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APPENDIX ONE

SITE REPORTS

THE CRAZYMAN SHELTER

KAWAMBARAI CAVE

CAMP PINCHAM

UKERBARLEY HAYSHED SITE

JACK HALLS CREEK CAMP SITE

THE CRAZYMAN SHELTER AND KAWAMBARAI CAVE

SITE REPORTS

W. BECK

1996

APPENDIX ONE

KACA & CMS: Introduction (W. Beck, I. Davidson, P. Gaynor, D. Murphy)

The sites are situated on the eastern slopes of the Warrumbungle Mountains, in ridges of Piliga sandstone which rise from the valleys cut by creeks draining into the Castlereagh river. The sandstone matrix is medium-coarse, cross-bedded quartz sandstone with lenses of pebble-cobble conglomerate (primarily of quartz). The ridges are capped by fertile basalt soils derived from volcanic eruptions 13-17 mya. A basis for the regional prehistory had been laid down by Balme(1986), in a report on the cultural resources of the North Central Rivers area for the NSW National Parks and Wildlife Service. A range of surface site types had been recorded for the slopes surrounding the Warrumbungles: open campsites (with predominantly quartz artefacts), rockshelters with surface artefacts, axe-grinding grooves, art sites, burials, scarred and carved trees, a stone arrangement and a bora ring. The areas of high relief however, contained only artefact scatters and axe grinding grooves. Prior to 1986, no archaeological excavations had been carried within the Warrumbungles region. Previous excavations on the Liverpool Plains approx. 60k to the east had been carried out by Richard Wright and showed the presence of extinct megafauna and stone artefacts in the Pleistocene (Gorecki et al.1984). Later excavations at Ulungra Springs, about 50k south west of KACA and CMS have yielded palaeovegetation reconstructions (Dodson and Wright 1989) as well as stone artefacts.

The natural vegetation adjacent to the rockshelters is predominantly shrub woodland, with Eucalyptus species, Angophora floribunda and Callitris species as the dominant trees, with dense and diverse shrub and ground layer species. Vegetation varies with differences in parent rock, soil type, topography, and ground water. On permanent waterholes on creeks River Oak(Casuarina cunninghamiana), grows, and this species occurs on Jack Hall's Creek adjacent to KACA. On more ephemeral water courses, Angophora and Eucalyptus blakelyi grow, and these species occur on the watercourse adjacent to CMS, as well as on Jack Hall's Creek near KACA. On the steep slopes and ridges where the rockshelters are located, a variety of tree species occur, including White Gum(E. rossii), Stringybark (E. sparsifolia,) Dwyer's Mallee Gum(E. dwyeri) and Black Cypress Pine (Callitris endlicheri). However, the trees on the gradual slope in front of CMS have been cleared for pasture in the past hundred years, and instability of the mobile sandy soil makes it difficult to assess what the past vegetation and valley structure adjacent to CMS was like in prehistoric times. The cliff and ridgetop vegetation adjacent to CMS has not been cleared, and contains many of the same tree species as at KACA, as well as heath shrub species similar to KACA, particularly cycads, epacrids, geebungs, wattles, and peas, and fruits of several of these species are food sources, eg. Macrozamia, Melichrus, Styphelia, and Persoonia. Two species grow near CMS that are not found near KACA, Rusty Fig(Ficus rubiginosa) (also with edible fruit), and Small-leaved Tea-tree (Leptospermum sp. aff. brevipes). Ground species are relatively rare adjacent to KACA, and include the Flax Lily (Dianella revoluta) Rock Ferns (Cheilanthes spp)., and some grasses, such as Danthonia, Microlaena, and Panicum. Many ground layer species grow adjacent to CMS, including several grass species, both native, eg. Aristida, Bothriochloa, Cymbopogon, Danthonia, Imperata, Microlaena, and Themeda, and introduced, eg. *Briza, *Cenchrus, and *Hordeum. A variety of herbs, ferns and monocot species also grow in the cleared pasture, ground orchids are common, and many have edible tubers, eg. Diuris.

Archaeological research in the Warrumbungles region aims to understand the prehistoric land use practices in the area by excavating and mapping the locations of archaeological sites of all types, in relation to reconstructions of prehistoric resource distribution.

Kawambarai Cave was first visited by archaeologists in 1986 who recognised that this site had potential for the good preservation of organic remains (Balme 1986). Several pieces of knotted

cordage and fibre were found on the surface in the spoil from fossickers holes, together with large amounts of Macrozamia seed remains, and charcoal. During our first season of excavation at Kawambarai (KACA) in 1987 a larger shelter, Crazyman Shelter, (CMS) was discovered about 3km south of the Kawambarai Cave which also contained a high proportion of organic remains and charcoal

These two sites were excavated as part of an ongoing regional archaeological project and the initial aims of these excavations were to provide a chronological framework for understanding past Aboriginal settlement in the area and for the utilisation of organic materials.

CMS STRATIGRAPHY

Crazy Man Shelter was excavated because the surface of the site contained organic-rich deposit, charcoal and artefacts. The relatively large size of the shelter and the location of the site at the base of a scarp suggested that deep deposits could be present, which would allow a long time-depth to be investigated. In 1986, no Pleistocene rockshelter sites were known from the Western Slopes of NSW. This site also provides useful comparative evidence for the Kawambarai Cave site which is 2k to the south, and is in a slightly different environmental context.

Environmental context

Crazyman Shelter is located on the western side of a small sandstone outlier, in the valley of Deringulla Creek and its tributaries, to the east of the Warrumbungle mountains. Erosion of the edges of the scarp is primarily by collapse of sandstone blocks which has resulted in the formation of a long overhang which extends for more than 60 metres along the entire western side of the outlier. Collapsed blocks can be seen along the edges of the shelter. Weathering has formed sand which is then moved by colluvial processes from the top of outlier to form a low angle colluvial ramp between the base of the rockshelter and Deringulla Creek [also known as Spring Creek] 80 metres away (Dean-Jones, 1988). The outlier is surrounded by low angle colluvial ramps and alluvial deposits associated with the Deringulla Creek and its tributaries. Geomorphological investigations of the deposits suggested the following hypothesis (Dean-Jones 1988): " At the beginning of occupation of the rock shelter, a colluvial foot slope extended from the roof fall debris mound at the mouth of the shelter, to an intermittent drainage, approximately 80m away, which was not incised. There may have been a series of shallow muddy pools. The condition of the main valley drainage at this time is not known. Alluvial deposition continued throughout at the early part of the occupation. Colluvial transport on the upper footslope may have increased during the period of occupation, but the pebbly red sand had not reached the lower footslope. At some time since the rock shelter was first occupied, the morphology of the tributary drainage line has changed enormously with incision of a gully some 5 metres deep and 10m wide.....The amount of charcoal in the lower footslope soil profiles, which is attributed to European land clearance practices, suggests that activity may have triggered off the drainage line."

Description of the site

The CMS site is a very large rockshelter at the base of a sandstone cliff, measuring about 60m in length and about 8m at its widest. The shelter is 6m high at the dripline. One or two painted hand stencils also occur along this cliffline. The shelter faces south west . The blackish sandy surface deposits contain stone artefacts, as well as signs of European occupation in the form of posts, and metal artefacts.

Discovery and previous work

The environmental history of the region has been outlined in Dodson and Wright (1989) for the period 30,000 BP to the beginning of the Holocene (after 10,500BP) based on pollen and geomorphological evidence from spring fed deposits at Ulungra Springs (Figure 1). The record shows that during the height of the glacia period (22,000-10,0000BP) tree pollen is replaced by daisies (Liguliflorae, Tubuliflorae), saltbushes (Chenopodiaceae) and probably grasses (Poaceae).

No similar pollen assemblage is known for Australia, and it is interesting that the only native Liguliflorae are also Aboriginal food plants (Microseris scapigera and Sonchus megalocarpus) so that the site may have been important to people at that time as a source of food and water, since the spring continued to be active during the arid phase. Such a treeless shrub steppe is interpreted as an eastward late Pleistocene expansion of the arid zone (Dodson and Wright 1989: 190) with dryness (ie. rainfall at about 300mm/yr)(Dodson and Wright 1989: 190) rather than cold being important climatic factors at this latitude and altitude. This period corresponds with the earliest occupation of the CMS shelter at around 17, 000BP.

Excavations 1988-1989

Excavations were conducted at this rock shelter in July 1988 and in June-July 1989 with students from UNE, directed by Wendy Beck and Iain Davidson. The sites were excavated using the methods described in Johnson and Jones (1985), mainly with arbitrary spits of equal volume (1 spit = 40 litres/sq.m) using sieves of 5mm, 1.6mm mesh size and sampling the smaller sieve fraction. Flotation, by immersing the 1.6mm sieve in still water and removing the fractions by hand was carried out for samples of the deposits. The main aim of these excavations was to reach the baserock in order to determine the antiquity of occupation. An initial test pit was dug at the rear of the shelter and then other squares were excavated in order to sample the deposits in the centre of the cave and outside the dripline (see plan). The largest excavation was completed in square N41 and in the adjacent square M41 a,b (see plan). Excavations have revealed the presence of animal bones, emu egg shell, plant seeds and plant fibres. Liasion continued with local interested Aboriginal people: Marie Dundas, May Mead, Janet Oliver, and Maureen Saulter.

Natural stratigraphy

Sections of the excavations are shown in Figure 2. The deposits consisted of sandy layers, with many ashy inclusions, charcoal filled pits with some layers featuring well-preserved plant material. Layers which could be discerned by eye were drawn in the section, and these were grouped together to form units which are differentiated on the basis of Munsell colour, pH and inclusions. Eight layers could be discerned and the stratigraphic units are listed in Table 2.: (1) The treadage layer consisting of grey-brown sandy sediments containing little charcoal; (2) Greyish sandy sediments containing charcoal lenses and the large pit seen in the south section, it also includes the Macrozamia and Dianella features; (3) Blackish sediments with ash lenses and large lumps of charcoal and the rabbit (?) burrow isolated in Spit 15 (4) Very dark brown sandy sediments containing ashy lenses. (5) A brownish grey sandy layer which contains small amounts of charcoal and small pebbles. The lowest remains of Macrozamia occur in this unit at Spit H. (6) A red-brown unit with scattered charcoal. This layer and the lower ones were damp when excavated. (7) A black-brown layer with charcoal and roof fall (8) A red sandy layer with little charcoal and large pieces of roof fall, overlying bedrock. The base of this layer is Spit T.

Layer N41	Spits	pH	Munsell Colour	Colour Description	Rockfall	Organics	Distinct Charcoal ash lenses
CMS 1	1-4	6.5-7	10YR3/2-10YR4/1	grey-brown - grey	√	√	-
2	5-14	6-9	5YR2.5/1-10YR6/2	black - light brown-grey	-	√	√
3	15-19	5.5-6	5YR2.5/1-10YR4/2	black & dark brown	√ at 18	√	√
4	20-24	5.5-8.5	10YR2/2	very dark brown	√	√	√
5	A-H	5-7	10YR3/2-10YR2/1	dark grey-brown & black	√	√	√
6	I-J	5-6	10YR2/1	Black	√	√	√
7	K-P	5-5.5	5YR2.5/2-10YR3/2	Dark reddish brown & grey brown	√	till L	√(?)
8	Q-T	5-5.5	2.5YR2.5/2-10YR3/2	dark reddish brown	√	-	-

Histograms (see figure) showing weights of the different sieve fractions from the excavation in N41 show that the majority of the deposit consists of sand, with small proportions (less than 20%) of the deposits consisting of larger sieve fractions. There is very little change through time, with the deposits being of a consistent character throughout. The origin of the deposits is most likely to be the weathering of the rockshelter sandstone.

