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GEOLOGICAL INVESTIGATION AND SOIL
SAMPLING OF THE ADAMSFIELD ULTRABASIC
BODY

by

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Hobart.

May, 1971

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Investigation of the Adamsfield ultrabasic body -
B Flood - May 1971

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OF THE ADAMSFIELD ULTRABASIC BODY

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- 1 FIG. KEY MAP 1=100000
- 1 MAP 1" = 400'

DBART, MAY 1971

B. FLOOD

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The aim of this report is to state the type and amount of fieldwork done during the 71 season within our Adamsfield lease, part of E.L. 1/65 in S.W. Tasmania. This is not a final report and as such presents only a limited conclusion. A final report will follow when the assay results are obtained and considered. A discussion based also on additional petrographical and field information is sought included in the final report.

INTRODUCTION

The plan for the fieldwork in Adamsfield this season was outlined in a letter to the Exploration Department BP, 31st March 1971, and further discussed in a meeting between J. E. Harms, E. D. Bumstead, B. Cuffley, and B. Flood in Melbourne 13th April 1971.

It was decided to work south of the area previously investigated. The latter area, approximately 2 miles long and $\frac{3}{4}$ mile wide, is found around the ghost town Adamsfield and north of the Saw Back Range. The Adamsfield ultrabasic body, however, extends southwards along the east side of the Saw Back Range and further to a point c. 9 miles south of the area previously investigated.

The work in the southern part of the Adamsfield ultrabasic body is now greatly facilitated due to the access along the H.E.C. roads and the Saw Back track, see Fig.1.

It was decided to carry out a geological mapping and geochemical soil sampling program where we to a great extent could make use of the already existing tracks and roads. The aim of the soil sampling was primarily a search for the elements Ni and Cu. By carrying out a contemporary mapping program we wanted to outline the boundaries and general habitat of this part of the ultrabasic body, as especially the part south of the Gordon Road was unknown to us except what is outlined in the Aeromag map (Aere Service 1966).

The occurrence of asbestos is quite widespread within the Tasmanian Ultrabasics we wanted also to have an eye open for this mineral, although it has not previously been recorded from this area.

The work commenced 16th April when a caravan was hauled into the location Scotts Pk. Road - Gordon Road. The picnic ground here which provides toilet and running water facilities was used as a base camp during the whole period of work. The work was ended on 8th May.

Personnel: The program was carried out by the geologists B. Flood and B. Cuffley with Mr. J. Moore as field assistant. During the last week a second field assistant, Arthur Clarke, was employed to assist in cutting tracks.

During the period 19th to 22nd April Dr. E. D. Bumstead visited the area to advise upon the soil sampling program.

Encours student Mr. A. Brown who does his thesis work in this area worked with us from 16th to 21st April and from 7th to 8th May.

transport: For transport during the field work the Holden Stationwagon 0204 and the Landrover LB 1258 were used. The Holden could be used only for one mile along the Saw Back track while the Landrover was used all the way up to Adamsfield.

The Landrover had a broken front axle on 23rd April and had to go back to Hobart for a days repair.

Weather: With the exception of a few days the weather was mainly mild and wet during this field work with frequent snow cover on the surrounding mountains.

RECORDING OF FIELD WORK

The actual area south of Gordon Road is covered by H.E.C. maps (Middle Gordon Scheme, 1" - 400') which has been used as a base map for plotting of sample localities and other information.

The area north of Gordon Road has been fitted in by surveying the Saw Back track from the Gordon Road, the former then used as a baseline (see map) for the area investigated in detail. During the work we came across a few other tracks previously unknown to us. They were all surveyed from known positions either on the Saw Back track or the Gordon Road.

The surveying must be regarded approximate as it is based on ordinary compass and pacing. Bearings to well established points in the terrain have been taken when convenient and have offered a good control.

For sampling purpose 14,600 feet of handcut lines were put in by us, but as will be seen from the map not all have been surveyed.

40,000 feet of own lines and previously cut or bulldozed tracks were surveyed. 28,600 feet of own and previously cut and bulldozed lines were soil sampled with 100 feet intervals. The soil samples were taken with a 1" open flight auger which could be operated to a depth of c. 36".

