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COMMENTS ON

ELECTRICAL SOUNDINGS

BLUE TIER AREA (EL 9/76), NORTH-EAST TASMANIA

ON BEHALF OF

RENISON LIMITED

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PRIVATE AND CONFIDENTIAL

COMMENTS ON
ELECTRICAL SOUNDINGS
BLUE TIER AREA (EL 9/76), NORTH-EAST TASMANIA
ON BEHALF OF
RENISON LIMITED

BY

A.W. HOWLAND-ROSE
MSC,DIC,AMAUSIMM,FGS.
GEOPHYSICIST

SYDNEY N.S.W.

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CONTENTS

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SUMMARY

A series of about 130 Schlumberger electrical soundings was carried out over a grid around the Anchor Mine area. The objective was to locate sites which had soundings of similar form which would indicate the presence of a chargeable layer at depth.

In practice a significant number of soundings were found to have a form similar to that over mineralisation, or of a form which could be expected to be a reasonable variant thereof. While some soundings were found to be due to mineralisation, others were clearly identified as being due to secondary sulphides within oxidation products of the granite.

Thus, soundings showing a chargeable layer at depth may be due either to mineralisation or weathering products, and therefore electrical soundings alone cannot distinguish between the two sources.

1031 WELLINGTON STREET,
WEST PERTH, 6005
WESTERN AUSTRALIA
TELEPHONE: 321 6934
TELEX: 92353
TELEGRAMS: SCINTREX, PERTH

6 TRAMORE PLACE,
KILLARNEY HEIGHTS, 2087
N.S.W. AUSTRALIA.
TELEPHONE: 451 5367
TELEX: 26859
TELEGRAMS: SCINTREX, SYDNEY.

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INTRODUCTION

At the request of Mr. L.A. Newnham, Chief Geologist for Renison Limited, Scintrex Pty. Ltd. executed a series of electrical soundings in the Blue Tier area, north-east Tasmania on the Lottah grid. These surveys were undertaken over some 37¼ production days between 12th August and 26th September, 1979.

The work was carried out under Scintrex operator Mr. D.Webb,B.Sc. and a crew of three. The work was supervised and directed by Mr. A. Ross,B.Sc., Senior Exploration Geologist for Renison Limited.

Some 130 electrical soundings were carried out over geological situations considered to be prospective for semi-horizontally layered tin bearing sulphides. These were expected to be in low volume percent quantities, but to contrast markedly with the low 8 to 12 millivolts/volt backgrounds observed in the granite. A series of test soundings carried out in the Anchor Mine area are described in report TAS-071 dated June, 1979. This concluded that the mineralisation would be indicated by the chargeability rather than a difference between the resistivities recorded from within the upper and lower granites.

EQUIPMENT

The equipment consisted of a 2.5 kilowatt induced polarization transmitter powered by an 8HP Briggs and Stratton motor generator and a Scintrex IPR-8 receiver to investigate the primary (resistivity) and secondary (chargeability) fields, together with the rate of decay of the secondary field.

METHOD

The Schlumberger sounding method is briefly described in the appendix.

DATA PRESENTATION

All soundings are displayed at the following scales:-

Resistivity in ohm-metres - 5 inch log cycle - vertical axis

a spacing in metres - 5 inch log cycle - horizontal axis

Chargeability (M_3) - 1 centimetre = 2 millivolts/volt

Residual Chargeability (M_a - M_s) - 5 inch log cycle - vertical axis

Each sounding has an indentifier number with the prefix 'K' denoting the order in which the soundings were carried out. A single number in the top right hand corner denotes the order of discussion, and of presentation.

A summary of the characteristics of each sounding is given on the 1:5000 scale map. This shows the geophysical interest of each sounding together with the main feature of that sounding.

DISCUSSION OF RESULTS

Since the execution of the survey Renison have completed a detailed mapping

programme in the area and the data will be discussed by groupings of soundings which are underlain by specific geological units. The groupings are as follows:

YOUNGER GRANITES

Anchor Granite (high tin soils)

16, 17, 93 , 94, 95, 96, 71, 70, 69, 68, 67, 66, 84, 86, 87, 65, 46, 45.

Non-Anchor Granite (low tin soils)

Western: 78 , 52 , 77 , 74, 75 , 51

North Central: 15 , 73

Eastern: 106, 107, 104, 25 , 23 , 102, 4, 33, 24, 11, 34, 35, 36, 27, 26, 37 , 38, 39, 40, 29, 28, 12, 41, 42, 43, 44, 31, 30, 13.

OLDER GRANITES

Generally coarse grained

West and north: 82, 109 , 18 , 121, 122, 124, 120, 119, 128, 118, 117, 97. 127.

South: 57, 61, 2, 48, 47, 1, 20

East: 21, 130, 5, 32, 6, 22, 7, 8 , 9 , 112, 110, 111 , 101, 113, 108, 105, 10.

Generally medium grained

West and central: 85, 56, 59, 64, 63, 80, 83, 81, 76, 60, 62, 58, 55, 50, 49, 76

Central: 126, 125, 19, 98, 99, 100, 14, 72

Eastern: 103

Alluvium over coarse grained older granites

Central south: 54, 53, 3

North central over Anchor granites: 129, 123

Outside main area

to the north: 114, 116

Of unknown location

115, 88, 89, 90, 91, 92

YOUNGER GRANITES - ANCHOR GRANITES

(1) Sounding K16 ..... The form suggests two distinct layers, the upper (Anchor Granite) being about 5000 ohm-metres, and 10 millivolts/volt, and the second at about 20 metres(+) being 500 ohm-metres and 6 millivolts/volt. The absence of higher chargeabilities suggests an absence of polarizable material at depth.

(2) Sounding K17 .....In general format, a very similar profile to K16 was defined. The surface (Anchor Granite) to at least 20 metres has 3000 ohm-metres resistivities and 8 millivolts/volt chargeabilities while the underlying rock at 100 ohm-metres is considerably lower in resistivity, with the observed chargeability remaining about the same - 8 millivolts/volt.

(3) Sounding K93 ..... This site is at the western extremity of the Anchor Granite outcrop. The outcrop is characterised by higher 5500 ohm-metres(+) resistivities underlain at about 10 metres by much less resistive material of

about 600 ohm-metres. The chargeability level falls to 6 millivolts/volt from about 14 millivolts/volt at surface. The sounding is like K16, and again no chargeable material at depth is inferred.

(4) Sounding K94 ..... This sounding shows a surface layer to about 21 metres depth, having a relatively high 2500 ohm-metres resistivity, but more importantly a high surface chargeability of about 20 millivolts/volt, which appears to decline with depth. The second zone, in common with others in the rock unit, has low 6 millivolts/volt chargeability.

(5) Sounding K95 ..... A surface resistive layer to about 22 metres is underlain by a rock unit whose resistivity is much lower at 800 ohm-metres against the upper 22 metres resistivity of 5000 ohm-metres. The chargeability through both zones remains at an even 12 millivolts/volt.

(6) Sounding K96 ..... In this case extremely high 13,000 ohm-metres (more than twice the average resistivity for the rock unit) ohm-metres were recorded for the first 12 metres. The underlying rock has an estimated resistivity of the order of 800 to 1000 ohm-metres. The observed profile suggests a progressive decline in chargeability from 15 millivolts/volt near the surface to 12 millivolts/volt at depth. Again no mineralisation is indicated.

(7) Sounding K71 ..... The sounding profile infers a surface layer whose resistivity varies from 3000 ohm-metres to 4000 ohm-metres at a depth of the order of 29 metres $\pm$2 metres. The chargeability recorded within the surface layer is 11 millivolts/volt, and shows a decline at the higher effective spacings

suggesting the second layer has a bulk chargeability of the order of 6 millivolts/volt. No mineralisation is indicated.

(8) Sounding K70 ..... The resistivity data shows a 4000 ohm-metres layer present to 20 metres, with a near surface layer which is of the order of 2000 ohm-metres to 5 to 6 metres thick. At depth the inferred resistivity is about 200 ohm-metres. The chargeability data again suggests a gradual decline from 13 millivolts/volt near surface to apparent chargeabilities of 4 millivolts/volt at depth. This sounding also indicates an absence of mineralisation.

(9) Sounding K69 ..... Surface resistivities of 6400 ohm-metres are inferred to a depth of about 14 metres with surface chargeabilities being about 11 millivolts/volt. The second layer has either a 'wavey' body within the upper layer, or more likely is influenced by lateral inhomogeneity. Either way low resistivities of 500 ohm-metres(+) were recorded, while inferred chargeabilities within the second layer are as low as 2 millivolts/volt. No mineralisation is indicated.

(10) Sounding K68 ..... Surface resistivities varying about the 2500 ohm-metres plus of minus 500 ohm-metres were recorded from a surface layer which extends to a depth of 26 metres. Unlike the sounding in the Anchor Granite to the north, the recorded chargeabilities were an *abnormally low* 4 millivolts/volt, but at depth a significant increase in chargeability to over 20 millivolts/volt is inferred. While this may indicate mineralisation at depth, it may also be due to granite at this depth of higher intrinsic chargeability. The observed decay form is normal to slightly faster than normal, but not sufficiently asymmetric to be significant.

(11) Sounding K67 ..... Resistivity from surface to 25 metres increases from 2500 ohm-metres to 4000 ohm-metres, thereafter they fall rapidly. There is certainly lateral inhomogeneity associated with this sounding as the fall is too rapid for a simple horizontal layer. The resistivity at depth is of the order of 400 ohm-metres, while the chargeability of 4 millivolts/volt(+) is lower than much higher 14 to 12 millivolts/volt in the upper layer. No mineralisation is inferred on this sounding.

(12) Sounding K66 ..... The surface zone has a resistivity of the order of 3400 ohm-metres and a chargeability of 11 millivolts/volt. This is underlain at a depth of about 20 metres by a layer of significantly lower resistivity interpreted to be 380 ohm-metres. The chargeability of this layer is 8 millivolts/volt. There is no indication of significant mineralisation.

(13) Sounding K84 ..... This sounding lies on the south-western margin of the outcrop area of the Anchor area. A gradual decline in resistivity can be interpreted as a two layer case with a surface resistivity of 2000 ohm-metres, with a lower layer at 4 metres whose resistivity is about 1000 ohm-metres. The upper layer has a chargeability of the order of 4 to 5 millivolts/volt which increases to over 26 millivolts/volt for a 17.5 metre spacing. This infers a depth to source of the second chargeable layer of about 4 to 8 metres. This increase in chargeability at depth is considered of interest as a source of mineralisation as the absolute level of chargeability detected is significantly above any normal backgrounds for any granites in the area. The decay form is normal.

(14) Sounding K86 ..... The resistivity of the surface layer varies between

3500 ohm-metres and 4500 ohm-metres down to 16 metres where there is an abrupt change estimated to be of the order of 550 ±50 ohm-metres. The chargeability of this first layer is of the order of 8 millivolts/volt, while there is a marked doubling of chargeability which is probably at about the same depth. The decay form is normal.

(15) Sounding K87 ..... This sounding has a near surface layer some 10 metres thick whose resistivity is of the order of 3200 ohm-metres to 8±2 metres. This then increases to 8500 ohm-metres down to about 41 metres, and decreases thereafter to perhaps as low as 430 ohm-metres. The first two layers have apparent chargeabilities of about 8 millivolts/volt with an increase noted at about 41 metres (±5 metres) to perhaps twice this level. The decay form is slightly faster than normal. The chargeability on the contact could be as high as 20 millivolts/volt and thus the sounding is of tertiary to secondary interest from a geophysical standpoint.

(16) Sounding K65 ..... This sounding is distorted either by topography or/ and by lateral inhomogeneity for a spacings greater than 35 metres. The early part of the sounding gives a surface layer of about 2800 ohm-metres down to about 8 to 5 metres and a second layer of 5500 ohm-metres down to 20 to 35 metres. The chargeability of the second two layers is of the order of 7 millivolts/volt ±1 millivolt/volt. No anomalous chargeability was recorded on this sounding.

(17) Sounding K46 ..... The resistivity data shows a 12 metres layer of 1600 ohm-metres ±100 ohm-metres underlain by 180 ohm-metres material. The surface chargeability is estimated at 10 millivolts/volt to about 10 metres,

with much enhanced chargeability of 30 millivolts/volt(+) beneath. This sounding is similar to the type Anchor Mine soundings and as such is of primary to secondary geophysical interest.

(18) Sounding 45 ..... The location of this sounding is removed from the above to the east by a lobe of coarse grained older granite. The form is, however, not dissimilar to others over the main body of the Anchor Granite. A near surface layer of the order of 3½ metres thick having a 3600 ohm-metres resistivity is underlain to 11 metres by 3600 to 4000 ohm-metres material whose chargeability is about 8 millivolts/volt. (The upper 3½ metres has a chargeability about 2 millivolts/volt above this level). The third layer (below 11 metres ±2 metres) has a bulk resistivity estimated to be of the order of 180 to 200 ohm-metres. There is no significant increase in chargeability associated with this contact.

SUMMARY OF CHARACTERISTICS OF SOUNDINGS OVER THE ANCHOR GRANITES

1. The bulk resistivity of this granite ranges between 2000 and 13,000 ohm-metres, with the majority lying within 1000 ohm-metres of 4500 ohm-metres.

2. A thin layer for 0 to 8 metres, but usually less than 4 metres, of lesser resistivity may infer oxidation or soil cover overlying the most resistive section.

3. The resistive Anchor Granite is underlain at depths ranging from 10 metres to 40 metres(±) by a rock unit whose resistivity is of the order of 10% or less than that of the Anchor Granite.

4. The chargeability of the Anchor Granite is assessed to be 8 millivolts/volt (±). The decay form observed within the granite is faster than normal.

5. Only in the cases of soundings K68, K84 and K86 can an increase in chargeability with depth be considered to be related to this change ((3) above).

YOUNGER GRANITE - NON-ANCHOR GRANITES

For the most part, these occur to the south, east and west of the bulk of the Anchor Granites described above. It is understood that unlike the Anchor Granites, these granites are overlain by soils having low tin values.

Western Outcrops

(19) Sounding K78 ..... The surface layer has a resistivity which varies about 3000 ohm-metres (±), while the bulk chargeability appears to be of the order of 8 millivolts/volt in the shallow sections increasing to over 27 millivolts/volt (estimated) as the contact with the lower, less resistive unit is approached at 18 metres. The value of this resistivity is estimated to be about 5% to 10% of the upper granite, namely 150 to 300 ohm-metres, and for larger spacings a low background resistivity away from the contact is inferred. The decay form overall is fast, ΔMn being of the order of -5%, however, the highest values have normal decay forms. This sounding is akin in form to the type soundings in the Anchor Mine area and thus, on geophysical grounds is considered of secondary interest.

Soundings 52 , 77 , 74 and 75 occur in an outcrop in the central south of the area.

(20) Sounding K52 ..... This sounding shows a near surface layer about 25 metres thick which has resistivities of about 3500 ohm-metres. There is a less resistive layer close to surface of about 2500 ohm-metres which maybe as thick as 7 metres. (The divergence of different *b* spacings for the overlap *a* spacings from 25 metres to 50 metres indicated that this surface layer shows lateral variation). The surface chargeabilities are anomalously low at 6 millivolts/volt but rise to 12 millivolts/volt for spacings of 30 metres or more.

The second layer has significantly lower resistivities of 800 ohm-metres or less. The inferred chargeability as this contact is approached is about 25 millivolts/volt, but the depth is difficult to estimate.

(21) Sounding K77 ..... This three layer case infers a surface layer of the order of 1800 ohm-metres to 8 metres; a second more resistive layer perhaps as high as 9000 ohm-metres to about 30 metres(±) with resistivities below estimated at less than 200 ohm-metres. Overall the chargeabilities remain 6 millivolts/volt(±) in the first two layers, with *perhaps* as high as 12 millivolts/volt in the second layer.

(22) Sounding K74 ..... A surface layer perhaps 4 metres thick, and of inhomogeneous surface distribution having a resistivity of 1600 ohm-metres was defined close to the centre of the sounding. The main contact indicates a 3000 ohm-metres zone to a depth of about 15 metres. The layer thereunder is estimated to have a bulk resistivity of the order of 300 ohm-metres. The entire section has chargeabilities about the 8 millivolts/volt level. There is no sign of significant mineralisation at depth.

(23) Sounding K75 ..... A gradual increase in resistivity for the earlier part of the sounding infers a 7 metres (+) less resistive layer of about 1300 ohm-metres underlain at depth by a 3000 ohm-metres layer to 21 metres. A slight increase in chargeability from 5 millivolts/volt to 8 millivolts/volt for larger *a* spacings infers greater chargeabilities at depth of perhaps 12 millivolts/volt. The depth to this *slight* increase is difficult to gauge.

(24) Sounding K51 ..... The form of this sounding is unlike the vast majority at Anchor. Almost flat resistivities for all spacings from *a* = 40 metres to 70 metres (i.e. to 70 metres depth +) show 1500 ohm-metres. The chargeability shows the only major change. This infers a 5 metres depth of 10 millivolts/volt material, with chargeabilities below this of perhaps 24 millivolts/volt. The interest must be considered tertiary to secondary.

North-Central

These soundings lie within a grid north-west trending section just north of the Anchor Mine area.

(25,26) Sounding K15 ..... Two attempts were made to complete this sounding, but the data is not considered valid due to inconsistent data. As this sounding was carried out in rain, subtle current leakage is possible.

(27) Sounding K73 ..... This sounding shows a decline in resistivity readings from 3800 ohm-metres for *a* spacings of 4 metres to 900 ohm-metres at *a* spacings of 70 metres. This can be interpreted as a near surface layer of 3800 ohm-metres to a depth of the order of 7 metres, underlain by material having a resistivity of the order of 900 ohm-metres(+).

The earlier spacings show background surface chargeabilities of 8 millivolts/volt but these increase to about 15 millivolts/volt for *a* spacings of 25 metres. This is interpreted as being due to a chargeable source up to 18 millivolts/volt at a depth of between 4 and 7 metres. Although small, this increase could(?) be significant. Therefore this anomaly is considered of tertiary geophysical interest.

Eastern Area

The bulk of the younger non-Anchor granites lie in the south-eastern section of the area mapped. These are discussed from north to south.

(28) Sounding K106 ..... This sounding shows a simple two layer case, the surface being at 1600 ohm-metres, and the second layer at 21 metres having a resistivity of 400 ohm-metres. A gradual increase in chargeability with increasing spacings infers an increase in chargeability from surface to depth within the fist layer, and infers a 28 millivolts/volt maximum as against 14 millivolts/volt in the surface zone. Unless the underlying granite is Anchor, this zone cannot be of interest, although it does have a form not dissimilar to those in the Mine area itself.

(29) Sounding K107 ..... This sounding, some 250 metres east of 106, shows in general form, a very similar situation. The surface resistivities from 0 to 36 metres vary about the 2900 ohm-metres mark, with chargeabilities increasing from 8 to 16 millivolts/volt. At 36 metres the resistivity falls to 450 ohm-metres and the chargeability also shows a fall to low 4 millivolts/volt values. Again the chargeability is within the younger granite, otherwise the geophysical interest would be secondary.

(30) Sounding K104 ..... This sounding, situated some 250 metres south of K106, shows a similar resistivity pattern, namely, a surface layer of 5500 ohm-metres to 15 metres, then 300 ohm-metres below. The surface layer has the higher chargeability of about 12 millivolts/volt, with the material at depth being as low as 4 to 5 millivolts/volt. Unlike K106 and K107, no distinct *increase* in chargeability was noted with depth.

(31) Sounding K25 ..... In this sounding a surface layer of 2500 ohm-metres was noted to 7 metres after which the resistivity increases to 4800 ohm-metres until a depth of about 19 metres (±3 metres) is reached. The chargeability of the earlier layer is 8 millivolts/volt which decreases at depth to 4 millivolts/volt. The resistivity of the second layer is of the order of 480 ohm-metres. The dissimilarity in form for different *b* spacings infers near surface inhomogeneity. No mineralisation is inferred.

(32) K23 ..... The form of the profiles of both chargeability and resistivity are a cross between soundings K107 and K108. A resistivity layer of 3000 ohm-metres increasing to 4500 ohm-metres was recorded to 17 metres which has a bulk chargeability of about 12 millivolts/volt. At 40 metres *a* spacing the chargeability increases to 15 to 16 millivolts/volt. This is interpreted as being due to a chargeable layer of 20 millivolts/volt(+) at a depth of 8 metres (or thereabouts) *within* the younger granites well *above* the assumed contact within the less resistive granites at depth. From the form the interest of this anomaly could be considered of primary to secondary geophysical interest, however, the source lies within the non-mineralised younger granites and thus this anomaly must be downgraded.

(33) Sounding K102 ..... The changes observed are difficult to uniquely interpret. The near surface material is about 1200 ohm-metres, with lower resistivity of 640 ohm-metres inferred at a depth of 22 metres (±5 metres). Surface chargeabilities of 14 millivolts/volt to 3 metres are underlain by higher chargeabilities of 30 millivolts/volt. The interest of this site on the grounds of high inferred chargeability at depth is tertiary to secondary.

(34) Sounding K4 ..... Surface resistiviites varying from 4000 to 6000 ohm - metres were recorded down to about 18 metres, when a dramatic change to 300 ohm-metres takes place. The chargeabilities increase from 10 millivolts/volt to 14 millivolts/volt within the *surface* layer, and then decrease dramatically to 4 millivolts/volt within the less resistive unit. No mineralisation at depth is inferred.

(35) Sounding K33 ..... The form of this sounding is quite unlike the majority of soundings within the younger granites. Essentially the resistivity data shows resistivities varying from 1500 ohm-metres near surface to 2500 ohm-metres with a subsequent decrease at a depth of the order of 32 metres. As the chargeability remains at about 9 millivolts/volt throughout the section, no mineralisation is inferred.

(36) Sounding K24 ..... This sounding shows surface resistivity of the order of 1200 ohm-metres to about 3 to 4 metres, after which the resistivity increases to at least 2700 ohm-metres to 25 metres depth. Here the inferred resistivities are 900 ohm-metres. The chargeability data infers a 7 millivolts/volt chargeability for the first layer (to 4 metres) and the upper part of the second, increasing to perhaps 15 millivolts/volt as the contact with the low resistivity

material at 25 metres is approached. The depth to the top of the chargeable source (within the younger granites) is of the order of 10 metres. The form would suggest a secondary geophysical interest.

(37) Sounding K11 ..... The location of this sounding is on the eastern margin of the contact of the younger granite with the medium grained older granite. The resistivity data is interpreted as having a surface layer of 1800 ohm-metres to about 12 to 15 metres with a layer below of 450 ohm-metres. The very near surface chargeabilities are about 9½ millivolts/volt. The first chargeability layer looks to be about 4 millivolts/volt, after which chargeabilities to 28 millivolts/volt are inferred which have fast to normal decay forms. This sounding is similar to those seen in the Mine section and must therefore be considered to be of primary to secondary geophysical interest.

(38) Sounding K34 ..... This sounding is very similar in general form to K23. In this case the data is interpreted as indicating firstly a surface layer whose resistivity is about 800 ohm-metres(+) to about 9 metres; 3200 ohm-metres to about 29 metres and perhaps as low as 150 ohm-metres thereafter. The surface chargeability is about 8 millivolts/volt, with readings as high as 18 millivolts/volt for spacings of 35 metres. This infers an increase in chargeability starting at a shallow depth of the order of 5 metres. The moderate increase in chargeability noted is considered to be similar to the Anchor Mine soundings, and thus the interest is secondary.

(39) Sounding K35 ..... The form of this sounding is similar to K24. In this case the first layer of 1000 ohm-metres looks to be about 8 metres thick, after which a 3000 ohm-metres layer to 34 metres is inferred. The chargeability of the

first layer is about 8 millivolts/volt and the second perhaps as great as 18 millivolts/volt at a depth of 7 metres. The response is of secondary geophysical interest as its form is similar to the type soundings at Anchor Mine.

(40) Sounding K36 ..... A near surface layer of about 1500 ohm-metres to about 9 metres is followed by resistivities of the order of 3000 ohm-metres(+) to about 26 metres. Below this point the resistivity may be as low as 100 ohm-metres. The surface chargeability to about 6 metres is about 11 millivolts/volt after which it increases to as much as 24 millivolts/volt. This response is of secondary geophysical interest.

(41) Sounding K27 ..... A near surface layer of the order of 4 metres(+) of 1500 ohm-metres is underlain by the main zone to 44 metres which is of the order of 3000 to 4000 ohm-metres. The surface chargeability of 6 to 7 millivolts/volt increases with depth to show a minor *apparent* increase, but an interpreted increase to 14 millivolts/volt(+). The depth to the second layer cannot be easily computed. Of tertiary interest at best.

(42) Sounding K26 ..... Of similar form to K26 with a near surface layer of 1350 ohm-metres to about 7 metres underlain by 2700 ohm-metres resistivities to about 32 metres. A small increase in chargeability with depth infers a maximum depth to this layer of about 14 metres. Of tertiary interest only.

(43) Sounding K37 ..... This sounding is subject to gross inhomogeneity and not capable of meaningful interpretation perhaps because of the proximity of the contact between the coarse grained older granite and younger granite.

(44) Sounding K38 ..... This sounding shows a near surface layer of 1300 ohm-metres to about 8 metres, which is underlain to about 40 metres by material whose resistivity is of the order of 6000 ohm-metres, assuming lateral homogeneity. At 40 metres a marked decrease in resistivity to perhaps as low as 200 ohm-metres was interpreted. The chargeability data shows a gradual increase to 10 millivolts/volt from about 8 millivolts/volt and thus this sounding does not infer any significant mineralisation to be present at depth.

(45) Sounding K39 ..... This sounding shows a two layer case to be present. A surface layer of 1500 ohm-metres gives way at 14 metres to a layer of much lower resistivity, namely about 75 ohm-metres. The surface chargeabilities noted were about 8 millivolts/volt to an interpreted 14 metres(?) where the chargeability background increases to 18 millivolts/volt(+). The form is similar to the Anchor Mine type soundings and thus are of primary to secondary interest.

(46) Sounding K40 ..... The form of this sounding is similar to K39 except that a surface layer of 2200 ohm-metres to 5 metres(?) is present in the vicinity of the potential electrodes. Overall the data is interpreted as showing a layer of the order of 3400 ohm-metres to a depth of about 17 metres, after which the resistivity decreases to 600 ohm-metres. The surface chargeability is about 11½ millivolts/volt, but at 9 metres it is interpreted to increase to perhaps 24 millivolts/volt. The form is suggestive of the Anchor type soundings and as such the sounding is of secondary interest.

(47) Sounding K29 ..... The form of this sounding is very similar to K40. The resistivity data suggests a near surface layer of the order of 2000 to 4000 ohm-metres to about 18 metres after which significantly lower resistivities of about

150 ohm-metres were interpreted. Chargeabilities of 11 millivolts/volt are interpreted to about 8 metres after which they rise to 18 millivolts/volt. This is akin to the Anchor Mine area and is thus considered of secondary geophysical interest.

(48) Sounding K28 ..... A near surface 1500 ohm-metres layer extends to about 12 metres after which it rises to well above 3000 ohm-metres. At a depth of the order of 26 metres(±) a dramatic drop in resistivity to the order of 460 ohm-metres takes place. The surface chargeability is between 8 millivolts/volt and 9 millivolts/volt with an increase at about 11 metres which is estimated to reach 18 millivolts/volt. The form of the anomaly is similar to the Anchor Mine soundings but are of lower amplitude. Their geophysical interest is tertiary.

(49) Sounding K12 ..... The form of this sounding is fundamentally different in form to the majority observed over the younger granites. It consists of a surface layer to 8 metres having a resistivity of 1700 ohm-metres, with the resistivity below this being of the order of 4000 ohm-metres. The *form* of the sounding strongly suggests inhomogeneity. An increase in chargeability from low 6 millivolts/volt backgrounds to 13 millivolts/volt on the 30 metres spacing is interpreted as being due to an 18 millivolts/volt layer at a depth estimated to be of the order of 5.5 metres. While the form is unlike the Anchor 'type' soundings, there is an increase in chargeability with depth which is considered of tertiary geophysical interest.

(50) Sounding K41 ..... This sounding consists of a surface layer some 39 metres in depth having resistivities in the range 1500 ohm-metres to 2500 ohm-

metres. The chargeabilities therein vary from 9 to 11 millivolts/volt and can be considered high background. The resistivity below 39 metres is of the order of 100 ohm-metres(±50 ohm-metres) but low chargeabilities were recorded from the larger spacings which infers a low background within this zone. There is only a minor increase in chargeability and therefore this site is not of major interest.

(51) Sounding K42 ..... This sounding shows a near surface layer of perhaps 7 metres(±) having a resistivity of about 2200 ohm-metres, underlain to 27 metres by rocks having resistivities in the range 4000 to 6000 ohm-metres. The chargeability throughout is a low 8 millivolts/volt ±1 millivolt/volt, although a minor increase with depth was noted. This sounding is of tertiary geophysical interest at best.

(52) Sounding K43 ..... This sounding is very similar in form to soundings K44 and particularly K42. In this case a 6 metres surface layer of 700 ohm-metres is underlain by a more resistive 3500 ohm-metres layer to about 40 metres. The chargeabilities are very low, 4 to 5 millivolts/volt for the first 10 metres and some 13 millivolts/volt thereafter. This sounding is of tertiary interest at best.

(53) Sounding K44 ..... This sounding shows a surface layer of 1300 ohm-metres to 8 metres with 2000 ohm-metres to about 20 metres. Below 20 metres the inferred resistivity is 300 ohm-metres. The apparent near surface chargeabilities are a low 5 to 8 millivolts/volt, which may show either a progressive increase with depth or two layers, but *above* the low resistivity zone at 20 metres. For large *a* spacings *lower* apparent chargeabilities were seen. This site is of tertiary interest at best.

(54) Sounding K31 ..... The form of this sounding is similar to K44. A near surface layer of about 1800 ohm-metres some 7 metres thick is underlain by a 3600ohm-metres(+) layer to a depth of the order of 26 metres. The resistivity below this level is a low 140 ohm-metres. The chargeability data shows low chargeability of 7 to 8 millivolts/volt in the upper 10 metres and infers higher values at a maximum depth of about 11 metres. Of tertiary interest.

(55) Sounding K30 ..... Again the form is similar to the previous two soundings. A near surface layer of perhaps 7 metres underlain by resistivity of 3600 ohm-metres to 41 metres(+). The background chargeability of 8 millivolts/volt is low, and shows a slight increase to 13 millivolts/volt at 8 to 10 metres. The interest is tertiary at best.

(56) Sounding K13 ..... This sounding infers three distinct layers. The first of 920 ohm-metres extending to 6 metres or so, and the second of 2200 ohm-metres extending to 30 metres(+). The chargeability shows a progressive rise from 10 millivolts/volt at a = 4 metres to 22 millivolts/volt at a = 15 metres. This infers a higher chargeability layer at a depth of only 4 to 6 metres(!) which in fact infers it to lie in the resistive material. This sounding, although it has higher chargeabilities within *resistive material* at a shallow depth, is in form unlike the Anchor 'type' soundings as such. The interest is tertiary.

SUMMARY OF THE CHARACTERISTICS OF THE SOUNDINGS CARRIED OUT OVER THE YOUNGER (NON-ANCHOR) GRANITES

1. 80% of the granites lie within ±1000 ohm-metres of 3000 ohm-metres, with the background chargeabilities being 8 millivolts/volt(+).

2. As with the Anchor Granite a thin 0 to 8 metres surface layer, presumably oxidation and/or alluvium, is often present. This either has the same or lower chargeability as the underlying granite, and always lower resistivity.

3. The decay form varied only a little from normal both in the 'background' and in anomalies with respect to that background.

4. Of the 36 soundings over the non-Anchor younger granites, some ten sites had responses which were considered significant as secondary interest (or better) targets based on a superficial comparison with the Anchor Mine soundings.

OLDER GRANITES - COARSE GRAINED

These are discussed by area

Western and Northern areas

(57) Sounding K82 ..... This sounding, situated west of the Anchor Granite, shows a variable surface resistivity of 2000 ohm-metres ±400 ohm-metres down to 14 metres (±3 metres), and is underlain by resistivities of the order of 1200 ohm-metres. Surface chargeabilities are of the order of 8 millivolts/volt, but increase to depth to an estimated 25 millivolts/volt. The depth to this zone of higher chargeability is of the order of 8 millivolts/volt. This sounding can be considered of secondary to tertiary interest.

(58) Sounding K109 ..... This sounding is a simple two layer case with surface

resistivities being 5000 ohm-metres to a depth of the order of 20 metres. The background chargeabilities remain about 11½ millivolts/volt throughout, and no increase is inferred to depth.

(59) Sounding K18 ..... This gradual decrease in apparent resistivity can be interpreted as being due to a bulk resistivity of 2500 ohm-metres on surface, and a boundary at about 10 metres below which the resistivity is 440 ohm-metres. The surface chargeabilities are of the order of 10 millivolts/volt and increases to 15 millivolts/volt for *a* spacings of 30 metres after which they decrease again. This infers a near surface layer of 10 millivolts/volt and a more chargeable source at a depth of 6 metres(+). Of tertiary interest only.

(60) Sounding K121 ..... There is some doubt as to the exact location of this sounding. The map provided by Renison has two "K21" locations; one in the north-western sector has the coordinates approximately 66N/27E. The sounding data card has the coordinates 2430E on 6600N. It is assumed that it is in approximately this location.

The data shows a rapid decline of resistivity with depth. This is interpreted as being due to progressively low resistivity with depth. A near surface zone of 5000 ohm-metres to 4 metres is underlain by resistivities of 3000 ohm-metres to about 12 metres, with 300 ohm-metres thereunder. The chargeability was a low 4 millivolts/volt for the first 5 metres or so, rises slightly to perhaps 14 millivolts/volt and decreases at depth. The geophysical interest of this sounding is tertiary at best.

(61) PLEASE NOTE - DUE TO NUMBERING ERROR, THERE IS NO NUMBER (61)

(62) Sounding K122 ..... In this case the surface resistivities are a high 4000 to 5000 ohm-metres to about 10 metres, where much lower 1000 ohm-metres resistivities were recorded. The chargeability of the surface layer is a high 15 millivolts/volt, while that of the lower layer is a low 4 millivolts/volt.

(63) Sounding K124 ..... This shows a complex layering situation, but in its simplest form shows a surface layer of 4400 ohm-metres to 8 to 10 metres with a progressive decline in resistivity to 1320 ohm-metres, and 400 ohm-metres at depth. The surface chargeabilities are about 8 millivolts/volt and these increase dramatically to 18 millivolts/volt for spacings of 25 metres. This is interpreted as being due to a chargeable layer at a maximum depth of 5 to 6 metres. This sounding is of secondary interest(+) as it is similar in form to the Anchor 'type' soundings.

(64) Sounding K120 ..... A near surface layer of about 3200 ohm-metres is followed by resistivities of the order of 5000 to 6000 ohm-metres to a depth

of 26 metres after which resistivities of 700 ohm-metres are estimated. The chargeability slowly increases from 11 millivolts/volt near surface to 13 millivolts/volt at larger spacings as the low resistivity zone is approached. After this point a rapid fall off in resistivity was defined which infers the zone at depth to have very low resistivity. Of tertiary interest only.

(65) Sounding K119 ..... The surface resistivity is about 2500 ohm-metres to about 32 metres where significantly lower resistivities of 250 ohm-metres are inferred. The near surface chargeability (a = 4 metres) is about 10 millivolts/volt but a progressive increase to a = 50 metres of 20 millivolts/volt infers a source at depth of 4 to 6 metres which has significantly higher chargeability of perhaps as high as 25 millivolts/volt. This situation is akin to the Anchor Mine area and as such is considered of secondary interest.

(66) Sounding K128 ..... This is a most significant sounding in that a marked increase in chargeability was defined at the estimated depth of 7 metres. This chargeability, estimated at 35 millivolts/volt, is against a near surface 'background' of the order of 10 millivolts/volt. The resistivity data shows a marked decrease from 2000 ohm-metres to perhaps as low as 100 ohm-metres and then to 600 ohm-metres. (A distinct asymmetry is probably caused by gross *local* inhomogeneity). The marked increase in chargeability at depth as the low resistivity boundary is approached must be considered of secondary to primary interest on a comparison with the Anchor Mine soundings.

(67) Sounding K118 ..... Lateral variations make a meaningful interpretation impossible. However, the surface resistivities are low, and probably represent the local alluvium. The background chargeability near the centre of the

sounding out to spacings of 50 metres is a high 16 millivolts/volt(+). As 'Goughs Lodes' are recorded in the area, perhaps this high surface background is significant. Thus qualitatively this sounding must be considered of secondary geophysical interest.

(68) Sounding K117 ..... In spite of near surface inhomogeneity, a surface layer of 3200 ohm-metres to about 16 metres(±4 metres) with a layer to depth of between 700 and 1500 ohm-metres was recorded. The recorded chargeabilities decline with increasing spacings, but are generally low. This site has no apparent economic significance.

(69) Sounding K97 ..... The surface resistivity is of the order of 1200 ohm-metres for about 6 metres, with a 2000 ohm-metres(+) layer to about 30 metres. The resistivities interpreted below this level are about 650 ohm-metres. What is significant about this sounding is the overall high background chargeability of 14 millivolts/volt to 17 millivolts/volt over the entire sounding. The decay form is about normal on all readings. There must be a compositional difference between the older granites at this site (the coarse and medium grained units are in contact at this site which may, in part, account for the inhomogeneity), and elsewhere, where the background chargeability is lower.

(70) Sounding K127 ..... This sounding shows a 10 metres surface layer of 2900 ohm-metres, followed by 1400 ohm-metres. Near surface chargeabilities of about 12 millivolts/volt were recorded, which, at a depth of 4 metres, increase to an interpreted maximum of 28 millivolts/volt. The larger a spacings show decreasing apparent chargeability values which infers that at depth the rocks are less chargeable. This sounding is considered of secondary geophysical

interest by comparison with Anchor Mine

Southern Outcrops

(71 & 72) Sounding K57 (nr. West Anchor Tin Vein) ..... This sounding shows a near surface layer of 2700 ohm-metres to 8 metres, with significantly lower resistivities of 630 ohm-metres below this level. What is significant is a marked increase in apparent chargeability from about 10 millivolts/volt (estimated) at very small spacings to 27 millivolts/volt for a spacing of 25 metres after which it declines. The interpretation of this zone is a 30 millivolts/volt(+) zone at a depth of about 4 metres. This must be considered at least of secondary interest by way of comparison with the Anchor Mine area.

(73) Sounding K61 ..... This sounding lies between K57 and the Anchor Mine workings. The data suggests a 24 metres deep surface layer of 2600 ohm-metres underlain by resistivities of the order of 300 ohm-metres. The surface chargeability appears to be in the order of 10 to 14 millivolts/volt, with a 26 millivolts/volt at a depth of 5 metres. The form is similar to Anchor Mine soundings and thus the interest must be considered at least secondary.

(74) Sounding K2 ..... This sounding shows a surface layer of some 15 metres (±2 metres) deep having a resistivity of 1600 ohm-metres. This is underlain by resistivities of the order of 700 ohm-metres. The chargeability of the upper section is 12.5 millivolts/volt to 4 to 5 metres, with 18 millivolts/volt being interpreted below. The geophysical interest is tertiary.

(75) Sounding K48 ..... The resistivity data infers a three layer case. A

relatively thin surface layer of about 1500 ohm-metres to 3½ metres, and then of about 5000 ohm-metres(+) to 42 metres is interpreted. The near surface chargeability is of the order of 8 millivolts/volt(+) with an 18 millivolts/volt layer inferred at a depth of the order of 7 metres. Of tertiary geophysical interest.

(76) Sounding K47 ..... This sounding is subject to local inhomogeneity near surface, however, the surface layer is about 1300 ohm-metres to about 30 metres, after which lower resistivities of perhaps 500 ohm-metres are inferred. The major significance of the sounding is that the smaller *a* spacing of 4 metres shows 12 millivolts/volt chargeability, which, when the profile is projected back, infers the surface layer to have a 10 millivolts/volt chargeability. The depth to the more chargeable layer, estimated to be of 26 millivolts/volt, is 4 metres. The similarlity of form to the Anchor 'type' soundings marks this out to be of secondary geophysical interest.

(77) Sounding K1 ..... The location of this sounding is not marked on the location map provided by Renison. However, it is *thought* that it is located at the Anchor road at the site of sounding "K20" (note that there are two 'K20' locations on that map). The first 12 metres have resistivities of the order of 1600 ohm-metres, and below this 600 ohm-metres is inferred. The top 5 to 6 metres has chargeabilities of 10 millivolts/volt which can be considered background. Below this, 20 millivolts/volt chargeabilities are inferred. The geophysical interest of this sounding is considered secondary. The geology here is coarse grained granite.

(78) Sounding K20 ..... This sounding lies close to the southernmost contact

between the younger (non-Anchor) granites and the coarse grained older granites. The surface zone of 1300 to 1600 ohm-metres is interpreted to extend to about 28 metres where 230 ohm-metres resistivities commence. The surface chargeabilities of 7 millivolts/volt are underlain at a depth of about 4 metres or so by a zone whose chargeability is about 18 millivolts/volt. This sounding was the same form as Anchor but lower amplitude and as such is of tertiary(+) interest.

Eastern Outcrops

(79) Sounding K21 ..... This sounding is situated just east of the Anchor Mine open cut at the location of drill hole 66. A gradual decline in apparent resistivity can be interpreted as a progressive decline in resistivity from a thin surface layer of 3 metres having a resistivity of about 1600 ohm-metres through 800 ohm-metres, then progressively lower with increasing depth. The significant feature is the *high* chargeability reached on *all* spacings from a = 4 metres to 25 metres after which it declines rapidly. The higher background is obviously important as it, in itself, is anomalous. Of secondary to primary interest.

(80) Sounding K130 ..... This sounding is situated just east of the Anchor open cut. The sounding shows a resistive near surface section of about 4000 ohm-metres to 9 metres, and thereafter a dramatic decline to under 400 ohm-metres. The surface chargeabilities are 7½ millivolts/volt (+) for a spacings to 17½ metres, after which a dramatic rise to 20 millivolts/volt was recorded for a = 35 metres. This is interpreted as being due to a source whose chargeability may be as great as 35 millivolts/volt at a depth between 6 and 10 metres. The uncertainty lies in the rapid fall off in chargeability for higher a spacings (50 metres +) which could be due to a constant or perhaps a significant

inhomogeneity being crossed by one of the electrodes. In any event this sounding must be considered at least of secondary and perhaps primary interest from a geophysical standpoint. Its vicinity to the Anchor Mine obviously enhances its interest.

(81) Sounding K5 ..... This sounding is one of the earlier ones carried out in the programme and demonstrates the influence of surface inhomogeneity on the data. The *average* curve infers a near surface layer of 1800 ohm-metres (+) to a depth of about 35 metres. This however, has an error of about +7 metres due to the fluctuation of readings *about* the average. The underlying resistivity is estimated at 300 ohm-metres. Near surface chargeabilities are of the order of 10 millivolts/volt which at a shallow depth of 3 metres infer an increase to over 20 millivolts/volt. This increased chargeability within the older granites well above the inferred contact, could well be due to compositional differences. The site is considered of tertiary to secondary interest only, although the proximity to the Anchor Mine must obviously enhance its interest.

(82) Sounding K32 ..... This sounding situated close to the contact of the southern younger granites (non-Anchor), has a form very similar to K130, but with the chargeability anomaly less significant. This is interpreted as being due to a surface layer of 3000 to 4000 ohm-metres to a depth of the order of 20 metres(+) underlain by resistivities of the order of 140 ohm-metres. The chargeability data shows near surface values of about 9 millivolts/volt. The form of the data suggests high 18 millivolts/volt values exist at depths of about 4 metres. The sounding is considered of secondary to tertiary interest.

(83) Sounding K6 ..... This data shows a surface layer of the order of 2000

ohm-metres to 20 metres to be underlain by material of much lower resistivity, namely, 150 ohm-metres. The very close to surface chargeabilities were of the order of 10 millivolts/volt (projected), and at 4 metres a most significant increase to over 25(+) millivolts/volt is interpreted. This is obviously of primary to secondary interest on a comparison with the type soundings over Anchor Mine.

(84) Sounding K22 .....A very shallow 4 metres thick surface layer of about 1600 ohm-metres is underlain by 3500 ohm-metres material to about 17 metres ±3 metres, where a marked decline to 750 ohm-metres is interpreted. The surface chargeability is about 12 millivolts/volt, but significant increases at higher spacings were recorded. This is interpreted as being due to a more chargeable layer of 35 millivolts/volt at a depth of 5 to 6 metres. This sounding is considered of primary to secondary interest.

(85) Sounding K7 ..... The form of this sounding is remarkably like sounding K130 described above, although it lies about one kilometre north-north-east of it. The surface resistivity is about 3000 ohm-metres ±200 ohm-metres and extends to a depth of about 15 metres ±2 metres. The underlying resistivity is estimated to be about 300 ohm-metres. Surface chargeabilities of a low 4 millivolts/volt were recorded to an interepreted 8 to 10 metres, at which depth a 20 millivolts/volt layer of indeterminate thickness is situated. This infers disseminated chargeable material just above the change in resistivity at 15 metres ±2 metres. While the form of the profile is similar to K130, the chargeability background on K7 is lower (about half), and the absolute apparent resistivity maximum is also about half the level. Nevertheless the site is considered of primary to secondary interest.

(86) Sounding K8 ..... The data suggests a near surface layer of about 3000 ohm-metres ±200 ohm-metres to 20 metres, with much lower resistivities of 170 ohm-metres below this point. A marked increase in chargeability from 7 millivolts/volt within 5 metres of surface is interpreted to increase to 22 millivolts/volt, well above the inferred contact at 20 metres. This sounding would appear to be at least of secondary geophysical interest.

(87) Sounding K9 ..... This sounding shows surface resistivities of the order of 1300 ohm-metres underlain at 24 to 25 metres by 130 ohm-metres resistivities. The chargeability near surface is a low 7 millivolts/volt but a dramatic increase to 28 millivolts/volt(+) is estimated at a depth of 5 to 6 metres. The form of the sounding is again akin to K8, K7 and K6 and as such must be considered of primary to secondary interest.

(88) Sounding K112 ..... This sounding is complex and obviously affected to some degree by lateral inhomogeneity. A guesstimate of the section is that surface resistivities for 3000 to 6000 ohm-metres are underlain by 440 ohm-metres resistivities. The major point of interest is the high surface chargeabilities of 14½ millivolts/volt (presumably this gives way to even greater chargeabilities at depth). The generally high level of chargeability is associated with the rocks *above* the low resistivity contact as they fall for spacings greater than 50 metres. Of tertiary to secondary interest.

(89) Sounding K110 ..... This shows a shallow 1700 ohm-metres layer to 3 metres underlain to about 20 metres by resistivities of 4400 ohm-metres. Below this, 800 ohm-metres is inferred. The chargeability data shows 8½ millivolts/volt to 20 metres with an inferred 25 millivolts/volt at 6½ metres.

This sounding is of secondary interest.

(90) Sounding K111 ..... The site of this sounding is situated in a fenster of younger granites (non-Anchor) within the older coarse grained granites. The sounding is influenced by local inhomogeneities, but an approximate interpretation is of a surface zone of the order of 5 metres ±2 metres. This is underlain by lower resistivities of 600 ohm-metres. The significant feature is the high near surface chargeabilities of 16 millivolts/volt with chargeabilities of 35 millivolts/volt estimated below about 4 metres. The interest is considered secondary due to the high chargeability on surface but particularly at depth.

(91) Sounding K101 ..... Surface resistivities to 5 metres of the order of 1350 ohm-metres, and 4000 ohm-metres to 20 metres (±5 metres) with 400 ohm-metres thereunder are interpreted. The wide disparity in the two *b* spacings demonstrates the inhomogeneity near surface. The chargeability is of the order of 12 millivolts/volt to 8 metres, with a slight indication of higher chargeabilities as the contact is approached. Low chargeabilities are inferred in the low resistivity layer. Of tertiary interest.

(92) Sounding K113 ..... The first 12 metres ±3 metres is characterised by 2000 ohm-metres resistivities, and thereunder, 1000 ohm-metres. The first 3 metres are 8 millivolts/volt with perhaps a 'thin' layer of about 16 millivolts/volt immediately below this. The rocks below about 20 metres show low bulk chargeabilities of the order of 4 millivolts/volt. Of tertiary interest only.

(93) Sounding K108 ..... This sounding is situated close to the boundary

between the coarse and medium grained granites on the central western flank of the survey area. The profile shows a 25 metres ±5 metres depth of 2500 ohm-metres (±1000 ohm-metres) material, with resistivities to 600 ohm-metres below that interface. The chargeabilities near surface are a relatively high 16 millivolts/volt(+), after which they rise to 20 millivolts/volt for a spacing of 50 metres, and then decline. This site is considered of tertiary interest only.

(94) Sounding K105 ..... The form of this sounding is broadly similar to K108. The background chargeability is a high 14 millivolts/volt to 18 millivolts/volt from a = 40 metres to 50 metres, then declines. The resistivity data infers a surface 2500 ohm-metres layer to *about* 8 metres, and 5000 ohm-metres(+) to perhaps 30 metres ±3 metres. No increase above the already high background (for the area) was noted. This sounding is of tertiary interest only.

(95) Sounding K10 ..... The surface layer while resistive at 1500 ohm-metres very close to surface, and deeper to 3000 ohm-metres, is very inhomogeneous laterally, close to the sounding centre. Surface chargeabilities are a low 4 millivolts/volt, with perhaps 14 millivolts/volt at 5 metres(±). This site is of tertiary interest.

SUMMARY OF CHARACTERISTICS IN THE OLDER COARSE GRAINED GRANITES

1. The resistivity inferred for this unit is between 1500 ohm-metres and 4000 ohm-metres with about 70% of the soundings falling between these limits.

2. The chargeability backgrounds near surface can be as low as 4 to 7

millivolts/volt, but on the whole most backgrounds at 12 millivolts/volt (+) are higher than for the younger granites. The background observed to the east tends to be higher than in the west.

3. Some 15 soundings, particularly to the east of the Anchor Mine area are considered worthy of consideration as sites of potential disseminated sulphides at depth.

MEDIUM GRAINED GRANITES

West and Central Areas

(96) Sounding K85 ..... A three layer case, with surface resistivities of 2000 ohm-metres to 6 metres (+2 metres), followed by resistivities of the order of 5000 ohm-metres to the order of 22 metres +3 metres is interpreted. At that depth, lower resistivities inferred to be 350 to 500 ohm-metres are interpreted. The background chargeability in the earlier layer is about 7 millivolts/volt, increasing with depth, a possible minor interface being at 17 metres(??). Of tertiary interest at best.

(97) Sounding K56 ..... A surface layer of the order of 940 ohm-metres was recorded to 7 metres after which 3000 ohm-metres(+) resistivities are inferred. The chargeability background to 12 metres is about 10 millivolts/volt with higher chargeability of the order of 20 millivolts/volt being inferred below that. This sounding is of secondary to tertiary interest.

(98) Sounding K59 ..... Inhomogeneous resistivities of 2500 to 3000 ohm-

to a depth of 27 ±3 metres is interpreted from the resistivity sounding. The lower resistivity is of the order of 5%-10% of the upper layer, namely 150 to 300 ohm-metres. The nearer surface chargeabilities of 8 millivolts/volt increase with increasing spacing to a = 50 metres, then decline. The inference is of a more chargeable layer at about 7 to 8 metres or a gradual increase. Of tertiary to secondary interest.

(99) Sounding K64 ..... A 2000 ohm-metres surface layer from 5 metres with 5000 ohm-metres to 10 to 17 metres is interpreted. The chargeabilities throughout the first two layers are about 10 to 12 millivolts/volt with 8 millivolts/volt or less inferred in the lowest layer. Of tertiary interest at best.

(100) Sounding K63 ..... A broadly similar situation to K64. An 8 metres (±2 metres) layer of 1500 ohm-metres resistivity is underlain by 3500 ohm-metres(+) resistivity and finally at a depth of 50 metres, lower resistivities of 300 ohm-metres. The low background chargeability of 8 millivolts/volt makes this of little potential interest for disseminated sulphides at depth.

(101) Sounding K80 ..... A variable inhomogeneous surface zone of 1300 to 1600 ohm-metres gives way at 24 metres to lower 425 ohm-metres resistivities (interpreted). As the chargeability remains at background, namely 12 ±2 millivolts/volt, the sounding has little economic interest.

(102) Sounding K83 ..... A gradual, disjointed decline in apparent resistivity to 1000 ohm-metres from 2000 ohm-metres is capable of a variety of interpretations. The broad picture is probably of a surface zone from 6 to 22 metres thick

having a resistivity of the order of 1800 ohm-metres, with a lower layer of 600 to 900 ohm-metres. The main significance of this sounding is a sharp increase in chargeability interpreted at 9 metres to 26 millivolts/volt(+) from a background of 9 millivolts/volt. The interest of this sounding is at least secondary.

(103) Sounding K81 ..... This sounding essentially shows two layers to be present within the first 10-70 metres. This upper layer is 2000 ohm-metres and extends to a depth of about 20 metres(+) where resistivities of 350 ohm-metres are estimated. The chargeability remains a low 6 to 7 millivolts/volt, increasing at depth to 10 millivolts/volt. The lower resistivity has a low chargeability of less than 5 millivolts/volt. The form of the sounding is not suggestive of a material sulphide 'halo' at depth, and therefore the interest is less than tertiary.

(104) Sounding K79 ..... A 1400 ohm-metres layer is interpreted to extend to about 6 metres, with markedly lower resistivities of 600 ohm-metres beneath. The surface chargeability is of the order of 10 millivolts/volt and this extends about 5 metres, with higher chargeabilities of up to 25 millivolts/volt estimated below this level. This location is some 450 metres south of the nearest mapped outcrop of Anchor Granite, but does have a form similar to the type soundings at Anchor. For this reason it is considered of secondary geophysical interest.

(105) Sounding K60 ..... A surface layer of 4 to 10 metres thick of low 350 ohm-metres resistivity is underlain by a more resistive layer of 1300 ohm-metres(+). The surface chargeabilities to about 6 to 10 metres are about 8 millivolts/volt, but are underlain in turn by much higher chargeabilities

estimated to be of the order of 20 millivolts/volt. The form of this sounding is unlike the 'type' soundings and so the site is considered to be tertiary to secondary interest only.

(106) Sounding K62 ..... This sounding shows three layers. The first extends to 8 metres and has a resistivity of the order of 1200 ohm-metres; the second to 40 metres (±6 metres) and has a resistivity estimated at 3600 ohm-metres. Beneath this point resistivities again fall. The whole section shows only high background chargeabilities of the order of 12 millivolts/volt. This site does not appear to hold economic potential.

(107) Sounding K58 ..... The surface resistivity of 2400 ohm-metres extends to about 30 metres, with resistivities beneath this point estimated at 5% to 10% of this figure. The chargeability at surface to 4 to 6 metres is 8 millivolts/volt with 18 millivolts/volt material below. This sounding is of tertiary to secondary interest.

(108) Sounding K55 ..... This sounding is fundamentally quite different to the majority of soundings in this area. The first layer is about 4 metres thick and has an interpreted resistivity of about 500 ohm-metres, while the second layer is estimated to be about 250 ohm-metres. The major feature is extremely high chargeabilities of 21 millivolts/volt at small a spacings to 26 millivolts/volt at a = 12 metres. For this reason alone this sounding must be considered of interest, as sulphide or much greater mafic mineral content is certainly inferred by the high chargeabilities. Normal decay forms infer an 'average' grain size to the causative material. Of secondary interest.

(109) Sounding K50 ..... The form of K50 is similar to K55. A surface layer of 2 metres of 1600 ohm-metres is underlain by 700 ohm-metres to 50 metres(+). The chargeability data shows surface chargeabilities of 12 millivolts/volt to in excess of 28 millivolts/volt at 4 to 6 metres (maximum). The site is not as chargeable as K55, but is nevertheless considered to be of tertiary to secondary interest due to the relatively high chargeabilities.

(110) Sounding K49 ..... A shallow surface layer about 4 metres thick of 1[illegible]0 ohm-metres is underlain by resistivities of about 2000 ohm-metres to 70 metres(+). A chargeability of 11 millivolts/volt was logged at surface to 4 metres, with 16 millivolts/volt at depth. This sounding is considered of tertiary interest only.

(111) Sounding K76 ..... Gross inhomogeneities were located on this sounding, however, 2900 ohm-metres(+) was recorded to 45 metres (±7 metres), with 500 ohm-metres below. The chargeabilities slowly increase from 8 millivolts/volt to 10 millivolts/volt with increasing spacing within the more resistive material, before falling for larger a spacings. This site is not considered prospective.

Central Area

(112) Sounding K126 ..... 4600 ohm-metres to 3000 ohm-metres near surface is underlain at about 12 metres by 1400 ohm-metres resistivities. The chargeability ranges about ±2 millivolts/volt of 12 millivolts/volt. No significant chargeability was recorded.

(113) Sounding K125 ..... The resistivity shows very little material variation (±500 ohm-metres) from 1500 ohm-metres. The chargeability is the main

feature. A shallow 2 metres surface layer is interpreted which has high (for the area) surface chargeabilities of 21½ millivolts/volt, with 40 millivolts/volt inferred below. Below 12 metres (estimated) the chargeability drops off significantly. Thus the site is considered of primary to secondary interest due to the high chargeability.

(114) Sounding K19 ..... Surface resistivities of 5500 ohm-metres are underlain at about 25 metres(±) by resistivities of 1600 ohm-metres. As the chargeability remains a low 8 millivolts/volt or less, no significance is attached to this site.

(115) Sounding K98 ..... This sounding shows three layers. The first is about 6 metres of 2200 ohm-metres, followed to 25 metres (±9 metres) by 5000 ohm-metres material, underlain in turn by material perhaps 10% of that value. The chargeabilities remain background for the unit. Of no potential economic significance.

(116) Sounding K99 ..... Very similar to the above with layers of 2500 and 830 ohm-metres at 23 metres. Chargeabilities throughout the section were 10 millivolts/volt. Of no further interest.

(117) Sounding K100 ..... This sounding shows a thick surface layer of 1500 ohm-metres to about 40 metres, with significantly reduced (to 5% -10%) resistivities below this point. Surface chargeabilities of low background 8 millivolts/volt give way at about 7 metres to much higher values estimated at 20 millivolts/volt. The sounding is potentially of secondary interest.

(118) Sounding K14 ..... This sounding represents a complex three layer case, with local inhomogeneities. An approximate interpretation is a 5 metres layer of 800 ohm-metres resistivity followed by significantly higher resistivities of 2000 to 3000 ohm-metres, and eventually underlain at 30 metres ±4 metres by resistivities estimated at less than 200 ohm-metres. Surface chargeabilities of 4 millivolts/volt to about 4½ metres were followed by an estimated 16 millivolts/vol

(119) Sounding K72 ..... Gross inhomogeneity makes interpretation difficult. However, a thin localised surface material of 3800 ohm-metres to about 2½ metres depth underlain by material of 500 ohm-metres ±50 ohm-metres to 70 metres is suggested by the data. Near surface chargeabilities are a high 20 millivolts/volt or thereabouts, with chargeabilities to 35 millivolts/volt just below about 3 metres(±). Below this again chargeabilities fall. The interest of this location is secondary due to the high chargeability level which infers a sulphide source within the near surface granites or overburden.

Eastern Section

(120) Sounding K103 ..... The sole eastern sounding shows a surface layer 4 metres thick whose chargeability is 12 millivolts/volt and resistivity 1300 ohm-metres. This is underlain by a significantly lower resistivity of 325 ohm-metres and a high chargeability of 30 millivolts/volt. This high value is considered of secondary to primary interest.

ALLUVIUM COVERED AREAS

(121) Sounding K54 ..... This sounding showed a near surface resistive layer of 1100 ohm-metres to about 7 to 8 metres, with a lower resistivity of

366 ohm-metres below to 70 metres(+). The surface chargeabilities to 3 metres are 8 millivolts/volt, with 20 millivolts/volt below. This is similar to sounding K55 to the west and K57 to the north which are considered of interest, hence this also must be considered of secondary interest.

(122) Sounding K53 ..... This sounding indicates a 6 metres surface layer of a resistivity of about 740 ohm-metres, underlain by a less resistive layer estimated to be of the order of 250 ohm-metres. The chargeability data suggests a 3 metres layer of about 12 millivolts/volt underlain by substantial 30 millivolts/volt chargeabilities. Prima facie the high chargeabilities which occur only 500 metres south of the Anchor Mine must be considered of primary to secondary interest.

(123) Sounding K3 ..... This sounding shows a most resistive surface layer of about 3000 ohm-metres (dry alluvium?) down to about 7 metres (+1½ metres). Thereunder the resistivities decreased to 330 ohm-metres(+). The surface chargeability of 4 millivolts/volt increases with depth to about 8 to 9 millivolts/volt, but at this level is still background. The high value of the 2 metres *b* spacing is considered to be due to lower signal to noise ratio problems, and not to surface inhomogeneity. This location is not of interest.

(124) Sounding K129 ..... This sounding was carried out over alluvium in the north central area close to a contact between the younger Anchor and non-Anchor granites. Ignoring a surface inhomogeneity the sounding shows a surface layer of 4500 ohm-metres to about 5 metres underlain by 900 ohm-metres material. In this case the surface material to *perhaps* 7 metres has a *high* (relative) chargeability of 20 millivolts/volt, and is underlain by

chargeabilities which are markedly lower. The surface alluvial material therefore, would appear to contain chargeable material. Of tertiary interest.

(125) Sounding K123 ..... This shows a 4500 ohm-metres resistivity near surface to 11 metres (±1 metre) underlain by markedly lower resistivity of 230 ohm-metres. The chargeabilityranges *about* 8 millivolts/volt ±4 millivolts/volt. This site is not of interest.

(126) Sounding K114 ..... The resistivity data shows a 5000 ohm-metres to 6500 ohm-metres layer to 27 metres. Thereunder the resistivity is 325 ohm-metres. The chargeability of the surface layer, 6 metres (±3 metres) thick, is about 10 millivolts/volt. Beneath this, chargeabilities are 14 millivolts/volt. Of tertiary interest.

(127) Sounding K116 ..... This sounding again shows a resistive surface layer. The depth to the interface between 1800 ohm-metres material above, and 100 ohm-metres material below is estimated to be about 7 metres. The chargeability of the first 7 metres is about 8 millivolts/volt and below that a 'thin' layer of perhaps 18 millivolts/volt is interpreted. Of tertiary interest.

SOUNDINGS OUTSIDE THE MAIN AREA FOR WHICH LOCATION IS NOT KNOWN

(128) Sounding K115 ..... A resistive surface layer of 6000 ohm-metres ±1000 ohm-metres to 19 metres is underlain by resistivities of 300 ohm-metres. The chargeability is relatively high at 16 millivolts/volt (about twice average background) within the upper layer. Thus the rocks would be expected to be

more mafic (and/or carry sulphides) than the older and younger granites in the main area. Of tertiary interest.

(129) Sounding K88 ..... A near surface layer of 3300 ohm-metres to 16 metres is interpreted with the underlying material estimated to be about 370 ohm-metres. The surface chargeability is about 6 millivolts/volt to 4 metres ±2 metres, with a 'thin' layer of more chargeable material being inferred at 3 metres. Of tertiary geophysical interest only.

(130) Sounding K89 ..... Similar in form to K88. A surface layer of 2900 ohm-metres to 7 metres, with resistivity of 320 ohm-metres below that. The chargeability from surface to 3 metres is again a low 6.5 millivolts/volt, below which a slight increase over a narrow width to 14 millivolts/volt is inferred. Of tertiary geophysical interest.

(131) Sounding K90 ..... Surface resistivities to 3½ metres of 4200 ohm-metres, with 420 ohm-metres thereunder are interpreted. The chargeability is variable, but is a low 8 millivolts/volt ±3 millivolts/volt overall. Of tertiary geophysical interest only.

(132) Sounding K91 ..... Again higher surface resistivities of 2000 ohm-metres(±) are underlain by lower resistivities of 200 ohm-metres at about 22 metres. The chargeabilities throughout are a 'background' 8 to 10 millivolts/volt. Of less than tertiary interest.

(133) Sounding K92 ..... A gradual decline in apparent resistivity can be interpreted as being due to a 2800 ohm-metres surface layer to 15 metres (±4

metres) with 800 ohm-metres below. The chargeability remains a background 8 to 10 millivolts/volt. Of tertiary interest only.

CONCLUSIONS

1. A summary of the main geophysical characteristics of each sounding is given below. Only the major features are given. R1 is the bulk resistivity of the main layer near surface, R2 is the bulk resistivity of the layer thereunder. DR is the depth to that second layer. Ms is the interpreted bulk chargeability of the surface layer, M2 the interpreted chargeability amplitude of the second layer, and DC the depth to that layer. Q lists the apparent geophysical interest based on a superficial comparison with soundings carried out over the Anchor Mine area. Py is primary interest, Sy is secondary interest, Ty is tertiary interest. (When unmarked they are considered of less than tertiary interest)

Number	Page	R1	R2	DR	Ms	M2	DC	Q
K1	28	1600	600	12	10	20+	5	Sy
K2	27	1600	700	15+	13	18+	5	Ty
K3	42	3000	330	7	4	?	?	
K4	15	4000-6000	300	18	10	14?		Ty
K5	30	1800	300	35+7	10	20	3	Sy/T
K6	30	2000	150	20	10	25+	4	Py
K7	31	3000	300	15	4	20	8-10	Py/S
K8	32	3200	170	20	7	22	5	Sy
K9	32	1300	130	25	7	28	6	Py/S
K10	34	2400+	420	15	4	14	5	Ty

Number	Page	R1	R2	DR	Ms	M2	DC	Q
K11	16	1800	450	12-15	9	25	5	Py/Sy
K12	19	1700	4000	8	6	18	5½	
K13	21	2200+	200	30	10	22	4-6	Ty
K14	41	2200-3000	200	30±4	4	18	4	Ty
K15	12	Data of questionable vailidity due to wet instrument						
K16	4	5000	500	20	10	6	-	
K17	4	3000	100	20	8	8	-	
K18	23	2500	440	10	10	18?	-	Ty
K19	40	5500	1600	25	8	4	?	
K20	28	1300-1600	230	28	7	18	4	Ty+
K21	29	1600	800-	3	17	35	3	Py/Sy
K22	31	3500	750	17±3	12	35	5-6	Py/Sy
K23	14	3000-4500	200	17	12	20+	8	Py/Sy
K24	15	2700	900	25	7	15	10	Sy
K25	14	4800	480	19	8	4	?	
K26	17	2700	390	32	11	18+	14	Ty
K27	17	3000	300	44	6-7	14+	20	Ty
K28	19	3000+	460	26	8.8	18+	11	Ty
K29	19	3000	150	18	11	18+	8	Sy
K30	21	3600	180	41	8½	13+	8-10	Ty
K31	21	3500	140	26	7.5±	14	11	Ty
K32	30	3500 ±500	140	20	9	18	4	Sy/Ty
K33	15	1500	2500	10	9	-	-	

Number	Page	R1	R2	DR	Ms	M2	DC	Q
K34	16	3200	150	29	8	20	4	Sy/Ty
K35	16	3000	150	34	8	18	7	Sy
K36	17	3000+	100	26	11	24	6	Sy
K37	17	1500-800	-	-	-	-	-	
K38	18	6000	120	40	8	10	?	Ty
K39	18	1500	75	14	8	18+	14?	Py/Sy
K40	18	3400	600	17	11.6	24	9	Sy
K41	19	2200	100	39	10	15?	10?	Ty
K42	20	4000	700	-	8	12?	-	Ty
K43	20	3500	550	40	4-5	15	10	Ty
K44	20	2000+	300	20	6	?	?	Ty
K45	9	3600	180	11	8	-	-	
K46	8	1600	180	12	10.0	30+	10	Py/Sy
K47	28	1300	500	32±2	10	26	4	Sy
K48	27	5000	500	42	8	18	7	Ty
K49	39	1100	2000	70	11	18	4	Ty
K50	39	1600	700	50	12	28	4	Ty/Sy
K51	12	1500±	1500±	-	10	24	5	Ty
K52	11	3500	800	25	-	16		
K53	42	740	250	6	12	30	3	Py/Sy
K54	41	1100	366	7-8	8	20	3	Sy
K55	38	500	250	4	22	-	-	Sy
K56	35	940	3000+	7	10	20+?	12?	Ty/Sy
K57	27	2700	630	8	10	30+	4	Sy+

Number	Page	R1	R2	DR	Ms	M2	DC	Q
K58	38	2400	130	30+	8	18	4-6	Ty/Sy
K59	35	2500-3000	150	27+3	8	20	7-8	Sy/Ty
K60	37	350+	1300	4-10	8	20	10?	Ty/Sy
K61	27	2600	300	24	14	26	5	Sy
K62	38	3600	120?	40	12	14+	?	
K63	36	3500	300	50?	8	8	-	Ty
K64	36	5000	1500	10-17	-	-	-	Ty
K65	8	5500	500	20-38	(see comments)			
K66	7	3400	380	20	11	8	-	
K67	7	4500	400	25	Lateral inhomogeneity			
K68	6	2500+500	145	26	4	20	18+	Sy
K69	6	6400	500	14	11	2	-	
K70	6	4000	200	20	13	4	-	
K71	5	3000-4000	740	29+2 -2	11	6	-	
K72	41	Inhomogeneity suspected - guesstimate is						
		3800	500	2½	20	35	3	Sy
K73	12	3800	900	7	9	18	4-7	Ty
K74	11	3000	300	15	8	8	-	
K75	12	3000	940	21	5	12	9?	Ty
K76	39	2900	500	45+7	8	12?		
K77	11	4000-9000	200	30	6	12?		Ty
K78	10	3000	150	18	8	27	4?	Sy
K79	37	1400	600	6	10	25	5	Sy

Number	Page	R1	R2	DR	Ms	M2	DC	Q
K80	36	1300-1600	425	24±	12	12	?	Ty
K81	37	2000	350	20±	7	10	?	Ty
K82	22	2300	1200	14±3	8	25	8±	Sy-
K83	36	1800	600	6-22	9	26	9	Sy
K84	7	2000	1000	4	4-5	30	8	Sy/Ty
K85	35	5000	350	22±3	7	15+	17	Ty
K86	7	3500-4500	530	16	8	20	?	Sy
K87	8	8500	430	41	6	14+	3	Ty/Sy
K88	44	3300	370	16	6	-	-	Ty
K89	44	2900	320	7	6½	14	3	Ty
K90	44	4200	420	3½	8±3	-	?	Ty
K91	44	2000	200	22	8	10	-	Ty-
K92	44	2800	800	15	8	10	-	Ty
K93	4	5500	600	10	14	6	-	
K94	5	2500	250	21	20	6	-	Ty
K95	5	5000	800	22	12	-	-	
K96	5	13000	1000	12	15	12	-	
K97	26	Inhomogeneous, but						
		2000	650±	30				
K98	40	5000	500	25±	9½	13	7	
K99	40	2500	830	23	10	-	-	
K100	40	1500	100?	40	8	20	7	Sy
K101	33	Inhomogeneous, but						
		4000	400?	20±5	12	15	8	Ty

Number	Page	R1	R2	DR	Ms	M2	DC	Q
K102	15	Inhomogeneous, but						
		1200	640	22	14	30+	3	Ty/Sy
K103	41	1300	325	4	12	30+	4	Sy/Ty
K104	14	5500	300	15	12	4	-	
K105	34	5000	500	32	15	20+	4	Ty
K106	13	1600	400	21	14	28	4	Ty/Sy
K107	13	2900	450	36	8-16	25+	12-25	Sy
K108	33	2500 +1000	600	25+5	16	25	15+5	Ty
K109	22	5000	250	20	11	11	-	
K110	32	4400	800	20	8.5	25	6½	Sy
K111	33	2100	600	5+2	16	35	4?	Sy
K112	32	3000-6000	440	26	14½	20	4?	Ty
K113	33	2000	1000	12+	8	16	3	Ty
K114	43	6500	325	27	10	14	6	Ty
K115	43	6000	300	19	16	7	-	Ty
K116	43	1800	100	7	8	18	7	Ty
K117	26	3000	700	16	10	4	-	
K118	25	Inhomogeneity (i.e. lateral variations)						
K119	25	2500	250	32	10	25+	4	Sy
K120	24	6000	700	26	11	-	-	
K121	23	3000	300	12	4	14	5	Ty
K122	24	4500	1000	10	15	4	-	Sy/Ty
K123	43	4500	230	11+1	8+4			

Number	Page	R1	R2	DR	Ms	M2	DC	Q
K124	24	4400	1320	8-10	8	18	5-6	Sy+
K125	39	1900	1140		21	40	2	Py/Sy
K126	39	4600	1400	12	12	12	-	
K127	26	2900	1400	10	12	28	4	Sy
K128	25	2000	100	10	10	35	7	Sy/Py
K129	42	4500	900	5	20	0	17	Ty
K130	29	4000	400	9	7½	35	6-10	Sy/Py

2. The most significant soundings are briefly reviewed below.

Younger Granites - Anchor Granite

K68 ..... Surface chargeabilities of 4 millivolts/volt within the first 26 metres(+) of surface are associated with high 2500 ±500 ohm-metres resistivities. At about the base, chargeabilities rise to at least 20 millivolts/volt (with fairly normal decay forms). This increase in chargeability is considered geophysically significant as a secondary priority.

K46 ..... The significant feature is a 30 millivolts/volt chargeability layer estimated at a depth of about 10 metres below material of 10 millivolts/volt chargeability. The sounding gives a surface layer of 1600 ohm-metres (±100 ohm-metres) to 12 metres, and 180 ohm-metres below this. This site is considered of prime interest.

K84 ..... A significant increase in chargeability to an estimated 30 millivolts/volt was found in conjunction with a steady fall in resistivity.

This level of chargeability must be considered of significance as it is significantly above the average for granites in the area. Interest is primary/secondary.

K86 ..... This sounding shows a two layer resistivity situation, the first 16 metres being 3500 ohm-metres with an 8 millivolts/volt chargeability, while the second layer has sharply lower resistivities of the order of 550 ohm-metres (±50 ohm-metres). A sharp but small increase in chargeability *could* come from this body, and thus it bears a superficial resemblance to the type soundings at Anchor. Considered of secondary geophysical interest.

Younger Granites - non-Anchor Granites

K78 ..... This sounding shows a form not unlike that seen in the Anchor Mine area. A surface layer of 3000 ohm-metres is underlain by a less resistive layer (150 to 300 ohm-metres), at about 18 metres. As this contact is approached, the chargeability increases from about 8 millivolts/volt near surface to 27 millivolts/volt. Of secondary interest.

K73 ..... This sounding, situated in the north central outcrop just north-north-west of the Anchor Mine area, infers a 3800 ohm-metres to 900 ohm-metres change at about 7 metres, and an increase in chargeability to 18 millivolts/volt from 4 to 7 metres. This may(?) be of interest for weak mineralisation at, or close to the contact. The geophysical interest is assessed as tertiary.

K23 ..... A 3000 to 4500 ohm-metres layer to 17 metres is underlain by

200 ohm-metres resistivities. At about 8 metres a significant increase to 20 millivolts/volt was noted from a 12 millivolts/volt base. The form of this response is similar to the Anchor Mine soundings, and as such it must be considered of primary to secondary geophysical interest.

K11 ..... This sounding, situated on the eastern flank of the younger (non-Anchor) granites shows a surface layer of 12 to 15 millivolts/volt chargeabilities having a resistivity of 1800 ohm-metres, underlain by 450 ohm-metres material. From 4 metres a distinct increase in chargeability above the 9½ millivolts/volt near surface layer was defined. The form is very similar to the 'type' Anchor Mine soundings, thus the sounding must be considered of primary to secondary geophysical interest.

K34 ..... This sounding shows a similar format to the Anchor Mine soundings. A change in resistivity from 3200 ohm-metres to 150 ohm-metres at *about* 29 metres is accompanied by increasing chargeabilities to 20 millivolts/volt from 8 millivolts/volt commencing at 4 metres. The similarity with Anchor Mine area makes this of secondary geophysical interest.

K35 ..... A surface layer of 1000 ohm-metres to 8 metres followed by 3000 ohm-metres to 34 metres is accompanied by surface chargeabilities of 8 millivolts/volt to about 7 metres after which it is estimated to reach 18 millivolts/volt. This sounding is of secondary geophyiscal interest.

K36 ..... This shows a similar form to K35 with an increase in chargeability from background near surface of 11 millivolts/volt to 24 millivolts/volt at 6 metres. This is similar in form to Anchor Mine and is thus of secondary interest.

K39 ..... An increase in chargeability to depth from 8 millivolts/volt near surface to an estimated 18 millivolts/volt at perhaps 14 metres gives a form very similar to that seen at Anchor Mine. The surface resistivity is a fairly even 1500 ohm-metres(+) to 14 metres, after which it is interpreted to abruptly change to 75 ohm-metres. The form of this profile is suggestive of Anchor Mine type soundings and as such is considered of primary/secondary geophysical interest.

K40 ..... An increase in chargeability at about 9 metres to an estimated 24 millivolt/volt from the 11½ millivolts/volt observed at surface is thought to be of secondary interest. In the resistivity data a surface layer of the order of 3400 ohm-metres to about 17 metres is underlain by significantly lower resistivities of 600 ohm-metres.

K29 ..... There is an increase in chargeability at an interpreted depth of 8 metres from 11 millivolts/volt near surface to 18 millivolts/volt at depth. The form is suggestive of the Anchor 'type' soundings and thus the site is considered of secondary interest. A sharp change in resistivity from 3000 to 150 ohm-metres at about 18 metres is interpreted.

Older Granites (Coarse Grained Type)

K82 ..... Increased chargeability to 25 millivolts/volt against an 8 millivolts/volt background is interpreted at 8 metres. At about 14 metres(±3 metres) resistivities decrease from 2300 ohm-metres to 1200 ohm-metres. As the form is similar to Anchor Mine soundings, the significance is considered secondary.