Dating

Eight radiocarbon dates are available from square N41 in the centre of the shelter, midway between the rear wall and the dripline. All dates were taken on wood charcoal. The dates have been calibrated to calendar years.

1500± 60BP (Beta 77501) for spit 2. Depth 3cm below the surface. Calibrated date 1330BP. 2 sigma Range 1485-1470 and 1430-1275BP.

1730±60BP (Beta 28452) for spit 5. Depth 6-8cm below the surface. Calibrated dates 1682, 1676, 1616BP. 2 sigma range 1805-1516BP. This dates the the top of the greyish sandy sediments containing charcoal lenses and the large pit seen in the south section, it also includes the Macrozamia and Dianella features.

4490±60BP (Beta 28453) for spit 13. Depth 50-53 cm below the surface. Calibrated dates 5235BP and 5195BP and 5055BP. 2 sigma range 5310-4875BP.

4990±70BP (Beta 33075) for spit H. Depth 85-89cm below the surface. Calibrated date 5725BP. 2 sigma range 5910BP-5600BP. This dates the lowest remains of *Macrozamia*, which occur in this spit.

5450±70BP (Beta 41164) for spit L. Depth 96cm below the surface. Calibrated date 6280BP. 2 sigma range 6395BP-6090BP.

6560±60BP (Beta 48098) for spit Q. Depth 119-123cm below the surface. Calibrated date 7400BP. 2 sigma range 7530-7295BP. The date of 6560 in Spit Q at CMS lies only about 100mm above the basal date , which suggests either that the average rate of deposition was extremely slow between 20000 and 7400 due to lack of occupation, or that some of the oldest deposits have been eroded away, which is unlikely in this form of shelter.

10, 610±BP (Beta 77502) for spit S. Depth 126-132 below the surface. Calibrated date 11,600BP. 2 sigma range 12620BP-12450BP.

17,140±140BP (Beta 33076) for spit T. Depth 134-136cm below the surface. Calibrated date 20311BP. 2 sigma range 20869-19783BP. This dates the basal layer which lies directly on the bedrock.

Discussion of the cultural remains

Detailed analyses of the organic finds have not been completed, but there are two interesting observations: the presence of toxic Macrozamia seeds at 4990bp (uncalib) making these the earliest occurrence of these seeds in archaeological sites in Eastern Australia (Table 2), and a marked change in stone tool density and raw material frequency after 4450bp with fine-grained material decreasing in frequency (Table 3). A ground bone point (Macropus fibula)was recovered from Mb41 at about 40cm below the surface. Several postgraduate students from the Archaeology and Palaeoanthropology Department have worked on material from the site: Cheryl Cooper has completed an M.Litt thesis on the faunal remains (Cooper 1989) and she has identified approximately 20 mammal species present, together with bird, fish and shellfish remains

KAWAMBARAI CAVE

Description of the site and environs

The Kawambarai Cave (KACA) site is a small rockshelter about 12m long and 6m wide, situated in a sandstone cliff about 20m above Jack Hall's Creek, and it faces in an easterly direction. It is approximately 2km north of Crazyman shelter.

Excavations

The total area excavated was 14 squares, each 0.5 x0.5m (see plan). The squares form two transects which extend over the dripline. The excavations were undertaken in 1987 during 3 short seasons, by UNE students and directed by Wendy Beck and Iain Davidson. The KACA excavation followed the same excavation procedures as those used at Crazyman shelter.

Natural stratigraphy

The stratigraphic layers were divided into four units (see table below, and section drawing): (1) The treadage unit is a dark greyish sandy sediment containing small amounts of scattered charcoal and rock-fall. The base of this unit (H31, Spit 3) is dated to 630BP. (2) This unit is greyish-brown sand with charcoal concentrations, ash lenses but no roof-fall (3) Greyish brown sand with charcoal concentrations but also contains roof-fall (4) Yellowish brown sand with roots, pebbles and little charcoal. The base of this unit (Spit 14)lies immediately over bedrock and is dated at 1980BP and the depth is 410mm below the surface.

Layer KACA H31	Spits	pH	Munsell Colour	Colour Description	Rockfall	Organics	Distinct Charcoal ash lenses
1	1-3	3.5-4	10YR4/2	dark grey-brown	√	√	-
2	4-7	4-6	10YR3/2-10YR4/2	dark grey-brown	√	√	√
3	8-11	5.5-7	10YR3/1-4/2	black & dark grey brown	-	√	√
4	12-14	5.5	10YR3/2-4/2	dark grey-brown	√	√	-

Dates

Two radiocarbon dates are available from square H31. All dates were taken on wood charcoal.

630±100 (SUA 2681). This was collected from spit 3, 40-50mm below the surface. Calibrated age 600BP. 2 sigma range 725-501BP.

1980±140 (SUA 2682). This was collected from spit 14, 410mm below the surface. Calibrated age 1940BP. 2 sigma range 2319-1568BP.

Discussion of cultural material

The dry and protected nature of the site deposits has resulted in high densities of organic material. In KACA for example, these range from 85g of plant material and 5 gm of bone per kg of excavated sediment (H30, spit 5) to 13 g of plant and 2 g of bone (H30, Spit1). A slightly smaller range of mammals is found at KACA than at Crazyman shelter.

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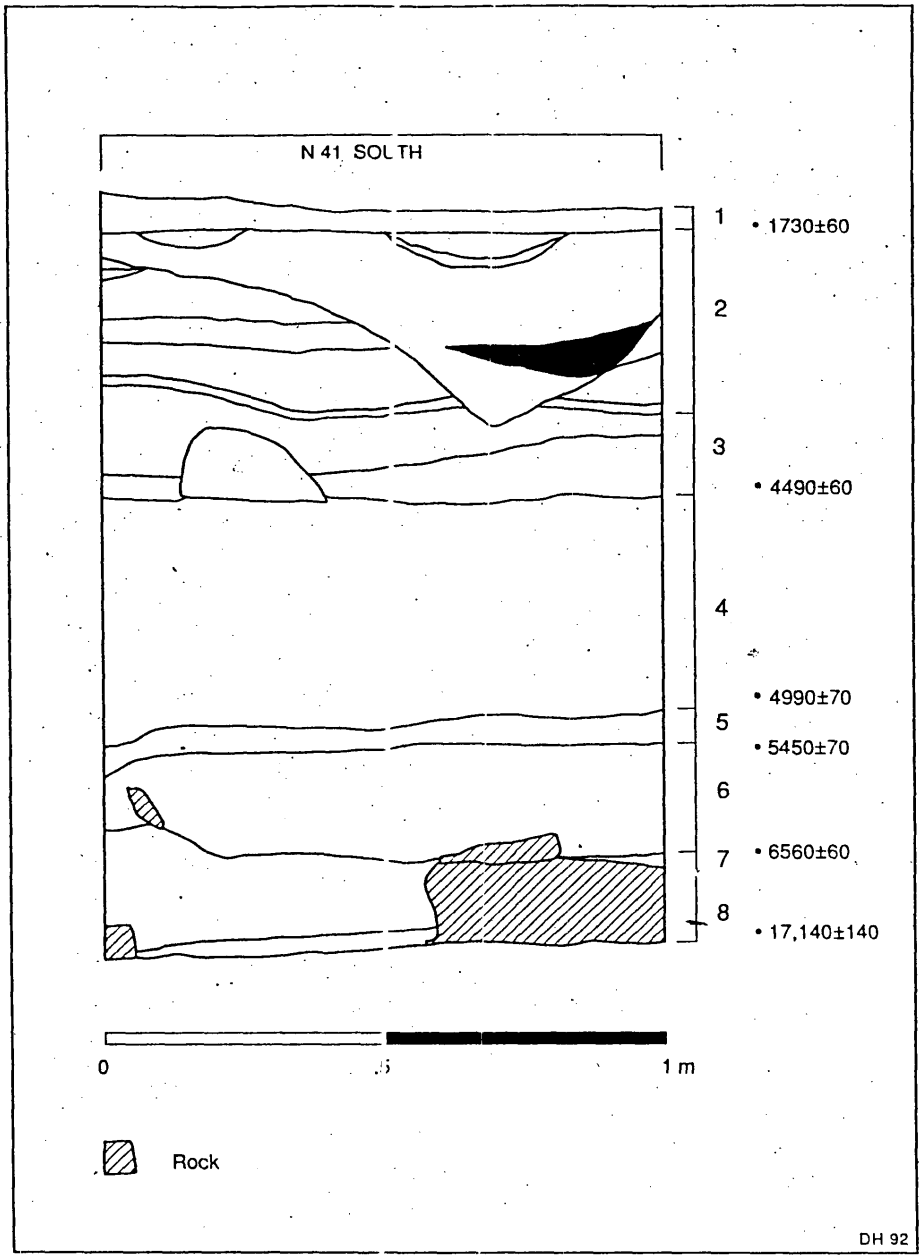
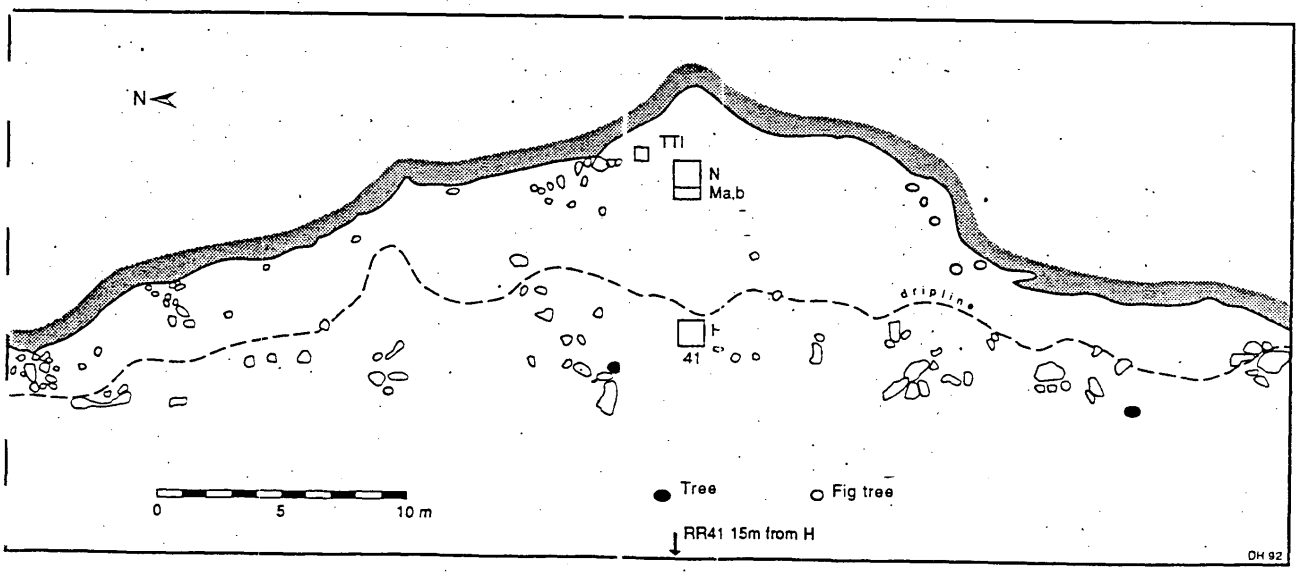
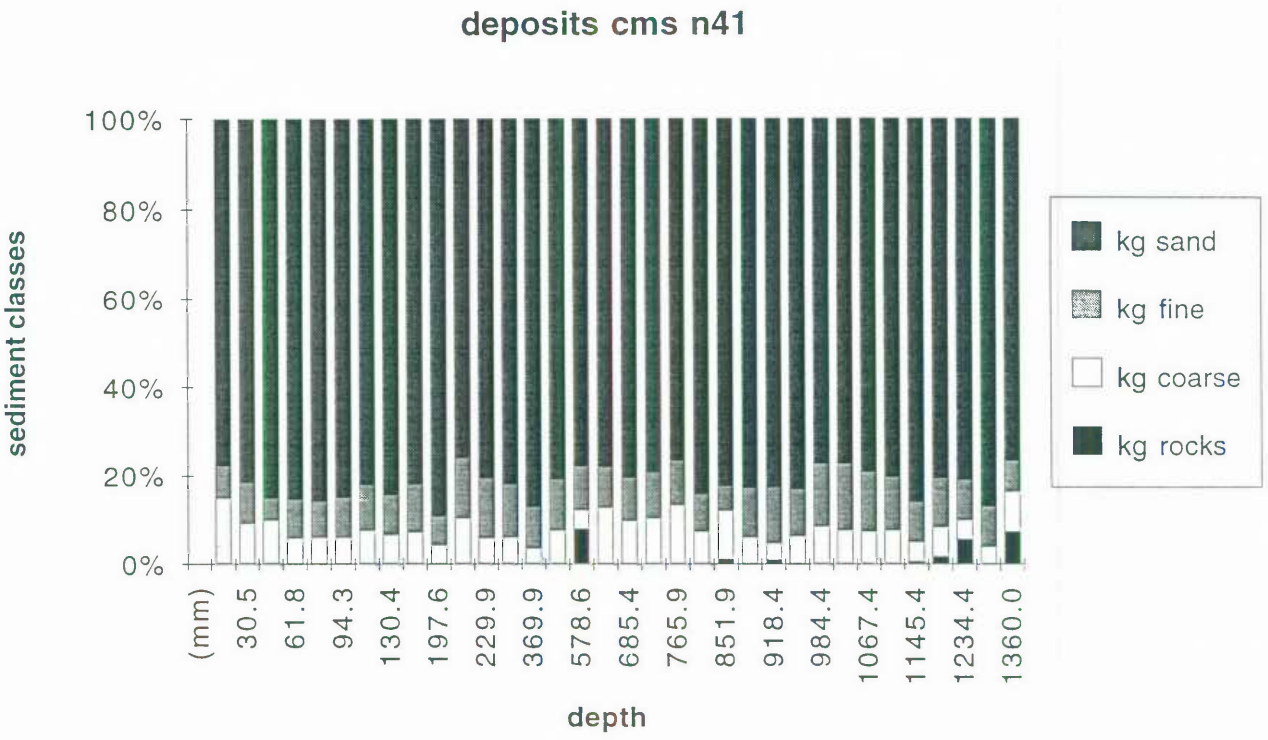


