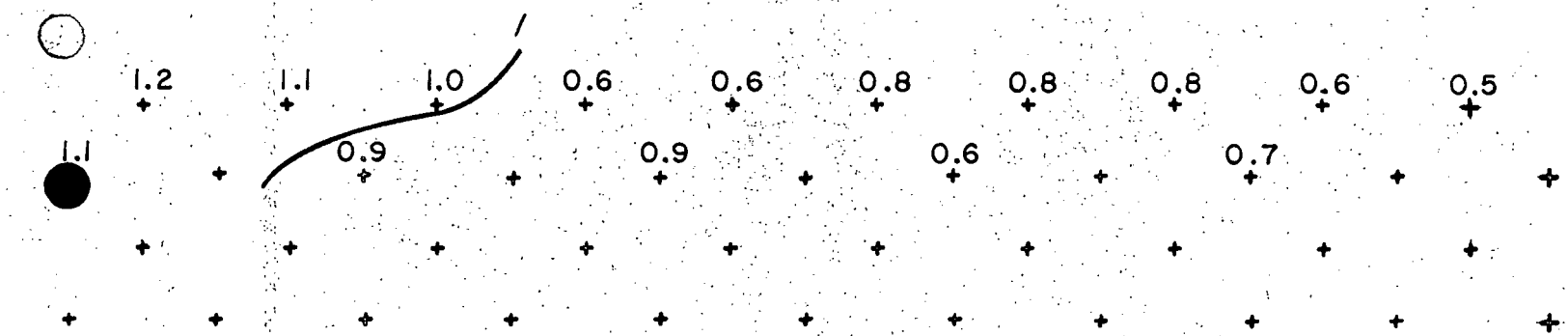
location B. C. CANADA
map ref.
line no. 40 S
bearing

date SEPT. '69

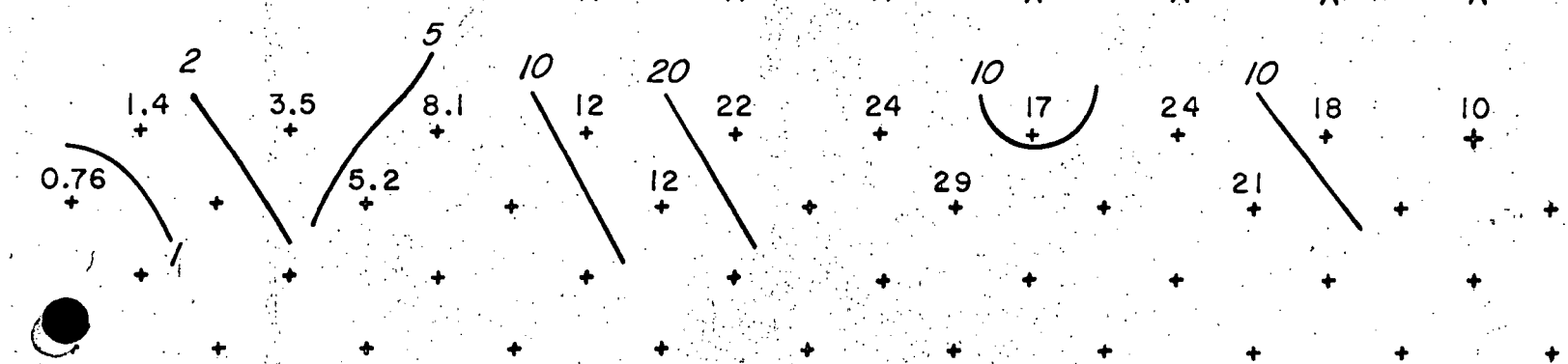




ρ_a (apparent resistivity)



% FE Frequency effect



$(M.F.)_a$ Metal Factor

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INDUCED POLARIZATION SURVEY

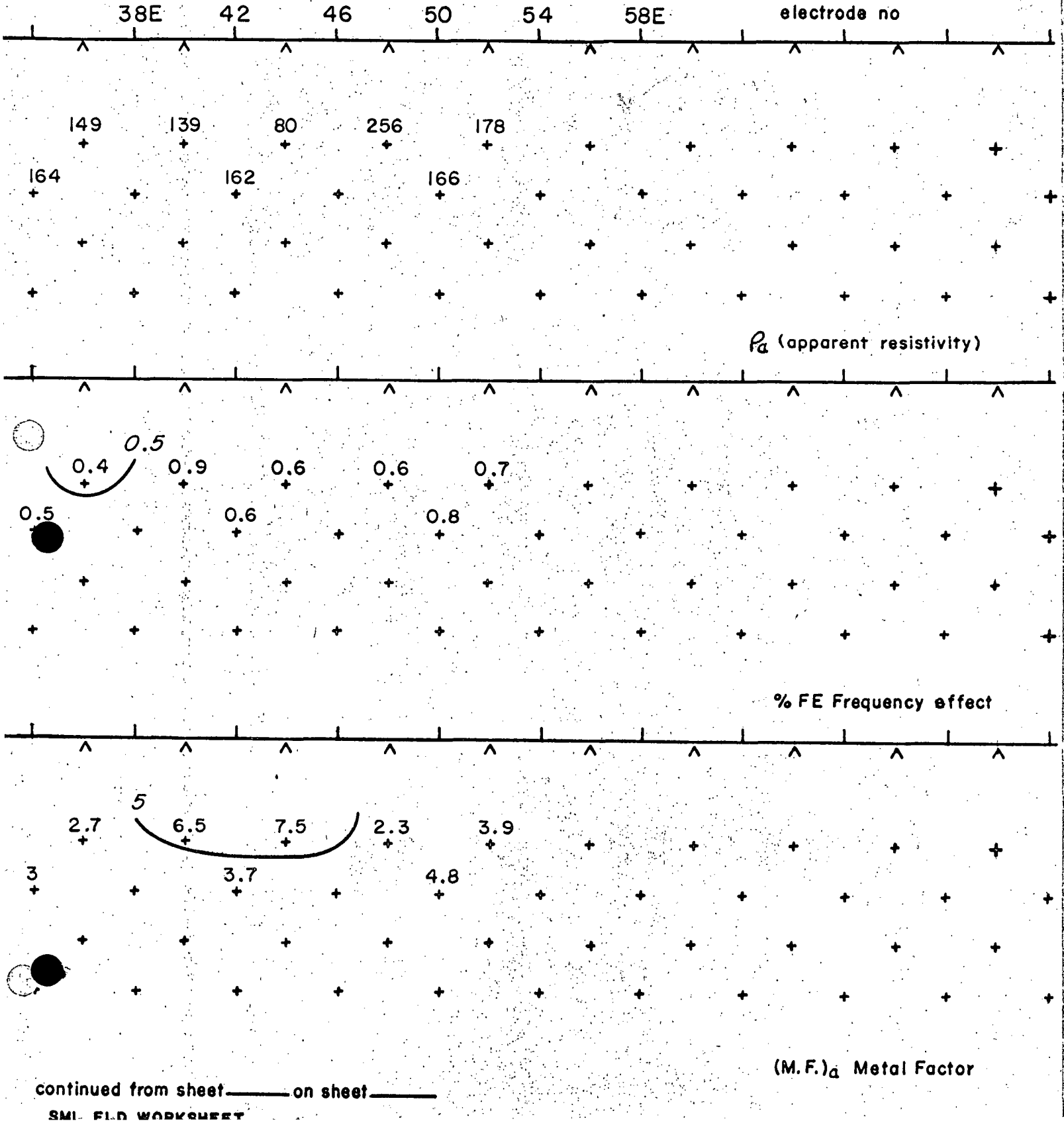
Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

date SEPT. '69

line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 40 S
bearing



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SMI. FLD WORKSHEET

INDUCED POLARIZATION SURVEY

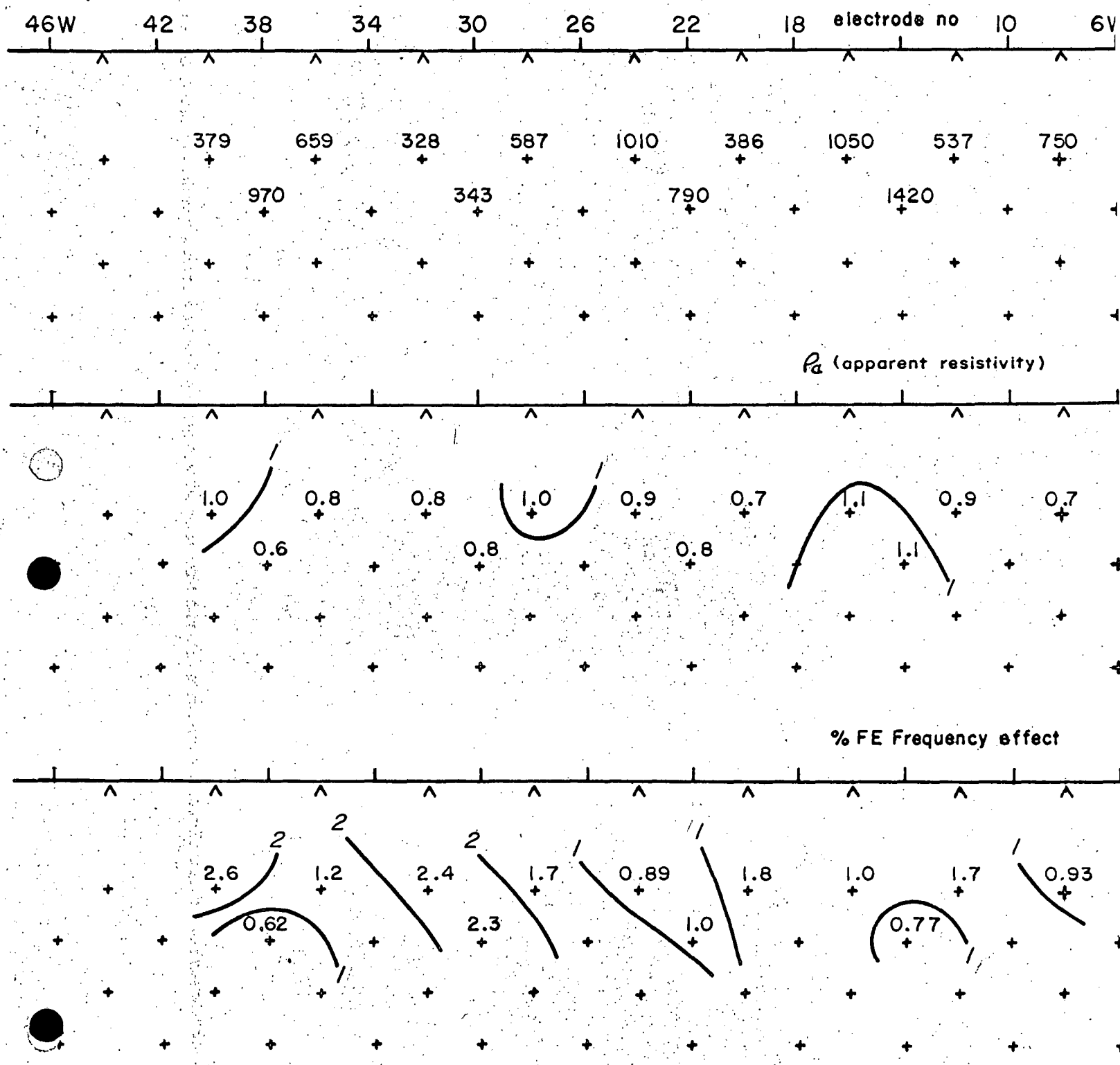
Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

date AUG. '69

line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 36 S
bearing



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SML FLD WORKSHEET

INDUCED POLARIZATION SURVEY

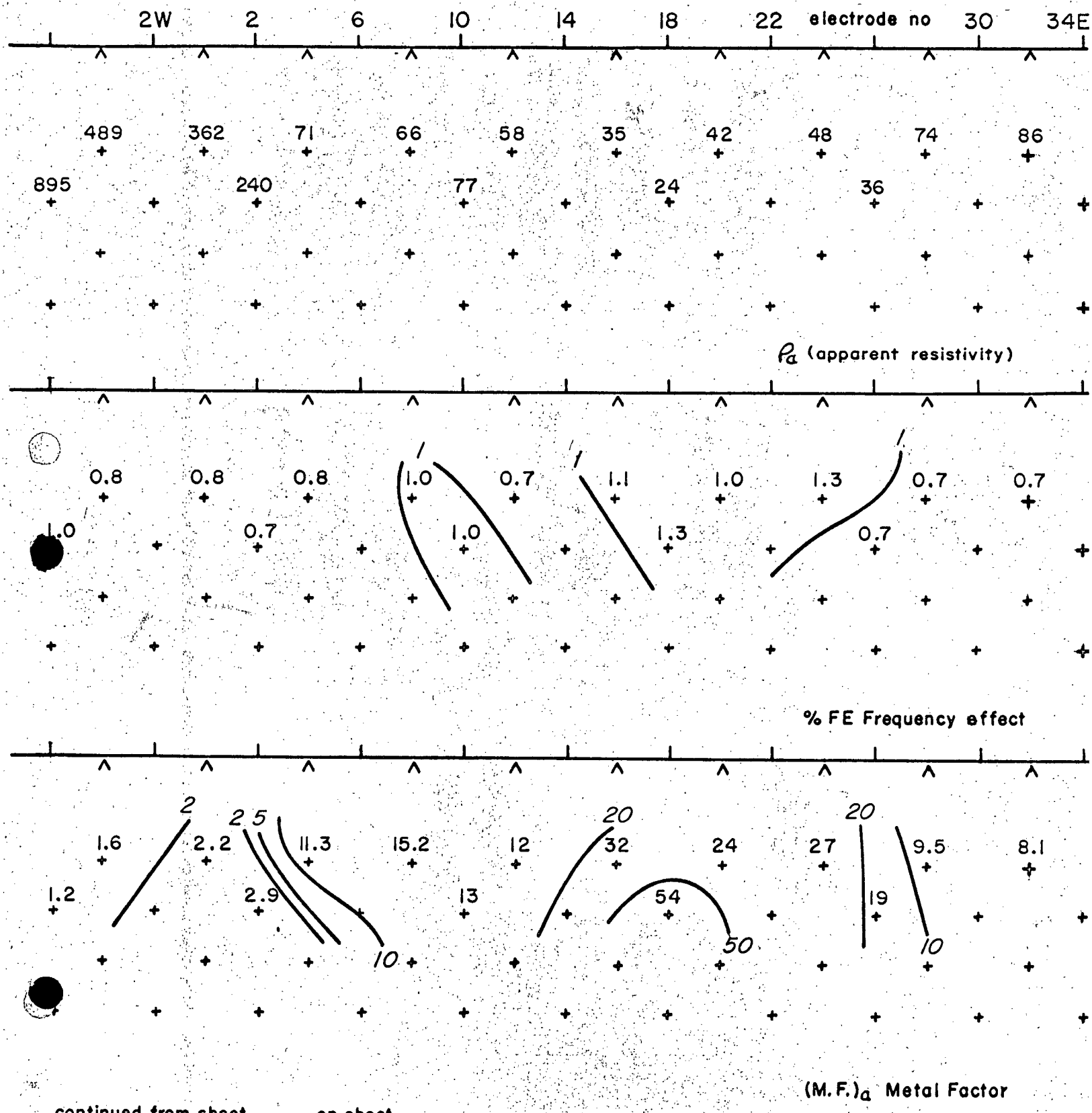
Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 36 S
bearing

date AUG.'69



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SML. FLD WORKSHEET

INDUCED POLARIZATION SURVEY

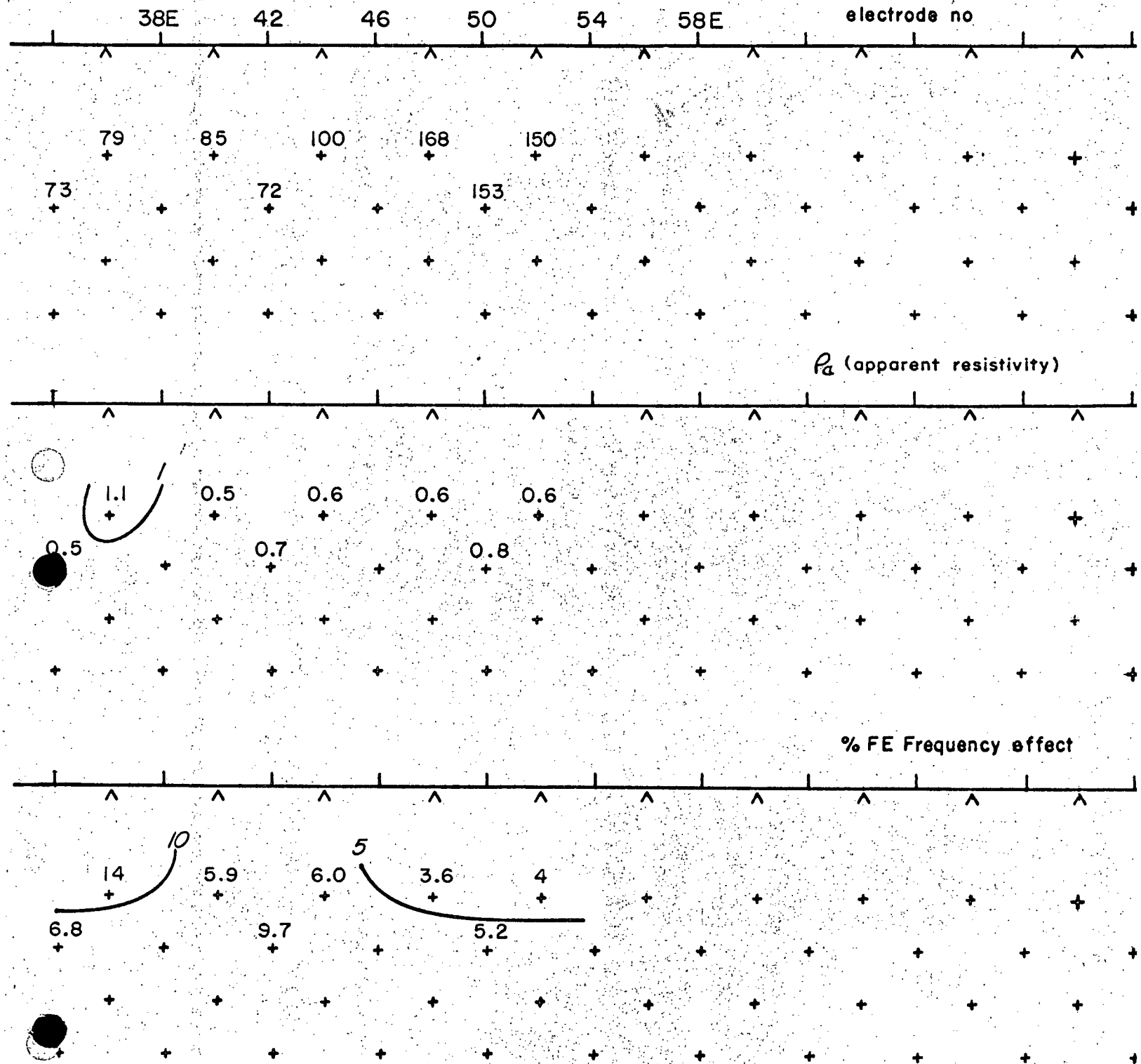
Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

date AUG. '69

line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 36S
bearing



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SMI- FLD WORKSHEET

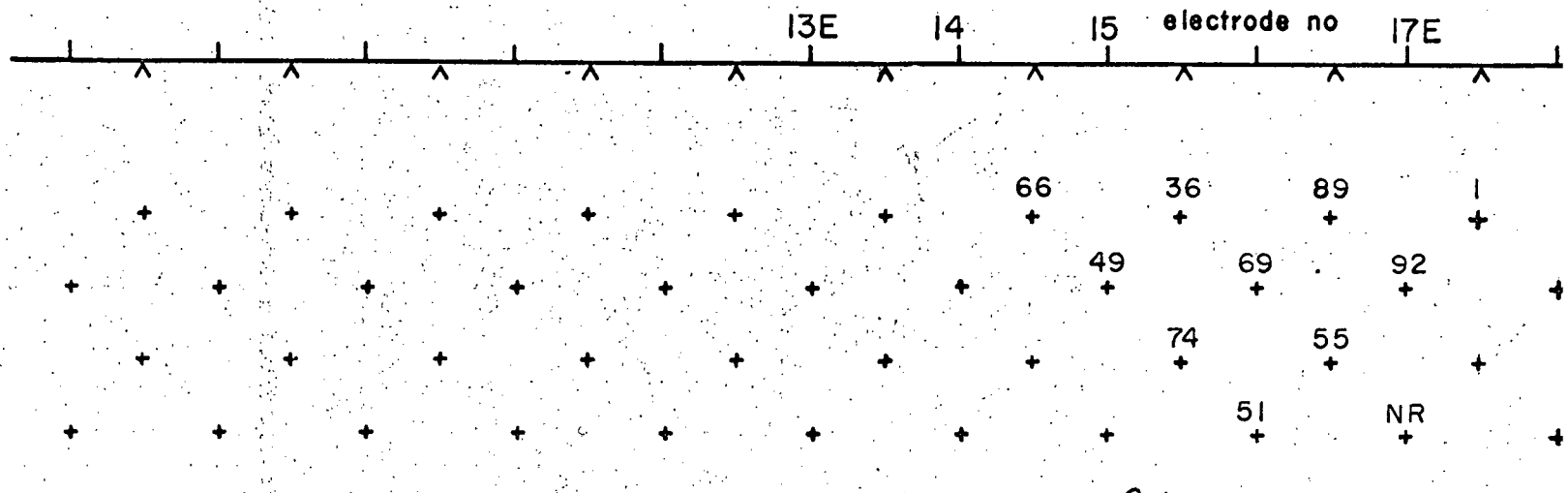
INDUCED POLARIZATION SURVEY

Geoscience Incorporated
199 BENT STREET, CAMBRIDGE, MASS, 02141

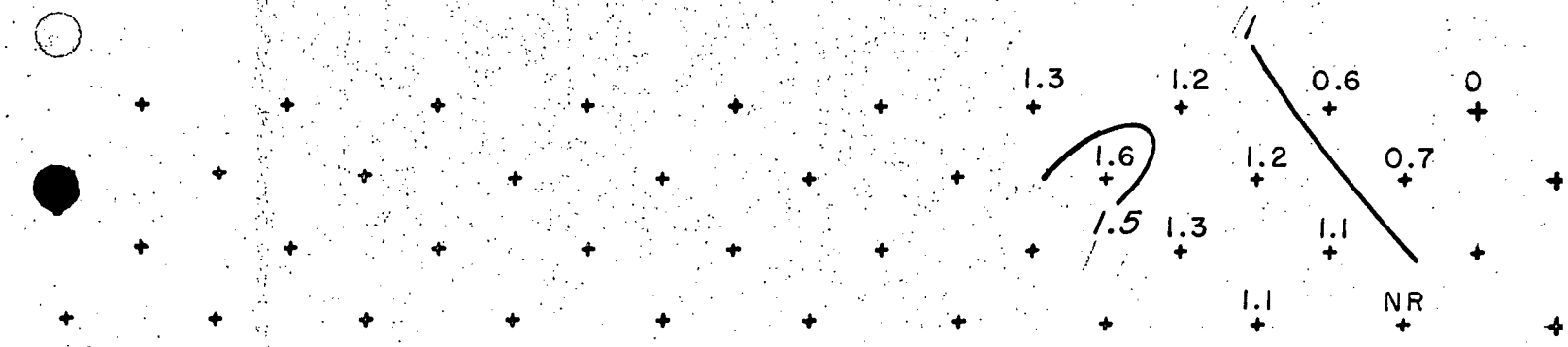
date OCT. '69

line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 100'
operators

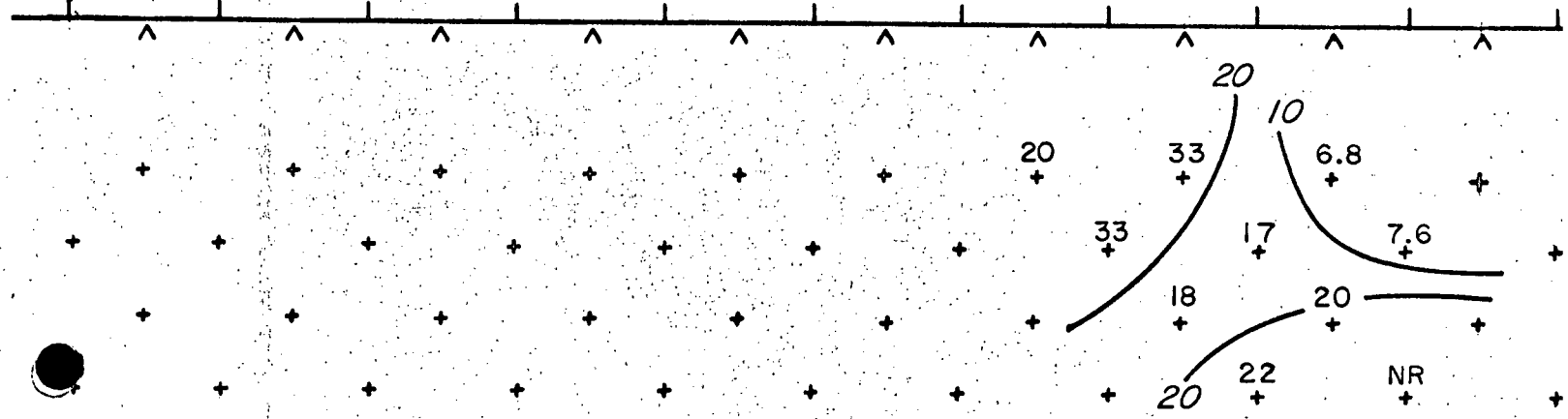
location B. C. CANADA
map ref.
line no. 36 S
bearing



ρ_a (apparent resistivity)



% FE Frequency effect



$(M.F.)_a$ Metal Factor

continued from sheet ____ on sheet ____

SML FLD WORKSHEET

INDUCED POLARIZATION SURVEY

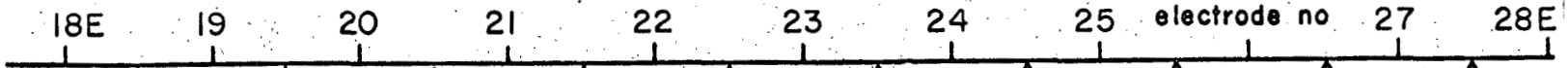
Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

date OCT. '69

line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 100'
operators

location B.C. CANADA
map ref.
line no. 36S
bearing



26 45 97 26 25 56 45 72 55
158 44 37 30 52 33 89 92 64
8 196 41 41 40 29 37 94 88

ρ_a (apparent resistivity)

.4 0.6 0.8 0.5 0.6 0.8 0.6 0.6 0.7
0.8 0.6 0.6 0.6 0.3 0.5 0.6 0.4 0.4
.8 0.9 0.8 0.6 0.8 0.5 0.6 0.5 0.5
1.1 1.0 0.8 NR 1.1 NR 0.6 0.5

% FE Frequency effect

5 10 10 20 20 10 10
3.2 13 8.3 19 24 14 13 8.3 13
5.1 14 16 20 5.8 10 15 6.8 4.3 6.2
44 4.6 20 15 20 17 16 5 5 5.7
48 22 16 NR 42 NR 8.5 6.3
20

$(M.F.)_a$ Metal Factor

continued from sheet ____ on sheet ____

SML FLD WORKSHEET

INDUCED POLARIZATION SURVEY

Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

date AUG. '69

line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 32S
bearing

46W 42 38 34 30 26 22 18 electrode no 10 6W

830 1030 790 700 800 251 995 300 720
920 800 419 930

ρ_a (apparent resistivity)

0.6 1.0 0.8 0.7 1.0 0.8 0.9 0.9 1.2
0.6 0.6 1.0 1.1

% FE Frequency effect

0.72 0.97 1.0 1.0 1.25 3.2 0.9 3.0 1.7
0.65 0.75 2.4 1.2

$(M.F.)_a$ Metal Factor

continued from sheet ____ on sheet ____

SMI. FLD. WORKSHEET

INDUCED POLARIZATION SURVEY

Geoscience Incorporated

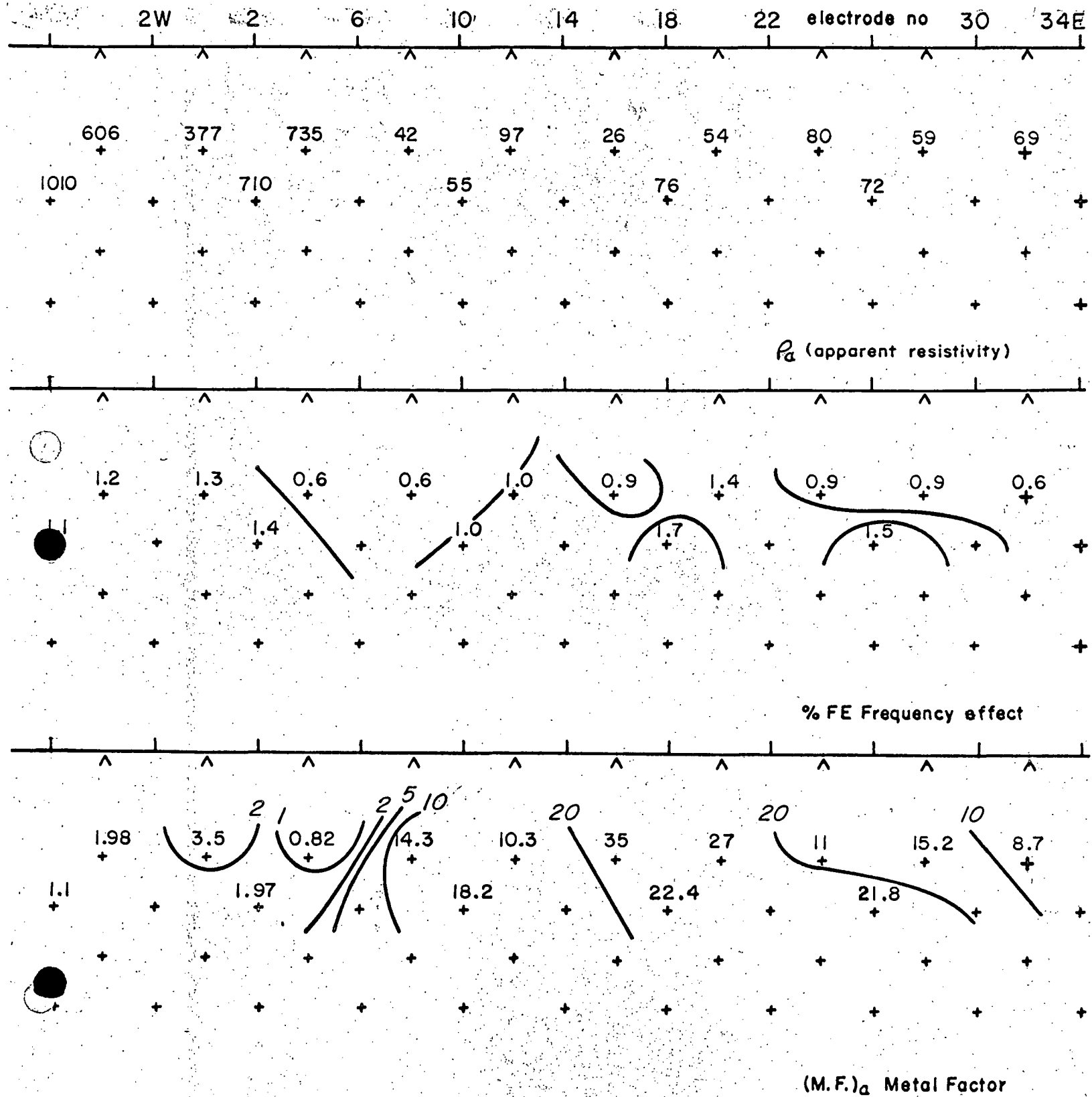
199 BENT STREET, CAMBRIDGE, MASS, 02141

line location CONTINENTAL CINCH — location B.C. CANADA — date AUG. '69

frequencies 3 & .3 cps — map ref.

dipole length 400' — line no. 32S

operators — bearing



continued from sheet ____ on sheet ____

SMI FLD WORKSHEET

INDUCED POLARIZATION SURVEY

Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

date AUG. '69

line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 32S
bearing

38E 42 46 50 54 58E electrode no

65 83 90 119 108
61 92 108

ρ_a (apparent resistivity)

0.5
0.4 0.8 0.7 0.8 0.6
0.6 0.8 0.8

% FE Frequency effect

6.1 9.6 7.8 6.7 5.5
9.2 8.7 7.4

$(M.F.)_a$ Metal Factor

continued from sheet _____ on sheet _____

SMI. FLD. WORKSHEET

INDUCED POLARIZATION SURVEY

Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

date OCT. '69

line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 400' DETAIL
operators

location B.C. CANADA
map ref.
line no. 32S
bearing

28W 24 20 16 12 8 4 0 electrode no 8 12E

1420 2040 950 390 590 370
550 640 1260 580 520 360
1480 800 1540 390 433 290
1680 NR 940 307 333

ρ_a (apparent resistivity)