K124 ..... High chargeabilities of 18 millivolts/volt(+) are inferred at 5 to 6 metres depth under low surface chargeabilities of about 8 millivolts/volt. A high 8 to 10 millivolts/volt surface zone of higher 5000 ohm-metres resistivity gives way to progressively lower resistivities at depth. This sounding is of secondary plus geophysical interest.

K119 ..... At a depth of 4 metres a high chargeability of 25 millivolts/volt(+) is inferred against a near surface chargeability of the order of 10 millivolts/volt. The surface layer resistivity to 32 metres is of the order of 2500 ohm-metres after which it falls to 250 ohm-metres(±). The larger spacings (a = 70 metres+) show *lower* chargeability which infers a significantly lower chargeability in the lower granite. Of secondary interest.

K128 ..... A most significant increase in chargeabilities from 10 millivolts/volt near surface to over 35 millivolts/volt at an estimated depth of 7 metres is interpreted. This lies *above* a significant fall in resistivity from 2000 ohm-metres to 600 ohm-metres at 10 metres, with

(perhaps) a lower resistivity zone of say 100 ohm-metres on the contact itself. Of secondary to primary geophysical interest on a comparison with Anchor Mine.

K127 ..... A surface layer to 4 metres of 12 millivolts/volt followed by a higher chargeability of 28 millivolts/volt which is considered of secondary interest by way of comparison with the type soundings. This chargeability is inferred to lie above a change in resistivity from 2900 ohm-metres(above) and 1400 ohm-metres (below) the 10 metres(+) level.

K57 ..... A similar section to those seen under K127 and K128 is inferred, namely, lower surface chargeabilities of about 10 millivolts/volt to about 4 metres after which 30 millivolts/volt(+) is interpreted. The resistivity sections infer a surface 2700 ohm-metres to about 8 metres then 630 ohm-metres to depth. This section could quite easily be a variant of that recorded in the Anchor Mine area, and thus the interest is at least secondary.

K61 ..... A layer of 26 millivolts/volt chargeabilities is interpreted at a depth of 5 metres, with chargeabilities above being in the range 10 to 14 millivolts/volt.. A surface layer of 2600 ohm-metres underlain by 300 ohm-metres at a depth of 24 metres is interpreted. The location close to Anchor Mine must enhance the geophysical merit which is considered to be at least secondary.

K21 ..... High surface chargeabilities of 17 millivolts/volt give way at shallow depth (3 metres) to higher values to 35 millivolts/volt.

These high values are of themselves of merit as they are anomalous. The resistivity data shows a contact between 1600 ohm-metres surface material, to 3 metres, then 800 ohm-metres which undergoes a progressive decrease with depth. This sounding is of secondary to primary interest.

K130 ..... A surface layer from 6 to 10 metres of 7½ millivolts/volt is underlain by a chargeable layer of at least 35 millivolts/volt (at 6 to 10 metres). The 10 metres depth coincides with a marked decline in interpreted resistivity from 4000 ohm-metres at the surface to 400 ohm-metres at depth at 9 metres. This sounding is considered of primary to secondary interest.

K6 ..... A surface layer to 4 metres of 10 millivolts/volt is interpreted to be underlain by chargeabilities of the order of 25 millivolts/volt. This is considered of primary interest. The resistivity data infers a surface layer to 20 metres of 2000 ohm-metres underlain by resistivities of 150 ohm-metres. Thus the chargeability appears to be *above* the resistivity change. Of primary interest.

K22 ..... Surface chargeabilities of about 12 millivolts/volt to a depth of about 5 to 6 metres is underlain by significantly higher values interpreted to be 35 millivolts/volt. The resistivity data infers a major change in resistivity from 3500 ohm-metres above to 750 ohm-metres below at 17 metres $\pm$3 metres. The interest is primary to secondary.

K7 ..... This showed chargeabilities of 4 millivolts/volt to 8 to 10 metres after which 20 millivolts/volt is interpreted. The resistivity

data shows a most significant contact at 15 metres ±2 metres with 3000 ohm-metres above and 300 ohm-metres below. This site is considered of primary to secondary interest.

K8 ..... The chargeability data suggests a 5 metres(+) surface layer of about 7 millivolts/volt to be underlain by chargeabilities of the order of 22 millivolts/volt. This contact is above one interpreted at 20 metres(+) between 3200 ohm-metres material above and 170 ohm-metres material below. On an Anchor Mine comparison basis, this site is at least of secondary geophysical interest.

K9 ..... Surface chargeabilities of 7 millivolts/volt to 6 metres(+) are interpreted to give way to 28 millivolts/volt (+) chargeabilities which are considered of primary to secondary interest. These lie well above a major interface between 1300 ohm-metres resistivities above, and 130 ohm-metres below, at 25 metres(+). This site is also considered of primary interest by comparison with Anchor.

K111 ..... High surface chargeabilities of 16 millivolts/volt are interpreted to give way to much higher values of 35 millivolts/volt at about 4 metres. A significant change from 2100 ohm-metres within 5 metres (+) of surface to 600 ohm-metres at depth is interpreted. The sounding is considered of secondary interest due to its high chargeability.

Older Medium Grained Granites

K83 ..... The main feature of interest is an interpreted sharp increase

in chargeability from 9 millivolts/volt to 26 millivolts/volt(+) at 9 metres. A surface layer whose resistivity is 1800 ohm-metres is underlain by a lower resistivity of 600 to 900 ohm-metres at a depth of 6 to 22 metres. This sounding is of at least secondary interest.

K79 ..... 10 millivolts/volt surface chargeabilities and 1400 ohm-metres resistivities extend to 5 metres and 6 metres respectively. Beneath, alayer of about 25 millivolts/volt and 600 ohm-metres has been interpreted. The site is considered of secondary geophysical interest.

K55 ..... High chargeabilities from near surface to at least 12 metres of 30 millivolts/volt are interpreted. The resistivity data suggests a 4 metres layer of 500 ohm-metres underlain by 250 ohm-metres material. This site is considered interesting due to its high chargeability background. It is noteworthy that 'West Anchor Tin Vein' is represented some 500 metres to the north-east, perhaps the two are related. Of secondary geophysical interest.

K125 ..... Chargeability within 2 metres of surface of 21½ millivolts/volt, followed by 40 millivolts/volt to 12 metres are considered of prime interest. The resistivity data shows moderate 1000 ohm-metres ±500 ohm-metres resistivities over the whole section. Of secondary to primary interest.

K100 ..... At 7 metres depth low 8 millivolts/volt surface chargeabilities are estimated to give way to 20 millivolts/volt values. This lies wholly within a resistive zone of 1500 ohm-metres. This is of potential economic

interest, however, the 20 millivolts/volt *could* represent compositional changes in this unit whose normal background is 12 millivolts/volt(+).

K103 ..... At 4 metres, 30 millivolts/volt chargeabilities are interpreted from material of 325 ohm-metres. This high value is considered as a primary to secondary area of interest.

K54 ..... This sounding over alluvium indicates a chargeability layer of about 20 millivolts/volt as against 8 millivolts/volt at a depth of about 3 metres. The soundings to the north and west are also considered of secondary interest.

K53 ..... Strong chargeabilities of 30 millivolts/volt(+) are inferred under the alluvium cover of about 3 metres at this site. As these high chargeabilities are only some 500 metres south of the Anchor Mine, the sounding which is of secondary to primary geophysical interest, is obviously of prime interest when this is considered.

3. Form of resistivity soundings: It was hoped that each granite unit would have some characteristic which would mark it as being different from the others, particularly after the detailed soundings in the Mine area. Although this is true to a certain extent, the most significant changes are those between the resistive weathered overburden (see below) and the underlying granite *of whatever divisions*.

4. Form of the chargeability soundings: Those soundings which are considered to be significant are generally seen as a relatively low near surface layer

ranging from a very low 4 millivolts/volt to a moderate 12 millivolts/volt, followed by increasing chargeabilities which range from a high 40 millivolts/volt to moderately high 25 to 30 millivolts/volt. The largest *a* spacing generally shows a *decrease* which, in isolated soundings could indicate that the chargeable layer at depth is of limited laterest extent, however, in the majority of cases at Anchor such sounding profiles occur in groups and as such the favoured interpretation is of a narrow chargeable layer at depth, the form of the apparent chargeability representing a dilution of the whole non-chargeable material below the narrow chargeable zone. As such a precise interpretation of depth is difficult to make, as the material at depth never reaches saturation.

One important point should be made. In the area as a whole the 'average' background within the granites ranges about 8 millivolts/volt ±2 millivolts/volt, and these limits can be considered normal for acid rocks such as granites. However, chargeability values of 30 millivolts/volt or higher can be considered highly anomalous, not only in an areal extent, but for *any* granites. Thus the source of *substantial* chargeability above say 20 to 25 millivolts/volt should be investigated.

GENERAL CONCLUSIONS - DISCUSSION

From a study of the soundings over known mineralisation in the Anchor Mine, and from those drilled into mineralisation on sounding sites such as K130, it would appear that a resistive surface layer followed by a layer of significnatly less resistivity (i.e. 10%) together with an increase in chargeability within the resistive upper layer, just above the contact is the characteristic form for mineralisation. While this is certainly so,

soundings which have a form which is similar and/or which can be considered reasonable geophysical variants thereof have been found to yield a very different profile. The upper layer consists of coarse 'granite sand' probably an in-situ weathering product of the granite, which, while 'damp' has a water table at a low level within it. Also, careful examination has shown some secondary sulphides to be present within this layer. Underlying this layer an unweathered granite was ecnountered. The electrical log run has shown the upper weathered granite to have high resistivity, and to be underlain by granite having a low resistivity, with chargeability being present in the upper weathered zone. This situation is absolutely unique in the author's experience, and while secondary sulphides have been found elsewhere in north-eastern Tasmania in the alluvium or weathering, they have been demonstrated to be of tertiary age. Thus it is suggested that this be so here also.

The author has attempted to differentiate the soundings on the basis of absolute magnitude of chargeability and resistivity (or a ratio thereof) and on a basis of decay form. No method has been found which can differentiate the 'economic' from the 'non-economic' sounding.

Therefore if a differentiation between potentially 'economic' and 'non-economic' sounding sites is to be made, it must be done by non-electrical means. As far as geophysics is concerned, only a *precise* magnetic field survey *may* yield useful information, as low amplitude magnetic anomalies in the form of 'onion rings' around mineralised sections occur in many parts of the world. Since such surveys are cheap to perform, I strongly recommend such be undertaken in the Anchor Mine and those areas close to it which have soundings assessed to be of primary and secondary interest.

In summary then it can be said that the mineralisation *does* show up as an anomaly of primary to secondary interest, the problem is to differentiate it from the weathering in the area. The work carried out shows that large sections of the area surveyed *do not* look prospective based on the form of the soundings being similar.

Respectfully submitted on behalf of:

SCINTREX PTY. LTD.

A.W. HOWLAND-ROSE, MSc, DIC, AMAusIMM, FGS.

GEOPHYSICIST

SCINTREX

APPENDIX

BRIEF NOTES ON SCHLUMBERGER ELECTRICAL SOUNDING ARRAY AS CARRIED OUT IN THE ANCHOR MINE AREA

CALCULATION OF RESULTS

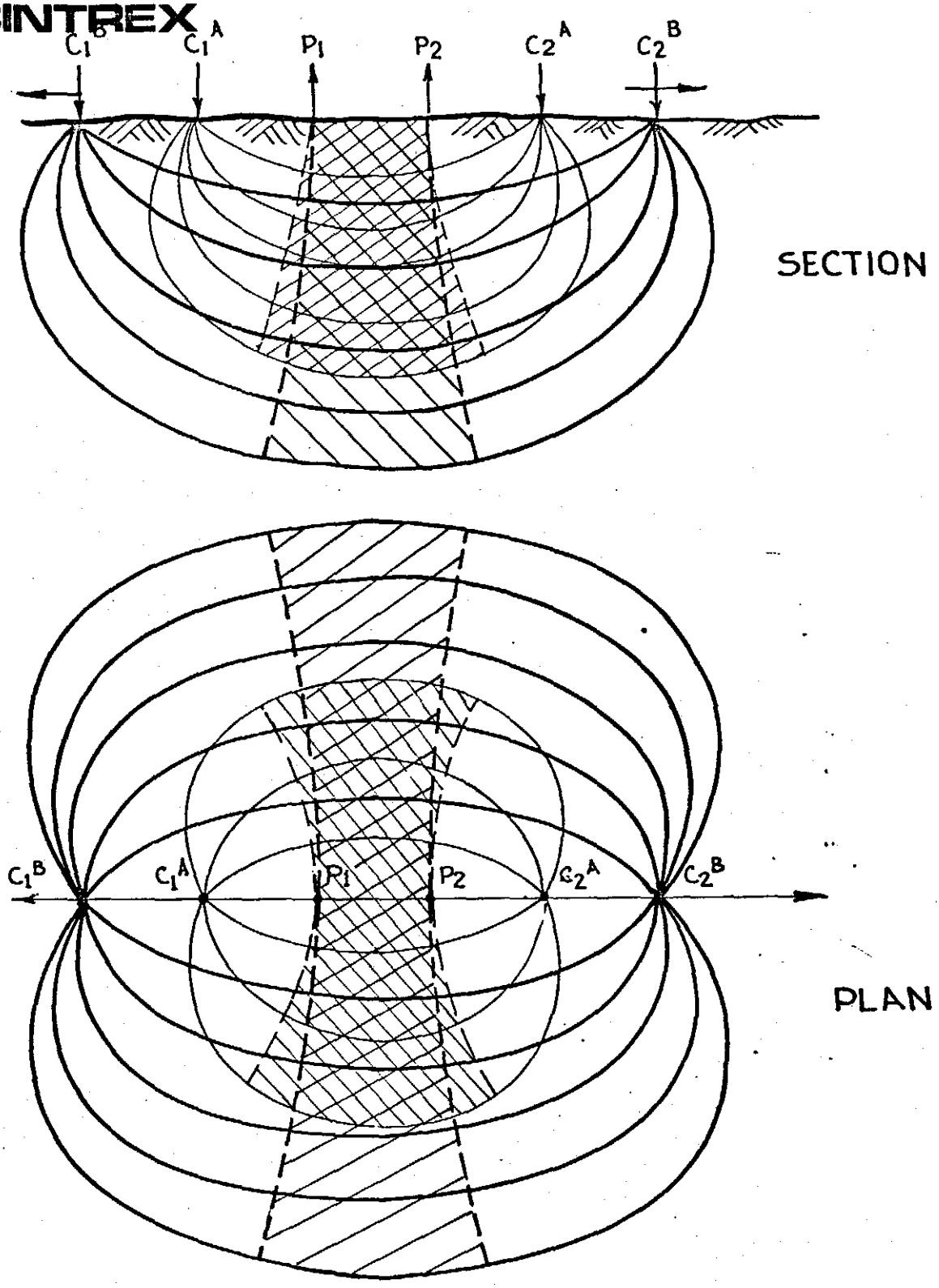
As Figure 1 shows, the potential dipole, P_1, P_2, is placed between the current dipole C_1, C_2. In such a configuration the formula for the calculation of the resistivity is obtained as follows:-

$$\rho a = \pi\left(\frac{a^2}{b} - \frac{b}{4}\right) \times \frac{Vp}{1000I}$$

Where b is the potential dipole and a the distance from the centre of the array and one current pole, Vp is the potential measured, and I is the current employed.

OPERATIONAL PROCEDURE AND MEASUREMENTS

The array is set up using a small b spacing (i.e. P_1/P_2) of say 2 metres, with a larger a spacing of say 4 metres. The latter is progressively increases in a semi-logarithmic fashion, with resistivity and chargeability values being taken for each a spacing. When the potential falls below a measurable level the b spacing is increased to increase the potential available for measurement. At Anchor earlier soundings were carried out using a substantial overlap to ascertain inhomogeneity near surface, near the potential electrodes, where a substantial difference in the apparent resistivity occurs for different b spacings. In most cases a *reasonable* fit between different b spacings were obtained, but on occasions substantial differences were logged.



Schlumberger array showing the primary equipotential field by which the resistivity measurements are taken.

FIGURE 1

In the case of chargeability three slices were read, M_1, M_3 and M_5 for a 2 second square wave, using a 2 second receiver programme. It was hoped that the decay form would assist in differentiating different rock types and, perhaps in interpreting chargeability data in terms of mineralised veins or increased mafic minerals within the granite. In effect this did not assist the interpretation in this case.

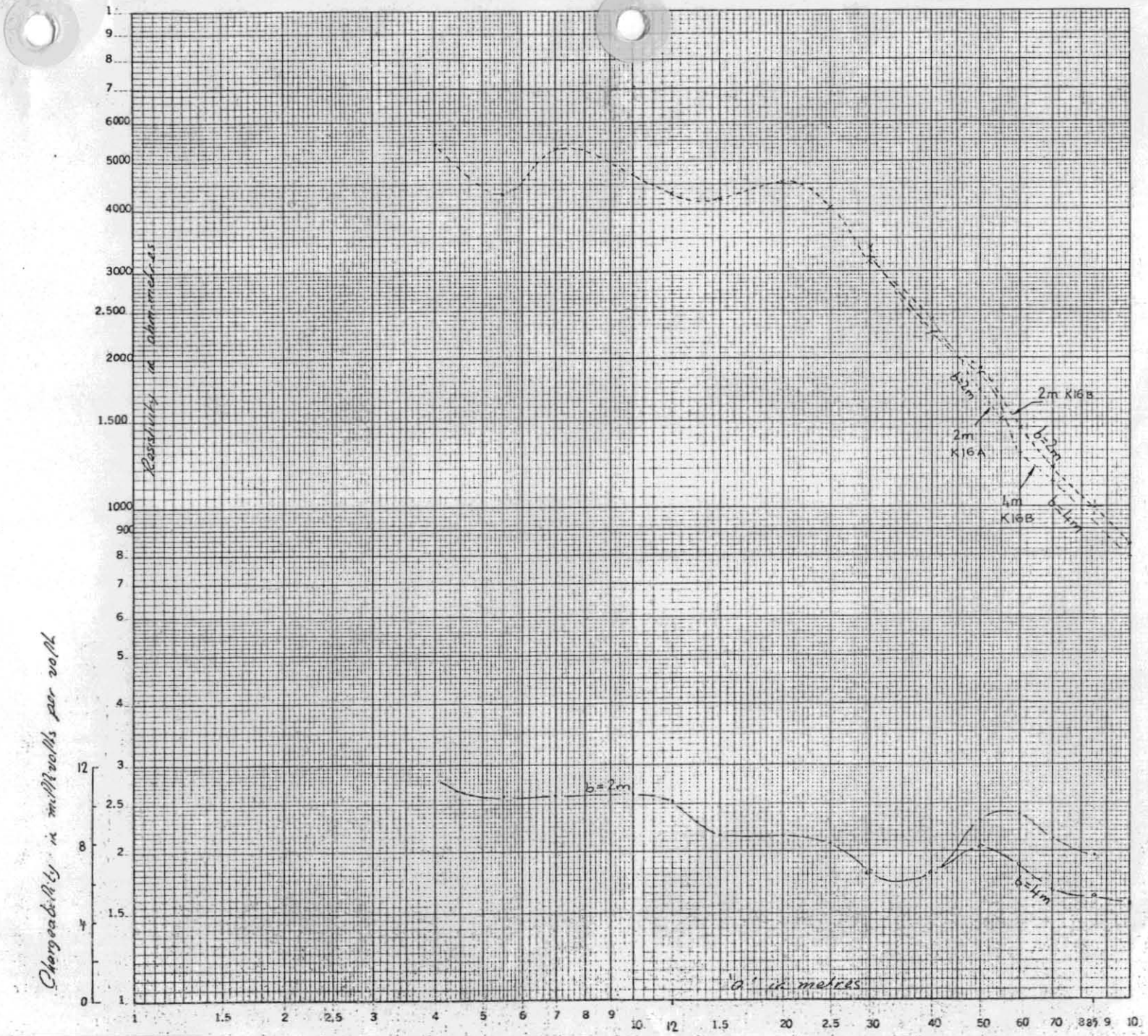
INTERPRETATION

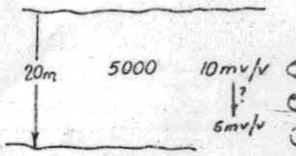
The resistivity data was plotted on the 5 inch log cycle and a first pass interpretation made against standard curves for resistivity. The procedure involves the assumptions that the layering is horizontal, and that the contacts between individual horizons are sharp and extend beyond the scope of the sounding limits as defined by the current dipole. Any 'lensing' including topographic change can influence the precise interpretation of the sounding. The interpretation is much affected by near surface inhomogeneity in absolute terms, but such near surface inhomogeneities are 'lost' at larger spacings. The Anchor soundings are, to some extent, influenced by all these problems, thus a 'first pass' interpretation is all that is warranted. A sophisticated interpretation involving each data point which still makes the basic assumptions would not be warranted in this case.

K16 (A&B)
Schlumberger Array
ANCHOR MINE AREA
TAS-072

070

80-1424





0980711

5 cm

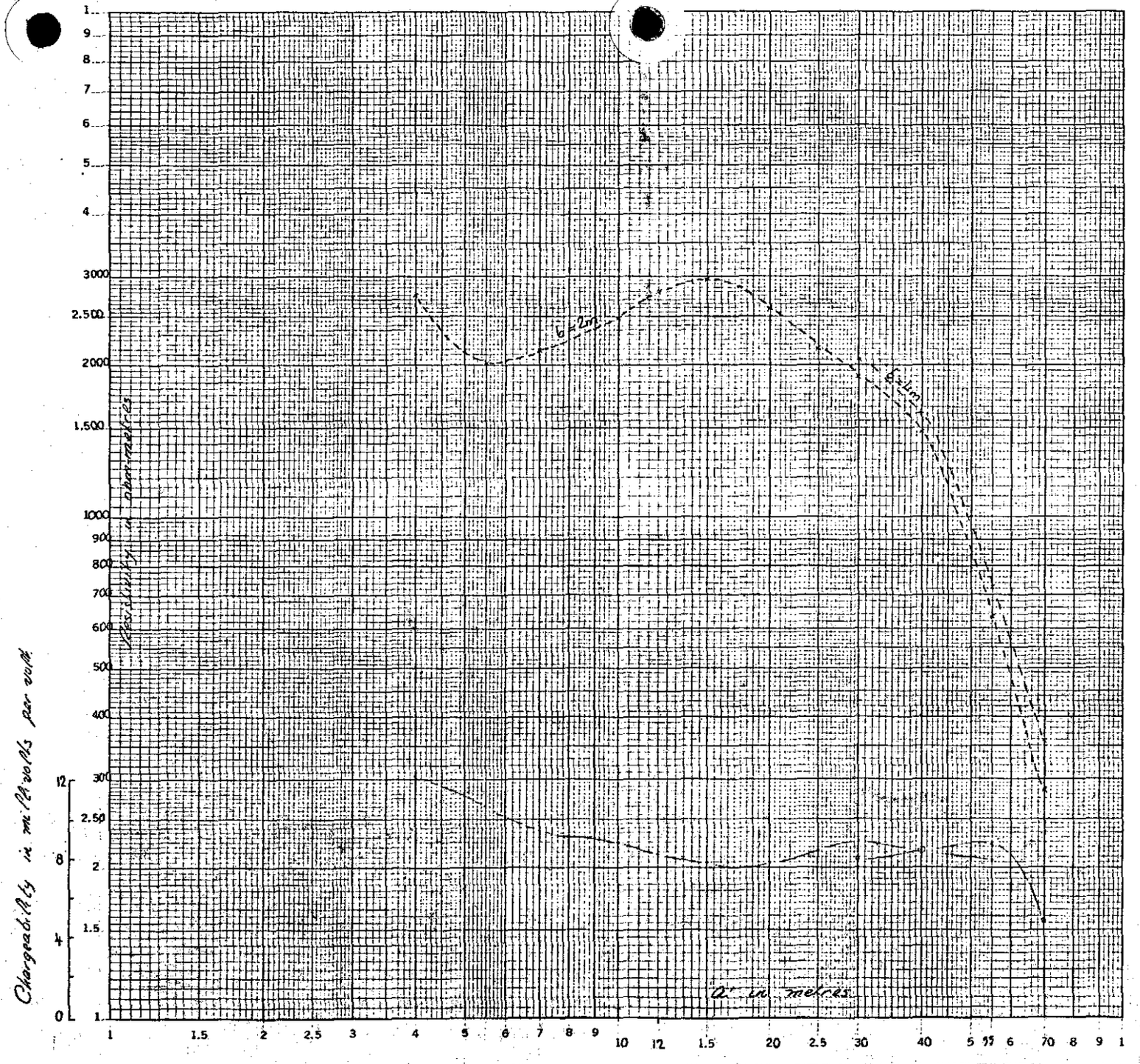
K17

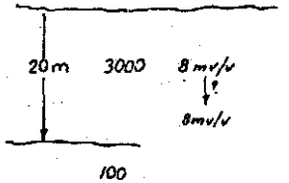
Schlumberger Array

ANCHOR MINE AREA

TAS-012

071





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2 10360

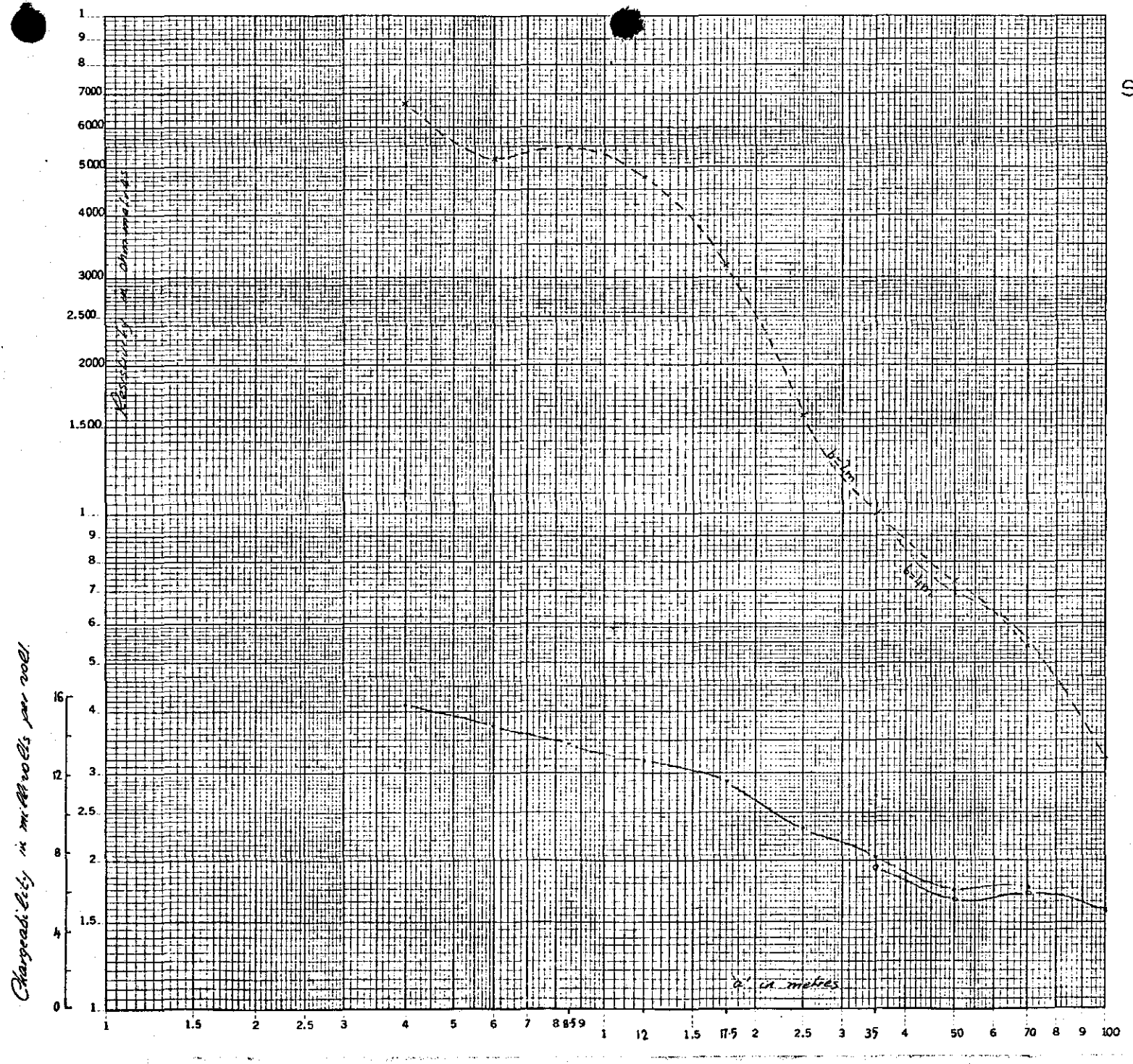
K93

Schlumberger Array

ANCHOR MINE AREA

TAS-072

072



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C10860

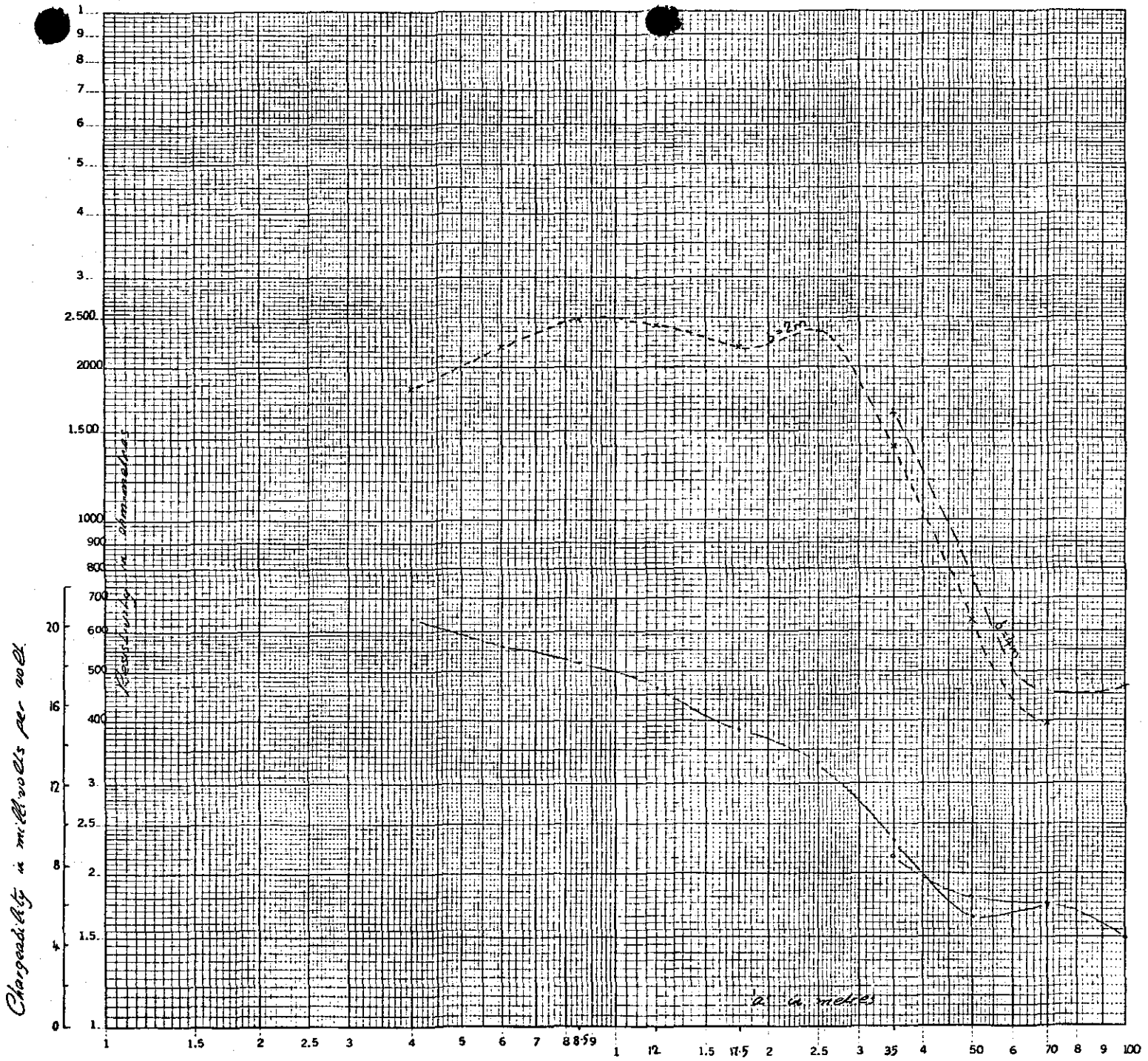
K94

Schlumberger Array

ANCHOR MINE AREA

TAS-072

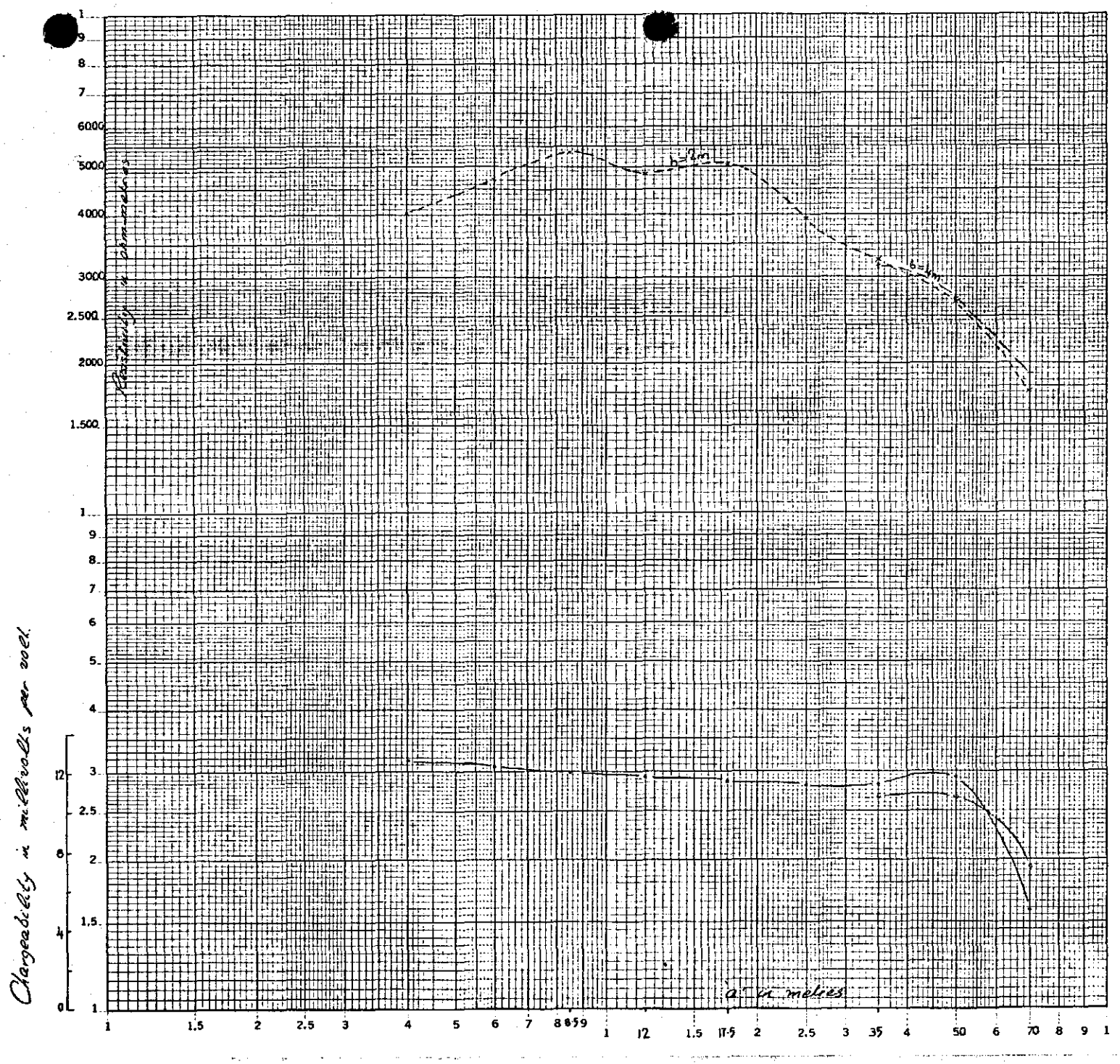
073

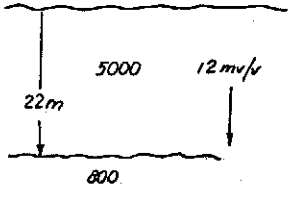


5 cm

K95
Schlumberger Array
ANCHOR MINE AREA
TAS-072

074





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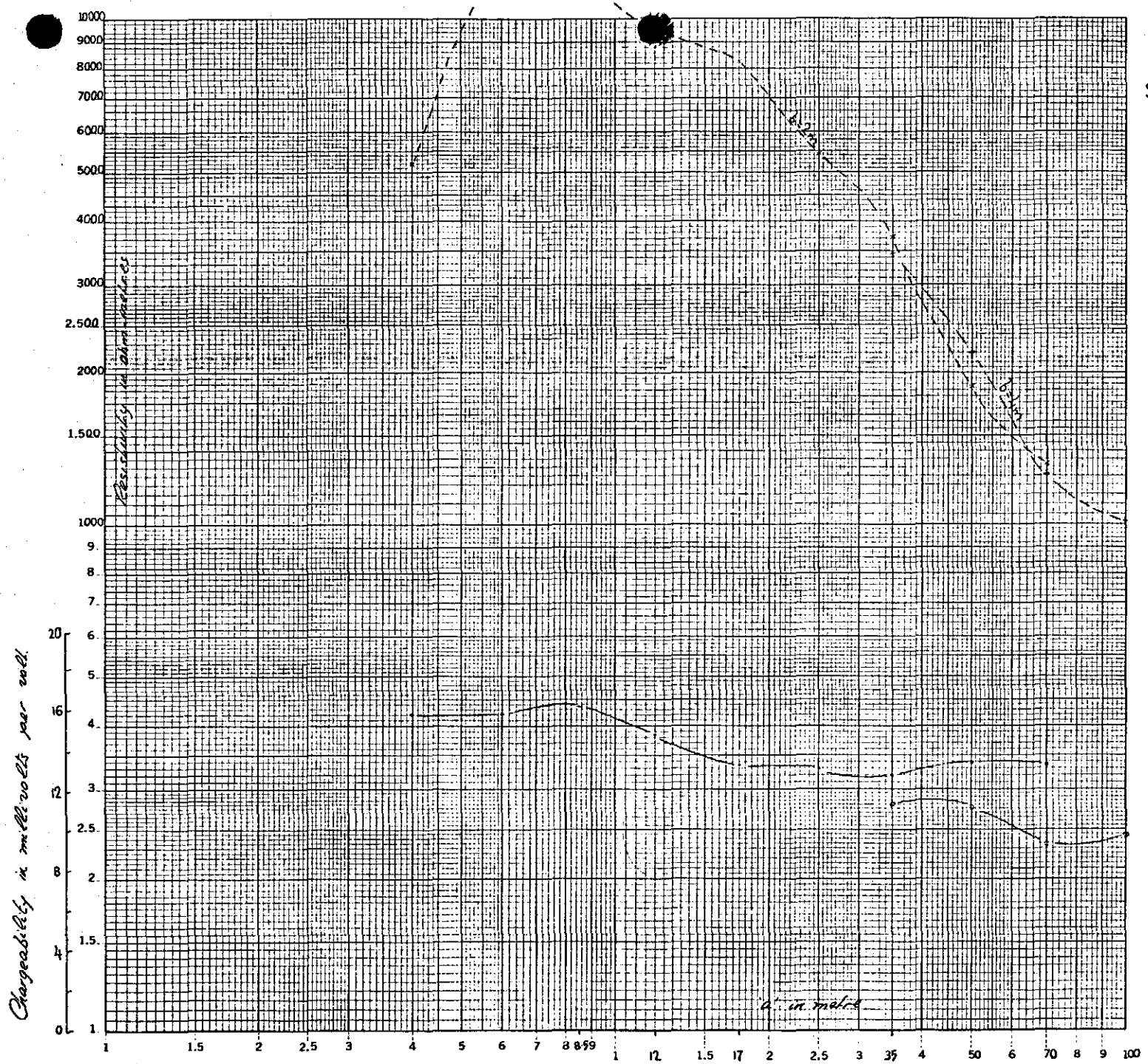
K96

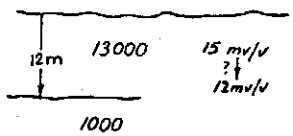
Schlumberger Array

ANCHOR MINE AREA

TAS-072

075





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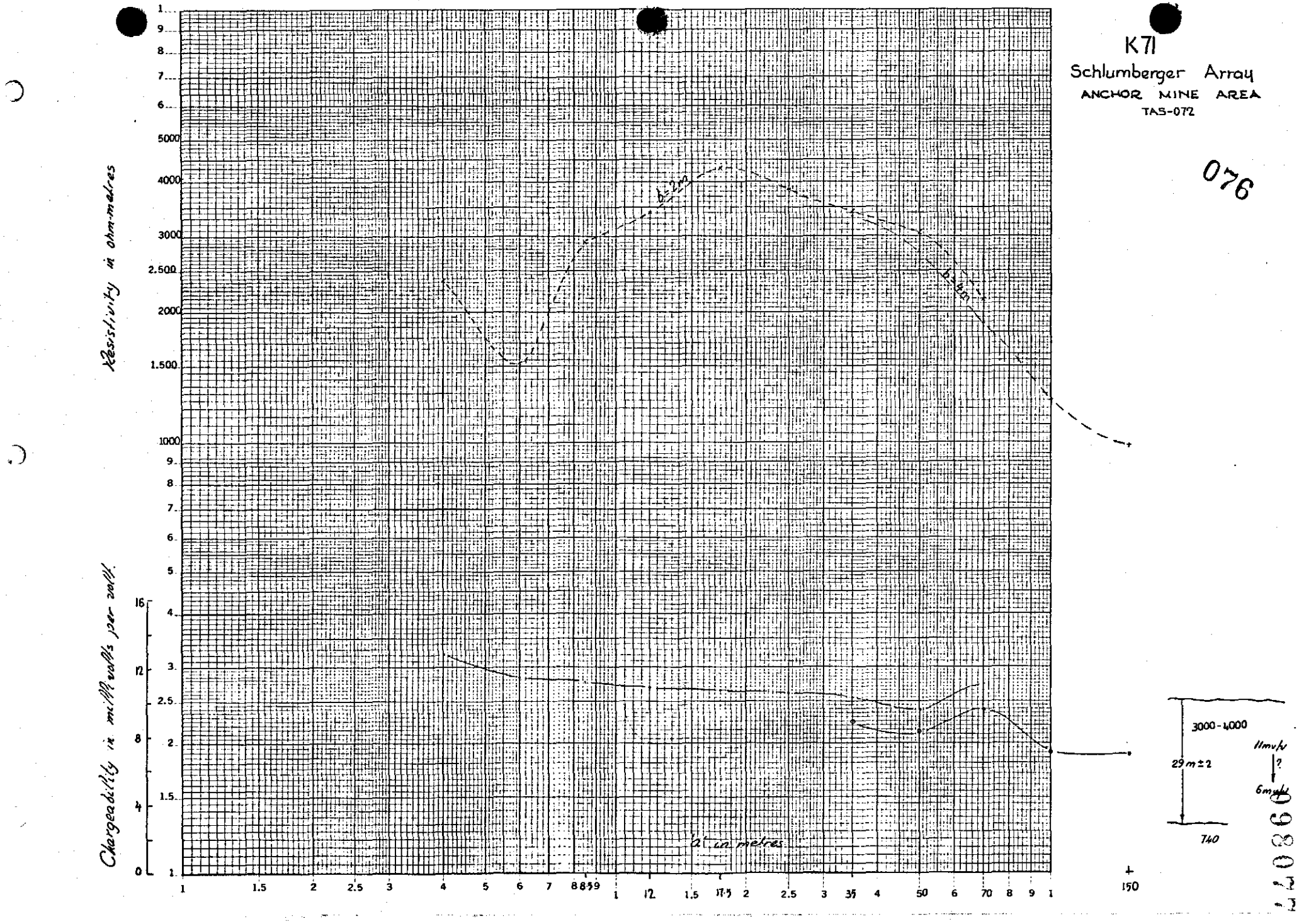
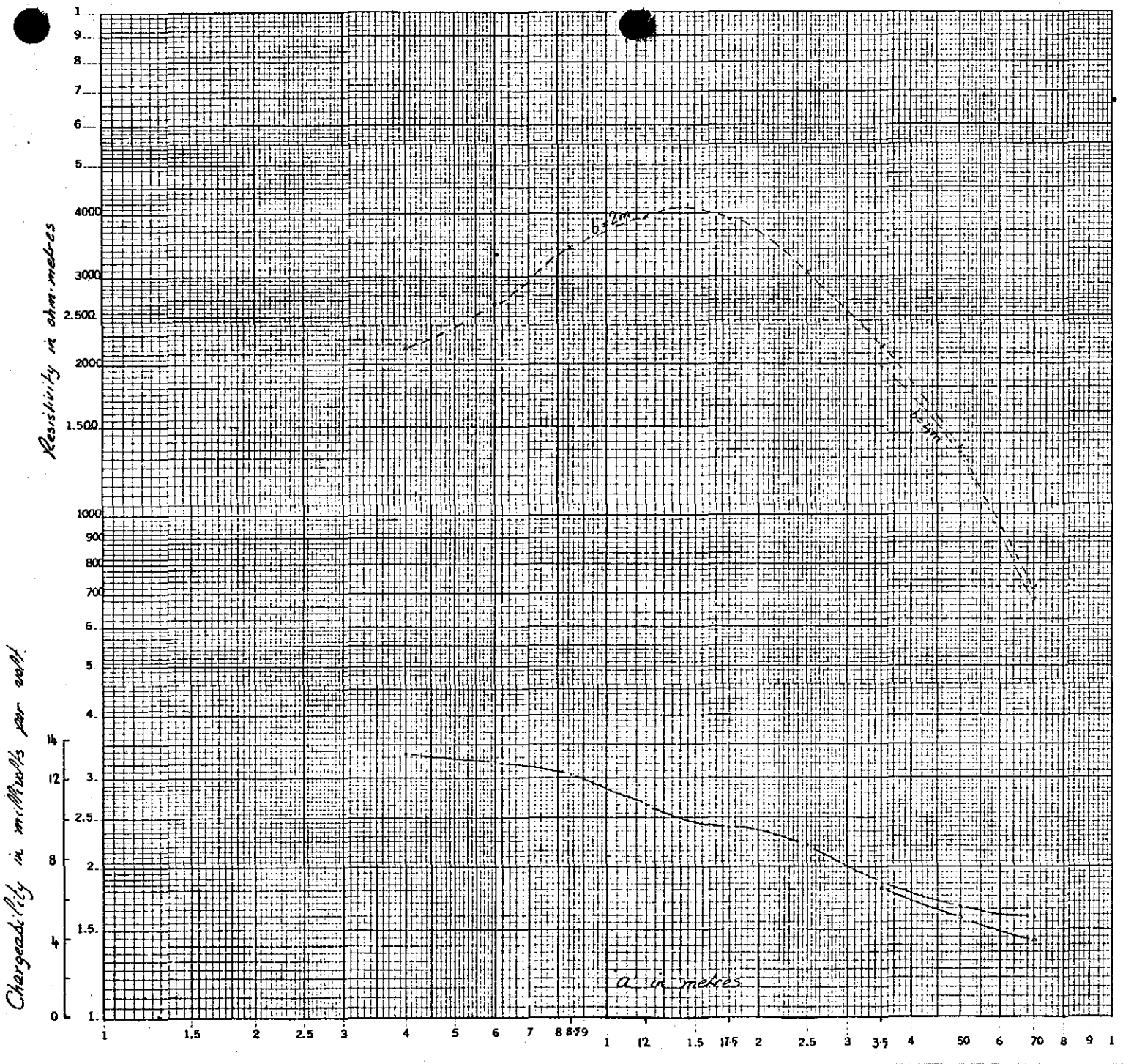

K71
Schlumberger Array
ANCHOR MINE AREA
TAS-072
076
Resistivity in ohm-metres
Chargeability in milliVolts per volt
a' in metres
3000 - 4000
29 m ± 2
740
150
5 cm

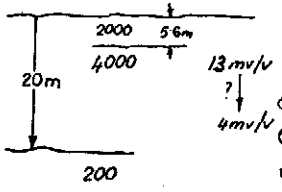
K70

Schlumberger Array

ANCHOR MINE AREA -
TAS-072

077





5 cm

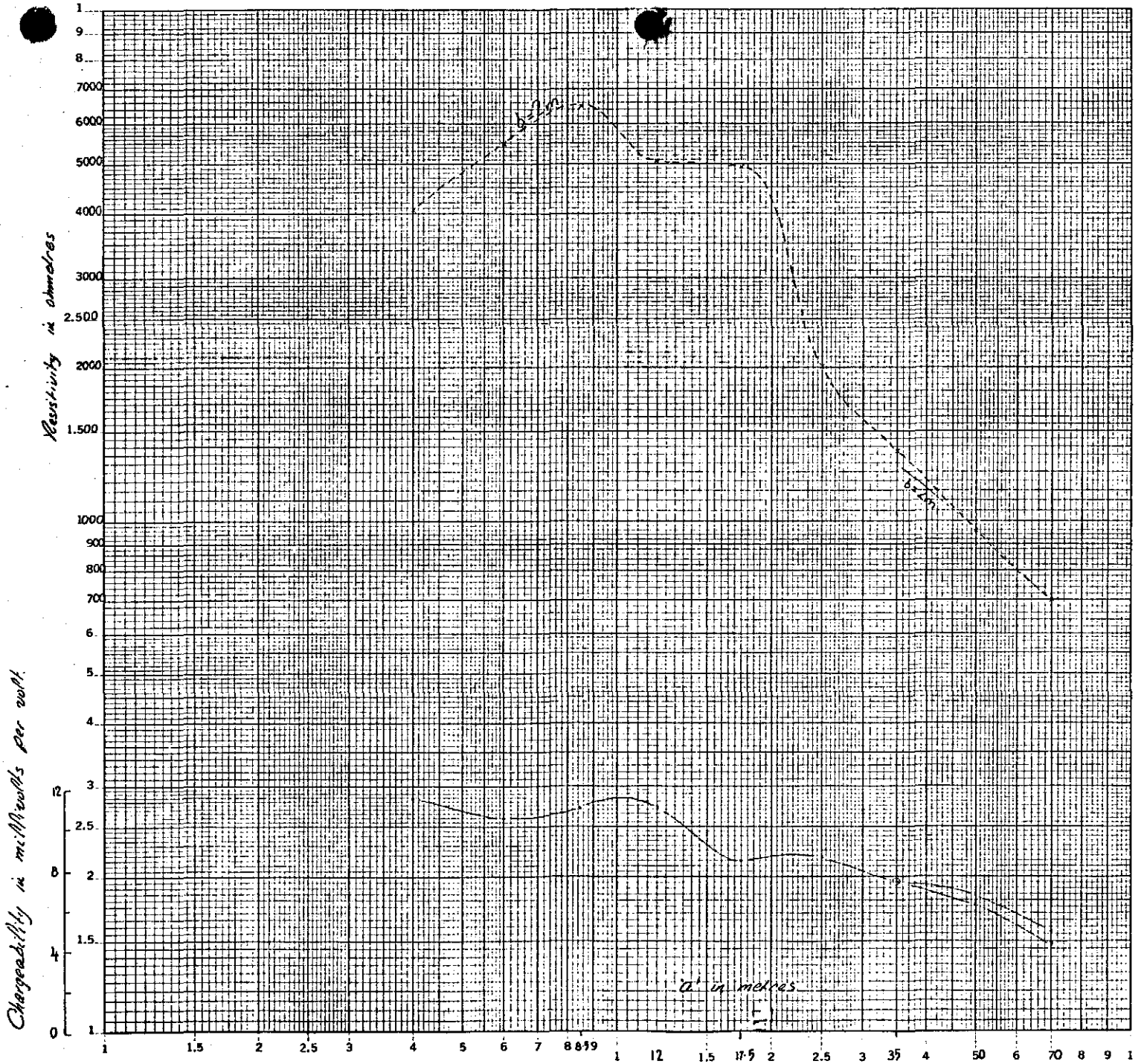
K69

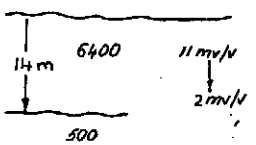
Schlumberger Array

ANCHOR MINE AREA

TAS-072

078





5 cm

670860

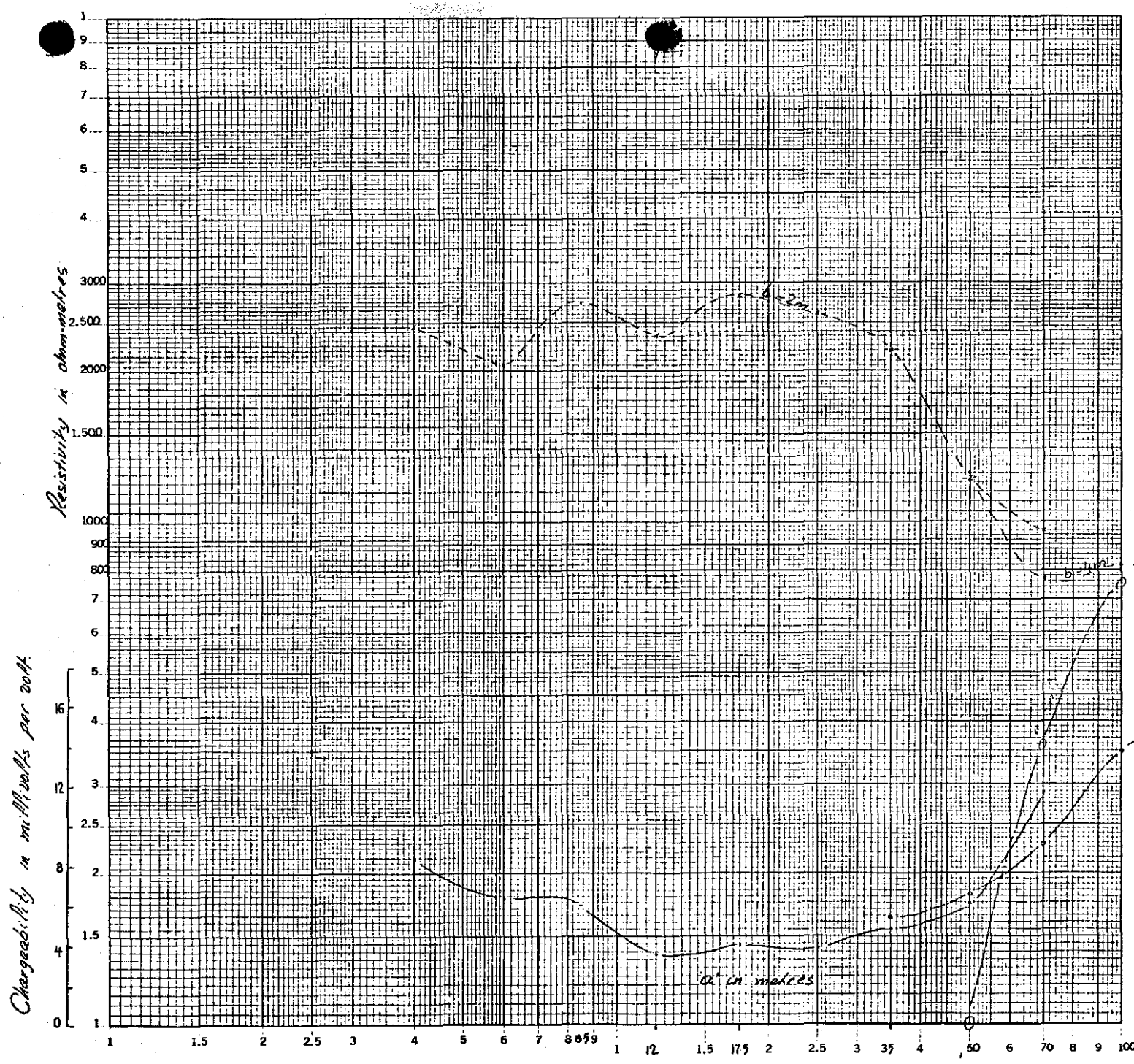
K68

Schlumberger Array

ANCHOR MINE AREA

TAS-072

079



5 cm

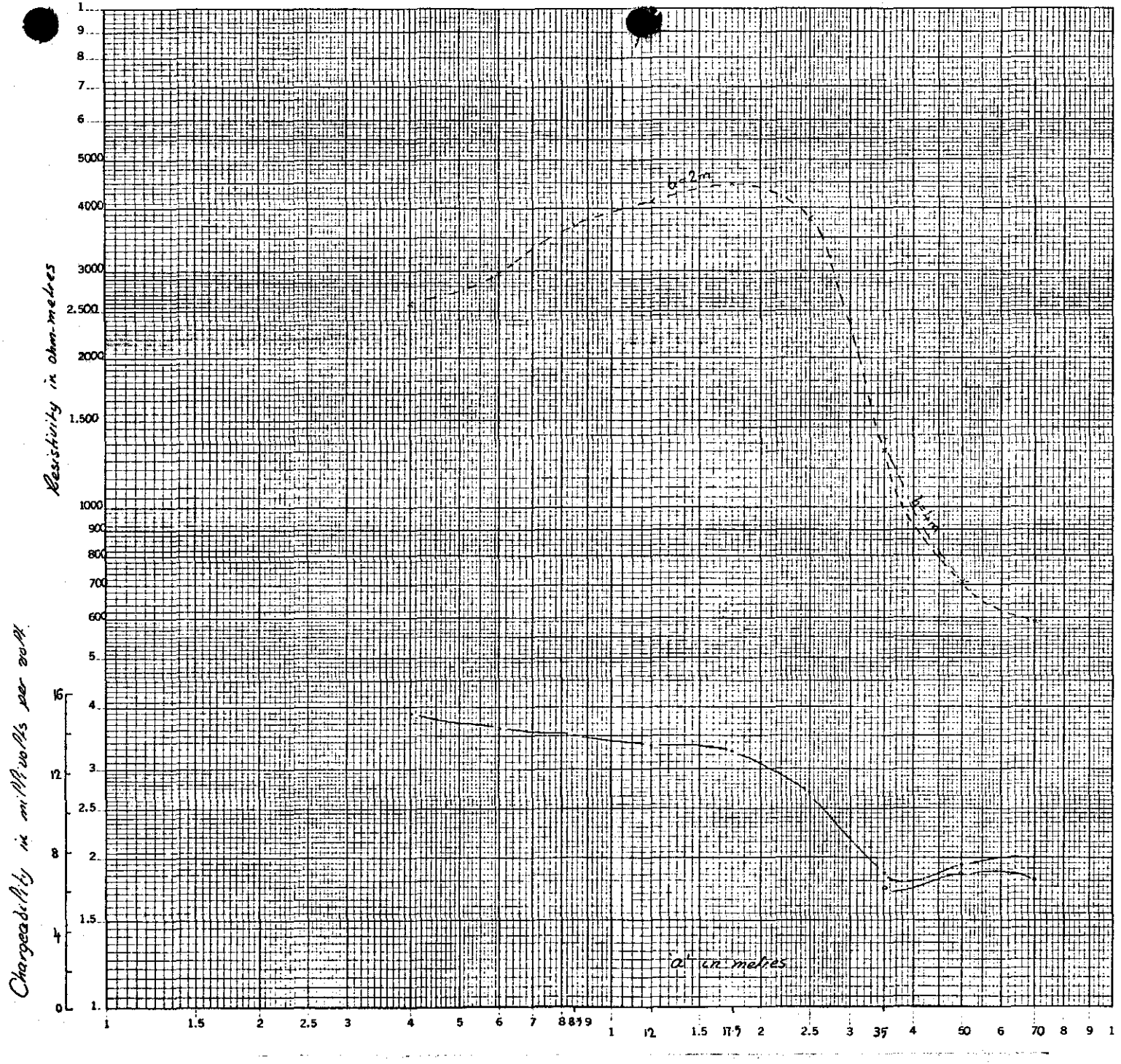
K67

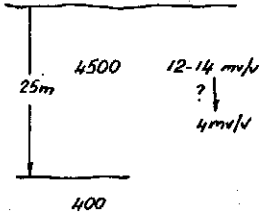
Schlumberger Array

ANCHOR MINE AREA

TAS -072

080



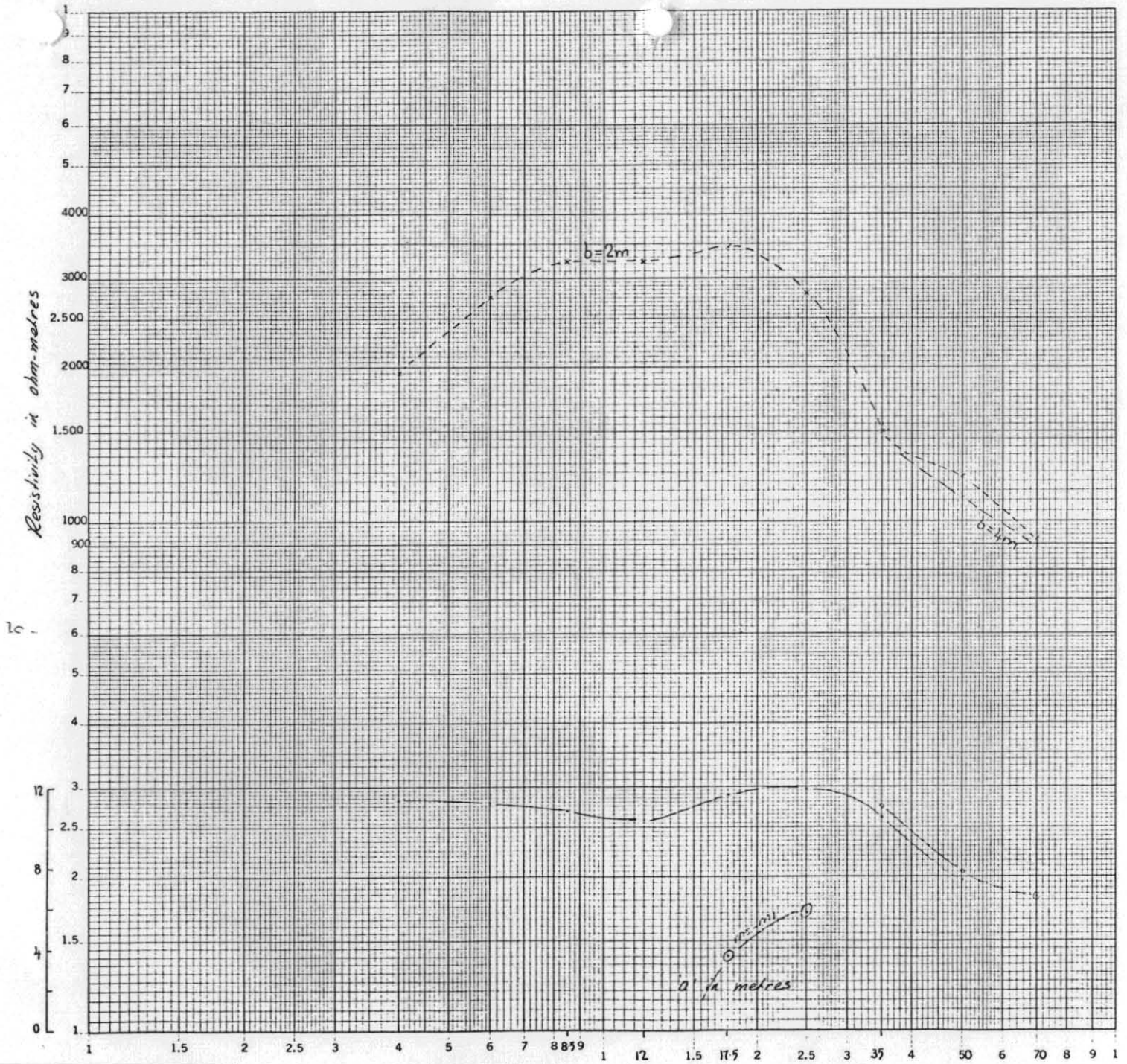


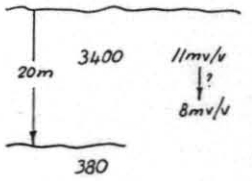
5 cm

T80360

K66
Schlumberger Array
ANCHOR MINE AREA
TAS-072

081





280860

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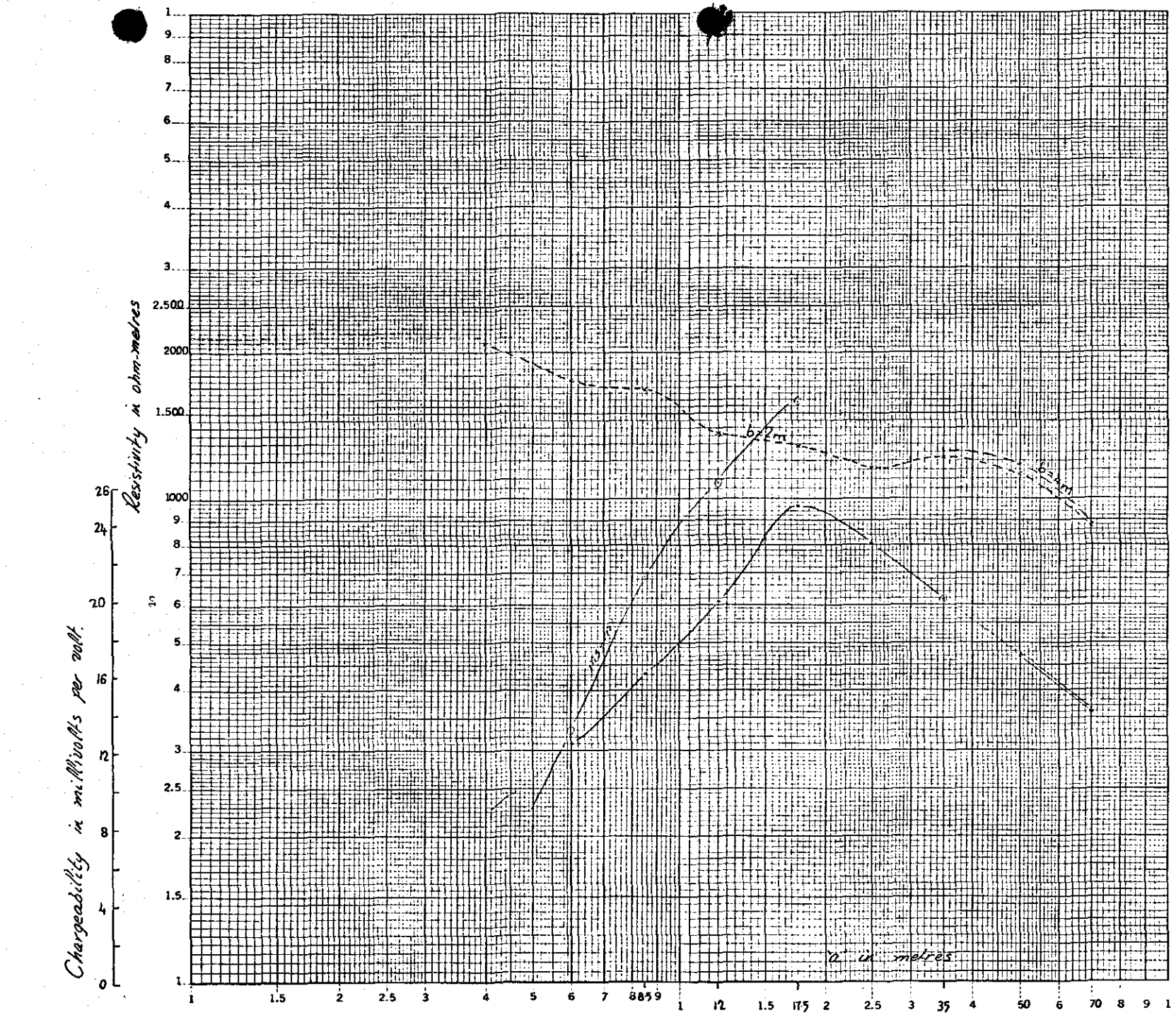
K84

Schlumberger Array

ANCHOR MINE AREA
NR ST HELENS
TAS-072

082



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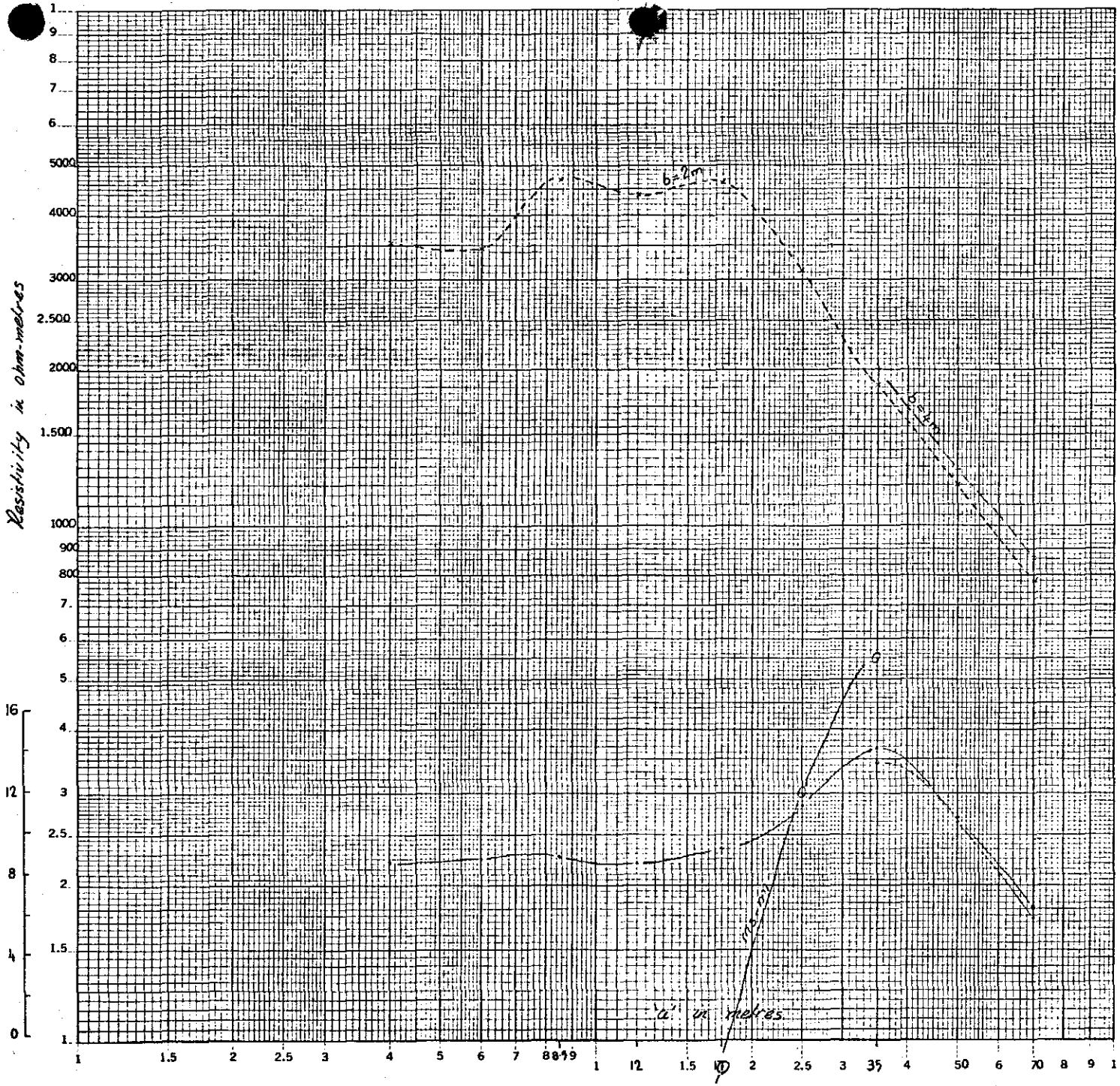
K86

Schlumberger Array

ANCHOR MINE AREA
NR. ST. HELENS
TAS-072

083



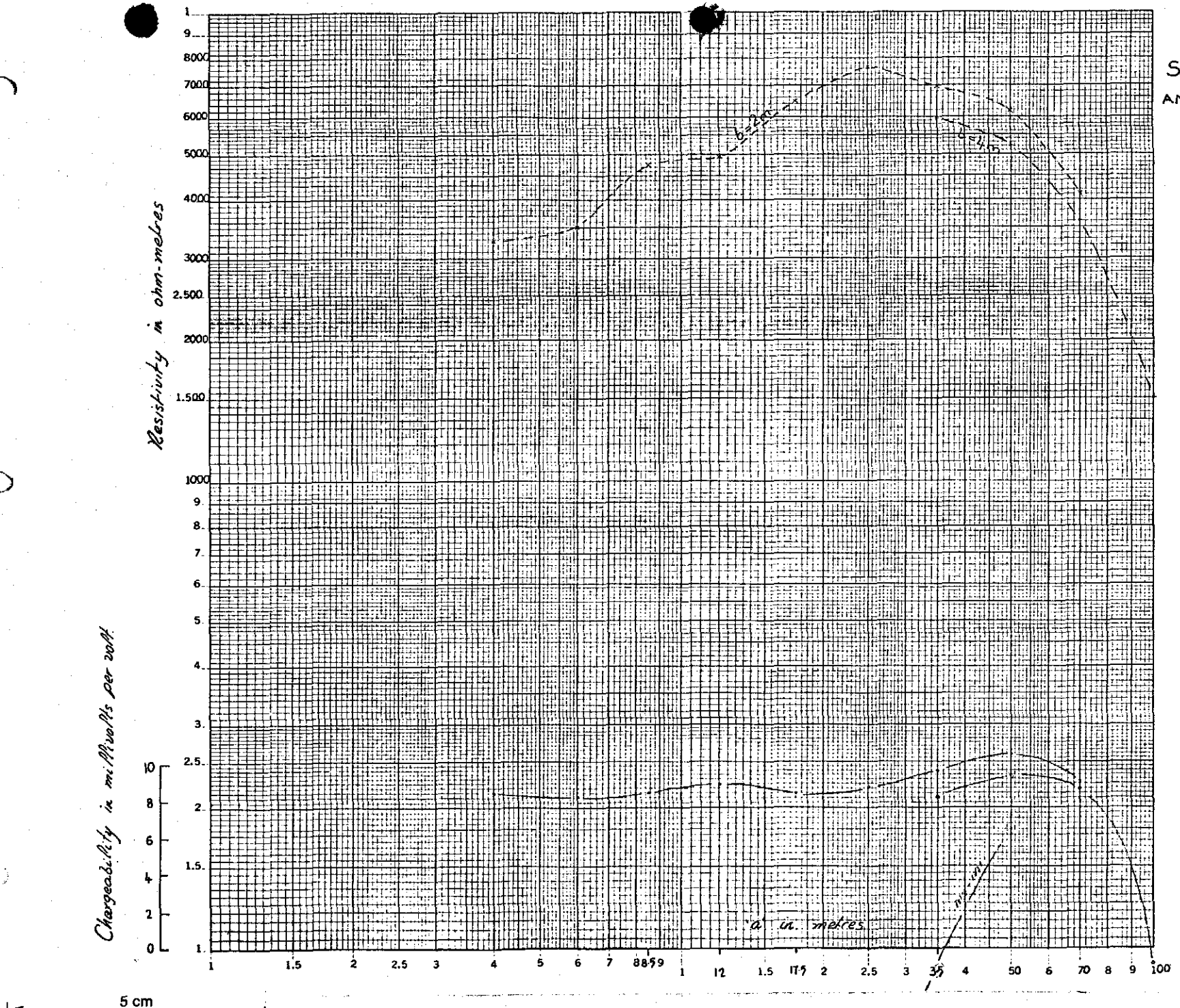
5 cm

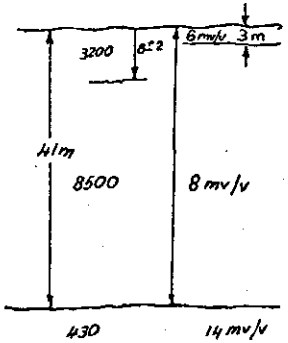
K81

Schlumberger Array

ANCHOR MINE AREA
NR ST. HELENS
TAS-072

084.