SECTION : CRAZYMAN SHELTER

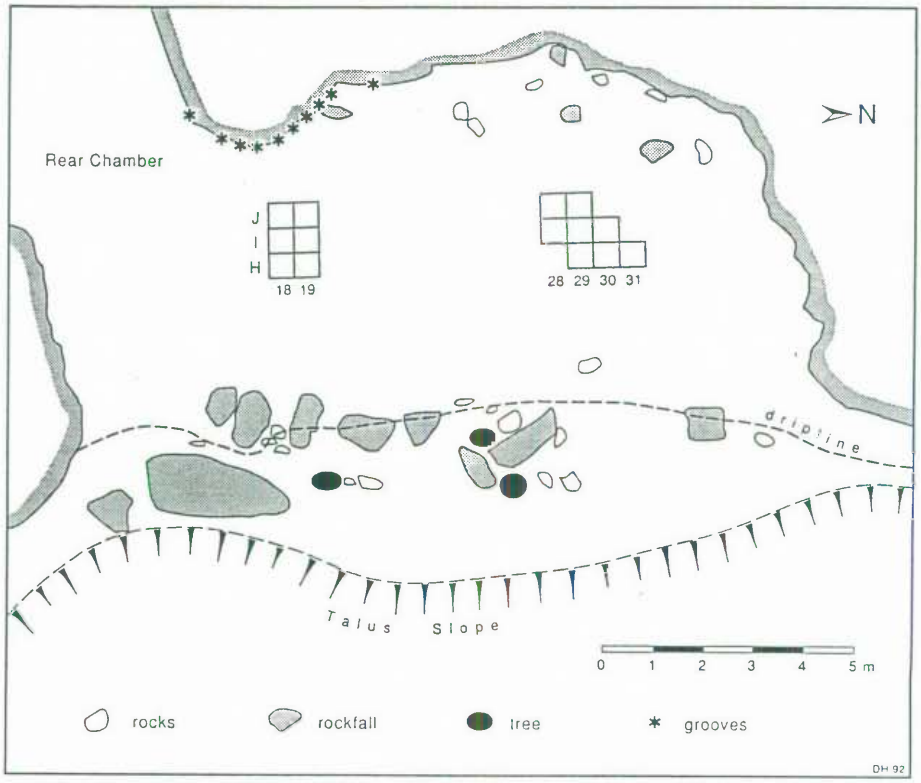


PLAN : CRAZYMAN SHELTER

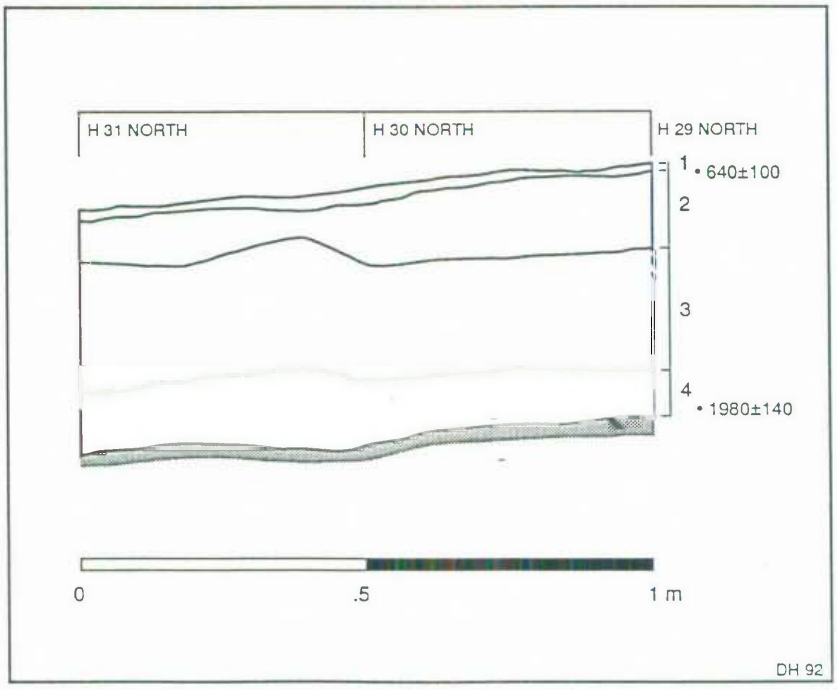


CMS: HISTOGRAMS SHOWING CHANGES IN SEDIMENT COMPOSITION WITH DEPTH BELOW SURFACE.

B/Kawambarai Site Plan



PLAN : KAWAMBARAI CAVE



SECTION : KAWAMBARAI CAVE

CAMP PINCHAM

SITE REPORT

K.GEERING

1989

DRAFT ONLY

PRELIMINARY SALVAGE REPORT

PINCHAM CARPARK ABORIGINAL CAMPSITE
NPWS SITE NO: 29-1-19

WARRUMBUNGLE NATIONAL PARK

Introduction

The area at the start of the walking tracks in the Warrumbungle National Park has been used for many years as a parking area. The use of the area has resulted in bad erosion and the death of many trees. The National Parks and Wildlife Service decided to tar the area to stop the carpark getting bigger, and to stop erosion and damage to vegetation. When the area was inspected it was found that the place where visitors are parking their cars is on part of an Aboriginal campsite.

Stone artefacts were clearly visible at Camp Pincham carpark on the exposed and eroded ground surfaces, however, inspection of surrounding more stable ground surfaces revealed some artefacts in areas of maximum ground surface visibility. It is likely the campsite is quite extensive and may extend a considerable distance along both creek banks, hence relocation of the car park was considered more than likely to disturb previously undisturbed parts of the site. The carpark area appeared to be completely disturbed and eroded and the artefacts did not appear to retain their original spatial and stratigraphic integrity (Witter 1987, unpublished internal report).

The exposed artefacts at Camp Pincham carpark appeared to include an unusually high number of artefacts with a particularly broad range of raw materials and some notably large sized artefacts when compared to the other stone artefact scatters recorded within Warrumbungle National Park (Witter 1987).

The development by the District of the car park will stabilise the eroding area and prevent continued disturbance to the remaining intact part of the site.

Aims of salvage

As no open sites has previously been analysed in detail from the Coonabarabran area it was considered important to undertake detailed stone tool analysis from the area to be impacted. Consequently portions of the site to be impacted by the development were salvaged. The aims of the salvage operation were to:

1. recover a representative sample of artefacts from the upper and lower slope of the site.

2. collect all the retouched pieces (cores, modified or utilised flakes etc) from the carpark.

3. collect all other visible artefacts so that they can be replaced uphill once the carpark is completed (as requested by the Coonabarabran LALC).

Field Methods

Two samples were chosen for detailed collection; one from the upper slopes and one from the lower slopes (see Map 1). As the artefacts had been exposed by erosion and there had been considerable down slope movement of topsoil these two locations were picked in case there had been differential displacement of the artefacts by erosion. The sample units were 10m x 10m square (Unit 1) and 10m x 8m square.

Surface artefacts were also collected from the remainder of the area to be impacted by the development at the request of the local Aboriginal community.

Despite the erosion of the site it was still possible undisturbed in situ material remained, or that erosion had differentially buried stone artefacts. Consequently a sample of Unit 1 was excavated to test for subsurface deposits. Due to a combination of soil compaction resulting from vehicles using the area and erosion, arbitrary spits were excavated by pick and shovel. As the soil was damp dry sieving was not successful and the fire tanker hose was used to separate the soil from any rocks or stone artefacts.

Large amounts of non-artefactual stone was present hence preliminary sorting was carried out in the field. After drying artefactual stone sorted out from non-artefactual and retained for later analysis.

For both sample units a surface collection was made of all visible artefacts. then surface swept

The number of spits excavated was determined by a combination of the presence of artefacts in the previous excavated spit, and time constraints. Had time permitted a larger area would have been excavated, and the excavation would have continued to a greater depth. NPWS was commencing bulldozing on the following day and it was not possible to postpone the bulldozer any longer.

