

Annex E

E. Cultural Heritage & Archaeology Assessment



Archaeological and Cultural Heritage Impact Assessment of Proposed Appin Area 7 Goaf Gas Drainage Project

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ABBREVIATIONS

AHC	Australian Heritage Council
AHIMS	Aboriginal Heritage Information Management System
BHPBIC	BHP Billiton Illawarra Coal
CHL	Commonwealth Heritage List
CBNTCAC	Cubbitch Barta Native Title Claimants Aboriginal Corporation
DECC	Department of Environment and Climate Change
DEWH&A	Department of Environment, Water, Heritage and the Arts
GPS	Global Positioning System
GIS	Geographic Information System
GSV	Ground surface visibility
ICOMOS	International Council on Monuments and Sites
TLALC	Tharawal Local Aboriginal Land Council
LEP	Local Environmental Plan
LGA	Local Government Area
MGA	Map Grid of Australia – unless otherwise specified all coordinates are in MGA
NHL	National Heritage List
NNTT	National Native Title Tribunal
NPWS	National Parks and Wildlife Service (now part of DECC)
PAD	Potential Archaeological Deposit
REP	Regional Environment Plan
RNE	Register of the National Estate
SHI	State Heritage Inventory
SHR	State Heritage Register

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EXECUTIVE SUMMARY

BHP Billiton Illawarra Coal (BHPBIC) is seeking approval for works associated with the drainage of goaf gas for the Appin Area 7 Longwalls 703-704. Goaf gas is the accumulation of coal seam methane in the area of collapsed rock strata associated with the extraction of coal by the longwall mining method (Cardno Forbes Rigby 2008:3).

As a result of previous archaeological work and the current archaeological assessment, 54 Aboriginal sites are located within a 5 km radius of what is defined as the Appin Area 7 Longwalls 703-704 Goaf Gas Drainage Project Study Area. Seventeen of these sites are located within 2 km of the proposed gas goaf drainage locations. The site types include open camp sites, a single scarred tree, shelter with deposit, shelter with art and deposit, shelter with Potential Archaeological Deposit (PAD) and isolated artefacts.

Three new aboriginal sites were identified during the survey of the Appin Area 7 Longwalls 703-704 Goaf Gas Drainage Project Study Area. These site types consist of two isolated artefacts and one open camp site.

Potential Impacts to Historical sites

There were no new or previously registered historical sites located within the Appin Area 7 Longwalls 703-704 Goaf Gas Drainage Project Study Area.

SUMMARY OF RECOMMENDATIONS

Aboriginal archaeological sites

There are 20 Aboriginal cultural heritage sites situated within the Goaf Gas Drainage Study Area. Four of these sites; Mountbatten 1 (52-2-3674), Moreton Park Road IA-1 (52-2-3671), Moreton Park Road IA-2 (52-2-3672) and Moreton Park Road OCS-1 (52-2-3673) may be impacted by the installation of the Goaf Gas Drainage surface pipeline reticulation system (Figure 3).

Aboriginal Recommendations

A copy of this report should be distributed to the Registered Stakeholder Aboriginal communities for their review and comment on receipt of final comments from BHP Billiton Illawarra Coal.

Recommendation 1 - Conservation

- Sites Mountbatten 1 (52-2-3674), Moreton Park Road IA-1 (52-2-3671), Moreton Park Road IA-2 (52-2-3672) and Moreton Park Road OCS-1 (52-2-3673) – comprising isolated stone artefact occurrences and open camp sites are required to be

registered as Aboriginal sites with NSW DECC. The sites have been listed on the Aboriginal Heritage Information Management System.

- Where it is reasonable and practicable to do so, BHP Billiton Illawarra Coal should avoid impact to Mountbatten 1 (52-2-3674), Moreton Park Road IA-1 (52-2-3671), Moreton Park Road IA-2 (52-2-3672) and Moreton Park Road OCS-1 (52-2-3673).
- If the archaeological sites can be avoided, they should be temporarily fenced prior to construction using protective barriers, and all contractors should be notified of the importance of avoiding archaeological sites prior to the undertaking of ground disturbance activities.
- If the archaeological sites cannot be avoided then an Aboriginal Cultural Heritage Management Plan should be developed and implemented. This Plan will facilitate the management, salvage and relocation of any impacted sites.

Recommendation 2 – Aboriginal Cultural Heritage Management Plan

- An Aboriginal Cultural Heritage Management Plan (ACHMP) should be developed. This will outline the management of Mountbatten 1 (52-2-3674), Moreton Park Road IA-1 (52-2-3671), Moreton Park Road IA-2 (52-2-3672) and Moreton Park Road OCS-1 (52-2-3673), and the management of any Aboriginal cultural material uncovered during construction. The ACHMP will describe Aboriginal community consultation and involvement of registered stakeholder groups.
- The ACHMP will be included and implemented as part of the Environmental Management Plan (EMP).

Recommendation 3 - Stop work provision: Aboriginal sites

- All Aboriginal places and objects are protected under the NSW *National Parks and Wildlife Act 1974*. This protection includes Aboriginal places and objects which have not been identified in this report, but which may be identified during construction. Should any previously unidentified Aboriginal objects or places be identified during excavation and construction, all works must cease in the vicinity of the find and the following be notified:
 - NSW Department of Environment and Climate Change
 - A qualified archaeologist
 - Aboriginal stakeholders.

Recommendation 4 – Human Remains

In the case of skeletal remains the following process will be implemented.

- All works must cease in the vicinity of the find
- The find will be reported to police and state coroner
- BHP Billiton Illawarra Coal and Cardno Forbes Rigby will be notified of the find
- Aboriginal stakeholders will be notified of the find
- NSW DECC will be notified of the find
- If the skeletal remains are of Aboriginal ancestral origin an appropriate management strategy will be developed in consultation with the Aboriginal stakeholders
- The find will be recorded in accordance with the National Parks and Wildlife Act 1974 (NSW) and the NSW NPWS Aboriginal Cultural Heritage Standards and Guidelines Kit
- The Aboriginal Cultural Heritage Management Plan will be amended to include the newly discovered Aboriginal ancestral remains in the management regime established by the plan.

Historical archaeological sites

There were no new or previously registered historical archaeological sites within the Goaf Gas Drainage Project Study Area.

Recommendation 1

No further historical archaeological assessment will be required for the Appin Area 7 Longwalls 703-704 Goaf Gas Drainage Project.

1.0 INTRODUCTION

Cultural heritage legislation protecting Aboriginal and historical heritage places applies in New South Wales. These places are an important part of our heritage. They are evidence of more than 40,000 years of occupation of New South Wales by Aboriginal people, and of the more recent period of post-contact settlement.

Heritage places can provide us with important information about past lifestyles and cultural change. Preserving and enhancing these important and non-renewable resources is encouraged.

It is an offence under sections of legislation to damage or destroy heritage sites without a permit or consent from the appropriate body (see Appendix 3 for a discussion of relevant heritage legislation and constraints).

When a project or new development is proposed, it must be established if any cultural heritage places are in the area and how they might be affected by the project. Often it is possible to minimise the impact of development or find an alternative to damaging or destroying a heritage place. Therefore, preliminary research and survey to identify heritage places is a fundamental part of the background study for most developments.

The first stage of an archaeological and cultural heritage assessment usually incorporates background research to collect information about the land relevant to the proposed project (the Study Area). A second stage often involves a field survey and assessment of this area.

Possibly the most important part of the study involves assessing the cultural heritage significance of heritage places in the Study Area. Understanding the significance of a heritage place is essential for formulating management recommendations and making decisions.

1.1 Project background

This report has been commissioned in order to identify and assess Aboriginal and historical cultural heritage values of the area around the proposed goaf gas drainage project that will service Longwalls 703-704 within Appin Area 7, previously known as the Douglas Project, west of the township of Appin (Figure 1). Goaf gas is the accumulation of coal seam methane in the area of collapsed rock strata associated with the extraction of coal by the longwall mining method. If unmanaged this gas can enter the ventilation system within the mine and cause operational and underground safety issues. BHPBIC will use the proposed plant to draw the goaf gas to the surface and resolve these issues (Cardno Forbes Rigby 2008:3).

Results of this investigation will be used to assess the proposed goaf gas drainage project in relation to previously and newly registered (as a result of this project) Aboriginal archaeological and cultural heritage sites; and historical archaeological and heritage sites.

Recommendations designed to minimise and manage impacts to cultural heritage places have been formulated according to legislative constraints and ‘best practice’ heritage management.

1.2 Study Area

The Study Area is located south west of Sydney between Douglas Park and Menangle, within the Wollondilly Local Government Area (LGA). The proposed goaf gas drainage project is situated on the transitional zone of the Woronora Plateau and the Cumberland Plain, known as the Cumberland Lowlands, where the open undulating plains meet the rugged sandstone plateau. The proposed longwall layout is primarily located within the undulating plain region, with the eastern margin bounded by the Nepean River and its tributaries.

Most of the Study Area comprises undulating plains. These areas have generally been cleared of vegetation for farming, resulting in extensive ground disturbance. Along the Nepean River, large stretches of native vegetation remain where the steep terrain has been unsuitable for farming.

Mapping of the Study Area (see Figures 2 and 3) shows the proposed goaf gas drainage project layout (shown as a green line).