1.0
0.8 0.7 0.8 0.6 1.1 0.7
0.9 1.1 0.9 1.1 1.0 1.0
1.3 0.7 1.2 1.0 1.2 1.2
1.3 NR 1.2 1.2 1.2

% FE Frequency effect

1.0 2.0
0.6 0.3 0.8 1.5 1.9 1.9
1.6 1.7 0.7 1.9 1.9 2.8
0.9 0.9 0.8 2.6 2.8 4.1
0.8 NR 1.3 3.9 3.6
1.0

$(M.F.)_a$ Metal Factor

continued from sheet ____ on sheet ____

SMI. FI.6 WORKSHEET

INDUCED POLARIZATION SURVEY

Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

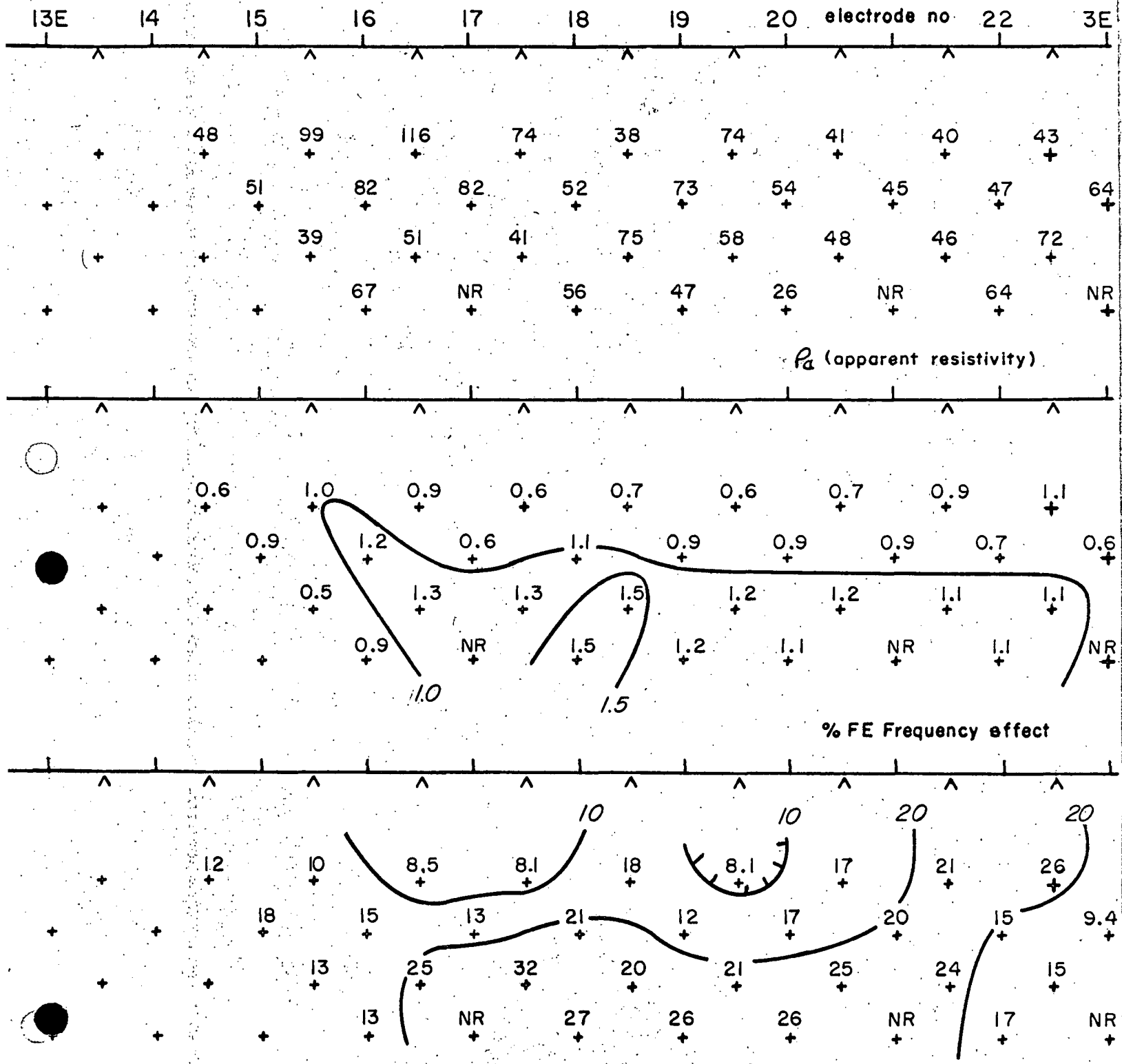
date OCT. '69

line location CONTINENTAL CINCH — location B.C. CANADA

frequencies 3 & .3 cps — map ref.

dipole length 100' — line no. 32S

operators — bearing



continued from sheet ——— on sheet ———

INDUCED POLARIZATION SURVEY

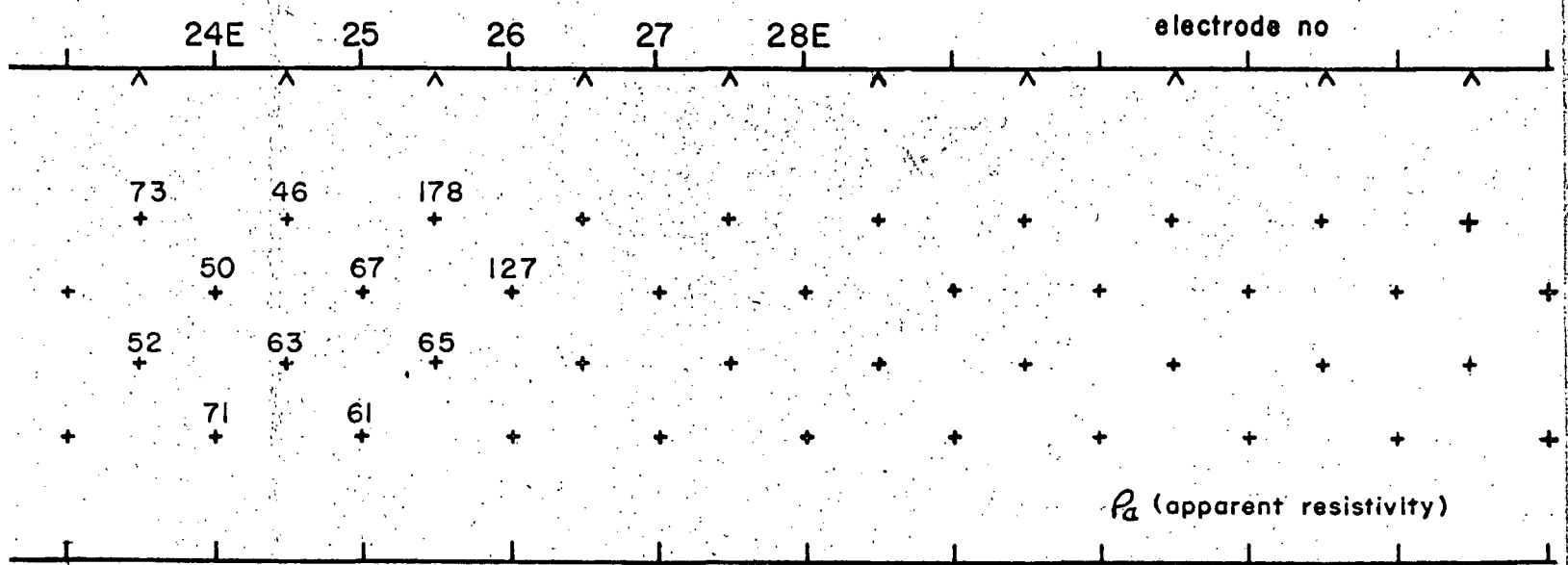
Geoscience Incorporated

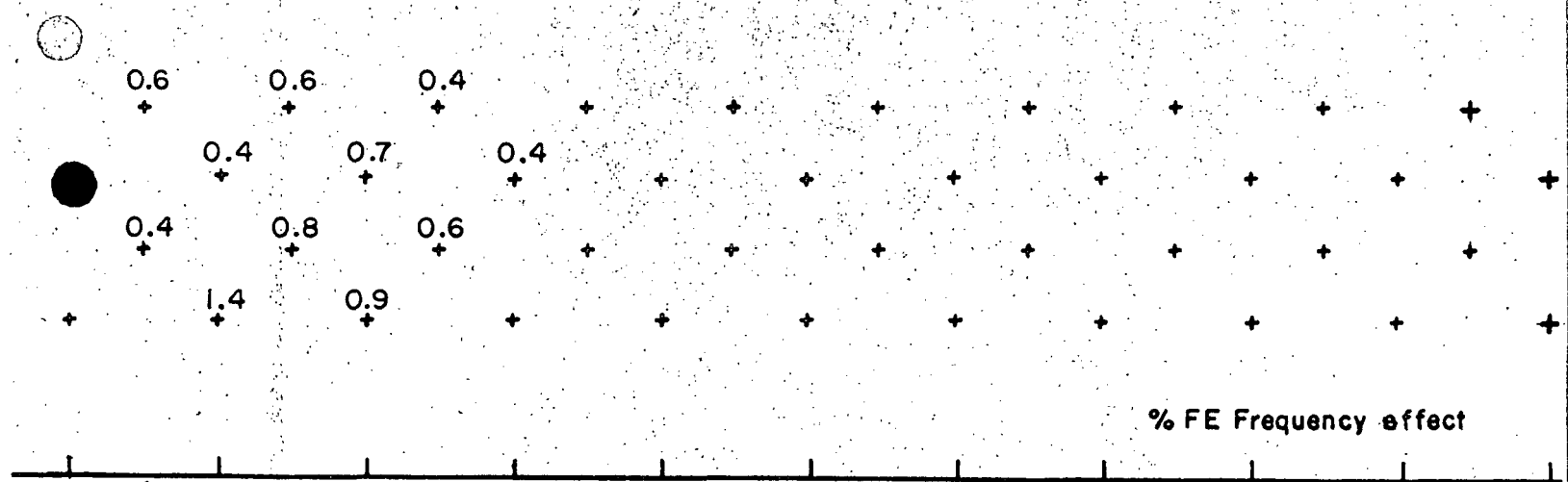
199 BENT STREET, CAMBRIDGE, MASS, 02141

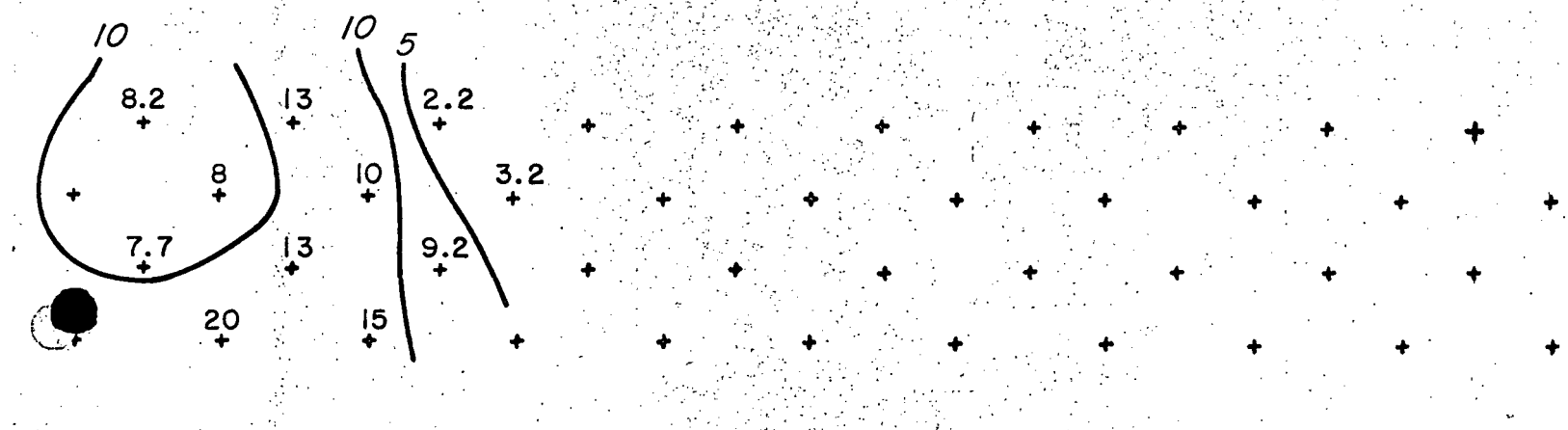
date OCT. '69

line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 100'
operators

location B.C. CANADA
map ref.
line no. 32 S
bearing







continued from sheet ____ on sheet ____

SMI. FLD WORKSHEET

INDUCED POLARIZATION SURVEY

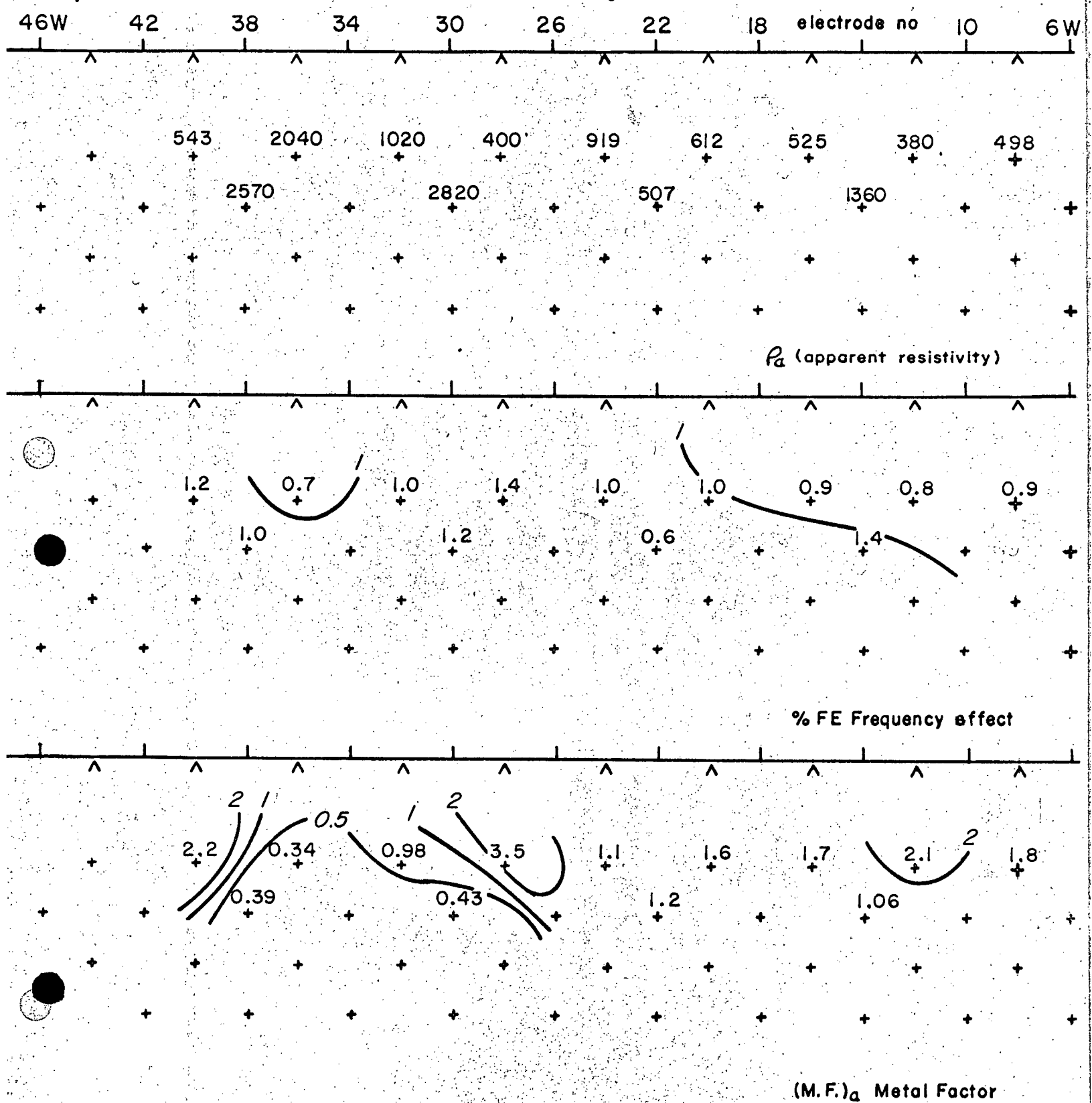
Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

date AUG. '69

line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 28S
bearing



continued from sheet ____ on sheet ____

INDUCED POLARIZATION SURVEY

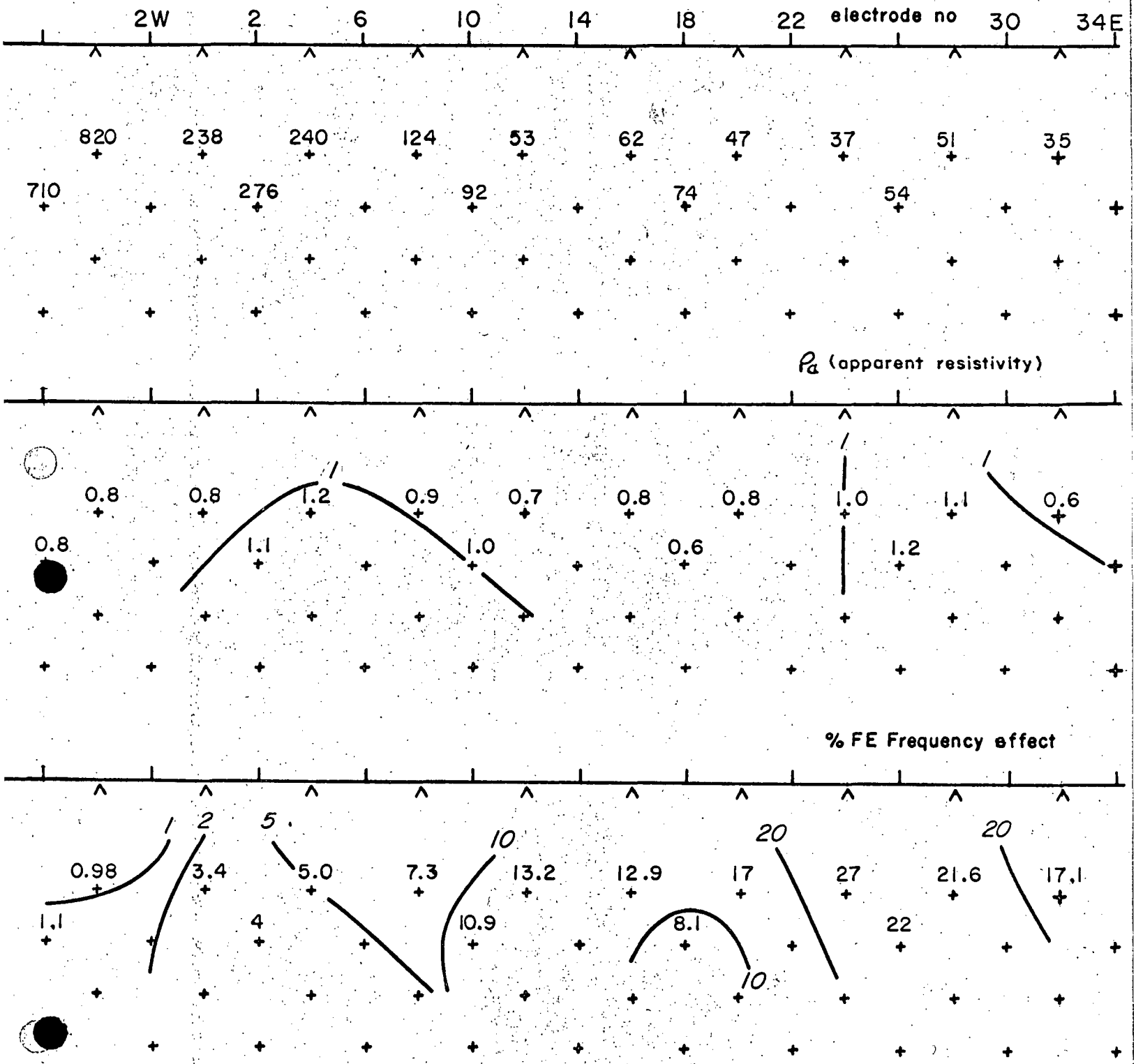
Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

date AUG. '69

line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 28S
bearing



continued from sheet ____ on sheet ____

SML FLD WORKSHEET

INDUCED POLARIZATION SURVEY

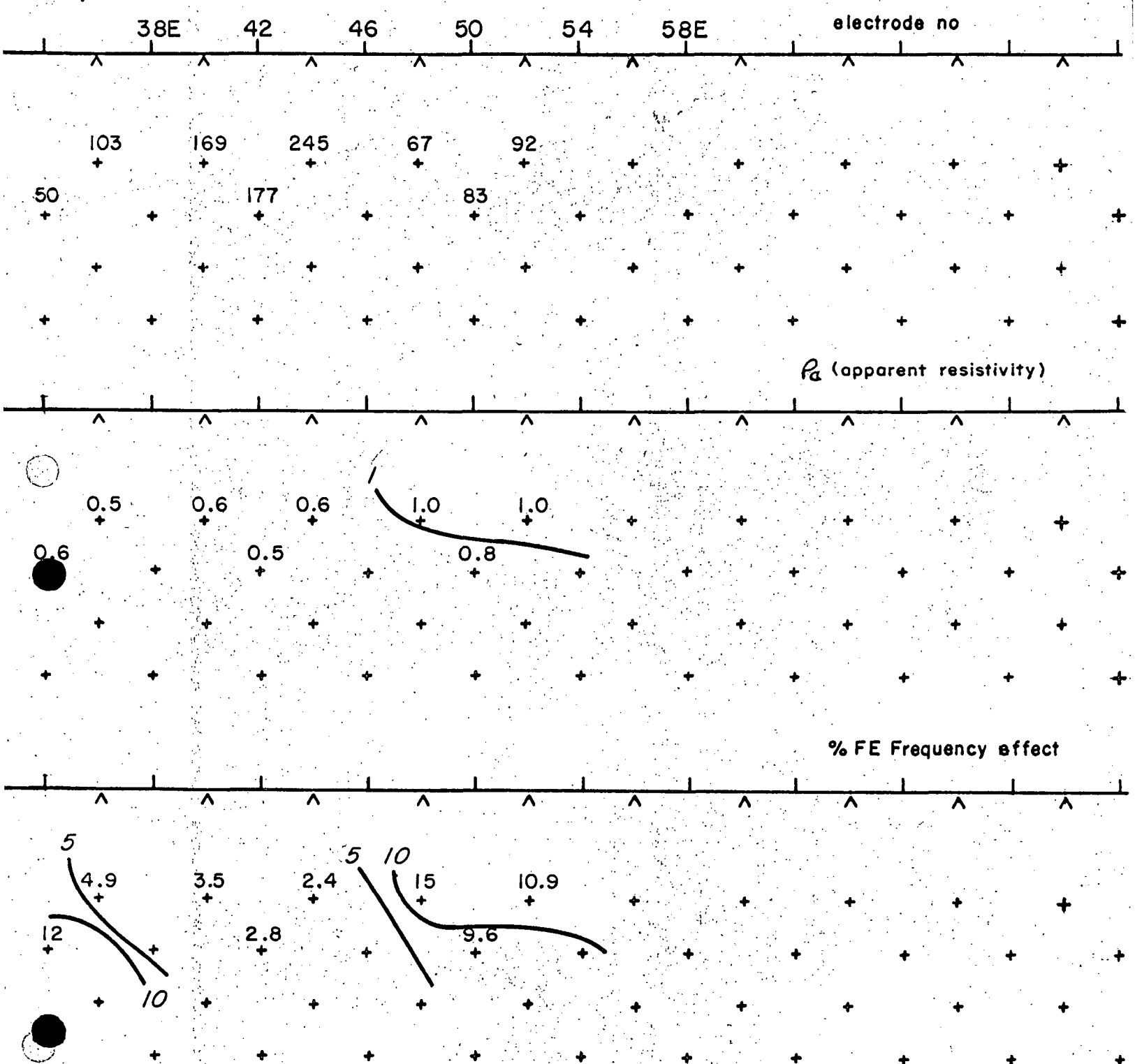
Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

date AUG. '69

line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 28 S
bearing



continued from sheet ____ on sheet ____

SML. FLD WORKSHEET

INDUCED POLARIZATION SURVEY

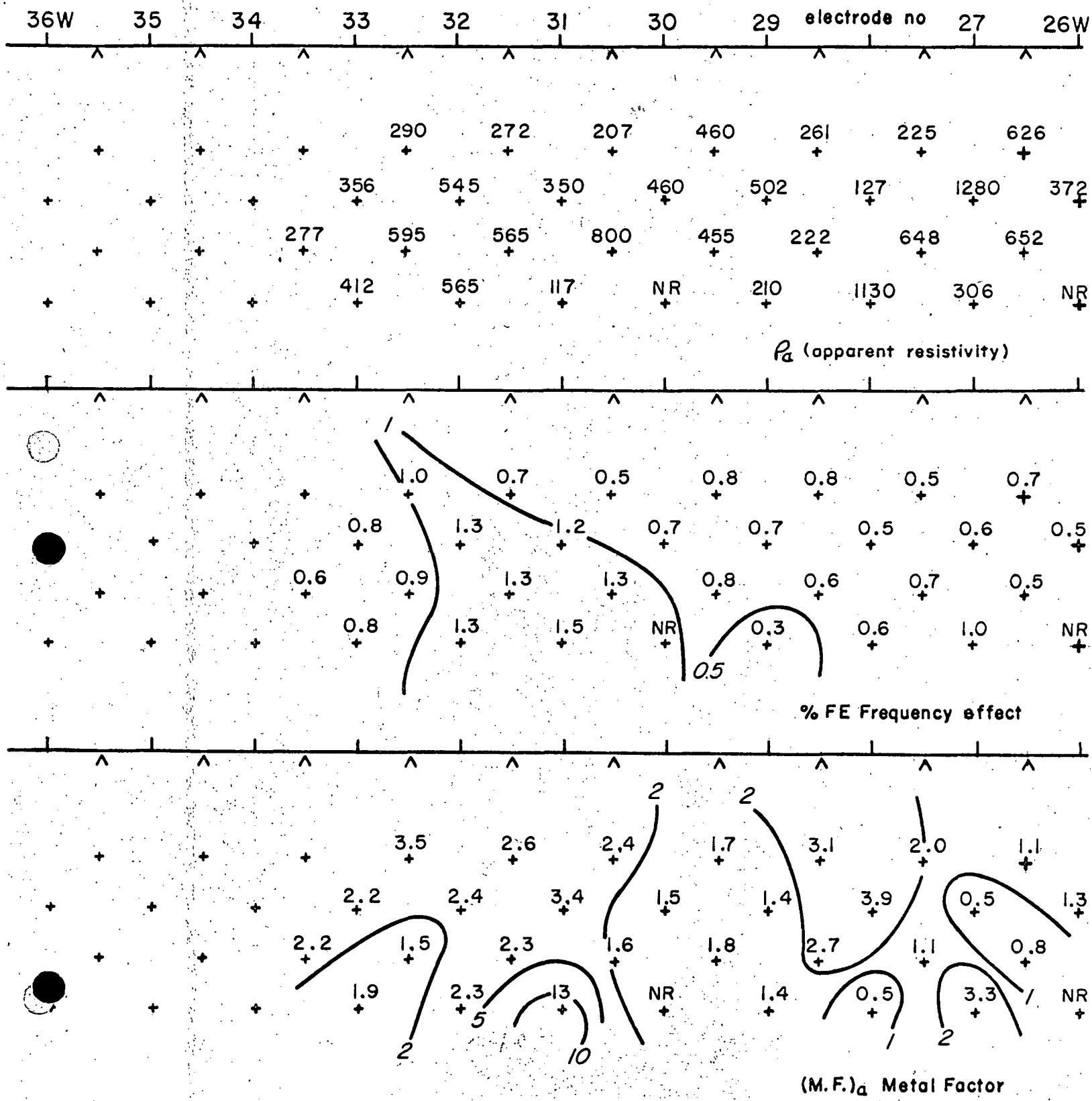
Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

line location CONTINENTAL CINCH
frequencies .3 & .3 cps
dipole length 100'
operators

location B.C. CANADA
map ref.
line no. 28 S
bearing

date OCT. '69



continued from sheet ____ on sheet ____

SML FLD WORKSHEET

INDUCED POLARIZATION SURVEY

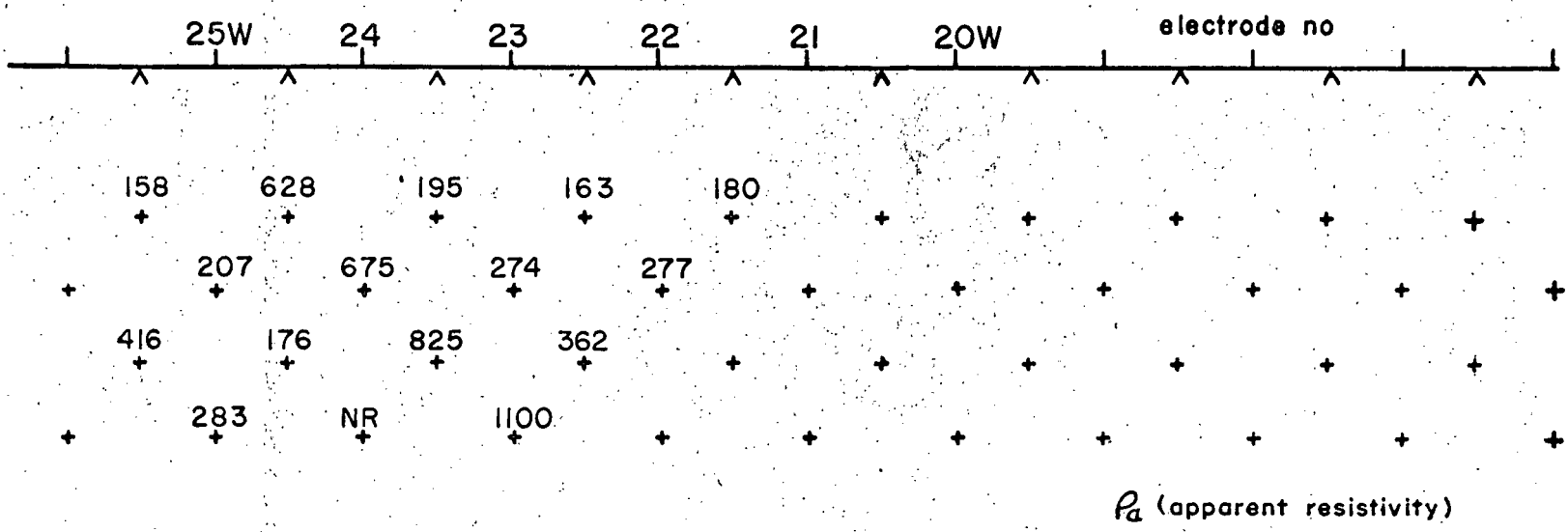
Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

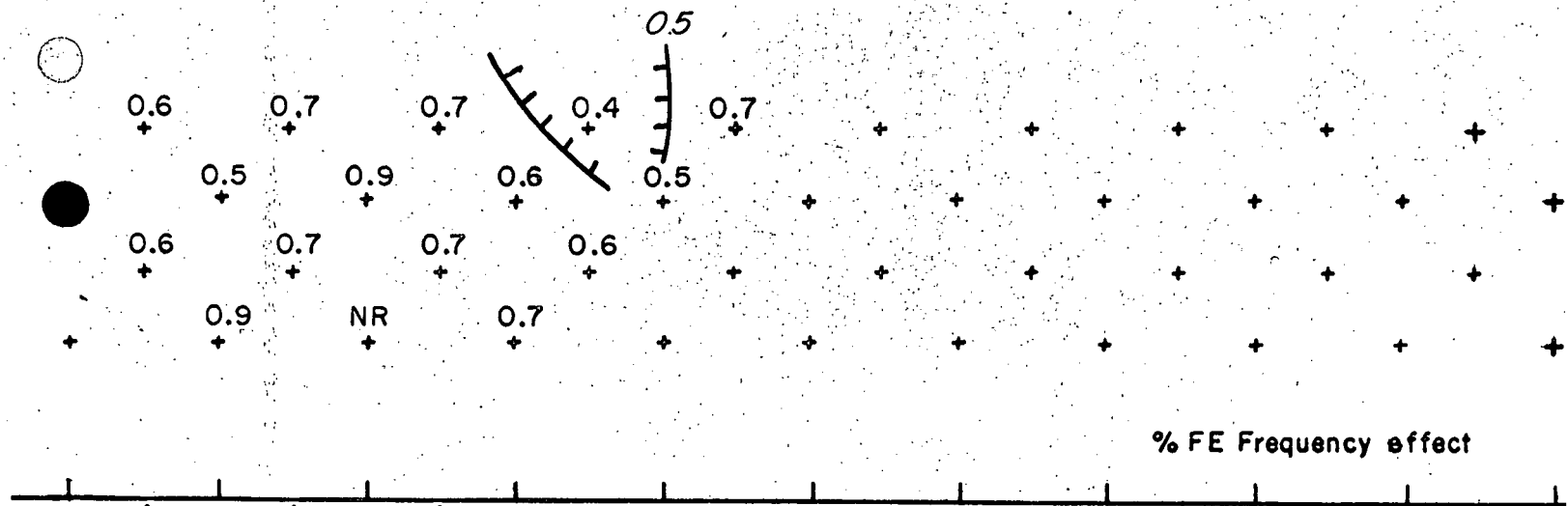
date OCT. '69

line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 100'
operators

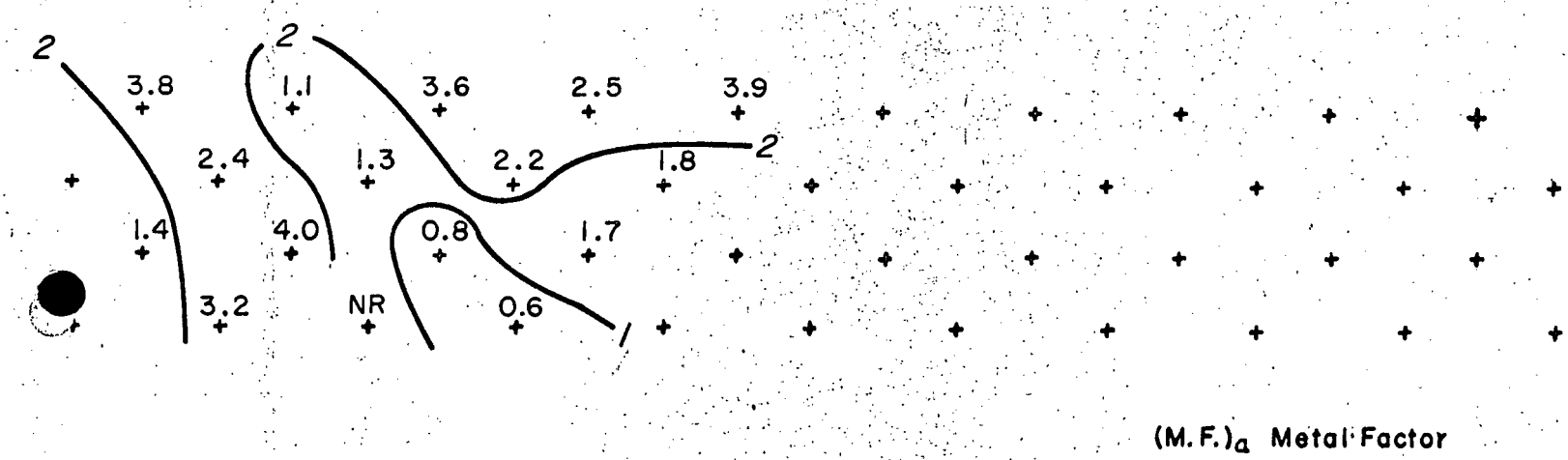
location B.C. CANADA
map ref.
line no. 28S
bearing



ρ_a (apparent resistivity)



% FE Frequency effect



$(M.F.)_a$ Metal Factor

continued from sheet ____ on sheet ____

SMI FLD WORKSHEET

INDUCED POLARIZATION SURVEY

Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 24S
bearing

date AUG. '69

46W 42 38 34 30 26 22 18 electrode no 10 6W

1220 1500 740 1130 985 600 682 427 432

810 1060 615 1240

ρ_a (apparent resistivity)

