

A P P E N D I X 7.8

Cultural Heritage Impact Assessment

Cultural Heritage Impact Assessment

Angus Place Colliery 75W Modification

Prepared by:

RPS

PO Box 428
Hamilton NSW 2303

T: +61 4940 4200
F: +61 4961 6794
E: newcastle@rpsgroup.com.au
W: rpsgroup.com.au

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Centennial Angus Place Pty Ltd

Wolgan Road
LIDSDALE NSW 2790

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Executive Summary

RPS has been commissioned by Centennial Angus Place Pty Limited to assess the potential impact to Aboriginal and European Cultural Heritage in the portion of land as defined by the subsidence model allocated for Longwalls 910 and 900W at Angus Place Colliery. Centennial Angus Place Pty Limited is preparing an Environmental Assessment (EA) to support an application for Project Modification Approval under Section 75W of Part 3A Major Projects of the NSW Environmental Planning and Assessment Act 1979 (EP&A Act). Angus Place Colliery is located five kilometres north of the village of Lidsdale, eight kilometres northeast of the township of Wallerawang and fifteen kilometres northwest of the city of Lithgow. Angus Place Colliery is bordered by Baal Bone Colliery (Xstrata) and Invincible Colliery (CET Resources) to the north; Centennial Springvale Coal to the south; and the Wolgan Valley and Newnes Plateau to the north-east. The Angus Place pit top lies within the Cox's River Catchment, reporting to the Sydney Catchment area; with the mining lease area traversing both the Cox's and Wolgan River catchment areas, the latter of which reports to the Hawkesbury Nepean Catchment. With respect to this study, the proposed development will incorporate the commissioning of an additional dewatering borehole and supporting infrastructure as well as the development and extraction of Longwalls 910 and 900W.

This assessment comprises a detailed background review incorporating environmental context, reviews of previous archaeological reports for the area, a history of Lithgow LGA, and Aboriginal Heritage Information Management System (AHIMS) database search results. A detailed field survey was also conducted.

This assessment has been conducted in accordance with the *National Parks and Wildlife Act 1974* (NPW Act) and meets the requirements of the *NPWS Standards and Guidelines Kit 1997*. The Community Consultation process was conducted under the *Interim Community Consultation Requirements for Applicants 2005* (ICCR). Participating Aboriginal Community Stakeholders, Bathurst Local Aboriginal Land Council (BLALC), Warrabinga Native Title Claimants Aboriginal Corporation (WNTCAC) and Mingaan Aboriginal Corporation (MAC), were registered through these *Interim Community Consultation Requirements for Applicants 2005* (ICCR). Although new consultation guidelines *Aboriginal Cultural Heritage Consultation Requirements for Proponents (2010)* were released in April 2010; DECCW has advised that consultation commenced for projects prior to the 12th April 2010 can continue under the ICCR process. The proponent is not required to recommence consultation under the new 2010 guidelines. Representatives of each of these groups were present during the survey. This report reflects their comments and views (Refer Appendix 6).

Although the project is divided into three areas; Longwalls, Angus Place Pit Top and Private Haul Road, the Archaeological considerations were only relevant to the proposed Longwalls. As such, the field investigation, which focused on landform units, was divided into the dewatering borehole compound, services extension and Longwalls 910 and 900W design angle of draw areas. The angle of draw is that angle between the vertical and the line joining the edge of the mining void with the limit of vertical subsidence, usually taken as 20mm (DPI-MR, Dec 2003). The archaeological pedestrian survey was conducted over four days in partnership with members of the Aboriginal

Community Stakeholders.

Effective survey coverage of the Study Area identified only one Aboriginal Cultural Heritage Site, for which a site card has been submitted to the NSW Department of Environment, Climate Change and Water (DECCW) for registration on the AHIMS database (Refer Appendix 7). The site is located in the western section of proposed Longwall 910 (Refer Figure 7-3).

One Aboriginal Cultural Heritage Site was identified within the study area. A Rock Shelter with PAD is located within the western section of the proposed Longwall 910 (RPS Angus Place RS PAD1 – Refer Figure 7-3 and Appendix 7). No items of European cultural heritage were found within the study area.

No subsidence is predicted in the area of the Rock Shelter with PAD. Also, other sites previously registered on the AHIMS database are located outside of the study area. Therefore, the proposed modifications are unlikely to impact upon the Aboriginal cultural heritage sites.

DGS (2010) estimate that crack widths between 1mm and 20mm could occur through the tensile and compressive strain zones above each longwall panel which could affect some access tracks and unsealed gravel roads, with a worst case scenario of up to 90mm if surface rock lies near the strain peaks below the road. As such, it is considered that, for subsidence events of less than 50mm there would be no risk of impact to artefact scatters or open camp sites, and no risk to low risk of impacts to any potential rock shelters or grinding grooves; and for subsidence events of more than 50mm but less than 100mm there is no risk for artefact scatters or open camp sites and low risk for potential rock shelters or grinding grooves.

The Mitigation Measures included in this report (Section 10) provide advice on the requirements necessary if there is likely to be any disturbance or impact to the Aboriginal cultural heritage site (RPS Angus Place RS PAD1). Mitigation Measures that address the concerns of the Study Area are detailed below:

Mitigation Measure 1 - Aboriginal Community Consultation

Liaison established with the Aboriginal Community as per the DECCW Interim Community Consultation Requirements for Applicants (2005) during this project should be maintained during the proposed works should any matters relating to Aboriginal heritage occur.

Mitigation Measure 2 - Aboriginal Archaeological Management

One Aboriginal cultural heritage site was located and recorded during the survey. The site was recorded as a Rock Shelter with PAD (RPS Angus Place RS PAD1).

There was no subsidence predicted in the area of RS PAD1 (DGS April 2010) – Refer Appendix 8. However, it is recommended that during the general course of the project the site could be monitored for the effects of cracking or movement, and ongoing management of the site could include monitoring. Monitoring of the Rock Shelter with Pad would include pre and post mining inspections to assess and quantify any impact.

During the course of project work:

Mitigation Measure 3

Ensure that disturbance associated with the proposed mining operations is limited to the boundaries of the Study Area identified in this report. If works are planned outside of the Study Area, new and subsequent European and Aboriginal archaeological investigations will need to be initiated.

Mitigation Measure 4

If it is suspected Aboriginal Cultural Heritage Material has been encountered, work should cease immediately in that locale. If Aboriginal site/s are identified in the study area, then all works in the area should cease, the area cordoned off and contact made with DECCW Enviroline 131 555, a suitably qualified archaeologist and the relevant Aboriginal stakeholders, so that it can be adequately assessed and managed.

Mitigation Measure 5

In the event that skeletal remains are uncovered, work is to stop in the vicinity immediately and the relevant command area of the NSW Police contacted. If skeletal remains are deemed to be of Aboriginal origin, then all works in the area should cease, the area cordoned off and contact made with DECCW Enviroline 131 555, a suitably qualified archaeologist and the relevant Aboriginal stakeholders, so that it can be adequately assessed and managed.

European Heritage

Mitigation Measure 6

If, during the course of clearing works, significant European cultural heritage material is uncovered, work should cease in that area immediately. The NSW Heritage Branch should be notified and works only recommence when an appropriate and approved management strategy instigated.

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I Introduction

RPS Australia East Pty Ltd has been commissioned by Centennial Angus Place Pty Limited to assess the potential impact to Aboriginal and European Cultural Heritage in the portion of land allocated for longwalls 910 and 900W at Angus Place Colliery.

Angus Place Colliery exists as a joint venture company owned in equal share between Centennial Coal Company Limited and SK Kores. Angus Place Colliery was acquired from Powercoal Pty. Ltd. in August 2002. Angus Place Colliery is located five kilometres north of the village of Lidsdale, eight kilometres northeast of the township of Wallerawang and fifteen kilometres northwest of the city of Lithgow. Angus Place is bordered by Baal Bone Colliery (Xstrata) and Invincible Colliery (CET Resources) to the north; Centennial Springvale Coal to the south; and the Wolgan Valley and Newnes Plateau to the north-east. The Angus Place pit top lies within the Cox's River Catchment, reporting to the Sydney Catchment area; with the mining lease area traversing both the Cox's and Wolgan River catchment areas, the latter of which reports to the Hawkesbury Nepean Catchment.

Centennial Angus Place Pty Limited is preparing an Environmental Assessment (EA) in support of an application for Project Modification Approval under Section 75W of Part 3A Major Projects of the Environmental Planning and Assessment Act 1979 (EP&A Act). With respect to this study, the proposed development for the Study Area on Newnes Plateau will incorporate the commissioning of an additional dewatering borehole and supporting infrastructure as well as the development and extraction of longwalls 910 and 900W.

1.1 Modification Project Area

The Modification aims to continue underground mining operations at Angus Place Colliery, which are supported by existing surface infrastructure, through the development and extraction of two additional longwall panels, extending the life of Angus Place through until 2016.

Specifically, the Modification proposes to include the following:

- Development and extraction of longwalls 910 and 900 west (900W). 910 is directly north of the extracted 920 panel with 900W due west of the current mains headings. With regard to longwall 910, two options are proposed. This is because there may be a potential resource area situated to the north east of the proposed longwall area and, if this is the case, future access to this resource would be most efficient if it is accommodated within this proposed modification. A geological and geotechnical investigation, as well as a preliminary feasibility assessment, will be undertaken and the findings will inform the choice of option. The two options for Longwall 910 are:
 1. Option 1: In the event that the north eastern area is not considered viable, Longwall 910 will be approximately 200m wide and 2500m in length (Figure 3) and allow the development of two mains headings.

2. Option 2: In the event that the north eastern area is considered viable, Longwall 910 will be approximately 2500m in length and 120m in width to allow the development of four mains headings to enable future access to the resource in the north east.
- Increase to the production limit of four (4) million tonnes per annum. This seeks to make a provision for 12 consecutive months of production in the event Angus Place Colliery does not have a three month shut down due to a longwall changeover. The intensity of mining will not change. However, an increase of the annual production limit would allow a continuation in production in the event that a shutdown due to a longwall changeover (typically 8 weeks) is not required.
 - Installation of a dewatering bore facility at the eastern end of Longwall.

The Project Area which is the subject of this modification can be described in three sections as follows;

1. Surface area above the two proposed longwalls 910 (Options 1 and 2) and 900W on Newnes Plateau, the dewatering borehole and supporting infrastructure (access track, powerline and pipeline);
2. the Angus Place Colliery pit top; and
3. Private haul roads and Wolgan Road.

1.2 The Study Area

The archaeological Study Area which is the subject of this report is relevant only to the surface area above the proposed longwalls (i.e. item 1 above). The overarching reason for this position is that there are no modifications scheduled for the existing Angus Place Colliery pit top, nor will the existing stockpile footprint change (item 2 above). In relation to the haul road, the same logic can be applied in that there are no physical changes scheduled for the existing private haul road (item 3 above).

The cultural heritage assessment focuses on the effects associated with the proposed longwalls, dewatering bore and its associated infrastructure (access tracks, powerline and pipeline). There are not anticipated to be any significant cultural heritage effects associated with the modifications at the pit top or to the haul roads in relation to an increase in the limit to the amount of coal produced. Therefore, the Study Area for the purposes of this assessment has been informed by the modelled subsidence areas defined by Ditton Geotechnical Services and the areas of the dewatering bore and its associated infrastructure. Angus Place is bordered by Baal Bone Colliery (Xstrata) and Invincible Colliery (CET Resources) to the north; Centennial Springvale Coal to the south; the Ben Bullen State Forest to the south east and the Wolgan Valley and Newnes Plateau to the north-east.

The location of the Study Area can be found in Figure 1-1.

1.3 Background

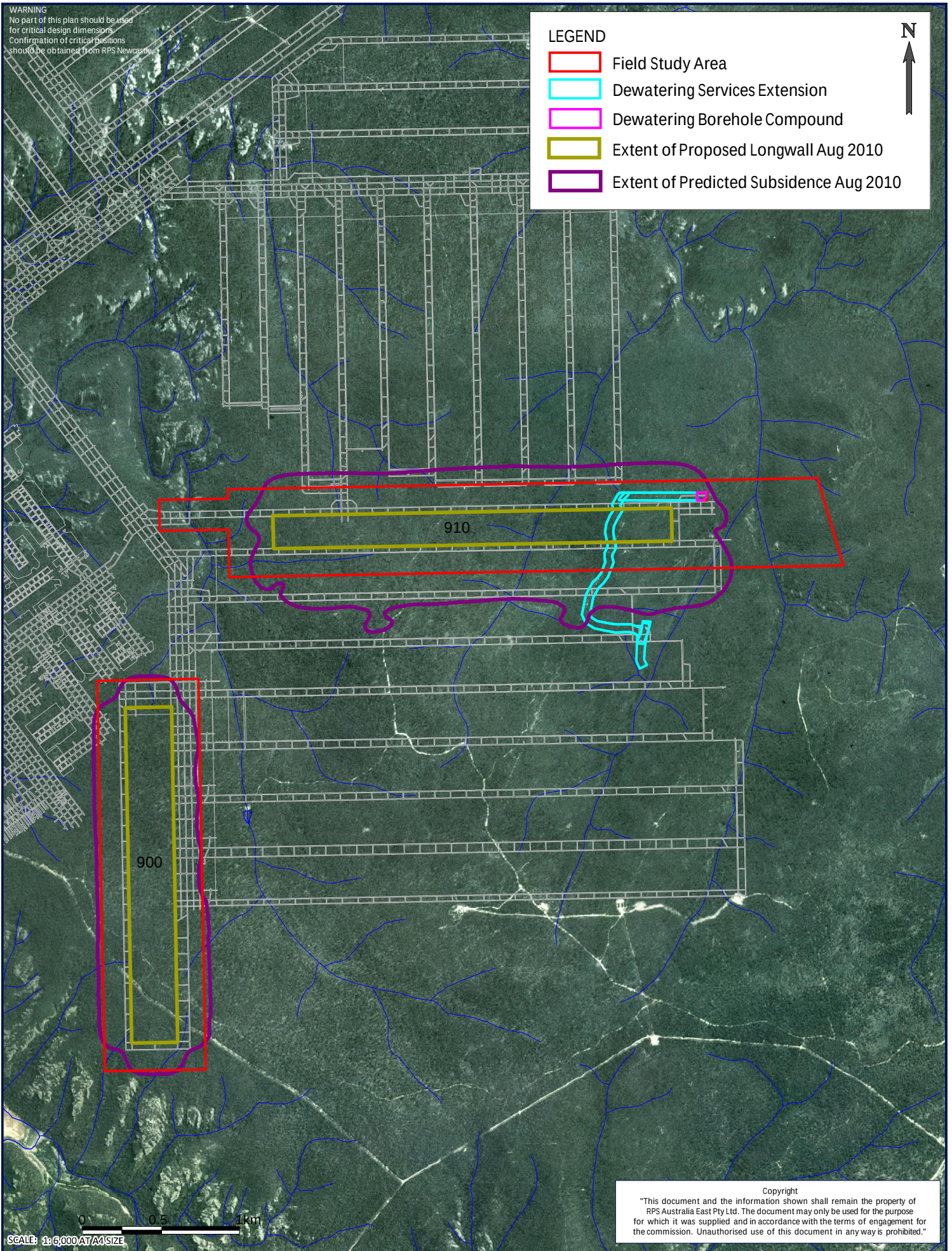
Underground mining has occurred in the Lithgow LGA mining lease area since at least the 1860's, with longwall mining replacing bord and pillar mining techniques in the late 1970's. The land comprising the proposed longwall mine extension area is currently used for forestry, recreational activities such as bushwalking and occasionally camping (Planning 2006).

Angus Place Colliery commenced production in 1979, after being developed as an extension of the Newcom Mine at Kerosene Vale. Coal is extracted from the Lithgow Seam primarily by the operation of a longwall shearer and supporting continuous miner units developing access headings. Coal is currently extracted for domestic power generation at both Wallerawang and Mount Piper power stations. Approximately 215 personnel are employed by Angus Place Colliery, operating across three shifts enabling 24 hours, 7 days a week production.

WARNING
No part of this plan should be used
for critical design dimensions.
Confirmation of critical positions
should be obtained from RPS Newcastle

LEGEND

- Field Study Area
- Dewatering Services Extension
- Dewatering Borehole Compound
- Extent of Proposed Longwall Aug 2010
- Extent of Predicted Subsidence Aug 2010



SCALE: 1:6,000 AT A1 SIZE

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TITLE: FIGURE 1-1 STUDY AREA

LOCATION: ANGUS PLACE
COLLIERY

DATUM: N/A
PROJECTION: MGA ZONE 56 (GDA 94)

DATE: 11/10/2010
PURPOSE: ARCHAEOLOGY

26317 DRAFTING\MAPINFO
LAYOUT REF: ARCH\FIG 1-1 STUDY AREA
VERSION (PLAN BY): B (A.P.-G.-NW)

CLIENT: CENTENNIAL COAL
JOB REF: 26317

241 DENISON STREET BROADMEADOW PO BOX 428 HAMILTON NSW 2303
T: 02 4940 4200 F: 02 4961 6794 www.rpsgroup.com.au

RPS

1.4 Legislative Context

It is incumbent on any land manager to adhere to legislative requirements that protect both Aboriginal cultural heritage and European cultural heritage in NSW. At the national level those items that are accorded National Significance status are under the control of the Commonwealth Government. These items are recorded and protected under the National Heritage List and the Commonwealth Heritage List. The extensive Register of the National Estate lists those items considered of value for future generations.

The State Heritage database is maintained by the NSW Heritage Branch and lists all items that have been identified as of heritage value on Regional Environment Plans (REP) and Local Environment Plans (LEP) throughout NSW. The State Heritage Register lists those places which are of State Significance.

A brief overview of relevant NSW legislation is listed below with a more detailed explanation of legislation governing Aboriginal and Historical heritage provided in Appendix 1.

1.4.1 The National Parks and Wildlife Act (1974)

The primary state legislation relating to cultural heritage is the National Parks and Wildlife Act (NPW 1974, as amended). The legislation is overseen by the Department of Environment, Climate Change and Water (DECCW), and specifically the Director-General of the DECCW.

There are three main sections of the NPW Act (1974) that the proponent should consider during works in the associated leases. These include (but are not limited to) the following:

It is an offence under Part 6 of the NPW Act (1974) for any person/company to:

- destroy, deface, damage, cause or allow the destruction/defacement to an Aboriginal object or Aboriginal place (Section 90);
- disturb, move, excavate for the purposes of finding Aboriginal objects, or take possession of Aboriginal objects (Section 86) unless a valid Permit under Section 87 of the Act has been issued by the Director General of the DECCW; and
- be aware of the location of an Aboriginal object and fail to report it to the DECCW (Director-General) within a reasonable timeframe (Section 91).

Although Aboriginal heritage sites and objects are primarily protected by the National Parks & Wildlife Act 1974 (NPW Act), Amended 2001, if an Aboriginal site, object or place is of great significance, it may be protected by a heritage order issued by the Minister subject to advice by the Heritage Council.

Other legislation of relevance to Aboriginal cultural heritage in NSW includes the NSW Local Government Act (1993). Local planning instruments also contain provisions relating to indigenous heritage and development conditions of consent.

In 2005, the DECCW released the *Interim Community Consultation Requirements for Applicants 2005* (ICCR's) which guide Aboriginal community notification and consultation procedures for sites that require applications under Section 87 and Section 90 of the National Parks and Wildlife Act (1974). The consultation requirements are outlined in detail in Appendix 1.

On the 12th April 2010 the DECCW released the new *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (ACH Consultation Requirements) 2010. These replace the *Interim Community Consultation Requirements* (ICCR's) and are effective immediately. DECCW has advised that consultation commenced for projects prior to the 12th of April 2010 can continue under the ICCR process.

1.4.2 The Heritage Act (1977)

The primary NSW legislation in relation to historic matters is covered by the NSW Heritage Act 1977 and matters relating to that legislation should be directed to the NSW Heritage Branch. The protective provisions contained in this Act safeguards items of significance.

An excavation permit is often required if it is known or suspected that an item of significance will be exposed or discovered and the work must be undertaken by a qualified archaeologist with an excavation permit issued by the Heritage Council of NSW.

1.4.3 Environmental Planning & Assessment Act 1979 (EP&A Act)

This Act regulates a system of environmental planning and assessment for New South Wales. Land use planning requires that environmental impacts are considered, including the impact on cultural heritage and specifically Aboriginal heritage.

Part 3A of the EP&A Act relates to major projects, and if applicable, obviates the need to conform to other specific legislation. In particular, S75U of the EP&A Act explicitly removes the need to apply for S87 or S90 permits under the NPW Act. This means that although Aboriginal cultural heritage is considered during the planning process, a permit is not required to disturb or destroy an Aboriginal object or place. However, although the requirements to obtain a Section 90 Permit for a site or Section 87 Permit for conservation/research are not required, the Director-General of Planning must nonetheless consult with other government agencies, including DECCW and National Parks & Wildlife, prior to any decision being made.

Appendix 1 details the various relevant legislative Acts.

1.5 Scope of Assessment

This Cultural Heritage Impact Assessment (CHIA) incorporates a desk top review and pedestrian survey of the Study Area. The pedestrian survey was conducted within the zero subsidence boundary determined using angle of draw calculations. Subsidence

modelling undertaken subsequently determined a zero subsidence contour line covering a slightly larger area. The land between these two areas is predicted to subside by minor amounts (in the order of 20mm) and has been the subject of both desk top investigations and limited field survey. It was found that the majority of the area, particularly along the southern boundary line had been covered during exiting and entering the zero subsidence boundary using angle of draw calculations. In addition whilst accessing the Dewatering Borehole Compound much of the area to the north was in fact investigated. It was found in all instances that the landscape was similar in exposure and landform characteristics, in which no artefactual material had been previously identified. The archaeological predictive model developed for the area provided information about the potential for archaeological sites to occur. It involves reviewing existing literature and consulting site databases to determine basic patterns of site distribution and correlating this distribution with the associated environment. Correlations between the two specific areas such as the predominance for scattered sandstone and quartz rocks to occur that were noted throughout the field survey and are part of the Narrabeen Sandstone Group conglomerate formation indicates a lack of raw stone material suitable for stone tool manufacture. The AHIMS results although demonstrating regular use of the natural landscape around the Newnes State Forest at a regional level, did not indicate site locations inside the zero subsidence contour line.

The assessment considers the potential for Aboriginal and European archaeological sites to occur, the location of any registered sites in the Study Area, and the implications for the project with regard to any existing or potential archaeological material located in the Study Area.

This Aboriginal archaeological assessment includes:

- Liaison and partnership with the Aboriginal community;
- A review of all relevant documentation and statutory requirements with regard to Aboriginal heritage and non-Indigenous heritage;
- Review of data from the DECCW Aboriginal Heritage Information Management System (AHIMS) to identify known Aboriginal sites;
- A review of environmental information and previous archaeological work to develop a predictive model for Aboriginal archaeological site patterning within the Study Area;
- An assessment of archaeological sensitivity within the Study Area;
- An archaeological survey; and
- Mitigation Measures for the management for Aboriginal and non-Indigenous sites.

This archaeological report for Aboriginal and European heritage impact assessment has been written in accordance with the National Parks and Wildlife Act of 1974 (NPW Act) and meets all of the requirements of the NPWS Standards and Guidelines Kit (1997). A review of the documentary evidence includes a search of the DECCW Aboriginal Heritage Information Management System (AHIMS) database (Appendix 2).

In relation to European heritage the report was written with guidelines detailed in the NSW

Heritage Manual (1994) issued by the NSW Heritage Branch.

1.6 Subsidence Predictions

Centennial Angus Place Colliery Pty Limited proposes to use longwall mining in the proposed Study Area. The panels have been designed to provide long term stability. This underground mining technique removes a part of the coal face which may cause destabilisation of the geological strata above the coalface. Subsidence impacts caused by this type of mining usually occur immediately after the mining process often forming a depression or trough-shaped profile with surface cracking and possible deformation of sandstone rock features. The vertical subsidence and degree of impact is dependent on several factors. These include the extent and depth of longwall mining and the nature of the overlying geological strata.

Ditton Geotechnical Services Pty Ltd (DGS 2010) has modelled the subsidence predictions for Angus Place Colliery Proposed Longwalls 910 and 900W. They carried out an assessment on the cliff lines incorporating Proposed Longwalls 900W and 910 and Approved Longwalls 920 – 980. The report states that the extracted void width for Longwall 910 will be 208m and for Longwall 900W will be 293m in the 3.25m thick Lithgow Seam. According to DGS 2010, depth of cover ranges from 300m to 370m, which results in sub-critical to critical panel width/cover depth ratios for Longwall 910 of 0.56 to 0.65 and for Longwall 900W of 0.92 to 0.98.

The cumulative predicted final worst-case subsidence contours for the Study Area is shown on Figure 17a of the Ditton Geotechnical Services Pty Ltd 2010 report (DGS 2010). This model shows that there is minimal predicted subsidence impact in both Longwalls 910 and 900W, and that the maximum vertical subsidence would not exceed 1.6m and that will only occur in a small area. The majority of the Study Area, and particularly that area where significant rock features occur, is likely to have a vertical subsidence between zero and 2mm and therefore will be likely to experience a nil to minimal subsidence impact. Thus the overall impact of subsidence in the Study Area will be minimal.