1.3 Aims

The following is a summary of the major objectives of this assessment:

- Conduct heritage register searches to identify any previously recorded cultural heritage sites within the Study Area. Searches will include the Aboriginal Heritage Information Management System (AHIMS), the National Heritage List, Commonwealth Heritage List, Register of the National Estate, State Heritage Register, Local Environmental Plan and National Trust heritage lists.
- Conduct additional background research in order to recognise any identifiable trends in site distribution and location, in order to develop a Site Prediction Model.
- Consult with identified statutory stakeholders and stakeholders identified through DECC’s *National Parks and Wildlife Act 1974: Part 6 Approvals – Interim Community Consultation Requirements for Applicants* for the Study Area.
- Undertake landform and transect survey of the Study Area where existing information is limited. Survey coverage will target landforms with high potential for heritage places within the Study Area, as identified through background research.
- Undertake targeted survey of all previously recorded sites within the Study Area, to reassess the condition of these sites.

- Record and assess sites identified during the survey in compliance with the guidelines endorsed by the NSW Department of Environment and Climate Change (DECC) and the NSW Heritage Office.
- Identify impacts to all identified Aboriginal and historical cultural heritage sites and places based on potential changes as a result of the Project.
- Assess the heritage significance of all identified Aboriginal and historical cultural heritage sites and places.
- Make recommendations to manage potential impacts to cultural heritage values within the Appin Area 7 Goaf Gas Drainage Project Study Area.
- Make recommendations to manage the cultural heritage values within the Study Area.

1.4 Consultation with the Aboriginal Community

The following organisations registered an interest in the Aboriginal Cultural Heritage Assessment Project for Douglas Area 7 as per the DECC *Part 6 Approvals – Interim Community Consultation Requirements for Applicants* in 2006 (Biosis Research 2006). These organisations are referred to below as the Aboriginal Stakeholders:

- Tharawal Local Aboriginal Land Council (via Lance Syme)
- The Wadi Wadi Coomaditchie Aboriginal Corporation (via Allan Carriage)
- Northern Illawarra Aboriginal Collective (NIAC – Chris Illert)
- Cubbitch Barta Native Title Claimants Aboriginal Corporation (Glenda Chalker)

For the purpose of the Appin Area 7 Goaf Gas Drainage Project survey, representatives of Tharawal Local Aboriginal Land Council (Donna Whillock) and Cubbitch Barta Native Title Claimants Aboriginal Corporation (Glenda Chalker) were engaged to participate in the Appin Area 7 Goaf Gas Drainage Project archaeological and cultural field survey.

2.0 ABORIGINAL CULTURAL HERITAGE ASSESSMENT METHODOLOGY

2.1 Philosophy

A methodology is a system of principles that are formulated to govern the way an assessment is carried out. In archaeological and cultural heritage assessments the methodology employed is influenced by several factors including: the type of development or project, environmental factors, ethnographic and historical land-uses, and previous archaeological and cultural heritage work.

2.2 Guiding Principles

The methodology employed for this investigation has been designed to conform to the requirements of the relevant advisory documents and guidelines as endorsed by the NSW Department of Environment and Climate Change (DECC). These guidelines and documents are:

- *National Parks and Wildlife Act 1974: Part 6 Approvals – Interim Community Consultation Requirements for Applicants* (DEC 2004);
- *Draft Guidelines for Aboriginal Cultural Impact Assessment and Community Consultation* (DEC July 2005);
- *The Australia ICOMOS Burra Charter, 1999*;
- *Working Draft Aboriginal Cultural Heritage Standards and Guidelines Kit* (NSW NPWS 1997); and
- *Guidelines for Aboriginal Heritage Impact Assessment (DRAFT)* (DEC no date).

In line with these documents, the methodology adheres to the following principles:

- Aboriginal people are the primary determinants of the significance of their heritage;
- Input from those Aboriginal people with a cultural association to the land is an essential part of assessing the significance of Aboriginal heritage objects and values that could be impacted by an activity;
- Aboriginal heritage can have both cultural and scientific/archaeological significance and both should be the subject of assessment;
- Aboriginal community involvement needs to take place early in the assessment process to ensure that their values and concerns are fully taken into account, and so that their own decision-making structures are able to function adequately; and

- Consideration should be given to measures that could be implemented to avoid, mitigate or offset likely impacts.

The DECC *National Parks and Wildlife Act 1974: Part 6 Approvals – Interim Community Consultation Requirements for Applicants* states that the community consultation process ensures that Aboriginal communities have the opportunity to positively influence assessment outcomes by:

- Influencing the design of the assessment of cultural and scientific significance;
- Providing relevant information in relation to cultural significance values; and
- Contributing to the development of cultural heritage management recommendations.

2.3 Methodology

The following is a detailed outline of the methods employed for this assessment.

2.3.1 Background Research

The following activities were undertaken during the background research phase:

- Search for sites registered on the NSW DECC AHIMS for the Study Area and surrounding vicinity.
- Review of relevant site records for the Study Area and surrounds.
- Review of relevant reports from the region.
- Search of the NSW Heritage Office database and State Heritage Register.
- Search of the National Heritage List, Commonwealth Heritage List and Register of the National Estate.
- Inspection of heritage lists in relevant local planning instruments.
- Search of the National Trust Heritage Register.

This data was collated and mapped to show the locations of the previously recorded sites. The data was also used to formulate predictive statements regarding Aboriginal archaeological site distribution within the Study Area. The predictive statements were based on terrain units, and were used to help determine the specific locations of the field survey.

2.3.2 Cultural and Archaeological Survey

The cultural and archaeological survey was conducted as follows:

- Known sites were revisited to confirm their location, and to make a record of their current condition.
- Pedestrian survey was undertaken at selected representative areas.
- The location of all sites was recorded using a hand-held GPS unit.
- Survey data was recorded on purpose-designed recording forms.
- Details of each site were recorded using purpose-designed recording forms.
- Appropriate plans and maps were prepared.
- Photographs of all sites and features were taken.
- Appropriate Aboriginal Community representatives assisted with the field assessment.

2.3.3 Assessment of Significance

The NSW DECC recognises that ‘Aboriginal community are the primary determinants of the significance of their heritage’ (NSW DEC 2004). Biosis Research recognises that our role in the cultural heritage assessment process is to provide specialist skills, particularly in regard to archaeological and heritage management expertise. These specialist skills can be articulated and enhanced through consultation with the Aboriginal community, with the aim of providing a holistic assessment of cultural heritage significance.

Archaeologists study the material cultural heritage—artefacts, sites and structures—of past peoples and societies. However, not all places and sites of cultural heritage value and significance have material evidence. Places, sites and objects have heritage value because of what they mean to people, and because of the values they represent for people. Places, sites and objects will have different heritage values for different people. These different values may require negotiation among various stakeholders and can shape what decisions are made about conservation. Cultural heritage management is the process of investigation, consultation and making decisions about the conservation of heritage places through the assessment of heritage values.

Heritage management is based on the principle that the heritage significance of a place will guide all future decisions that affect the place. The determination of cultural heritage significance relies on a comprehensive approach to heritage assessments and to the values that are attached to heritage places. Cultural heritage significance can be considered to be the importance of a place, site or object arising from the combination of values attributed to it. These values determine the ‘what’ and ‘how’ of conservation and direct management decisions. The categorisation and significance of a place or site will also determine the statutory protection that may be afforded to it.

This approach is laid out in the Australia ICOMOS Burra Charter (1999), which has been adopted by cultural heritage managers and government agencies as the set of guidelines for best practice heritage management in Australia. The Burra Charter identifies the following categories of values: aesthetic, historic, scientific and social. Most assessment approaches also include a ranking of significance – high, moderate or low, for example. For each value associated with a place, an attempt is made to assess the degree or level of significance in terms such as *unique, important, representative, rare* and so on – which relies on a comparison of that value in relation to other places. One of the more common applications of the significance assessment process is to mitigate or control landscape modifying activities, including the protection or conservation of identified heritage values.

Both professional and community understandings are important when determining heritage and its significance. ‘Expert’ interpretation will often need to be integrated with other understandings and assessments of heritage. This is particularly relevant in a discussion of Aboriginal cultural heritage, where there can be differences in the way places are valued and in understandings of how knowledge can be used. As a consequence, outcomes should rely on processes and practices that promote integration and an effective incorporation of different values in decision making.

For example, an ‘archaeological’ site can be of broader interest to groups other than archaeologists. There are additional scientific interests in archaeological sites than those that arise through archaeology alone. Many types of scientific research or ‘informational’ interests can use data from archaeological sites, and these can all contribute the ‘scientific value’ of a place or site. Also, the wider interests of the general community can be complementary to archaeological values. In terms of Aboriginal communities, heritage places – including those that are otherwise defined as ‘archaeological sites’ – will attract differing values. These may include custodianship obligations, education, family or ancestral links, identity, and symbolic representation.

History and traditions are important: this generation has an obligation to future generations to retain certain things as they are currently seen and understood. This includes retaining alternative understandings to those that come through scientific assessments. Heritage places are often more complex than is identified through the scientific determination of value. Cultural and social values can be complex and rich - the past is a vital component of cultural identity. Feelings of belonging and identity are reinforced by knowledge of the existence of a past, and this is further reinforced and maintained in the protection of cultural heritage.

Assessment of Cultural Heritage Significance

As well as the ICOMOS Burra Charter, DECC has endorsed the *Guidelines for Aboriginal Impact Assessment*. The relevant sections of this document are presented and discussed below.

The *Guidelines* state that an area may contain evidence and associations which demonstrate one or any combination of the following Aboriginal heritage values. The values described by the *Guidelines* are drawn from the Burra Charter.

Social value (sometimes termed Aboriginal value) refers to the spiritual, traditional, historical or contemporary associations and attachment that the place or area has for the present-day Aboriginal community. Places of social significance have associations with contemporary community identity. These places can have associations with tragic or warmly remembered experiences, periods or events. Communities can experience a sense of loss should a place of social significance be damaged or destroyed. These aspects of heritage significance can only be determined through consultative processes with one or more Aboriginal communities.