1.0 0.7 1.0 0.9 1.1 0.8 1.3 1.0 1.0

1.0 0.9 1.0 1.2

% FE Frequency effect

0.82 0.47 1.35 0.8 1.1 1.3 1.9 2 2.3 2.3

1.24 0.85 1.6 0.97

$(M.F.)_a$ Metal Factor

continued from sheet ____ on sheet ____

SML FLD WORKSHEET

INDUCED POLARIZATION SURVEY

Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

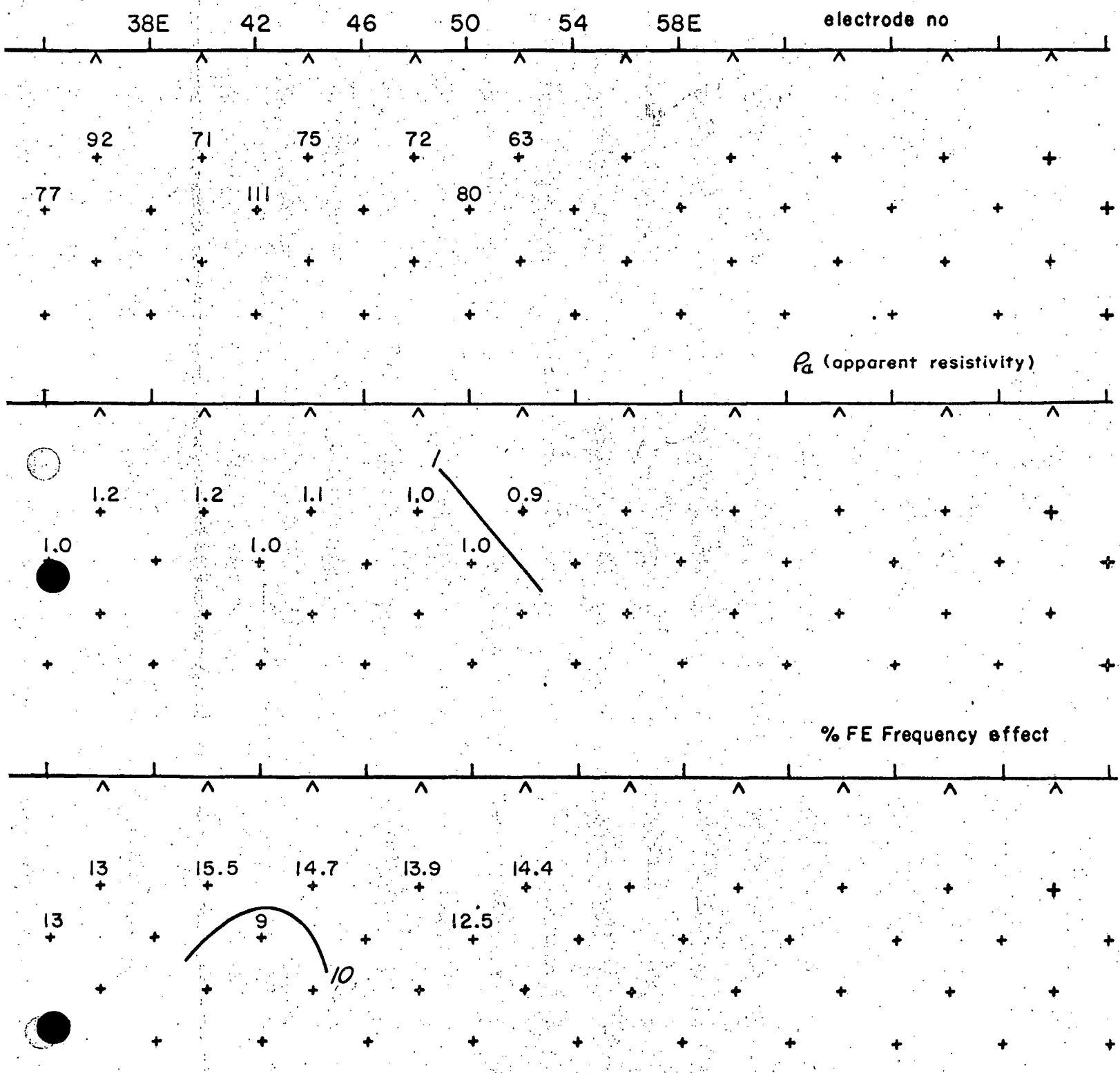
date AUG. '69

line location CONTINENTAL CINCH — location B.C. CANADA

frequencies 3 & .3 cps — map ref.

dipole length 400' — line no. 24 S

operators — bearing



continued from sheet ——— on sheet ———

SMI FLD WORKSHEET

INDUCED POLARIZATION SURVEY

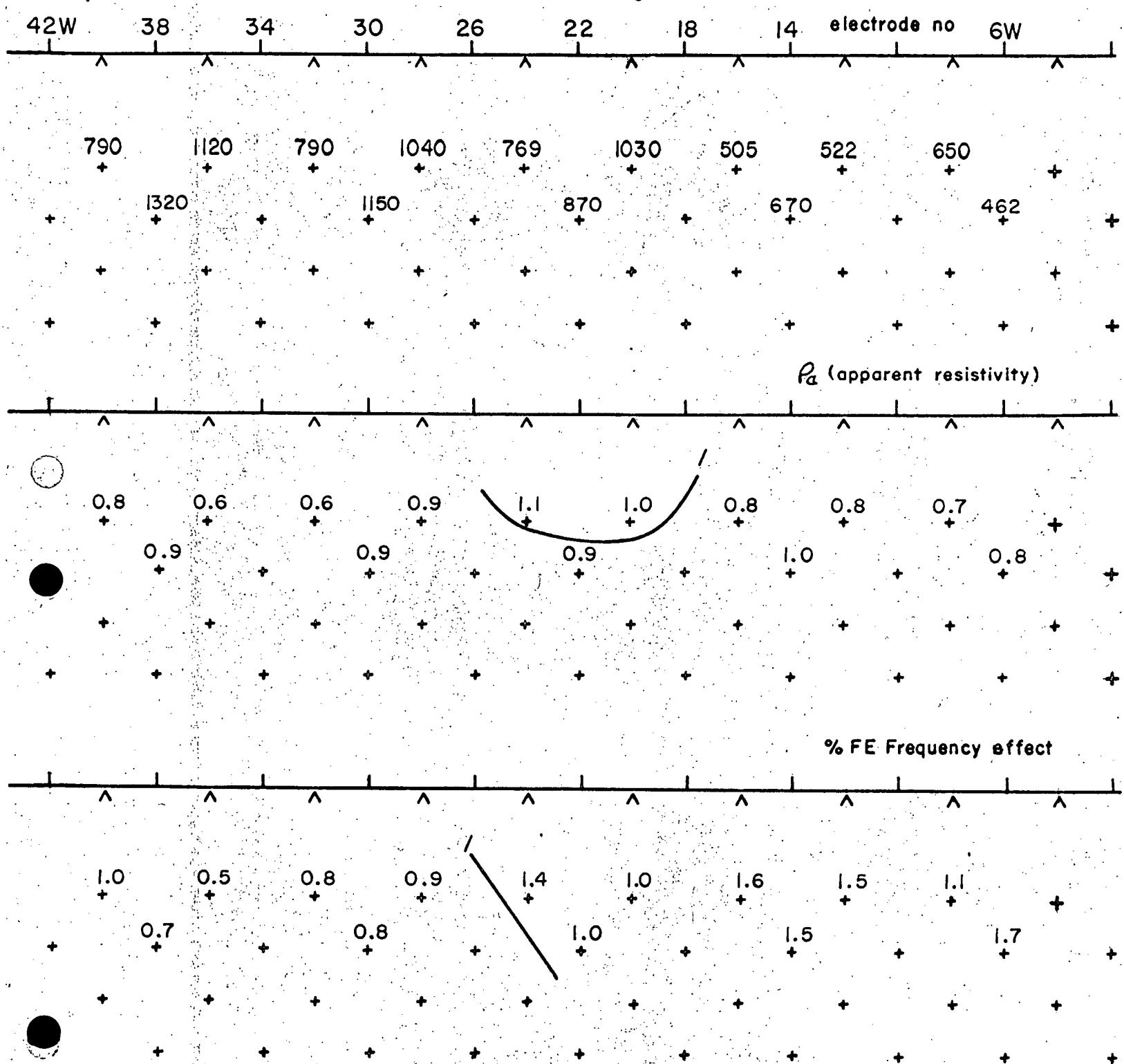
Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

date _____

line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 400'
operators _____

location B.C. CANADA
map ref. _____
line no. 20S
bearing _____



continued from sheet _____ on sheet _____

SML FLD WORKSHEET

INDUCED POLARIZATION SURVEY

Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

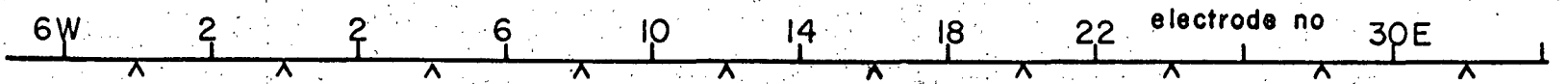
date _____

line location CONTINENTAL CINCH — location B.C. CANADA

frequencies 3 & .3 cps — map ref. _____

dipole length 400' — line no. 20 S

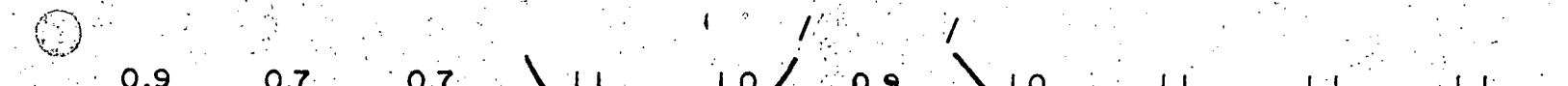
operators _____ — bearing _____



558 685 820 292 166 179 84 104 90 103

890 102 71 74

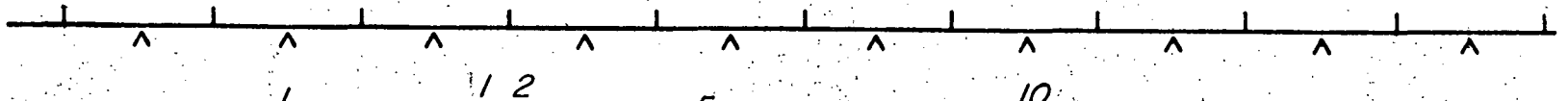
ρ_a (apparent resistivity)



0.9 0.7 0.7 1.1 1.0 0.9 1.0 1.1 1.1 1.1

0.7 0.8 0.7 1.3

% FE Frequency effect



1.6 0.9 0.7 3.8 6 5 12 11 12 11

0.8 7.8 10 18

$(M.F.)_a$ Metal Factor

continued from sheet _____ on sheet _____

INDUCED POLARIZATION SURVEY

Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 20 S
bearing

date

34E 38 42 46 50 54 58E electrode no

91 65 85 90 82
167 175

ρ_a (apparent resistivity)

1.2 1.3 1.3 1.4 1.2
1.4 1.1

% FE Frequency effect

20
13 20 15 16 15
10
8.3 6

$(M.F.)_a$ Metal Factor

continued from sheet ____ on sheet ____

SML FLD WORKSHEET

INDUCED POLARIZATION SURVEY

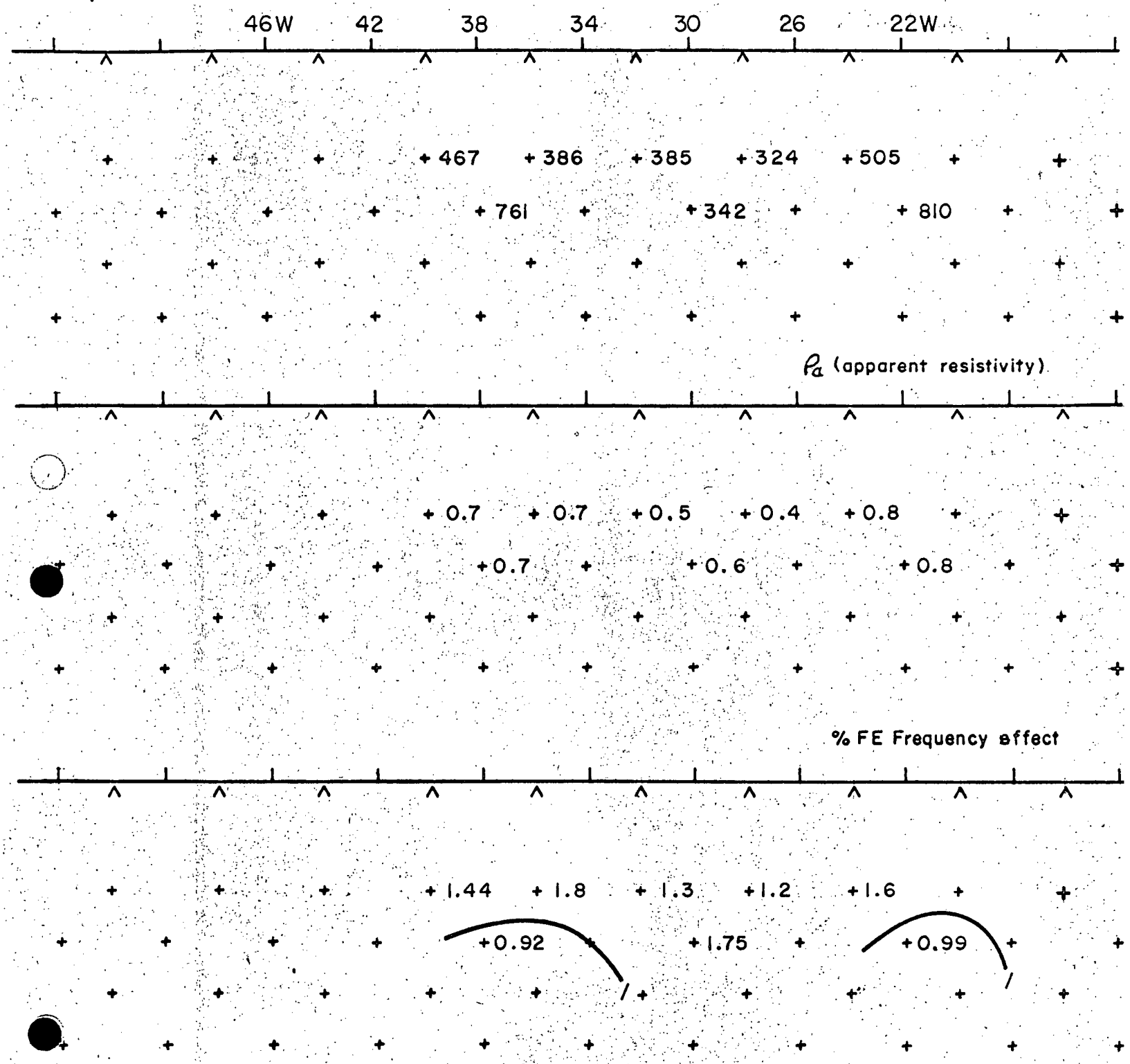
Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

date AUG 1969

line location CONTINENTAL CINCH
frequencies 3.0 & 0.3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 16S
bearing



continued from sheet ____ on sheet ____

SML FLD WORKSHEET 11/66

INDUCED POLARIZATION SURVEY

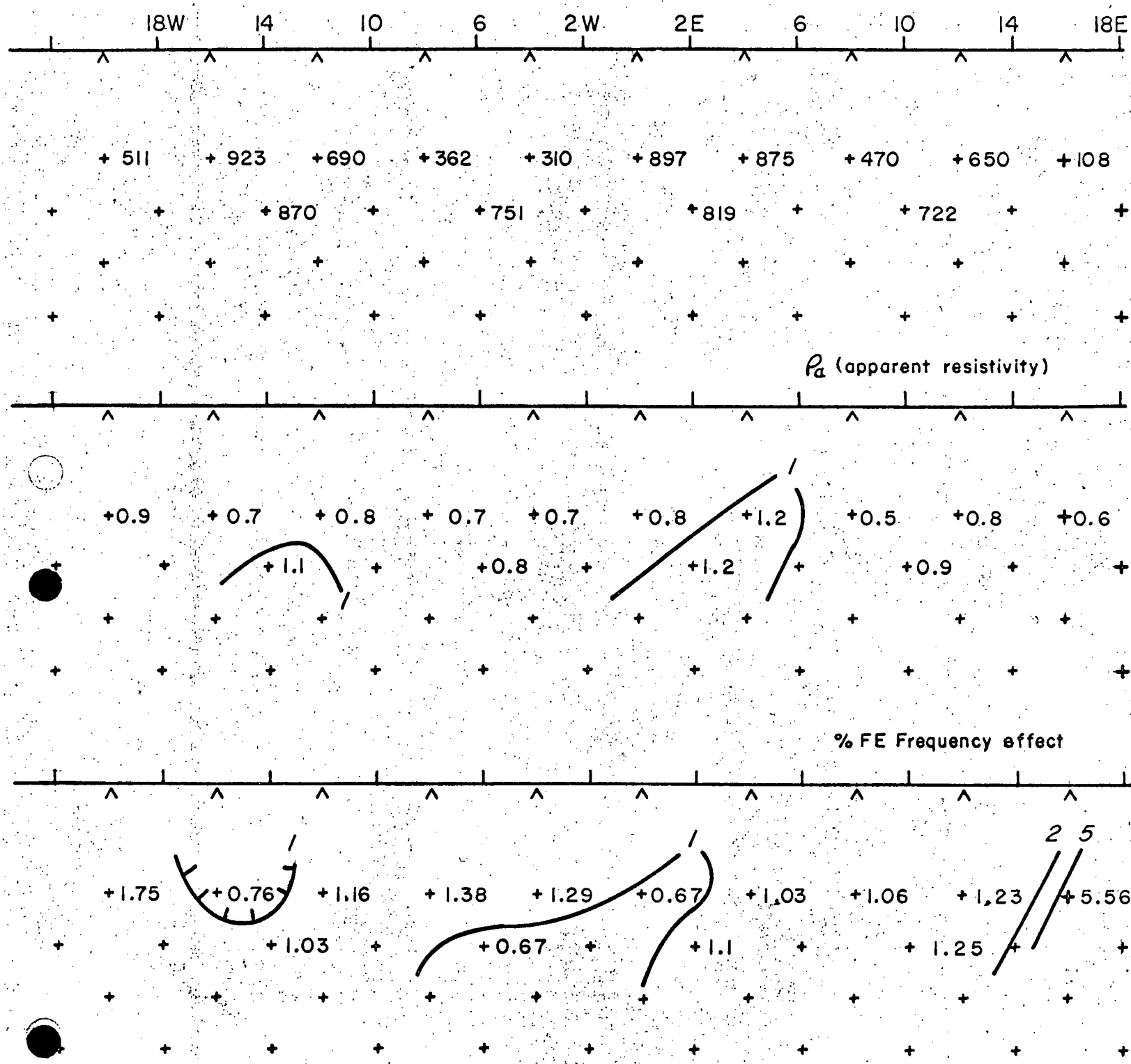
Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

date AUG 1969

line location CONTINENTAL CINCH
frequencies 3.0 & 0.3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 16S
bearing



continued from sheet ____ on sheet ____

SML FLD WORKSHEET 11/68

INDUCED POLARIZATION SURVEY

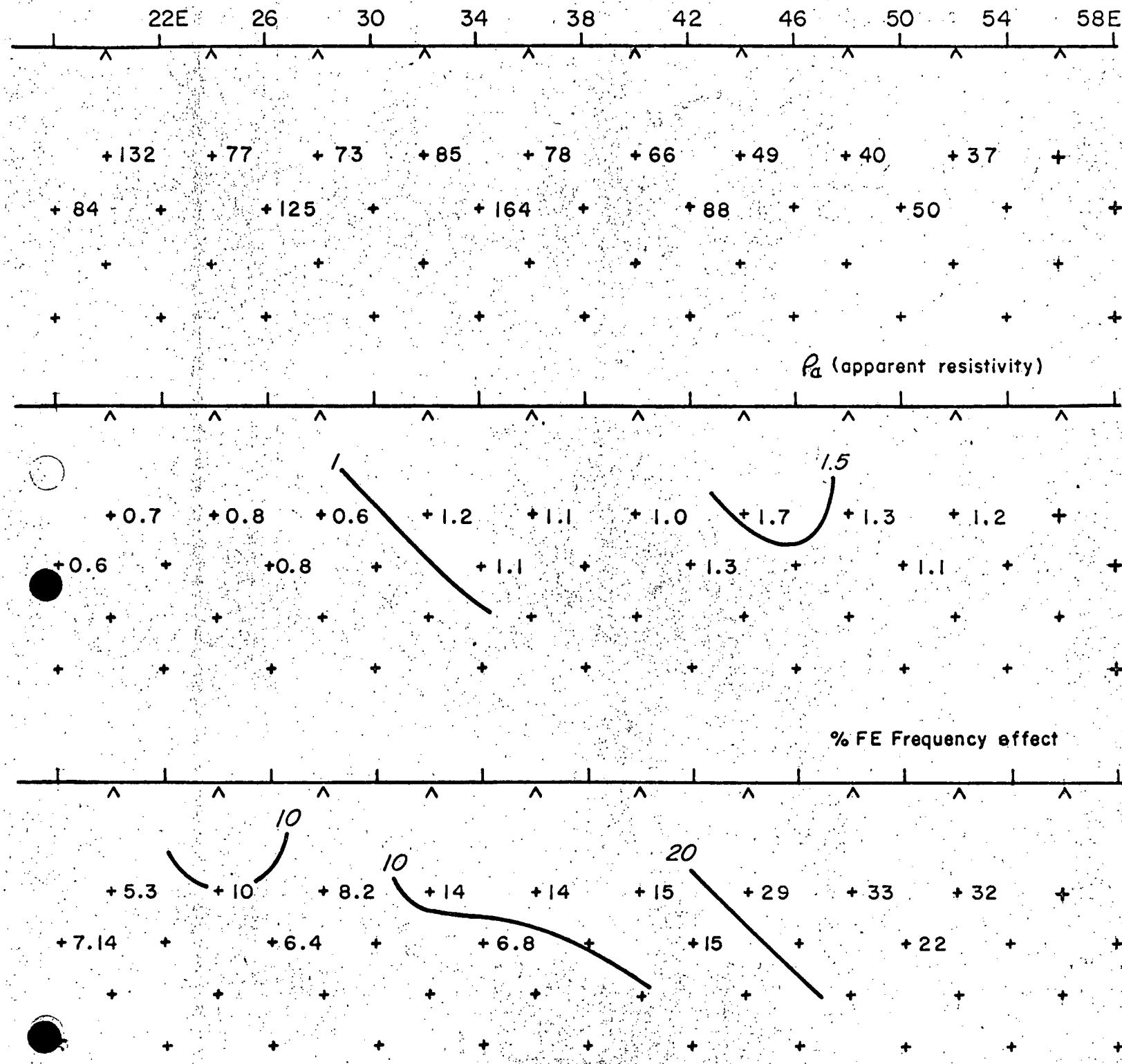
Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

date AUG 1969

line location CONTINENTAL CINCH
frequencies 3.0 & 0.3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 16S
bearing



continued from sheet ____ on sheet ____

INDUCED POLARIZATION SURVEY

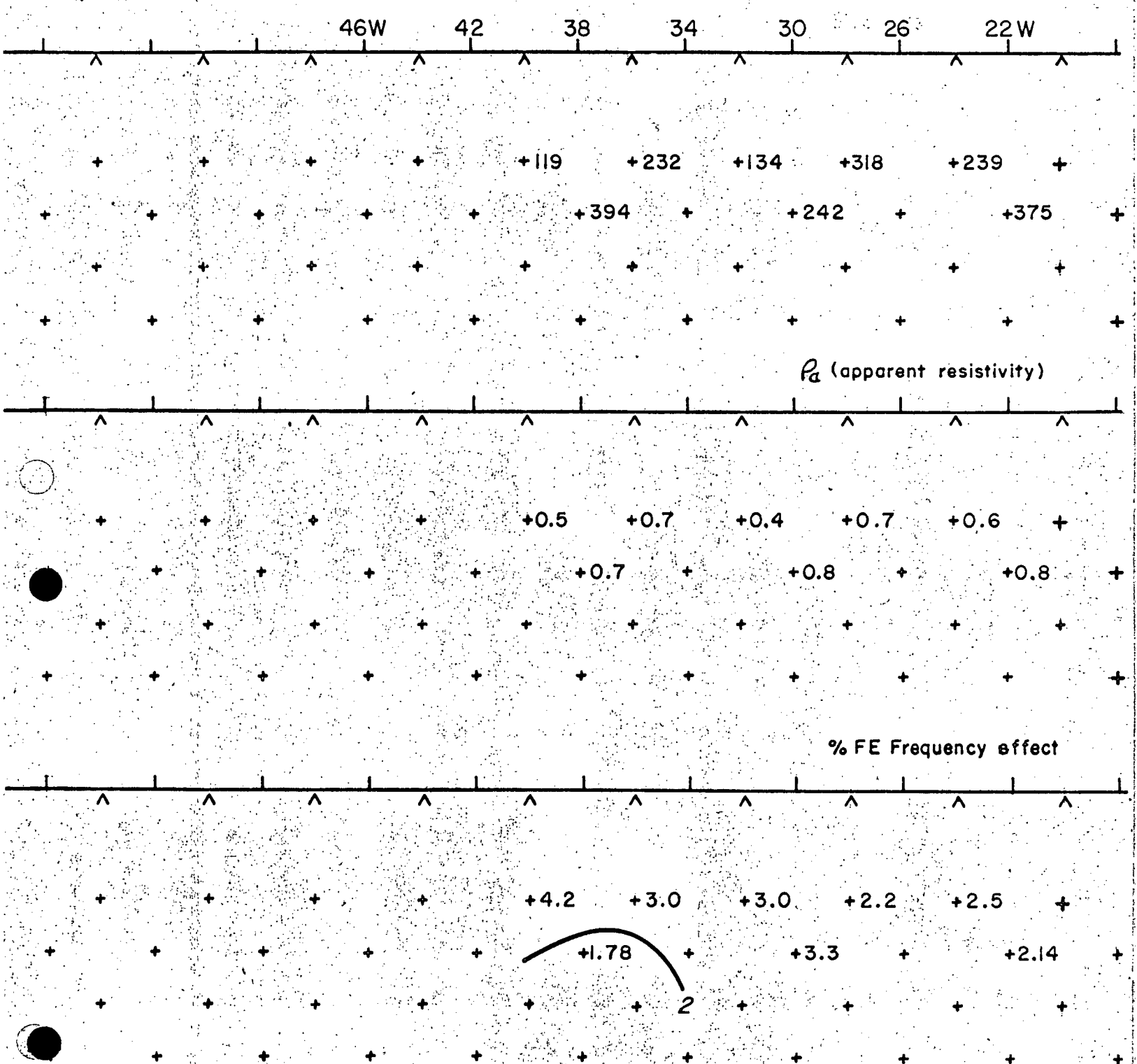
Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

line location CONTINENTAL CINCH
frequencies 3.0 & 0.3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 12S
bearing

date AUG 1969



continued from sheet ____ on sheet ____

SML FLD WORKSHEET 11/68

INDUCED POLARIZATION SURVEY

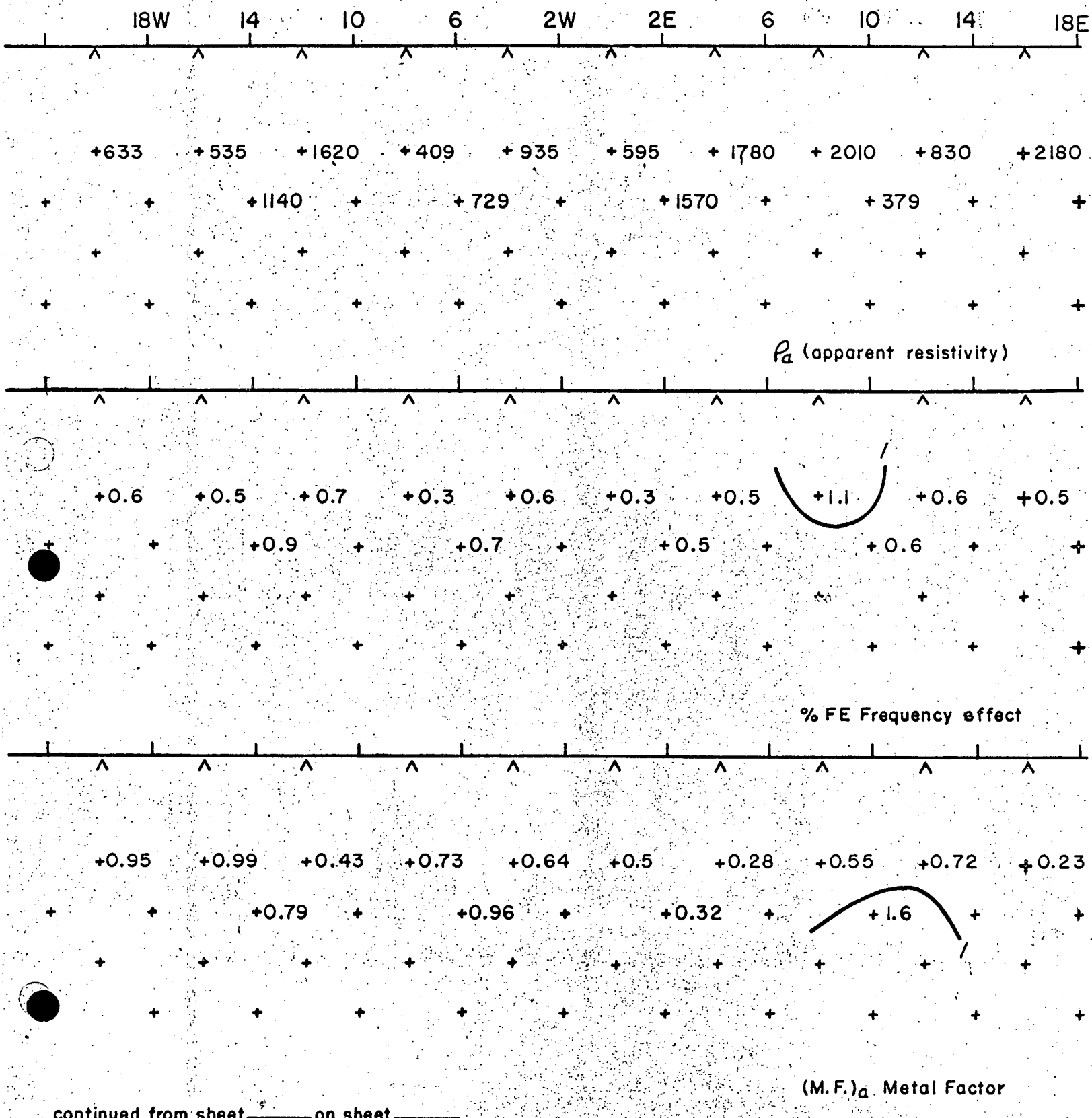
Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

date AUG 1969

line location CONTINENTAL CINCH
frequencies 3.0 & 0.3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 12S
bearing



continued from sheet ____ on sheet ____

INDUCED POLARIZATION SURVEY

Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

date AUG 1969

line location CONTINENTAL CINCH
frequencies 3.0 & 0.3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 12S
bearing

18E 22 26 30 34 38 42 46 50 54 58E

+214 +88 +37 +53 +48 +51 +40 +63 +31
+1240 +450 +73 +58 +48

ρ_a (apparent resistivity)

1 1.5

+0.7 +1.1 +1.0 +1.5 +1.2 +1.0 +1.0 +1.3 +1.2
+0.7 +0.8 +1.9 +1.4 +1.6
1.5

% FE Frequency effect

1 2 5 10 20

+3.3 +13 +27 +28 +25 +20 +25 +21 +38
+0.56 +1.8 +26 +24 +33

$(M.F.)_a$ Metal Factor

continued from sheet ____ on sheet ____

SML FLD WORKSHEET 11/66

INDUCED POLARIZATION SURVEY

Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

line location CONTINENTAL CINCH
frequencies 3.0 & 0.3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 8 S
bearing

date

42W 38 34 30 26 22 18 14 10 6 2W

+130 + 95 + 183 + 223 + 379 + 507 + 635 + 335 + 975 + 618

+ 217 + 285 + 544 + 864 + 1090

ρ_a (apparent resistivity)

+0.5 +0.6 +0.7 +0,5 +0.9 +0.9 +0.9 +0.8 +0.5 +0.4

+0.4 +0.7 +1.1 +0.7 +0.7

% FE Frequency effect

+3.85 + 6.31 +3.83 +2.24 +2.38 +1.77 +1.42 + 2.39 +0.51 +0.16

+3.69 +2.46 +2.02 +0.81 +0.64

$(M.F.)_a$ Metal Factor

continued from sheet ____ on sheet ____

SML FLD WORKSHEET 11/66

INDUCED POLARIZATION SURVEY

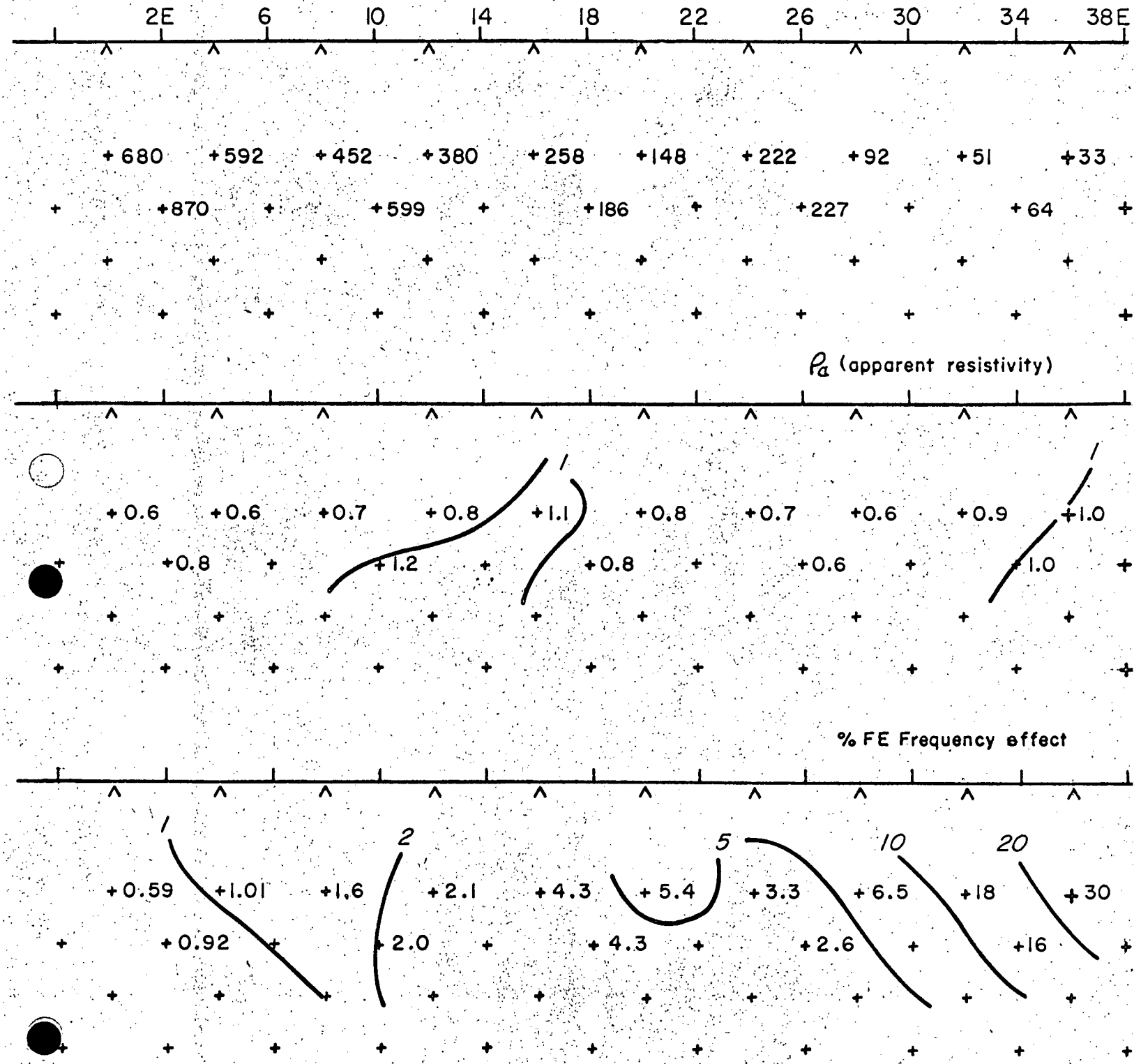
Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

date _____

line location CONTINENTAL CINCH
frequencies 3.0 & 0.3 cps
dipole length 400'
operators _____

location B.C. CANADA
map ref. _____
line no. 8S
bearing _____



continued from sheet _____ on sheet _____

SML FLD WORKSHEET 11/68

INDUCED POLARIZATION SURVEY

Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

line location CONTINENTAL CINCH
frequencies 3.0 & 0.3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 8 S
bearing

date

42E 46 50 54 58E

+41 +41 +39 +32
+7 +34

ρ_a (apparent resistivity)