Charcoal found in _____ & _____ but appeared to be burnt roots so was not retained. No cultural features such as hearths, and no culturally derived organic material was found.

No recent European rubbish was found in the last 3 spits and there were also discernible concentrations of similar materials suggesting that the artefacts recovered from these spits may not have undergone substantial disturbance from use of the area as a carpark.

Salvage supervised by Katrina Geering

2 volunteers assisted for entire time; Pat Gaynor, Warwick Pearson

A number of NPWS District Staff assisted for varying lengths of time;- Merv Starr (3 days), Cath Ireland (2 days), Con Hennessy (1 day), Steve Mossfield (1/2 day)

Janet Oliver, Coonabarabran Local Aboriginal Land Council, visited the salvage operation on first day to have a look at what we were doing.

The area was bulldozed the day after completion of the salvage hence prohibiting further work or cross-checking of results obtained. The carpark was inspected after bulldozing but the fine clay soils ....

Time prohibited any excavation in Sample Unit 2. As this unit was possibly less eroded than sample unit 1 results from analysis may have been interesting and may have added to our knowledge of the site.

A. Sample Unit 1

10m x 10m square

1. surface collection over entire square

2. sweep up all loose dirt and rocks from entire square and sieve through a 2mm sieve. Sort out and collect all artefacts.

3. 5 cm spit excavated from two strips within Unit 1 (see attached map) * *POSSIBLY LABELLED AS 3A AND 3B* *

wash with fire hose on cloth; manually sort artefacts from dense background matter of gravel; not possible to sieve due to clayey soil and 1.5 inches of rainfall day before excavation commenced

3a - lots of quartz coming from bottom of rocky gravel; possibly artefacts washed downslope and trapped behind rocky quartz bucked block.

4. 5cm spit

5. 5cm spit

6. 15cm spit

Note: not reach bedrock but abandon excavation due to lack of time.

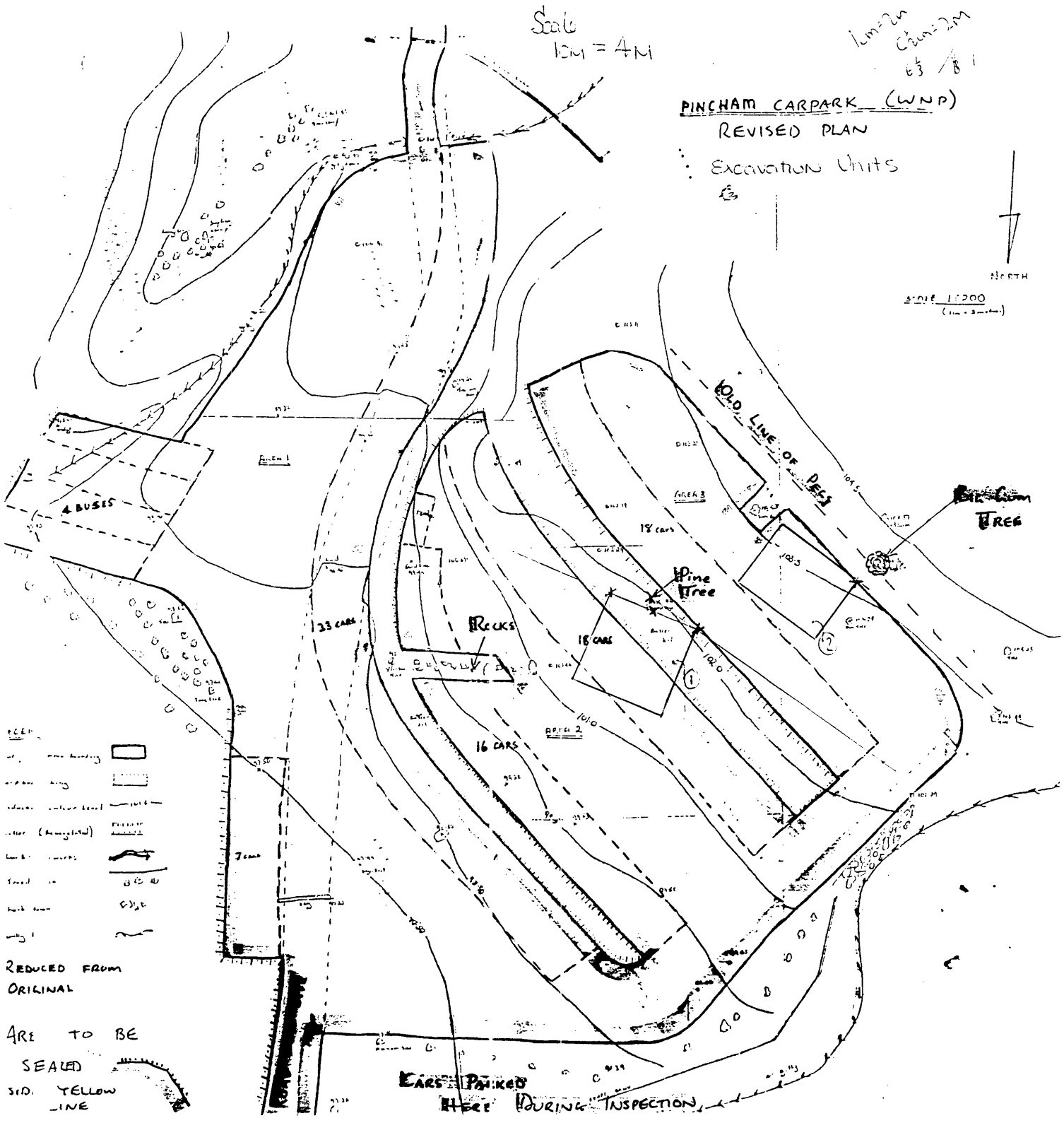
Note: excavation undertaken using mattock and spades due to compacted nature of soil; large rocks present in soil; and disturbed nature of deposit.

B. Sample Unit 2

10m x 8m

surface collection only, ' swept and sieved

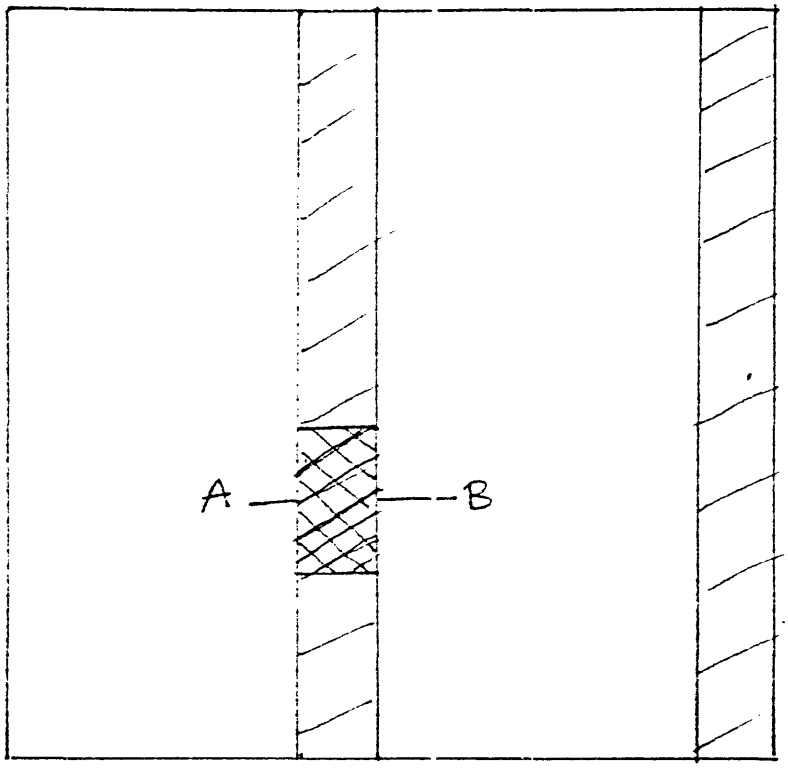
C. surface collection over entire area of site to be impacted by development


Scale
1CM = 4M
1cm=2m
Cm=2m
PINCHAM CARPARK (LWNP)
REVISED PLAN
Excavation Units
NORTH
SCALE 1:200
4 BUSES
AREA 1
AREA 3
18 cars
33 CARS
18 CARS
16 CARS
AREA 2
7 cars
ROCKS
Pine Tree
Pine Tree
SOLID LINE OF PEGS
REDUCED FROM ORIGINAL
ARE TO BE SEALED
SID. YELLOW LINE
CARS PARKED HERE DURING INSPECTION

PINCHAM CARPARK SALVAGE.

SAMPLE UNIT 1

MID / LOWER SLOPES.