Centennial Angus Place Pty Limited has adopted a strategy to minimise and avoid all risks and impacts throughout the design of the modification. In this regard, the length of each longwall has been checked and revised to ensure that zero subsidence predictions are clear of any known significant features. The result of this approach is that the residual risk for impact to archaeological material is negligible.

1.7 Aboriginal Community Consultation

Consultation regarding this project commenced with the Aboriginal Community Stakeholders under the ICCR (2005). Although new consultation guidelines Aboriginal Cultural Heritage Consultation Requirements for Proponents (2010) were released in April 2010; DECCW has advised that consultation commenced for projects prior to the 12th of April 2010 can continue under the ICCR (2005) process. In these circumstances the proponent is not required to recommence consultation under the new 2010 guidelines.

In the release of the ACH Consultation Requirements specific transitional arrangements have been stipulated in a supporting document, *Questions and Answers 2: Transitional Arrangements*. Section 1 (Q1) of this document indicates that if Aboriginal consultation was commenced prior to the 12th of April 2010 (including advertising and notification of stakeholders) then consultation is to be continued under the previous ICCR guidelines. Aboriginal consultation was commenced as stipulated in Section 1 of the transitional guidelines and therefore consultation for this assessment has been undertaken in accordance with the ICCRs.

An advertisement was placed in the Lithgow Mercury (9th January 2010) and the Western Advocate (9th January 2010) (Appendix 3). Letters in accordance with the *Interim Community Consultation Requirements for Applicants* (2005) were mailed out (5th January 2010).

Aboriginal stakeholder groups registered in the Lithgow LGA were advised of the survey. Bathurst Local Aboriginal Land Council (BLALC), Warrabinga Native Title Claimants Aboriginal Corporation (WNTCAC) and Mingaan Aboriginal Corporation (MAC) participated in the survey which took place over four days from Tuesday 9th February to Friday 12th February 2010.

In addition to the above requirements Centennial Angus Place Pty Limited is subject to an Indigenous Land Use Agreement (ILUA) entitled the Centennial Coal Projects Ancillary Deed (CCPAD 2003). This document requires Centennial Angus Place Pty Limited to consult with the Gundungurra Native Title Claim Group (GNTCL). To this end a Cultural Heritage Management Plan (Refer Schedule 7 of the CCPAD 2003) was developed for implementation by Centennial Angus Place Pty Limited in order to avoid or minimise (where appropriate) the potential impact on Aboriginal sites. The requirements for specific situations which require Aboriginal cultural heritage survey undertaken in conjunction with the GNTCL are defined in clause 2 of the CHMP.

As such, Centennial Angus Place Pty Limited, will comply with the notification protocols set out in Section 2 of Schedule 7 of the CHMP. This requires that prior to carrying out any surface ground breaking work that is likely to impact upon Aboriginal sites in the project area, notice be given in writing 10 business days with a six day right of reply for GNTCL. It should be noted that the proposed works do not impact on any Aboriginal sites or places.

A copy of this report was sent to all respondents for their comment.

The Consultation Log can be found in Appendix 3 and responses from the Aboriginal Community Stakeholder groups can be found in Appendix 6.

1.8 Limitations

The desktop review was limited to all available documents directly concerning the Study Area which included AHIMS site searches and archaeological reports that relate to the regional archaeology. The pedestrian survey covered all landform types existing in the Study Area with existing dirt access tracks providing good access and ground surface visibility. Away from these areas visibility could be considered low with dense grasses, leaf and bark litter, shrubs and scattered woodland vegetation. The steep terrain especially surrounding water courses were handled with care as much of the ground cover was fairly dense with vegetation and leaf litter. Snakes and wombat burrows were also an added concern, particularly in areas containing thick, long grass where the ground surface was not visible.

1.9 Authorship

This RPS Australia East Pty Ltd (RPS) report was written by Archaeologists Gillian Goode and Philippa Sokol, and reviewed by Archaeology Manager Darrell Rigby, all of RPS.

1.10 Acknowledgements

RPS would like to acknowledge the following people who assisted in the Cultural Heritage Impact Assessment.

Name	Company
Warwick Peckham	Sites Officer, Bathurst Local Aboriginal Land Council
Kevin Williams Wendy Lewis	Sites Officers, Warrabinga Native Title Claimants Aboriginal Corporation
Richard Peters	Sites Officer, Mingaan Aboriginal Corporation
Iain Hornshaw	Environmental Officer, Angus Place Colliery

1.11 Abbreviations

Abbreviation	Definition
ACS	Aboriginal Community Stakeholders
AHIMS	Aboriginal Heritage Information Management System
BLALC	Bathurst Local Aboriginal Land Council
CHIA	Cultural Heritage Impact Assessment
DECCW	Department of Environment, Climate Change and Water
MAC	Mingaan Aboriginal Corporation
NPWS	NSW National Parks and Wildlife Service
RPS	RPS Australia East Pty Ltd
WNTCAC	Warrabinga Native Title Claimants Aboriginal Corporation

2 Environmental Context

The environmental context of an area is researched by archaeologists in order to obtain data relevant to the regional area and the specific Study Area. Environmental factors assessed include local geology and soils, topography, hydrology, climatic conditions, and the availability of flora and fauna resources. This information is then utilised to predict what the past local environment was like. Interactions between people and their environment are important in predicting the formation of the archaeological record and its preservation.

2.1 Geology and Soils

The Study Area is comprised of several soil landscapes. Longwall 900W is comprised of the Newnes Plateau and Hassans Walls soil landscapes. Longwall 910 is also comprised of the Newnes Plateau together with Wollangambe and Warragamba soil landscapes. A small portion of the Mt Sinai soil landscape is located adjacent to a Wolgan River tributary on the western side of Longwall 910 (King 1992).

The Blue Mountains area comprises typically of deep incised gorges with sandstone bed-rock, steep sided cliffs and pagodas, narrow incised valleys with spring fed creek lines and inter-bedded sandstone conglomerate rocks. Soil landscapes are comprised of conglomerate sandstones containing pebble sized quartz clasts together with green claystone (King 1992). The inter-bedded sandstone sheets are jointed and contain shale and ironstone lenses. Sandstone rock outcrops in the Newnes Plateau would have been useful in providing temporary or permanent shelters for the majority of the year. Quarrying of raw materials for stone tool manufacture would most likely have occurred in nearby areas where suitable raw material was available (King 1992).

The local geology for Longwalls 900W and 910 are outlined in the tables below. The rock types in the study area are potentially unsuitable, as raw material resources for stone tool manufacture although it is possible that stone tools could be manufactured from the quartz pebbles eroding out of the conglomerate, although the majority of the quartz in the area is too fractured (King 1992).

Table 2-1: Newnes Plateau Soil Landscape

	Np1	Np2	Np3	Np4
Colour	Black to dark grey yellow	Orange to bright reddish brown	Dark reddish brown to dull yellow	Light grey
Texture	Sand to loamy sand	Clayey sand to sand with depth	Sandy clay loam to light sandy clay loam	Clayey sand to sand
Structure	Single-grained	Massive to single-grained	Massive to occasional weak and poorly defined peds	Massive
Course Fragments	Sandstone fragments of variable size, shape and abundance. Quartz pebbles occasionally present	Occasional scattered sub-rounded quartz and ironstone gravels	Occasional sandstone and ironstone fragments	Platy ironstone fragments and complex bands
Exposed Condition	Loose, incoherent and porous when dry, occasionally water repellent	Soft to firm and coherent when dry	Firm and coherent when dry	Firm to hard with a sugary-like appearance in exposed batters
pH level	Strongly acid (Ph 4.5) to moderately acid (pH 5.5)	Moderately acid (Ph 5.5) to slightly acid (Ph 6.5)	Moderately acid (Ph 5.0) to slightly acid (Ph 6.5)	Strongly acidic (pH 4.5) to moderately acid (pH 5.5)
Permeability	High	Moderate to high	Moderate to high	Slow
Erosion	Moderate to high	High	Moderate	Moderate
Fertility	Very low to low	Low to moderate	Moderate	n/a

(source; King, 1992:29)

Table 2-2: Hassans Walls Soil Landscape

	Hw1	Hw2	Hw3	Hw4
Colour	Black or dark brown	Grey yellow brown, yellow brown to brown	Bright yellow brown, dull yellow orange to brown	Light grey and occasional red and yellow mottles
Texture	Loamy sand to sandy loam	Sand to loamy sand	Andy clay, silty clay to medium clay	Medium clay
Structure	Single-grained	Single-grained	Weak to moderate pedal with angular blocky peds	Moderately pedal and angular blocky
Course Fragments	Abundant sandstone gravels to boulders	Abundant sandstone fragments and quartz pebbles, ranging in size from gravel to boulders	Common to none	Few, some platy shale fragments at depth
Exposed Condition	Soft, loose and incoherent when dry, occasionally water repellent, spongy where organic matter is high	Soft, loose and incoherent in the dry state	Not generally exposed	Not generally exposed
pH level	Moderately acid (Ph 5.0) to neutral (pH 7.0)	Moderately acid (Ph 5.0) to slightly acid (Ph 6.0)	Moderately acid (Ph 5.5) to slightly acid (Ph 6.5)	Strongly acid (pH 4.0) to moderately acid (pH 5.0)
Permeability	Moderate to high	High	Moderate	Slow to moderate
Erosion	Low to high	Low to high	Low to high	High
Fertility	Very low	Very low	Very low	Low

(source; King, 1992:52)

Table 2-3: Mt Sinai Soil Landscapes

	Ms1	Ms2	Ms3	Ms4
Colour	Light grey to dull yellow orange	Brownish black	Brown to yellow orange and yellow brown	Bright yellow brown to yellow orange
Texture	Coarse sand	Loamy sand	Loamy sand to sandy loam	Clayey sand to sandy clay loam
Structure	Single-grained	Single-grained	Single-grained	Massive
Course Fragments	Abundant rounded to sub-rounded quartz gravels	Sub-rounded quartz gravels, angular sandstone and ironstone fragments, size and abundance variable	Common sub-rounded quartz gravels and angular sandstone fragments	Sandstone fragments and quartz gravels
Exposed Condition	Loose and incoherent when dry and wet	Loose, water repellent and incoherent when dry, slightly coherent when dry	Loose and incoherent when dry	Loose when dry
pH level	Moderately acid (pH 5.5) to slightly acid (pH 6.5)	Moderately acid (pH 5.0) to slightly acid (pH 6.0)	Moderately acid (pH 5.0) to slightly acid (pH 6.0)	Strongly acid (pH 4.5) to moderately acid (pH 5.5)
Permeability	High	High	High	Moderate
Erosion	High	High	High	High
Fertility	Very low	Very low	Very low	Very low

(source; King, 1992:43)

Table 2-4: Wollangambe Soil Landscape

	Wo1	Wo2	Wo3	Wo4
Colour	Dark reddish brown, dull yellow brown to brownish black	Red to bright brown	Bright yellowish brown	Light grey, dull yellow orange to bright yellowish brown
Texture	Loamy sand, ranging from sand to sandy loam	Sand, clayey sand or sandy clay loam	Clayey sand to sandy clay loam	Sandy clay to clay to silty clay loam
Structure	Single-grained	Massive	Massive	Moderately pedal when dry, with angular and sub-angular blocky peds; massive when wet
Course Fragments	Sandstone fragments often present	Occasional sandstone fragments	Rare sandstone fragments	Few
Exposed Condition	Loose, incoherent, occasionally water repellent when dry	Loose to firm, coherent when dry	Loose to firm, moderately coherent when dry	Hard, with well-developed void pattern when dry, soft and plastic when wet
pH level	Slightly acid (pH 6.0) to neutral (pH 7.0)	Slightly acid (pH 6.0)	Slightly acid (Ph 6.0 – 6.5)	Moderately acid (pH 5.0) to slightly acid (pH 6.5)
Permeability	High	Moderate	Moderate	Slow to moderate
Erosion	Low to moderate-high	Low to high	Low to high	High to very high
Fertility	Very low	Very low	Very low	Low

(source; King, 1992:89)

Table 2-5: Warragamba Soil Landscape

	Wb1	Wb2	Wb3
Colour	Brownish black to yellowish brown	Dark reddish brown to yellowish brown	Variable including dull brown, yellow brown orange and reddish brown; occasional faint red and yellow mottles
Texture	Loamy sand	Clayey sand	Clay loam to medium clay, often increasing with depth
Structure	Single-grained	Single-grained with rare weak crumb	Moderately pedal with angular blocky peds
Course Fragments	Sandstone rock fragments (2-10%)	Sandstone fragments common; charcoal occasionally present	Sandstone rock fragments
Exposed Condition	Loose, incoherent, occasionally water repellent when dry	Loose when dry	Firm when dry, plastic when wet
pH level	Moderately acid (Ph 5.0) to slightly acid (pH 6.0)	Strongly acid (Ph 4.5) to slightly acid (ph 6.0)	Strongly acid (Ph 4.5) to slightly acid (ph 6.0)
Permeability	High	High	Moderate
Erosion	Moderate to high	Moderate to high	Moderate to high
Fertility	Very low	Very low	Low

(source; King, 1992:63)

2.2 Topography and Hydrology

Topography of the Newnes Plateau landscape generally incorporates broad, level and gently inclined plateau surfaces. Slope gradients range up to 10%, with <20m of local relief and elevation typically >1000m. Swampy drainage depressions are common and on ridgelines localised sandstone outcrops are rare (King 1992:29).

Topography of the Hassans Walls landscape comprises precipitous sandstone cliffs ranging from 100m – 200m and is often formed above steep to very steep colluvial side slopes. The gradients of the slopes are generally >40% and become gentler on lower slopes and narrow drainage flats. Local relief is >100m and elevation varies between 280 m to >1000 m. Drainage patterns are parallel (King 1992:52).

Topography of the Wollangambe landscape comprises rounded crests that are generally narrow and convex (<50m) and moderately to steeply inclined side slopes. Local rock outcrops occur as small benches, cliffs and low broken scarps. Local relief of the landscape is generally <100m, slopes are generally <35% with elevations of >600m (King 1992:89).

Topography of the Warragamba landscape comprises moderate to very steep slopes with sloping narrow ridges of 10m – 20m wide. Local relief is 50m – 150m with slope gradients

of >35% and elevation of mostly <700m. Narrow sandstone and colluvial benches occur on slopes containing sandstone boulders. Small cliffs and scarps can be seen on some steep slopes. Drainage lines in the area are often narrow and filled with boulders (King 1992:63).

The hydrology of the Study Area is defined by several creek lines and rivers. Longwall 900W is intercepted in the north east by a tributary of Kangaroo Creek and Longwall 910 is intercepted by the Wolgan River from the north. These resource zones are large enough to provide reliable water for most of the year.

The topography and hydrology suggest that the local environment would have been favourable to past Aboriginal occupation and in most cases utilised for transitory activity through the landscape. Parts of the landscape that incorporate narrow ridgelines and steep cliffs made access difficult. The availability of fresh water in the Study Area locality would have contributed to a diverse local habitat providing a variety of food and other exploitable resources.

2.3 Climate

Approximately 18,000 years ago climatic conditions began to change affecting the movement and behaviour of past human populations in their environments. During this time, notably at the start of the Holocene (11,477 years ago), the melting of the ice sheets in the Northern Hemisphere and Antarctica caused the sea levels to rise, with a corresponding increase in rainfall and temperature. The change in climatic conditions reached its peak about 6,000 years ago (Short, 2000:19-21). Up until 1,500 years ago, temperatures decreased slightly and then stabilised about 1,000 years ago, which is similar to the temperature currently experienced. Consequently, the climate in the locality of the Study Area for the past 1,000 years would be much the same as present day providing a year round habitable environment.

The climatic conditions will impact upon the soils, vegetation and the potential occupation of an area. They may also affect the durability of associated cultural materials. The area has a warm temperate to very hot and dry climate which periodically encounters high and low pressure systems. In the summer months the area may experience moderate winds with hot and humid weather. In the winter months the winds will produce cool to very cold weather with wet conditions caused by frosts developing in low lying areas (Meteorology 2010). Average temperatures throughout the year can range between -0.3 degrees Celsius in July and 24.6 degrees Celsius in January. Summer season is the wettest and produce a maximum average rainfall of 108.5mm in January and an average minimum of 52.2mm in July (Australian Bureau Meteorology 2010). These regional temperatures would be suitable for occupation for the majority of the year, with appropriate shelter required during the winter months, especially throughout the coolest months and periodic wet periods.

2.4 Flora and Fauna

The occurrence of vegetation communities within the Study Area is dictated by the topography, which is characterised by slightly undulating plateau country bisected by deep drainage gullies. The undulating plateau country supports a range of woodland and open forest vegetation communities with grassy or shrubby understorey strata (King 1992; Australian Bureau of Meteorology 2010). Where deep drainage lines cut through the plateau wetter vegetation communities are sometimes associated with mid-slope soaks, draining strata or riparian areas where shrub swamp communities are supported by increases in water availability. Elsewhere, where dry rocky outcrops limit soil depth stunted heath communities occur. Dominant trees occurring across the plateau communities include *Eucalyptus dalrympleana* (Mountain Gum), *E. radiata* (Narrow-leaved Peppermint), *E. blaxlandii* (Brown Stringybark), *E. oreades* (Blue Mountains Ash), *E. sieberi* (Silvertop Ash), *E. sclerophylla* (Scribbly Gum) and *E. dives* (Broad-leaved Peppermint) (King 1992). Dominant understorey plants are, the shrubs, *Daviesia latifolia* and *Monotoca scoparia* and the tussock grasses *Joycea pallida* and *Poa sieberiana* (King 1992). Shrub swamp habitats lack a tree cover stratum, but are dominated by myrtaceous shrubs such as *Leptospermum* sp. and *Baeckea* sp. with *Gleichenia dicarpa* (Pouched Coral Fern) and a range of sedges often dominating the ground-cover layer (King 1992).

Fauna species encountered within the study area include a number of macropods, such as *Wallabia bicolor* (Swamp Wallaby) and *Macropus rufogriseus* (Red-necked Wallaby), arboreal mammals, *Petauroides volans* (Greater Glider) (King 1992) and a moderate diversity of open forest birds including those characterising elevated habitats, being Grey Currawongs, Red-browed Treecreepers, Scarlet Robins and Flame Robins.

The moderate diversity of flora and fauna species may have provided seasonal food resources for small Aboriginal groups or communities moving throughout the region.

2.5 Condition of the Study Area

The Study Area is situated on a landscape which incorporates varying levels of gentle slopes to steep and in some places sheer cliffs. The steeply sloped areas were generally associated with creek lines and were situated in the eastern and western portions of Longwall 910 and in the south eastern portion of Longwall 900W. Both of these areas are wholly contained in the Newnes State Forest. Access into the Study Areas is via existing forestry tracks. Blackfellows Hands Road is the main access route and was intercepted by minor vehicle and bike tracks that were used to gain access into different portions of the Study Area.

Disturbance from tree logging extended across the Study Area and comprised both medium and large trees. The majority of the felling was contained to ridgelines and gently sloped areas where it can be easily accessible by logging machinery. Across the two Longwall Study Areas are dirt access tracks from the loggers and associated machines. A scattering of remnant felled trees remain and the disused tracks have started to revegetate. In addition the previous works associated with the dewatering station and pipeline and power line works have added to the disturbance of this area.

Natural disturbances to the study area were evidenced by wombat burrows, rock slides, and storm damage from lightening strike, bush fires and flash flooding.

2.6 Discussion

At a regional and a local level the environmental climate at Angus Place would have been suitable to have sustained pre contact Aboriginal occupation in the area. The warmer months were most likely spent in the Plateau area, while cooler months were spent in low lying valleys away from high altitude areas.

A range of resources including fresh water, fauna, flora and shelter would have been available in the area. Access to raw materials for stone tool manufacture were most likely sourced from other localities, as the majority of the local area comprises of friable sandstone rocks, large outcrops and pagodas. Veined quartz and other pebble sized rocks are also eroding out of the conglomerate rocks in the area. Much of this raw material is very coarse grained and is generally not suitable for stone tool manufacture.

The Newnes State Forest covers much of the Study Area. A majority of the area is undisturbed except for borehole impact zones, logging areas and associated machine tracks, electricity easements, the proposed dewatering station, pipeline area, and access tracks. The borehole areas noted on the field survey are all disused and have been covered with bark shavings from logged trees which will prevent additional impacts and possible erosion to the exposed soils and help support the regrowth of the local vegetation. Any areas of undisturbed context are expected to retain their integrity and in situ cultural material may still occur if suitable soil conditions exist.

3 Aboriginal Prehistory

3.1 Ethnography

The ethnographic information used to interpret the archaeological record is often biased and may be deeply prejudiced particularly in relation to lifestyle, social practices, community interactions, religion and other facets of Aboriginal life (L'Oste Brown 1998). It is important to recognise this possible bias when using early European accounts that describe the lifestyles of Aboriginal people, particularly the interpretation of their daily life and beliefs. Nonetheless, some of these ethnographic records can provide important information and insight on local Aboriginal customs and cultural materials evidenced during the early years of European settlement.

3.2 The Traditional Owners

The Study Area is located in the Sydney Basin Bioregion on the Blue Mountains of NSW. A number of distinct Aboriginal groups occupied the Sydney Basin when the First Fleet arrived in 1788; the largest of these groups were the people of the Dharug language group, the alternate spellings to this name were Dharuk and Dharook. The Dharug language was comprised of two dialects, one was used between Sydney Harbour and Botany Bay, and the other was spoken to the west of the Hawkesbury, Blue Mountains and Nepean districts (the later known as Muru-Murak or 'Mountain pathway') (Murray & White 1988).

The Dharuk were recognised as specialist toolmakers, their tools were highly respected by other tribes who would often trade with them. Their weaponry was crafted in the form of spears, clubs and ground stone axes. At ceremonial events the Dharuk painted their faces, arms and thighs, and necklaces of kangaroos and reeds were worn (Mid Mountains Historical Society 2007).

3.3 Implements for Gathering Food and Weapons

As an addition to using plants for food, the Dharug would also have used them as a means of raw materials for utilitarian items, decorative items and medicines with some species providing more than one resource. Grass stalks could be used for weaving or basketry. Large trees provided bark and fibres which were used for tools, containers and possibly the construction of watercraft, whilst resinous saps from Grass Trees for example were an adhesive used in the hafting process. Bark fibres were twisted into twine which could then be woven into traps, containers or baskets and a variety of wooden tools were used as well.

3.4 Foods and Useful Plants

The Dharug used many native plants and animals. The Sydney surrounds offered a variety of food especially fish and shellfish gathered from the sea, these resources changed seasonally and were more reliable in summer than in winter. Inland communities relied on foods such as possum, vegetable roots, seeds and berries as well as mullet, eel and kangaroo (Murray & White 1988).

Men and women in Aboriginal communities had distinct roles in the hunting and gathering of food resources. Men were responsible for hunting possums, fish, birds and kangaroo, and at times collaborated with other bands to hunt and eat the larger animals. Fire was used at times to reduce the vegetation in order to catch game. Women often harvested plant foods especially yam's by means of digging sticks as these were generally the communities' staple diet (DECC 2008).

3.5 Campsites and Shelters

Gunyahs or bark huts were usually made from the broad leafed paperbark, box or stringybark trees and were erected mostly by women. They were generally located close to a reliable fresh water source or opportunistically situated on trade routes. Rock shelters are common in the Blue Mountains region, and would have been occupied as shelter or in association with open camp site areas. Campsites were not only the place for sleeping, eating, tool making and social activity, but were also the centre for hunter-gathering in the local area (Mid Mountains Historical Society 2007). Resources gathered within an area may have been reserved to be traded with members from neighbouring tribes for items not readily available to them.

3.6 Clothing

Summer weather would generally have required little in the way of protective clothing, the milder days of Autumn and Spring required more in the way of protective clothing against frequent cool winds. Winter however saw the intense use of animal skins for both clothing and as blankets. The Dharug people exploited all the resources available seasonally throughout their rangeland including using the by-products of their hunting activities, such as the skins from Possum, Kangaroo and probably Koala for items such as cloaks (Murray & White 1988).

3.7 Aboriginal History after European Contact

Initial contact between the European settlers and the Dharug people occurred in 1791 when Phillip's party arrived at the banks of the Hawkesbury and greetings were exchanged with the natives, peacefully sharing their campfire on the river bank at Pitt Town. Tench and Dawes made plans to explore the Blue Mountains and were ferried across the river by Aborigines in bark canoes (Mid Mountains Historical Society 2007).

In 1794, 22 settlers obtained land along the shorelines of the Hawkesbury-Nepean. Within a year there were 546 people occupying the banks of the river which accounted for the main source of the colony's food supply. This area was also an important source of food for the Dharuk people (Mid Mountains Historical Society 2007).

Initially, when white explorers entered the Blue Mountains they did not record any large groups of 'Aborigines' being in residence. Aboriginal presence was noted by Blaxland in 1814 in the valleys where he heard people calling (Gollan 1987). However, an earlier expedition by Barrallier in 1802, who met and observed Aborigines in the Wollondilly Valley, was escorted out of the Blue Mountains by an Aboriginal guide who had knowledge of the tracks leading to the coast. This first contact record and contemporary opinion suggests that the identity of the mountain people adjacent to the Cumberland Plain were the Dharug (Gollan 1987).