C80360

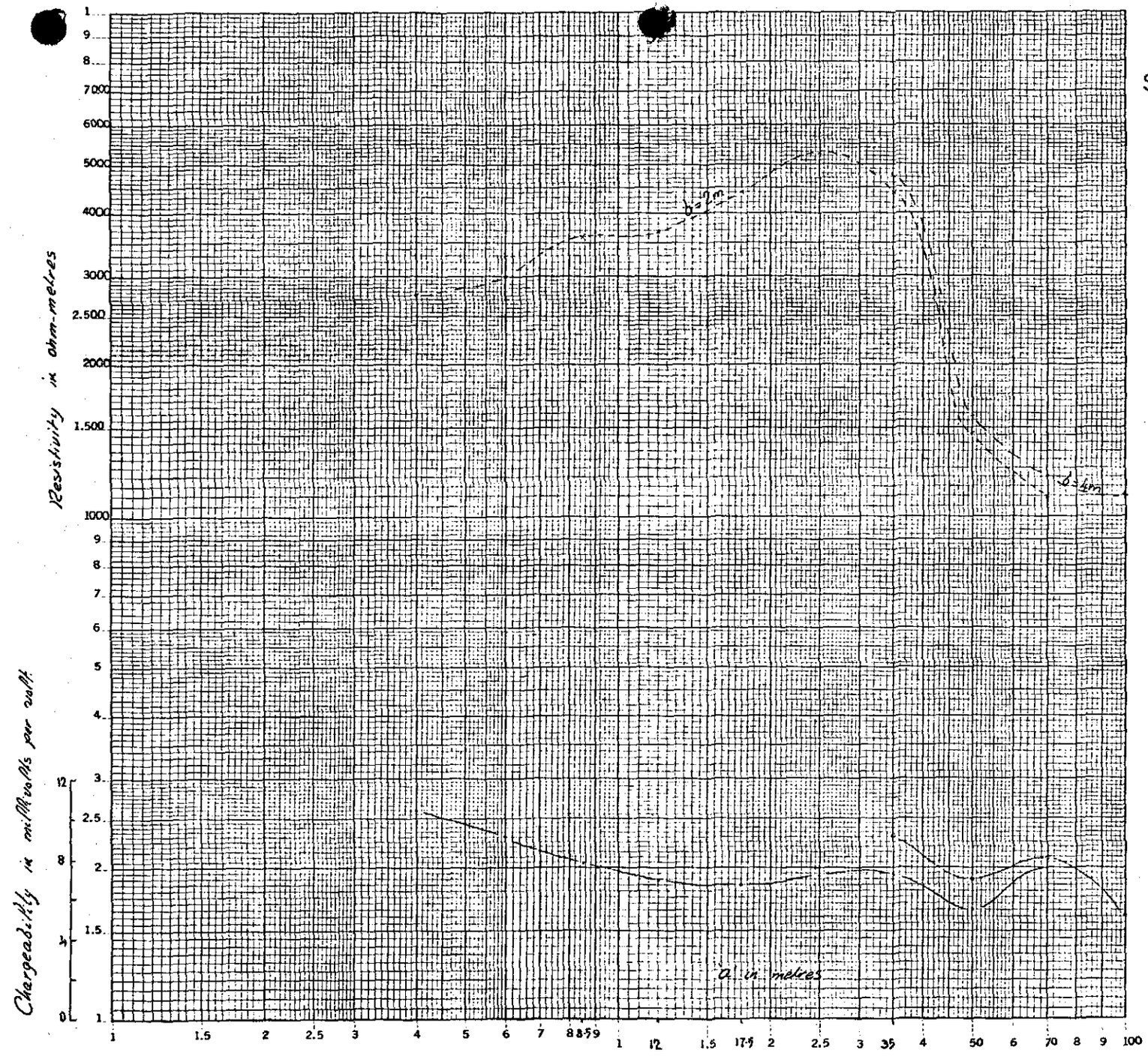
K65

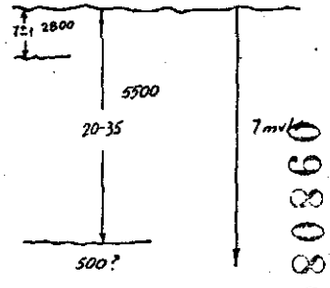
Schlumberger Array

ANCHOR MINE AREA

TAS-072

085





5 cm

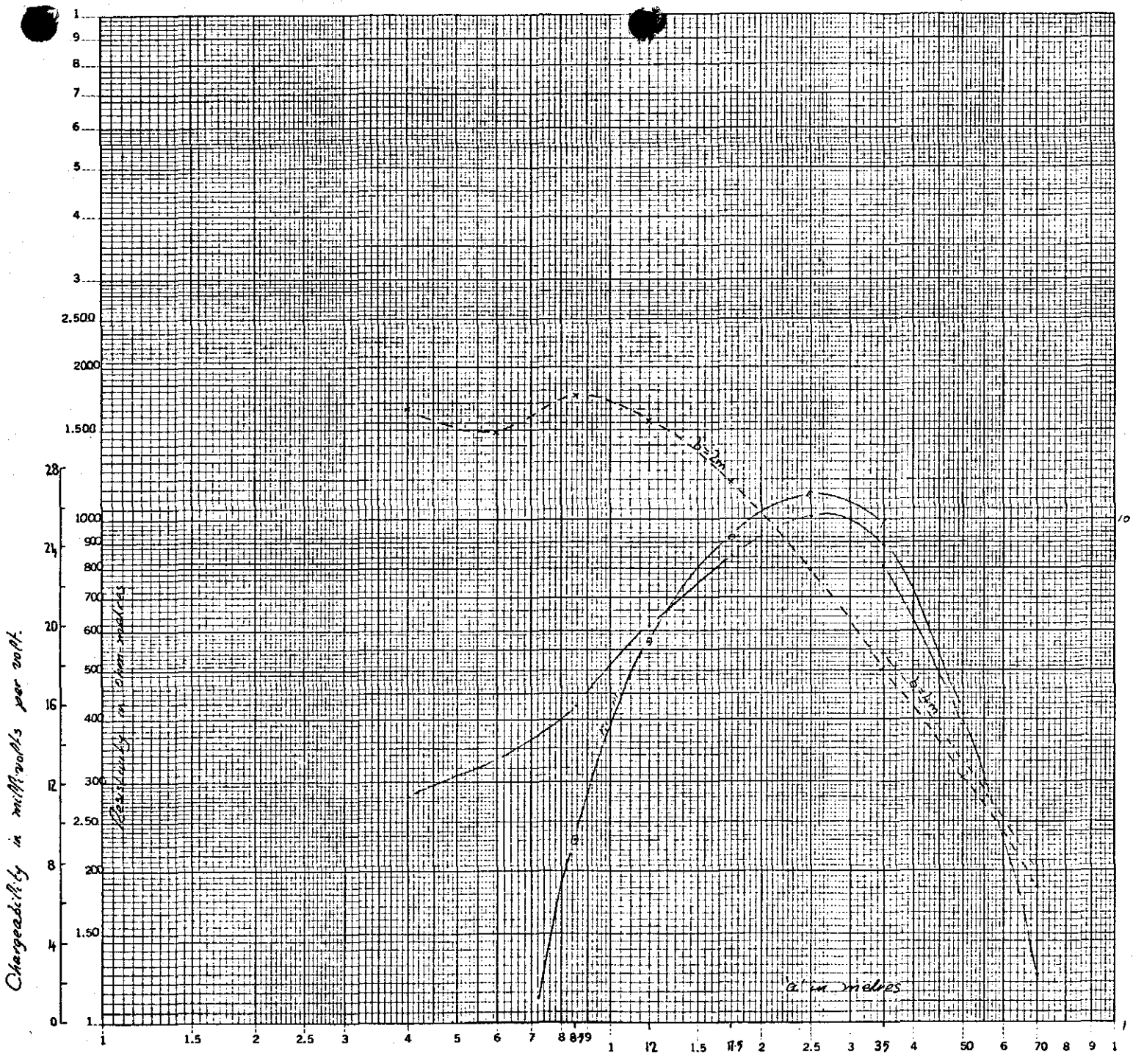
K46

Schlumberger Array

ANCHOR MINE AREA

TAS-072

086



5 cm

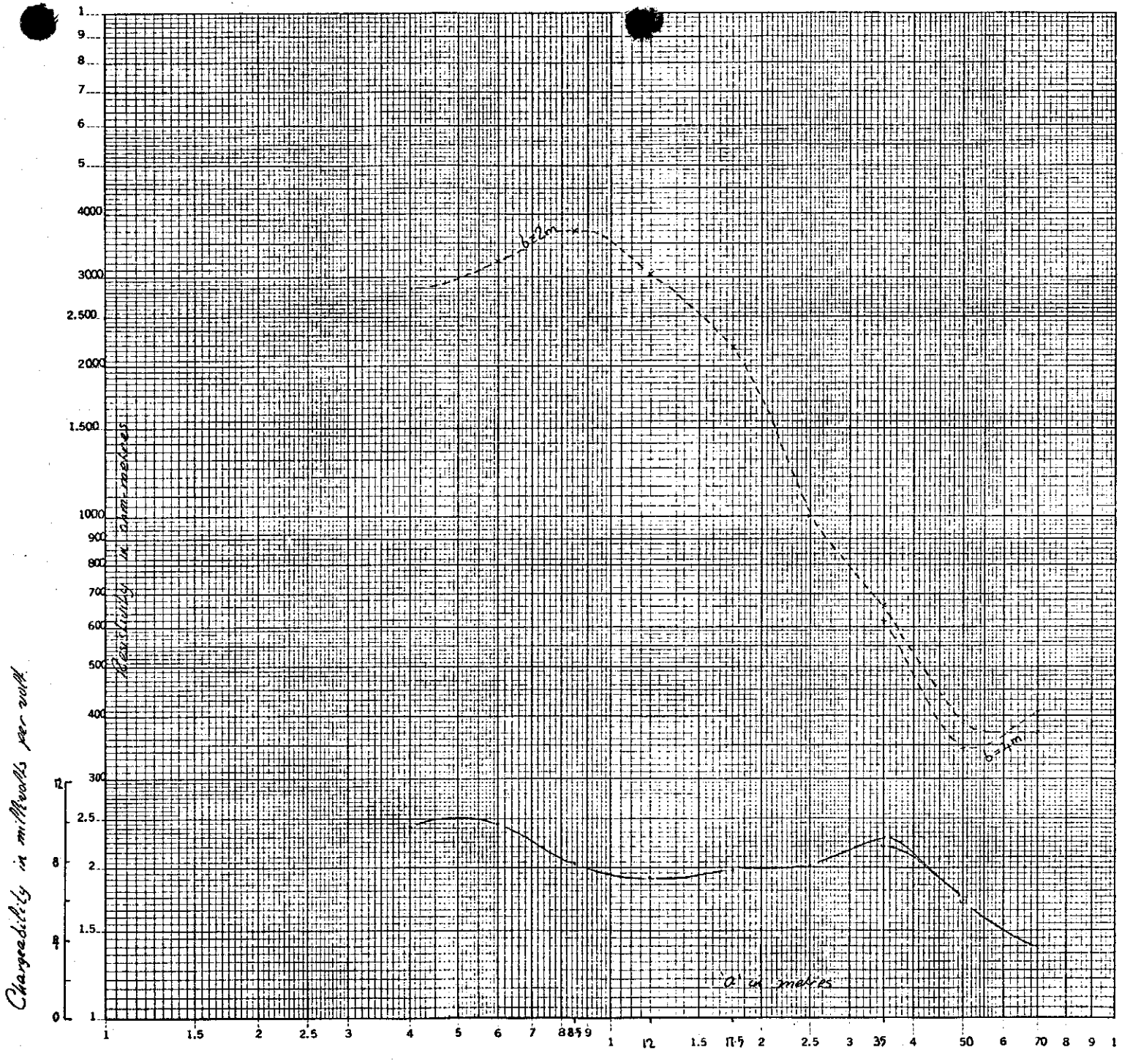
K45

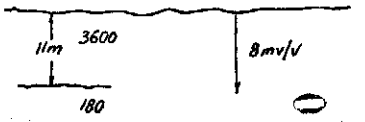
Schlumberger Array

ANCHOR MINE AREA

TAS-072

087





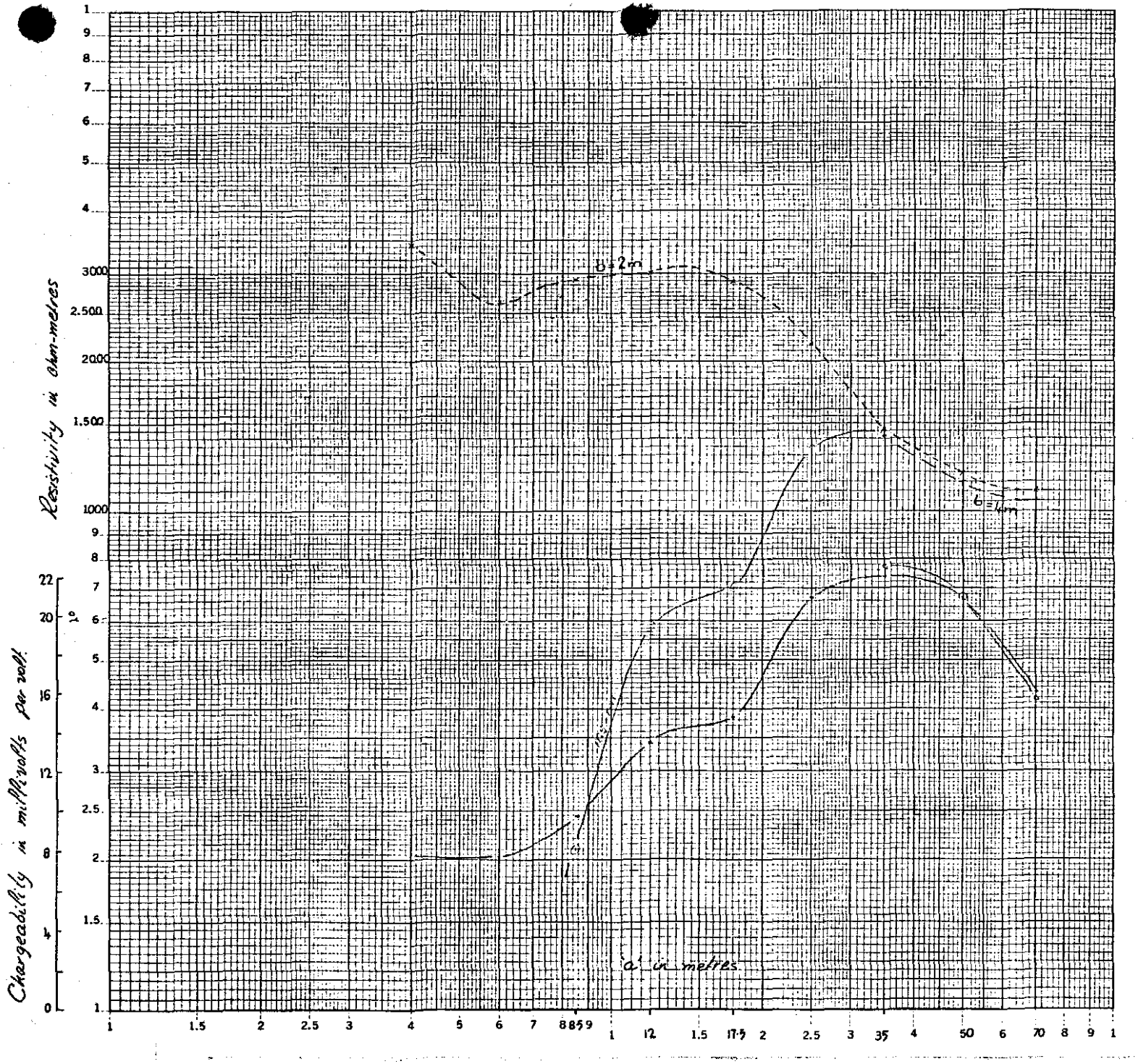
5 cm

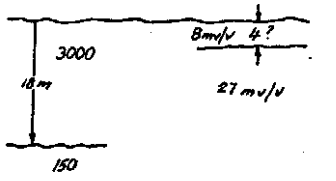
K78

Schlumberger Array

ANCHOR MINE AREA
NR ST. HELENS
TAS-072

088



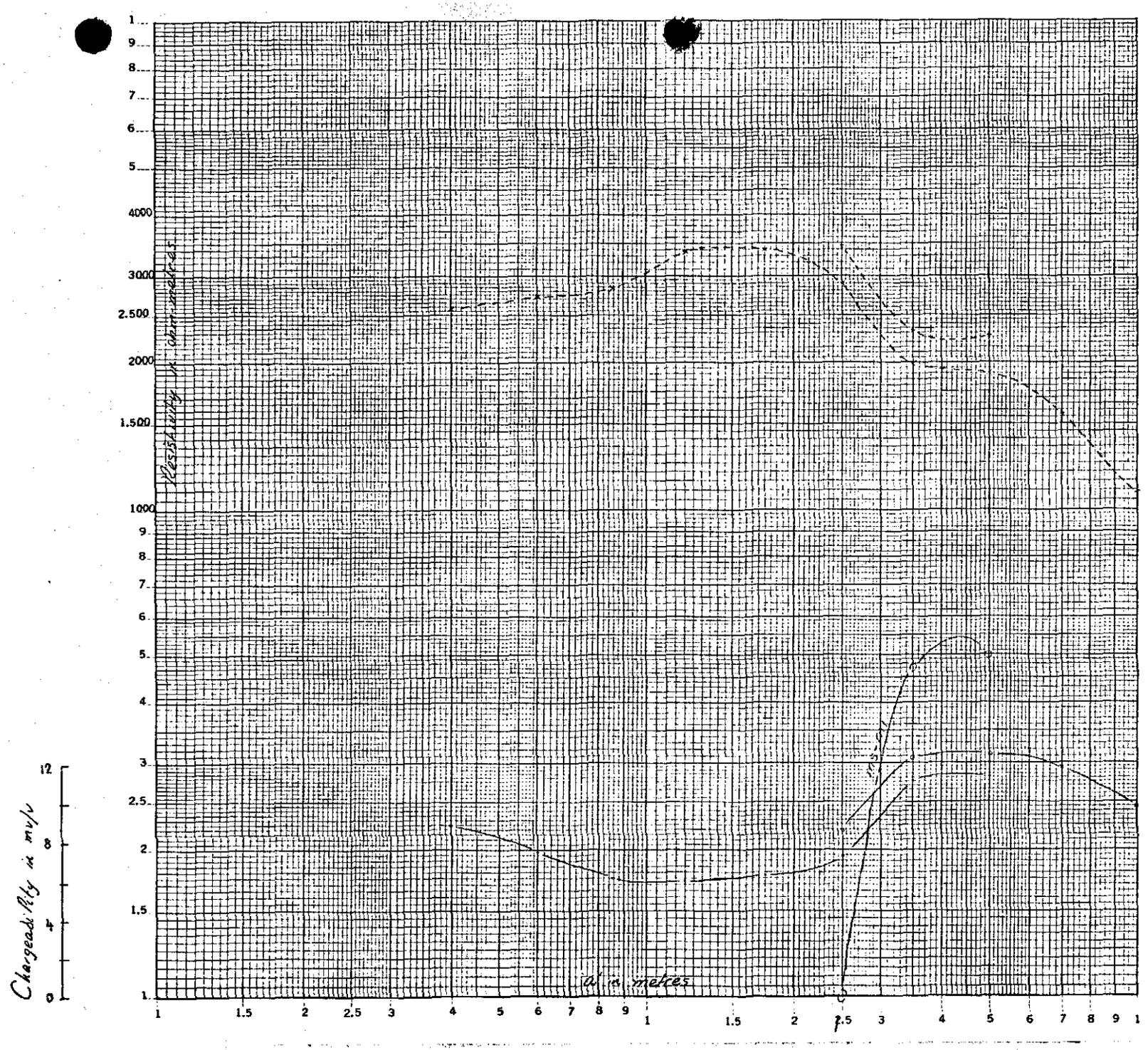


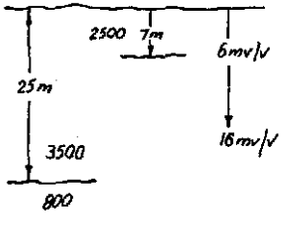
690860

Schlumberger Expander

K52
4500N 1180W
ANCHOR MINE
NE TAS
TAS-072

089





5 cm

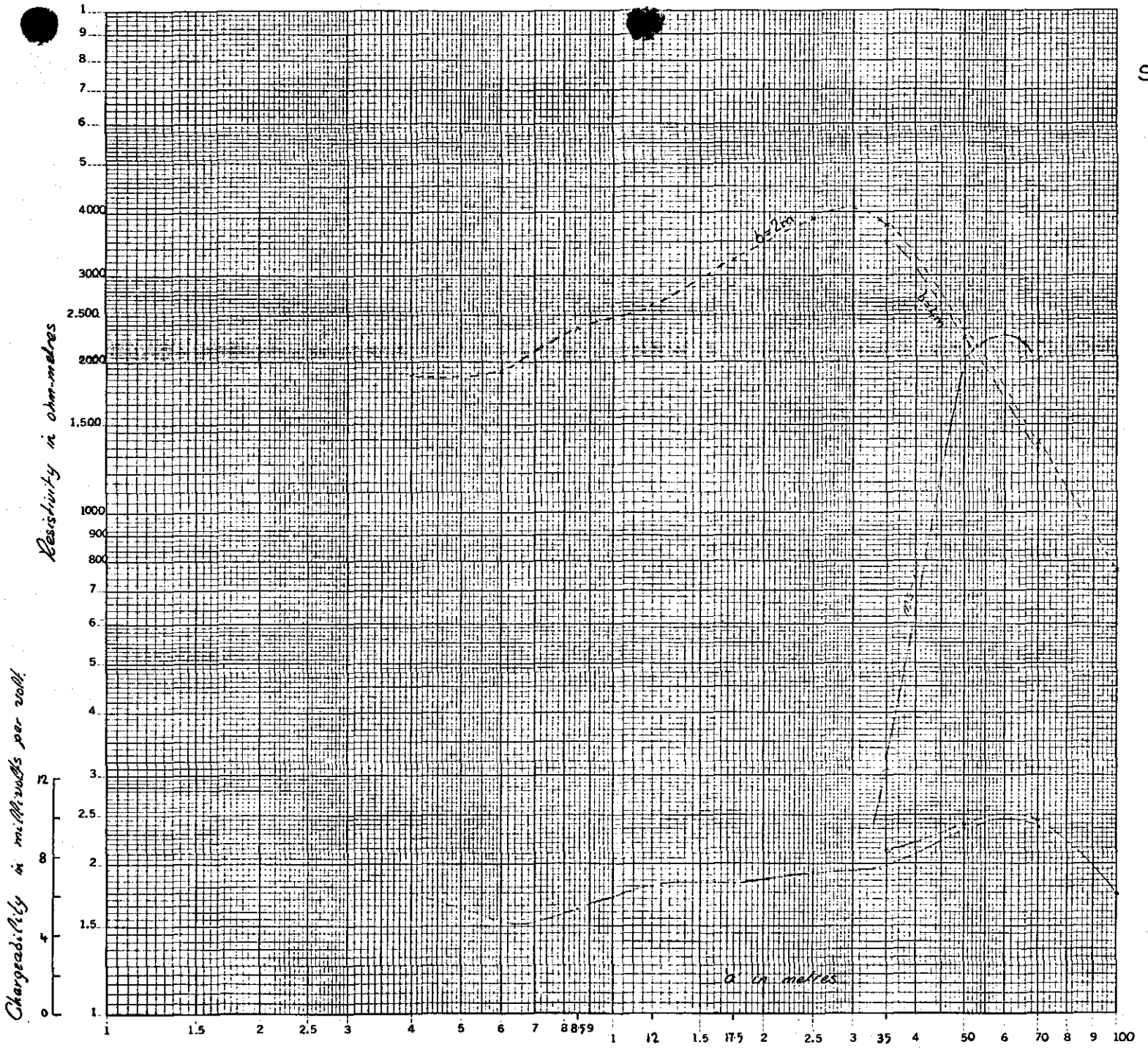
090360

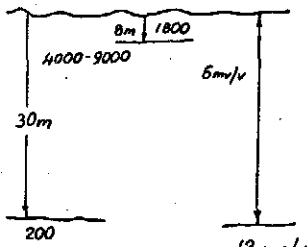
KTT

Schlumberger Array

ANCHOR MINE AREA
NR. ST HELENS
TAS-072

030





5 cm

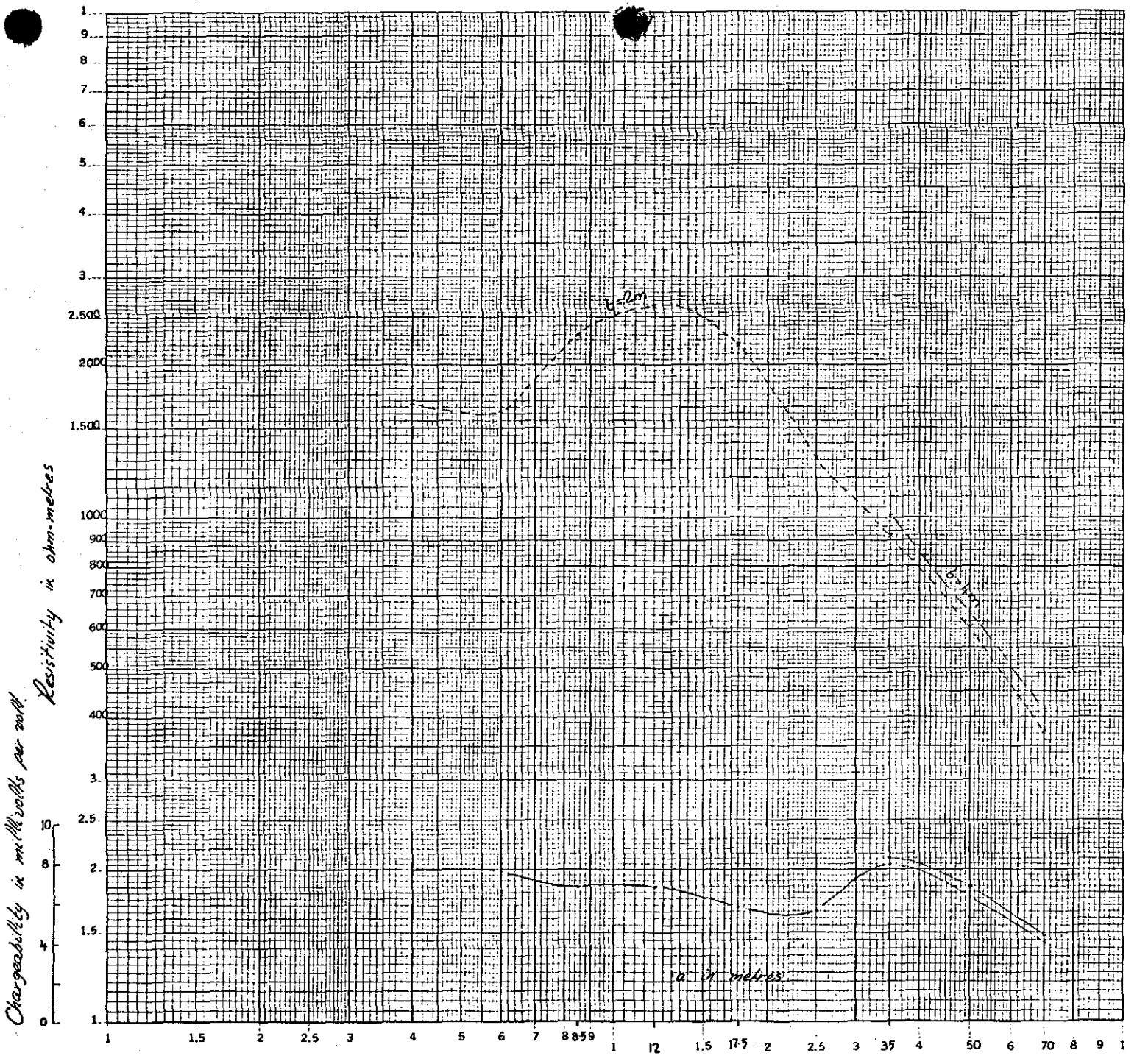
60860

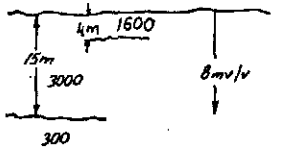
K74

Schlumberger Arrays

ANCHOR MINE AREA
NR ST HELENS
TAS-072

031





5 cm

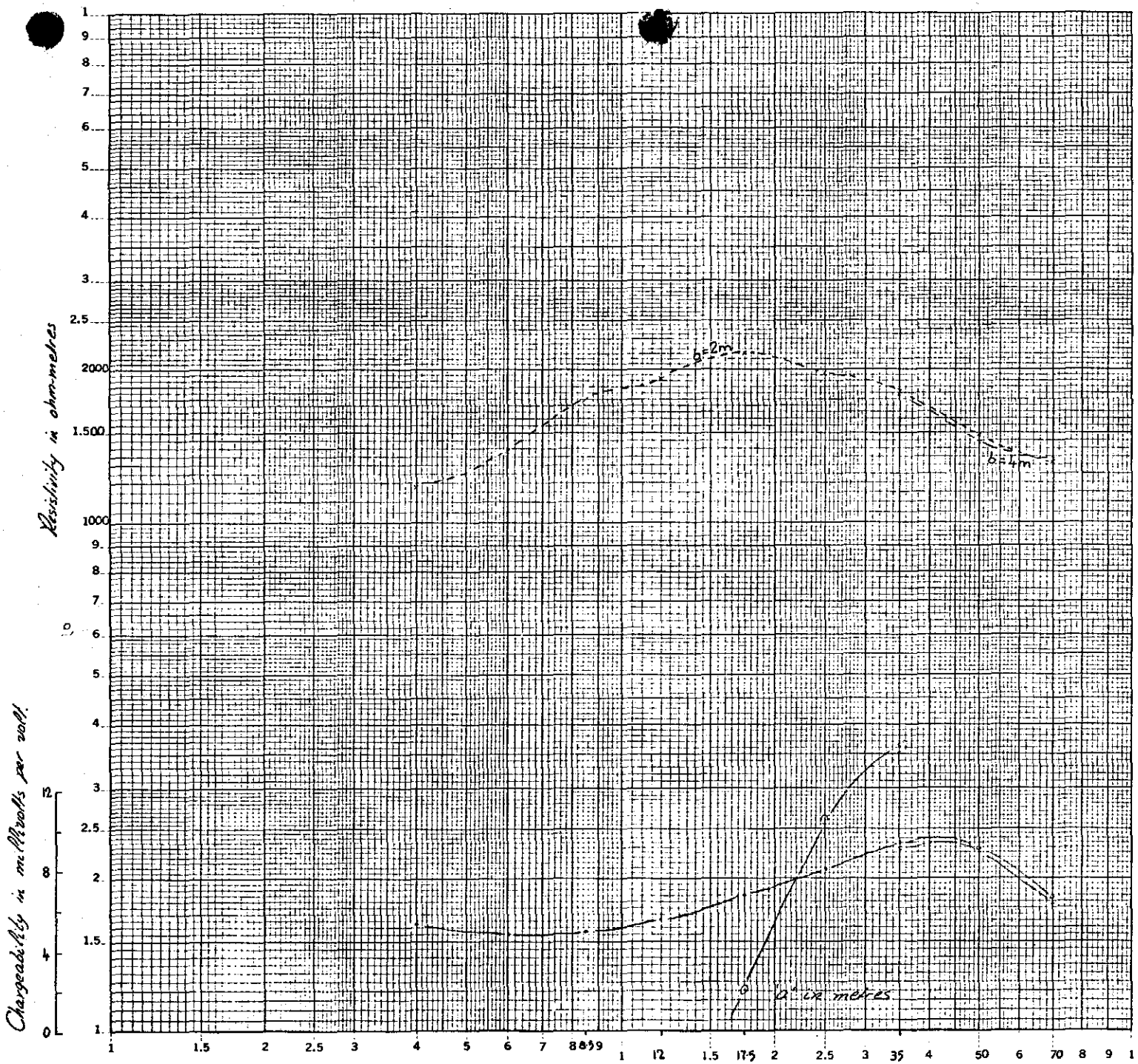
260860

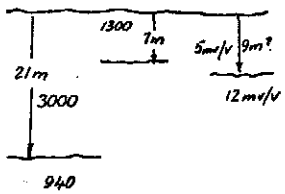
K75

Schlumberger Array

ANCHOR MINE AREA
NR ST. HELENS
TAS-072

092





5 cm

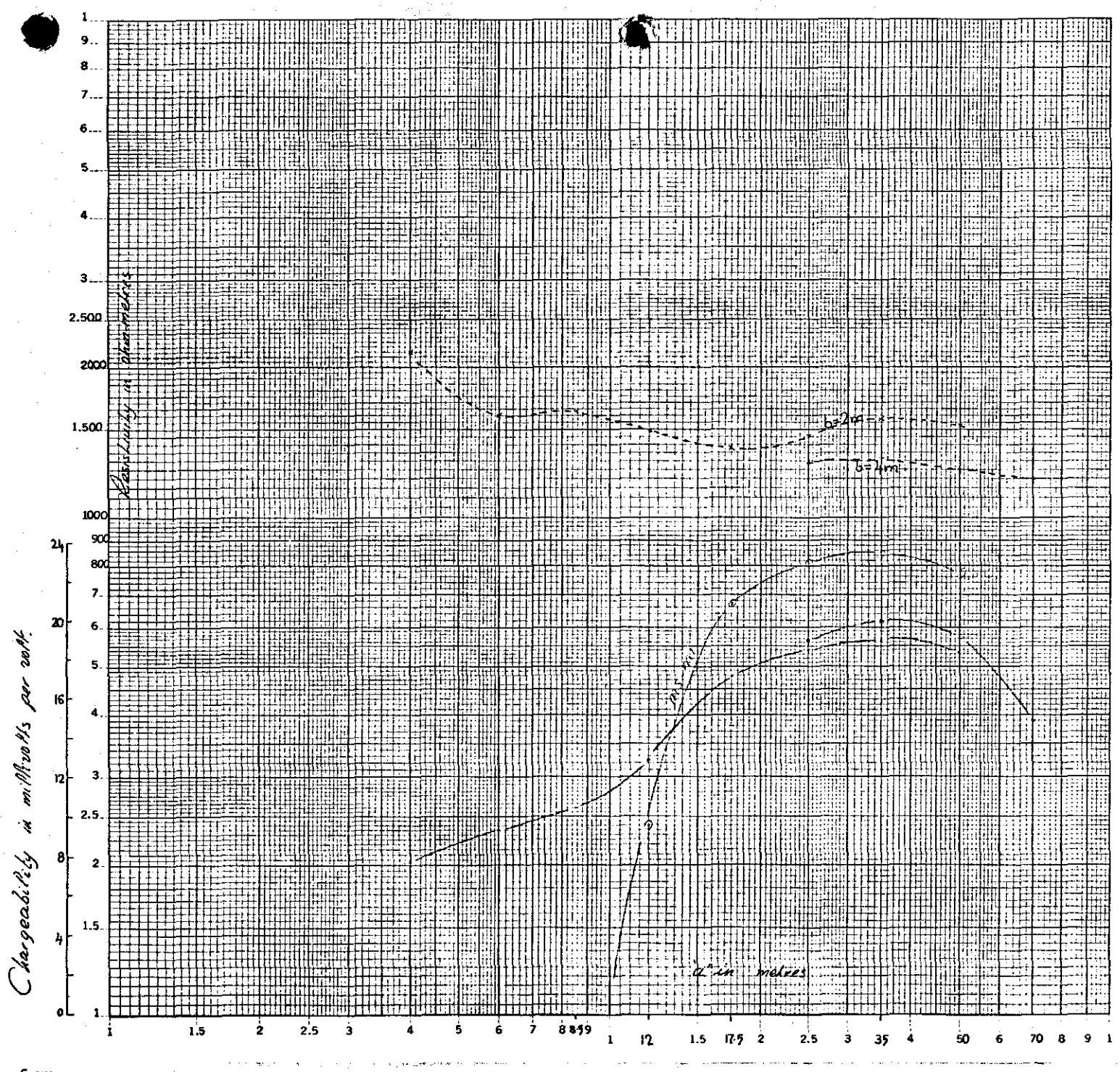
093

K51

Schlumberger Array

ANCHOR MINE AREA

TAS -072



A60860

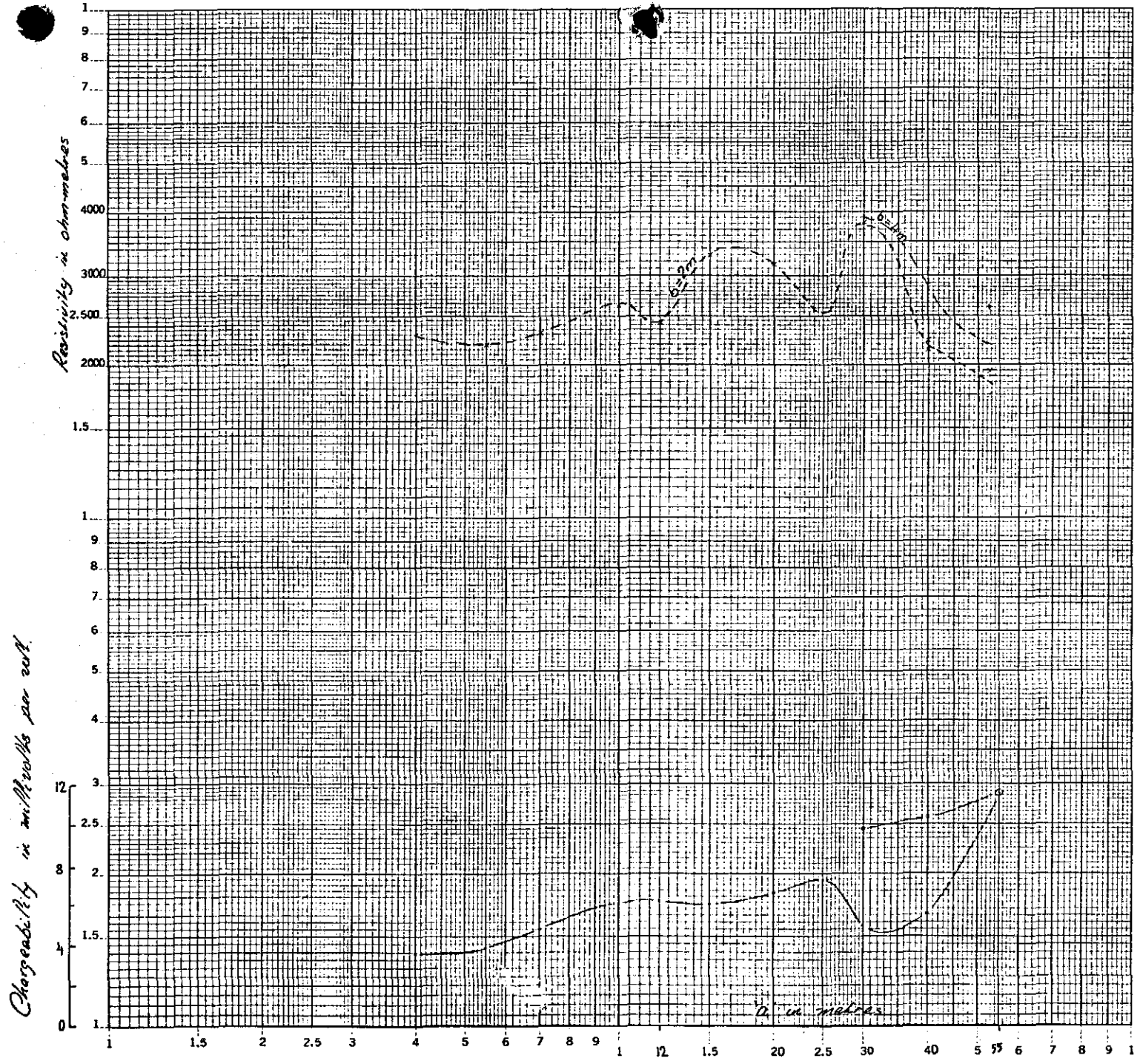
K15 (A) 094

Schlumberger Array

ANCHOR MINE AREA

TAS-072

Results not consistant
Current leaks due rain



660860

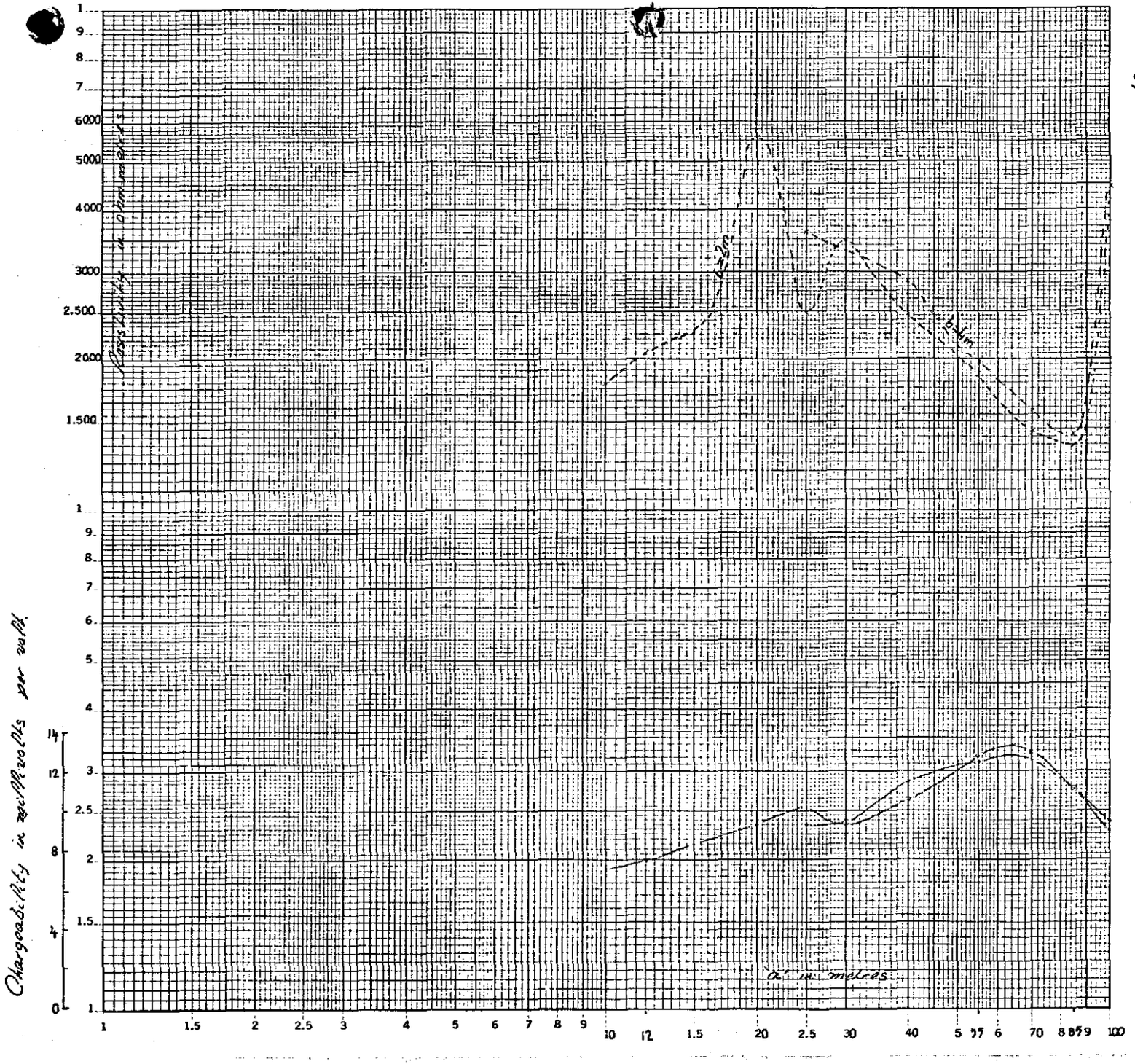
K15 (B) 095

Schlumberger Array

ANCHOR MINE AREA

TAS-072

Results not consistant
Current leaks due rain



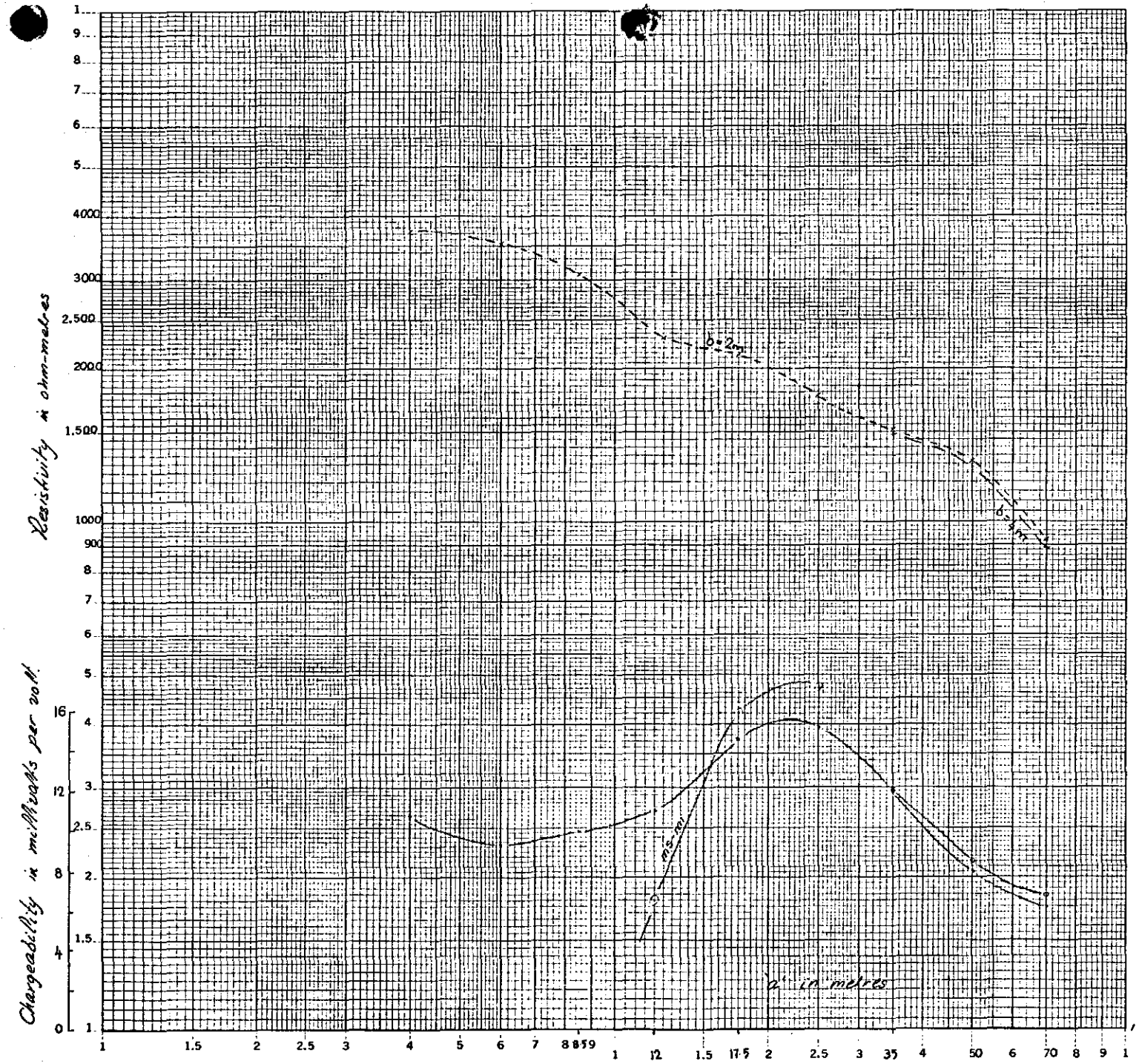
5 cm

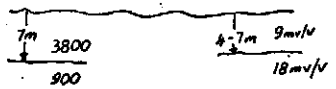
960360

KTS 73 096

Schlumberger Array

ANCHOR MINE AREA
NR ST HELENS
TAS-072





160360

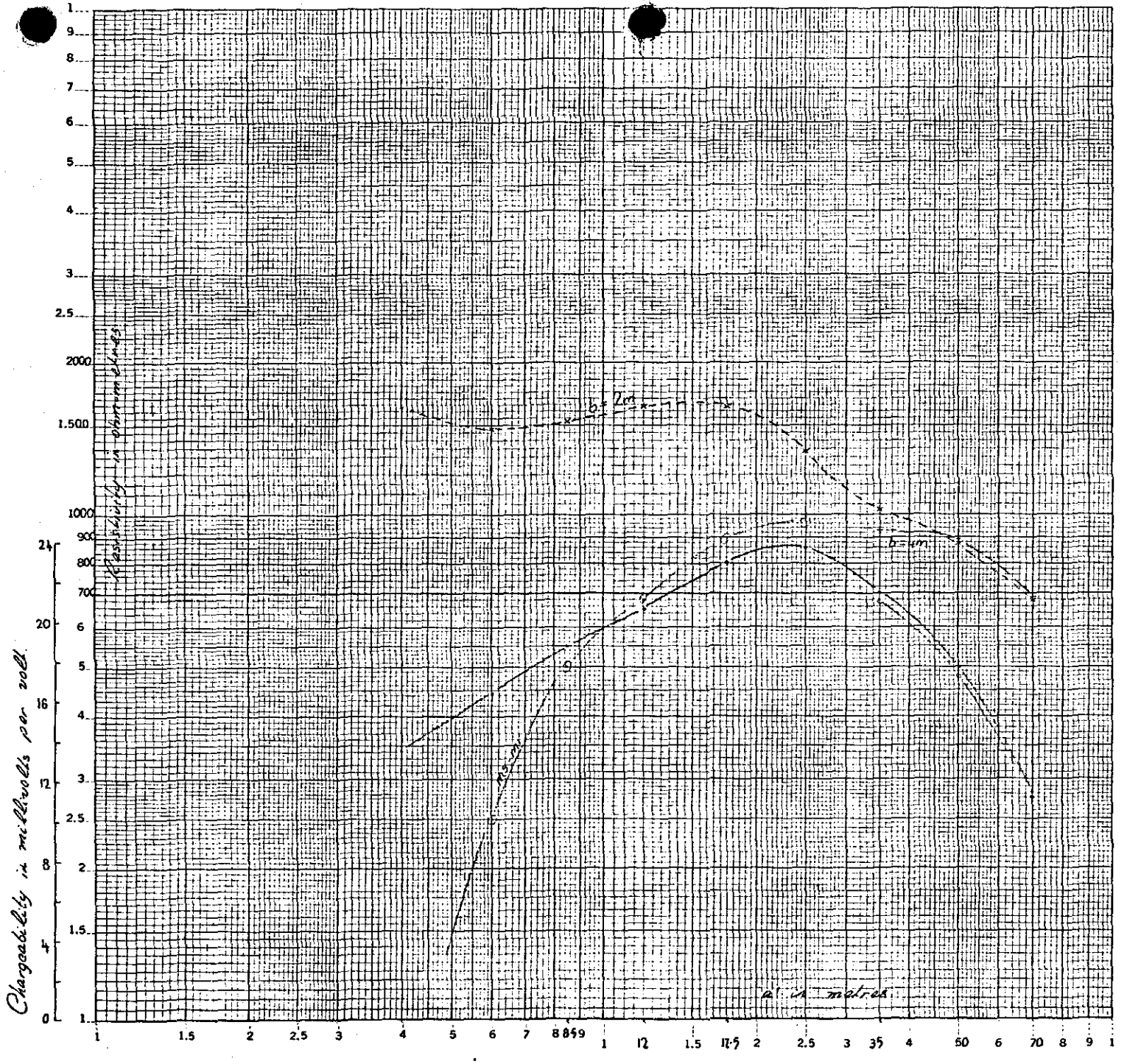
5 cm

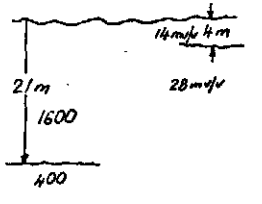
K106 097

Schlumberger Array

ANCHOR MINE AREA

TAS-072



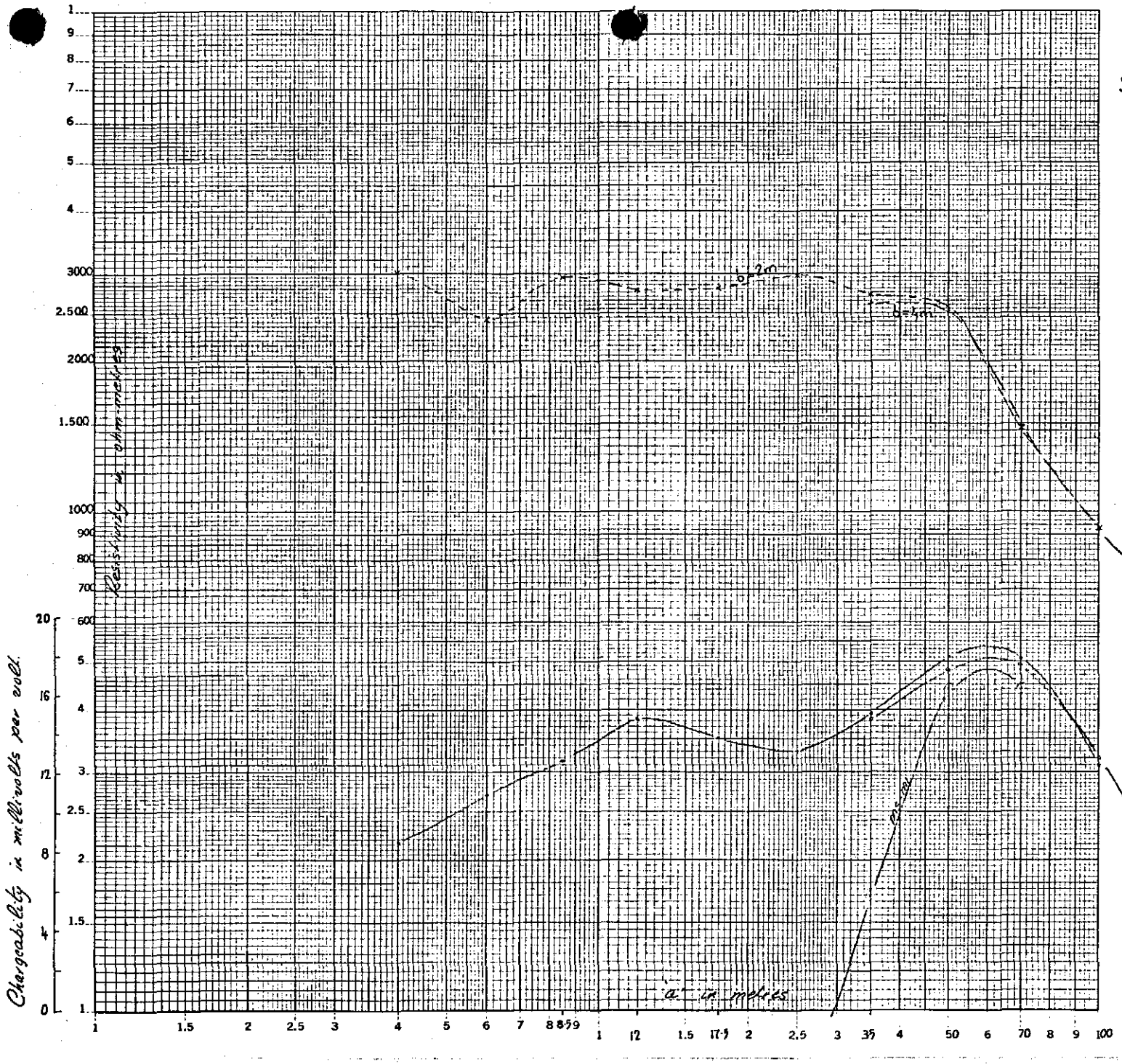


5 cm

860860

K 107
Schlumberger Array
ANCHOR MINE AREA
TAS-072

098



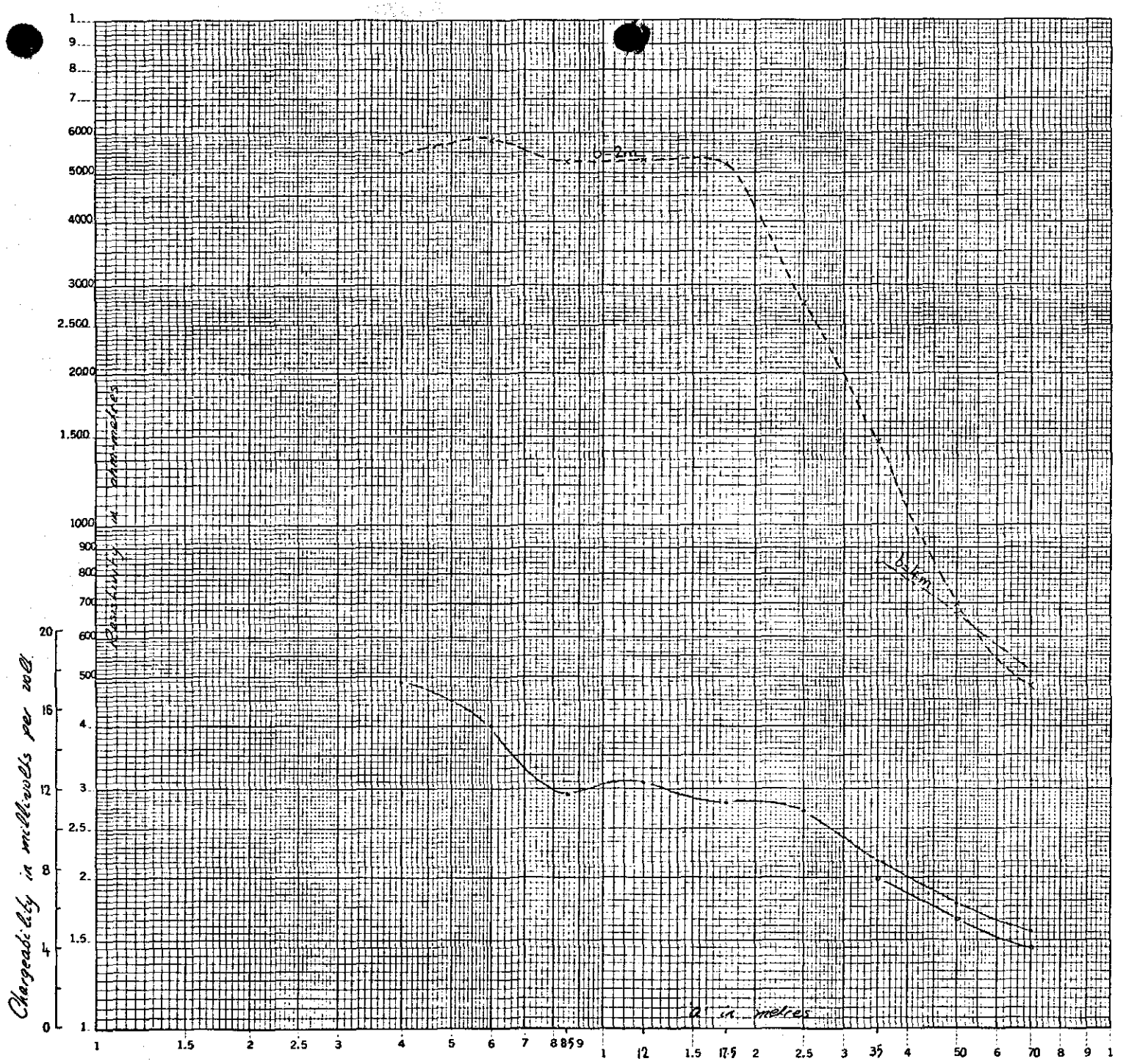
5 cm

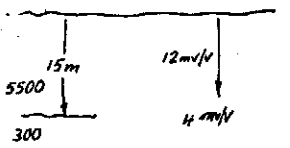
K104 089

Schlumberger Array

ANCHOR MINE AREA

TAS-072





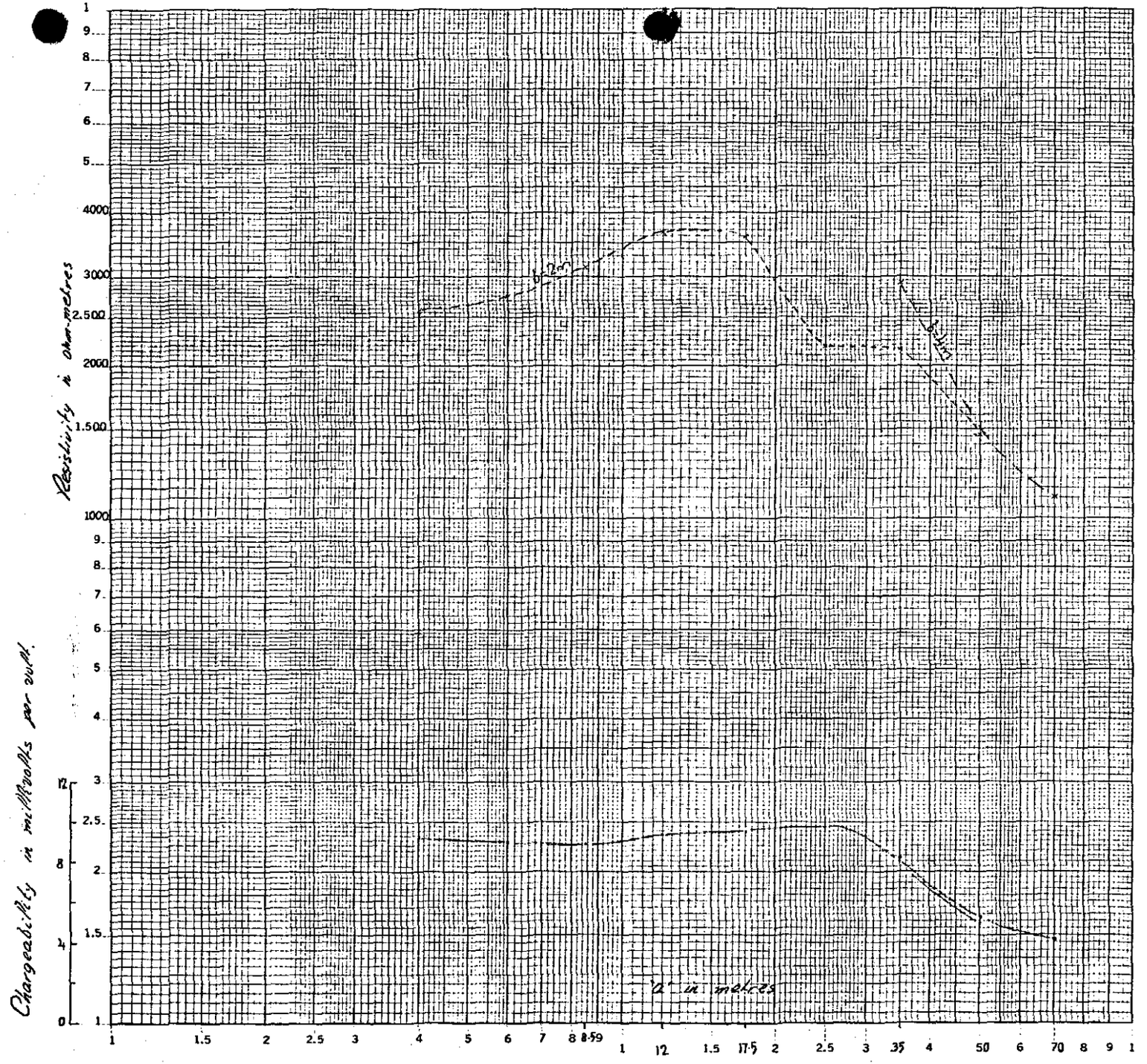
5 cm

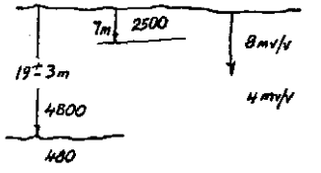
K25 100

Schlumberger Array

ANCHOR MINE AREA

TAS-072





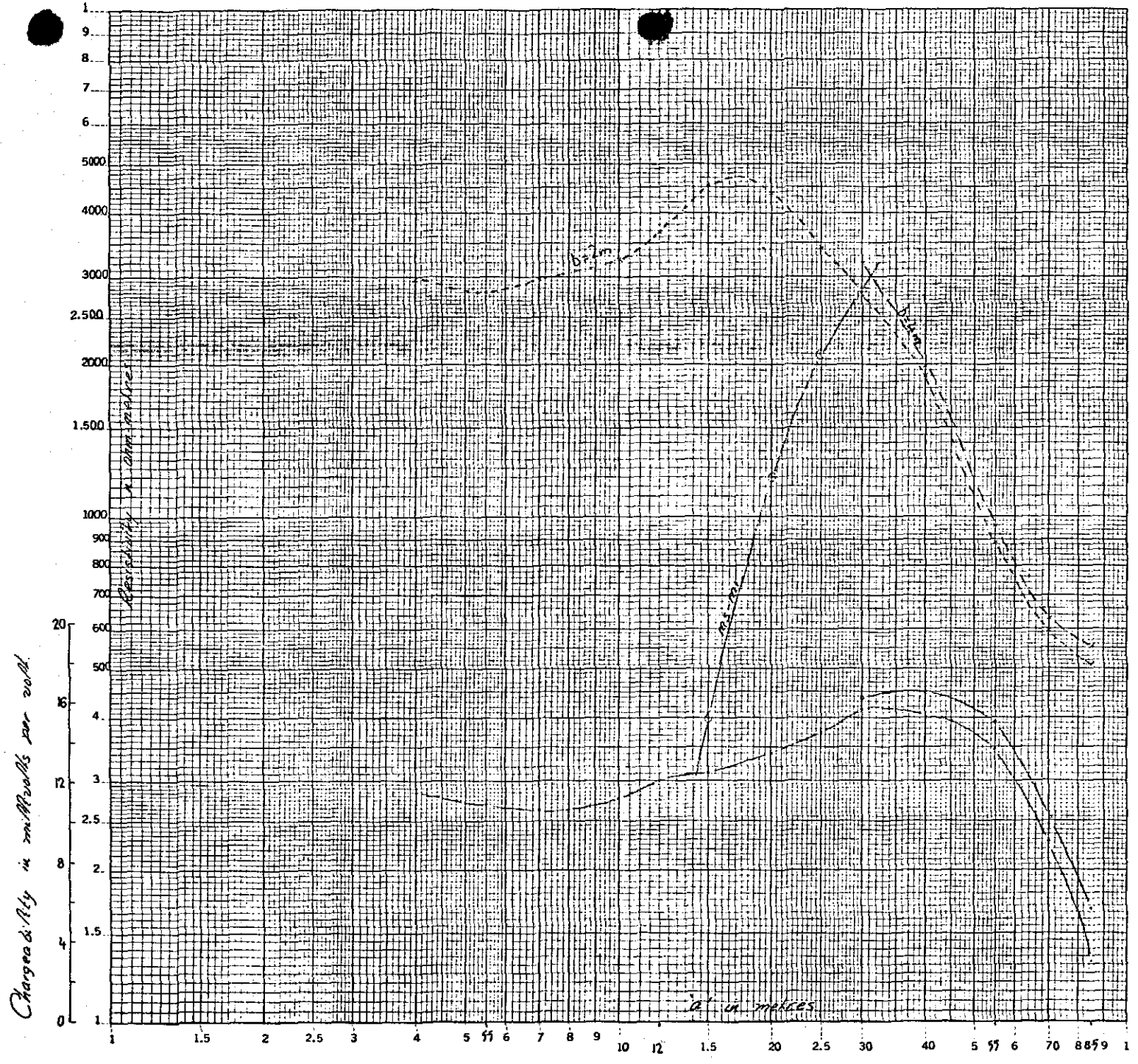
5 cm

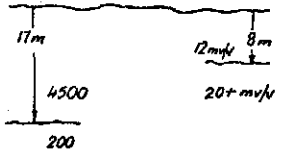
K23 101

Schlumberger Array

ANCHOR MINE AREA

TAS -072





5 cm

20960

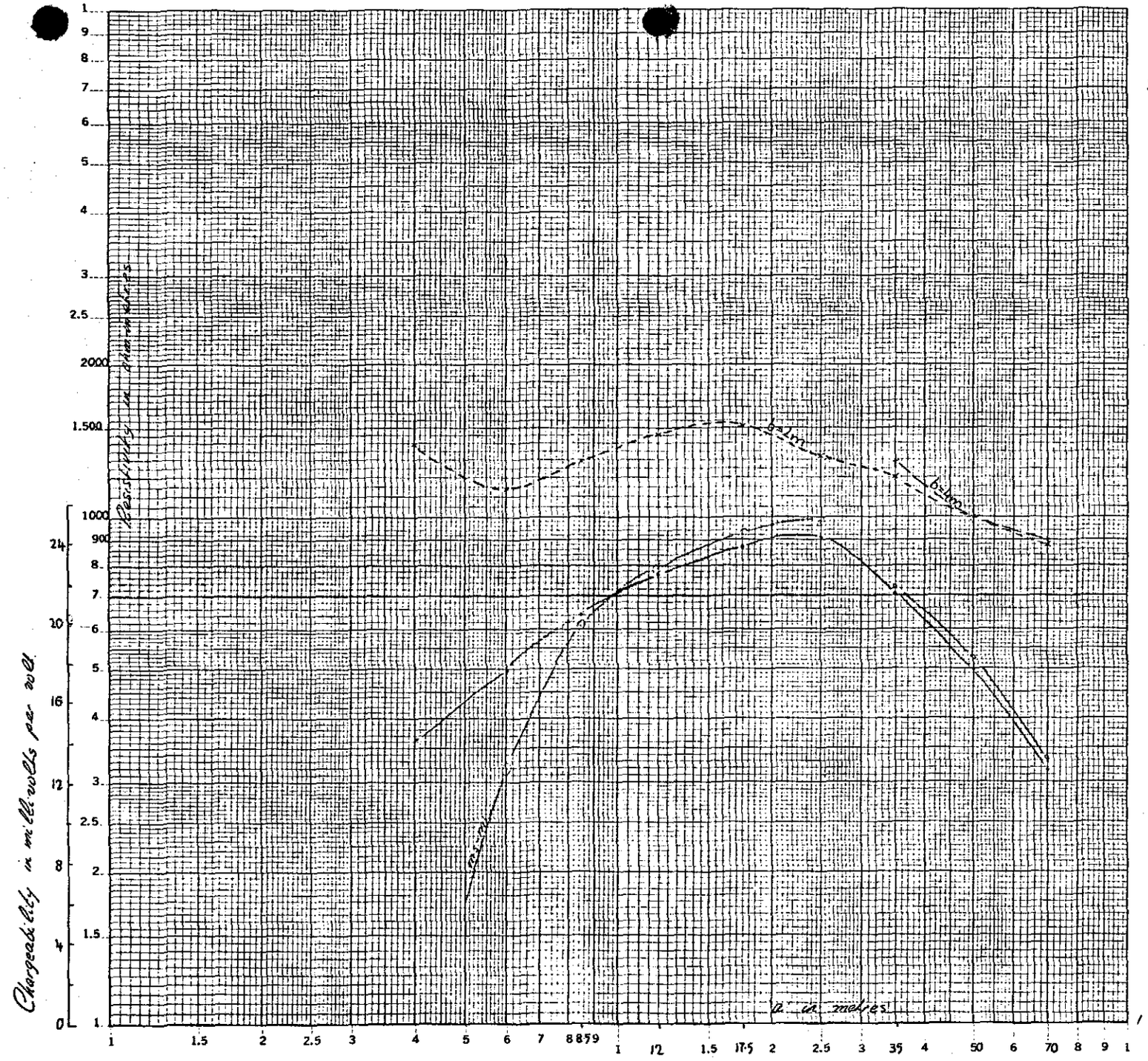
102

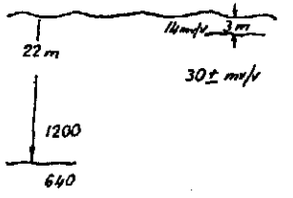
K102

Schlumberger Array

ANCHOR MINE AREA

TAS-072





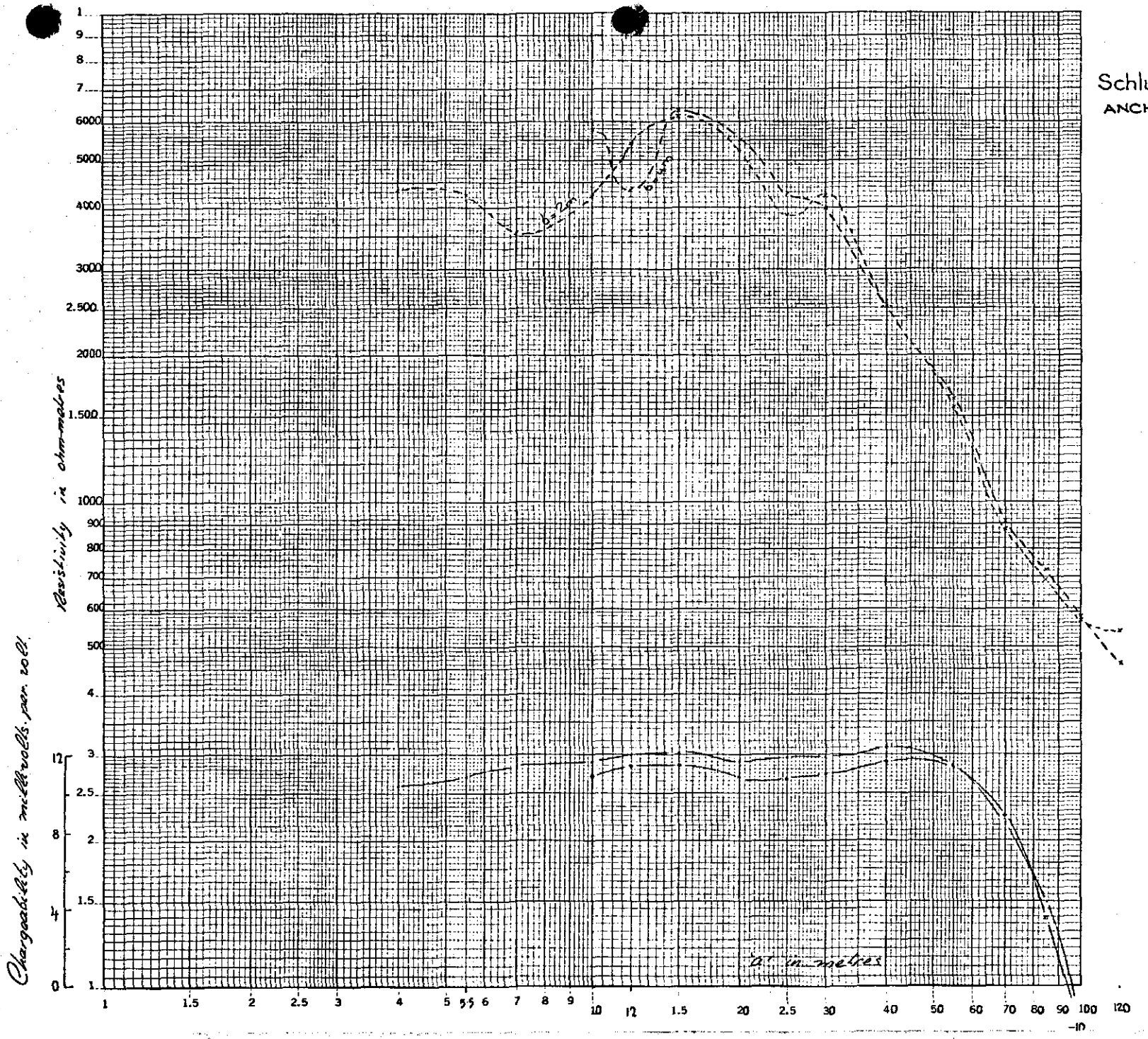
5 cm

K4 103

Schlumberger Array

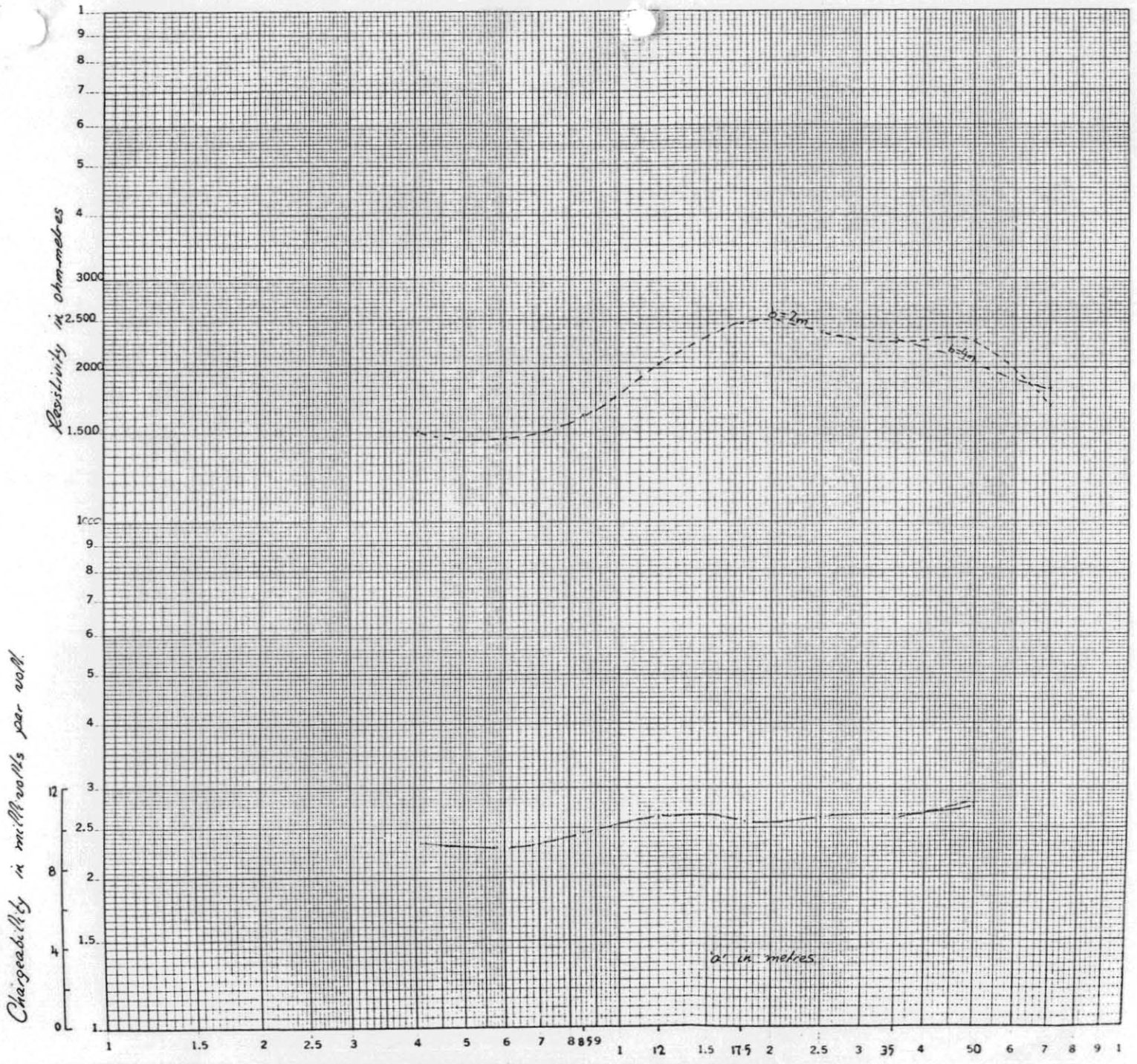
ANCHOR MINE AREA

TAS-072



5 cm

K33
Schlumberger Array
ANTHOR MINE AREA
TAS-072



5 cm

36 (P15)

