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EL13/65 - ADAMSFIELD, S.W. TASMANIA

RESULTS FROM GEOLOGICAL INVESTIGATIONS  
AND SOIL SAMPLING OF THE ADAMSFIELD  
ULTRABASIC BODY - 1970/71 SEASON

BY B. FLOOD

MARCH 1972

EL 13/65 - Adamsfield, S.W.  
TAS. Results from Geological Dept.  
soil sampling from the Adamsfield  
Ultra. basic body - 1970/71 - B. Flood.

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SAMPLING OF THE ADAMSFIELD ULTRABASIC BODY 1970/71 SEASON

by

B. FLOOD

HOBART

MARCH 1972

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4	A4-13	"	"	"
5	A4-14	"	"	"
6	A4-15	"	"	"
7	A4-16	"	"	"
8	A4-10	"	"	"
9	A4-11	"	"	"
10	A4-9	"	"	"
11	A1-33	"	"	"
12	A3-7	"	"	"
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RESULTS FROM THE GEOLOGICAL INVESTIGATION AND SOIL SAMPLING OF THE ADAMSFIELD ULTRABASIC BODY 1970/71 SEASON

INTRODUCTION

This report is based upon the material collected during field work in April - May 1971. All pertinent information regarding the performance of this fieldwork is found in C.R.1007. However, one day of channel sampling was done after the latter report was written and is hence commented upon below.

Otherwise this report presents the assay results from the soil and whole rock sampling and a short petrographical description of some of the rock samples collected.

GEOCHEMICAL ASSAY RESULTS

Altogether 286 soil samples and 17 whole rock chip samples were collected. They have all been assayed for Ni, Cr, Cu, Co and Zn by Geochem. & Mineralogical Labs., Sydney.

All the sample grid coordinates, sample numbers with corresponding assay results are listed at the back of the report.

The A-area

Soil Samples: 164 soil samples were collected within the A-area, see fig. 1. This was the only area where the sampling density was sufficient for later contouring on plot maps. The plotting of assay results in p.p.m. for the 5 elements with contouring attempts for the Ni and Cr values are found on the maps fig. 3, 4, 5, 6 and 7.

Cumulative frequency plots for all the elements assayed were also compiled based on the samples from this area. This work was done at Head Office Melbourne and commented upon in letter B9/50, EBB/IMcD 3/9/71, which is largely quoted below.

The cumulative frequency plots are found on figs. 8 and 9.

"All elements appear to be distributed in log-normal manner and inflection points and breaks of slope have been

used for contouring. Cobalt, zinc and copper show single population, although at the low value range of copper a population is probably obscured; this appears to be related to the ultrabasic rocks of the area.

The nickel and chromium curves show evidence of multiple populations. Only chromium shows a distinct break and separation of populations. The high valued population is non-continuous and no calculation of background and threshold are considered appropriate. The dubious separation of the nickel populations and the knowledge that the upper levels are also non-continuous probably make the background value selected a bit low. However, the threshold probably sets apart the non-ultrabasic areas.

Comparison of the curves suggests that, where the ultrabasic or basic rocks are buried under soil, the soil is either not residual, or if it is residual the other elements are being mobilized and partially removed from the system. It is assumed here that weathering of the bedrock is occurring. Thus nickel values are not picking out all the known ultrabasic rock.

Undoubtedly, chromium values over 700 p.p.m. indicate ultrabasic rock in the subsurface.

These values are, in most cases, supported by nickel values over 400 p.p.m. Cobalt values above 70 p.p.m. could also indicate ultrabasic rocks. Zinc values do not show any values over the ultrabasics in the A series of lines.

It is thus apparent that high chromium values, 700 p.p.m. indicate ultrabasic rock; cobalt and nickel values, >70 p.p.m. and >400 p.p.m. respectively, and copper values above 70 p.p.m. would support this interpretation."

It should be brought to mind that these comments are based entirely upon the soil sample results. Although these results are quite heavily relied upon when arriving at the present map, fig. 2, all assay results and field observations have been taken into account when outlining the ultrabasic rocks on the map.

By studying the individual assaying results one objection to the above comments becomes apparent. Ni and Cr values

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clearly indicating subsurface ultrabasic rocks are invariably accompanied by extreme low Cu values. Thus the opposite end of the cumulative frequency curve for Cu should be used; i.e. values <15 p.p.m. and not >70 p.p.m. indicate the presence of ultrabasic rocks.

Whole Rock Samples: All the 17 whole rock samples were collected within this area. They were taken on and around the lenses of ultrabasic rocks in the northern and southern part of the area. Their relation to geology is seen on fig. 2 and the corresponding assay results on fig. 12. No anomalous values were obtained. The following rock types were subject to sampling.

AA1039	Sandstone	AA1048	Gabbroic rock
AA1040	Chert	AA1049	Basaltic or andesitic lava
AA1041	Sheared serpentinite	AA1050	Basaltic or andesitic lava
AA1042	Chert	AA1051	Mudstone
AA1043	Serpentinite	AA1052	Sheared serpentinite
AA1044	Greenstone	AA1053	Basaltic or andesitic lava
AA1045	Sheared serpentinite	AA1054	Sheared serpentinite
AA1046	Greenstone	AA1055	Sheared serpentinite
AA1047	Sheared serpentinite		

The B-area

Soil Samples: 63 soil samples were collected along two lines within this area. The corresponding assay results are plotted on figs. 10 and 11. No information except a guide to the general geological picture was obtained from these results.

The C-lines

Soil Samples: 59 soil samples were collected along the two lines C1 and C2, both in highly relieved terrain with the lower parts generally covered. The assay results are found on figs. 10 and 11.

Comments in the above letter (see p.1) again based entirely upon the assay results assume that - "on line C1, 1500W to 2300W could lie over ultrabasics, but the OW - 1400W part of the line is neither ultrabasic nor the normal enclosing shales. From the chemistry this appears to lie over peat or over a highly silicious rock such as the Owen Conglomerate". From fig. 2 it is seen that this assumption is in good agreement with what was observed in

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the field. Regarding the C2 line it - "presents a more complex situation with 0 - 200W and 1300W to 1600W apparently lying over ultrabasics. Between 200W and 1300W the values in parts appear to indicate small zones of ultrabasic or dilution of residual soil by other material or a change of rock type", see fig. 2.

Conclusion

No significant anomalous results were obtained within the areas of geochemical investigation. The Ni and Cu values have been regarded with most interest; the high Ni values, however, are almost always followed by extremely low Cu values and thus only indicate the ultrabasic rocks with their normal high silicate bound nickel.

The assumption that all the high Ni values invariably accompanied by low Cu values in the soil samples indicates underlying ultrabasics is supported by the values returned by the whole rock samples, where the serpentinite samples show exactly the same Ni - Cu relation.

A few Cu values slightly above the threshold of 90 p.p.m. are observed within the A-area, but their distribution is erratic and they are not regarded to be of any significance. Along the C2 line from 600W - 700W and 1000W - 1300W Cu values from 110 p.p.m. to 230 p.p.m. occur. This is within an area of sedimentary rocks and gabbroic rocks or amphibolites situated between two belts of ultrabasics. The area is strongly covered and the contact relationships between the various rocks are not known. Additional soil sampling and whole rock sampling where possible will be undertaken along this line and its surroundings.

GENERAL GEOLOGICAL RESULTS

Lithological Boundaries

The main purpose of the fieldwork was to map and soil sample an ultrabasic body or bodies. As mentioned in the former report, C.R.1007, exposures were scarce within the A-area except along the Sawback Track. In the B-area good exposures of ultrabasics occur in the central part, elsewhere the vegetation cover is thick. While carrying out the sampling program the outline of the ultrabasic rocks had to be assumed based on the few exposures, boulders and changes in vegetation. As the geochemical

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results were expected to give information about underlying rocks no extrapolation of rock boundaries were drawn on the map accompanying the above report. On the current map, fig. 2, the outline of the ultrabasic rocks is indicated based on visual recordings and Ni and Cr values obtained from soil and whole rock sampling.

Based entirely upon the assay results of the individual elements (see p.2) the Cr 700 p.p.m. contour (fig. 4) appears to exaggerate the ultrabasic extension, while the Ni 400 p.p.m. contour (fig. 3) is more in agreement with the outline suggested from the complex of information. As commented upon p.1 only the A-area was sampled with a sufficient density for contouring of assay results.

Regarding the B-area the line B1 was cut only to 900W when the contact with the sedimentary country rock was assumed to be crossed. However, a Ni value of 780 p.p.m. and a Cr value of 2800 p.p.m. at 900W indicate that this contact is situated further to the W.

The geochem. results have then generally supported the shape and extension of ultrabasic rocks within the A-area anticipated during fieldwork. The B-area covers apparently only the northern part of a much more extensive and consistent ultrabasic body extending southwards.

Additional information on the country rock with regard to structure, internal relationship, and contact relationship with the ultrabasic rocks will require a considerable amount of stripping.

#### Petrological Description

No attempt is made to give any general petrological description of the whole area investigated. Several rock types, however, caused some confusion and curiosity in the field and these have been subjected to a closer examination.

#### Greenstones.

During fieldwork the A-O line was mapped as serpentinite from 100S to 600S. However, none of the soil samples here indicated subsurface ultrabasics, and only two whole rock samples, AA1045 and AA1047, indicated isolated occurrences of serpentinite. Two samples, 71/N9 - 1 & 3, initially mapped as serpentinite but with low Ni and Cr

values in their corresponding whole rock samples, AA1044 and AA1046, are described below.

71/N9 - 1 & 3. These two samples were collected within a distinct shear zone apparently causing a mixture of rock types to occur together.

They are a finegrained, dark green to blackish green rock with zones and spots within them in various shades of lighter green.

Minerals: Chlorite, hornblende, epidote-clino zoisite, quartz, sericite, prehnite, magnetite.

Chlorite is the dominant mineral with grainsize <0.1mm. A subparallel orientation of the mineral grains occur. More un-orientated grains of actinolitic hornblende with same grainsize and diffuse boundaries occur within the chlorite. In 71/N9 - 3 also some hornblende grains up to 0.3mm in size with all degrees of chloritisation appear.

The light coloured zones or fields within the thin section are of several kinds:

- i. Finegrained quartz aggregates (71/N9 - 1).
- ii. Fibrous, very fine aggregates of probably sericite and chlorite (71/N9 - 3).
- iii. Mineral grains and aggregate of epidote and clinzoisite.

Prehnite with some quartz occurs in veins up to 0.5mm wide (71/N9 - 1).

Opagues (generally magnetite) occur in semi parallel stringers up to 0.3mm long spread around in 71/N9 - 1, but are in 71/N9 - 3 mainly confined to thin veins associated with quartz.

Based on this examination these rocks are classified as greenstones, assumed to be highly altered volcanics of basic to intermediate composition.

Basaltic or intermediate lavas.

Besides brownish shale or mudstone and some chert adjacent to the ultrabasic rocks there were also several occurrences

of a dark grey green brownish weathering rock. There was doubt whether this was a sheared and weathered ultrabasic or belonged within the supracrustal succession. Whole rock samples AA1049, AA1050 and AA1053 show that these rocks do not belong to the ultrabasic intrusives. Thin sections from 71/N9 - 5 & 7 corresponding to AA1049 and AA1053 indicated a volcanic origin for these rocks as described below.

71/N9 - 5 & 7. These specimens show a finegrained, grey green rock, apparently homogenous (71/N9 - 7) or with numerous small vesicles, diameter approx. 1mm (71/N9 - 5).

Minerals: Pyroxene, plagioclase, chlorite, quartz, sericite, sodic secondary plagioclase, carbonate, magnetite, zeolite and/or prehnite.

The pyroxene and plagioclase constitute c.70 - 80% of the rock roughly in equal amounts. Their texture is subophitic. Grainsize of the pyroxene, assumed an augite, average 0.6 - 1mm.

The plagioclase occurs in laths 0.1 - 0.4mm long and approx. 0.02mm wide. It is generally strongly sericitized, but remnant twin lamellar frequently observed. Some pseudomorphs of uncertain origin up to 0.6 x 0.3mm largely containing chlorite and carbonate occur in 71/N9 - 7. Minor amounts of quartz occur in 71/N9 - 5.

Except in one vesicle and a few thin veins, the latter sample is almost devoid of opaque minerals; in 71/N9 - 7 irregular grains of magnetite (0.01mm) is distributed throughout the section.

The vesicles are generally well rounded. They normally have a fibrous central part and a rim of quartz and unaltered plagioclase (ab - ol). The latter often protruding radially into the fibrous part. The fibrous minerals which are very finegrained both show a radial and half bowtie texture, and are probably zeolites and/or prehnite. Sometimes these minerals have been totally altered to a submicroscopic aggregate.

Also 71/N9 - 7 shows some zoned chlorite aggregates from 0.1 to 0.3mm across, possibly relicts of a vesicular texture.

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These sections certainly confirm the existence of basaltic or intermediate lavas within the succession intruded by the Adamsfield ultrabasics.

