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THE CONSOLIDATED SYNDICATE

ANNUAL REPORT

MT. TYNDALL E.L. 9/66

1973-74

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1. INTRODUCTION

Work during the year was concentrated mainly in the Henty Fault Zone, but other work was also undertaken in the Henty Camp - Howard's Anomaly - Basin Lake area and West of the Henty River.

In the Henty Fault Zone, the main interest was the line of I.P. anomalies along the Henty Fault : soil sampling outlined geochemical anomalies coincident with the I.P. anomalies and these were tested by three costeans and six diamond drill holes. Costeaning and diamond drilling successfully outlined environments similar to that of the Rosebery and Tasman-Crown deposits, adjacent to the Henty Fault. A small lens of massive sulphide (pyrite-chalcopyrite-galena-sphalerite) was exposed in a costean on line 49N and intersected in a drill hole on line 48N. The discovery of the mineralised zone has confirmed the interest of the area. However, North of the Henty Camp there appears to be insufficient room between the Henty Fault to the West and the younger Tyndall Group rocks to the East, for the development of a viable ore deposit. Interest has now moved to the I.P. anomalies, outlined during the year on lines 38N and 40N, South of the Henty Camp, where the room problem does not appear to exist. Elsewhere in the Henty Fault Zone other anomalies were checked with detailed geophysics but further detailed work is required here before drilling targets can be outlined.

Geological mapping was undertaken South of Howard's Anomaly and the McPhar geophysical surveys undertaken both East and West of the Henty River gorge during 1967-68 were reinterpreted. Several of the anomalies have been checked with detailed I.P. and a drilling target has been delineated on line 6N (Zone A) where an I.P. anomaly over 1500' (460 m) long and up to 1000' (305 m) wide coincides with disseminated sulphide mineralisation. The zone through Howard's Anomaly will require further detailing with I.P. prior to the selection of diamond drilling targets. West of the Henty River further geological mapping and geochemical sampling is required over anomalous I.P. responses on the McPhar grid.

Staffing during 1973-74 was provided by the Mount Lyell Mining and Railway Company Limited. The diamond drilling was carried out under contract by A.D.D. Pty. Ltd., all the geophysics was carried out under contract by Scintrex Pty. Ltd., while the road repairs and site clearance were undertaken by a local contractor.

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Expenditure during the 1973-74 year amounted to \$106,989 bringing the total expenditure on E.L. 9/66 since 1966 to \$727,463. A budget of \$156,425 has been recommended for 1974-75.

The exploration programme planned for the 1974-75 year consists of:

- a) Detailed geophysics and geochemistry over induced polarisation anomalies in the Henty Fault Zone, between the Henty Camp and Basin Lake and West of the Henty River.
- b) Testing of geophysical anomalies by costeaming and diamond drilling in the Red Hills, Henty Fault Zone, Howard's Anomaly and Zone A areas.
- c) A geochemical survey of the area North of White Spur.
- d) Detailed geological mapping between the Henty Camp and Newton Creek, in the Red Hills/Gooseneck area and West of the Henty River.

2. ACKNOWLEDGEMENTS

Geologists B. Craven and N. Bassett carried out mapping and assisted with geophysical work in a number of areas. The results of their work are incorporated in this report.

All draughting associated with E.L. 9/66 was carried out by R.G. Wilson.

3. ACCESS

The new access road into the Mt. Tyndall area from West of the Henty River being constructed in conjunction with and by Western Distributors (Lyell Transport) was still not ready for use at the end of the year. The track is near completion and after some relatively minor cleaning up work should be ready for use in September, 1974. In relation to this new access road, a gate has been erected on the old access road, approximately 300 yards North of Newton Creek.

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Other access work on E.L. 9/66 was confined to the Henty Fault Zone. In addition to the construction of the six drill sites and three costeans (see Section 4), approximately 4,500' (1,370 m) of access roads were built : A 2,800' (850 m) road was built to give access for the costeaming of I.P. anomaly 4 on line 49N and a 1,700' (520 m) road was built to give access to the drill sites for d.d.h. H.F.Z.5 and H.F.Z.6.

4. HENTY FAULT ZONE

4.1 Introduction

Geological mapping and an induced polarisation survey undertaken in 1972-73 outlined an extensive area of anomalous I.P. responses and a series of eight strong I.P. anomalous zones all related to known mineralisation and/or in favourable geological environments. (Annual Report E.L. 9/66 1972-73 by K. Wells.)

Work during 1973-74 was involved with the evaluation of these anomalies by detailed geophysics and geochemistry, costeaming and diamond drilling. (Fig. 3.)

4.2 Geochemistry and Costeaming

Soil sampling was undertaken over the line of I.P. anomalies along the Henty Fault on lines : 65N, 64N, 63N, 52N, 50N, 49N, 48N, 47N, 44N, 43N and 42N. Samples were taken at 25' intervals immediately over the anomalies, elsewhere sampling was at 50' intervals. Soils within the Henty Fault Zone vary from deep residual soils, generally West of the Henty Fault, to shallow transported soils consisting of glacial overburden, on the slopes of the Gooseneck mountain. Soil samples were taken from as close as possible to bedrock using a 3" diameter hand auger.

The samples were dried and sieved to obtain the minus 80 mesh fraction which was analysed using A.A.S. for : Cu, Pb and Zn. The background values on all lines appears to be less than 50 p.p.m. and generally less than 20 p.p.m. The majority of the I.P. anomalies sampled exhibited anomalous geochemical responses of at

least 3x to 4x background. Some well defined anomalies were outlined, e.g. on line 49N (Fig. 4e) which was subsequently shown to be due to underlying sulphides, while other line profiles were more erratic, e.g. on line 44N, apparently derived from the underlying black shales (Fig. 4c). Other anomalous geochemical responses were located which could not be directly linked with anomalous I.P. responses, e.g. on line 48N (Fig. 4f) where the indicated geochemical anomaly is uphill from the I.P. response. On line 63N (Fig. 4a) a strong geochemical anomaly averaging 300 p.p.m. Cu, with a peak of over 700 p.p.m. Cu, occurs against a background of 50 p.p.m. Cu. This anomaly coincides with the I.P. anomaly and is due to sulphide mineralisation. This strong geochemical response may be due to natural weathering of the sulphides, the peak of 700 p.p.m. Cu being due to a vein(s) of chalcopyrite which outcrops with disseminated sulphides in an adjacent costean. However, the geochemical anomalous response occurs downslope from an old mine dump and consequently the high values (much higher than elsewhere on the grid) may be due to contamination. It is interesting to note that the only other line sampled which gave comparable results, line 65N, also has old workings in the vicinity of the anomaly.

Attempts were made to costean the anomalies on lines 58N and 43N, but were unsuccessful due to a combination of : bad weather, steep terrain and deep overburden. The I.P. anomaly on line 49N, 1400E was successfully costeamed in February, 1974 and exposed a massive sulphide deposit with a true width of 8' (2.4 m) interbedded with acid tuffs. The mineralisation consists of pyrite, chalcopyrite, galena and sphalerite. It exhibits banding, slump-folding, has narrow siltstone bands within it and is obviously syngenetic, having affinities with the Rosebery orebody and more typically the Tasman Crown deposits at Comstock; being silicified, jasper is common, and in a similar stratigraphical position. Chip sampling of the body, which is slightly weathered, gave an average value of : 1.8% Cu, 1.76% Pb, 0.2% Zn and 37.89% FeS₂.

The sulphide deposit is covered by a maximum of 5' of overburden. There is no gossanous development above it and the geochemical anomaly has a very low amplitude (60 p.p.m. Cu and Pb and 80 p.p.m. Zn) for such a massive deposit. In view of this and in order to try and improve the efficacy of our geochemical exploration, further soil sampling was undertaken over the mineralised body. Two further lines, 100' and 200' to the South of line 49N were cut and pegged over the strike extensions of the body and together with the appropriate section of line 48N (which, at this point, is 400' S of line 49N) were sampled at 20' intervals. These samples were sieved into various size fractions :

- 50# - 80#
- 80# - 100#
- 100# - 150#
- 150# - 200#

and < 200# then analysed for total and cold extractable Cu, Pb and Zn.

All the size fractions with both total and cold extractable analyses showed similar line profiles. The results to date only show that the finer fractions have a greater magnitude of response. Two further geochemical peaks of similar amplitude were detected, on the intermediate lines and line 48N, upslope from the estimated position of the sulphide and may represent other small mineralised lenses. All the line profiles show typical seepage anomalies at the break in slope, near the creek.

4.3 Diamond Drilling

A six hole diamond drilling programme totalling 4,157' (1,267 m) was completed between November, 1973 and May, 1974 testing the line of I.P. anomalies along the Henty Fault. A Mindrill 10L rig, using NQ and BQ wireline equipment was used.

The first drill hole, H.F.Z.1 was collared at 2480E on line 63N on 4th November, 1973, with a bearing of 264° and a dip of -35° . This hole was drilled to test the large I.P. and accompanying geochemical anomaly, coincident with pyrite/chalcopyrite mineralisation exposed in the costean and old mine shaft, adjacent to line 63N (Fig. 4a). Apart from

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20' of surface gravel the hole was drilled entirely in a weakly sheared, dark green, fine grained, quartz, chlorite tuff (probably a weakly sheared intermediate/basic lava). Pyrite and minor chalcopyrite mineralisation were present throughout the core, usually associated with the numerous quartz/calcite veins and magnetite was also recorded. The mineralisation is patchy and the small quartz/calcite veins locally carry up to 6% Cu. 250' (76 m) of mineralisation was intersected between 250' and 500', averaging 0.11% Cu and 1.45% FeS₂. The hole was terminated at 683' (207 m) on 15th November, 1973.

After the completion of d.d.h. H.F.Z.1 the diamond drill rig was moved Northwards to line 65N. D.d.h. H.F.Z.2 was collared at 2550E on 18th November, 1973 on a bearing of 267° and a dip of -40° to test the two I.P. axes at 2250E and 1850E, and their coincident geochemical anomaly (Fig. 4b). From 0' to 235' the hole intersected dark green intermediate/basic volcanics similar to those intersected in d.d.h. H.F.Z.1. From 235' to 242' a narrow band of fine-grained pink acid lava was intersected followed by a dark green intermediate tuff (?) containing fragments of acid lava up to 2 cms thick (xenoliths?) down to 388'. Pink, fine to medium grained acid lavas were intersected between 388' and 547' and from 547' to 663' a zone of interbedded acid lavas and dark green intermediate tuffs were encountered. From 663' to 1,013' (308 m) the hole was in dark green intermediate "tuffs", containing fragments of acid lava up to 5 cms in diameter. Only minor mineralisation was intersected in the hole which was not assayed. The mineralisation was mainly in the dark green, intermediate rocks associated with the numerous quartz/calcite veinlets: Sufficient mineralisation was intersected to account for the I.P. anomaly at 2250E, but the hole is thought to have passed beneath the source of the anomaly at 1850E.

H.F.Z.3 was drilled on line 43N to test I.P. anomaly 5 and a coincident geochemical anomaly at 250'E. The hole was collared on 7th December, 1973 at 00' bearing 95° and dipping at -55° (Fig. 4c). Forty feet of unconsolidated sands and gravels were intersected at the beginning of the hole, followed by a series of dark green intermediate/basic tuffs and lavas interbedded

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with minor pink felspar porphyry acid lavas to 220'. A minor intrusion of quartz diorite occurs at 80'. From 220' to 380' a series of tuffaceous shales and siltstones containing Easterly facings occur. The majority of these sediments are shattered and weathered adjacent to a large fault zone (Henty Fault) between 335' and 370'. From 380' to 416' a buff coloured, badly broken and weathered acid lava contains very fine grained sulphides and some minor barite. Assaying indicated 36' (11 m) of 2.7% FeS_2 with minor copper, lead and zinc. An unaltered acid lava was intersected from 416' to 450' where a contact occurs with the Comstock Tuff sequence which continues to the end of the hole. The hole was terminated on 15th January, 1974 at 552' (168 m).

Although little mineralisation was intersected in H.F.Z.3, the results were considered encouraging. The occurrence of barite and black shales within a sequence of volcanics was considered to be a similar geological environment to the massive, banded, lead-zinc ones of the Rosebery deposit type. Consequently the drill rig was moved to line 42N to test the same I.P. anomaly. D.d.h. H.F.Z.4 was collared on 24th January, 1974 at 00', with a bearing of 90° and a dip of -60° (Fig. 4d). The hole intersected very similar lithologies to d.d.h. H.F.Z.3 : From 0 to 343' the hole intersected dark green intermediate/basic tuffs and lavas with minor interbedded acid lavas. The quartz diorite intrusive occurs as a number of narrow "bands" and "lenses" within andesite lavas between 18' and 35'. From 343' to 602' tuffaceous shales and siltstones occur, although they are not as extensively weathered and broken as those in H.F.Z.3. A massive, pink, acid lava occurs from 602' to 626' and from 626' to 640' a coarse grained acid tuff, which is badly broken by a large fault (Henty Fault) between 626' and 633'. This tuff contains very fine sulphides estimated as being less than 1%, however, the hole was not assayed. A narrow, massive, pink, fine-grained rhyolite occurs from 640' - 642', where there is a contact with the Comstock Tuff sequence, which with associated minor lavas extends to the end of the hole at 708' (216 m).

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With the completion of H.F.Z.4 the drill rig was moved to line 49N to test the massive sulphide body exposed by costeaning at about 1400E (see Section 4.2). H.F.Z.5 was collared on 8th March, 1974 on line 49N, 1050E, with a bearing of 90° and a dip of -55° (Fig. 4e). From 0' to the large fault zone at 370' a series of interbedded acid lavas with minor tuffs intermediate/basic lavas and/or intrusives were intersected; from 0'-60' the rocks are deeply weathered and from 290' are extensively broken adjacent to the fault zone at 370'. The fault zone consists of 33' of clay and rock fragments. Considerable difficulty was encountered in drilling through the fault zone and associated broken ground. Immediately adjacent to the fault from 404' to 429½' pale, fine-grained, highly silicified, acid volcanics containing disseminated pyrite and chalcopyrite occur. The grade of mineralisation increases down the hole but is terminated abruptly by a disconformable contact with Tyndall Group rocks, which continue to the end of the hole at 678' (207 m). The zone of mineralisation consists of :

- 11 ' disseminated mineralisation (404'-415') of 0.01% Cu, 1.1% FeS₂
- 14½' disseminated mineralisation (415'-429½') of 0.34% Cu, 4.2% FeS₂.

H.F.Z.6 was collared on 20th April, 1974 on line 48N, 1100E with a bearing of 90° and a dip of -60° to further test the anomalous zone. The structure and lithology in both H.F.Z.5 and H.F.Z.6 is virtually identical (Fig. 4f). From 0' to 353' the interbedded acid and intermediate/basic volcanics are deeply weathered to 180' and are extensively broken from 282' onwards adjacent to the fault zone, represented by 23' of clay between 353' and 376'. Sulphides again occur adjacent to the fault within acid lavas and tuffs from 376' to 435' and are once again abruptly terminated by a disconformable contact with Comstock Tuffs to the East. Tyndall Group rocks continue to the end of the hole at 523' (159 m). The zone of mineralisation consists of :

- 2' massive sulphide (376'-378') 1.11% Cu, 4.0% Pb, 7.0% Zn, 15.7% S

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47' disseminated sulphide (378'-425') 0.01% Cu,
0.02% Pb, 0.02% Zn, 1.62% S

10' disseminated sulphide (425'-435') 0.46% Cu,
0.08% Pb, 0.03% Zn, 5.55% S.

The diamond drilling programme has confirmed the interest of the line of I.P. anomalies along the Henty Fault. However, the close proximity of the Henty Fault to the contact with the Tyndall Group severely limits the room available for the development of a near surface viable base metal deposit. The base metal body on line 49N is probably either terminated by the fault or the unconformity although it could also lense out. (Figs. 4e and 4f). The exception to this is possibly line 63N where an extensive zone of mineralisation was intersected beneath well developed surface mineralisation. This mineralisation may warrant testing by a deeper hole at some future date.

4.4 Geophysics

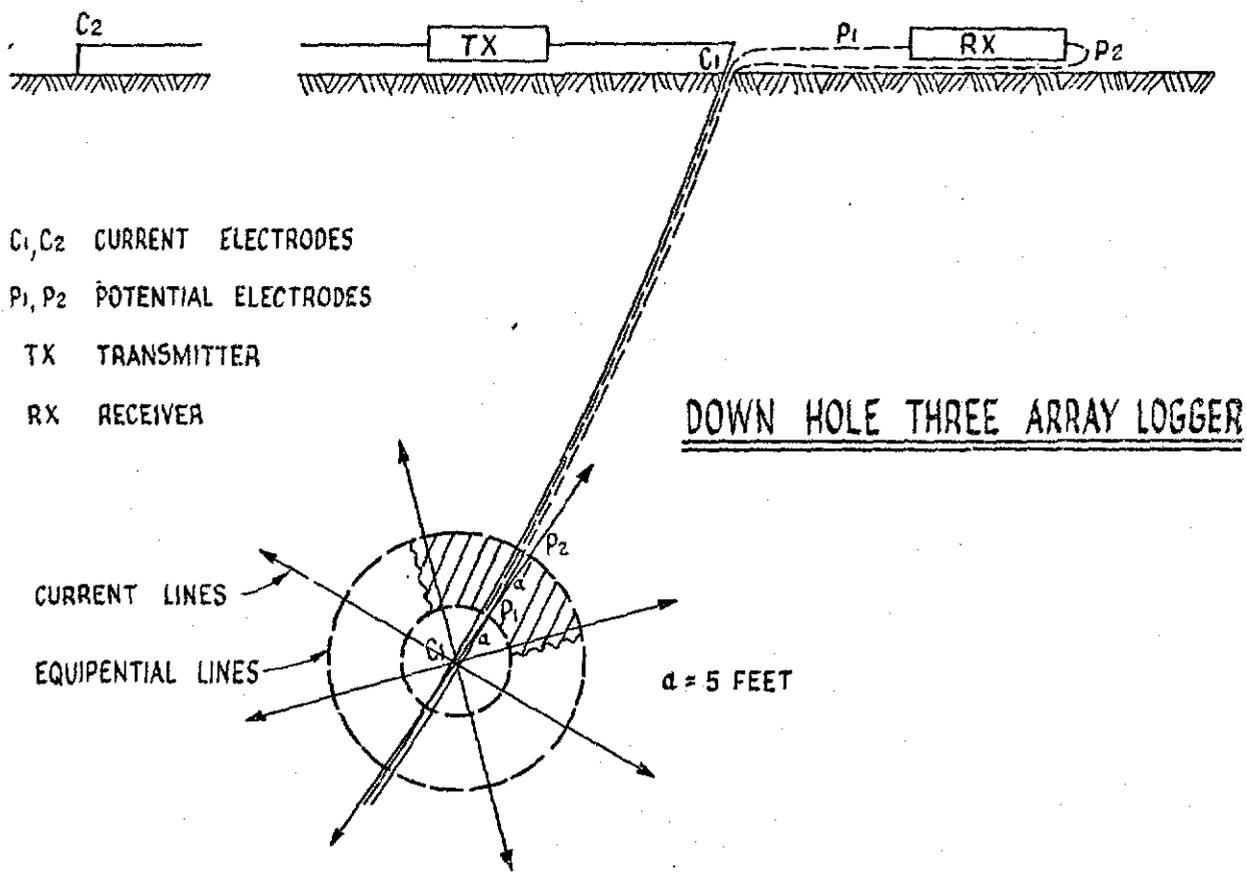
Four separate geophysical projects were undertaken in the Henty Fault Zone during the year. A summary of the projects is given here, but a more detailed account occurs in Scintrex Report, Tas. 018C by A.W. Howland-Rose.