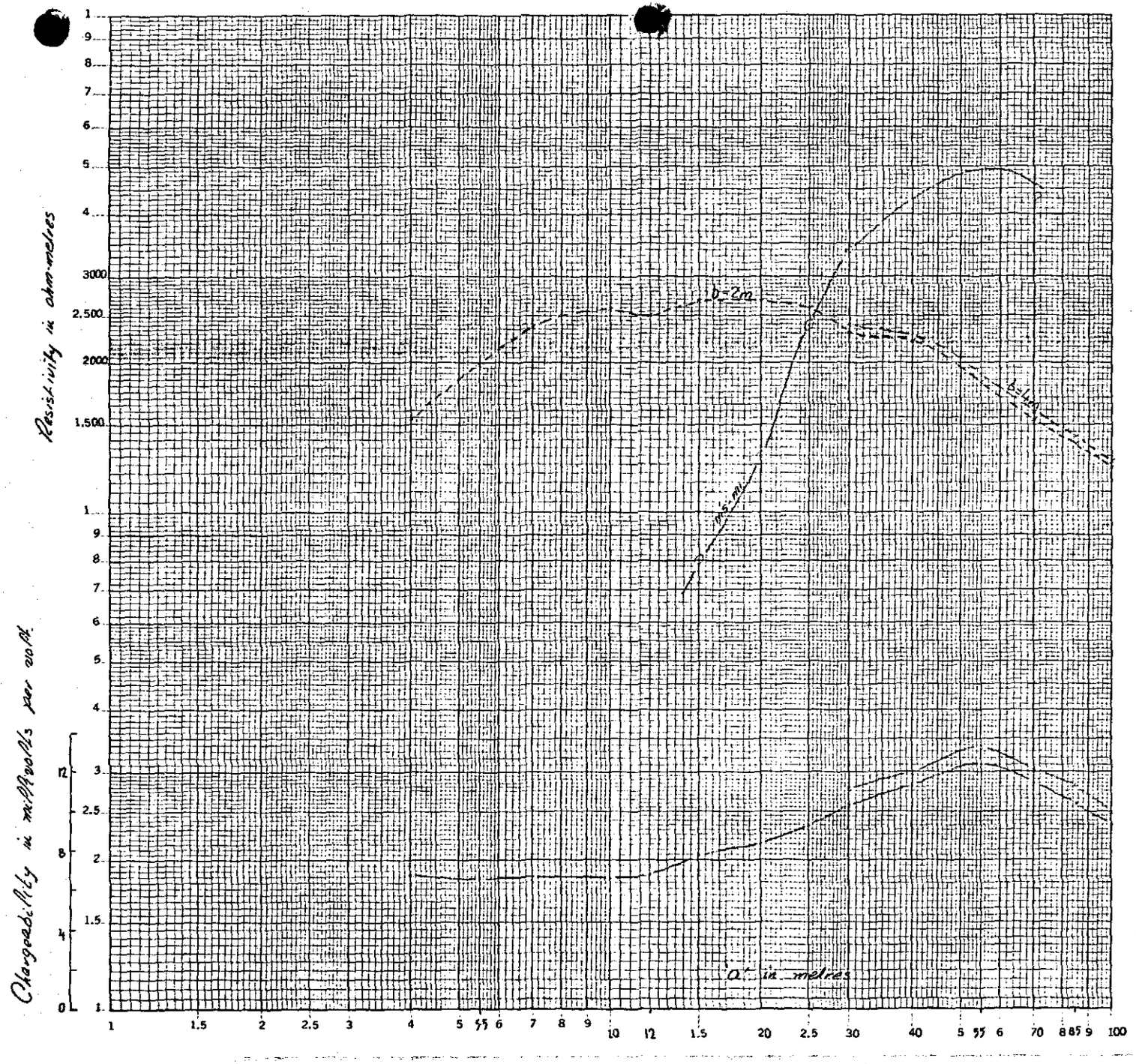
105

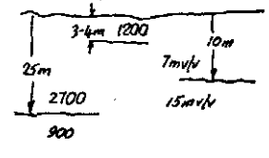
K 24

Schlumberger Array

ANCHOR MINE AREA

TAS -027





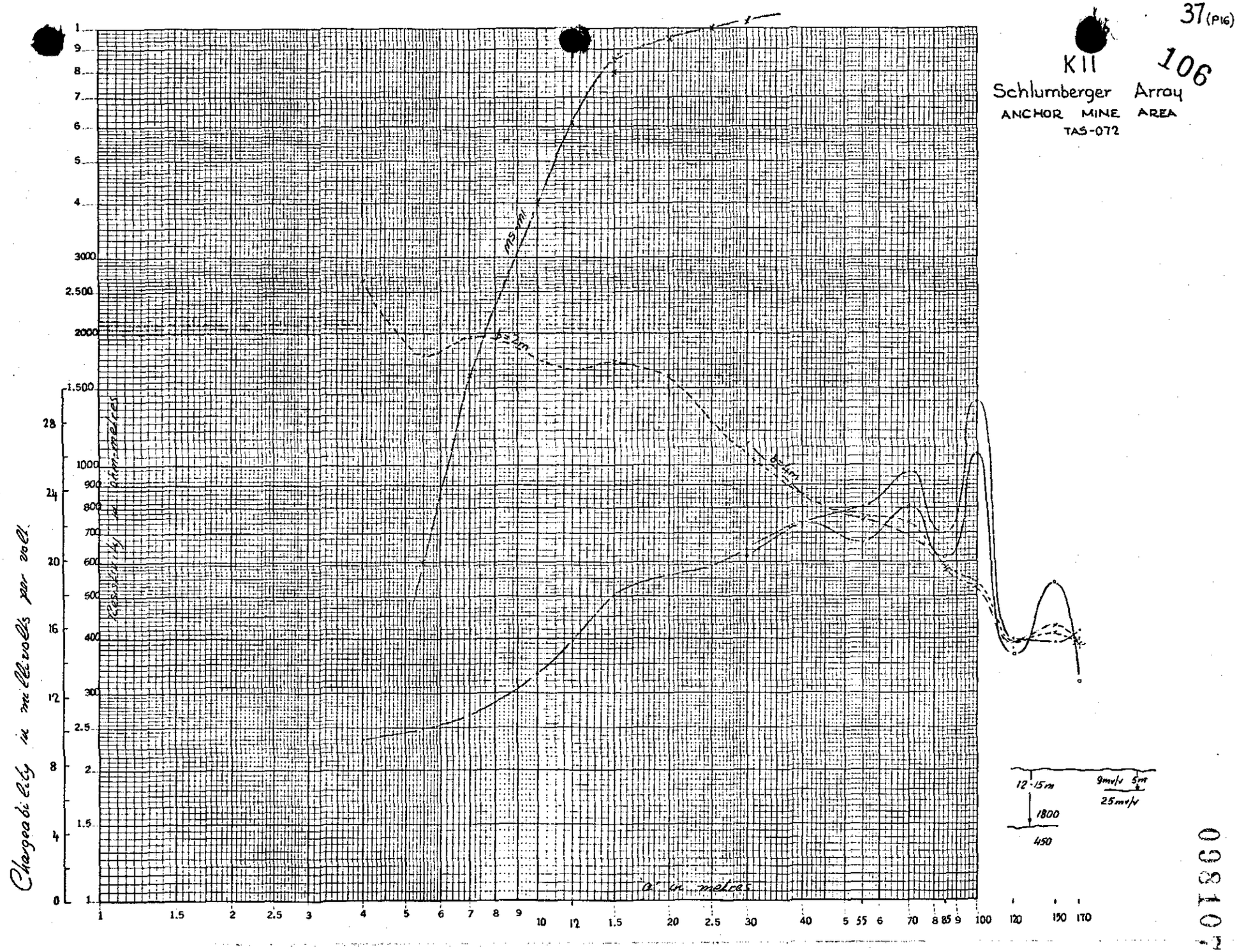
5 cm

K11 106

Schlumberger Array

ANCHOR MINE AREA

TAS-072



5 cm

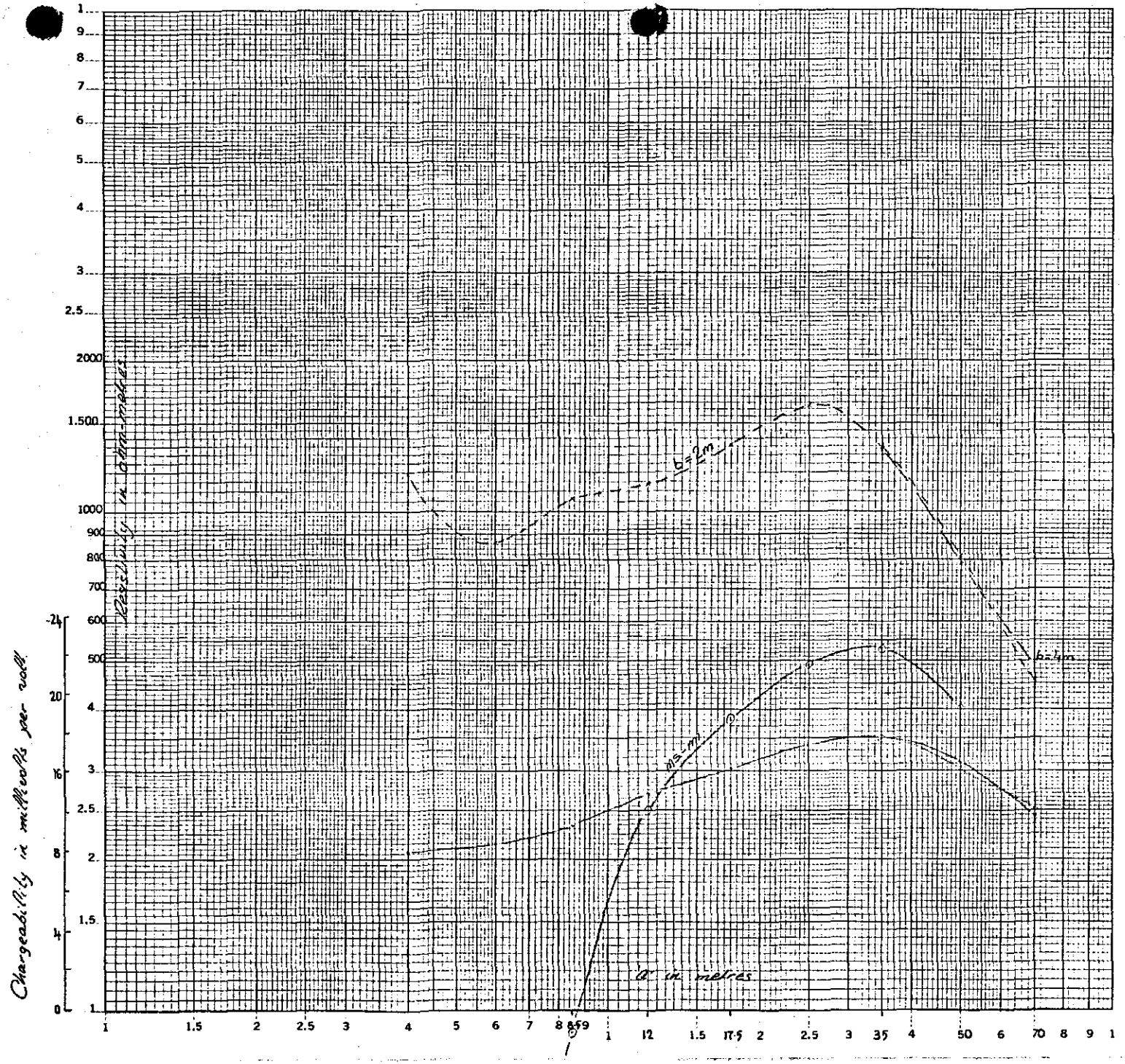
107

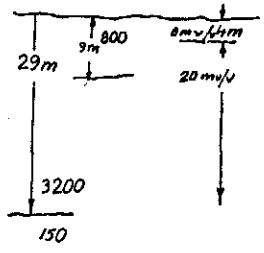
K34

Schlumberger Array

ANCHOR MINE AREA

TAS-072





5 cm

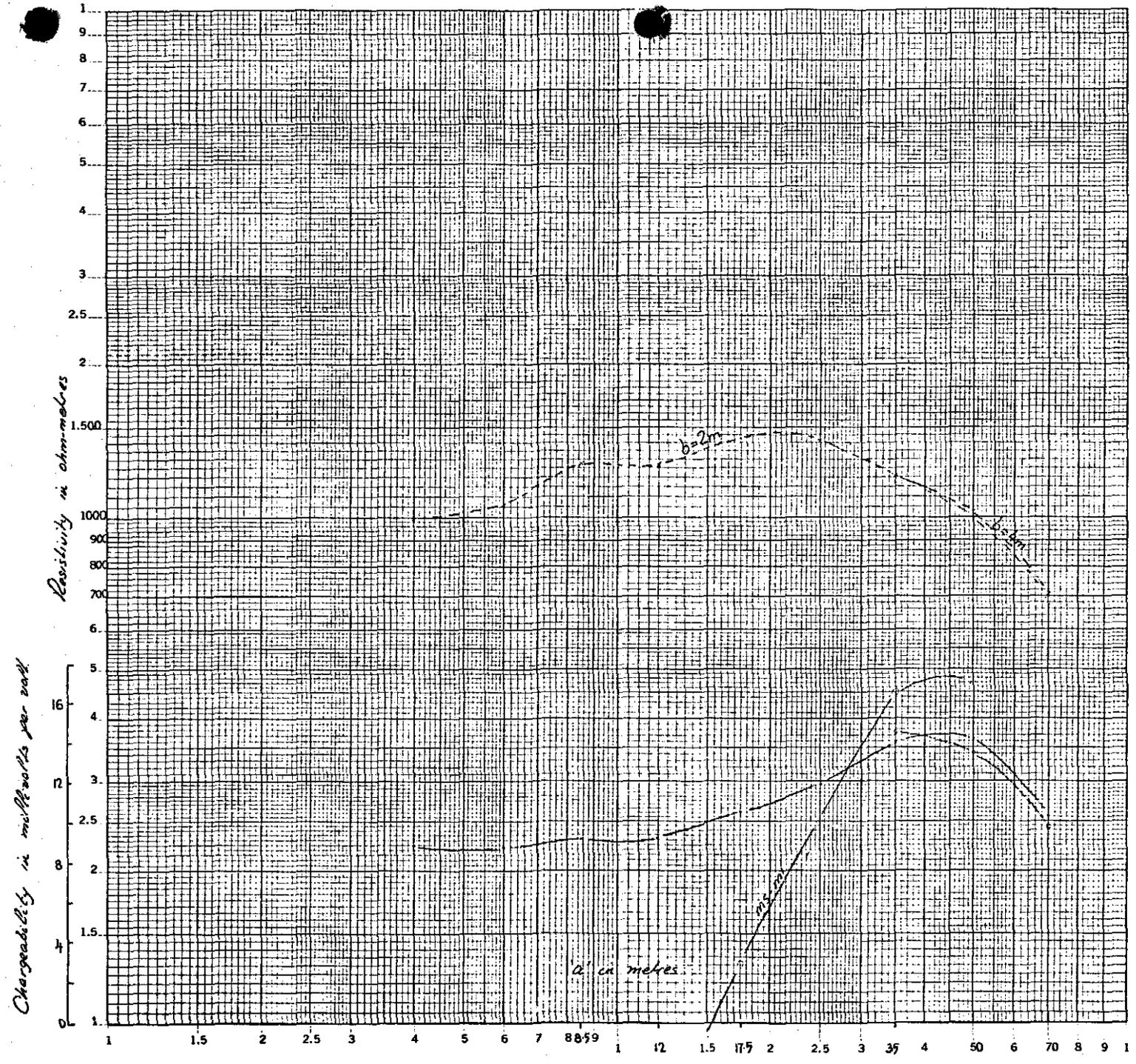
S01360

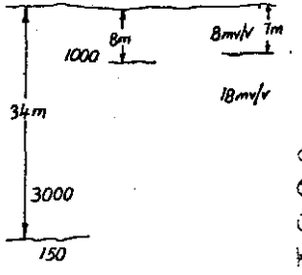
K35 108

Schlumberger Array

ANCHOR MINE AREA

TAS-072





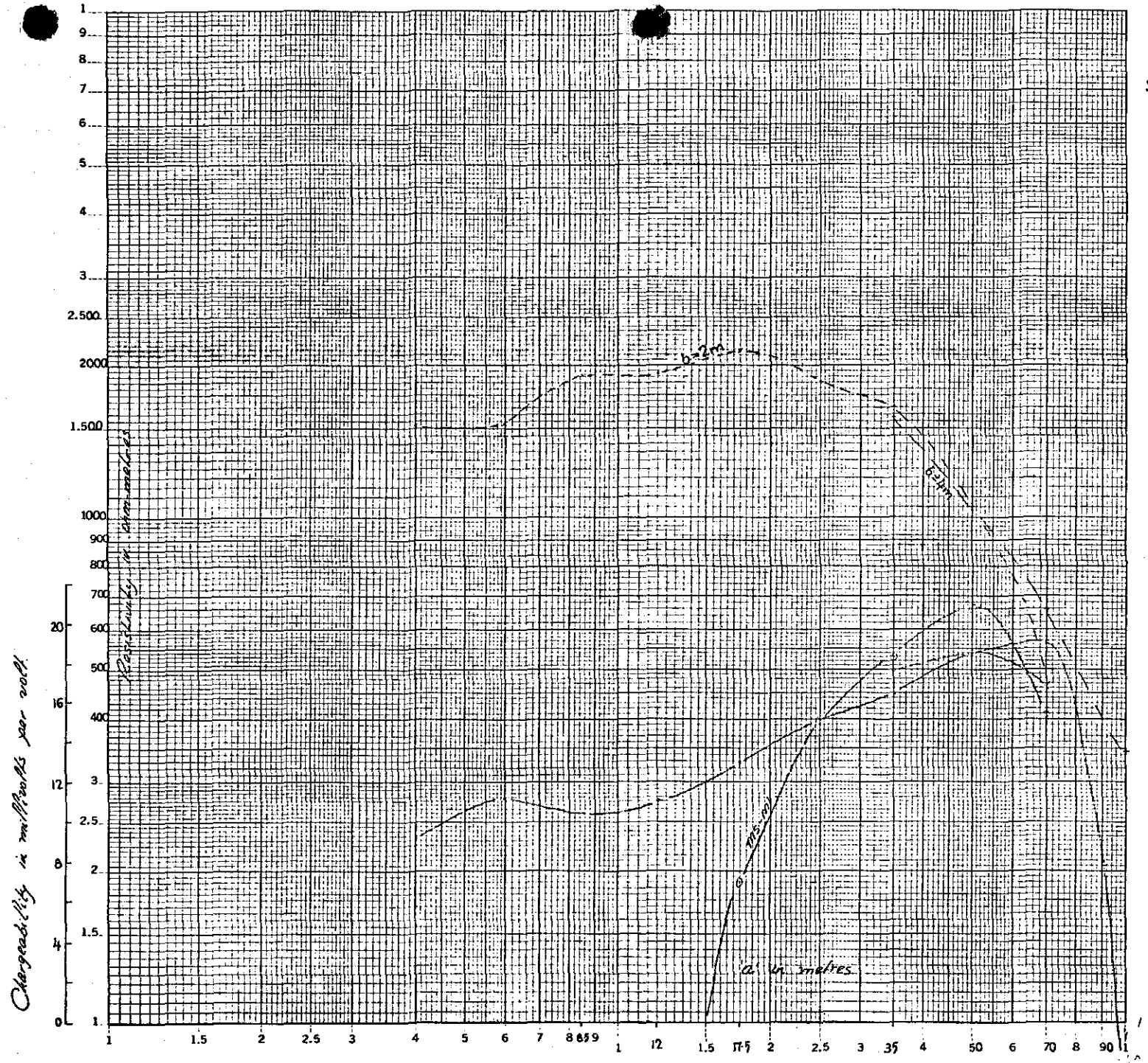
5 cm

K36 109

Schlumberger Array

ANCHOR MINE AREA

TAS-072



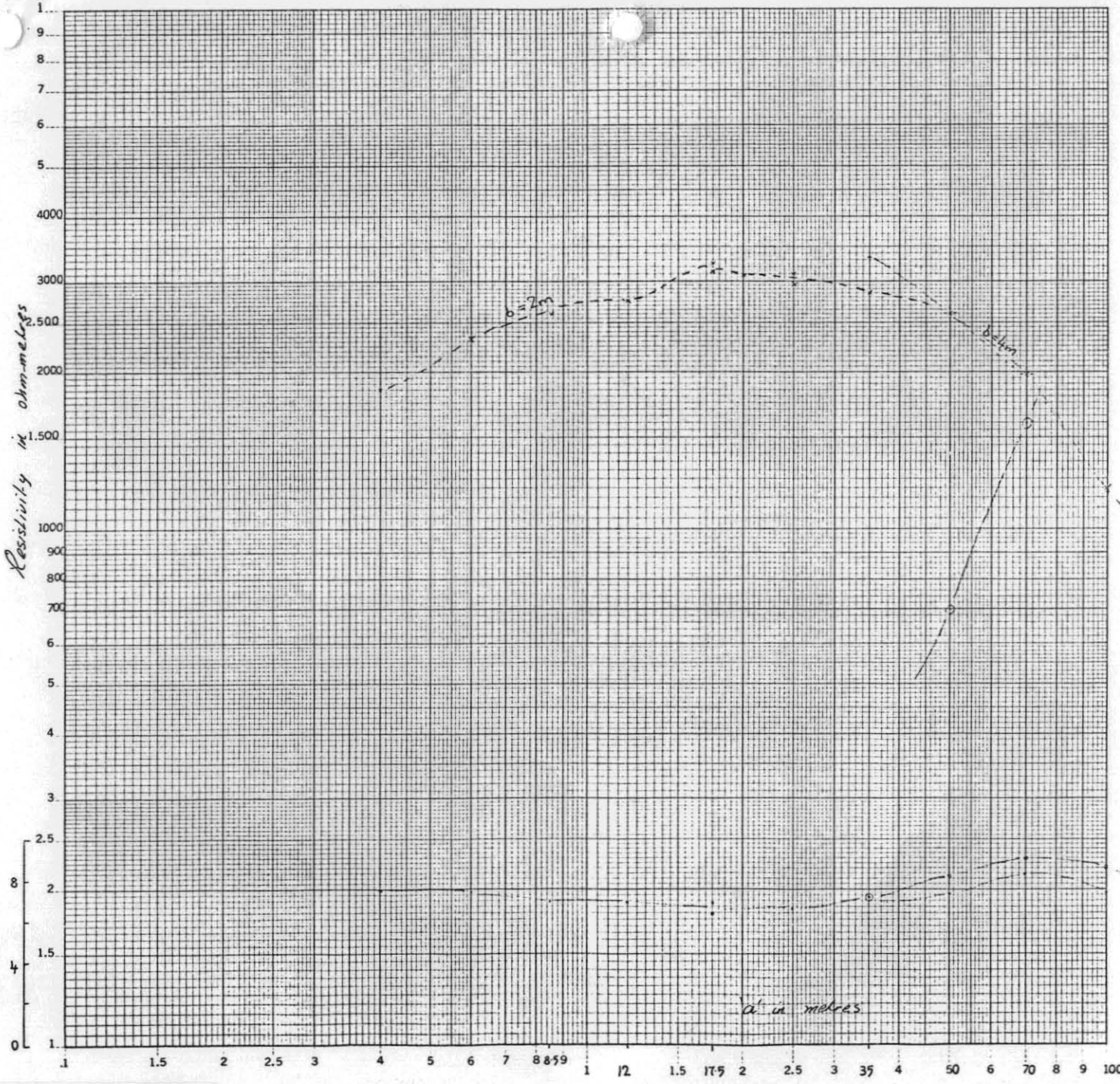
5 cm

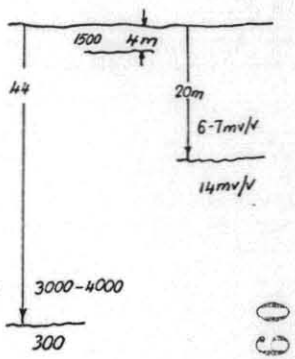
K27 110

Schlumberger Array

ANCHOR MINE AREA

TAS-027





5 cm

IT 8360

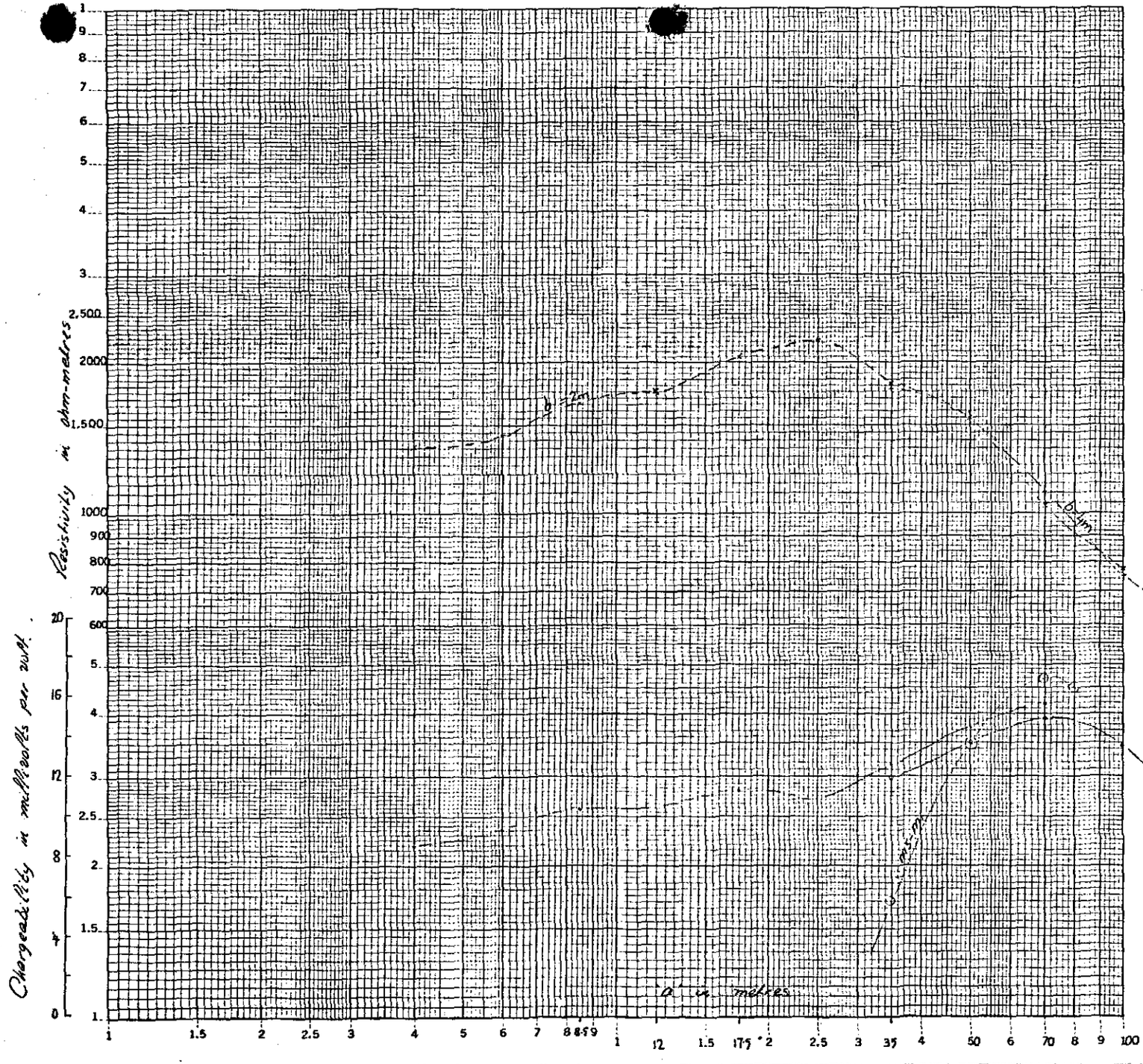
42 (PIT)