Gabbros or amphibolites.

Gabbroic rocks are normally associated with the ultrabasic rocks in Tasmania. They are, however, not previously recorded from the Adamsfield ultrabasic. Two localities of gabbroic rock were encountered. One isolated occurrence along A-0 406S numbered 71/N9 - 4 corresponding to AA1048, and several outcrops and boulders along the C-2 line below 300W and 1000W. The above, plus two samples from the latter locality numbered 71/N9 - 13 & 14 are described below. A similar rock encountered on A-9 830E (71/N9 - 9) will be described concurrently.

71/N9 - 4 & 13. These rocks generally have a grey green colour, partly medium grained with a mottled appearance due to the contrast between mafic and felsic minerals, partly they appear more finegrained and homogenous. Although there is some distinction between the various specimens, their micro appearance is strongly related.

Minerals: Hornblende, clinopyroxene, altered plagioclase, pseudomorphs, chlorite, sericite, magnetite and sphene.

Without x nicols the grainsize and outline is generally undistinguishable in these gabbros. Almost a totally gradational change from pyroxene to hornblende and further to chlorite and chlorite-sericite matrix occurs. The latter is the main constituent of the rock besides hornblende. X nicols reveals outline of original pyroxene grains from 1 to 4mm, and individual grains of both pyroxene and hornblende generally from 0.5 to 1.5mm. Some sections are totally devoid of the colourless pyroxene, and the green pleochroic hornblende always dominates the rock. The hornblende grains in 71/N9 - 13 are often bent and show undulatory extinction.

The plagioclase is mainly totally altered to pseudomorphs of sericite. The crystal outline, however, is often preserved and remnant twin lamellae are observed. In 71/N9 - 13 assumed alteration products of plagioclase occur as brownish aggregates of grains c.0.1mm in size consisting of sericite and quartz. These aggregates may

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occur as wavy bands 2 - 3 inches long showing signs of distinct deformation. Magnetite grains around 0.1mm and sphene up to 0.6mm occur in accessory amounts.

Although showing a general massive appearance in the field, the rocks occur somewhat foliated under the microscope and should both on mineralogical and structural evidences be described as amphibolite. Their origin, however, is believed to be intrusives of gabbroic or dioritic composition.

71/N9 - 9. Although certainly an amphibolite due to a dominance (c.70%) of amphibole, this rock is very different to the one above. It occurs as a grey, well foliated crystalline schist.

Minerals: Amphibole, orthopyroxene, chlorite, spinel or uvarovite, magnetite, phlogopite.

The amphibole mineral grains are eu-subhedral, around 0.1 - 0.3mm and well orientated giving the rock a distinct foliation. This amphibole is optically (+), has oblique extinction and is possibly a cummingtonite in spite of lack of twinning.

The pyroxene, probably enstatite, occurs spread around in grains around 0.5 - 1mm, but concentrate along certain zones. Amount c.20%.

Some chloritization has taken place. A dark green, isotropic mineral, grainsize around 0.05mm, occurs throughout the rock. It might be a spinel, but its anhedral character suggests uvarovite.

Accessory magnetite occurs spread out in the section and two grains of phlogopite were observed.

Due to its position close to the ultrabasic intrusives a contact metamorphic origin is suggested.

Orbicular serpentinites.

Two different types of orbicular serpentinite were given a macro description in C.R.1007 p.4, one yielding a perhaps significant asbestos potential. A microscopical investigation also indicated a clear distinction between these two serpentinites. The sample numbers currently

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investigated are 71/N9 - 10 (carrying asbestos) and 71/N9 - 11.

71/N9 - 10 & 11. Both these rocks were classified as orbicular serpentinites. They occur separated and are easy to distinguish macroscopically as described in C.R.1007 p.4. Their main differences are the presence of chrysotile veins in 71/N9 - 10 and the occurrence of olivine aggregates in 71/N9 - 11.

71/N9 - 10. Minerals: Serpentine (lizardite), indistinguishable pseudomorphs, opaques, chrysotile.

6.90% of this rock consists of lizardite. The different shells in the orbicules generally distinguish themselves due to different mode of crystallization of the serpentine. Often the main orbicules with a diameter of 2 - 3cm have a centre of several smaller (<1cm across) distinctly outlined orbicules. The shells which vary in thickness from c.5mm to 0.1mm consist mainly of finegrained aggregates or coarse fibrous lizardite. A mesh texture or aggregate generally constitutes the centre part. The latter may also consist of some roundish or ellipsoidal aggregates of brownish colour. Due to the position of olivine in 71/N9 - 11 these are believed to be pseudomorphs after olivine.

The opaque minerals, mainly magnetite, occur as individual grains up to 1.5mm, but most abundant as finegrained aggregates along veins. These veins, mainly around 0.1mm in width, partly surround the orbicules or constitute a distinct rectangular pattern in between them. More irregular veins also occur.

The chrysotile to a large extent occupies a similar position or are directly associated with magnetite veins. Another distinct position of the chrysotile is radial veins within the orbicules. Veins around 3mm thick have been logged in the field, but those encountered in thin sections are mainly between 0.1 and 0.4mm.

71/N9 - 11. Minerals: Serpentine (lizardite), olivine, opaques, carbonate.

Lizardite is the dominant mineral, but olivine aggregates constitute from 5% to 20%.

The lizardite shows a colourless mesh texture and yellowish veins in about equal amounts. The former intersect and replace both the olivine aggregates and their individual grains, frequently also building the innermost serpentine shell of the orbicules and varies from 0 to 2mm in width. The veins both form part of the orbicules or intersect each other in a rectangular pattern.

The olivine aggregates observed are between 4 and 12mm. The original grainsize has been around 0.5 - 1mm, while the present aggregate grains are around 0.1 - 0.3mm. The olivine is rarely observed outside the aggregates.

The opaques, mainly magnetite, occur in a similar manner as in 71/N9 - 10, and also show a distribution which accentuates the mesh texture appearance of the serpentine.

Minor carbonate was observed within one of the olivine aggregates.

#### CHANNEL SAMPLING

##### Sampling and Milling

Chrysotile asbestos was observed at several places within the Adamsfield Ultrabasic Body last season. So far, assumingly due to exposures, the best occurrences are found along the Gordon Road. Here 145 ft. of a roadcut was fibre logged (G.R.1007) averaging 1% of short fibre approx. 1/16".

In early June we returned to this locality and collected four channel samples (G.R.1-4) each representing 25 ft. width of the central ultrabasic belt intersecting the Gordon Road, fig. 2. A more precise location of the individual samples is shown in fig. 13.

The manually derived rock chips were filled into 5 gallon drums, one drum for each sample G.R.1-3 and two drums for sample G.R.4.

Regarding the samples G.R.1 & 2 these represent the highest percentage of the logged section. By sampling

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this particular footage sufficient fibre was hoped to be obtained for the further testing program.

The intention of sampling G.R.3 & 4 was to collect material also from the sheared portions of the serpentinite. Here hardly any cross fibre is visible, but slip fibre was observed and could occur in larger quantities. The exact positions of the two latter samples had to be determined dependent on sufficient length of roadwork exposure as no costeaning was done.

The samples were sent to Strahan where they awaited despatch to the Woodsreef Mines Core Laboratory together with priority samples from Noddy Creek. The final milling results were received from Woodsreef 5/1/72. Both visual and milling results are tabled below.

Sample No.	G.R.1	G.R.2	G.R.3 <sup>1</sup>	G.R.4 <sup>2</sup>
Log	Fibre log from the Gordon Road Cut			
Line	Gordon Road,	see	fig.	13
From ft.	15	40	130	
To ft.	40	65	155	
Sum ft.	25	25	25	25
Sum 1/16s	113	90		
% Fibre Visual (Corrected)	<u>3.3</u>	<u>2.6</u>		
Visual Q.S.T. and Evaluation				
( Pan	15.4	16		
Q. ( 10M	0.6			
S. ( 4M				
T. ( 2M				
Ev. Points	21	16		
Fibre Val.	\$56	\$26-54		
Rock Val.	\$1.75	---		
Milled Results				
Sample weight lb.	76.8	65	69	70
+ 10M Fibre lb.	0.02			
+ 35M Fibre lb.	0.68	0.17	0.07	0.28
Total Fibre lb.	0.70	0.17	0.07	0.28
% Fibre	<u>0.91</u>	<u>0.26</u>	<u>0.1</u>	<u>0.4</u>

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+ 10M Tailing lb.	7.50	4.50	1.34	12.00
+ 35M Tailing lb.	21.75	17.06	24.66	29.50
- 35M Tailing lb.	38.00	39.50	39.50	26.75
Dust lb.	6.25	2.30	5.25	0.71
Milling Loss nearest 1%	3	2	Gain :	1
Wash Test % -200M	23.1	49		75.1
Magnetic Rating	0.6	0.99		1.8

1. The first 15 ft. of this sample interval was logged showing 0 - 0.2% of cross fibre for the individual 5 ft. intervals. Tested for slip fibre.
2. Not logged. Tested for slip fibre.

#### Comments

For one who was taken by optimism when observing the fibre occurrences along the Gordon Road, the milling results are very disappointing.

As the fibre was short even the maximum recorded percentage of 3.3 was inadequate to obtain a sufficient rock value. But due to the nature of the fibre veins (see C.R.1007, p.5) logging was difficult and it was hoped that a higher percentage would show up in the milling results.

By examining the above results it is seen regarding the cross fibre that only a fraction of the logged fibre survived the milling. None of the tested samples returned sufficient amounts of fibre for a Q.S.T. test which requires 1lb. of fibre.

A combination of two factors is assumed to be responsible for the poor fibre recovery.

1. The fibre does not open easily and instead of becoming fluffy and being sucked off the screen the fibre bundles stay with the tailing.
2. The fibre is very brittle and is partly turned into dust during the crushing and fiberizing.

It is also indicated from the samples G.R.3 and 4 that the slip fibre potential of this serpentinite is insignificant.

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The testing results from the Gordon Road do not encourage any further asbestos exploration on the short fibre occurrences associated with orbicular serpentinite of the Adamsfield ultrabasic body.

SUMMARY AND CONCLUSIONS

The present work was concentrated on mapping and soil sampling of the central and southern part of the Adamsfield ultrabasic body. Due to the size and general thick cover the work was carried out on selected areas within these parts, described in the report as the A and B area respectively.

Altogether 164 soil samples and 17 whole rock samples were collected in the A-area, and 63 soil samples from the B-area. 59 soil samples were collected along two lines (C-lines) in between these areas.

All samples were assayed for Ni, Cr, Cu, Co and Zn.

Besides a few Cu-values along the C2 line showing up to 230 p.p.m. no anomalous results were encountered.

Within the southern, central and northern part (Corbett 1970) of the Adamsfield ultrabasic body a total of 1077 soil samples have to date been collected and assayed for the above elements. Generally the results have been negative and no further geochemical work should be warranted if additional work along and around the C2 line also proves negative.

This latter work will be presented in the report on Adamsfield for the 1971/72 season.

15 petrological samples were collected within the investigated areas. Those difficult to give a proper field description have been sectioned and microscoped. This investigation confirmed the assumption reached in the field that the Adamsfield ultrabasic body is associated with other intrusive rock of a gabbroic or dioritic composition, further they have intruded a supracrustal succession containing not only sedimentary rocks, but also basaltic or andesitic lavas and possible pyroclastics. The presence of the gabbroic and volcanic rocks which have a magnetic susceptibility higher than

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the mudstones, cherts and conglomerates must be considered when interpreting the aeromag results from this region. Apparently the geological environment of Adamsfield is more closely related to the one of the Hibbs Belt ultrabasics than was earlier assumed.

Chrysotile asbestos was encountered at several places within the Adamsfield ultrabasic body. Reconnaissance revealed that it occurred in the northern part, but most attention was paid to a road cut exposure between the A and B-areas where a reasonable percentage was logged in an orbicular serpentinite, a most unusual rock type. 4 channel samples were taken and sent to Woodsreef for milling and testing on cross fibre and slip fibre. The results showed the cross fibre to be of a very poor quality and hardly any slip fibre showed up on the test. No further asbestos exploration on the orbicular serpentinite is therefore recommended.