4.4.1 Three Array Log - d.d.h. H.F.Z.1

Geophysical logging was undertaken of d.d.h. H.F.Z.1 in order to determine whether or not the copper mineralisation, although sub-economic, had an unique signature against the disseminated pyrite. If successful, this would possibly indicate a more selective geophysical technique as well as an ability to detect zones of copper mineralisation within larger pyritic areas.

The geophysical array consisted of a three array log :

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A five feet spacing was used between the potential electrodes and this was moved down the hole to correspond with the five feet assay runs. High chargeability/low resistivity results appear to be directly related to the high sulphide values, i.e. pyrite in this drill hole. The sub-economic copper mineralisation does not appear to have any unique geophysical signature against the disseminated pyrite.

4.4.2 Electrical Sounding

An electrical sounding using a Schlumberger array was undertaken along the road centred at line 56N, 00'. This sounding was undertaken to obtain further information on the depth of glacial moraine over the large area of anomalous I.P. values. A previous sounding had been undertaken near line 55N during the 1972-73 field season.

Scintrex Pty. Ltd. favour a moraine depth of 17'-18' (5 m). However, the chargeability and particularly the resistivity profile appear to be more suggestive of a boundary at a depth of approximately 40' (12 m), similar to the first

sounding; with a more conductive zone in the underlying rock between 100' and 200'. A more meaningful interpretation of the sounding results will have to wait until discussions can be arranged with a representative from Scintrex Pty. Ltd.

4.4.3 Detailed Pole-Dipole and 3 Array

Close coupled array detail was surveyed over lines 52N and 53N between 00 and 28E to check the gradient array I.P. anomalies previously outlined and in particular, the two large anomalies at the Eastern ends of the lines. Line 52N was surveyed between 2E and 27E using pole-dipole, employing a spacing of 200' at $n = 1$ and $n = 2$, while two sections of the line from 2E to 8E and 20E to 28E were also surveyed using a three array, with spacings of 50' and 100'. Line 53N was surveyed in a similar manner using pole-dipole between 1E and 28.5E and three array from 1E to 6.5E and 22.5E to 28.5E.

The large spaced pole-dipole does not appear to have detected the narrow chargeable zones outlined by the gradient array, which were generally confirmed by the smaller spaced three array. The anomalies at 650E, line 52N and at 550E on line 53N were well outlined by the three array which has confirmed their interest. However, the two large anomalies at 2450E, 52N and at 2550E, 53N were very much reduced by the three array : Scintrex suggest that the major source of the gradient array anomaly is much deeper than the pole-dipole or three array can detect, i.e. deeper than 300'. An alternative explanation is that the large anomalies are due to false readings, being close to the edge of a "gradient array block".

4.4.4 E.M. Survey

A Turam electromagnetic survey was undertaken on lines 54N to 61N, inclusive, over the area of high chargeability, in order to try and define conductive axes within the area, possibly related to copper mineralisation within a broad pyritic area.

Two energised loops were employed to survey the area, each of 3,000' (900 m) by 4,000' (1,200 m). The leading edge of the most Northerly of the two loops was at 24E, line 61N, while the Southern loop had the leading edge running grid North from 22E, line 54N. Two energising frequencies were used, variously 800 Hz on lines 54N, 55N and 61N and 400 Hz on lines : 56N, 57N, 58N, 59N and 60N.

The only anomalies located were on the Western sections of lines : 54N, 55N and 56N. These anomalies, although weak (which could be due to effect of overburden (?)), are considered to be in a favourable geological position and as such will require further evaluation.

4.5 Conclusions

The indication of a Rosebery type environment (H.F.Z.3 and H.F.Z.4) and, in particular, a massive sulphide deposit (line 49N) immediately beneath the Tyndall Group has confirmed the potential of the area.

With the possible exception of the anomalies in the region of line 63N, the I.P. anomalies along the line of the Henty Fault would appear to have limited potential for the development of a large base metal deposit, due to the lack of room between the Henty Fault and the contact with the Tyndall Group. However, the interest of the area to the West of the Henty Fault, lower in the geological succession, is now increased, and the geophysical anomalies in the area will require careful evaluation.

5. HENTY CAMP - NEWTON CREEK - BASIN LAKE AREA

5.1 Introduction

Work undertaken during the year included geological mapping South of Newton Creek, a re-interpretation of the 1967-68 McPhar geophysical data and checking of some of the geophysical anomalies.

5.2 Geological Mapping

Geological mapping undertaken during the year

between the Henty Gorge and the Tyndall Range has confirmed the findings of the limited mapping programme undertaken in the vicinity of Howard's Anomaly during 1972-73.

South of Newton Creek a large complex of intermediate lavas and/or intrusives (Fig. 2) consisting of massive andesitic hornblende and/or plagioclase porphyries, outcrops along with some non-porphyritic varieties. The complex is highly variable particularly towards the Northern end and margins, e.g. West of Howard's Anomaly a quartz feldspar porphyry is completely surrounded by and includes varieties of the andesite and appears to be an acid differentiate of the main andesite magma; albitization occurs irregularly along the Eastern margin and in places has resulted in almost total replacement of the andesitic groundmass and feldspar phenocrysts by albite. Several brecciated zones occur within the main andesitic body and together with some sheared, altered andesites appear to be related to North to South trending fracture zones within and near the margins of the main body. There appears to be some spatial relationship between the fracture zones and areas of mineralisation: Several zones of disseminated pyrite and minor chalcopyrite mineralisation and occasionally gossanous zones occur within and along the margins of the andesite complex. Veins and disseminations of jasper and epidote also occur associated with this mineralisation.

The Queenstown Pyroclastics occur, mainly around the margins of the andesite complex, although large rafts and smaller xenoliths do occur within the andesite. They include acid and acid to intermediate crystal lithic, medium to coarse grained tuffs, minor ignimbrites and lavas, waterlain tuffs and associated sediments (fine sandstones, tuffaceous sandstones, siltstones and carbonaceous shales). Several porphyritic acid "lavas", which also occur, may be shallow intrusives. The limited number of facings obtained from the sedimentary units within the Queenstown Pyroclastics indicate that the sequence youngs and dips steeply to the East.

The Queenstown Pyroclastics are overlain to the East by the Comstock Tuffs. South of line 22N the sequence consists of massive quartz-feldspar rich,

dark, coarse-grained crystal lithic tuffs with intercalated beds of siltstone. The banded keratophyric tuff/agglomerate unit, considered as typical of the Comstock Tuff, forms a prominent unit towards the base of the sequence. Facings and dips in the area are similar to those found in the Queenstown Pyroclastics, i.e. younging and dipping steeply (70° - 80°) East. Further North towards Newton Creek the tuffs become siliceous and coarser in nature with breccia units becoming more important. These are intercalated with siltstones, greywackes and rhyolites, the latter exhibiting autobrecciation and less commonly flow banding. Facings immediately South of Newton Creek suggest that the sequence is younging and facing West, but, at the present time, this is thought to be a local feature.

South of Howard's Anomaly the contact between the Comstock Tuff and the Queenstown Pyroclastics is affected by cross faulting. However, the actual relationship between the two groups in the area is not clear : The Comstock Tuffs are thought to be probably disconformable on the Queenstown Pyroclastics.

5.3 Geophysics (including Western Grid)

Geophysical work undertaken during the year included the re-evaluation of the McPhar dipole-dipole I.P. surveys undertaken during 1967-68. The McPhar data was re-examined by Scintrex Pty. Ltd. in November, 1973 (A.W.H.R. Scintrex Rep. C-033) and several of the anomalies were rechecked in December, 1973. (A.W.H.R. Scintrex Tas 018c.) A more detailed re-interpretation was carried out, in April, 1974 by a Consulting Geophysicist, Mr. J.L. Irvine.

The McPhar anomalies rechecked by Scintrex Pty. Ltd. are shown in Fig. 5. Anomalies were checked on both the West and East Grids. On the Western Grid lines 24N, 26N and 28N were rechecked using gradient array I.P. All three lines proved to be anomalous along their entire surveyed length with very high chargeabilities detected within 200' of the surface. The chargeability results on lines 24N and 26N show very good correlation. The anomalous I.P. results appear to correlate with the numerous beds of black shale in the area.

On the Eastern Grid, McPhar Zones A, B, C-3 and C-4 were checked and lines 38N and 40N surveyed with gradient array I.P. The latter were surveyed in order to fill the "gap" in the geophysical coverage between the McPhar 1967-68 survey and the Scintrex 1972-73 survey of the Henty Fault Zone. Zone A was checked on lines 6 + 400N, 6N and 6 + 400S; very strong chargeabilities 20 to 25 milliseconds above background were outlined by the gradient array, coinciding with observed pyrite mineralisation and gossans close to the S.W. margin of the andesite complex. Zone B was checked on line 4N and anomalous I.P. results were confirmed over the zone, which is possibly the Northern continuation of the anomalous zone drilled by Pickands Mather International (P.M.I.) North of Basin Lake in 1970.

The significance of anomaly C-3 was confirmed by checking lines 22N + 200' N, 22N and 22N + 200' S. Chargeability values up to 20 milliseconds above background recorded and there appears to be a good correlation between lines 22N and 22N + 200' S. This anomaly was tested by d.d.h. H.A.1 in 1971 and is due to disseminated sulphides. Checking on lines 28N and 34N did not confirm the importance of anomaly C-4 : On line 28N there is a depression both in the resistivity and the chargeability and conductive, non-chargeable clays or oxidation are the suggested interpretations, on line 34N the anomaly detected is very weak and is not considered to have any significance.

The surveying of lines 38N and 40N indicated good correlation between the lines with large anomalies having chargeabilities between 20 and 40 milliseconds above background. The anomalies between 10W and 13W on line 38N and 4W and 8W on line 40N appear to be adjacent to the Henty Fault. Another large anomaly occurs at 33.5W on line 38N and although still detectable on line 40N, is very much weaker. All the anomalies are considered to be of interest and require further investigation.

The results of the more detailed interpretation of the McPhar geophysical data undertaken by Mr. J.L. Irvine in April, 1974 are presented in a report entitled "A Further Interpretation of Induced

Polarization and Resistivity Surveys, Mt. Tyndall Area, Tasmania". The Metal Factor values used by McPhar in conjunction with the resistivity data is a product of the resistivity, and as a result can tend to outline spurious anomalies. The Percent Frequency Effect (P.F.E.) was calculated for all the McPhar traverses using the following formula:

$$P.F.E. = \frac{M.C.F. \times 1000}{Ra/2} \quad \text{where } Ra = \text{apparent resistivity}$$

and M.C.F. = Metal Factor

The McPhar geophysical survey was then re-interpreted comparing the P.F.E. and Apparent Resistivity values. The magnetic data, together with the Turam and Gravity surveys undertaken by Rio Tinto Australia Exploration in 1959, was also examined and where possible integrated with the I.P. data. Irvine recommended three zones as being of interest (Fig. 5). The area on the Western Grid running from line 4N to 12N, appears to correlate with the Eastern boundary of a large gabbro intrusive. The I.P. anomaly which coincides with high magnetic values may be due to magnetite, however, the I.P. coverage of the area appears to be incomplete and further work may be required.

Zone A between lines 6N and 8N on the Eastern Grid was recommended for follow up work and a subsequent gradient array survey this year (see this Section) confirmed that it is a zone of primary interest. The third zone recommended by Irvine between lines 16N and 26N over the Howard's Anomaly area has rather confusing though anomalous I.P. and magnetic readings. There appears to be a series of en-echelon features or a discontinuous zone of response off-set by a series of faults. The grid line spacing of 1/4 mile is too great to permit accurate correlations and Irvine has recommended that intermediate lines be cut between the present lines and the zone redefined using gradient array I.P. before any further diamond drilling be undertaken.

5.4 Conclusions

Geological mapping South of Newton Creek has been completed in sufficient detail for the present and in

conjunction with the geophysics has outlined zones suitable for follow up work. North of Newton Creek the geological mapping is still only on a broad reconnaissance scale, but the geophysical interest of the zone has been downgraded; McPhar anomaly C-4 appears to be due to conductive clays and/or oxidation while anomaly D appears to be related bands of argillaceous sediments within the Comstock Tuff and is considered to have little or no potential.

The Scintrex and Irvine re-interpretations of the McPhar geophysics are in basic agreement particularly East of the Henty River. Zone A has been interpreted as an area of primary interest and this was confirmed by the gradient array check. However, the geophysical coverage does not extend far enough West, particularly on line 8N, where extensive areas of gossan development, as yet unsurveyed appear to be part of the zone of mineralisation, close to the S.W. margin of the andesite complex. Zone B (line 4N) appears to be of interest. This zone is possibly related to the Basin Lake anomaly outlined by P.M.I. in 1970, on what is now E.L. 41/71 held by the Mount Lyell Mining and Railway Company Limited. A geophysical survey is to be undertaken over this Basin Lake area in 1974-75 and it is felt that the results from this survey should be considered before any further work is contemplated over this zone.

The zone through Howard's Anomaly is considered to be of high interest. D.d.h. H.A.1/2 and the costeans constructed in 1969 demonstrate that the extensive geophysical anomalies are related to sulphides. However, the problem of interline correlation of the geophysical results in the zone of interest needs to be resolved by further geophysics on a closer spaced grid before any further diamond drilling is considered in the area.

The other area of interest is in the region of lines 38N and 40N particularly the anomalies adjacent to the Henty Fault Zone. The magnitude of these anomalies correspond to the one in a similar position on line 49N over the massive sulphide deposit. However, on lines 38N and 40N the Henty Fault and the Comstock Tuff contact are diverging and much more room exists for the development of an economically viable sulphide deposit.

Areas on the Western side of the Henty River, while still of interest, are regarded as having a lower priority. A more comprehensive geological map is required before any detailed evaluation of the anomalies can be undertaken.

6. TRACE ELEMENT STUDY ON SULPHIDES (J.L. WALSHE)

The Consolidated Syndicate has continued to support Mr. J.L. Walshe in his study of trace element distribution in Cambrian Sulphides (see Section 10.5, Annual Report, Mt. Tyndall E.L. 9/66, 1971-72, J.P. McKibben). The study of the trace Co and Ni levels in pyrites from Prince Lyell (Mt. Lyell) has continued. A similar study has been completed at Cape Horn and studies are continuing on "A" Lens and Western Tharsis (Mt. Lyell). A small amount of additional information has been collected from d.d.h. Selina 7. Data on the proportion of the major sulphides and gangue minerals is being collected to assist in the interpretation of the trace element variations.

The data on Prince Lyell suggests an overall increase in Co in pyrite from North to South (see diagram). Examination of the corresponding percentage pyrite variation suggests an inverse correlation between Co in pyrite and percentage pyrite. Further, it is possible that the Co in pyrite is related to the total Fe or the Fe in chalcopyrite, chlorite and siderite
Fe in pyrite

although this is yet to be fully evaluated. It has been suggested that these relationships between Co in pyrite and the proportions of pyrite to other Fe phases in the system are secondary in the sense that they are not factors which relate directly to copper mineralisation. In order to observe or attempt to observe primary factors, i.e. factors which relate to the possibility of copper mineralisation (these will be principally temperature and the Co content of the mineralising fluids), it has been necessary to standardise the secondary variations. This has been attempted by plotting

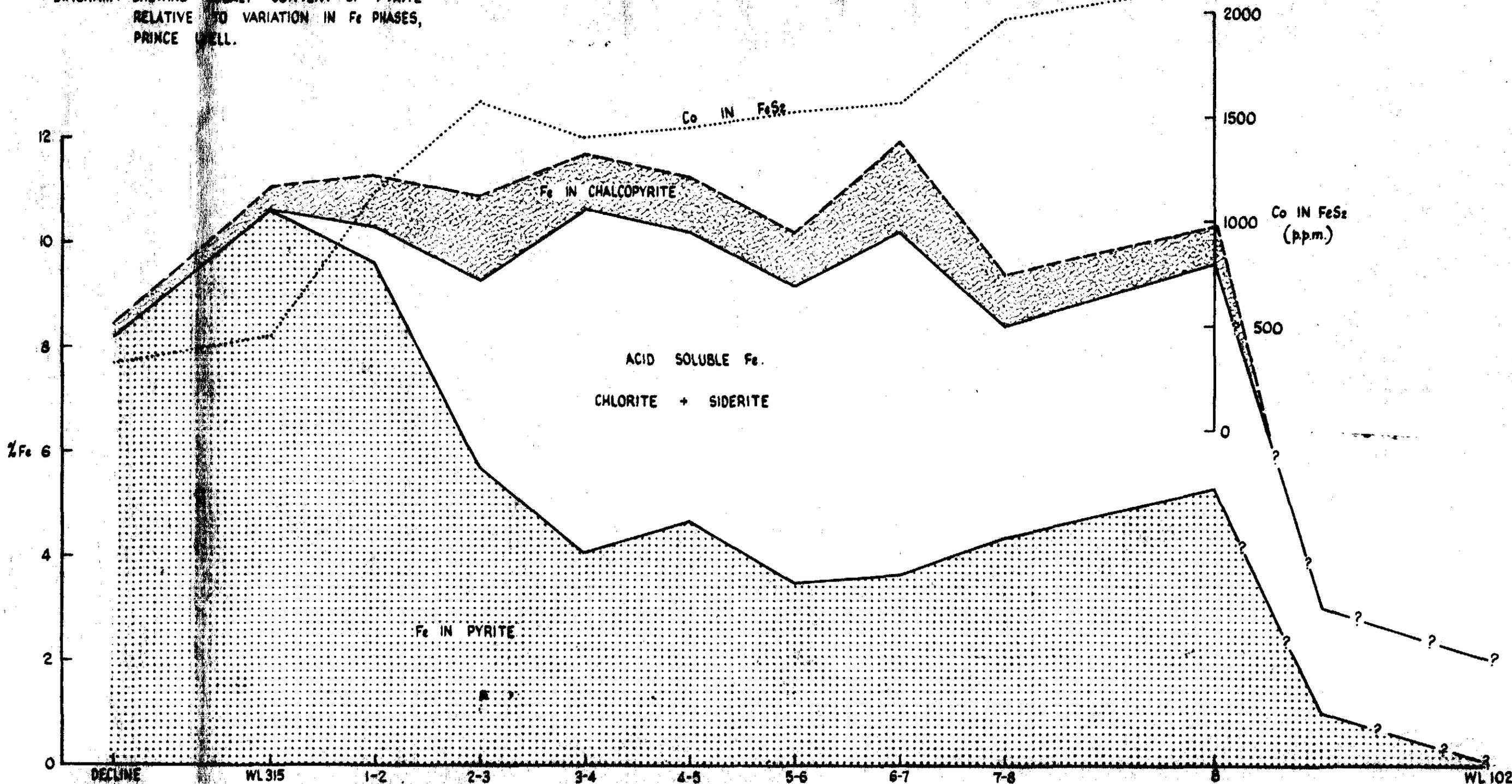
Cobalt in pyrite / Fe in chalcopyrite, chlorite and siderite
Fe in pyrite.