Three Frenchmen; Quoy, Gaudichaud and Pellion travelled across the Blue Mountains to Bathurst where they encountered Aborigines in the Springwood area. Pellion made drawings of the natives, including Karadra a sick old man lying on kangaroo skins near a fire and receiving attentions from a younger man. It was recorded that a local native man was peacefully disposed towards the explorers (Mid Mountains Historical Society 2007).

Windradyne (c.1800-1829), was an Aboriginal resistance leader, he was also known as "Saturday". Windradyne was a northern Wiradjuri man of the upper Macquarie River region in central-western New South Wales (Australians ND).

On arrival of the first settlers, Windradyne attempted to peacefully communicate with the European counterparts. Windradyne had Wiradjuri people befriend the new settlers and assist them with areas to camp. However, when the Europeans began to clear the land it became obvious to the Aborigines that their arrival to Australia was not on a temporary basis. The settlers started destroying the environment and places that were sacred to the natives. Windradyne was determined to not let these people destroy local families and their society. After the conflict many of the Wiradjuri surrendered to the British, but Windradyne was able to elude capture, and later in 1824 Windradyne and 130 Wiradjuri warriors walked for 17 days from Bathurst across the Blue Mountains and into the settlement of Paramatta to attend the annual native feast. On arrival to the feast Windradyne had the word peace stuck in his hat (Australians ND). He was accepted by the British as a result of this encounter.

4 European History

The initial discovery of Botany Bay in 1770 was followed by the arrival of the First Fleet in January 1788. Later the fleet moved further north to Port Jackson where the colony of Sydney Cove was founded (NSW National Parks and Wildlife Service 1991). In the first few years of British contact the new colonists quickly began to explore their new surroundings extending to the north, south and west out of Sydney Town.

Under the advice of local Aborigines, in 1813 explorers Blaxland, Wentworth and Lawson made an efficient job of traversing the southern watershed landscape of the Grose catchment. They descended the western sandstone escarpment at Mount York, then travelled onto Mount Blaxland beside the upper Cox's River where they crossed the Blue Mountains barrier. Within two years William Cox constructed the first road along the explorers route that extended over the Great Divide reaching the fertile plains of the Lithgow valley and Bathurst (Drive 2010).

The Lithgow valley was first settled in 1824 and was named by Surveyor General John Oxley, after William Lithgow, Governor Brisbane's private secretary. It was not until 1869 that the town began to prosper following the construction of the western railway line (Lithgow Tourism 1996 - 1999).

The Zig Zag Railway was engineered and completed in 1869 this allowed for the movement of trains into the valley. The combination of great coal reserves and rail service provided Lithgow with the ideal location for industries dependent on these resources (Lithgow Tourism 1996 - 1999).

Coal mining in Lithgow began with the first cut in Bowenfels and was used to run the steam engine at the local flour mill from the 1850s. The Lithgow coal reserves were important for the development of the Great Western Railway. Coal for trading purposes was first mined at Lithgow in 1868.

Coal mining began in the Wallerawang district around 1873 with a number of mines being operated on the Lithgow seam and in the area of Lidsdale and Wallerawang. The major working mines at the time in the Wallerawang district were The Irondale Colliery, Cullen Bullen Colliery, The Ivanhoe Colliery, The Commonwealth Colliery, The Great Western Mine and The Invincible Colliery.

Between 1900 and 1910 several smaller mines were opened between Piper's Flat and Blackman's Flat, which incorporated The Angus Colliery (Lithgow Tourism 1996 - 1999).

4.1 European Cultural Heritage

4.1.1 Registered Historic Items

The State Heritage database is maintained by the NSW Heritage Branch and lists all items that have been identified as of heritage value on Regional Environment Plans and Local Environment Plans throughout NSW.

The State Heritage Register lists those places which are of State Significance which have been listed by the NSW Heritage Branch under the NSW Heritage Act. In contrast the NSW State Heritage Inventory contains items considered by Local Councils and State Government Agencies to be of heritage value.

4.1.1.1 Items Listed under the Register of National Estate

No items in the Angus Place locality were given national significance through listing under the Register of National Estate.

[Register of National Estate](#)

4.1.1.2 Items Listed under the NSW Heritage Register

A search was conducted of the NSW Heritage Register. Heritage items have been documented in the regional area and are detailed below in Table 4-1. There are no sites in close proximity to, or in the Study Area.

[NSW Heritage Register](#)

Table 4-1: Items listed under the NSW Heritage Register

Item Name	Address	Suburb	LGA	Listed Under Heritage Act
Ben Bullen Railway Station group	Wallerawang-Gwabegar railway	Ben Bullen	Lithgow	Yes
Bowenfels National School Site	70 Mudgee Street	Old Bowenfels	Lithgow	Yes
Bowenfels Rail Viaducts	Main Western railway 159.156 km	Bowenfels	Lithgow	Yes
Bowenfels Railway Station and Stationmaster's House	Main Western railway	Bowenfels	Lithgow	Yes
Collits' Inn	Hartley Vale Road	Hartley Vale	Lithgow	Yes
Cooerwull Railway footbridge	Top Points Zig Zag Railway	Lithgow	Lithgow	Yes
Eskbank Railway Station group	Main Western railway	Lithgow	Lithgow	Yes
Fernhill	Great Western Highway	Bowenfels	Lithgow	Yes
Great Zig Zag Railway and Reserves	Brewery Lane	Lithgow	Lithgow	Yes
Great Zig Zag Railway deviation	Main Western Railway	Lithgow	Lithgow	Yes

Item Name	Address	Suburb	LGA	Listed Under Heritage Act
tunnels and dam				
Hartley Historic Site	Great Western Highway	Hartley	Lithgow	Yes
Lithgow Blast Furnace	Inch Street	Lithgow	Lithgow	Yes
Lithgow Valley Colliery & Pottery Site	Bent Street	Lithgow	Lithgow	Yes
Marrangaroo railway viaduct	Main Western railway	Marrangaroo	Lithgow	Yes
McKanes Falls Bridge	Jenolan Caves Road	Lithgow	Lithgow	Yes
Rydal rail underbridges	Main Western railway	Rydal	Lithgow	Yes
Rydal Railway Station group	Main Western railway	Rydal	Lithgow	Yes
St John the Evangelist Church	Main Street	Wallerawang	Lithgow	Yes
Tarana Railway Station and yard group	Main Western railway	Tarana	Lithgow	Yes
Wallerawang rail bridges over Cox's River	Main Western Railway	Wallerawang	Lithgow	Yes
Wallerawang Railway Station and yard group	Main Western railway	Wallerawang	Lithgow	Yes
Wambool old-rail truss overbridges	Main Western Railway	Wambool	Lithgow	Yes

4.1.1.3 Lithgow City Council Local Environmental Plan (LEP)

Lithgow City Council LEP (Schedule 1) lists those items considered of significance at the local, state and national level. The Lithgow LEP documents Heritage listed items in the regional area which are detailed below in Table 4-2. There are no sites in close proximity to, or in the Study Area.

Table 4-2: Items listed under the Greater Lithgow LEP

Item Name	Address	Suburb	LGA	Source
Airdrie	Kirkley Street	South Bowenfels	Lithgow	LGOV
Ambermere	Great Western Highway	Little Hartley	Lithgow	LGOV
Andrew Brown's Private Cemetery	Cooerwull Road (off)	Lithgow	Lithgow	LGOV
Anglican Church	Cartwright Street	Rydal	Lithgow	LGOV
ANZ Bank	30 Main Street (cnr)	Lithgow	Lithgow	LGOV
Bank	156 Main Street	Lithgow	Lithgow	LGOV
Barton Park Cemetery		Wallerawang	Lithgow	SGOV
Ben Avon	Great Western Highway	South Bowenfels	Lithgow	LGOV
Ben Bullen Railway Station Group		Ben Bullen	Lithgow	SGOV

Item Name	Address	Suburb	LGA	Source
Blackman and Merrick family cemetery	Gap Road	Hartley Vale	Lithgow	LGOV
Blast Furnace Site	Inch Street	Lithgow	Lithgow	LGOV
Bowenfels Presbyterian cemetery	Great Western Highway	South Bowenfels	Lithgow	LGOV
Bowenfels Railway Station And Residence Group		Bowenfels	Lithgow	SGOV
Bowenfels Railway Station Group	Main Western Line	Bowenfels	Lithgow	LGOV
Bowenfels Underbridges		Bowenfels	Lithgow	SGOV
Braemar House	50 Tweed Road	Bowenfels	Lithgow	LGOV
Brogan's Creek Crossing Loop		Brogan's Creek	Lithgow	SGOV
Caddies Restaurant	1 Coerwull Road	Bowenfels	Lithgow	LGOV
Capertee Railway Station Group		Capertee	Lithgow	SGOV
Cemetery	Mead Street	Meadow Flat	Lithgow	LGOV
Collits Inn	Hartley Vale Road	Hartley Vale	Lithgow	LGOV
Collitt's / Mt.York burial ground	Hartley Vale Road	Hartley Vale	Lithgow	LGOV
Coerwull (Lithgow) Footbridge	On Top Of Up Side Cutting On Display	Coerwull	Lithgow	SGOV
Coerwull Footbridge		Lithgow	Lithgow	SGOV
Coerwull House	Great Western Highway	Bowenfels	Lithgow	LGOV
Coerwull Presbyterian Church	Great Western Hwy	Lithgow	Lithgow	LGOV
Coerwull, Lithgow Footbridge	Over Main West, West Of Lithgow Station	Lithgow	Lithgow	SGOV
Cottage (duplex)	16 and 18 Lithgow Street	Lithgow	Lithgow	LGOV
Cox's River Convict Stockade		Lake Lyell, Lithgow	Lithgow	SGOV
Cullen Bullen		Cullen Bullen	Lithgow	SGOV
Eliza Rodd Grave	Jenolan Caves Road (off)	Hartley	Lithgow	LGOV
Emoh	Great Western Highway	South Bowenfels	Lithgow	LGOV
Eskbank House	Bennett Street	Lithgow	Lithgow	LGOV
Eskbank Station Group		Eskbank	Lithgow	SGOV
Fernhill	Great Western Highway	South Bowenfels	Lithgow	LGOV

Item Name	Address	Suburb	LGA	Source
Forty Bends	Great Western Highway	South Bowenfels	Lithgow	LGOV
Forty Bends Cemetery	Old Forty Bends Road	South Bowenfels	Lithgow	LGOV
Forty Bends Cottage	Old Forty Bends Road	South Bowenfels	Lithgow	LGOV
General Cemetery	Capertee Road	Dark Corner	Lithgow	LGOV
General Store (former)	Bathurst Street (0.5km N of town)	Rydal	Lithgow	LGOV
Glen Alice Cemetery	Glen Alice Road	Glen Alice	Lithgow	LGOV
Glen Alice Church	Glen Alice Road	Glen Alice	Lithgow	LGOV
Great Zig Zag	Lithgow Valley Reserve	Lithgow	Lithgow	LGOV
Gymnasium	Railway Parade	Lithgow	Lithgow	LGOV
Harp of Erin	Great Western Highway	Little Hartley	Lithgow	LGOV
Hartley Court House	Old Bathurst Road	Hartley	Lithgow	LGOV
Hermitage Colliery Managers Cottage	8 Coalbrook Street	Lithgow	Lithgow	LGOV
Hoskins Memorial Presbyterian Church	Bridge Street	Lithgow	Lithgow	LGOV
Hospital Cottage	Lithgow Road	Wallerawang	Lithgow	SGOV
Hospital Farm Barn	Lithgow Road	Wallerawang	Lithgow	SGOV
House	22-24 Lithgow Street	Lithgow	Lithgow	LGOV
House	20 Lithgow Street	Lithgow	Lithgow	LGOV
House group	1-13 and 2-12 Brisbane Street	Lithgow	Lithgow	LGOV
James Street Underbridge, Lithgow	Stone Arches 0.5Km Past Station	Lithgow	Lithgow	SGOV
La Salle Academy South Bowenfels	Rabaul Street (off)	Lithgow	Lithgow	LGOV
Lidsdale House Gardens	Mudgee Road	Lidsdale	Lithgow	LGOV
Lithgow (Hayley Street) Footbridge	West End Of Station	Lithgow	Lithgow	SGOV
Lithgow (Syd End) Footbridge	At Station Off Esbank Street O/B	Lithgow	Lithgow	SGOV
Lithgow Court House	Bridge Street	Lithgow	Lithgow	LGOV
Lithgow Fire Station	58 Cook Street	Lithgow	Lithgow	SGOV
Lithgow general cemetery	Great Western Highway	Lithgow	Lithgow	LGOV
Lithgow No. 2 Dam	Farmers Creek	Lithgow	Lithgow	LGOV
Lithgow Primary School	Mort Street	Lithgow	Lithgow	LGOV

Item Name	Address	Suburb	LGA	Source
Residence				
Lithgow Railway Station Group		Lithgow	Lithgow	SGOV
Lithgow Valley Colliery and Pottery Office Building	69 Bent Street	Lithgow	Lithgow	LGOV
Lithgow Zig Zag Group		Lithgow	Lithgow	SGOV
Lockyers Pass	Hartley Vale Road	Hartley Vale	Lithgow	LGOV
Lowther Park	Jenolan Caves Road	Lowther	Lithgow	LGOV
Lowther Park and Cemetery	Jenolan Caves Road	Lowther	Lithgow	LGOV
Marrangaroo Prayer Chapel	Great Western Highway	Marrangaroo	Lithgow	LGOV
Mary Slaven's Grave		Wallerawang	Lithgow	SGOV
Meades Farm	Great Western Highway	Little Hartley	Lithgow	LGOV
Methven	1 Evans Place	Bowenfels	Lithgow	LGOV
Moynes	Coxs River Road	Kanimbla	Lithgow	LGOV
Moynes Farm and Cemetery	Coxs River Road (off)	Little Hartley	Lithgow	LGOV
National School Group (former)	Great Western Highway	South Bowenfels	Lithgow	LGOV
Newnes		Wolgan Valley	Lithgow	LGOV
Office	31 Main Street	Lithgow	Lithgow	LGOV
Oil Shale Works and Refinery		Glen Davis	Lithgow	LGOV
Old Roman Catholic Cemetery	Great Western Highway	Hartley	Lithgow	LGOV
Portland Cement Group	Williwa Street	Portland	Lithgow	LGOV
Presbyterian Church and Sessions Hall	Great Western Highway	South Bowenfels	Lithgow	LGOV
Railway Cottage	Portland Road	Pipers Flat	Lithgow	LGOV
Railway Items Newnes Junction - Sodwalls	Main Street	Wallerawang	Lithgow	LGOV
Railway Items Newnes Junction - Sodwalls	Main West Line	Sodwalls	Lithgow	LGOV
Railway Items Newnes Junction - Sodwalls	Main West Line	Newnes Junction	Lithgow	LGOV
Railway Items Newnes Junction - Sodwalls	Main West Line	Rydal	Lithgow	LGOV
Railway Items Newnes Junction - Sodwalls	Main West Line	Marrangaroo	Lithgow	LGOV
Railway Items Newnes	Main West Line	Clarence	Lithgow	LGOV

Item Name	Address	Suburb	LGA	Source
Junction - Sodwalls				
Repcos Store	Railway Parade	Lithgow	Lithgow	LGOV
Rosedale	Great Western Highway	Little Hartley	Lithgow	LGOV
Royal Hotel	Great Western Highway	South Bowenfels	Lithgow	LGOV
Royal Hotel (former)	Old Bathurst Road	Hartley Historic Site	Lithgow	LGOV
Rydal General Cemetery		Rydal	Lithgow	LGOV
Rydal Railway Station	Bathurst Street	Rydal	Lithgow	LGOV
Rydal Station Group		Rydal	Lithgow	SGOV
Rydal Underbridges		Rydal	Lithgow	SGOV
School and Residence	Main Street	Wallerawang	Lithgow	LGOV
School Residence	Rydal Road	Tarana	Lithgow	LGOV
Shale Mining and Works Remains	Hartley Vale Road	Hartley Vale	Lithgow	LGOV
Six Foot Track		Megalong Valley	Lithgow	LGOV
Sodwalls Inn	Sodwalls Road	Sodwalls	Lithgow	LGOV
Somerset House	Great Western Highway	South Bowenfels	Lithgow	LGOV
St Bernard's Roman Catholic Church Group	Old Bathurst Road	Hartley Historic Site	Lithgow	LGOV
St John the Evangelist Church	Main Street	Wallerawang	Lithgow	LGOV
St John the Evangelist's Anglican Church	Great Western Highway	Hartley	Lithgow	LGOV
St Thomas Anglican Church	Wicketty War Road	Hampton	Lithgow	LGOV
Staff Cottages for Small Arms Factory	1,2,3 Commonwealth Avenue	Lithgow	Lithgow	LGOV
State Mine Site	State Mine Gully	Lithgow	Lithgow	LGOV
Sunny Corner General Cemetery	Dark Corner Road	Sunny Corner	Lithgow	LGOV
Sunny Corner Smelter Ruins	Sunny Corner PO 1km North/East	Sunny Corner	Lithgow	LGOV
Sweet Briars	Great Western Highway	South Bowenfels	Lithgow	LGOV
Tarana Station And Yard Group		Tarana	Lithgow	SGOV
Terrace	8,10,12,14 Lithgow Street	Lithgow	Lithgow	LGOV
Thompson's Creek Sites and Graves	Thompson's Creek	Portland	Lithgow	SGOV

Item Name	Address	Suburb	LGA	Source
Timber slab cottage	Mid Hartley Road	Hartley Vale	Lithgow	LGOV
Umera	Great Western Highway	South Bowenfels	Lithgow	LGOV
Union Theatre / Outbuilding	65 Bridge Street	Lithgow	Lithgow	LGOV
Victoria Pass	Great Western Highway	Mount Victoria	Lithgow	LGOV
Walker-Barton private cemetery		Wallerawang	Lithgow	LGOV
Wallerawang (Sydney) Footbridge		Wallerawang	Lithgow	SGOV
Wallerawang A and B Power Stations chimney stack	Main Steet	Wallerawang	Lithgow	SGOV
Wallerawang Footbridge (1960)		Wallerawang	Lithgow	SGOV
Wallerawang Schoolhouse		Wallerawang	Lithgow	SGOV
Wallerawang Station And Yard Group		Wallerawang	Lithgow	SGOV
Wallerawang Station Footbridge		Wallerawang	Lithgow	SGOV
Wallerawang Underbridges		Wallerawang	Lithgow	SGOV
Wambool Underbridge And Overbridge		Wambool	Lithgow	SGOV
West Fund; King's Chinese Restaurant	Railway Parade	Lithgow	Lithgow	LGOV
Willowvale	Portland Road	Wallerawang	Lithgow	LGOV
Wolgan Valley Railway	Main West Line	Newnes Junction	Lithgow	LGOV
Wolgan Valley Station	Wolgan Road	Wallerawang	Lithgow	LGOV
Zig Zag Brewery (former)	Brewery Lane	Lithgow	Lithgow	LGOV

5 Aboriginal Archaeological Context

This chapter presents a review of documentary and physical evidence pertaining to Aboriginal archaeology of the region and in particular the Study Area. Such information is considered as it provides context and accuracy to predictions made about the potential for archaeological remains to occur in the Study Area.

5.1 Aboriginal Heritage Information Management System

A search was undertaken of the DECCW Aboriginal Heritage Information Management System (AHIMS) for an area encompassed by coordinates Easting 230025 to 240025 and Northing 6293770 to 6313770 (MGA Zone 56). The AHIMS search was conducted over a 10 kilometre radius of the Longwall 900W and 910 Study Areas.

The AHIMS results detailed in Table 5-1 support the suitability of the regional area for the occurrence of different types of rock shelters. Shelters predominate including shelters with deposit (n=36) and shelters with art (n=14). Also recorded in the regional area were a range of artefact sites including artefact scatters and isolated finds (n=18), axe grinding grooves (n=3) and scarred trees (n=2). These results indicate that the regional area has predisposition to rock shelter sites with potential for rock engravings, art, grinding grooves and deposit. Several sites reflecting occupation patterns were recorded including habitation structure (n=1), potential archaeological deposit (n=1) and stone arrangement (n=1). One European stone arrangement site (n=1) was recorded reflecting the use of the region by European settlers.

The AHIMS data exhibits a high frequency of rock shelters, containing deposit and art. These sites generally occur in specific geological and topographical areas comprising of sandstone exposures, shelving, deep incised gorges, pagodas and overhangs. The rock shelters with either deposit or art are restricted to the steeply sloping ground as characterised by the cliff lines bordering the Kangaroo Creek and Wolgan River tributaries.

The results of the AHIMS search shows that midden shelter sites are unlikely to occur due to the lack of fresh water shell fish in the area. Axe grinding grooves are often found on large, open and relatively flat areas of sandstone outcrop in close proximity to water. Exposed sandstone along the Kangaroo Creek and Wolgan River and other tributary drainage lines and nearby swamps, and water holes on the ridges are potential areas for grinding groove sites in this area.

Artefacts occur in open plateau regions and on level, well drained areas in close proximity to water courses. Scarred trees used for making canoes are likely to be in close proximity to water, whereas trees that were used for making shields may have been some distance from water on a variety of landforms (DEC, 2005).

Figure 5-1 provides the location of the AHIMS sites.

Table 5-1: AHIMS Site Type and Frequency

Site Type	Frequency in Search Area
Shelter with Deposit	36
Shelter with Art	14
Artefact Scatter	10
Artefact(s) Unspecified	5
Isolated Find	3
Shelter with Art, Shelter with Deposit	3
Axe Grinding Groove	2
Scarred Tree	2
Aboriginal Ceremony and Dreaming	1
Axe Grinding Groove, Shelter with Deposit	1
Habitation Structure	1
European Stone Arrangement	1
Potential Archaeological Deposit	1
Stone Arrangement (2)	1
Total	81

A complete list of results from the AHIMS search can be found in Appendix 2.
A glossary of Aboriginal site types can be found in Appendix 4.

5.2 Regional Archaeological Context

The majority of the archaeological surveys and excavations in the Blue Mountains region have been in conjunction with environmental assessments for the coal mines, installation of power lines, telecommunications, and state forest works. Based on the information available, a number of trends in site location and patterning are evident.

A regional based study undertaken by Gollan (Gollan 1987) conducted archaeological investigations in the Newnes Plateau region in order to provide a comprehensive assessment of the archaeological resources of the plateau and regional and local significance. This report was undertaken for the NPWS.

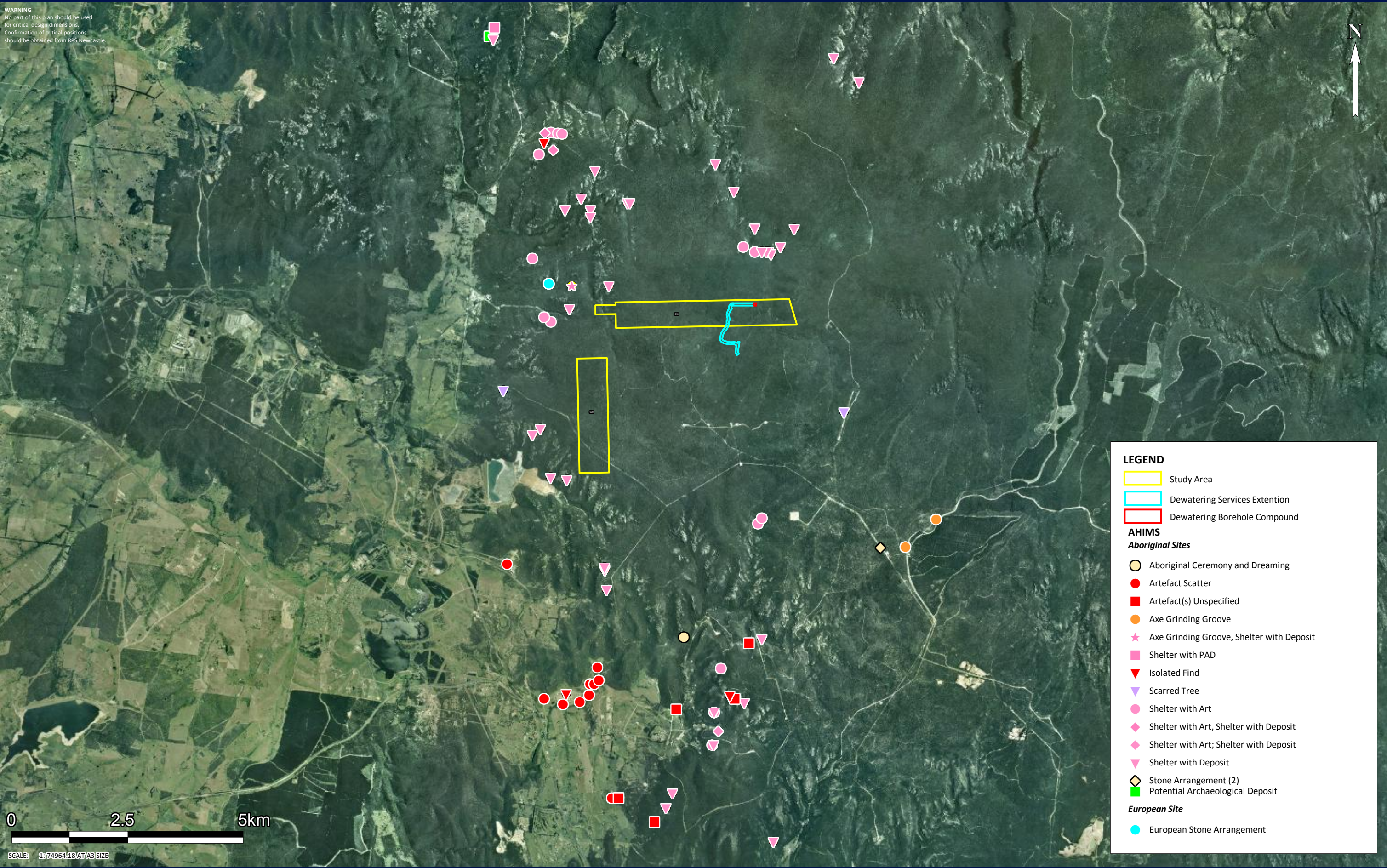
Gollan (Gollan 1987:114-120) concluded, at a regional level, that the plateau area, being of relatively flat lying and gently sloping land, provided suitable resources for Aboriginal occupation. Gollan (Gollan 1987:118) suggested that artefact scatters (and isolated finds) are likely to be found on the fringes of swamps because lithic material and food resources were available in these areas. This is evidenced by the predominance of sites in association with these areas. Gollan also found that there was evidence of the grinding of stone artefacts on the Plateau with several grinding groove sites and ground edged artefacts recorded. Shelters with art were also predominant in areas of the plateau where suitable rock types such as pagodas and inter-bedded sandstone and claystone rock outcrops were found.