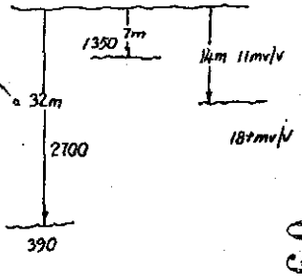
K26 111

Schlumberger Array

ANCHOR MINE AREA

TAS-027





0981129

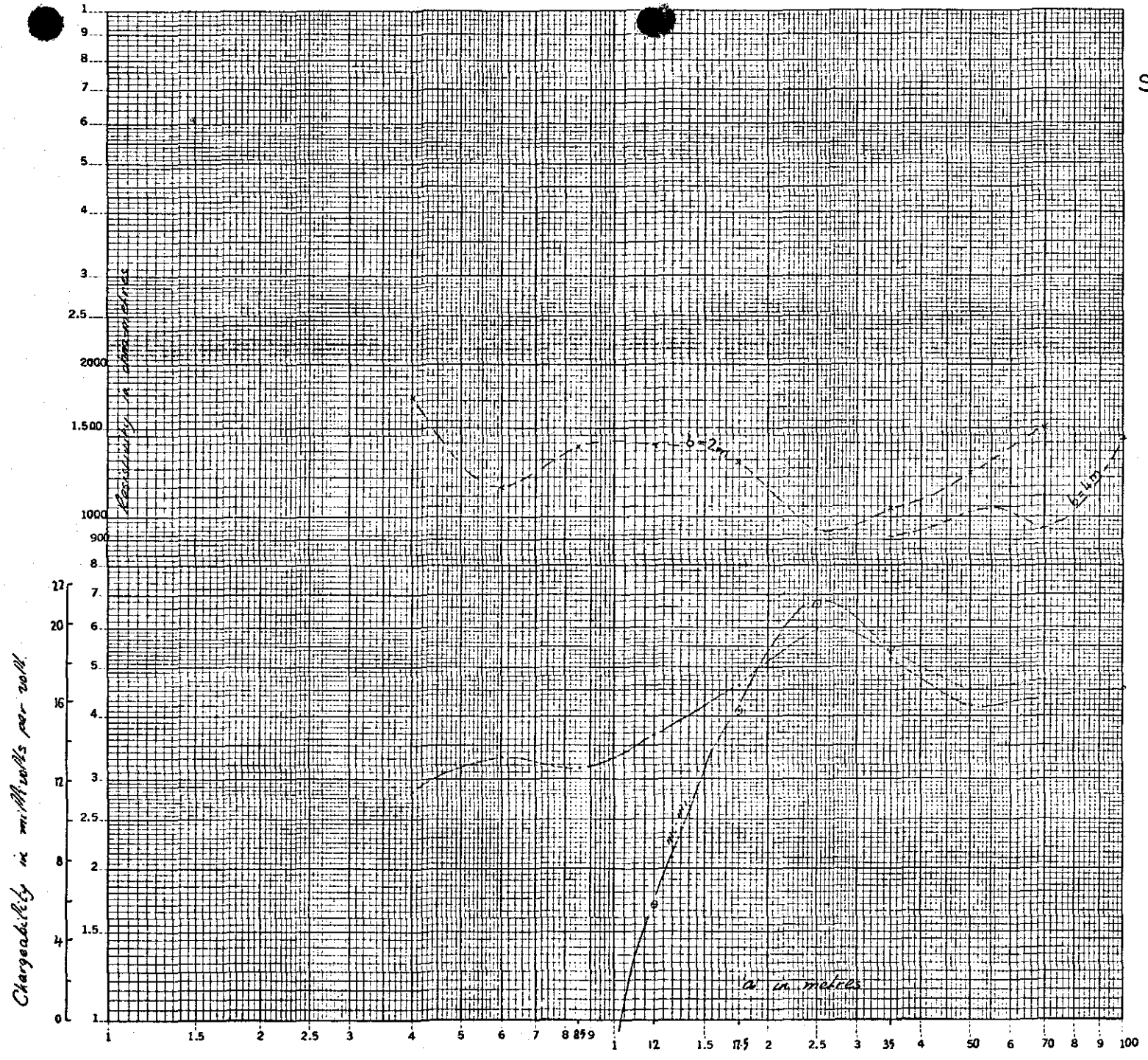
5 cm

K37 112

Schlumberger Array

ANCHOR MINE AREA

TAS-027



CTT860

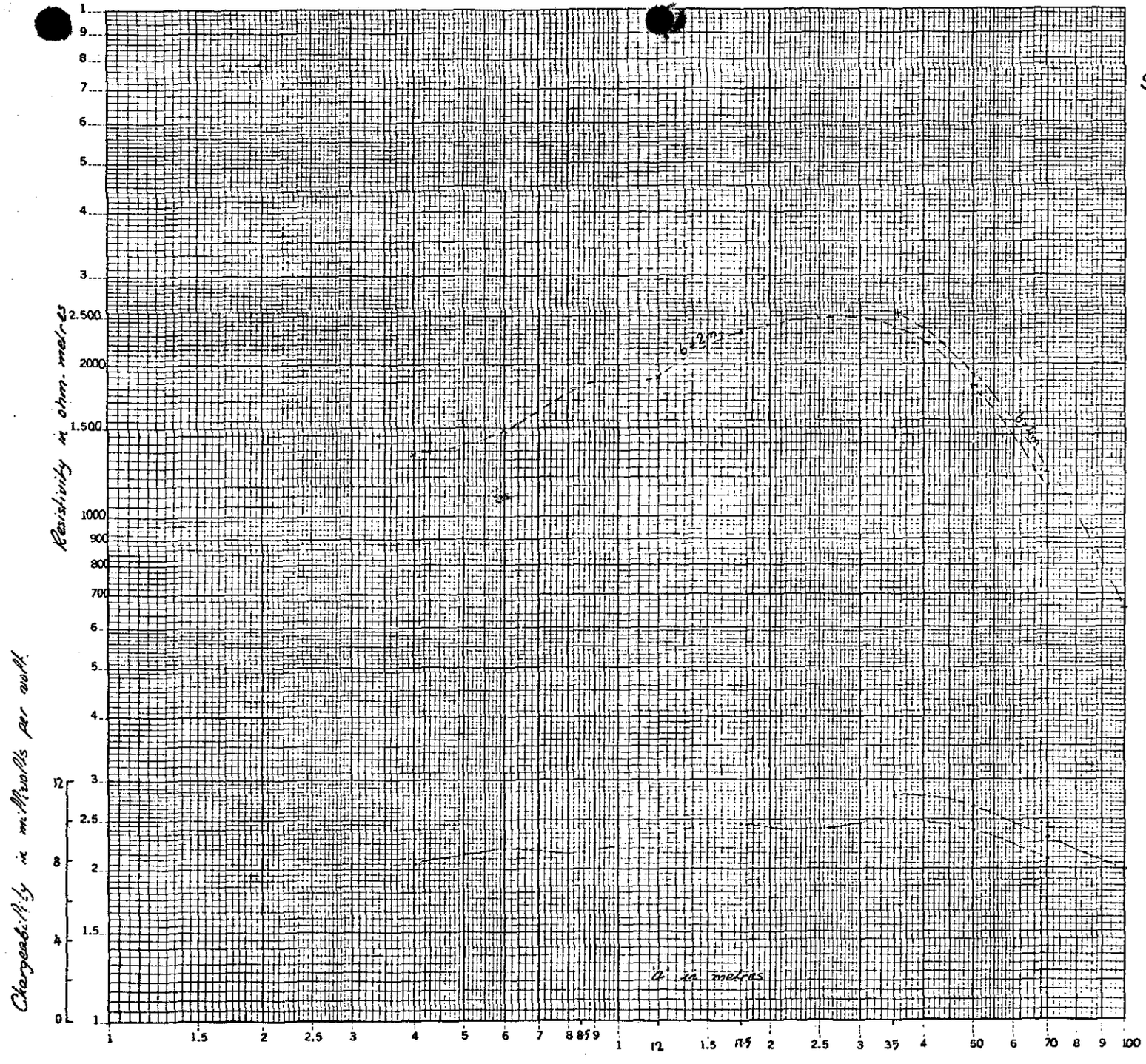
113

K38

Schlumberger Array

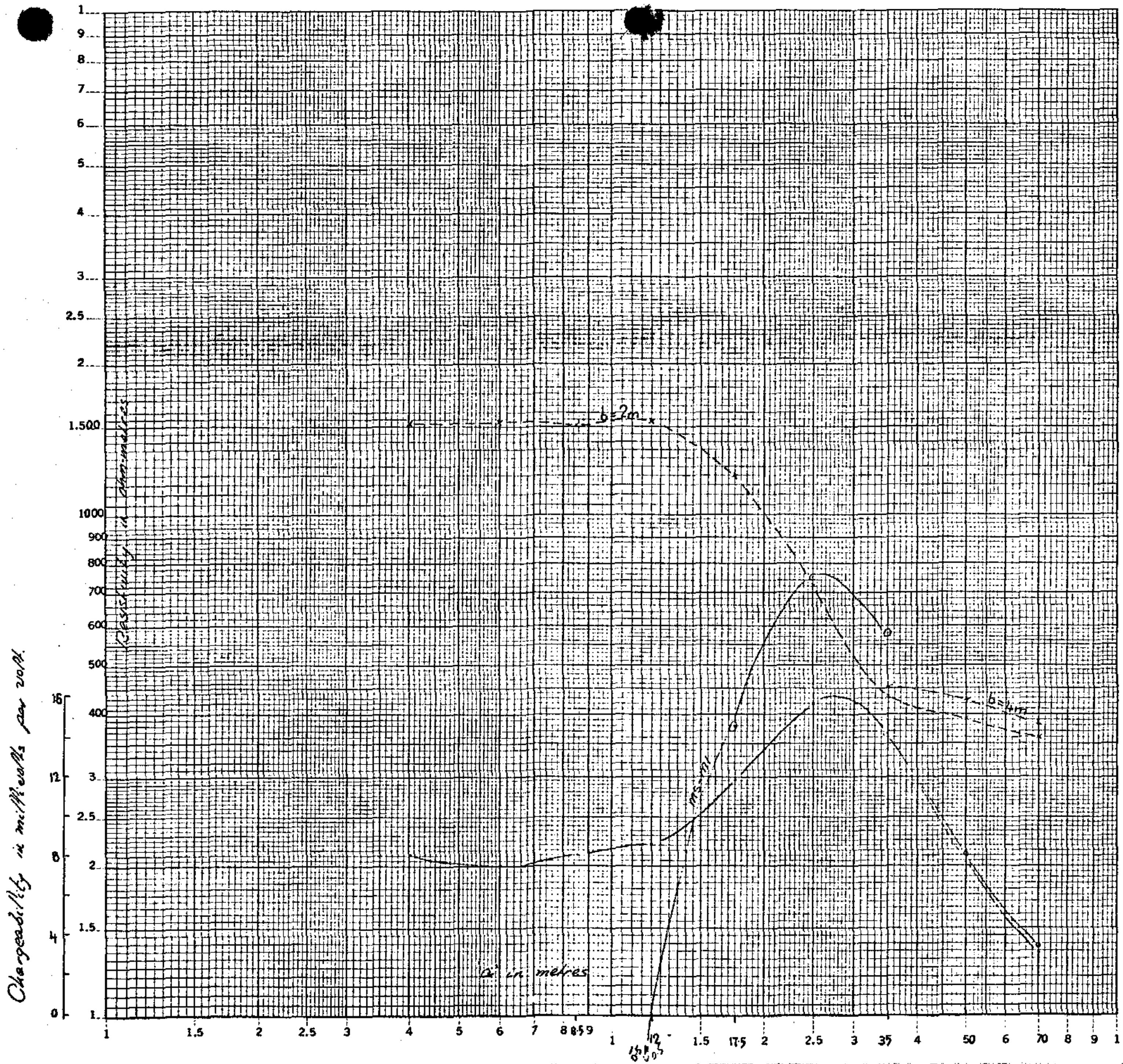
ANCHOR MINE AREA

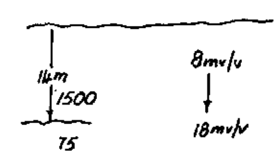
TAS-072



5 cm

K39
Schlumberger Array
ANCHOR MINE AREA
TAS-072





098115

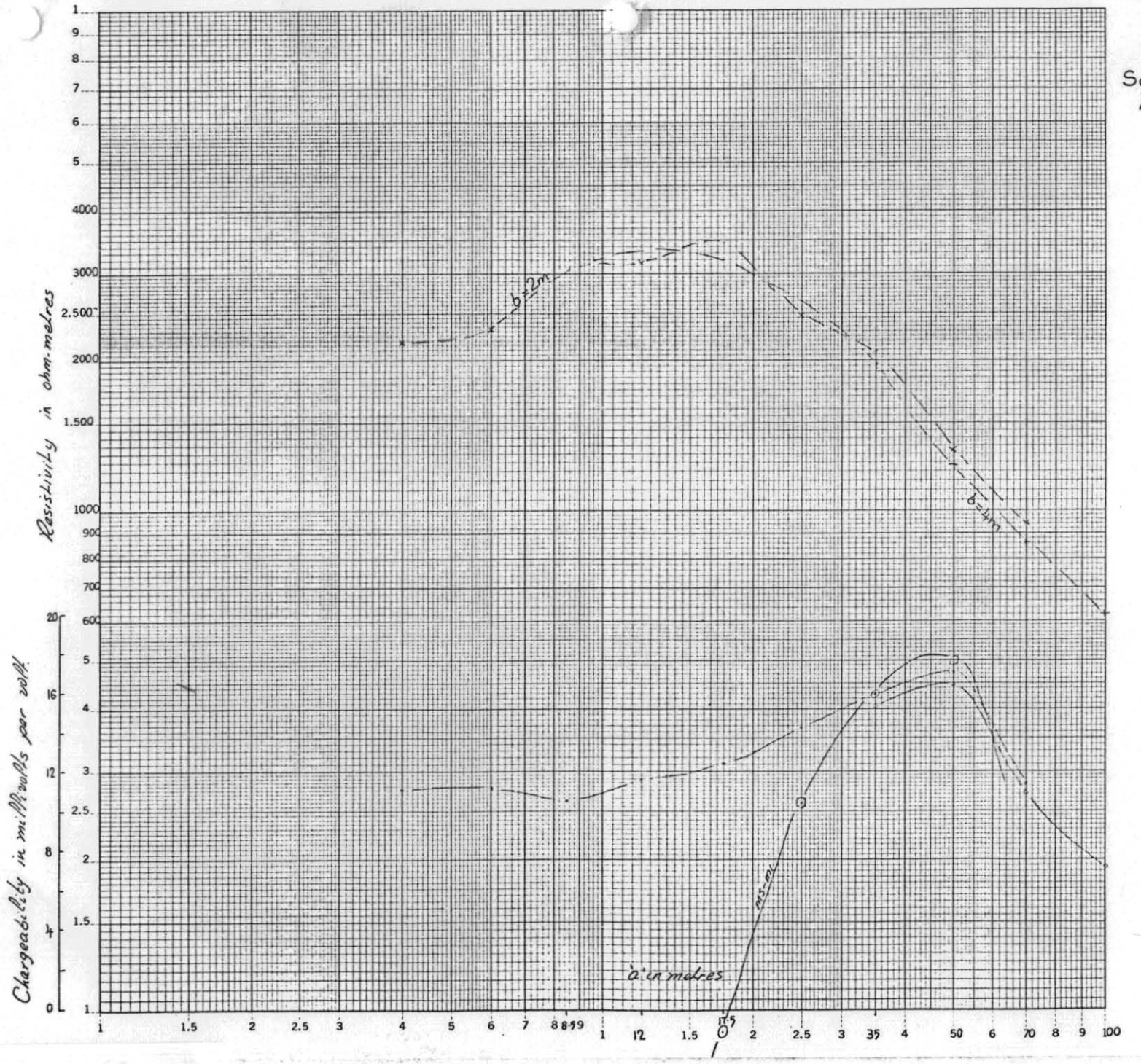
5 cm

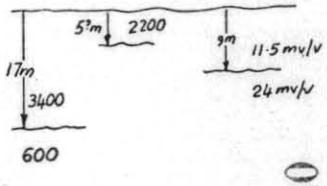
K40 115

Schlumberger Array

ANCHOR MINE AREA

TAS -072





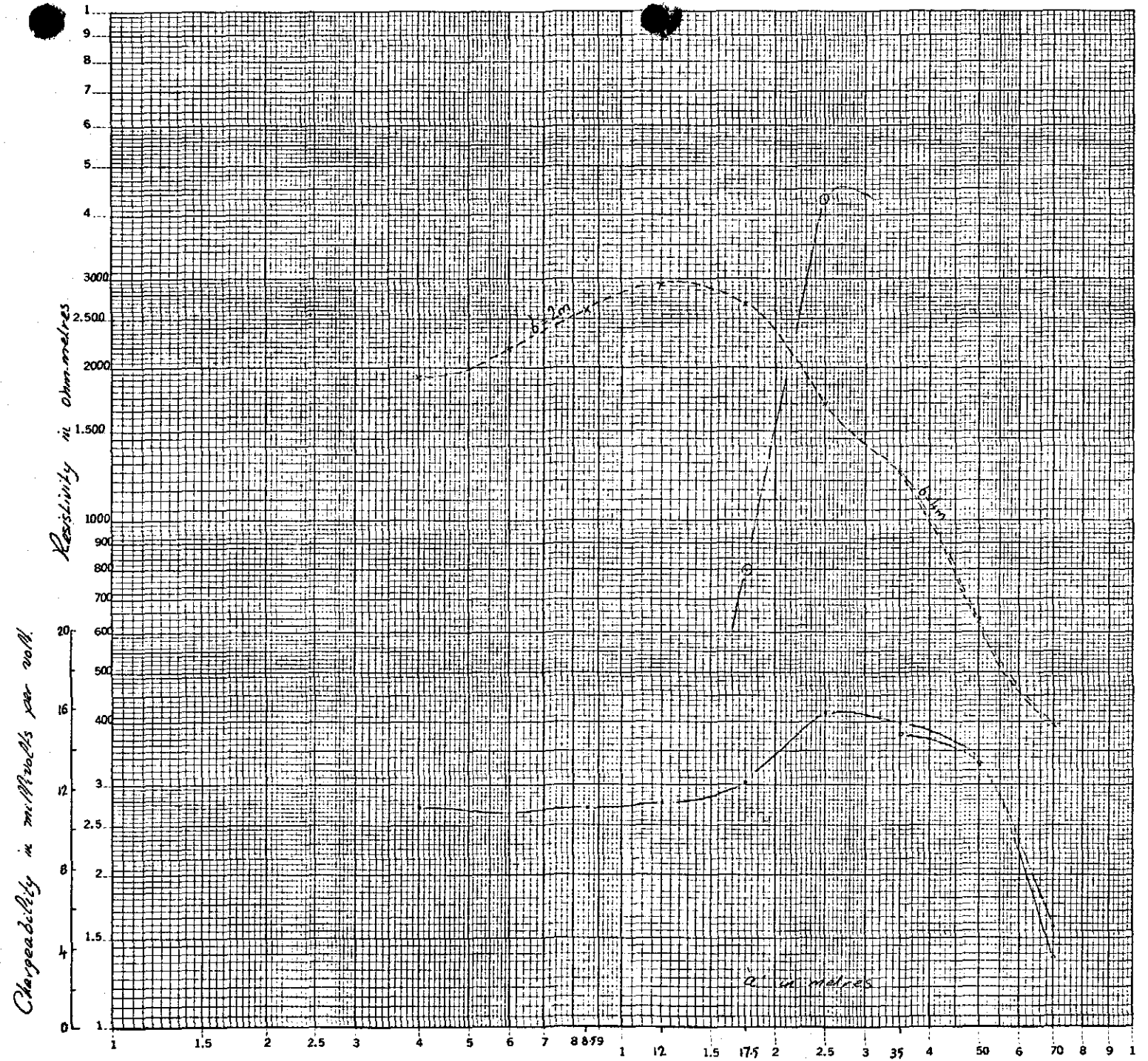
5 cm

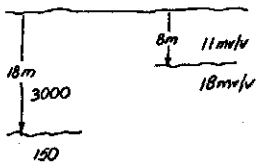
K 29 116

Schlumberger Array

ANCHOR MINE AREA

TAS - 072





5 cm

E 09811

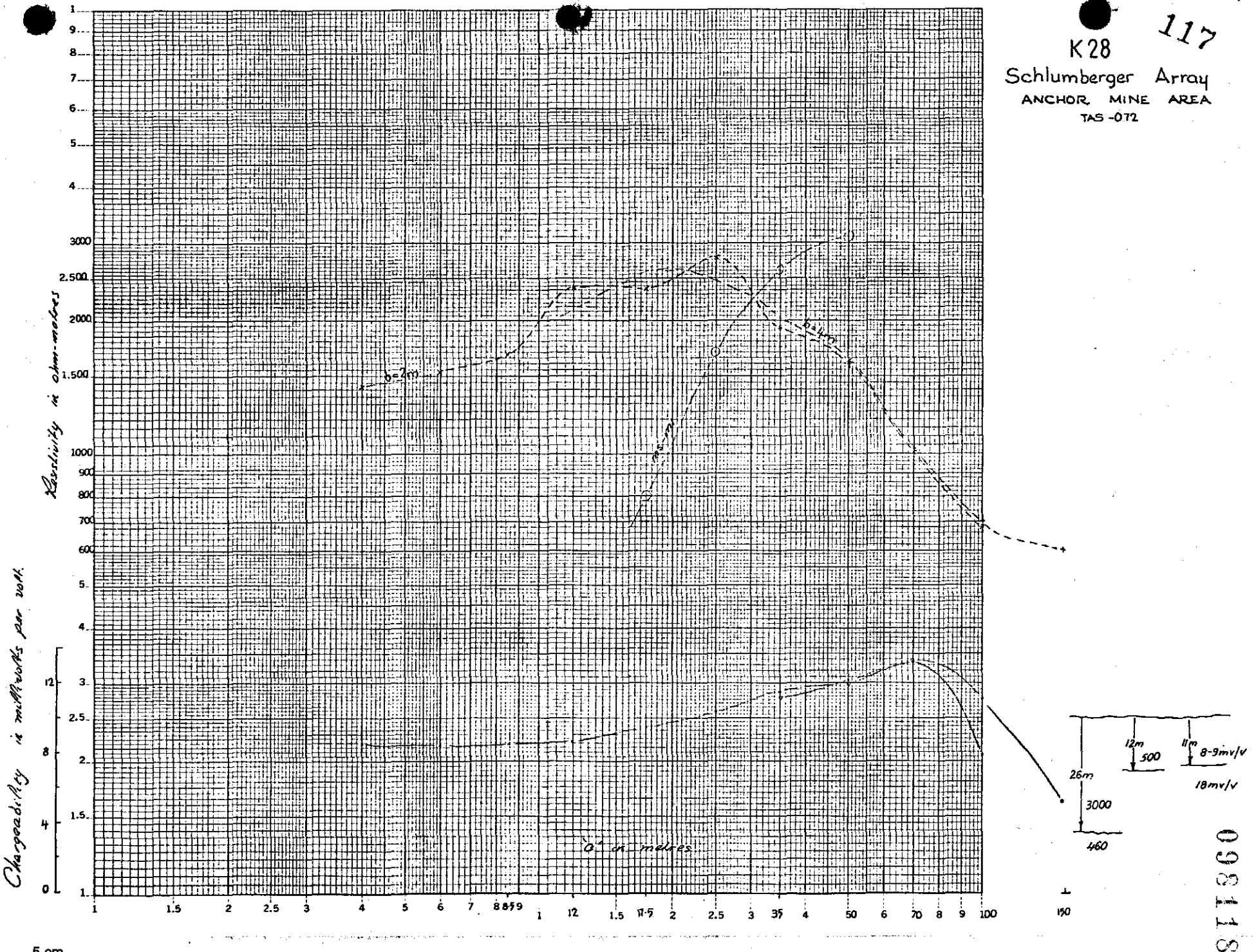
117

K28

Schlumberger Array

ANCHOR MINE AREA

TAS -072



ST 360

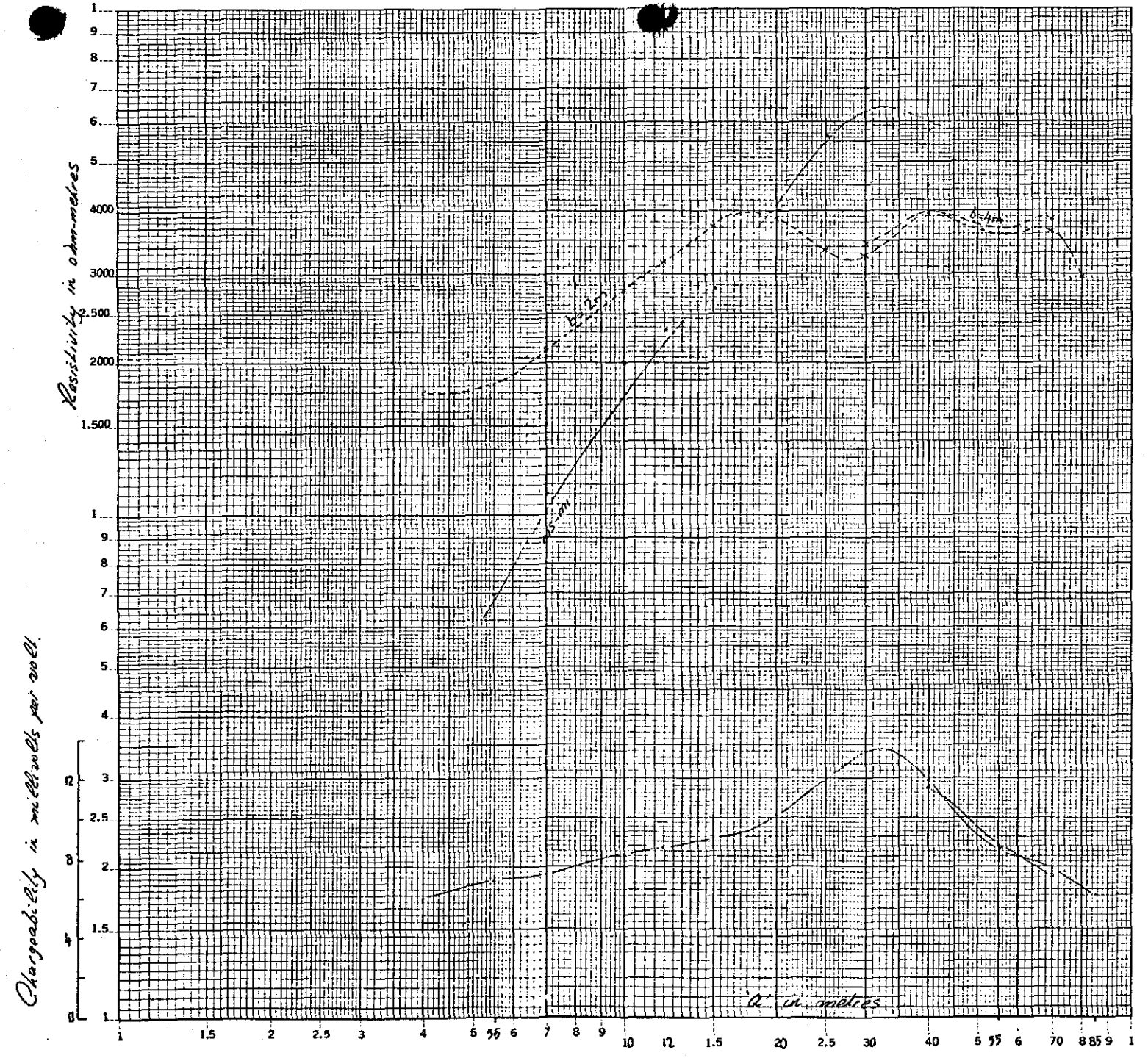
118

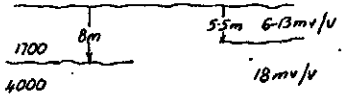
K12

Schlumberger Array

ANCHOR MINE AREA

TAS-072



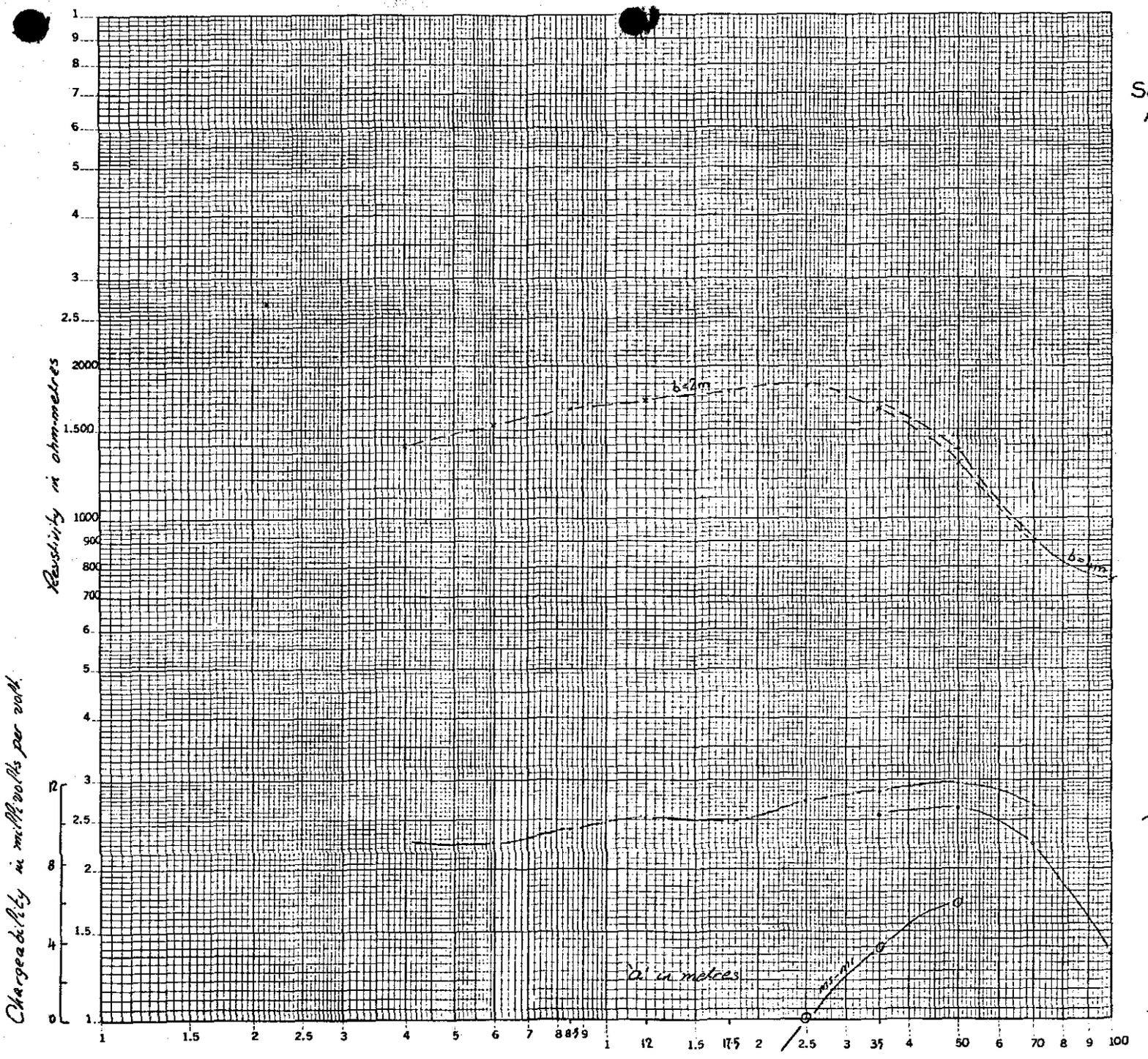


5 cm

GT360

50(19)
119

K41
Schlumberger Array
ANCHOR MINE AREA
TAS-072



5 cm

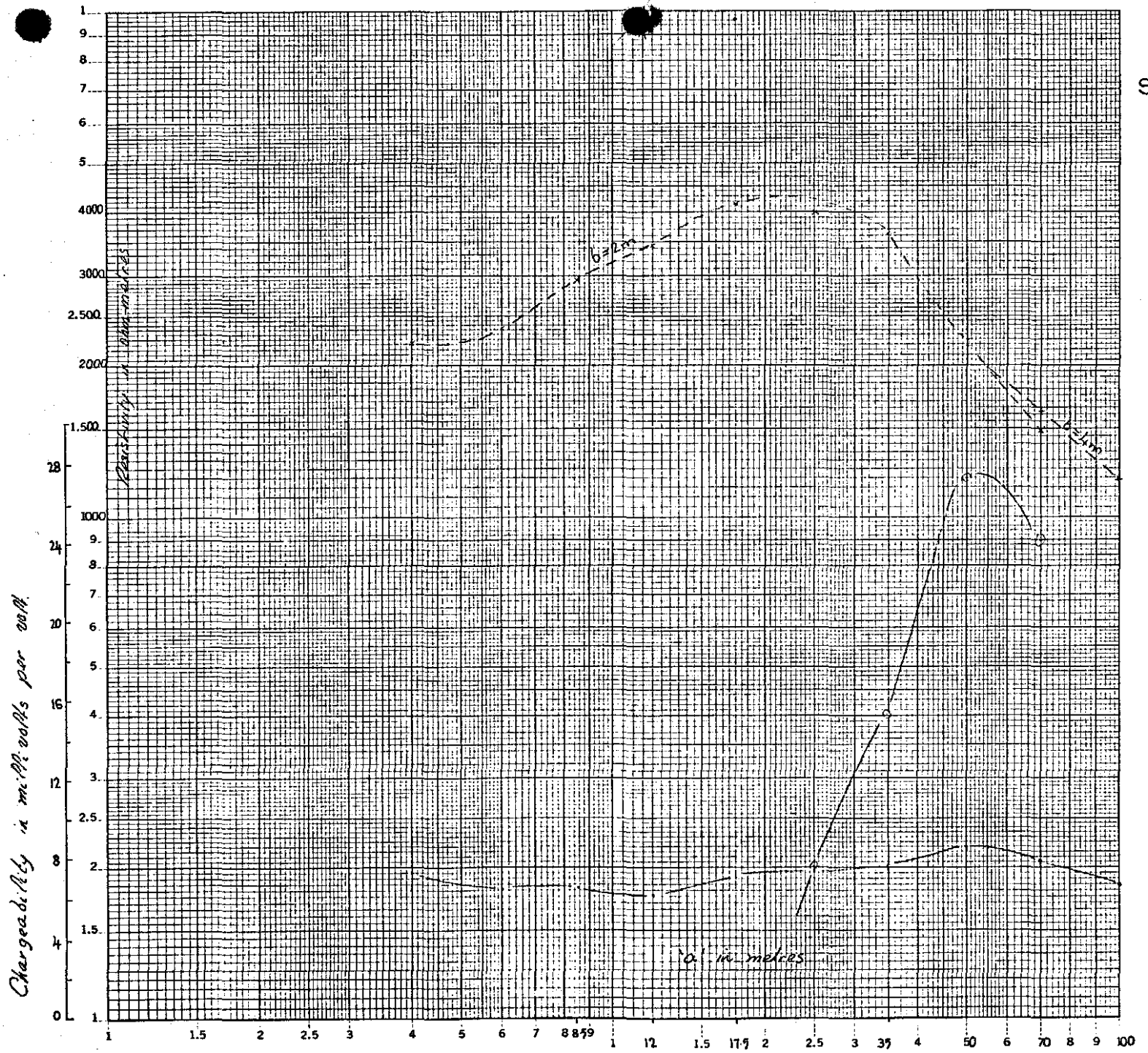
09816 20

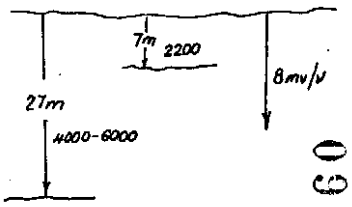
K42 120

Schlumberger Array

ANCHOR MINE AREA

TAS-072

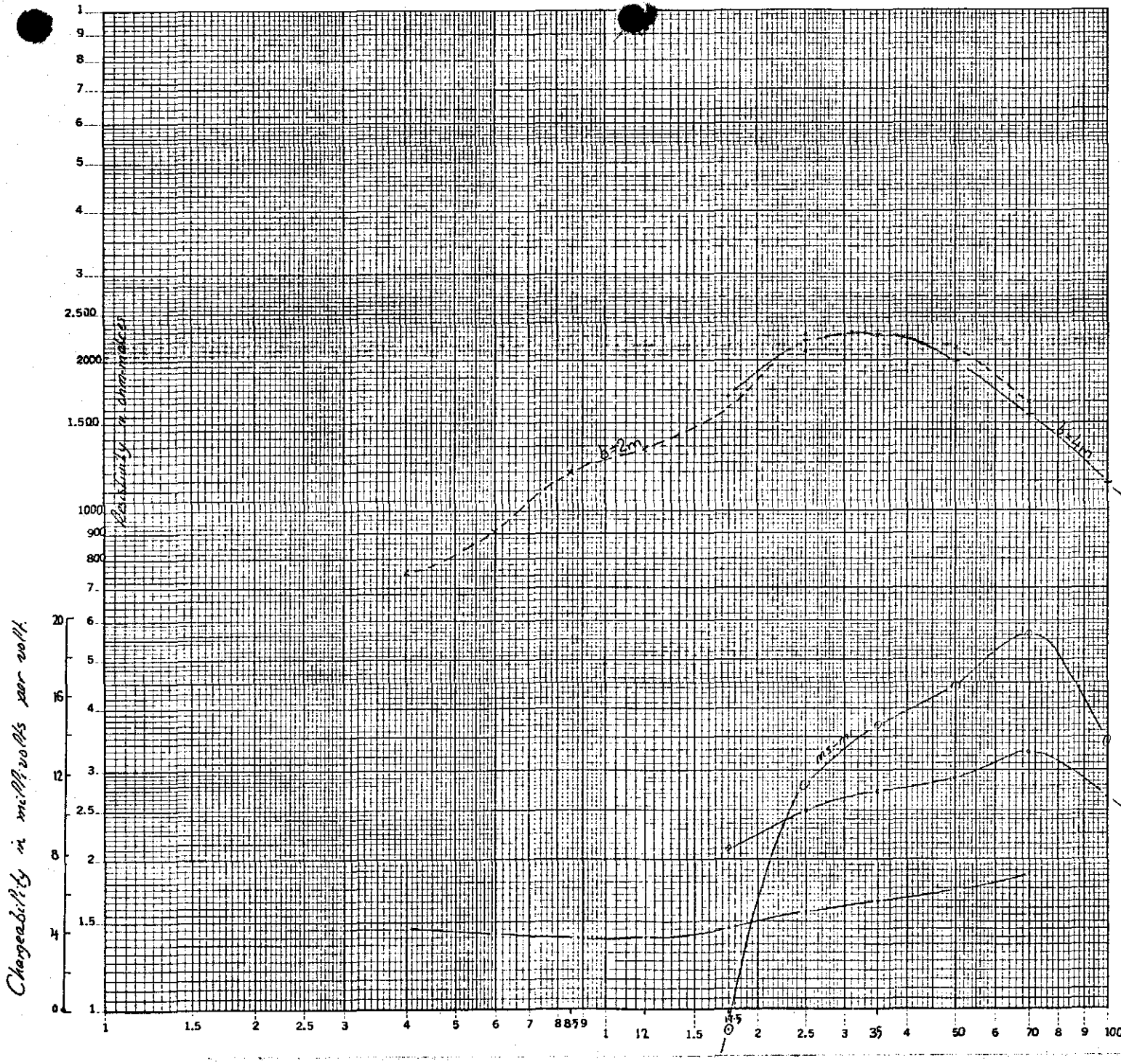


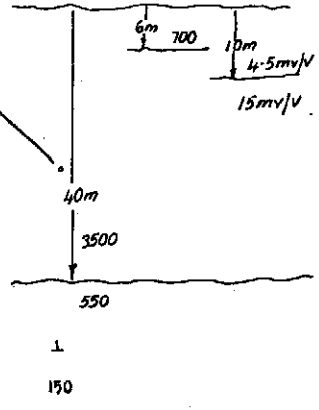


0 9 8 1 2 1

5 cm

K43
Schlumberger Array
ANCHOR MINE AREA
TAS-072





5 cm

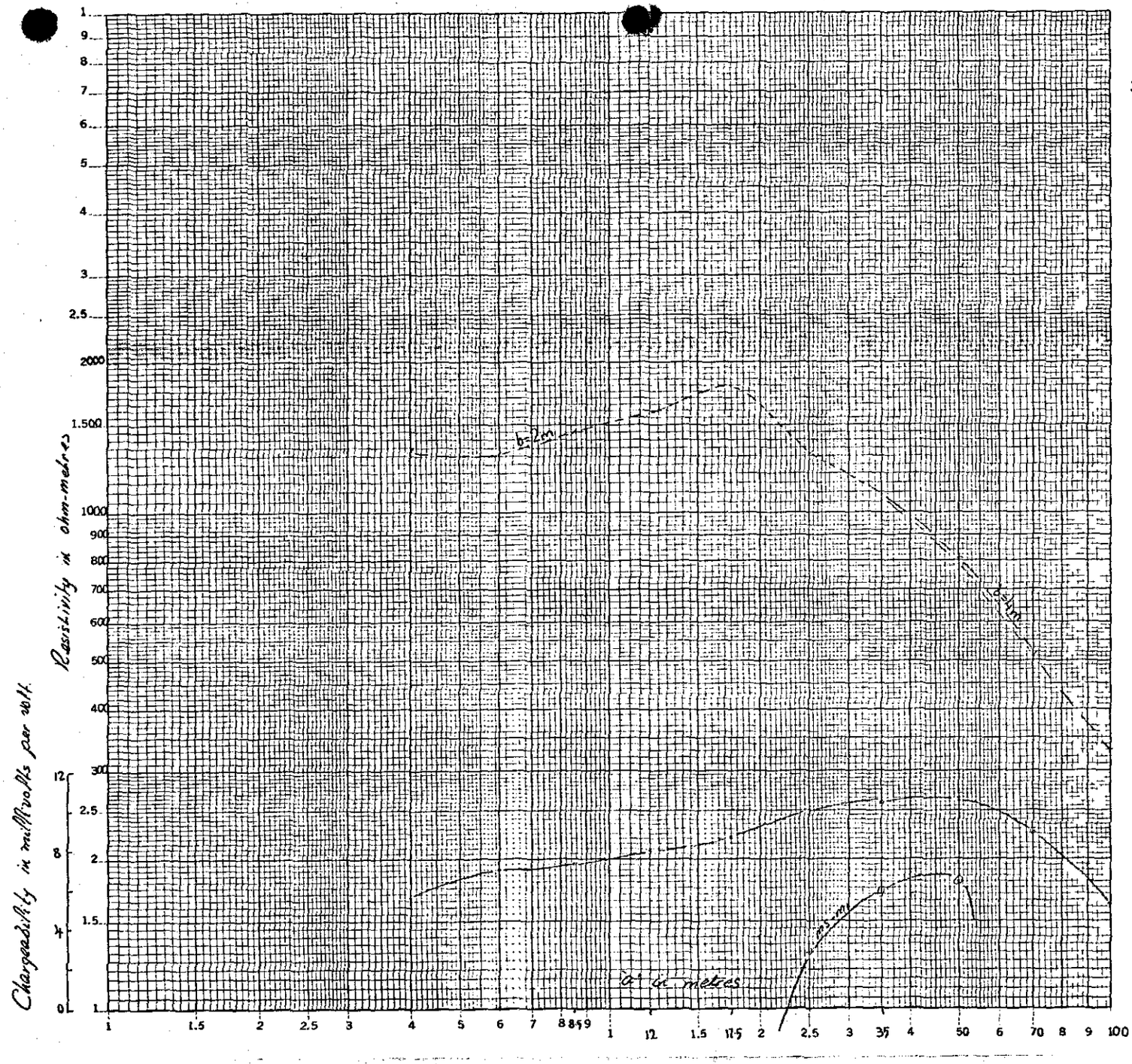
122

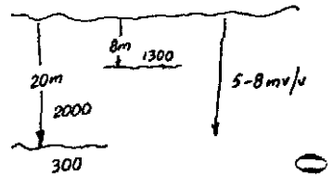
K44

Schlumberger Array

ANCHOR MINE AREA

TAS-072



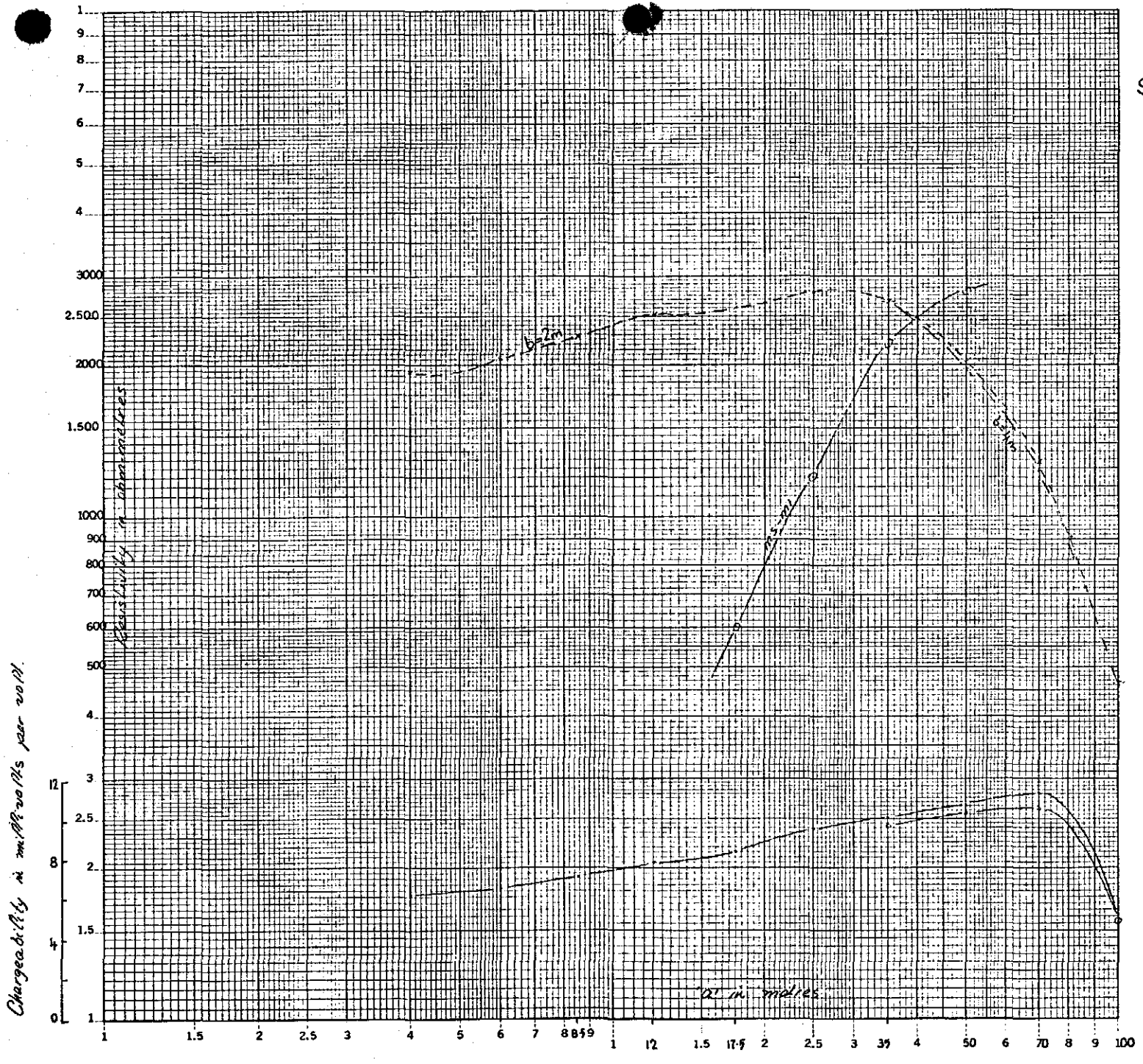


K31 123

Schlumberger Array

ANCHOR MINE AREA

TAS-072



5 cm

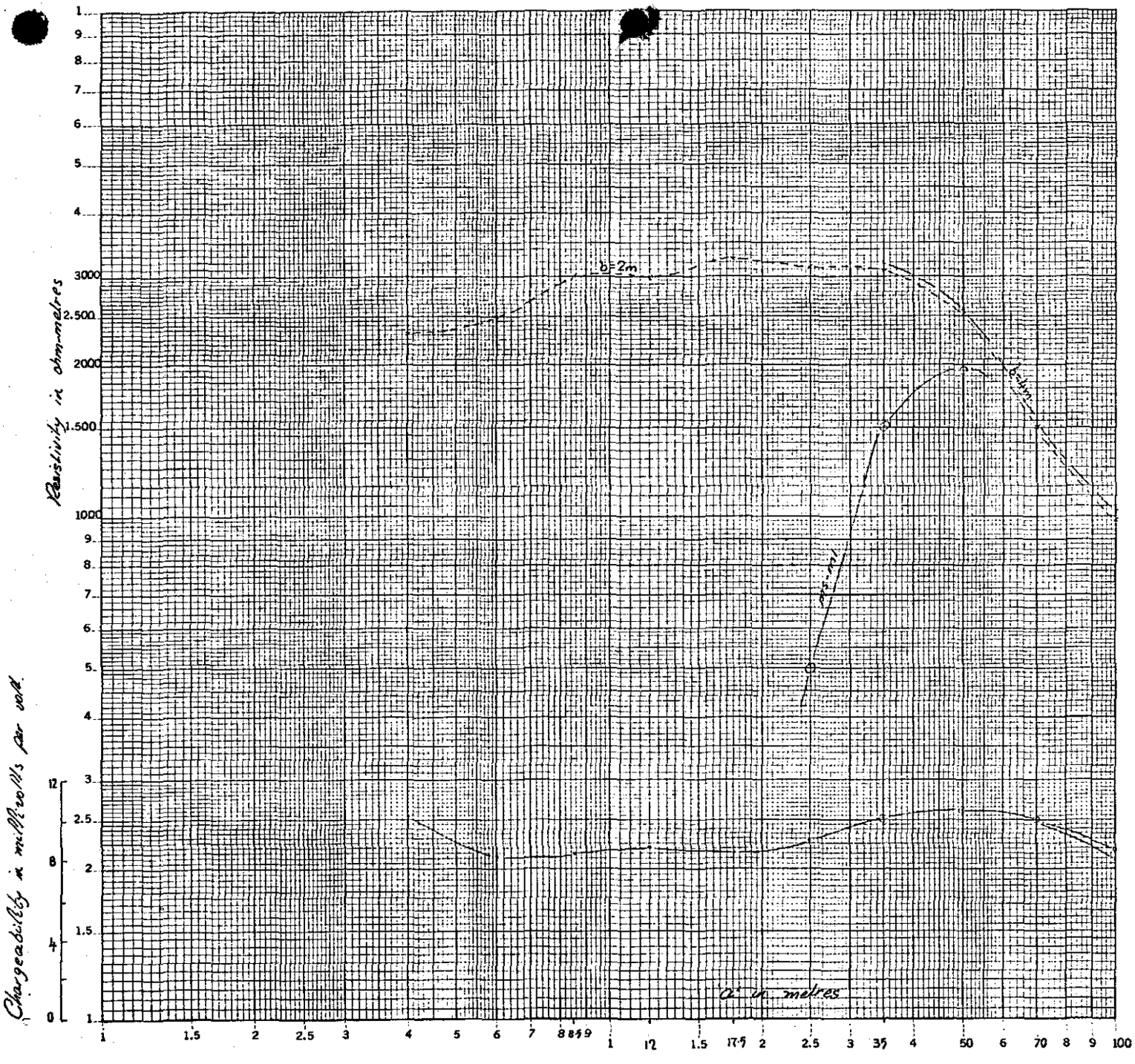
0981124

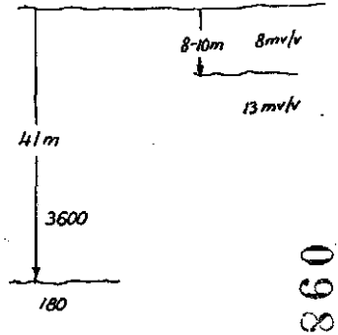
K30 124

Schlumberger Array

ANCHOR MINE AREA

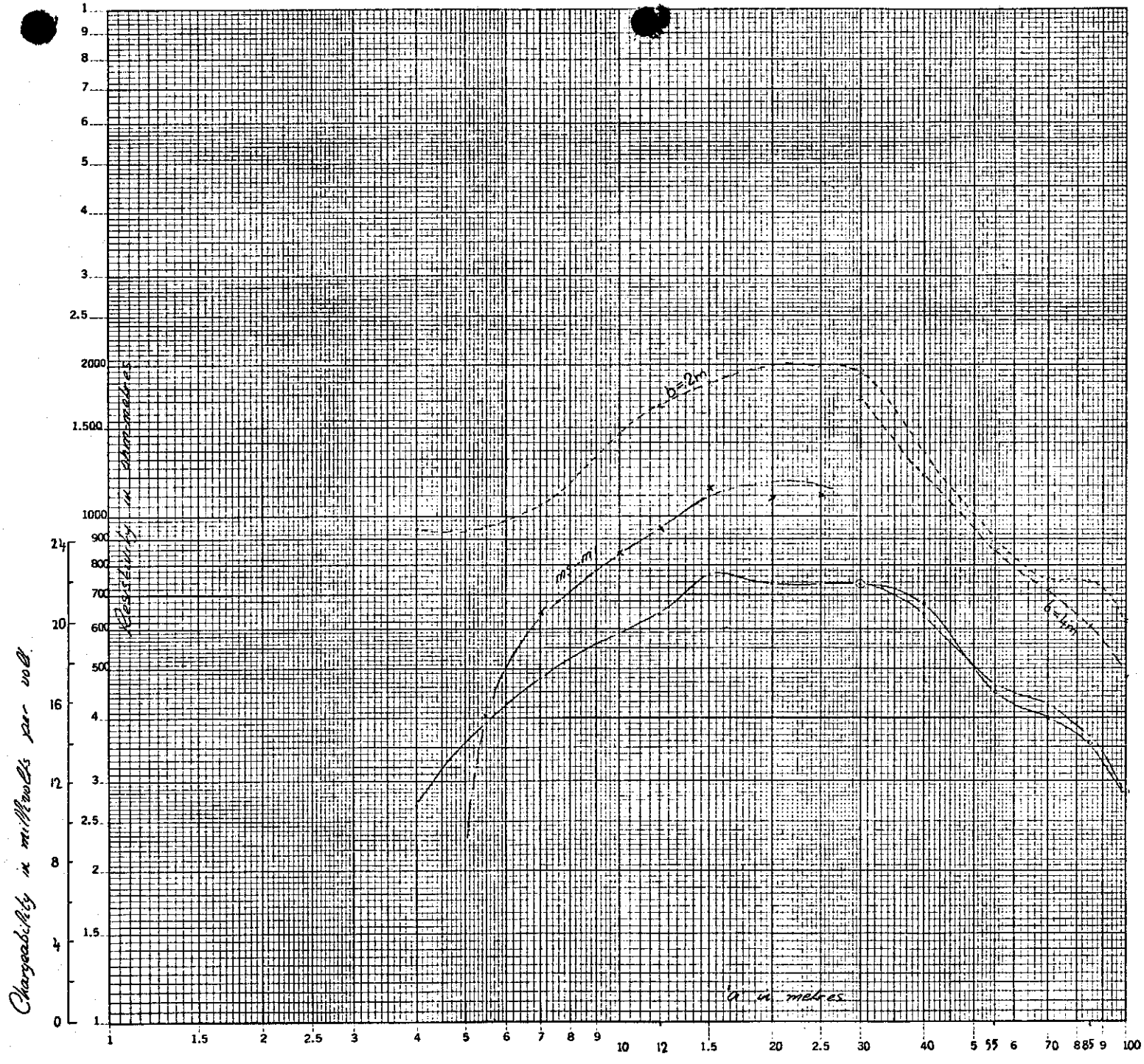
TAS -072

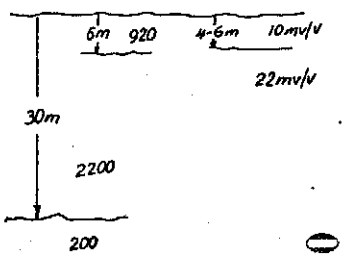




5 cm

K13 125
Schlumberger Array
ANCHOR MINE AREA
TAS -072





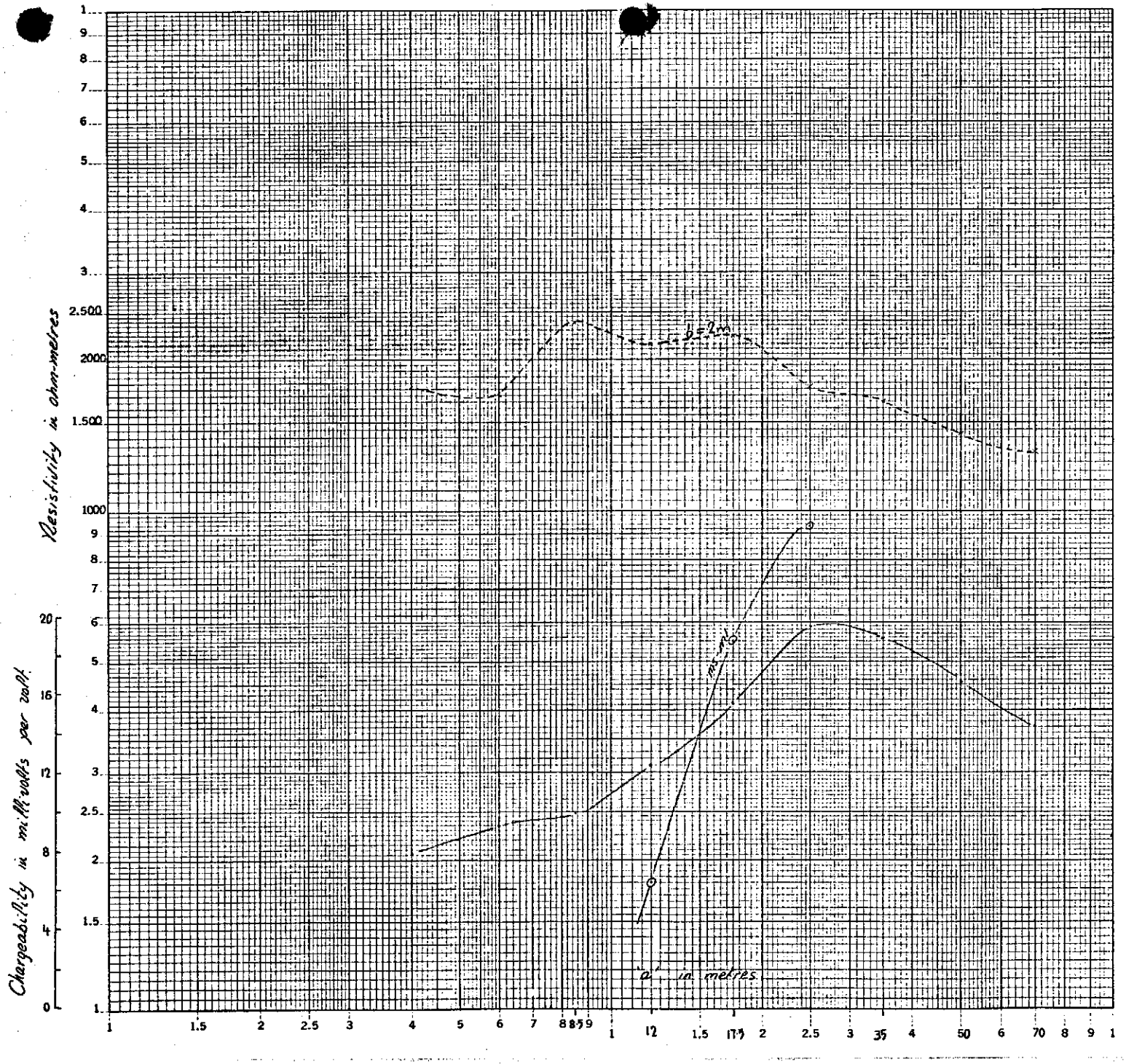
5 cm

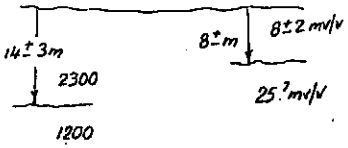
92T860

K82

Schlumberger Array

ANCHOR MINE AREA
NR. ST HELENS
TAS-072





5 cm

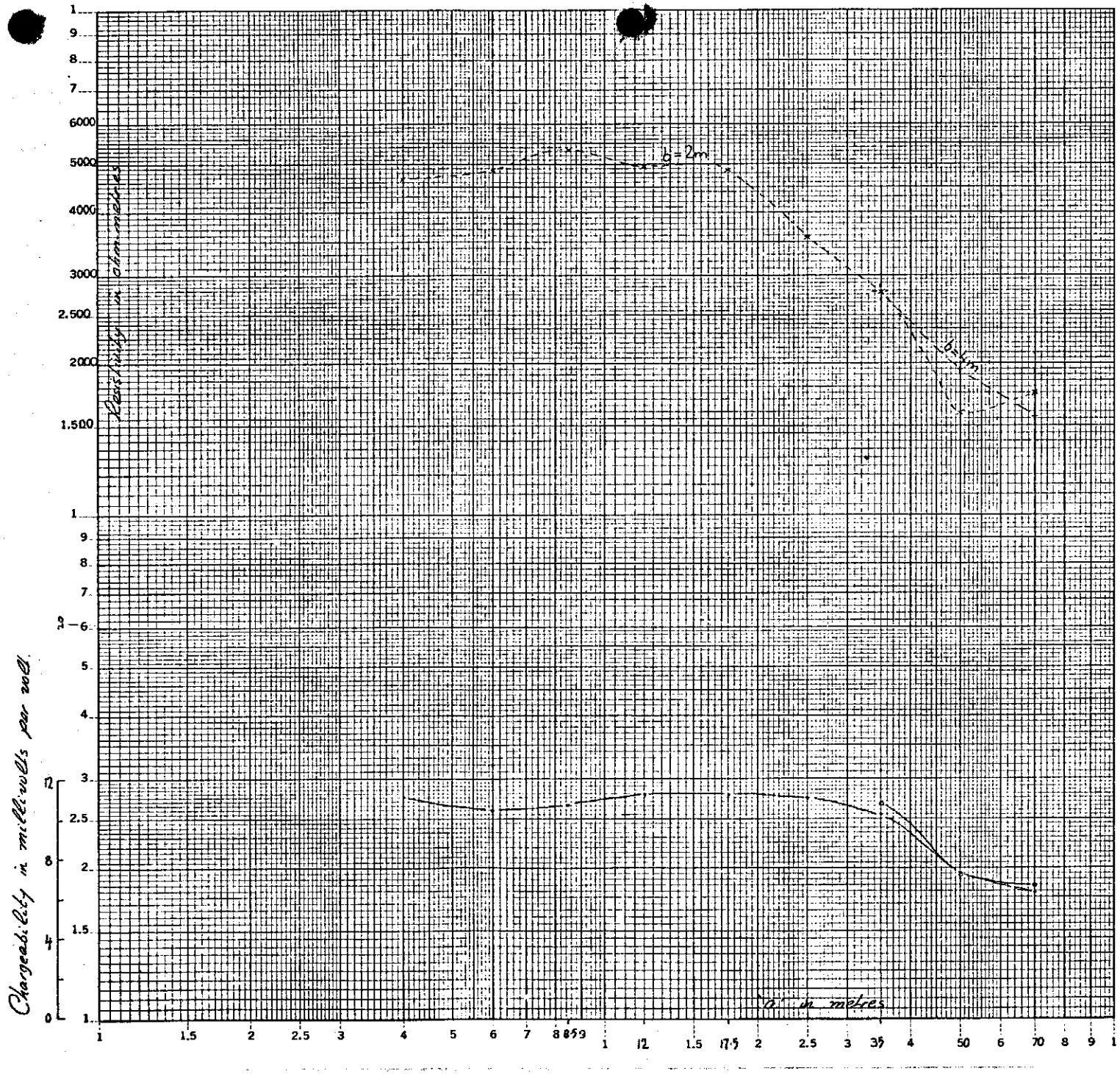
127

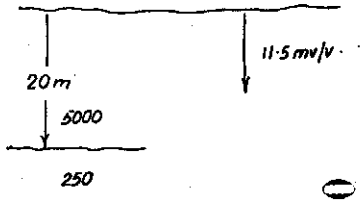
K 109

Schlumberger Array

ANCHOR MINE AREA

TAS-072





5 cm

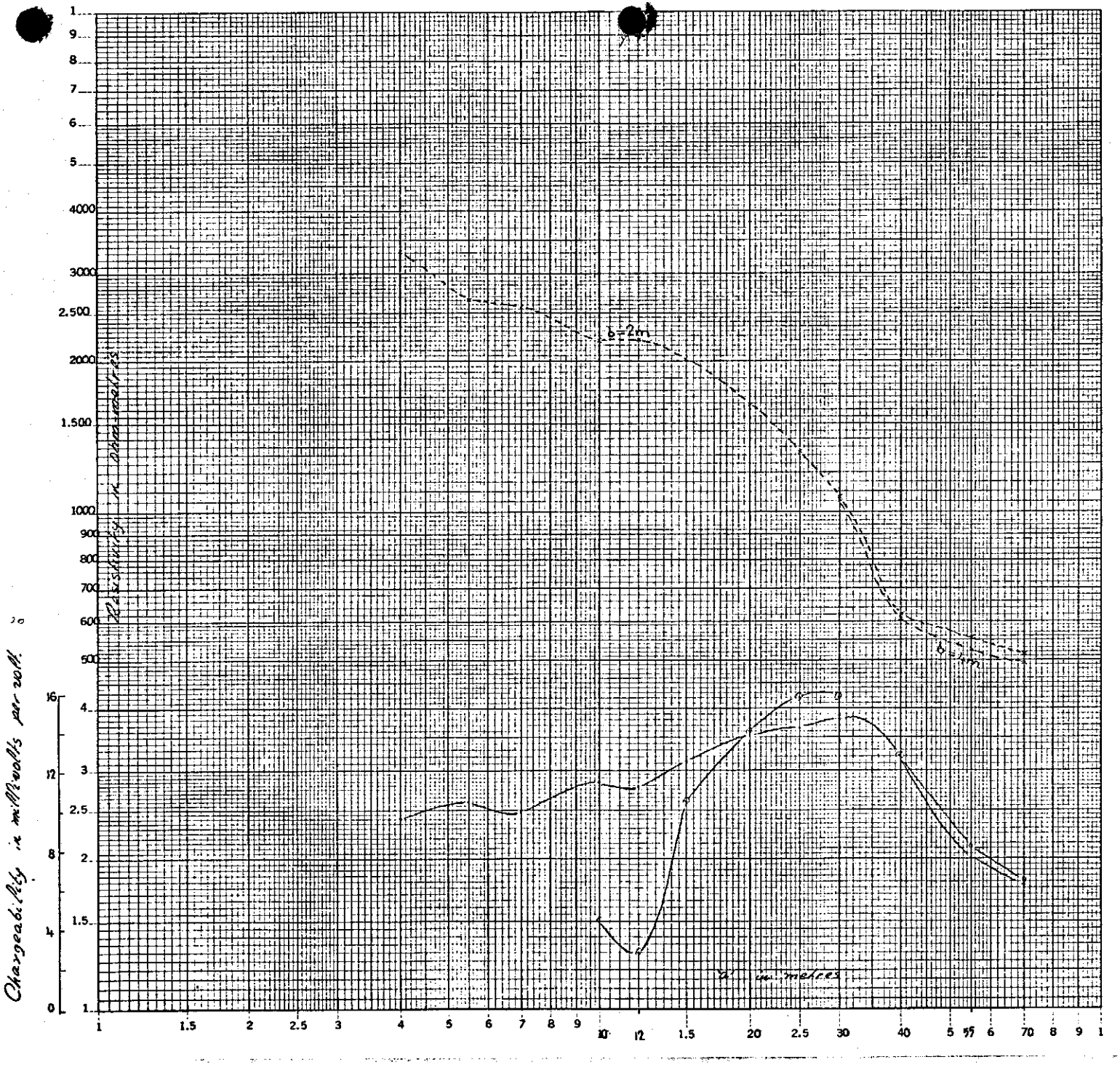
128

K18

Schlumberger Array

ANCHOR MINE AREA

TAS-072



10m 2500 440

6m 10mv/v 18 mv/v ?

5 cm

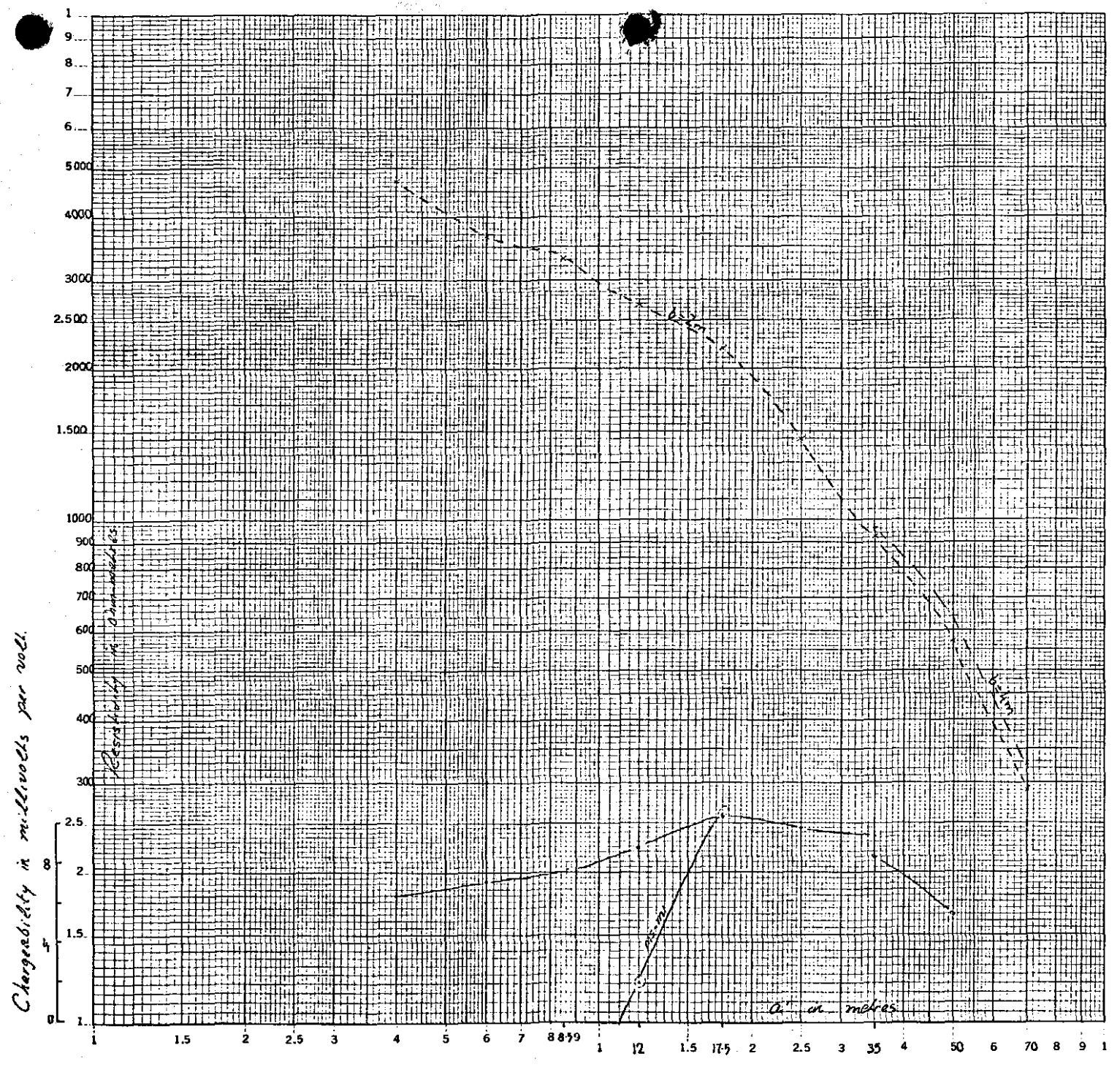
621860

K121 129

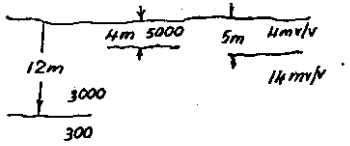
Schlumberger Array

ANCHOR MINE AREA

TAS-072



some chargeability reading not plotted - unreliable



5 cm

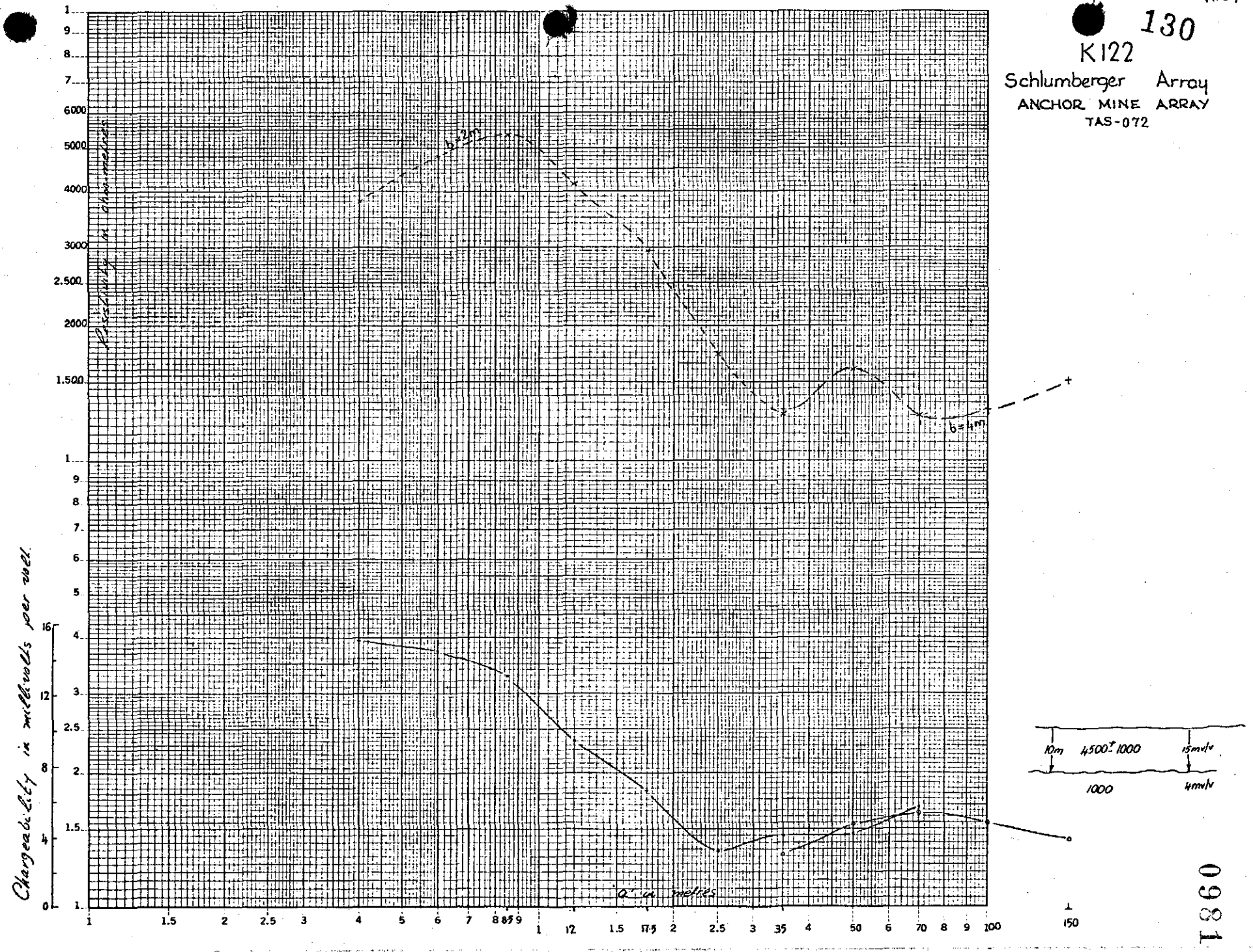
130

K122

Schlumberger Array

ANCHOR MINE ARRAY

TAS-072



5 cm

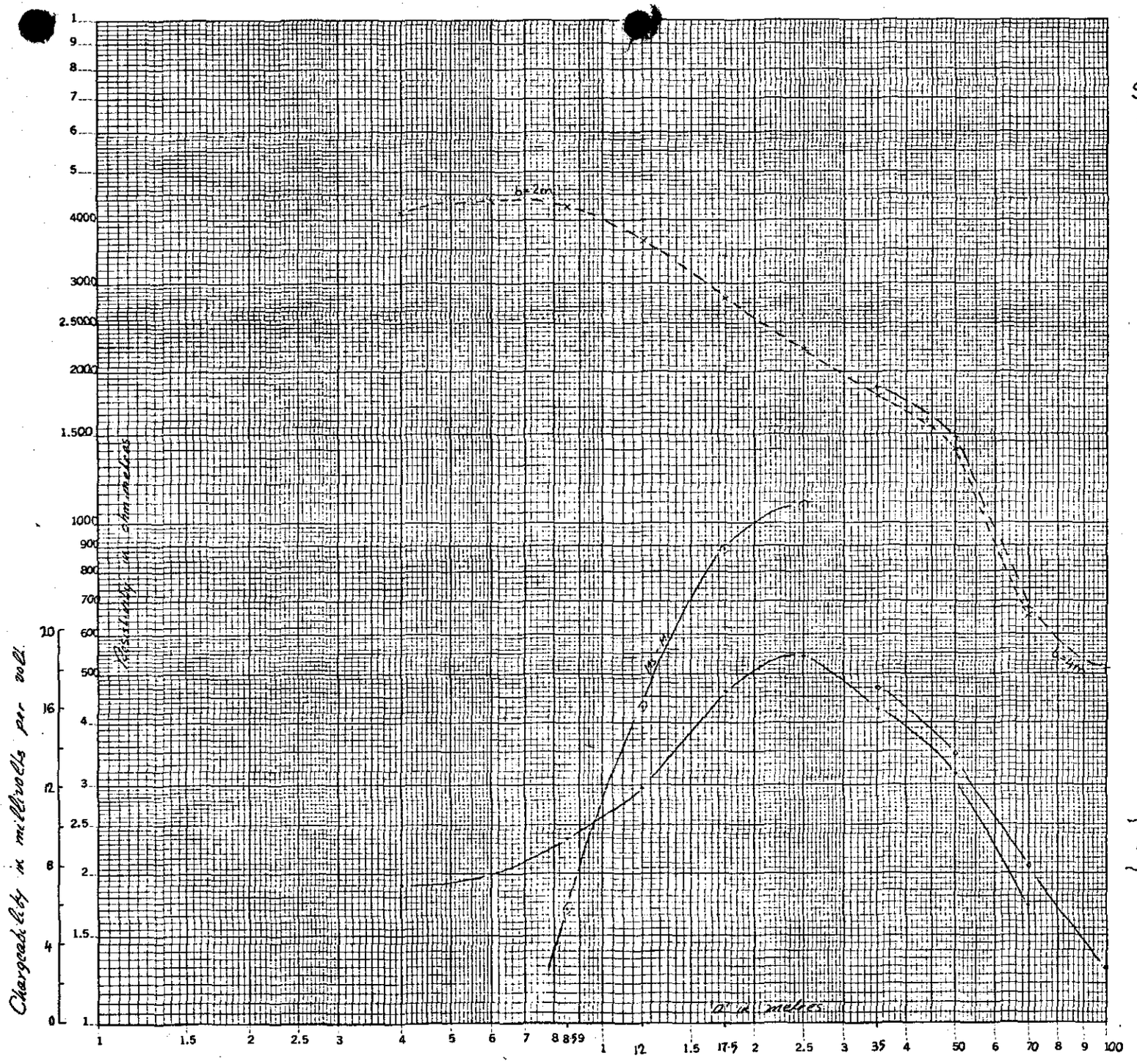
131

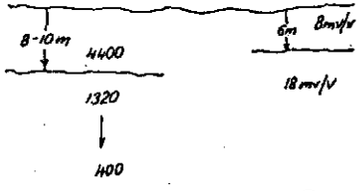
K 124

Schlumberger Array

ANCHOR MINE AREA

TAS-072





5 cm

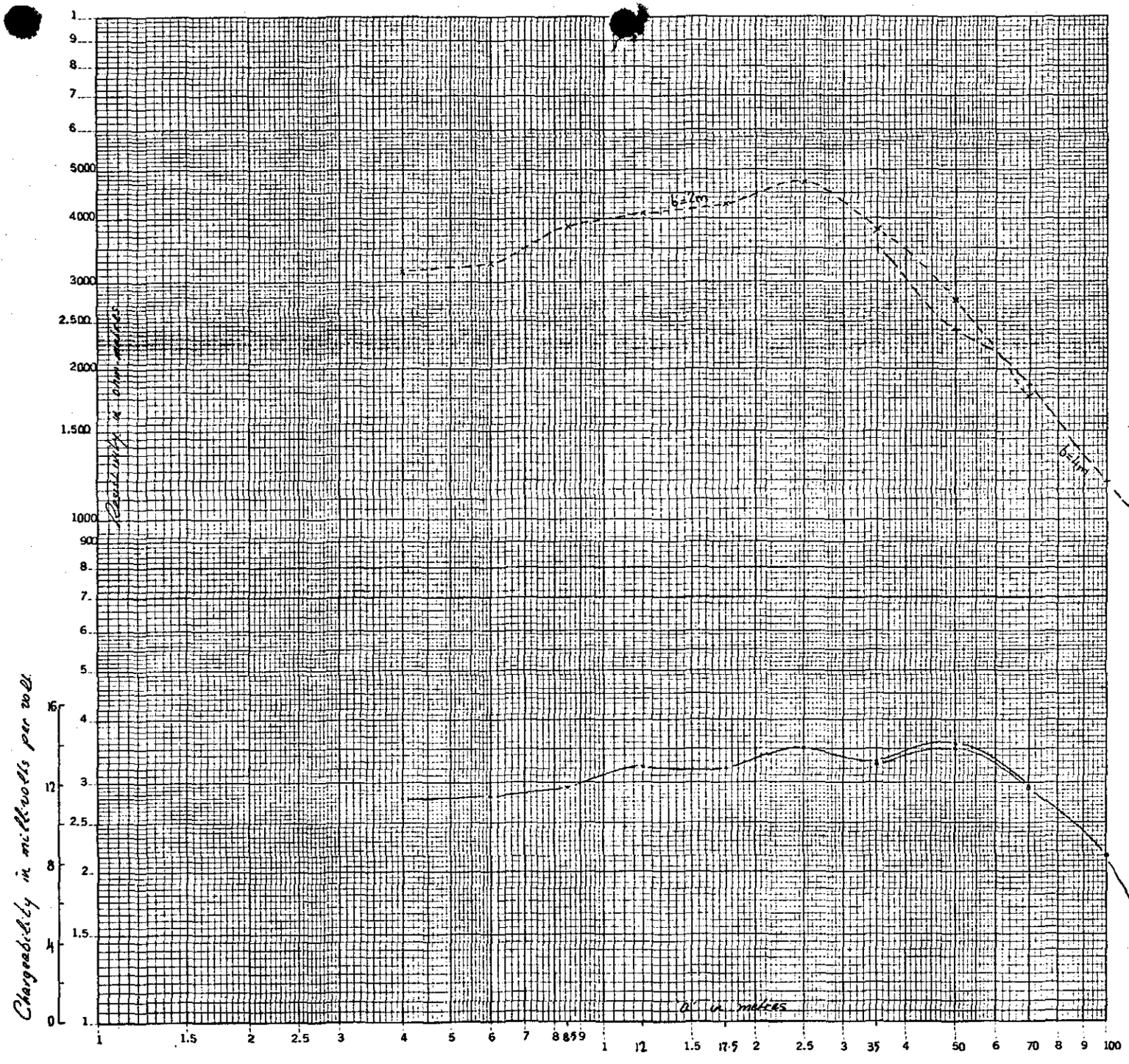
132 63 (P14)

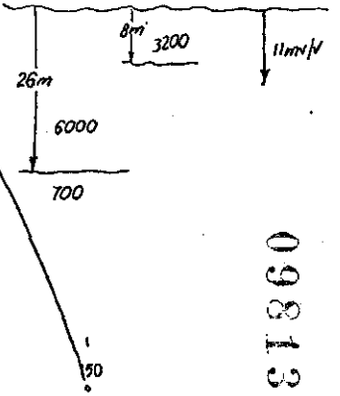
K120

Schlumberger Array

ANCHOR MINE AREA

TAS-072





5 cm

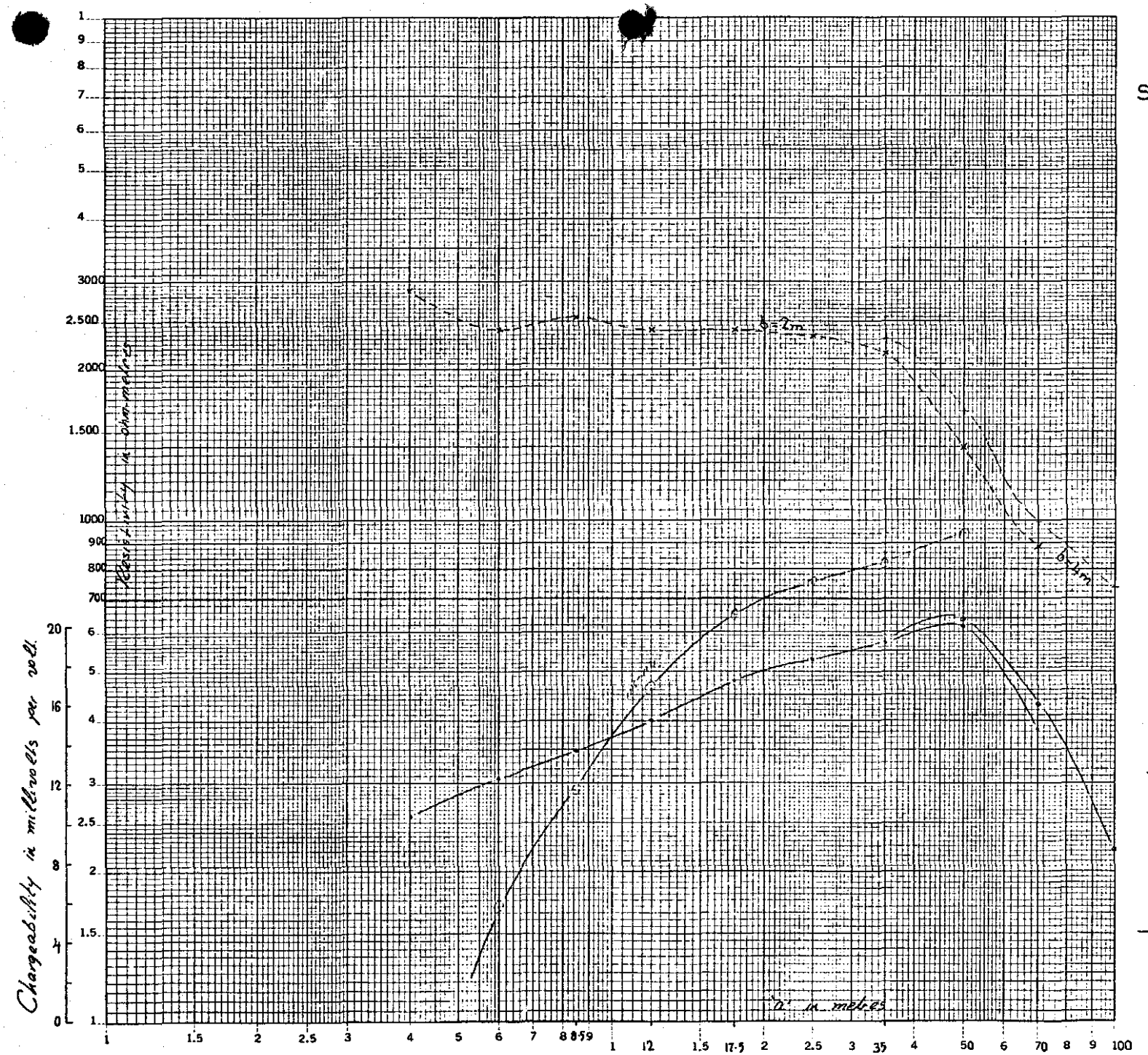
C21860

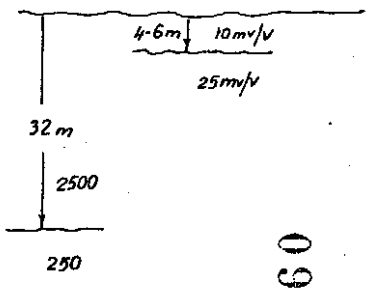
K119 133

Schlumberger Array

ANCHOR MINE AREA

TAS-072





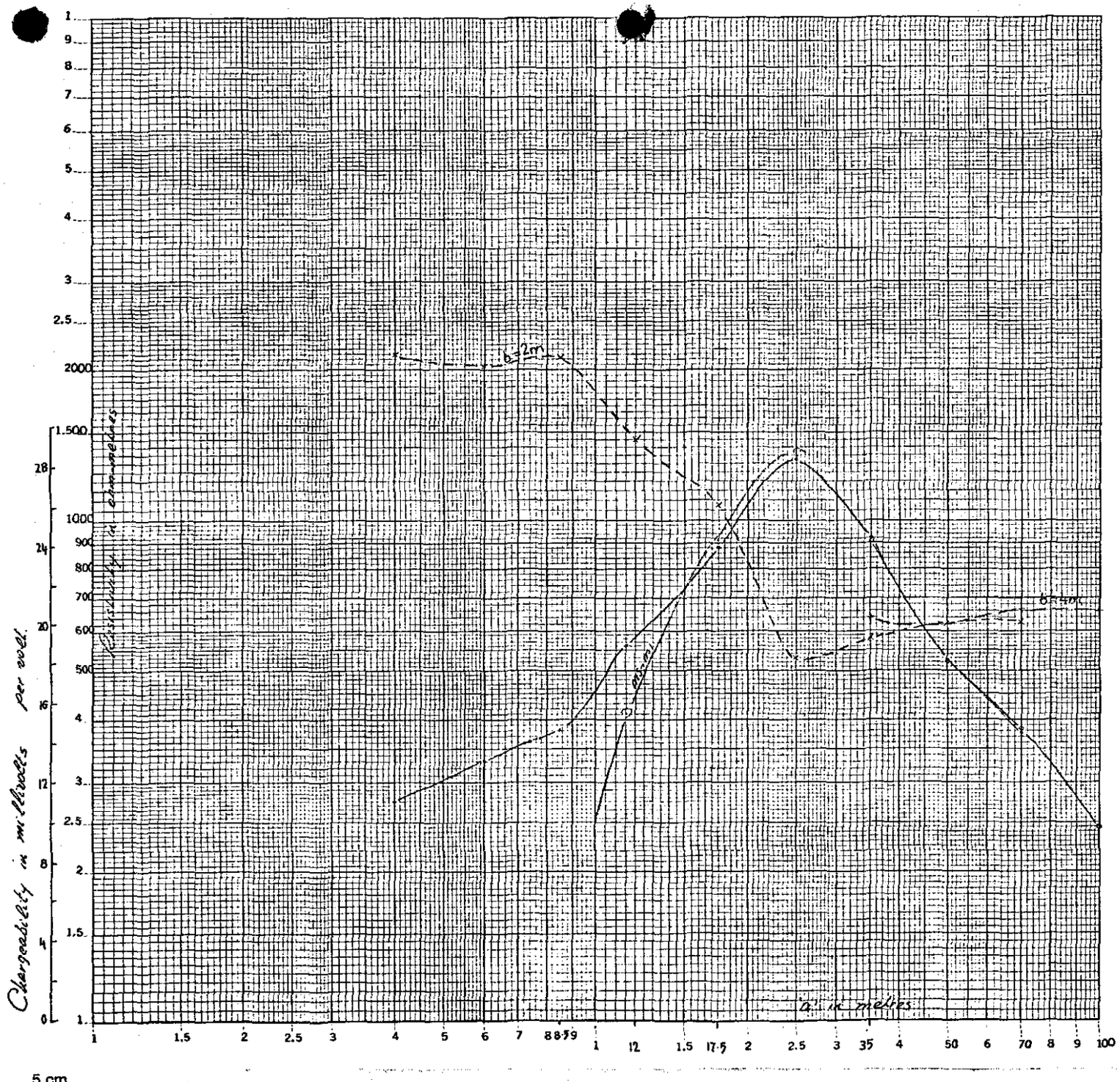
5 cm

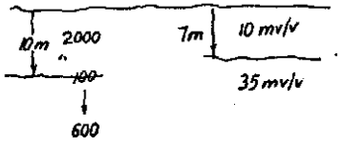
K128 134

Schlumberger Array

ANCHOR MINE AREA

TAS-072





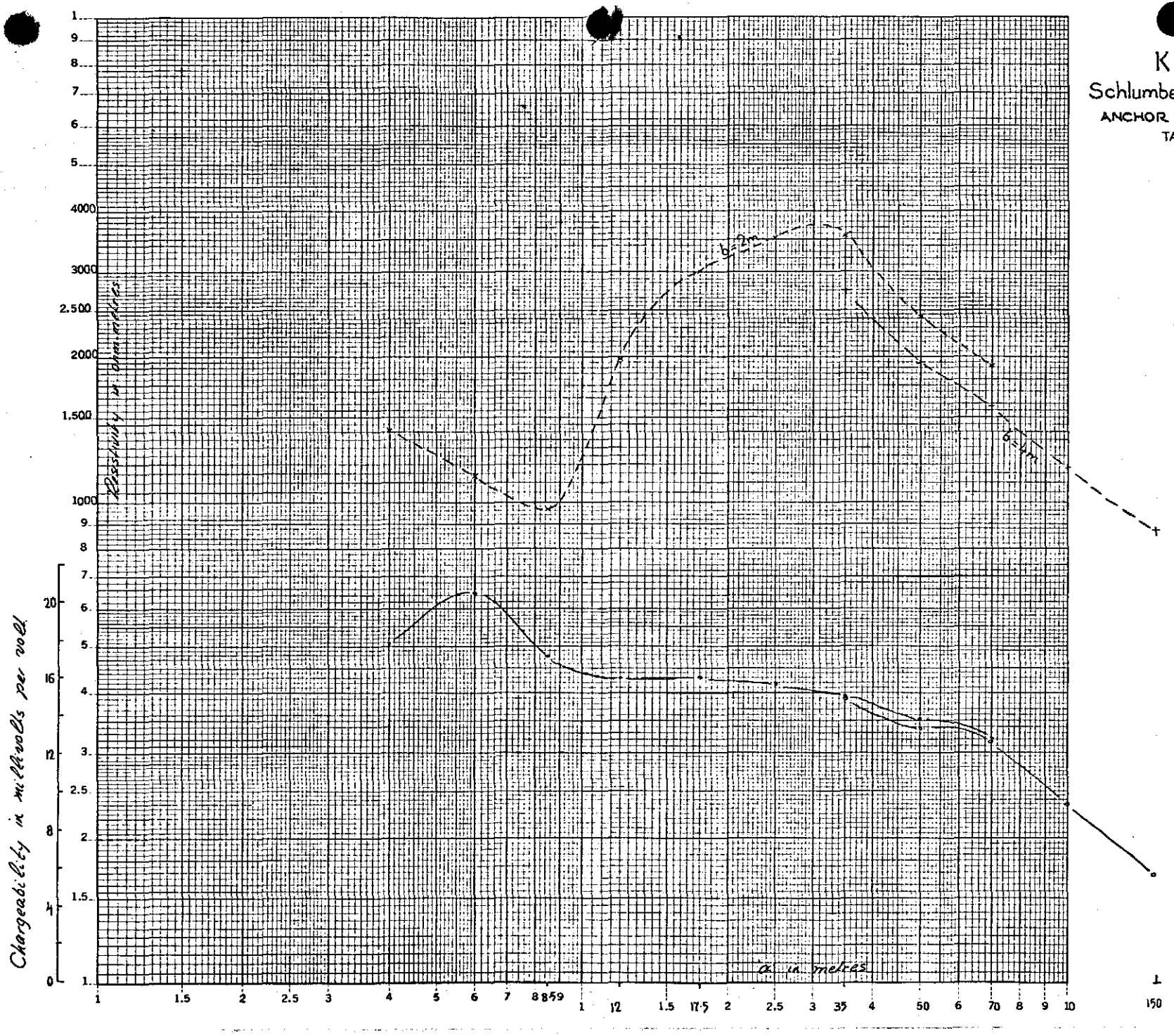
5 cm

K118 135

Schlumberger Array

ANCHOR MINE AREA

TAS-072



⊥
150

5 cm

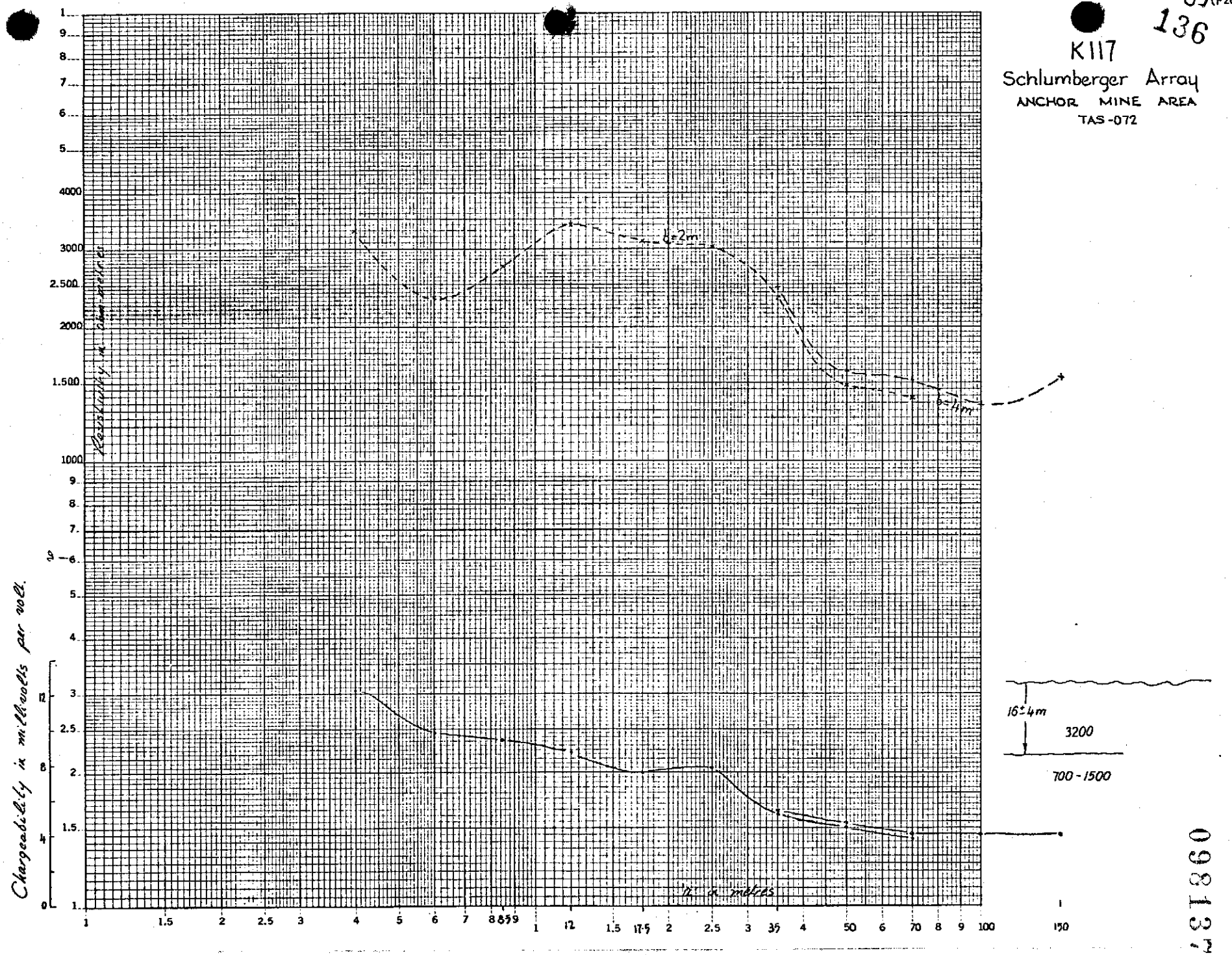
136

K117

Schlumberger Array

ANCHOR MINE AREA

TAS-072



5 cm

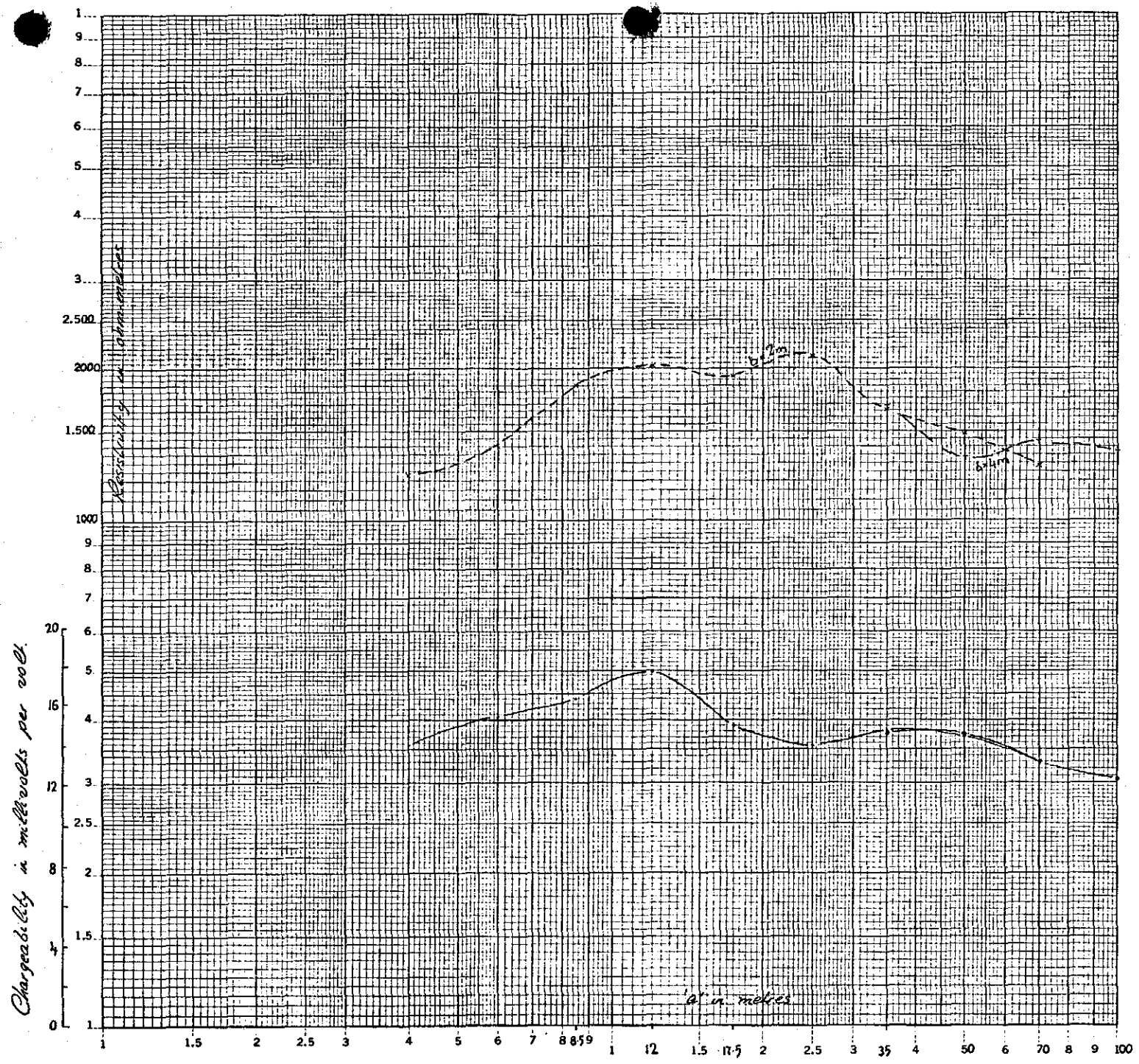
137

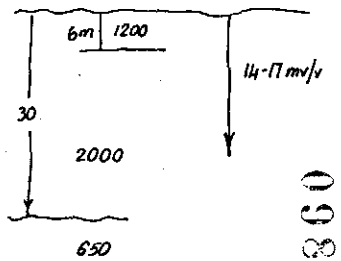
K97

Schlumberger Array

ANCHOR MINE AREA

TAS-072





5 cm

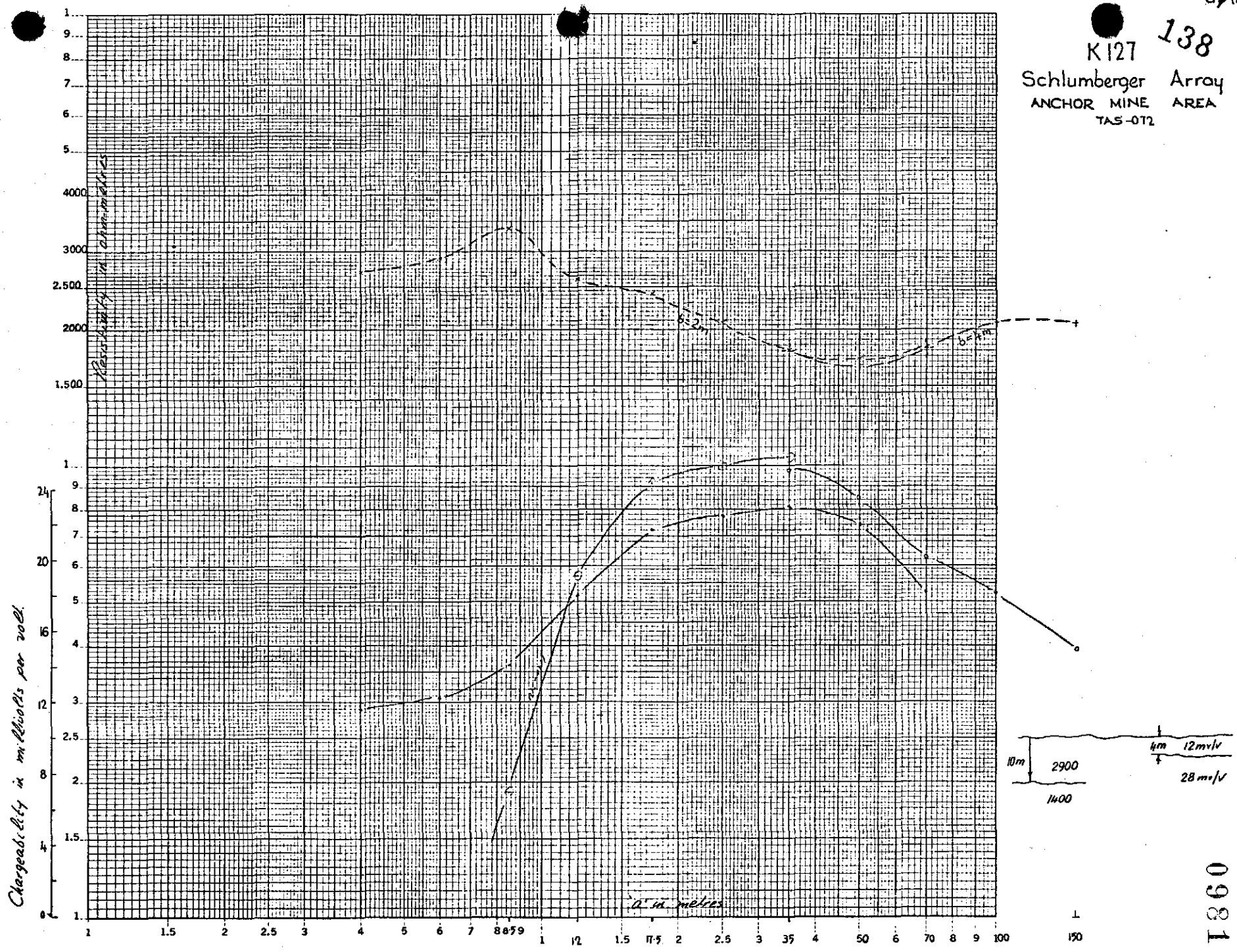
SCT 3660

K127 138

Schlumberger Array

ANCHOR MINE AREA

TAS-072



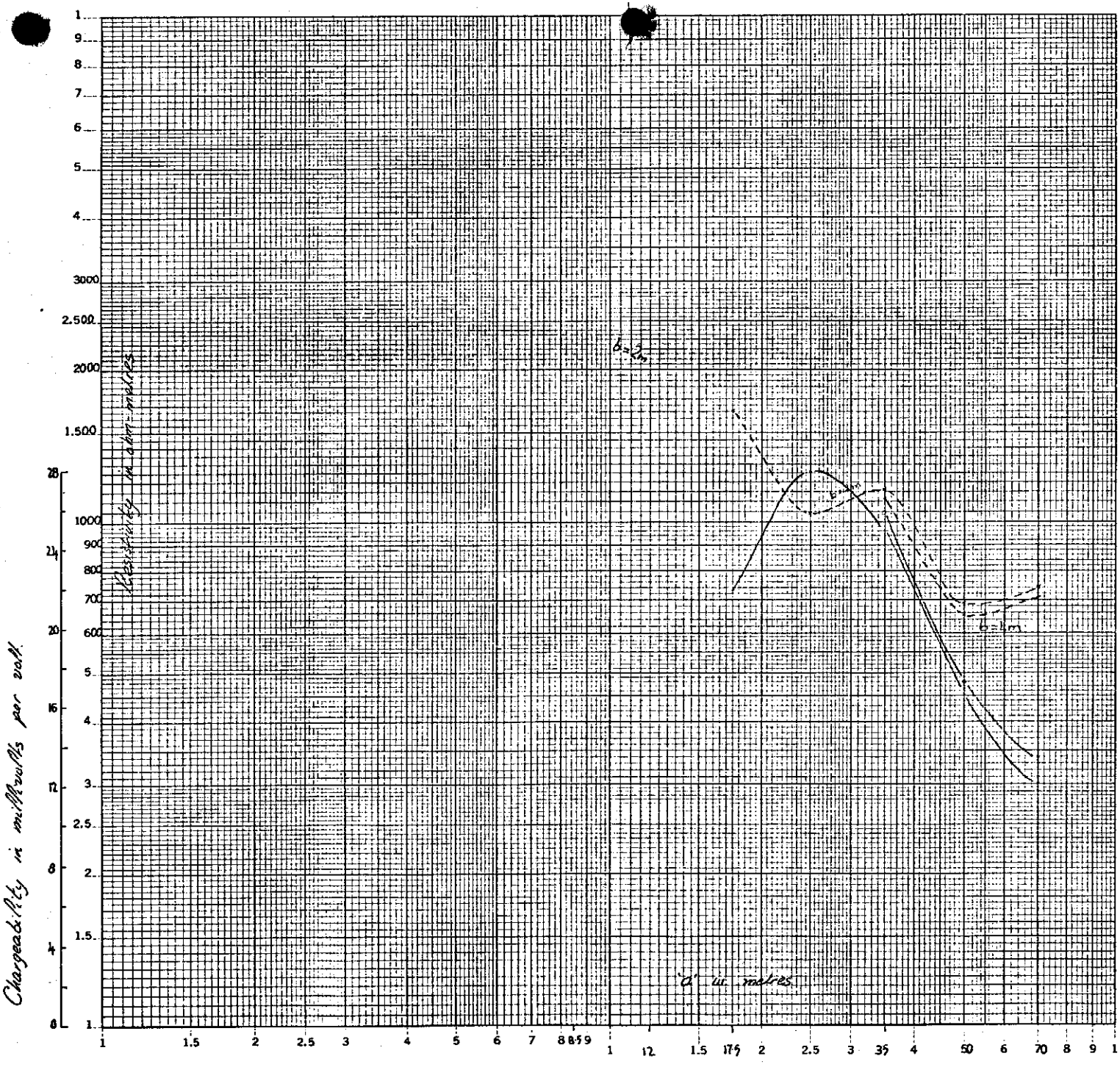
5 cm

K57 (A) 139

Schlumberger Array

ANCHOR MINE AREA

TAS-072



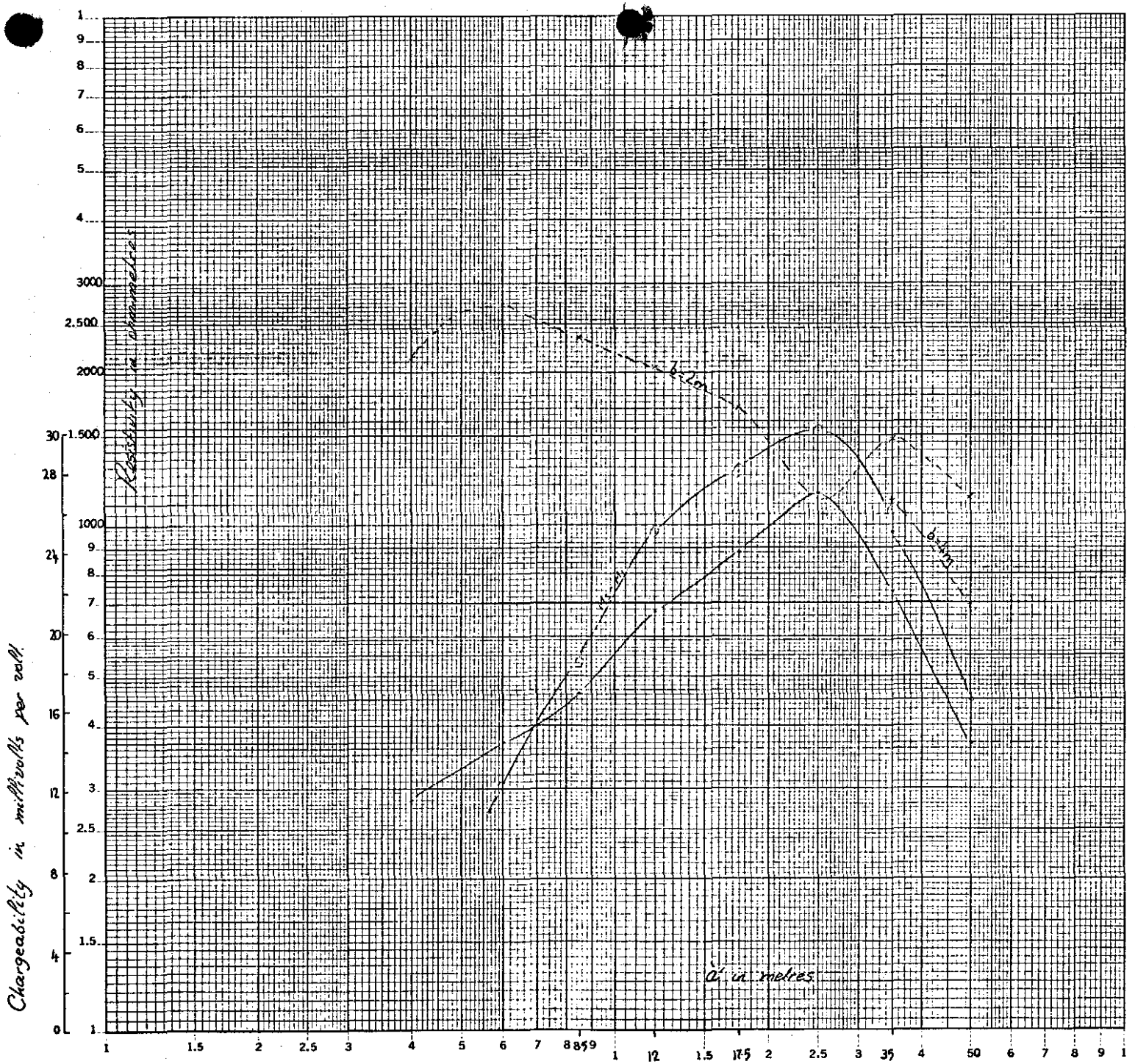
5 cm

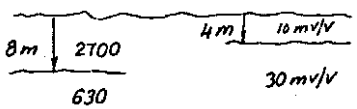
K57 (B)