During the field program we collected altogether:

- 286 soil samples B horizons numbered ADM 810 - 1096
- 17 whole rock chip samples numbered AA 1039 - 1055
- 15 Petrological samples numbered 71/W9-1 - 15

In addition a 1200 feet access track was cut or blazed from the Gordon Road up along the north and west side of Florentine River to the B-Area.

THE SAMPLING PROGRAM

The work recorded above took place within an area extending from 2 miles north of Gordon Road to c. 1 mile south of the Road.

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Area: The northernmost mile within the investigated area was selected for detailed sampling, i.e. around 400 feet intervals between the sampling lines which offer the possibility of drawing geochron. contour lines when the assay results are obtained. The Saw Back track which was used as an approximate N-S base line was designated A-0 and the crosslines were numbered A-1 to A-11 in the order they were sampled. The crosslines have a length varying between 200 and 1500 feet.

Due to new information obtained about the geology as the work progressed length and distribution of lines were decided upon accordingly.

The samples were taken at depths varying from 2-36 inches mainly within a residual soil. All the whole rock chip samples were taken within this area.

Area: It was initially decided to cover the southern part of the investigated area in a similar way as the A-Area. But due to less access, thick teatree bushcover and bad weather the work in the B-Area can not be regarded as fulfilled. Here the whole base line B-0 had to be handout and only one crossline B-1 has been out and sampled.

The samples were taken at depths between 4 and 30 inches. Within the exposed part of the ultrabasic (see below), the sample depth would be shallow and the soil type skeletal.

Lines: An attempt to link the two above areas together was sought in the sampling of two lines C-1 and C-2 between the A and B-Areas.

GEOLOGY

At the present stage it seems convenient to divide the whole Adamsfield ultrabasic body into three parts,

1) The northern part extends from the northern end down to Ibsens Peak where the body apparently is cut by a transverse fault or a fault system. This area consists of rather well exposed unshered and sheared serpentinites with enclosures of smaller pyroxenite bodies. The unshered serpentinite generally shows disseminated chromite. The shape of the ultrabasic body is wide (c. 1/2 mile) in the north thinning out with a "tail" running southwards along the west side of the Saw Back Range. Besides reconnaissance this part was not investigated during the current work.

2) The central part extends from south of the fault at Ibsens Peak southwards close to the Gordon Road. Here the ultrabasic rocks generally have a soil cover with fern trees and myrtle forest and the few exposures are mainly confined to the bulldozed tracks.

Previous to this work we believed that this area had two separate but consistent belts of serpentinites which we intended to sample across. It appears, however, that very little consistency on behalf of the ultrabasic occur within this part. The current picture is one of numerous separate lenses (varying in size) of strongly sheared, at times also brecciated serpentinite. As a strong interfolding with the adjacent sediments is demonstrated in the westernmost part of the ultrabasic in the Gordon Road section, similar interfolding is most likely to occur also in the central part.

The surrounding sediments consist mainly of brownish mudstones, sandstones and some grey chert.

Hopefully the results from the assaying of the samples will provide us with more information regarding the shape and extension of the ultrabasics within this part.

This part includes the A-Area currently investigated.

3) The southern part comprises the rest of the ultrabasic body, extending from north of Gordon Road to 3.6 miles down the Scotts Peak Road where the last exposures of serpentinite is seen as a thin sheared belt.

This part is covered by Myrtle forest and horizontal except some patches within the serpentinite in the B-Area west of Florentine River where good exposures occur. Except for these clear patches a thick tea-tree bush cover seems to outline the ultrabasic in this area.

We still don't know much about the ultrabasic within this part, but it is characterised by widening out as indicated on the aeromag map.

A large portion of it again occurs as unshaped serpentinites with minor layered pyroxenites, disseminated chromite appears frequently like in the northern part. A most characteristic feature, however, is the occurrence of orbicular serpentinite of two distinct varieties. The first which is seen in the central belt across the Gordon Road and also along B-1 (see below) exhibits spherical or ellipsoidal nodules generally less than 1" across. The nodule shells vary in colour from light yellowish green to dark green. This rock carries cross-fibre asbestos. The other variety which is frequently seen along B-Area baseline shows a more even dark green colour and less distinct structure. Only occasional veins of cross-fibre are observed in this rock.

Economical Minerals: Visually no sulphide minerals were observed during the field work although a new attempt was made to locate the earlier reported Ni-sulphide from the northern part. Neither was any kind of gossan mineralisation recorded by any of us. The occurrence of disseminated chromite in the northern part is well known from earlier investigation and unfortunately no concentration besides this mode of occurrence was found in the southern part.