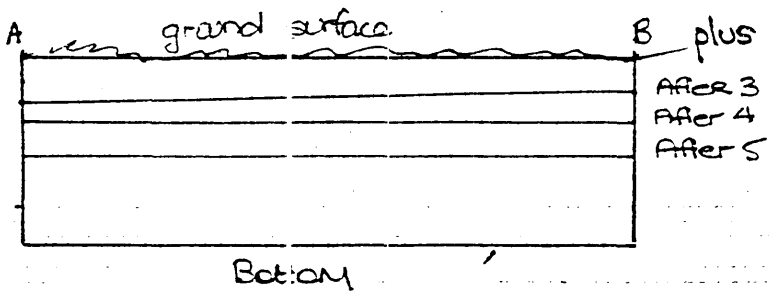
480
255
225CM

= 2¼ x 1 Metre

① & ② - whole square

③ - ///

④, ⑤ & ⑥ - XXX 2¼M x 1Metre



28 2.25
25|10
.4x76
25cm

SAMPLE UNIT 1
PINCHAM CARPARK

MN

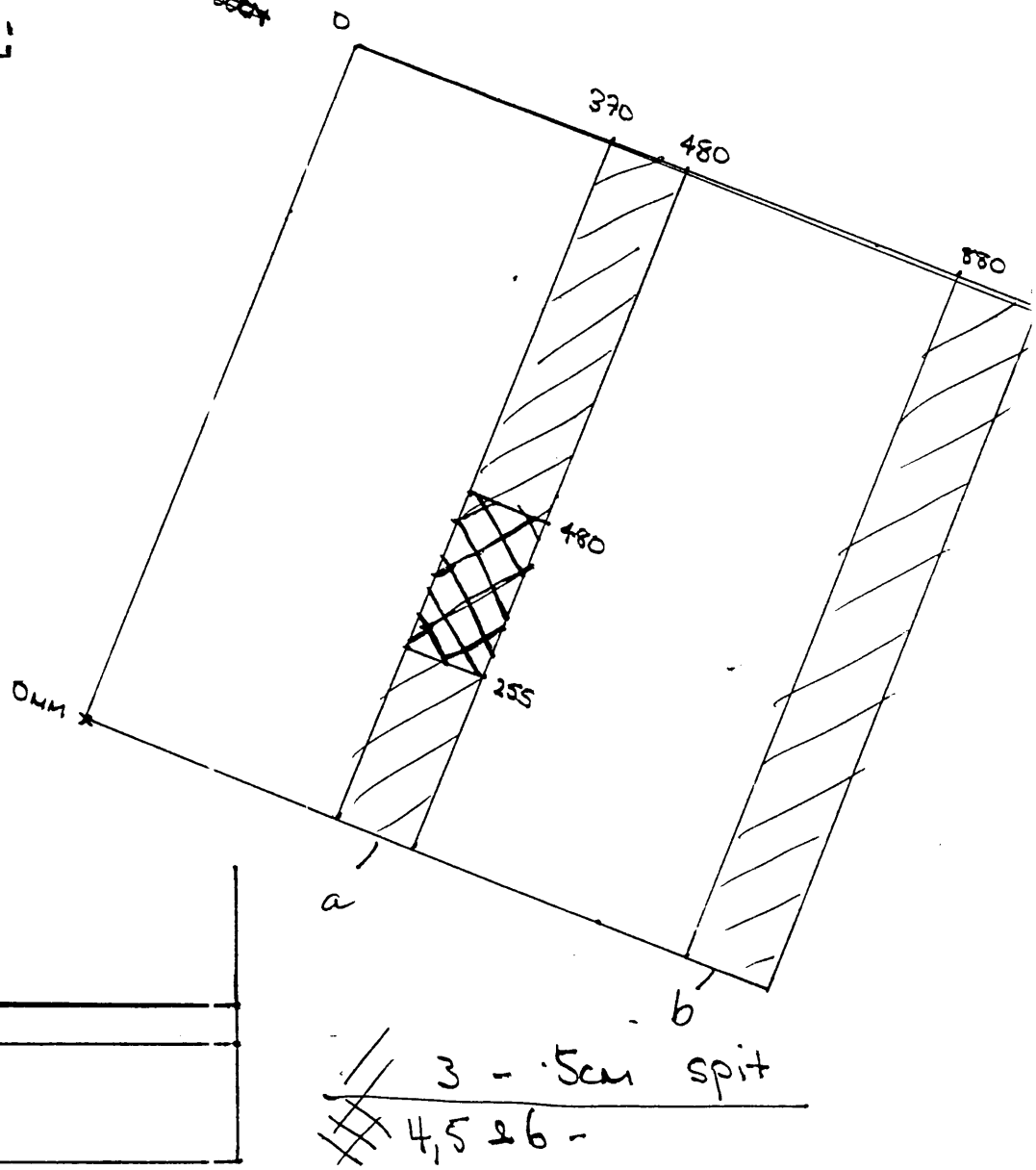
22°

10m x 10m Square

SCALE:

0 1
M

10:10cm



3 - 5cm spit

4,5 26 -

UKERBARLEY HAYSHED SITE

EXCAVATION REPORT

P.GAYNOR

1991

EXCAVATION AT THE UKERBARLEY HAYSHED SITE NEAR COONABARABRAN IN NORTH WESTERN NSW

(PART OF THE WARRUMBUNGLE REGION ARCHAEOLOGICAL PROJECT
UNDER THE DIRECTION OF DR. WENDY BECK
DEPARTMENT OF ARCHAEOLOGY AND PALAEOANTHROPOLOGY
UNIVERSITY OF NEW ENGLAND ARMIDALE)

INTERIM REPORT TO THE

NATIONAL PARKS AND WILDLIFE SERVICE

COONABARABRAN

NSW

BY

PATRICK GAYNOR
29 HENRY ST
GUNNEDAH NSW 2380

SEPTEMBER 1991

CONTENTS

UKERBARLEY HAYSHED SITE

EXCAVATED SEPT-OCT 1990

INTERIM REPORT

INTRODUCTION

The Ukerbarley Hayshed site (designated UKBH for recording purposes) is situated about 18 km north by road from Coonabarabran. It is located on the lower northern slope of a low hill jutting onto a small floodplain adjacent to both the Ukerbarley and the Ukerbarley Swamp Creeks. Some of this floodplain is inclined to be damp and swampy and according to the present property owners Milton and Jayne Judd, the Ukerbarley Creek has not stopped running in the last eighty years, suggesting that it was a permanent source of water in the past. The surrounding timbered hills feature large sandstone cliffs belonging to the Jurassic Pilliga Sandstone formation. Large stands of Macrozama (mainly the *diplomera* variety) grow in some of the valleys running between the sandstone hills. Various Acacia sp. are also prolific throughout in the area.

BACKGROUND

A small portion of this site was subjected to a detailed investigation in 1986. This detailed survey was one of a number of surveys, conducted over a long weekend, of open sites around Coonabarabran and the Warrumbungle Mountains by staff and students of the Archaeology and Palaeoanthropology, University of New England (Armidale) in conjunction with Dan Witter (an archaeologist at the time attached to the Coonabarabran office of the NPWS). These surveys were a strategy used by Witter to gain more information about the manufacture of stone artefacts by Aboriginal people over time and space in the Coonabarabran - Warrumbungle Mountains area.

The area selected for recording in 1986 at the Ukerbarley hayshed was only a small part of the large site surrounding the hayshed (the original recording sheet states the whole site was 200m X 200m but the 211 recorded artefacts came from an area of only 2 m x 2 m). The survey however revealed a great variety of fine grained raw material but by far the greatest percentage of

the raw material present was quartz.

AIMS OF THE EXCAVATION

Previous archaeological work in the Coonabarabran area in the period 1986 to the end of 1989 (besides the 1985 surveys) comprised the excavation of two shelters (Kawambarai (also known as Kamilaroi) Cave and the nearby Crazyman Shelter) and associated vegetative and geomorphological investigations by staff and students from UNE. In early 1988 a salvage took place of stone artefacts from the Camp Pincham carpark in the Warrumbungle National Park before earthworks were conducted to form a new carpark. This salvage was conducted by Ms Katrina Geering the local archaeologist with the NPWS, together with other NPWS staff and two volunteers from UNE. Work is at present continuing on this material.

Previous analyses of stone artefacts from excavated sites in the Coonabarabran area showed that the percentages of quartz and fine grained material used in the manufacture of stone artefacts varied quite markedly over time in the shelters. On the other hand the open sites surveyed in 1986 seemed to indicate that they (because of their high percentage of quartz which corresponded to the upper levels in the excavated shelters) probably belonged to the period of the last 1000 years. No data was available however concerning the rate of aggradation or degradation of these sites and no controlled excavations of artefacts had taken place.

The Ukerbarley Hayshed site then offered a unique opportunity to attempt to define a sequence of artefacts from an open site and compare it with sequences from the shelters. Further to this, it presented a medium by which it could be possible to test a theory that the presence of the larger percentages of fine grained material (up to 50% in some layers in the two shelters) was only associated with the shelters and/or with some specific periods in the past in the Coonabarabran area or that the corresponding levels relating to these periods in open sites may now be buried. It also offered a chance (however slim

as vegetative material usually decays rapidly in the Pilliga sandstone country) to recover some charcoal for dating purposes as no open sites had been radiocarbon dated in the region.

ABORIGINAL PARTICIPATION AND ONGOING RESEARCH

Aboriginal people from Coonabarabran and from the women's Anthropology class at the Gunnedah TAFE were invited to participate in the excavation and three from Coonabarabran and two from Gunnedah accepted the invitation. All stated that they enjoyed the experience and asked to be kept informed of results arising from the analysis of the excavated material. They also stated that they would like to participate in future excavations or surveys if they occurred.

Margaret Sommerville (Continuing Education UNE) who is at present working on Aboriginal relationship to places in the area with some of the Coonabarabran Aboriginal women, was also present during the September excavation and gathered some data.

Dee Murphy (a Palaeobotinist from UNE) carried out a vegetative survey near the excavated site with Marge Nixon (one of the Coonabarabran Aboriginal women) (see appendix 1).

John Appleton (at the time an archaeological honours student from UNE) supervised the carrying out of a detailed contoured plan of the site using a dumpy level (see appendix 2). Two of the Aboriginal women from Gunnedah took part in this survey and have received copies of the finished plans. John Appleton also conducted a transect from the excavation to the grinding grooves on the opposite hill and then northwards across the valley to the opposite hill (see appendix 3 for results).

The Ukerbarley excavation was part of the ongoing long term Warrumbungle Region Archaeological Project which has been conducted since early 1967 by staff and students of the Dept. of Archaeology and Palaeoanthropology at UNE Armidale under the supervision of Dr. Wendy Beck. Results from Ukerbarley and other sites will help to ascertain variations in Aboriginal use of materials through time and space in the region.

THE EXCAVATIONS (Sept. and Oct 1990)

A series of 14 squares (one metre by one metre) were pegged out in a east - westerly direction almost at right angles to the boundary fence on undisturbed land as close as possible to the eroded area surveyed in 1986 (see sketch p15). A large steel tent peg was driven into the ground at the fence and this was used as a permanent datum level throughout the excavation as no other suitable rock or structure was available nearby. The excavation (which started in late September) began two metres west of the boundary fence. One isolated and two adjoining squares were opened up. These were designated (from the fence end) as C2, F2, and G2.

As many of the volunteers had no or little experience in archaeology, at least one experienced member was allocated to each team. All teams took turns in excavating, recording, and processing the excavated material and also in surveying the land around the site and in recording surface stone artefacts to make a reduction chart.

The excavation methods used at Kamilaroi Cave and the Crazyman shelter were again used here. These followed the Johnson and Jones method where a number (usually 4 in a 1m X 1m excavation) of 9 litre plastic buckets of spoil were designated as a unit except where there was a distinct soil division the unit was terminated at the division regardless of the amount excavated (as in G2 between layer 2 and 3). Levels were set up using the datum and finds were recorded three dimensionally.

The excavation proved difficult as the selected squares were situated on a tight clay soil instead of being on loose sandy soil which is fairly common in Pilliga sandstone formation areas. The excavated material was firstly dry sieved using double sets of sieves of sizes 5 and 2 mm but this operation did not reduce the volume by much due to hard lumps. Wet sieving was then carried out but this sieving in the Ukerbarley Creek was very slow and a high pressure pump had to be utilised to assist the break down of the clay in the sieves. It was impractical to use any smaller sieve than the 2 mm because of the

tightness of the clay, but some dry residues that passed through this sieve in the initial dry sieving stage were saved for future reference from squares G2 and D2. Finds from the wet sieving were dried in the sun and bagged separately for each unit.

The difficulties experienced in processing the material were responsible for the proposed excavation of 4 (1m X 1m) squares being far from finished at the end of the available time for the volunteer workers in September. The three squares excavated to various depths were consequently drawn up, lined with black plastic, refilled with rubble and the top layer resurfaced with sieved residues to blend in as closely as possible with the surrounding undisturbed surface.

A preliminary analysis of the recovered stone artefacts over the next month suggested that it was desirable to continue the excavation in an effort to recover more artefacts which hopefully would enable a worthwhile analysis of the stone artefacts to be carried out. It was also desirable to recover more charcoal for dating the site as some charcoal had been recovered but this was in the upper levels and in very small amounts.

A second excavation was carried out in late October 1990. All 3 squares opened in the September excavation were cleared of fill. A 500 mm X 500 m column left in G2 was first excavated down to the level of the previous excavation in September. This square (G2) was the deepest and also the closest of all the squares to the hayshed. The excavation in this square continued until a depth of 440 mm (south side) was reached. The bottom of the excavation was horizontal but the depth at the north side was only 330 mm (the difference in depth from the south and the north face was due to the slope of the hill). The adjoining square F2 was excavated down to approximately 250 mm (South side).