Schlumberger Array

ANCHOR MINE AREA

TAS-072





5 cm

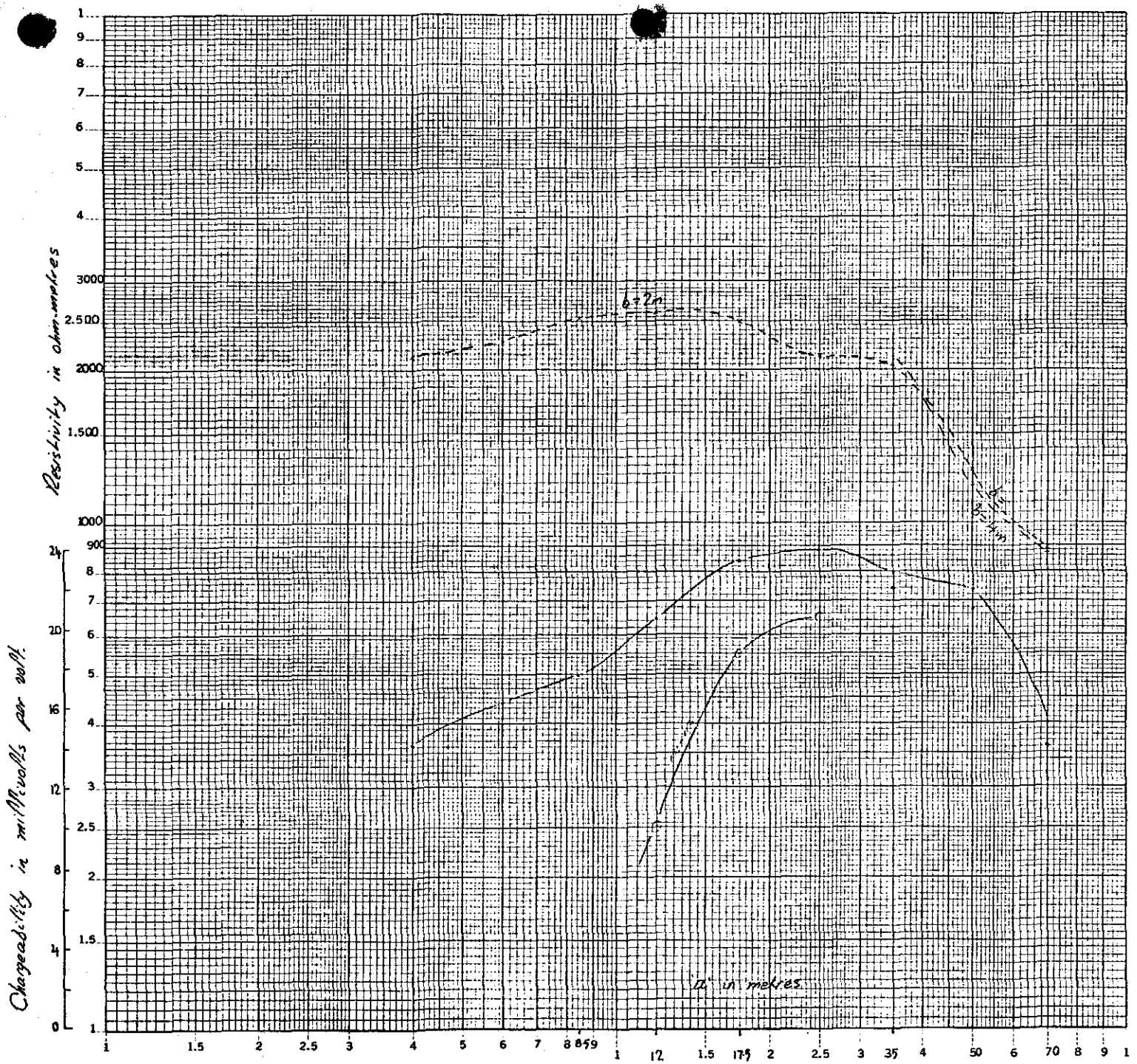
141

K61

Schlumberger Array

ANCHOR MINES AREA

TAS-072



5m 14mv/v

26mv/v

24m

2600

300

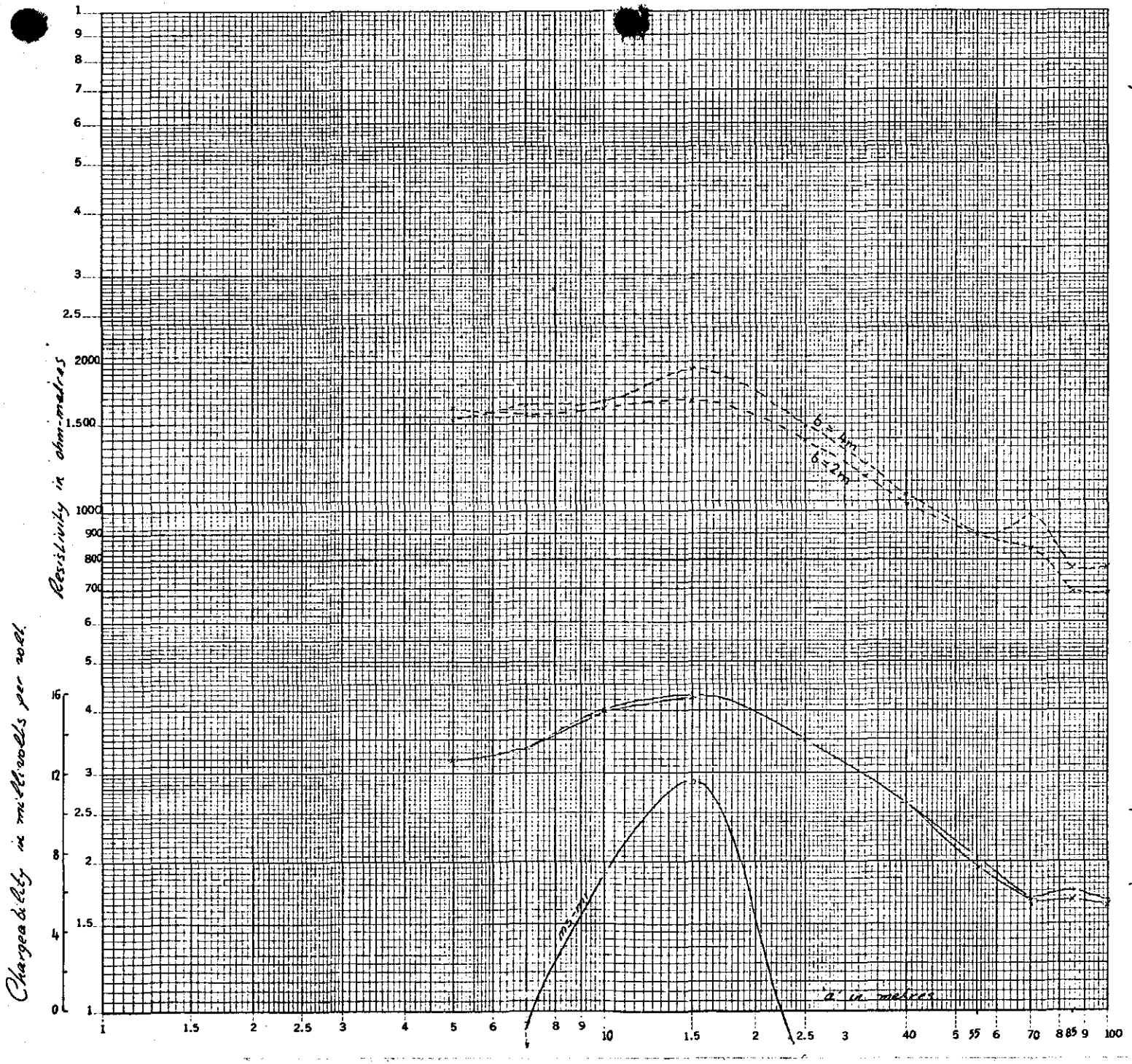
5 cm

K2 142

Schlumberger Array

ANCHOR MINE AREA

TAS-072



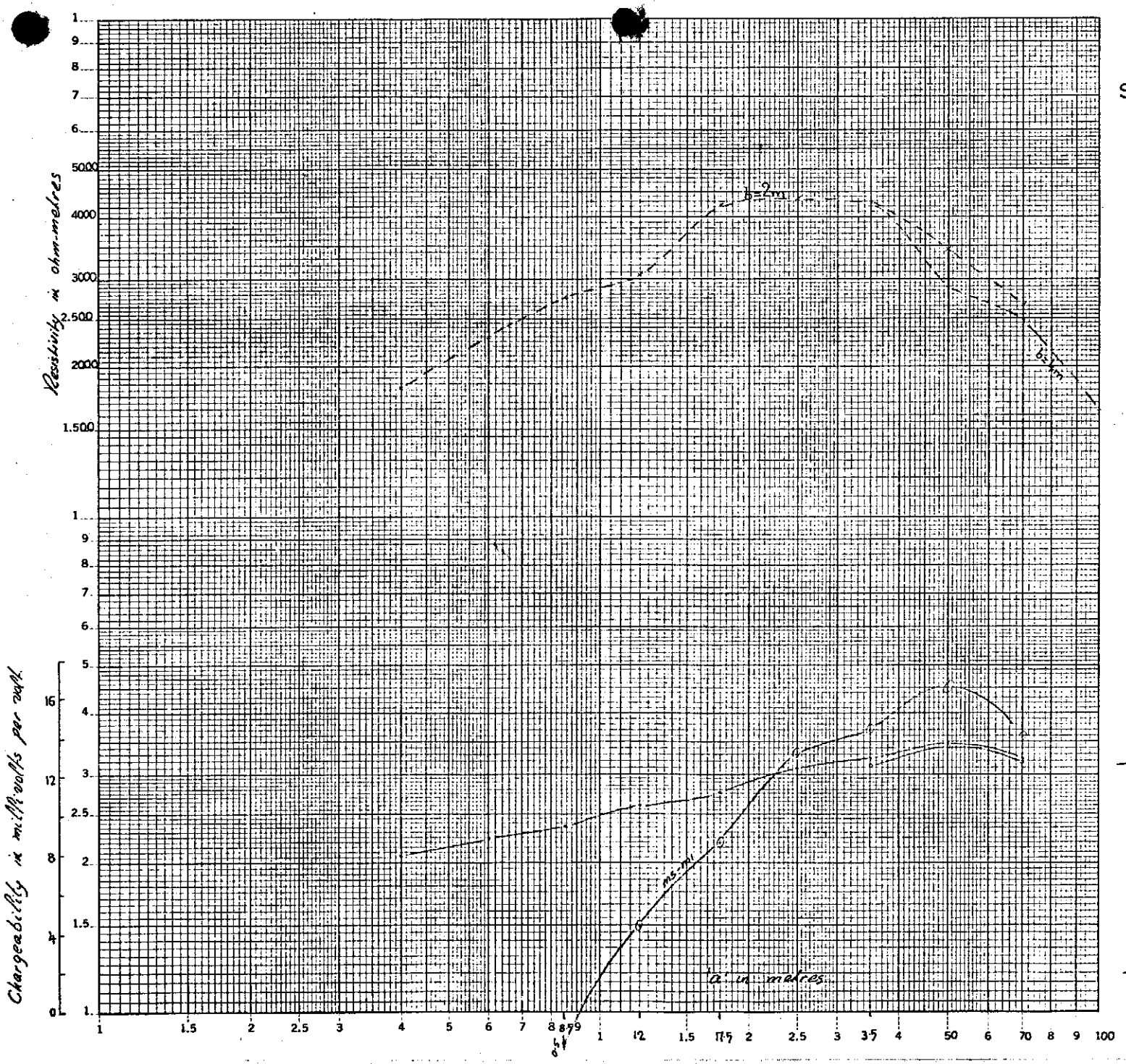
5 cm

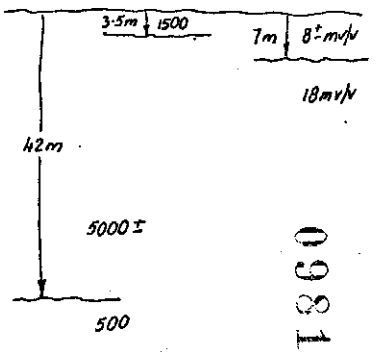
K48 143

Schlumberger Array

ANCHOR MINE AREA

TAS-072





5 cm

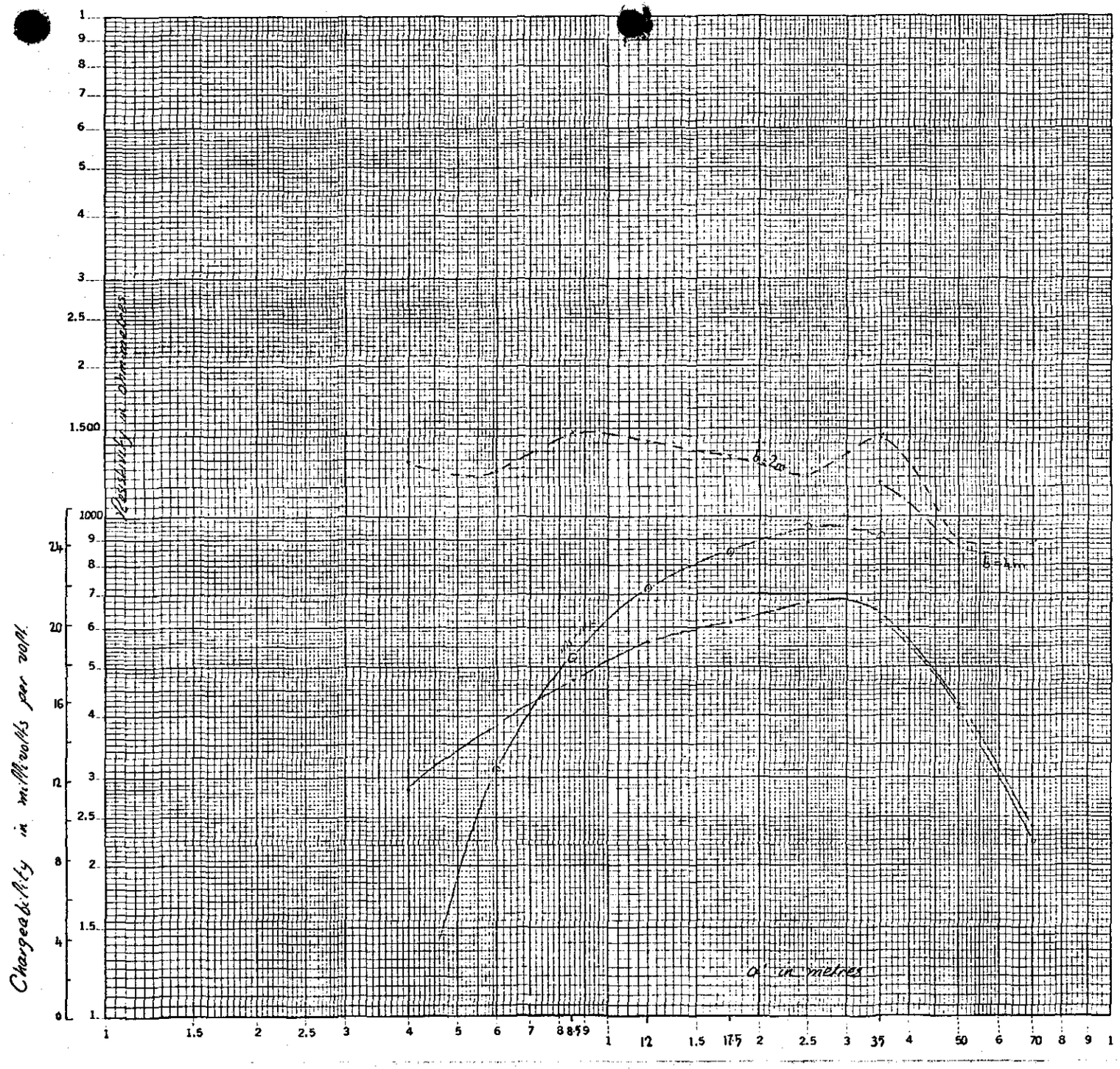
75 (P28)
144

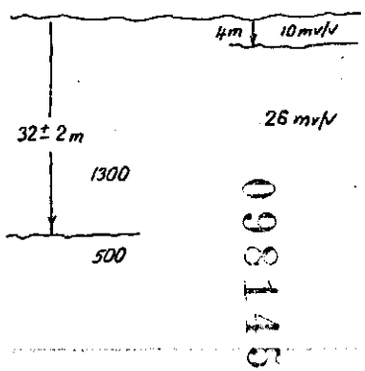
K 47

Schlumberger Array

ANCHOR MINE AREA

TAS-072





63 A 1860

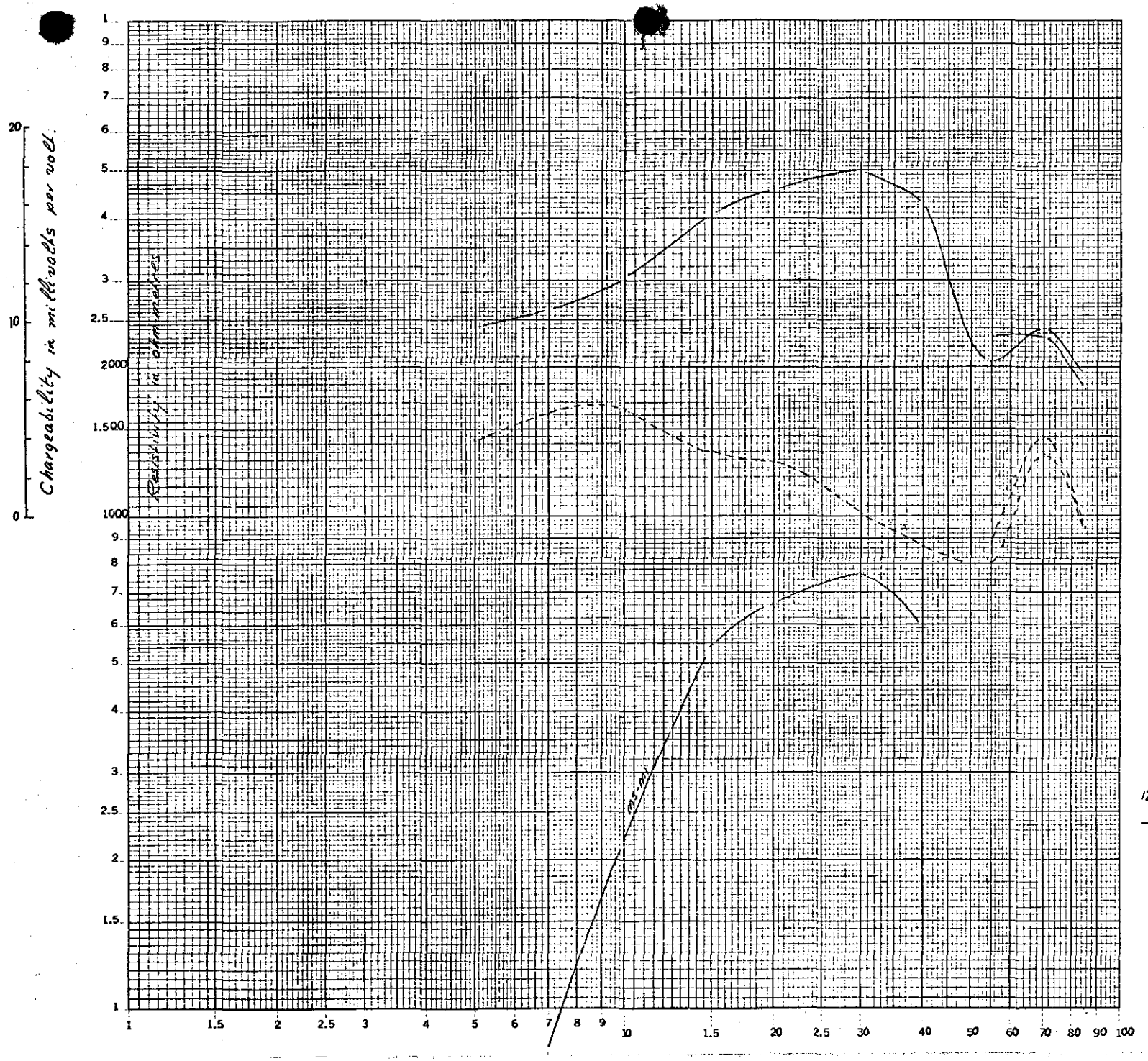
145

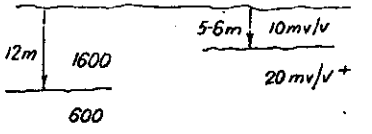
K1

Schlumberger Array

ANCHOR MINE AREA

TAS-072





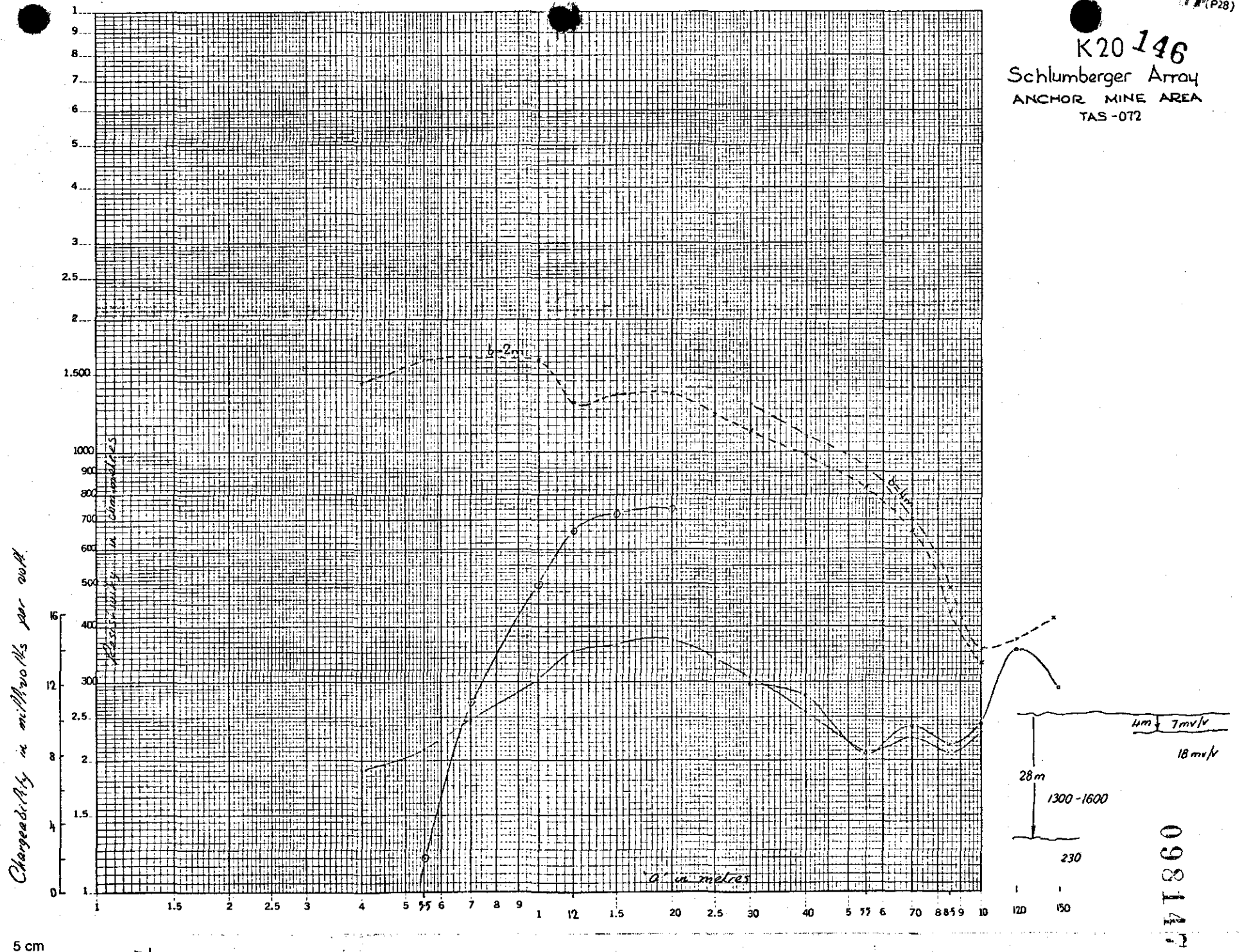
5 cm

K20 146

Schlumberger Array

ANCHOR MINE AREA

TAS-072



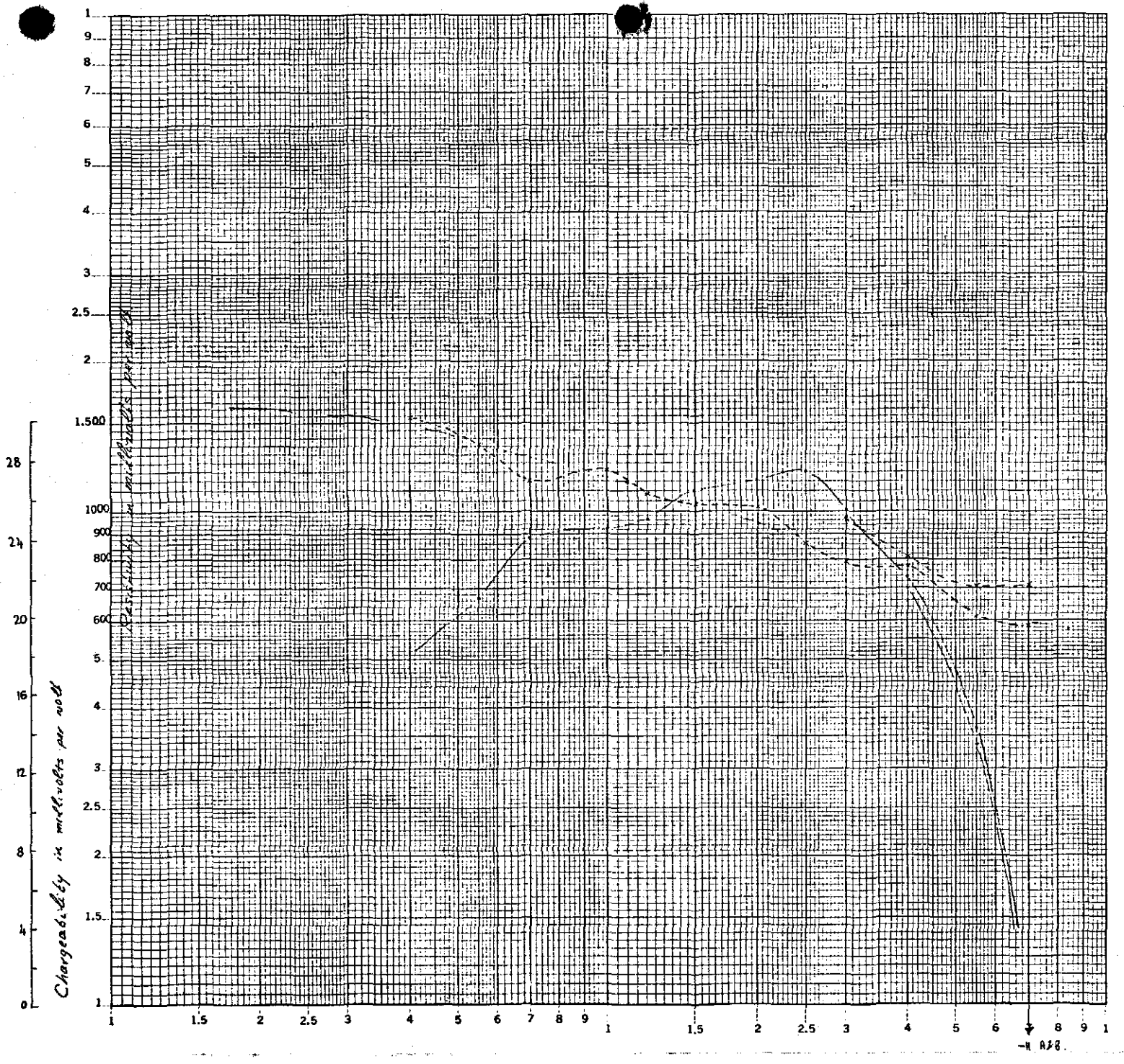
5 cm

K21 147

Schlumberger Array

ANCHOR MINE AREA

TAS-072



3m | 1600 | 3m | 17 mv/v

800 ↓ lower

35 mv/v ↓ lower

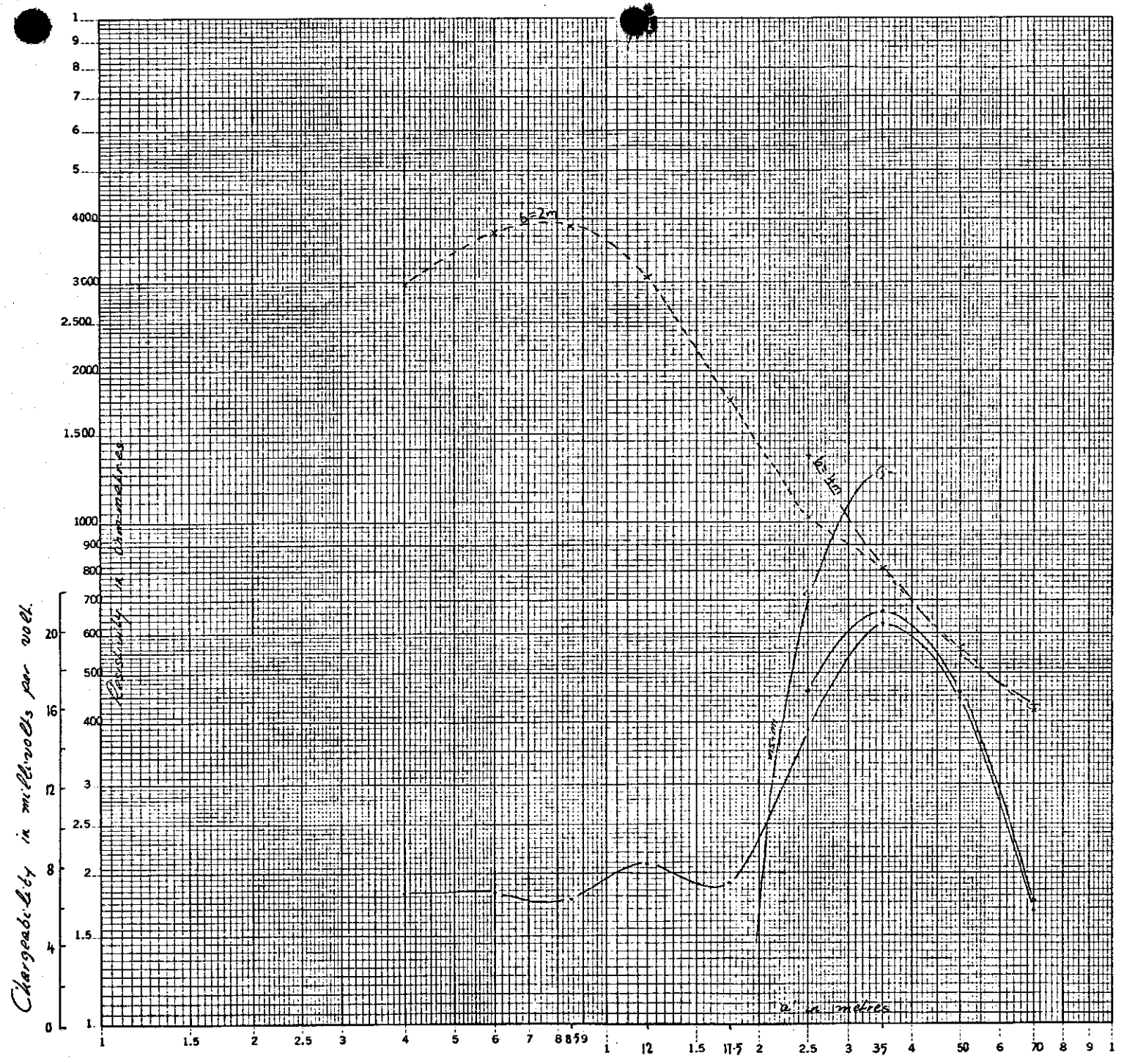
5 cm

K130

Schlumberger Array

ANCHOR MINE AREA

TAS-072



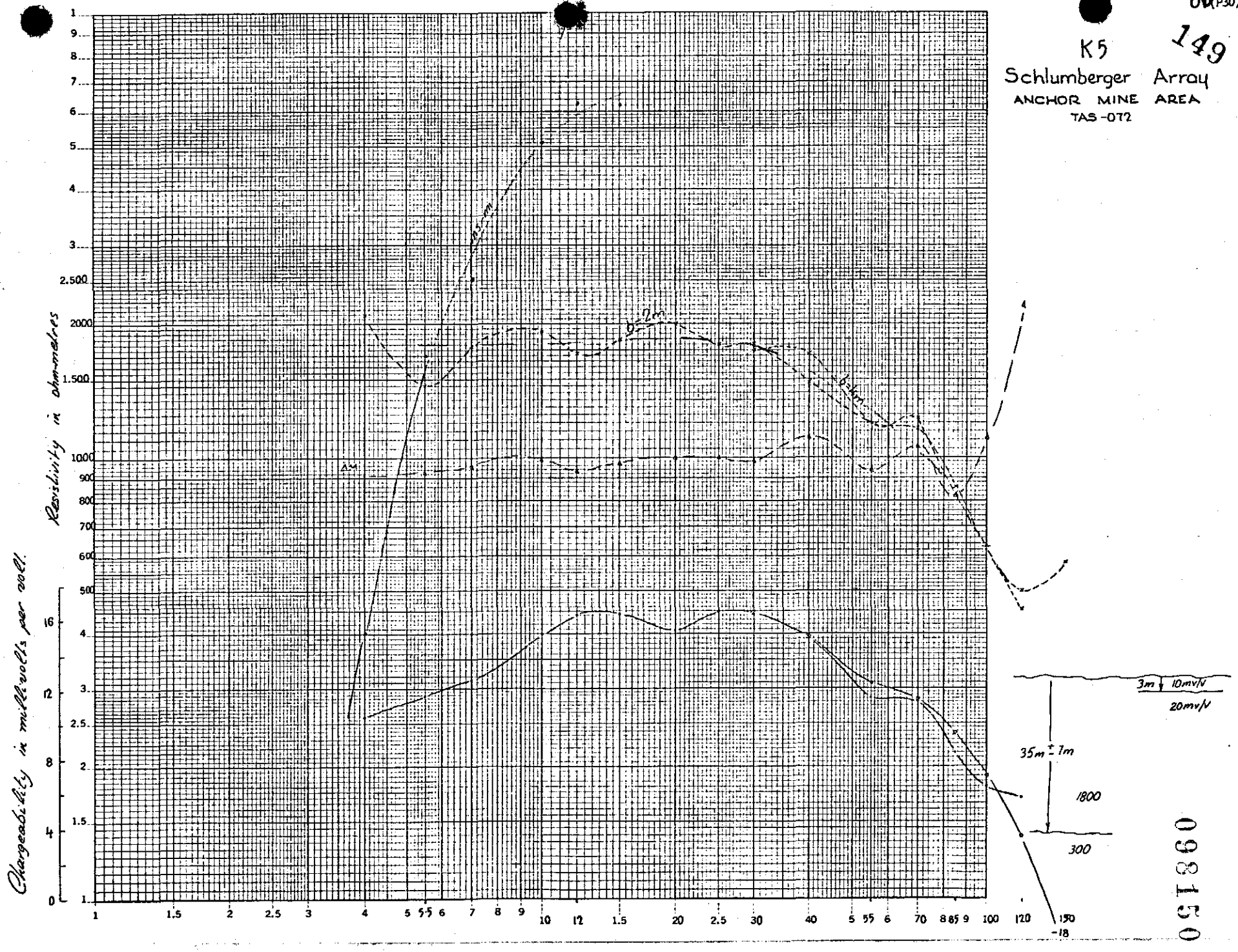
5 cm

K5 149

Schlumberger Array

ANCHOR MINE AREA

TAS-072



5 cm

OCT 360

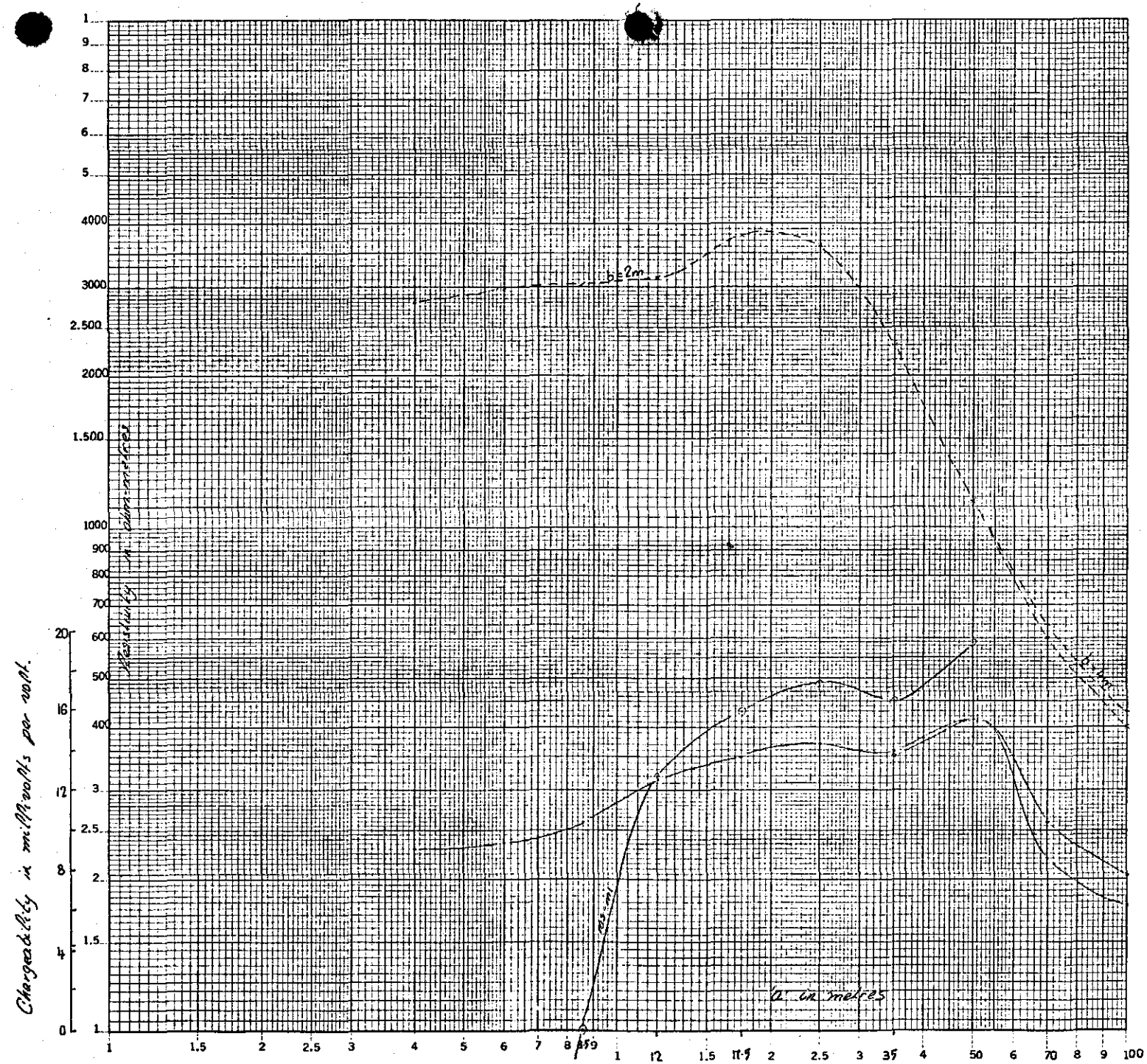
81 30)

K32 150

Schlumberger Array

ANCHOR MINE AREA

TAS-072



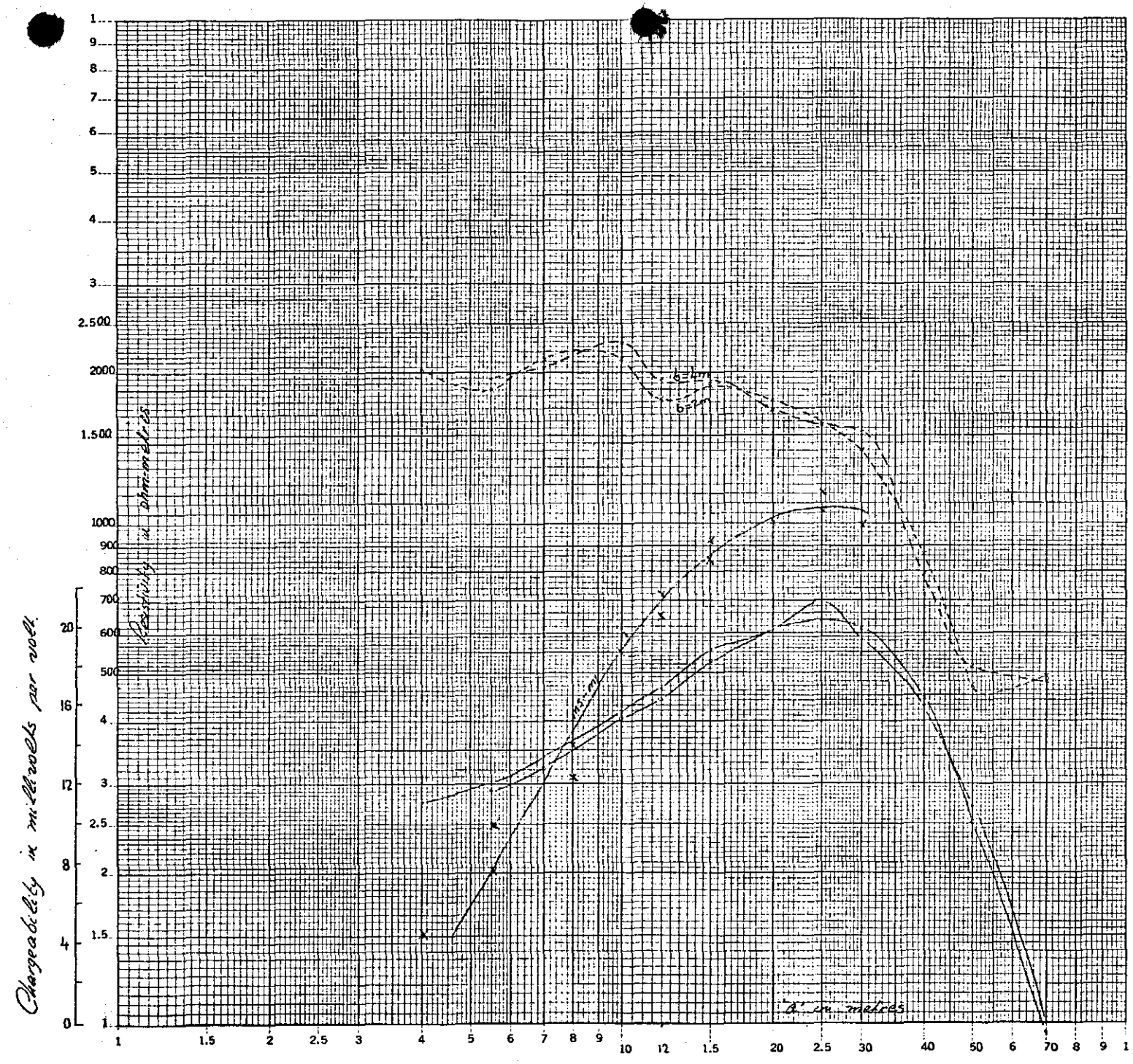
5 cm

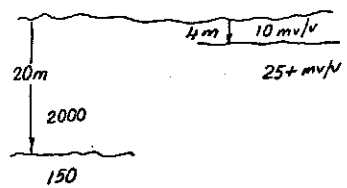
K6 151

Schlumberger Array

ANCHOR MINE AREA

TAS-072





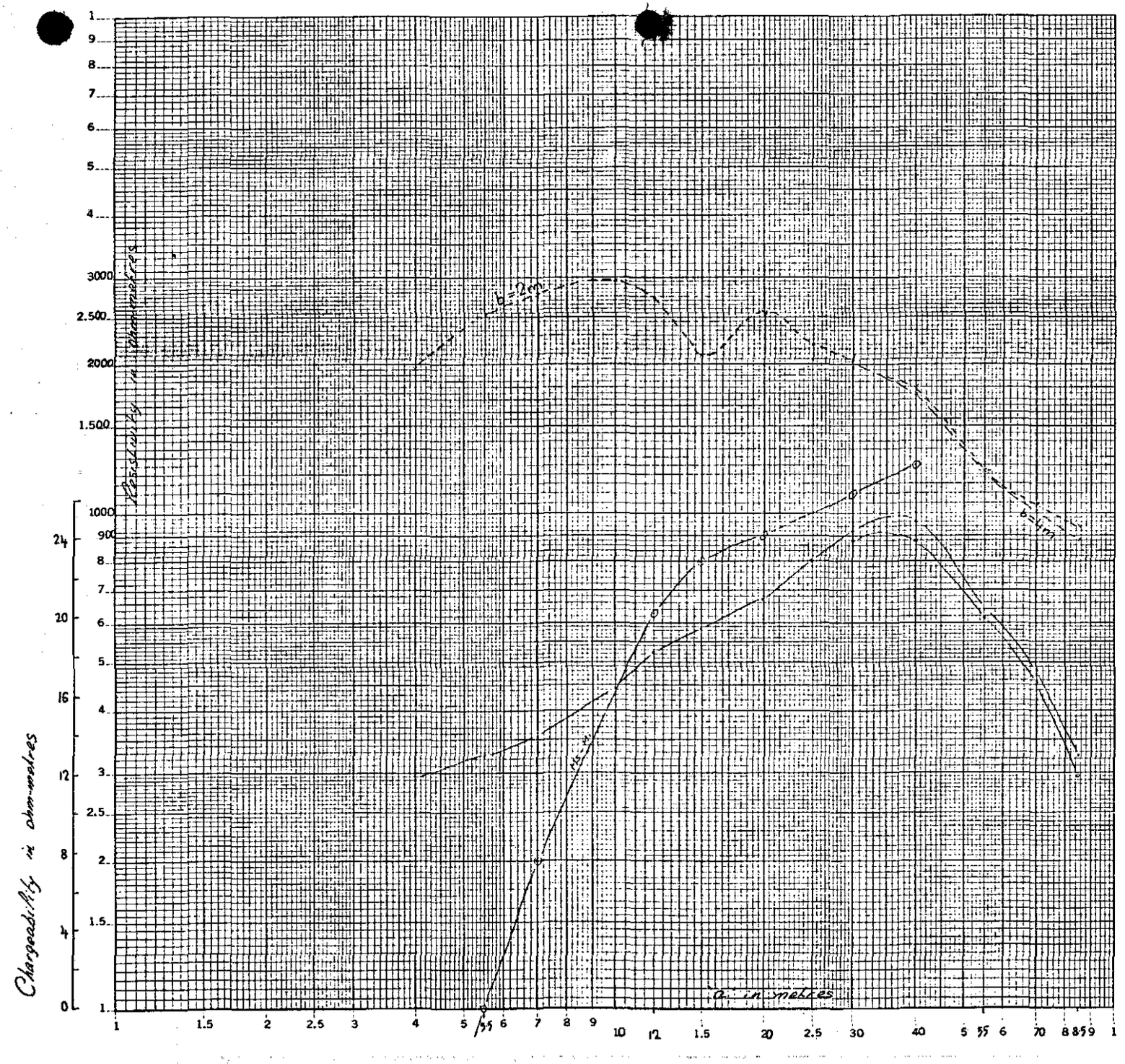
5 cm

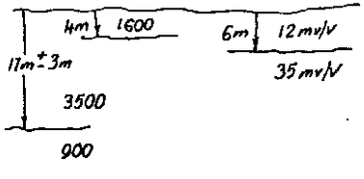
K22 152

Schlumberger Array

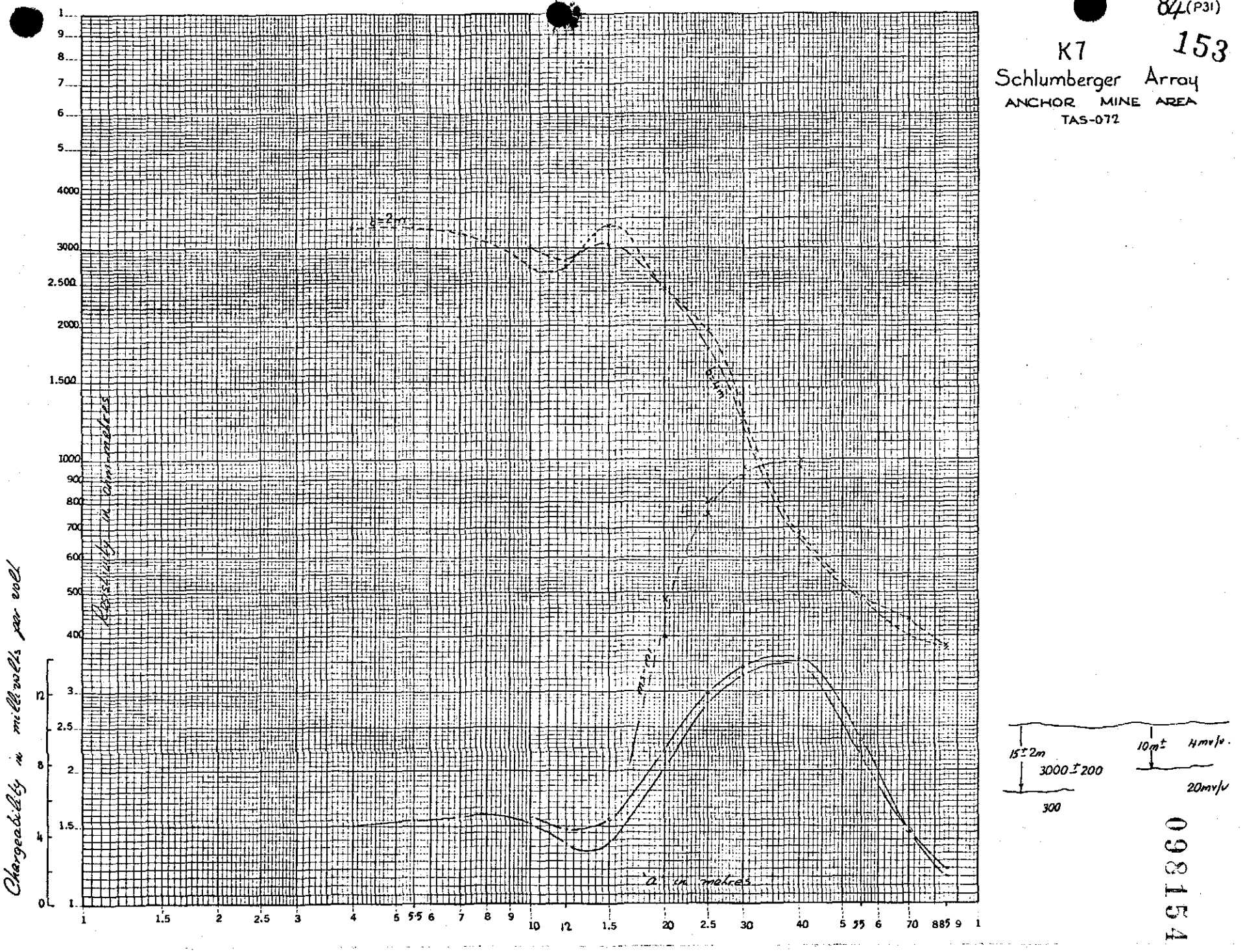
ANCHOR MINE AREA

TAS-072





5 cm



84 (P31)

K7 153

Schlumberger Array

ANCHOR MINE AREA

TAS-072

A91360

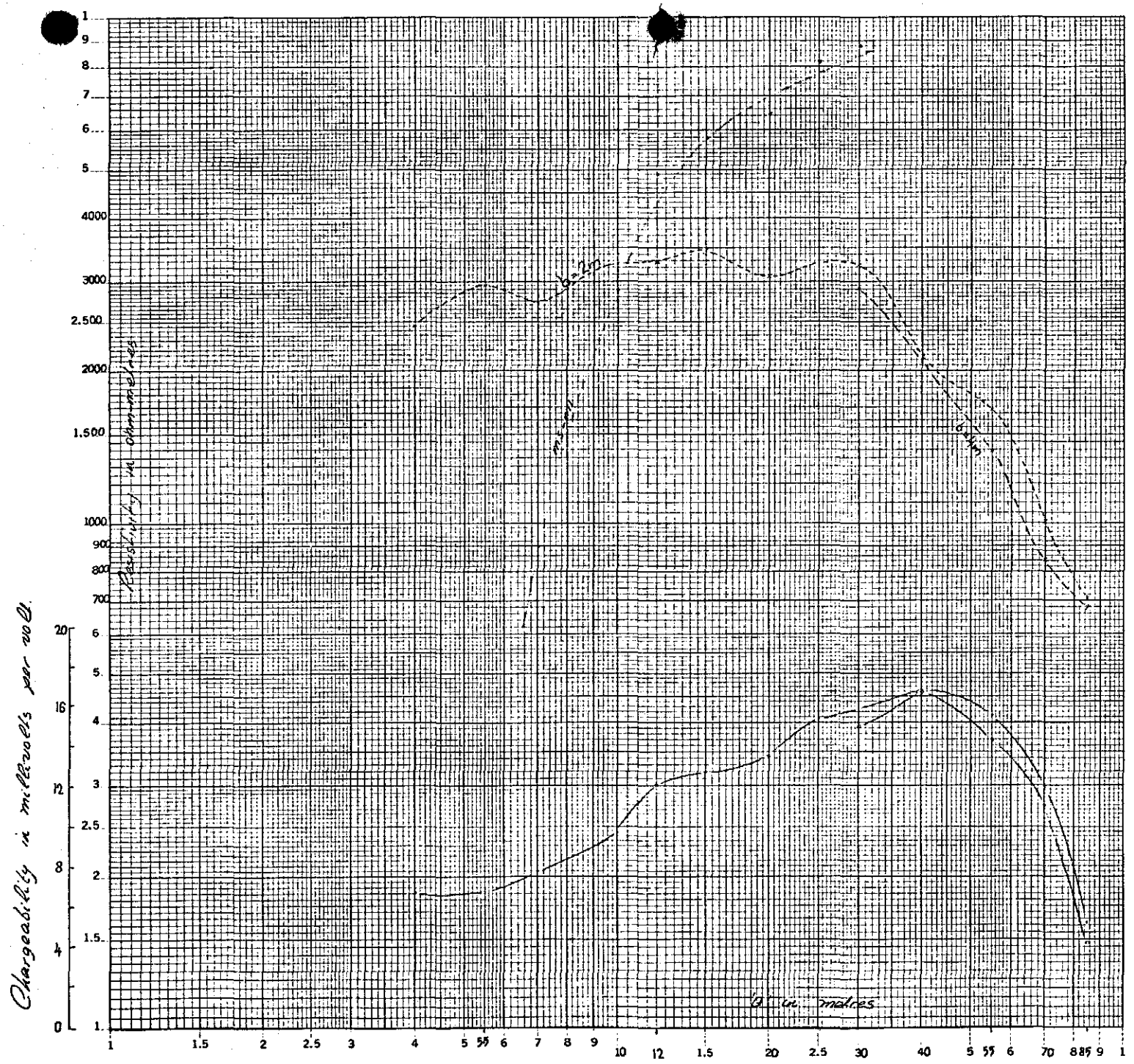
5 cm

K8

Schlumberger Array

ANCHOR MINE AREA

TAS -072



5m 7mv/v

22mv/v

20m

3000 ± 200

170

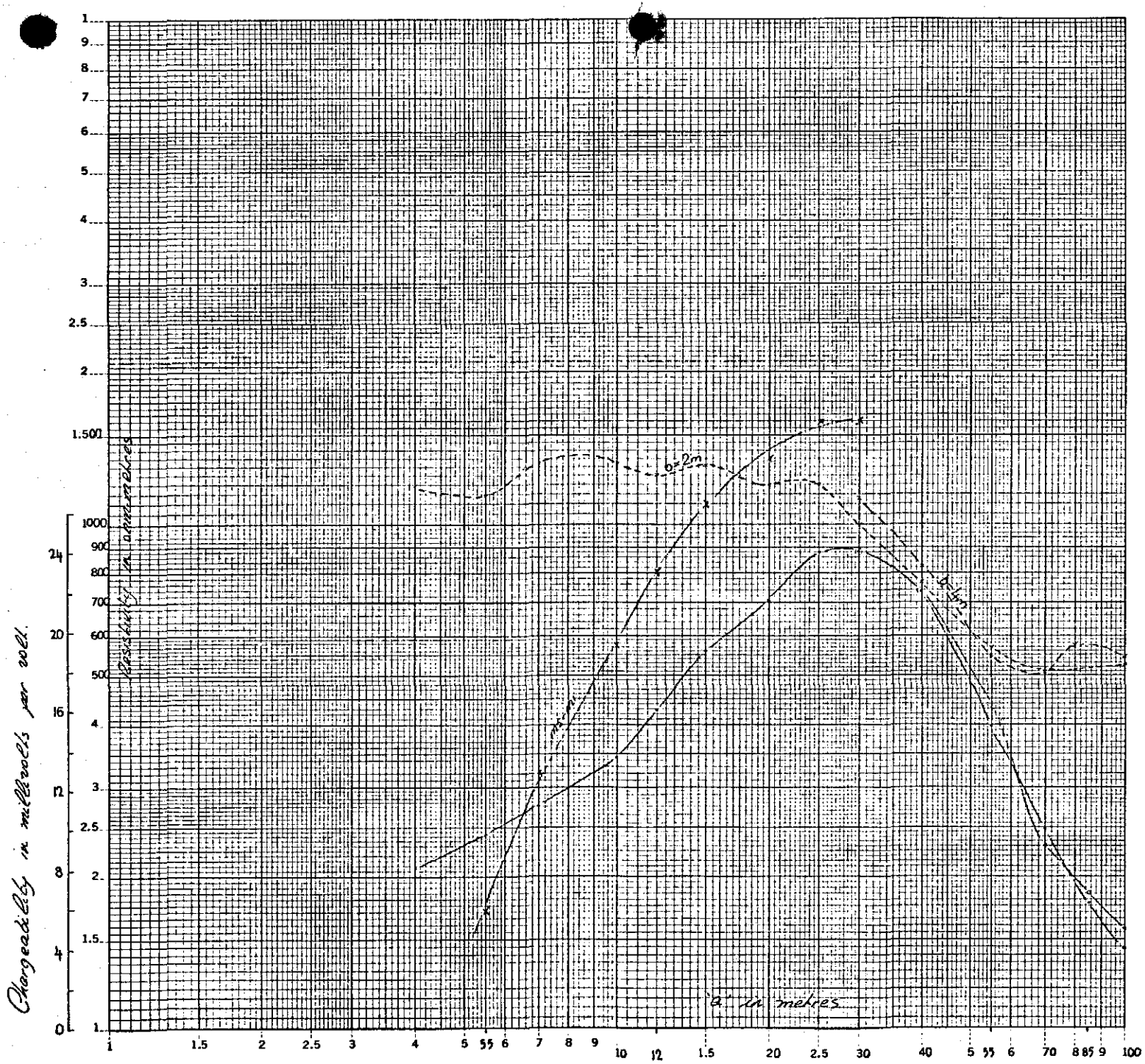
86 (P32)

K9 155

Schlumberger Array

ANCHOR MINE AREA

TAS-072



5 cm

9CT360

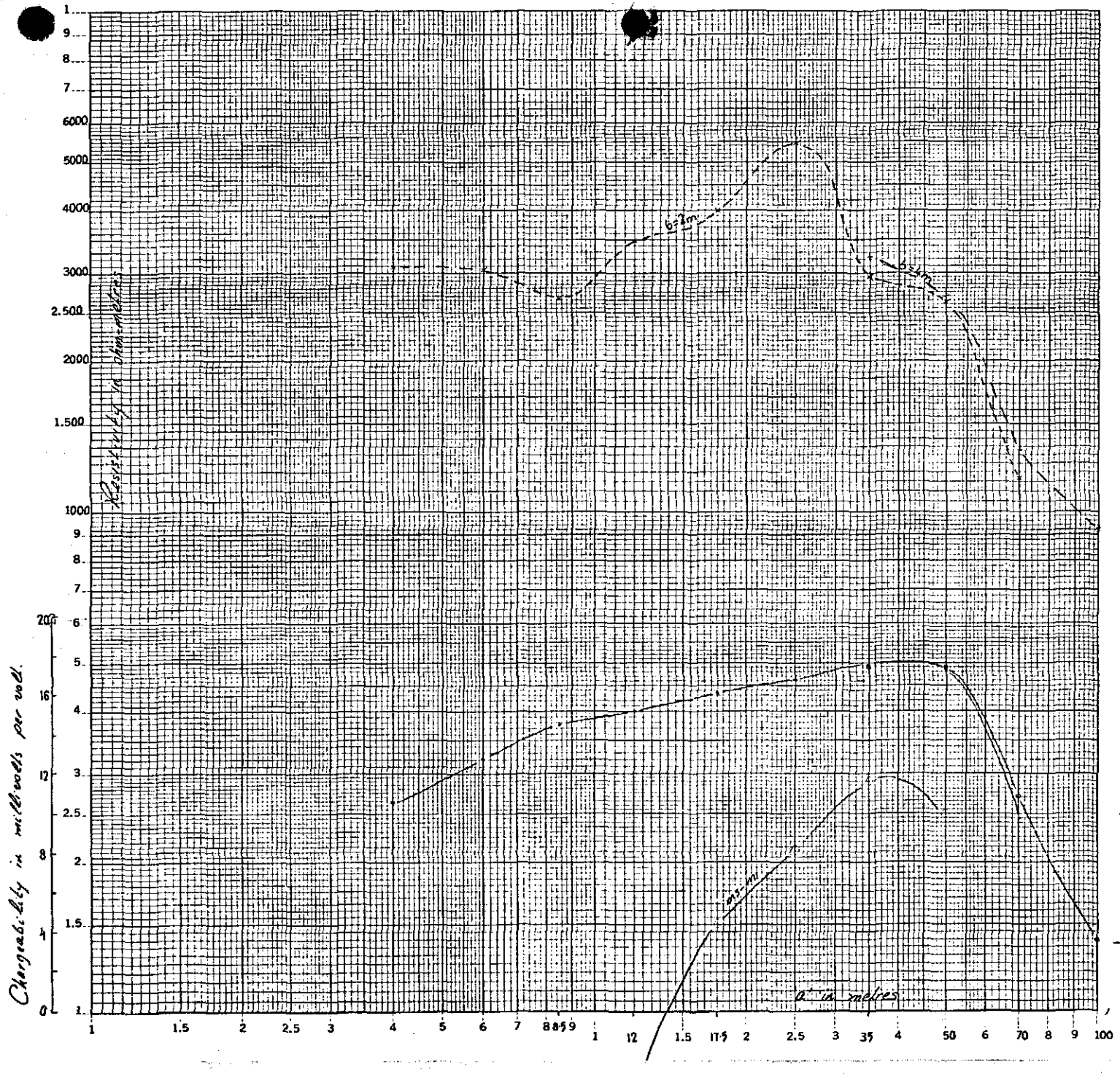
K 112

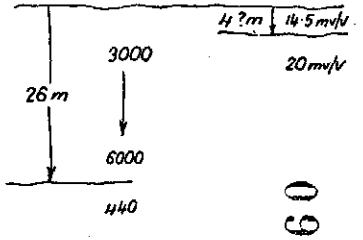
Schlumberger Array

ANCHOR MINE AREA

TAS-072

156





5 cm

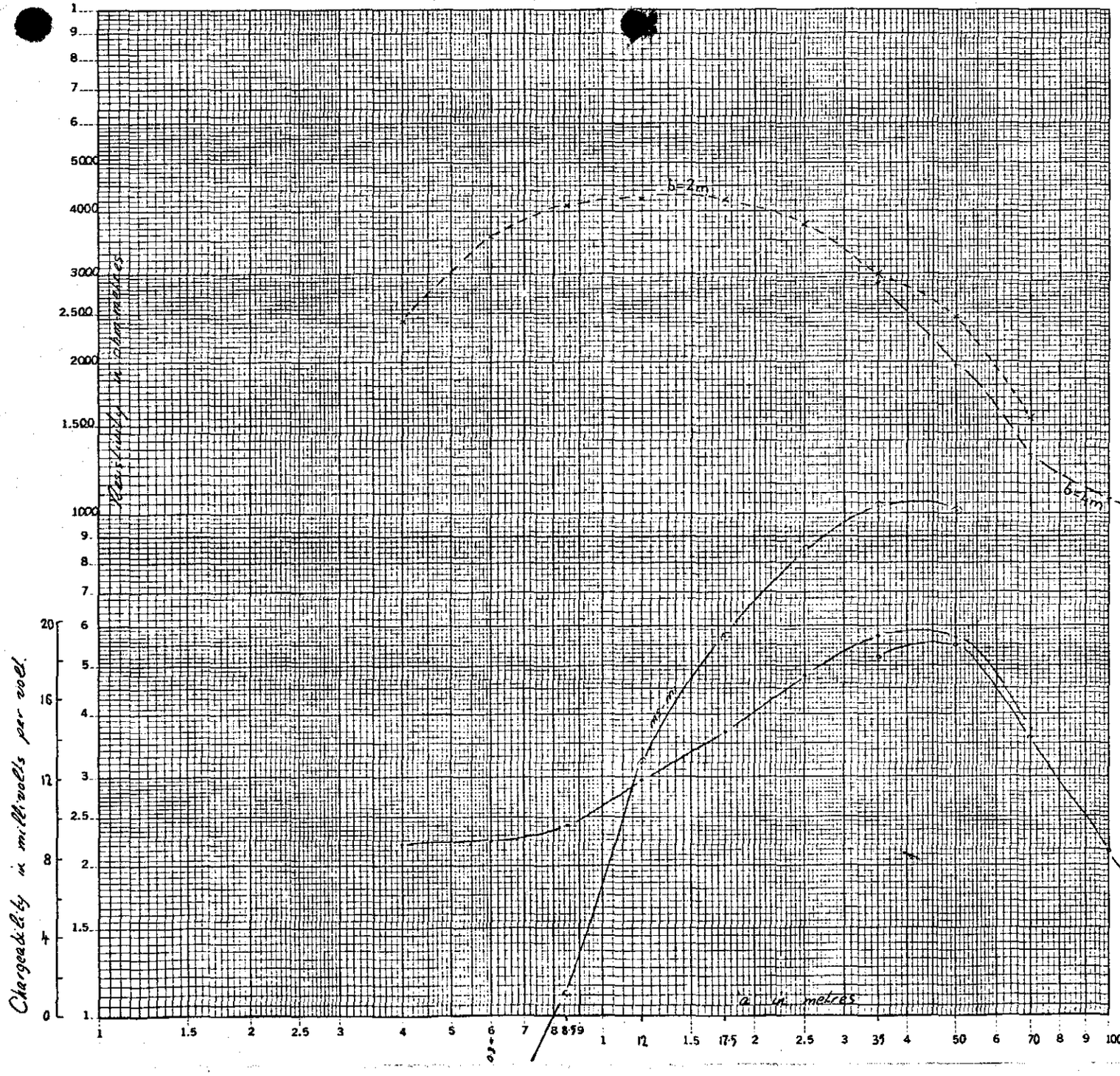
CT 860

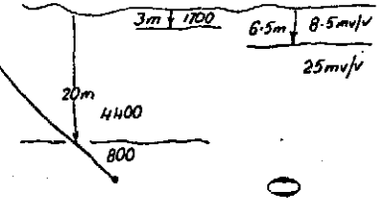
K110 157

Schlumberger Array

ANCHOR MINE AREA

TAS - 072





5 cm

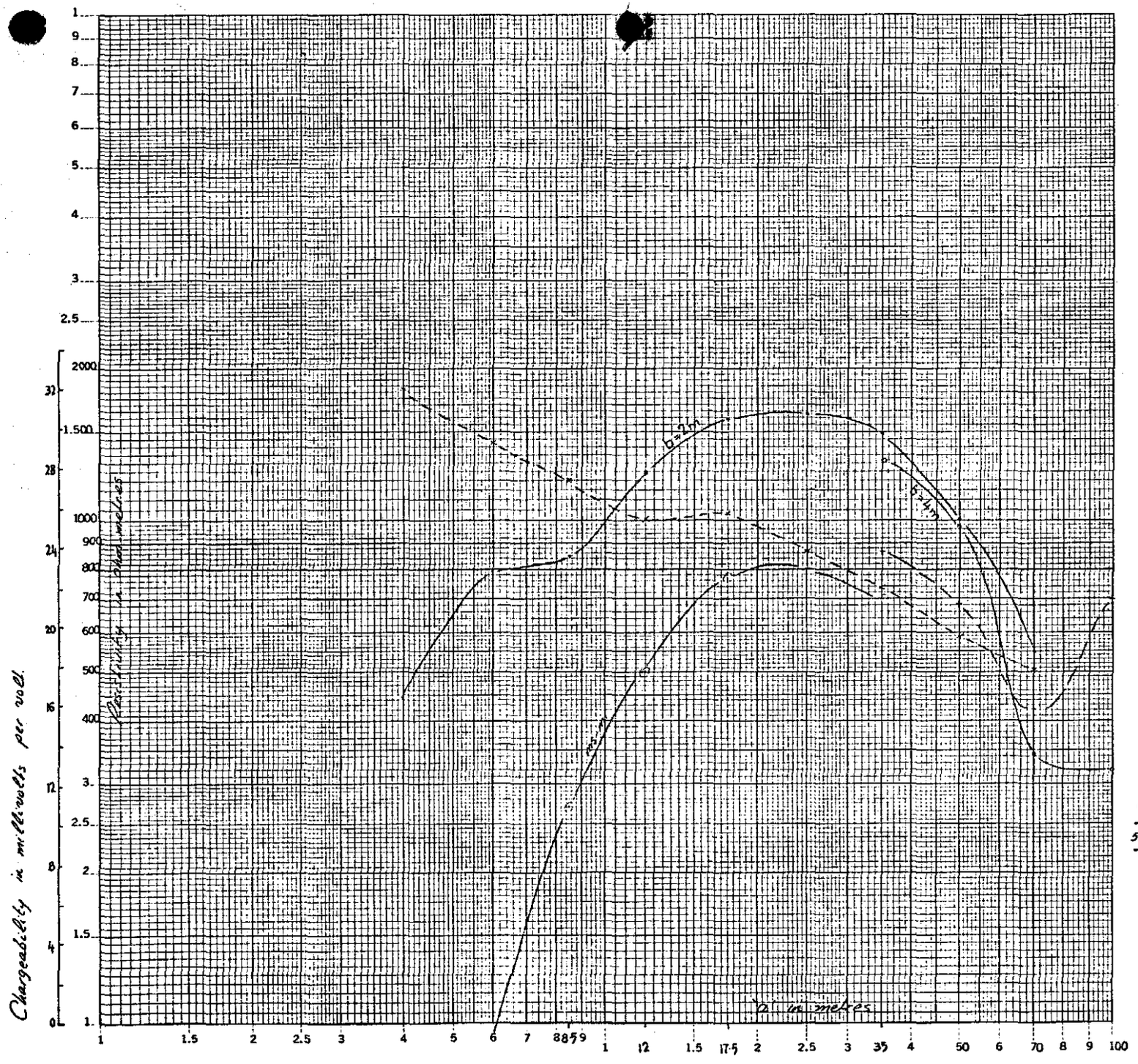
09 1360

K111

Schlumberger Array

ANCHOR MINE AREA

TAS-072



approx.

5±2m | 2100 | 4m | 16mv/v

600 | 35mv/v

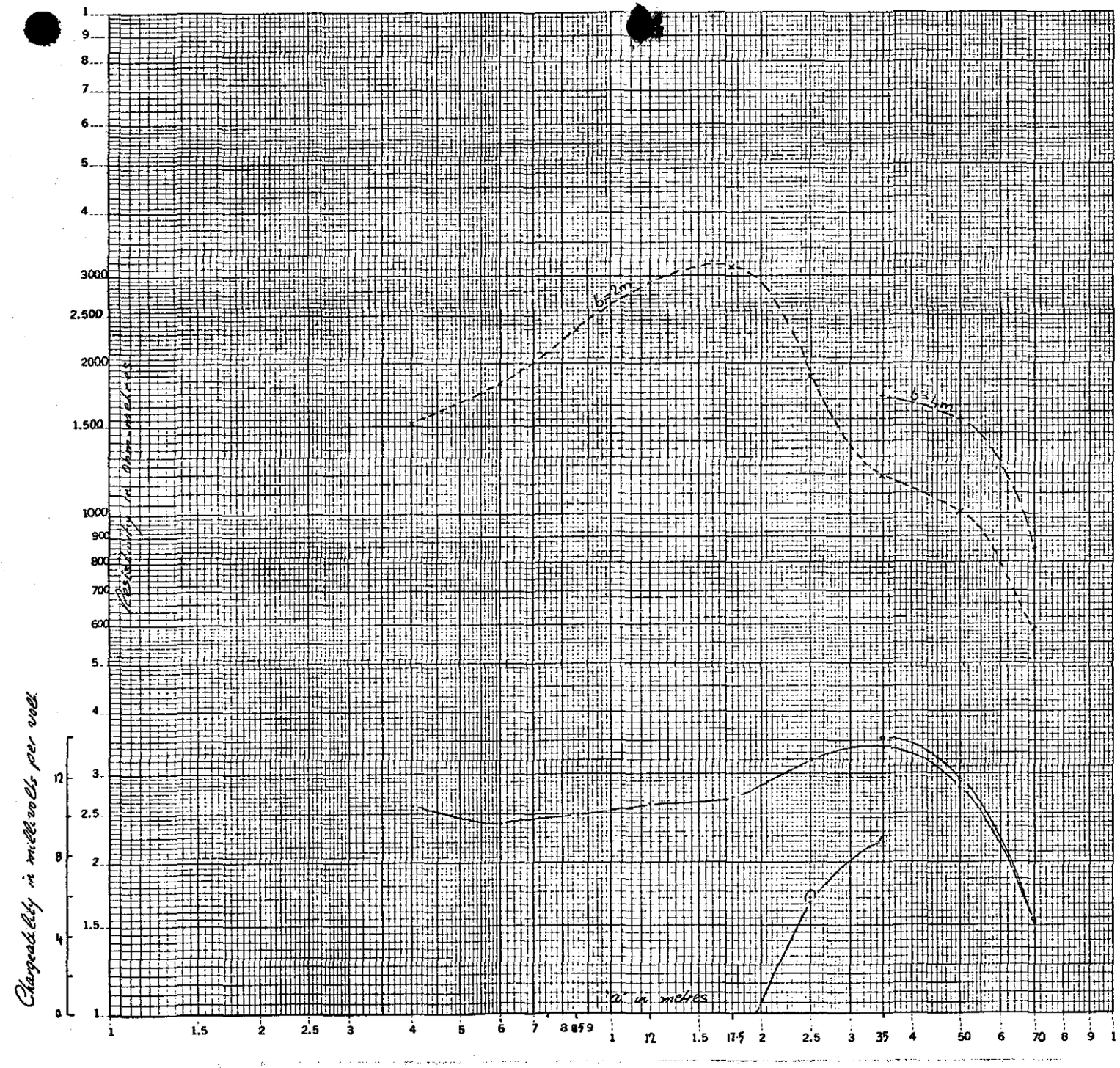
5 cm

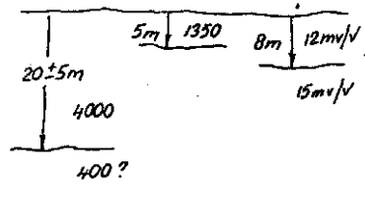
K101

Schlumberger Array

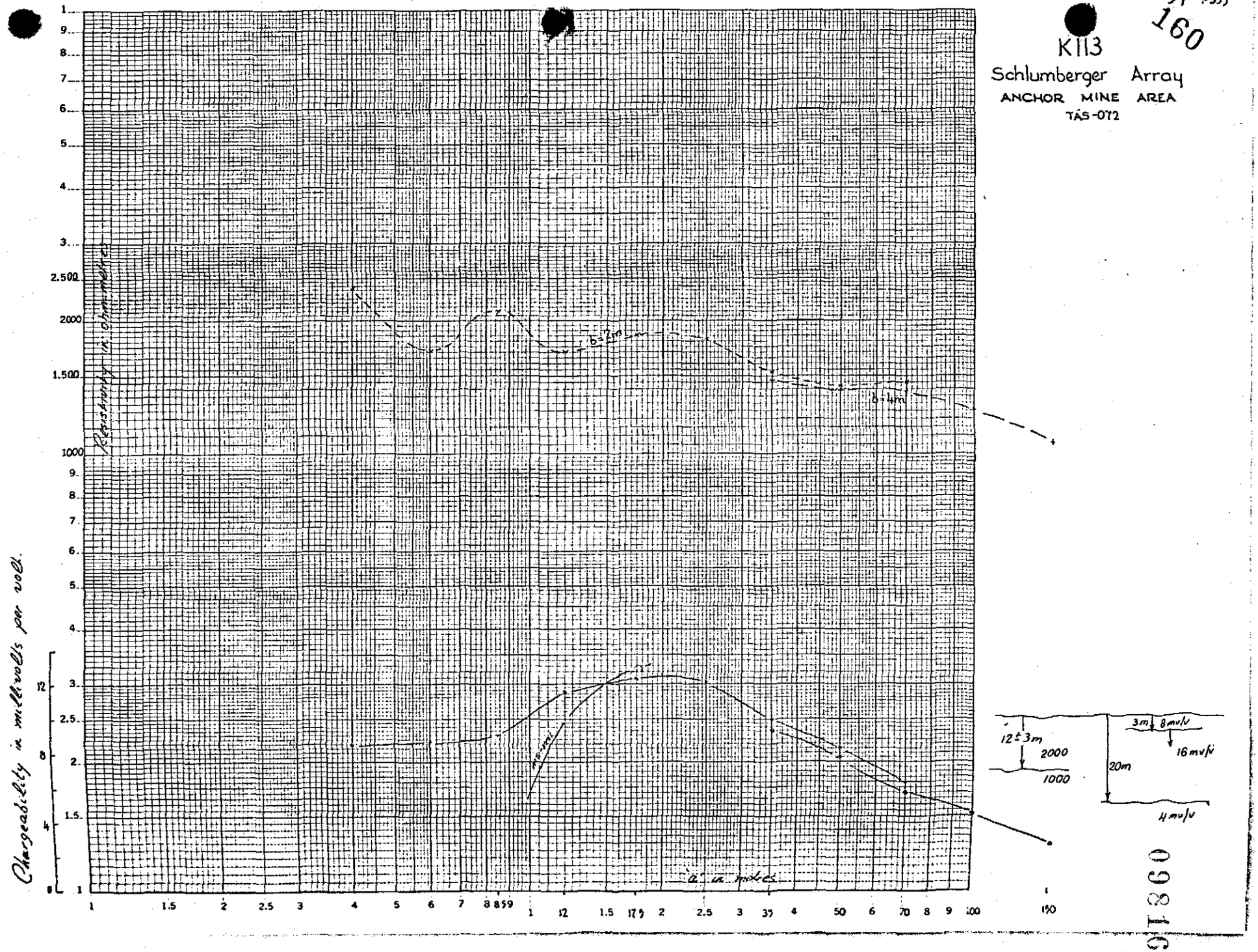
ANCHOR MINE AREA

TAS-072





5 cm

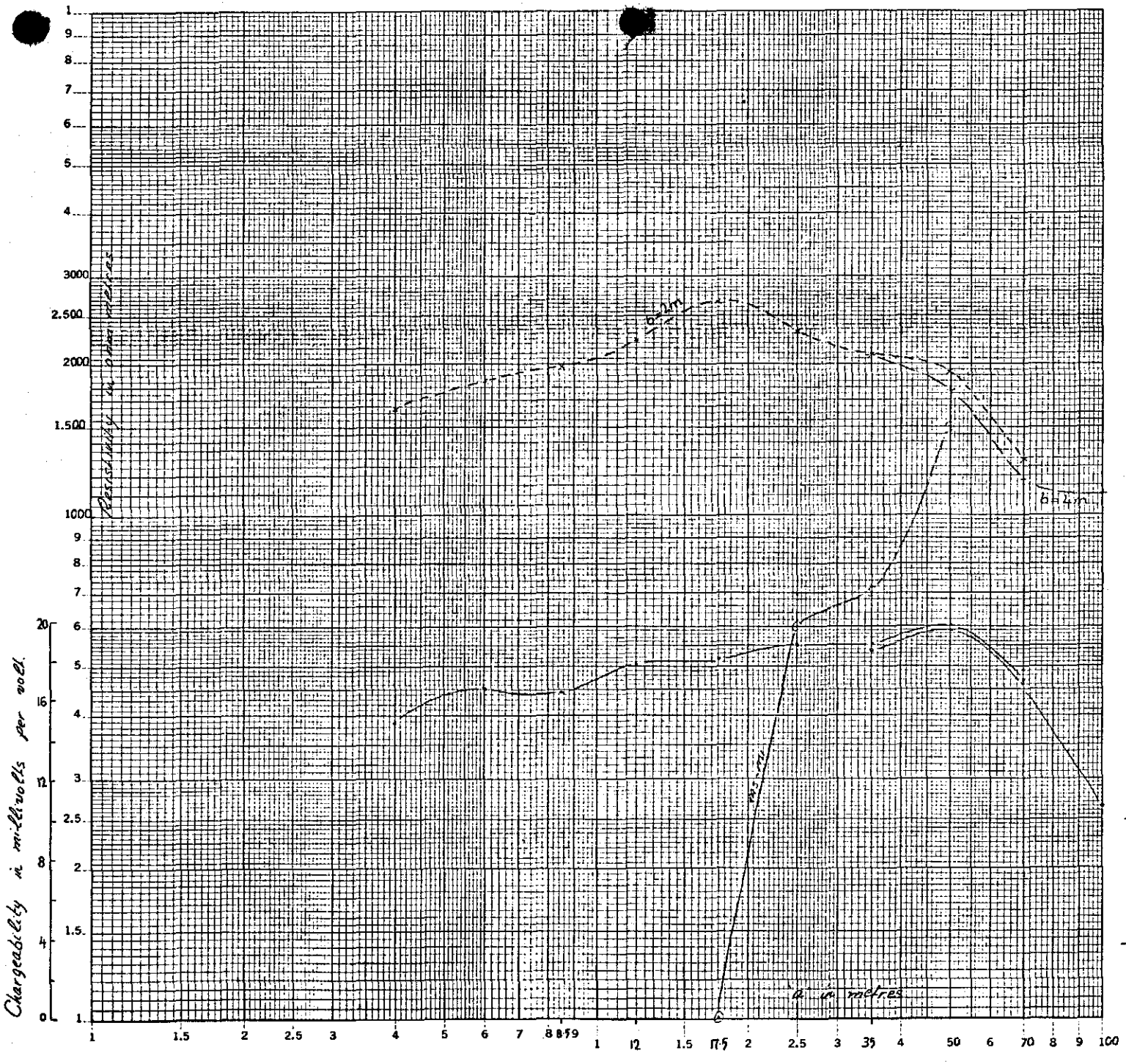

K113
Schlumberger Array
ANCHOR MINE AREA
TAS-072
160
Resistivity in ohm meters
Chargeability in millivolts per volt
a in meters
b=2m
b=4m
12±3m
2000
1000
20m
3m 8mv/v
16mv/v
4mv/v
5 cm