1.5
+1.4 +1.2 +1.4 +1.8
+1.3 +1.7

% FE Frequency effect

50
+34 +30 +36 +56
+175 +50
100

$(M.F.)_a$ Metal Factor

continued from sheet ____ on sheet ____

SML FLD WORKSHEET 11/66

INDUCED POLARIZATION SURVEY

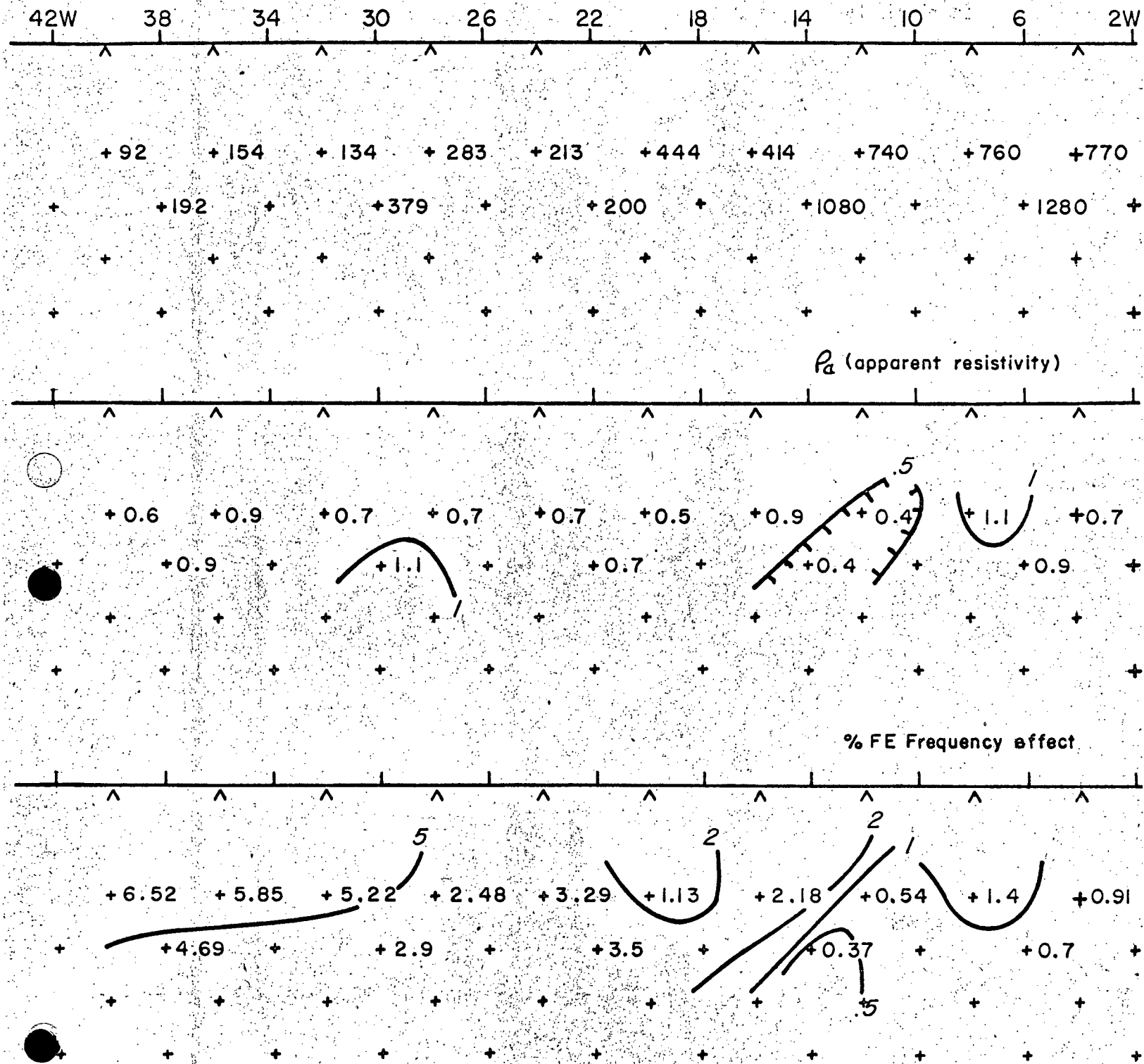
Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

date July 1969

line location CONTINENTAL CINCH
frequencies 3.0 & 0.3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 4 S
bearing



continued from sheet ____ on sheet ____

SML FLD WORKSHEET 11/66

INDUCED POLARIZATION SURVEY

Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

date July 1969

line location CONTINENTAL CINCH
frequencies 3.0 & 0.3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 4S
bearing

2E 6 10 14 18 22 26 30 34 38E

+700 +582 +502 +370 +174 +530 +82 +147 +46 +45
+940 +502 +376 +86 +47

ρ_a (apparent resistivity)

1 .5
+1.3 +1.1 +0.6 +0.4 +0.6 +0.9 +0.5 +0.7 +0.5 +0.9
+0.7 +1.0 +0.6 +0.5 +0.9

% FE Frequency effect

2 5 10 20
+1.9 +1.9 +1.2 +1.1 +3.5 +2.0 +6.0 +5.0 +11.0 +20.0
+0.75 +1.7 +1.6 +6.0 +19.0

$(M.F.)_a$ Metal Factor

continued from sheet ____ on sheet ____

INDUCED POLARIZATION SURVEY

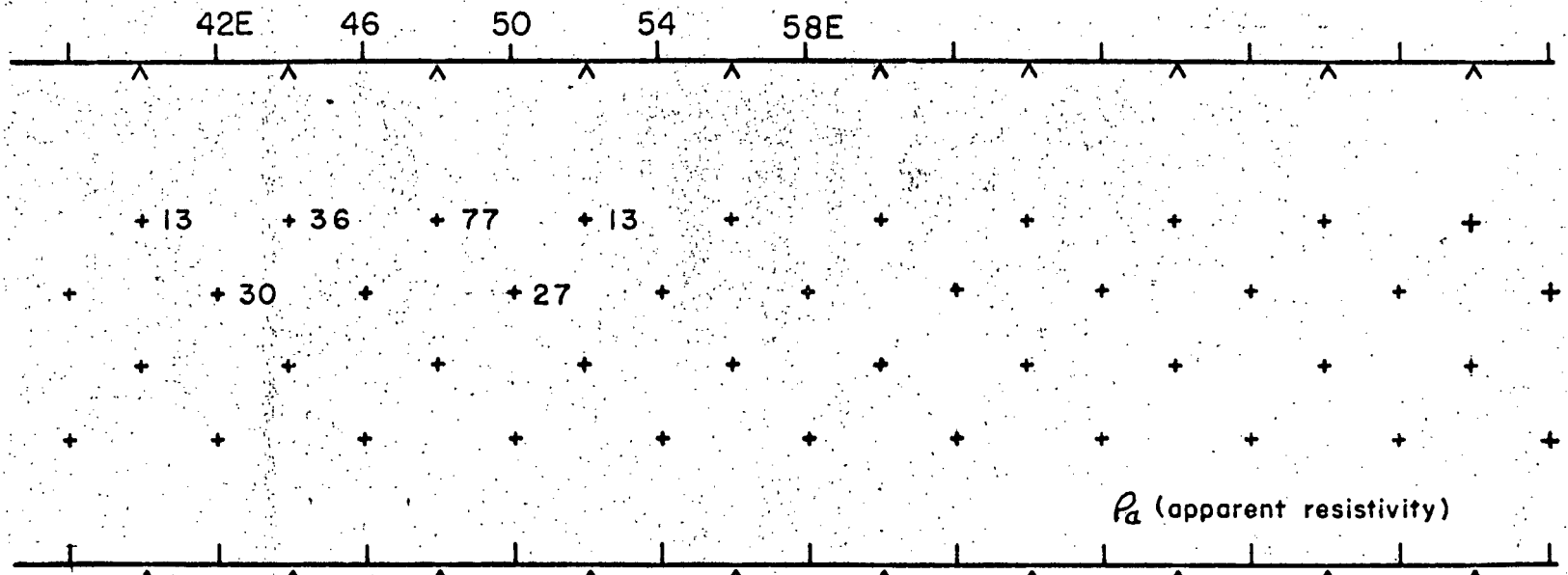
Geoscience Incorporated

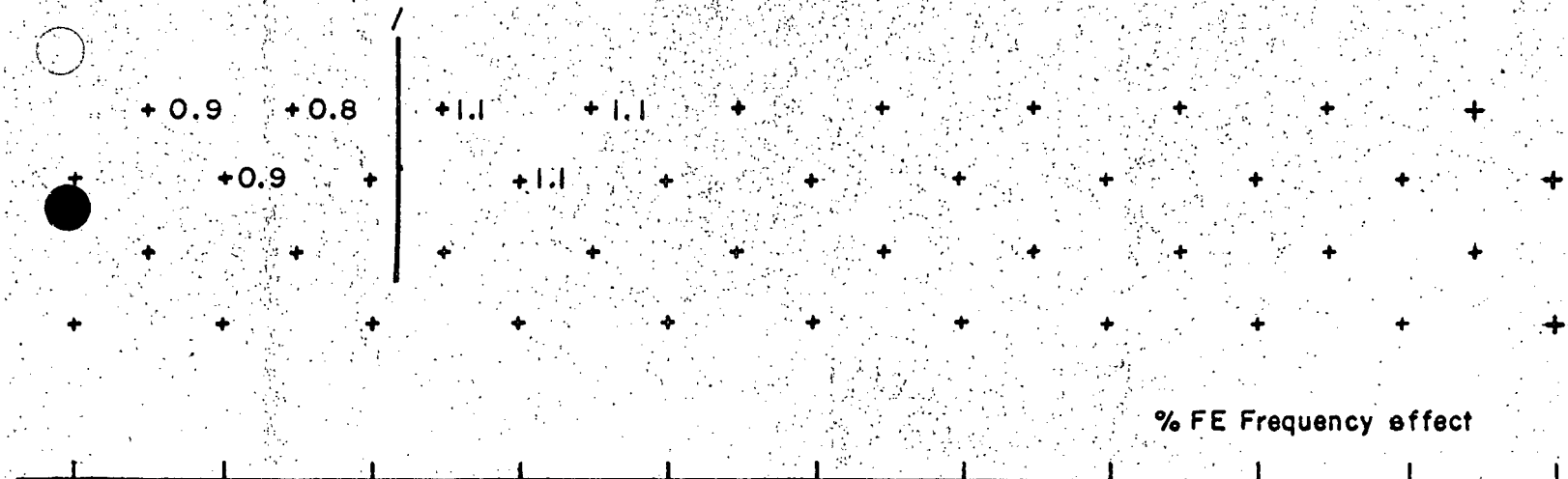
199 BENT STREET, CAMBRIDGE, MASS, 02141

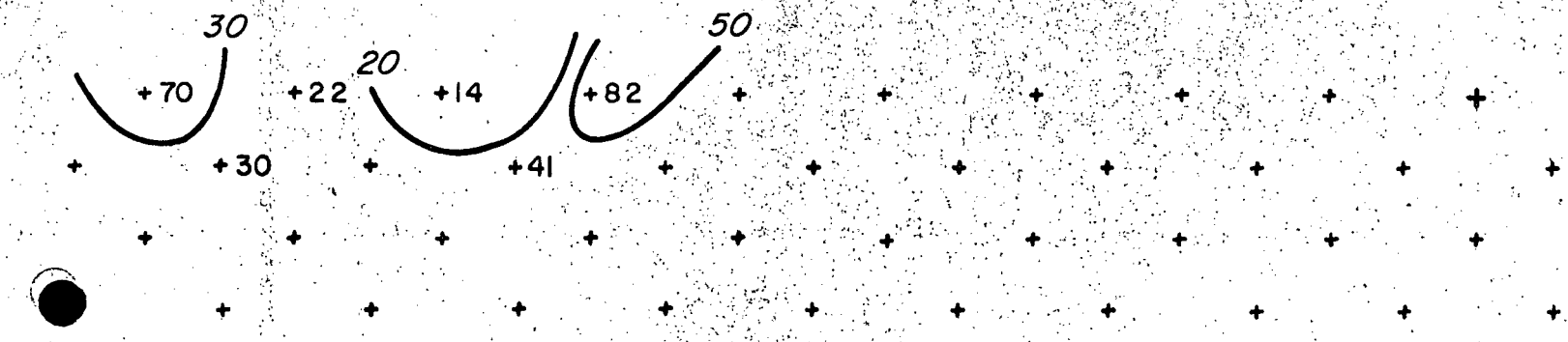
date July 1969

line location CONTINENTAL CINCH
frequencies 3.0 & 0.3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 4S
bearing







continued from sheet ____ on sheet ____

SML FLD WORKSHEET 11/68

INDUCED POLARIZATION SURVEY

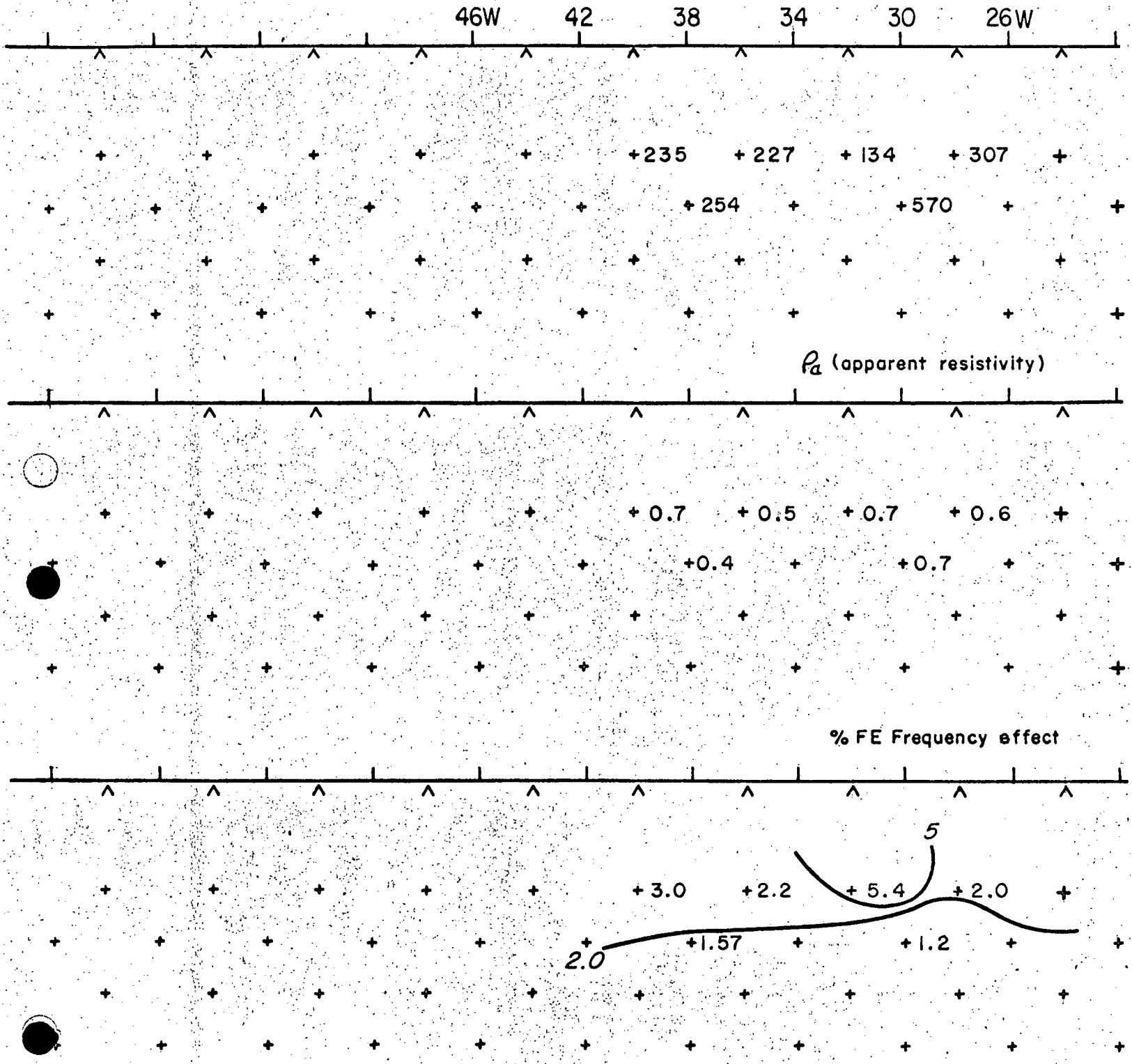
Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

date July 1969

line location CONTINENTAL CINCH
frequencies 3.0 & 0.3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 00
bearing



continued from sheet ____ on sheet ____

SML FLD WORKSHEET 11/68

INDUCED POLARIZATION SURVEY

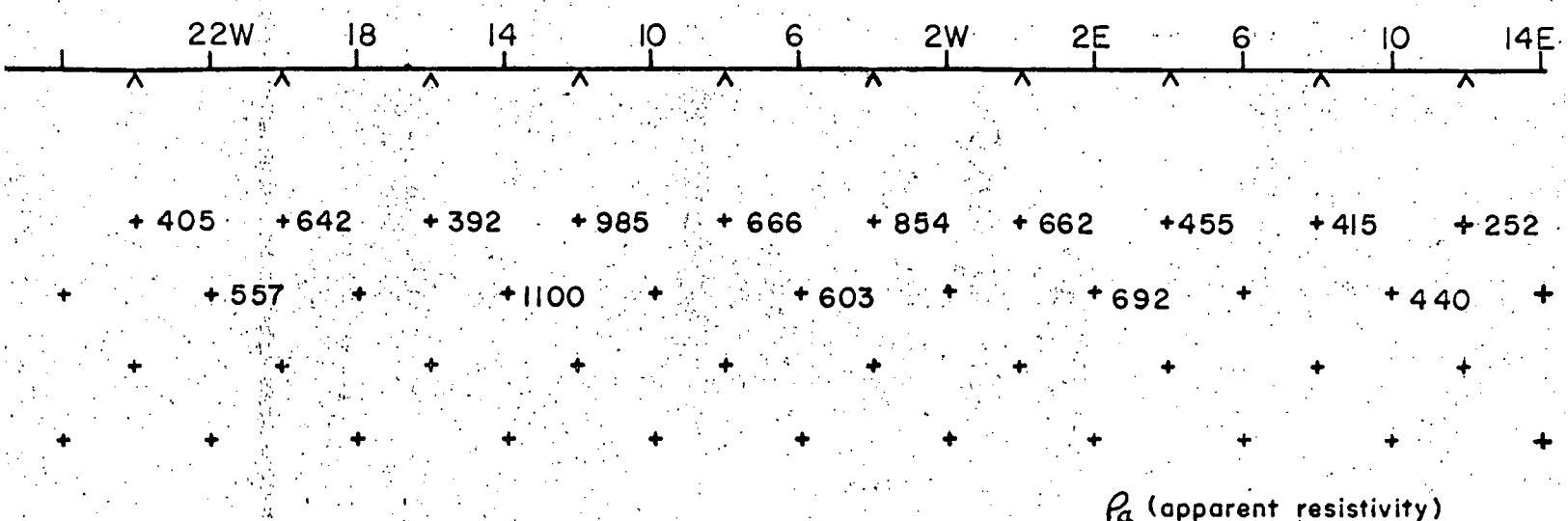
Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

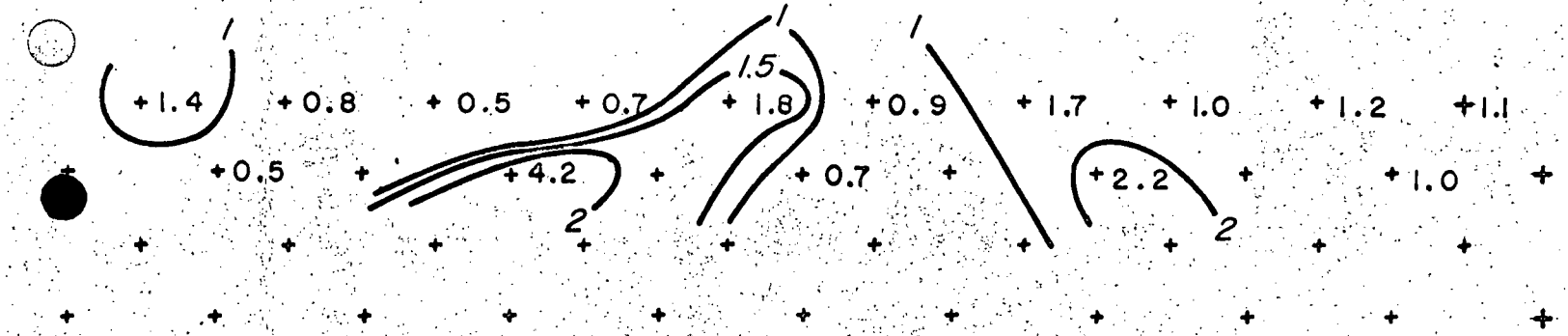
date July 1969

line location CONTINENTAL CINCH
frequencies 3.0 & 0.3 cps
dipole length 400'
operators

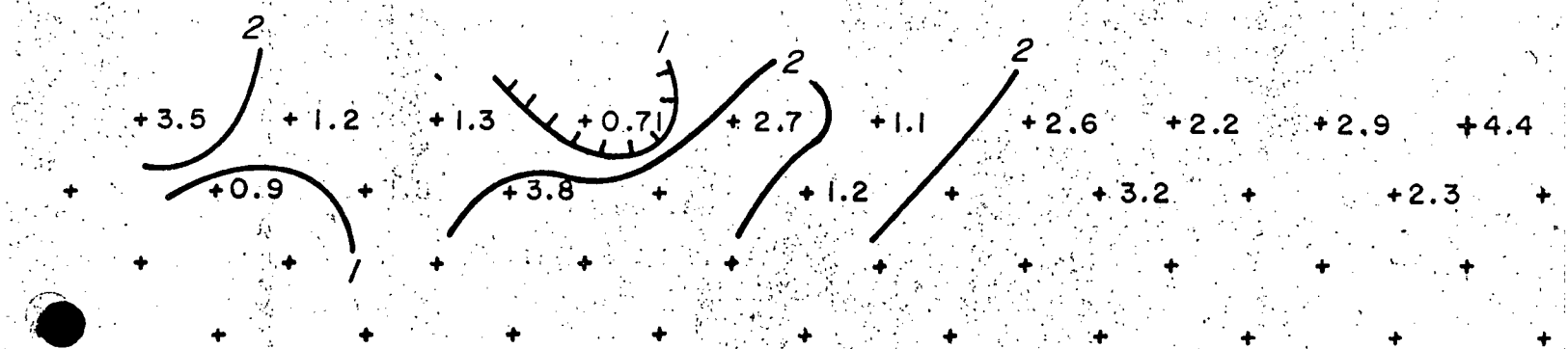
location B.C. CANADA
map ref.
line no. 00
bearing



ρ_a (apparent resistivity)



% FE Frequency effect



$(M.F.)_a$ Metal Factor

continued from sheet ____ on sheet ____

INDUCED POLARIZATION SURVEY

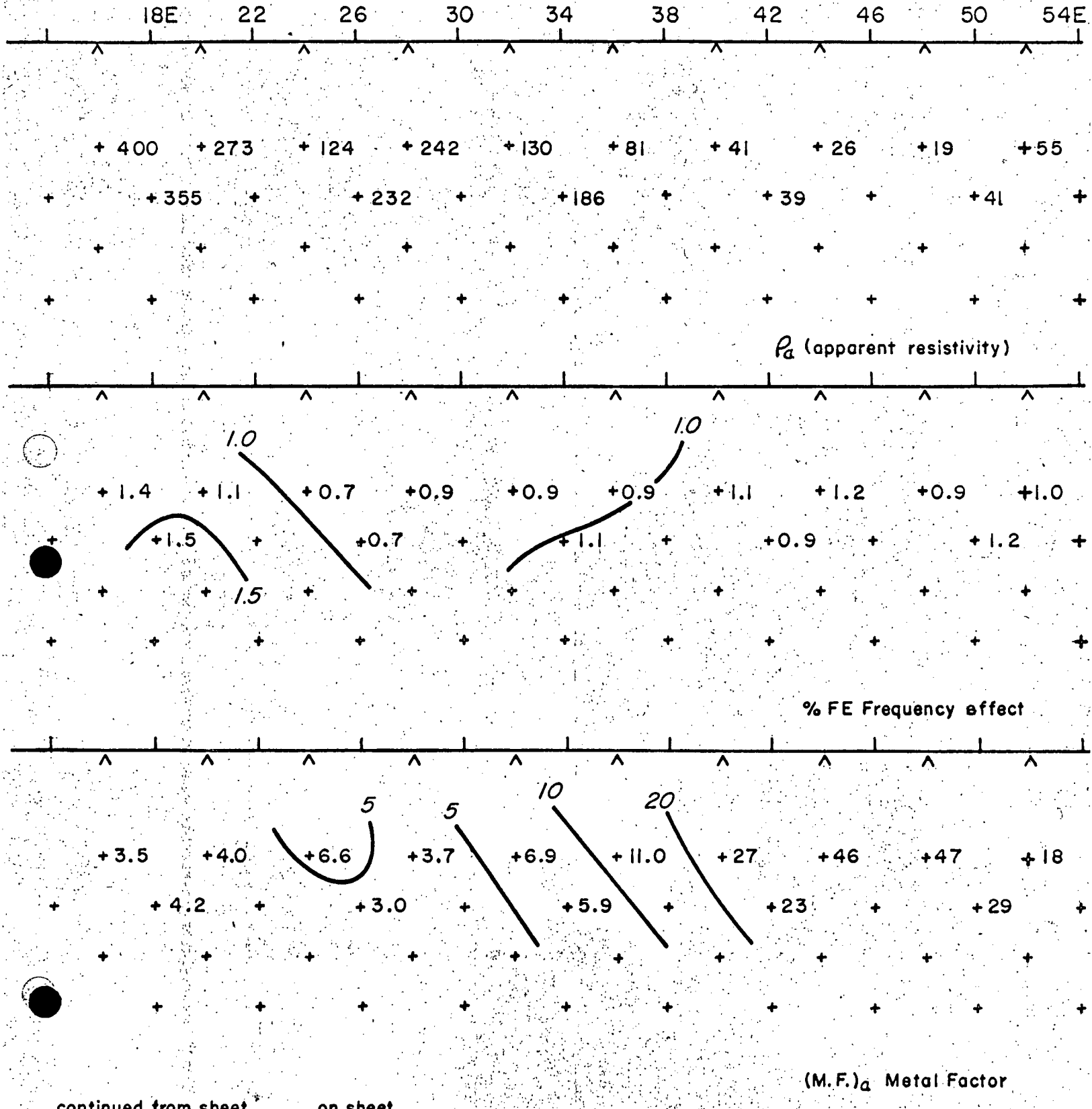
Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

date July 1969

line location CONTINENTAL CINCH
frequencies 3.0 & 0.3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 00
bearing



continued from sheet ____ on sheet ____

SML FLD WORKSHEET 11/68

INDUCED POLARIZATION SURVEY

Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

date OCT. '69

line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 400' DETAIL
operators

location B.C. CANADA
map ref.
line no. 00
bearing

24W 20 16 12 8 4 0 4 electrode no. 12 16E

740 385 1180 719 996 970 511 401 335
860 1300 1340 769 1540 465 490 370 419
2060 1380 1390 1600 660 475 612 1200
3350 1100 2400 660 703

ρ_a (apparent resistivity)

0.5
0.4 0.7 1.0 1.1 1.1 1.1 0.9 1.1 1.1
1.0 1.1 1.3 0.9 1.3 1.0 0.9 1.0 1.2
1.1 1.0 0.8 0.7 1.2 0.9 0.8 0.8
1.0 0.8 1.0 0.9 0.8

% FE Frequency effect

0.5 1.8 0.8 1.5 1.1 1.1 1.8 2.7 3.3
1.2 0.8 1.0 1.2 0.8 2.2 1.8 2.7 2.9
0.5 0.7 0.6 0.4 1.8 1.9 1.3 0.7
0.3 0.7 0.4 1.4 1.1
0.5 0.5

1.5 2 2

$(M.F.)_a$ Metal Factor

continued from sheet ——— on sheet ———

SML FLD WORKSHEET

INDUCED POLARIZATION SURVEY

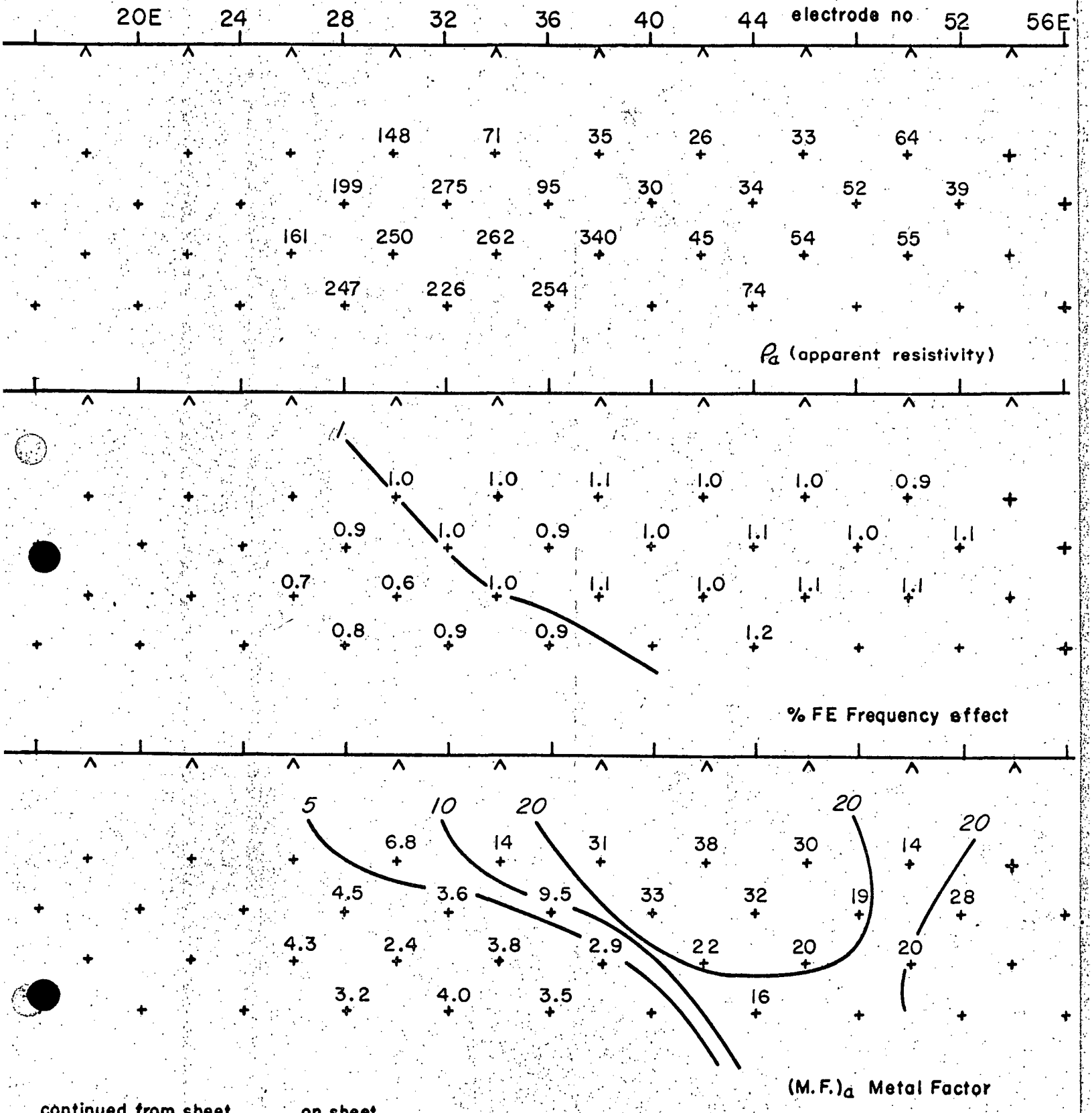
Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

date OCT. '69

line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 400' DETAIL
operators

location B.C. CANADA
map ref.
line no. 00
bearing



continued from sheet ____ on sheet ____

SML FLD WORKSHEET

INDUCED POLARIZATION SURVEY

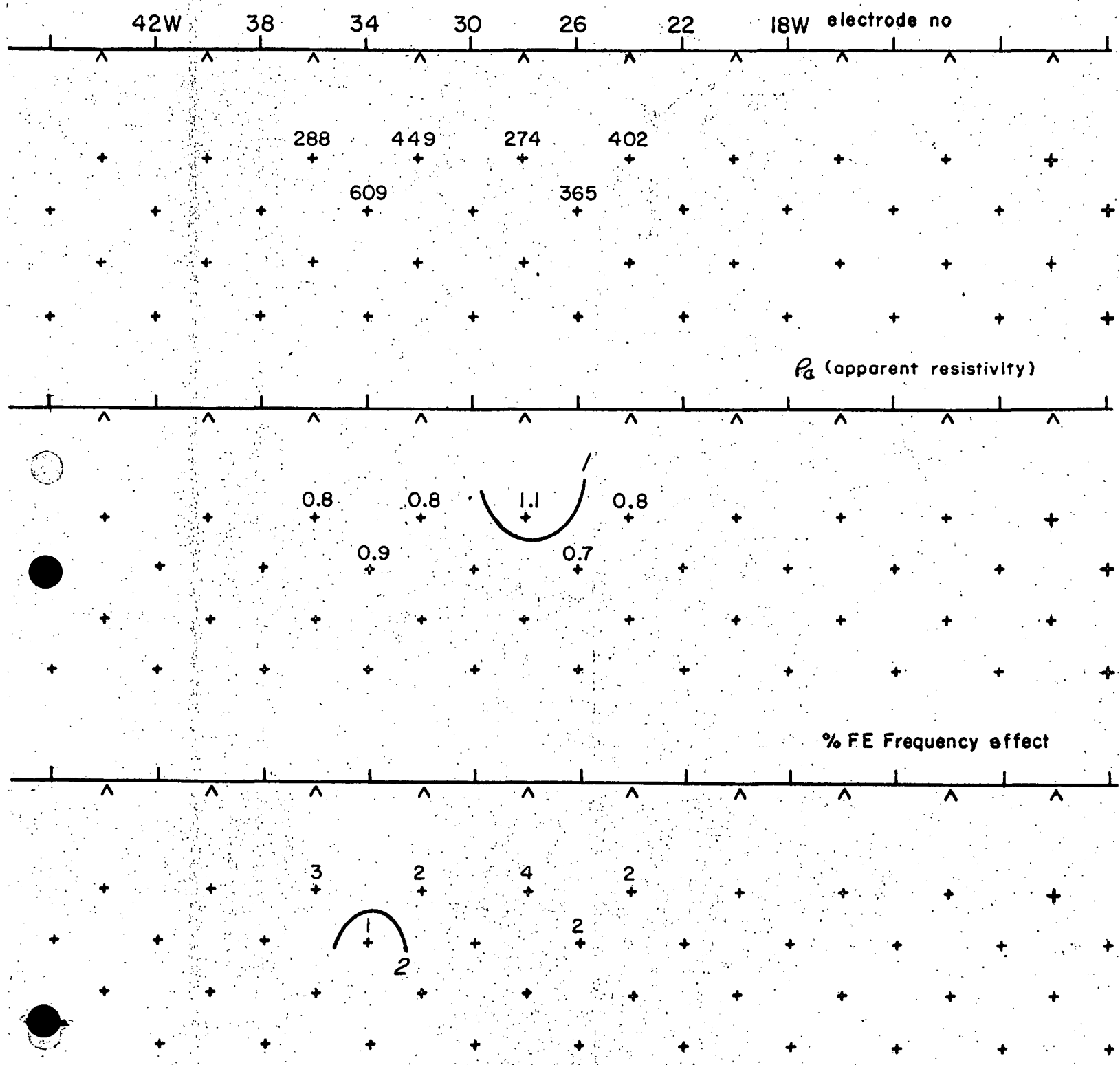
Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

date SEPT.'69

line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 4N
bearing



continued from sheet ____ on sheet ____

SML FLD WORKSHEET

INDUCED POLARIZATION SURVEY

Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

date OCT. '69

line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 4N
bearing

4E 8 12 16 20 24 28 32E electrode no

810 770 320 212' 150 193
1290 870 194 363 278
780 498 284 279
447 294

ρ_a (apparent resistivity)