Asbestos was observed at several localities.

1) In the open out east of Adamsfield some cross fibre veins $3/16"$ was observed in a dark green serpentinite.

- 2) Along A-9 between 830 E and 900 E was observed blackish sheared serpentinite with cross fibre thread veins and minor ribbon fibre $< 1/16"$.
- 3) The easternmost exposures of serpentinite along the Gordon Road reveals three separated thin belts. Along the eastern contact of the westernmost belt some gashveins $\leq 3/16"$ of a brittle cross fibre were observed.
- 4) The central serpentinite belt across the Gordon Road is e.460 feet wide. The easternmost 145 feet of this consists of the above described orbicular serpentinite, partly sheared. This rock carried numerous short cross fibre veins as stock work, as nodule shells, and as veins radiating from the centre of some of the nodules. Fibrelogging was carried out along a roadcut and is shown below, logging from west to east.

FIBRE LOG FROM THE GORDON ROAD CUT

Feet	No.	1/32"	1/16"	2/16"	%
0-5	(1)	7	7		1.05
5-10	(2)	11	1		0.15
10-15	(3)	9			0.45
15-20	(4)	14	1		0.80
20-25	(5)	26	16	2	3.40
25-30	(6)	36	9		2.70
30-35	(7)	39	4		2.35
35-40	(8)	35	4		2.15
40-45	(9)	24	3		1.50
45-50	(10)	25	1		1.35
50-55	(11)	17	6		1.45
55-60	(12)	30	10		2.50
60-65	(13)	24	10		2.20
65-70	(14)	8			0.40
70-75	(15)	3			0.15
75-80	(16)				0.00
80-85	(17)	21	4		1.45
85-90	(18)	12			0.60
90-95	(19)	19	8		1.75
95-100	(20)	5			0.25
100-105	(21)	13			0.65
105-110	(22)	13	3		0.95
110-115	(23)	8	3		0.70
115-120	(24)	1			0.05
120-125	(25)	2			0.10
125-130	(26)	9	3		0.75
130-135	(27)	2			0.10
135-140	(28)				0.00
140-145	(29)	4			0.20
	TOTALS	407	93	2	
	1/16s	203.5	93	4	

14. Generally sheared and poorly exposed.
15. " " " " "
16. " " " " "
18. Generally poorly exposed.
20. Generally sheared.
21. " "
24. " "
25. Generally sheared and poorly exposed.
26. " " " " "
27. Sheared.
28. Strongly sheared.
29. " "

Slip fibre is ubiquitous throughout this section.

The eastern sheared part of this belt also reveals slipfibre, and one relict boulder (c.10" across) of the orbicular serpentinite with cross fibre was observed within the sheared part. It is therefore believed that both the formation of the orbicular texture and the emplacement of the cross fibre took place before the shearing. A similar orbicular serpentinite with the same occurrence of asbestos was also found along B-1, 200W - 400".

- 5) Along the B-Area baseline the following observations were made:
- 300S-400S A few cr.f. veins 1/32" - 1/16" in banded serp./pyrex.
 - 400S-500S Cr.f. thread veins.
 - 700S-800S A few stock work veins 1/32"
 - 900S Boulder of less distinct orbicular serp. with a few gashv.
 - 1600S-1700S Less distinct orbicular serp. with cr.f. thread vein.
 - 2300S-2400S Light green serp. with a few cr.f. veins 1/32" - 1/16".

