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COMPAGNIE GÉNÉRALE DE GÉOPHYSIQUE

RENISON LIMITED

GEOPHYSICAL SURVEY ON THE EASTERN PART

OF MOUNT TYNDALL LEASE (E.L. 9160)

- RED HILLS
- LAKE ROLLESTON

1969 - February 1970

C.G.G.

26-28 Manning Street, SOUTH BRISBANE

ABSTRACT

The geophysical survey carried out by C.G.G. for RENISON LIMITED in the Mount Tyndall area lasted 85 days from November 1969 to February 1970. A total of 43 miles of profiles was carried out. Measurements include time domain I.P., resistivity and S.P. A magnetic coverage was carried out by Renison Limited.

More than 20 days were lost because of bad weather.

5 I.P. anomalies were detected in Red Hills. A1 coincides also with a magnetic anomaly, a conductive anomaly and a S.P. anomaly, a drill hole has been recommended on A1.

17 I.P. anomalies have been detected in the Lake Rolleston area. They belong to three types :

Type a : 5 I.P. anomalies located in resistant areas and where the polarizable body is also magnetic.

Type b : 5 anomalies and part of 2 anomalies are located in resistant areas but not associated with any particular magnetic anomaly.

Type c : 7 anomalies associated with conductive anomalies and generally S.P. anomalies but not associated with any magnetic anomaly.

Type C anomalies lie on the eastern and western limits of the surveyed area on the edges of a Cambrian compartment.

6 drill hole sites have been suggested, 2 for each type of anomalies.

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INTRODUCTION

From November 1969 to February 1970, COMPAGNIE GENERALE DE GEOPHYSIQUE carried out a geophysical survey for RENISON LIMITED in the Mount Tyndall area between Rosebery and Queenstown in Western Tasmania. (see Fig. 1).

The Red Hills and Lake Rolleston areas lie inside a Cambrian compartment between two north-south rifts. The Cambrian formations are volcanics and sediments strongly folded, they are similar to the geological formations of Mount Lyell mining district. Showings of copper sulfides are known at Red Hills, Lake Selina and Lake Dora. The showings of Lake Selina contain also some galena. Pyrite, pyrrhotite and magnetite are common. Several adits, pits and trenches have been dug as early as the end of the nineteenth century.

From 1957 to 1960, RIO TINTO carried out several geophysical surveys including airborne magnetometry, ground magnetometry, electromagnetism, gravity and self potential in the Red Hills and Lake Dora areas.

Results of previous exploration, the topographical and geological features of the area led to the opinion that any economical ore body in the area would have to be large and was most likely to belong to the "disseminated sulphides" type. Induced Polarization was obviously the main method to be relied upon since it is the only geophysical method able to record anomalies over buried disseminated non-magnetic sulfides.

Magnetometry, resistivity and S.P. were unexpensive and useful complementary methods, very helpful in regard to the understanding of the structural positions of I.P. anomalies and the determination of their cause.

For a reconnaissance program, a 800 foot spacing between profiles was sufficient. A double asymmetrical pole-dipole array was selected because it is well adapted to the detection of wide disseminated sulfides bodies and to the coverage of long reconnaissance profiles in rugged country.

We wish to thank very much Mr. R. Shakesby, Chief Geologist, of Renison Limited and Mr. T. Woodward for their help and close co-operation.

1. FIELD AND GEOPHYSICAL CONDITIONS

1-1. Location - Access - Terrain Conditions

The Red Hills and Lake Rolleston areas are accessible from the Murchison Highway (see Fig. 1) by a dirt road which follows the Henty River Valley. The surveyed areas in Red Hills and Lake Rolleston are accessible only with four wheel drive vehicles.

Terrain conditions were difficult, steep slopes, small cliffs, vegetation slowed considerably the progression of measurements. Actually weather was the main hindrance, from the 23rd. of November 1969 to the 24th. February 1970, 20 working days were lost due to heavy rains, field operations were slowed down by bad weather for as many days.

1-2. Electrical Conditions

Resistivity or I.P. measurements did not give rise to any particular problems.

The resistance of the potential electrodes was generally well below 3000 ohms (two Schlumberger porous pots).

The current line (wire and steel rods) had generally a resistance of about 1000 ohms, with a single steel rod as the mobile current electrode. In some exceptional cases, on sandstone outcrops, the current line resistance reached 4000 ohms.

Apparent resistivities were generally higher than 500 ohm-m even on the moraine (see Fig. 2) and measured voltages were always superior to several tens of millivolts.

2. FIELD OPERATIONS AND STATISTICS

2-1. Field Operations

The array was a double dissymmetrical pole-dipole. The dimensions of the arrays were selected following the shape of electrical soundings in order to make sure that the I.P. decay voltage was due to formations of the bedrock. Such tests were particularly important between Lake Selina and Lake Rolleston where the moraine is locally more than 200 feet thick.

The spacing between profiles was generally 800 feet, the leap between measurements was 200 feet.

The transmitter was set up on the base line and was moved only every 5 or 8 profiles. The total length of the current line reached 4 miles.

- one technician operated the transmitter.
- the two receivers, one on each side of the mobile current electrode, were operated by one technician and one helper (length of the receiving dipole : 200 feet).
- two helpers moved wire and current electrode on the traverses.
- five one watt walkie-talkies were used for communications: one at the transmitter, one at each receiver, one at the current electrode, one with the helper who unwound and connected the wire on the traverses.

2-2. Statistics2-2-1. Composition of the Crew

- One Senior Observer Party Chief : C. BRUNEAU
- Two Junior Observers : P. BAXTER
D. PARKINSON

(D. Parkinson was replaced by T. PAYLING after the 2nd. of February).

- Four Helpers
- One Cook (after the 3rd. of January).

2-2-2. EquipmentSupplied by C.G.G. :

- Two IPR7 SCINTREX "Newmont type" I.P. receivers (integration from 450 to 1150 ms after cut-off).
- One 7.5 KVA HUNTEC I.P. transmitter (timing: two seconds on, two seconds off).
- One SCHLUMBERGER resistivity set.
- Six 1W TOKAI transceivers.

Supplied by RENISON LIMITED :

- One TOYOTA Landcruiser 4 wheel drive vehicle.
- One radio set for communications with Renison Mine.

2-2-3. Measurement Output

- First measurement : 22nd. of November 1969.

- Interruption from the 22nd. of December 1969 to the 3rd. of January 1970.
- Last measurement : 24th. of February 1970
- Days lost because of weather conditions : 20

Red Hills :

- Electrical Soundings : 3
- I.P. and resistivity double pole-dipole profiles : 11.62 miles
- I.P. and resistivity AB profile : 0.36 mile
- Total of I.P. measurements : 640
- Total of Apparent Resistivity measurements : 640
- Total of S.P. measurements : 621

Lake Rolleston :

- Electrical Soundings : 14
- I.P. and resistivity pole-dipole profiles : 30.63 miles
- AB resistivity profile : 0.7 mile
- I.P. measurements : 1451
- Apparent Resistivity measurements : 1488
- S.P. measurements : 1451

The total mileage amounts to 42.31 miles. Mean output per day, including time lost because of bad weather, time spent moving from Red Hills to Lake Rolleston, breakdowns, time spent for tests and Electrical Soundings is 0.51 mile/day (2700 feet).

3. GEOPHYSICAL RESULTS IN RED HILLS

3-1. Magnetometry

The main anomalies are located on the Red Hills on the eastern parts of Profiles 8S, 16S and 24S.

There are two main positive axes warped from a north - south trend between Profiles 24S and 16S to a northwest - northeast trend between Profiles 16S and 8S. The anomalies amplitudes reach 3000 gammas but two narrow maximums on Profile 16S exceed 5000 gammas.

The shape of anomalies show that the magnetic bodies are very shallow.

It is not possible to correlate the anomalous axis from Profile 8S to Profile 00, the magnetic discontinuity may be due to a fault.

The area of a magnetic anomaly as plotted on a profile in feet x gammas is roughly proportional to the quantity of magnetic material. The areas of the magnetic anomalies on different profiles are indicated on Fig. 1. The order of decreasing importance is :

- Profile 16S
- Profile 8S
- Profile 8N
- Profile 24S
- Profile 00

but the intensity of magnetization is higher on Profile 8S, this is likely to be due to a higher concentration of magnetic material on Profile 8S, between pegs 20E and 25E.

The geological map does not show much correlation with the magnetic map. The magnetic anomalies are at least partly due to pyrrhotite since pyrrhotite was found in a gully above the adit between Profiles 8S and 00.

3-2. Resistivity

Both apparent resistivity maps show approximately the same features. Receiver 1 apparent resistivities (Plate 2) follow smoother patterns than values obtained with Receiver 2, (Plate 3) because they are less affected by surface heterogeneities.

Electrical Soundings (Fig. 2) show that for $AB/2 = 300$ feet the apparent resistivity is nearly as large as the true resistivity.

The main trends of contours are parallel to the geological and magnetic trends.

Elongated conductive anomalies are likely to be due to shaly strata :

- Profiles 24S, 32S and 40S west from the base line.
- Anomaly A5 (see Plate 7).
- Anomaly A4 : the conductive axis is perhaps the TURAM anomaly detected by RIO TINTO.

- Anomaly A1 is intersected only by Profile 8S, it has been confirmed by a gradient array profiling (see Plate 8).

It shows an eastward dip of the conductive body, it is unlikely to be due to a particular stratum.

3-3. Induced Polarization

The five main anomalies are located in the eastern part of the area (Plate 2). The background chargeability is about 3 milliseconds. The largest anomaly has a maximum of 39 ms (integration between 450 and 1150 ms after cut-off).

When using a pole-dipole array, the chargeability is roughly proportional to the concentration of disseminated conductive particles, therefore, the area of an anomaly as plotted on a profile should be roughly proportional to the total quantity of conductive particles.

The areas of the anomalies on different profiles are plotted on Fig. 1. The order of decreasing importance is :

- Profile 16S
- Profile 24S
- Profile 8S
- Profile 8N
- Profile 00

Anomaly A1 on Profile 8S seems to be the most interesting anomaly with the highest concentration of conductive particles,

it has been well confirmed by a gradient array profile on 8S (Plate 8).

3-4. Self Potential

A 65 mv anomaly coincides with A1 on Profile 8S, all other S.P. anomalies are weaker and may be due mainly to topographical effects.

3-5. Comparison of the Magnetometry, I.P., Resistivity and S.P. Results

The main features of the magnetometry, I.P., resistivity and S.P. results are plotted on Plate 5.

A1 : on Profiles 24S and 16S, the I.P. axis follows approximately the magnetic axis, on Profile 8S, the I.P. axis coincides also with a conductive axis and a S.P. anomaly. On Profile 8S, A1 is probably due to a net of veinlets with an electrical continuity, the mineralization may even be locally massive, it dips eastward. On Profiles 16S and 24S, A1 is due to a mineralization of disseminated conductive particles, some of the particles are magnetic.

A2, A3 and A4 ^{Not shown} do not coincide with conductive anomalies but they show some correlations with magnetic anomalies, they are due to disseminated conductive particles, part of them are magnetic.

A5 : the I.P. anomalous axis coincides with a conductive axis but there is no magnetic anomaly. A5 may be due to a sulfide mineralization devoid of pyrrhotite or magnetite, it is much more likely to be due to conductive graphitic shales.

In order to get an idea of the influence of the magnetic minerals, probably pyrrhotite, on the I.P. results, the areas of the chargeability anomalies have been plotted versus the areas of the corresponding magnetic anomalies on Fig. 3.

The influence of the non-magnetic conductive minerals seems the strongest on Profiles 16S and 24S but this is certainly due to I.P. anomaly A5 and may be of no economic interest since A5 is likely to be due to shales. The area of the I.P. anomalies on Profiles 16S and 24S minus the area of A5 have also been plotted on Fig. 3, it shows that the proportion of conductive non-magnetic mineral is about the same on Profiles 8S, 16S and 00, it is probably higher on 24S and certainly lower on 8N.

It confirms that A1 on 8S is certainly the anomaly likely to be due to a higher grade mineralization than any other anomaly.

3-6. Conclusions and Recommendations

The geophysical survey carried out in Red Hills showed that a near surface concentration of conductive minerals occurs mainly on the eastern part of Profiles 8S, 16S and 24S. Part of the minerals are magnetic. At least part of the magnetic minerals are pyrrhotite particles.

Anomaly A1 seems to be due to a net of veinlets with an electrical continuity, the mineralization may even be locally massive. The concentration of conductive minerals is perhaps due to a warping and transverse faulting of the strata.

If geochemical and geological observations seem attractive enough we would recommend drilling a hole from peg 25E on Profile 8S (see Plate 8) following a 45° westward dip.

4. GEOPHYSICAL RESULTS IN THE LAKE ROLLESTON AREA

4-1. Magnetometry

The isogams are contoured on Plate 1, the results of the interpretation are plotted on Plate 12.

The general trend of the numerous magnetic anomalies is north - south, parallel to the geological strata, but there are many local variations and accidents.

A comparison of an outcrops map, a resistivity map and the isogam map suggest that the anomalies are due to conformable strata and lenses in the Cambrian volcanics. Samples taken on outcrops near Lake Selina and Lake Dora contain pyrrhotite and magnetite.

Three different areas appear on the isogam map :

- a central area where magnetic anomalies are numerous. Amplitudes are sometimes larger than 2000 gammas, (Profile 72N) like in Red Hills. The magnetic bodies are outcropping except where the moraine is several tens of feet thick.
- an eastern area where magnetic profiles are flat and smooth.
- an area similar to the eastern area exists in the southwestern corner (Profiles 110S to 144S).

The limits of the three above areas are plotted on Plate 12, they probably correspond to geological limits, for example, limits between volcanics and plain schists.

Three main transverse faults intersect the area :

- F1 between Profile 8S and Profile 16S is at right angle with the strata.
- F2 runs from Profile 48S to Profile 96S and makes a small angle (0° to 30°) with the magnetic strata.
- F3 from 96S to 136S is approximately parallel with F2. F3 intersects the northern compartment strata and is parallel to the magnetic trends of the southern compartment.

The eastern magnetic marker is folded in the northeastern corner of the area, the two limbs of the fold are at right angles.

The highest concentration of magnetic minerals is located on the western magnetic marker on Profile 72N.

4-2. Resistivity

Electrical Soundings show that the true resistivity of the unweathered Cambrian volcanics varies between 2000 and 15000 ohm-m.

The true resistivity of the non-magnetic schists is lower, between 1000 and 3000 ohm-m (ES88S-3000E). A conductive formation, perhaps graphitic shales, follows the eastern limit of Cambrian compartment. ES88S-3200E shows that its resistivity is less than 30 ohm-m.

Between Profiles 40N and 24S the eastern half of the area is covered by moraine. ES24N-800W, 8S-450E and 16N-1600W show that the top of the moraine is very resistant, about 8000 ohm-m, the bottom is conductive, about 100 ohm-m. It means that the upper part of the moraine is a mixture of sand, pebbles and boulders with a small percentage of clay and that the bottom is very clayey.