0.8 1.0 1.2 0.7 0.5 0.9
1.1 1.1 0.9 0.8 0.7
0.8 0.9 1.0 0.9
0.9 0.5

% FE Frequency effect

2
1.0 1.3 3.8 3.3 3.3 4.7
0.9 1.3 4.6 2.2
1.0 1.9 3.5 3.2
2.0 1.7
2

$(M.F.)_a$ Metal Factor

continued from sheet ____ on sheet ____

SML FLD WORKSHEET

INDUCED POLARIZATION SURVEY

Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

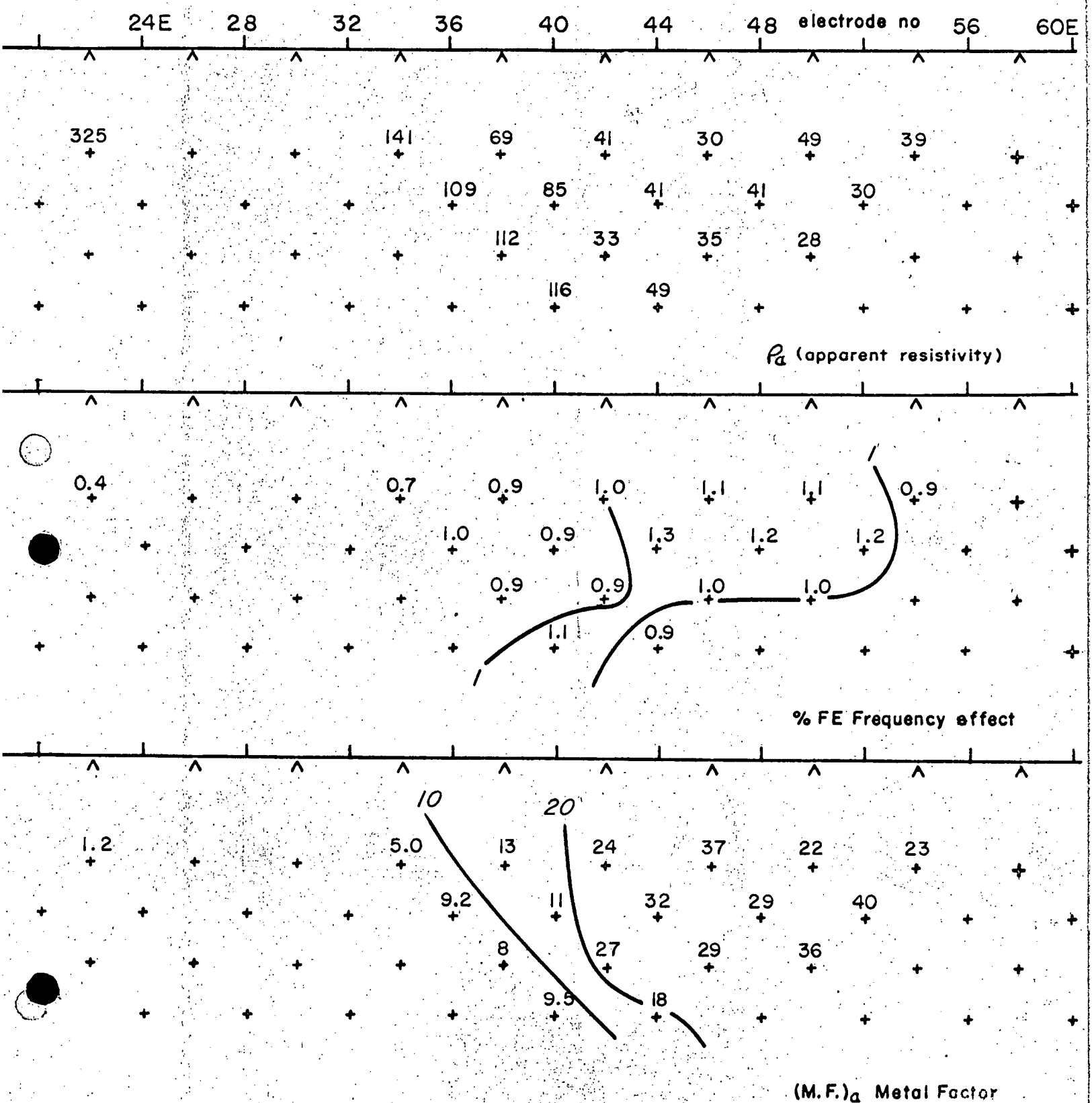
date OCT. '69

line location CONTINENTAL CINCH — location B.C. CANADA

frequencies 3 & .3 cps — map ref.

dipole length 400' DETAIL — line no. 8N

operators — bearing



continued from sheet ____ on sheet ____

FIELD WORKSHEET

INDUCED POLARIZATION SURVEY

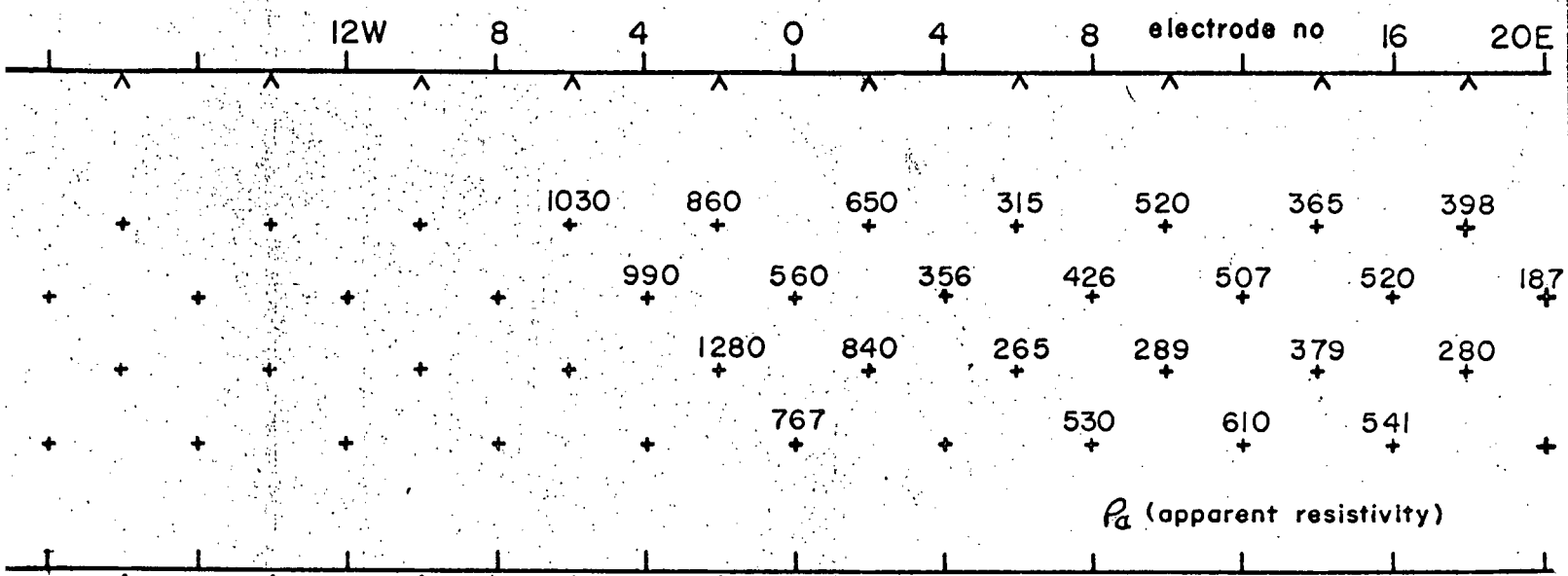
Geoscience Incorporated

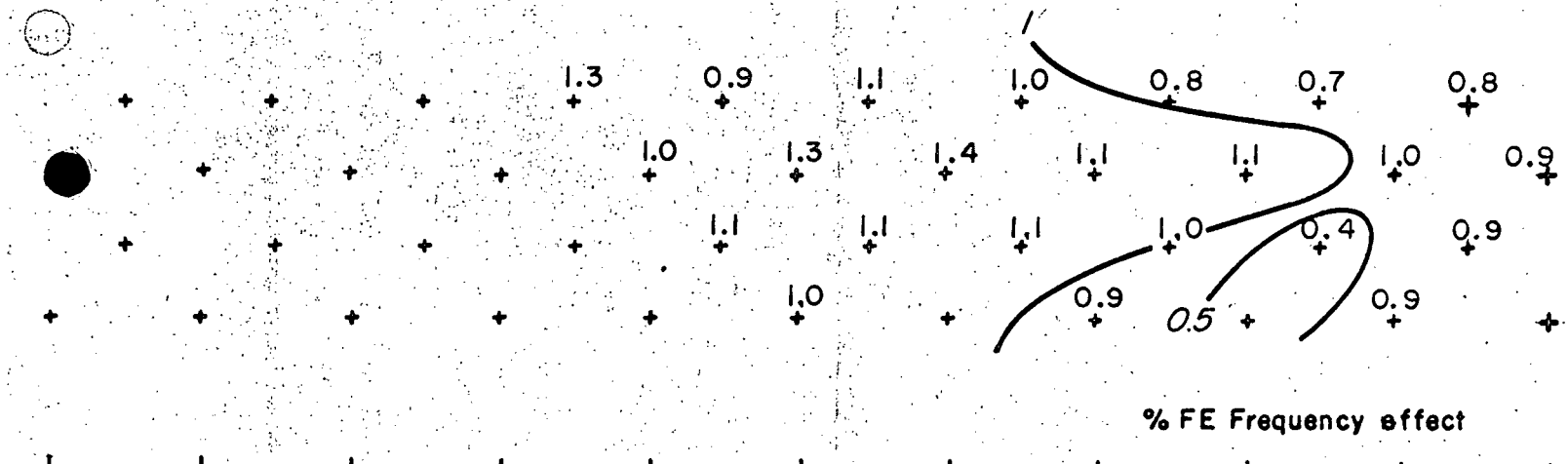
199 BENT STREET, CAMBRIDGE, MASS, 02141

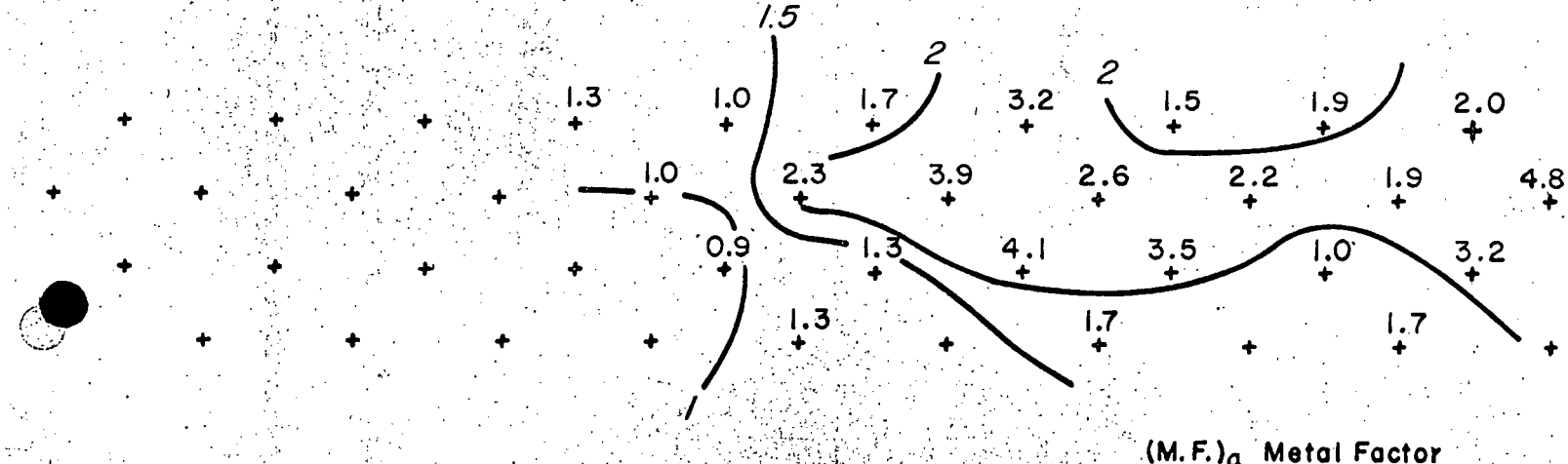
date OCT. '69

line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 400' DETAIL
operators

location B.C. CANADA
map ref.
line no. 8N
bearing







continued from sheet ____ on sheet ____

SMI. FLD. WORKSHEET

INDUCED POLARIZATION SURVEY

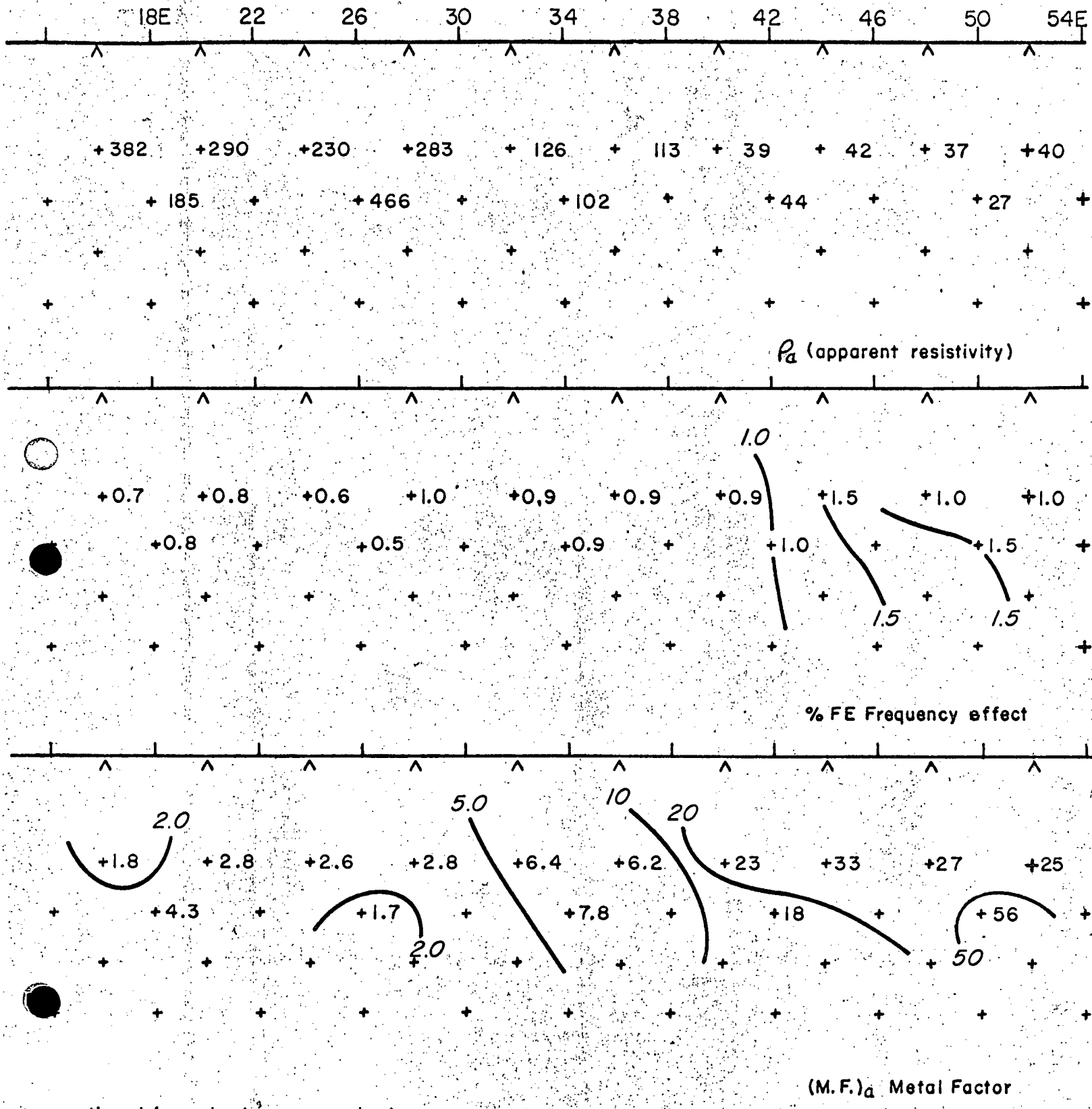
Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

date July 1969

line location CONTINENTAL CINCH
frequencies 3.0 & 0.3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 8N
bearing



continued from sheet ____ on sheet ____

SML FLD WORKSHEET 11/66

INDUCED POLARIZATION SURVEY

Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

date July 1969

line location CONTINENTAL CINCH
frequencies 3.0 & 0.3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 8N
bearing

22W 18 14 10 6 2W 2E 6 10 14E

+368 +614 +630 +800 +362 +1150 +375 +590 +378 +494

+440 +2200 +940 +414 +460

ρ_a (apparent resistivity)

+0.4 +0.6 +0.9 +0.7 +0.9 +1.0 +0.8 +2.0 +1.1 +1.0

+0.8 +0.9 +1.0 +1.2 +1.1

1 1.5 1

% FE Frequency effect

+1.1 +0.98 +1.4 +0.88 +2.5 +0.96 +2.1 +3.4 +2.9 +2.2

+1.8 +0.41 +1.1 +2.9 +2.4

1 2 1 2

$(M.F.)_a$ Metal Factor

continued from sheet ____ on sheet ____

SML FLD WORKSHEET 11/68

INDUCED POLARIZATION SURVEY

Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 8N
bearing

date SEPT.'69

46W 42 38 34 30 26W electrode no

730 460 623 384
562 955

ρ_a (apparent resistivity)

0.9 0.7 0.7 0.6
0.7 0.9

% FE Frequency effect

2 2

$(M.F.)_a$ Metal Factor

continued from sheet ____ on sheet ____

INDUCED POLARIZATION SURVEY

Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

date SEPT. '69

line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 12N
bearing

42W 38 34 30 26 22 18W electrode no

395 570 303 552
500 730

ρ_a (apparent resistivity)

0.6 0.7 0.5 0.8
0.6 0.7

% FE Frequency effect

2 2 2 2 1 1 1

$(M.F.)_a$ Metal Factor

continued from sheet ____ on sheet ____

INDUCED POLARIZATION SURVEY

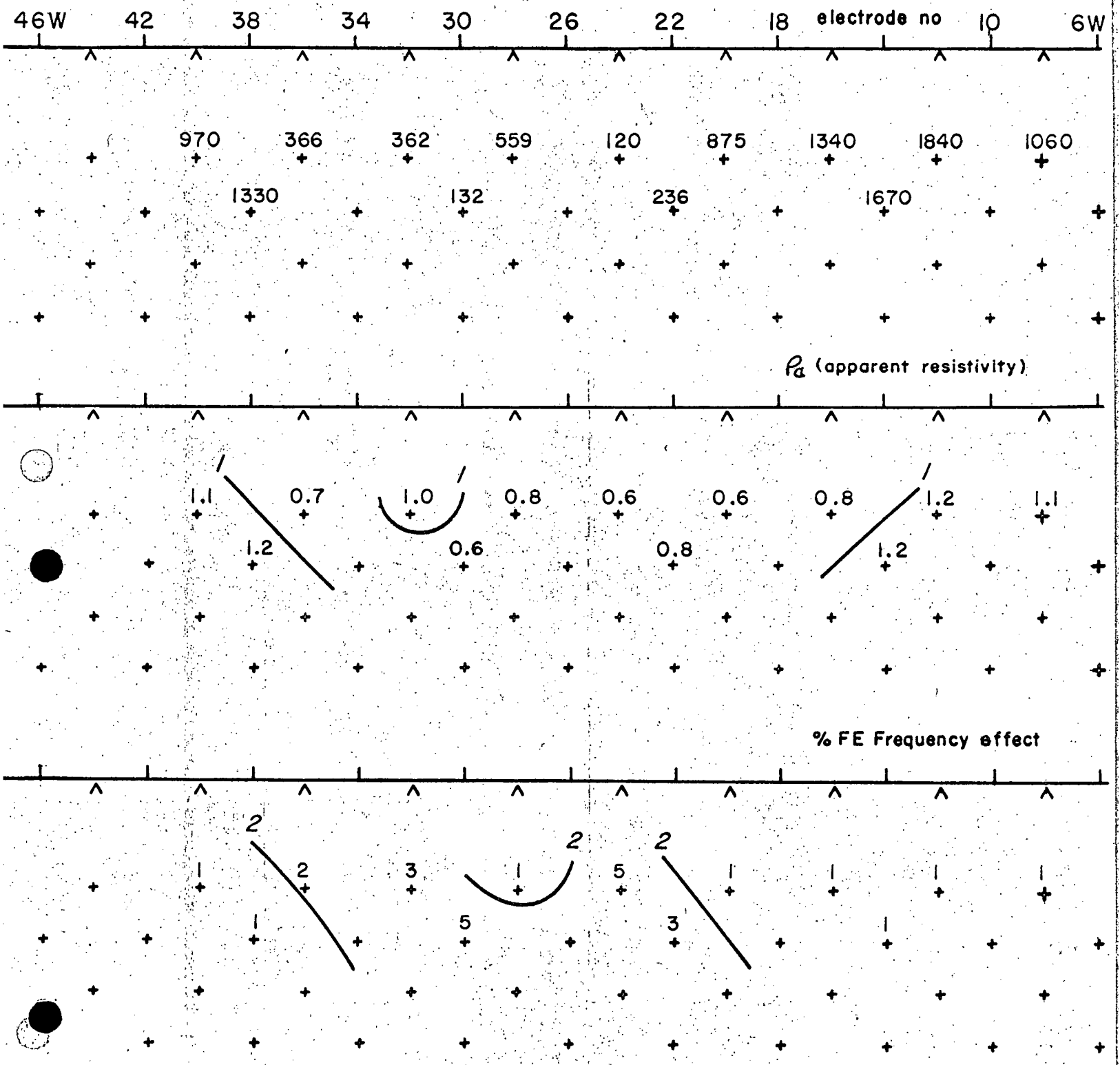
Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

date SEPT. '69

line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 16 N
bearing



continued from sheet ____ on sheet ____

INDUCED POLARIZATION SURVEY

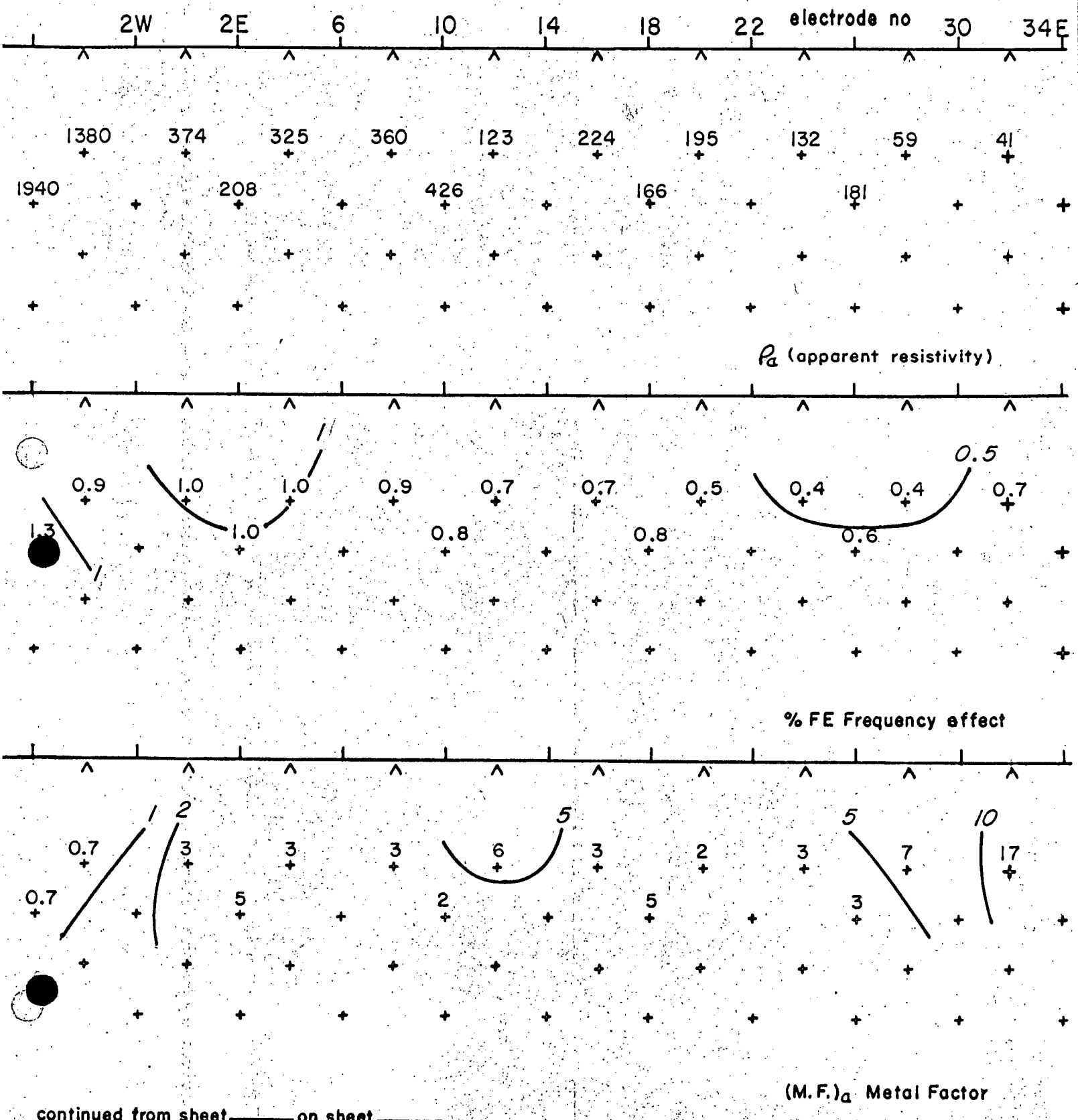
Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

date SEPT. '69

line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 16N
bearing



continued from sheet ____ on sheet ____

SMI FLD WORKSHEET

INDUCED POLARIZATION SURVEY

Geoscience Incorporated

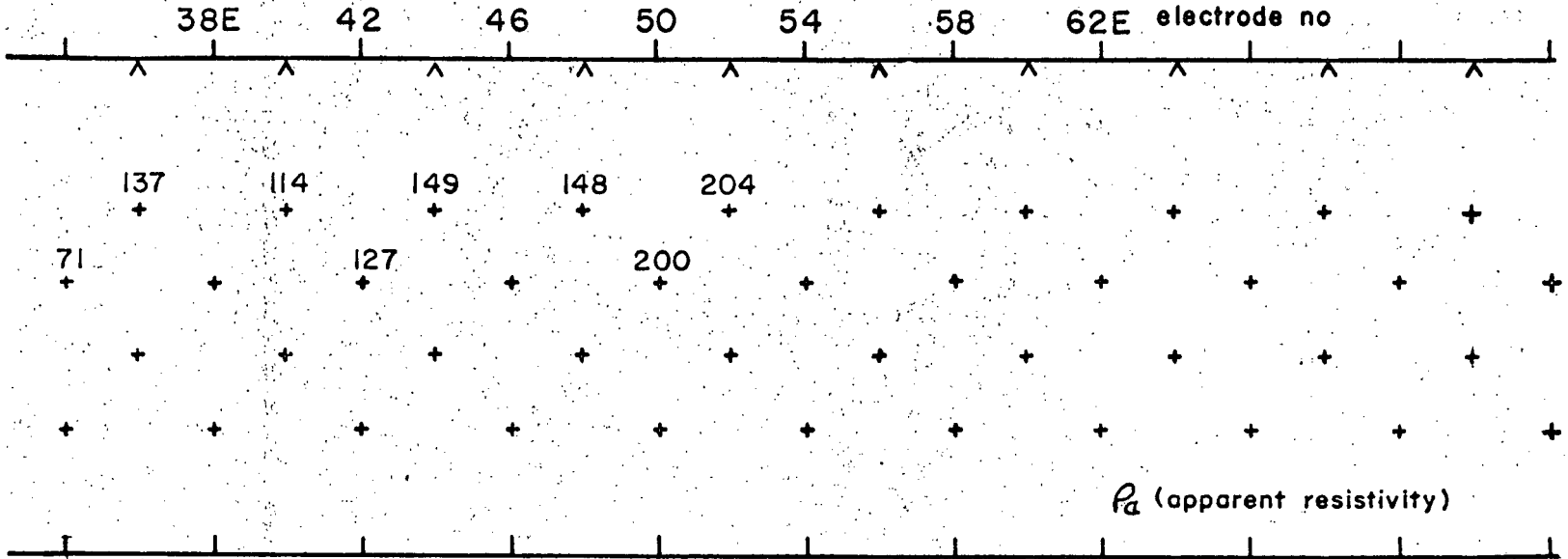
199 BENT STREET, CAMBRIDGE, MASS. 02141

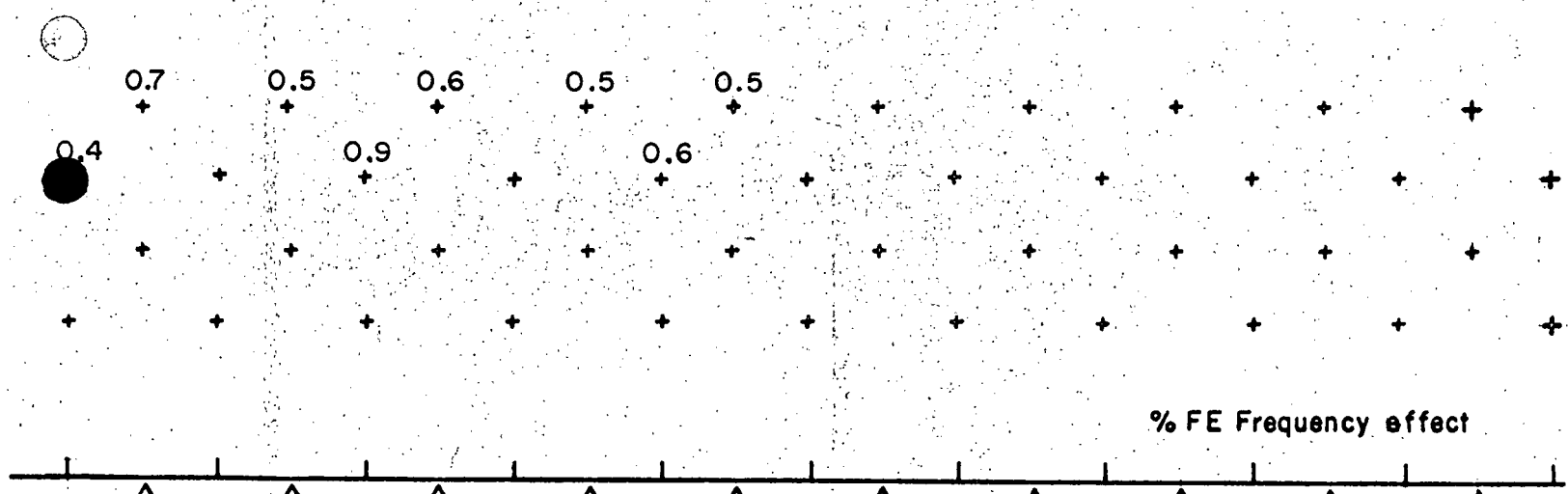
line location CONTINENTAL CINCH — location B.C. CANADA — date SEPT. '69

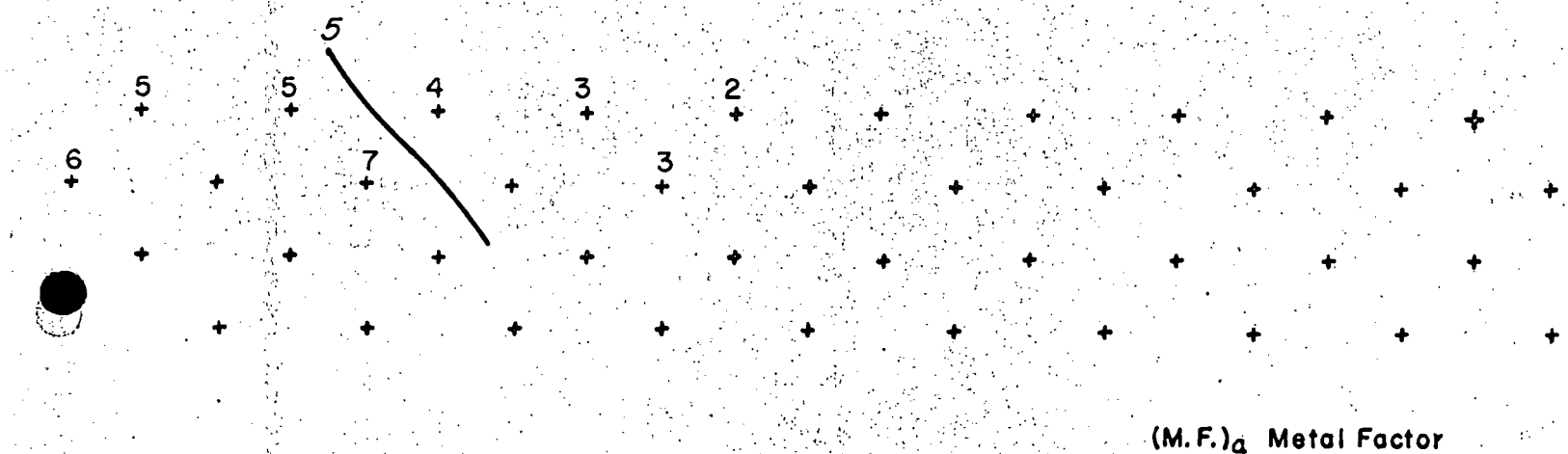
frequencies 3 & .3 cps — map ref.