No further material was excavated from C2 as the preliminary analysis over the preceding month had revealed it contained by far the lowest density of stone artefacts from the Septemuer excavation and as time was again restricted, it was decided to open a 4th square instead of deepening C2. The

adjoining square to the west (D2) was opened up and excavated down to about the same level as C2 (approximately 250 mm on the south side). The decision to open this 4th square was fortunate as it contained over twice as many artefacts as C2 (see next table) and added greatly to the numbers recovered from the excavation. At the finish of the excavation, the sides of all squares were drawn up, then lined with black plastic, filled with sandstone rocks and spoil and the surface returned as near as possible to its former level and condition. Most of the material excavated from D2 was immediately bagged and transported back to Gunnedah for processing by myself and students from the women's anthropology class of the local TAFE. Most of the material from the other squares were processed on site by team members.

PRELIMINARY RESEARCH

The stone artefacts from this site are currently being analysed as part of my Masters thesis. Some results already to hand clearly show that this site differs greatly from the excavated site at Kamilaroi Cave in at least two ways.

(a) ARTEFACT DENSITIES

The number of stone artefacts recovered from each square at UKBH were sorted into 3 raw material groups and tallied against the volume of spoil removed in each square. Results from each square and a comparison of the grand total with Sq. H30 &H31 from Kamilaroi Cave were as follows :

UKBH

SQ.	QUARTZ	FG	CG	TOTAL	BASE DEPTH	VOLUME	DENSITY
C2	77	2	1	80	190 mm (av.)	190 Lt.	.421/Lt.
D2	158	3	10	171	175 mm (av)	175 Lt.	.977/Lt.
F2	123	21	20	167	210 mm (av)	210 Lt.	.795/Lt.
G2	213	36	9	258	385 mm (av)	385 Lt.	.670/Lt.
TOTALS	574	62	40	676		960 Lt.	.704/Lt.

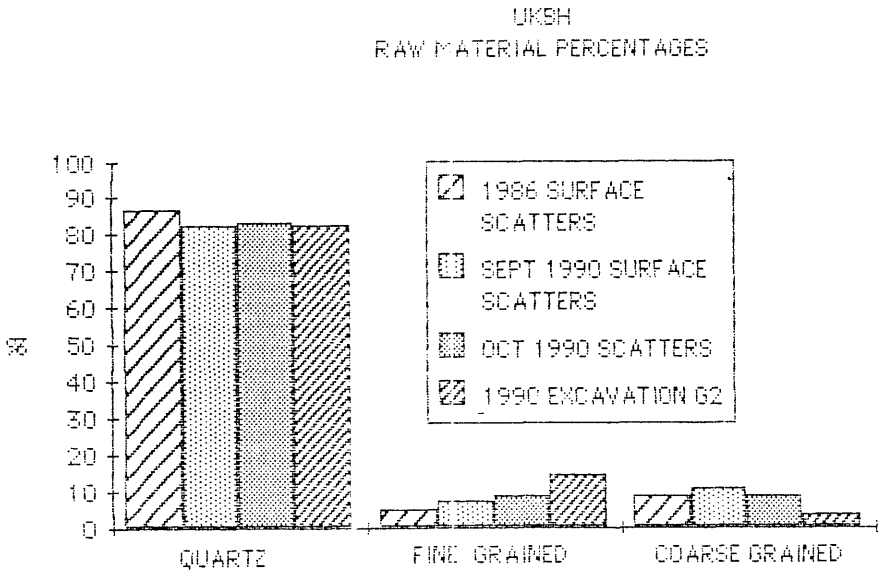
KACA (squares H30 &H31 combined)

TOTALS	2049	1769	195	4009	200 Lt.	20.05 /Lt.

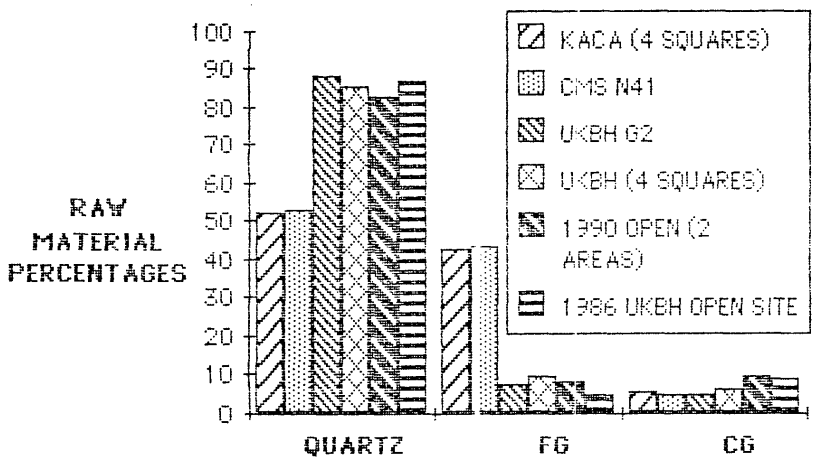
These figures show that the average artefact density in 2 squares excavated at Kamilaroi Cave is over 28 times greater than the average at UKBH.

(b) RAW MATERIAL PERCENTAGES

During the excavations in September and October, further surveys were also carried out on the nearby scatters of surface stone artefacts around the hayshed. These surveys revealed that the percentages of the 3 main groups of raw material were consistent with those obtained by the team in 1986. Further to this the percentages obtained from the excavated square G2 were also very similar to those obtained from the surface (see the following graph). This then would lend weight to the argument that the stone artefacts recorded on the eroded area near the excavation in 1986 were originally scattered throughout a deposit consistent with the excavated material of G2. The artefacts on the surface probably represent phases of technology by which stone artefacts were made through at least 3720 years as the bottom of the excavation in G2 was roughly level with the eroded surface surveyed in 1986 (at least 50 mm of deposit was present beneath the bottom of the charcoal scatter dated to 3720 BP and the bottom of the excavation which may not have been the oldest occupation level).



A comparison of the raw material percentages of UKBH with the two excavated shelters in the Coonabarabran region (see following chart) clearly shows the well defined differences between the percentages of quartz and fine grained material at Kamilaroi Cave and the Crazyman Shelter, with the recorded sections at Ukerbarley.



This graph would tend to suggest that fine grained material did not gain the popularity here or it was not readily available at anytime during the last 4000 years as it seemed to be at the 2 shelters except in upper levels. It could also indicate that the shelters were more likely to be used for manufacture of fine grained artefacts (such as backed blades) than at open sites. Some future excavation of a shelter near Ukerbarley may help to provide further data for comparison of raw material percentages.

SOIL PROFILES AND A RADIOCARBON DATE

Three soil layers appeared to be present in the deepest square G2. The two upper layers in this square also corresponded to the upper layers in the shallower squares (C2, D2, F2).

The first level in all squares (Layer 1) was approximately 100 mm deep with a pH of 7.5 and a wet munsell colour of 7.5 YR/3/2. Because of the large amount of vegetable matter present, it was much more friable than the bottom layers. Due to a wet winter it also carried a thick covering of grass on the top. This layer appeared to have been absent on the lower side of D2 and most probably had been eroded away in the past (the lower side of D2 was the closest to the downhill eroding slope on which the artefacts were recorded in 1986).

The second level (Layer 2) contained many dark ironstone pebbles which were absent in the top soil. Layer 2 was also much lumpier than layer 1. This layer was approximately 200 mm in depth with a pH of 8 and wet munsell colour of 10 YR/3/2. The division between layer 1 and 2 was hard to discern in sections due to similarities in colour but the absence or presence of ironstone pebbles or nodules helped distinguish the boundary. Roots from the grasses made sieving difficult in some levels due to their matting nature in the wet sieves.

The third level (Layer 3 which was only excavated in G2) was a dark reddish puggy clay with a pH of 8.5 and a wet munsell colour of 7 YR/4/4. Ironstone nodules were also present in this layer. This layer was wet, hard and tight which made it difficult to excavate and it was inclined to come out in large hard lumps. A feature of the bottom layer was that its boundary with layer 2 was roughly horizontal whereas the boundaries of the upper layers dipped according to the slope of the land

A large scattered mass of charcoal was found in the northwest corner of G2/c at the junction of layers 2 and 3 (it did not appear to be a hearth). This charcoal was gathered over a depth of between 220 mm and 280 mm. A representative sample was sent the University of Sydney to be relayed to the Beta Analytic Laboratory in Florida for dating purposes.

A comparison of the date obtained for UKBH and those dates from Kamilaroi Cave and the Crazyman shelter is as follows:

site	depth	date
UKBH	280 mm	3720 ± 60 BP (Beta - 41064)
KACA	48 mm	630 ± 100 BP (SUA -2681)
KACA	415 mm	1980 ± 140 BP (SUA -2682)
CMS	67 mm	1730 ± 60 BP (Beta - 28453)
CMS	507 mm	4490 ± 60 BP (Beta - 28452)

In the absence of any data or soil degregation and aggradation in the area a soil aggrading rate (using a steacy rate of buildup) of approximately 7.53 mm/100 years was obtained using the depth of the charcoal and the date obtained.

This theoretically gave the bottom of the excavation (which measured 330 mm below ground level at the NW corner) a date of 4185 BP.

As 41 artefacts were recovered from the bottom layer (the red puggy clay of this square) it is conceivable that further artefacts may have been present below this level and have been of a greater age.

SUMMARY

The excavation was instrumental in giving members of the community of both Aboriginal and European descent (some of which were mature aged students) an opportunity to participate in the practical side of archaeology and gain a deeper understanding of the processes involved.

Preliminary analysis of the Upperbarley Hayshed site stone artefacts shows that percentages of raw material groups vary greatly from those in the excavated shelters of Kamilaroi Cave and the Crazyman shelter. Artefact density is also much less at UKBH than at Kamilaroi Cave. Percentages of raw material groups at UKBH are however consistent between the recorded surface scatters near the excavation and from the excavation.

The radiocarbon date of 3720 BP suggests that this site was used right

through the semi-arid period of 3000 to 2000 BP and this could be linked to the nearness of the site to water in Ukerbarley Creek and the adjacent swamp. Further analysis including the comparison of reduction charts with those obtained at the site in 1986 and from the excavated shelters will be carried out on the rest of the excavated UKBH artefacts in the future and the results included in my M.A. thesis.

Ukerbarley Creek

MOUNTAIN

Hayshed

Shearing Shed

Hut

Hayshed

Sand

"Ukerbarley"

Sheds

Yards

Ukerbarley Creek

Ukerbarley Swamp Creek

WARRUMBUNGLE

"Three Hills"

GWABEGAR RAILWAY

"Glenwarra Park"

"Rocky Ridge"

Ruin

"Burrowong"

DANDRY ROAD

COONABARABRAN 6km

COONABARABRAN 4km

SCALE 1:50 000

0 1 2 3 4 5 6 7 8 9

CONTOUR INTERVAL 20 METRES

BUGALDIE TOPO.