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SOIL SAMPLING ADAMSFIELD 1971ASSAY RESULTS

Co-ordinates			Results in ppm				
Easterlies	Northerlies	Sample No.	Ni	Cu	Co	Zn	Cr
AO	100S	ADM 827	66	46	30	78	270
AO	200S	828	140	38	42	74	400
AO	300S	829	110	12	24	44	1260
AO	400S	830	320	28	58	30	880
AO	500S	831	50	30	28	66	180
AO	600S	832	88	58	48	76	330
AO	700S	833	78	50	44	66	380
AO	800S	837	64	46	46	56	270
AO	900S	838	110	58	48	76	230
AO	1000S	839	160	68	58	96	300
AO	1100S	840	130	46	66	70	330
AO	1200S	841	120	48	38	64	360
AO	1300S	842	80	42	30	44	380
AO	1400S	843	130	66	60	76	370
AO	1500S	844	6	4	4	14	X
AO	1600S	845	84	58	42	66	310
AO	1700S	846	220	70	50	100	490
AO	1800S	847	260	78	66	90	360
AO	1900S	848	340	64	58	78	450
AO	2000S	849	180	30	40	86	360
AO	2100S	850	24	12	2	34	350
AO	2200S	871	72	24	18	80	50
AO	2300S	872	20	18	16	52	X
AO	2400S	873	34	22	18	80	X
AO	2500S	874	32	18	16	66	X
AO	2600S	875	20	14	14	48	X
AO	2700S	876	24	16	18	56	90
AO	2800S	877	28	14	16	62	X
AO	2900S	878	22	20	14	50	140
AO	3000S	879	28	16	16	62	X
AO	3100S	880	28	22	18	62	X
AO	3200S	881	26	18	14	48	90
AO	3300S	882	14	8	8	26	150
AO	3400S	883	18	8	8	32	150
AO	3500S	884	24	14	12	46	130
AO	3600S	885	20	12	12	40	35
AO	3700S	886	20	14	10	40	40
AO	3800S	887	66	42	22	94	190
AO	3900S	888	76	66	44	50	200
AO	4000S	889	80	30	22	36	500

## SOIL SAMPLING ADAMSFIELD 1971

## ASSAY RESULTS

Co-ordinates			Results in ppm				
Easterlies	Northerlies	Sample No.	Ni	Cu	Co	Zn	Cr
AO	4100S	ADM 890	26	12	12	40	35
AO	4200S	891	48	18	14	56	150
AO	4300S	892	54	14	12	42	370
AO	4400S	893	120	24	20	86	230
AO	4500S	894	560	18	58	84	920
AO	4600S	895	320	110	58	140	240
AO	4700S	896	340	140	58	66	1000
AO	4800S	897	840	120	98	98	1160
AO	4900S	898	290	98	60	84	530
AO	5000S	899	4000	2	110	34	570
AO	5100S	900	4400	16	260	42	640
AO	5200S	901	4800	18	290	90	5200
AO	5300S	902	2000	60	220	130	4600
AO	5400S	903	350	44	110	74	800
AO	5500S	904	800	40	80	62	920
AO	5600S	905	74	6	12	18	270
AO	5700S	906	50	16	14	72	X
AO	100N	907	110	70	38	66	270
AO	200N	908	50	64	34	60	210
AO	300N	909	54	20	18	50	100
AO	400N	910	110	40	22	72	110
AO	500N	911	58	22	20	60	90
25E	A1	814	410	8	56	56	8400
25E	A1	815	2800	24	240	80	1%
25E	A1	816	440	6	56	54	5300
25E	A1	817	560	6	66	42	1160
100E	A1	810	150	22	42	26	420
100E	A1	811	190	30	70	36	230
200E	A1	812	180	8	44	20	220
300E	A1	813	52	6	12	26	1080
100W	A1	818	54	24	26	82	X
200W	A1	819	190	54	38	78	340
300W	A1	820	180	74	40	82	460
400W	A1	821	110	36	40	70	460
500W	A1	822	48	20	16	46	220
600W	A1	823	130	220	70	68	1000

020

## SOIL SAMPLING ADAMSFIELD 1971

770022

ASSAY RESULTS

Co-ordinates			Results in ppm				
Easterlies	Northerlies	Sample No.	Ni	Cu	Co	Zn	Cr
	A2	ADM 824	390	24	70	36	1080
100E	A2	825	3000	2	130	34	1080
200E	A2	826	62	90	20	32	210
300E	A2	912	120	62	38	82	250
100W	A2	913	310	110	110	100	440
200W	A2	914	190	92	80	60	380
300W	A2	915	190	110	74	86	280
400W	A2						
30E	A3	834	150	68	48	86	570
100E	A3	835	72	48	36	54	920
200E	A3	836	140	42	60	72	500
100W	A4	851	60	8	22	40	140
200W	A4	852	74	58	30	68	160
300W	A4	853	190	70	62	80	350
400W	A4	854	16	6	10	22	330
100E	A4	855	240	88	64	72	370
200E	A4	856	260	120	46	72	400
300E	A4	857	48	30	18	48	230
400E	A4	858	400	84	76	110	430
500E	A4	859	130	24	20	34	820
600E	A4	860	220	6	28	36	2300
700E	A4	861	360	16	42	40	1020
800E	A4	862	200	36	26	68	450
100E	A5	863	110	12	16	56	320
200E	A5	864	56	10	10	38	300
300E	A5	865	130	42	50	56	440
400E	A5	866	12	6	4	14	90
500E	A5	867	84	38	40	62	75
600E	A5	868	46	32	18	44	200
700E	A5	869	72	80	40	60	170
800E	A5	870	100	82	34	68	200
900E	A5	959	240	94	84	110	300
1000E	A5	960	390	76	58	94	420
1100E	A5	961	320	20	30	110	3700
1200E	A5	962	280	50	38	80	2500

021

## SOIL SAMPLING ADAMSFIELD 1971

770023

ASSAY RESULTS

Co-ordinates			Results in ppm				
Masterlies	Northerlies	Sample No.	Ni	Cu	Co	Zn	Cr
1300E	A5	ADM 963	60	32	34	72	130
1400E	A5	964	22	16	8	32	25
1500E	A5	965	2	4	4	20	3100
100E	A6	916	200	100	66	120	130
200E	A6	917	390	66	98	84	620
300E	A6	918	78	32	56	52	980
400E	A6	919	86	22	20	40	2800
100W	A6	920	86	46	48	62	240
200W	A6	921	150	40	50	68	470
300W	A6	922	340	100	68	64	920
400W	A6	923	40	10	12	24	300
500W	A6	924	3300	4	180	36	2500
100E	A7	925	26	16	16	38	90
200E	A7	926	28	24	20	58	25
300E	A7	927	24	20	20	40	60
400E	A7	928	28	22	18	48	40
500E	A7	929	36	16	22	68	75
600E	A7	930	46	28	20	76	70
100W	A7	931	20	10	16	38	65
200W	A7	932	18	12	18	46	70
300W	A7	933	50	28	22	72	60
A8	100S	934	20	12	14	44	45
A8	200S	935	18	14	14	38	100
A8	300S	936	24	10	16	48	50
A8	400S	937	28	24	16	58	50
A8	500S	938	22	14	14	48	60
A8	600S	939	34	24	18	76	100
A8	700S	940	30	20	16	74	65
A8	800S	941	26	14	12	64	170
A8	900S	942	26	16	12	60	60
A8	1000S	943	26	16	12	58	110

022

## SOIL SAMPLING ADAMSFIELD 1971

770024

ASSAY RESULTS

Co-ordinates			Results in ppm				
Easterlies	Northerlies	Sample No.	Ni	Cu	Co	Zn	Cr
100E	A9	ADM 944	54	42	12	46	120
200E	A9	945	84	36	24	56	160
300E	A9	946	280	110	56	88	250
400E	A9	947	76	48	12	58	160
500E	A9	948	62	16	16	30	960
600E	A9	949	700	14	62	46	4200
700E	A9	950	360	72	74	94	1000
800E	A9	951	300	52	48	46	960
900E	A9	952	3400	4	180	64	8000
A10	100S	953	80	16	16	26	3500
A10	200S	954	120	22	16	44	1080
A10	300S	955	350	98	110	150	280
A10	400S	956	58	72	130	46	200
A10	500S	957	170	40	20	64	640
A10	600S	958	1400	64	200	110	5900
100W	A11	966	58	30	14	56	110
200W	A11	967	86	22	18	52	100
300W	A11	968	10	6	8	20	460
100E	A11	969	38	28	14	36	90
200E	A11	970	32	20	14	26	170
300E	A11	971	1700	10	130	70	2500
400E	A11	972	2600	6	230	130	>1%
500E	A11	973	2400	8	260	180	>1%
BO	0	974	3000	8	820	380	>1%
BO	100S	975	4000	6	900	370	>1%
BO	200S	976	4400	4	960	300	>1%
BO	300S	977	880	32	100	100	9000
BO	400S	978	3800	8	800	290	>1%
BO	500S	979	3200	2	400	150	>1%
BO	600S	980	3700	8	840	470	>1%
BO	700S	981	4100	4	540	250	>1%
BO	800S	982	3600	6	780	290	>1%
BO	900S	983	3600	6	490	240	>1%
BO	1000S	984	1900	16	240	220	>1%
BO	1100S	985	1900	14	210	390	>1%

023

770025

SOIL SAMPLING ADAMSFIELD 1971ASSAY RESULTS

Co-ordinates			Results in ppm				
Westerlies	Northerlies	Sample No.	Ni	Cu	Co	Zn	Cr
BO	1200S	ADM 986	1200	14	210	130	>1%
BO	1300S	987	1700	12	180	200	>1%
BO	1400S	988	3700	6	420	410	>1%
BO	1500S	989	4500	8	1000	300	>1%
BO	1600S	990	4500	6	920	350	>1%
BP	1700S	991	3300	4	250	140	>1%
BO	1800S	992	2000	6	1000	380	>1%
BO	1900S	993	2500	6	720	160	>1%
BO	2000S	994	2500	4	250	110	>1%
BO	2100S	995	1600	4	350	170	>1%
BO	2200S	996	1200	4	130	160	>1%
BO	2300S	997	2600	2	210	130	>1%
BO	2400S	998	2700	6	760	370	>1%
BO	2500S	999	2000	6	480	220	>1%
BO	100N	1000	4800	6	760	270	>1%
BO	200N	1001	4700	6	760	230	>1%
BO	300N	1002	740	6	86	100	>1%
BO	400N	1003	440	12	62	72	3500
BO	500N	1004	5400	8	860	240	>1%
BO	600N	1005	330	16	40	66	4200
BO	700N	1006	820	26	84	110	5000
BO	800N	1007	1100	32	120	130	>1%
BO	900N	1008	390	10	62	66	3000
BO	1000N	1076	250	18	52	60	3400
BO	1100N	1075	370	18	70	70	2700
BO	1200N	1074	2700	10	150	38	1900
BO	1300N	1073	3000	14	240	82	6400
BO	1400N	1072	900	170	130	160	1700
BO	1500N	1071	180	26	22	76	760
BO	1600N	1070	92	30	14	42	410
BO	1700N	1069	140	36	16	42	670
BO	1800N	1068	82	28	14	36	610

024

## SOIL SAMPLING ADAMSFIELD 1971

770026

ASSAY RESULTS

Co-ordinates			Results in ppm				
Westerlies	Northerlies	Sample No.	Ni	Cu	Co	Zn	Cr
	B1	ADM 1077	1700	6	170	110	>1%
	B1	1078	3600	6	620	190	>1%
	B1	1079	3000	6	430	140	>1%
	B1	1080	2900	6	400	180	>1%
	B1	1081	2500	6	350	64	>1%
	B1	1082	2900	16	390	130	>1%
	B1	1083	3700	6	410	90	9400
	B1	1084	4200	32	54	60	2500
	B1	1085	780	64	80	62	2800
	B1	1086	6000	8	860	260	>1%
	B1	1087	820	36	38	66	2500
	B1	1088	700	6	100	200	>1%
	B1	1089	380	14	78	62	2300
	B1	1090	130	12	38	48	770
	B1	1091	2500	8	240	86	9000
	B1	1092	1600	10	330	120	>1%
	B1	1093	130	38	18	58	560
	B1	1094	60	30	20	90	270
	B1	1095	98	38	16	62	760
	C1	1009	6	2	2	12	140
	C1	1010	6	X	4	10	120
	C1	1011	4	X	X	8	65
	C1	1012	2	X	X	4	160
	C1	1013	4	X	X	6	15
	C1	1014	4	2	X	6	45
	C1	1015	8	2	4	10	65
	C1	1016	6	X	2	10	130
	C1	1017	2	X	X	6	35
	C1	1018	2	X	X	6	210
	C1	1019	2	X	X	4	130
	C1	1020	2	X	X	6	20
	C1	1021	2	2	X	6	60
	C1	1022	68	8	6	22	800
	C1	1023	16	6	X	18	720
	C1	1024	960	30	86	120	>1%
	C1	1025	1200	20	64	88	>1%
	C1	1026	14	2	6	20	3100
	C1	1027	4400	6	240	230	>1%