dipole length 400' — line no. 16N

operators — bearing







continued from sheet ____ on sheet ____

INDUCED POLARIZATION SURVEY

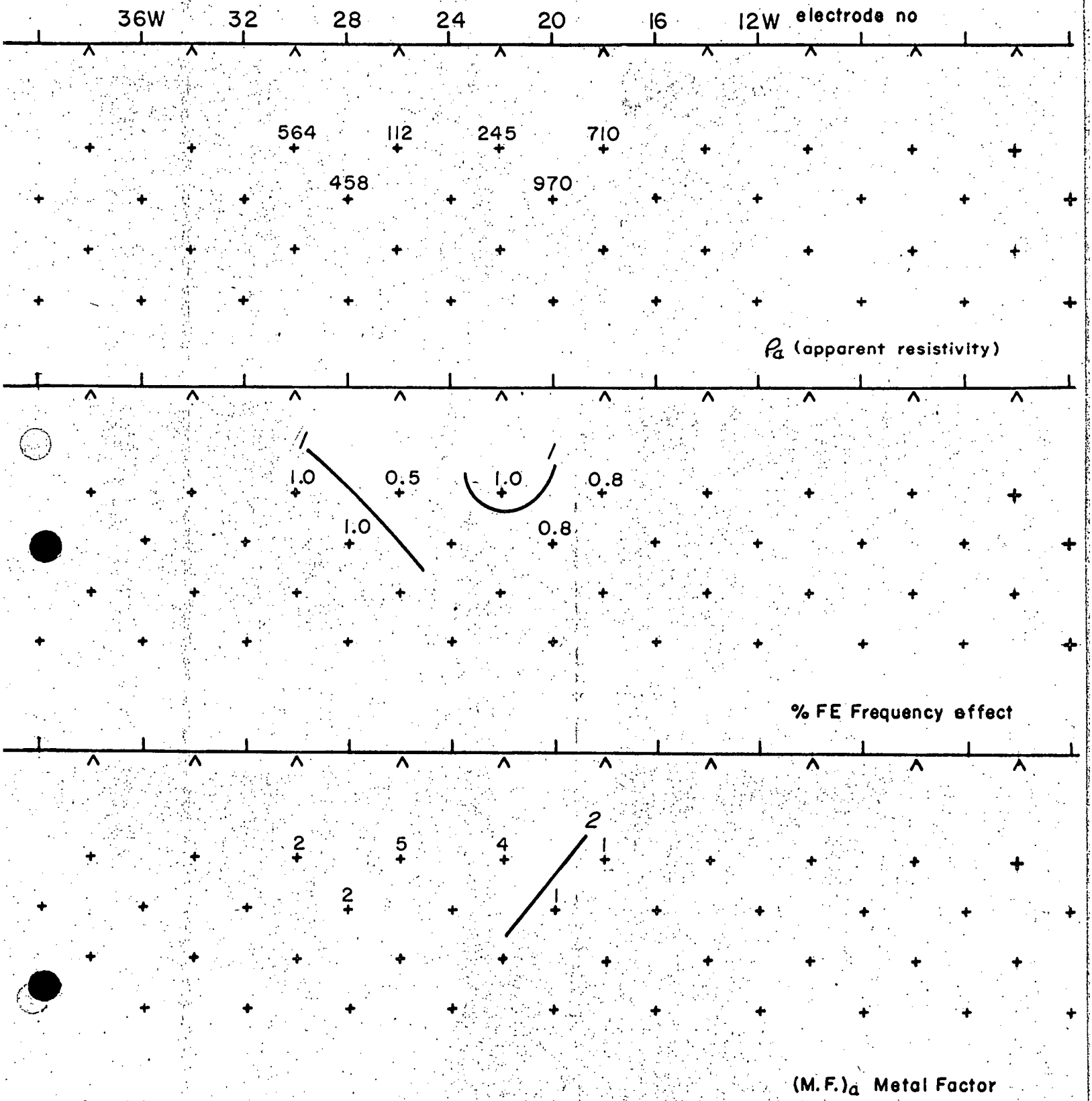
Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

date SEPT. '69

line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 20 N
bearing



continued from sheet ____ on sheet ____

SMI FLD WORKSHEET

INDUCED POLARIZATION SURVEY

Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

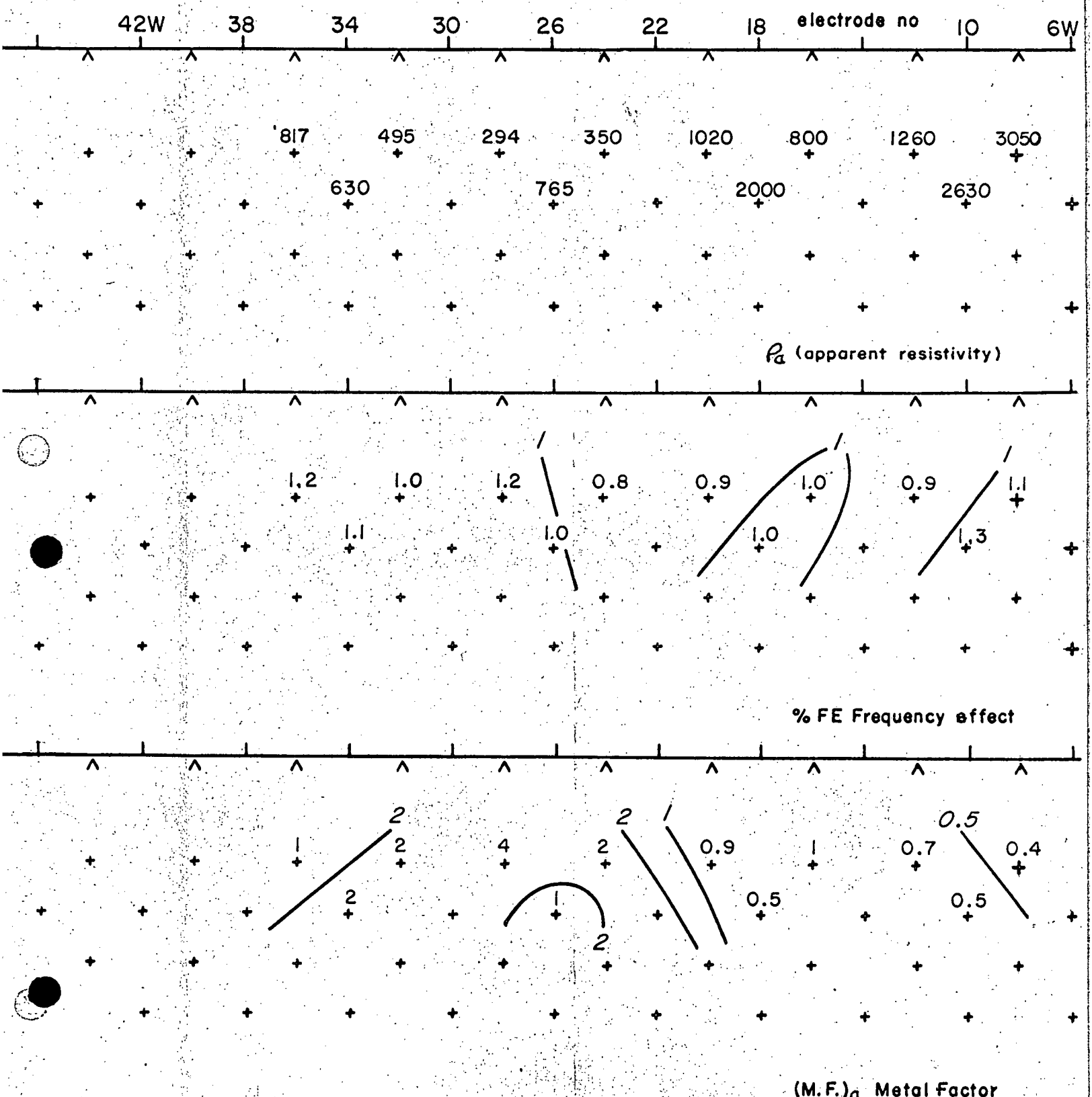
date SEPT. '69

line location CONTINENTAL CINCH — location B.C. CANADA

frequencies 3 & .3 cps — map ref.

dipole length 400' — line no. 24N

operators — bearing



continued from sheet ____ on sheet ____

SMI FLD WORKSHEET

INDUCED POLARIZATION SURVEY

Geoscience Incorporated

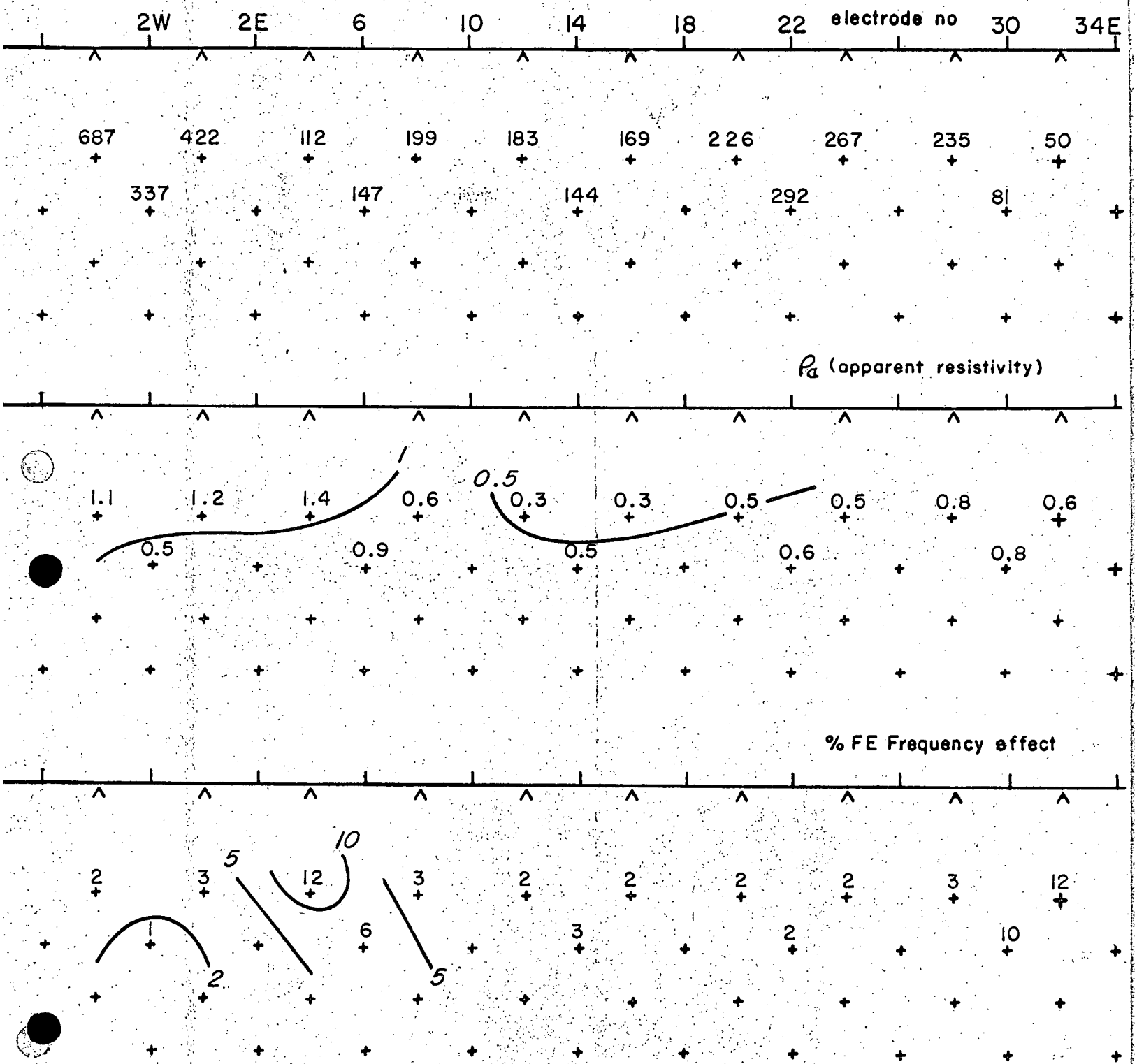
199 BENT STREET, CAMBRIDGE, MASS, 02141

line location CONTINENTAL CINCH — location B.C. CANADA — date SEPT. '69

frequencies 3 & .3 cps — map ref.

dipole length 400' — line no. 24 N

operators — bearing



continued from sheet ____ on sheet ____

SMI. FLD. WORKSHEET

INDUCED POLARIZATION SURVEY

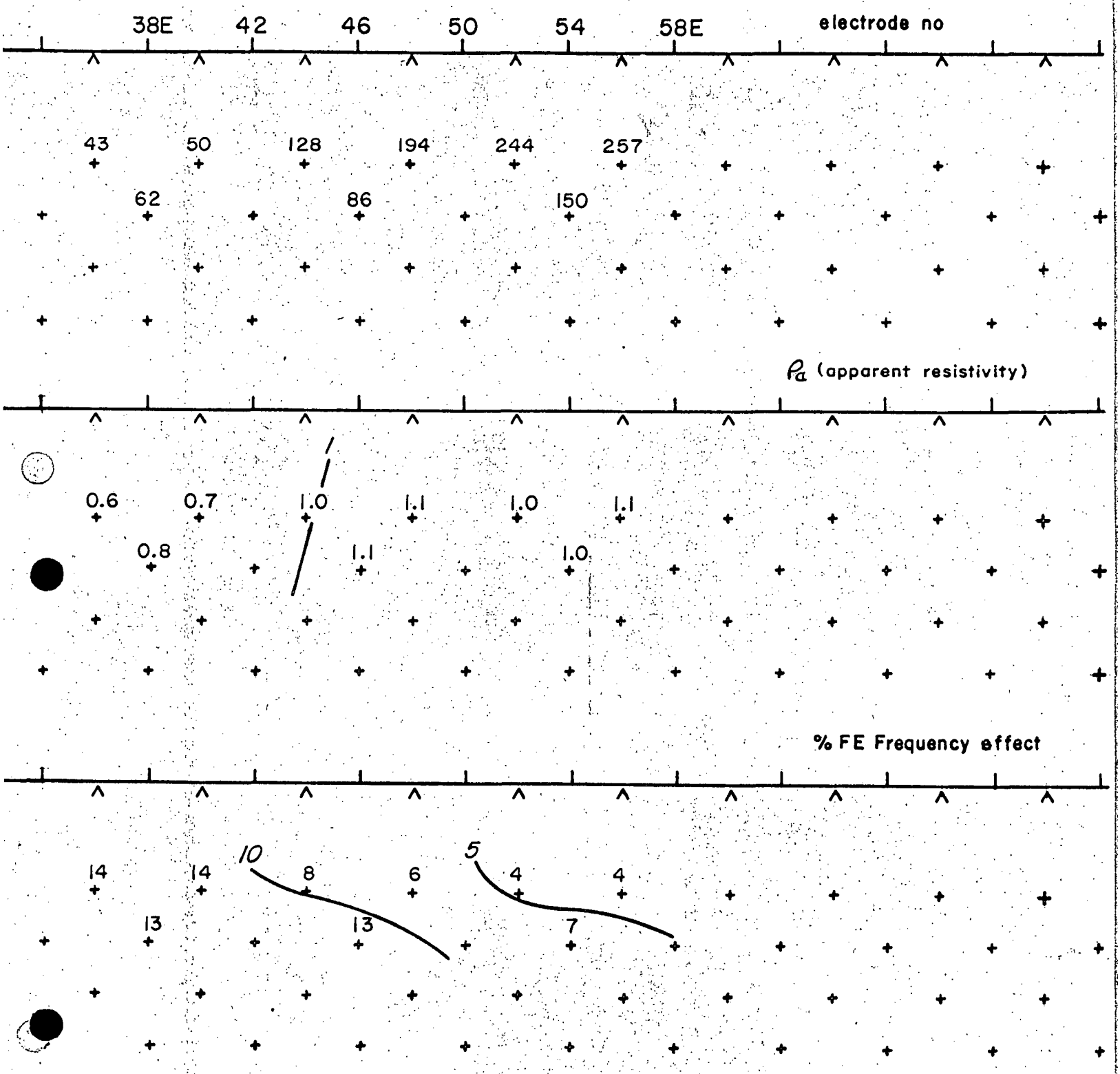
Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

date SEPT. '69

line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 24N
bearing



continued from sheet _____ on sheet _____

INDUCED POLARIZATION SURVEY

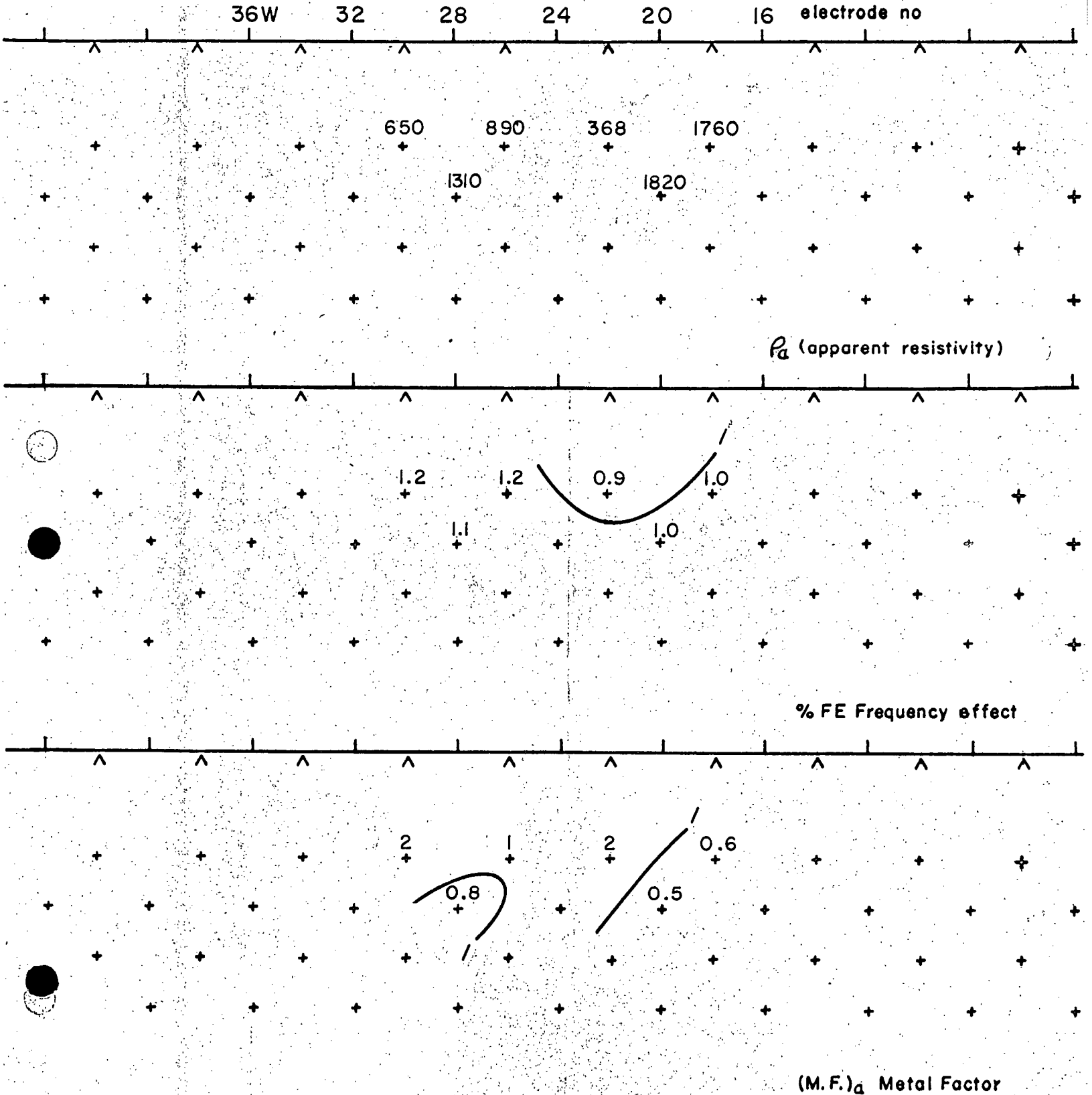
Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

date SEPT. '69

line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 28N
bearing



continued from sheet ____ on sheet ____

INDUCED POLARIZATION SURVEY

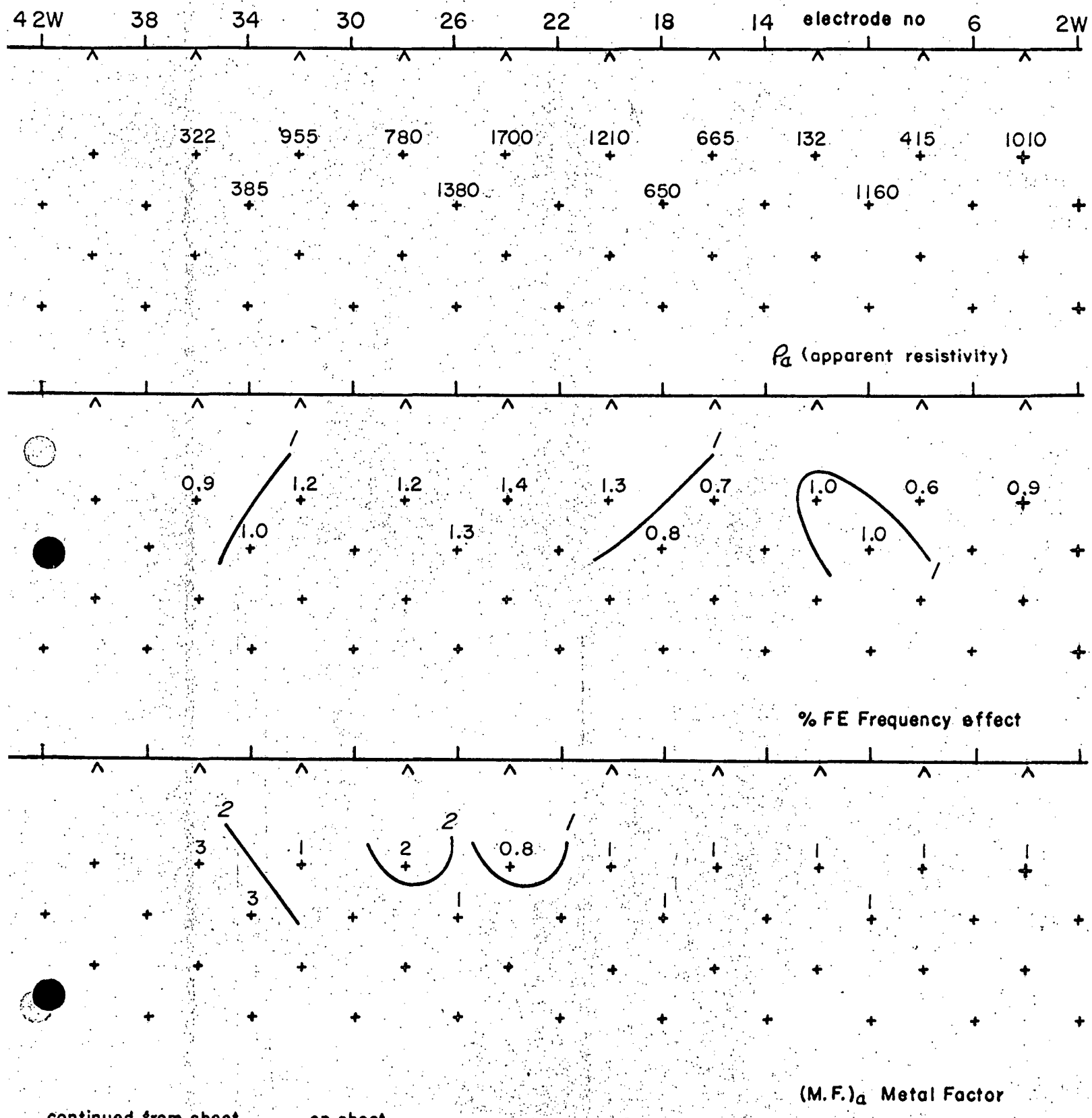
Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

date _____

line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 400'
operators _____

location B.C. CANADA
map ref. _____
line no. 32 N
bearing _____



continued from sheet _____ on sheet _____

SML. FLD. WORKSHEET

INDUCED POLARIZATION SURVEY

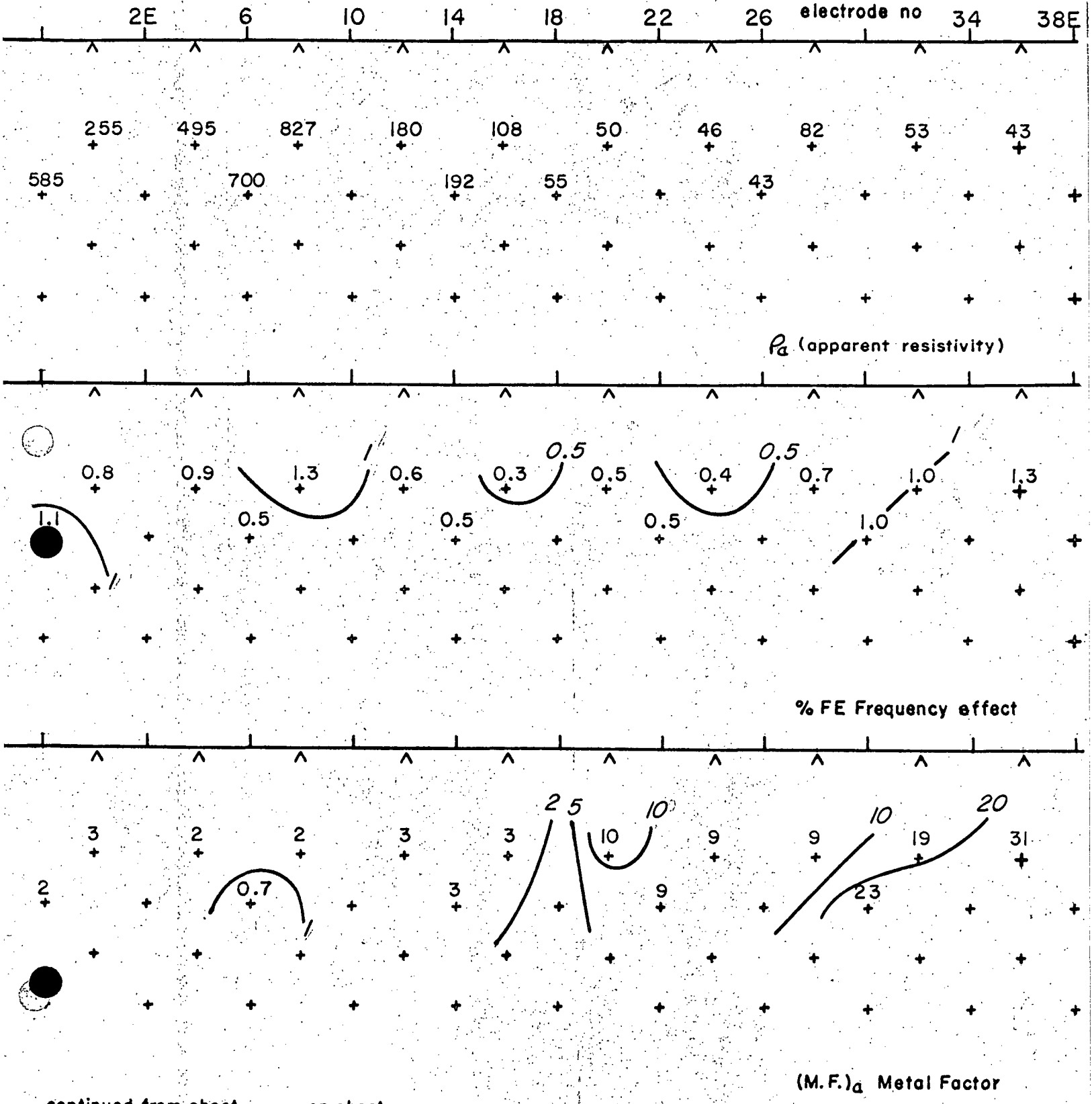
Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

date _____

line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 400'
operators _____

location B.C. CANADA
map ref. _____
line no. 32N
bearing _____



continued from sheet _____ on sheet _____

SMI FLD WORKSHEET

INDUCED POLARIZATION SURVEY

Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 32N
bearing

date

42E 46 50 54 58 62E electrode no

42 45 66 103 100
44 51 122

ρ_a (apparent resistivity)

1.2 1.3 1.1 1 0.9 0.9
1.2 1.2 0.9

% FE Frequency effect

25 29 20 17 10 9 9
28 24 7

$(M.F.)_a$ Metal Factor

continued from sheet ____ on sheet ____

SIL FLD WORKSHEET

INDUCED POLARIZATION SURVEY

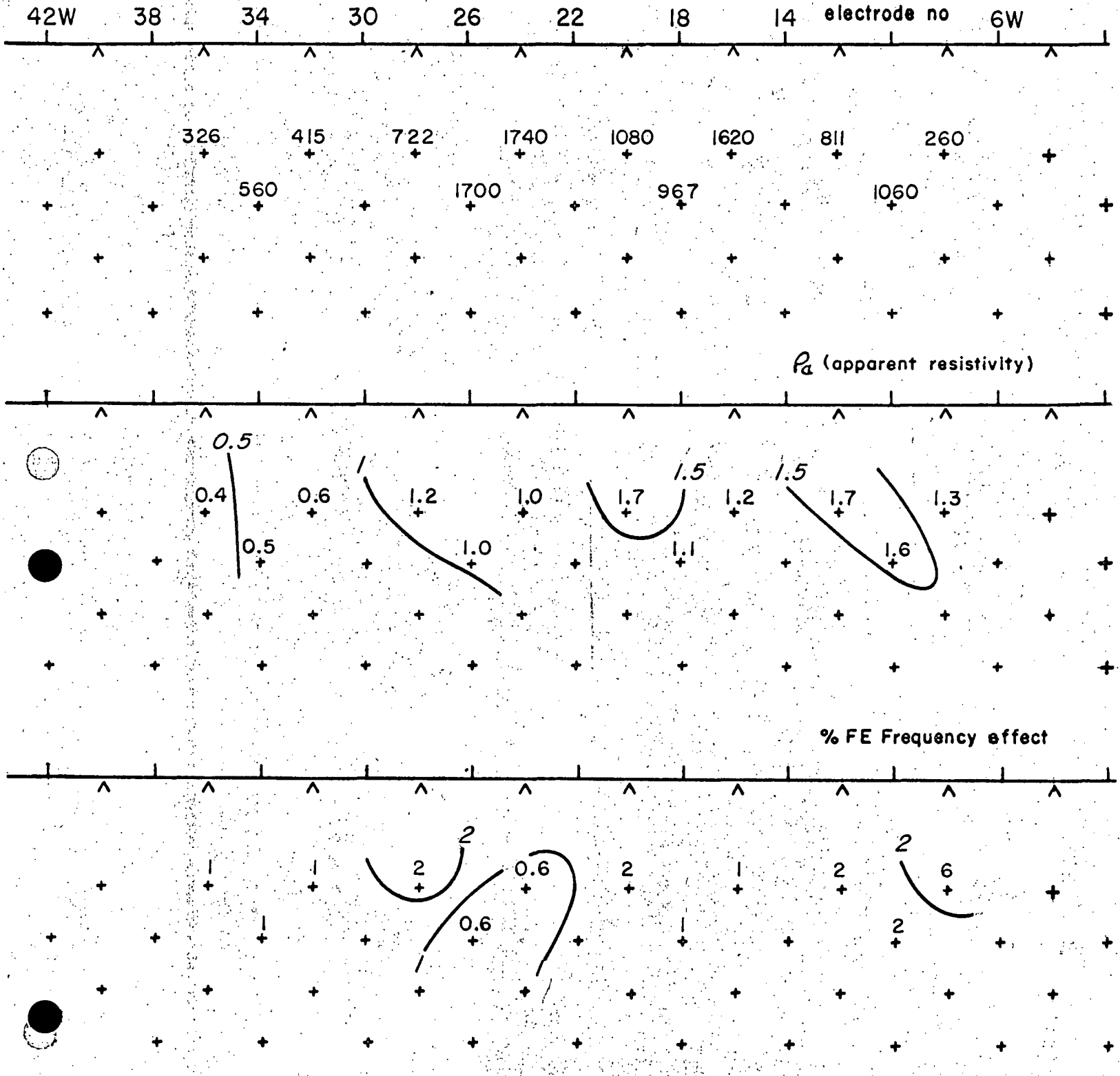
Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