The following interpretation fits with ES24N-800W from top to bottom :

<u>thickness</u>	<u>resistivity</u>
13 feet	1500 ohm-m
26 feet	8000 ohm-m
170 feet	100 ohm-m
bedrock	2000 ohm-m

the total thickness of the moraine would then be 209 feet.

At ES16N 1600W the bedrock may be 440 feet deep, at ES8S 450E it is probably not more than 175 feet deep.

The above figures are deduced from hypothetical values of the true resistivities, the real figures may be different but the discrepancies are likely to be not larger than 20%.

The limit of the thick moraine follows roughly the 1000 ohm-m contour between Profile 40N and Profile 24S on Plate 2 (Receiver 1). Within that limit the thickness of the moraine may vary between 30 and 500 feet.

Because of the importance of the moraine in the northern part of the area from Profile 88N to Profile 48S, a larger pole-dipole array was used.

The main trends of the contoured apparent resistivity maps are parallel to the magnetic and geological trends.

As proved by the gradient array test on Profile 72N (Fig. 4) the conductive area does not coincide with any part of the magnetic body situated near the base line.

A well defined conductive axis follows the eastern limit of the Cambrian compartment (see Plate 12). A steep resistant gradient follows the cliff east from the conductive axis (see Fig. 5).

A discontinuity of resistivity axes coincides with fault F1 defined by the magnetic interpretation (see Plate 2).

The F2 and F3 discontinuities are also visible on Plate 3.

The southwestern conductive area coincides with the non-magnetic formation, it is associated with a strong resistant gradient visible on Plate 3.

The pattern is thus symmetrical from the eastern limit of the Cambrian compartment.

4-3. Induced Polarization

It should be kept in mind that with a pole-dipole array the axis of a polarizable body does not coincide with the axis of the anomaly, moreover an I.P. anomaly has often two axes (see A1 on Profile 80N - Plate 6) one of them being due to the current electrode effect and the other one to the potential electrodes effect. When a double pole-dipole is used as in the Mount Tyndall area, the anomalies cross over the axis of the polarizable body (see Plate 8 - Red Hills).

The chargeability contours follow the general geological, magnetic and resistivity trends.

Seventeen anomalies appear on the Comprehensive Map (Plate 12).

- (a) 5 anomalies are located in resistant areas and associated with magnetic anomalies

A1 : A1 is more than 4800 feet long. From 88N to 48N it coincides with a magnetic body but there is no proportionality even approximate between the areas of the magnetic and I.P. anomalies.

The Lake Selina old adit is located near Profile 80N in the magnetic and polarizable body. Samples contain disseminated pyrrhotite, crystals of galena in joints.

A2 : this anomaly has a much smaller amplitude than A1, it coincides with a magnetic anomaly on Profile 48N.

It is a narrow anomaly, the polarizable body is nearly outcropping.

A9 : this weak anomaly is 2400 feet long, the axis of the polarizable body coincides with the axis of a magnetic body. The chargeability anomaly is apparently due to the magnetic minerals.

A10 : A10 is similar to A9, it coincides with the same body shifted eastward by fault F1.

A12 : A12 is similar to A9 and A10.

Remark : all magnetic bodies do not give rise to I.P. anomalies.

(b) 5 anomalies and parts of 2 anomalies are located in resistant areas but are not associated with any particular magnetic anomaly

- the southern end of A1 :

- the southern part of A2 :

A11 : A11 is less than 800 feet long. The polarizable body is buried under about 100 feet of moraine.

A13 : A13 is 1600 feet long, a gradient array resistivity profile (Fig. 6) showed that undoubtedly the mineralization does not give rise to any conductive anomaly.

A14 - A15 : A14 and A15 are probably due to the same polarizable body as it would appear from the chargeability maps but correlations do not appear easy from the profiles and perhaps A15 should be considered only as an extension of A14 on Profile 56S.

A14 - A15 are the largest anomalies of Group (b), but actually it might be better to classify them in Group (c) because there is a small conductive anomaly east from a strong resistant gradient.

A17 : part of the anomaly is visible on Profile 8N, its amplitude is certainly larger than 20 ms but most of it lies outside the surveyed area.

(c) 7 anomalies are associated with conductive anomalies and generally S.P. anomalies but they are not associated with any magnetic anomaly

A3 - A4 - A5 - A6 - A7 : this string of anomalies follows the eastern limit of the Cambrian compartment, they are all strong anomalies likely to be due to graphitic shales. Actually graphitic shales have been found near Profile 120S.

A8 - A16 : these anomalies are similar to the above group, there is probably a fault between A8 and A16.

4-4. Self Potential

Plates 10 and 11 show that all the S.P. anomalies are located on the eastern and western edges of the Cambrian compartment. The largest anomalies appear on the eastern ends of Profiles 72S, 80S and 88S. Their amplitude vary between -00 and -200 mv.

Their amplitudes are not too large for sulfides but their complex shapes rather suggest the existence of graphitic shales.

4-5. Conclusions and Recommendations

Three types of I.P. anomalies have been detected all due to subvertical polarizable bodies :

Type a : I.P. anomalies located in resistant areas and where the polarizable body coincides with a magnetic body : A1, A2, A9, A10, A12.

Type b : I.P. anomalies and part of anomalies located in resistant areas but not associated with any particular magnetic anomaly: southern end of A1, southern part of A2, A11, A13, A14, A15, A17.

Type c : I.P. anomalies associated with conductive anomalies and generally S.P. anomalies but not associated with any magnetic anomaly: A3, A4, A5, A6, A7, A8, A16.

The following facts are not encouraging :

- all anomalies are elongated and parallel to the geological and magnetic trends.
- graphitic shales have been found near Lake Dora on anomaly A6 (type c).
- part of Type a anomalies are due to pyrrhotite and magnetite in the Cambrian volcanics.

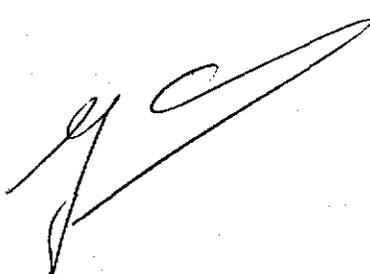
On the other hand :

- there is no doubt that Type a anomalies, particularly A1 and A2, show no proportionality between quantity of magnetic minerals and quantity of polarizable particles, therefore these anomalies may be nearly entirely due to non-magnetic conductive particles (pyrite, chalcopyrite, galena, ...).
- showings of chalcopyrite and galena are known, geochemical anomalies have been detected especially for lead.
- many anomalies of Types b and c are located along structural contacts between the Devonian conglomerates and the Cambrian volcanics, many mineralizations of the Mount Lyell district are located near such contacts.
- economic mineralizations may be associated with graphitic schists.

We would recommend to drill one or two anomalies of each type in order to get a better understanding of the different types and of their economic potential. The most attractive anomalies following the geological, geochemical and geophysical observations should naturally be drilled first.

The following selection of suggested drill sites is based on geophysical data alone.

<u>Anomaly</u>	<u>Profile</u>	<u>Maximum Length</u>	<u>Dip</u>	<u>Rig Position</u> <u>from Base line</u>
A 1 (a)	72N	900 feet	45°W	100 feet E
A 1 (a)	64N	800 feet	45°W	800 feet W
A 1 (b)	40N	400 feet	45°W	1300 feet W
A15 (b)	56XS	800 feet	45°W	1600 feet W
A 6 (c)	110S	1000 feet	45°E	2700 feet E
A 8 (c)	128S	900 feet	45°W	2500 feet W



G. OMNES

The Chief Geophysicist

Brisbane, 10th. July, 1970

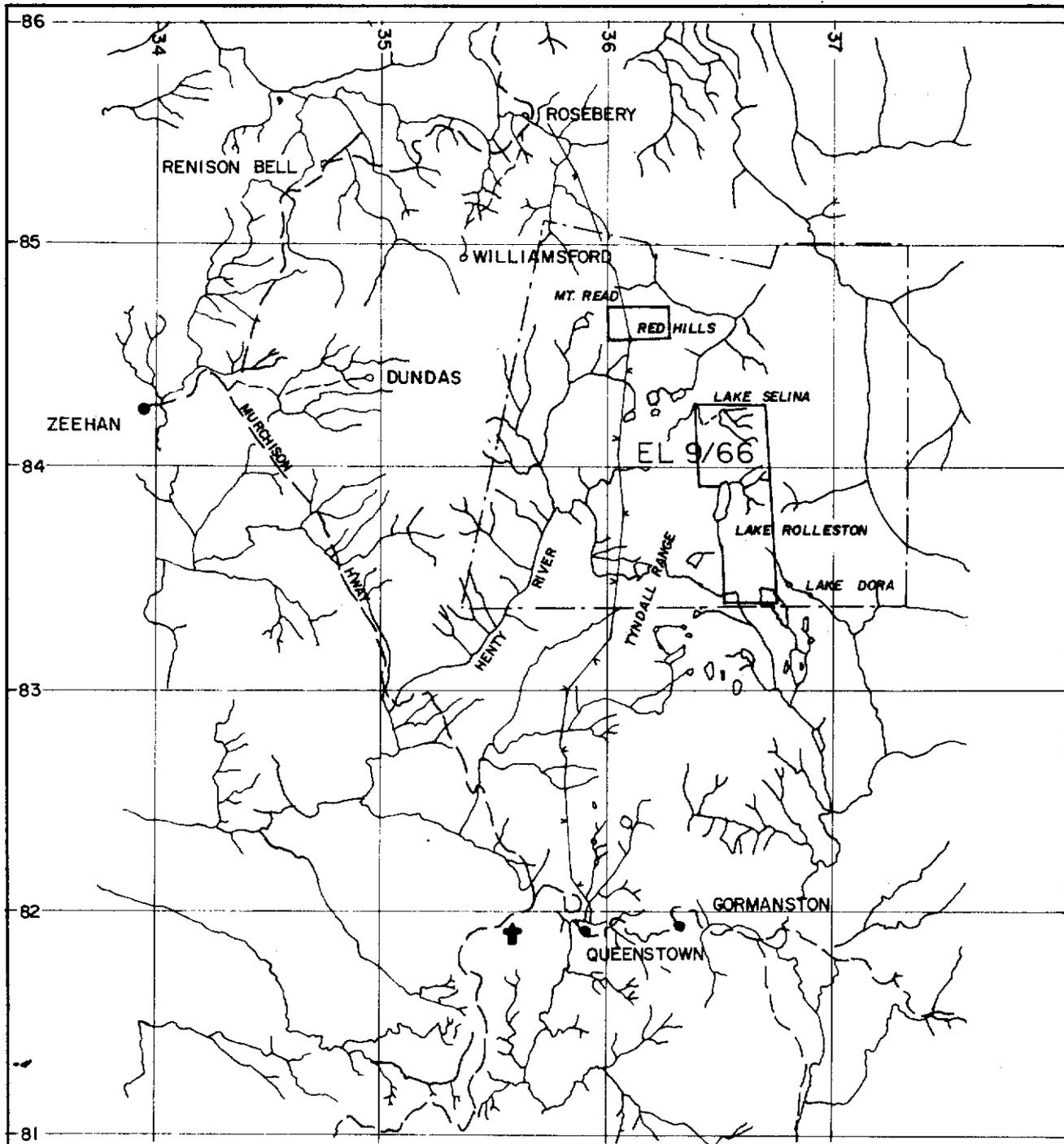


FIG. 1.

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LOCATION SKETCH

Scale 1" = 4 miles

5 cm

FIG. 3. CORRELATIONS BETWEEN I.P. ANOMALIES AND
MAGNETIC ANOMALIES IN RED HILLS

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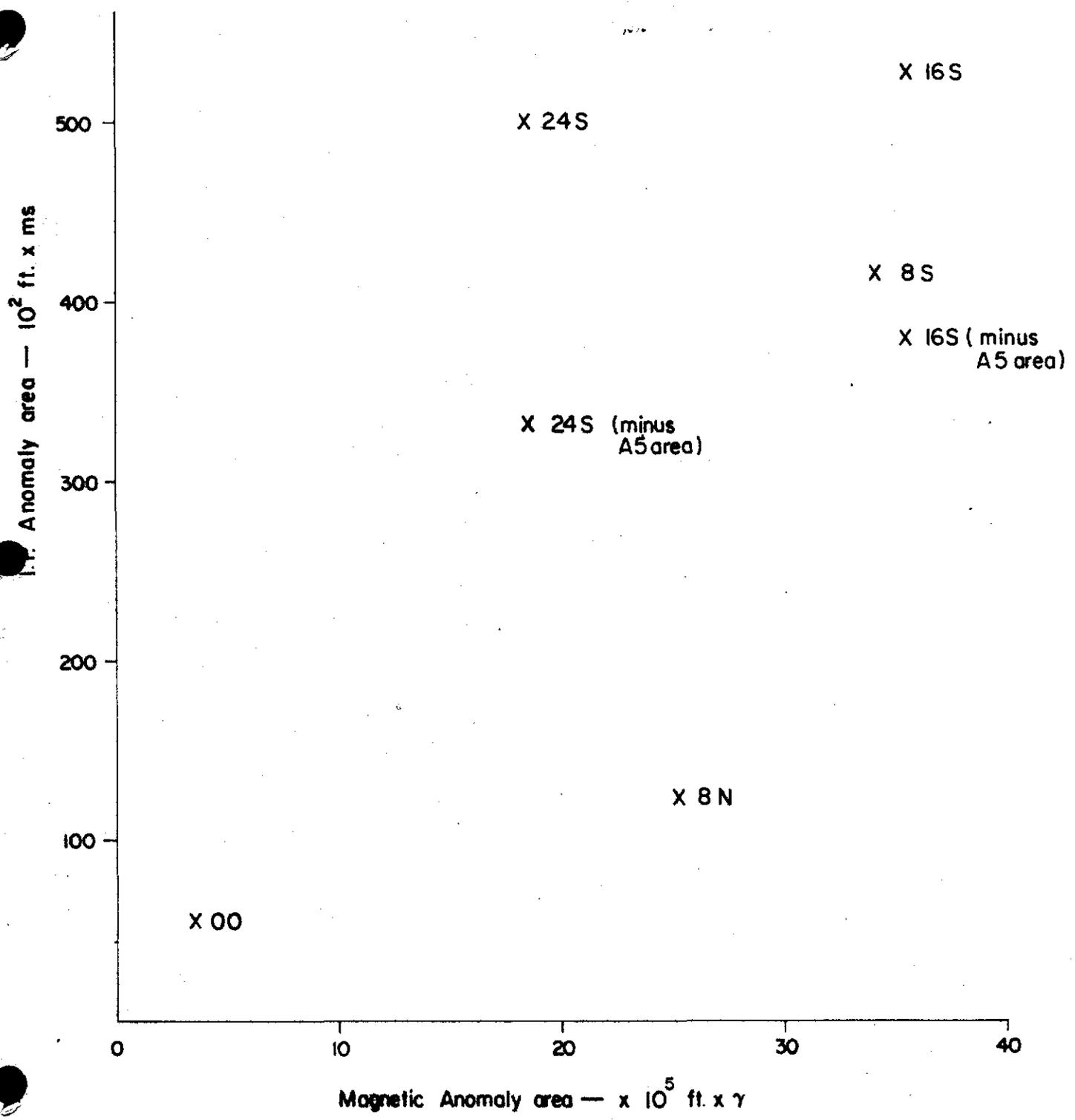
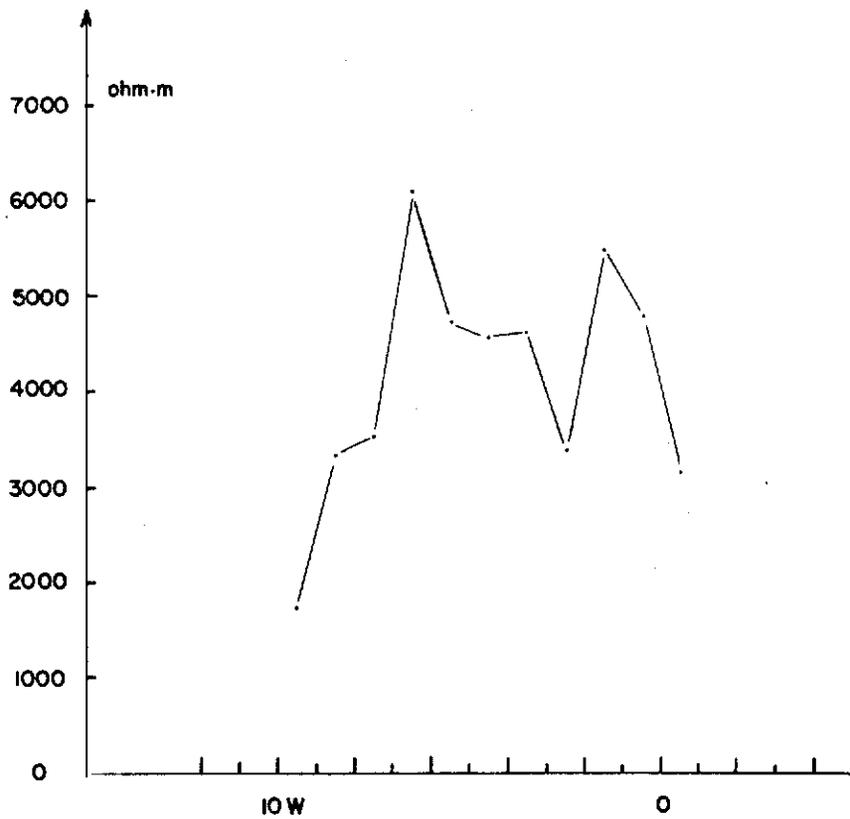