Gollan (Gollan 1987:130) considered the plateau to be of high scientific and social significance based on the diversity of Aboriginal cultural heritage sites in the area. At a regional level Gollan was of the opinion that the plateau area was important with respect to both inter-site as well as intra-site diversity (Gollan 1987:131). Gollan (Gollan 1987:114) described the forested upland areas as having the potential to have provided substantial archaeological resources for an upland hunter/ gatherer economy.

A predictive archaeological model undertaken in the Clarence Outbye Area (HSO 2008) showed that 80 % of shelter sites were located along minor drainage lines and 20% along major drainage lines; 80% of Artefact scatters were identified near smaller tributaries and only 16% along major drainage lines. Scarred trees were found on moderate slopes close to the 1000m elevation and axe grinding grooves were located just below ridges at high elevations.

A comparison between the AHIMS search for the Study Area (which lies to the west of Clarence area) shows the same patterning for shelter sites, artefact sites were in lower lying areas along minor tributaries, grinding grooves were located in rocky outcrop at higher elevations and found scarred trees were also located at high elevation. Only a few rock shelters were along the main drainage line, whereas the majority were along tributaries of the Wolgan River and Lambs Creek.

At a regional level, the Blue Mountains area was therefore able to provide shelter and a resource-rich habitat as evidenced by the distribution of sites in the gently sloping and relatively flat swamp margins, low lying crest areas, flat lying ridge tops, and rocky outcrops lining the various water courses.



TITLE: FIGURE 5-1 AHIMS SEARCH RESULTS

LOCATION: ANGUS PLACE COLLIERY

DATUM: DATUM
PROJECTION: MGA ZONE 56 (GDA 94)

DATE: 3/3/2010
PURPOSE: ARCHAEOLOGY

LAYOUT REF:
VERSION (PLAN BY):

CENTENNIAL/26317/DRAFTING/
ARCHAEOLOGY/FIG 5-1 AHIMS
A (A.P-G.G)

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241 DENISON STREET BROADMEADOW PO BOX 428 HAMILTON NSW 2303
T: 02 4940 4200 F: 02 4961 6794 www.rpsgroup.com.au

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5.3 Local Archaeological Context

A number of archaeological surveys have been undertaken and reports have been produced in the Angus Place regional area. The most relevant investigations to the Study Area are summarised below and the information will assist with predictive modelling to help identify potential archaeological sites and provide for planning and management recommendations to be made with confidence.

Gaul, post 1980. Prehistoric Archaeology 391-1, Assignment 2: Black-Fellows Hands Shelter and Environs. University of New England.

It was recorded pre 1979 (Johnson, 1979) but was not registered with DECCW until Gaul undertook research in the 1980's and has since been recorded with DECCW AHIMS #45-1-0007 (Gaul, post 1980). The assignment was aimed at recording the art component of a group of three rock shelters at the western escarpment of the Blue Mountains, west of Sydney. Three shelters were surveyed using a 20m tape, string level and a camera.

Site A – Blackfellows Hand Shelter was located 1km north east from the start of Blackfellows Hand Track. It comprised a large open shelter with the main section being 60m long. The shelter contained occupational deposit slopes that continued for about 40m and also included a small number of chert flakes near the entrance of the shelter. The art panel contained a combination of motifs including arms, feet, weapons and kangaroo appendages. The colours of the motifs comprised of white, yellow and red.

Site B – Shelter was located approximately 700 m down Black Fellows Hands Track. The area contained a 40m long shelter with a low overhanging roof. The floor contained a deposit suspected to be 50cm – 1m in depth. Red hand stencils were found on walls and ceiling. Those on the ceiling were the best preserved art motifs.

Site C – Shelter was situated approximately 300 m further down the track. The shelter was 30 m long and strewn with large rocks from roof-fall. There was little space for deposit with the majority of it having eroded down the slope. The numbers of stencils were difficult to measure and contained mainly fingertips. The stencils were coloured white and yellow but many of them were faded (Gaul post 1980).

Gorecki, 1983. Archaeological Survey Kariwara Colliery Lease, Lithgow NSW.

A field survey was undertaken from January 24th to January 29th 1983 commissioned by Longworth and McKenzie Pty Limited. The survey was conducted on the Newnes Plateau approximately nine kilometres north of Lithgow in the Newnes State Forest. The survey aimed to locate and establish archaeological significance of Aboriginal relics and provide recommendations regarding protective measures for Aboriginal relics. Gorecki's previous assessment was situated immediately east of the current Study Area.

The survey area was divided into four environmental zones based upon geology, topography, vegetation cover and ground cover visibility. The archaeological potential of these zones were assessed. The four zones incorporated the following:

- Zone 1. Lagoon paddock
- Zone 2. Valley floors. These included Sawyers Swamp Creek, Kangaroo Creek and Wolgan River.
- Zone 3. Escarpments
- Zone 4. Plateau

The results of the survey found five archaeological sites and 19 potential occupation sites. Common sites found were a combination of shelters with art and deposit, with the deposited raw material consisting of quartz, chert, indurated mudstone, quartzite and fine grained igneous inclusions. Potential occupation sites have been referred to as shelters which may have been used in the past, but have no deposit at all or have the potential for relics in their deposit (Gorecki 1983).

Stockton, 1983. A Survey for Prehistoric Sites on the proposed Clarence Transfer for the Lithgow Water Supply, NSW.

This study was conducted to support the water requirements of the City of Greater Lithgow due to the rapid increase in coal mining and power generation in the area. Groundwater would be used from Clarence Colliery to supplement natural surface flows into council's Farmer's Creek Dam. The project requirements were a rising dam, settling ponds and a lined channel. The project was located 7km north east of Lithgow Post Office and incorporated the gently sloping ridge of the undulating surface of the Newnes Plateau.

The field survey was conducted in three stages.

Stage 1 – Area comprising 120m x 120m for the proposed settling dams.

Stage 2 – Route of the pipeline which had already been constructed.

Stage 3 – Lined channel and associated access road.

The creek channel section uncovered one isolated find comprised of grey chert and small artefact scatter comprised of two grey quartzite pieces.

Stockton recommended that additional archaeological surveys should always be carried out prior to any clearing or construction work in relation to the proposed project (Stockton 1983).

Rich, 1988. Proposed Prison at Marrangaroo Creek near Lithgow, NSW.

The archaeological assessment for the proposed construction works were located 6km north of Lithgow. The proposed development included prison construction, access roads, additional buildings, car parks and a lake. This study was located approximately 5km south of the current Study Area.

Two known Aboriginal sites were previously recorded in the survey area (#45-1-89 and #45-1-90) in 1983. Transects were made between the creek in the south and the railway line in the north. Sandstone ledges north of the railway line were inspected for shelters.

The survey uncovered eight open sites, and ground truthing of the two sites as mentioned above. The isolated finds and artefacts identified in the open sites were generally small to

medium size and were manufactured from quartz, quartzite and mudstone. Existing registered sites in the area were relocated and audited: Marrangaroo Creek Site #45-1-89 was located along a track and eroded bank of a small gully. Five artefacts were identified comprising of flake pieces of chert, milky and yellow quartz. Marrangaroo Creek Site #45-1-90 located on a levee bank between Marrangaroo Creek and a flood overflow channel. The artefact scatter site contained approximately 11 artefacts comprising flakes of indurated mudstone, quartz and milky quartz. A previously recorded (1983) quartzite multifaceted core could not be relocated on the survey.

The natural presence of quartz and quartzite for stone tool manufacture in the survey area indicates that the pebbles may have been readily available in the area (Rich 1983).

Rich and Gorman, 1992. Proposed Springvale Colliery and Conveyor, Wallerawang: Archaeological Survey for Aboriginal Sites.

An archaeological assessment was conducted for the proposed Springvale Colliery and related facilities located near Wallerawang in the Blue Mountains. The survey was divided into four locations; Springvale Pit Top Area 500m x 350m, Proposed Springvale Longwall Mine Area 7.5km x 5km, Proposed Conveyor Route measuring less than 10m wide and approximately 10km long and the Proposed Washery covering an area of 1km x 500m, including the reject emplacements and dams.

The field survey uncovered 11 artefacts scatter sites, an isolated find, two possible site locations, and three shelters with PAD (Potential Archaeological Deposit) were found.

The artefacts scatters were generally located on well exposed areas containing several artefacts with dominant raw material comprising of quartz, quartzite and mudstone. Shelters were predominantly composed of sandstone pagodas which are typical for the regional landscape and commonly located along tributary lines. Two of the shelters contained evidence of rock art.

Archaeological test excavations were recommended to be carried out at the two potential site locations to determine the presence of sites and if proposed works will impact on them (Rich 1992).

Rich, 1993. Springvale Coal Project, Wallerawang, NSW: Archaeological Inspection of Aboriginal Sites Affected by Construction Works.

This report was undertaken by Rich subsequent to the 1992 archaeological assessment undertaken by Rich and Gorman (1992). An assessment was made of existing recorded sites that had been, or were likely to be, affected by development works.

Several recommendations were made additional to those outlined in the 1992 report. These included the updating of existing recorded site cards where necessary (Rich 1993).

Central West Archaeological and Heritage Services Pty Ltd, 2000. An Aboriginal Archaeological Study of the Marangaroo Department of Defence Site, Lithgow, NSW
Central West Archaeological and Heritage Services Pty Ltd was commissioned by Dames and Moore Pty Ltd, on behalf of the Department of Defence, to carry out an Aboriginal

archaeological study of the Marrangaroo Department of Defence Site. Site entrance located approximately 2.2km east of the Great Western Highway and 10km north of Lithgow. The study area was approximately 1,700ha. The survey was both by vehicle and on foot.

The survey yielded 17 Aboriginal sites which consisted of 10 rock shelter sites, 2 rock shelter sites with art and one with deposits. 4 artefact scatter sites and 1 isolated artefact were also found. In addition 12 Potential Archaeological Deposits were recorded in the survey area.

It was recommended that protective buffer zones be established for the rock shelter sites and that if the proposed works were likely to impact on a site then a S87 and/or S90 Permit should be obtained (Central West Archaeological and Heritage Services Pty Ltd 2000).

OzArk Environmental & Heritage Management P/L, 2006. Flora/ Fauna and Heritage Assessment: Two Proposed Dewatering Borehole Sites for Underground Mining Activities within the Newnes State Forest, Lithgow, NSW.

The report was commissioned by Centennial Angus Place Pty Ltd (CAP) and details the results of a heritage assessment of approximately 1 ha of land in the Newnes State Forest, Lithgow, immediately south east of the current Study Area. The survey was conducted by pedestrian transects.

The survey recorded no Aboriginal sites in the locations of the two proposed dewatering boreholes and associated easement and access tracks. There were no constraints to the proposed development and no further archaeological investigation was considered necessary (Ozark Environmental & Heritage Management Pty Ltd 2007).

OzArk Environmental and Heritage Management P/L (2007) Indigenous Heritage Assessment for Subsidence Management Plan over Three Proposed Longwalls (29 – 31), Baal Bone Colliery.

OzArk Environmental and Heritage Management P/L was commissioned by Xstrata Coal Pty Ltd for the preparation of a Subsidence Management Plan (SMP) over proposed longwalls 29 – 31 located beneath the Ben Bullen State Forest, Cullen Bullen, NSW. This Study Area was located 7km north west of the current study area. OzArk's study comprised an extensive plateau of erosion resistant Triassic sandstone dissected by steep – sided valleys. The area contains remnant surface layer of weathered sandstone and shales of the Narrabeen Group overlaying a complex stratigraphical sequence including the Lidsdale and Lithgow Seams, which are both sub – groups of the Illawarra coal Measures.

A pedestrian field survey of a 250 ha area was conducted and yielded one isolated find and one rock shelter with no surface evidence of Aboriginal occupation. Recommendations for sites recorded were formulated. The report stated that if subsidence predictions indicate that the location of the shelter is likely to suffer extensive disturbance, and plans of the underlying longwalls cannot be altered, then a programme of limited sub surface test excavation in the rock shelter and its immediate environment

would be recommended to determine the presence or absence of Aboriginal occupation evidence (Ozark Environmental & Heritage Management Pty Ltd 2007).

5.4 Literature Review Discussion

The archaeological reports detailed in section 5.3 Local Archaeological Context and results of the AHIMS search found that the most commonly occurring site type associated with the Angus Place region is Shelters with either Archaeological Deposit or Art, or Shelters containing both. Artefact scatters were the second most commonly occurring site type. This supports the ethnographic evidence (Section 3) that the Aboriginal population readily exploited and relied on the natural landscape as a consistent and plentiful resource.

The Newnes Plateau and Blue Mountains region has probably been exploited for extensive periods by Aboriginal people and further investigation into the area may uncover patterns of Aboriginal land use and occupation.

6 Predictive Model for the Study Area

6.1 Predictive Modelling

A predictive model is created to form an educated estimate of the potential for an archaeological site to occur. It involves reviewing existing literature and consulting site databases to determine basic patterns of site distribution and correlating this distribution with the associated environment. The use of land systems and environmental factors in predictive modelling is based upon the assumption that these factors provided constraints that influenced land use patterns by past populations, resulting in different spatial distributions and types of sites detectable in the archaeological record. Predictive models can be used as a basis for the planning and management of Aboriginal and European heritage, and for formulating survey strategies to include areas of maximum archaeological potential.

The summary of environmental data (Section 2), ethnographic accounts (Section 3) and previous archaeological work (Section 4 and Section 5) were used to create a predictive model for sites in the Study Area.

6.2 Predictive Model for Aboriginal Archaeology in the Study Area

6.2.1 Site Types and Location

The climate information indicates that the area was suitable for habitation by the Aborigines for a majority of the year; colder months were most likely spent off the plateau where altitude and cooler conditions are more extreme; and in the lower valley areas which provided shelter and reduced exposure to cool winds. The AHIMS database records that shelter sites containing deposits, art and PAD regularly occur in the Newnes Plateau area and have been found in the vicinity of the Longwalls 900W and 910.

6.2.2 Site Aspect

The variety of landforms comprising the Study Area include crests and spurs, with moderately inclined upper, middle and lower sloped areas with various aspects. Rocky ridges in the Longwall 910 area generally aligned in a north to south direction, with minor ridges running laterally in an east to west direction. As such, slopes along the major creek lines tend to face west and east.

6.2.3 Slope

The terrain of the Study Area comprises flat topped, gently sloping crests, high ridges, steep sided upper and mid sloped areas and benched lower slope areas. Some areas are lined by vertical cliff faces and pagodas which overhang the permanent spring fed creek lines. In some areas these incised sections open out into alluvial channels with gentler sloping lower banks. The flat topped ridges or Plateau areas would be the most

accessible routes to traverse the landscape accessed via gentle slopes leading to valley floors. There is minimal shelter except in the lower slopes amongst scattered rock outcrops and pagodas close to permanent water. Archaeological investigations in the vicinity of the Study Area have identified a preference for sites to be located near steep cliffs and sandstone outcropping in close proximity to local creek lines. A number of shelters containing an archaeological deposit and art have been found associated with tributaries of both Kangaroo Creek and the Wolgan River.

Open landscapes would provide little shelter from environmental conditions such as strong winds, heavy rains, and cool winter nights. Open and closed woodlands would provide for temporary shelter in warmer weather.

6.2.4 Distance from Water

The Longwalls are located in close proximity to available water sources. Both Longwalls are intercepted by substantial creeklines. Tributaries of the Wolgan River, Kangaroo Creek and Coxs River enter both Longwalls 900W and 910. Longwall 910 has the most available access to permanent water sources, as Kangaroo Creek and Wolgan River intercept the Longwalls to the east and west. Fresh water may have been available on a seasonal basis from the associated drainage lines and tributaries.

6.2.5 Food

The Newnes State Forest would have been an area of much Aboriginal cultural activity in the past and would provide for ample supplies of fresh water and local resources. Tributaries from the Cox's River, Wolgan River and Kangaroo Creek penetrate through the Newnes Plateau. Flora and fauna resources in both terrestrial and freshwater areas would be available in the region and for a majority of the year, including along the creek lines during times of increased rainfall.

6.2.6 Summary

The area presents as a range of resources typical to the regional environment that would have been used and exploited by past Aboriginal populations. The AHIMS results demonstrate regular use of the natural landscape around the Newnes State Forest as evidenced by the number of Aboriginal shelter sites. The broader plateau landscape would have provided for good transitory access routes between resource zones. Local fresh water and terrestrial environments, especially the abundance of shelter, would have made the Study Area potentially desirable for campsites and as a locality for gathering a variety of flora and fauna species.

6.3 Predictive Model for European Heritage in the Study Area

The results of database searches (Register of National Estate, NSW Heritage Office) and the Lithgow City Council LEP (Section 4.1) and additional historical research provide a concept of the types of sites and activities that could have been carried out in the Study Area.

The Lithgow area presented a rich industrial environment which provoked the initial settlement of the region. The early occupants were mostly railway workers, who helped to construct the train line from Sydney to Bathurst, and miners in the local collieries. The discovery of the Lithgow coal seam was a prosperous addition to the regional economy, with many of the early settlers arriving to take advantage of the mining boom. Both of these industry sectors combined contributed to the Lithgow LGA as it is today.

It is the cultural remains from the early years of coal mining that are most likely to occur in the Study Area which may include discarded machinery, tool implements and structures and potentially built structures from the early years of settlement.

In determining the value of sites from a heritage perspective, The Heritage Branch Assessment Criteria was used (Refer Appendix 5).

7 Field Survey

The archaeological pedestrian survey of the Angus Place Colliery Study Area was conducted on Tuesday 9th, Wednesday 10th, Thursday 11th and Friday 12th February 2010. The majority of the survey days were conducted in warm temperate and humid conditions; on one of the days a heavy thunderstorm hit which caused the survey to finish early afternoon. Survey team members included Warwick Peckham (BLALC), Richard Peters (MAC), Kevin Williams and Wendy Lewis (WNTCAC), together with Senior Archaeologist Gillian Goode and Archaeologist Philippa Sokol from RPS. At the time of the survey the Study Area had proposed plans underway for the construction of Longwalls 910 and 900W and the purpose of the survey was to ascertain areas for potential impact and to develop mitigation measures accordingly.

A Rock Shelter with PAD was identified in the west of Longwall 910 and is situated inside the Study Area – Refer Appendix 7 (RPS Angus Place RS PAD1).

Scattered sandstone and quartz rocks were noted throughout the survey and are part of the Narrabeen Sandstone Group conglomerate formation. This raw material is difficult to knap and unsuitable for stone tool manufacture.

In relation to European cultural heritage items in the Study Area; the field survey investigations found no items of European cultural heritage.

7.1 Methodology

The survey was conducted on foot and effective coverage of all landform units was undertaken. The Study Area comprises two separate portions; one is located in the north and the other in the west being Longwalls 910 and 900W (Figure 7-1). An additional area was surveyed covering the proposed Dewatering Borehole Compound and associated Services Extension area to the west of the Wolgan River (Figure 7-2). The methodology for field survey was to investigate the Study Areas according to landform unit, as it is landforms that can determine the level of Aboriginal archaeological potential. Systematic coverage of these portions of the Study Area was undertaken.

Longwall 910 was divided into four survey units and Longwall 900W into two survey units (Figure 7-3), with each area being traversed in evenly spaced transects.

A map specifying the survey units and any identified archaeological sites from the field assessment are detailed in Figure 7-3.

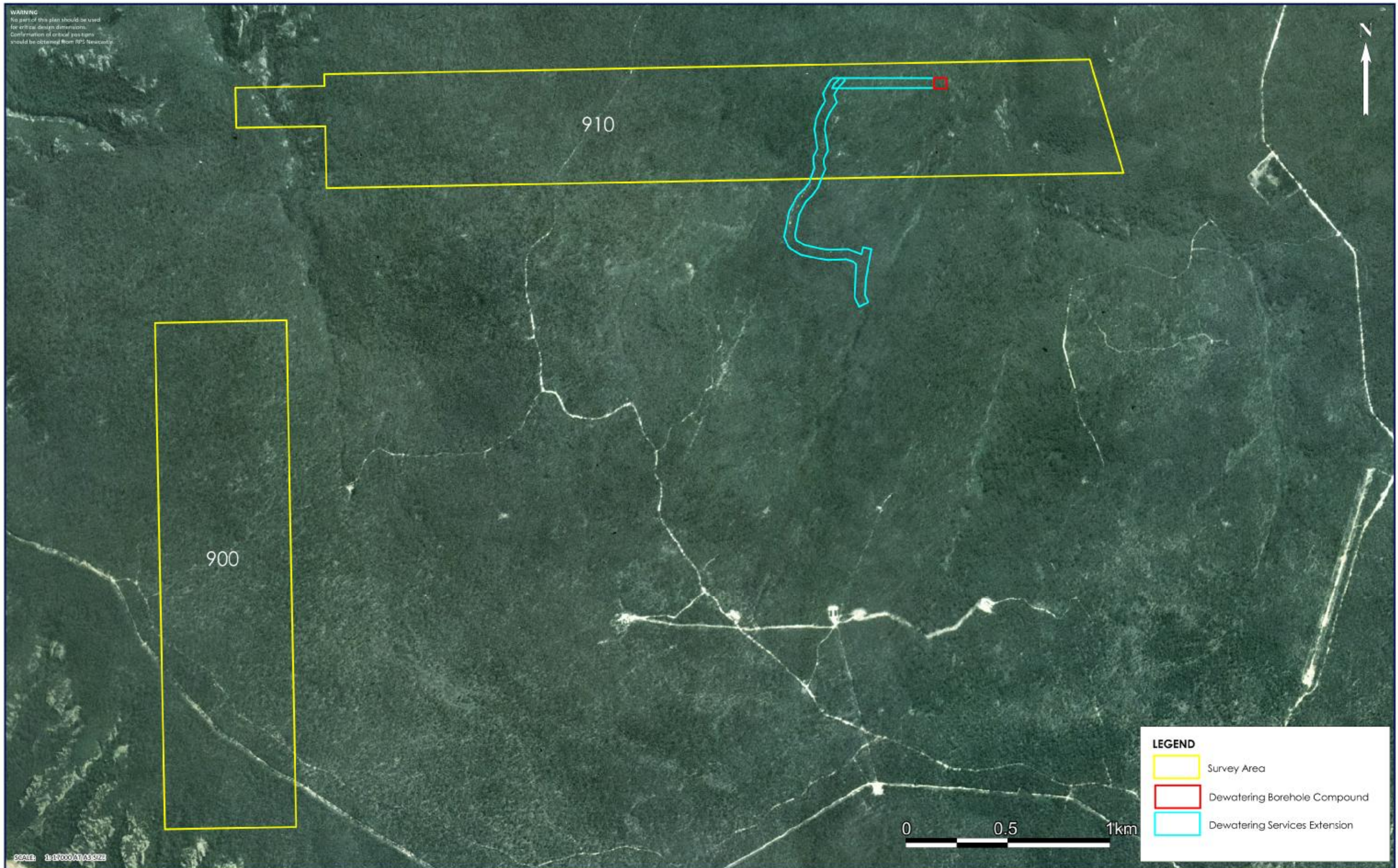
7.2 Landforms

The Study Area was assessed by its landforms and as such these landforms were used for comparative purposes of Aboriginal occupation patterns and predictive modelling. Landforms investigated on the survey included crests, spurs, gentle and steep mid slopes,

ephemeral drainage lines and moderately sloping sides, together with and extended into steep sided valleys in order to follow permanent creek lines (Figure 7-1).