K108

Schlumberger Array 164

ANCHOR MINE AREA

TAS-072



5 cm

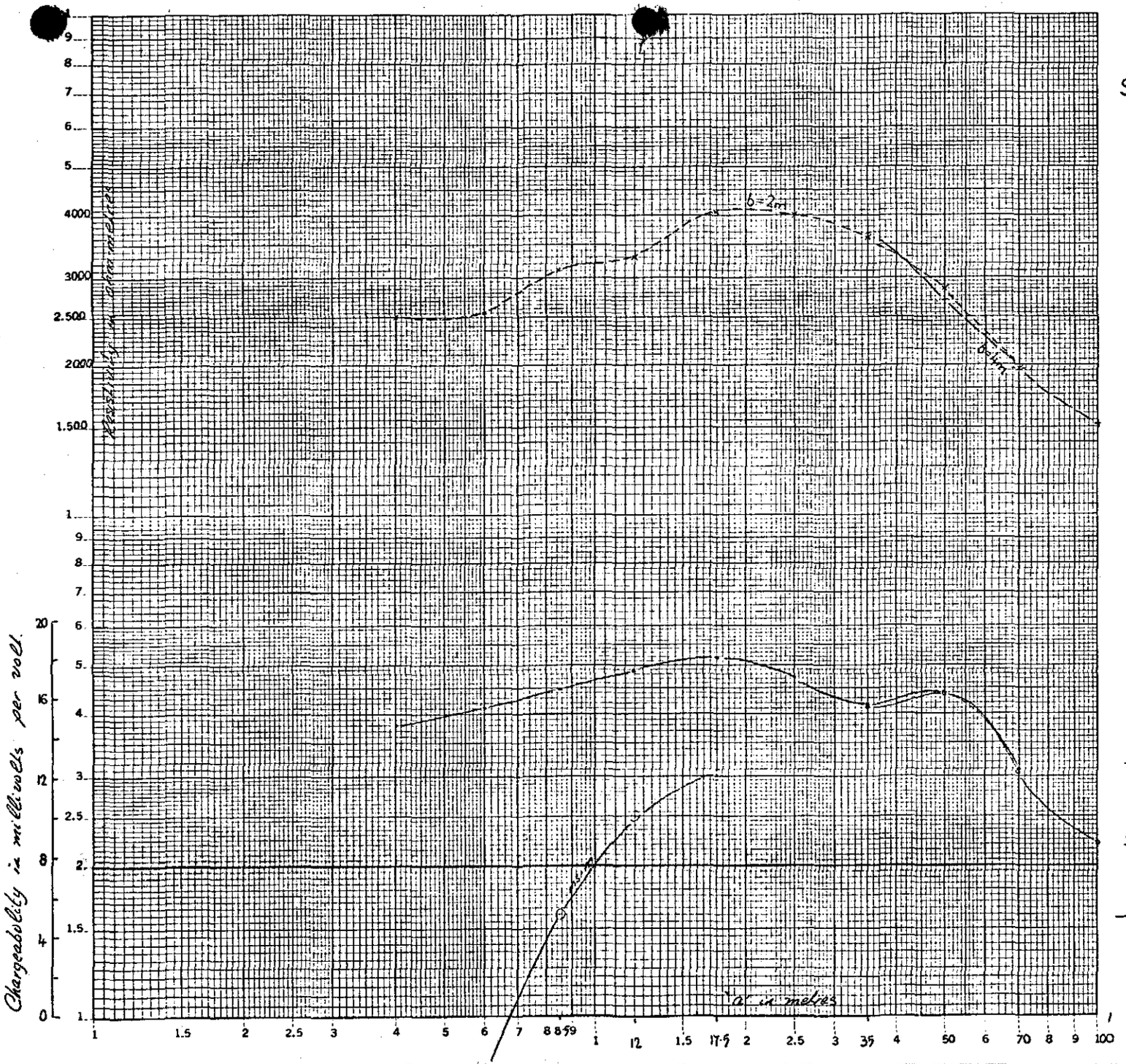
29T360

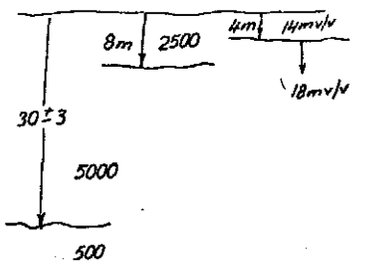
K105 162

Schlumberger Array

ANCHOR MINE AREA

TAS-072





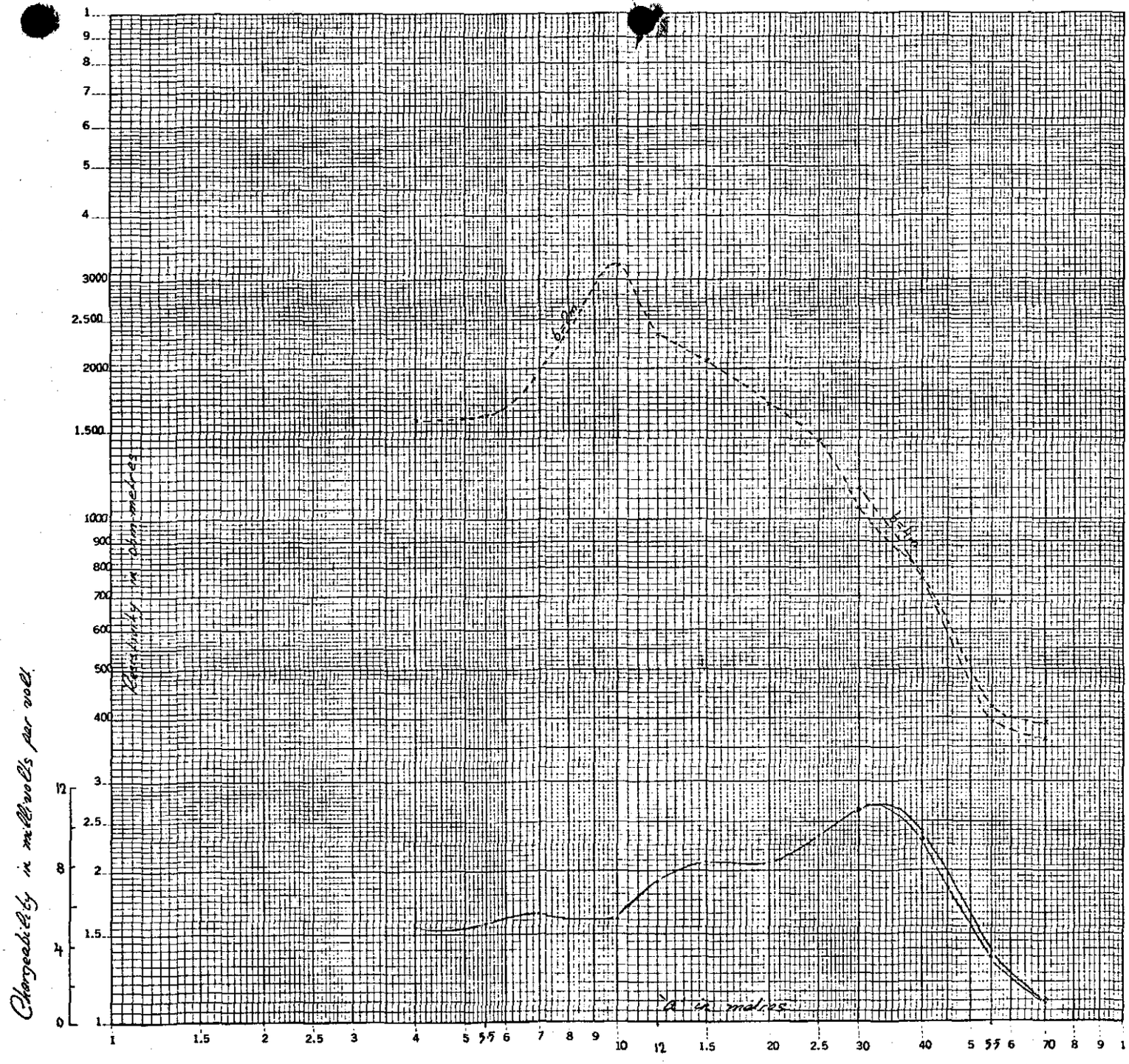
5 cm

K10

Schlumberger Array

ANCHOR MINE AREA

TAS-072



5m 4mv/v

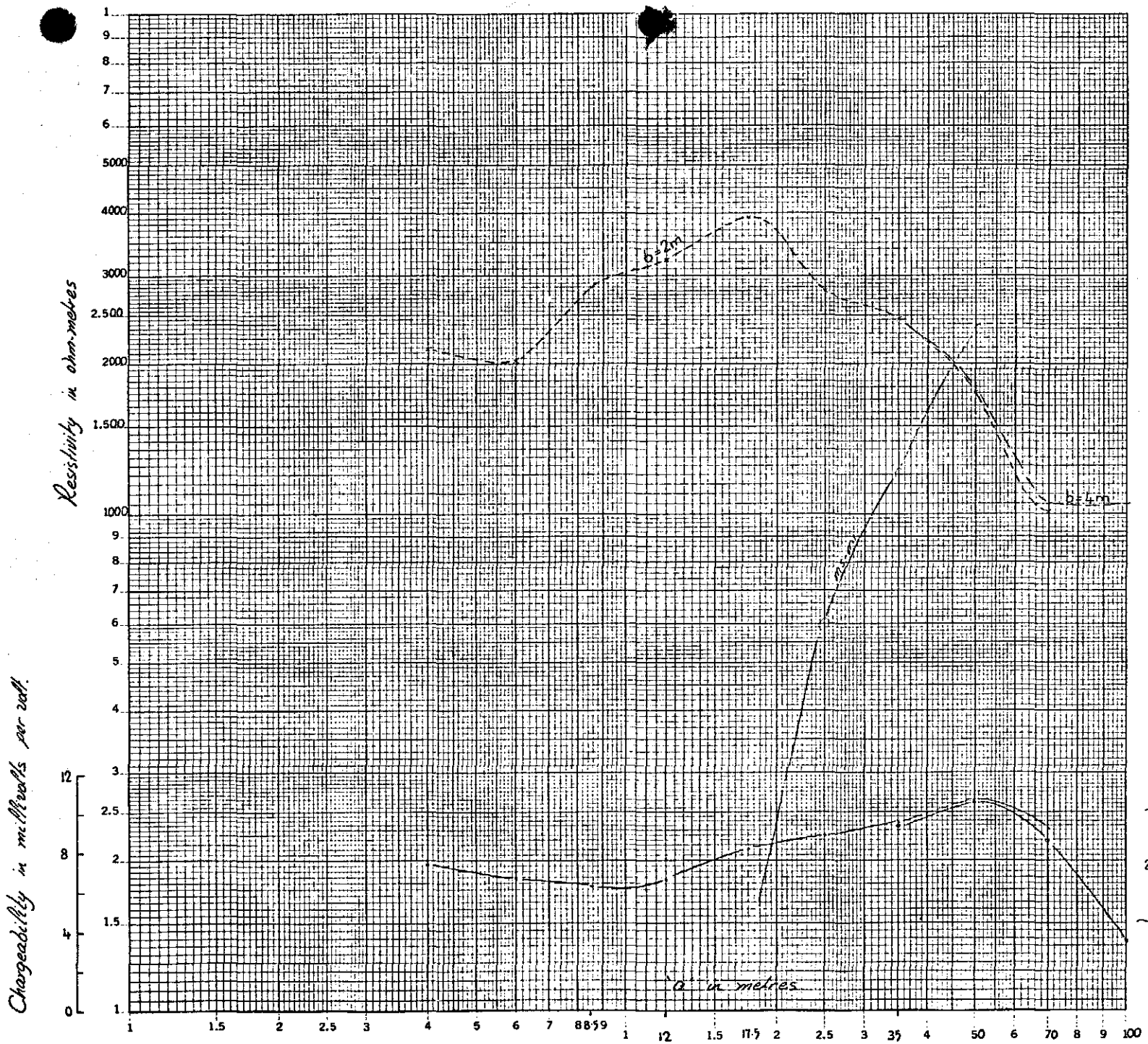
15m 1500-3000 14mv/v

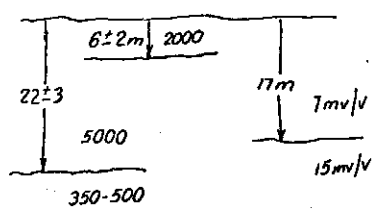
420

K85 1695 (P35)

Schlumberger Array

ANCHOR MINE AREA
NR. ST HELENS
TAS-072





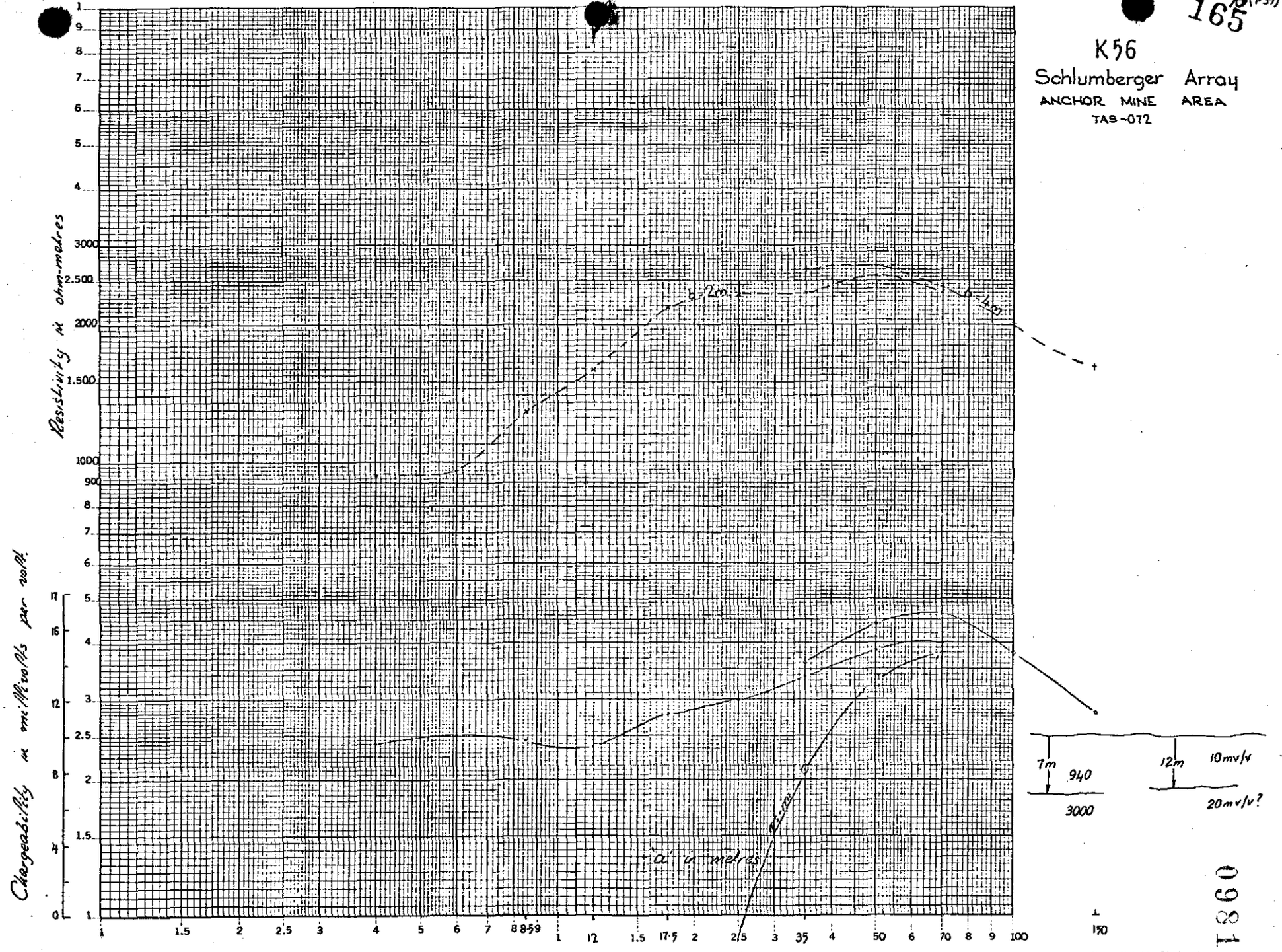
5 cm

K56

Schlumberger Array

ANCHOR MINE AREA

TAS-072



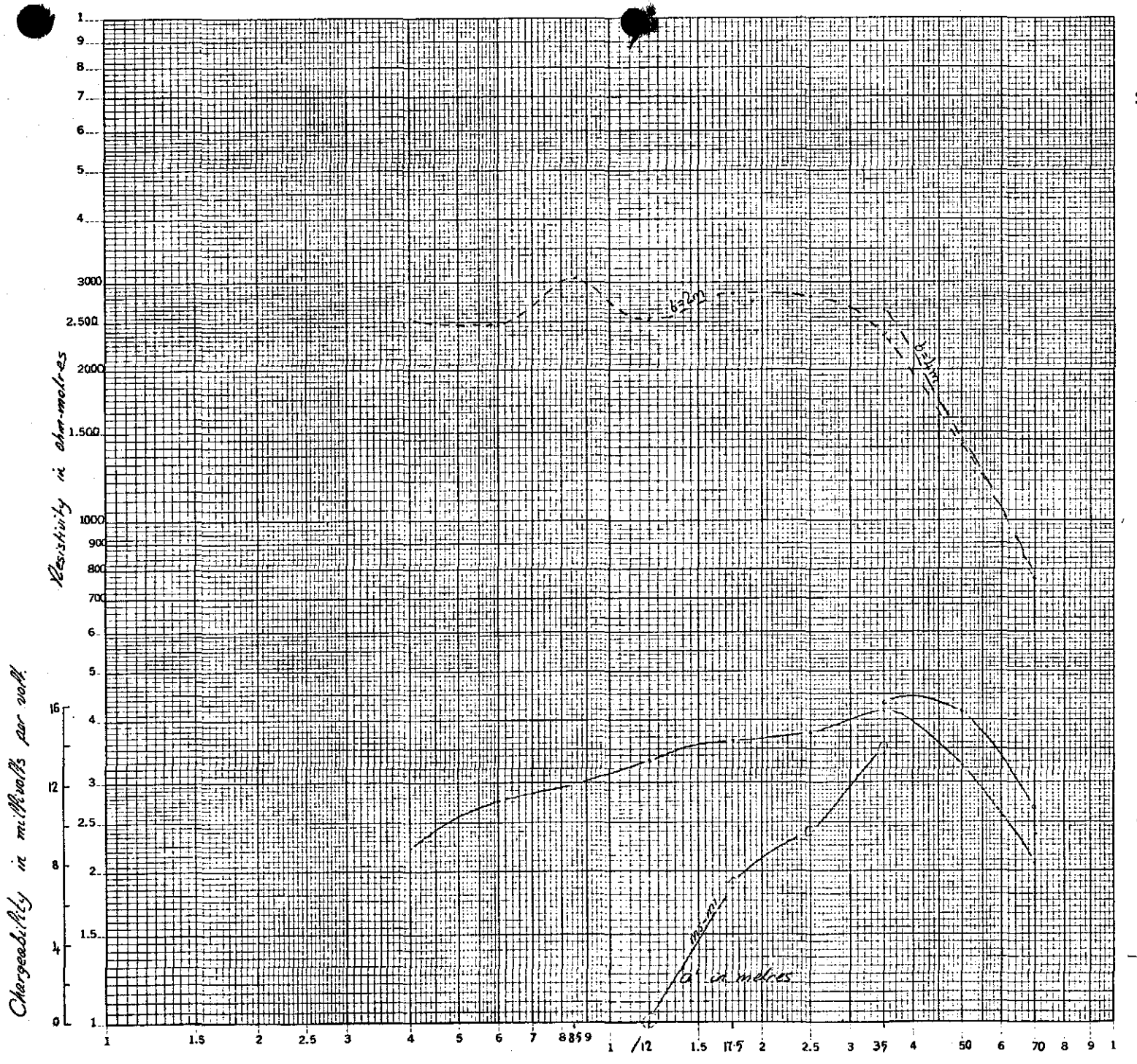
5 cm

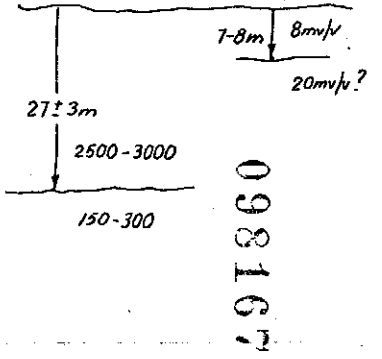
K59 166

Schlumberger Array

ANCHOR MINE AREA

TAS - 072





5 cm

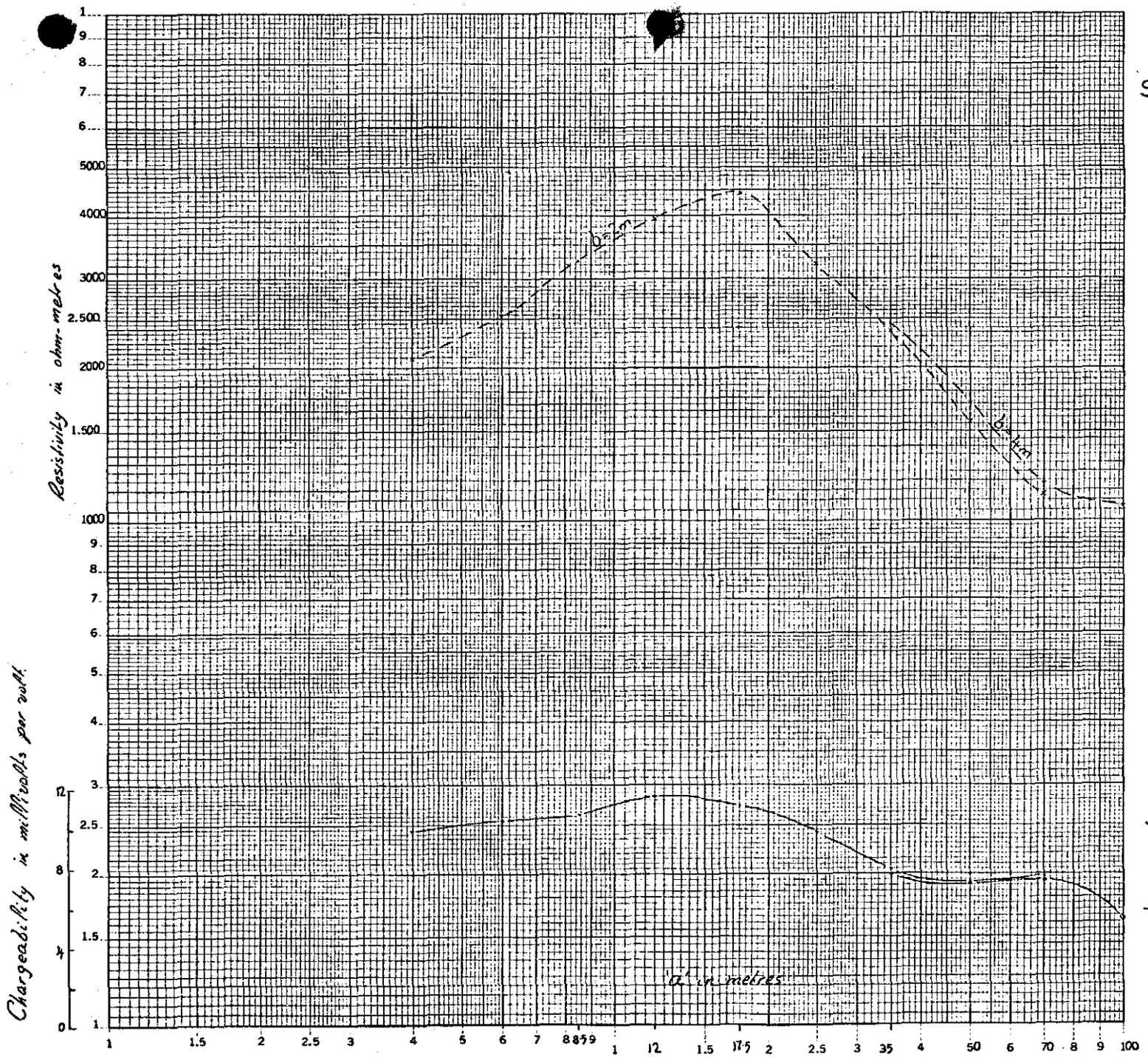
167

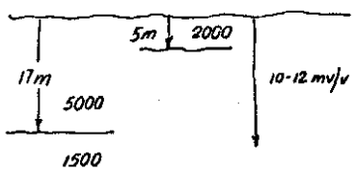
K64

Schlumberger Array

ANCHOR MINE AREA

TAS-072





5 cm

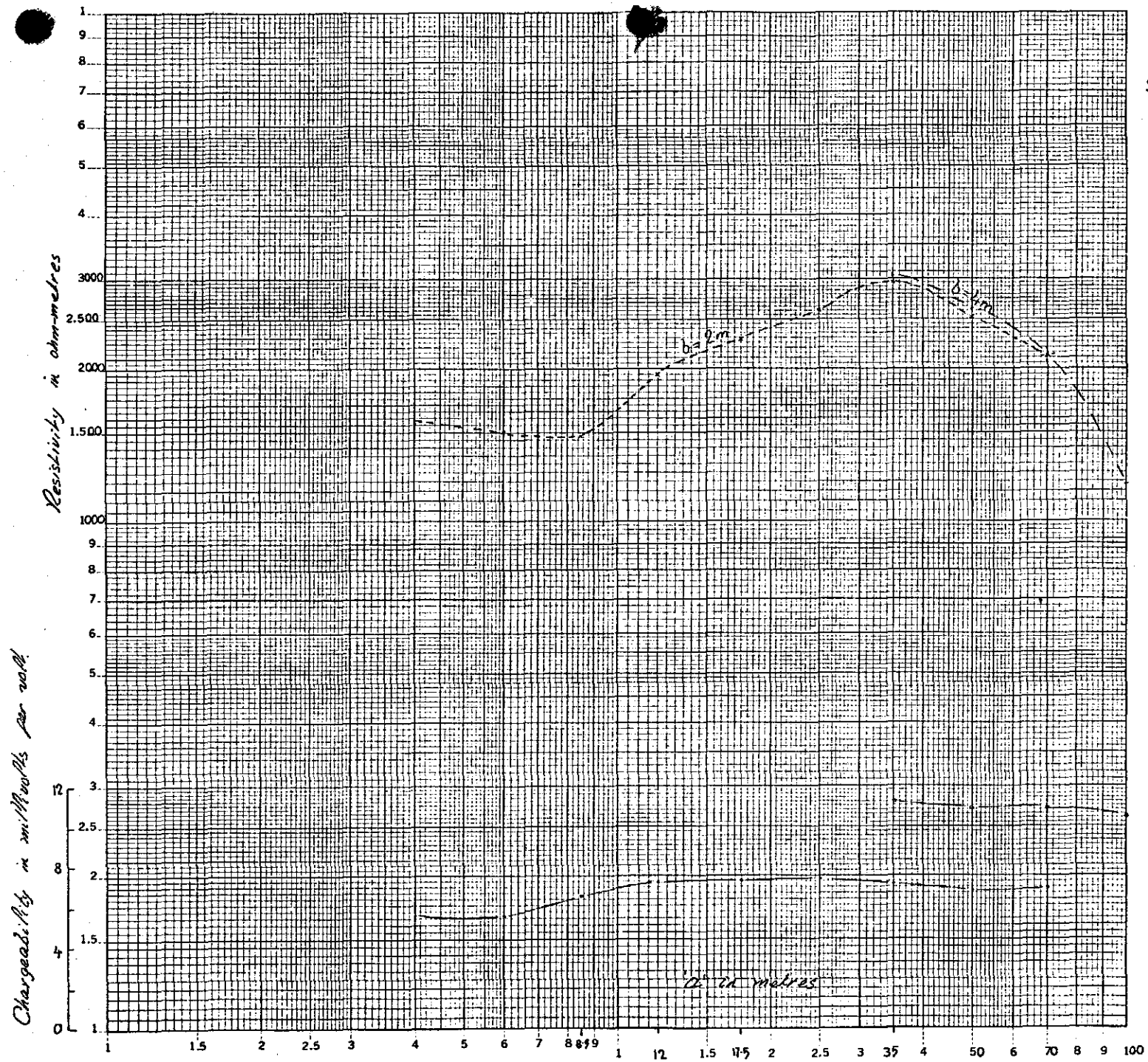
K63

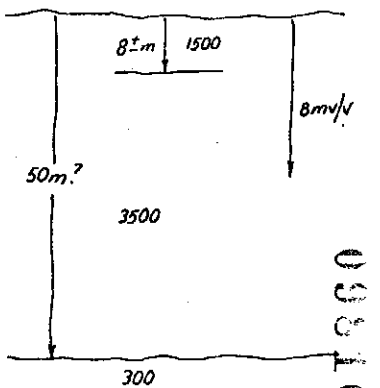
168

Schlumberger Array

ANCHOR MINE AREA

TAS-072





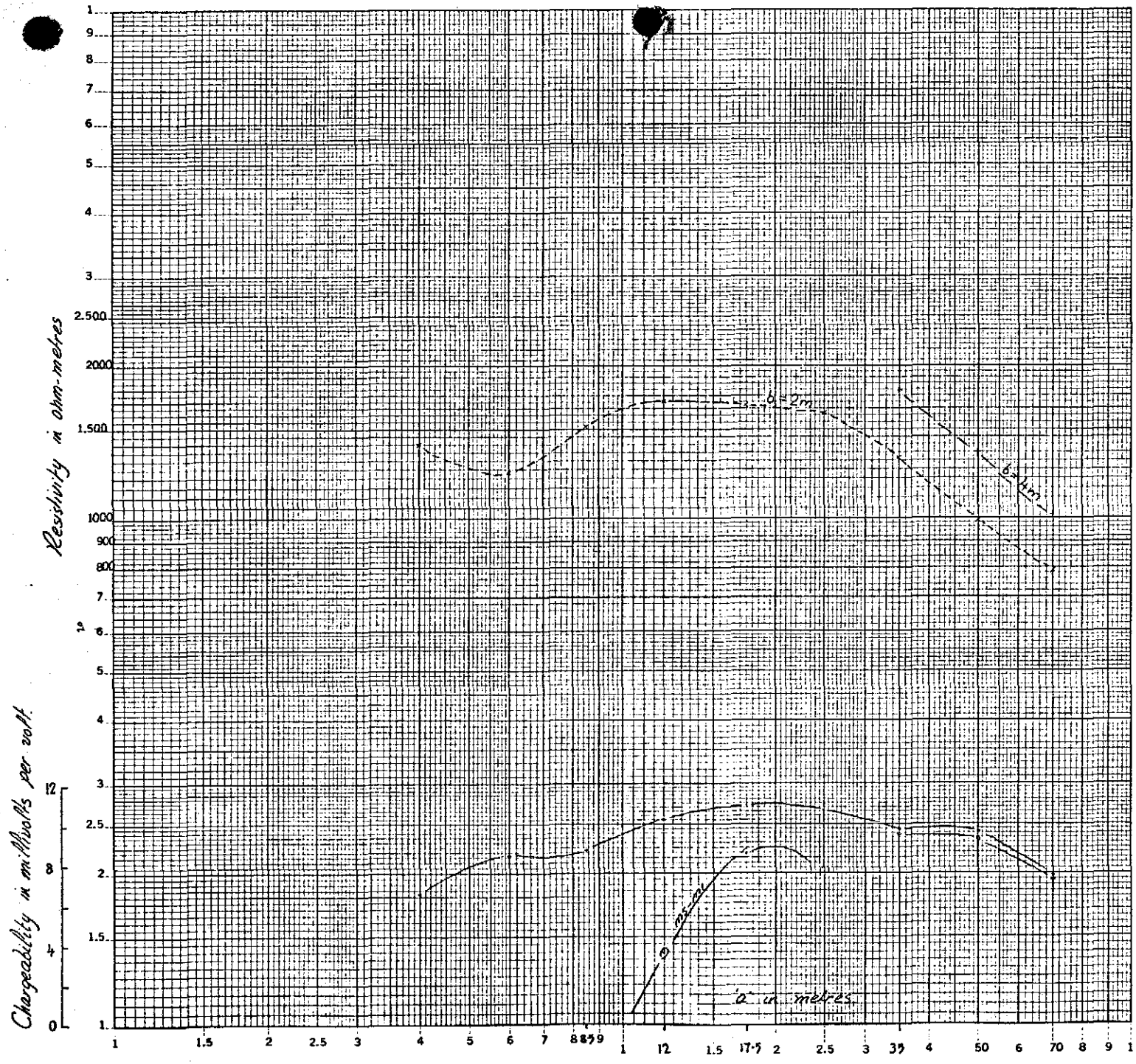
5 cm

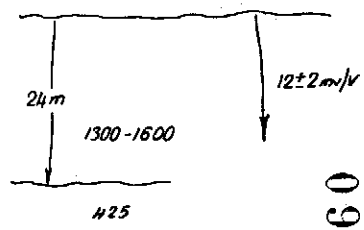
0 0 0 0 0 0 0 0 0 0

K80 169

Schlumberger Array

ANCHOR MINE AREA
NR. ST HELENS
TAS-072





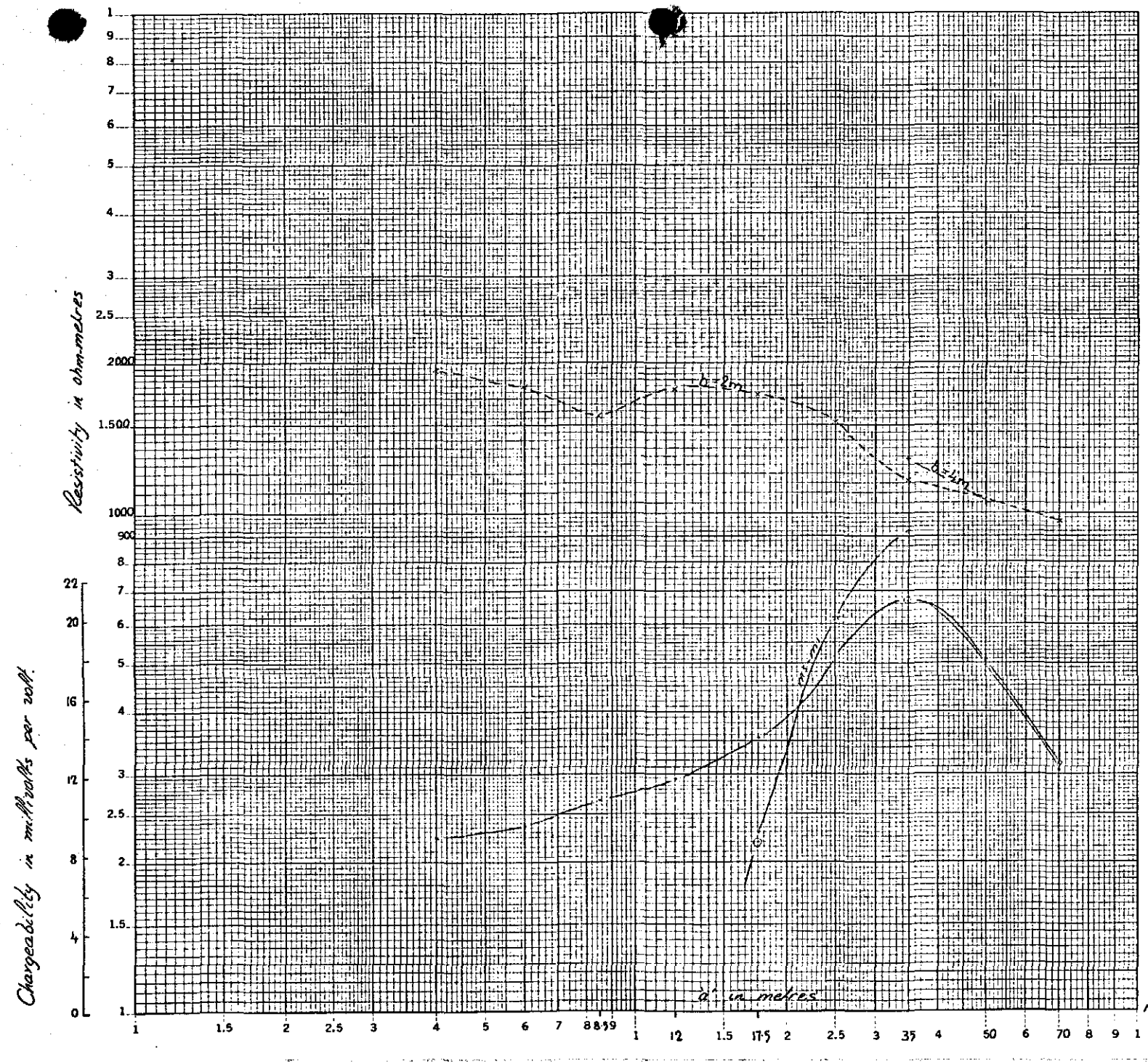
5 cm

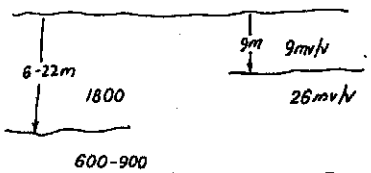
0981170

K83

Schlumberger Array

ANCHOR MINE AREA
NR ST HELENS
TAS-072



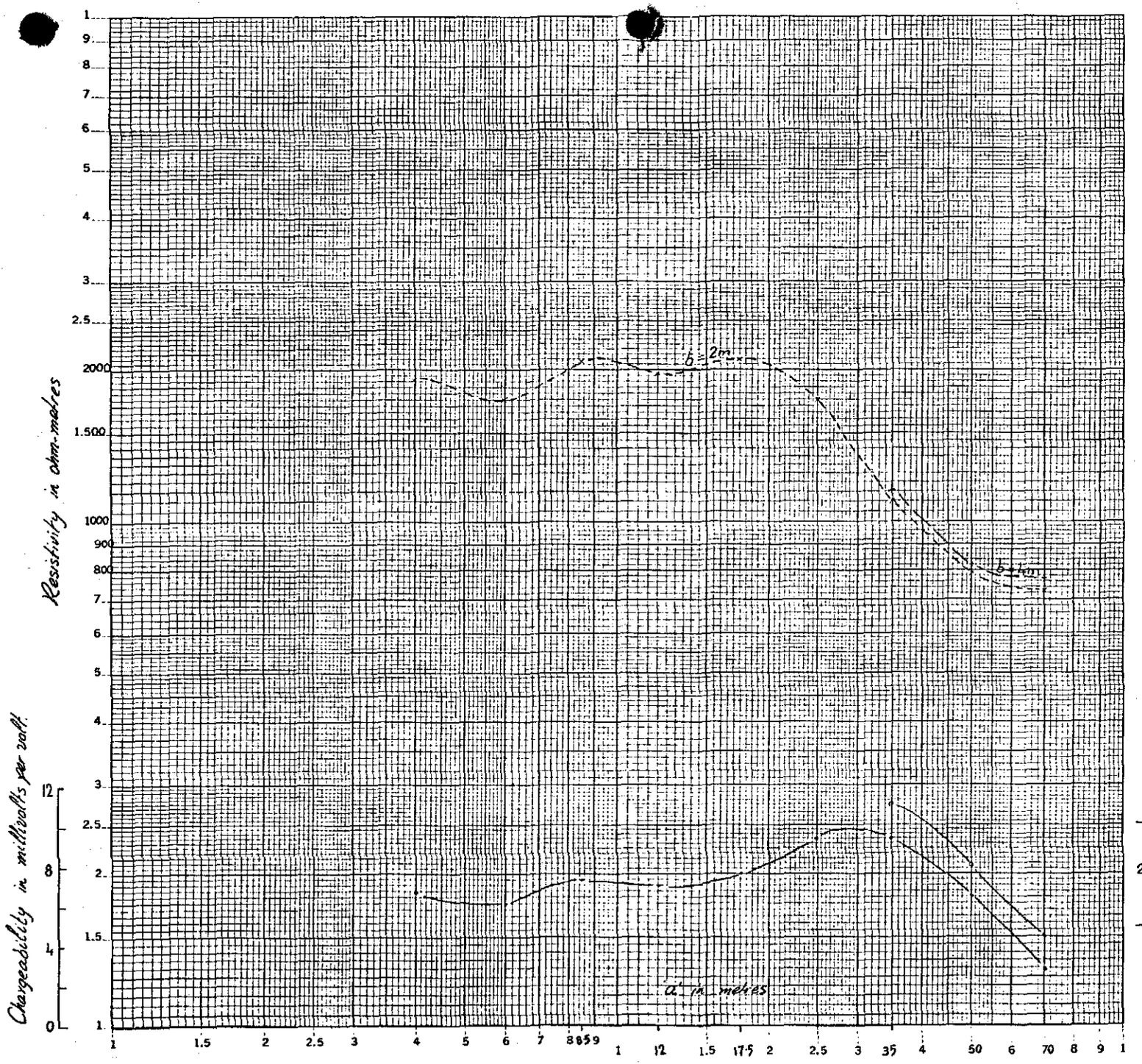


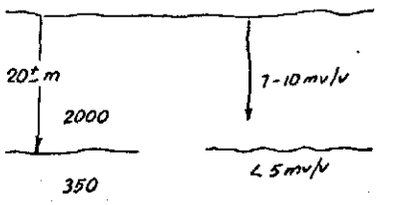
5 cm

K81 171

Schlumberger Array

ANCHOR MINE AREA
NR. ST HELENS
TAS-0T2





5 cm

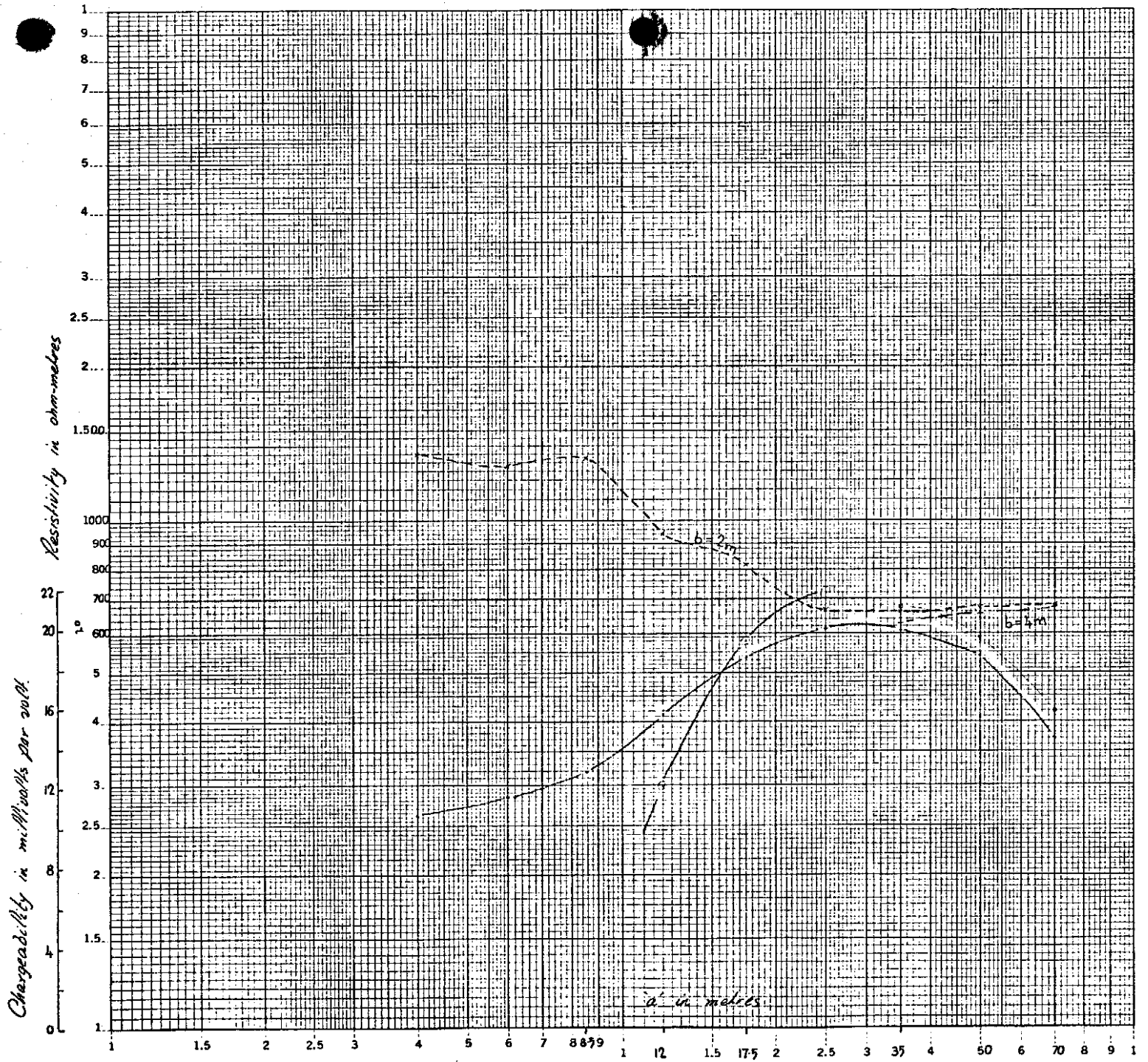
27T860

103 (P34)

KP 76 172

Schlumberger Array

ANCHOR MINE AREA
NR ST. HELENS
TAS-072



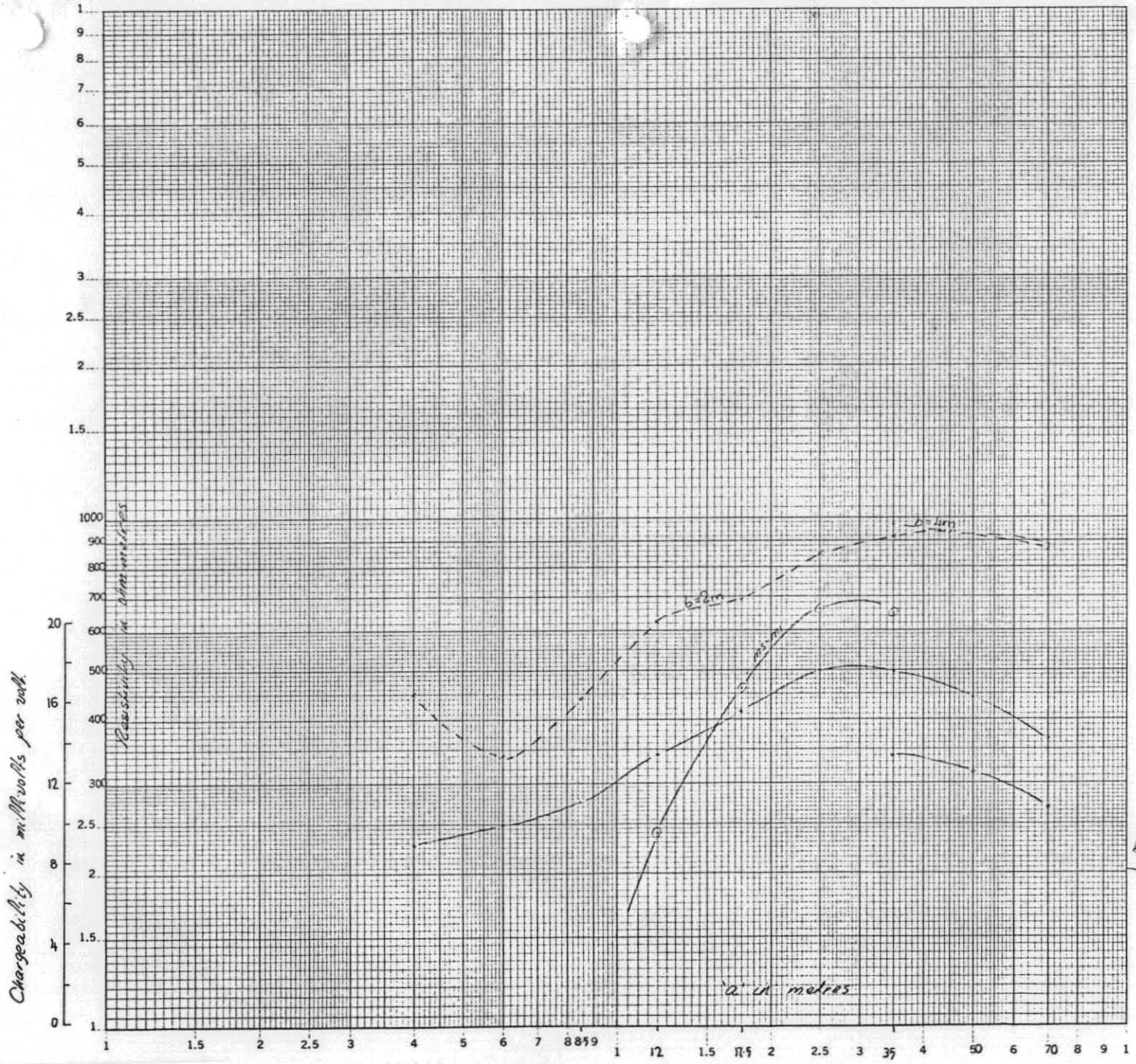
6m | 1400 | 600

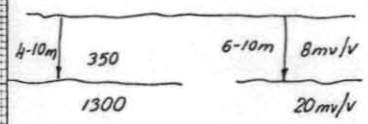
5m | 10mv/v | 25mv/v

5 cm

09 81 73

K60 173
Schlumberger Array
ANCHOR MINES AREA
TAS-072





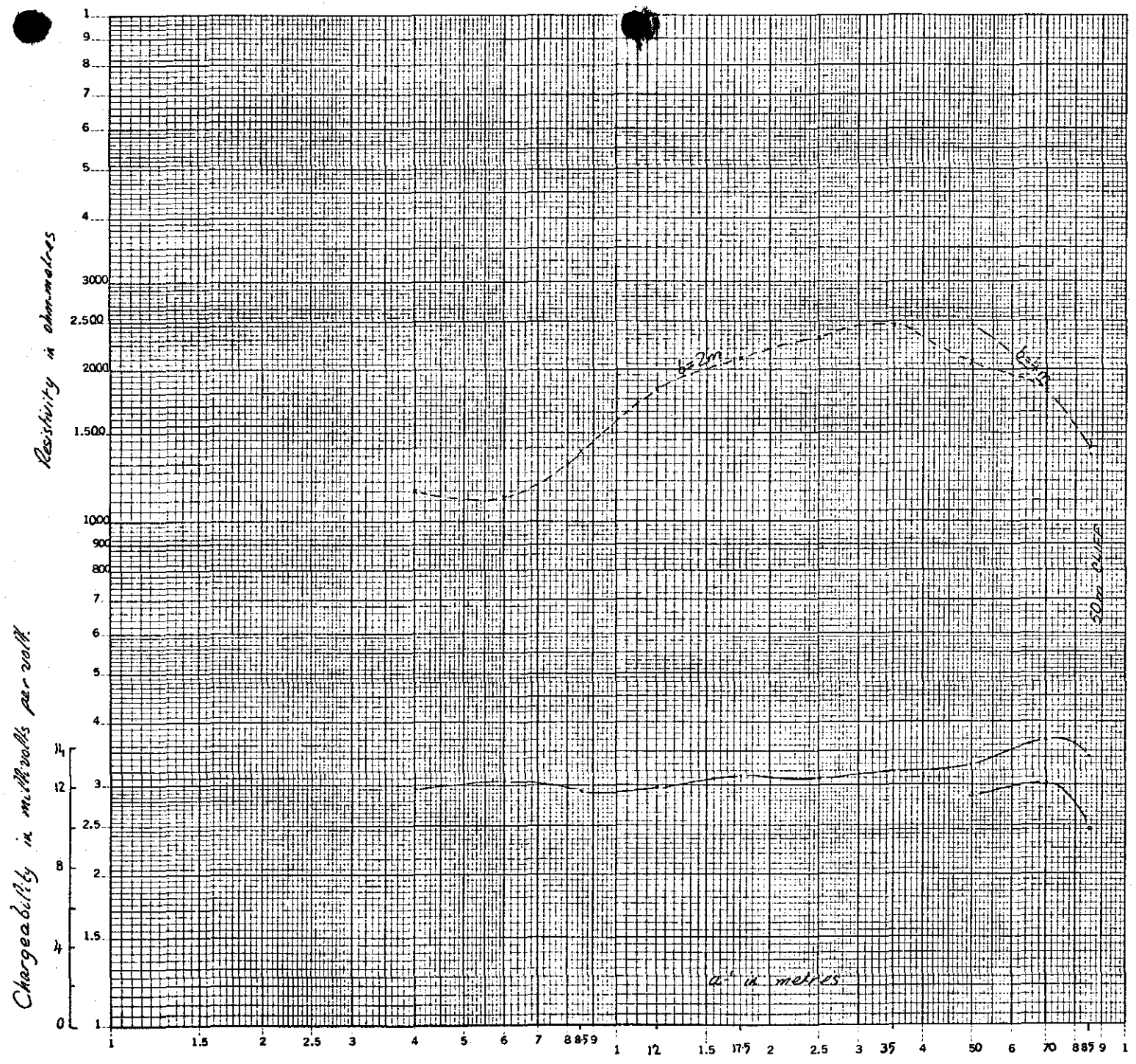
5 cm

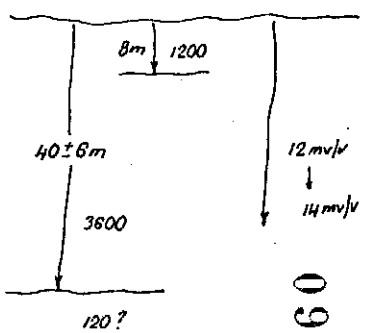
K62 174

Schlumberger Array

ANCHOR MINE AREA

TAS-072





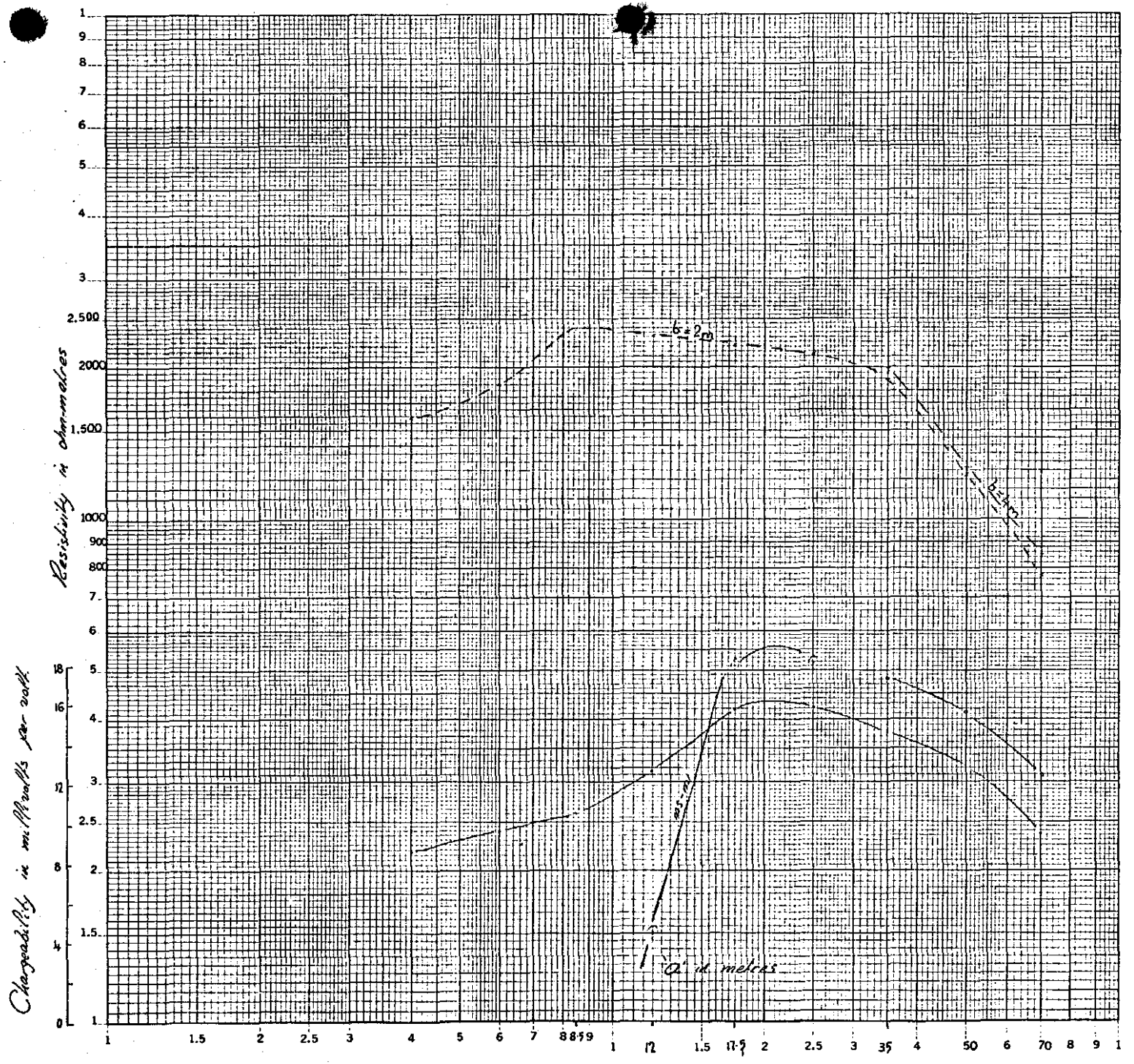
5 cm

K58 175

Schlumberger Array

ANCHOR MINE AREA

TAS-072



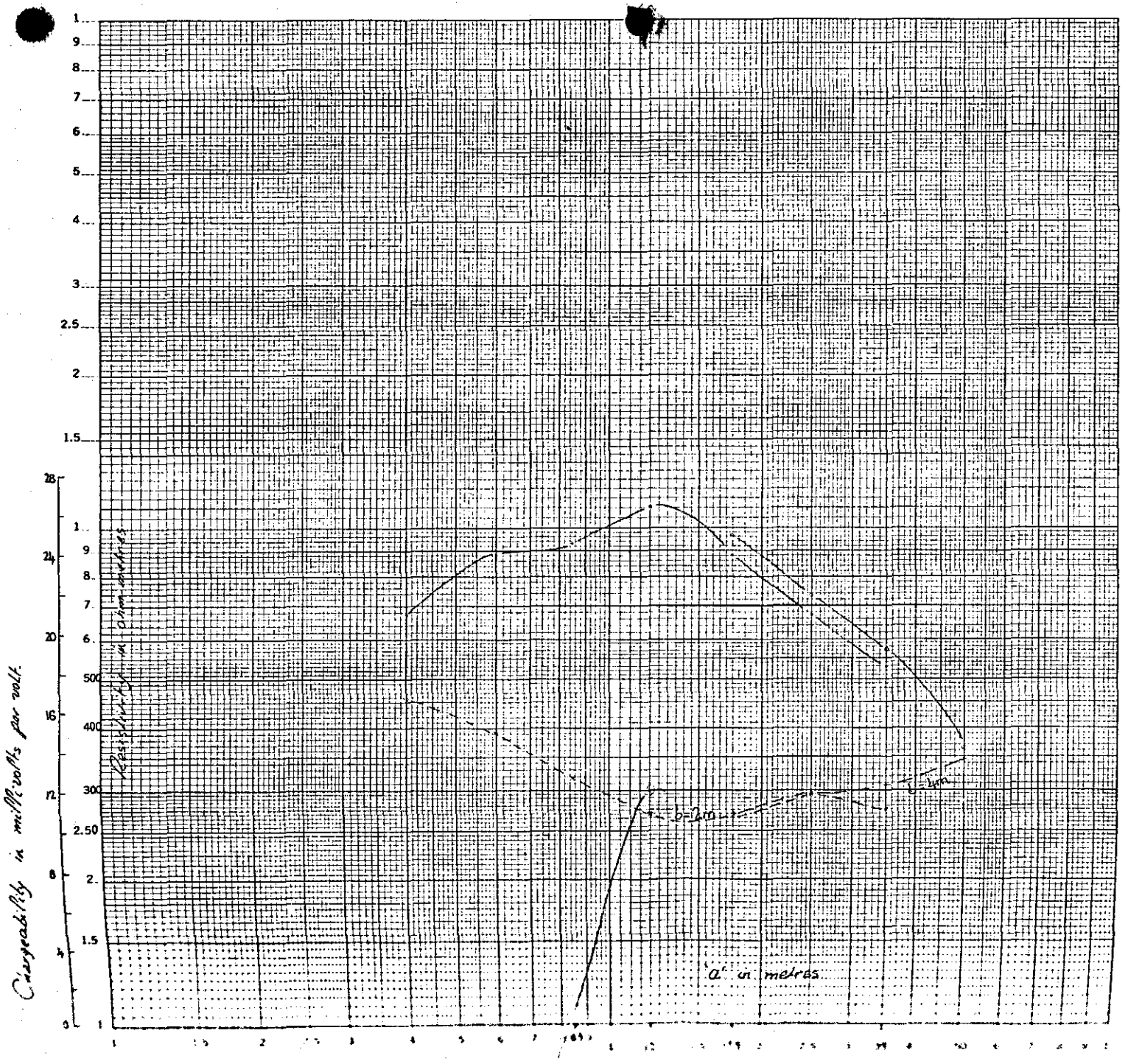
5 cm

K55 176

Schlumberger Array

ANCHOR MINE AREA

TAS-072



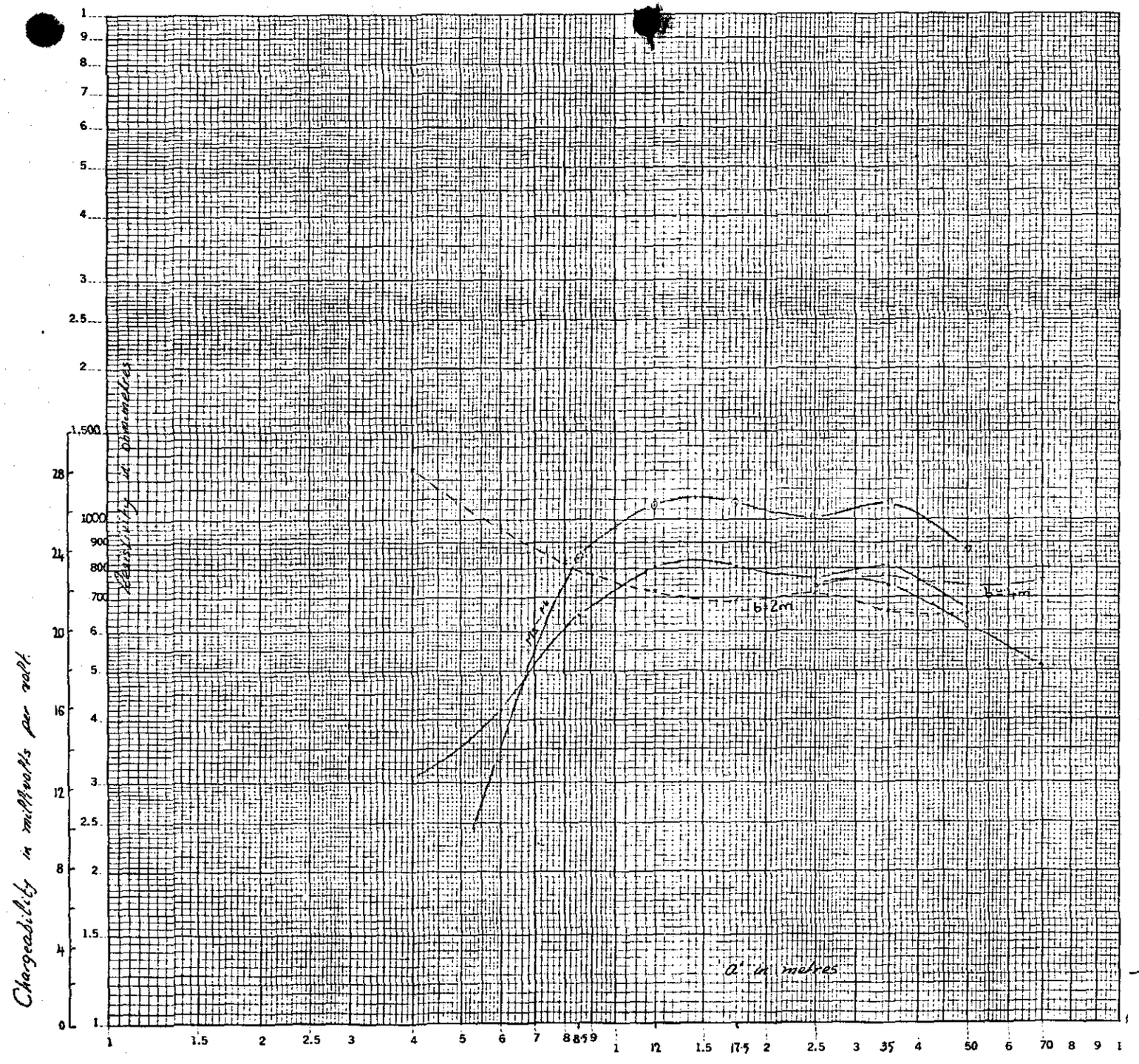
5 cm

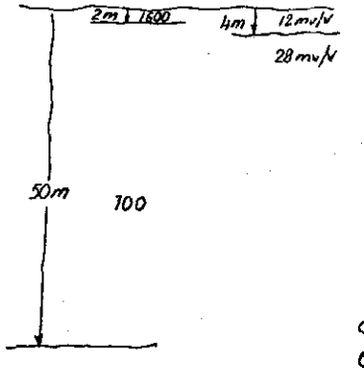
K50 177

Schlumberger Array

ANCHOR MINE AREA

TAS -072





5 cm

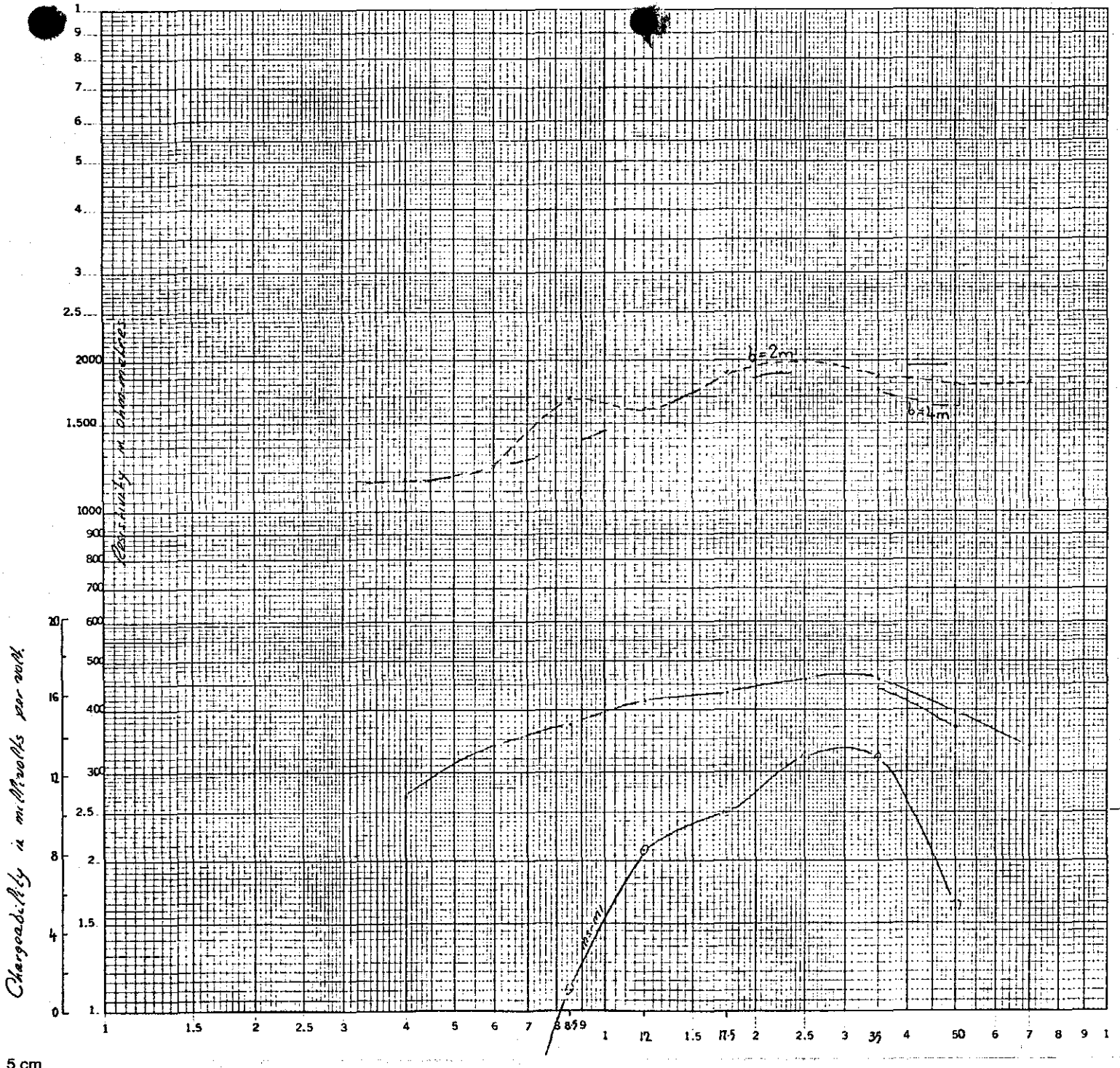
178

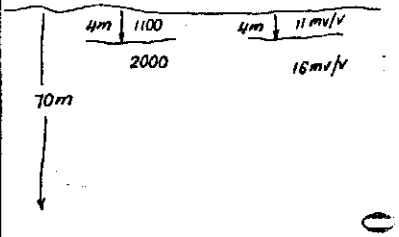
K49

Schlumberger Array

ANCHOR MINE AREA

TAS-072





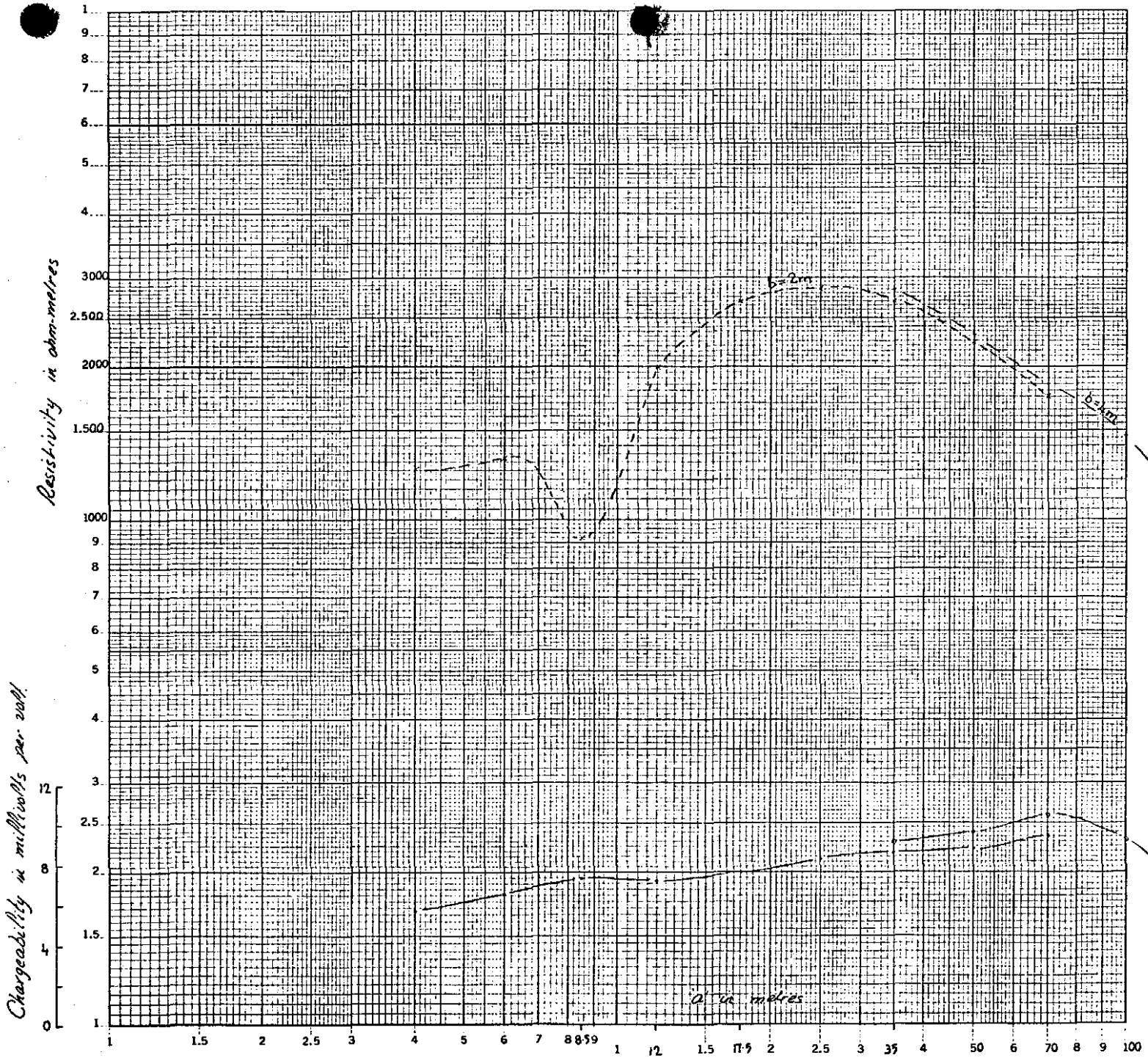
09179

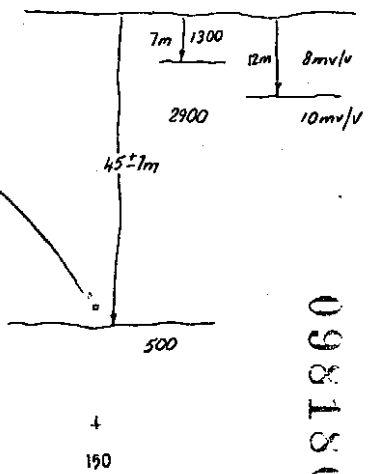
110
(P39)

K16 179

Schlumberger Array

ANCHOR MINE AREA
NR ST HELENS
TAS-072





0 5 cm

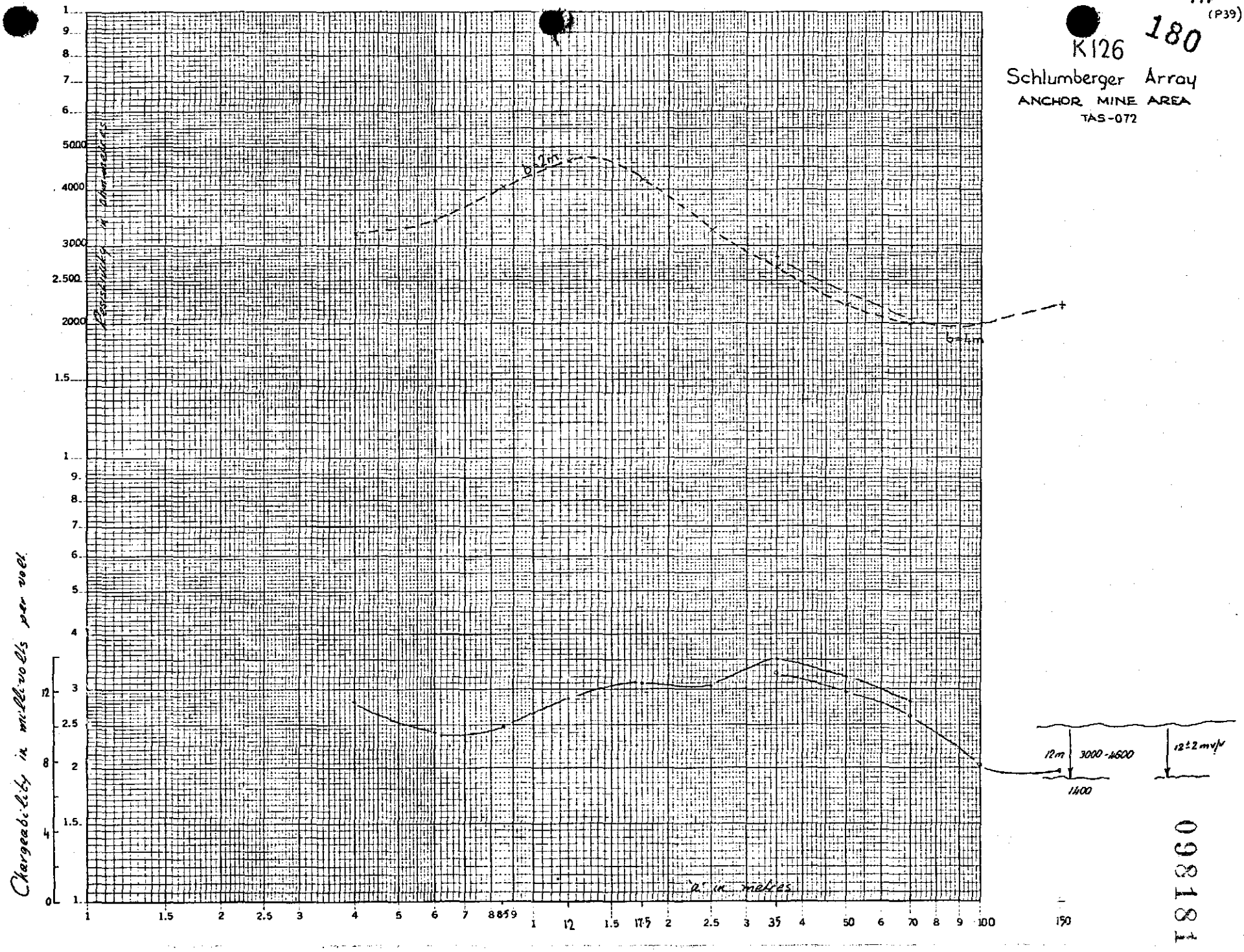
0 0 8 8 1 0

K126 180

Schlumberger Array

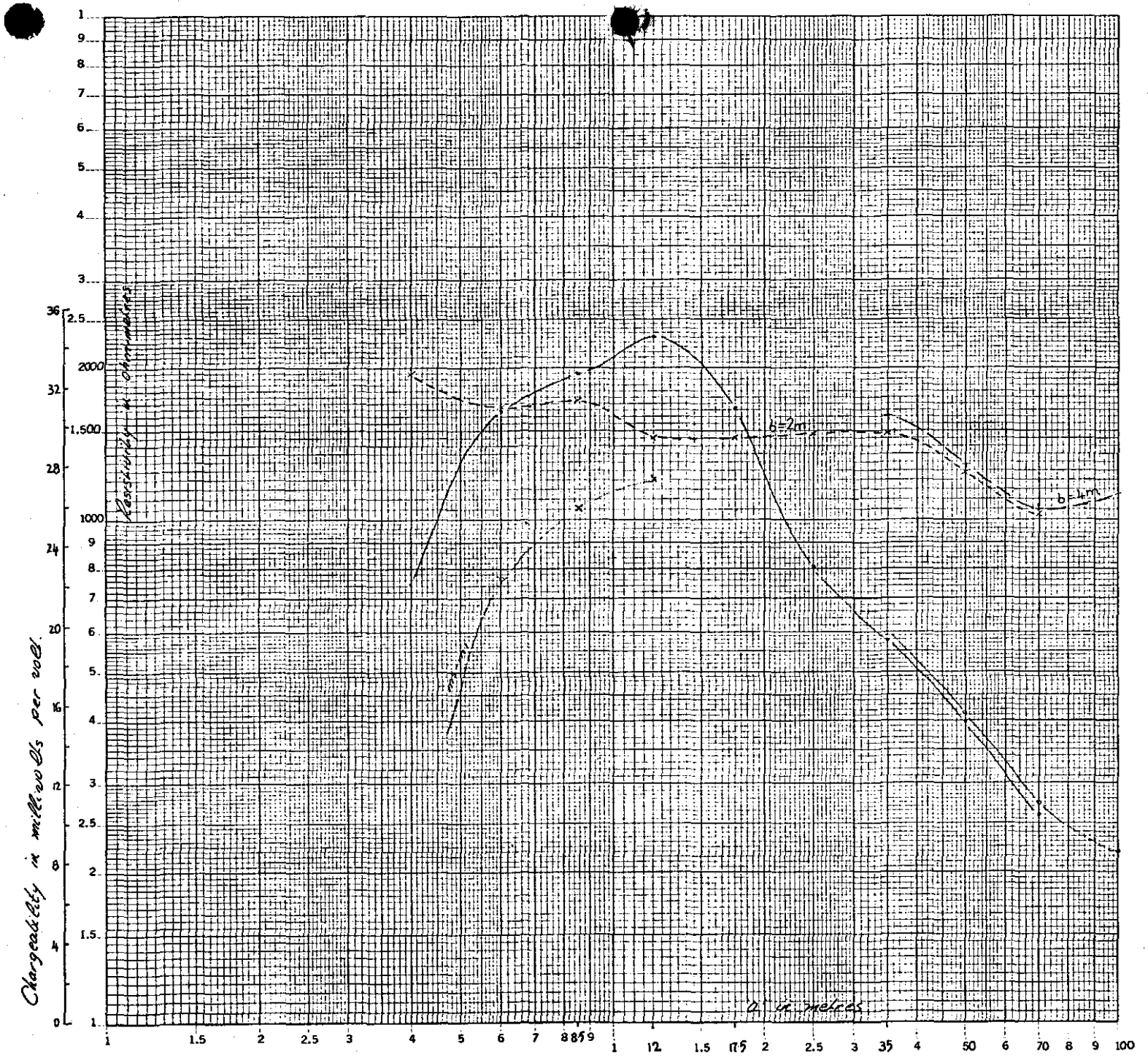
ANCHOR MINE AREA

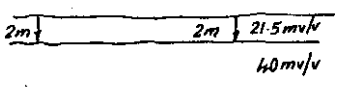
TAS-072



5 cm

K125
Schlumberger Array
ANCHOR MINE AREA
TAS-072





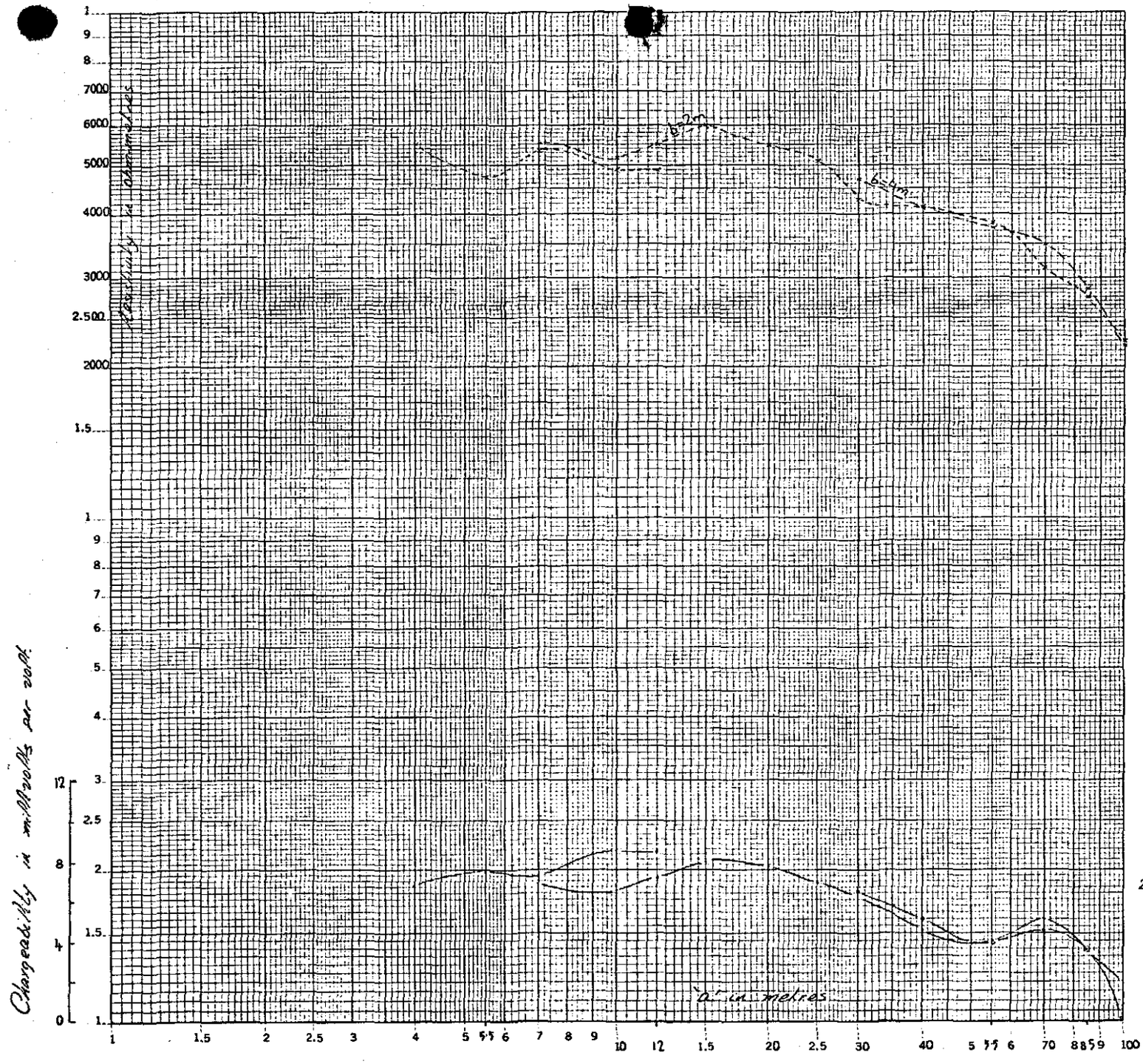
5 cm

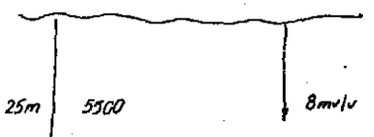
K19 (A&B)