FIG. 4.
LAKE ROLLESTON
APPARENT RESISTIVITY
PROFILE 72N
AB = 3000ft.
MN = 1000ft.



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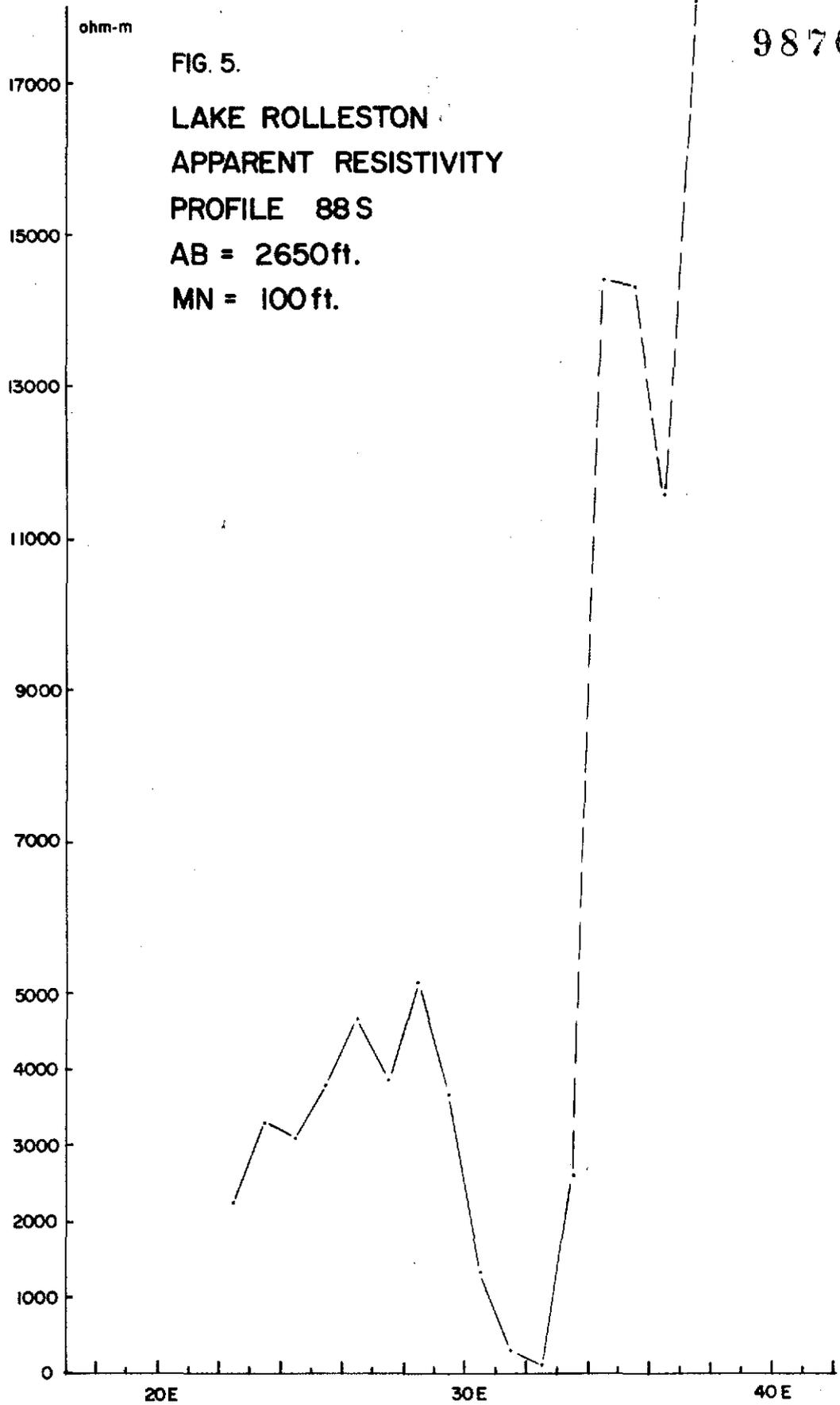
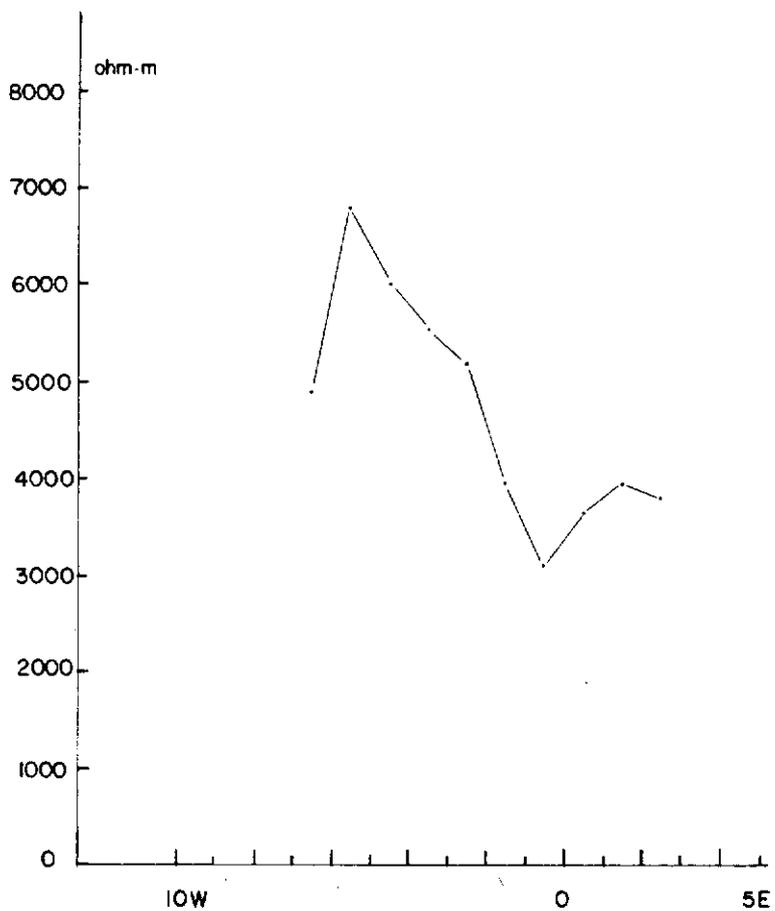
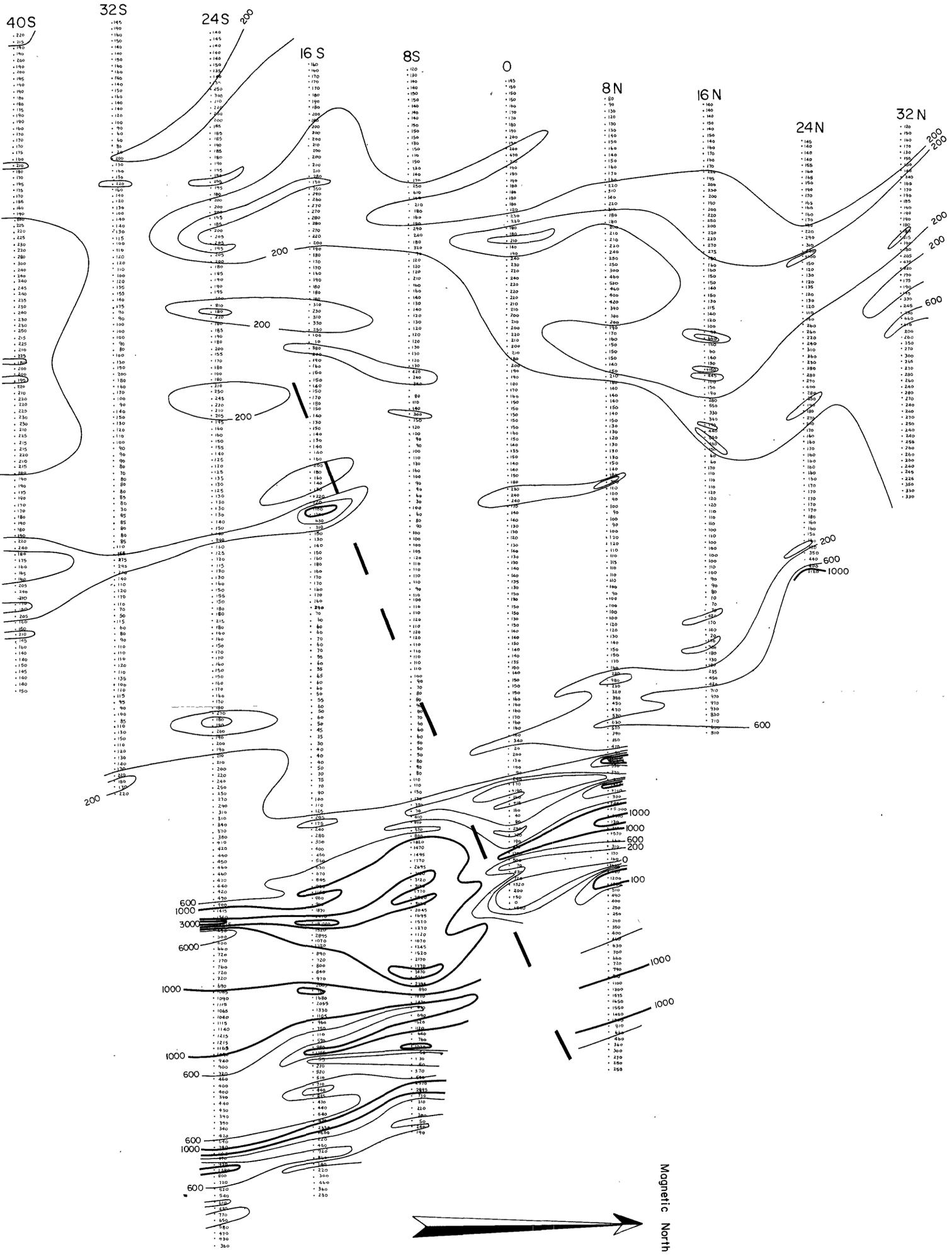


FIG. 5.
LAKE ROLLESTON
APPARENT RESISTIVITY
PROFILE 88 S
AB = 2650 ft.
MN = 100 ft.

FIG. 6.

LAKE ROLLESTON
APPARENT RESISTIVITY
PROFILE 72S
AB = 2840 ft.
MN = 100 ft.





RENISON LIMITED

PL. I.

**GEOPHYSICAL SURVEY
IN MOUNT TYNDALL
E.L. 9/66**

RED HILLS

987037

**MAP OF THE MAGNETIC
FIELD VERTICAL COMPONENT**

SCALE 1" = 500ft

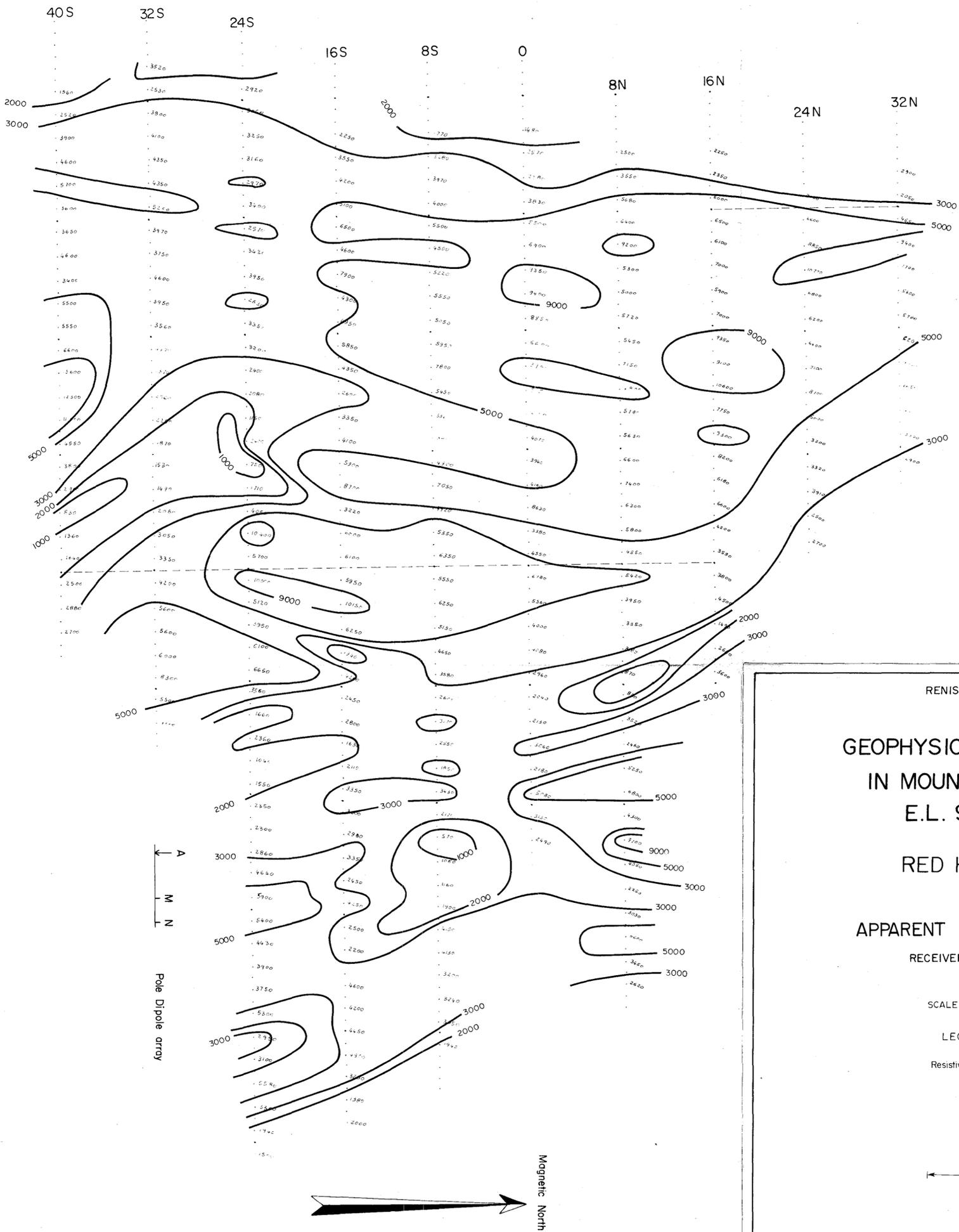
LEGEND

 Values in gammas

 Discontinuity of magnetic axes

5 cm

C.G.G.
26-28 Manning Street, South BRISBANE



PL. 2.