Additional survey of an area for the proposed development of a Dewatering Borehole Compound in Longwall 910 area and associated infrastructure connecting to an existing Dewatering Borehole Compound to the south of Longwall 910 was also undertaken (Figure 7-2).

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TITLE: FIGURE 7-1 SURVEY AREAS

LOCATION: ANGUS PLACE COLLIERY

DATUM: DATUM
PROJECTION: MGA ZONE 56 (GDA 94)

DATE: 3/3/2010
PURPOSE: ARCHAEOLOGY

LAYOUT REF: 26317 FIGURE 7-1 SURVEY AREA A A3
VERSION (PLAN BY): A (A.P.-G.G.)

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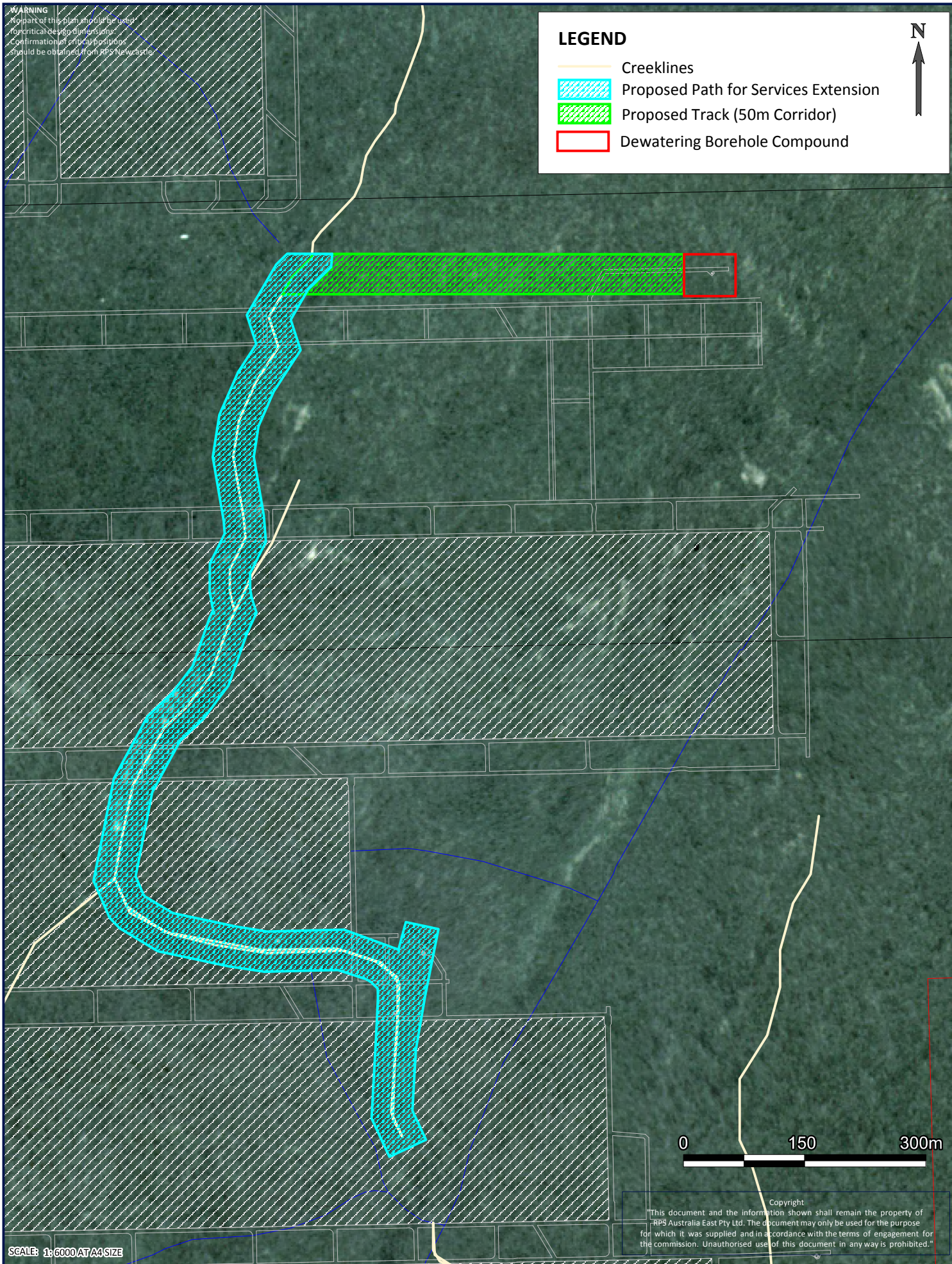
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LEGEND

-  Creeklines
-  Proposed Path for Services Extension
-  Proposed Track (50m Corridor)
-  Dewatering Borehole Compound



SCALE: 1:6000 AT A4 SIZE

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TITLE: FIGURE 7-2 COMPOUND &
SERVICES EXTENSION

LOCATION: ANGUS PLACE COLLIERY

DATUM: DATUM
PROJECTION: MGA ZONE 56 (GDA 94)

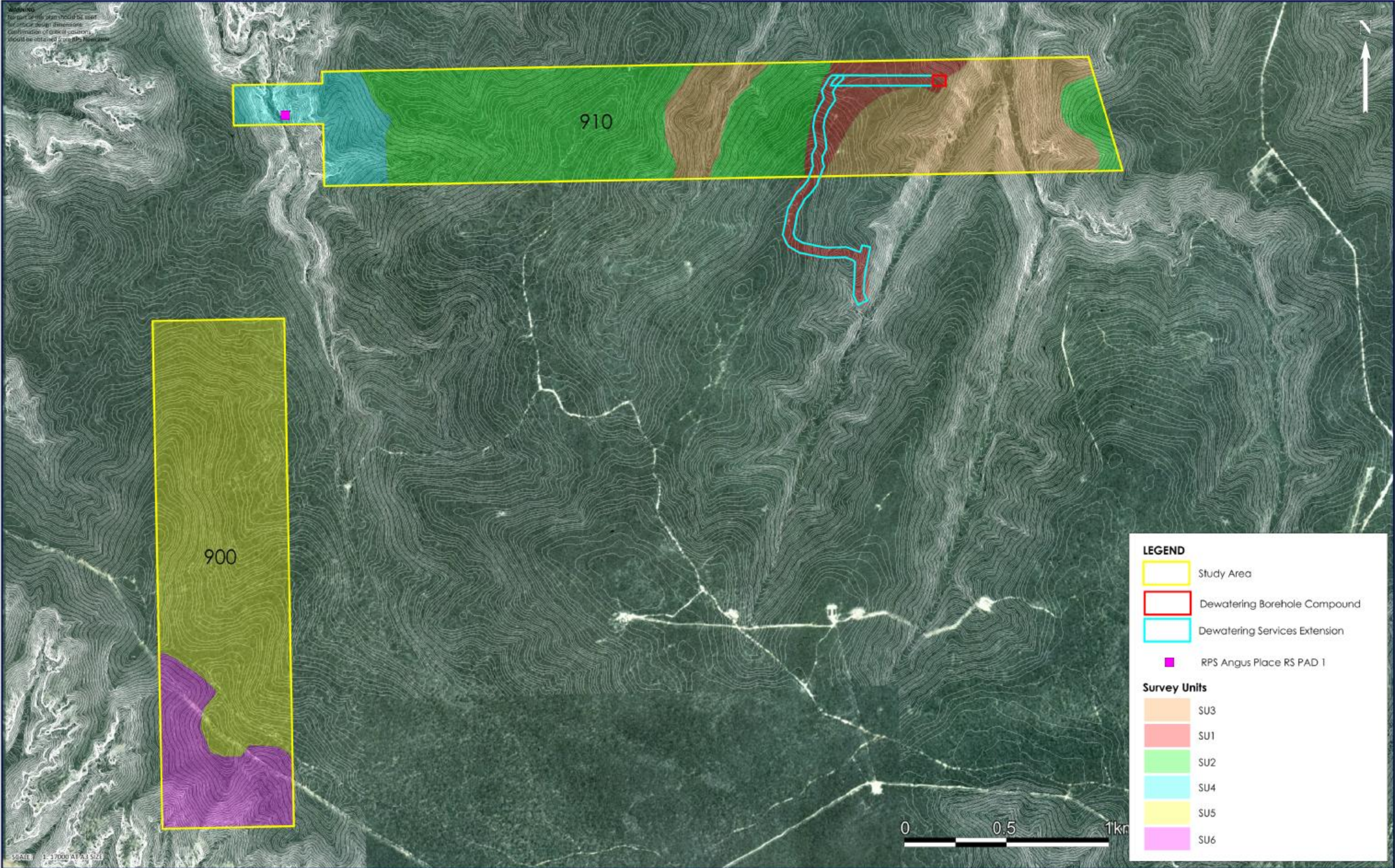
DATE: 12/10/2010
PURPOSE: ARCHAEOLOGY

26317 DRAFTING\MAPINFO\
LAYOUT REF: ARCH\FIG 7-2 SERVICES A A4
VERSION (PLAN BY): A (A.P.-G.G)

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TITLE: FIGURE 7-3 SURVEY UNITS & ABORIGINAL ARCHAEOLOGICAL SITE

LOCATION: ANGUS PLACE COLLIERY

DATUM: DATUM
PROJECTION: MGA ZONE 56 (GDA 94)

DATE: 3/3/2010
PURPOSE: ARCHAEOLOGY

LAYOUT REF: 26317 FIGURE 7-1 SURVEY UNITS A A3
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7.3 Survey Units

7.3.1 Longwall 910 Survey Results

7.3.1.1 Survey Unit 1 – Longwall 910 Dewatering Borehole

No items of Aboriginal or European cultural significance were identified in Survey Unit 1.

Survey unit 1 (SU1) incorporated the proposed Dewatering Borehole Compound and associated infrastructure including the installation of a pipeline to connect to the existing services (Figure 7-1 and 7-2). The compound and associated access tracks and infrastructure are located to the west of the Wolgan River and cross the central eastern section of the proposed Longwall 910 area.

The proposal for the development of the dewatering station and the extension of pipeline to the existing services was to follow the existing 4WD access track to the existing 930 Dewatering Borehole Compound located to the south of Longwall 910 (Plate 1). The track area was surveyed with a 25m corridor to either side for the installation of the pipeline and associated infrastructure. The existing 930 Dewatering Borehole Compound and associated services are used to remove excess water from the underground workings.

The Dewatering Borehole Compound and pump out areas were highly disturbed and felled trees had been used as erosion control measures in upper slope areas (Plate 2). The water is piped down a steep slope below the existing dewatering pump station (Plate 3). The area along the track was extremely disturbed by excavation of windrows, access track clearing, and from the effects of water discharge down slope (Plate 4).

The Proposed Dewatering Borehole Compound in the northern part of Longwall 910 area is located on gently sloping ground directly above a steeply inclined slope on the western bank of the Wolgan River. The proposed compound area measures 50m x 50m but a further 50m buffer around this area was also investigated. An area 50m wide was surveyed along an existing motocross bike trail leading from the end of the existing 4WD track (in the northern part of Longwall 910) to the proposed Dewatering Borehole Compound.

The 4WD track area was disturbed by ground clearance works associated with previous borehole clearance works, installation of subsidence monitoring pegs, tree felling, installation of windrows and use by 4WD and motocross vehicles. The area designated for the proposed Dewatering Borehole Compound was accessed along an existing motocross track. The proposed compound area has been disturbed by sheet wash and there was evidence of some rubbish dumping in this area.

Visibility was fair to good along the existing tracks although vegetation was increasingly dense at a distance of 5m either side of the track. There was no evidence of any Aboriginal cultural heritage material in the area encompassing the proposed Dewatering Borehole Compound and Services Extension areas.

7.3.1.2 Survey Unit 2 - Longwall 910 Crest, Upper and Middle Sloped Areas

No items of Aboriginal or European cultural significance were identified in Survey Unit 2.

Landforms in Survey unit 2 (SU2) were assessed according to low, moderate and high potential. Access into this area was via a well used 4WD trail called Black Fellows Hand Road, which is one of the main access routes across the plateau. SU2 contained several smaller tracks that branched off from the main trail (Plate 5). SU2 was investigated according to landform unit which included crests and ridgelines, upper slope, mid slope and lower slopes.

Access and visibility into SU2 was good and the pedestrian survey was conducted without much difficulty. Ground surface visibility was low caused by dense leaf litter, ribbon bark, native grasses and felled trees (Plate 6). There were several areas of exposed soils and erosion scalds. These areas were inspected for items of cultural significance. Much of the material found in these exposed areas included coarse grained sandstones and conglomerate pebbles and cobbles, and quartz pieces that had eroded from conglomerate rocks in the area.

Crest areas were generally considered as having high potential for Aboriginal cultural heritage items. These areas were surveyed for artefact scatters and possible isolated finds which may have resulted from Aboriginal people traversing the high land and discarding items no longer useful to them. Other potential site types in crest areas include sandstone outcrops suitable for grinding, hearths (stone arrangements), and scarred trees (any large trees that had not been subject to logging). Due to the high elevation of SU2, large sandstone outcrops suitable for shelters were not predicted likely. No Aboriginal cultural heritage sites were identified.

Upper to mid slope areas were surveyed for potential artefact scatters, isolated finds and scarred trees. Scattered large trees were seen but none contained scars or engravings. Artefact sites and isolated finds were a potential in suitably sloped areas such as spurs and associated with ground surface erosion on slopes (Plate 7). No Aboriginal cultural heritage sites were identified.

Mid sloped areas were investigated for scarred trees, although the occurrence of scarred trees in previously logged areas is unlikely. Artefact scatters were also taken into consideration on lower mid sloped areas that were generally a 3°C gentle slope (Plate 8). No Aboriginal cultural heritage sites were identified.

7.3.1.3 Survey Unit 3 – Longwall 910 Wolgan River Confluence and Associated Creek Terraces and Steeply Sloping Valley Sides

No items of Aboriginal or European cultural significance were identified in Survey Unit 3.

Survey unit 3 (SU3) incorporated the eastern portion of land in the Longwall 910 area that consisted of steeply descending slopes leading to the incised valleys and ephemeral gullies associated with the Wolgan River and its tributaries (Plate 9).

Lower slopes were considered areas of high potential and these were investigated for

artefacts scatters and isolated finds, scarred trees, rock shelters and pagodas (especially in areas adjacent to creek lines), grinding grooves on sandstone beds adjacent to rock shelters, and rock shelters with the potential to contain art, deposits and PAD (Plate 10).

Creek lines were found to be ephemeral with small water-filled pond areas, or permanent with water welling up through the sandstone via springs. The Wolgan River and several unnamed tributaries converge in this part of the study area. Banks on either side of the confluence were surveyed. A steeply sloped sandstone spur lay between the two major creek lines. This area of inter-bedded sandstone rocks (Plate 11) was surveyed by following the contours until the confluence point was reached. At the tip of the spur a marker peg was noted to signify the northern Longwall 910 boundary and a second peg marked the southern boundary. The flat lying sandstone rocks at the confluence were investigated for the potential of grinding grooves, but none were identified (Plate 12).

The western branch of the Wolgan River showed evidence of repeated flooding events with the deposition of alluvial gravels. The lower slopes were gently sloping with outcropping sandstone rocks and a few pagodas directly above the river terraces. Disturbances included the effects of flooding, erosion along the creek banks and down the screed slopes, and wombat burrows. Vegetation on both sides of the creek lines above the creek bed comprised thick scrub and the slopes were densely covered. There were several areas of exposed soils with sandstone and quartz pebbles eroded out of the overlying conglomerate rocks.

The eastern branch of the Wolgan River was lined with steeply sloping sandstone rocks and several pagodas. Several of the pagodas located just above the creek line in this area had been eroded forming small overhangs (Plate 13) but none of them were considered of adequate depth or height to provide for shelter (Plate 14).

Upper to mid slope areas were steeply sloping and there was the potential for sandstone outcrops or pagodas to contain overhangs suitable for human habitation. Outcrops on the ascending ridges were inspected but there were no rock shelters present in these rock formations. There were large expanses of sheet sandstone visible on the mid slope area on the eastern side of the Wolgan River but there were no rock shelters found in this part of the Study Area (Plate 15). At the top of this slope there were large expanses of flat lying sandstone, but no grinding grooves were evident (Plate 16).

There was no evidence of any Aboriginal cultural heritage objects or sites in this area.

7.3.1.4 Survey Unit 4 – Longwall 910 Kangaroo Creek

No items of Aboriginal or European cultural significance were identified in Survey Unit 4.

Survey unit 4 (SU4) incorporated the eastern portion of land in the Longwall 910 area. The area is bisected by Kangaroo Creek which lies in an incised valley with steeply descending upper slopes (Plate 17) and mid slope areas (Plate 18). Kangaroo Creek is a spring fed creek with fresh water welling up through the alluvial gravels that lie in the creek bed. The valley bottom is comprised of sandstone bed rock. The western bank of Kangaroo Creek is lined by towering sandstone cliffs and the eastern bank by pagodas

and broken cliff lines comprised of inter-bedded sandstone conglomerate rocks. The pagodas have been undercut by fluvial action resulting in several overhangs and rock falls with boulders scattered down the screed slopes.

The majority of this part of the Study Area had overhangs which were suitable for small wildlife to shelter under, but only one was considered large enough to have the provided shelter for Aboriginal people (Plate 19). The shelter was approximately 20m long, 12m wide and 15m high (Plate 20). This shelter had a sandy floor (Plate 21) which was approximately 400mm deep (RPS Angus Place RS PAD1). The site co-ordinates for the Rock Shelter with PAD are GDA 232966E 6305664N Lithgow Map Sheet (Refer Figure 7-3). The shelter was 2m from a temporary creek line and water hole and located approximately 10m above Kangaroo Creek (Plate 22). The area is undisturbed and the valley floor has many large trees and dense vegetation along its length (Plate 23 and Plate 24).

There was no evidence of any Aboriginal cultural heritage objects or sites in this area.

7.3.1.5 Survey Unit 5 – Longwall 900W Crest, Upper and Middle Sloped Areas

No items of Aboriginal or European cultural significance were identified in Survey Unit 1.

Landforms in survey unit 5 (SU5) were assessed according to low, moderate and high potential. Access into this area was via an unnamed trail that intersected in the west with the Angus Place trail along the crest. SU5 contained a few smaller tracks that branched off from the main trail. SU5 was investigated according to landform unit which included crests and ridgelines, upper mid slope, mid slope and lower slopes.

Access and visibility into SU5 was good and the pedestrian survey could be conducted without much difficulty. Ground surface visibility was very low to nil and was caused by heavy leaf and ribbon bark, native grasses and felled trees. There were very few areas of exposed soils and when these areas were located they were inspected for items of cultural significance (Plate 25). Much of the material found in these exposed areas included coarse grained sandstones and conglomerates, and quartz pieces that had eroded from conglomerate rocks in the area (Plate 26).

Crest areas were generally considered as high potential for Aboriginal cultural heritage items. These areas were surveyed for artefact scatters and possible isolated finds which may have resulted from Aboriginal people traversing the high land and discarding items no longer useful to them. Other potential in these areas that were investigated by the survey team included sandstone outcrops suitable for grinding, hearths (stone arrangements), and scarred trees (where large trees had not been subject to logging). Due to the high elevation of SU5, large sandstone outcrops suitable for shelters were not predicted.

Upper to mid slope areas were surveyed for potential artefacts scatters, isolated finds and scarred trees. Scattered large trees were seen but none containing scars or engravings. Artefacts sites and isolated finds were considered likely if the area was gently sloping and would probably be associated with ground surface erosion on slopes.

Mid slope areas were investigated for any scarred trees that remained after logging. Artefact scatters were also considered likely on lower mid slope areas that were gently sloping.

Lower slopes are also considered areas of high potential and these were investigated for artefact scatters and isolated finds, scarred trees, rock shelters and pagodas (especially in areas adjacent to creek lines), grinding grooves on sandstone beds adjacent to rock shelters, and rock shelters with the potential to contain art, deposits and PAD.

7.3.1.6 Survey Unit 6 – Steep Sided Slopes and Ephemeral Drainage Lines

No items of Aboriginal or European cultural significance were identified in Survey Unit 6.

These landform units were identified in the south west portion of Longwall 900W. The survey team began their investigations from the intersection at the Angus Place trail and continued south east along the crest areas and associated gentle mid and upper slopes. Adjacent and to the south of the crest areas lay an electricity easement. Soils in this area were well exposed and the vegetation was minimal enough to enable portions of ground surface to be observed (Plates 25). Many conglomerate pebbles comprised of quartz and claystone were noted in the area (Plate 26), but no items of Aboriginal cultural heritage were identified.

The survey team followed the contours which encircled the upper and mid slopes and travelled down the ephemeral drainage lines. Evidence of logging was seen in the area along with used vehicle tracks. Some of the large felled trees and leaf litter limited ground surface visibility. These drainage lines were all dry, but contained evidence of water flow during periods of high rainfall.

7.4 Effective Coverage

The amount of ground surface observed varies depending on factors such as soil disturbance, vegetation cover, steepness and accessibility of the terrain. Ground surface visibility was considered low. Visibility was restricted by leaf litter and vegetation. Erosion scalds and sheet wash occurred in some parts of the Study Area with lateritic cover of sandstone, claystone and quartz pebbles and cobbles.

7.5 Survey Results – Aboriginal Archaeology

On conclusion of the field survey all six members of the survey team, RPS Archaeologists Gillian Goode and Philippa Sokol, and the Aboriginal Community Stakeholders agreed that the area had been subject to major disturbance by logging and minor disturbance associated with the maintenance of the dirt access tracks. Other areas of scattered disturbance included previous borehole investigation areas, electricity easements and 4WD and motocross dirt access tracks. In summary the following can be said for the Angus Place Colliery archaeological survey:

- No Aboriginal archaeological sites or PADs were found on crest ridges;
- No Aboriginal archaeological sites or PADs were identified on the upper or mid slope areas which were generally 18° - 30° slopes;
- Ephemeral creek and drainage lines descended relatively steeply to narrow, deeply incised gorges with permanent spring fed water running through the linear jointed sandstone bedrock;
- Triassic sandstone pagodas and cliffs lined some of the sections of permanent creek lines;
- In some areas pagodas and inter-bedded sandstone outcrops were undercut by erosion forming small overhangs; and
- Only one Rock Shelter with PAD was identified and the site card is attached in Appendix 7 (RPS Angus Place RS PAD1).

The vegetation of the Study Area was predominantly dense and ground surface visibility was generally considered low. Exposed areas were inspected for items of archaeological significance but no items were identified. Sandstone outcrops and overhangs were assessed for Aboriginal archaeological potential.

The minimal amount of stone artefact sites recorded in the locality may be reflections on the lack of available raw material in the area for stone tool manufacturing. Of note, the common rock type for the area is coarse grained conglomerate sandstone and friable quartz, which is generally unsuitable to be used as a stone tool raw material.

7.6 Survey Results – European Historic

No items of European archaeological significance were identified during the field investigation.

The Lithgow region has had a strong settlement history and was initially settled as a result of its booming coal mine industry. During the course of the field survey the Study Area was inspected for potential items of European history that may relate to its past settlement patterns.

No evidence resembling the early Lithgow settlement history and mining industry or other items of European cultural historical significance was observed during the field investigation.

8 Aboriginal Archaeology Significance Assessment

The term 'archaeological significance' (also referred to as scientific significance) is a value allocated to Aboriginal or European heritage sites by archaeologists to help determine appropriate management strategies and mitigation measures for their ongoing care and management.

8.1 Archaeological Significance

The Study Area incorporating Longwalls 900W, 910 and Dewatering Borehole Compound and Services Extension had been disturbed by dirt tracks for public access by 4WD and motor cross bikes, logging, power line easements, dewatering pump stations and borehole investigation sites. There were a number of felled trees from current State Forest works.

No Aboriginal archaeological sites or PADs were found on crest ridges, upper or mid slope areas which were generally steeply sloped, or along ephemeral creek and drainage lines. There were a number of sandstone outcrops and pagodas scattered along Kangaroo Creek and the Wolgan Rivers. Several of the pagodas had overhangs which were inspected for evidence of habitation, rock art, grinding grooves on associated flat sandstone outcrops and also for their archaeological deposit potential.

Only one Rock Shelter with PAD was identified in the western portion of Longwall 910 which is located inside the Study Area. This site was located on the west facing, lower sloped area above a permanent spring fed creek line of the Kangaroo Creek tributary. All other accessible pagodas and rock formations were inspected and no other Aboriginal archaeological sites or PADs were identified.

The rock shelter was relatively large with a high overhang located adjacent to a water hole, as well as being in close proximity to Kangaroo Creek. The floor of the rock shelter contained a sandy deposit of approximately 40cm in depth. No artefacts or cultural material was identified on the surface of the sandy floor and there was no evidence of rock art on the sandstone faces. However, there is the potential for subsurface deposit to be present. The mid and upper slopes above the rock shelter were very steep, but access from Kangaroo Creek was possible. In the absence of any other suitable shelters in the immediate vicinity, the significance of this rock shelter with PAD is assessed as being of moderate archaeological significance.