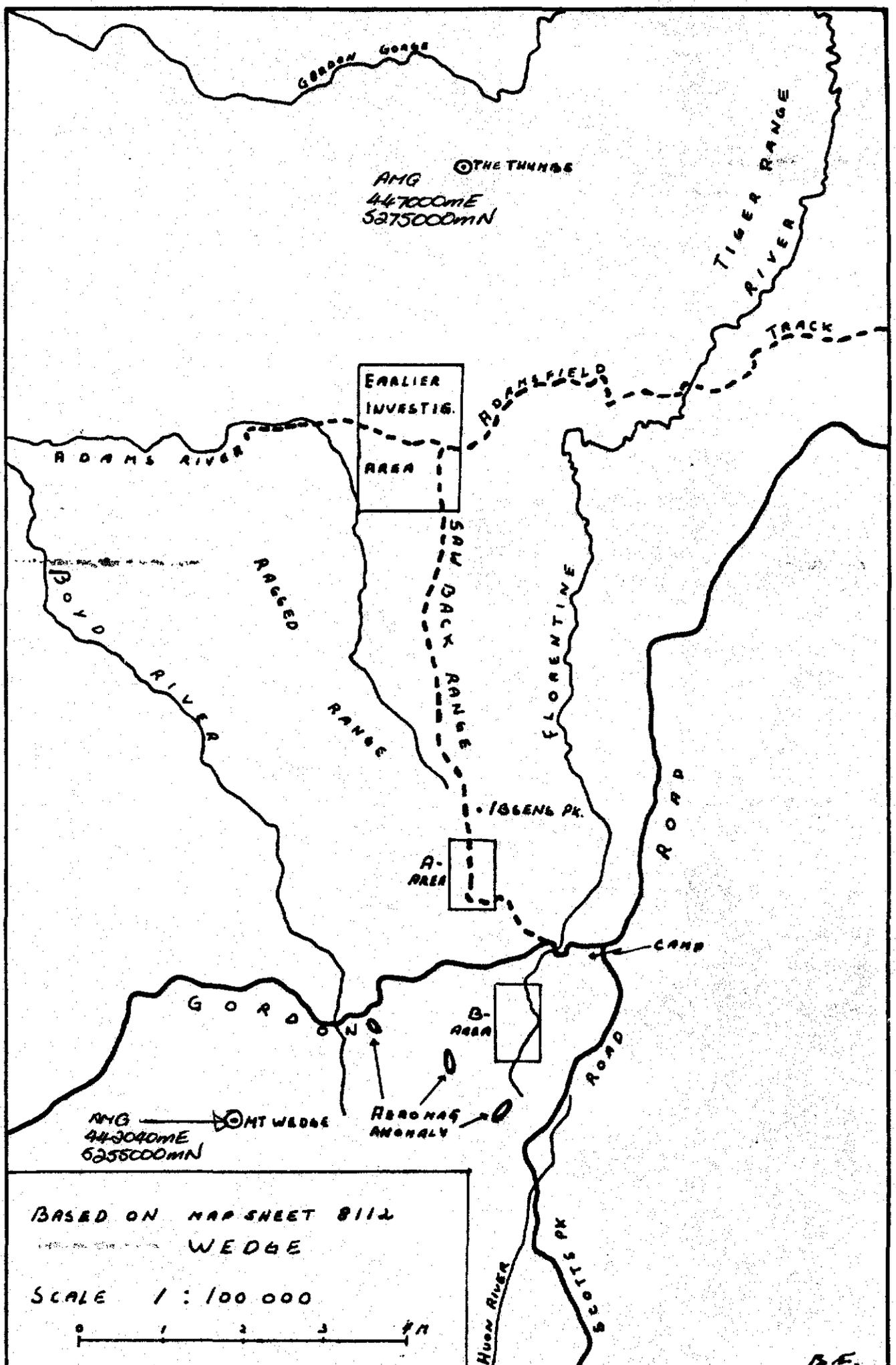
CONCLUSION

Only a limited area of the southern part of the ultrabasic rocks has this far been outlined. There is a good agreement between the wide belt of serpentine recorded within the B-Area and the aeromag anomaly. This anomaly extends towards south southwest and show a new peak value c. 1 mile from the central part of the B-Area. Two other significant anomalies occur around 1 and 2 miles from the B-Area in a westerly direction, they are all indicated on fig. 1.

Whatever the assay results from the current sampling will show the recorded asbestos should warrant a further exploration program. It is believed necessary to learn both the full extension and the habitat of the serpentinites within this area.

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BASED ON MAP SHEET 8112
WEDGE

SCALE 1 : 100 000

0 1 2 3 4 km

Centre
HOBART

Date
MAY 71

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ADAMSFIELD
1971 FIELD SEASON

B.F.