RENISON LIMITED

**GEOPHYSICAL SURVEY
IN MOUNT TYNDALL
E.L. 9/66**

RED HILLS
987038

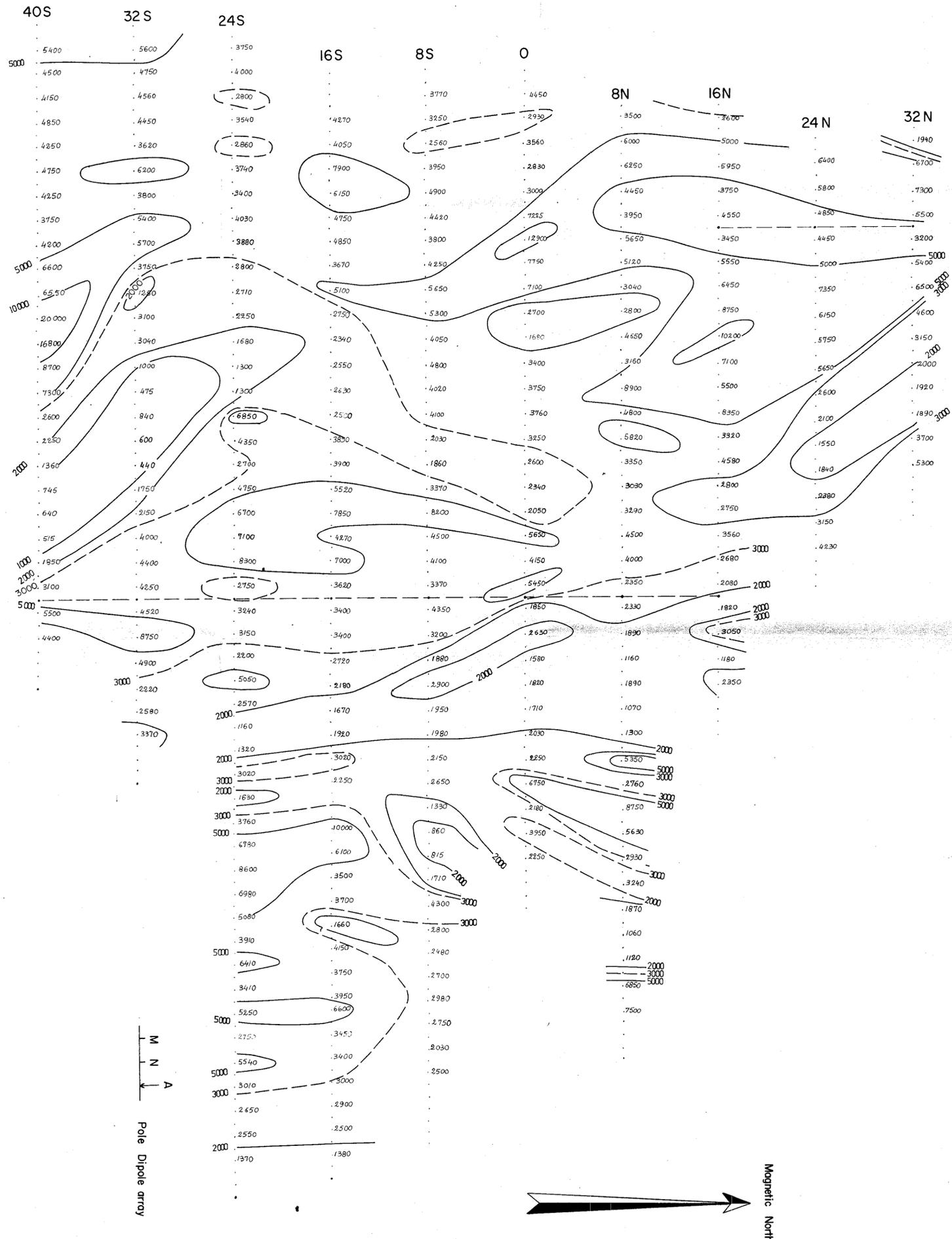
APPARENT RESISTIVITY
RECEIVER I

SCALE 1" = 500 ft.

LEGEND
Resistivities in ohm-m

5 cm

C. G. G.
26 - 28 Manning Street, South BRISBANE



RENISON LIMITED

PL. 3.

GEOPHYSICAL SURVEY
IN MOUNT TYNDALL
E.L. 9/66

RED HILLS

987039

APPARENT RESISTIVITY MAP

RECEIVER 2

SCALE 1" = 500ft.

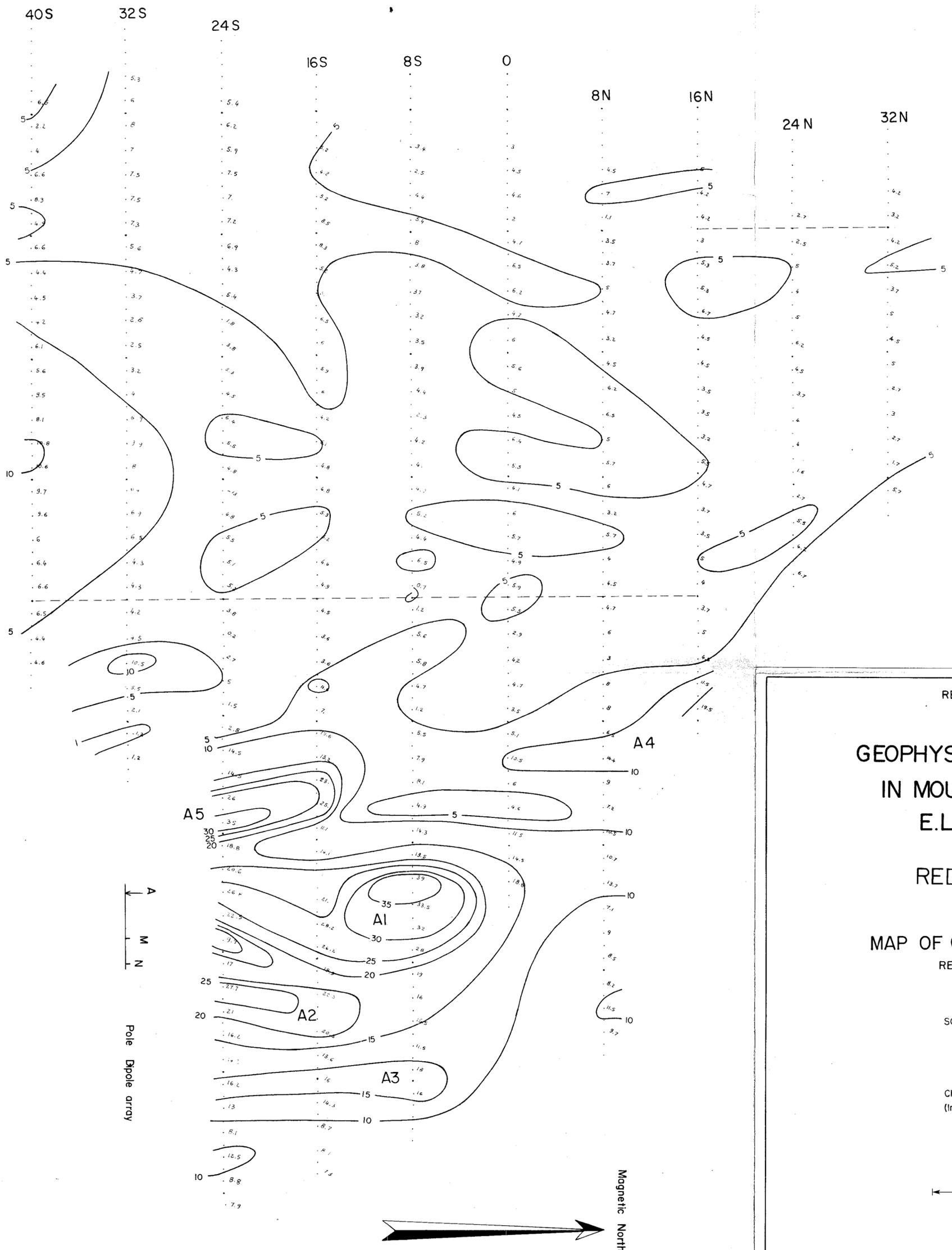
LEGEND

Resistivities in ohm-m

5 cm

C. G. G.

26-28 Manning Street, South BRISBANE



RENISON LIMITED

PL. 4.

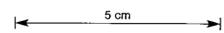
**GEOPHYSICAL SURVEY
IN MOUNT TYNDALL
E.L. 9/66
987040
RED HILLS**

**MAP OF CHARGEABILITY
RECEIVER 1**

SCALE 1" = 500ft.

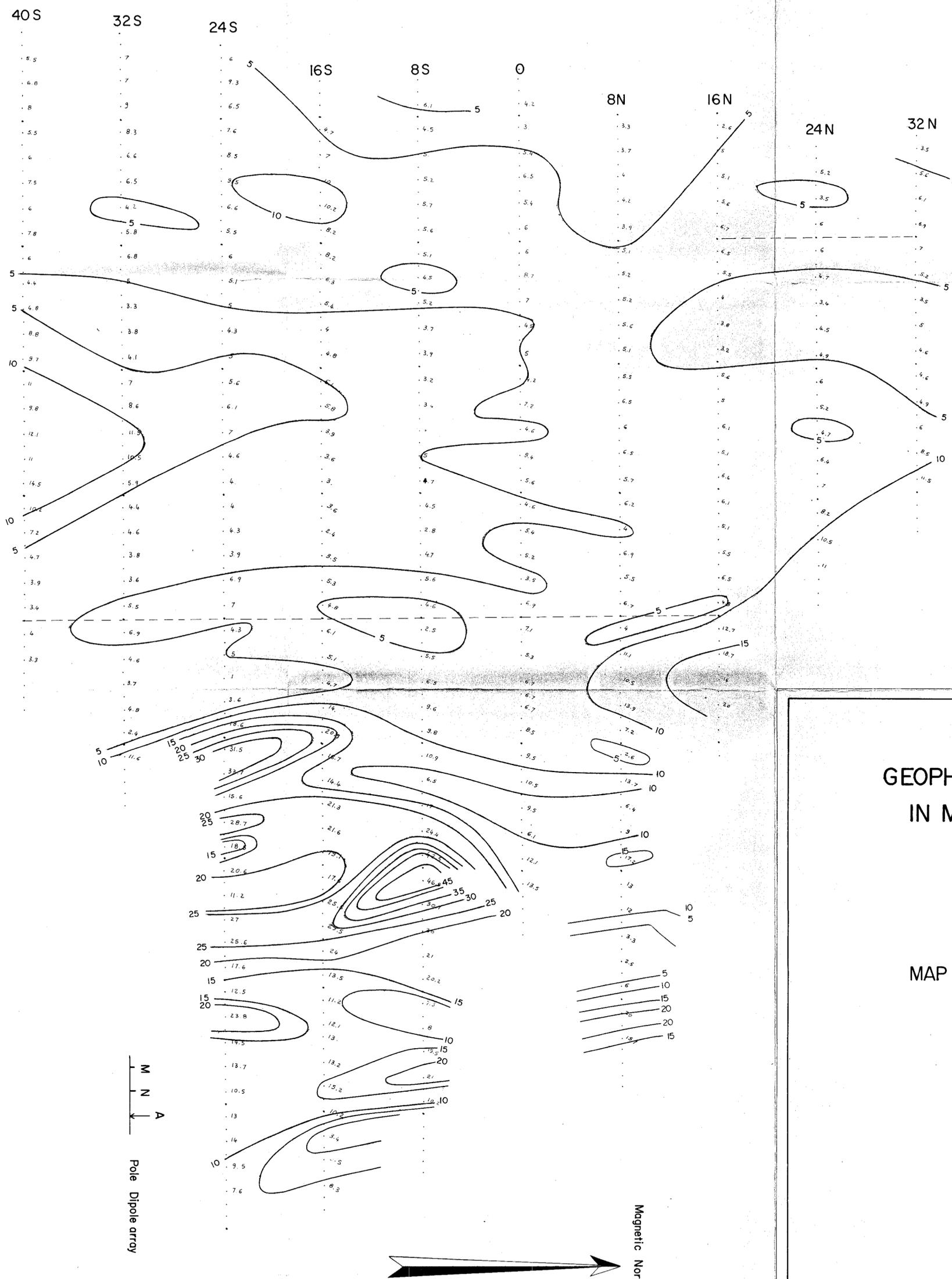
LEGEND

Chargeability in milliseconds
(Integration from 450ms to 1150ms after cut off)



C. G. G.
26 - 28 Manning Street, South BRISBANE

004



RENISON LIMITED

PL. 5.