To the nearest metre on the Australian Height Datum.
Geodetic Survey of New South Wales based on the Australian Geodetic Datum.
Australian Map Grid (U.T.M.) in 6° zones.
Grid lines are shown at intervals of 1000 metres from False Origin of Zone 55
Zone 55 3 [illegible]
Central Mapping Authority of New South Wales.
Aerial photography— 1972 Field revision— 1977 Printing— 1979
Bureau of Meteorology, Department of Science.
Conforms to National Mapping Council standards.
Depiction of roads and tracks does not necessarily indicate a public right of way.
Place names as defined by the [illegible]

GN

TN MN

GRID/MAGNETIC ANGLE 11 6°

GRID CONVERGENCE 1 2°

UNIVERSAL GRID REFERENCE

GRID ZONE DESIGNATION 55J

100 000 METRE SQUARE IDENTIFICATION

FF GF

TO GIVE A STANDARD REFERENCE ON THIS

SAMPLE POINT Yetman △ 536

1 Read letters identifying 100 000 metre square
2 Locate first VERTICAL grid line LEFT of point and
labelling the line in either top or bottom margi
3 Estimate tenths from grid line to point
4 Locate first HORIZONTAL grid line BELOW point
figures labelling the line in either the left or
5 Estimate tenths from grid line to point

appendix 1

PLANTS FOUND GROWING NEAR UKBH (1990)

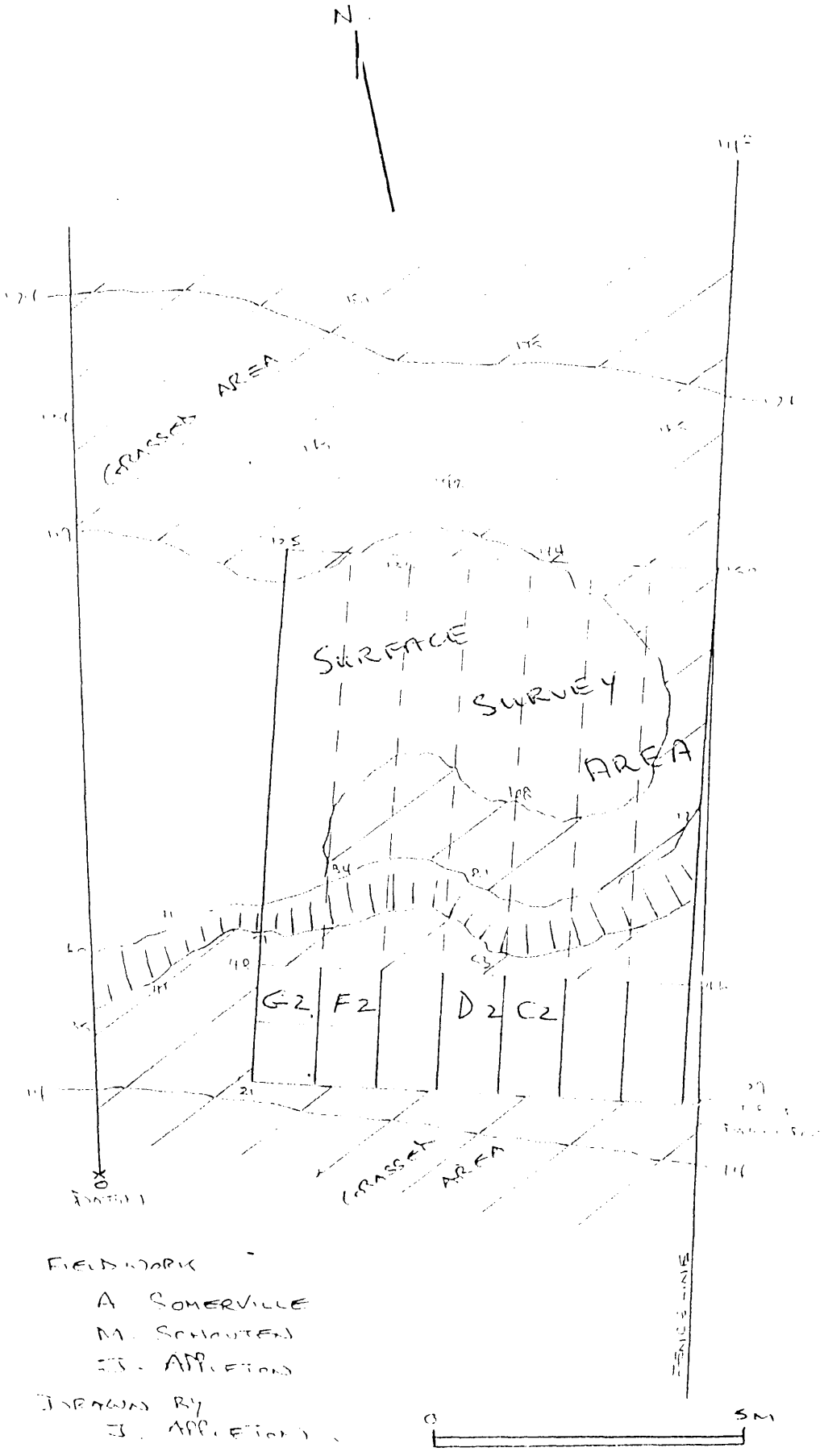
(identified by Dee Murphy)

COMMON NAME	SCIENTIFIC NAME
Rock fern	Cheilanthes austrotenuifolia
Black Cypress pine	Callitris endilicheri
Tall sedge	Carex appressa
Rush	Juncus australis
Rush	Juncus bufonius
Thread rush	Juncus filicaulis
Barley grass	Hordeum leparium
Slender bamboo grass	Stipa verticillata
Mat rush	Lomandra sp.
Wooly mat rush	Lomandra leucocephala
Slender celery	Apium leptophyllum
Varigated thistle	Silybum marianum
Prickly pear	Opuntia stricta
Bluebell	Wahlenbergia sp.
Bluebell	Wahlenbergia queenslandica
Eastern cotton bush	Maireana microphylla
Kidney weed	Dichondra repens
Burr medic	Medicago polymorpha
Stagger weed	Stachys aruensis
Kangaroo thorn	Acacia armata
White box	Eucalyptus albens
Blakely's red gum	Eucalyptus blakelyi
Woodruff	Asperula subulifera
Narrawa burr	Solanum cinereum
Stinging nettle	Urtica incisa
Dock	Rumex sp.
Plantain	Plantago hispida

APPENDIX 2

COONABARABRAN

25 - 7 - 70



FIELDWORK

A SOMERVILLE

M. SCHOUTEN

J. APPLETON

DRAWN BY

J. APPLETON

APPENDIX 3

COONABARABRAN FIELD NOTES

26-9-90

Transect survey from hayshed to grinding grooves

Transect 30-40m wide performed by A. Sullivan, M.Schouten and J. Appleton. Conditions good, bright light, dry and hot. Performed mid-morning to mid-day over 3 hour period, ie total of 8 person hours.

Commenced from fenceline adjacent to excavation in direction of 'grinding groove rocks and tree'

- 40m from excavation on upslope verge of road

Flake	quartz	31	25	12	13	8	C

plus flaked pieces and small cores eroding from upslope side of bend of road at foot of slope perhaps 20 pieces all up

- on creekbank excavation side of creek

3 x Cores quartz

cross creek

Abbreviations

C cortex
R rotation
PP platform preparation

- paddock 100% ground cover of grass and clover <2cm, except sheep tracks

- 70m from creek in open paddock 80% ground cover on sand

Core	quartz	66	48	36

plus 2 possible debitage 10m on.

- isolated quartz flakes and flaked pieces about 1 per every 50m.

Core	quartz	16	13	13			C			
Core	quartz	45	51	38			C	R	PP	
Flaked piece	quartz	25	15	11			C			Retouch.
Flake	quartz	34	28	13	23	10	C			
Hammerstone	quartz									

- fewer artefacts towards grinding grooves - fine alluvial sands - 50-80% ground cover

Core (pebble)	quartz	59	48	39			C	R	PP
Flake (pebble)	quartz	27	28	14	24	13	C		

Core (pebble)	quartz	45	34	24			C	R	PP

(10m from groove rocks)

Generally - 30-40 artefacts along transect fro n excavation to grooves

Transect through two separate setes of groov es at approximately 90 degrees to first transect
- from 10m above the tree-line either side of the valley

- stock track to rear of ground-level grooves
Quartz cores and flakes

- 15m (altitude) upslope of grooves along transect line, approx 50m back from grooves, boulder strewn slope with many conglo ierate pebbles, some very dark red/manganese sandstone on sandy matrix with 10% groun l cover of grass and leaf litter, small spiky wattle, lots of quartz pebbles, little else.

100% ground cover at base of slope, grass <5cm on choc. brown crumbly fine soils, approx. deep on gentle slope - sandier closer to foot of slopes

conglomerate pebbles of quartz at foot of slope

Kurrajong pod between grinding grooves

Flake	quartz	65	50	36	34	16	
Core (pebble)	quartz	35	25	14			C

- move off soils onto sands towards base of 'opposite valley side'

- pig country

- base of slopes , box trees and cypress, 100% ground cover of clover and weed <2cm, spiky wattle.

General - no artefacts on soils, all fou id on sandy surfaces, but archaeological visibility much better on sand surfaces. Most arte acts occur towards creek with density of say 1 per 400 sq m. In mid transect (excavation to grooves) 1 per 800 sq m. Towards grooves 1 per 600 sq m. All very approximate. The efore the highest density occurs near excavation alongside road where density 1 per 30 sq m. (highest of about 3 per sq m).

JACK HALLS CREEK CAMP SITE

PRE-SALVAGE REPORT

K . GEERING

1991

CBN Report Catalogue

ABORIGINAL SITES SURVEY
RTA PROPOSED ROAD UPGRADING
OXLEY HIGHWAY, 9-13 KM SOUTH OF COONABARABRAN

by
Katrina Geering
Regional Archaeologist
NPWS - Coonabarabran

June 1991

BACKGROUND:
The Roads and Traffic Authority have been working on the upgrading of the Oxley Highway between two and thirteen kilometres south of Coonabarabran for several years. In early 1990 the 2-4km stretch of roadworks was inspected for Aboriginal sites by Regional Archaeologist Katrina Geering, NPWS, after the presence of at least one Scarred Tree in this area was pointed out to RTA.

Subsequently RTA were keen to have the remainder of the proposed roadworks inspected for Aboriginal sites. As RTA received a letter from the Service in 1985 giving clearance for the roadworks to proceed, RTA were unhappy about employing a Consultant to undertake the Aboriginal site survey. As a gesture of goodwill the Service agreed to undertake the survey for RTA free of charge. It was pointed out to RTA, however, that in future they would be expected to employ a Consultant to examine roadworks, and that by relying on NPWS staff some delays may occur in report production due to other work demands.

STUDY AREA:
The Oxley Highway is being upgraded between about 9 and 13 kilometres south of Coonabarabran; upgrading of the highway will require re-alignment of some sections (see attached plans). The sections where re-alignment will involve clearing of trees and fresh ground surface disturbance were pointed out to Reg. Arch. Geering by RTA on 10th December, 1990. Subsequently the areas were examined in detail by Reg. Arch. Geering for Aboriginal sites.

For most of the length of upgrading the highway passes through low hills and is generally lined on both sides by trees. The tree species vary according to slope, aspect and soil. Generally box trees are found in gullies, on flat ground, or on low slopes. Ironbark and gum woodland line the steeper sections with skeletal soils.

Only one permanent water course, Jack Halls Creek, is crossed by the road, however several ephemeral water courses are crossed. Jack Halls Creek, is at the end of the roadworks.