A comparison of Cape Horn and Prince Lyell on this basis suggests Cape Horn pyrites have a lower Co content than Prince Lyell pyrites. D.d.hs Selina 4, 5, 6 and 7 non-standardised values are similar to Prince Lyell and on a standardised plot may be higher, but insufficient data is available to be certain at this time.

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DIAGRAM: SHOWING COBALT CONTENT OF PYRITE
RELATIVE TO VARIATION IN Fe PHASES,
PRINCE WELL.



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In order to resolve standardised differences between Cape Horn, Prince Lyell and Selina an independent determination of temperature is required. Attempts have been made to do this using S isotope partitioning between pyrite and chalcopyrite. However, initial data suggests that the pyrite and chalcopyrite are in disequilibrium and therefore not suitable. It is probable that the results indicate metamorphic re-adjustments. Another possible geothermometer, currently being examined, is bornite and pyrite/chalcopyrite assemblage co-existing with sphalerite, although this needs to be used in conjunction with a pyrite/pyrrhotite, sphalerite geobarometer. Chalcopyrite, pyrrhotite and chalcopyrite/bornite inclusions have been found in pyrites in Prince Lyell. If co-existing sphalerite inclusions can be obtained then the assemblage might be of possible use.

The S isotope results suggest a hitherto unrecognised role of metamorphism. The Co distribution within pyrite grains is currently being examined, using the scanning electron probe and early results suggest the Co may have been re-distributed by the metamorphism. Providing there has been no substantial loss of S during the metamorphism there will be no effect on, the above interpretation of, the Co distribution.

7. RECOMMENDATIONS AND BUDGET 1974-75

The exploration programme for 1974-75 largely consists of the detailed evaluation of previously outlined anomalous zones. However, some general mapping and geophysics will also be required. The programme can be described under the following headings:

1. Henty Fault Zone
2. Henty Camp - Howard's Anomaly - Basin Lake
3. Red Hills - Gooseneck
4. West of the Henty River

7.1 Henty Fault Zone

The recognition of a Rosebery/Tasman Crown type environment adjacent to the Henty Fault, towards the top of an East facing sequence, increases the potential of the older part of the sequence to the West of the Henty

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Fault and the geophysical anomalies in that area will need to be evaluated.

The area of high chargeability between line 54N and 61N and the coinciding Turam anomaly on lines 54N to 56N will need to be checked by soil sampling. Part of the area is covered with glacial scree (see Section 4.4.2) and colluvial sampling should also be undertaken to check for the development of seepage anomalies. Should any zone within the area of high chargeabilities, particularly the Turam anomaly prove to be geochemically anomalous, it is recommended that it be tested by diamond drilling. Similarly, the two large I.P. anomalies on line 60N, 2950W and 61N, 2950W (anomaly 7) and line 50N, 1900W (anomaly 8) will need to be checked by soil sampling. It is also suggested that because of their proximity to the margins of Gradient Array "blocks", that they be checked with pole-dipole I.P. However, due to their inaccessibility, any further investigations or testing by costeaming and/or diamond drilling will require careful assessment in the light of the results of the soil sampling and geophysics.

To date only the geophysical anomalies classed as primary by Scintrex Pty. Ltd. have been considered. It is recommended that all the geophysical data in the area be re-examined and any anomalies considered worthy of investigation should be checked by soil sampling and/or detailed geophysics.

7.2 Henty Camp - Howard's Anomaly - Basin Lake

The area between Newton Creek and the Henty Camp requires mapping in greater detail and this will be undertaken during the year.

The geophysical coverage of Zone A will need to be extended further West on lines 2N, 4N, 6N, 8N and 10N with intermediate lines 5N, 7N and 9N, in order to cover the extensive gossans and pyrite mineralisation outlined by mapping in the area. It is estimated that approximately 25,500' (7,800 m) of I.P., probably gradient array will be needed to adequately cover the zone. A similar I.P. survey will be required, again with intermediate lines, to outline suitable drilling targets in the zone of interest through Howard's Anomaly. It is estimated that approximately 30,000' (9,150 m) of

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geophysics will be required to cover the area between lines 15N and 26N. The I.P. coverage of these two zones should be undertaken as early in the field season as possible in order to obtain the results before January; preliminary testing of suitable targets can then be commenced and possibly completed before the end of the 1974-75 field season.

Two zones within the area present themselves as immediate drilling targets. Zone A consists of a broad zone of disseminated sulphide mineralisation up to 1,000' (305 m) wide and, at the present time, 1,500' (460 m) in length. The gradient array I.P. to be undertaken on lines 2N, 4N, 5N, 6N, 7N, 8N, 9N and 10N will probably increase the size of this zone. It is recommended that diamond drilling be undertaken to test the zone on line 6N. The size of the anomaly will probably necessitate further diamond drilling, but the siting and inclination of the holes will depend largely upon the results of the geophysics and the first drill hole. The second zone suitable as a drilling target is the I.P. anomaly on lines 38N and 40N adjacent to the Henty Fault. Subject to confirmation by soil sampling, it is recommended that this anomaly be tested on line 38N with an 800' (244 m) hole; drilling from 1500'W, Eastwards with a dip of -50° , to test the anomaly at approximately 200' (61 m) below surface. Again further drilling may be required in the area, which is in effect part of the Henty Fault Zone, but this will depend upon the results from the first hole.

7.3 Red Hills - Gooseneck Area

The Red Hills area was surveyed by C.G.G. in 1970 and 1971 using pole-dipole I.P. The whole of Red Hill gave anomalous I.P. readings, with several stronger I.P. axes, and the prospect was approached as a large tonnage/low grade target. Several percussion holes were drilled, some of which contained anomalous copper values (up to 30' x 0.49% Cu) and subsequently three short diamond drill holes, approximately 400' (122 m) in length were drilled to test the top 200' of the hill (Annual Report E.L. 9/66, 1971-72, J.P. McKibben). None of the holes intersected significant mineralisation and the prospect was abandoned as a large tonnage/low grade target. However, the area still retains potential

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for the development of a smaller, higher grade (1%-2% Cu) deposit. The anomalous I.P. results are still unexplained and the main I.P. axes largely untested.

The main I.P. axis, A1, as outlined by C.G.G., runs from 8S, 4,000' (1,220 m) to 48S where it disappears beneath the Owen Conglomerate. Subsequent examination of the original data suggests that the axis may also extend Northwards beneath the button-grass swamp. The I.P. axis is very strong, particularly on line 8S where coincident chargeability, resistivity, S.P. and magnetic anomalies and known copper mineralisation occur. The importance of the anomaly, particularly on line 8S was emphasised by C.G.G. and later reaffirmed by Scintrex Pty. Ltd. in their reappraisal of the data. Both strongly recommended that the anomaly be tested by diamond drilling on line 8S and C.G.G. also recommended testing on line 32S. It is recommended that all the data from Red Hills, including the diamond drilling undertaken by E.Z. in 1959, be evaluated with a view to effectively testing I.P. axis A1 by diamond drilling before the end of 1974-75 field season.

The Gooseneck area occurs South of Red Hills and East of Gooseneck Mountain (Fig. 2). The Gooseneck Mountain is the core of a syncline and the discovery of a mineralised horizon containing massive sulphide, in the Henty Fault Zone (line 49N), on the Western limb of this syncline raises the possibility of the same horizon occurring East of Gooseneck Mountain, in the Western side of the Gooseneck area : A small conductive axis, outlined by C.G.G. in 1971, occurs in this area, and warrants further evaluation. The structure of the Gooseneck syncline is not fully understood, e.g. the thick sequence of Tyndall Group rocks on the West side of the mountain (1,000' (305 m)), does not appear to occur on the East side. Detailed geological mapping is recommended in an attempt to elucidate the structure and geological sequence in the area. The small conductive axis may also warrant further geophysical investigation, particularly if all the Cambrian rocks up to the contact with the Owen Conglomerate have not been adequately covered.

The third zone of interest occurring in the Red Hills - Gooseneck area is an anomaly outlined by C.G.G. and known as A5, which strikes from North to South right

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through the area immediately West of Red Hill (C.G.G., Red Hills 1969 - Feb. 1970). This zone is approximately 6,000' (1,800 m) long and 200' (61 m) wide and consists of a horizon of fine grained tuffs and black shales within a thick sequence of acid lavas. The environment appears to be similar to that of the Rosebery massive sulphide deposit. Some diamond drilling undertaken in the zone by E.Z. on behalf of Rio Tinto Australia Exploration in 1958 encountered anomalous Cu, Pb and Zn values. The zone needs to be re-examined and should be included in the detailed mapping programme to be undertaken in the Gooseneck area. Geochemical sampling should also be undertaken in order to try and define areas of greater interest within the zone.

7.4 West of the Henty River

This area is still largely an unknown quantity, much of the geology remaining undifferentiated (Fig. 2). In his re-interpretation of the McPhar geophysics (see Section 5.3), Mr. J.L. Irvine indicated that the I.P. anomaly along the Eastern boundary of the large gabbro intrusive in the S.W. corner of the lease is of potential interest, and furthermore it is believed that the Hercules Mine "horizon" strikes Southward into the Northern part of the area.

It is recommended that geological mapping be undertaken throughout the area with geochemical soil sampling in geophysically anomalous zones.

The Northern part of the area should be surveyed in more detail : At the present time, the Western grid has been surveyed, with geophysics, as far North as line 28N. It is recommended that the grid lines North of line 28N be re-established and intermediate lines cut halfway between these lines, to give an interline spacing of approximately 700'. Because of the extensive black shales in the area, it is felt that a geophysical survey, whether I.P. or E.M., would not give effective coverage. Therefore, it is recommended that geochemical soil sampling be undertaken at 100' intervals over the grid. In areas of transported soils colluvial samples should also be taken. Further intermediate lines, should be cut and pegged over any anomalous zones, to give an interline spacing of 3/400', and these zones

re-sampled at 50' intervals. Any zones confirmed by the detailed sampling should be checked with I.P. to aid in the definition of suitable drilling targets.

7.5 Access and Accommodation

The present camp at Henty requires some maintenance work, but appears to be satisfactory both in size and standard for most of the activities to be undertaken at Tyndall during the year. With the completion of the new road the camp will also be able to service the area west of the Henty River. However, it is recommended that the Mt. Lyell caravans be established on the old P.M.I. campsite South of Howard's Anomaly for the use of diamond drilling crews working in the area.

With the completion of the new road, vehicular access into the Tyndall area would appear to be adequate for present needs. Some minor road maintenance will be required in the area and construction of short access roads to some diamond drill sites will be necessary.

Geophysical coverage will require the cutting of baselines and supplementary grid lines in the Zone A and Howard's Anomaly areas totalling approximately 35,000' (10,700 m), also 32,000' (9,750 m) of existing lines will need to be cleared out. The establishment of the grid over the White Spur area North of line 28N will involve 133,900' (40,800 m) of track cutting. This will consist of a baseline of 8,500' (2,500 m) and fourteen lines totalling 125,400' (38,300 m).

7.6 Staffing

It is recommended that a staff of one geologist and one field assistant be available for work connected with E.L. 9/66 throughout the year. From October to April this number should be increased to a total of two geologists and two field assistants, supplemented by other personnel for specific assignments.

7.7 Budget

In the original budget proposed in February, 1974 a total budget of \$141,600 was proposed for the year 1974-75. However, this budget has been modified in accordance with the proposed exploration programme for 1974-75, which is based largely on the results of

the 1973-74 programme. A total of \$156,425 is recommended in order to carry out the proposed work programme. The increase of \$14,825 is to cover the cost of salaries and track cutting.

The budget has been compiled as follows:

1. Salaries

A total of \$43,125 has been budgetted to include the following salaries:

		\$
Senior Geologist - Exploration	(40%)	6840
Exploration Geologist	(80%)	12510
Exploration Foreman	(40%)	3600
Draughtsman	(30%)	3750
Field Assistant	(50%)	3750
		30450

These estimates include a 50% loading to cover overhead expenses.

Three student field assistants - \$3750 including a 25% loading to cover overhead expenses.

Track cutters - \$8925 including a 25% loading to cover overhead expenses.

2. Materials

A total of \$2200 has been budgetted to cover the cost of all stores and non-returnable items, including camp equipment and food, gas, fuel and field equipment, etc.

3. Outside Services

For the hire of contractors to conduct road construction and repairs, costeaning, site preparation and relocation of diamond drill rigs, a total of \$4400 has been estimated.

4. Diamond Drilling

While at the present time firm recommendations have been made for only two diamond drill holes, i.e. Zone A, line 6N and line 38N, totalling approximately 2,000' (6,100 m); further work to be undertaken in

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these areas, also at Red Hills/Gooseneck, in the Henty Fault Zone and in the zone of interest through Howard's Anomaly before the end of 1974, will further define the anomalous zones and outline extensive drilling targets. It is estimated that a total of 6,000' (2,450 m) (six holes) of diamond drilling, in a one rig drilling programme, will be required during the year to commence testing these anomalous zones.

The 6,000' (2,450 m) of diamond drilling, it is estimated will cost in the order of \$88000.

5. Geophysics

An estimate of \$3300 has been allocated to cover the cost of detailing I.P. anomalies previously outlined in the licence area, in particular Howard's Anomaly and Zone A, near the Southern licence boundary.

6. Geology

An amount of \$4400 has been allocated to cover geological and geochemical costs. This includes \$2000 for all geochemical analyses, petrographic and consultant expenses and \$2000 for the continued grant to Mr. J.L. Walshe.

7. General Costs

To cover the cost of vehicle operating, plant maintenance, surveying, assaying costs and for the hire of equipment such as caravans and miscellaneous minor items a total of \$4400 is budgetted.

8. Capital

\$6600 is allocated for the replacement of the Syndicate's long wheel base and short wheel base Toyota Landcruisers presently operated by Renison Ltd.

K. Wells.

MT. TYNDAL PROSPECT

BUDGET 1974-75

PERIOD NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	TOTAL
Salaries	1500	900	1100	3225	3600	7250	8450	6050	4750	2300	1100	1000	1900	43125
Materials	100	100	100	100	200	300	200	300	300	200	100	100	100	2200
Outside Services							2300			2100				4400
Diamond Drilling					11000	11000	11000	11000	22000	22000				88000
Geophysics										3300				3300
Geology	900		400		400		900		500		400		900	4400
General Costs	200	200	200	300	500	500	400	500	400	500	300	200	200	4400
Capital											6600			6600
TOTAL COST	2700	1200	1800	3625	15700	19050	23250	17850	27950	30400	8500	1300	3100	156425
$\frac{1}{3}$ Member Co. cost as above	900	400	600	1209	5234	6350	7750	5950	9317	10134	2834	434	1034	52146

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Geology of the Newton Creek, Henty River Area, Mt. Tyndall

- N. Bassett, May 1974

Howard's Anomaly - Basin Lake Area, Mt. Tyndall

- B. Craven, Feb. 1974

Some Comments on Geophysical Surveys Carried Out in the Mt. Lyell Area, 1967 to 1971 by McPhar Geophysics and Compagnie Generale de Geophysique on behalf of the Mt. Lyell Mining and Railway Company Limited

- A.W. Howland-Rose, Nov. 1973. Scintrex Pty. Ltd. report C-033.

Report on Detailed Electrical Geophysical Surveys, Mt. Tyndall Area, near Queenstown, Tasmania

- A.W. Howland-Rose, Dec. 1973 - March, 1974 Scintrex Pty. Ltd., report Tas-018c.

A Further Interpretation of Induced Polarization and Resistivity Surveys, Mt. Tyndall Area, Tasmania

- J.L. Irvine, April 1974 Consulting Geophysicist, Job 404

Annual Report, 1971-72, Mt. Tyndall Area, E.L. 9/66

- J.P. McKibben, July 1972

Geophysical Survey of Mt. Tyndall Lease - Red Hills 1969 - Feb. 1970

- G. Omnes, July 1970 C.G.G.