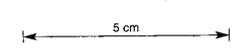
**GEOPHYSICAL SURVEY
IN MOUNT TYNDALL
E.L. 9/66
987041
RED HILLS**

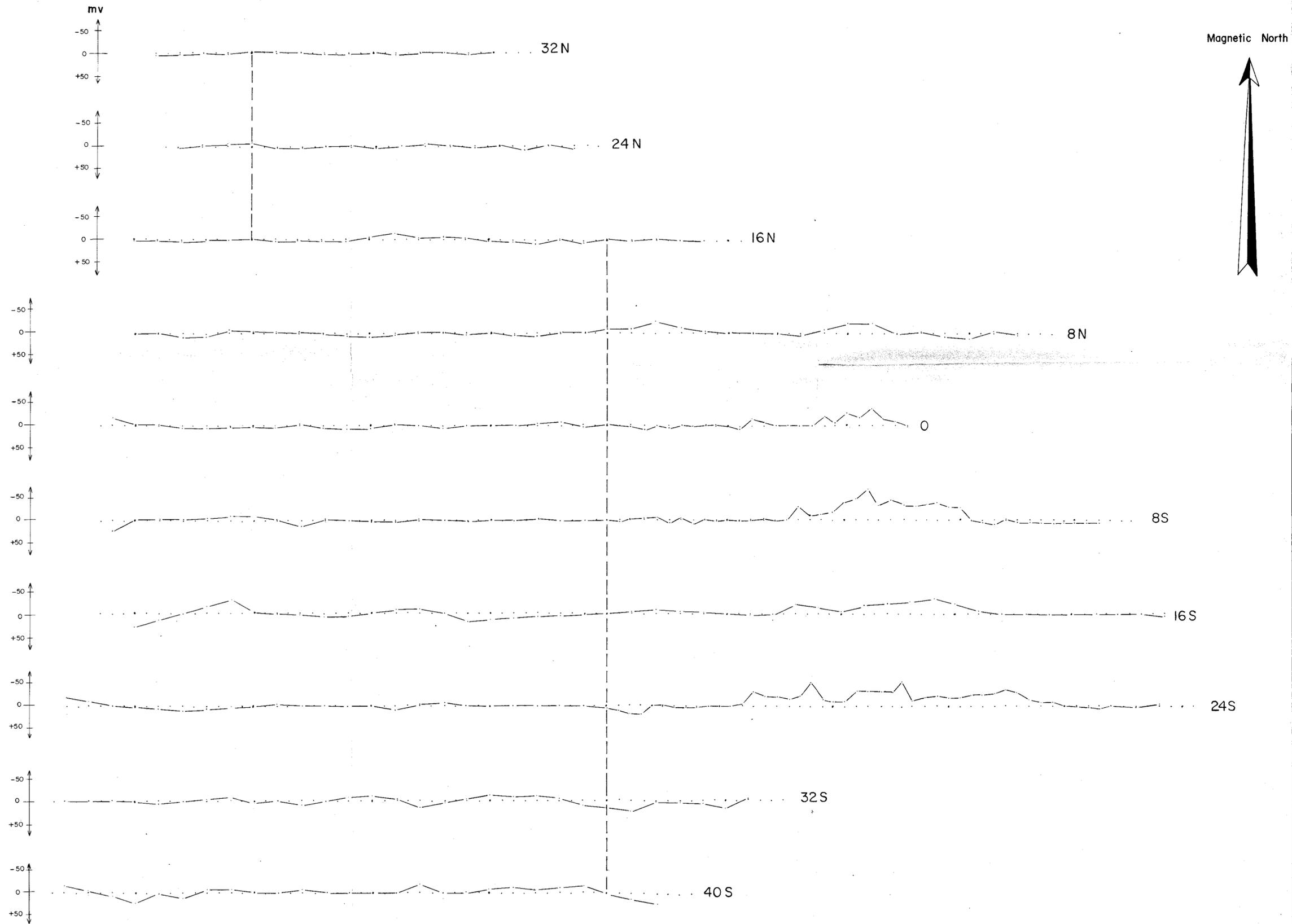
**MAP OF CHARGEABILITY
RECEIVER 2**

SCALE 1" = 500ft.

LEGEND

Chargeability in milliseconds
(Integration from 450ms to 1150ms after cut off)





RENISON LIMITED

PL. 6.

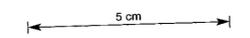
**GEOPHYSICAL SURVEY
IN MOUNT TYNDALL
E.L. 9/66
987042
RED HILLS**

SELF POTENTIAL

SCALE 1" = 500ft

LEGEND

Self potential in mv



C. G. G.
26 - 28 Manning Street, South BRISBANE

40S

32S

24S

16S

8S

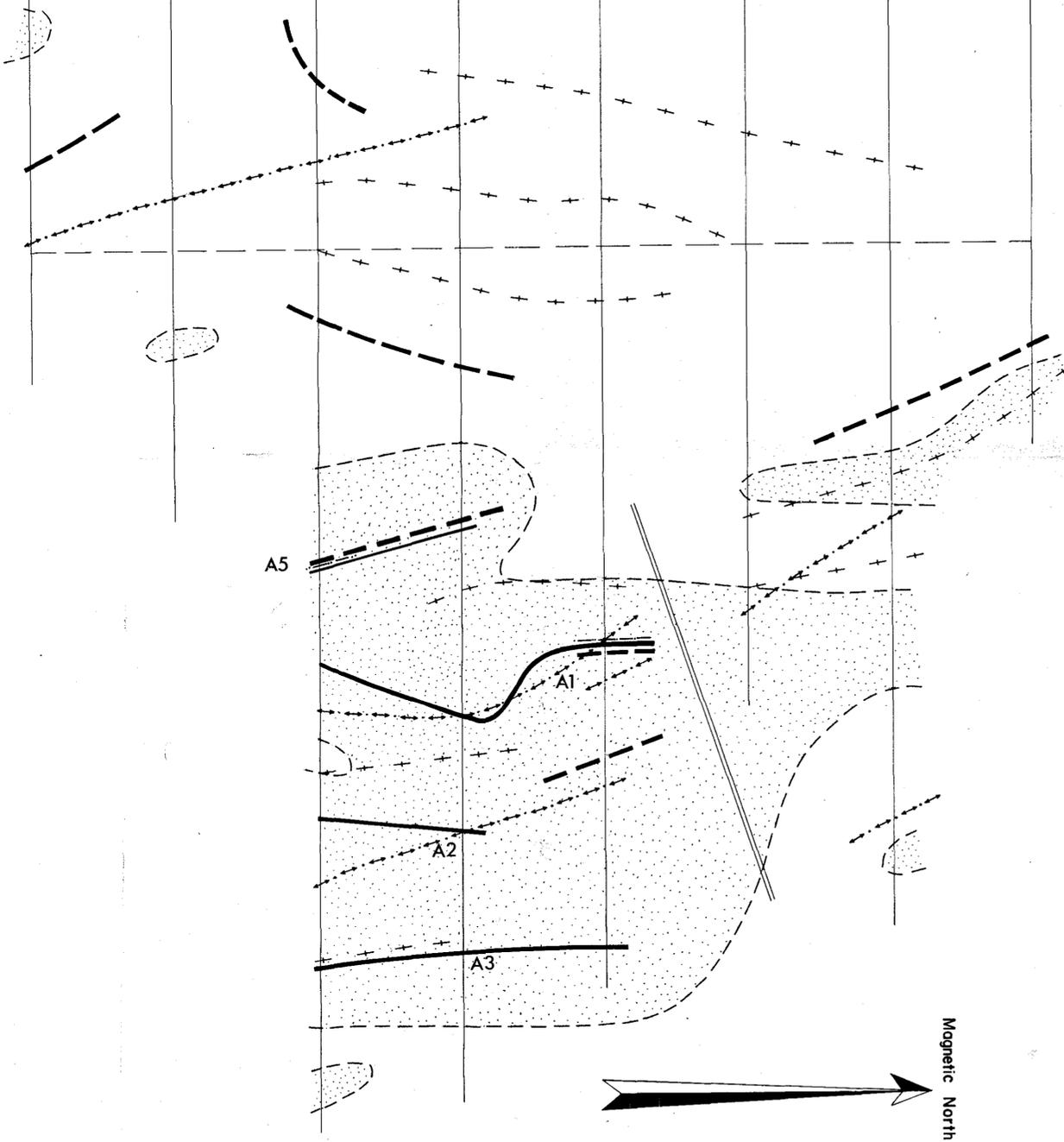
0

8N

16N

24N

32N



PL. 7.

RENISON LIMITED

987043

**GEOPHYSICAL SURVEY
IN MOUNT TYNDALL
E.L. 9/66**

RED HILLS

COMPREHENSIVE MAP

SCALE 1" = 500'

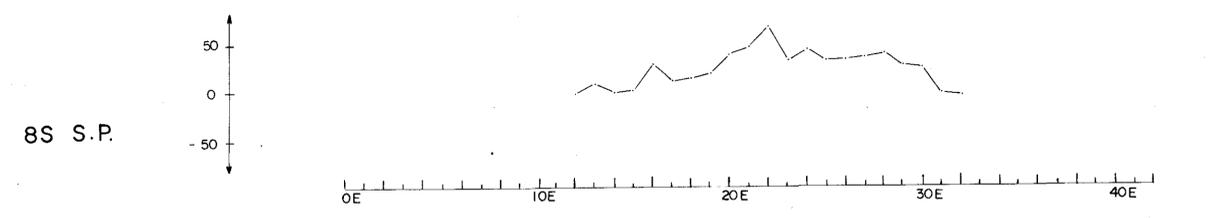
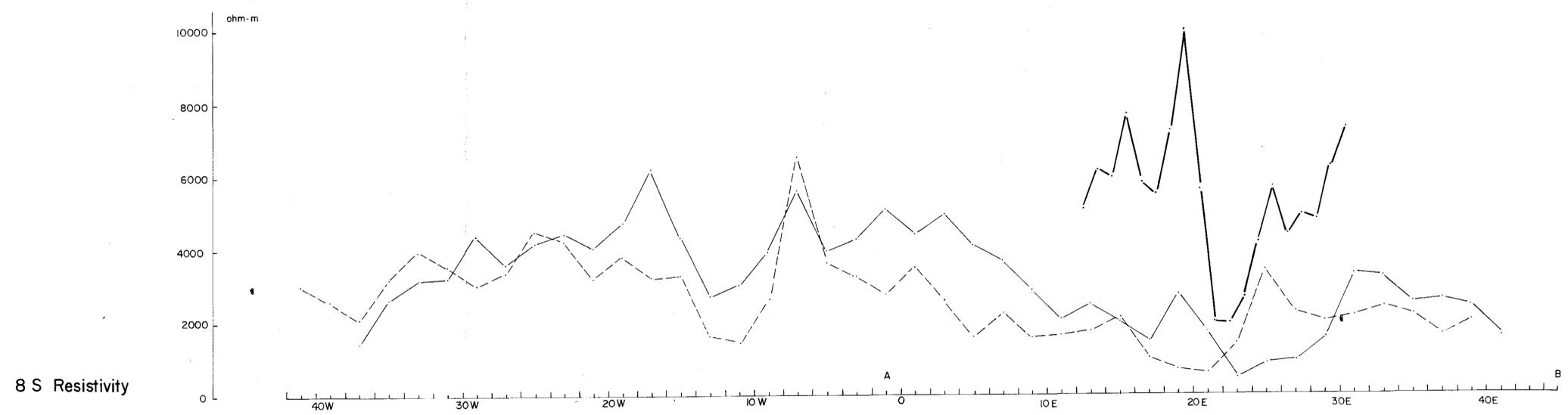
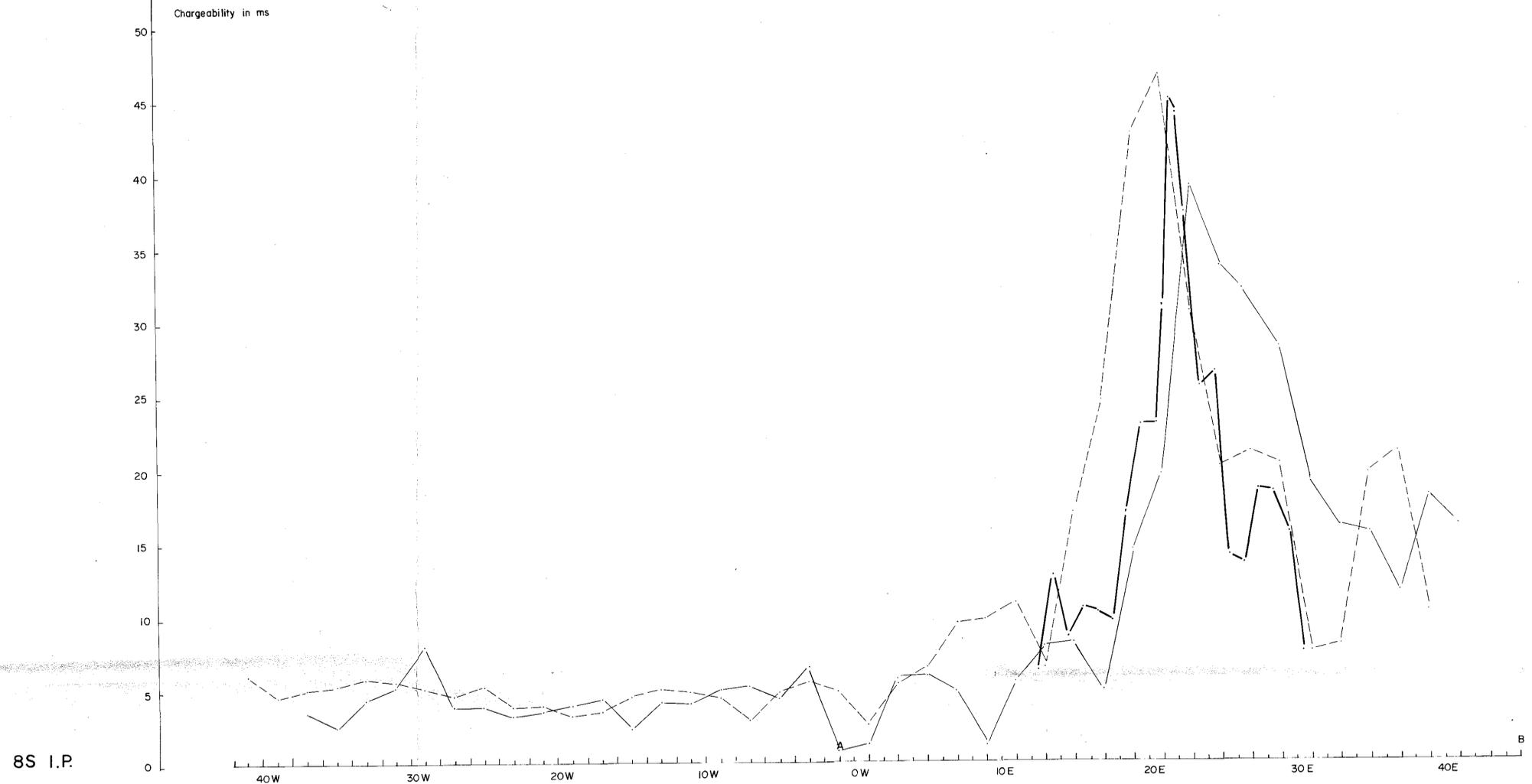
LEGEND

-  I.P. anomalous area
-  I.P. axis
-  Magnetic axis
-  Conductive axis
-  Resistant axis
-  SP axis