In summary:

1. the dewatering station and pipeline area can be considered to have nil to low significance;
2. Crest ridges, upper and mid slopes, and ephemeral creek and drainage lines have nil to low significance;
3. Lower slopes and banks of Kangaroo Creek and the Wolgan River and their tributaries have nil to low significance except for the area containing the one Rock

Shelter with PAD on Kangaroo Creek (RPS Angus Place RS PAD1). The site co-ordinates for the Rock Shelter with PAD are GDA 232966E 6305664N Lithgow Map Sheet.

8.2 Site Specific Significance Assessment

The archaeological significance given to a site or area in the absence of identified sites is based on several criteria detailed below. This criterion is then used to ascertain the archaeological significance of the Rock Shelter with PAD site.

- Rarity in a local and regional context
- Representativeness in a local and regional context
- Integrity in a local and regional context
- Connectedness in a local and regional context
- Complexity in a local and regional context
- Ability to contribute to the archaeological understanding of the cultural sequence in a local and regional context

Rarity: *This criterion examines the site type against those occurring in the local and regional context. If the site type being assessed is considered to be rare at either regional or local levels, this raises its importance in the archaeological record. In Australia, the most common site type is an artefact scatter. For the local area, the most common site types are shelters with deposit, art and PAD.*

Only one Rock Shelter with PAD (RPS Angus Place RS PAD1) was identified in the western portion of the Longwall 910 area. This site was located on the west facing, lower sloped area above a permanent spring fed creek line of Kangaroo Creek. The Rock Shelter with PAD (RPS Angus Place RS PAD1) would be considered to be of low importance for rarity.

Representativeness: *This criterion relates to determining if the site can be characterised as representative of the sites (types, integrity etc) present in the local and regional context. The purpose of this is to conduct further investigations on a sample of sites within a given area, in order to add to the archaeological understanding of the area, but to leave a representative sample in situ for future generations.*

Shelters with deposit, art and PAD are representative of the most common site found across the local and regional area. In this instance, the Rock Shelter with PAD (RPS Angus Place RS PAD1) has the potential to be classified as moderate for representativeness as it appears to contain a relatively undisturbed floor.

Integrity: *This criterion refers to how undisturbed and intact a site is. A site with contextual integrity can provide information relating to chronology, social systems, tool technology, site formation processes, habitation, frequency of use as well as other forms*

of analysis. If a site has been the subject of moderate to large degrees of disturbance, it has a low probability of retaining integrity, and thus the information able to be obtained from the site is reduced.

It would appear that the area surrounding RPS Angus Place RS PAD1 has been subject to disturbances by water flow after heavy rain when the creek would have been fast flowing. Use by animals would contribute to disturbances within the confines of the shelter. The area in front of the open end of the shelter contained a thick cover of vegetation which may offer some protection from climatic conditions and activities from fauna. The area is considered to have low to moderate integrity.

Connectedness: *The connectedness criterion relates to the relationship between a site and others in the local and regional environment. If a site is determined to have connectedness with other sites, the depth of knowledge that can be obtained from the connected sites increases and can be used to develop an understanding of more traditional practices that cannot be identified by looking at one site in isolation. The connectedness could relate to age, the landform in which they are contained, the contents of the sites etc. This criterion is often ascertained without subsurface investigations.*

The connectedness of this Rock Shelter with PAD site (RPS Angus Place RS PAD1) has been assessed in relation to other shelters found in the vicinity of the spring fed creek line of the Kangaroo Creek tributary with available fresh water. The area is considered to have moderate significance for connectedness.

Complexity: *The complexity criterion relates to the contents of the site. This may relate to a high number of artefacts per square metre or features which can add to the layer of information that can be obtained from a site (e.g. hearths, knapping floors, ochres etc).*

The complexity of the Rock Shelter with PAD site at this point can only be assessed in terms of size and evidence of potential deposit as it shows limited evidence of complexity apparent at the surface. It is considered that given the location of the site, complexity be assigned as low – moderate.

Contribute to Knowledge: *The ability of a site to contribute to knowledge is largely dependent on the site having moderate to high significance assessments for the other criteria. The ability to contribute to knowledge requires 'new' knowledge to be drawn from the site and add to the local and/or regional context.*

The Rock Shelter with PAD site (RPS Angus Place RS PAD1) contains a significant sized overhang stretching for approximately 15 metres. The position of the shelter adjacent to a spring fed creek containing a relatively intact floor suggests that the shelter has the potential to contain archaeological deposit. The site is therefore considered to have moderate potential to contribute to the archaeological record.

8.3 Cultural Significance

This can only be determined by Aboriginal community. This section is to be completed once community feedback has been received with the responses to be located in Appendix 8.

8.4 European Historical Significance Assessment

The rich mining history and local settlement patterns in the region of the Study Area have been listed in Lithgow archival recordings along with other historical items listed on the NSW Heritage Register and Council Local Environmental Plan (LEP) (Section 4). Items of historical significance are assessed following the NSW Heritage Criteria Assessment Criterion. A copy of this can be found at Appendix 5.

No items of European cultural significance were identified in the Study Area.

9 Impact Assessment

No European cultural heritage sites were located during the survey of the Study Area. The only Aboriginal cultural heritage site identified was a Rock Shelter with PAD (RPS Angus Place RS PAD1 – refer Appendix 7). No other area was considered likely to have the potential to contain archaeological deposit.

9.1 Proposed Development

The proposed development for the Study Area will incorporate extensions of Longwalls 910 and 900W for future mining exploration works. It should be noted that the primary aim of the risk minimisation strategy developed for this project is to avoid all impacts.

9.1.1 Aboriginal Cultural Heritage Impact Assessment

It is considered that there is no potential for the proposed development to impact upon the Rock Shelter with PAD (Appendix 7) identified in Longwall 910. Information provided by Centennial Angus Place Pty Limited regarding the angle of draw for the proposed Longwall development indicates that the Rock Shelter with PAD (RPS Angus Place RS PAD1) lies outside of the area likely to be affected by subsidence. For even greater assurance that there will be no impact to the Rock Shelter with PAD (RPS Angus Place RS PAD1), Centennial Angus Place Pty Limited has adopted a move to a zero subsidence contour that encircles the project which in effect has moved the impact area further away from the site.

A study conducted by DGS (2010) showed the overall predicted cumulative worst-case subsidence impact would be minimal in the overall Study Area. RPS placed an overlay of the Study Area onto the subsidence contours in Figure 17a of the DGS 2010 report. This showed that there was no subsidence predicted in the western part of Longwall 910 and there is no subsidence predicted in the area of the Rock Shelter with PAD (RPS Angus Place RS PAD1-Refer Figure 7-3). Also other sites previously registered on the AHIMS database are located well outside of the immediate Study Area and will therefore not be liable to impacts by subsidence from the proposed development works.

There were no other Aboriginal Cultural Heritage sites identified in the Study Area. The proposed development works are considered unlikely to impact upon any Aboriginal cultural heritage sites under the current subsidence and angle of draw calculations provided by Centennial Angus Place. DGS (2010) predicts nil subsidence in the area where RPS Angus Place RS PAD1 site occurs and for the majority of the Study Area a vertical subsidence between zero and 2mm is predicted.

9.1.2 European Cultural Heritage Impact Assessment

No items of European historical significance or potential for archaeological deposit were identified in the Study Area during the field investigation.

10 Mitigation Measures

The mitigation measures that stem from this archaeological assessment are based on the legislation designed to address the potential impact from the Angus Place Colliery development works upon sites of cultural significance. It should be noted that the primary aim of the risk minimisation strategy developed for this project is to avoid all impacts, which means that the residual risk for impact to archaeological material is negligible.

10.1 Aboriginal Cultural Heritage

Mitigation Measure 1 - Aboriginal Community Consultation

Liaison established with the Aboriginal Community as per the *DECCW Interim Community Consultation Requirements for Applicants (2005)* during this project should be maintained during the proposed works should any matters relating to Aboriginal heritage occur.

Mitigation Measure 2 - Aboriginal Archaeological Management

One Aboriginal cultural heritage site was located and recorded during the survey. The site was recorded as a Rock Shelter with PAD (RPS Angus Place RS PAD1).

There was no subsidence predicted in the area of RS PAD1 (DGS April 2010). However, it is recommended that during the general course of the project the site could be monitored for the effects of cracking or movement and ongoing management of the site could include monitoring. Monitoring of the Rock Shelter with Pad would include pre and post mining inspections to assess and quantify any impact.

During the course of project work:

Mitigation Measure 3

Ensure that disturbance associated with the proposed mining operations is limited to the boundaries of the Study Area identified in this report. If works are planned outside of the Study Area, new and subsequent European and Aboriginal archaeological investigations will need to be initiated.

Mitigation Measure 4

If it is suspected Aboriginal Cultural Heritage Material has been encountered, work should cease immediately in that locale. If Aboriginal site/s are identified in the study area, then all works in the area should cease, the area cordoned off and contact made with DECCW Enviroline 131 555, a suitably qualified archaeologist and the relevant Aboriginal stakeholders, so that it can be adequately assessed and managed.

Mitigation Measure 5

In the event that skeletal remains are uncovered, work is to stop in the vicinity immediately and the relevant command area of the NSW Police contacted. If skeletal remains are deemed to be of Aboriginal origin, then all works in the area should cease, the area cordoned off and contact made with DECCW Enviroline 131 555, a suitably qualified

archaeologist and the relevant Aboriginal stakeholders, so that it can be adequately assessed and managed.

10.2 European History

No European cultural heritage sites were located during the survey of the Study Area. During the course of any construction work the following Mitigation Measure should be considered.

Mitigation Measure 6

If, during the course of clearing works, significant European cultural heritage material is uncovered, work should cease in that area immediately. The NSW Heritage Branch should be notified and works only recommence when an appropriate and approved management strategy instigated.

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12 Plates



Plate 1: View of dewatering station.



Plate 2: View of felled trees for erosion control measures at dewatering station.



Plate 3: View from Wolgan River tributary looking up degraded dewatering station track.



Plate 4: View of degraded dewatering station track.



Plate 5: View of track across plateau from Black Fellows Hands Road.



Plate 6: Vegetation and leaf litter hindering ground surface visibility.



Plate 7: View of upper and mid sloped areas in the Study Area.



Plate 8: View of mid sloped areas in the Study Area.



Plate 9: View of lower sloped areas in the Study Area.

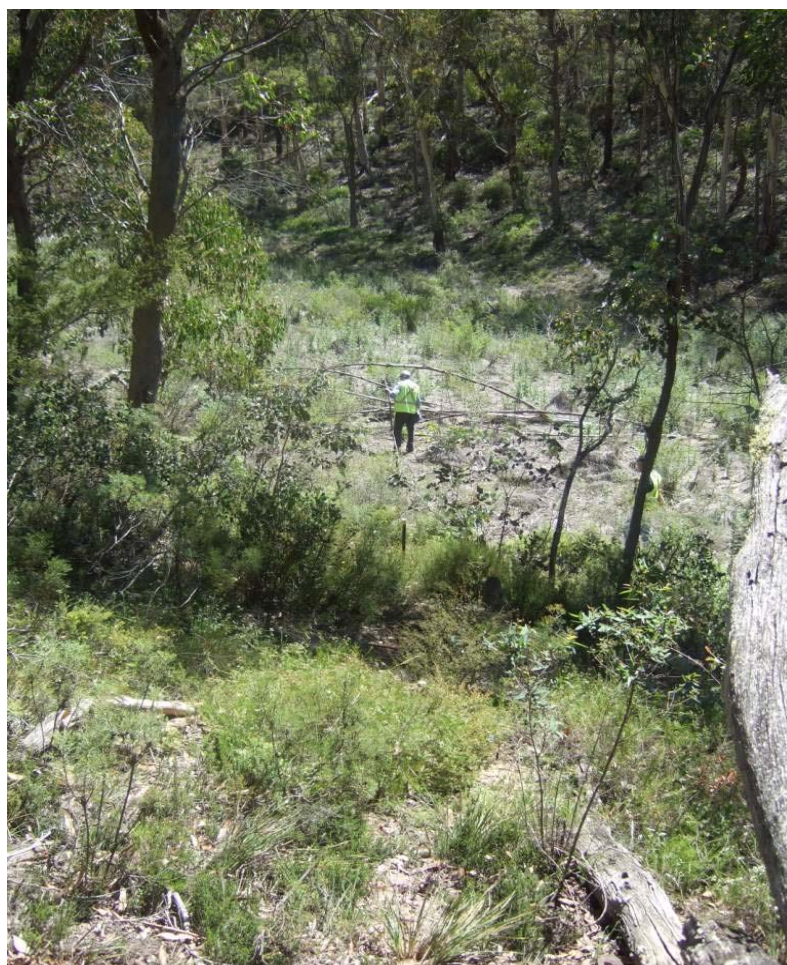


Plate 10: View down slope into the Wolgan River tributary of Longwall 910.



Plate 11: View of sandstone bedrock along the spur.



Plate 12: Sandstone bedrock along spur with no evidence of grinding grooves.



Plate 13: Pagoda overhang on eastern bank of Wolgan River tributary to south of confluence.



Plate 14: Pagoda.

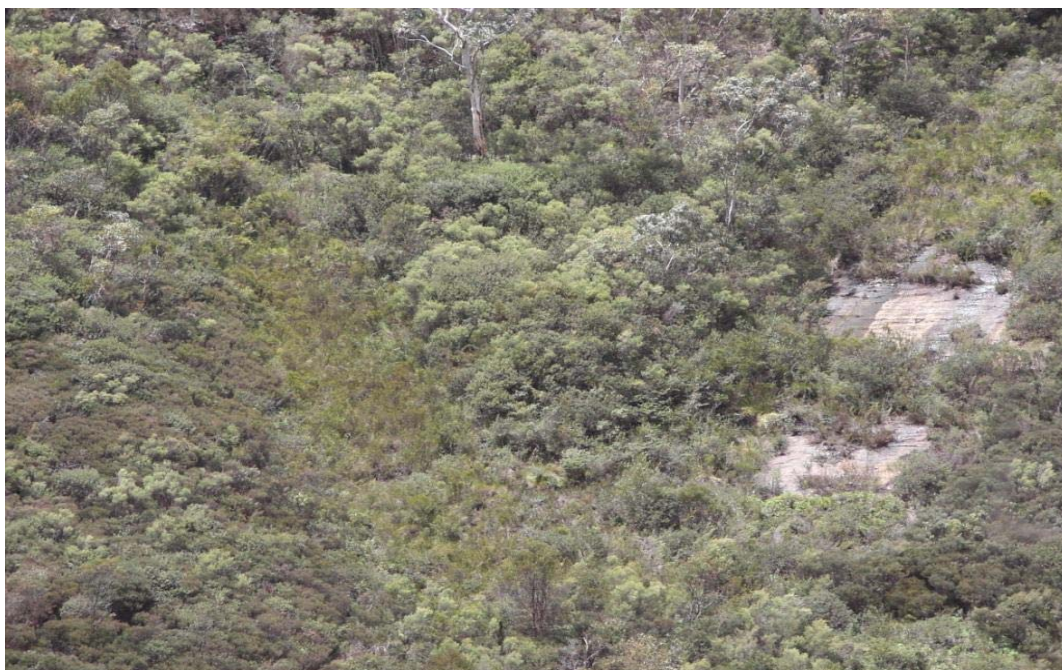


Plate 15: View of mid slope area on eastern bank of Wolgan River tributary showing drainage lines and sheet sandstone.



Plate 16: Exposed flat sandstone sheet rock. No grinding grooves.

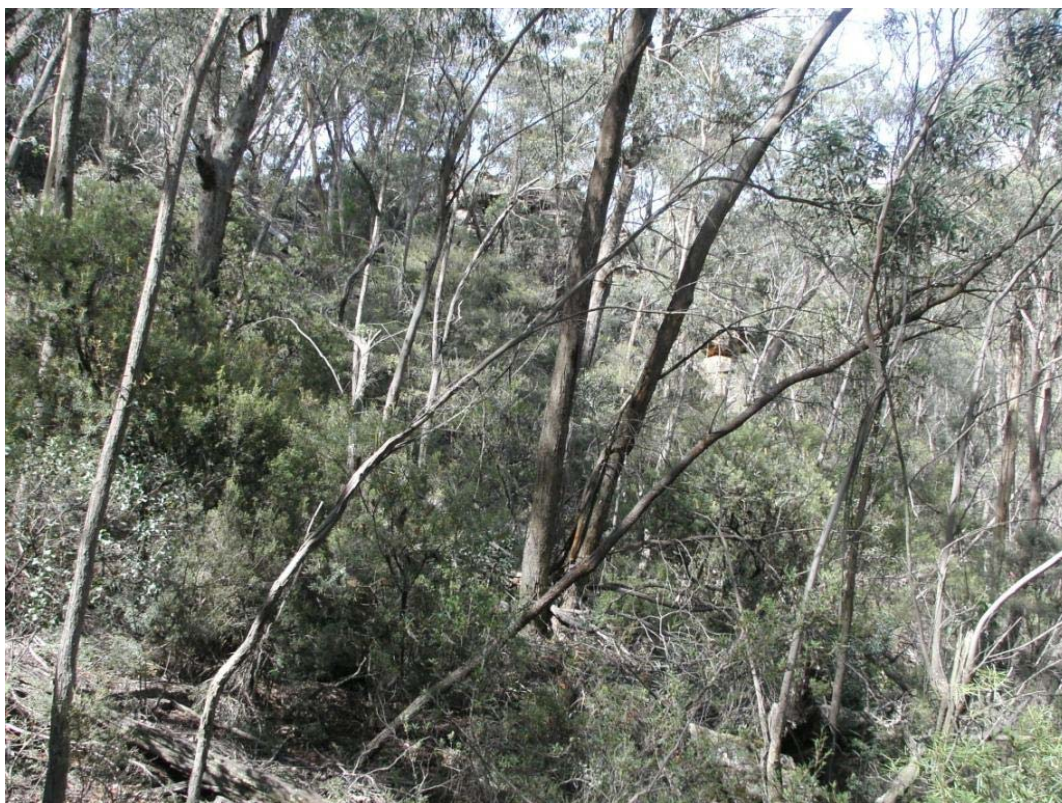


Plate 17: Descent to deep gorge; upper slopes.



Plate 18: Descent to deep gorge; mid slopes.



Plate 19: Rock Shelter with PAD on lower slope above Kangaroo Creek – photo facing south west.



Plate 20: View to north east showing height of Rock Shelter with PAD.



Plate 21: view to south west showing floor of Rock Shelter with PAD.



Plate 22: Temporary water source adjacent to Rock Shelter with PAD - view to north.



Plate 23: Permanent creek line with towering cliffs.



Plate 24: Large trees along length of permanent creek line.



Plate 25: Sheet wash erosion showing pebbles.



Plate 26: Fractured quartz pebbles and conglomerate sandstone cobbles.

Appendix I

Legislative Requirements

SUMMARY OF STATUTORY CONTROLS

The following overview of the legal framework is provided solely for information purposes for the client, it should not be interpreted as legal advice. RPS Australia East Pty Ltd will not be liable for any actions taken by any person, body or group as a result of this general overview, and recommend that specific legal advice be obtained from a qualified legal practitioner prior to any action being taken as a result of the summary below.

COMMONWEALTH

Aboriginal and Torres Strait Islander Heritage Protection Act 1984 (ATSHP Act), Amendment 2006

The purpose of this Act is to preserve and protect all heritage places of particular significance to Aboriginal and Torres Strait Islander people. This Act applies to all sites and objects across Australia and in Australian waters (s4).

It would appear that the intention of this Act is to provide national baseline protection for Aboriginal places and objects where State legislation is absent. It is not to exclude or limit State laws (s7(1)). Should State legislation cover a matter already covered in the Commonwealth legislation, and a person contravenes that matter, that person may be prosecuted under either Act, but not both (s7(3)).

The Act provides for the preservation and protection of all Aboriginal objects and places from injury and/or desecration. A place is construed to be injured or desecrated if it is not treated consistently with the manner of Aboriginal tradition or is or likely to be adversely affected (s3).

THE AUSTRALIAN HERITAGE COMMISSION ACT 1975

The Australian Heritage Commission Act 1975 established the Australian Heritage Commission which assesses places to be included in the National Estate and maintains a register of those places. Places maintained in the register are those which are significant in terms of their association with particular community or social groups and they may be included for social, cultural or spiritual reasons. The Act does not include specific protective clauses.

The Australian Heritage Council Act 2003 together with The Environment Protection and Biodiversity Conservation Act 1999 (Amended) includes a National Heritage List of places of National heritage significance, maintains a Commonwealth Heritage List of heritage places owned or managed by the Commonwealth and ongoing management of the Register of the National Estate.

STATE

It is incumbent on any land manager to adhere to legislative requirements that protect Aboriginal culture heritage in NSW. The relevant legislation includes but is not limited to:

National Parks & Wildlife Act 1974 (NPW Act), Amended 2001.

The DECCW issued their *Interim Community Consultation Requirements* in January 2005 to replace all previous consultation guidelines that related to Part 6 of the NPW Act 1974. The requirement of the guidelines is for the proponent, or consultant for the proponent, to contact the Local Aboriginal Land Council(s), Registrar of Aboriginal Owners, Native Title Services, local councils and the DECCW, to request contact information for any/all potential Aboriginal people/groups with an ancestral interest in the cultural heritage of the project area.

The updated consultation guidelines *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (2010) were released in April 2010; DECCW has advised that consultation commenced for projects prior to the 12th of April 2010 can continue under the ICCR process.

The NPW Act provides statutory protection for all Aboriginal relics (not being a handicraft made for sale), with penalties levied for breaches of the Act. Part 6 of this Act is the relevant part concerned Aboriginal objects and places, with the Section 86 and Section 90 being the most pertinent:

Section 91: Under Section 91 of the Act it stipulates that a person who is aware of unregistered Aboriginal sites must report these to the DECCW, regardless of the land status (Freehold, leasehold, Crown land).

Section 90: "A person who, without first obtaining the consent of the Director-General, knowingly destroys, defaces or damages, or knowingly causes or permits the destruction or defacement of or damage to, an Aboriginal object or Aboriginal place is guilty of an offence against this Act." Under s.5 of the Act "object" means any deposit, object or material evidence (not being a handicraft made for sale) relating to Aboriginal habitation of the area. This applies to habitation both prior to and concurrent with the occupation of that area by persons of non Aboriginal extraction, and includes Aboriginal remains.

Section 87: Preliminary Research Permits issued under Section 87 of the Act, allow the permit holder to conduct investigations of areas considered to be potential sites for the purpose of research, and also for conservation work associated with known sites.

Impact Permits issued under Section 90 of the Act are for salvaging sites prior to ground disturbance works associated with construction. Any disturbance, damage or destruction of Aboriginal sites, known or unknown, is considered to contravene the NPW Act (1974) and the DECCW will pursue the person/company responsible.

Penalties under these two sections are currently 50 penalty units, or 6 months in gaol, or both for an individual and 200 penalty units for a corporation. The DECCW record all S.87 and S.90 permits issued in order to manage Aboriginal sites and ensure representative samples of sites are left in situ for future generations. In order to achieve this, the DECCW need to be made aware of all Aboriginal sites located in NSW.

Section 86: This section of the Act states that "A person, other than the Director-General or a person authorised by the Director-General in that behalf, who:

- disturbs or excavates any land, or causes any land to be disturbed or excavated, for the purpose of discovering an Aboriginal object,

- disturbs or moves on any land an Aboriginal object that is the property of the Crown, other than an Aboriginal object that is in the custody or under the control of the Australian Museum Trust,
- takes possession of an Aboriginal object that is in a national park, historic site, state conservation area, regional park, nature reserve, karst conservation reserve or Aboriginal area,
- removes an Aboriginal object from a national park, historic site, state conservation area, regional park, nature reserve, karst conservation reserve or Aboriginal area, or
- erects or maintains, in a national park, historic site, state conservation area, regional park, nature reserve, karst conservation reserve or Aboriginal area, a building or structure for the safe custody, storage or exhibition of any Aboriginal object,

except in accordance with the terms and conditions of an unrevoked permit issued to the person under section 87, being terms and conditions having force and effect at the time the act or thing to which the permit relates is done, is guilty of an offence against this Act.”

Section 84: Aboriginal places of traditional significance (that may or may not contain archaeological material) are given protection under Section 84 of the NPW Act. To be an Aboriginal place for the purposes of this Act, this is a place that, in the opinion of the Minister, is or was of special significance with respect to Aboriginal culture.

ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979 (EP&A ACT)

This Act regulates a system of environmental planning and assessment for New South Wales. Land use planning requires that environmental impacts are considered, including the impact on cultural heritage and specifically Aboriginal heritage. Within the EP&A Acts, Parts III, IV, and V relate to Aboriginal heritage.

Part III regulates the preparation of planning policies and plans. Part IV governs the manner in which consent authorities determine development applications and outlines those that require an environmental impact statement. Part V regulates government agencies that act as determining authorities for activities conducted by that agency or by authority from the agency. The National Parks & Wildlife Service is a Part V authority under the EP&A Act.

In brief, the NPW Act provides protection for Aboriginal objects or places, while the EP&A Act ensures that Aboriginal cultural heritage is properly assessed in land use planning and development.