Geophysical Surveys at Mt. Tyndall - Gooseneck January - February, 1971

- G. Omnes, June 1971 C.G.G. Mission 501-18-80

Progress Report, Trace Element Study

- J.L. Walshe, Sept. 1974

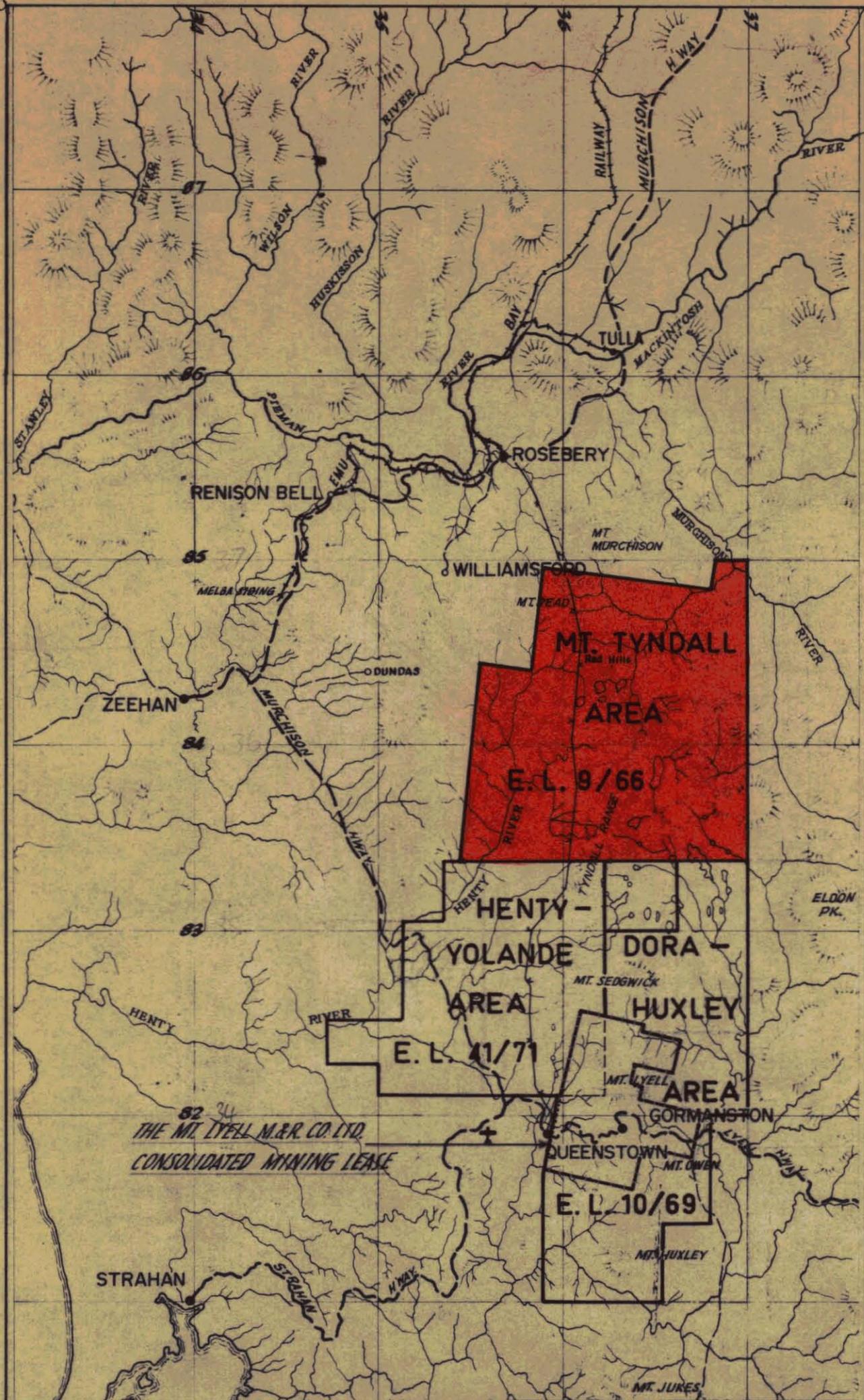
Mt. Tyndall, E.L. 9/66, Annual Report 1972-73

- K. Wells, Aug. 1973

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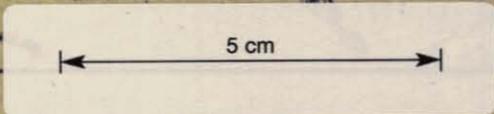
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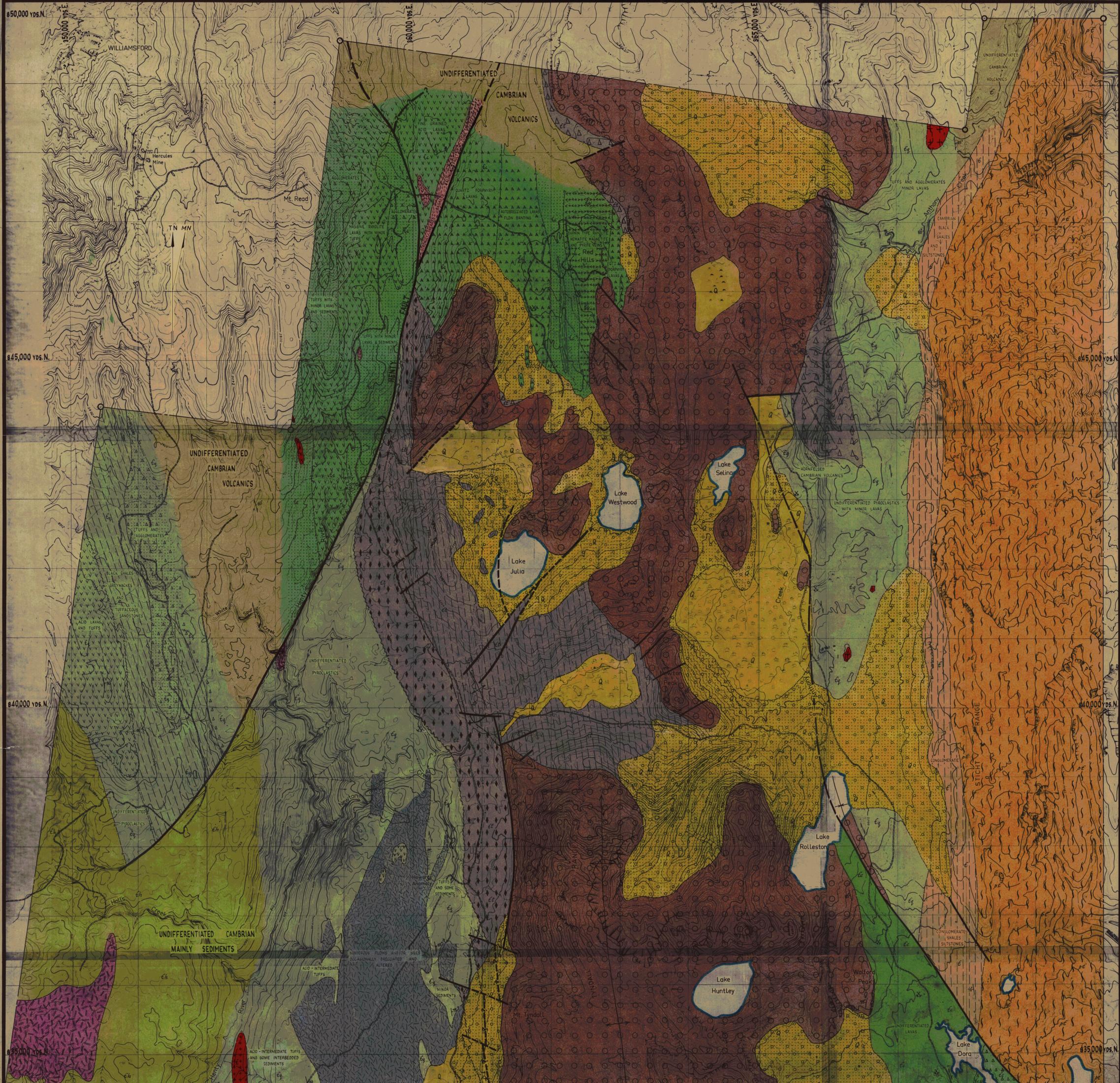
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 THE MT. LYELL M. & R. CO. LTD.
 CONSOLIDATED MINING LEASE

THE MOUNT LYELL M. & R. CO. LTD. EXPLORATION DEPARTMENT.	
EXPLORATION LICENCES (SKETCH MAP) LOCALITY PLAN	
Drawn: J.H.C.	
Checked: K.Wells	
Date: May 1974	
Scale: 1" = 4 miles	





LEGEND

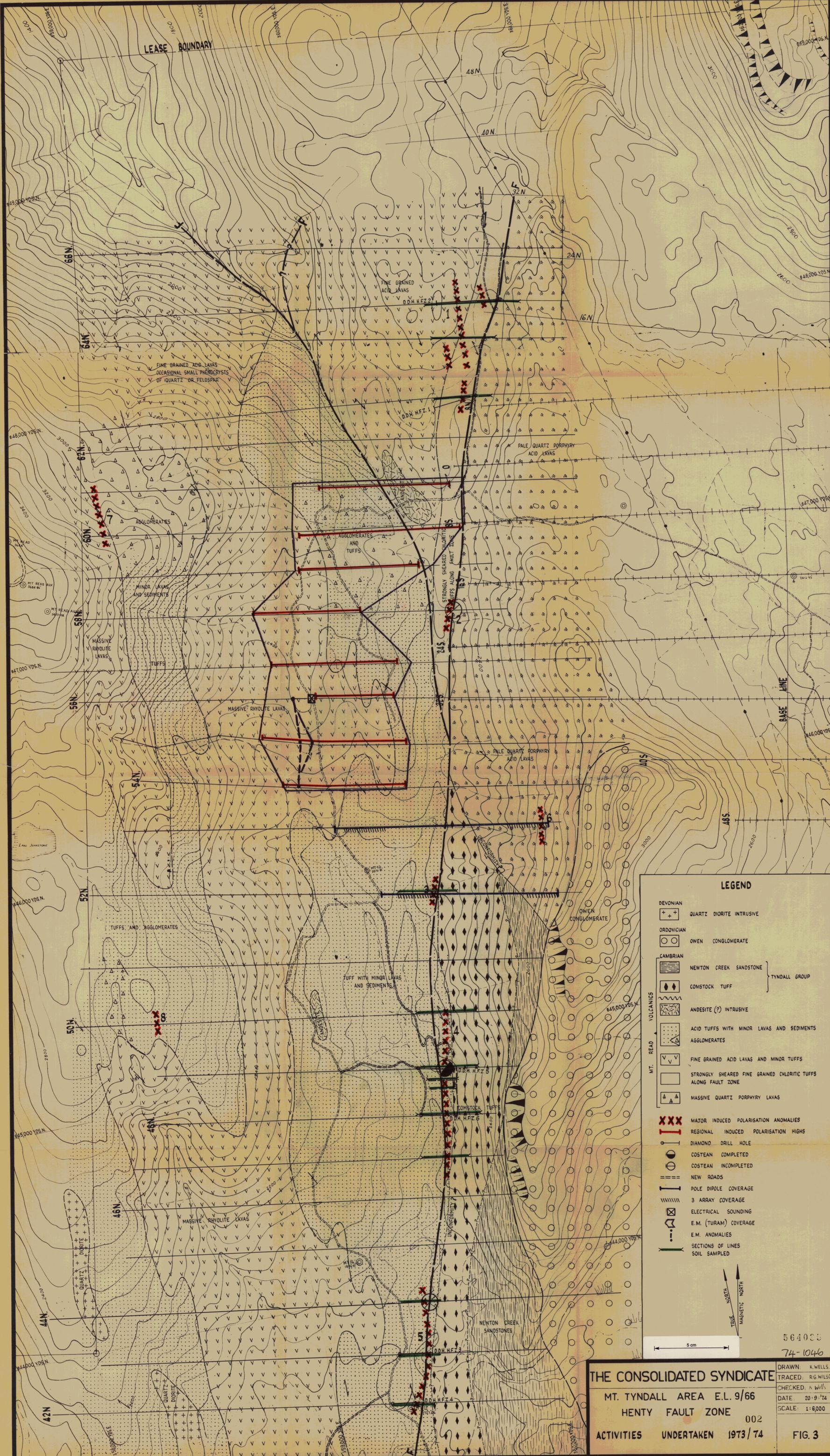
<p>QUATERNARY</p> <ul style="list-style-type: none"> SWAMP MORAINES AND SCREE <p>ORDOVICIAN</p> <ul style="list-style-type: none"> OWEN CONGLOMERATE <p>CAMBRIAN</p> <ul style="list-style-type: none"> NEWTON CREEK SANDSTONE JUNES CONGLOMERATE CONGLOMERATE TUFF TYNDALL GROUP AGGLOMERATES TUFS SEDIMENTS ACID LAVAS QUEENSTOWN PYROCLASTICS OR EQUIVALENTS 	<p>CAMBRIAN</p> <ul style="list-style-type: none"> AGGLOMERATES TUFS FINE GRAINED ACID LAVAS QUARTZ PORPHYRY LAVAS SEDIMENTS MASSIVE FINE GRAIN ACID LAVAS MINOR TUFS SEDIMENTARY SEQUENCE CONGLOMERATES, SHALES AND SILTSTONES - LOWER CAMBRIAN UNDIFFERENTIATED CAMBRIAN VOLCANICS 	<p>PRECAMBRIAN</p> <ul style="list-style-type: none"> STICHT QUARTZITE INTRUSIVE ROCKS CENTRAL CAMBRIAN LAVA SEQUENCE QUARTZ DIORITE QUARTZ PORPHYRY ANDESITE FINE GRAINED DOLERITE (SOME EXTRUSIVE?) GABBR0 AND SERPENTINITE GRANITE 	<ul style="list-style-type: none"> FAULT ANTICLINE SYNCLINE STRIKE AND DIP OF BEDDING STRIKE OF SCHISTOSITY AND DIP OLD WORKINGS
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THE CONSOLIDATED SYNDICATE