5 cm

C. G. G.

26-28 Manning Street, South BRISBANE



RENISON LIMITED PL.8

987044

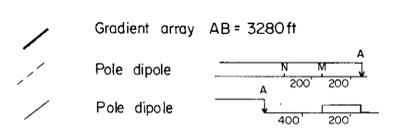
**GEOPHYSICAL SURVEY
IN MOUNT TYNDALL
E.L. 9/66**

RED HILLS

**GRADIENT ARRAY AND
POLE DIPOLE ON PROFILE 8S**

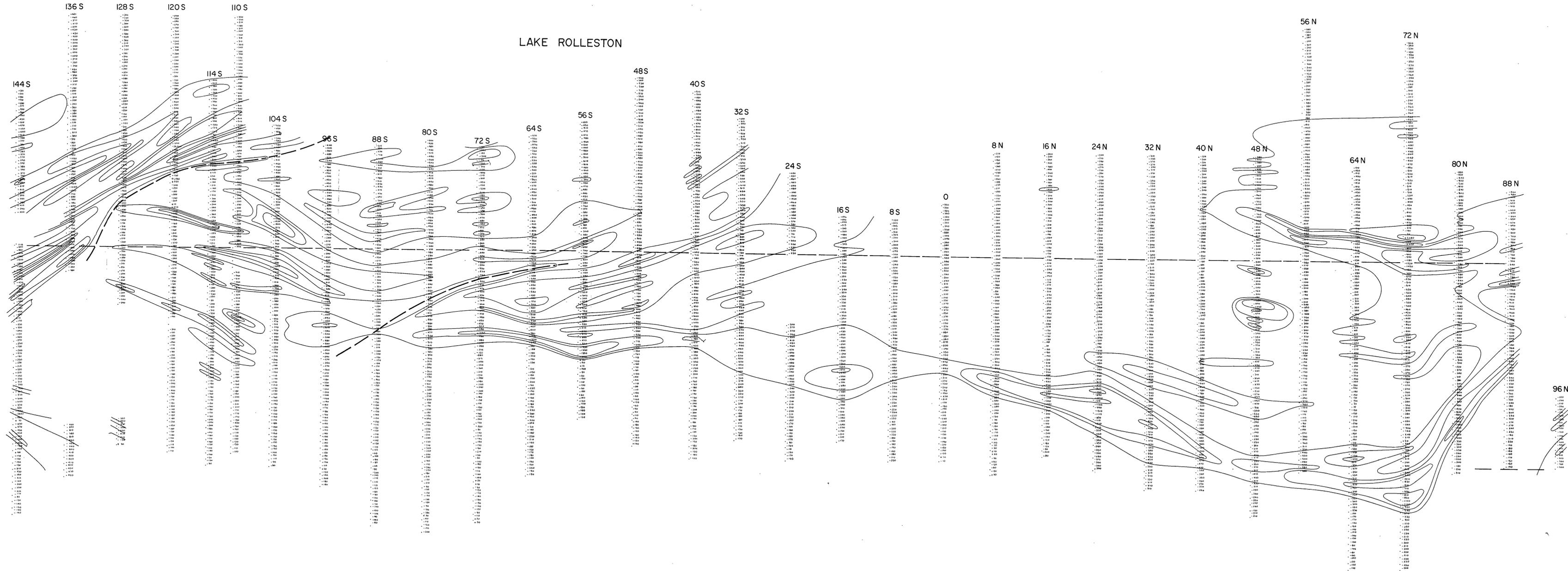
SCALE 1" = 500ft.

LEGEND



C.G.G.

26-28 Manning Street, South BRISBANE



RENISON LIMITED

**GEOPHYSICAL SURVEY
IN MOUNT TYNDALL
EL. 9/66**

LAKE ROLLESTON AREA

MAP OF THE MAGNETIC
FIELD VERTICAL COMPONENT

987045

SCALE 1" = 500 ft

LEGEND

--- Magnetic discontinuity



GEOPHYSICAL SURVEY IN MOUNT TYNDALL E.L. 9/66

LAKE ROLLESTON (North)

APPARENT RESISTIVITY MAP POLE-DIPOLE - RECEIVER 1

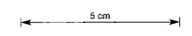
(AM=1000ft. AN=1200ft.)

SCALE 1=500ft.

LEGEND

Resistivities in ohm-m

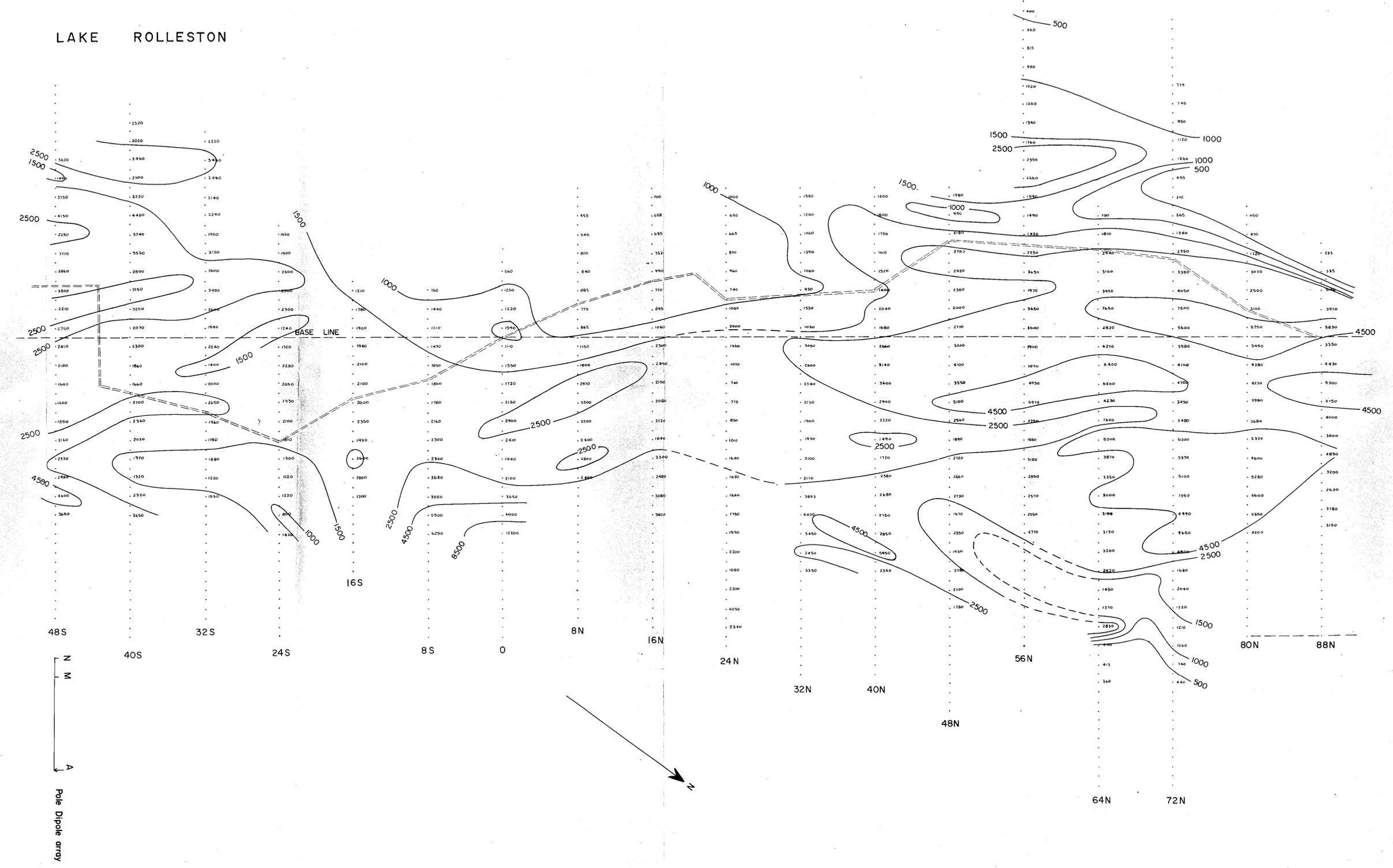
987046

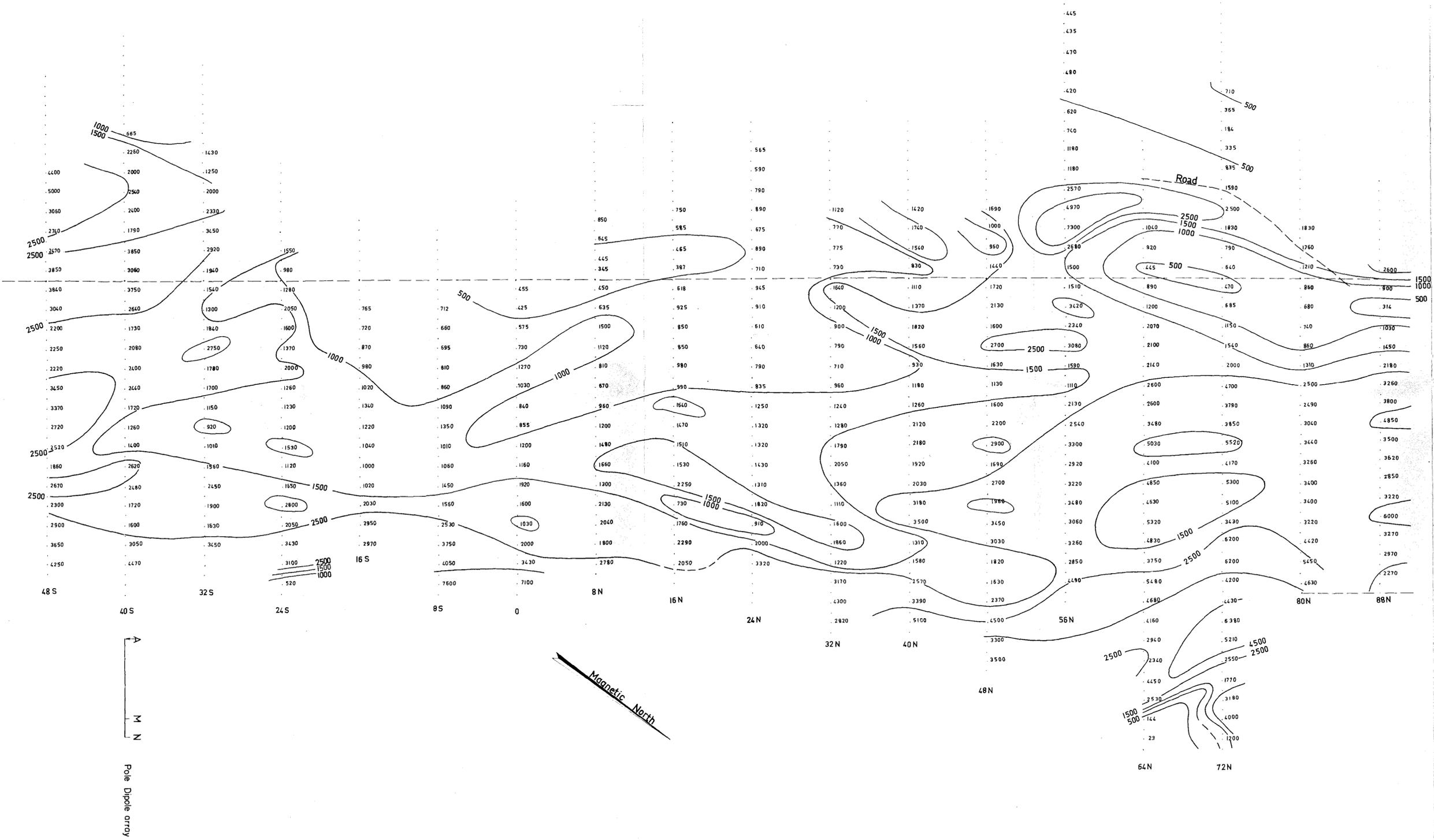


C.G.G.

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LAKE ROLLESTON





RENISON LIMITED

PL. 4.

GEOPHYSICAL SURVEY
 IN MOUNT TYNDALL
 E.L. 9/66
 887048
 LAKE ROLLESTON
 (North)

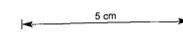
APPARENT RESISTIVITY MAP
 POLE-DIPOLE - RECEIVER 2

(AM = 800ft. AN = 100ft.)

SCALE 1" = 500ft.

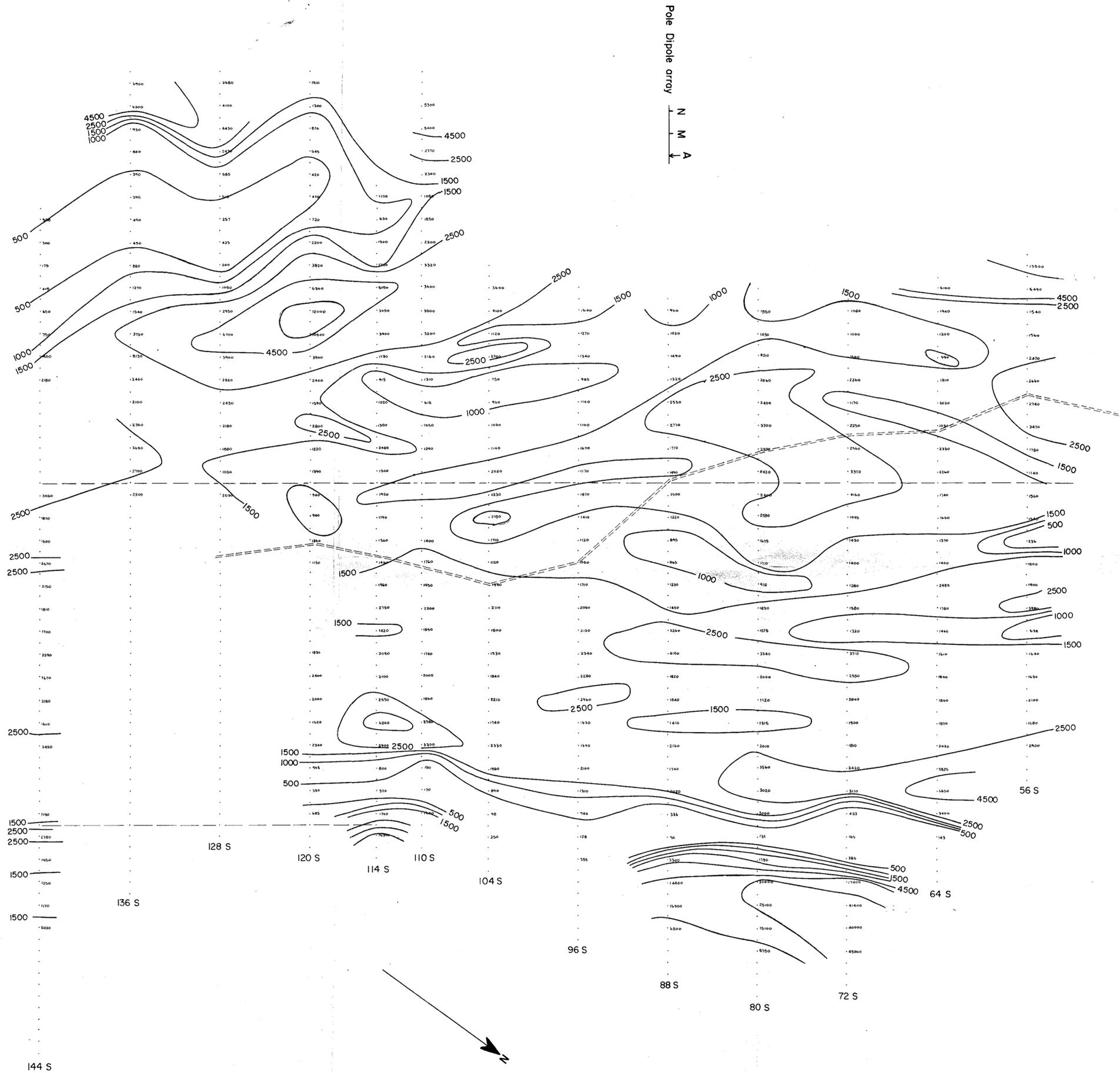
LEGEND

Resistivities in ohm.m



C.G.G.