date SEPT. '69

line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 36N
bearing



continued from sheet ____ on sheet ____

INDUCED POLARIZATION SURVEY

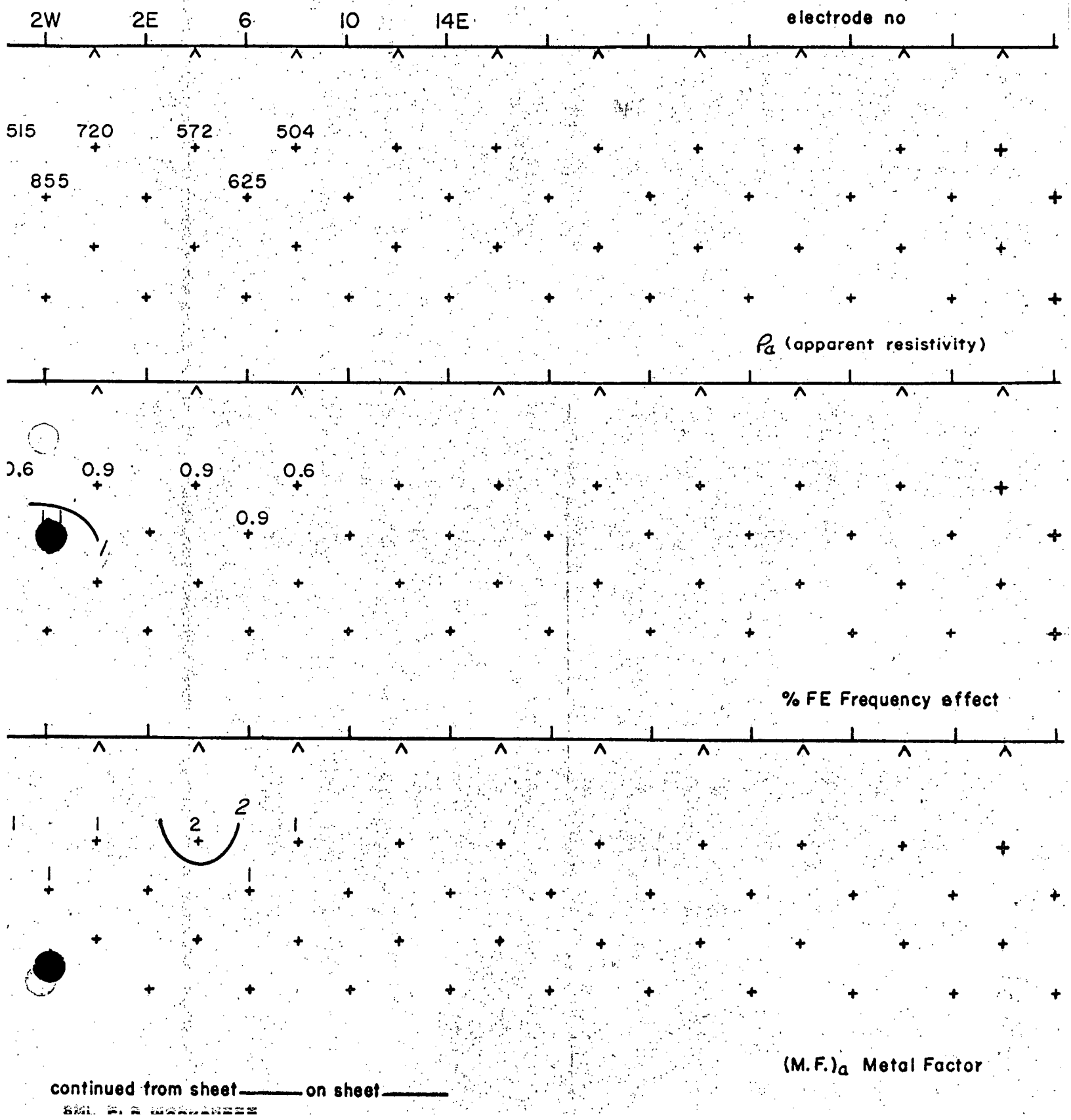
Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

date SEPT. '69

line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 36 N
bearing



continued from sheet ____ on sheet ____

INDUCED POLARIZATION SURVEY

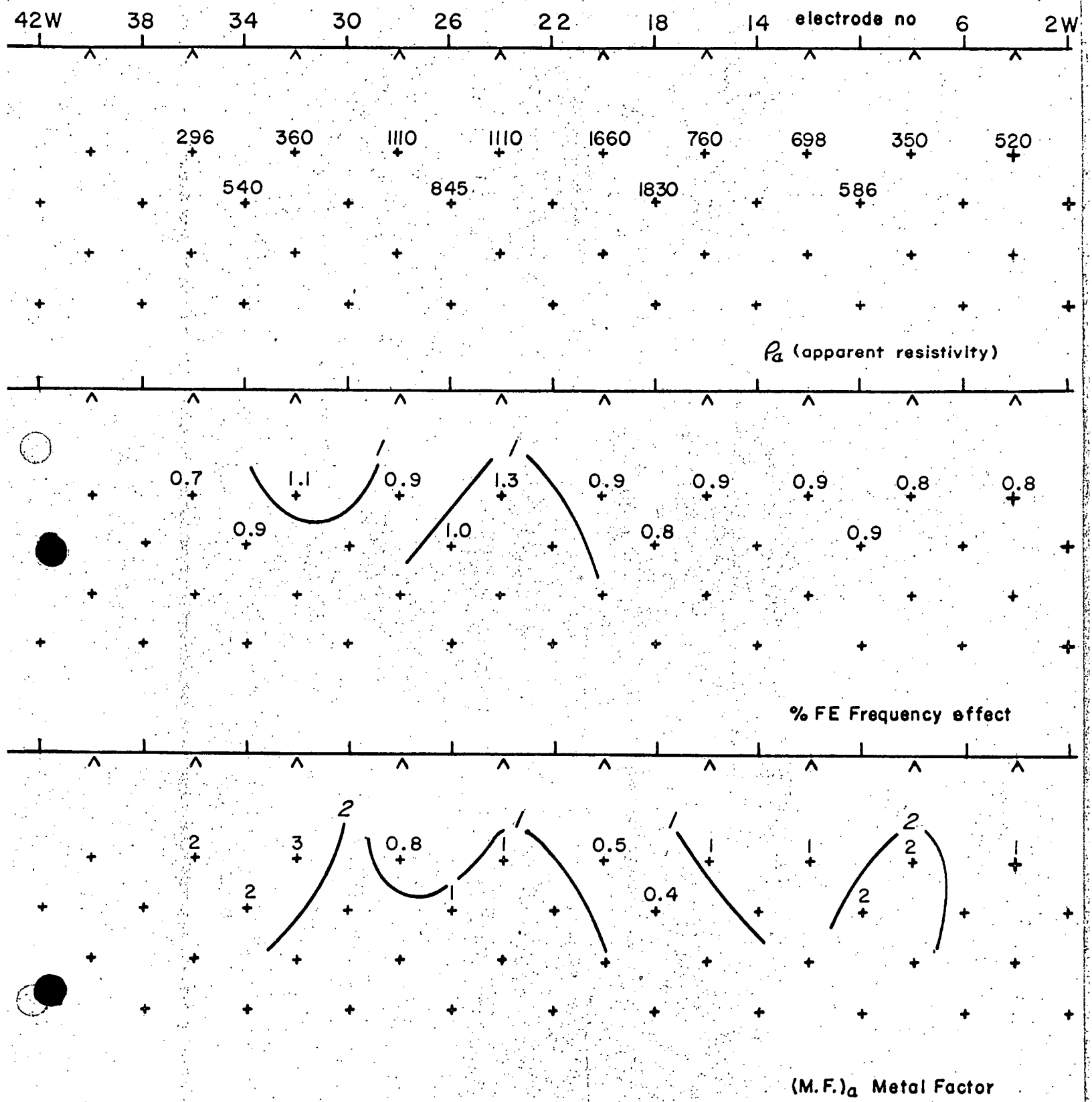
Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

date SEPT. '69

line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 40N
bearing



continued from sheet ____ on sheet ____

FLD WORKSHEET

INDUCED POLARIZATION SURVEY

Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

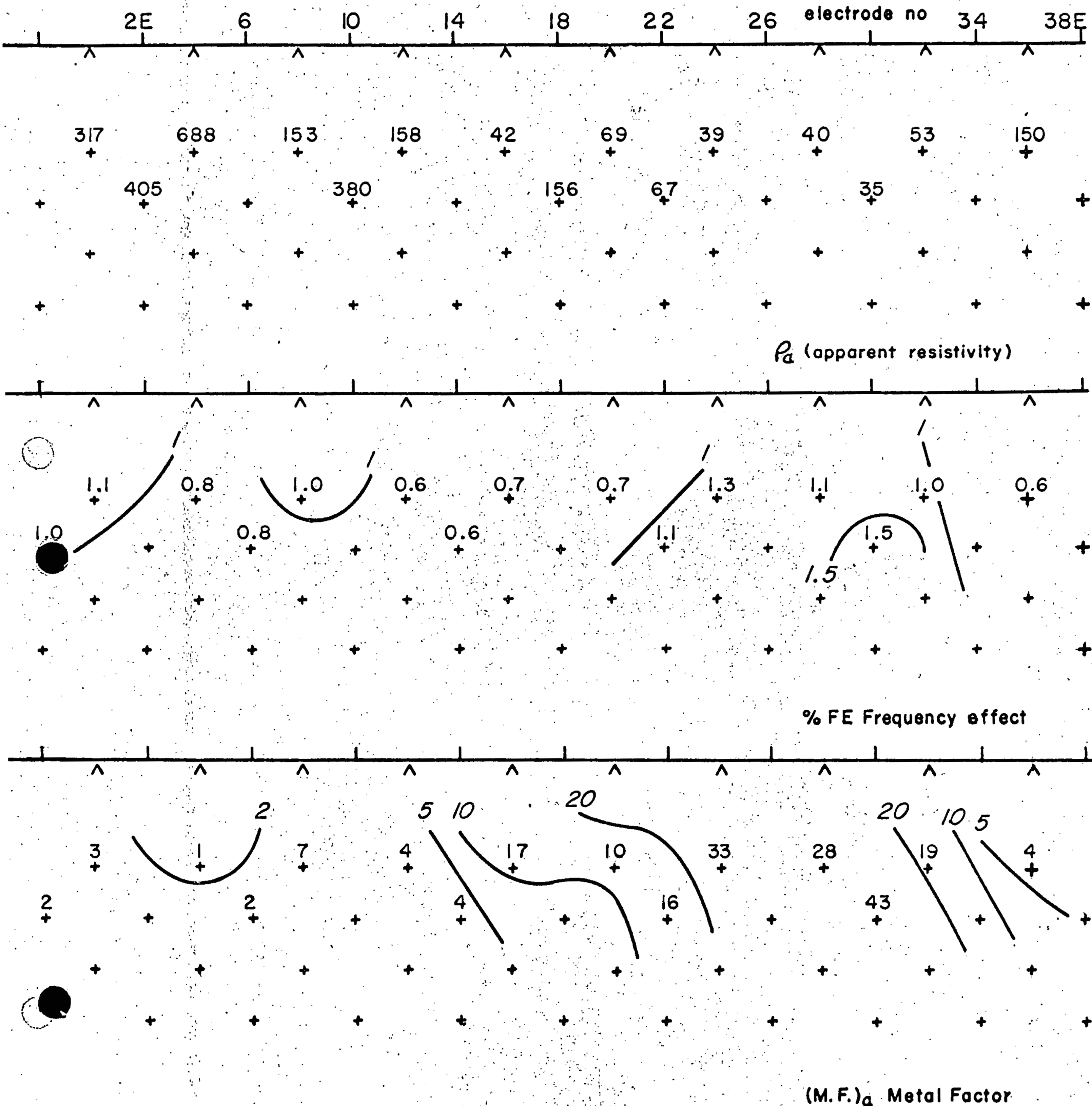
date SEPT. '69

line location CONTINENTAL CINCH — location B.C. CANADA

frequencies 3 & .3 cps — map ref.

dipole length 400' — line no. 40 N

operators — bearing



continued from sheet ______ on sheet ______

SUL FLD WORKSHEET

INDUCED POLARIZATION SURVEY

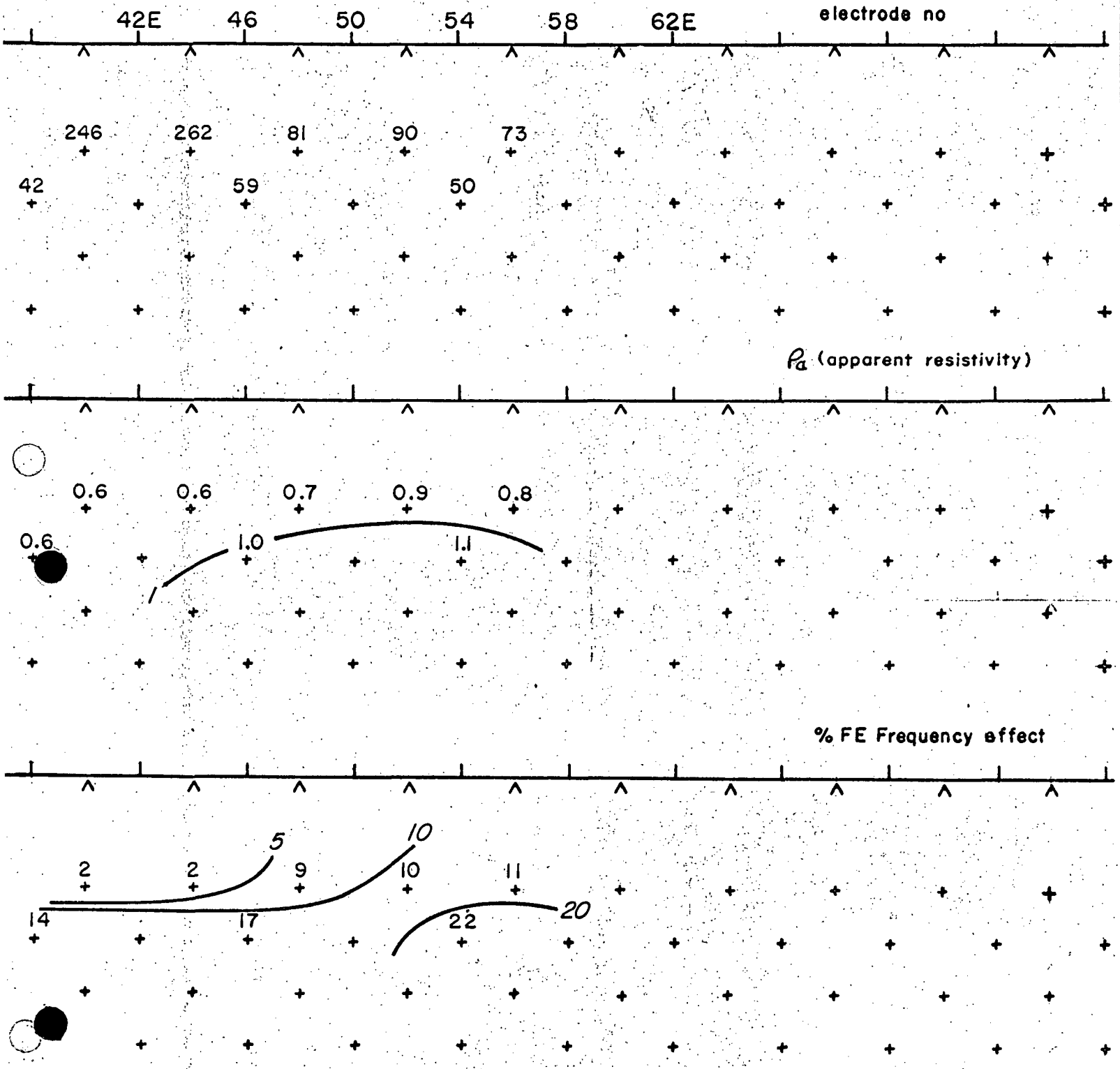
Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

date SEPT. '69

line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 40 N
bearing



continued from sheet ____ on sheet ____

SMI FLB WORKSHEET

INDUCED POLARIZATION SURVEY

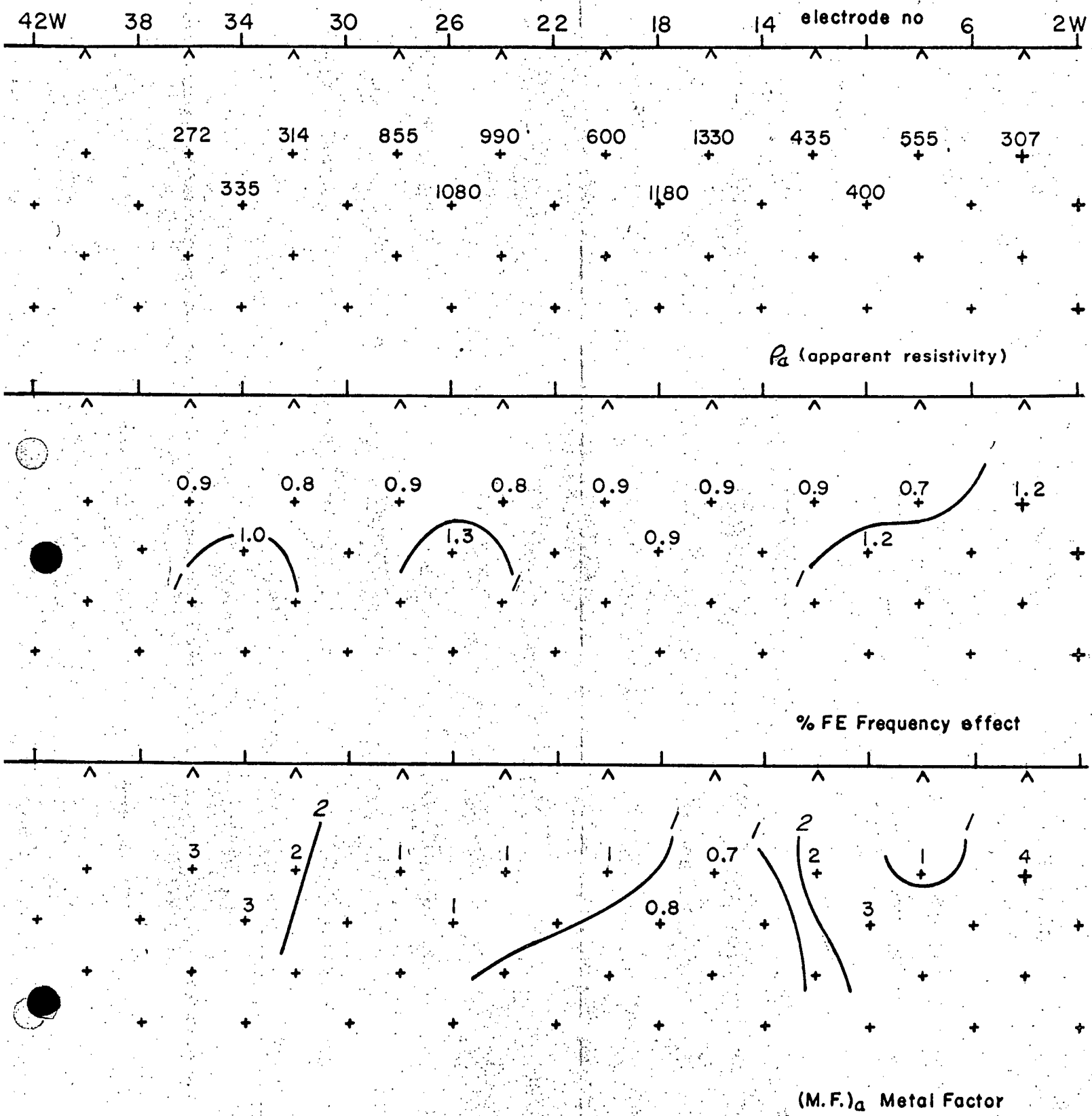
Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

date SEPT. '69

line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 44N
bearing



continued from sheet ____ on sheet ____

SMI FIELD WORKSHEET

INDUCED POLARIZATION SURVEY

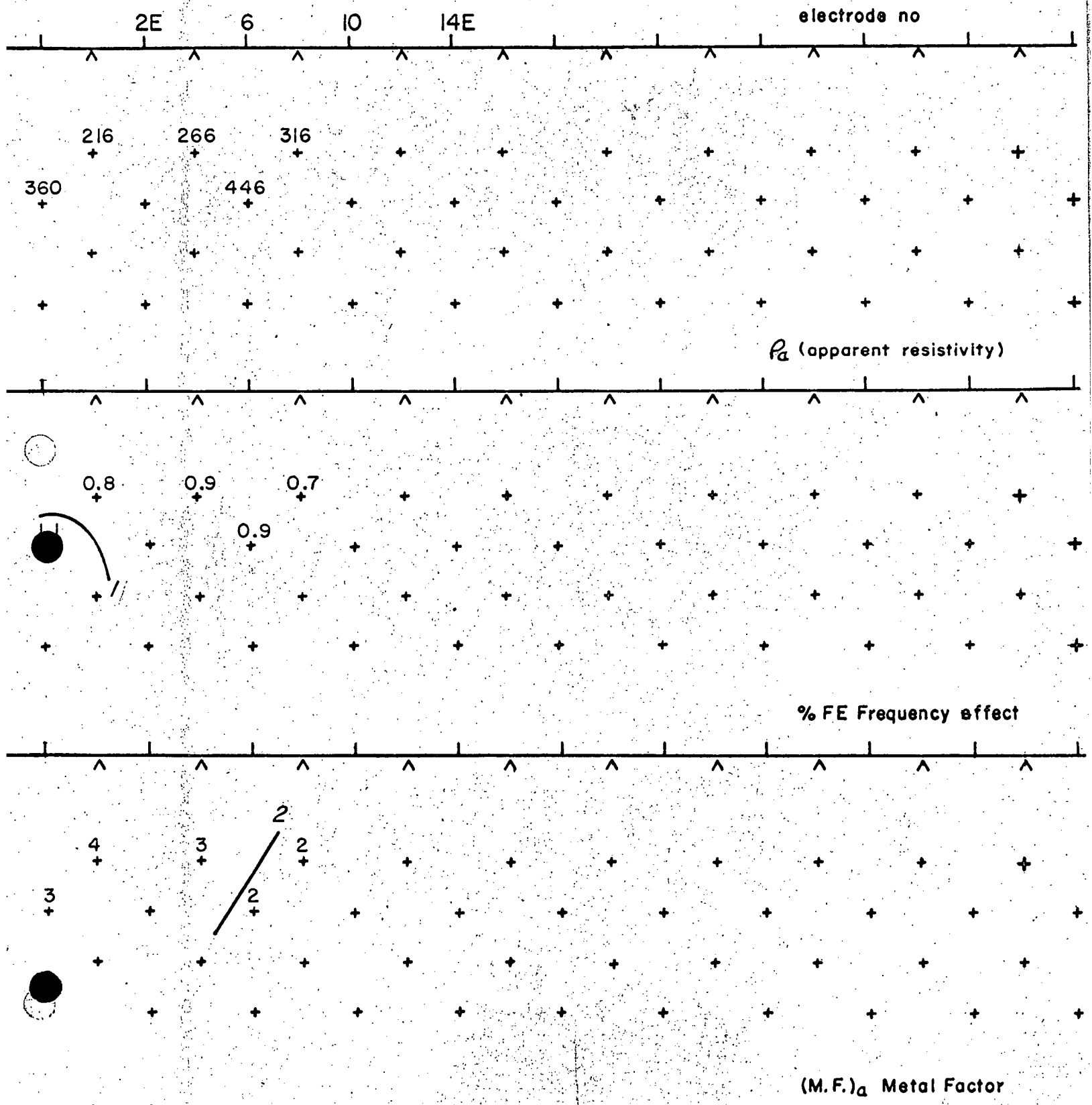
Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

date SEPT. '69

line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 44N
bearing



continued from sheet ____ on sheet ____

INDUCED POLARIZATION SURVEY

Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

date OCT. '69

line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 48N
bearing

32W 28 24 20 16 12 8 4 electrode no 4 8E

502 532 450 349 376 317 425 215 174
862 358 541 212 120

ρ_a (apparent resistivity)

0.7 0.8 0.8 0.9 0.9 1.1 1.2 0.8 0.8
0.8 0.6 1.4 0.6 1.0

% FE Frequency effect

1 2 2 3 2 3 3 4 5
0.9 2 3 3 8

$(M.F.)_a$ Metal Factor

continued from sheet ____ on sheet ____

8M1 FLD WORKSHEET

INDUCED POLARIZATION SURVEY

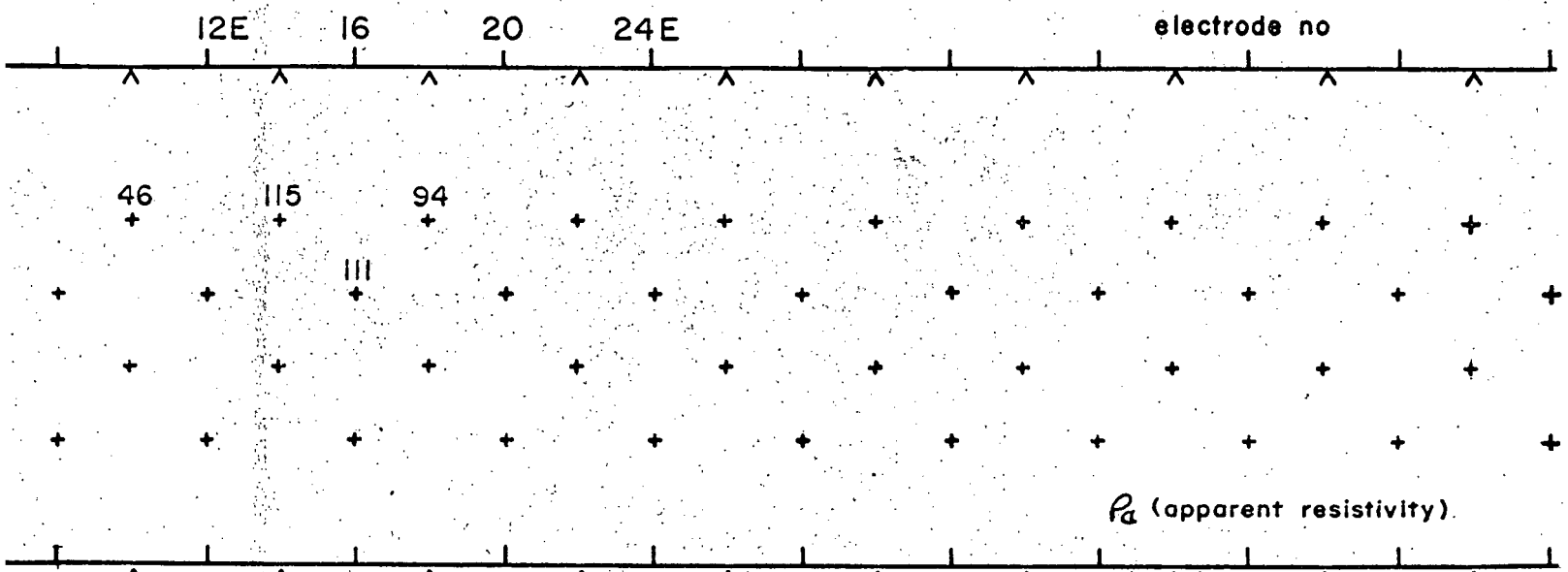
Geoscience Incorporated

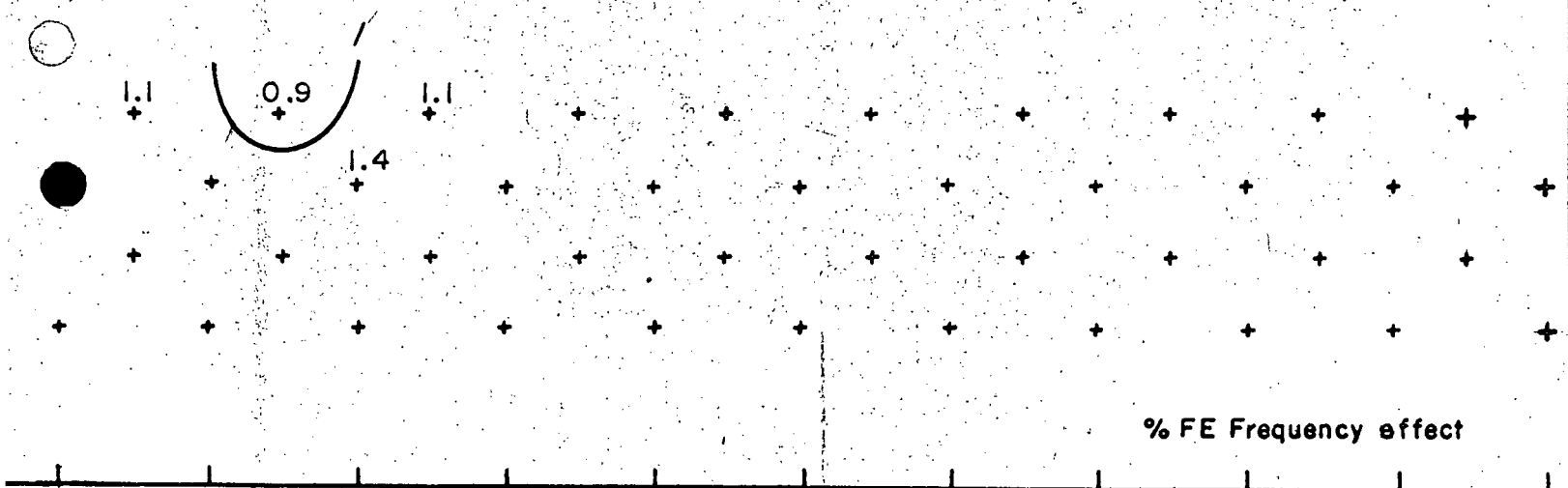
199 BENT STREET, CAMBRIDGE, MASS, 02141

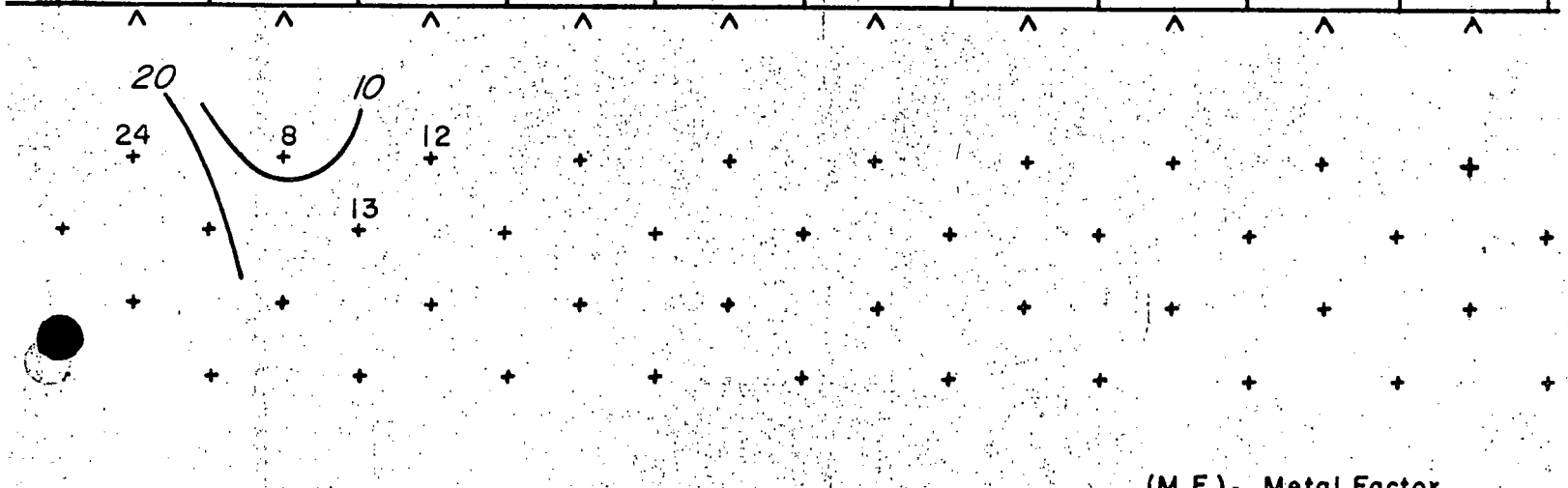
date OCT '69

line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 48N
bearing







continued from sheet ____ on sheet ____

INDUCED POLARIZATION SURVEY

Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

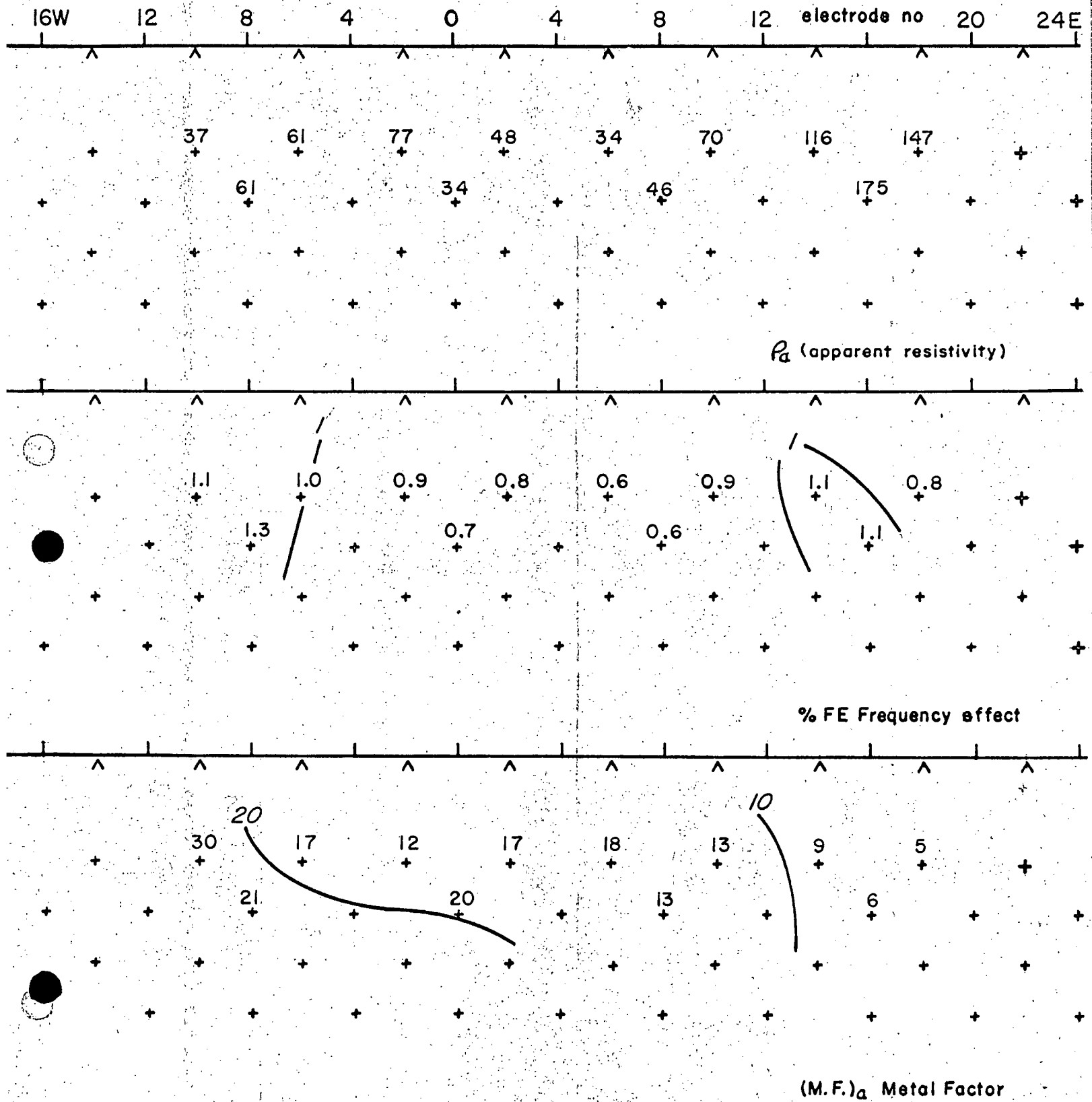
date OCT '69

line location CONTINENTAL CINCH — location B.C. CANADA

frequencies 3 & .3 cps — map ref.