025

770027

SOIL SAMPLING ADAMSFIELD 1971ASSAY RESULTS

Co-ordinates			Results in ppm				
Easterlies	Northerlies	Sample No.	Ni	Cu	Co	Zn	Cr
2100W	C1	ADM 1028	470	22	160	78	3400
2200W	C1	1029	2300	18	340	110	8200
2300W	C1	1030	3100	4	240	76	8400
2400W	C1	1031	140	80	28	54	300
2500W	C1	1032	250	160	60	150	680
2600W	C1	1033	28	30	20	46	150
2700W	C1	1034	130	40	44	72	70
2800W	C1	1035	32	24	14	44	210
2900W	C1	1036	20	22	20	36	170
3100W	C1	1037	18	12	10	34	130
3400W	C1	1038	26	32	12	44	160
3500W	C1	1039	18	20	10	30	160
3600W	C1	1040	22	40	14	98	150
3700W	C1	1041	22	22	10	34	260
3800W	C1	1042	14	10	6	20	150
0	C2	1043	700	110	180	110	2000
100W	C2	1044	600	60	120	110	2500
200W	C2	1045	1600	28	360	96	5900
300W	C2	1046	140	88	46	78	320
400W	C2	1047	190	88	42	54	490
500W	C2	1048	100	90	20	56	280
600W	C2	1049	330	140	470	130	560
700W	C2	1050	380	150	120	94	980
800W	C2	1051	120	52	32	72	130
900W	C2	1052	300	82	60	92	2000
1000W	C2	1053	280	120	68	130	510
1100W	C2	1054	400	230	68	58	640
1200W	C2	1055	220	180	44	42	600
1300W	C2	1056	380	110	44	68	1060
1400W	C2	1057	1400	8	440	200	>1%
1500W	C2	1058	1100	42	76	74	3700
1600W	C2	1059	760	28	92	62	2500
1700W	C2	1060	56	30	22	54	480
1800W	C2	1061	34	20	18	60	170
2000W	C2	1062	92	38	14	40	620
2100W	C2	1063	66	20	16	62	410
2200W	C2	1064	60	130	32	130	200
100E	C2	1065	54	28	14	46	200
200E	C2	1066	58	40	18	42	200
300E	C2	1067	50	22	8	20	260

026

## WHOLE ROCK SAMPLING ADAMSFIELD 1971

770028

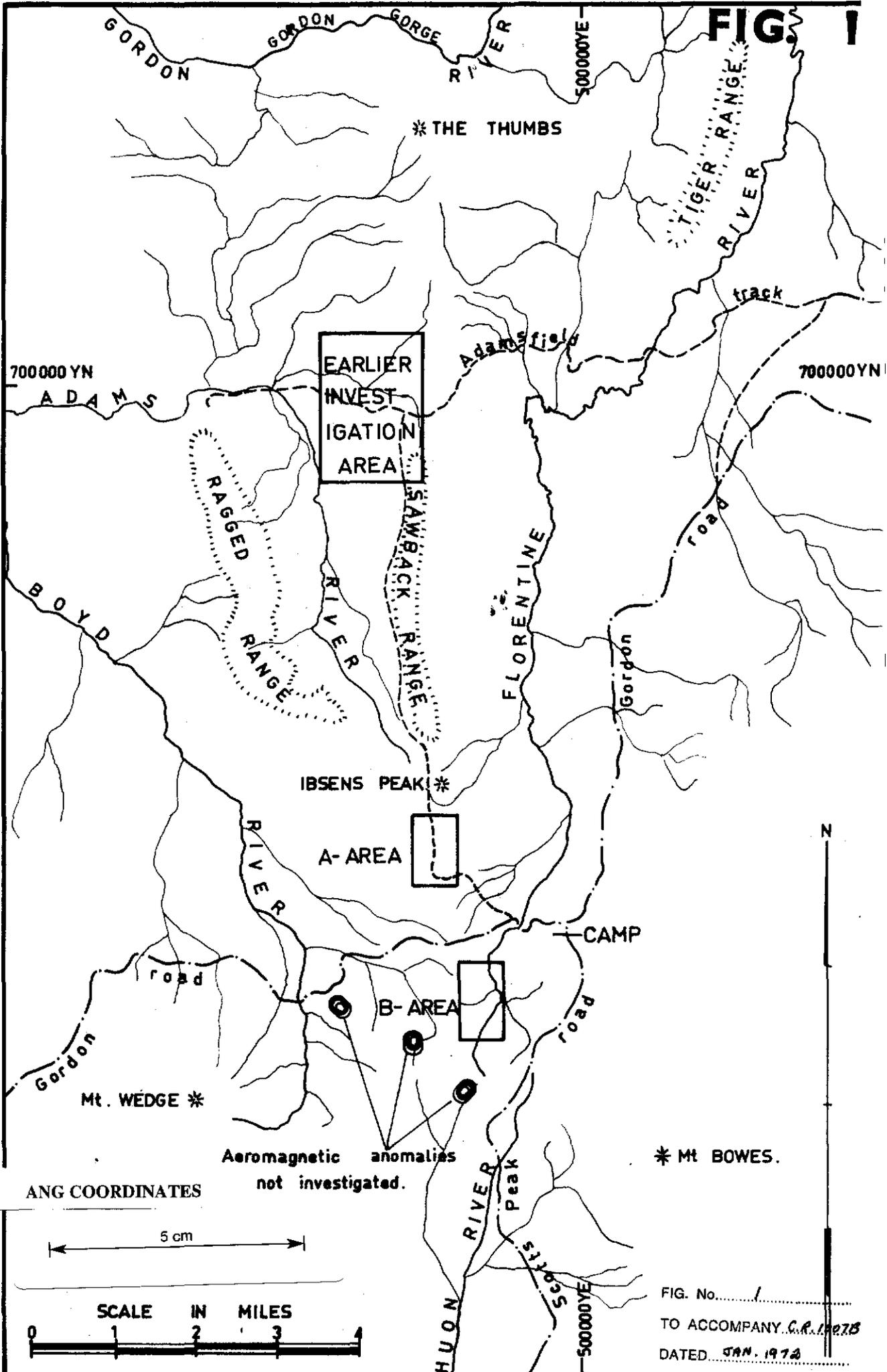
ASSAY RESULTS

Co-ordinates			Results in ppm				
Easterlies	Northerlies	Sample No.	H1	Cu	Co	Zn	Cr
AO	280S	AA1044	100	42	50	50	120
AO	300S	AA1045	2800	6	130	48	2500
AO	370S	AA1046	60	110	40	38	250
AO	406S	AA1047	2000	58	120	54	2800
AO	406S	AA1048	100	20	42	24	400
AO	4700S	AA1051	280	130	70	102	240
AO	4730- 4745S	AA1052	3500	4	98	38	3700
AO	4890- 4920S	AA1053	180	98	54	60	230
AO	5075S	AA1054	2800	16	110	40	3900
AO	5400S	AA1043	2000	2	90	36	3400
AO	5450S	AA1055	2800	8	120	40	4400
AO	215N	AA1049	130	110	54	62	210
300E	A1	AA1039	64	22	24	74	25
430W	A2	AA1050	120	120	50	60	250
400E	A4	AA1040	42	18	18	16	90
600E	A4	AA1041	2800	8	360	120	4700
800E	A4	AA1042	350	4	58	36	940

027

770029

FIG 1



ANG COORDINATES

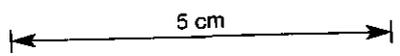
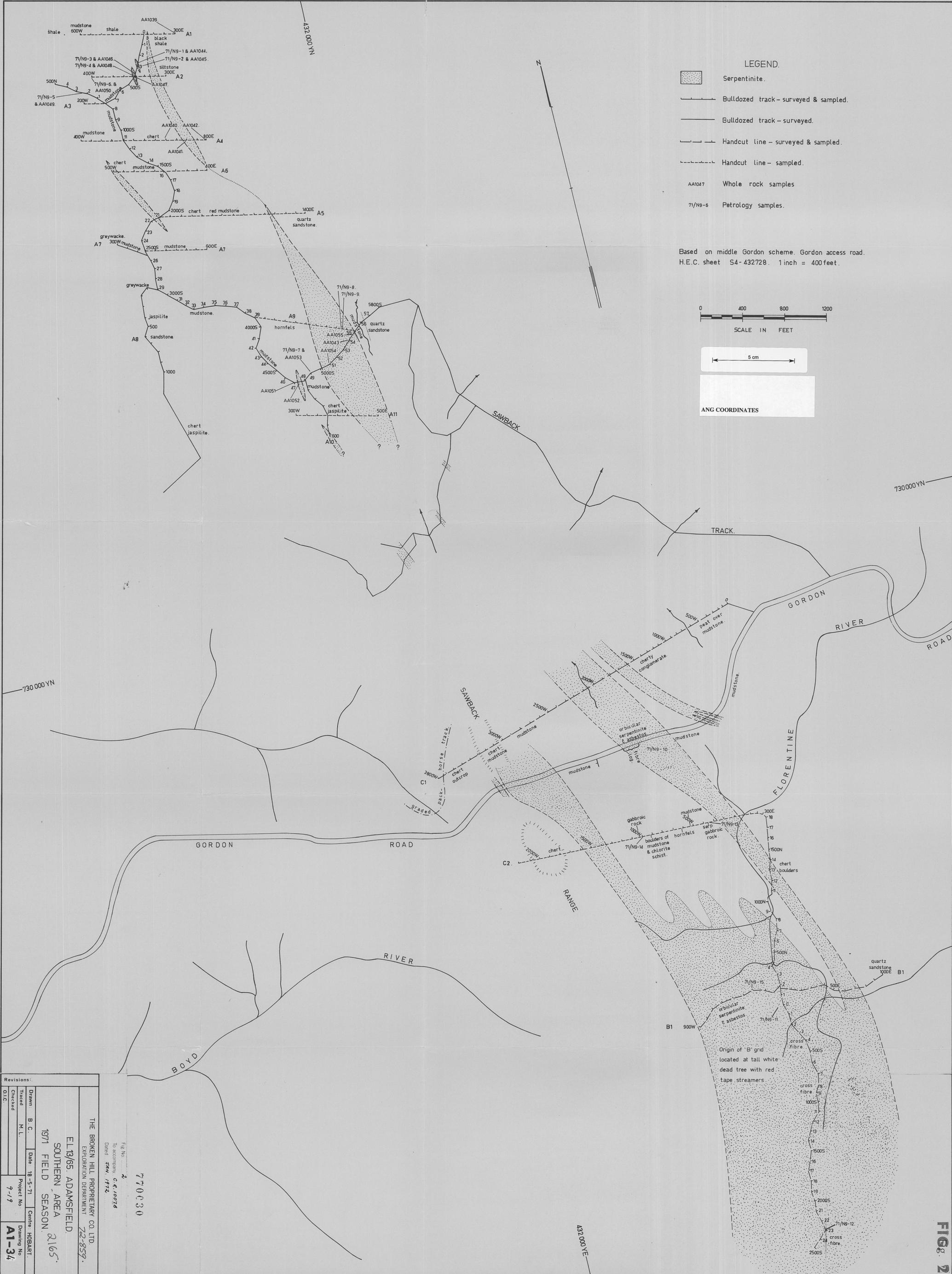


FIG. No. .... /  
 TO ACCOMPANY C.R. 1927B  
 DATED JAN. 1978

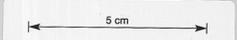
Centre <b>HOBART</b>	THE BROKEN HILL PROPRIETARY CO. LTD. <b>E.L.13/65. ADAMSFIELD</b>	Project No. <b>9-19</b>
Date <b>16-9-71</b>	<b>INSET FROM MAP SHEET 8112 WEDGE.</b>	Drawing No. <b>A4-8</b>



LEGEND.

-  Serpentinite.
-  Bulldozed track - surveyed & sampled.
-  Bulldozed track - surveyed.
-  Handcut line - surveyed & sampled.
-  Handcut line - sampled.
- AA1047 Whole rock samples
- 71/N9-6 Petrology samples.

Based on middle Gordon scheme, Gordon access road.  
H.E.C. sheet S4-432728. 1 inch = 400 feet.