MT. TYNDALL AREA
E.L. 9/66
GEOLOGICAL MAP 001

DRAWN: K. WELLS
TRACED: R. WILSON
CHECKED: N. BULL
DATE: 9.7.74
SCALE: 1:15840

FIG. 2



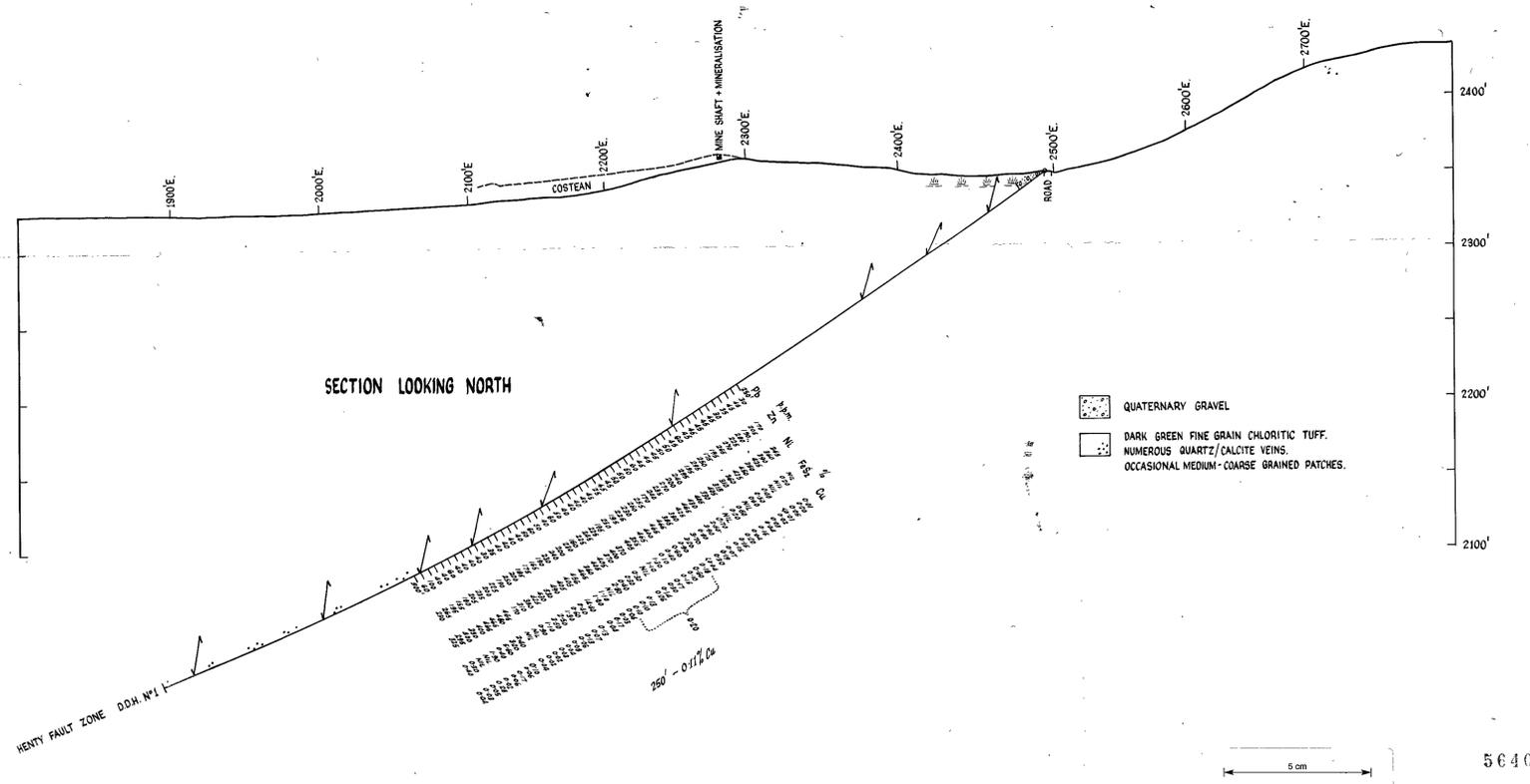
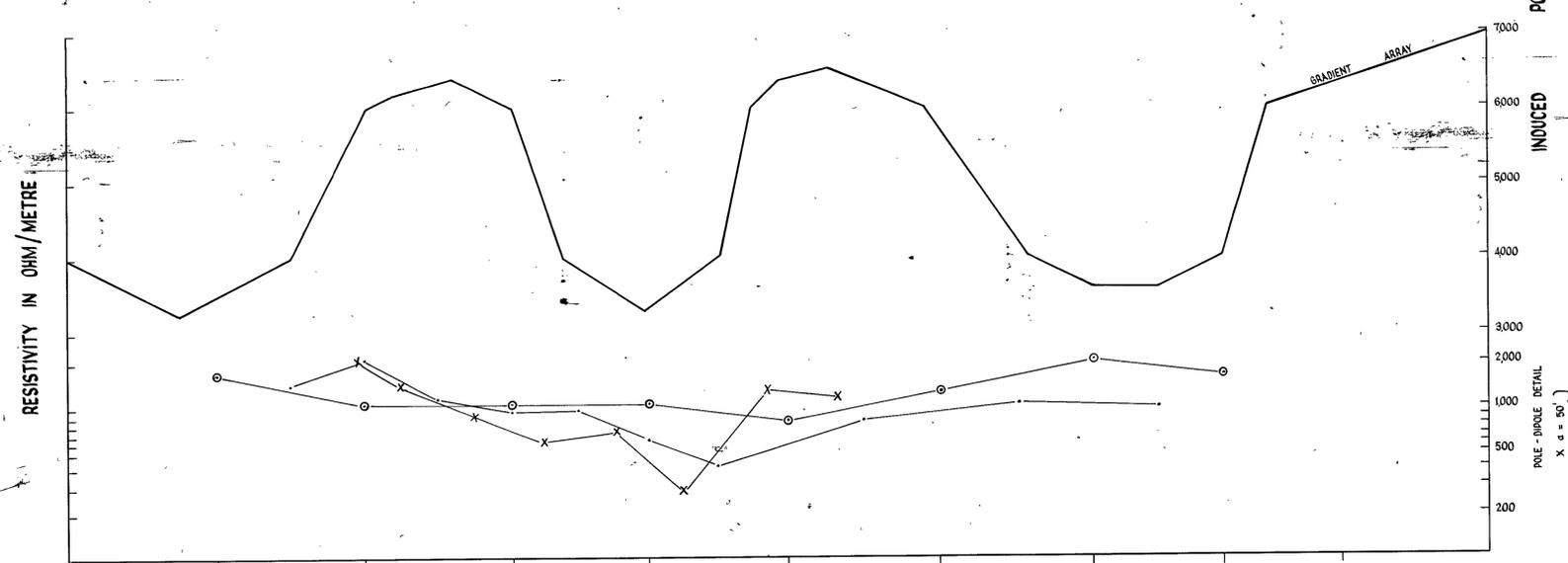
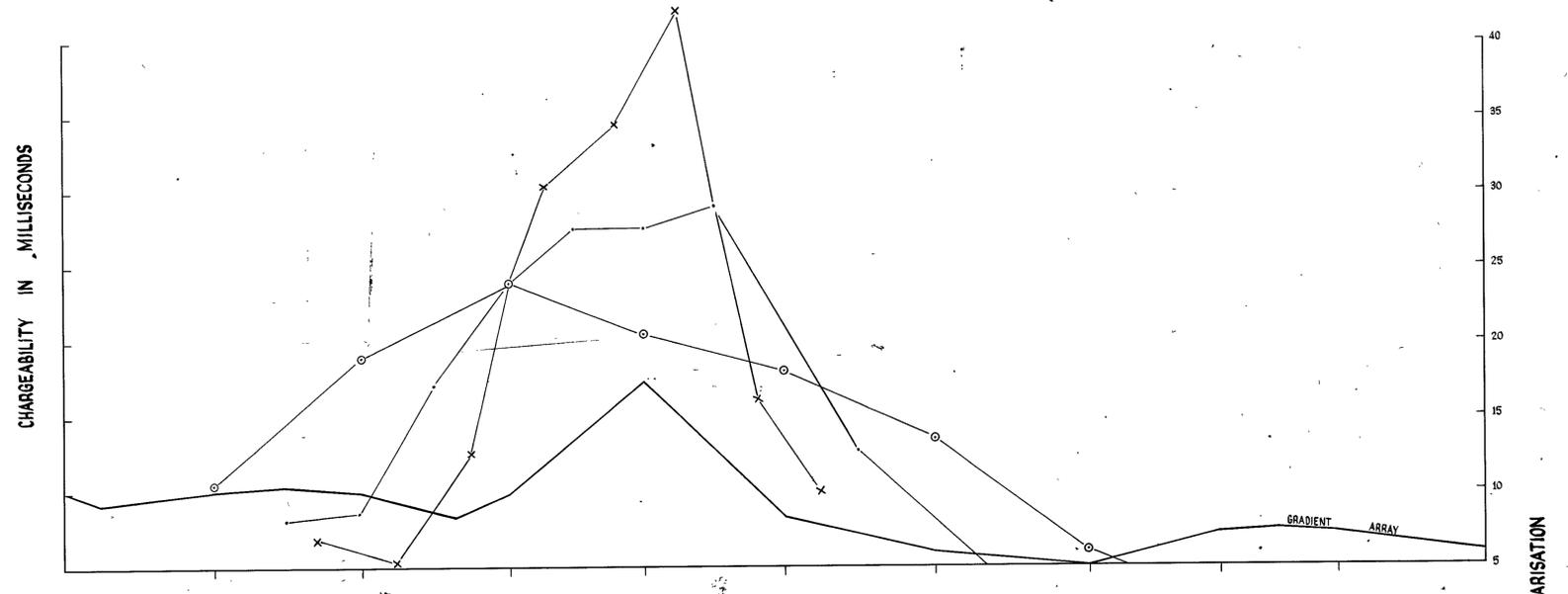
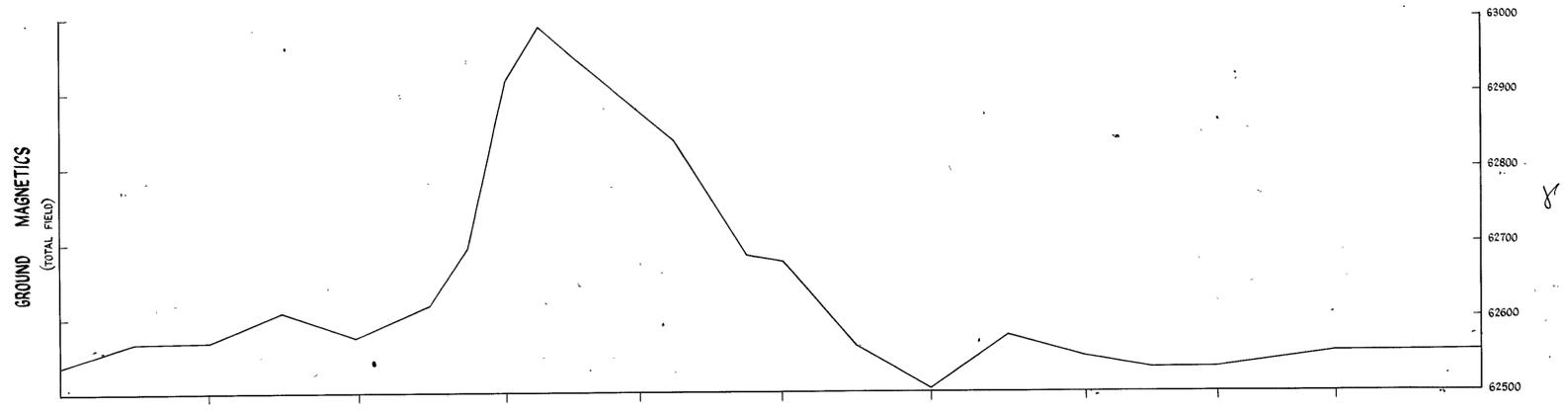
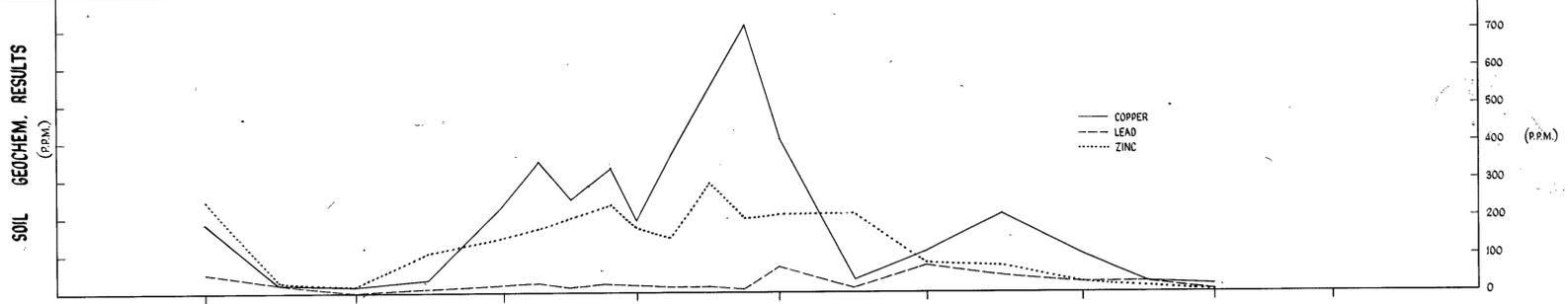
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DEVONIAN	+	QUARTZ DIORITE INTRUSIVE
ORDOVICIAN	○	OWEN CONGLOMERATE
CAMBRIAN	▨	NEWTON CREEK SANDSTONE
	▩	COMSTOCK TUFF
VOLCANICS	▧	ANDESITE (?) INTRUSIVE
	▨	ACID TUFFS WITH MINOR LAVAS AND SEDIMENTS
MT. READ	▨	AGGLOMERATES
	▨	FINE GRAINED ACID LAVAS AND MINOR TUFFS
	▨	STRONGLY SHEARED FINE GRAINED CHLORITIC TUFFS ALONG FAULT ZONE
	▨	MASSIVE QUARTZ PORPHYRY LAVAS
	XXX	MAJOR INDUCED POLARISATION ANOMALIES
		REGIONAL INDUCED POLARISATION HIGHS
	○	DIAMOND DRILL HOLE
	○	COSTEAN COMPLETED
	○	COSTEAN INCOMPLETED
	==	NEW ROADS
	POLE DIPOLE COVERAGE	
	3 ARRAY COVERAGE	
▨	ELECTRICAL SOUNDING	
▨	E.M. (TURAM) COVERAGE	
---	E.M. ANOMALIES	
▨	SECTIONS OF LINES	
▨	SOIL SAMPLED	

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 DRAWN: K. WELLS
 TRACED: R.G. WILSON
 CHECKED: K. WELLS
 DATE: 20.9.74
 SCALE: 1:6000

THE CONSOLIDATED SYNDICATE
 MT. TYNDALL AREA E.L. 9/66
 HENTY FAULT ZONE 002
 ACTIVITIES UNDERTAKEN 1973/74

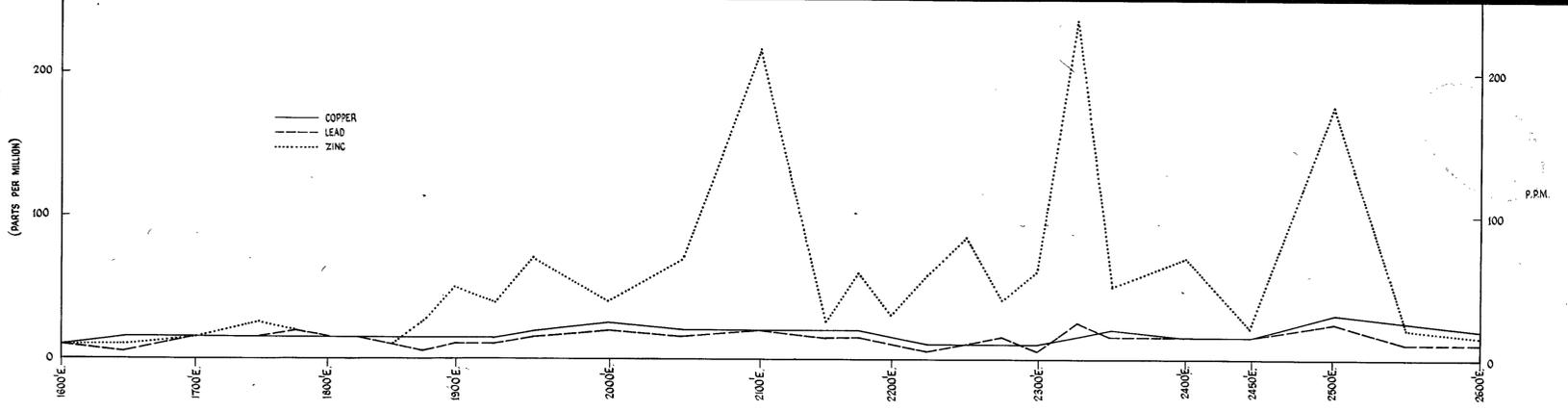
FIG. 3



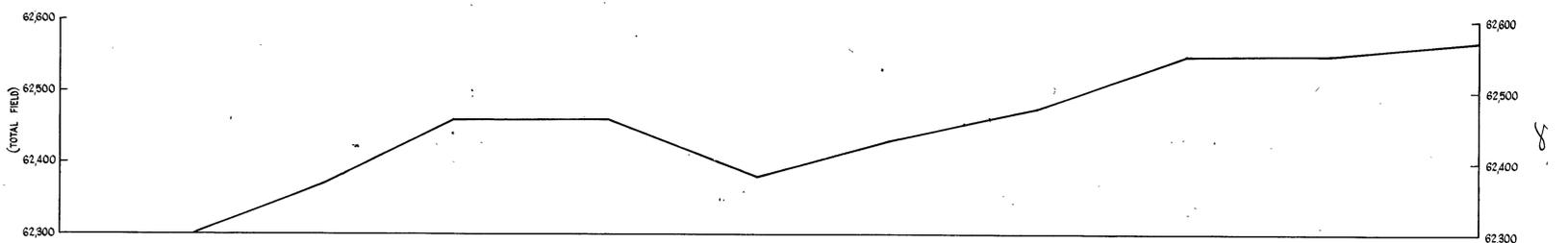
564036
74-1046

THE CONSOLIDATED SYNDICATE		DRAWN R.G. WILSON
MT. TYNDALL AREA E.L. 9/66		TRACED R.G. WILSON
HENTY FAULT ZONE - LINE 63N.		CHECKED K. WELLS
GEOLOGICAL AND DRILLING RESULTS		DATE 21.9.73
SCALE 1:600		FIG. 4a