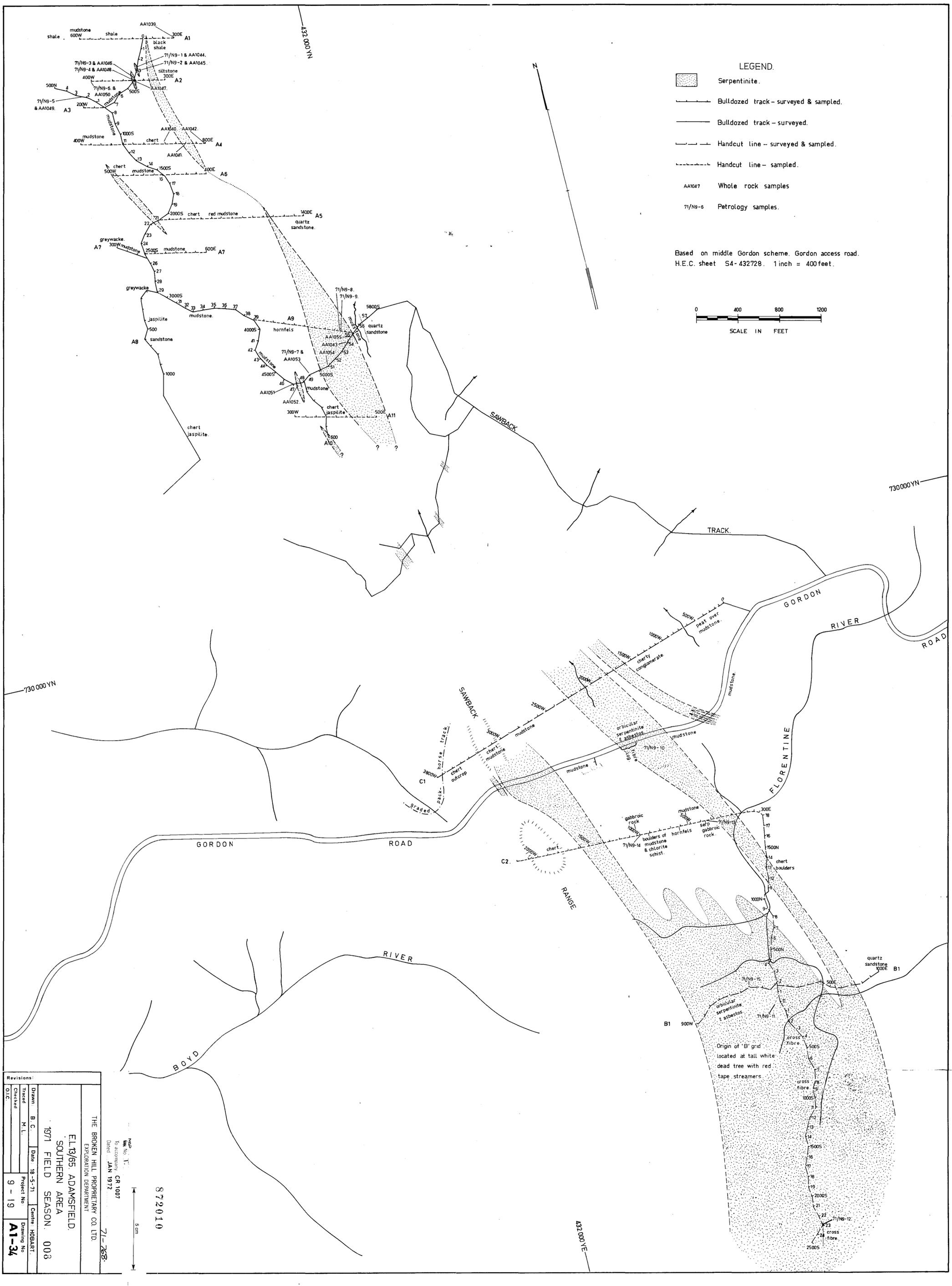
Project No.
71/12

Drawing No.
AA

FIG. 1.

AMG REFERENCE POINTS ADDED

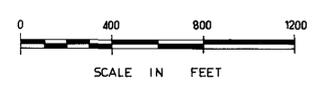
5 cm



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.



Revisions:	
Drawn: B. C.	Date: 18-5-71
Traced: M. L.	Project No: 9-19
Checked: O.L.C.	Drawing No: A1-24
THE BROKEN HILL PROPRIETARY CO. LTD. EXPLORATION DEPARTMENT E.L. 13/65, ADAMSFIELD SOUTHERN AREA 1971 FIELD SEASON. 003	
872010 5 cm	
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