Historic value refers to the associations of a place with a person, event, phase or activity of importance to the history of an Aboriginal community. Historic places may or may not have physical evidence of their historical importance (such as structures, planted vegetation or landscape modifications). Gaining a sufficient understanding of this aspect of significance will often require the collection of oral histories and archival or documentary research, as well as field documentation. These places may have ‘shared’ historic values with other (non-Aboriginal) communities. Places of post-contact Aboriginal history have generally been poorly recognised in investigations of Aboriginal heritage, and the Aboriginal involvement and contribution to important regional historical themes is often missing from accepted historical narratives.

Scientific value refers to the importance of a landscape, area, place or object because of its archaeological and/or other technical aspects. Assessment of scientific value is often based on the likely research potential of the area, place or object and will consider the importance of the data involved, its rarity, quality or representativeness, and the degree to which it may contribute further substantial information.

Aesthetic value refers to the sensory, scenic, architectural and creative aspects of the place. It is often closely linked with social values and may include consideration of form, scale, colour, texture, and material of the fabric or landscape, and the smell and sounds associated with the place and its use.

All Aboriginal sites and places, including those that are considered to be ‘archaeological’ – for example, middens or artefact scatters – may have a particular value and meaning to Aboriginal people.

Cultural Landscapes

In addition to these four definitions of value, the *Guidelines* also specify the importance of considering cultural landscapes when determining and assessing Aboriginal heritage values. The principle behind a cultural landscape is that ‘the significance of individual features is derived from their inter-relatedness within the cultural landscape’. This means that sites or

places cannot be ‘assessed in isolation’ but must be considered as parts of the wider cultural landscape. Hence the site or place will possibly have values derived from its association with other sites and places. By investigating the associations between sites, places and (for example) natural resources in the cultural landscape, the stories behind the features can be told. The context of the cultural landscape can unlock ‘better understanding of the cultural meaning and importance’ of sites and places.

Determination of Cultural Heritage Significance

The Burra Charter suggests that heritage practitioners ‘should prepare a succinct statement of cultural significance, supported by, or cross referenced to, sufficient graphic material to help identify the fabric of cultural significance’. The statement must be clear and concise, and must not simply restate the physical or documentary evidence presented as part of the assessment.

This study will present determinations of cultural heritage significance as *statements of significance* that preface a concise discussion of the contributing factors to the cultural heritage significance.

Reference to each of the categories defined above will be made when evaluating cultural significance for sites and places. Nomination of the level of value—high, moderate, low or not applicable—for each relevant category will also be proposed. Consideration of the thresholds for each level of value for the categories will be guided by the contributing factors defined above for each category. The categories are:

- *Social value*
- *Historic value*
- *Scientific value*
- *Aesthetic value*
- *Cultural landscape value*

The determination of cultural landscape value will be applied to both individual sites and places (to explore their associations) and also, to the Study Area as a whole.

3.0 HERITAGE STATUS AND PLANNING DOCUMENTS

3.1 National Registers

3.1.1 The National Heritage List, Commonwealth Heritage List and Register of the National Estate

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) establishes two mechanisms for protection of heritage places. The National Heritage List provides protection to places of cultural significance to the nation of Australia. The Commonwealth Heritage List comprises natural, Aboriginal and historical heritage places owned and controlled by the Commonwealth and therefore mostly includes places associated with defence, communications, customs and other government activities.

Nominations to these two lists are assessed by the Australian Heritage Council (AHC), which also compiles the Register of the National Estate, a list of places identified as having national estate values. There are no management constraints associated with listing on the Commonwealth Heritage List or Register of the National Estate unless the listed place is owned by a commonwealth agency.

APPLICATION TO THE STUDY AREA – NATIONAL HERITAGE REGISTERS

There are no items listed on the Register of the National Estate within the Study Area.

3.1.2 National Native Title Register

The Commonwealth *Native Title Act 1993* (Cth) establishes the principles and mechanisms for the recognition of and determination of Native Title for Aboriginal people.

The purpose of searching the register is to identify any Traditional Owner groups with current registered claims close to the Study Area that may identify themselves as relevant stakeholders with traditional knowledge or experience.

APPLICATION TO THE STUDY AREA – NATIONAL NATIVE TITLE REGISTER LISTINGS

A search of the National Native Title Register, the Register of Native Title Claims and the Register of Indigenous Land Use Agreements was completed on 19 February 2009. The search results identified one Native Title Claim lodged by the *Gundungurra Tribal Council Aboriginal Corporation #6* (reference NC97/7), encompassing a large area west of the Nepean River, including the present Study Area.

3.2 State Registers

3.2.1 National Parks and Wildlife Act 1974 Registers

The Department of Environment and Climate Change (DECC) maintains a database of Aboriginal sites within NSW under Part 6 of the NSW *National Parks and Wildlife Act 1974*. Aboriginal objects and places in NSW are legally required to be registered on the Aboriginal Heritage Information Management System (AHIMS) register.

The area searched on the AHIMS database was larger than the Study Area, as Aboriginal sites recorded within the wider area will provide a regional perspective on the types of sites that maybe expected to be found within the Study Area.

APPLICATION TO THE STUDY AREA – AHIMS DATABASE

A search of the AHIMS Database completed on 20 February 2009 identified 54 previously recorded Aboriginal sites within a 6 km x 6 km search area centred on the Study Area (see Section 5.4.). Seventeen of these sites were situated within the current Appin Area 7 Goaf Gas Drainage Project Study Area.

3.2.2 Heritage Act 1977 Registers

The Heritage Branch of the Department of Planning NSW maintains registers of heritage and archaeological items that are of State or local significance.

The State Heritage Register (SHR) contains items that have been assessed as being of State Significance to New South Wales. The State Heritage Inventory (SHI) contains items that are listed on Local Environmental Plans and/or on a State Government Agency's Section 170 registers that are deemed to be of local significance.

If an item or place does not appear on either the SHR or SHI this may not mean that the item or place does not have heritage or archaeological significance; many items have not been assessed to determine their heritage significance. An assessment is required for items that are 50 years or older. Items that appear on either the SHR or SHI have a defined level of statutory protection. This is discussed more fully in Appendix 2.

APPLICATION TO THE STUDY AREA – NSW STATE HERITAGE REGISTER LISTINGS

The Appin Area 7 Goaf Gas Drainage Project Study Area contains no items listed on the State Heritage Register.

APPLICATION TO THE STUDY AREA – NSW STATE HERITAGE INVENTORY LISTINGS

The Appin Area 7 Goaf Gas Drainage Project Study Area contains no items that are listed on the State Heritage Inventory.

In addition, Section 170 of the NSW *Heritage Act 1977* requires that culturally significant items or places managed or owned by Government agencies be listed on departmental Conservation and Heritage Registers. Information in these Registers has been prepared according to NSW Heritage Office guidelines and should correspond with information in the State Heritage Inventory. As noted above, the Upper Canal Water Supply System is listed on the Sydney Catchment Authority s.170 Heritage and Conservation Register.

APPLICATION TO THE STUDY AREA – NSW HERITAGE ACT 1977 RELICS PROVISIONS

There are no identified archaeological sites within the Study Area; however, the relics provisions are applicable to relics regardless of heritage listing. Archaeological sites that may be identified in the Study Area during survey will be protected by the relics provisions of the NSW *Heritage Act 1977*.

3.2.3 Environmental Planning and Assessment Act 1979 Registers

The *Environmental Planning and Assessment Act 1979* includes provisions for local government authorities to consider environmental impacts in land-use planning and decision making. Such impacts are generally considered in relation to the planning provisions contained in the Local Environment Plan (LEP) or Regional Environment Plan (REP).

Local Environmental Plans: Each Local Government is required to create and maintain a LEP that includes Aboriginal and historic heritage items. Local Councils identify items that are of significance within their Local Government Area (LGA), and these items are listed on heritage schedules in the local LEP and are protected under the *EP&A Act 1979* and *Heritage Act 1977*.

APPLICATION TO THE STUDY AREA – WOLLONDILLY LEP 1991 SCHEDULE 1

There are no items within the Appin Area 7 Goaf Gas Drainage Project Study Area that are listed in the heritage schedule of the *Wollondilly LEP 1991 Schedule 1*.

3.3 Non-Statutory Registers

3.3.1 The National Trust of Australia (NSW)

The National Trust of Australia (NSW) is a community-based conservation organisation. The Trust maintains a Register of heritage items and places. Although the Register has no legal foundation or statutory power, it is recognised as an authoritative statement on the significance to the community of particular items, and is held in high esteem by the public. The National Trust lists items or places that have heritage or cultural value to the community and, as such, the Trust encourages and promotes the public appreciation, knowledge, and enjoyment of heritage items for future and present generations.

APPLICATION TO THE STUDY AREA – NATIONAL TRUST OF AUSTRALIA (NSW)

The Study Area contains no heritage items classified (listed) by the National Trust of Australia.

3.4 Summary of heritage listings in the Study Area

Seventeen Aboriginal archaeological sites are currently listed by DECC AHIMS database as being within the Appin Area 7 Goaf Gas Drainage Project Study Area (Table 1). The details of each Aboriginal site listed on the DECC AHIMS register can be found in Section 5.4 of the report.

Table 1: Summary of known heritage items within the vicinity of the proposed Appin Area 7 Goaf Gas Study Area, NSW.

ITEM	RNE	CHL	NHL	AHIMS	SHR	SHI	WLEP 1991	NATIONAL TRUST
17 Aboriginal archaeological sites				Y				

4.0 ENVIRONMENTAL CONTEXT

The environmental background to the Study Area is provided in order to give a context to the archaeological assessment. The environmental conditions of the Study Area may have influenced the land use by people in the past; the conditions will also affect the processes by which archaeological sites are preserved, and the environmental aspects of an area also influence the type of archaeological sites that are likely to be present. Environmental values of an area can also contribute to the cultural significance and attachments people have to a place.