SURVEY STRATEGY:
The entire length of the proposed road upgradings were examined by vehicle to determine the likelihood of the presence of Aboriginal sites. Once examined by vehicle any watercourses and all areas of box woodland identified from the vehicle were examined in detail on foot.

RESULTS:
As a result of the survey two previously unrecorded Aboriginal Scarred Trees were identified immediately adjacent to the proposed roadworks, and one open campsite was found to occur in the path of the proposed roadworks.

The two Aboriginal Scarred Trees (Oxley Highway 3 & 4) were recorded and their locations were pointed out to RTA staff to ensure no accidental disturbance during roadworks. A further cluster of Aboriginal Scarred Trees, not directly threatened by the roadworks was also located and recorded, east of the proposed roadworks. The locations of the Scarred Trees (Oxley Highway 3 & 4) are indicated on Map 1.

The open surface campsite was located on the lower slopes of a hill adjoining the alluvial floodplain on the northern bank of Jack Halls Creek west of the current road route. Artefacts were detected on eroding soils along a fenceline, track and around contour banks constructed by the Soil Conservation Service. The main concentration of artefacts located during the survey were in a 30m x 20m area however, artefacts were also found around a stockyard, approximately 300m west of the road.

The detection of stone artefacts was complicated by the background scatter of lag gravels, including sandstone and quartz pebbles. The majority of artefacts observed were of quartz, but several non-quartz artefacts (including flake tools) were located.

The artefacts generally concentrated at the junction between the alluvial river flat and the hill. It is possible artefacts exist on the alluvial floodplain but have been obscured by sediments.

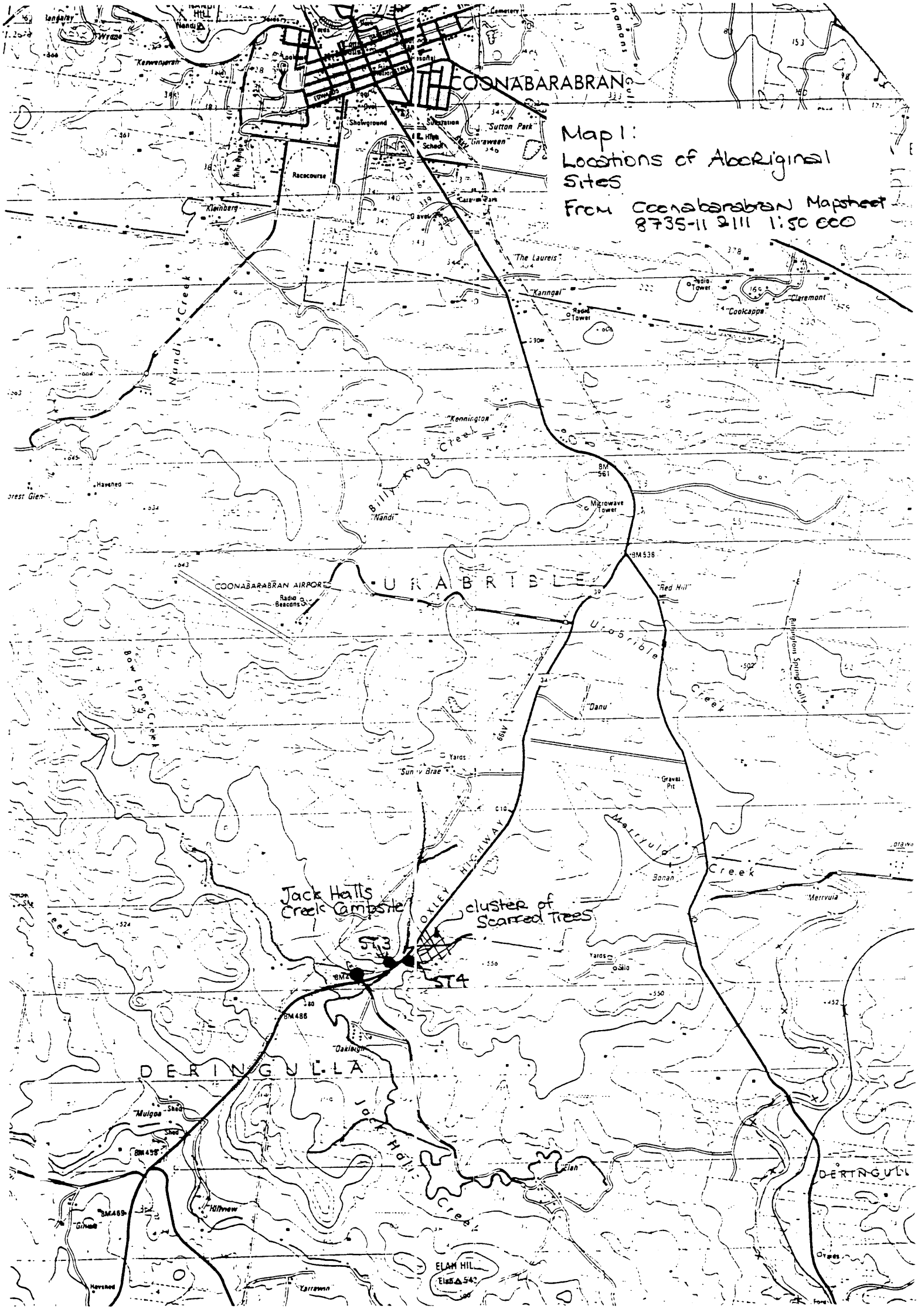
100+ artefacts were observed on the portion of the site which will be impacted by the proposed roadworks. All were on disturbed ground. Average stone artefact density was 1 artefact per square metre.

A sample of exposed artefacts were recorded in detail for technological analysis in order to compare the campsite with other campsites known from the general area. A brief summary of the artefacts can be found in Table 1. The reduction chart is not included in this report.

DISCUSSION:

The open campsite located at Jack Halls Creek is similar to other campsites recorded along Jack Halls Creek and in the Warrumbungles National Park; quartz is the dominant raw material for stone tool manufacture but artefacts made from several other fine grained raw materials were also found. The stone industries suggest that the site was used as a base camp rather than a transitory camp. This is not surprising due to the proximity of the campsite to both Jack Halls Creek and a permanent spring.

It appears only a small part of the campsite will be disturbed by the roadworks. The campsite extends at least 20-30 metres upslope from the proposed roadworks, and at least 300m along the same contour west along Jack Halls Creek. It is more than likely that the campsite extends a considerable distance along Jack Halls Creek both to


COONABARABRAN
Map 1:
Locations of Aboriginal
Sites
From Coonabarabran Mapsheet
8735-II 2111 1:50 000
Nandi Creek
Billy Kings Creek
"Kennington"
"Nandi"
"Karingal"
"The Laurels"
"Cookeppa"
"Claremont"
"Danu"
"Red Hill"
"Merryula"
"Oakleigh"
"Mulgoa"
"Gilmore"
"Hillview"
"Elah"
COONABARABRAN AIRPORT
U R A B R I B L E
D E R I N G U L L A
OXLEY HIGHWAY
Bow Lane Creek
Merryula Creek
Jack Halls Creek
ELAH HILL
Jack Halls Campsite
ST3
ST4
cluster of Scarred Trees

The two Aboriginal Scarred Trees (Oxley Highway 3 & 4) were recorded and their locations were pointed out to RTA staff to ensure no accidental disturbance during roadworks. A further cluster of Aboriginal Scarred Trees, not directly threatened by the roadworks was also located and recorded, east of the proposed roadworks. The locations of the Scarred Trees (Oxley Highway 3 & 4) are indicated on Map 1.

The open surface campsite was located on the lower slopes of a hill adjoining the alluvial floodplain on the northern bank of Jack Halls Creek west of the current road route. Artefacts were detected on eroding soils along a fenceline, track, and around contour banks constructed by the Soil Conservation Service. The main concentration of artefacts located during the survey were in a 30m x 20m area however, artefacts were also found around a stockyard, approximately 300m west of the road.

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100+ artefacts were observed on the portion of the site which will be impacted by the proposed roadworks. All were on disturbed ground. Average stone artefact density was 1 artefact per square metre.

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It appears only a small part of the campsite will be disturbed by the roadworks. The campsite extends at least 20-30 metres upslope from the proposed roadworks, and at least 300m along the same contour west along Jack Halls Creek. It is more than likely that the campsite extends a considerable distance along Jack Halls Creek both to

TABLE 1:
Summary of stone artefacts from detailed analysis of a sample on Jack Halls campsite.

Raw material	Flake tool n	Core n	Cortex n(%)	Core Tool n	TOTAL n(%)
quartz	4	2	12(31%)	1	39(80%)
chert					2(4%)
quartzite		1	6(100%)		6(12%)
red chert/ jasper					2(4%)
TOTAL	4	3	N/A	-	49

Notes:
- % of cortex worked out individually for each raw material

- green chert and red chert flake tools also found on site outside area of sample chosen for detailed analysis

- quartz hammerstone found in sample area (included in total count)

- due to background scatter of sandstone and quartz sample difficult to locate; possible artefacts were missed from the analysis

- less than half the quartz artefacts were flaked by bipolar techniques. The remainder are quite large pieces of quartz but are not heavily reduced cores. Few flakes were recorded which match the large cores, however, this may be because of the problems in distinguishing artefacts from the background noise, particularly if lamellate flakes.

- a detailed surface collection and subsequent laboratory analysis may add substantially to the data recorded from field analysis

the west and east (based on observations and on locations of other Aboriginal sites recorded in NPWS Site Register).

The reason stone artefacts are more obvious on the part of the site where roadworks are proposed is because the soil covering the artefacts has been washed away by water. The erosion has stripped off the overlying soils and left the artefacts exposed on the clay rich B horizon.

ABORIGINAL CONSULTATION:
On 10th December, 1990, Coonabarabran Local Aboriginal Land Council were informed of the location of the three Aboriginal sites adjacent to/in the path of the proposed Oxley Highway upgrading. Lloyd Gray, Chairperson, Queenie Gray, Co-ordinator, and Tracie Gray, member, of Coonabarabran LALC were shown the three sites, as well as a number of Aboriginal sites in Warrumbungles National Park on 11th December 1990. Subsequently a brief report was prepared for the LALC outlining what was found and the LALCs role in decision making (Geering January 1990).

RECOMMENDATIONS:
Coonabarabran LALC have given permission for that portion of Jack Halls Creek campsite to be impacted by the roadworks to be destroyed.

Due to the degree of disturbance, and the fact that the roadworks will only destroy a portion of the site, it is recommended that RTA do not need to employ an Archaeological Consultant to undertake any salvage work however, it is recommended that the area of site to be disturbed be salvaged.

The reasons for recommending salvage include:

1. the interest of the local Aboriginal community in finding out more about the local Aboriginal sites (in particular the ASPA Committees - Coonabarabran Primary and Coonabarabran High School).
2. the desire of the ASPA Committees to have the stone artefacts for educational purposes
3. Ongoing research in the Warrumbungles area by Pat Gaynor (MA student, Department of Archaeology and Palaeoanthropology, UNE).

After discussions with Mr Pat Gaynor, Mr Gaynor has expressed interest in urdertaking the salvage. It is further proposed that NPWS, Coonabarabran, assist in the salvage (1-2 days) in order to provide training for Service staff.