Part 3A of the EPA relates to major projects, and if applicable, obviates the need to conform to other specific legislation. In particular, s75U of the EPA Act explicitly removes the need to apply for s87 or s90 permits under the NPW Act. This means that although Aboriginal cultural heritage is considered during the planning process, a permit is not required to disturb or destroy an Aboriginal object or place. However, the Director-General of Planning must nonetheless consult with other government agencies, including DECCW and National Parks & Wildlife, prior to any decision being made.

THE HERITAGE ACT 1977

This Act protects the natural and cultural history of NSW with emphasis on non-Aboriginal cultural heritage through protection provisions and the establishment of a Heritage Council. Although Aboriginal heritage sites and objects are primarily protected by the National Parks & Wildlife Act 1974 (NPW Act), Amended 2001, if an Aboriginal site, object or place is of great significance, it may be protected by a heritage order issued by the Minister subject to advice by the Heritage Council.

Other legislation of relevance to Aboriginal cultural heritage in NSW includes the NSW Local Government Act (1993). Local planning instruments also contain provisions relating to Aboriginal heritage and development conditions of consent.

Appendix 2

AHIMS Registered Sites



List of Sites (List - Short)

Angus Place

Grid Reference Type = AGD (Australian Geodetic Datum), Zone = 56, Easting From = 230025, Easting to = 240025, Northing From = 6293770, Northing to = 6313770, Requestor like 3023%, Service ID = 28859, Feature Search Type = AHIMS Features

Site ID	Site Name	Datum	Zone	Easting	Northing	Context	Site Features	Site Types	Recording	Reports	State Arch. Box No
								(recorded prior to June 2001)	(Primary)	(Catalogue Number)	(for office use only)
<u>45-1-0002</u>	<u>Bungleboori:Old Bells Line Track:</u>	AGD	56	239300	6300400	Open Site	GDG : -	Axe Grinding Groove	Jelinek		NRS/17798/1/299
	Status Valid										
	Primary Contact								Permit(s)		
<u>45-1-0005</u>	<u>Old Bells Line Track:</u>	AGD	56	239960	6301000	Open Site	GDG : -	Axe Grinding Groove	Jelinek	1474	NRS/17798/1/299
	Status Valid										
	Primary Contact								Permit(s)		
<u>45-1-0007</u>	<u>Blackfellows Hand Rock;Wolgan Gap:</u>	AGD	56	231700	6308990	Enclosed Shelter	ART : -, AFT : -	Shelter with Art, Shelter with Deposit	Jelinek	809	NRS/17798/1/299
	Status Valid										
	Primary Contact								Permit(s)		
<u>45-1-0008</u>	<u>Lindsdale;Kerosene Vale:</u>	AGD	56	231640	6301900	Enclosed Shelter	AFT : -	Shelter with Deposit	Wright		NRS/17798/1/299
	Status Valid										
	Primary Contact								Permit(s)		
<u>45-1-0024</u>	<u>Angus Place;Angus Place Cave:</u>	AGD	56	231250	6306650	Enclosed Shelter	ART : -	Shelter with Art	Unknown Author		NRS/17798/1/300
	Status Valid										
	Primary Contact								Permit(s)		
<u>45-1-0040</u>	<u>Angus Place:</u>	AGD	56	231650	6305280	Enclosed Shelter	ART : -	Shelter with Art	Jelinek		NRS/17798/1/300
	Status Valid										
	Primary Contact								Permit(s)		
<u>45-1-0041</u>	<u>Angus Place:</u>	AGD	56	231500	6305380	Enclosed Shelter	ART : -	Shelter with Art	ASRSYS		NRS/17798/1/300
	Status Valid										
	Primary Contact								Permit(s)		
<u>45-1-0044</u>	<u>Beecroft:</u>	AGD	56	230620	6303780	Open Site	TRE : -	Scarred Tree	Brayshaw		NRS/17798/1/300
	Status Valid										
	Primary Contact								Permit(s)		



List of Sites (List - Short)

Angus Place

Grid Reference Type = AGD (Australian Geodetic Datum), Zone = 56, Easting From = 230025, Easting to = 240025, Northing From = 6293770, Northing to = 6313770, Requestor like 3023%, Service ID = 28859, Feature Search Type = AHIMS Features

Site ID	Site Name	Datum	Zone	Easting	Northing	Context	Site Features	Site Types	Recording	Reports	State Arch. Box No
								(recorded prior to June 2001)	(Primary)	(Catalogue Number)	(for office use only)
<u>45-1-0046</u>	<u>Wolgan Gap:Blue Mountains:</u>	AGD	56	231800	6309360	Enclosed Shelter	ART : -	Shelter with Art	Jelinek		NRS/17798/1/300
		Status	Valid						Permit(s)		
		Primary Contact									
<u>45-1-0078</u>	<u>Rock Art:Angus Place Colliery:26:Kangaroo Creek;</u>	AGD	56	232100	6306050	Enclosed Shelter	AFT : -, GDG : -	Axe Grinding Groove, Shelter with Deposit	Donlon, McIntyre, Gorecki	339, 2016, 2220	NRS/17798/1/301
		Status	Valid						Permit(s)		
		Primary Contact									
<u>45-1-0079</u>	<u>European Stone Arrangement</u>	AGD	56	231600	6306100	Open Site	STA : -	Not an Aboriginal Site	Gorecki		NRS/17798/1/301
		Status	Not a Site						Permit(s)		
		Primary Contact									
<u>45-1-0084</u>	<u>Location 15, Site 3:Newnes State Forest;</u>	AGD	56	236900	6307300	Enclosed Shelter	AFT : -	Shelter with Deposit	Gorecki	339, 2016, 2220	NRS/17798/1/301
		Status	Valid						Permit(s)		
		Primary Contact									
<u>45-1-0087</u>	<u>Marangaroo Ridge 2:</u>	AGD	56	232810	6299890	Enclosed Shelter	AFT : -	Shelter with Deposit	Brayshaw		NRS/17798/1/301
		Status	Valid						Permit(s)		
		Primary Contact									
<u>45-1-0088</u>	<u>Marangaroo Ridge 3:</u>	AGD	56	232850	6299460	Enclosed Shelter	AFT : -	Shelter with Deposit	Mary Dallas Consulting Archaeologists		NRS/17798/1/301
		Status	Valid						Permit(s)		
		Primary Contact									
<u>45-1-0089</u>	<u>Marangaroo Ridge 4:</u>	AGD	56	232490	6297420	Open Site	AFT : -	Open Camp Site	Brayshaw	1414	NRS/17798/1/301
		Status	Valid						Permit(s)		
		Primary Contact									
<u>45-1-0090</u>	<u>Marangaroo Ridge 5:</u>	AGD	56	232580	6297420	Open Site	AFT : -	Open Camp Site	ASRSYS	1414	NRS/17798/1/301
		Status	Valid						Permit(s)		
		Primary Contact									



List of Sites (List - Short)

Angus Place

Grid Reference Type = AGD (Australian Geodetic Datum), Zone = 56, Easting From = 230025, Easting to = 240025, Northing From = 6293770, Northing to = 6313770, Requestor like 3023%, Service ID = 28859, Feature Search Type = AHIMS Features

Site ID	Site Name	Datum	Zone	Easting	Northing	Context	Site Features	Site Types	Recording	Reports	State Arch. Box No
								(recorded prior to June 2001)	(Primary)	(Catalogue Number)	(for office use only)
<u>45-1-0091</u>	<u>Marangaroo Ridge 1:</u>	AGD	56	232800	6299950	Enclosed Shelter	AFT : -	Shelter with Deposit	ASRSYS	679	NRS/17798/1/301
		Status	Valid						Permit(s)		
		Primary Contact									
<u>45-1-0107</u>	<u>Maroo - YLS/4</u>	AGD	56	232960	6294940	Open Site	AFT : -	Open Camp Site	Bonhomme Craib & Associates		NRS/17798/1/301
		Status	Valid						Permit(s)		
		Primary Contact									
<u>45-1-0112</u>	<u>MC 1:</u>	AGD	56	231500	6297100	Open Site	AFT : -	Open Camp Site	Brayshaw, Rich	1414	NRS/17798/1/301
		Status	Valid						Permit(s)		
		Primary Contact									
<u>45-1-0113</u>	<u>MC 2:</u>	AGD	56	232470	6297180	Open Site	AFT : -	Open Camp Site	Brayshaw, Rich	1414	NRS/17798/1/301
		Status	Valid						Permit(s)		
		Primary Contact									
<u>45-1-0114</u>	<u>MC 3:</u>	AGD	56	232650	6297780	Open Site	AFT : -	Open Camp Site	Rich	1414	NRS/17798/1/301
		Status	Valid						Permit(s)		
		Primary Contact									
<u>45-1-0115</u>	<u>MC 4:</u>	AGD	56	232680	6297500	Open Site	AFT : -	Open Camp Site	Brayshaw, Rich	1414	NRS/17798/1/301
		Status	Valid						Permit(s)		
		Primary Contact									
<u>45-1-0116</u>	<u>MC 5:</u>	AGD	56	232270	6297030	Open Site	AFT : -	Open Camp Site	Brayshaw, Rich	1414	NRS/17798/1/301
		Status	Valid						Permit(s)		
		Primary Contact									
<u>45-1-0117</u>	<u>MC 6:</u>	AGD	56	231910	6296980	Open Site	AFT : -	Open Camp Site	Brayshaw, Rich		NRS/17798/1/301
		Status	Valid						Permit(s)		
		Primary Contact									



List of Sites (List - Short)

Angus Place

Grid Reference Type = AGD (Australian Geodetic Datum), Zone = 56, Easting From = 230025, Easting to = 240025, Northing From = 6293770, Northing to = 6313770, Requestor like 3023%, Service ID = 28859, Feature Search Type = AHIMS Features

Site ID	Site Name	Datum	Zone	Easting	Northing	Context	Site Features	Site Types	Recording	Reports	State Arch. Box No
								(recorded prior to June 2001)	(Primary)	(Catalogue Number)	(for office use only)
<u>45-1-0125</u>	<u>Baalbone Pagoda 1:</u>	AGD	56	230400	6311400	Enclosed Shelter	AFT : -	Shelter with Deposit	Godwin		NRS/17798/1/301
		Status	Valid						Permit(s)		
		Primary Contact									
<u>45-1-0133</u>	<u>7 Newnes State Forest</u>	AGD	56	235600	6308100	Enclosed Shelter	AFT : -	Shelter with Deposit	Donlon, McIntyre	339, 2016	NRS/17798/1/301
		Status	Valid						Permit(s)		
		Primary Contact									
<u>45-1-0135</u>	<u>9 Newnes State Forest</u>	AGD	56	232300	6307950	Enclosed Shelter	AFT : -	Shelter with Deposit	Higgins, Ingram	339, 2016	NRS/17798/1/301
		Status	Valid						Permit(s)		
		Primary Contact									
<u>45-1-0136</u>	<u>10 Newnes State Forest</u>	AGD	56	232500	6307700	Enclosed Shelter	AFT : -	Shelter with Deposit	Donlon, McIntyre	339, 2016	NRS/17798/1/301
		Status	Valid						Permit(s)		
		Primary Contact									
<u>45-1-0137</u>	<u>11 Newnes State Forest</u>	AGD	56	236600	6306900	Enclosed Shelter	AFT : -	Shelter with Deposit	Donlon, McIntyre	339, 2016	NRS/17798/1/301
		Status	Valid						Permit(s)		
		Primary Contact									
<u>45-1-0138</u>	<u>12 Newnes State Forest</u>	AGD	56	235800	6306900	Enclosed Shelter	ART : -	Shelter with Art	Donlon, McIntyre, Powell	339, 2016	NRS/17798/1/301
		Status	Valid						Permit(s)		
		Primary Contact									
<u>45-1-0139</u>	<u>13 Newnes State Forest</u>	AGD	56	236050	6306800	Enclosed Shelter	ART : -	Shelter with Art	Donlon, McIntyre	339, 2016	NRS/17798/1/301
		Status	Valid						Permit(s)		
		Primary Contact									
<u>45-1-0140</u>	<u>14 Lambs Creek</u>	AGD	56	233300	6307850	Enclosed Shelter	AFT : -	Shelter with Deposit	Donlon, George, McIntyre	339, 2016	NRS/17798/1/301
		Status	Valid						Permit(s)		
		Primary Contact									



List of Sites (List - Short)

Angus Place

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Site ID	Site Name	Datum	Zone	Easting	Northing	Context	Site Features	Site Types	Recording	Reports	State Arch. Box No
								(recorded prior to June 2001)	(Primary)	(Catalogue Number)	(for office use only)
<u>45-1-0141</u>	<u>15 Lambs Creek</u>	AGD	56	233350	6307850	Enclosed Shelter	AFT : -	Shelter with Deposit	Donlon, George	339, 2016	NRS/17798/1/301
		Status	Valid						Permit(s)		
		Primary Contact									
<u>45-1-0142</u>	<u>16 Lambs Creek</u>	AGD	56	232600	6308550	Enclosed Shelter	AFT : -	Shelter with Deposit	Donlon, George	339, 2016	NRS/17798/1/301
		Status	Valid						Permit(s)		
		Primary Contact									
<u>45-1-0143</u>	<u>17 Newnes State Forest</u>	AGD	56	232500	6307550	Enclosed Shelter	AFT : -	Shelter with Deposit	Donlon, McIntyre	339, 2016	NRS/17798/1/301
		Status	Valid						Permit(s)		
		Primary Contact									
<u>45-1-0144</u>	<u>18 Newnes State Forest</u>	AGD	56	236350	6306800	Enclosed Shelter	AFT : -	Shelter with Deposit	Donlon, George	339, 2016	NRS/17798/1/301
		Status	Valid						Permit(s)		
		Primary Contact									
<u>45-1-0145</u>	<u>19: Newnes State Forest</u>	AGD	56	236400	6306750	Enclosed Shelter	AFT : -	Shelter with Deposit	Donlon, George	339, 2016	NRS/17798/1/301
		Status	Valid						Permit(s)		
		Primary Contact									
<u>45-1-0146</u>	<u>20: Newnes State Forest</u>	AGD	56	236050	6307300	Enclosed Shelter	AFT : -	Shelter with Deposit	Donlon, George, McIntyre	339, 2016	NRS/17798/1/301
		Status	Valid						Permit(s)		
		Primary Contact									
<u>45-1-0147</u>	<u>21 Newnes State Forest</u>	AGD	56	231420	6302950	Enclosed Shelter	AFT : -	Shelter with Deposit	Donlon, McIntyre, Sim	339, 2016	NRS/17798/1/301
		Status	Valid						Permit(s)		
		Primary Contact									
<u>45-1-0148</u>	<u>22: Newnes State Forest</u>	AGD	56	231250	6302820	Enclosed Shelter	AFT : -	Shelter with Deposit	Donlon, McIntyre, Sim	339, 2016	NRS/17798/1/672
		Status	Valid						Permit(s)		
		Primary Contact									



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Site ID	Site Name	Datum	Zone	Easting	Northing	Context	Site Features	Site Types	Recording	Reports	State Arch. Box No
								(recorded prior to June 2001)	(Primary)	(Catalogue Number)	(for office use only)
<u>45-1-0149</u>	<u>23 NewnesState Forest</u>	AGD	56	236300	6306800	Enclosed Shelter	AFT : -	Shelter with Deposit	Donlon, McIntyre	339, 2016	NRS/17798/1/301
		Status	Valid						Permit(s)		
		Primary Contact									
<u>45-1-0150</u>	<u>24 Newnes State Forest</u>	AGD	56	236200	6306800	Enclosed Shelter	AFT : -	Shelter with Deposit	Donlon, McIntyre	339, 2016	NRS/17798/1/301
		Status	Valid						Permit(s)		
		Primary Contact									
<u>45-1-0151</u>	<u>27 Newnes State Forest</u>	AGD	56	232050	6305550	Enclosed Shelter	AFT : -	Shelter with Deposit	Donlon, McIntyre	339, 2016	NRS/17798/1/301
		Status	Valid						Permit(s)		
		Primary Contact									
<u>45-1-0152</u>	<u>28:Kangaroo Creek:</u>	AGD	56	232900	6306050	Enclosed Shelter	AFT : -	Shelter with Deposit	Donlon, McIntyre	339, 2016	NRS/17798/1/301
		Status	Valid						Permit(s)		
		Primary Contact									
<u>45-1-0153</u>	<u>29:Newnes State Forest:</u>	AGD	56	238300	6310480	Enclosed Shelter	AFT : -	Shelter with Deposit	Donlon, McIntyre	339, 2016	NRS/17798/1/301
		Status	Valid						Permit(s)		
		Primary Contact									
<u>45-1-0156</u>	<u>32 Newnes State Forest</u>	AGD	56	237750	6311000	Enclosed Shelter	AFT : -	Shelter with Deposit	McIntyre, Donovan	339, 2016	NRS/17798/1/302
		Status	Valid						Permit(s)		
		Primary Contact									
<u>45-1-0157</u>	<u>33 PAD 7;Newnes State Forest:</u>	AGD	56	235200	6308700	Enclosed Shelter	AFT : -	Shelter with Deposit	Donlon, McIntyre	339, 2016	NRS/17798/1/302
		Status	Valid						Permit(s)		
		Primary Contact									
<u>45-1-0158</u>	<u>34 PAD 9;Newnes State Forest\Lambs Creek;</u>	AGD	56	232300	6307950	Enclosed Shelter	AFT : -	Shelter with Deposit	McIntyre, Donovan	339, 2016	NRS/17798/1/302
		Status	Valid						Permit(s)		
		Primary Contact									



List of Sites (List - Short)

Angus Place

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Site ID	Site Name	Datum	Zone	Easting	Northing	Context	Site Features	Site Types	Recording	Reports	State Arch. Box No
								(recorded prior to June 2001)	(Primary)	(Catalogue Number)	(for office use only)
<u>45-1-0159</u>	<u>35 PAD 14:Newnes State Forest:</u>	AGD	56	231990	6301850	Enclosed Shelter	AFT : -	Shelter with Deposit	McIntyre, Powell	339, 2016	NRS/17798/1/302
		Status	Valid						Permit(s)		
		Primary Contact									
<u>45-1-0160</u>	<u>36 (PAD 8):</u>	AGD	56	231950	6307700	Enclosed Shelter	AFT : -	Shelter with Deposit	Donlon, McIntyre	339, 2016, 2220	NRS/17798/1/302
		Status	Valid						Permit(s)		
		Primary Contact									
<u>45-1-0199</u>	<u>MC 1:NEWNES SF:</u>	AGD	56	236200	6298400	Enclosed Shelter	AFT : -	Shelter with Deposit	Gollan		NRS/17798/1/302
		Status	Valid						Permit(s)		
		Primary Contact									
<u>45-1-0200</u>	<u>SMC 1:NEWNES SF:</u>	AGD	56	236450	6294000	Enclosed Shelter	AFT : -	Shelter with Deposit	Gollan		NRS/17798/1/302
		Status	Valid						Permit(s)		
		Primary Contact									
<u>45-1-0204</u>	<u>S11:Newnes Plateau:</u>	AGD	56	236120	6300900	Enclosed Shelter	ART : -	Shelter with Art	Baker, Rich	2300	NRS/17798/1/302
		Status	Valid						Permit(s)		
		Primary Contact									
<u>45-1-0205</u>	<u>S10:Newnes Plateau:</u>	AGD	56	236200	6301020	Enclosed Shelter	ART : -	Shelter with Art	Baker, Rich	2300	NRS/17798/1/302
		Status	Valid						Permit(s)		
		Primary Contact									
<u>45-1-0212</u>	<u>GS1:Springvale Colliery:</u>	AGD	56	230700	6300020	Open Site	AFT : -	Open Camp Site	Rich, Gorman	2300, 2608	NRS/17798/1/302
		Status	Valid						Permit(s)		
		Primary Contact									
<u>45-1-0250</u>	<u>MC7 (IF2):Marrangaroo Creek (IF2):</u>	AGD	56	231980	6297200	Open Site	AFT : -	Isolated Find	Rich		NRS/17798/1/303
		Status	Valid						Permit(s)		
		Primary Contact									



List of Sites (List - Short)

Angus Place

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Site ID	Site Name	Datum	Zone	Easting	Northing	Context	Site Features	Site Types	Recording	Reports	State Arch. Box No
								(recorded prior to June 2001)	(Primary)	(Catalogue Number)	(for office use only)
<u>45-1-0253</u>	<u>BH-IF-1:</u>	AGD	56	231500	6309150	Open Site	AFT : -	Isolated Find	Hunt		NRS/17798/1/303
		Status	Valid								
		Primary Contact							Permit(s)		
<u>45-1-0254</u>	<u>WG-RS-2:</u>	AGD	56	231650	6309380	Enclosed Shelter	ART : -	Shelter with Art	Hunt		NRS/17798/1/303
		Status	Valid								
		Primary Contact							Permit(s)		
<u>45-1-0255</u>	<u>WG-RS-1A</u>	AGD	56	231890	6309350	Enclosed Shelter	ART : -	Shelter with Art	Hunt		NRS/17798/1/303
		Status	Valid								
		Primary Contact							Permit(s)		
<u>45-1-2555</u>	<u>WG-RS-3</u>	AGD	56	231520	6309370	Enclosed Shelter	ART : -, AFT : -	Shelter with Art, Shelter with Deposit	Hunt		NRS/17798/1/303
		Status	Valid								
		Primary Contact							Permit(s)		
<u>45-1-2556</u>	<u>BH-RS-2</u>	AGD	56	231390	6308910	Enclosed Shelter	ART : -	Shelter with Art	Hunt		NRS/17798/1/303
		Status	Valid								
		Primary Contact							Permit(s)		
<u>45-1-2557</u>	<u>M-OS-1</u>	AGD	56	234520	6298440	Open Site	ACD : -	None	Central West Archaeological and Heritage Services Pty Ltd	97636, 98115	NRS/17798/1/303
		Status	Valid								
		Primary Contact							Permit(s)		
<u>45-1-2558</u>	<u>M-S-6</u>	AGD	56	235260	6296390	Enclosed Shelter	ART : -, AFT : -	None	Central West Archaeological and Heritage Services Pty Ltd	97636	NRS/17798/1/303
		Status	Valid								
		Primary Contact							Permit(s)		
<u>45-1-2559</u>	<u>M-S-5</u>	AGD	56	235620	6297100	Open Site	ART : -	None	Central West Archaeological and Heritage Services Pty Ltd		NRS/17798/1/303
		Status	Valid								
		Primary Contact							Permit(s)		



List of Sites (List - Short)

Angus Place

Grid Reference Type = AGD (Australian Geodetic Datum), Zone = 56, Easting From = 230025, Easting to = 240025, Northing From = 6293770, Northing to = 6313770, Requestor like 3023%, Service ID = 28859, Feature Search Type = AHIMS Features

Site ID	Site Name	Datum	Zone	Easting	Northing	Context	Site Features	Site Types	Recording	Reports	State Arch. Box No
								(recorded prior to June 2001)	(Primary)	(Catalogue Number)	(for office use only)
<u>45-1-2560</u>	<u>M-S-4</u>	AGD	56	235170	6296810	Enclosed Shelter	ART : -	None	Central West Archaeological and Heritage Services Pty Ltd	97636	NRS/17798/1/303
		Status	Valid						Permit(s)		
		Primary Contact									
<u>45-1-2561</u>	<u>M-S-3</u>	AGD	56	235170	6296810	Enclosed Shelter	AFT : -	None	Central West Archaeological and Heritage Services Pty Ltd	1157	NRS/17798/1/304
		Status	Valid						Permit(s)		
		Primary Contact									
<u>45-1-2562</u>	<u>M-S-11</u>	AGD	56	235320	6297760	Enclosed Shelter	ART : -	None	Central West Archaeological and Heritage Services Pty Ltd	97636	NRS/17798/1/304
		Status	Valid						Permit(s)		
		Primary Contact									
<u>45-1-2563</u>	<u>M-S-1</u>	AGD	56	234130	6294730	Enclosed Shelter	AFT : -	None	Central West Archaeological and Heritage Services Pty Ltd	97636	NRS/17798/1/304
		Status	Valid						Permit(s)		
		Primary Contact									
<u>45-1-2564</u>	<u>M-OS-4</u>	AGD	56	233880	6294430	Open Site	AFT : -	None	Central West Archaeological and Heritage Services Pty Ltd	97636	NRS/17798/1/304
		Status	Valid						Permit(s)		
		Primary Contact									
<u>45-1-2565</u>	<u>M-OS-3</u>	AGD	56	233110	6294950	Open Site	AFT : -	None	Central West Archaeological and Heritage Services Pty Ltd	97636	NRS/17798/1/304
		Status	Valid						Permit(s)		
		Primary Contact									
<u>45-1-2566</u>	<u>M-OS-2</u>	AGD	56	234350	6296870	Open Site	AFT : -	None	Central West Archaeological and Heritage Services Pty Ltd	97636	NRS/17798/1/304
		Status	Valid						Permit(s)		
		Primary Contact									
<u>45-1-2567</u>	<u>M-S-9</u>	AGD	56	235130	6296100	Enclosed Shelter	ART : -	None	Central West Archaeological and Heritage Services Pty Ltd	97636	NRS/17798/1/304
		Status	Valid						Permit(s)		
		Primary Contact									