26-28 Manning Street, South BRISBANE



PL. 5.

RENISON LIMITED

**GEOPHYSICAL SURVEY
IN MOUNT TYNDALL
E.L. 9/66
987049
LAKE ROLLESTON
(South)**

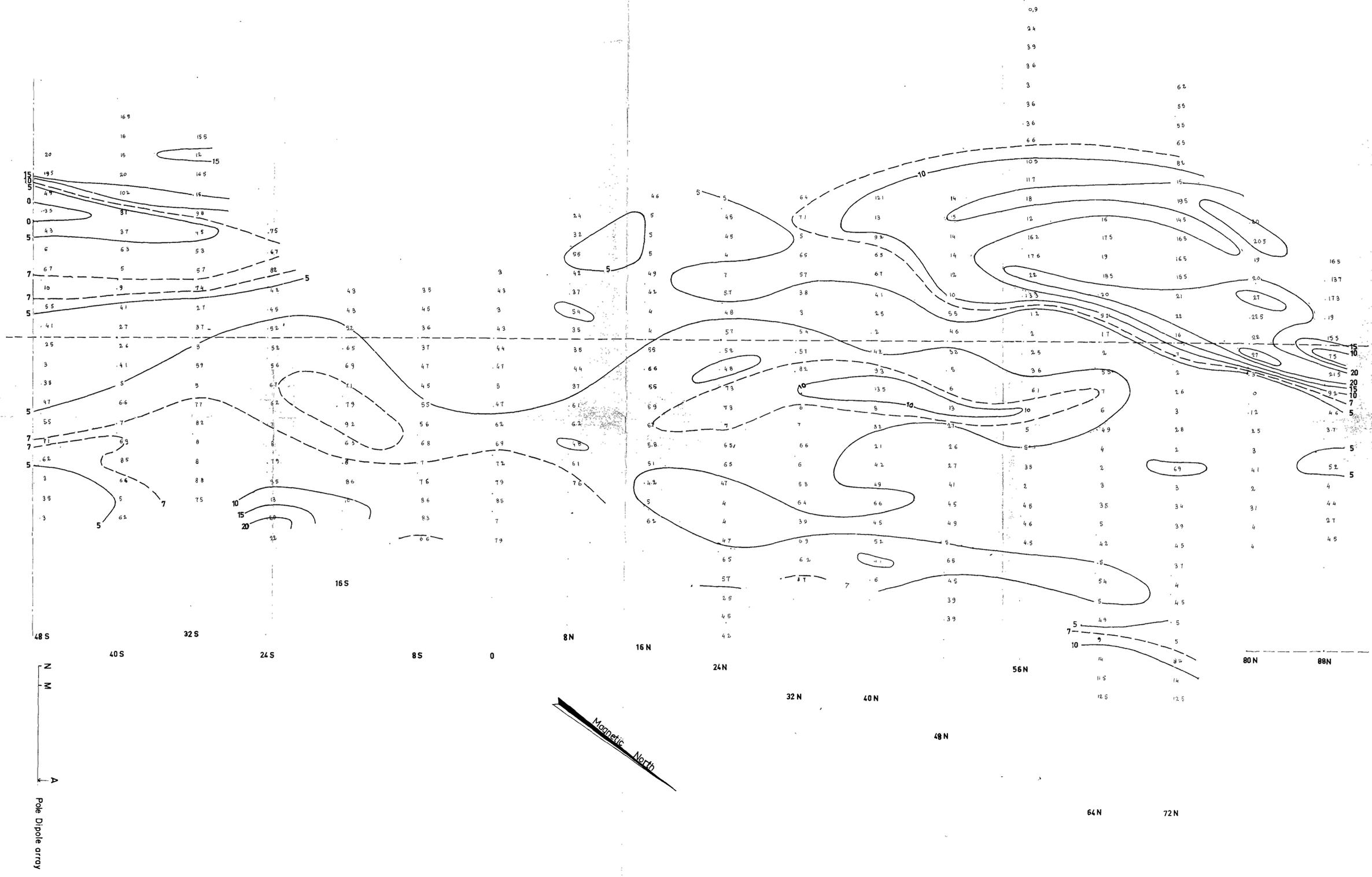
APPARENT RESISTIVITY MAP
RECEIVER 2

SCALE 1" = 500ft.

5 cm

C.G.G.
26-28 Manning Street, South BRISBANE

013



RENISON LIMITED PL. 6

**GEOPHYSICAL SURVEY
IN MOUNT TYNDALL
E.L. 9/66**

887050

**LAKE ROLLESTON
(North)**

**MAP OF CHARGEABILITY
POLE DIPOLE RECEIVER I**

AM = 1000 ft AN = 1200 ft

SCALE 1" = 500 ft

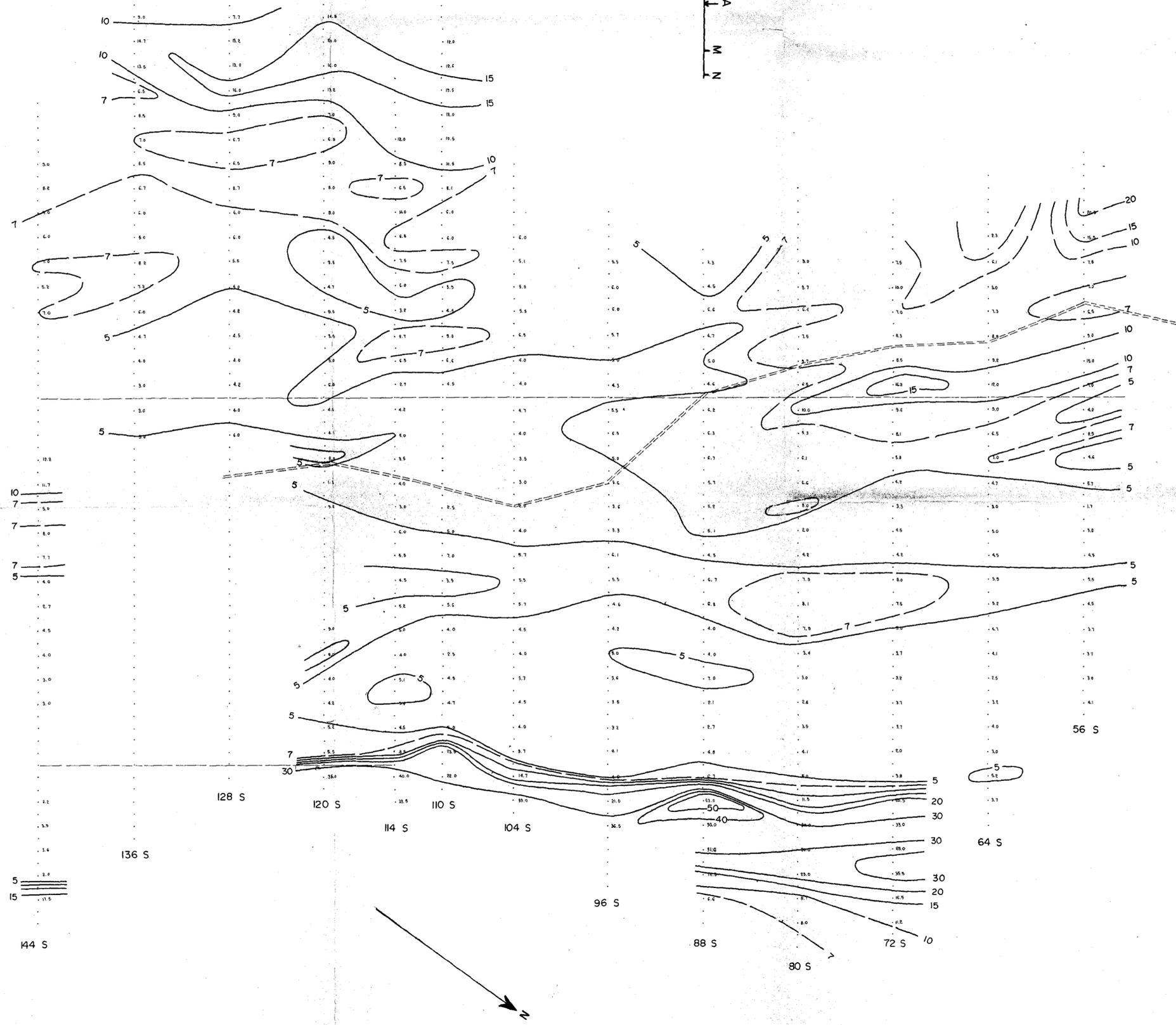
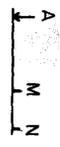
LEGEND

- Time on 2seconds
- Time off 2seconds
- Integration from 450ms to 1150ms after cut off



C G G
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Pole Dipole array



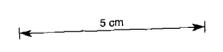
RENISON LIMITED

PL. 7

GEOPHYSICAL SURVEY
IN MOUNT TYNDALL
E.L. 9/66
887051
LAKE ROLLESTON
(South)

CHARGEABILITY MAP
RECEIVER 1

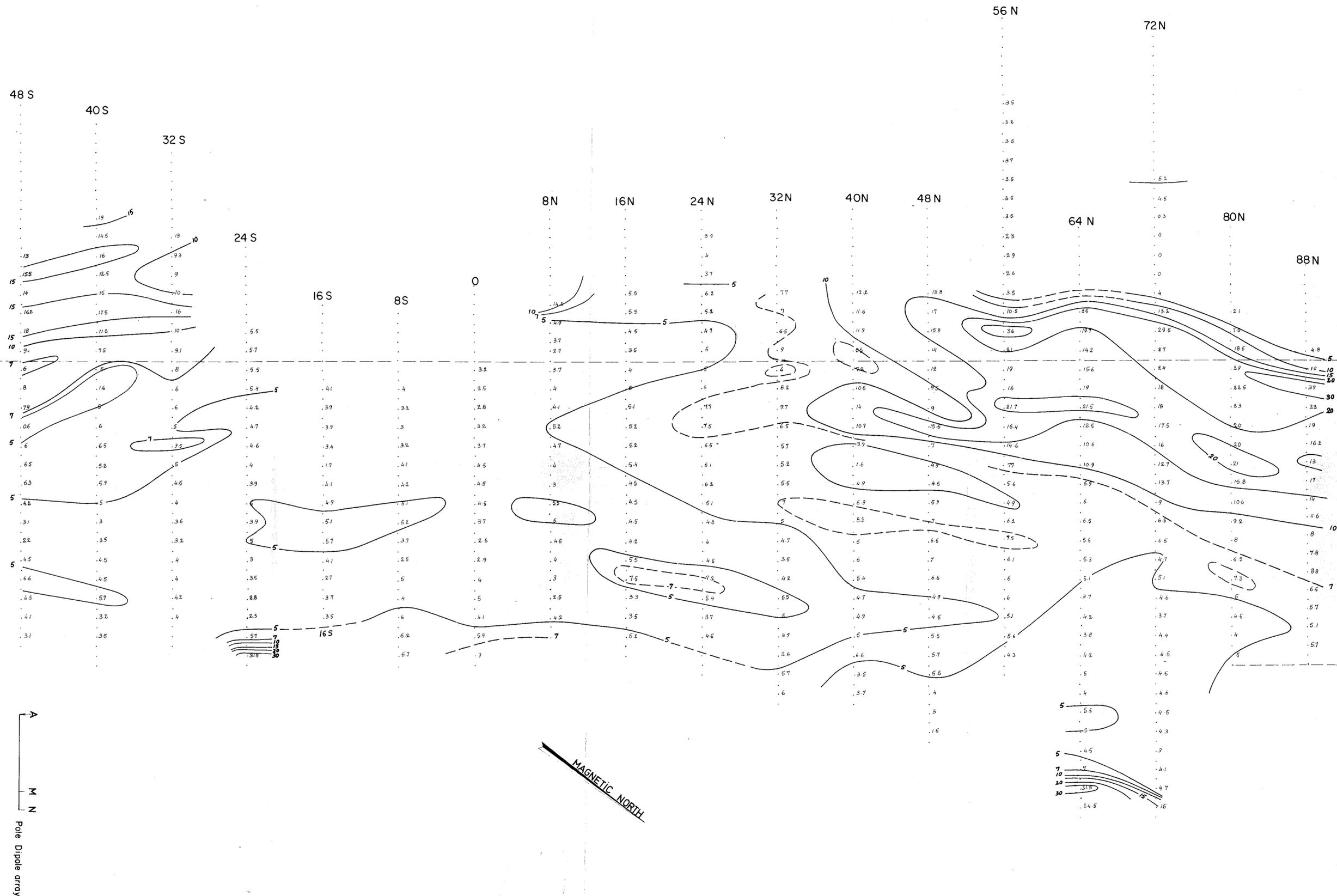
SCALE 1" = 500ft.



C.G.G.
26-28 Manning Street, South BRISBANE

015

70-652



RENISON LIMITED

PL. 8.