dipole length 400' — line no. 56 N

operators — bearing



continued from sheet ____ on sheet ____

SML ELP WORKSHEET

INDUCED POLARIZATION SURVEY

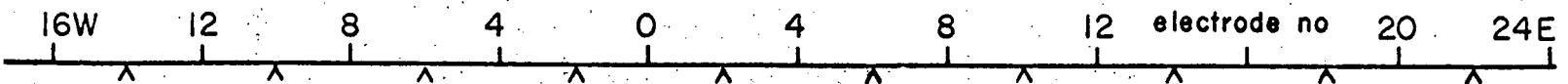
Geoscience Incorporated

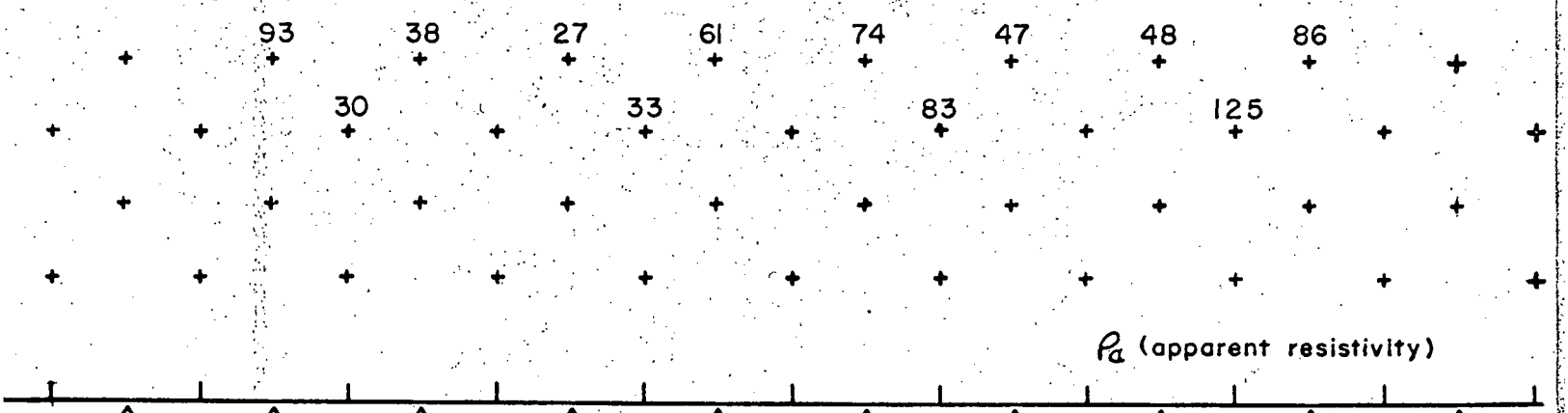
199 BENT STREET, CAMBRIDGE, MASS, 02141

date OCT '69

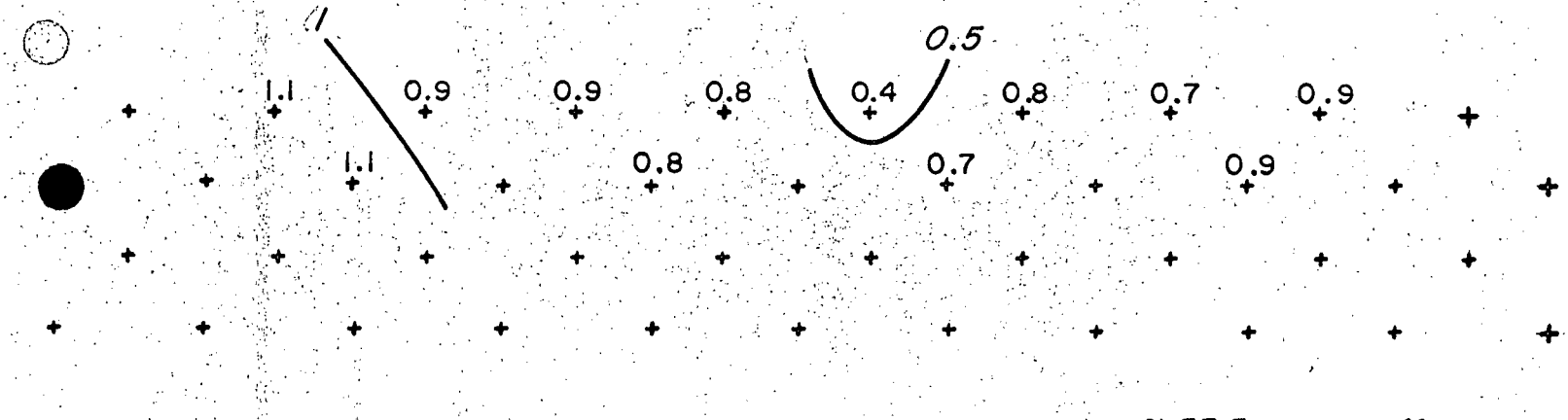
line location CONTINENTAL CINCH
frequencies 3 & .3 cps
dipole length 400'
operators

location B.C. CANADA
map ref.
line no. 64'
bearing

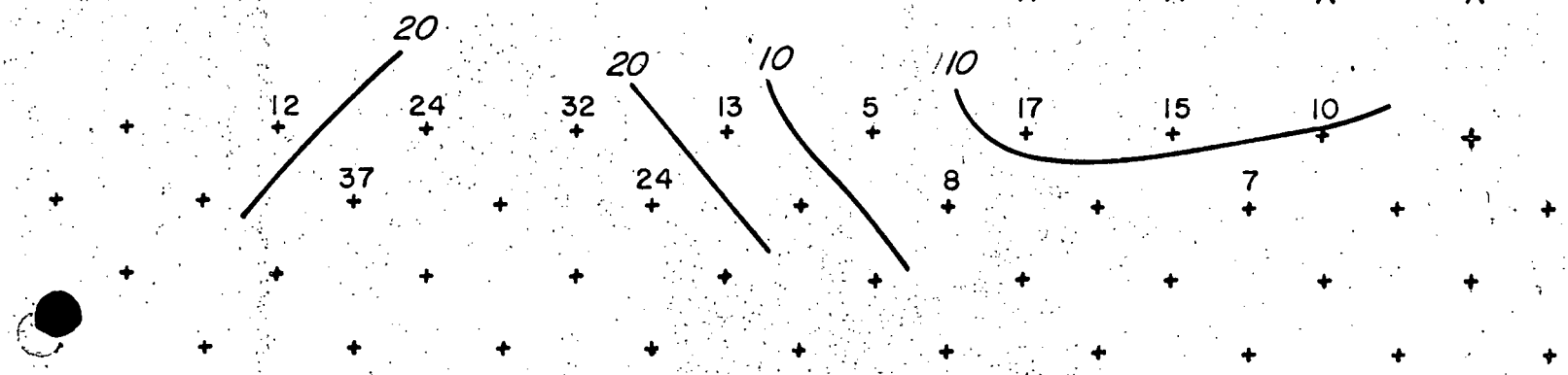




ρ_a (apparent resistivity)



% FE Frequency effect



$(M.F.)_a$ Metal Factor

continued from sheet ____ on sheet ____

INDUCED POLARIZATION SURVEY

Geoscience Incorporated

199 BENT STREET, CAMBRIDGE, MASS, 02141

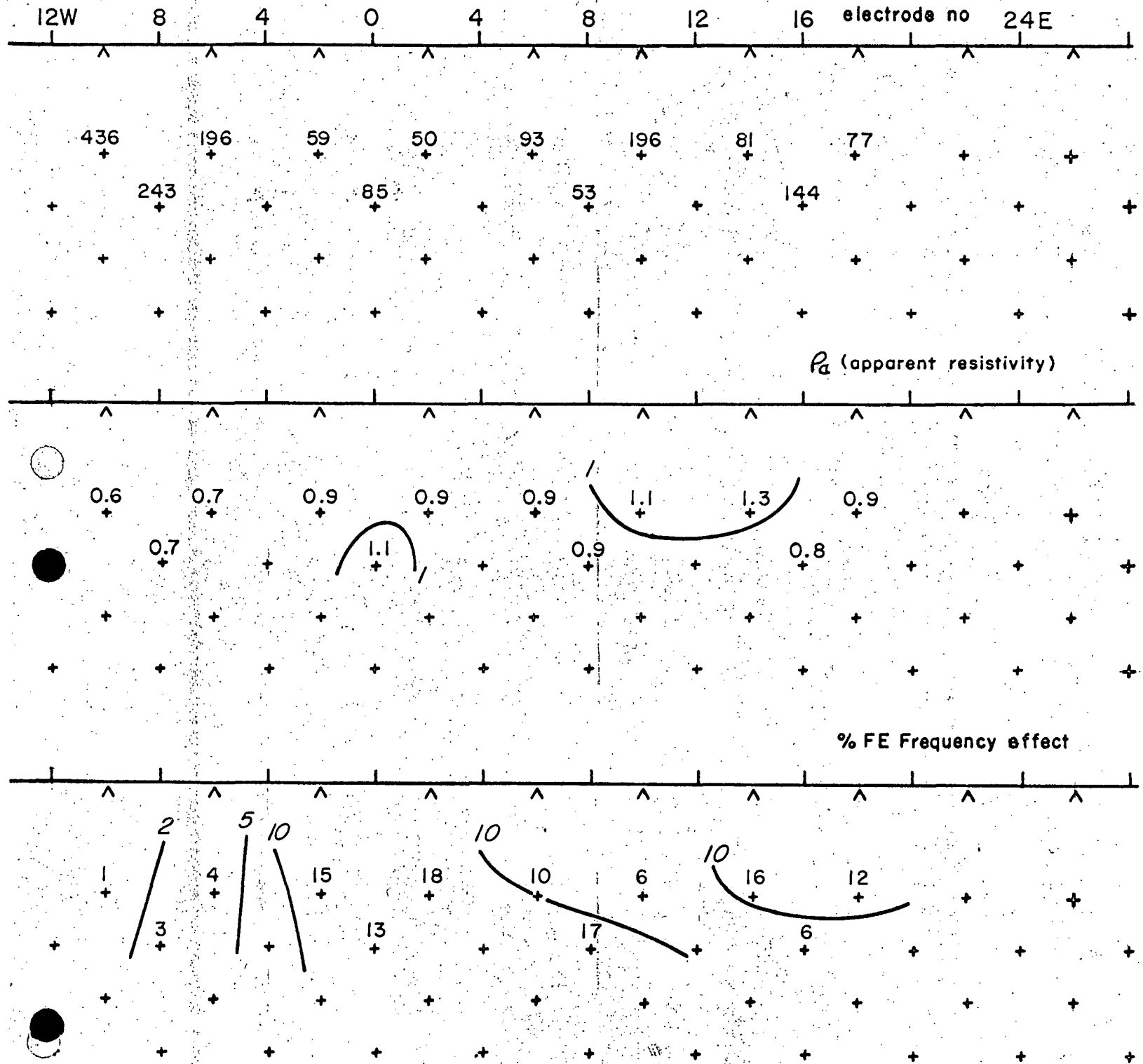
date OCT. '69

line location CONTINENTAL CINCH — location B.C. CANADA

frequencies 3 & .3 cps — map ref.

dipole length 400' — line no. 72N

operators — bearing



continued from sheet ——— on sheet ———

APPENDIX II

Statement of Qualifications of Authors not Registered as Professional Engineers in British Columbia

HOWARD S. LAHMAN

Senior Geophysicist

Education: B.S., Geology, Massachusetts Institute of Technology

Since joining Geoscience in 1964, Mr. Lahman has had wide experience in all electrical prospecting methods, especially deep crustal resistivity, induced polarization, and Magnetotellurics (both analog and digital systems). In these areas he has experience in field work, data reduction, and data interpretation. He also has field experience in other techniques of geophysical exploration, such as gravity surveys, and has worked in equipment production and maintenance.

HOWARD S. LAHMAN

Electrical Properties of Basement Rock from Deep Resistivity Measurements (April 1968), 49th Annual Meeting of AGU, (with Arnold Orange and Keeva Vozoff).

Detailed Gravity Results on Iron Formation, Tibito, Colombia, S.A. (1966), in preparation for Corporacion Minera Colombiana, (with Keeva Vozoff).

Induced Polarization as a Geophysical Method (1966), Geoscience Publication, (with Keeva Vozoff).

Deep Resistivity Results from D.C. Ground Tests at Hoover Dam (1965), Air Force Contract AF19(628)-2351, Scientific Report No. 6, (with Keeva Vozoff).

Deep Resistivity Results from Six Pre-Cambrian Areas of the Western U.S. (1965), Air Force Contract AF19(628)-2351, Scientific Report No. 7, (with Arnold Orange and Keeva Vozoff).

Deep Resistivity Investigations in the Continental United States (1965), Air Force Contract No. AF19(628)-2351, Scientific Report No. 8, (Final Report) (with Arnold Orange and Keeva Vozoff).

Deep Resistivity Results from North Carolina, Virginia, Pennsylvania, Wisconsin, and Missouri (1964), Air Force Contract AF19(628)-2351, Scientific Report No. 5 (with Philip Nelson).

Guide for Plotting, Manipulation, and Interpretation of Pole-Dipole and Dipole-Dipole Master Curves (1964), Geoscience Bulletin.

APPENDIX III

INVOICE FOR WORK

AND

STATEMENT OF COSTS

TELEPHONE: 617-492-7070

GEOSCIENCE INCORPORATED
A SUBSIDIARY OF AMPEX CORPORATION
199 BENT STREET, CAMBRIDGE, MASSACHUSETTS 02141

STATEMENT AND INVOICE

Customer's Order No.
Order Date
Requisition No.
Contract No.

Invoice No.
Invoice Date December 4, 1969
Terms: Net 30 days

SOLD TO: Can West Investments Ltd.
1770-777 Hornby Street
Vancouver, B. C.
Canada

Shipped To:

Date Shipped
Shipped Via

FOR CUSTOMER'S USE

Material Received _____

Account Number _____

Date Paid _____

Check Number _____

QUANTITY	DESCRIPTION	UNIT PRICE	AMOUNT

Continental Cinch Mines Ltd.

Final Invoice

CHARGES:

Reconnaissance IP work:

48.33 line miles @ $400/line mile $19,320.00

Detailed IP work:

4.43 line miles (400 ft. dipoles) @ $671/line mile 2,972.53

0.87 line miles (100 ft. dipoles) @ $1063/line mile 924.81

NET CHARGES $23,217.34

I, M.P. STADNYK, of 1770 Hornby St., Vancouver, B. C. do declare that the following costs were incurred on an Induced Ploarization Survey performed on the following mineral claims :-

BLU 1-8, JO 1-11, JOY 1-6, JOY 8, 10, 12, JOE 1-15, JOY 1FR, JOY 2 FR, JAY 1-2, JAY 4,6,8, JACK 1-8.

(66405-412, 66674-684, 66685-690, 66692, 66694, 66696, 66701-715, 72763, 73708, 73709-710, 73711, 73712, 73713, 73209-216)

situated in the Kamloops Mining Division, Highland Valley, B.C. Claims optioned by Continental Cinch Mines Ltd. (NPL). Survey performed by Geoscience Incorporated of Cambridge, Massechusetts, U.S.A.

LABOUR

G. Cole (Party Chief)	50 days @ $70 per day	$3500.00	
Aug 10-Sept 21; Oct 5-24/69.			
D. Baker	50 days @ $27 per day	1350.00	
Aug10-Sept 21; Oct 5-24/69.			
G. Davidson	10 days @ $22 per day	220.00	
Aug 10-23/69.			
B. Gunn	10 days @ $22 per day	220.00	
Aug 10-23/69.			
E. Foster	17 days @ $22 per day	374.00	
Aug 24-Sept 11/69.			
E. Sears	23 Days @ $30 per day	690.00	
Sept 18-Oct 24/69.			
W. Kayelich	29 days @ $22 per day	638.00	
Sept 15-Oct 24/69.			
G. Rothermal	42 days @ $22 per day	924.00	
Aug 24-Oct 20/69.			
F. Robichard	6 days @ $38 per day	228.00	
Aug 24-30/69.			$ 8144.00

REPORT PREPARATION AND INTERPRETATION

K. Vozoff(Geophysist)	4 days @ $220 per day	$ 880.00	
H. Lahman (")	9.5 days @ $115 per day	1092.00	
J. Cincotti	6 days @ $65 per day	390.00	
			$ 2362.00

Continental Cinch Mines Ltd. (NPL)

DIRECT COSTS

Truck Rental from Rentways, Calgary GMC 3/4 ton Panal 4x4	50 days @ $14 per day	$ 700.00
Oil, Gas, repairs, mileage	50 days @ $5 per day	250.00
Trailer Rental - Ray Geophysics, Calgary	2 mos. @ $400 per mo.	800.00
I.P. Equipment rental	50 days @ $50 per day	2500.00
Camp	237 man days @ $8 per day	1896.00
Repairs, sundries, hardware		400.00
General and Administrative Expenses		2555.00
		$19,607.00

Declared before me at the City of Vancouver, in the Province of British Columbia, this 28 day of January, 1970, A.D.

M P Stadnyk

L. Jeannotte

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

Sub-mining Recorder

GEOFFREY COLE

Geophysicist

Geophysical Experience

Bureau of Mineral Resources — Darwin, N. T.

December 1961 - April 1963
Geophysical Assistant (Darwin Uranium Group)

Duties - Assisting Government Geophysicists with all stages of geophysical surveys and interpretation including E.M., Self-Potential, Radiometric, Magnetic and Resistivity.
Operation, maintenance and interpretation of results from the Darwin Seismic Observatory.
Radiometric assaying.
Radiometric logging of diamond drill holes.
Servicing and maintenance of geophysical equipment.

Western Mining Corporation — Kalgoorlie, W. A.

April 1963 - May 1965
Geophysical Party Chief and later Assistant to Chief Geophysicist

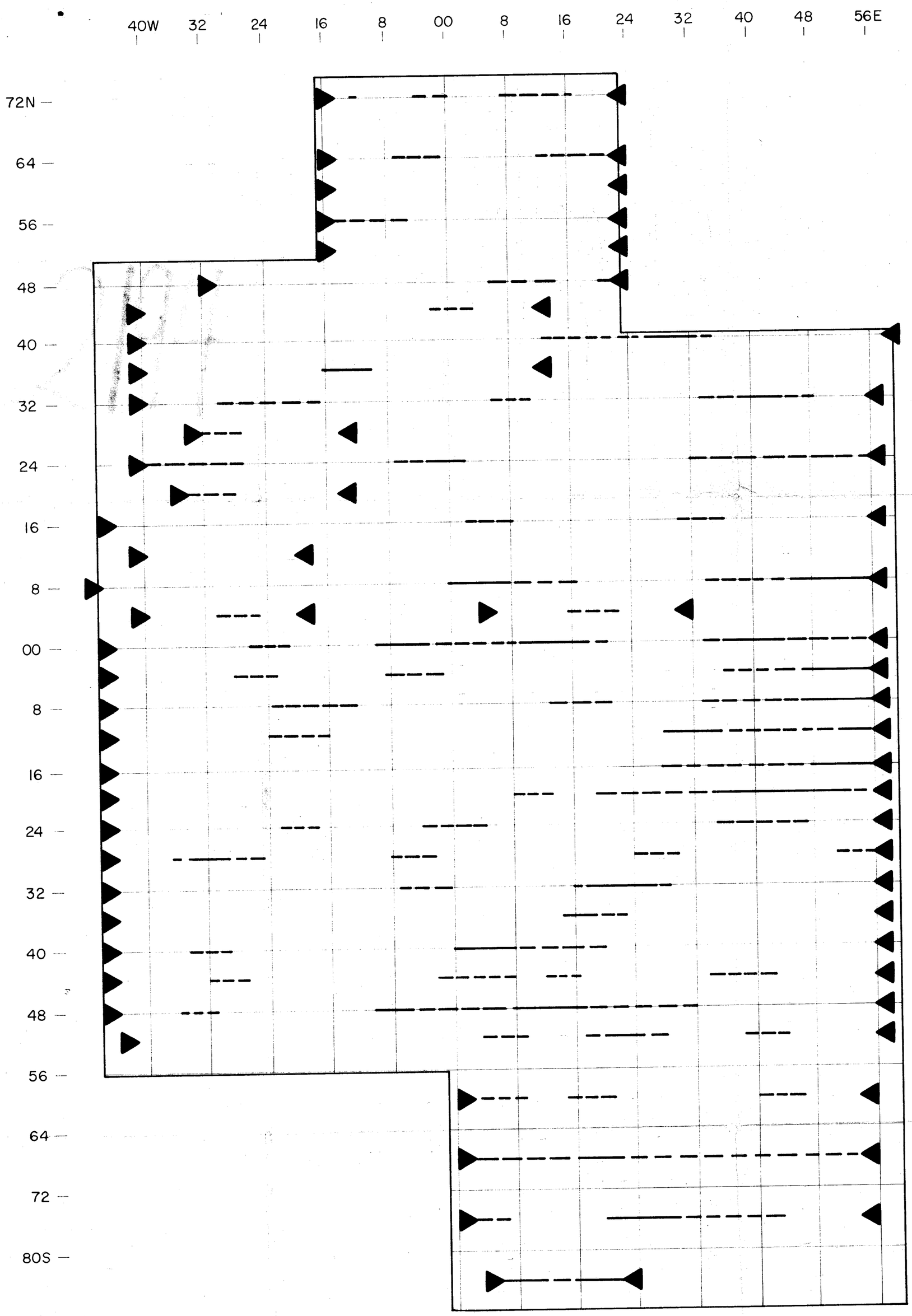
Duties - Carrying out and interpreting results of I.P., and Magnetic surveys under varying climatic conditions from arid desert to heavy rainfall areas.
Aerial magnetic survey work near Perth, W. A.

Later - In charge three/four I.P. field parties and responsible for training of personnel, general organization plus maintenance of equipment.
Assisting Chief Geophysicist with interpretation of I.P. data and report writing etc.

Australian Geophysical Pty. Ltd. — Sydney, N. S. W.

May 1965 - August 1968

Duties - Similar to those with Western Mining but with a greater degree of autonomy.
Complete I.P. projects carried out in difficult terrain in N. S. W. and under very dry conditions in the N. T. Also in W. A. and Victoria. Administered Calvert Hills project. Supervision of helicopter gravity survey. Lease selection in W. A.



Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 2194 MAP #1

I.S. Hist
Dec. 2, 1969

GEOSCIENCE INCORPORATED

199 BENT STREET
CAMBRIDGE, MASS.

INDUCED POLARIZATION SURVEY

PROPERTY: CONTINENTAL CINCH MINES LTD.

SURVEYED: 7/21/69 - 11/2/69 | APPROVED:

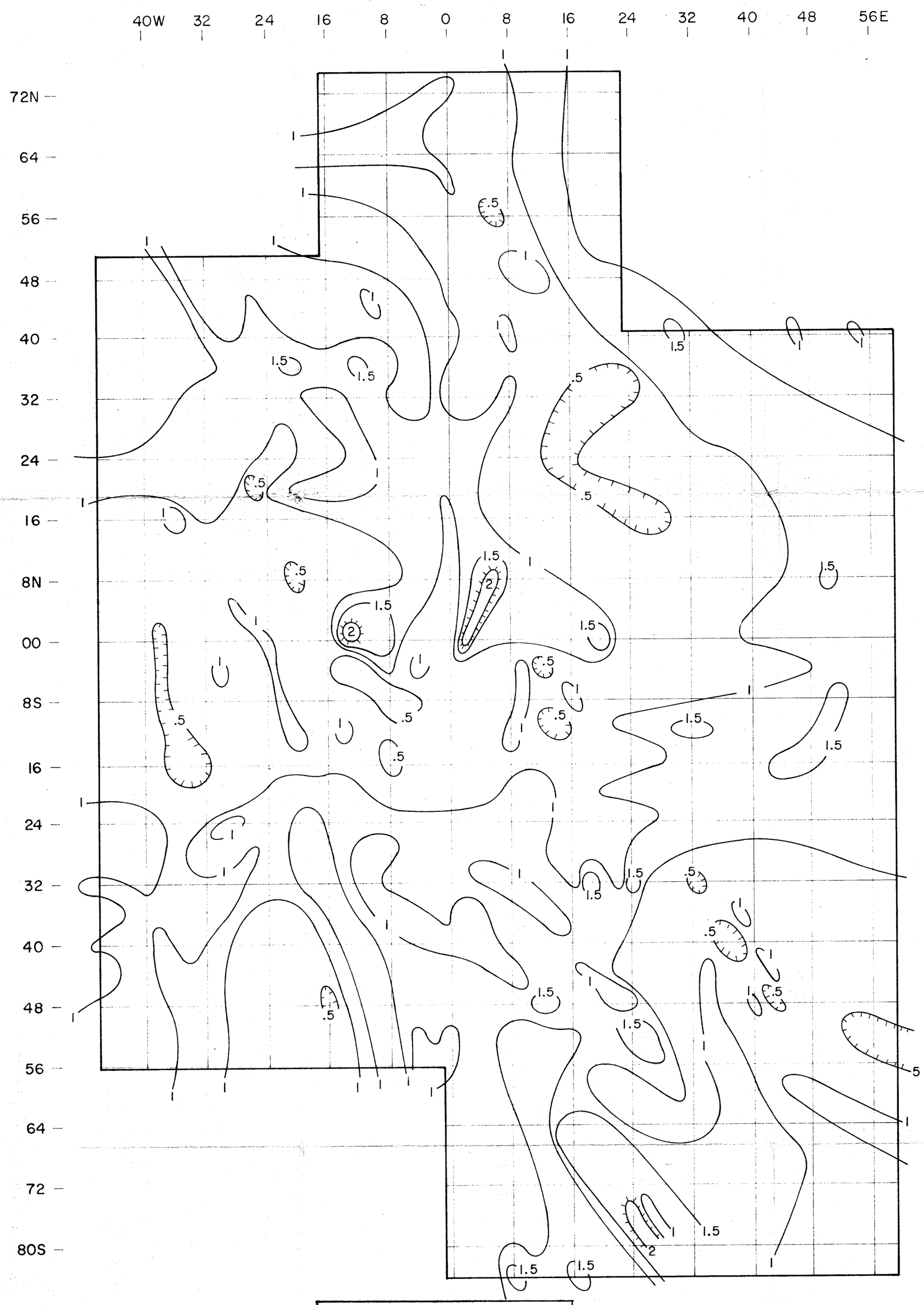
TITLE **ANOMALY LOCATION MAP**

- ANOMALOUS ZONE
- TRACE ANOMALY
- END OF SURVEY LINE

DRAWN: 11/20/69 | DRAWN BY: J. Cincotti

SCALE 1" = 1,000'

2194



Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 2194 MAP #2

f.s. list
Dec. 9, 1969

GEOSCIENCE INCORPORATED

199 BENT STREET
CAMBRIDGE, MASS.

INDUCED POLARIZATION SURVEY

PROPERTY: CONTINENTAL CINCH MINES LTD.

SURVEYED: 7/21/69 - 11/2/69 | APPROVED:

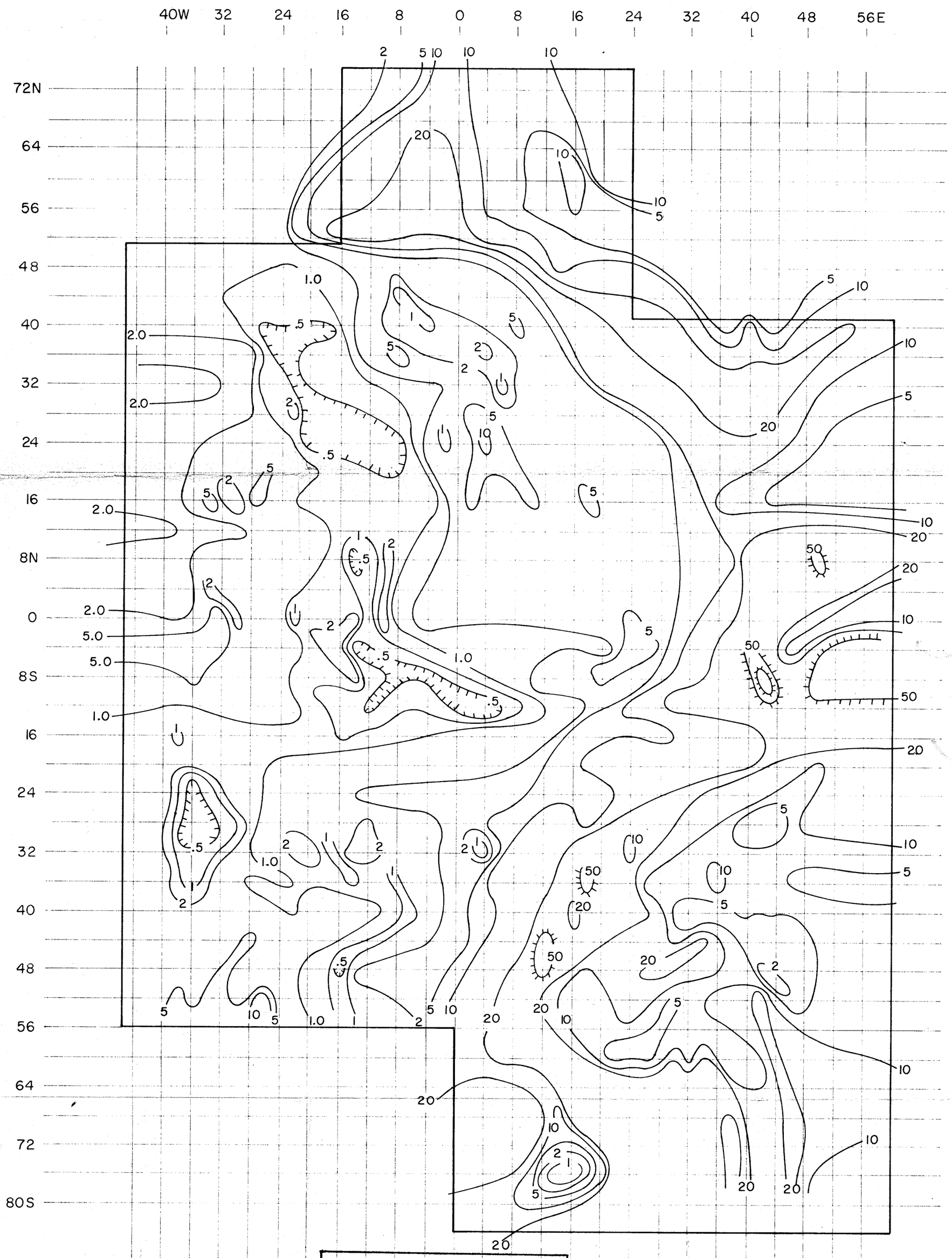
TITLE

APPARENT FREQUENCY EFFECT

DRAWN: 11/5/69 | DRAWN BY: J. CINCOTTI

SCALE 1" = 1,000'

2194



Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 2194 MAP #3

GEOSCIENCE INCORPORATED

199 BENT STREET
CAMBRIDGE, MASS.

INDUCED POLARIZATION SURVEY

PROPERTY: CONTINENTAL CINCH MINES LTD.

SURVEYED: 7/21/69 - 11/2/69 | APPROVED:

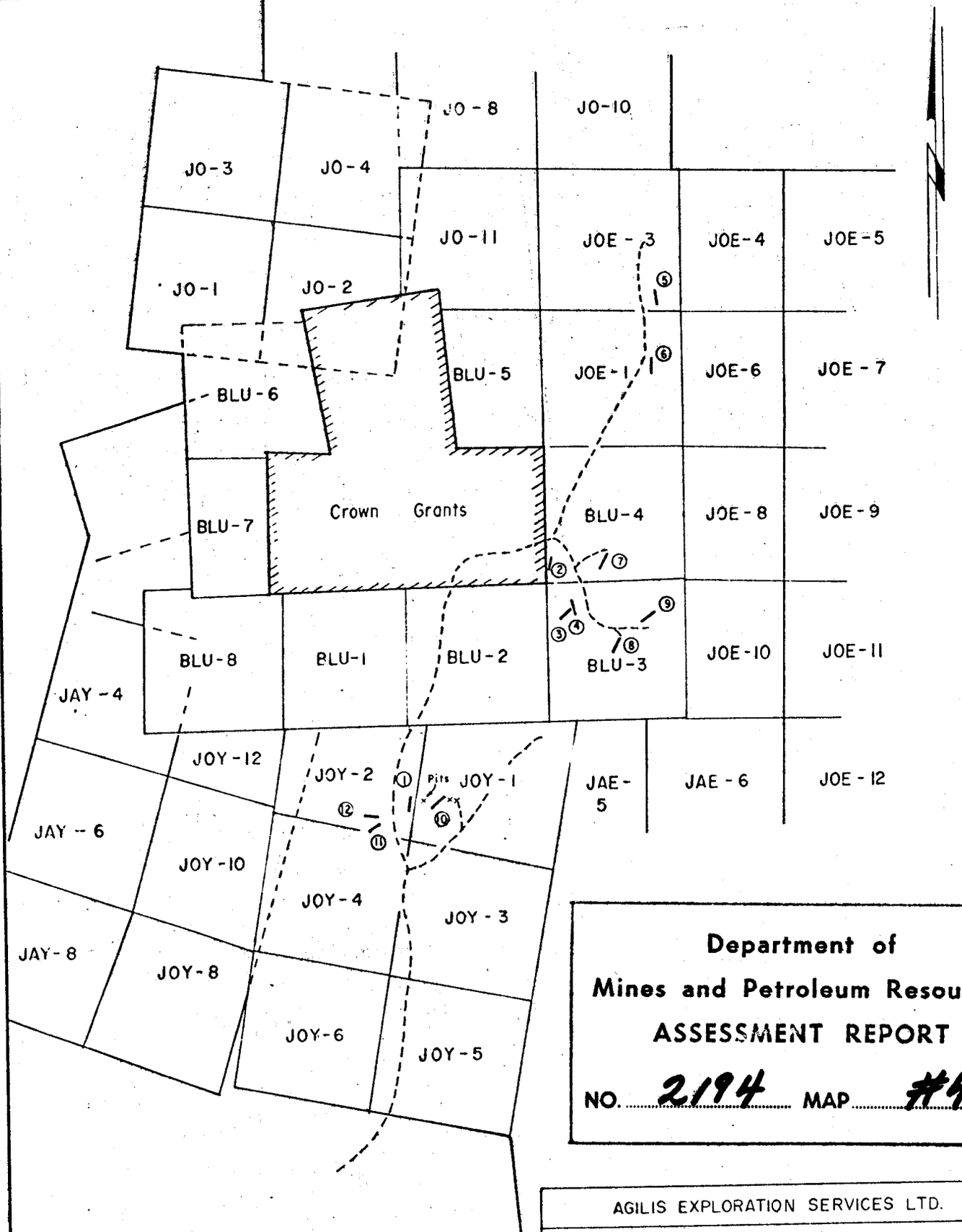
TITLE

METAL CONDUCTION FACTOR (MCF)

DRAWN: 11/5/69 | DRAWN BY: J. Cincotti

SCALE 1" = 1,000'

2194



Department of
Mines and Petroleum Resources
ASSESSMENT REPORT

NO. 2194 MAP #4

AGILIS EXPLORATION SERVICES LTD.

CONTINENTAL CINCH MINES LTD. N.P.L.

CINDER PROPERTY

Highland Valley, B.C.

CENTRAL PORTION

SHOWING

Recent Trenches

DRAWN BY: K. K.	SCALE: 1" = 1500 Feet
CHECKED BY: R. P.	DATE: November, 1968

LEGEND

TRENCH

ROAD

2194