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Site ID	Site Name	Datum	Zone	Easting	Northing	Context	Site Features	Site Types	Recording	Reports	State Arch. Box No
								(recorded prior to June 2001)	(Primary)	(Catalogue Number)	(for office use only)
<u>45-1-2568</u>	<u>M-S-8</u>	AGD	56	235160	6296100	Enclosed Shelter	AFT : -	None	Central West Archaeological and Heritage Services Pty Ltd	97636	NRS/17798/1/304
		Status	Valid						Permit(s)		
		Primary Contact									
<u>45-1-2569</u>	<u>M-S-12</u>	AGD	56	235920	6298310	Open Site	AFT : -	None	Central West Archaeological and Heritage Services Pty Ltd	97636	NRS/17798/1/304
		Status	Valid						Permit(s)		
		Primary Contact									
<u>45-1-2570</u>	<u>M-S-10</u>	AGD	56	235820	6297010	Enclosed Shelter	AFT : -	None	Central West Archaeological and Heritage Services Pty Ltd	97636	NRS/17798/1/304
		Status	Valid						Permit(s)		
		Primary Contact									
<u>45-1-2571</u>	<u>M-S-2</u>	AGD	56	234270	6295050	Enclosed Shelter	AFT : -	None	Central West Archaeological and Heritage Services Pty Ltd	97636	NRS/17798/1/304
		Status	Valid						Permit(s)		
		Primary Contact									
<u>45-1-2578</u>	<u>Springvale 1</u>	AGD	56	238760	6300377	Open Site	STA : 2	None	McAdam		NRS/17798/1/304
		Status	Valid						Permit(s)		
		Primary Contact									
<u>45-1-2592</u>	<u>M-IF-1, Lithgow</u>	AGD	56	235510	6297160	Open Site	AFT : 1	None	Kelton	97636	NRS/17798/1/304
		Status	Valid						Permit(s)		
		Primary Contact									
<u>45-1-2600</u>	<u>SV3-ST1</u>	AGD	56	237975	6303313	Open Site	TRE : 1	None	Benton, Cameron		
		Status	Valid						Permit(s)		
		Primary Contact			Bathurst LALC						
<u>45-1-2665</u>	<u>BBC-RS1</u>	GDA	56	230426	6311660	Enclosed Shelter	PAD : -	None	OzArk Cultural Heritage Management	100391	
		Status	Valid						Permit(s)		
		Primary Contact									



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Site ID	Site Name	Datum	Zone	Easting	Northing	Context	Site Features	Site Types	Recording	Reports	State Arch. Box No
<u>45-1-2667</u>	<u>BBC - RS 1</u>	AGD	56	230426	6311660	Enclosed Shelter	HAB : 1	(recorded prior to June 2001)	(Primary)	(Catalogue Number)	(for office use only)
		Status	Valid					None	Benton	100578	
		Primary Contact							Permit(s)		

Appendix 3

Aboriginal Consultation Log

Date	Description	Contact Method	Outcome
5/01/2010	Stage 1 Letters sent to DECCW, Lithgow City Council and Registrar of Aboriginal Owners.	Mail	Awaiting response
5/01/2010	Stage 1 Letters sent to Bathurst Local Aboriginal Land Council (BLALC)	Mail	Awaiting response
09/01/10	Stage 1 ICCR Adverts in local papers. Weekend Advocate and Lithgow Mercury.	Email	Registration of interest regarding adverts in Weekend Advocate and Lithgow Advocate close Friday 22 nd January.
12/01/2010	Lithgow City Council replied to the Stage 1 Letters	Mail	
14/01/2010	DECCW replied to Stage 1 Letters	Mail	
25/01/10	Stage 2 ICCR letters with attached map and field survey methodology. Letters sent to BLALC, Warrabinga Native Title Claimants Aboriginal Corporation (WNTCAC) and Mingaan Aboriginal Corporation (MAC),	Mail	Awaiting response
28/01/10	Sent letter to Robyn Williams outlining the project methodology and map of study area.	Mail	
01/02/10	MAC contacted RPS HSO to register interest and availability for upcoming field work. Informed they would send through valid certificates.	Phone	Fax in pm outlining in writing registration of interest, certificate of company registration and valid Workers Compensation Certificate. RPS HSO informed them a email will be sent outline field survey details and meeting place map.
02/02/10	PS spoke to Toni – Lee of BLALC to enquire if they have received Stage 2 letters and methodology and Toni –lee indicated they have not yet received it.	Phone	PS re – sent stage 2 letter plus methodology via email on 03/02/10.
03/02/10	WNTCAC register interest in works and contact details of nominated site officer.	Phone	RPS HSO informed them an email will be sent outline field survey details and meeting place map.
03/02/10	BLALC registered interest and availability in works.	Phone	RPS HSO informed them an email will be sent outline field survey details and meeting place map.
05/02/10	Information sent to BLALC, WNTCAC and MAC field survey details and meeting place map.	Email	MAC email bounced back. Fax of email sent through am 08/02/10.
05/02/10	Office of the Registrar responded to stage 1 letters	Mail	
08/02/10	MAC sent their certificate of registration and insurances.	Fax	
15/02/10	WNTCAC sent tax invoice	Mail	
15/02/10	BLALC sent letter regarding survey indicating that they have no objectives with the proposal	Mail	Comments to be included in final report.
16/02/10	Copy of field survey map outlining survey units covered during survey sent to BLALC and WNTCAC.	Email	Awaiting comments for report
16/02/10	Copy of field survey map outlining survey units covered during survey	Mail.	Awaiting comments for report

	sent to MAC.		
17/02/10	Sent job invoicing details to BLALC, WNTCAC and MAC.	Email.	
17/02/10	MAC sent letter regarding results of survey indicating that they have no objections to the proposal	Mail	Comments to be put in final report
18/02/10	MAC sent invoice	Mail	
18/02/10	BLALC sent invoice	Mail	

Appendix 4

Glossary of Site Types

GLOSSARY OF SITE TYPES

The following is a brief description of most Aboriginal site types.

Artefact Scatters

Artefact scatters are defined by the presence of two or more stone artefacts in close association (i.e. within fifty metres of each other). An artefact scatter may consist solely of surface material exposed by erosion, or may contain sub-surface deposit of varying depth. Associated features may include hearths or stone-lined fireplaces, and heat treatment pits.

Artefact scatters may represent:

- Camp sites: involving short or long-term habitation, manufacture and maintenance of stone or wooden tools, raw material management, tool storage and food preparation and consumption;
- Hunting or gathering activities;
- Activities spatially separated from camp sites (e.g. tool manufacture or maintenance); or
- Transient movement through the landscape.

The detection of artefact scatters depends upon conditions of surface visibility, including vegetation cover, ground disturbance and recent sediment deposition. Unfavourable conditions obscure artefact scatters and prevent their detection during surface surveys.

Bora Grounds

Bora grounds are a ceremonial site associated with initiations. They usually comprise two circular depressions in the earth, and may be edged with stone. Bora grounds generally occur on soft sediments in river valleys, although they may also be located on high, rocky ground in association with stone arrangements.

Burials

Human remains were often placed in hollow trees, caves or sand deposits and may have been marked by carved or scarred trees. Burials have been identified eroding out of sand deposits or creek banks, or when disturbed by development. The probability of detecting burials during archaeological fieldwork is extremely low.

Culturally Modified Trees

Culturally modified trees include scarred and carved trees. Scarred trees are caused by the removal of bark for use in manufacturing canoes, containers, shields or shelters. Notches were also carved in trees to permit easier climbing. Scarred trees are only likely to be present on mature trees remaining from original vegetation. Carved trees, the easiest to identify, are caused by the removal of bark to create a working surface on which engravings are incised. Carved trees were used as markers for ceremonial and symbolic purposes, including burials. Although, carved trees were relatively common in NSW in the early 20th century, vegetation removal has rendered this site type extremely rare. Modified trees, where bark was removed for often domestic use are less easily identified. Criteria for identifying modified trees include: the age of the tree; type of tree

(the bark of many trees is not suitable, also introduced species would be unlikely subjects); axe marks (with the need to determine the type of axe - stone or steel – though Aborigines after settlement did use steel); shape of the scar (natural or humanly scarred); height of the scar above the ground (reasonable working height with consideration given to subsequent growth).

Fish Traps

Fish traps comprised arrangements of stone, branches and/or wickerwork placed in watercourses, estuaries and along coasts to trap or permit the easier capture of sea-life.

Grinding Grooves

Grinding grooves are elongated narrow depressions in soft rocks (particularly sedimentary), generally associated with watercourses, that are created by the shaping and sharpening of ground-edge implements. To produce a sharp edge the axe blank (or re-worked axe) was honed on a natural stone surface near a source of water. The water was required for lubricating the grinding process. Axe grinding grooves can be identified by features such as a narrow short groove, with greatest depth near the groove centre. The grooves also display a patina developed through friction between stone surfaces. Generally a series of grooves are found as a result of the repetitive process.

Isolated Finds

Isolated finds occur where only one artefact is visible in a survey area. These finds are not found in apparent association with other evidence for prehistoric activity or occupation. Isolated finds occur anywhere and may represent loss, deliberate discard or abandonment of an artefact, or may be the remains of a dispersed artefact scatter. Numerous isolated finds have been recorded within the study area. An isolated find may flag the occurrence of other less visible artefacts in the vicinity or may indicate disturbance or relocation after the original discard.

Middens

Shell middens comprise deposits of shell remaining from consumption and are common in coastal regions and along watercourses. Middens vary in size, preservation and content, although they often contain artefacts made from stone, bone or shell, charcoal, and the remains of terrestrial or aquatic fauna that formed an additional component of Aboriginal diet. Middens can provide significant information on land-use patterns, diet, chronology of occupation and environmental conditions.

Mythological / Traditional Sites

Mythological and traditional sites of significance to Aboriginal people may occur in any location, although they are often associated with natural landscape features. They include sites associated with dreaming stories, massacre sites, traditional camp sites and contact sites. Consultation with the local Aboriginal community is essential for identifying these sites.

Rock Shelters with Art and / or Occupation Deposit

Rock shelters occur where geological formations suitable for habitation or use are present, such as rock overhangs, shelters or caves. Rock shelter sites generally contain artefacts, food remains and/or rock art and may include sites with areas of potential archaeological deposit, where evidence of rock-art or human occupation is expected but not visible. The geological composition of the study area greatly increases the likelihood for rock shelters to occur.

Stone Arrangements

Stone arrangements include lines, circles, mounds, or other patterns of stone arranged by Aboriginal people. These may be associated with bora grounds, ceremonial sites, mythological or sacred sites. Stone arrangements are more likely to occur on hill tops and elevated terrace crests that contain stone outcrops or surface stone, where impact from recent land use practices has been minimal.

Stone Quarries

A stone quarry is a place at which stone resource exploitation has occurred. Quarry sites are only located where the exposed stone material is suitable for use either for ceremonial purposes (e.g. ochre) or for artefact manufacture.

Appendix 5

NSW Heritage Branch Significance Criteria



CRITERIA FOR LISTING ON THE STATE HERITAGE REGISTER

The State Heritage Register is established under Part 3A of the Heritage Act (as amended in 1998) for listing of items of environmental heritage¹ which are of state heritage significance².

To be assessed for listing on the State Heritage Register an item will, in the opinion of the Heritage Council of NSW, meet one or more of the following criteria³:

- a) an item is important in the course, or pattern, of NSW's cultural or natural history;
- b) an item has strong or special association with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history;
- c) an item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW;
- d) an item has strong or special association with a particular community or cultural group in NSW for social, cultural or spiritual reasons;
- e) an item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history;
- f) an item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history;
- g) an item is important in demonstrating the principal characteristics of a class of NSW's
 - cultural or natural places; or
 - cultural or natural environments.

An item is not to be excluded from the Register on the ground that items with similar characteristics have already been listed on the Register.

¹ **environmental heritage** means those places, buildings, works, relics, moveable objects, and precincts, of state or local heritage significance (section 4, *Heritage Act, 1977*).

² **state heritage significance**, in relation to a place, building, work, relic, moveable object or precinct, means significance to the State in relation to the historical, scientific cultural, social, archaeological, architectural, natural or aesthetic value of the item (section 4A(1), *Heritage Act, 1977*).

³ Guidelines for the application of these criteria may be published by the NSW Heritage Office.

Appendix 6

Aboriginal Community Comments



MINGAAN ABORIGINAL CORPORATION

ABN: 83905372168

38 Tweed Road

LITHGOW NSW 2790

Telephone / Fax: 02 6352 2473

Email: helenriley44@yahoo.com.au

RECEIVED
25 FEB 2010
BY: _____

ANGUS PLACE COLLIERY - NEWNES PLATEAU

A survey was conducted for Angus Place Colliery from Tuesday 9th to Friday 12th February 2010.

Mingaan was present from Wednesday 10th to Friday 12th February 2010. The survey area is located within the Newnes State Forest. The survey was for the purposed De Watering Pipe Line and Underground Long Wall sections No: 900 and 910 areas.

Pipe Line Survey

As this area has been extensively disturbed due to previous clearing of the area no evidence of Aboriginal activity was recorded.

Longwall section 900 and section 910 survey areas

Due to the extremely steep gullies and high cliffs in some areas made it difficult to examine thoroughly. On the plateau visibility was nil in both sections surveyed.

Located in the valley of section 910 is a shelter with possible archaeological discovery potential and has been recorded on the map provided by the archaeologist.

No other evidence of Aboriginal activity or artefacts was recorded or discovered during this survey only the one possible shelter.

Mingaan Aboriginal Corporation recommends that no large trees are to be disturbed during any work within the survey areas.

As there will be minimum impact to the areas surveyed, Mingaan Aboriginal Corporation has no objections to Angus Place Colliery commencing the proposed projects within the surveyed areas.

Present at this survey were:

Gillian Goode	Senior Archaeologist	RPS Harper Somers O'Sullivan
Phillipa Sokol	Archaeologist	RPS Harper Somers O'Sullivan
Warwick Peckham	Coordinator	Bathurst Local Aboriginal Land Council
Kevin Williams	Representative	Warrabinga
Richard Peters	Representative	Mingaan Aboriginal Corporation

Richard J. Peters

RICHARD J PETERS

17th February 2010



Bathurst Local Aboriginal Land Council

149 Russell Street PO Box 1500 Ph: 02 6332 6835
Bathurst NSW 2795 Bathurst NSW 2795 Fax: 02 6332 3623

Cultural Heritage Impact Assessment at Angus Place Colliery

Proposed Long Walls – 900w and 910 at Angus Place

A survey was carried out over 4 days on the 9th, 10th, 11th and 12th February 2010 for Angus place Colliery for the proposed long walls as per the study areas.

The four day survey was undertaken on foot the majority of the survey was carried out over rugged steep and very difficult terrain with thick dense under growth making visibility zero.

No aboriginal artefacts being located, there was one rock shelter located with potential archaeological deposits by Gillian Goode from RPS Harper Somers and O'Sullivan and Kevin Williams from Warrabinga Native Title Claimants apart from this site there being no other Aboriginal artefacts, open camp sites, grinding grooves, sacred trees or ceremonial grounds located.

The Bathurst Local Aboriginal Land Council have no objectives to this proposal proceeding.

Present at Survey:

Phillipa Sokol – Archaeologist RPSHSO
Gillian Goode – Archaeologist RPSHSO
Kevin Williams – Warrabinga Native Title Claimants
Richard Peters – Mingaan Aboriginal Corporation
Warwick Peckham – Bathurst Local Aboriginal Land Council

Yours Sincerely,

Warwick Peckham

Warwick Peckham
CEO
15th February 2010

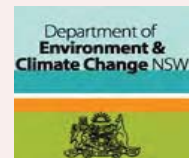
Appendix 7

Site Cards



Aboriginal Site Recording Form

AHIMS Registrar
PO Box 1967, Hurstville NSW 2220



Office Use Only

Site Number

Date received

Date entered into system

Date catalogued

Entered by (I.D.)

Information Access

☐ Gender/male ☐ Gender/female ☐ Location restriction ☐ General restriction ☐ No access

For Further Information Contact:

☐ Nominated Trustee

Title

Surname

First Name

Initials

Organisation

Address

Phone number

Fax

☐ Knowledge Holder

Title

Surname

First Name

Initials

Organisation

Address

Phone number

Fax

Aboriginal Heritage Unit or Cultural Heritage Division Contacts

Geographic Location

Site Name

Easting

Northing

AGD/GDA

Mapsheet

Zone

Location Method

Non-Differential GPS

Other Registration

Primary Recorder

Title

Surname

First Name

Initials

Organisation

Address

Phone number

Fax

Date recorded

11/02/2010

Office Use Only

Client on system

Client on system

Client on system

Closed Site

A blank 10x10 grid with compass directions (N, NE, E, SE, S, SW, W, NW) at the corners and a north arrow on the right side.

General Site Information

Closed Site

Shelter/Cave Formation

- ☐ Boulder
- ☐ Wind erosion
- ☒ Water erosion
- ☐ Rock collapse

Condition of Ceiling

- ☐ Boulder
- ☐ Sandstone platform
- ☐ Silica gloss
- ☐ Tessellated
- ☒ Weathered
- ☐ Other platform

Rock Surface Condition

- ☐ Boulder
- ☐ Sandstone platform
- ☐ Silica gloss
- ☐ Tessellated
- ☒ Weathered
- ☐ Other platform

Shelter Aspect

- ☐ North
- ☐ North East
- ☐ East
- ☐ South East
- ☐ South
- ☒ South West
- ☐ West
- ☐ North West

Open Site

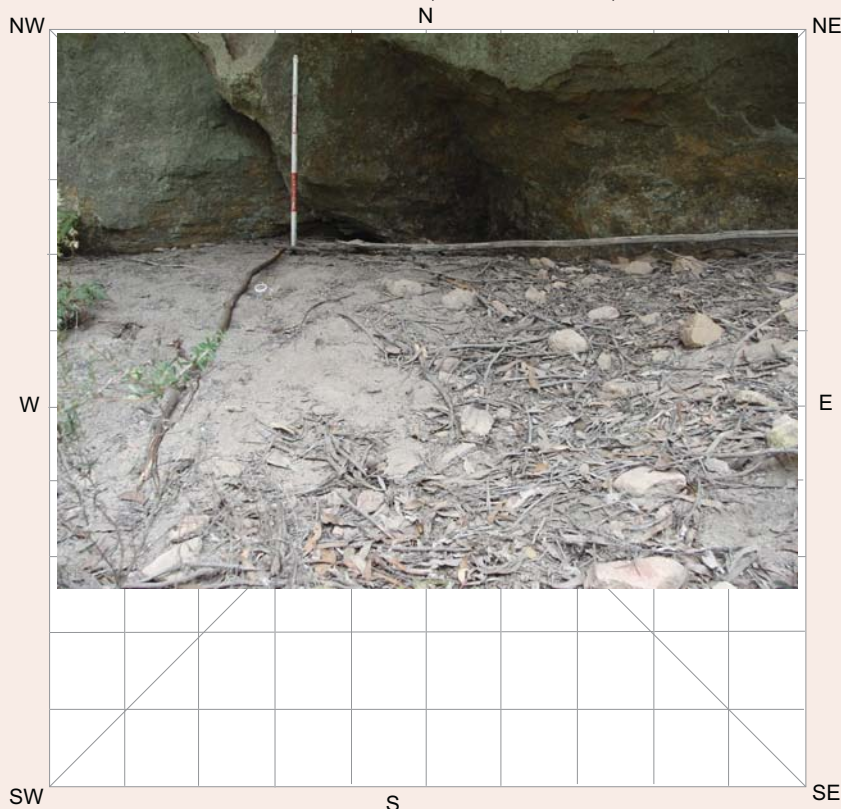
Site Orientation

- ☐ N-S
- ☐ NE-SW
- ☒ E-W
- ☐ SE-NW
- ☐ N/A

Features

- ☐ 1. Aboriginal Ceremony & Dreaming
- ☐ 2. Aboriginal Resource & Gathering
- ☐ 3. Art
- ☐ 4. Artefact
- ☐ 5. Burial
- ☐ 6. Ceremonial Ring
- ☐ 7. Conflict
- ☐ 8. Earth Mound
- ☐ 9. Fish Trap
- ☐ 10. Grinding Groove
- ☐ 11. Habitation Structure
- ☐ 12. Hearth
- ☐ 13. Non Human Bone & Organic Material
- ☐ 14. Ochre quarry
- ☒ 15. Potential Archaeological Deposit
- ☐ 16. Stone Quarry
- ☐ 17. Shell
- ☐ 18. Stone Arrangement
- ☐ 19. Modified Tree
- ☐ 20. Water Hole

Site Plan Indicate scale, boundaries of site, features



Site Dimensions

Closed Site Dimensions (m)

- Internal length
- Internal width
- Shelter height
- Shelter floor area

Open Site Dimensions (m)

- Total length of visible site
- Average width of visible site
- Estimated area of visible site
- Length of assessed site area

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and extend across the width of the page. There is no handwriting or other markings on the paper.

If the site is likely to be impacted upon by any development works, than application will need to be sought under Section 87 and Section 90 of the NPW Act 1974.

[illegible][illegible][illegible]

NPWS FEATURE RECORDING FORM - ARTEFACT

page 1

Site I.D.

Site Name

RPS ANGUS PLACE RS PAD 1

First recorded date

11/02/2010

Importance

Cannot be presently determined

No. of instances

1

Recorded by

G. GOODE

Yes No

Stone artefacts only

No

Artefacts collected

No

Permit issued

No

Percentage of Non-stone Artefacts to Percentage of Stone Artefacts

0-9% 10-19% 20-29% 30-39% 40-49% 50-59% 60-69% 70-79% 80-89% 90-100%

0-9%

Feature Context & Condition

Scatter No.

Easting

232966

Northing

6305664

Density

Dimensions

Yes No

(Artefact count per square metre)

20

Length (m)

12

Width (m)

15

Depth (m)

In situ

No

Stratified

No

Feature Condition

General Condition

Recommended Action

☒

Very good

☒

Weathered

☐

Boardwalk

☐

Revegetation

☐

Good

☐

Vehicle damage

☐

Fencing

☐

Signage

☐

Poor

☐

Surface water wash

☐

Closure to public

☐

Soil erosion control

☐

Fire damage

☒

Continued inspection

☐

Track closure/re-routing

☐

Erosion

☐

Fire hazard reduction

☐

Additional recording

☐

Stock damage

☐

Expert assessment

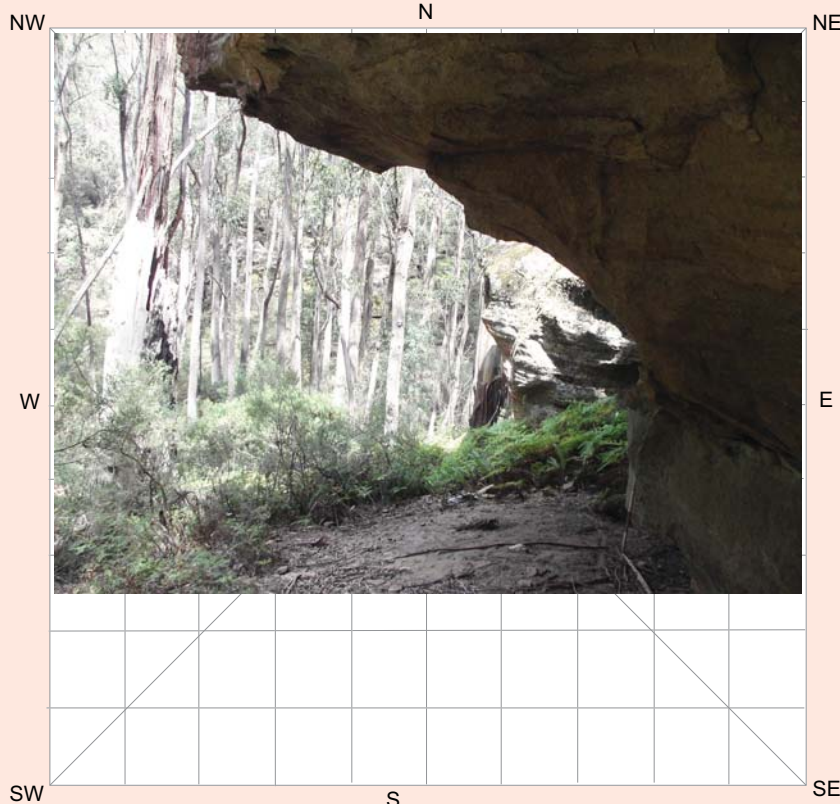
☐

Exposed archaeological material

☐

Meeting with land manager

Feature Plan (Indicate scale, location of instances)



Feature Environment

(Complete when *feature* environment differs to *site* environment, use attributes from cover card, p. 2)

Mountainous

Land form

Creek bank

Land form unit

Lower

Slope

Closed Forest

Vegetation

Recreational

Land use

Water

Distance to permanent water source 10 metresDistance to temporary water source 2 metres

Name of nearest permanent water source

Kangaroo Creek

Name of nearest temporary water

Unnamed Tributary

Photo 1: View to north showing pagodas with rock shelter.



Photo 2: View to west showing floor of rock shelter with sandy PAD.



Photo 3: View to north showing height of rock shelter.



Photo 4: temporary water source adjacent to rock shelter view to north.