The following background is a summary of information relevant to the current assessment of archaeological values of the Study Area.

4.1 Geomorphology

4.1.1 Geology, Landforms and Soil

The Study Area is located within the Sydney Basin, a geological province that consists of Permian and Triassic aged sedimentary rock. The surface geology is characterised by shales of the Wianamatta Group and sandstones of the Hawkesbury Sandstone, which both date to the middle-Triassic. Below this lie the sedimentary units of the Narrabeen Group, and the Illawarra Coal Measures which include the Bulli and Wongawilli coal seams (Branagan and Packham 2000: 56-8).

More specifically, the Study Area is situated on the transitional zone between two distinct physiographic regions: the Cumberland Plain and the Woronora Plateau (Hazelton and Tille 1990). The Cumberland Plain is more commonly characterised by a moderate undulating landscape formed by the weathering of the underlying Wianamatta shales, while the Woronora Plateau can be characterised by steep blocky valleys and cliff lines of the underlying Hawkesbury sandstone, exposed by major rivers and creeks. Both the open undulating ridgelines and sandstone scarps of these features have the potential to contain archaeological sites.

The physiographic features of the surrounding landscape have been incised by the Nepean River, Foot Onslow Creek and the major feeder tributaries of Harris creek. Across the varying landscape of the Study Area, one soil landscape has been defined (Hazelton and Tille 1990). Each soil landscape has distinct morphological and topological characteristics, resulting in each soil landscape having different archaeological potential. Because they are defined on a combination of soils, topography, vegetation and weathering conditions, soil landscapes are essentially terrain units that provide a useful way to summarise archaeological potential and exposure. A brief description of the Blacktown (bt) landscape and associated archaeological potential follows.

Blacktown (bt)

The Blacktown residual landscape characterises much of the Cumberland Lowlands and the Woronora Plateau. It has gently undulating rises without rock outcrops (local relief to 30 m with slopes less than 5% grade). Broad rounded crests and ridges with gently inclined slopes are the dominant topography of this landscape (Hazelton & Tille 1990). The soils consist of shallow to moderately deep podzols. Due to their age and slow accumulation residual soil landscapes have reasonable potential to contain archaeological deposits in an open context, such as stone artefacts derived from occupation sites. However, the slow accumulation and high impact of extensive land clearing (usually associated with pastoral development) during more recent times often results in poor preservation of archaeological material.

4.2 Climate

The climate at Picton (8 kilometres south west of the Study Area) generally consists of mild summers with an average maximum of 29.3 degrees Celsius and minimum of 15.4 degrees Celsius in February, and cold, wet winters with an average minimum of 1.7 degrees Celsius and a maximum of 16.8 degrees Celsius in July (Bureau of Meteorology website 2007, 1975 Mean Temperature). Recorded rainfall readings taken in 2007 indicate an average annual rainfall of 805.5 millimetres. The average number of rain days at Picton is 10 days during summer and 28 days during winter (Hazelton and Tille 1990). Whilst conditions and temperatures are wide ranging, the conditions in the Study Area can be summarised as being mild and very suitable for year round hunter-gatherer occupation of all parts of the region.

4.3 Flora and Fauna

Much of the Study Area comprises open grassed paddocks as a direct result of settlement and land clearing that has occurred in the area since early settlement c1811. Some remnant vegetation communities occur along the Nepean River. Small pockets of remnant vegetation also occur along minor drainage features and on some hill slopes.

The following vegetation communities are indicative of the species that once thrived across these areas prior to exploration and settlement in New South Wales. Cumberland Plain Woodland is the only native vegetation community occurring in the study area. However, Shale Sandstone Transition Forest occurs in nearby areas. Both of these vegetation communities are described below.

Cumberland Plain Woodland (CPW) occurs across the Cumberland Plain region, away from creeks and rivers. Major species of this vegetation community include Grey Box *Eucalyptus moluccana* and Forest Red Gum *E. tereticornis*, with Narrow-leaved Ironbark *E. crebra*, Spotted Gum *Corymbia maculata* and Thin-leaved Stringybark *E. eugenioides* occurring less frequently. The shrub layer is dominated by Blackthorn *Bursaria spinosa*, and it is common to find abundant grasses such as Kangaroo Grass *Themeda australis* and Weeping Meadow Grass *Microlaena stipoides* var *stipoides* (NSW NPWS 2002).

Shale Sandstone Transition Forest (SSTF) occurs in the transition zone between the surrounding Hawkesbury Sandstone and the clay derived Cumberland Plain, with small patches occurring along Mallaty, Ouesdale, Leafy Gully and Nepean creeks. It is dominated by *Eucalyptus tereticornis*, with *E. eugenioides*, *E. crebra*, *E. fibrosa* with *E. punctata* occurring less frequently (Biosis Research 2007c). The sub-community SSTF – High Sandstone Influence is dominated in the understorey by sandstone shrub-layer species such as *Kunzea ambigua* and *Persoonia linearis* (NPWS 2001). The other sub-community SSTF – Low Sandstone Influence is dominated in the understorey by *Bursaria spinosa*, *Themeda australis* and *Echinopogon ovatus* (NPWS 2001).

This transitional zone would have provided a wide diversity of resources, in a relatively small geographic area, for the Aboriginal hunter-gatherer population. This diversity is even greater when it is considered how close the coastal resource areas are to the rugged plateau.

Land mammals such as kangaroos and arboreal mammals such as possums would have been important prey species. Birds, reptiles and fish would also have been important resources. As well as being important food sources, animal products were also used for tool making and fashioning myriad utilitarian items. For example, tail sinews are known to have been used as a fastening cord, while ‘bone points’, which would have functioned as awls or piercers, are often an abundant part of the archaeological record.

4.4 Resource Statement

The landscape would have provided various sources of stone material for the Aboriginal people, from which a range of stone tools could be manufactured. Raw materials types might have included quartz and quartzite, silcrete, and harder stone such as basalt which could be sourced from the west. Locally, quartz would have been the main stone raw-material type suitable for tool manufacture that would occur in the vicinity of the Study Area in any abundance. This would be in the form of pebbles derived from the Hawkesbury sandstone. Such pebbles would have been available along the Nepean River channels as they eroded or weathered out of the sandstone. Other raw materials, including tuff, mudstone, silcrete, chert, quartzite and basalt would have been sourced outside the present Study Area, west from other areas of the Cumberland Plain.

Depending on seasonal variations the Nepean River flows all-year-round, providing an easily accessible source of water and other resources. Seasonal knowledge for harvesting plants and hunting food and material resources was an important factor in the timing of movements into, and out of the Study Area. This might have involved exploiting resources along the coast at one time of year and resources throughout the plateau at another. Various plant and animal species present within the Study Area would have provided a range of resources for Aboriginal people. Food, tools, shelter and ceremonial items were derived from floral resources, with the locations of many campsites predicated on the seasonal availability of

resources. These include using wood to make implements; berries, leaves and tubers for food and medicines, as well as bark for shelter construction.

5.0 ABORIGINAL CONTEXT

5.1 Ethnohistory

Archaeological evidence clearly indicates that Aboriginal people have occupied the greater Sydney region for up to 20,000 years. Our knowledge of the social organisation and languages of Aboriginal people prior to European contact is, to a large extent, reliant on documents written by European people. Such documents contain the inherent bias of the class and cultures of these authors, however, they can be used in conjunction with archaeological information in order to gain a picture of Aboriginal life in the region. The majority of this information was gathered during the late nineteenth century, taking place in already decimated communities where significant disruptions to the pre-existing societies had already taken place.

According to Mathews and Everitt (1900:262), the *Gundangarra* occupied the coastal regions, from the Hawksbury River to Cape Howe, and extending inland to the Blue Mountains. The *Dharawal* speaking language group inhabited the coast from Port Hacking, south to Jervis Bay, and inland for a considerable distance (Mathews 1901:127).

These 'defined' language areas are considered to be indicative only, and would have changed through time, and possibly also changed depending on circumstances. It is more likely that language groups shared enough common dialect that definitive boundaries varied, and are not set along a single defined geological boundary. Many early sources identify the Nepean River as the boundary between the Tharawal (east) and the Gundangarra (west). However, the present Study Area is considered to be situated on the margin of the Gundangarra language group.

According to Barralier 1802 (1975:2-3) the present Study Area would have been inhabited by the *Gundangarra* language group. On his expedition through the Menangle region he describes the swamps in the Nepean River as excellent sources of fish, shellfish and eels, stating that;

'the people from this area usually fed upon opossum and squirrels, which are abundant in that country, and also upon kangaroo rats and kangaroo, but they can only catch this last one with greatest trouble, and they are obliged to unite in great numbers to hunt it.' (Barralier 1802 (1975:2-3).

A variety of studies of the language groupings that made up the greater Sydney region have been summarised by Attenbrow (2002). Language groups were not the main political or social units in Aboriginal life. Instead, land custodianship and ownership centred on the smaller named groups that comprised the broader language grouping. There is some variation in the terminology used to categorise these smaller groups; the terms used by Attenbrow (2002) will be used here.

Land ownership was centred on small extended family groups or *clans* (also referred to as local descent groups, local clans or territorial clans). As it was normal practice to disallow intermarriage in close family bands, a number of groups would travel together making up larger units. These units are often referred to as *bands*.

Groups were delineated by physical boundaries within the landscape, such as watercourses and particular varieties of vegetation. Group members were usually united by common dialect, descent, history, and a shared 'Dreaming' ancestor, with each group led by influential individuals. In the Sydney area spiritual attachment and allegiance to land was centred on the clan. Bands were an economic, resource based grouping and do not seem to have been named, although in other parts of the country band-sized groupings were named and carried different emphasis to the cultural life of local people (Attenbrow 2002).