ANG COORDINATES

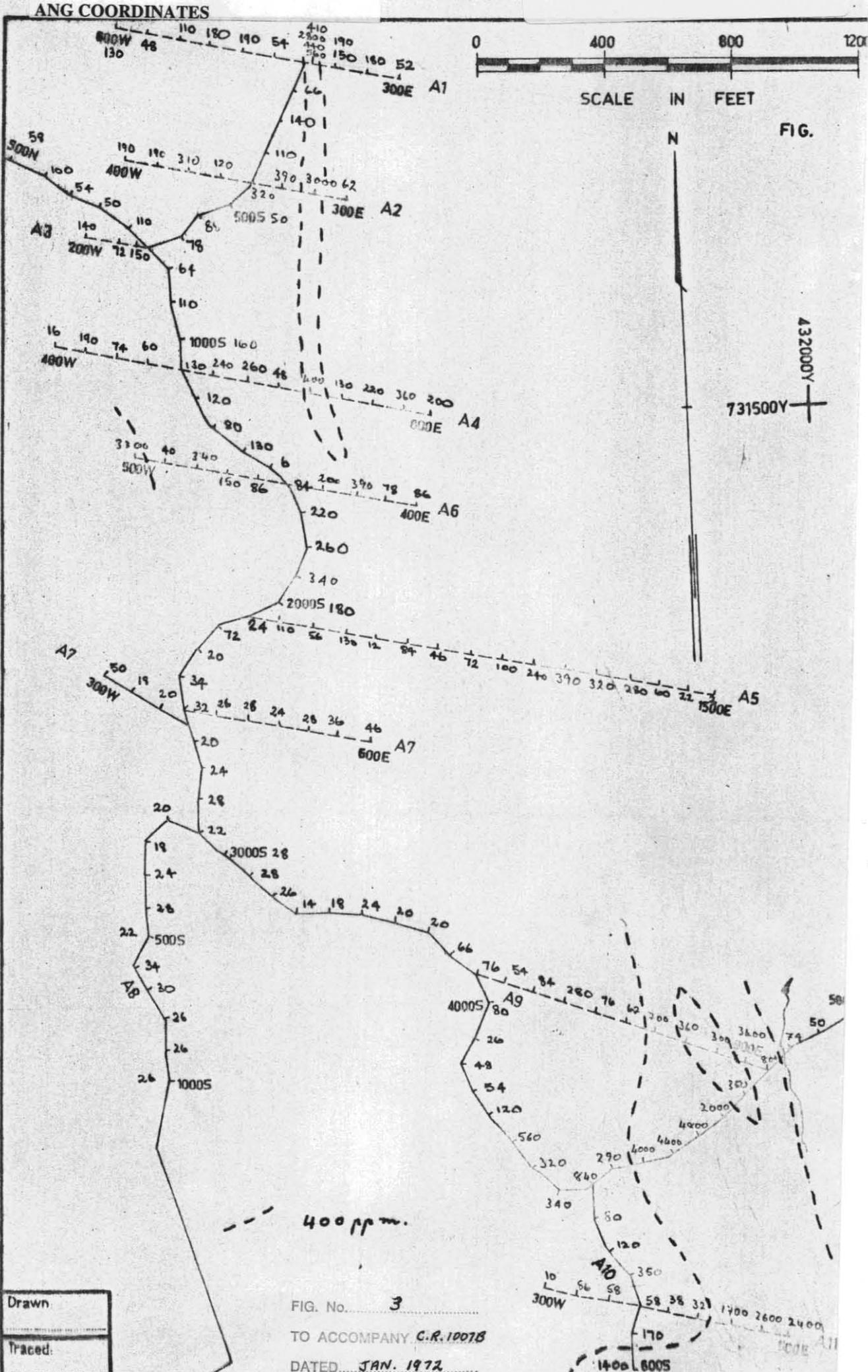
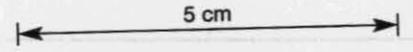
Revisions:	
Drawn	B. C.
Traced	M. L.
Checked	
O.I.C.	
THE BROKEN HILL PROPRIETARY CO. LTD. EXPLORATION DEPARTMENT EL13/65, ADAMSFIELD SOUTHERN AREA 1971 FIELD SEASON. 2165	
Date	18-5-71
Project No.	Centre HOBART.
Checked	9-19
Drawing No.	A1-34

Fig No. 2  
770030  
To accompany C.R.10078  
Dated 5/11/72

028

770031

FIG. 3



Drawn	
Traced	
Centre	HOBART
Date	Sept. 1971

FIG. No. 3  
 TO ACCOMPANY C.R. 1007B  
 DATED JAN. 1972  
 THE BROKEN HILL PROPRIETARY CO. LTD  
 E.L. 13/65. ADAMSFIELD.  
 SOIL SAMPLE RESULTS - NICKEL

Project No.	9-19
Drawing No.	A4/12

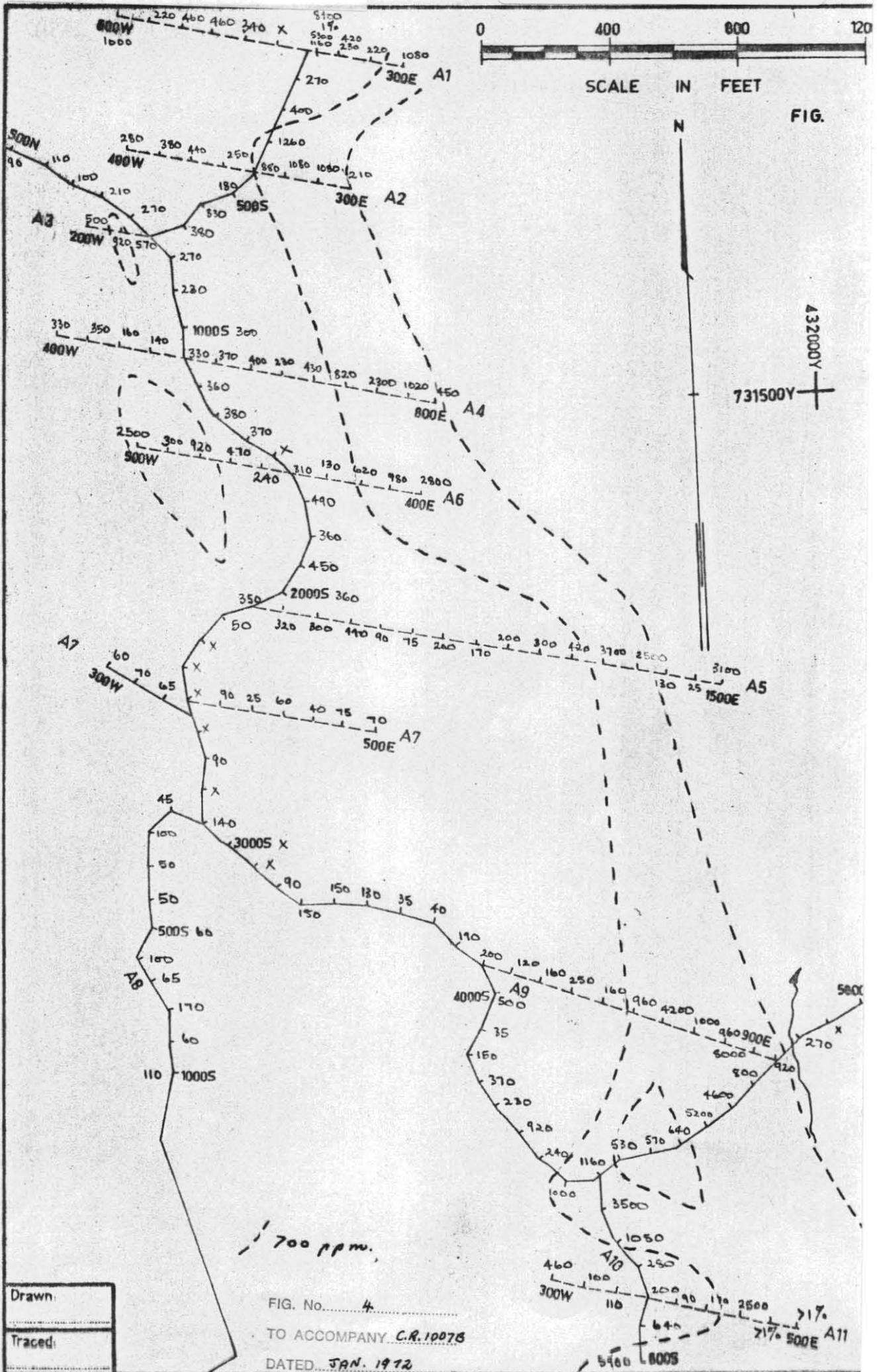
029

770032

FIG. 4

ANG COORDINATES

5 cm



Drawn:
Traced:
Centre <b>HOBART</b>
Date Sept. 1971

FIG. No. 4  
TO ACCOMPANY C.R. 1007B  
DATED JAN. 1972

THE BROKEN HILL PROPRIETARY CO. LTD  
E.L. 13/65. ADAMSFIELD.  
SOIL SAMPLE RESULTS - CHROMIUM

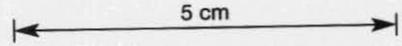
Project No. 9-19
Drawing No. A4/13

C30

770033

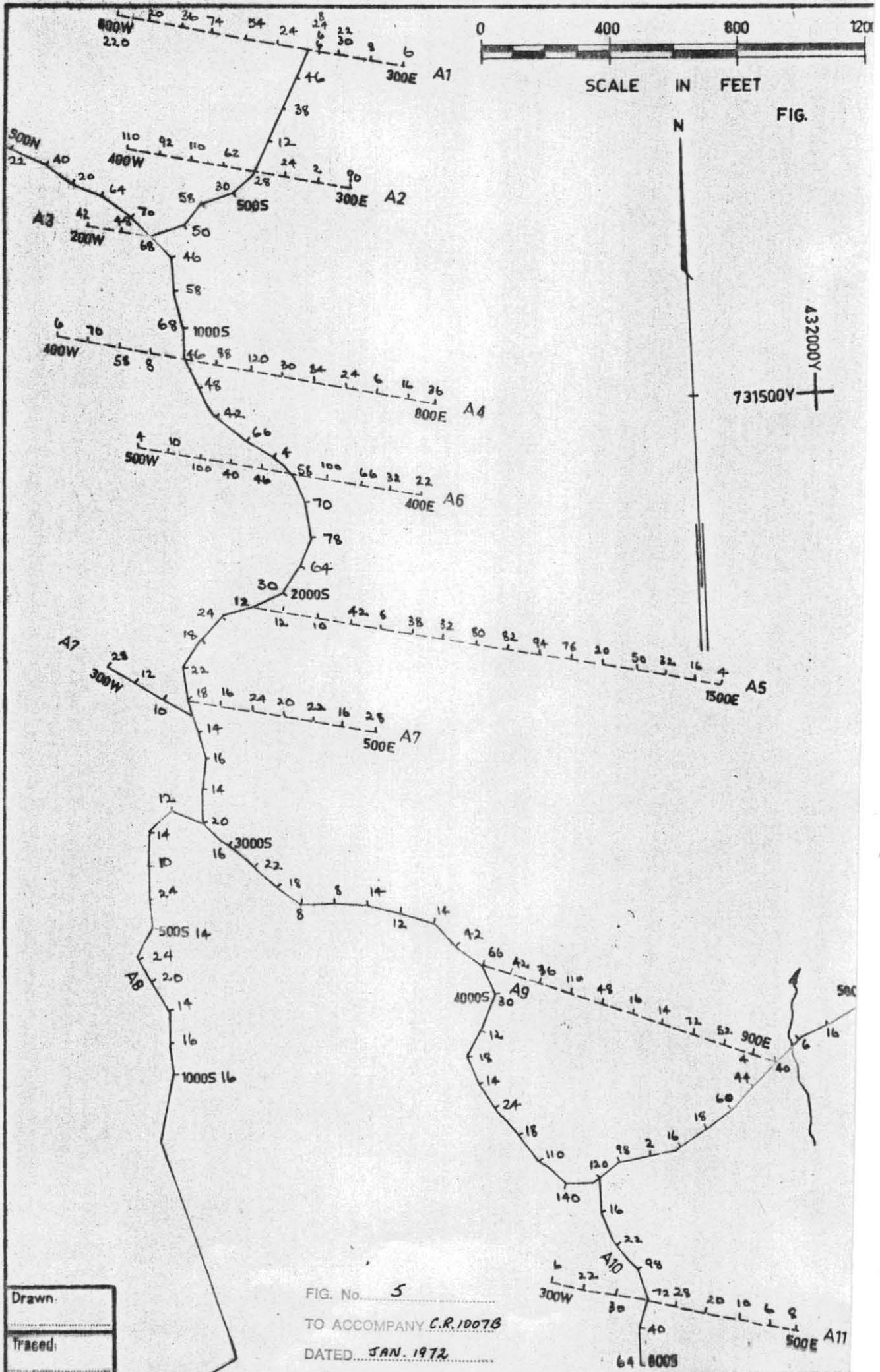
FIG. 5

ANG COORDINATES



SCALE IN FEET

FIG.