Schlumberger Array

ANCHOR MINE AREA

TAS-072





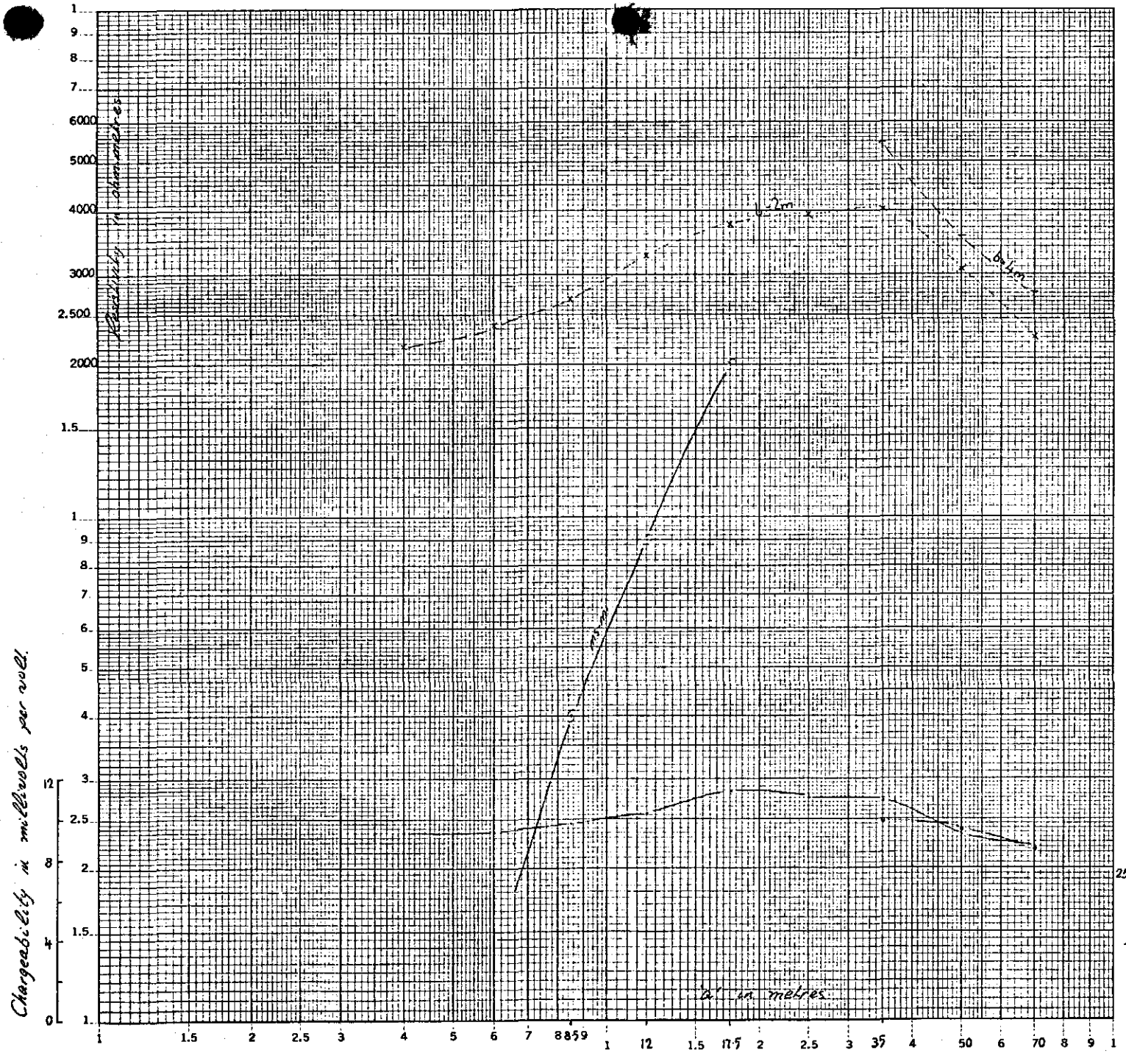
5 cm

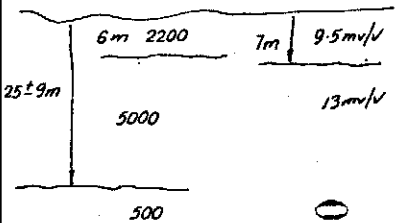
K98 183

Schlumberger Array

ANCHOR MINE AREA

TAS-027





5 cm

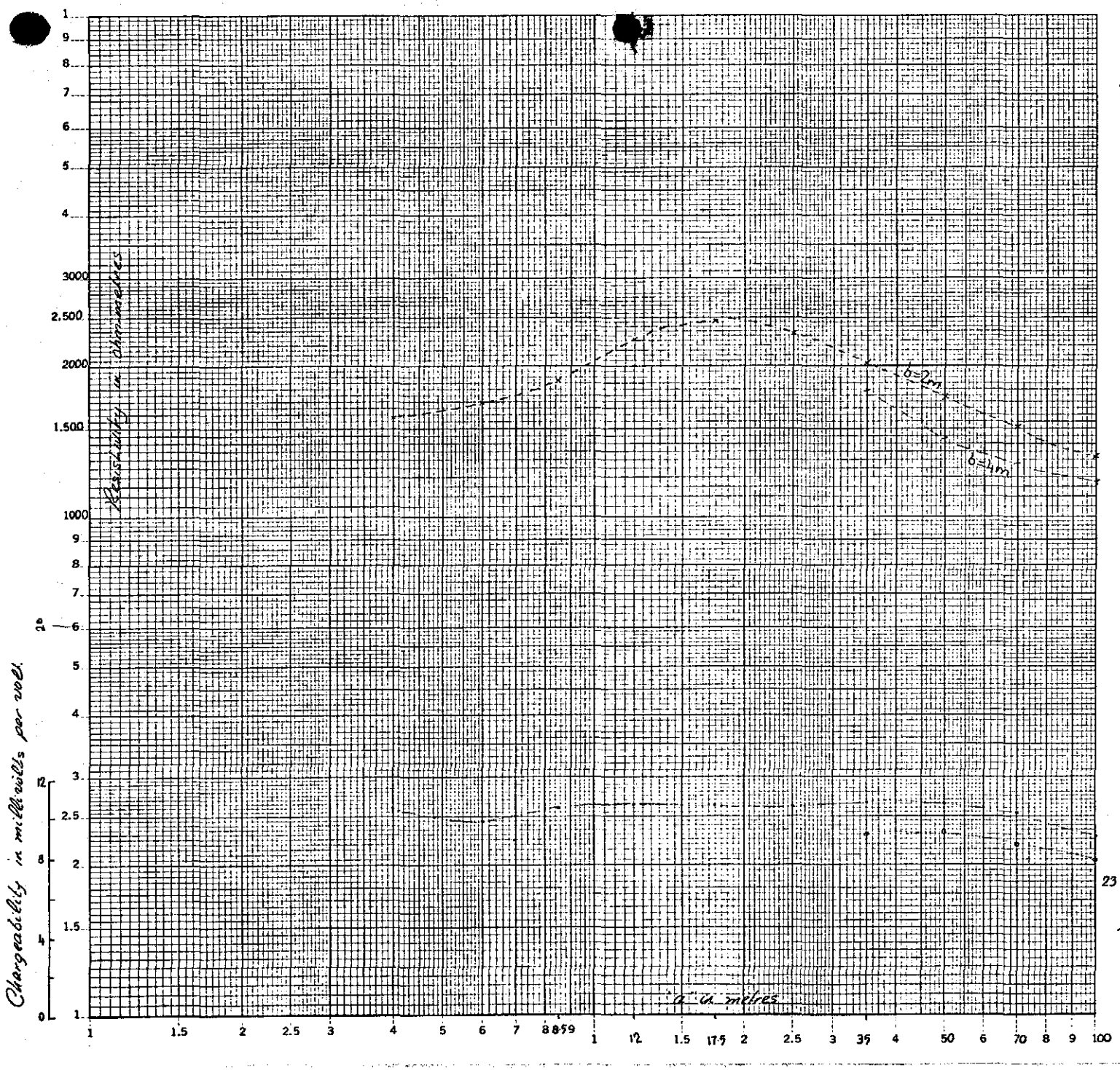
115 (P40)

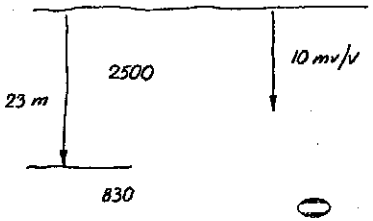
K99 184

Schlumberger Array

ANCHOR MINE AREA

TAS-072





5 cm

CSIRO 69 1860

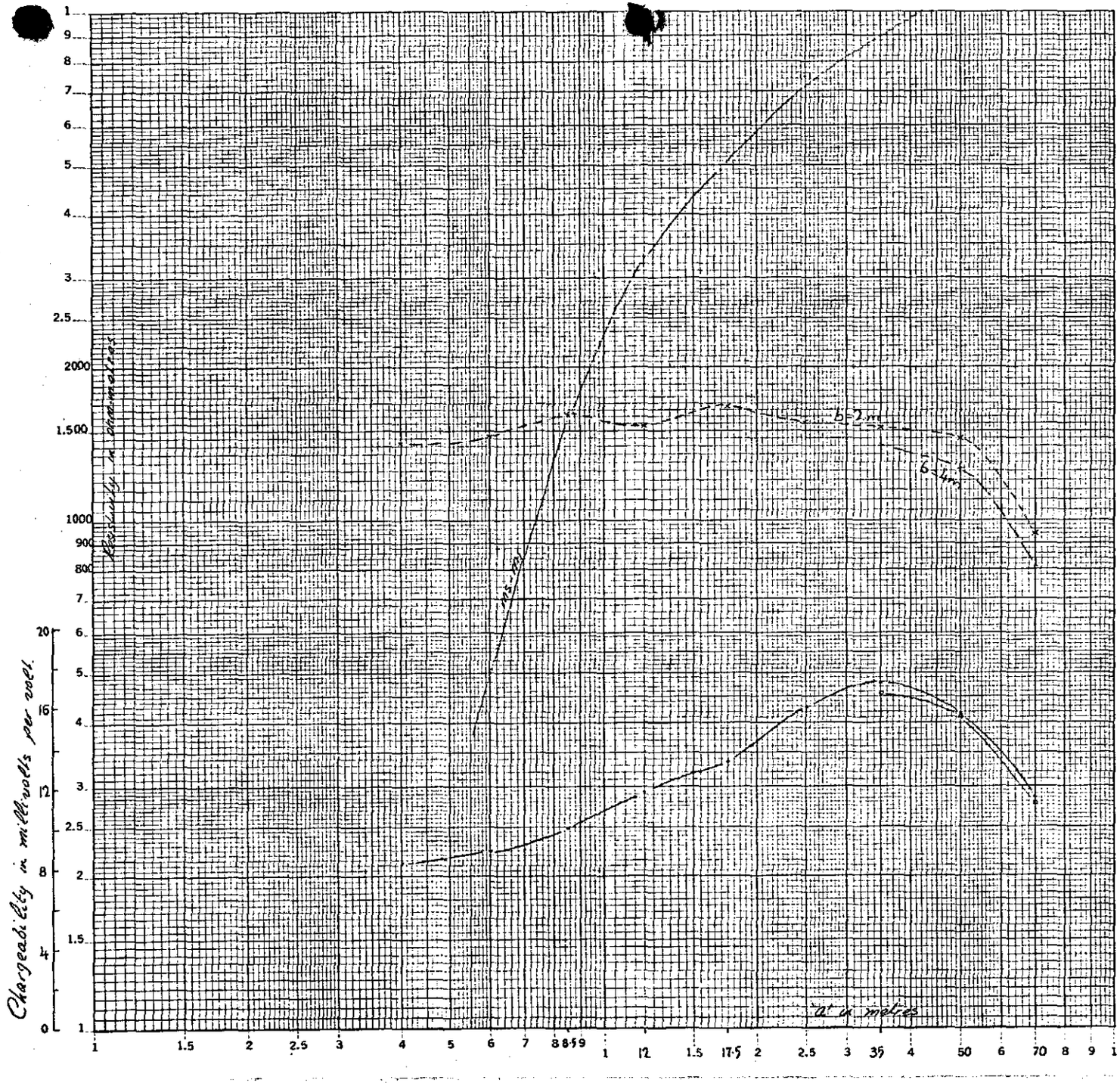
185

K100

Schlumberger Array

ANCHOR MINE AREA

TAS-072



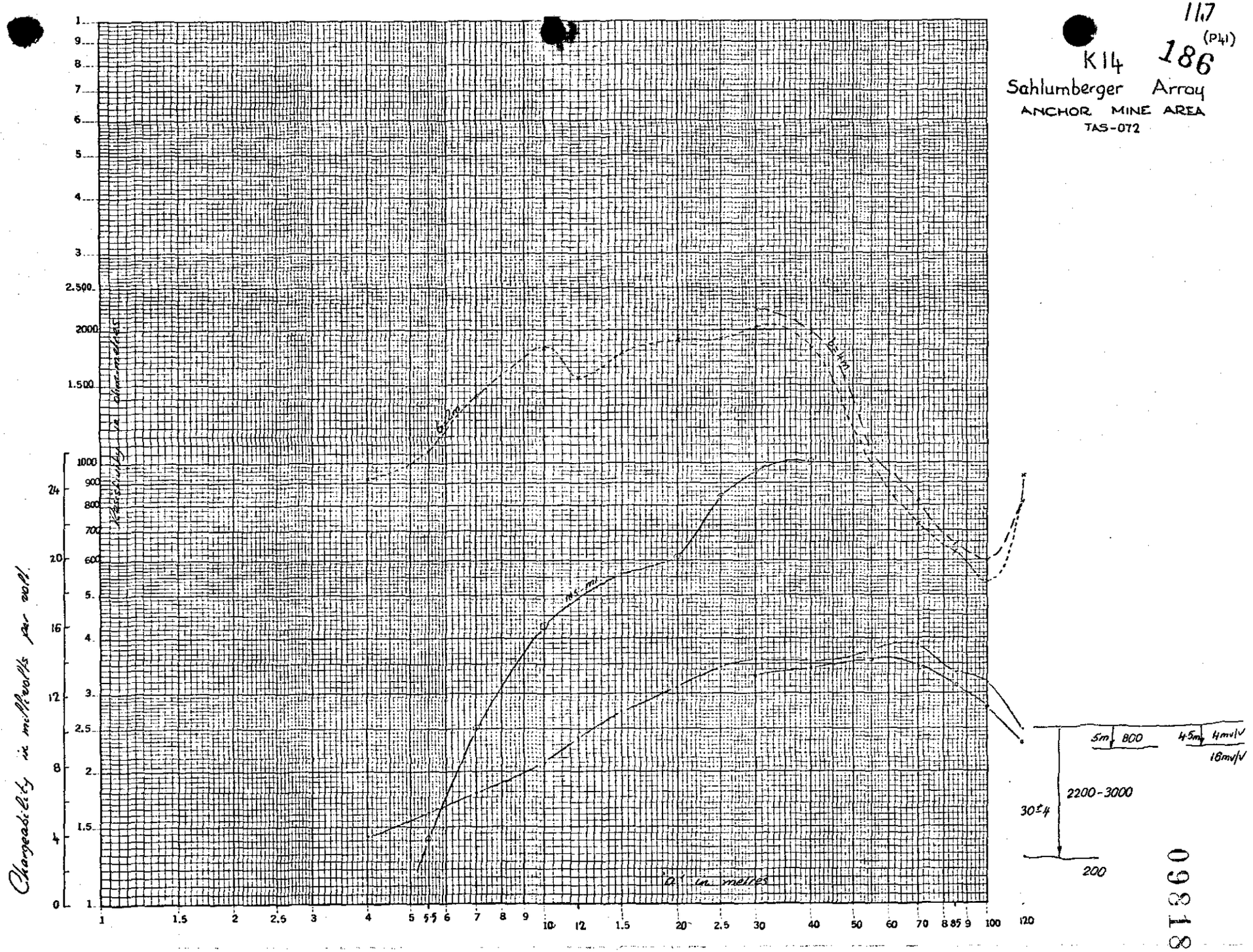
5 cm

K14 186

Schlumberger Array

ANCHOR MINE AREA

TAS-072



5 cm

T360

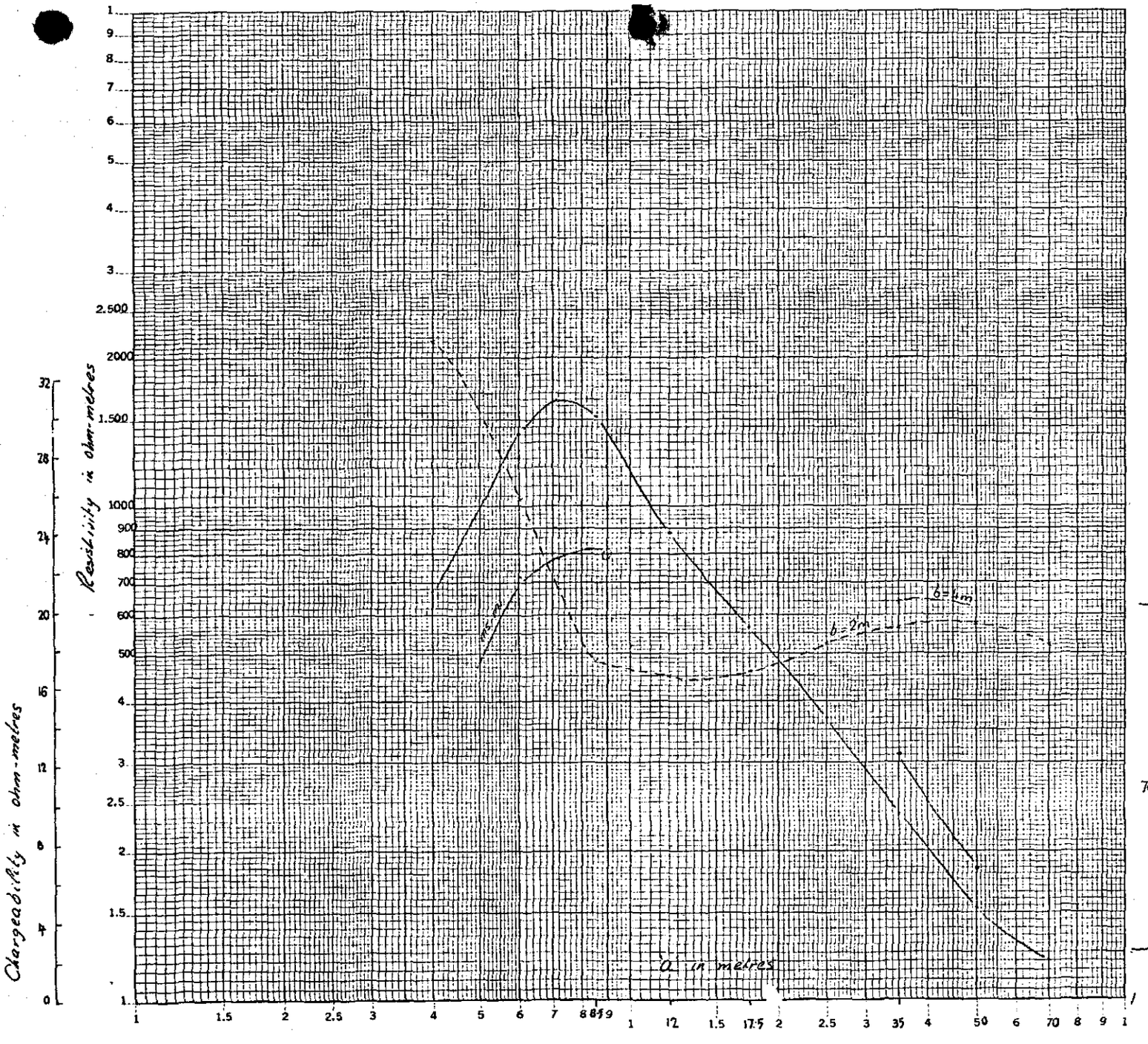
118 (P41)

K72 187

Schlumberger Array

ANCHOR MINE AREA

TAS-072



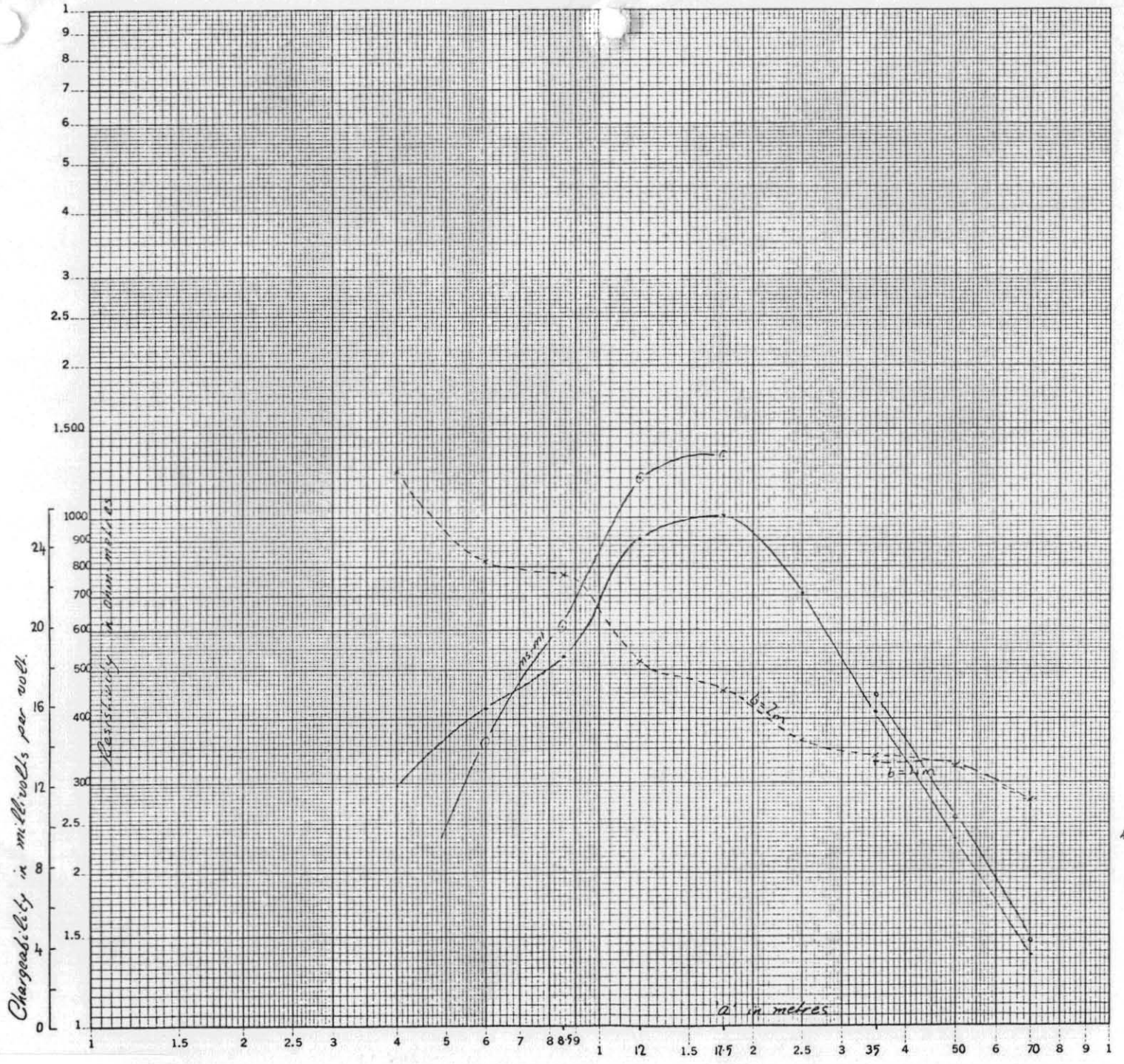
5 cm

K103 188

Schlumberger Array

ANCHOR MINE AREA

TAS-072



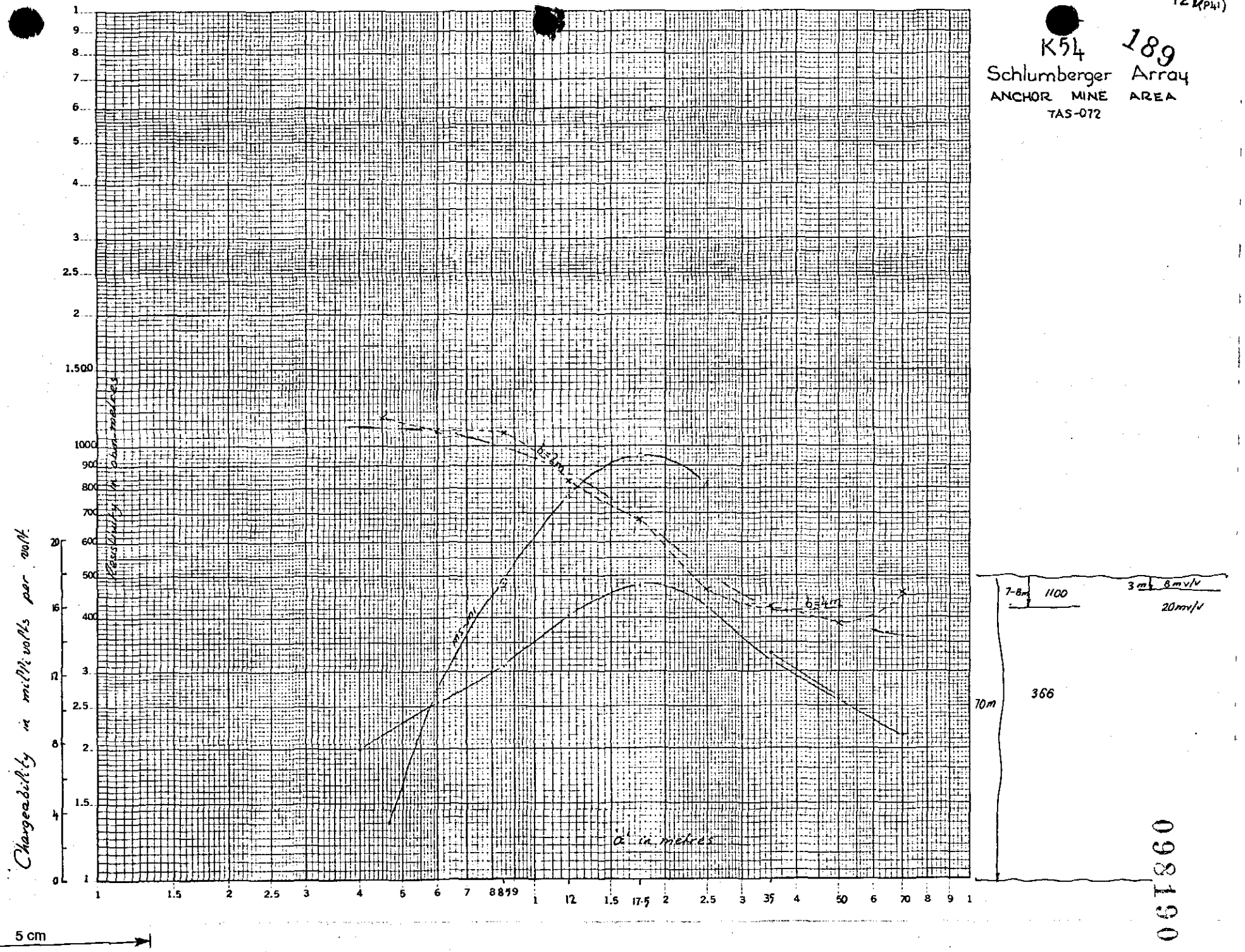
4m	1300	4m	12mv/v
	325		30mv/v

K54 189

Schlumberger Array

ANCHOR MINE AREA

TAS-072



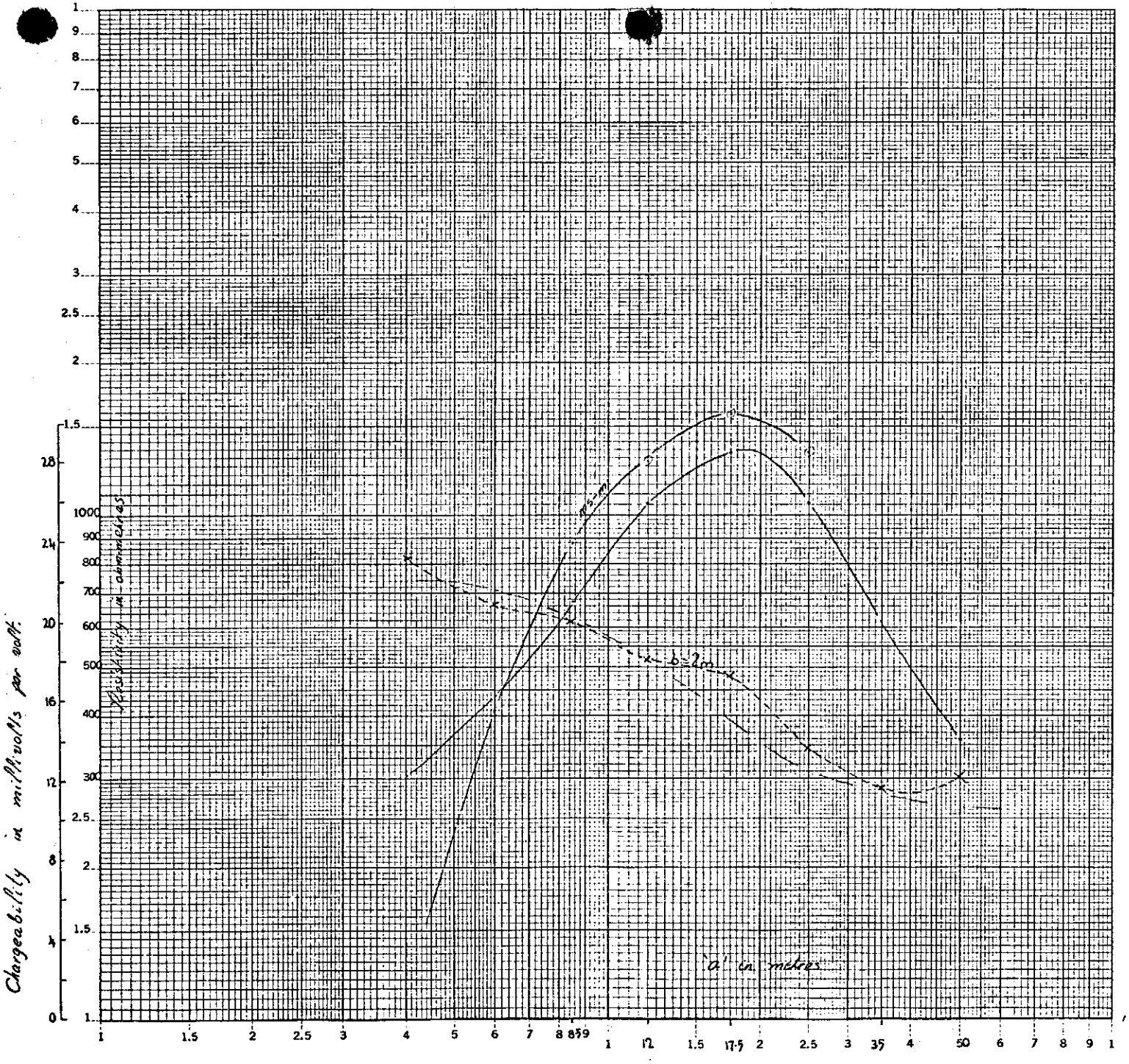
5 cm

K55 190

Schlumberger Array

ANCHOR MINE AREA

TAS - 072



6m | 740

250

3m | 12mv/V

30mv/V

5 cm

EGT860

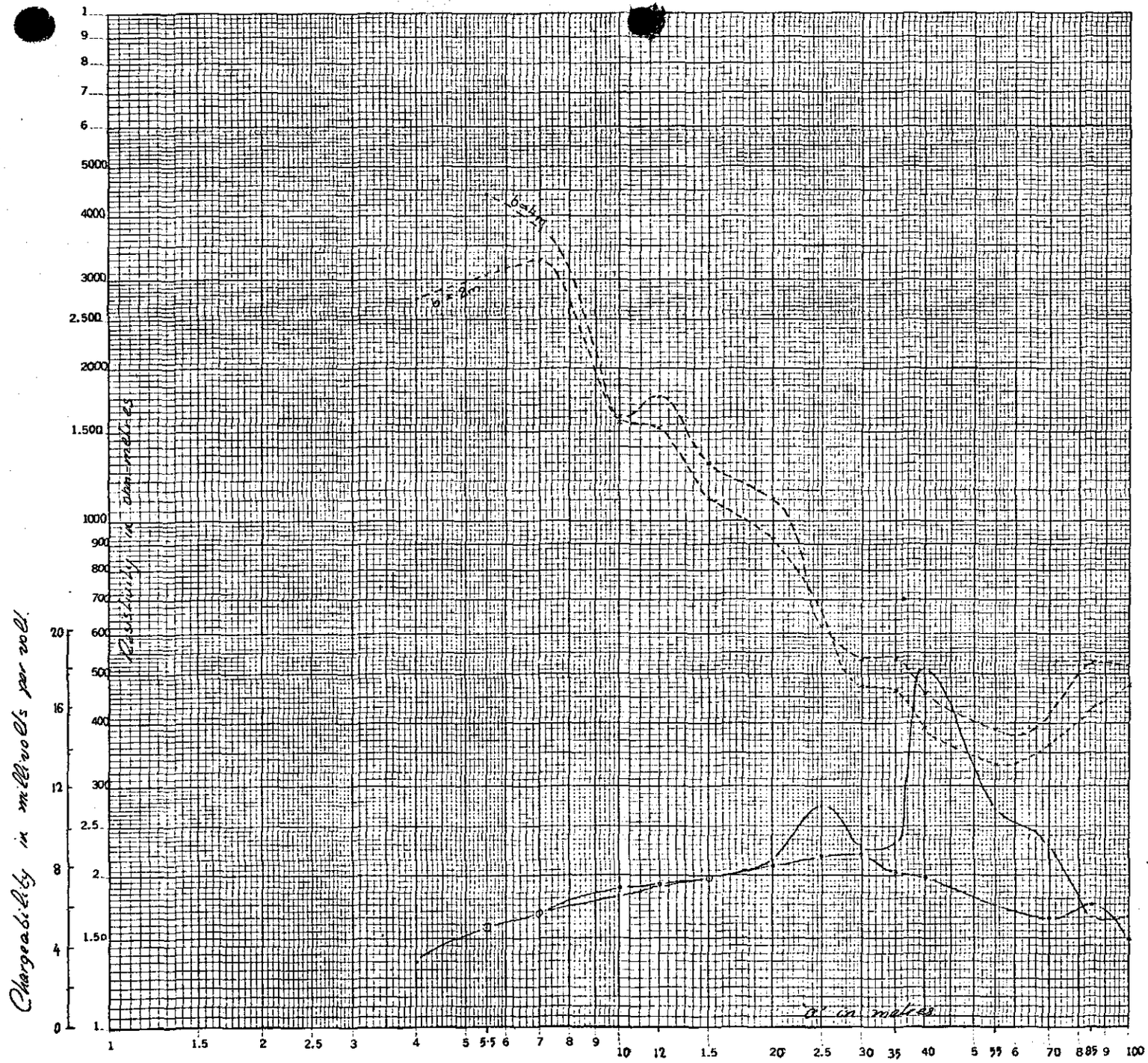
191

K3

Schlumberger Array

ANCHOR MINE AREA

TAS-012



5 cm

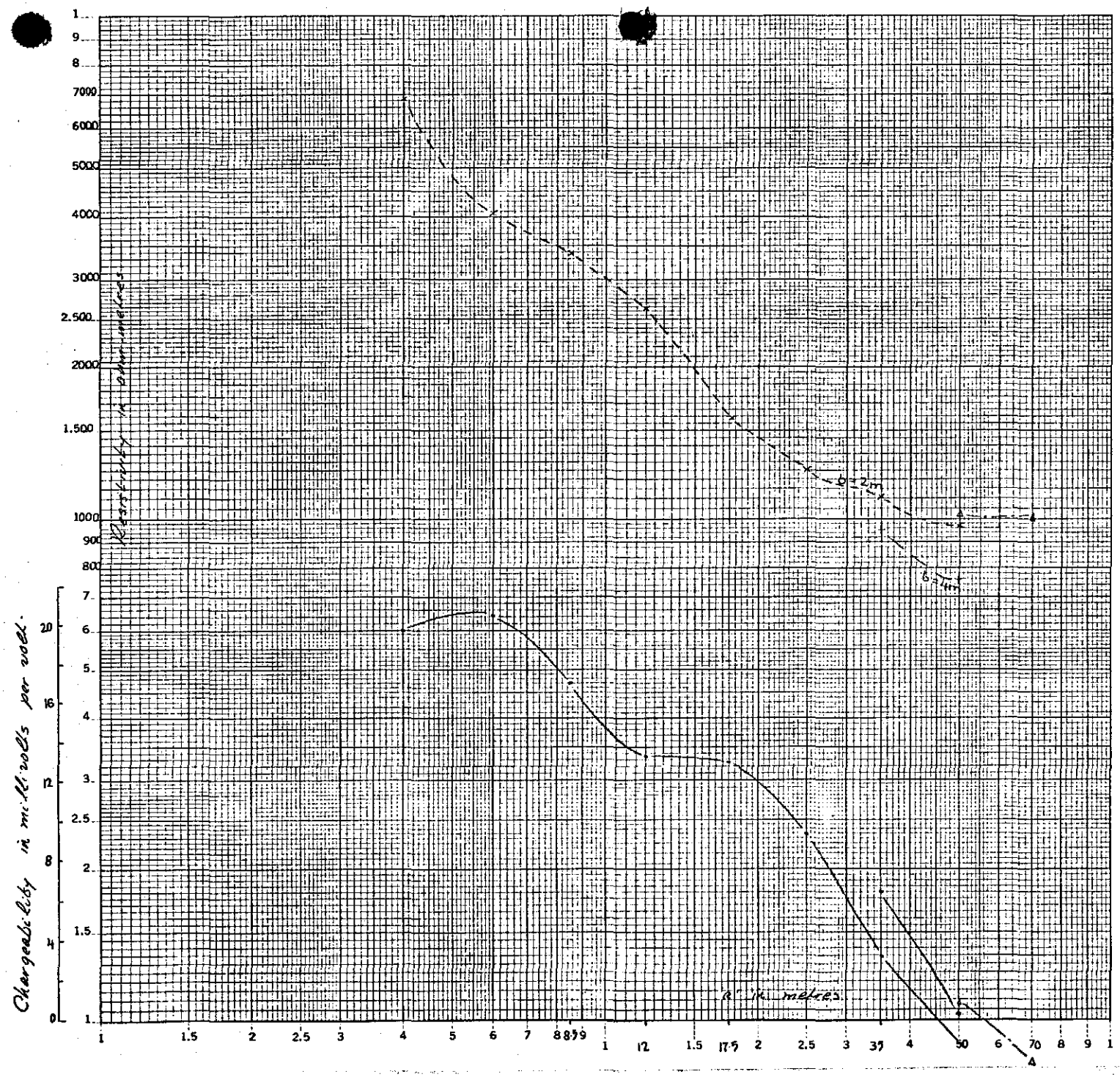
123 (P42)

K129 192

Schlumberger Array

ANCHOR MINE AREA

TAS-072



5m	4500	7m	20mv/v
900			low

C61360

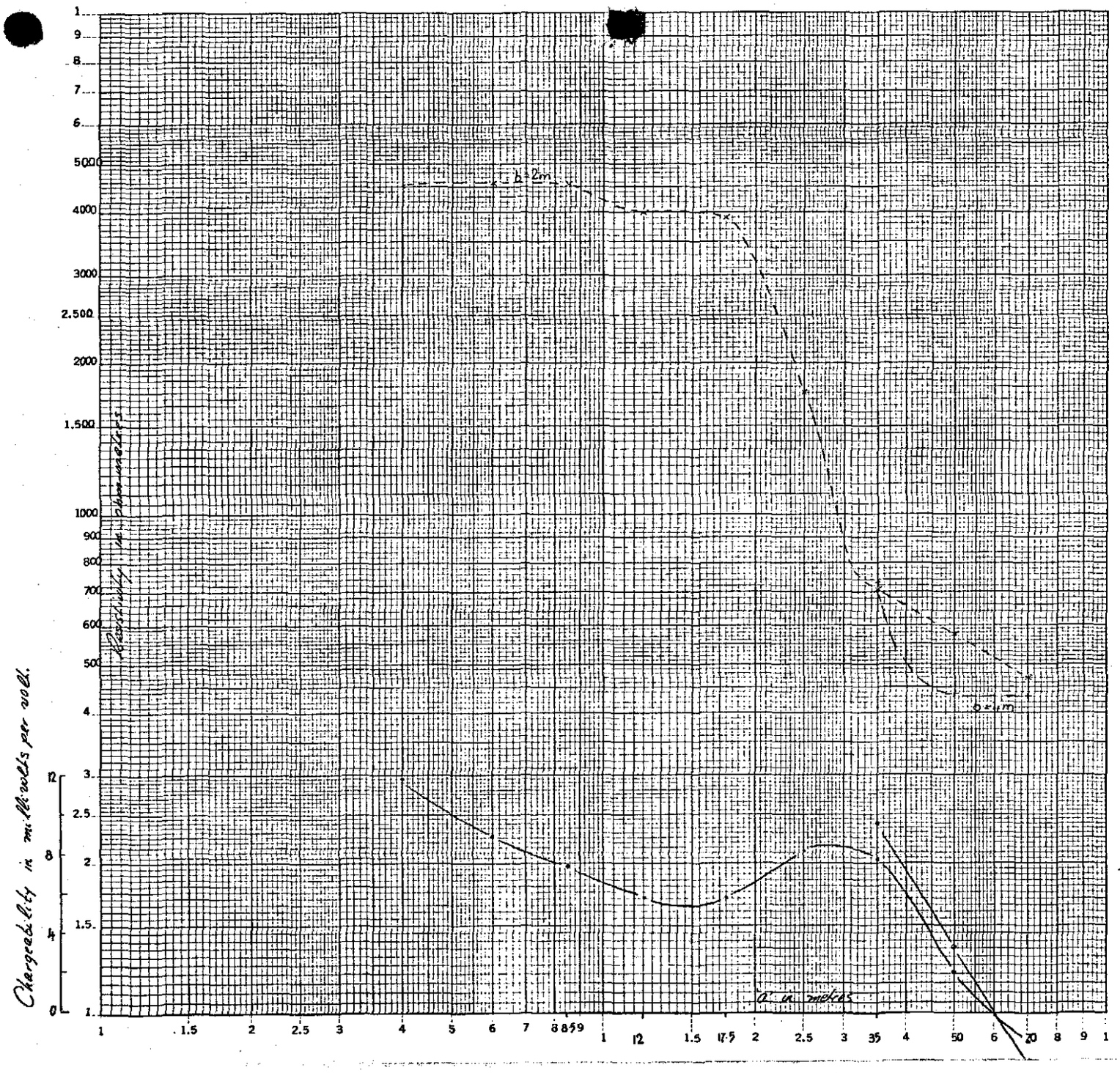
124 (P43)
193

K123

Schlumberger Array

ANCHOR MINE AREA

TAS-072



11m | 4500 | 8±4 mv/v

230

5 cm

0931694

125(PL43)

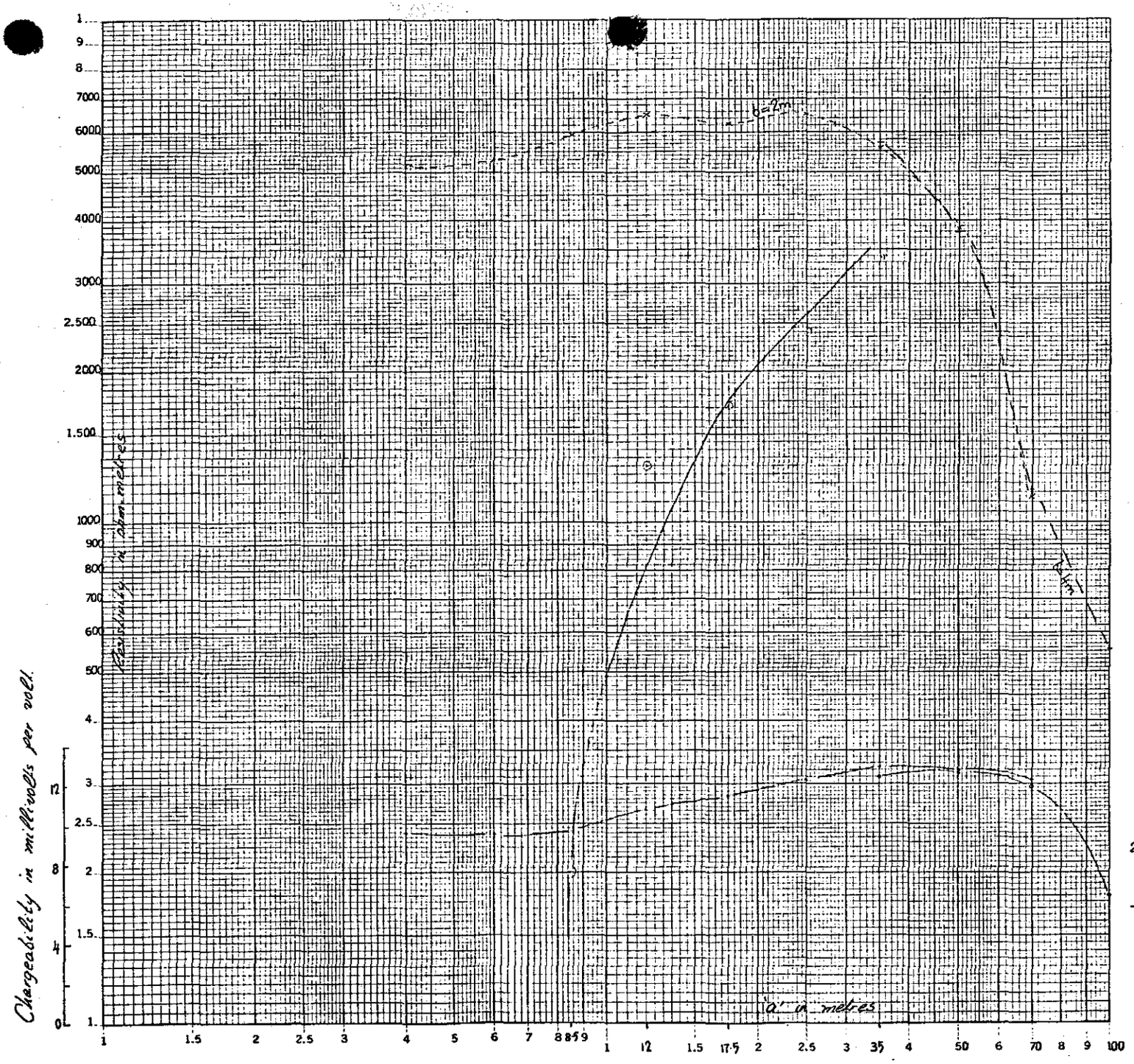
194

K114

Schlumberger Array

ANCHOR MINE AREA

TAS-072



5 cm

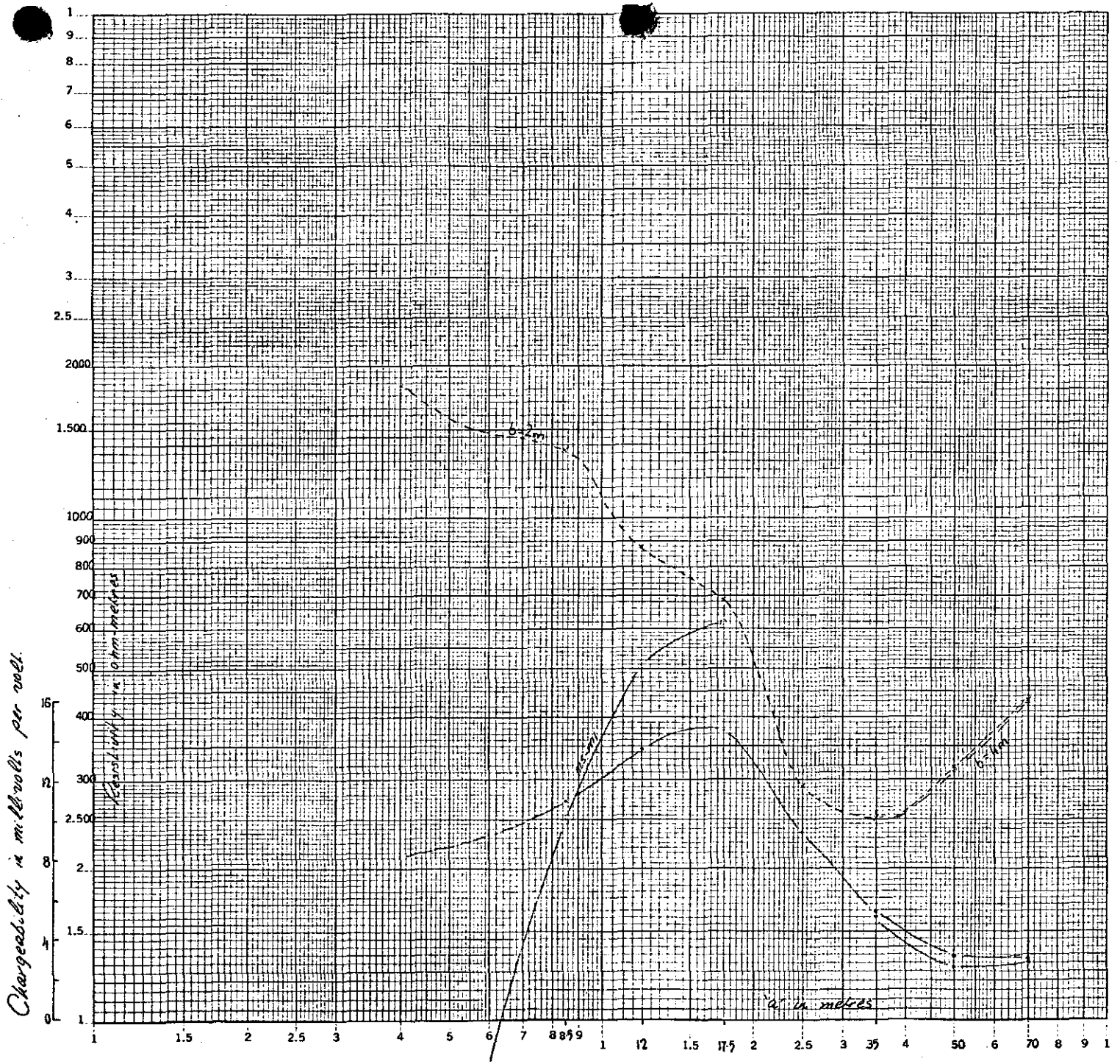
69160

K116

Schlumberger Array

ANCHOR MINE AREA

TAS-072



7m	1800	8mv/v
	100	18mv/v±

5 cm

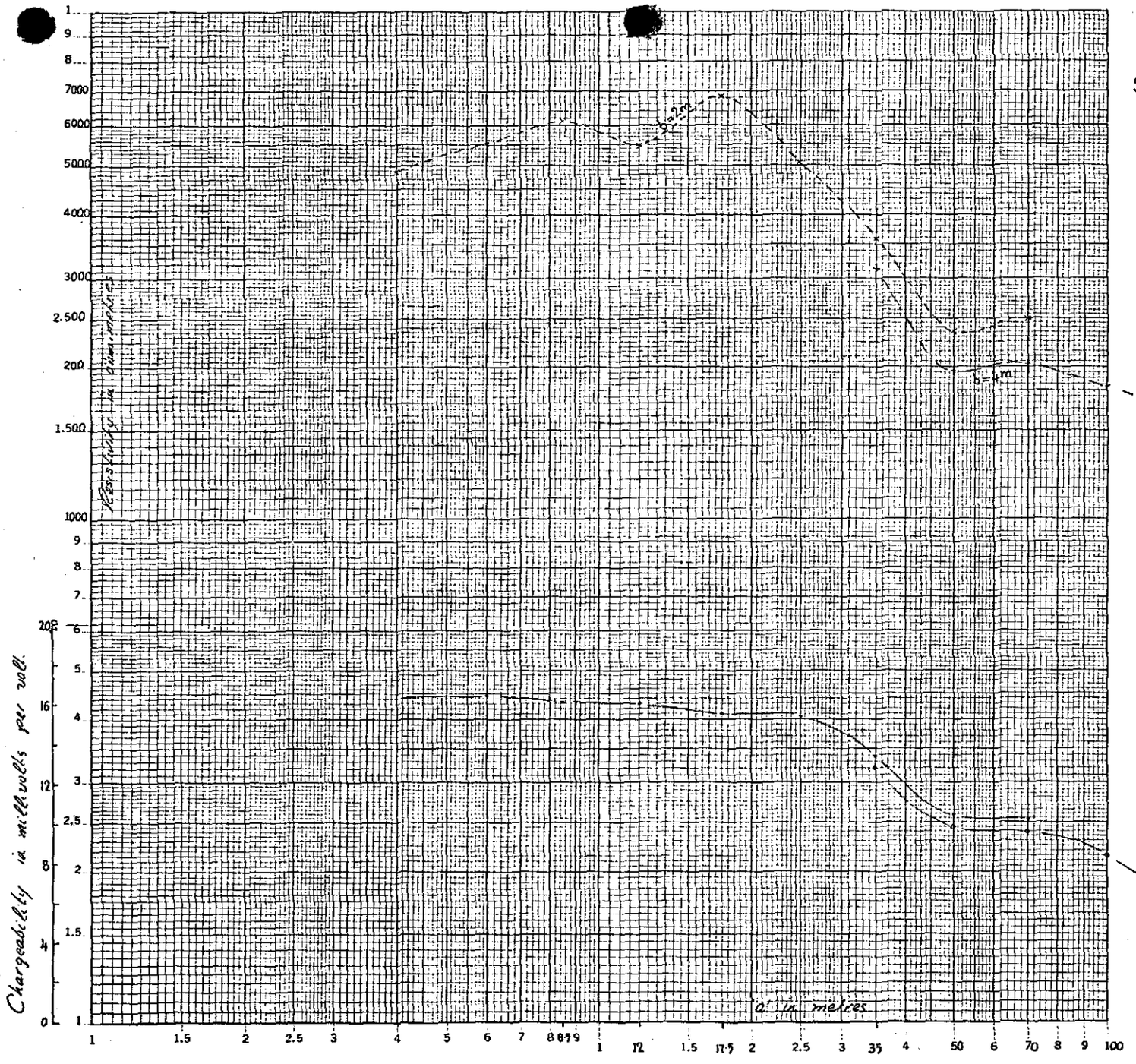
9GT360

K115 196

Schlumberger Array

ANCHOR MINE AREA

TAS-072

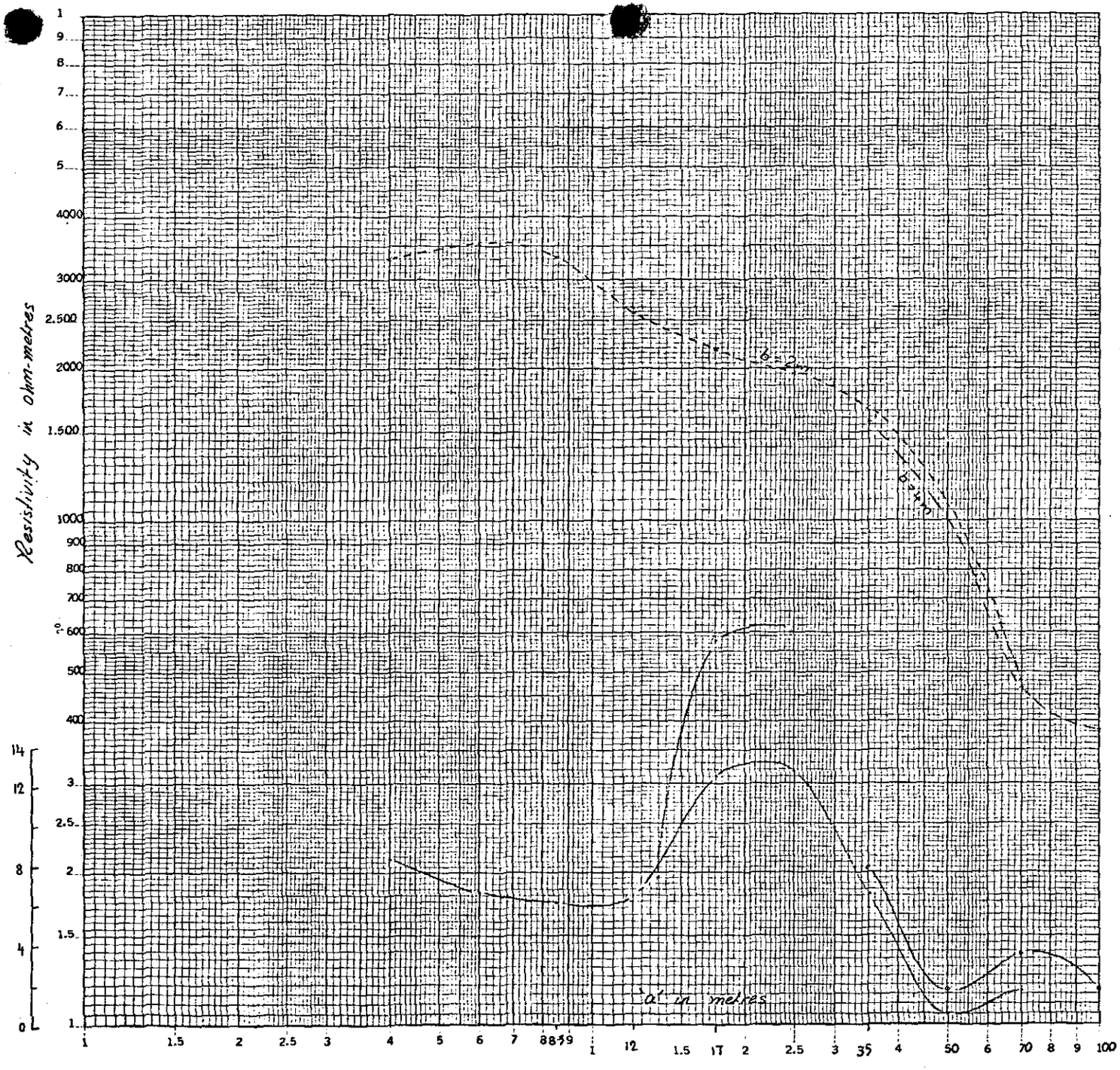


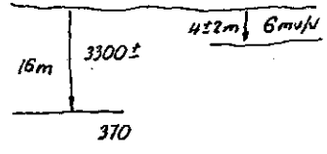
5 cm

K88 197

Schlumberger Array

ANCHOR MINE AREA
NR ST. HELENS
TAS-072





5 cm

129 (544)

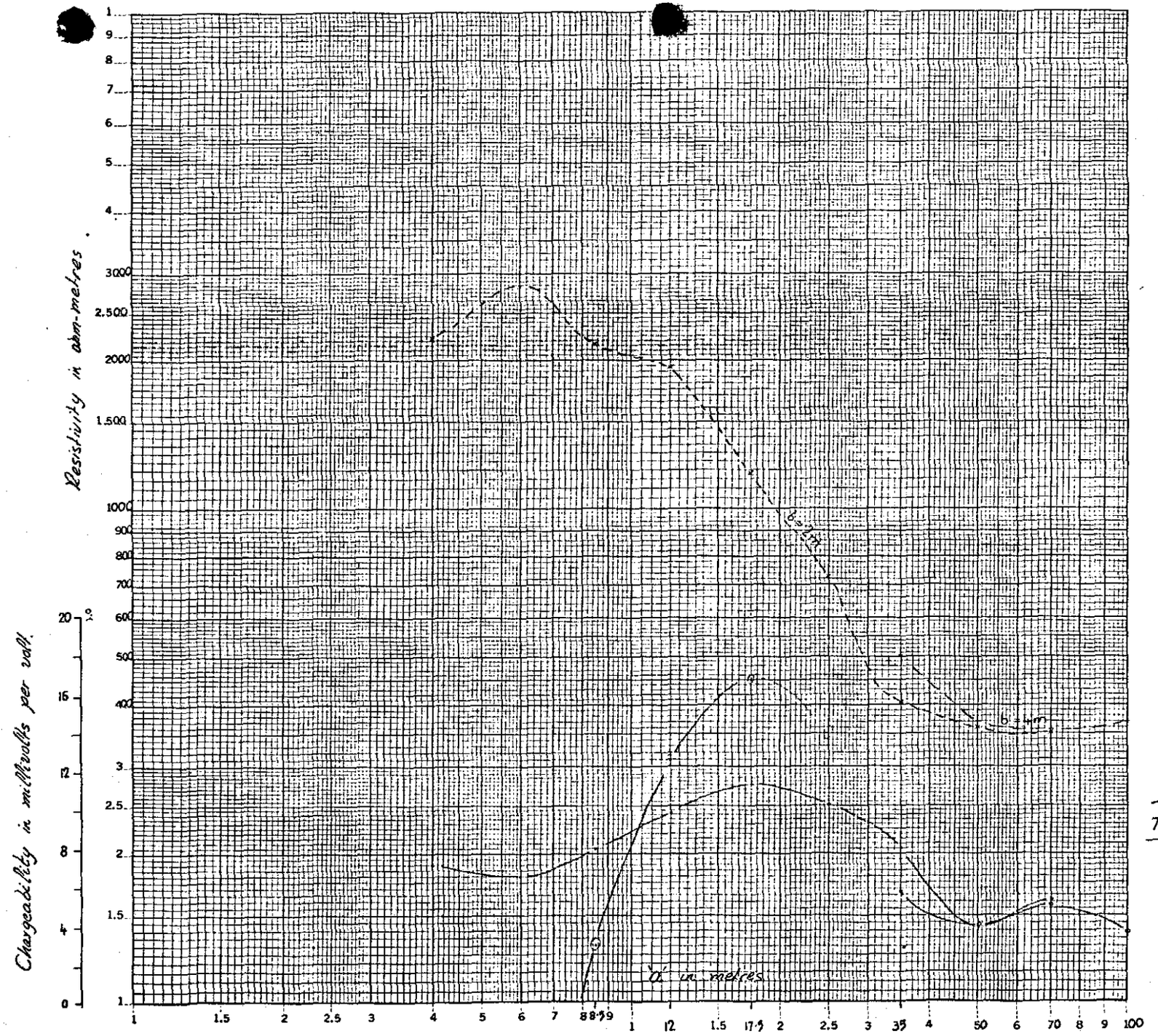
K89 198

Schlumberger Array

ANCHOR MINE AREA

NR. ST HELENS

TAS - 072



7m	2900	3m | 6·5 mv/v
	300	14mv/v

5 cm

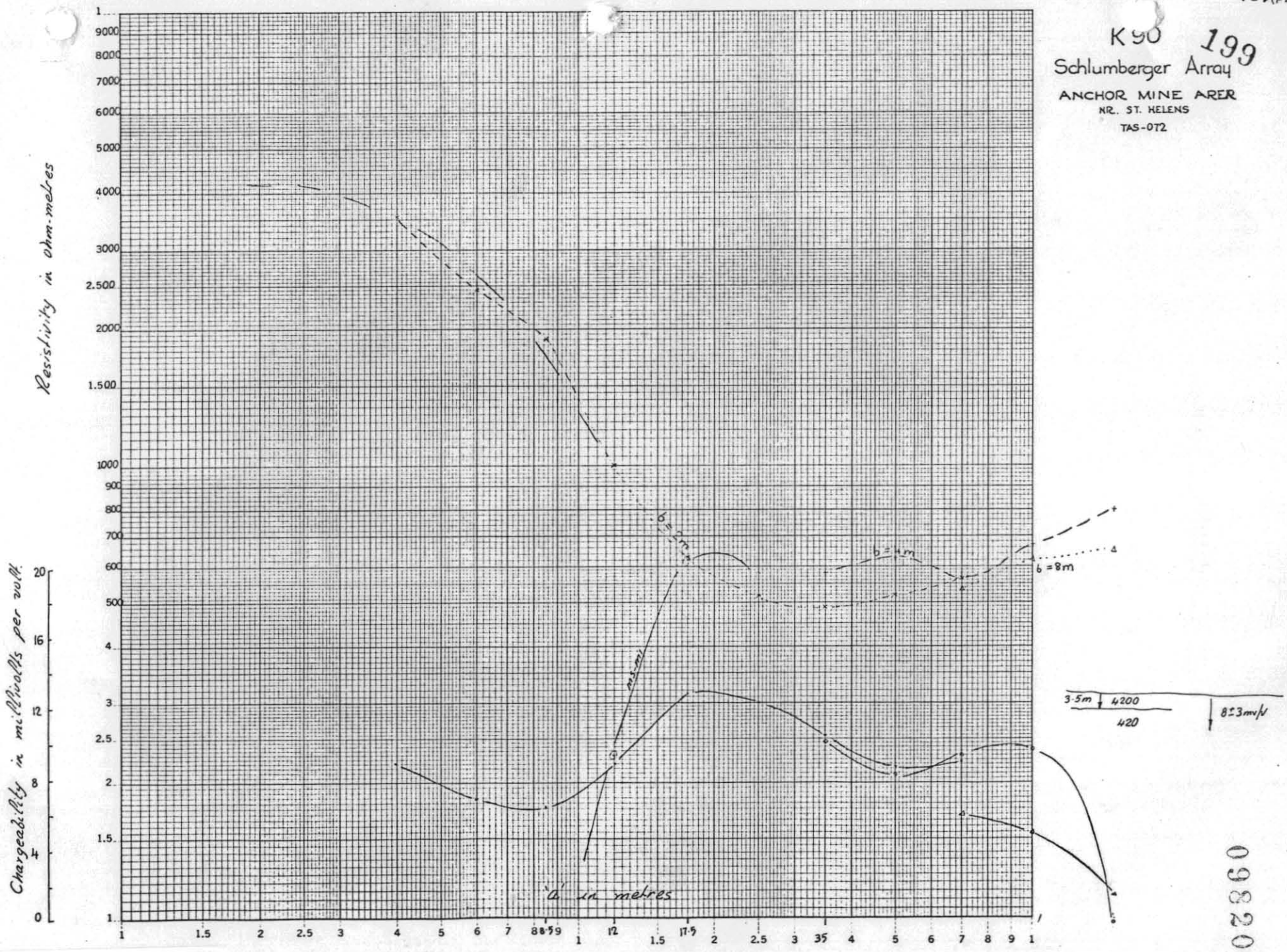
66T860

130 (P44)

K90 199

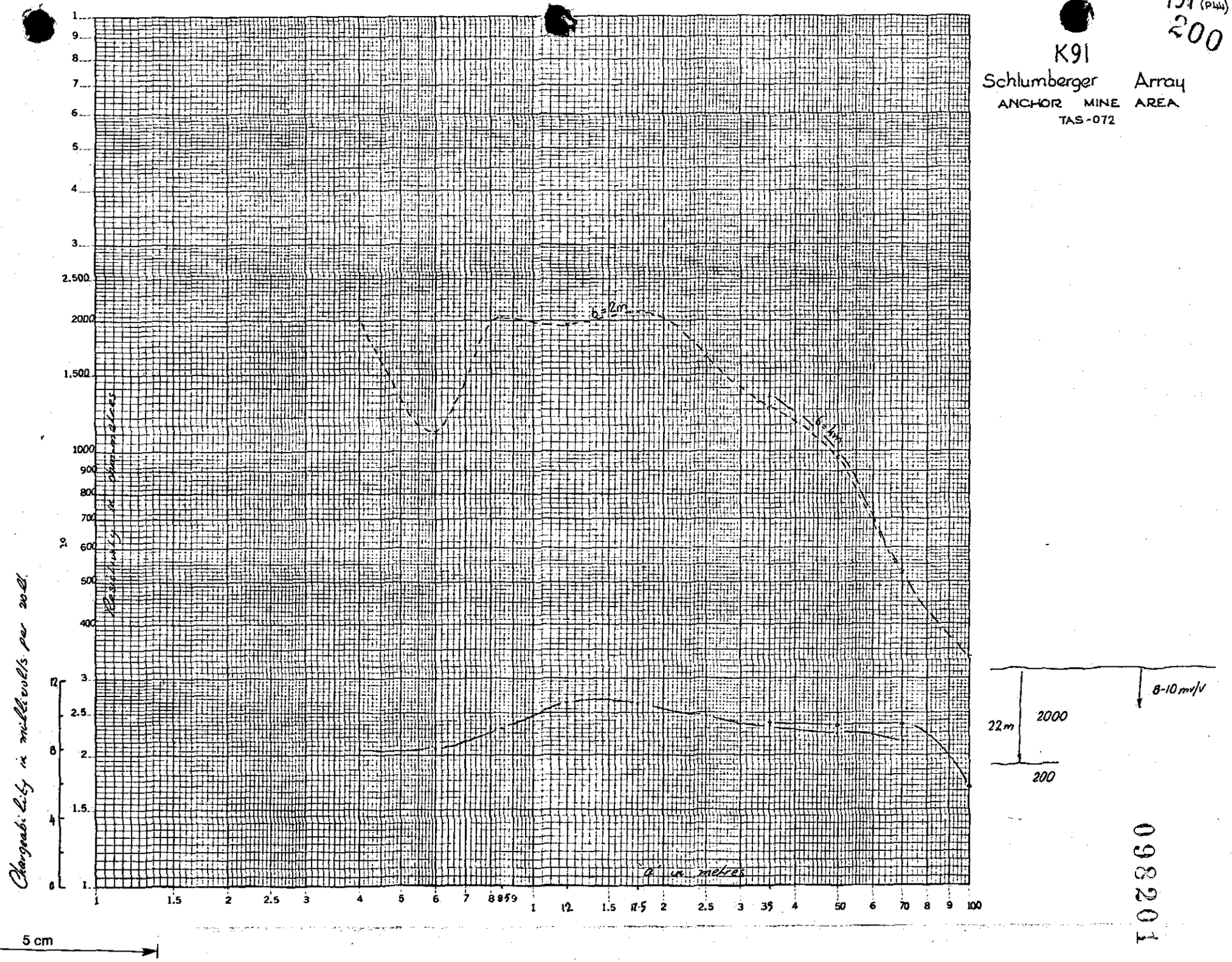
Schlumberger Array

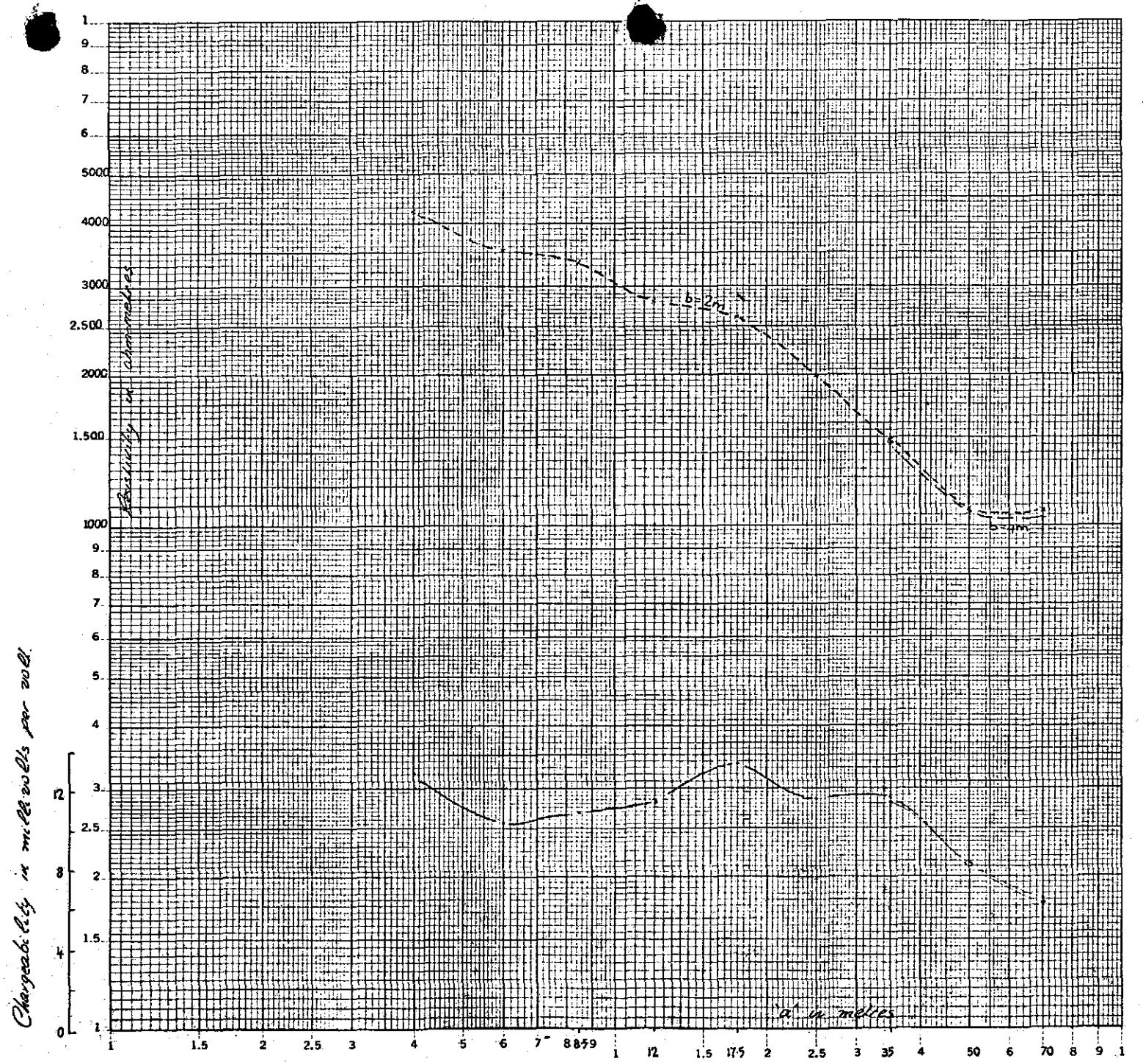
ANCHOR MINE ARER
NR. ST. HELENS
TAS-072



5 cm

002860


K91
Schlumberger Array
ANCHOR MINE AREA
TAS-072
137 (P44)
200
Apparent resistivity in ohm-metres
Chargeability in milliVolts per Volt
a in metres
b=2m
b=4m
8-10 mV/V
22m
2000
200
5 cm
02860



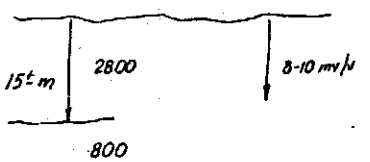
132 (P44)

K92 201

Schlumberger Array

ANCHOR MINE AREA

TAS-072



20260

ANCHOR WORKINGS

Legend

- of primary interest
- secondary
- tertiary
- less than tertiary

NOTE. Multiply by 100 for correct resistivity values

Surveyed & compiled by SCINTREX
AUG - SEPT 1979
Job No. TAS 072

098203

5cm

RENISON LIMITED

BLUE TIER AREA
LOTTAH GRID
SOUNDINGS

SCALE 1:5000 METRES

BT 305

80-424