Gatherings of numbers of smaller groups such as bands occurred for ceremonial reasons or to share in seasonally abundant resources. These larger groupings could number many hundreds of individuals. Occasions for large gatherings included predictable seasonal events such as bird migrations but also one off 'windfall' events such as whale beachings (McDonald 1992a).

Interactions between different types of social groupings would have varied with seasons and resource availability. It has been noted that interactions between the groups inhabiting the multiple resources zones of the Sydney Basin (coastal and inland) would have varied but were continuous. This is reflected in the relatively homogenous observable cultural features such as art motifs, technology and resource use (McDonald 1992a).

It is likely that groups in different resource areas would have had regular contact, although it is not known exactly how much each group's territory was restricted by a particular resource. It is known that some specific technology was used to adapt to the particular conditions of an area. Aboriginal people in the mountains were frequently observed wearing cloaks of animal skins in contrast to the coastal people, who were not noted to wear cloaks. Items such as grub catching 'hooks' described by Barrallier in 1802, special 'squirrel traps' in tree hollows and bird catching nets described by Collins (cited in McDonald 1992a) in and around Menangle, are evidence of specific locally adapted technology.

5.2 Contact History

The arrival of Europeans had a rapid and dramatic effect on the traditional Aboriginal lifestyle patterns in the Sydney region. Even so, evidence of the continued presence of Indigenous people, despite the disruptions to prior lifestyle, is also recorded and historically significant throughout the region. As in many places competition for land and resources and cultural differences led to conflict. This happened rapidly within the region and the Study Area following European settlement.

The arrival of settlers in the region around Appin and new competition for resources began to restrict the freedom of movement of the Indigenous inhabitants from around 1813 (McGill 1994). This was quickly followed by severe drought in 1814 and 1816. By 1814 numbers of Aboriginal people had begun to congregate in the Appin area in search of food and other resources. These people were not only the original inhabitants of the area but also other Aboriginal people from elsewhere who had been pushed off their own lands. In May 1814 the militia killed an Aboriginal boy. When others of the group sought revenge they attacked three militia members before they had time to reload killing one of them (McGill 1994). The trouble brewing between settlers and local inhabitants and the growing pressure on resources resulted in Governor Macquarie sending a punitive military expedition in 1816. The expedition ended in the 'Appin Massacre'. The militia claimed their intentions were to capture prisoners but as they found and pursued a group of Aboriginal people on Broughton's property panic ensued. Fourteen Aboriginal men, women and children were driven over a cliff to their deaths. The exact site of the massacre is not known but Broughton's original 1810 land grant was at Brooks Point.

5.3 Regional Overview

It is generally accepted that people have inhabited the Australian landmass for at least 50,000 years (Allen and O'Connell 2003). Dates of the earliest occupation of the continent by Aboriginal people are subject to continued revision as more research is undertaken. The exact timing for the human occupation of the Sydney Basin is still uncertain. The earliest undisputed radiocarbon date from the region comes from a rock shelter site on the western side of the Nepean known as Shaws Creek K2 which has been dated to 14,700 years before present (BP) (Attenbrow 2002: 20). This site is over 50 km north of the Study Area along the Nepean River. To the south along the coast just north of Shellharbour a site at Bass Point has been dated at 17,101 +/- 750 BP (Flood 1999). Archaeological evidence of Aboriginal occupation of the Cumberland Plains indicates that the area was intensively occupied from approximately 4,000 years BP (JMCHM 2007a). On the Woronora Plateau the oldest date for Aboriginal occupation recorded so far is 2,200 +/- 70 BP (Sefton 2002a). Such a 'young' date is probably more a reflection of poor site conditions for the preservation of datable material and sporadic archaeological excavation, rather than actual evidence of absence of an Aboriginal hunter-gatherer population prior to this time.

Results of archaeological work completed in the northern central and southern Cumberland Plain region have clearly identified that the predominant recorded sites on the Cumberland Plain are open camp sites (Kohen 1986; Smith 1989; Haglund 1989; McDonald 1992b; JMCHM 1996, 2007a, b & c; Dibden 2001, 2002, 2003). Towards the peripheries of the plain on Hawkesbury sandstone, shelters with art and/or deposit and grinding grooves have been recorded. Most recent archaeological studies have been impact driven assessments in response to increasing development activity in the region and changing legislation requirements.

The area along the Nepean and around Appin, Menangle and Douglas Park has been subject to reasonably continuous archaeological study during the last 20 years. The majority of this work has been undertaken for impact assessments related to longwall mining and residential development (see Section 5.5.), with only a small amount of work associated with research grants and post-graduate theses, and limited archaeological excavations.

The most significant exploratory studies have been undertaken by the voluntary Illawarra Prehistory Group, which has successfully recorded hundreds of Aboriginal archaeological sites across the Woronora Plateau. The majority of these sites comprise sandstone shelters and overhangs containing art and / or archaeological deposit. The abundance of this site type is a reflection of the predominant incised Hawksbury Sandstone along major drainage features including the Nepean River, and its feeder tributaries, such as Harris, Foot Onslow and Navigation creeks. The incised sandstone gullies and valleys of the Nepean River result in significant sandstone cliff lines, and smaller outcrops and overhangs suitable for occupation or art depiction. Other site types do occur, and can include open artefact scatters, axe grinding grooves, and scarred trees. Open artefact sites are usually present on the undulating land above the gullies or within shelter sites, while scarred trees are limited to what little remnant vegetation remains. The low frequency of these recorded site types can be attributed to previous land use history, disturbance, visibility and exposure within the landscape.

The recorded frequency of sandstone overhang / rockshelter sites can also be attributed to the intense survey effort on the Hawksbury Sandstone landform across the Woronora Plateau. Sefton (1988:86, 1998:12) has completed extensive analysis of data collected from this work over the past 15 years that describes the frequency and distribution of art techniques on the Woronora Plateau (1988). As part of this analysis, Sefton (1998:12) has provided a review of the techniques and motifs of shelter art within the Georges River Basin. Her summary is reproduced in Table 2 below. It clearly shows that the most common defined art technique within sandstone shelters on the Woronora Plateau is charcoal drawings.

Table 2: Summary of art techniques by method of application and colour, Woronora Plateau (from Sefton 1998)

Summary of art techniques (Sefton 1998)				
Technique	No. of Shelters	% of Shelters	No. of Motifs	% of Motifs
Charcoal drawing	427	92	3906	78
Red stencil	86	18	490	9
Red drawing	86	18	183	4
White stencil	37	7	201	4
White drawing	38	8	119	2
Bichrome	28	6	46	1
Ochre painting	19	4	172	3

Charcoal drawing accounts for 78% of the total motifs in 92% of shelters that contain art. Whilst there is a wide diversity of charcoal drawn motifs, the majority of the motifs depict forms that are indeterminate, a situation arising from poor preservation, and also possibly the fact that some motifs are complete but not readily interpretable.

JMCHM work has resulted in the development of a predictive model for Aboriginal site distribution on the Cumberland Plain that will be applicable to the Study Area (1996; 1999). This has been developed using the Aboriginal occupation models proposed for the Camden area by Haglund (1989) and data collected from other areas of the Cumberland Plain where trends in the distribution of archaeological sites have been apparent. The following predictive model for the Cumberland Plain has been taken from JMCHM (1999) and will be used to devise the site prediction model for the Study Area (Section 5.6).

1) The size (density and complexity) of archaeological features will vary according to permanence of water, landscape unit and proximity to stone resources in the following way:

- At the headwaters of upper tributaries (first order creeks) archaeological evidence will be sparse and will comprise little more than background scatters of stone artefacts;
- At the middle reaches of minor tributaries (second order creeks) archaeological evidence will be sparse but indicate focussed activity;
- At the lower reaches of tributary creeks (third order creeks) archaeological evidence will indicate more frequent occupation and evidence of repeated, more concentrated activities;
- On major creek lines and rivers (fourth order creeks) archaeological evidence will indicate more permanent occupation which is of greater complexity;
- Creek junctions and swamps may provide foci for site activity;
- Ridgetop locations between drainage lines will usually contain limited archaeological evidence.

2) Where sandstone features occur (overhangs or platforms), these may have provided a focus for a number of activities including camping or art production or the sharpening of axes. Sandstone platforms may also have been used for the production of art (engravings) although these are very rare on the margins of the Cumberland Plain.

5.4 AHIMS Results

A search of the NSW DECC Aboriginal Heritage Information Management System (AHIMS) database was conducted on 20 February 2009. Fifty four previously recorded sites are located within a 6 km x 6 km search area centred on the Study Area (refer to Figure 2). Of these, 17 sites are located within goaf gas drainage Study Area (see Table 3 below).

It should be noted that the AHIMS database reflects Aboriginal sites that have been officially recorded and included on the list. Large areas of NSW have not been subject to systematic, archaeological survey; hence AHIMS listings may reflect previous survey patterns and should not be considered a complete list of Aboriginal sites within a given area.

Of the 17 sites recorded near the Study Area, the predominant site types are Open Camp Site (26%). The remaining site types are Shelter with Art (19%), Shelter with Deposit (19%), Shelter with Midden (6%), Shelter with Art and Deposit (6%), Shelter with Potential Archaeological Deposit (6%), Axe Grinding Grooves (6%), Scarred Tree (6%), and Isolated Artefact (6%).

Table 3 (following) provides details of the registered Aboriginal archaeological sites located within close proximity to the proposed goaf gas abatement. Details of specific site location are considered sensitive and have not been included in this report.

Table 3: AHIMS sites registered within a 5 x 5 km search area of the proposed goaf gas drainage project.