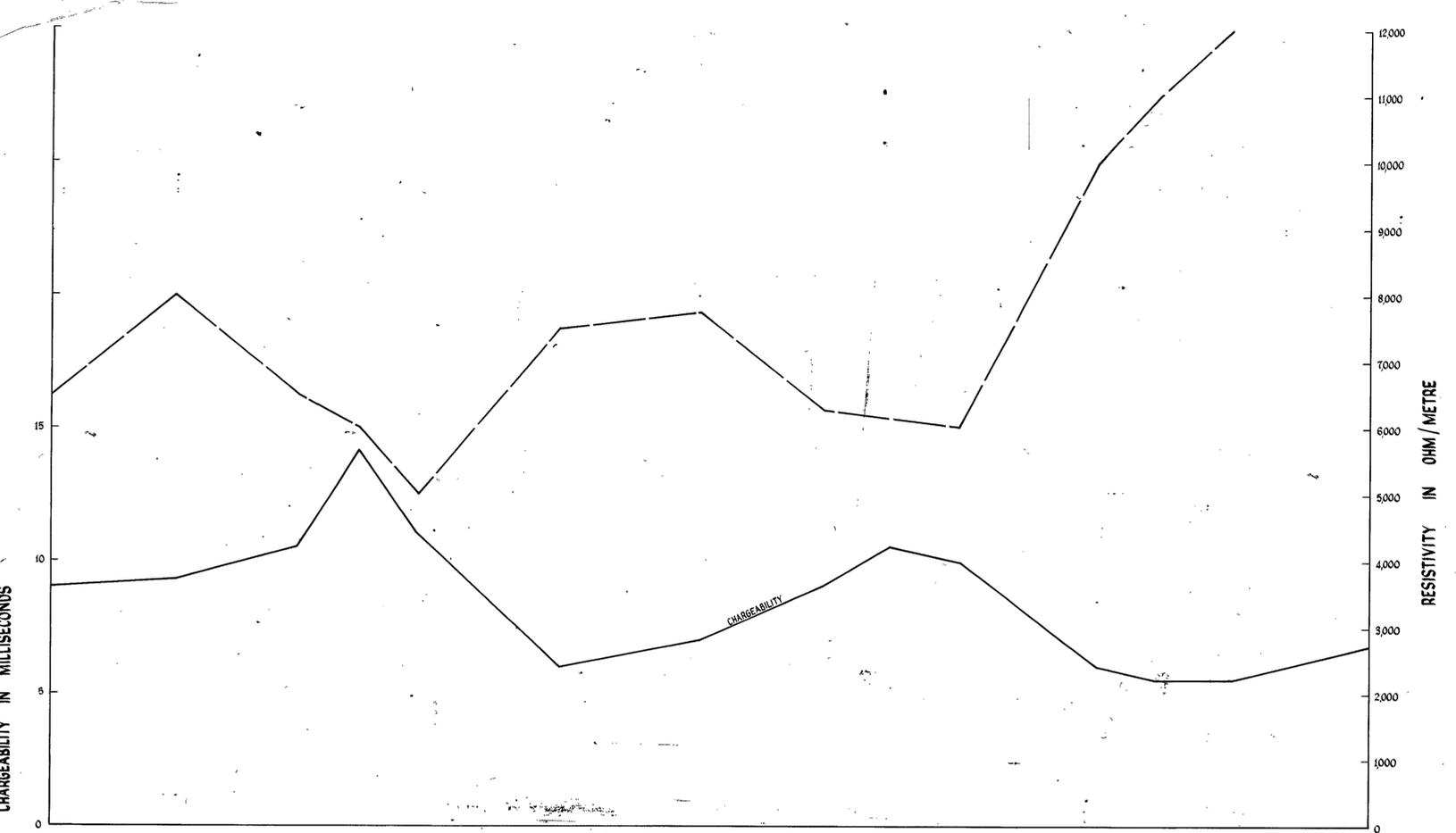
SOIL GEOCHEM. RESULTS



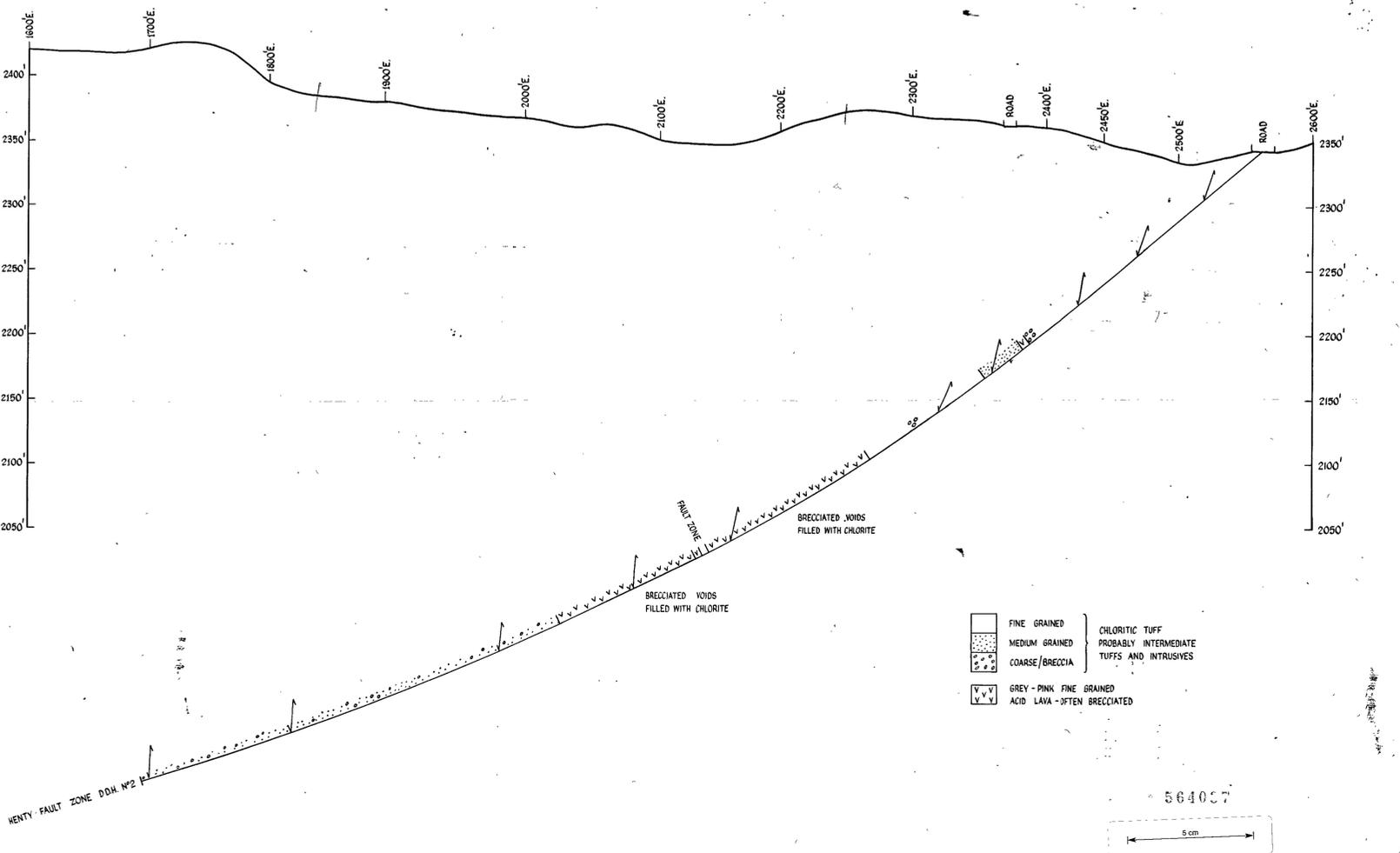
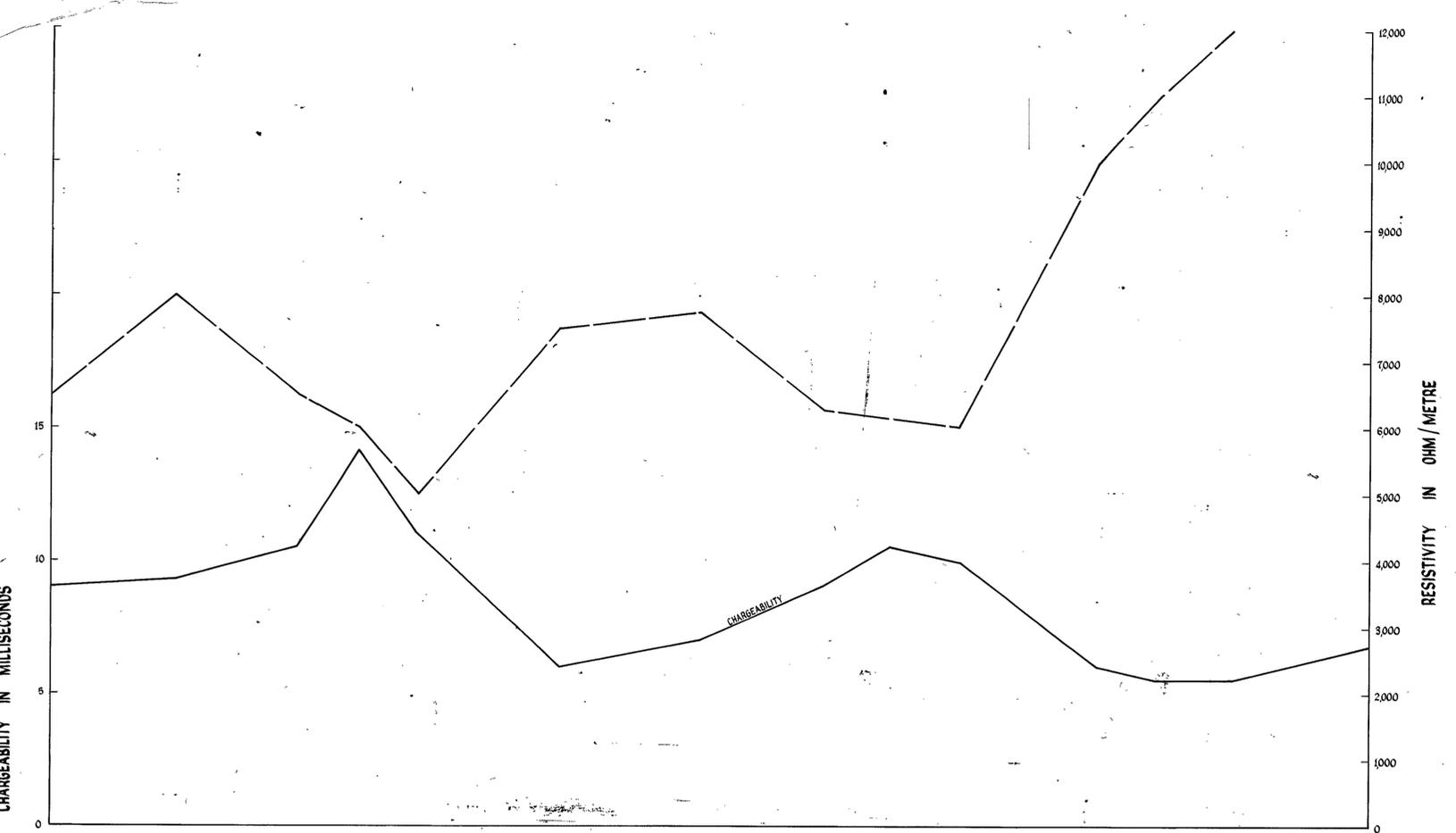
GROUND MAGNETICS



CHARGEABILITY IN MILLISECONDS



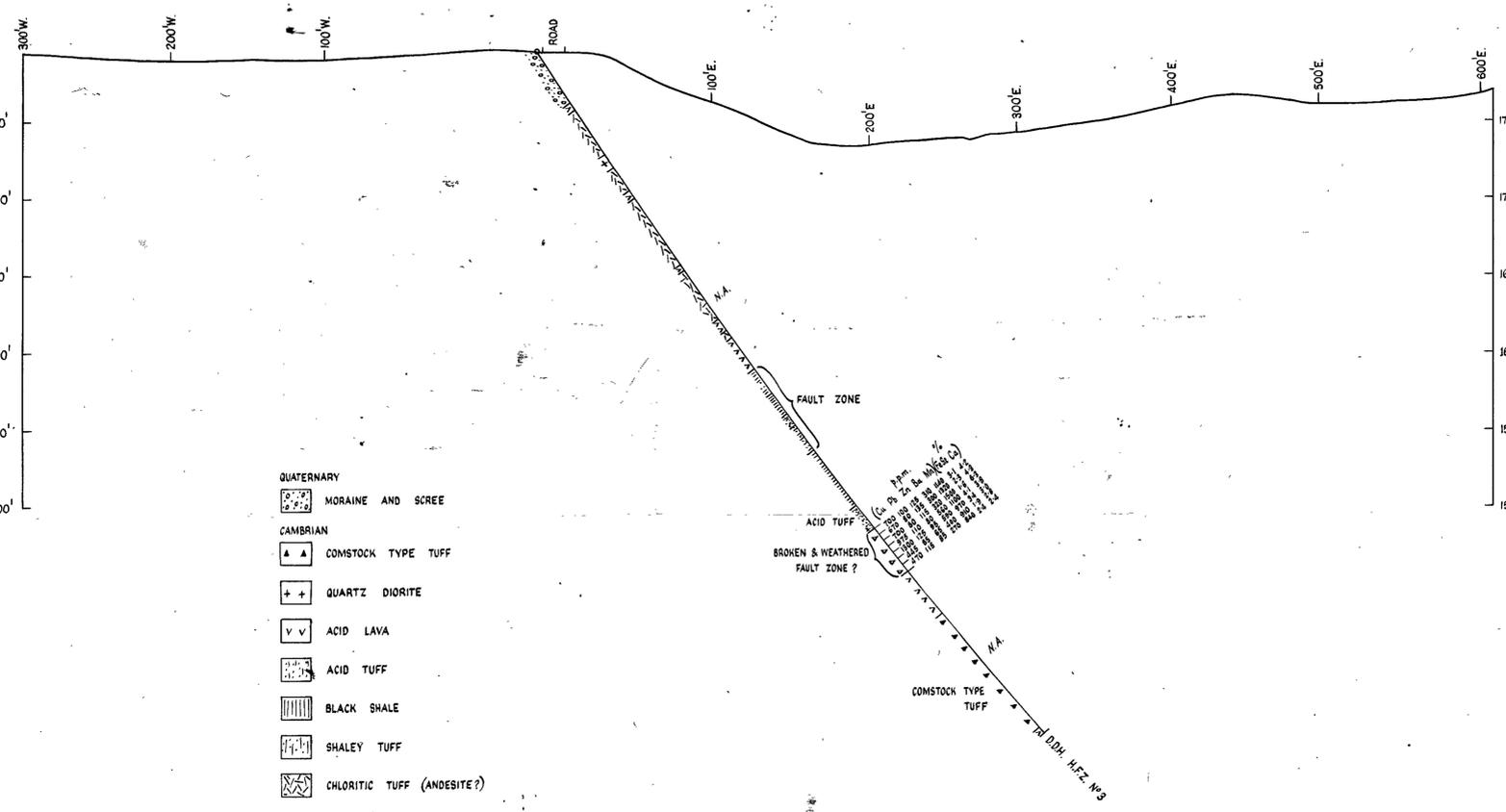
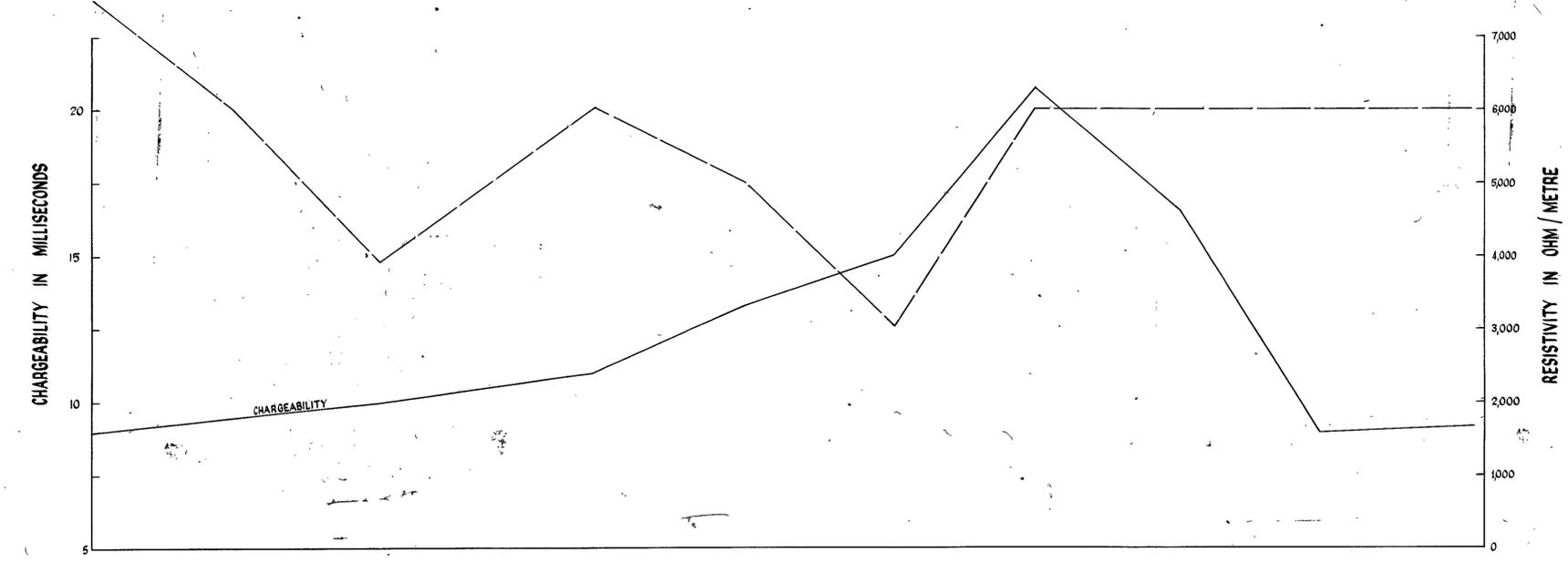
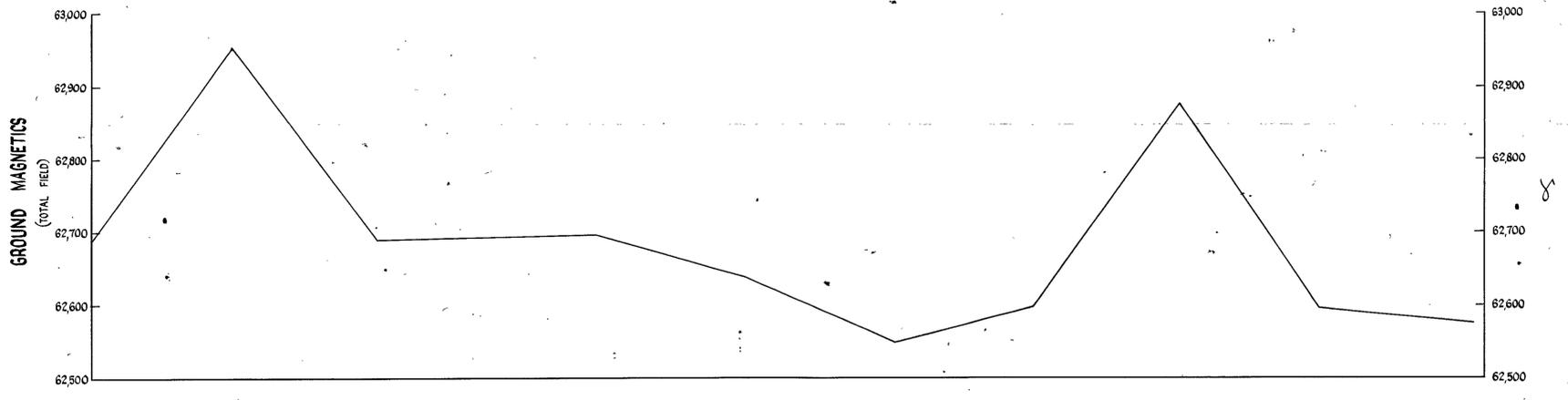
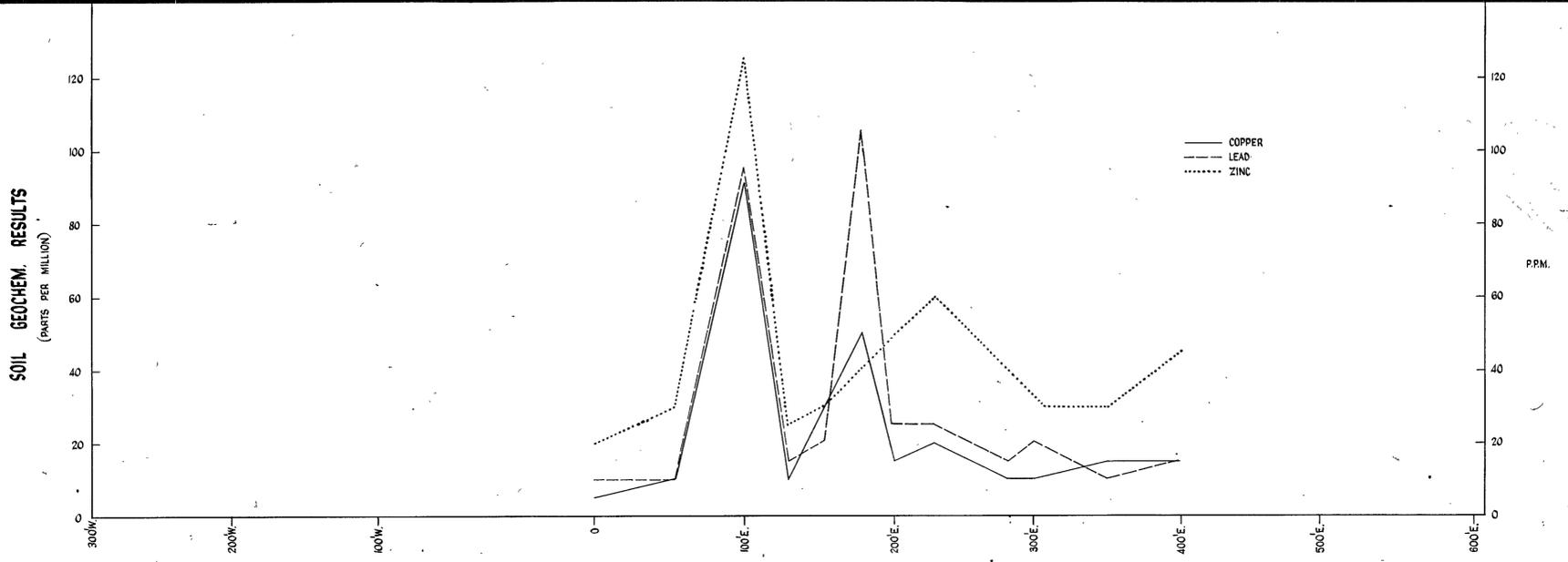
RESISTIVITY IN OHM/METRE