Drawn:
Traced:
Centre <b>HOBART</b>
Date Sept. 1971

FIG. No. 5  
 TO ACCOMPANY C.R. 1007B  
 DATED JAN. 1972

THE BROKEN HILL PROPRIETARY CO. LTD  
 E.L. 13/65. ADAMSFIELD.  
 SOIL SAMPLE RESULTS - COPPER

Project No. 9-19
Drawing No. A4/14

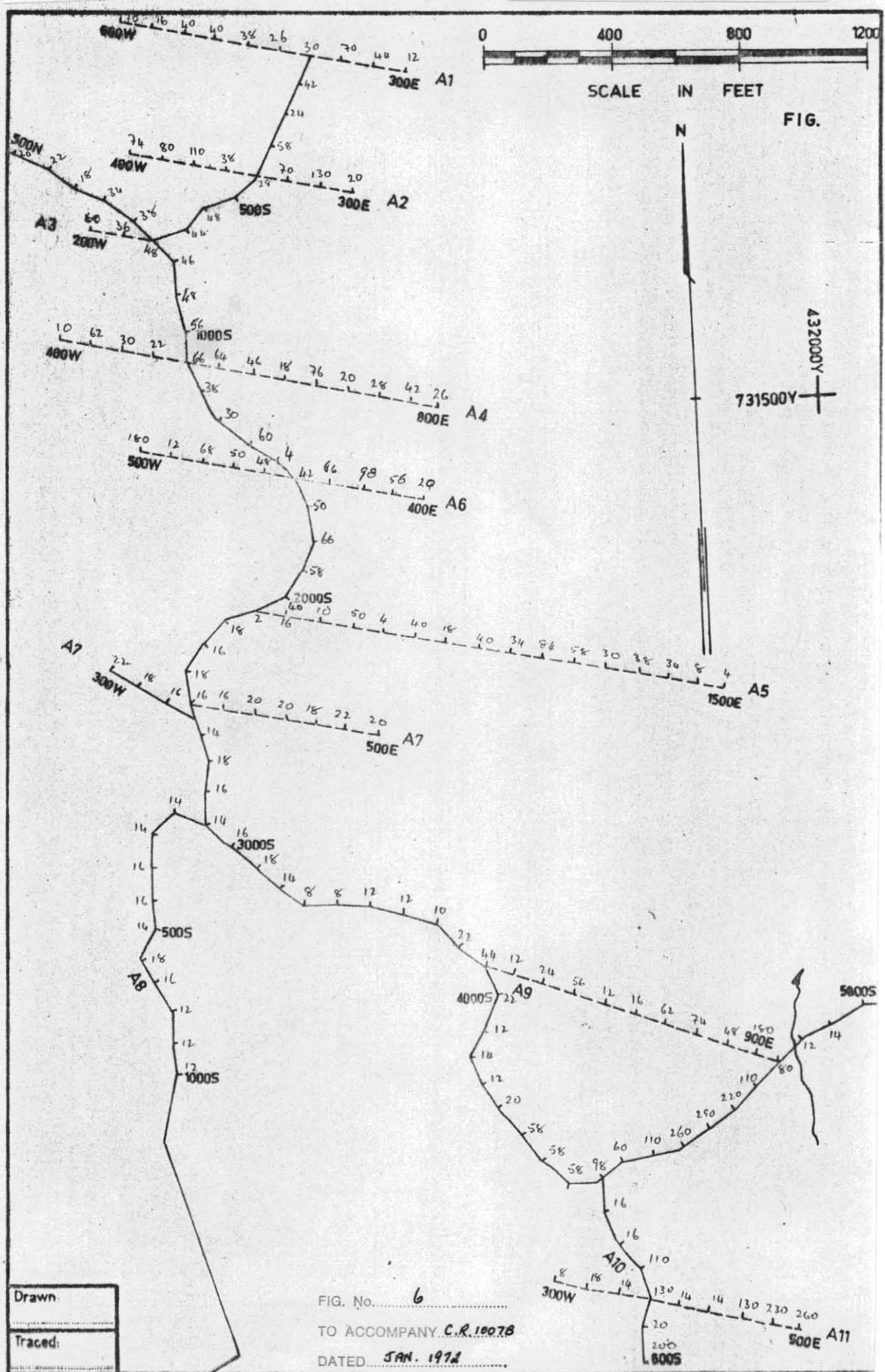
031

ANG COORDINATES



SCALE IN FEET

FIG.



432000Y  
731500Y

Drawn:
Traced:
Centre <b>HOBART</b>
Date Sept. 1971

FIG. No. 6  
 TO ACCOMPANY C.R. 10078  
 DATED JAN. 1972

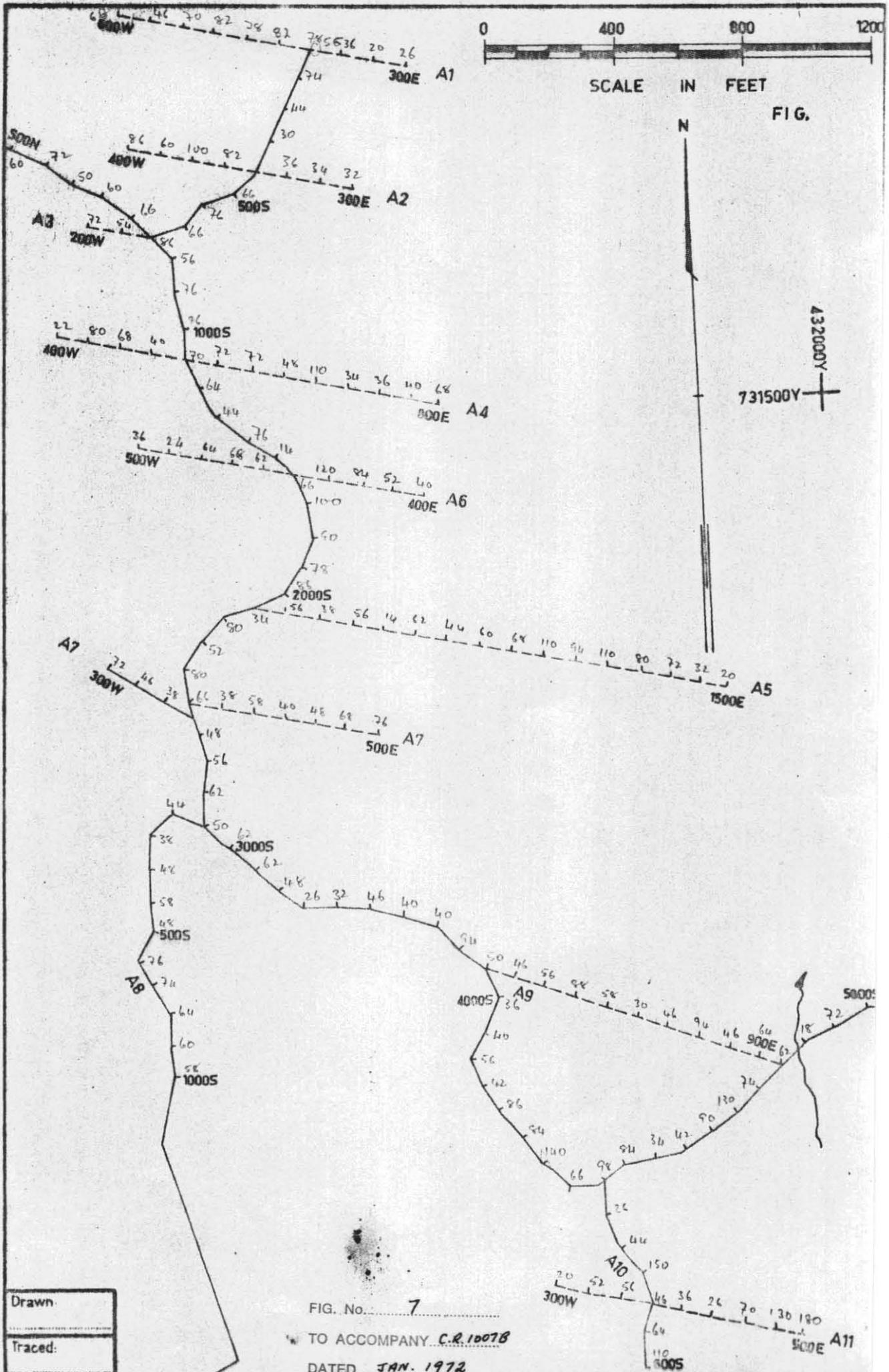
THE BROKEN HILL PROPRIETARY CO. LTD  
 E.L. 13/65. ADAMSFIELD.  
 SOIL SAMPLE RESULTS - COBALT

Project No. 9-29
Drawing No. A4/15

032

ANG COORDINATES

5 cm



Drawn:
Traced:
Centre <b>MIDBART</b>
Date Sept. 1971

FIG. No. 7  
 TO ACCOMPANY C.R. 1007B  
 DATED JAN. 1972  
 THE BROKEN HILL PROPRIETARY CO. LTD  
 E.L. 13/65. ADAMSFIELD.  
 SOIL SAMPLE RESULTS - ZINC

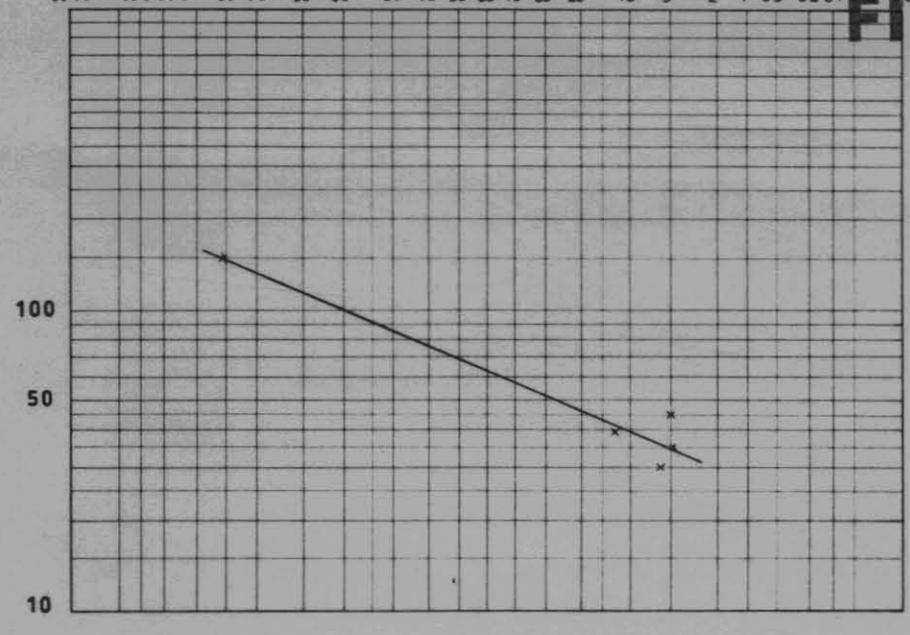
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Drawing No. A4/16

033

770036

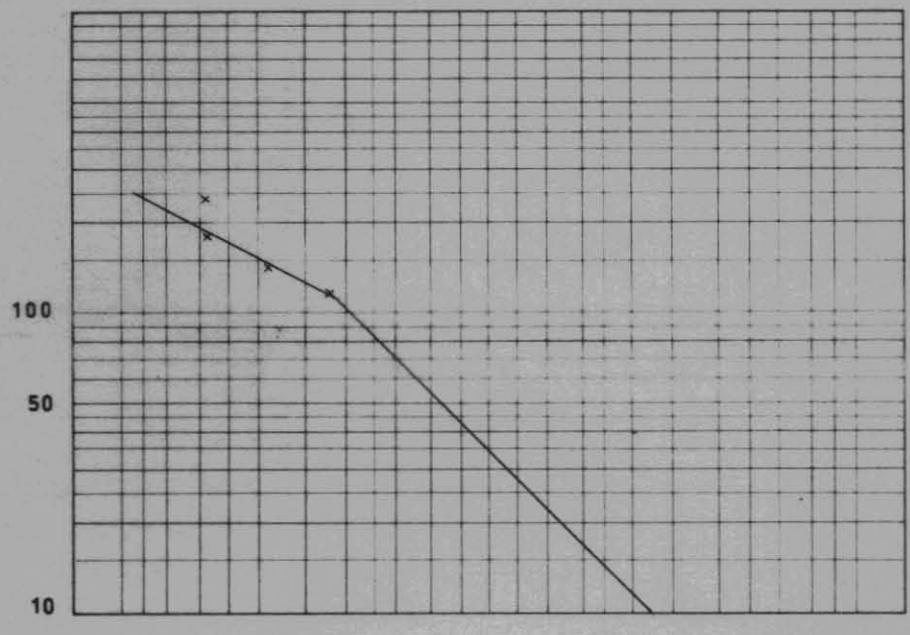
99-99 99-9 99-6 99 98 95 90 80 70 50 60 40 30 20 10 5 2 1 0.5 0.2 0.1

FIG. 8



Zn

P.P.M.