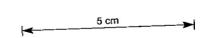
**GEOPHYSICAL SURVEY
IN MOUNT TYNDALL
E.L. 9/66
987052
LAKE ROLLESTON
(North)**

**MAP OF CHARGEABILITY
POLE DIPOLE - RECEIVER 2**

SCALE 1" = 500ft

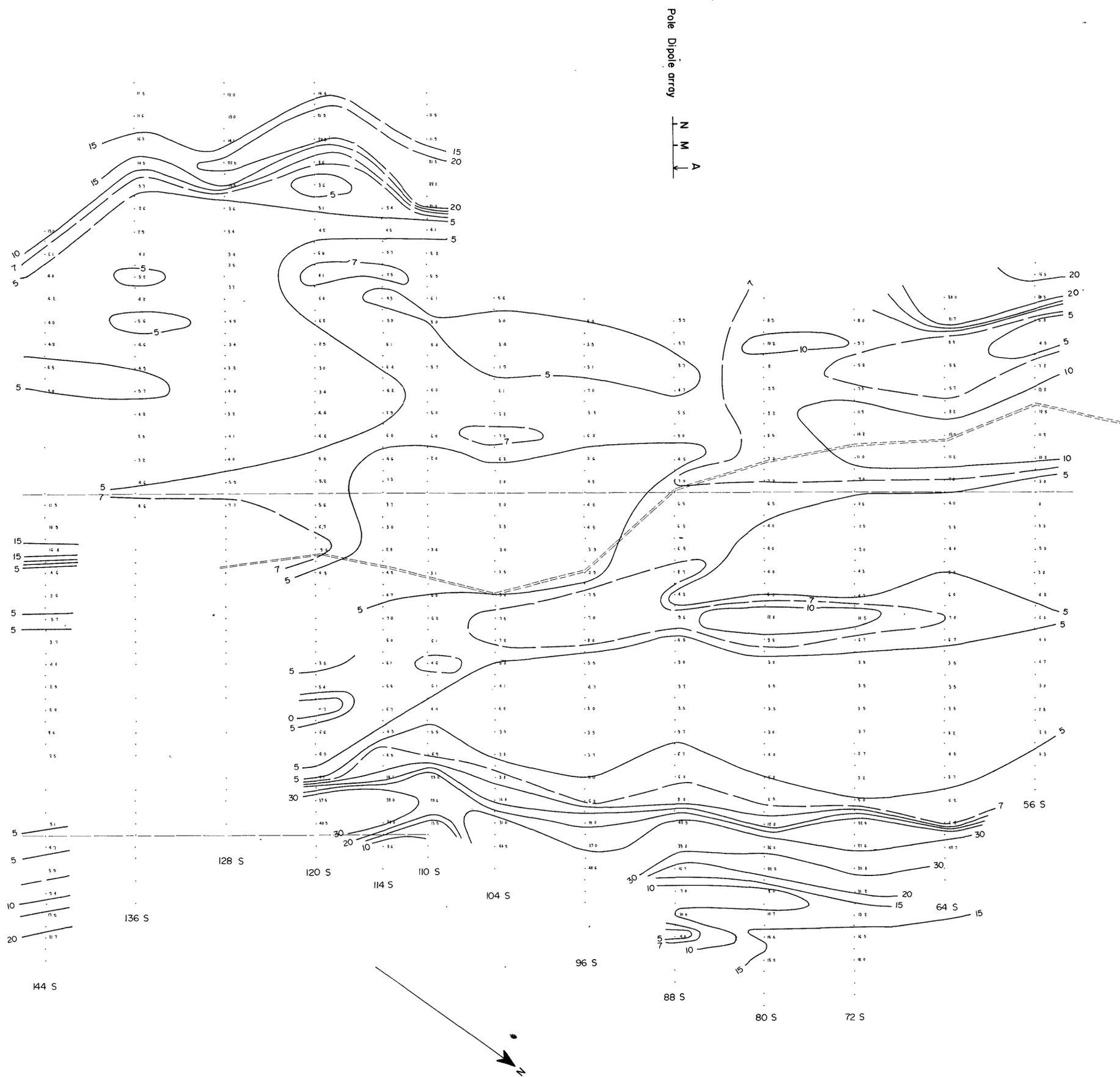
LEGEND

- AM = 800ft. AN = 1000ft.
- Time on : 2seconds
- Time off : 2seconds
- Integration from 450 to 1150ms after cut off



C.G.G.

26-28 Manning Street, South BRISBANE



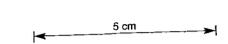
RENISON LIMITED

PL. 9

**GEOPHYSICAL SURVEY
IN MOUNT TYNDALL
E.L. 9/66
987053
LAKE ROLLESTON
(South)**

**CHARGEABILITY MAP
RECEIVER 2**

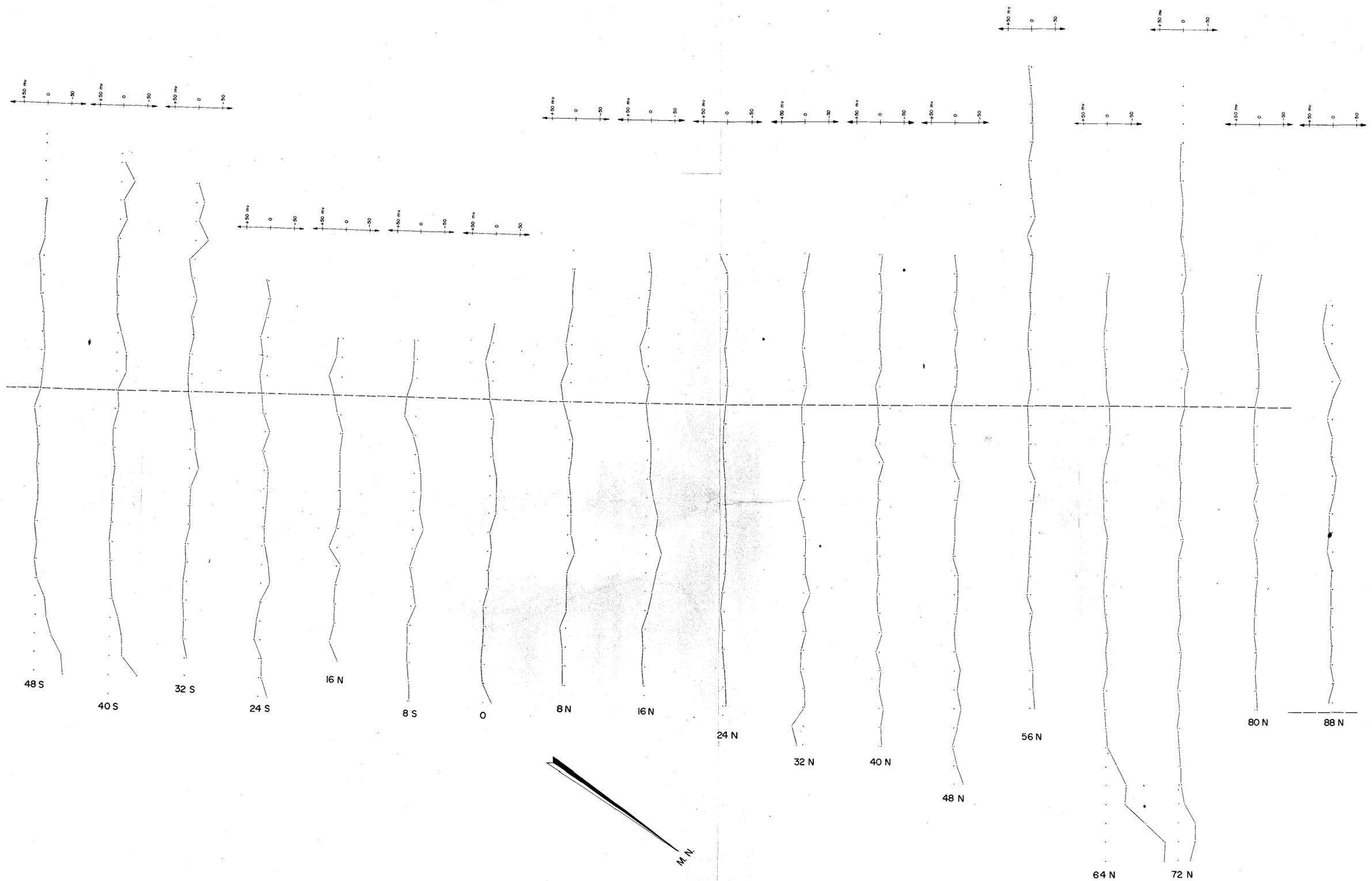
SCALE 1" = 500ft.



C.G.G.
26-28 Manning Street, South BRISBANE

017

70-652



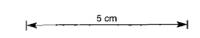
RENISON LIMITED

PL. 10

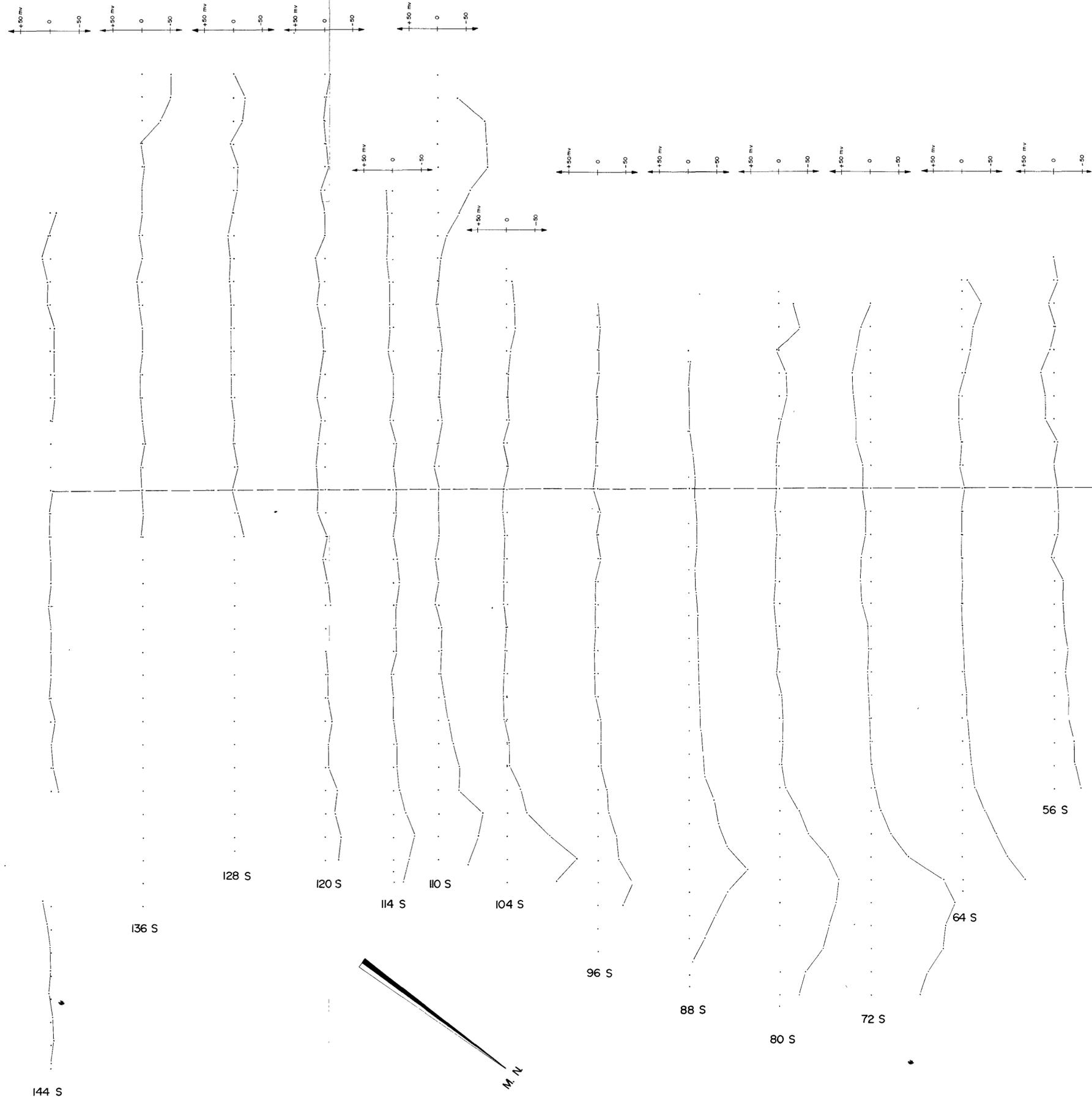
**GEOPHYSICAL SURVEY
IN MOUNT TYNDALL
E.L. 9/66
887054
LAKE ROLLESTON
(North)**

SELF POTENTIAL

SCALE 1" = 500ft.



C.G.G.
26-28 Manning Street, South BRISBANE



RENISON LIMITED

PL. II

**GEOPHYSICAL SURVEY
IN MOUNT TYNDALL
E.L. 9/66
887055
LAKE ROLLESTON
(South)**

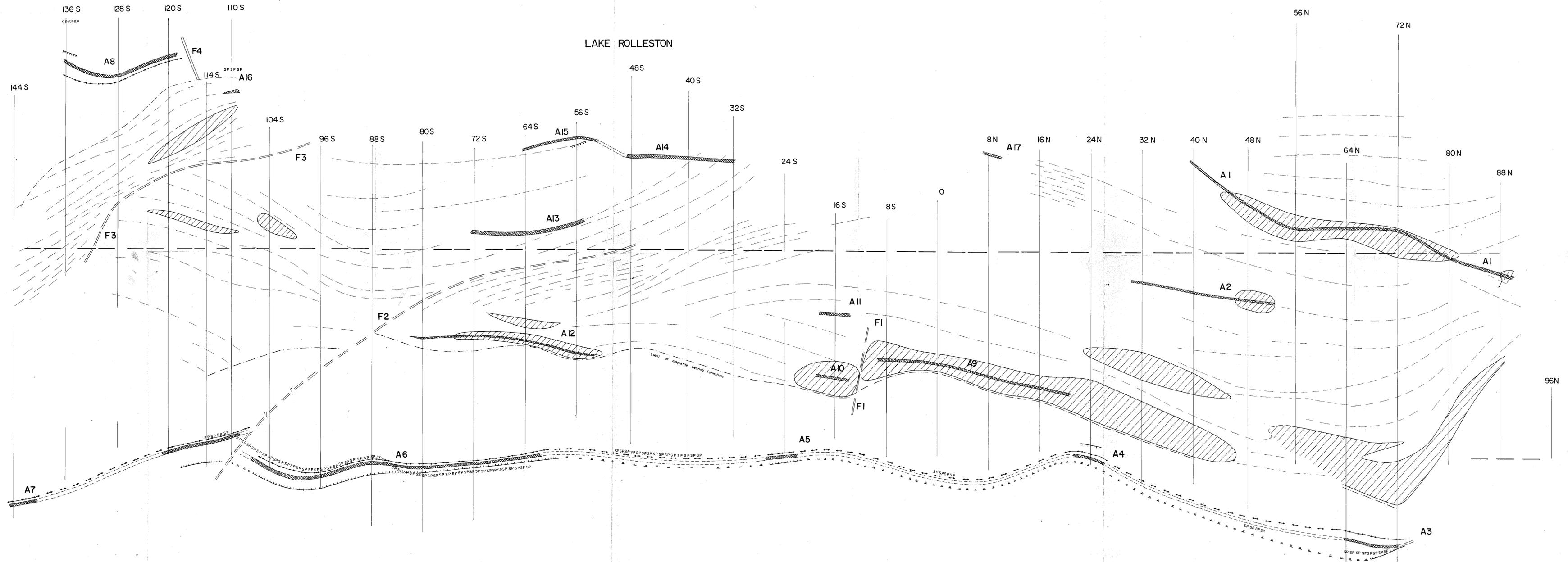
SELF POTENTIAL

SCALE 1" = 500ft.

5 cm

C.G.G.
26-28 Manning Street, South BRISBANE

019



RENISON LIMITED PL 12

**GEOPHYSICAL SURVEY
IN MOUNT TYNDALL
E.L. 9/66**

987056
LAKE ROLLESTON

COMPREHENSIVE MAP

SCALE 1" = 500 ft.
5 cm

LEGEND

- A3 Axis of polarizable body and anomaly number
- Magnetic body
- Magnetic trends
- Magnetic discontinuity
- Conductive axis
- Resistant gradient

C.G.G.
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70-652 020