THE CONSOLIDATED SYNDICATE
 MT. TYNDALL AREA E.L. 9/66
 HENTY FAULT ZONE - LINE 65N.
 GEOPHYSICAL, GEOCHEMICAL AND DRILLING RESULTS

DRAWN: R.G. WILSON
 TRACED: R.G. WILSON
 CHECKED: K. WELLS
 DATE: 20-11-73
 SCALE: 1:600

74-1046
 FIG. 4 b



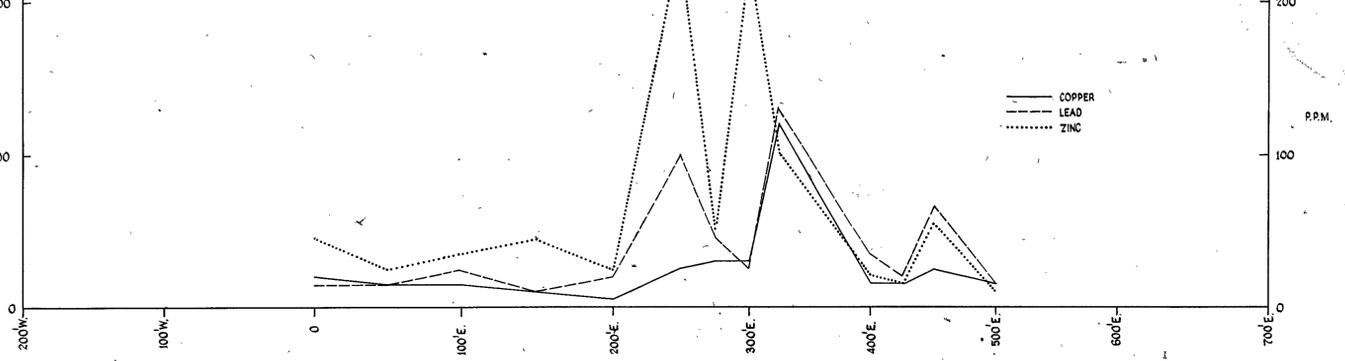
564038

5 cm

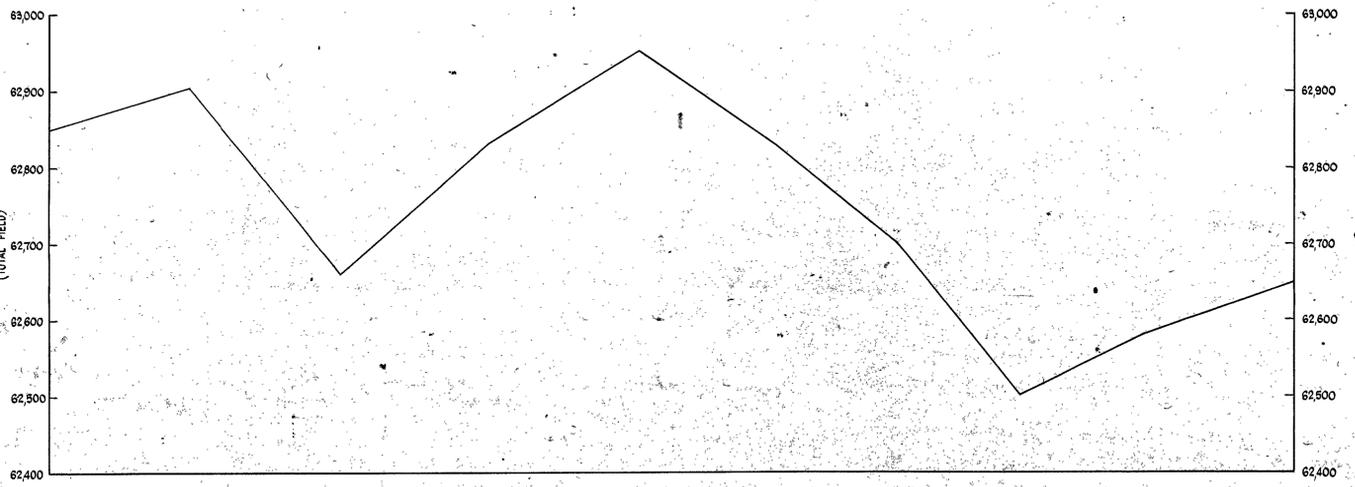
74-1046

THE CONSOLIDATED SYNDICATE	DRAWN R.G. WILSON
MT. TYNDALL AREA E.L. 9/66	TRACED R.G. WILSON
HENTY FAULT ZONE - LINE 43N.	CHECKED K. WELLS
GEOPHYSICAL, GEOCHEMICAL AND DRILLING RESULTS	DATE 20-11-79
	SCALE 1:600
	FIG. 4c

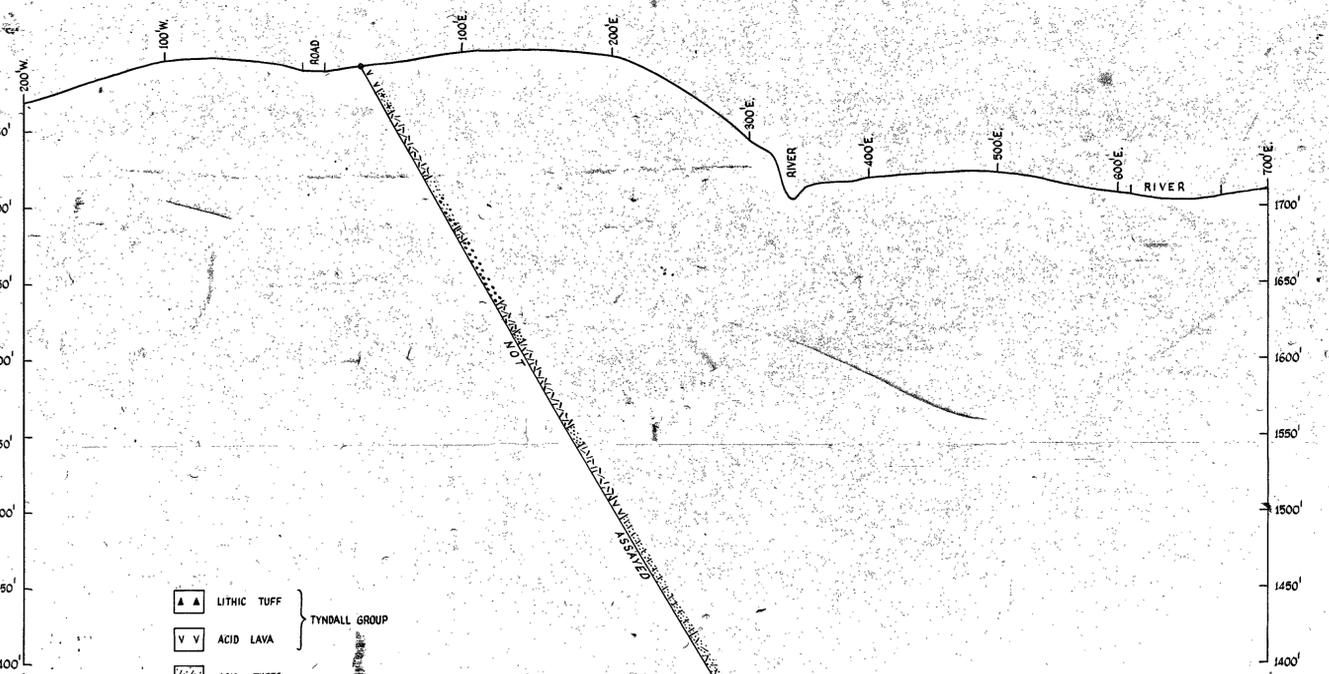
SOIL GEOCHEM. RESULTS
(PARTS PER MILLION)



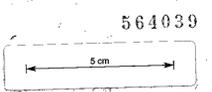
GROUND MAGNETICS
(TOTAL FIELD)



CHARGEABILITY IN MILLISECONDS



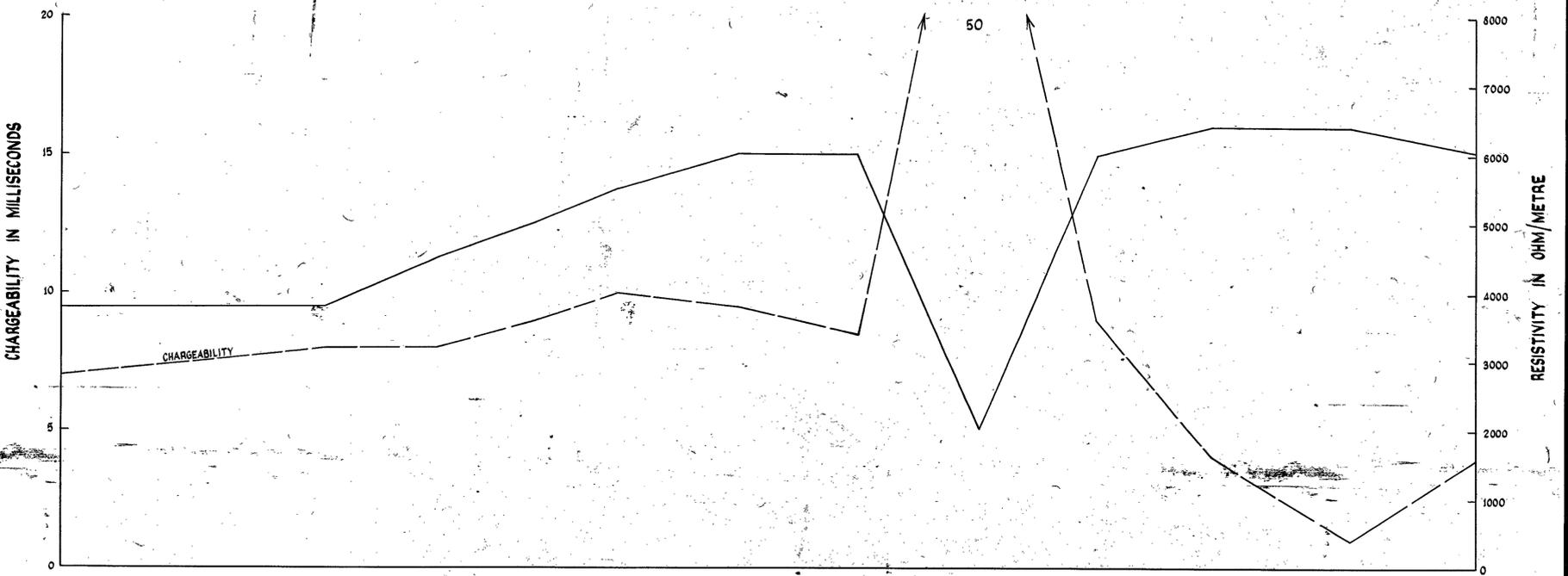
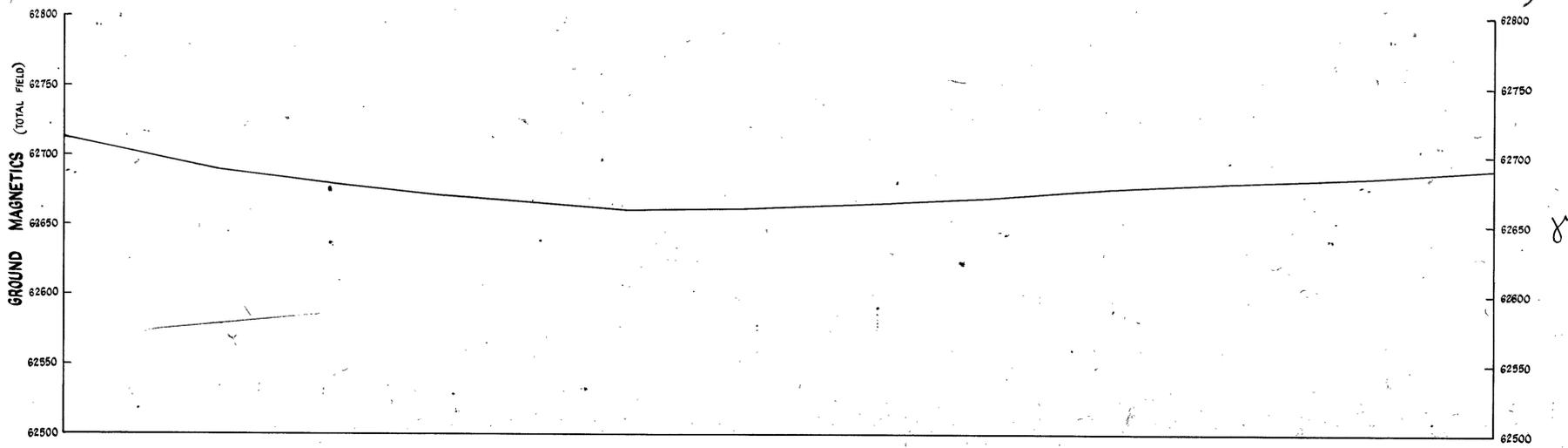
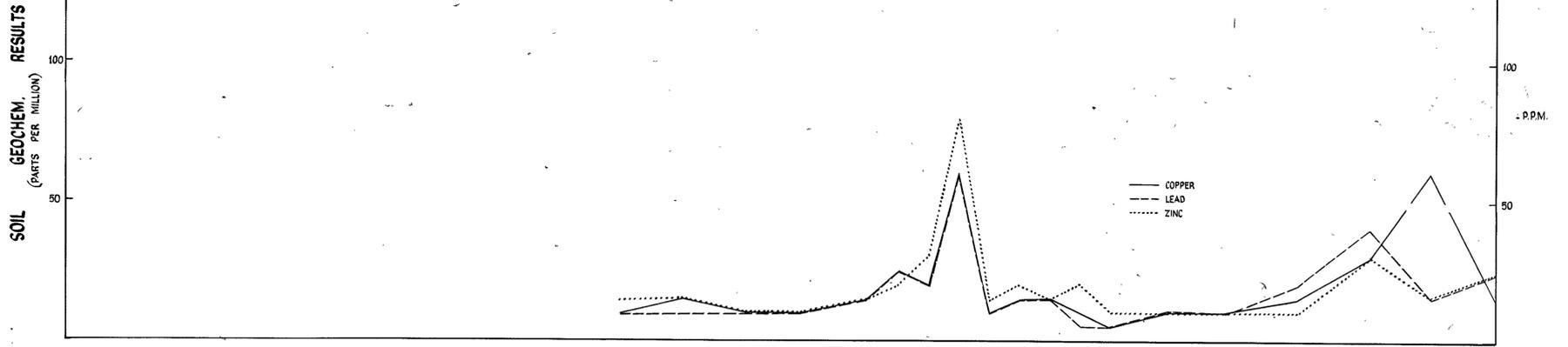
- ▲ ▲ LITHIC TUFF } TYNDALL GROUP
- V V ACID LAVA } TYNDALL GROUP
- ▨ ACID TUFFS } TYNDALL GROUP
- ▨ TUFFACEOUS SHALES AND SILTSTONES } TYNDALL GROUP
- V V ACID LAVA } TYNDALL GROUP
- ▨ ANDESITE } TYNDALL GROUP
- + + QUARTZ DIORITE } TYNDALL GROUP
- ▨ MEDIUM - COARSE } CRYSTAL - LITHIC TUFF
- ▨ VERY COARSE } CRYSTAL - LITHIC TUFF



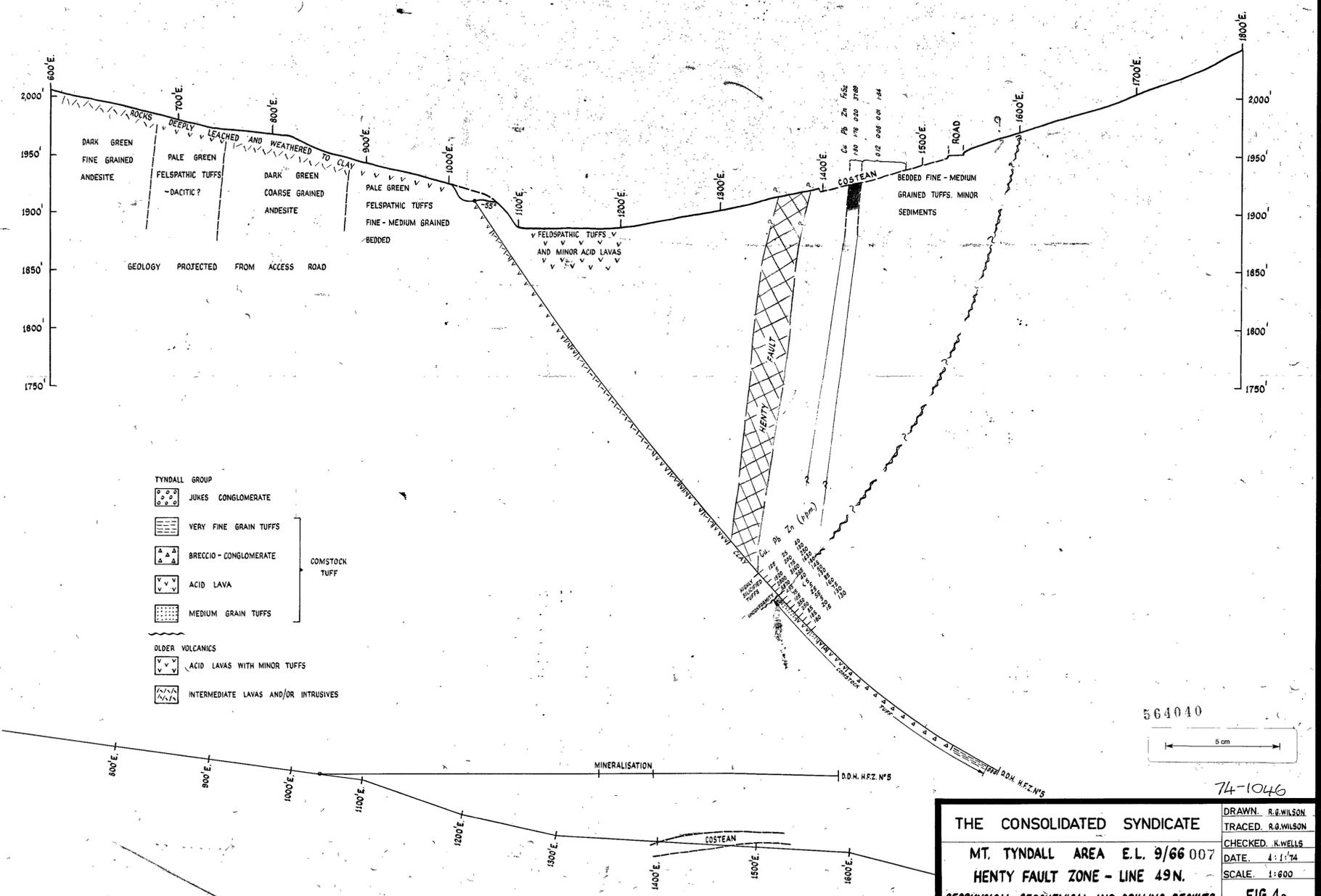
THE CONSOLIDATED SYNDICATE
 MT. TYNDALL AREA E.L. 9/66 006
 HENTY FAULT ZONE - LINE 42N.
 GEOPHYSICAL, GEOCHEMICAL AND DRILLING RESULTS