Cu

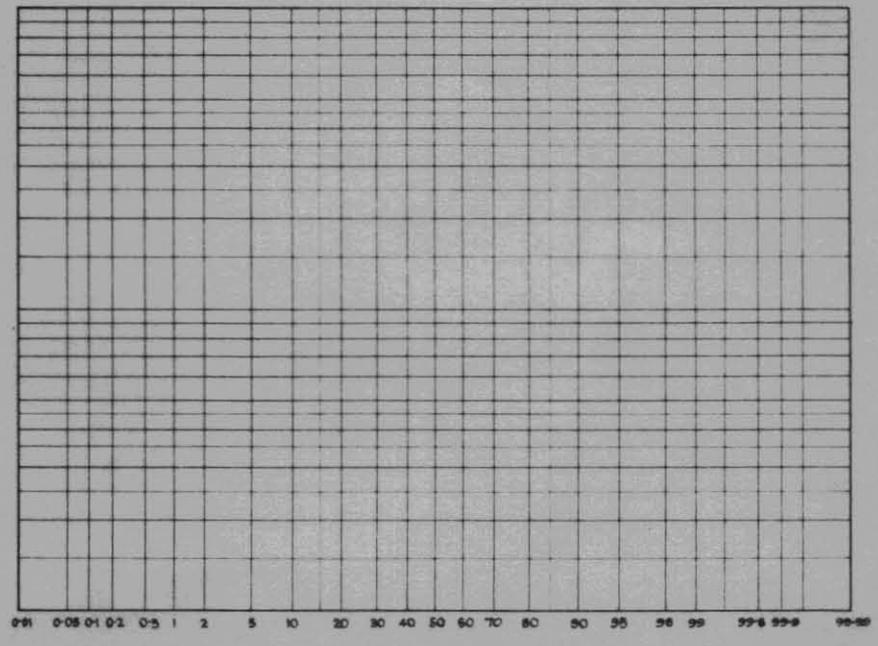
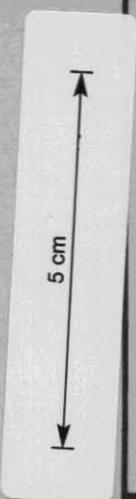


FIG. No. 8  
 TO ACCOMPANY C.R. 10078  
 DATED JAN. 1972

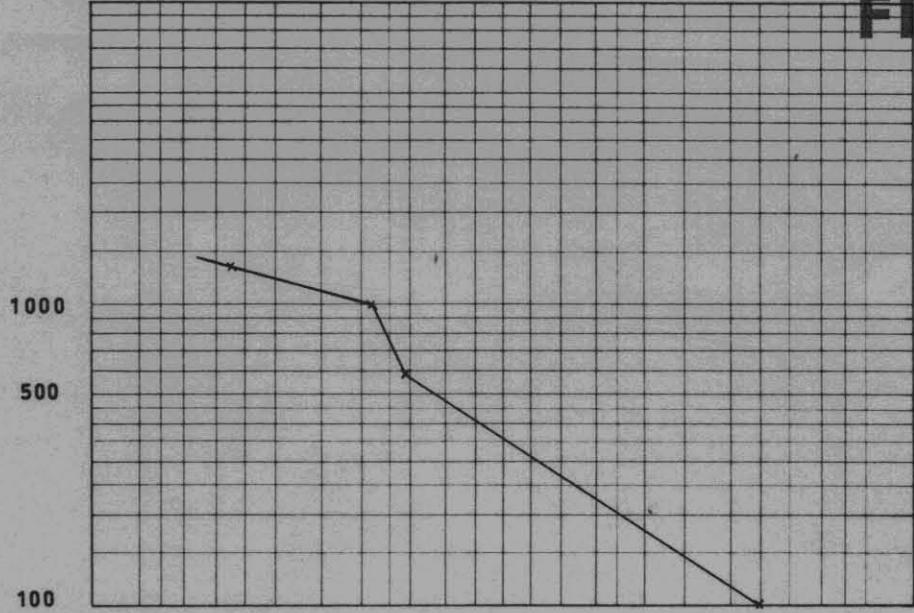
Centre <b>HOBART</b>	THE BROKEN HILL PROPRIETARY CO. LTD E.L.13/65 ADAMSFIELD	Project No 9-19
Date Sept. 1971	CUMULATIVE FREQUENCY PLOT OF SOIL VALUES - Zn, Cu	Drawing No A4-10

U34

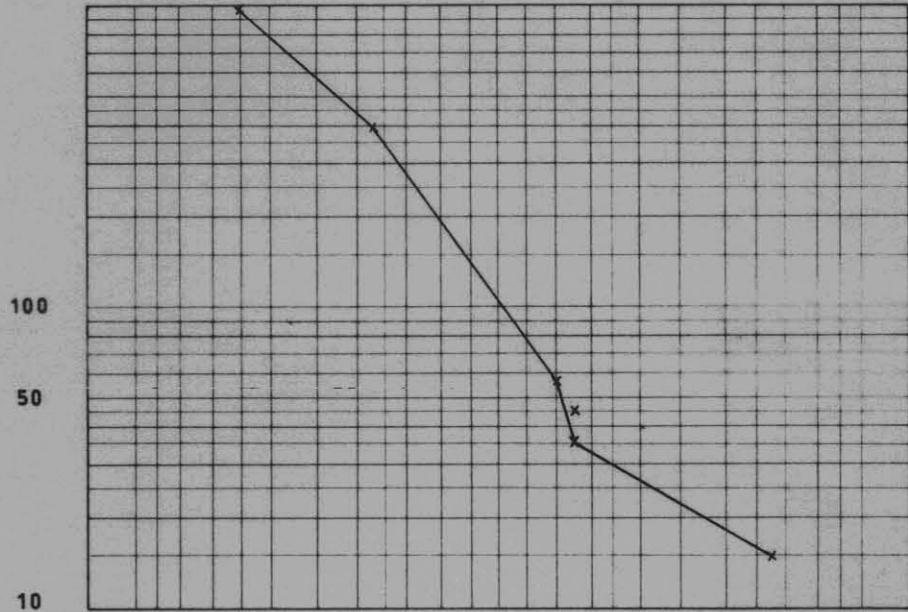
770037

99-99 99-9 99-8 99 98 95 90 80 70 50 40 30 20 10 5 2 1 0.5 0.2 0.1 0.05 0.01

FIG. 9



p.p.m.



5 cm

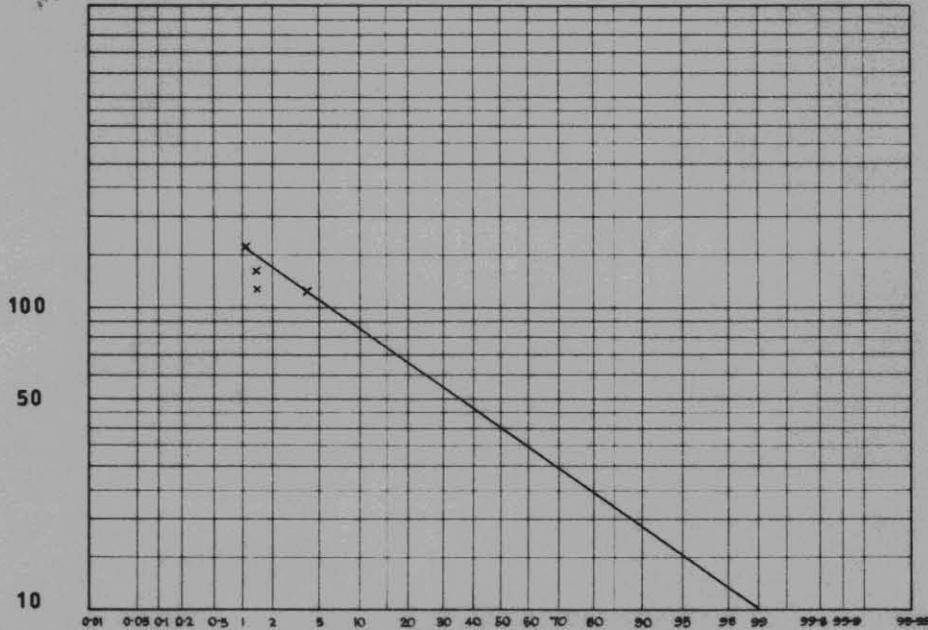


FIG. No. 9  
 TO ACCOMPANY C.R. 1007B  
 DATED JAN. 1972

Centre  
**HOBART**  
 Date  
 Sept. 1971

THE BROKEN HILL PROPRIETARY CO. LTD  
 E. L. 13/65 ADAMSFIELD  
 CUMULATIVE FREQUENCY PLOT OF SOIL VALUES - Cr, Ni, Co

Project No  
 9-19  
 Drawing No  
 A 4 - 11

035

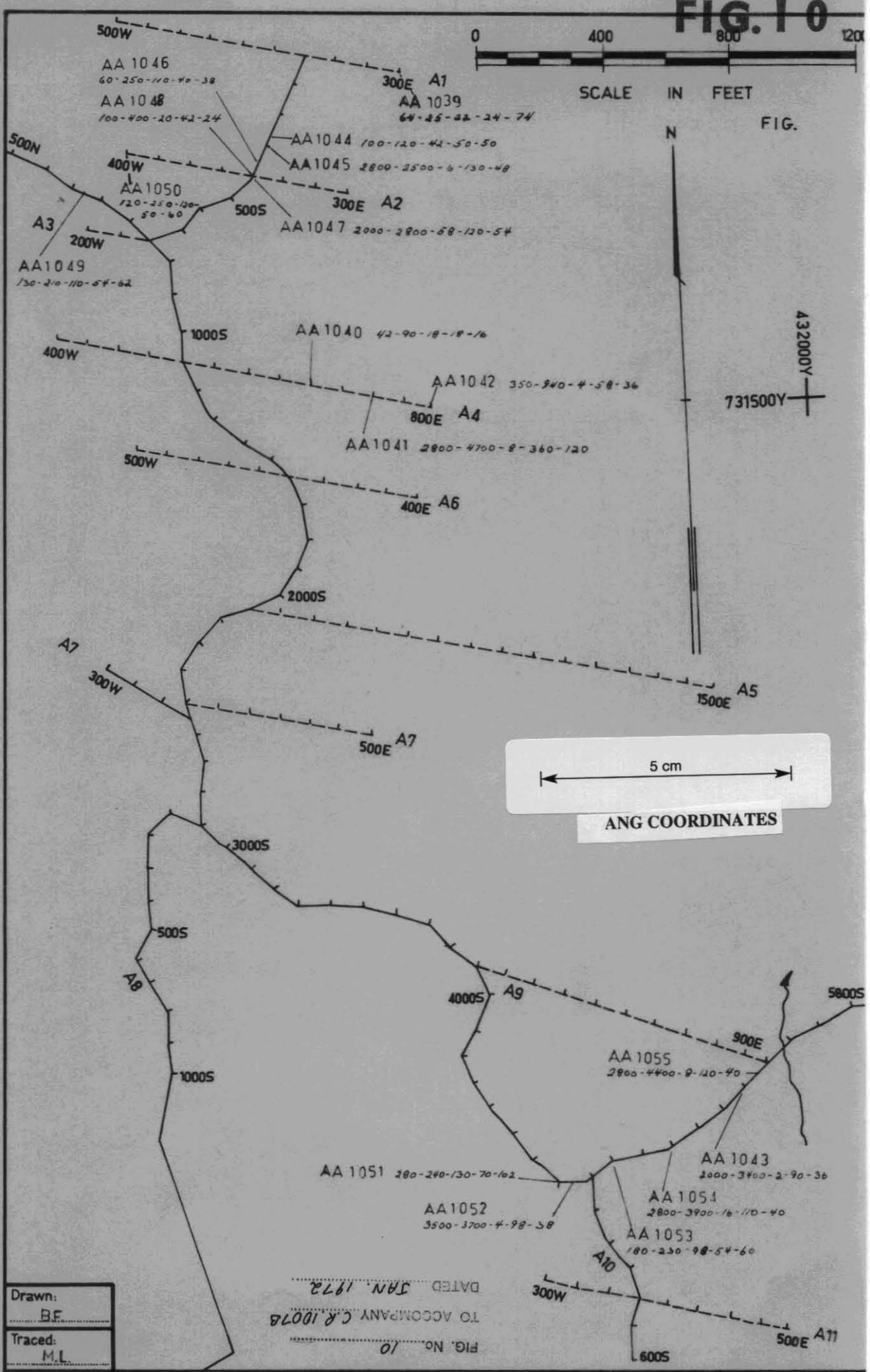
770038

# FIG. 10



SCALE IN FEET

FIG.