<i>AHIMS SITE NO.</i>	<i>SITE NAME</i>	<i>SITE TYPE</i>
52-2-1213	Unit e rubbish dump; Didicoolum	Axe Grinding Grooves
52-2-1214	Unit d ground axe paddock; Didicoolum	Open Campsite
52-2-0014	No Name	Shelter with Art
52-2-1921	Brooks Point 8	Shelter with Art
52-2-1922	Nepean River 2	Shelter with Art
52-2-2094	Nepean River 5 (Duplicate)	Shelter with Deposit
52-2-2095	Nepean River 6	Shelter with Deposit
52-2-2096	Nepean River 7	Scarred Tree
52-2-2097	Nepean River 5	Shelter with Deposit
52-2-2098	Nepean River 4	Shelter with Midden
52-2-2099	Brooks Point 9	Shelter with Art and Deposit
-	Mountbatten 2	Open Campsite
52-2-3674	Mountbatten 1	Open Campsite
-	Harris Creek 3 (HC 3)	Isolated Artefact
-	Moreton Park Road 4 (MPR4)	Open Camp Site
-	AA7-07	Shelter with Potential Archaeological Deposit

The site types within the Study Area generally reflect the regional patterning, with a high frequency of open stone artefact sites on the plain and a number of shelters with deposit sites occurring on the incised Hawksbury sandstone along the Nepean River.

5.5 The Archaeological Record – Localised Studies

There have been a number of localised archaeological impact assessment surveys undertaken in the Douglas Park / Menangle area, many of which are associated with longwall mining for the Appin Mine (Sefton 1998, 1999; Biosis Research 2004, 2006), and more recently for the Camden Gas Projects (Dibden 2001, 2003). The earliest work undertaken within the Study Area was a research project completed by Demkiw in 1985.

All of these studies resulted in the identification and assessment of Aboriginal archaeological sites. The following report summaries only include previous archaeological assessment work that has been undertaken within or in close proximity to the current Goaf Gas Drainage Project Study Area (see Figure 3).

Demkiw (1985) conducted surveys of the property immediately south of current Study Area, known as 'Didicoolum' as part of an undergraduate archaeology course. These surveys were conducted around the unnamed tributary, which Demkiw refers to as Lyrebird Creek. Two sites from this study are registered on the AHIMS, axe grinding grooves (52-2-1213) and an open camp site (52-2-1214). As it is an undergraduate study rather than a management report Demkiw's work contains a number of anomalies. As well as the AHIMS registered sites, the report also contains descriptions of rockshelters (none containing art or artefacts), possible scarred trees, unusual sandstone artefacts and what appears to be a historically pecked and dressed sandstone block that Demkiw initially speculates may be Aboriginal art. The open camp site (52-2-1214) is of particular interest as it identifies a paddock from which several stone axes and other unusual artefacts have been recovered during tilling (Demkiw 1985:36). Some of these items may be artefacts, but the photographs and illustrations suggest otherwise for many of them. It is unlikely that all these items are artefacts, and it is unusual that a range of large artefacts such as grinders and axes should occur without an associated chipped stone assemblage. However, stone artefacts could be expected to occur on the undulating country above the Nepean River, especially near larger drainage features (which presumably provide an attraction for hunter-gatherer populations and definitely provide erosion and archaeological exposure).

It appears Demkiw may have been an influence on one of the more enigmatic Aboriginal heritage sites claimed to exist in the Study Area. The Menangle Eel Farm was listed on the non-statutory 'Register of Historic Places and Objects' of the Professional Historians Association of NSW in 2001. The register describes the feature as '5 acres of systematic pondage on Lyrebird Creek, a minor tributary of the Nepean, used for eel farming.' Demkiw presents no archaeological evidence for an eel farm here. He does, however, speculate that a small valley to the northwest of the 'Didicoolum' property may have been the location of swamps that were described by Barrallier in 1802 (Demkiw 1985: 45-47). Barrallier noted the Aboriginal population catching fish and eels in these swamps. Demkiw provides accurate coordinates for a chain of ponds on a tributary of Navigation Creek (3 km northwest of the Didicoolum), which are clearly visible on current topographic maps and aerial photography. Demkiw suggests that this location is the same as that where Barrallier described 'ditches' and mounded, denuded earth for watering cattle in 1802. Demkiw speculates that the features

described by Barrallier are a corroborree ground and the ditches were used for ‘trapping eels’ (implying they were constructed specifically for this purpose by the Aboriginal population) (1985:47). All this speculation is placed within a wider discussion of other eel and fish traps that are well represented in the archaeological record elsewhere, and reflects the fancy for Aboriginal hunter-gatherer ‘intensification’ that was so much the fashion of academic Australian archaeology during the 1980s (Lourandos 1983, Lourandos and Ross 1994). In conclusion, there is no archaeological evidence for an ‘eel farm’ in this area.

Sefton (1998) conducted an archaeological survey of an area for proposed Tower Colliery Longwalls 16 and 17 and future mining extensions that took in both sides of the Nepean River, Simpsons, Elladale and Harris creeks. This Study Area covered the area to the south east of the present Study Area, focussing on suitable cliff lines suitable for occupation and art depiction. The survey found that most of the Nepean River comprised large cliff lines with steep talus slopes that contained frequent overhangs. These overhangs had poor access and sloping sandstone floors containing little or no deposit, considered unsuitable for Aboriginal occupation. However, four archaeological sites were recorded, including one shelter with archaeological deposit, and three shelters with art, none of which are situated within the current Study Area. These sites occur on minor creeks lines, or where small side drainage features feed into the Nepean River, creating smaller more suitable sandstone overhangs. Sefton also identified seven overhangs with the potential for archaeological deposits, but these were not formally registered with DECC.

Sefton (1999) surveys were not as extensive as those conducted previously, but nevertheless covered both sides of the Nepean, the southern side of Ousedale Creek and an unnamed tributary (sometimes referred to as Lyrebird Creek). During these surveys six previously unknown sites were discovered: a shelter with art, four shelters with deposit and a single scarred tree. All of these six sites are within the current area of interest. In addition, Sefton identified three sites with potential archaeological deposit, which were not formally recorded.

Dibden (2001a) undertook the first archaeological and heritage assessment for the Camden Coal Bed Methane project, north east of the present Study Area. A total of 13 Aboriginal archaeological sites were identified, including three low density artefact scatters and ten isolated artefact occurrences. All sites were identified on low gradient simple slopes or valley flats associated with ephemeral streams. A number of these were situated on valley flats nestled at the base of Razorback Range, indicating some use of the area, most likely for resources. These findings reflect the overall site model for the Cumberland Plain that suggests low-density stone artefact sites or isolated stone artefacts will occur along ephemeral water courses.

Dibden (2002a) completed an archaeological assessment for the proposed Camden Coal Bed Methane Project for a proposed gas gathering system at “Kay Park”, north west of the present Study Area. The assessment identified two low density artefact scatter sites (KPS1: 52-2-2267 and KPS2: 52-2-2268) along the proposed gas pipeline corridor. Both sites were assessed as being of low-moderate archaeological significance as they are situated on previously

disturbed paddocks. An addendum to the assessment was completed by **Dibden (2002b)** to determine an alternative gas gathering route that would avoid the recorded sites KPS1 and KPS2. No Aboriginal archaeological sites or areas of potential were identified along the alternative pipeline corridor.

Dibden (2003) undertook an archaeological and cultural heritage assessment for Stage 2 of the Camden Gas Project. This involved a survey of almost 80 proposed gas well site locations and associated gathering systems to determine the presence and significance of Aboriginal heritage at each location (Dibden 2003: 3). This field survey resulted in the identification of 20 previously unrecorded Aboriginal archaeological sites, primarily comprising isolated artefact occurrences. In most cases, the artefacts were noted to be in their original depositional contexts. The majority of these sites are also considered to be of low significance, as these sites have low research potential, have been subject to high levels of disturbance, have low aesthetic value and are representative of a common site type of the Cumberland Plain.

Dominic Steele Consulting Archaeologists (2005) completed an Aboriginal archaeological survey for 12 proposed gas production well sites, gathering systems and access routes on a Razorback property, north west of the current Study Area. A total of nine Aboriginal archaeological sites were identified. Six of these were isolated finds, and the other three sites were low – moderate density artefact scatters. The isolated finds were situated on moderate slopes near ephemeral creeks, where as the low-moderate density scatters were located adjacent to major drainage features and swamps. These results also reflect the current site prediction models for the region.

Navin Officer (2006) completed a detailed cultural heritage assessment of the proposed gas turbine power station near Leaf's Gully, situated in the north east of the present Study Area. The majority of the Study Area was surveyed in detail, with the remainder being assessed on archaeologically sensitive landforms. This resulted in the identification of one area of Potential Archaeological Deposit (PAD) for Aboriginal cultural material across upper slopes and crests of a spur line complex that descends towards Leaf's Gully and the Nepean River respectively (Navin Officer 2006:25). Navin Officer (2006:25) suggested that bioturbation within the sandy soils of LGPAD1 area causes stone artefacts to move down into the soil profile, thus remaining undetected during surface surveys. Despite moderate levels of disturbance due to previous land use, the likelihood of Aboriginal cultural material being present was considered high.

Biosis Research (2004) conducted surveys of several areas in and around Appin Area 7 (formerly known as Douglas Park) Study Area in 2004. These surveys took in portions of the undulating plateau above the Nepean River, as well as the rugged sandstone terrain that had been focused on by Sefton. The surveys revisited some previously recorded sites and discovered three new sandstone overhangs with potential archaeological deposit. They also noted the presence of potential scarred trees and located several features of historical interest. Of these sites, only three overhangs with potential archaeological deposit are within the current Study Area.