DRAWN R.G. WILSON
 TRACED R.G. WILSON
 CHECKED K. WELLS
 DATE 20-11-73
 SCALE 1:600

74-1046
 FIG. 4d



RESISTIVITY IN OHM/METRE



THE CONSOLIDATED SYNDICATE

MT. TYNDALL AREA E.L. 9/66 007

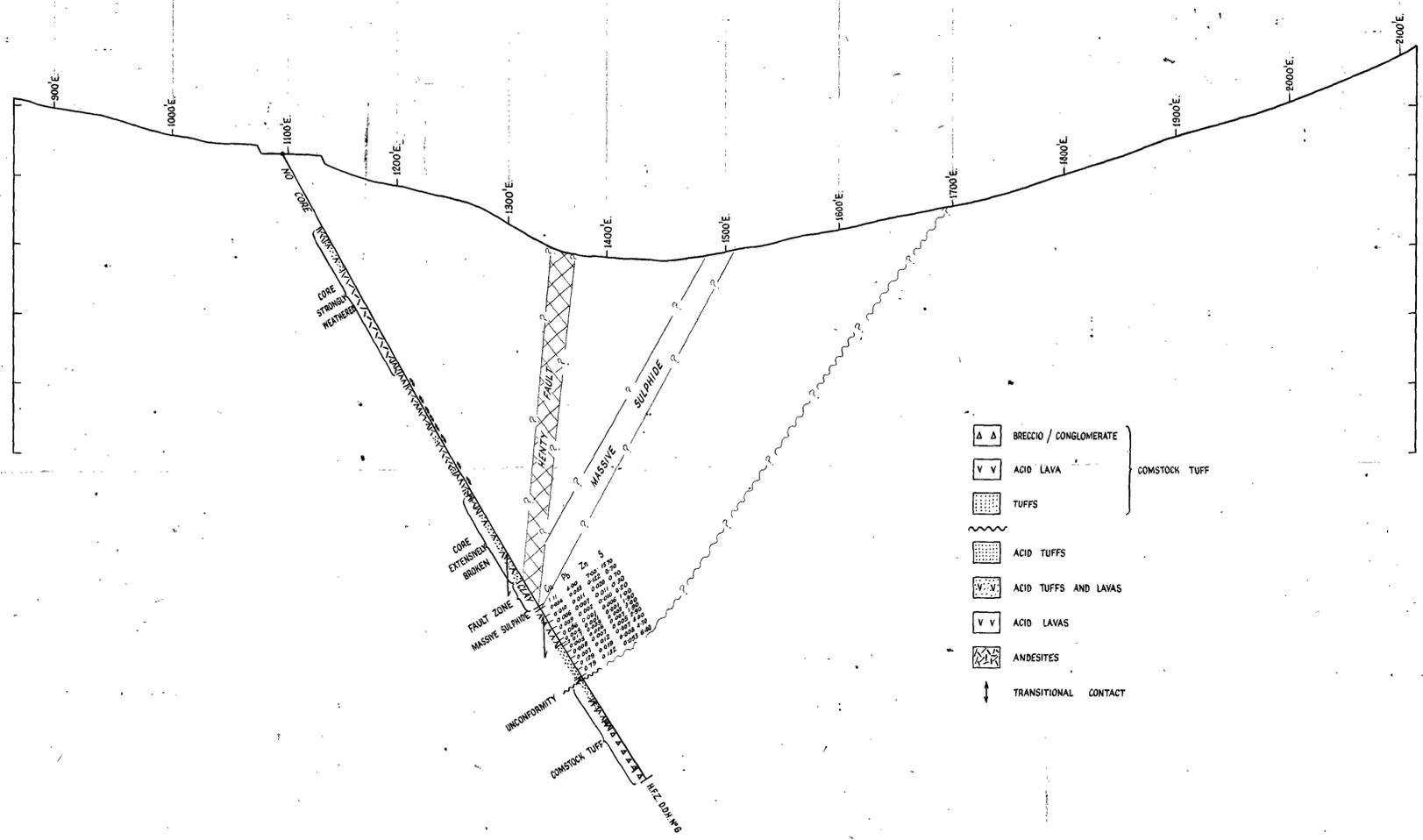
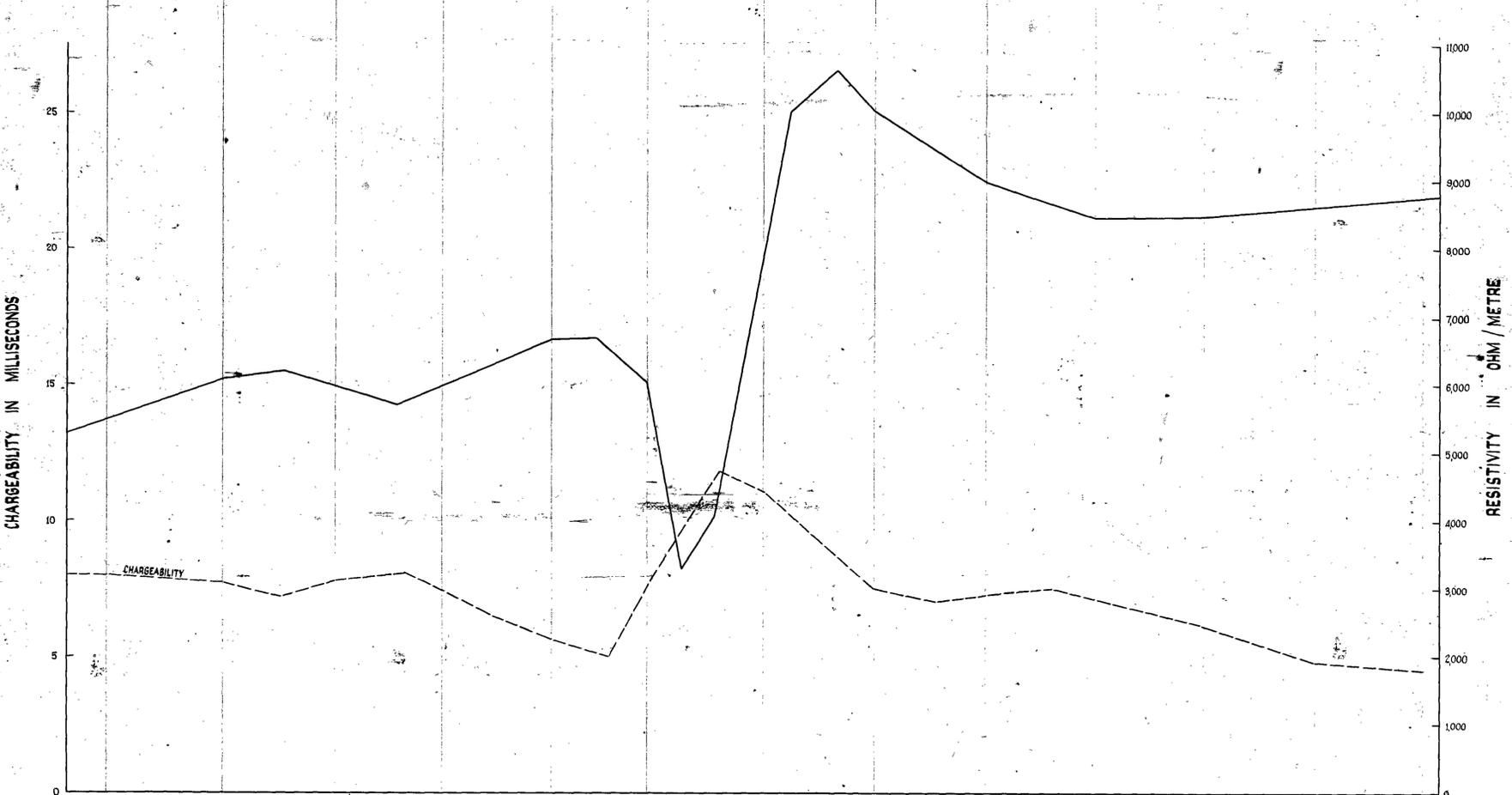
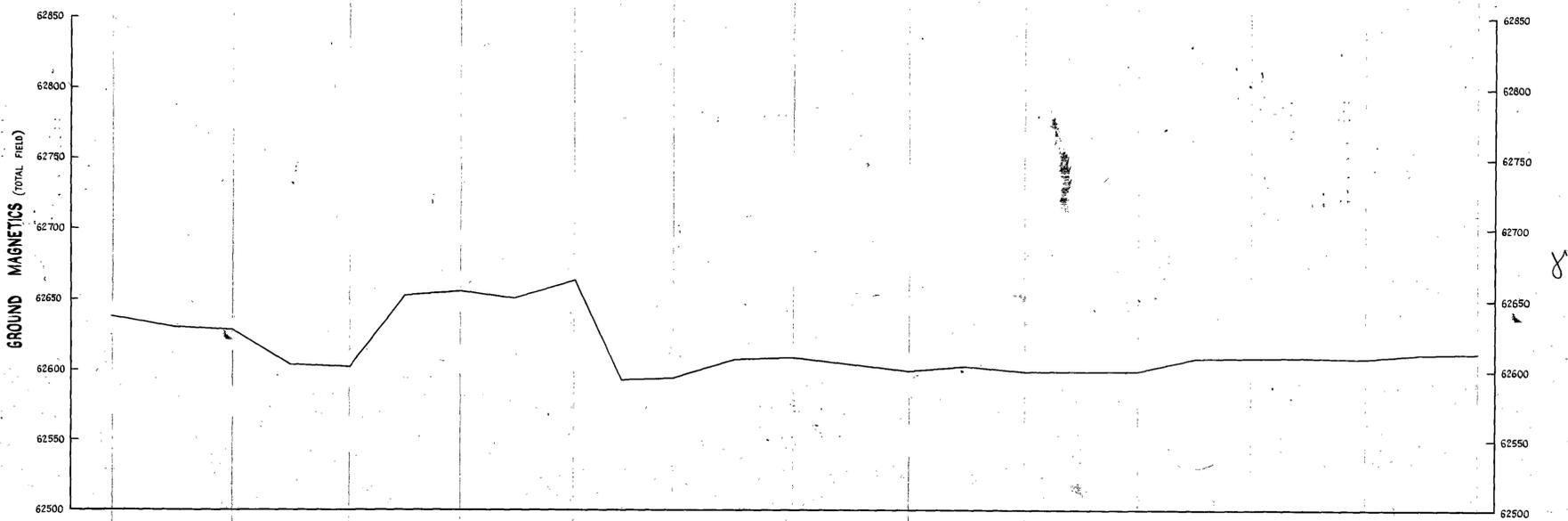
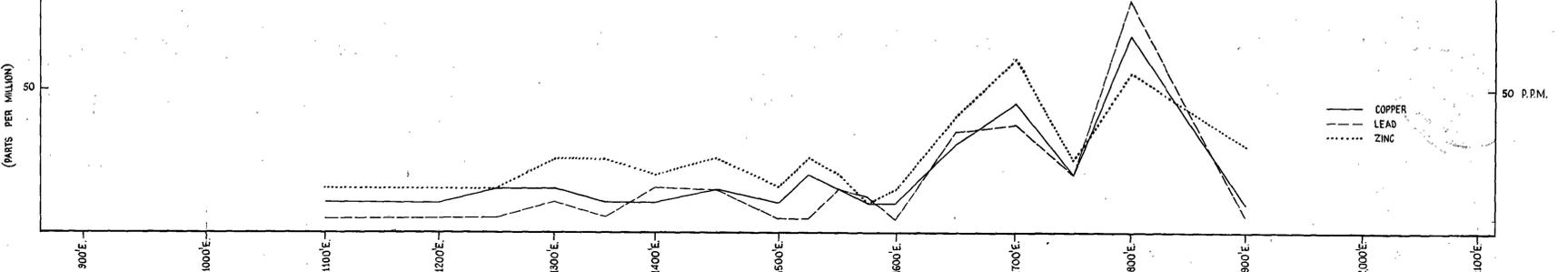
HENTY FAULT ZONE - LINE 49N.

GEOPHYSICAL, GEOCHEMICAL AND DRILLING RESULTS

FIG. 4e

DRAWN. R. & WILSON
TRACED. R. & WILSON
CHECKED. K. WELLS
DATE. 4.1.74
SCALE. 1:600

SOIL GEOCHEM. RESULTS



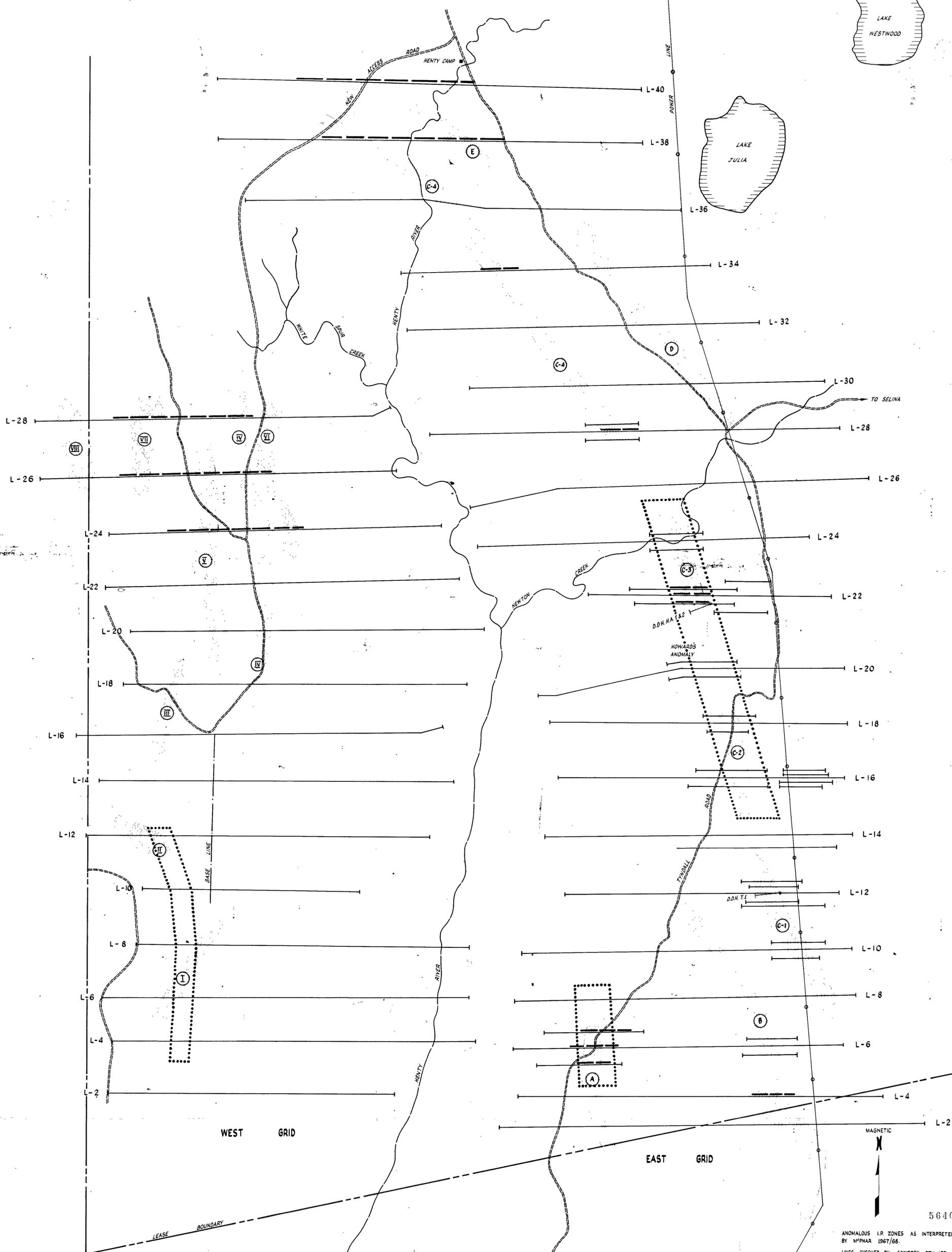
- △ △ BRECCIO / CONGLOMERATE
- V V ACID LAVA
- TUFFS
- ACID TUFFS
- ACID TUFFS AND LAVAS
- V V ACID LAVAS
- ANDESITES
- ↑ TRANSITIONAL CONTACT

E61041

74-1046

THE CONSOLIDATED SYNDICATE		DRAWN. R.G. WILSON
MT. TYNDALL AREA E.L. 9/66 008		TRACED. R.G. WILSON
HENRY FAULT ZONE - LINE 48N.		CHECKED. K. WELLS
GEOPHYSICAL, GEOCHEMICAL AND DRILLING RESULTS		DATE. 5-5-74
		SCALE. 1:600

FIG. 4f



564042

ANOMALOUS I.P. ZONES AS INTERPRETED BY M'PHAR 1967/68.

--- LINES CHECKED BY SCINTREX PTY. LTD. USING GRADIENT ARRAY 1974.

..... ZONES CONSIDERED INTERESTING AND RECOMMENDED FOR FOLLOW UP WORK BY J.L. IRVINE (GEOPHYSICAL CONSULTANT 1974)

5 cm

74-1046

THE CONSOLIDATED SYNDICATE	
MT. TYNDALL AREA E.L. 9/66	
MAP TO SHOW GEOPHYSICAL COVERAGE AND INTERPRETATION (1973/74) OF AREAS SURVEYED BY M'PHAR 1967/68	
DRAWN: K. WELLS.	CHECKED: R.G. WILSON.
CHECKED: K. WELLS.	DATE: 18-9-'74
SCALE: 1" = 1000'	FIG. 5