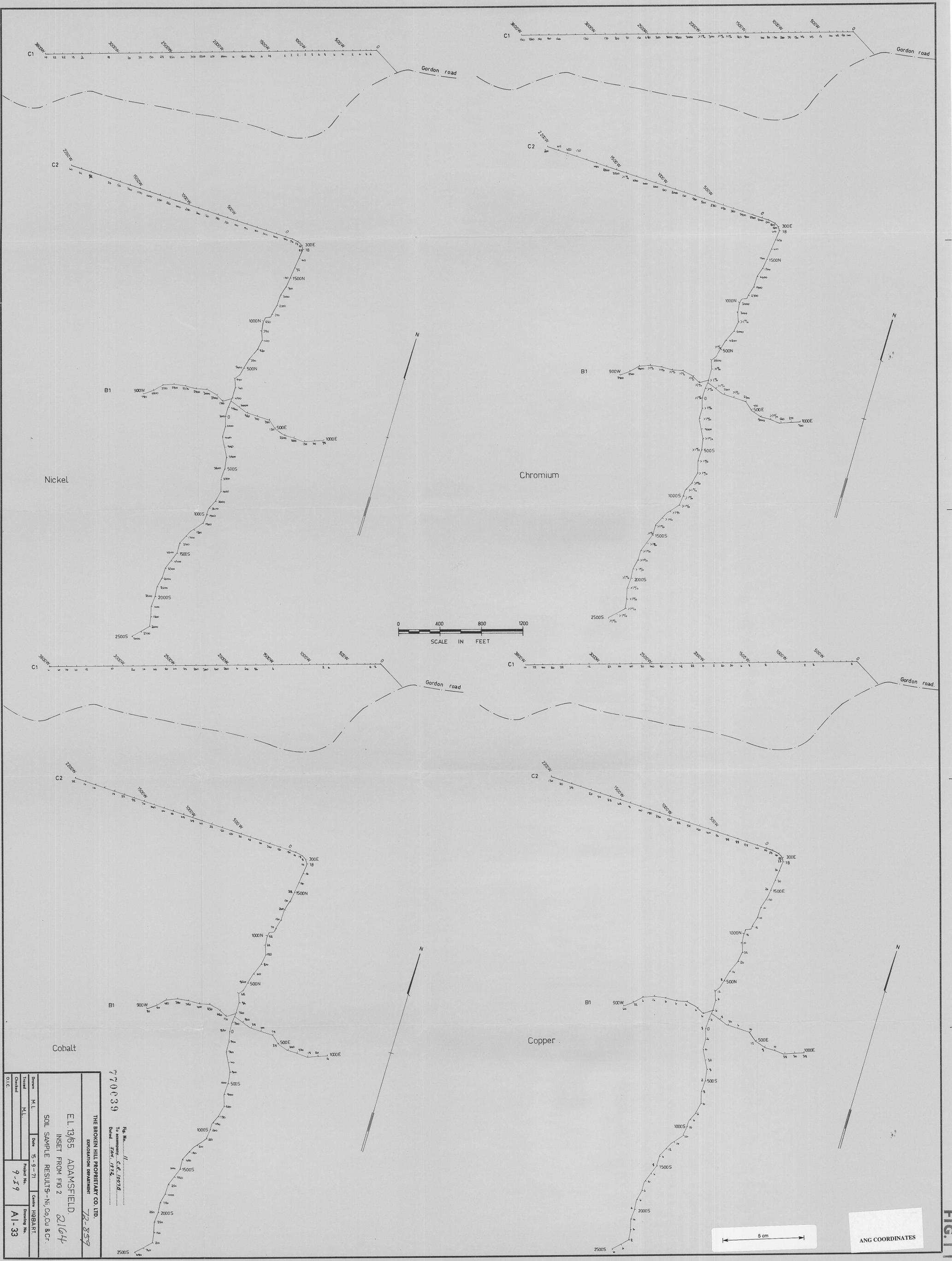
5 cm  
 ANG COORDINATES

Drawn:	BE
Traced:	M.L.
Centre	HOBART
Date	OCT. 71

DATED JAN. 1972  
 TO ACCOMPANY C.R. 10078  
 FIG. No. 10

THE BROKEN HILL PROPRIETARY CO. LTD.  
 E.L. 13/65. ADAMSFIELD.  
 WHOLE ROCK SAMPLE RESULTS, Ni-Cr-Cu-Co-Zn

Project No.	
Drawing No.	A4/9



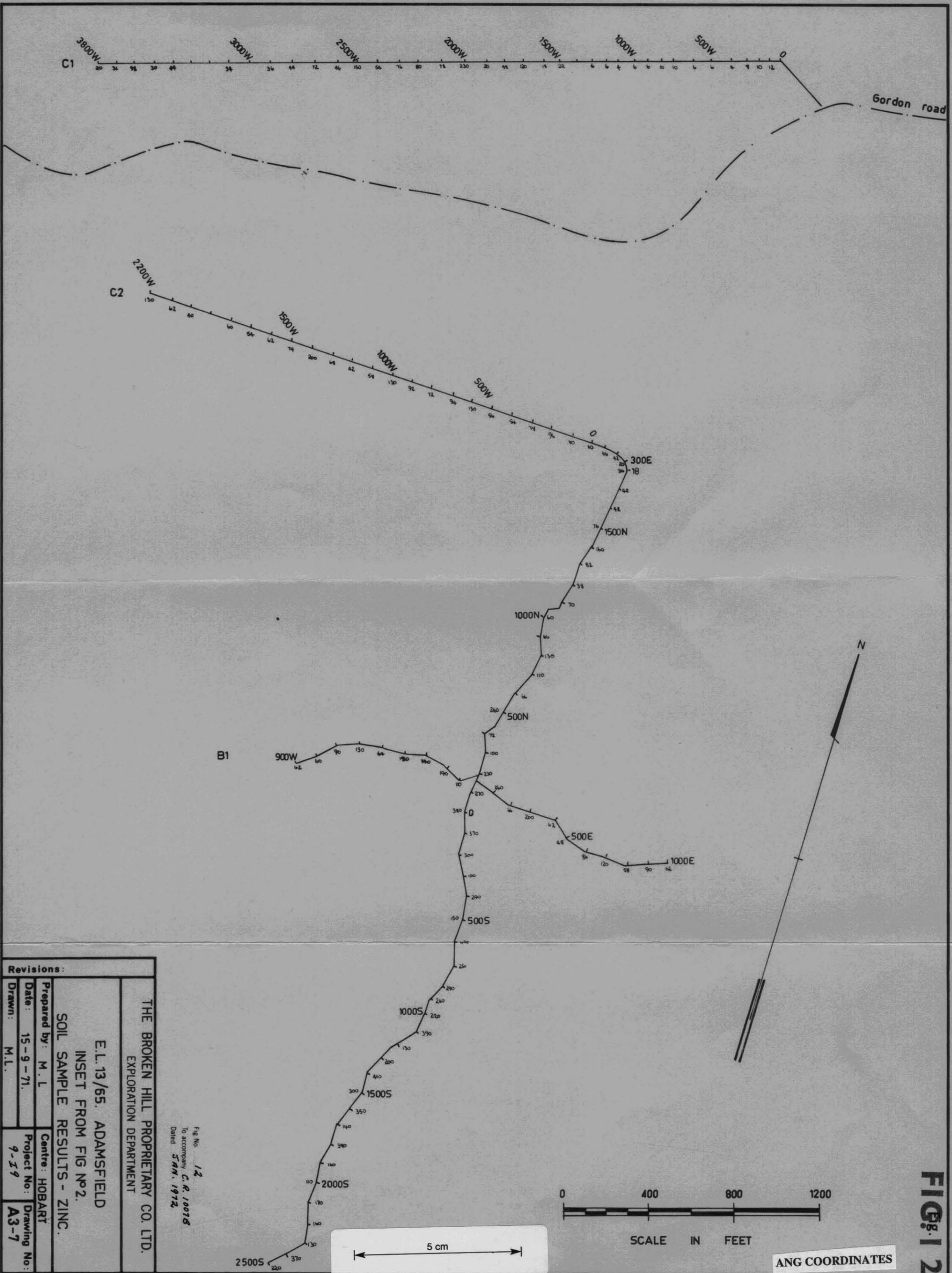
0 400 800 1200  
SCALE IN FEET

5 cm

ANG COORDINATES

Fig. No. 770039	
To accompany S.R. 168728	
Dated 17/1/71	
THE BROKEN HILL PROPRIETARY CO. LTD.	
Exploration Department	
72-859	
Drawn	M.L.
Checked	M.L.
Date	15-9-71
Centre	HOBART
Project No.	9-19
Sheet No.	A1-33

EL 13/65 ADAMSFIELD  
INSET FROM FIG 2  
SOIL SAMPLE RESULTS - Ni, Co, Cu & Cr.



<b>Revisions:</b>	
Prepared by: M. L.	Centre: HOBART
Date: 15-9-71.	Project No: 9-19
Drawn: M.L.	Drawing No: A3-7
<b>THE BROKEN HILL PROPRIETARY CO. LTD.</b> EXPLORATION DEPARTMENT E.L.13/65. ADAMSFIELD INSET FROM FIG N°2. SOIL SAMPLE RESULTS - ZINC.	

Fig No. 12  
 To accompany C.R. 10078  
 Dated 5th Nov. 1972

0 400 800 1200  
 SCALE IN FEET

5 cm

ANG COORDINATES

**FIG. 12**

770041

Centre  
**HOBART**  
Date  
23-7-71

Location of channel samples along the Gordon road  
- Adamsfield ultrabasic intersection. footages from  
West to East.

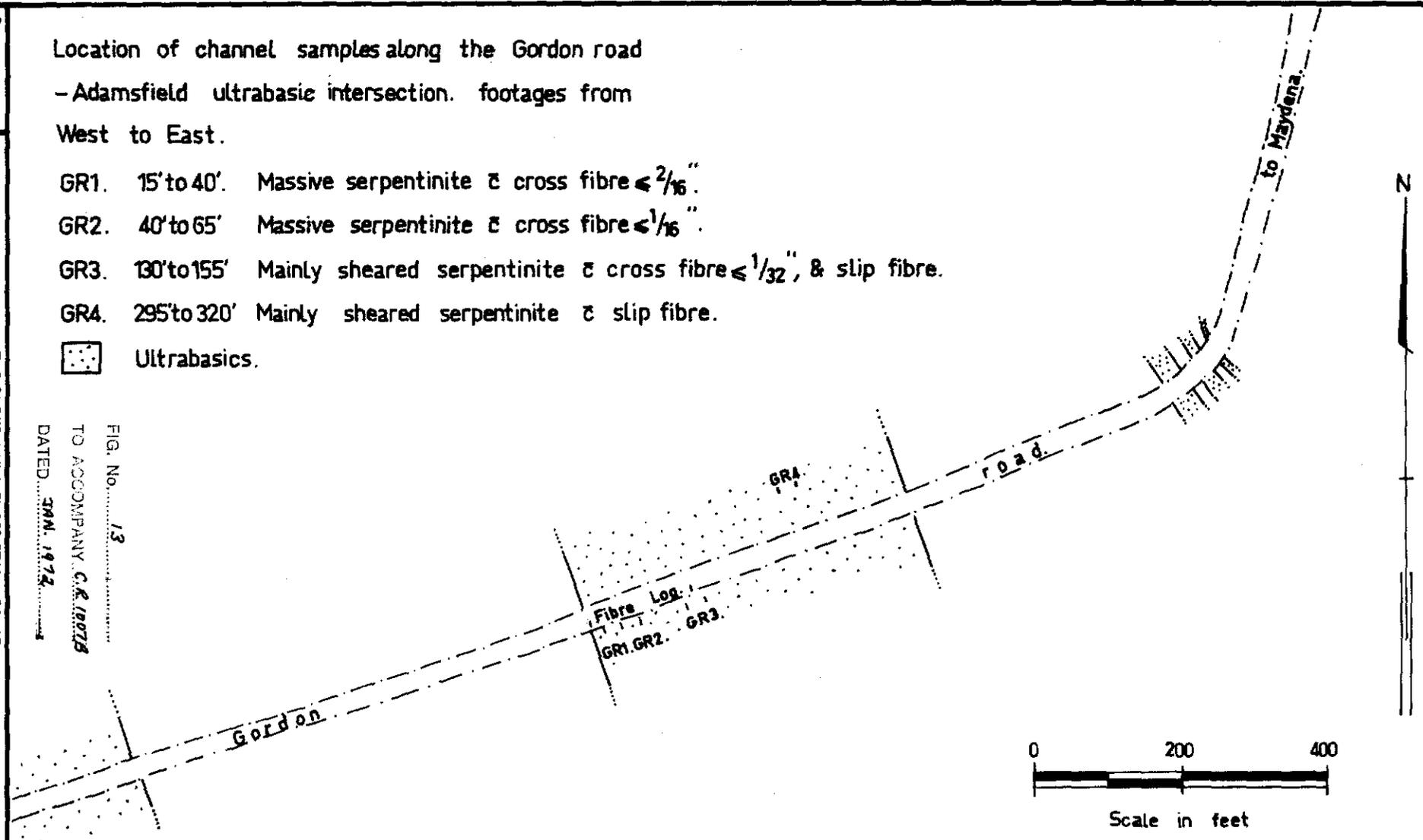
- GR1. 15'to40'. Massive serpentinite  $\bar{\epsilon}$  cross fibre  $\leq 2/16''$ .
- GR2. 40'to65' Massive serpentinite  $\bar{\epsilon}$  cross fibre  $\leq 1/16''$ .
- GR3. 130'to155' Mainly sheared serpentinite  $\bar{\epsilon}$  cross fibre  $\leq 1/32''$ , & slip fibre.
- GR4. 295'to320' Mainly sheared serpentinite  $\bar{\epsilon}$  slip fibre.

 Ultrabasics.

ENLARGEMENT OF 1 1/2" 400' MAP. ACCOMPANYING C.R.1007  
E.L.13/65. ADAMSFIELD.  
THE BROKEN HILL PROPRIETARY CO. LTD.

FIG. No. 13  
TO ACCOMPANY C.R.1007B  
DATED. 30th. 1972

Drawn by:  
B.F.  
Traced by:  
M.L.  
Project No.  
9.19  
Drawing No.  
A4-2



ANG COORDINATES

FIG. 13