Biosis Research (2006) completed a large scale EIS project for the proposed Appin Area 7 (formerly known as Douglas Area 7) Longwalls 701-704. This study included the southern section of the present Study Area. Due to high levels of previous archaeological work throughout the region, the study involved complimentary surveys and reassessment of previously recorded archaeological sites. The complimentary field assessment identified four new Aboriginal archaeological sites, all of which were stone artefact scatters. All previously recorded Aboriginal rock art shelter sites were revisited and photos of the rock art taken at each site for comparison. A number of these archaeological sites were flagged for potential impacts by subsidence by MSEC (2006). Biosis Research (2006) recommended a continued program of monitoring of sites within the predicted area of subsidence impact.

5.6 Discussion and Predictive Model

The archaeological predictive model has been formulated based on the results of the location and type of Aboriginal sites that were recorded within the regional area, the results of the AHIMS database search and information about previous archaeological work. This information has been broken down into patterns that have been compared to the character of the Study Area to allow for an understanding of Aboriginal archaeological potential.

Most of the sites described in Table 3 were identified as a result of surveys undertaken in response to proposed mining activities and recent gas production wells. As most of the Study Area comprises the Cumberland Plain, a greater frequency of open artefact scatter sites are present compared with shelter with art and/or deposit sites that more frequently occur along the incised sandstone valleys of the Nepean River and other major water lines.

Although some sections of the Study Area have been subject to intense archaeological survey, additional Aboriginal archaeological sites are likely to be encountered where survey has not been undertaken due to land access restrictions, and where ground surface visibility is good.

The following section discusses Aboriginal sites types with regard to the likelihood for such sites to occur within the present Study Area.

Rock shelters with art and/ or deposit

Rock shelter sites include rock overhangs, shelters or caves, and generally occur on, or next to, moderate to steeply sloping ground as characterised by the cliff lines along the Nepean River and its tributaries. These naturally formed features may contain rock art, stone artefacts or midden deposits. The sites will only occur where suitable sandstone exposures or overhangs possessing sufficient sheltered space occur, in areas where such geological features exist, such as the Hawkesbury Sandstone. Such topographical features occur within the larger study area but will not be affected by the works that will occur as part of the Appin Area 7 Goaf Gas Drainage development foot print.

Open campsites, artefact scatters and isolated finds

Open campsites and artefact scatter sites can range from high-density concentrations of artefacts to sparse low-density ‘background’ scatters. These represent a diversity of everyday activities, settlement, hunting and gathering and tool manufacture. Isolated stone artefact occurrences can be located anywhere in the landscape and most likely represent discard or loss during transitory movement.

The identification of these sites depends greatly on ground surface visibility, resulting in the boundaries of a site being defined by the visible extent of the artefacts on the surface. Paddock grasses and open woodland vegetation occur within the Study Area and are likely to obscure stone artefact scatters or isolated occurrences. However, the relatively frequent occurrence of these sites across the southern region of the Study Area indicates that where ground exposure does occur, there is a moderate likelihood of finding stone artefacts. Low density artefact scatters and isolated artefact occurrences are likely to be the most commonly occurring site types within the Study Area.

Thus, there is a moderate likelihood of identifying such sites within the present Study Area, where areas of open ground surface are visible, particularly within close proximity to Foot Onslow Creek and tributaries of Harris creeks. Stone artefact sites that have been previously recorded have been located within close proximity to water sources and along ridgelines.

Axe Grinding Grooves

Axe grinding grooves are often found on large open and relatively flat areas of sandstone shelving and outcrops. Individual grooves are elongated, narrow depressions often found in sedimentary rock, such as sandstone, in association with water sources, including creeks and swamps. Water was essential in the shaping and sharpening process in the manufacture of each axe. In the Woronora Plateau region engraved channels, used to divert the run of water, are a feature associated with some axe grinding grooves.

Although only one grinding groove site has been previously identified within the Study Area to date, they are still considered a frequently occurring site type in the wider region. There is low potential for these to occur on sandstone exposures along major tributaries of the Nepean River and Foot Onslow Creek.

Scarred Trees

Scarred trees exhibit scars caused by the removal of bark used in the manufacture of shields, canoes, containers or shelters. These occur on older trees, generally of a size from which a suitable piece of bark can be removed. A small number of scarred trees are known to exist within close proximity to the Study Area.

Scarred trees can be expected to occur in all landscapes where stands of old growth timbers remain. Such stands should be present within the Study Area. The likelihood of mature trees exhibiting evidence of scarification being present within the Study Area is consequently

considered to be low given that most of the Study Area has been cleared of trees for agricultural purposes.

Post-Contact Sites

These are sites relating to the shared history of Aboriginal and non-Aboriginal people of an area. Many of these sites can hold special significance for Aboriginal people and may include places such as missions, massacre sites, post-contact camp sites and buildings associated with post-contact Aboriginal use. This site type is usually known from historical records or knowledge preserved within the local community. It is considered unlikely that any additional, unregistered post-contact sites will be present within the Study Area.

Aboriginal Resource and Gathering Sites

Aboriginal Resource and Gathering Sites are sites where there is ethnographic, oral, or other, evidence that suggest that natural resources have been collected and utilised by Aboriginal people. These natural resources have a cultural significance and connection for the Aboriginal community, such as ochre outcrops that were used for art or ceremonial purposes. These sites are still considered important places today. There are no such known sites within the Study Area however the likelihood of these sites occurring will be further identified through a separate Aboriginal Cultural Assessment involving consultation with the local Aboriginal community.

6.0 HISTORICAL CONTEXT

Historical research has been undertaken to identify the historical context of the Study Area. This history incorporates an understanding of land-use, building patterns and areas of disturbance. This research provides an understanding of the historical archaeological potential for the site.

The following historical background is based on information gathered from the NSW Lands and Title Office, local Appin Parish Plans, local history sources, subdivision plans containing survey information and a number of useful historical websites. Register searches of the National and Commonwealth Heritage Lists, The Register of the National Estate, the State Heritage Register and Inventory, the National Trust of Australia and the Heritage Schedule for the Wollondilly LEP were all completed (see Section 3.0).

All of this information was used to locate known and potential historical archaeological sites.

6.1.1 Establishment of Douglas Park

The Study Area is situated near Douglas Park in the Parish of Camden and the Wollondilly Shire. Explorations in the area of Camden and Appin began in 1790, two years after white settlement of New South Wales. Captain Watkin Tench, William Dawes and George Worgan set out on an expedition from Prospect in August 1790 to explore and record the unknown territory to the south. The published journals of Watkin Tench note that in seven days of walking:

Except for the discovery of a river, which is unquestionably the Nepean near its source, nothing very interesting was marked (Tench 1979: 174).

Governor Hunter led two expeditions into the area in 1795 and in 1796. These expeditions were undertaken following the location of runaway cattle and it was during these trips that Governor Hunter adopted the term ‘Cow Pastures’ for the area and marked up maps accordingly. The area became a Government Reserve for the purpose of raising stock. The first house was referred to as Cowpastures House and was built as accommodation for constables minding cattle (Vincent 1995: 5). It was completed in early 1805 at Elderslie, near the ford crossing of the Nepean River (Vincent 1995: 5).

In 1802 Francis Barrallier, an Ensign in the New South Wales Corps and a surveyor, was given order by Governor King to attempt to find a path across the Blue Mountains. The attempt to find a path across the Blue Mountains failed, with Barrallier navigating his way south along the foot of the mountains into the Illawarra district. During this expedition Barrallier mapped the location of “Manhangle” swamp, named after the Aboriginal name for the swamp, it is noted in the journal that:

“...enormous eels, Fishes and various species of shells are found, which are sometimes used by the natives as food.” (Barrallier 1802:2)

The swamp was recorded on the surveyed map by Barrallier.

George Caley attempted to follow the path of Barrallier later in 1802. Sent by Governor King as a botanist ‘collector’, Caley also failed in an attempt to find a crossing over the Mountains possibly due to his expertise as a botanist rather than as a surveyor. During his expedition, he explored the area around and beyond the Nepean River, leading to the discovery of Picton (Thirlmere) Lakes. He also camped on “Munangle” lagoon, presumably Menangle Swamp where it is reported that he met and interacted with Aborigines who were also at the lagoon, and gave them shelter during a thunder storm (Mylrea 2002:6-7).

Caley noted in his journal the damage that cattle grazing had done in the local area, likely to have been caused by the wild cattle on the ‘Cow Pastures’ (Burton 1992). He also reported on the increase in free settlers who were in the area harvesting the timber resources, mostly cedar, in the area for the growing shipbuilding industry in the Colony.

Fearing losing the Hawkesbury supply of cedar and other timbers of ‘value’, Governor King issued a general order to restrict timber felling along rivers and creeks (Rosen 1995). A ‘prohibition’ was also placed on crossing the Nepean River. This was to stop the spread of holdings and control them between the coast and the river to help in the development of the region (Moloney 1929).

In 1805 Governor King lifted his prohibition to grant the first allotments in the ‘Cow Pastures’: 5000 acres to John Macarthur and 2000 acres to Walter Davidson, who later sold his land to John Macarthur. No further land grants were made in the area until 1810, when Governor Macquarie began assigning smaller portions of land and also convicts to settlers in order to encourage farming. From c.1810 to c.1820 most of the land in the area was divided up into farming grants.

To the west Governor Macquarie made the first land grant at Appin, of 1000 acres, to Deputy Commissary General Broughton on 18 October 1811 (Browne 1949: 70). In 1815 Macquarie visited Appin and was impressed with the farming developments in the area. Macarthur was very successful in raising sheep and he continued to expand his acreage. Other settlers followed and also established cattle and wheat properties. Produce from the farms was transported by horse and bullock drays to Sydney via the Appin Road. The Appin Road was an important communication and access corridor in the early stages, however, it declined in importance once the Hume and Princes Highways were built.

In 1821 Governor Macquarie gave 100 acres to Andrew Hume who had journeyed to NSW as an instructor in agriculture. The town of Appin was not surveyed until 1834, however, the agricultural value of the area was already known. Cows from the ‘Cow Pastures’ were herded

and farmed in the district, as well as the farming of wheat, that lead to the establishment of several mills surrounding Appin (www.stonequarry.com.au/towns/appin.html).

Douglas Park was named after an early land grantee in the area. A land grant of 800 acres in 1822 was made in the name of Arthur Douglass, the eight year old son of Dr Henry Gratin Douglass. Dr Douglass came to Australia in 1821 and was born in Ireland of Scottish descent. He was the doctor in charge of the women's reformatory at Parramatta, known as the Factory. He was also the founder of the NSW Benevolent Society and was a supporter of the establishment of the University of Sydney. Dr H.G. Douglass died in 1865 and was buried at St John's Church, Camden.

Arthur Douglass named his estate Hoare Town and to fulfil the terms of the land grant lived there for three years with his mother (Mylrea 2000: 12, Wrigley 1988: 8). As the Hoare Town land grant was sold and sub-divided the area became known as Douglass's Park. This became Douglas Park, and in September 1904 council correspondence decreed that Douglas Park was the official name of the town (Vincent 1995: 53).

These early grants and subsequent subdivisions were used for 'mixed farming' to meet the growing demand in the Sydney and Parramatta Markets. Much of the area was cleared through the use of convict labour gangs and a range of crops were grown. For example, De Arrietta, who had Moreton Park immediately to the east of Douglas Park, cultivated tobacco on his property, while John Macarthur's land to the north of Douglas Park, near Camden, was used for sheep and dairy grazing.

The development of Douglas Park was likely to have been inhibited by its close location to both Camden and Appin. Camden, approximately nine kilometres to the north was a government and economical centre, with a court and post office and public buildings constructed in 1840s. Appin, which was not surveyed and allotments sold until 1834, had a strong flour milling industry and infrastructure established.

The geographical location of Douglas Park was also a factor which restricted its growth. The early access into the area was along the 1805 Cowpasture Road. This road led to the early land grants of Macarthur in the Camden area. Another main road was built between Campbelltown and Picton, which passed by the first land grants to Arthur Douglass. This was reportedly an easier road to Picton, however, it bypassed many of the settler houses (Mylrea 2000: 44). People travelling into the Illawarra at this time would not travel along the Cowpastures or Campbelltown – Picton Road, but used the Appin Road, using Appin as a main staging post.

In 1832 a Great South Road was constructed that followed sections of the original Cowpasture Road and led to the southern districts of NSW. This road passed though Camden, missing Douglas Park to the east and it crossed over the Razorback Range (Mylrea 2000: 43).

The railway initially opened in 1858 from Sydney to Campbelltown. The railway was extended to Menangle in 1863, and later to Douglas Park and Picton in 1869. In 1882, a tramway was established connecting Camden and Campbelltown. It operated until 1963, transporting silver ore from the mines of Yerranderie and milk from the local dairy farms. Campbelltown became the first country town to have piped water - supplied by the Upper Nepean scheme which commenced in 1888. In 1907 work was completed on Cataract Dam, the first of the Upper Nepean dams.

The new road and rail lines in the area aided in the beginning of suburban subdivisions in the 1880s occurring to the north at Minto, Ingleburn, Macquarie Fields and Glenfield. Morton Park Estate, located to the east of Douglas Park located on the land grant to De Arrietta was subdivided into 31 allotments in 1915 (DP8738). The division was mostly into 70 acre and above allotments; however, the proposed division of the estate also included approximately 15 allotments that were less than 20 acres in size.

Later in 1929 road access was upgraded with the building of the (old) Hume Highway that deviated away from the Great South Road. This road was also located to the east of Douglas Park, however, later arterial roads connected the (old) Hume Highway to the Campbelltown – Picton Road. This road was later superseded with the building of the F5 Freeway in 1980.

Within the Douglas Park area agricultural industries continue around the growth of regional centres, such as Camden. Sheep and Dairy farming continued, along with the establishment of Estate type pastoral leases, such as the Mountbatten Estate.

The second land grant in the area of Douglas Park was to Jean Baptiste Lehimaz De Arrietta (also known as D'arriete and D' Arrietta) on 9 July 1822. Governor Thomas Brisbane granted De Arrietta 2000 acres of land. The land was known as Moreton Park (also Moreton Park Estate) and was bounded to the northwest by the extensive land grants of John Macarthur, to the west by Harris Creek, to the east by the Nepean River and to the southwest by the 320 acres granted to Arthur Douglass known as Hoare Town and then as Douglas Park (Mylrea 2000: 10-12).

De Arrietta is thought to be Australia's first settler of Spanish origin (Ballyn 2001). He was a colourful identity in the area of Camden and was credited as the first person to use guard dogs on long leads to protect property (Valentine 1939: 126). The land still known as Spaniards Hill, on the western side of Harris Creek, is named after him and was the site of the first school in Douglas Park. In 1862 a Catholic school was established on the crest of Spaniards Hill (Douglas Park School 1983: 10).

Sources are divided as to whether De Arrietta arrived in Australia as a free settler or a convict. Information in the Wollondilly Heritage Study notes that:

Jean Baptiste Lehemaz, [was] a Spaniard taken prisoner by the British and shipped to the colonies. Unsure as to whether to treat d'Arrietta as a gentleman or labour,

the authorities granted him the land together with 25 convicts and required that he produce wine. D'Arietta planted tobacco instead. The crop failed and the convicts escaped. (JRC 1993: WO 0085, page 4).

However, the notes accompanying the Colonial Secretary's papers describe De Arrietta as a native of Spain who arrived in Sydney as a free settler on the Duke of York in 1821 (Colonial Secretary papers microfiche). It was also noted that De Arrietta was in Spain during the Peninsular War helping the British Army with stores and some spying. He went to England, asked for payment and was promised a grant of land if he came to New South Wales. The land grant was made to him in consideration of the amount of capital he brought to the country and to foster his intention to cultivate the vine (Vincent 1995: 8). The conditions of the land grant were that the land not be sold or alienated for the period of five years and that he took 20 convicts to assist with the clearing and farming (Mylrea 2000: 8-9).

The New South Wales Colonial Secretary correspondence with De Arrietta records that he was granted the land in order to cultivate wine and olives and to rear sheep (Colonial Secretary correspondence July 31, 1821). He was also assigned 10 cows from the Government Stocks at Cowpastures in January 1822 and an additional 20 cows from the Government Stocks in April 1825 (Colonial Secretary Correspondence). Despite this, it was recorded that De Arrietta grew tobacco on the property and was not successful with this crop (Wrigley 1988: 8)

De Arrietta married and built a cottage on the land. This cottage appears to have later been resumed into the courtyard area of the 1860s homestead and kitchen. The Australian Heritage Database describes the cottage as a single-storey dwelling with a central door and two timber nine-paned windows. However, this entry goes on to note that little remains of the original fabric (Place ID 101973).

De Arrietta began to sell off sections of the original 2000 acre land grant during the 1830s due to a series of money problems. He died in 1837 or 1838 and his wife Sophia married a William Walker and moved to Sydney in 1838.

6.2 Previous Archaeological Work and Heritage Listings

6.2.1 State Heritage Register

The State Heritage Register is a list of places and items of State heritage significance, endorsed by the NSW Heritage Council and the Minister of Planning. It was established under the *Heritage Amendment Act 1998*, and replaces the old system of Permanent Conservation Orders as a means of protecting items of State significance. The Register lists a diverse range of places, including archaeological sites, which are of particular importance to the State and which enrich our understanding of the history of NSW. These are legally protected under the *NSW Heritage Act 1977* and require approval from the Heritage Council of NSW prior to undertaking any work that results in their alteration or modification.

The Register is included within the State Heritage Inventory, which is a database of all statutory protected heritage items in NSW (see below).

There are no areas or items registered on the State Heritage Inventory List within the Goaf Gas Drainage Project Study Area.

6.2.2 State Heritage Inventory

The State Heritage Inventory (SHI) is a database of statutory listed heritage items in New South Wales that are protected by heritage schedules attached to local environmental plans (LEPs), regional environmental plans (REPs), or by the State Heritage Register.

The Study Area has no Local Heritage Listing on the State Heritage Inventory based upon the listing in the LEP.

6.2.3 Local and Regional Environmental Plans

A Review of the Wollondilly Shire Council's Local Environmental Plan (1991) heritage list (schedule 1) revealed no items listed that were within the current Study Area.

6.2.4 Register of the National Estate

The Register of the National Estate contains lists and descriptions of places that are protected under the EPBC Act by the same provisions that protect Commonwealth heritage places. These provisions require that actions:

- taken on Commonwealth land which are likely to have a significant impact on the environment will require the approval of the Minister,
- taken outside Commonwealth land which are likely to have a significant impact on the environment on Commonwealth land, will require the approval of the Minister, and

- taken by the Australian Government or its agencies which are likely to have a significant impact on the environment anywhere, will require approval by the Minister.

There were no items within the Study Area that were registered with the National Estate.

6.2.5 Site Prediction Model

Given the nature of historic development within the Study Area, it is unlikely that further historical sites, additional to those already discussed, will be present. Should any additional sites be identified, they are likely to be associated with known development, being components of Moreton Park Road, the Hume Highway and Main Southern Rail Line construction and development, pastoral use, including domestic remains or farming associated remains.

7.0 SURVEY METHODS

Survey methods for Aboriginal sites have been designed in consultation with the Local Aboriginal community. They have been designed to locate archaeological sites within the Study Area with reference to the following information:

- Previously registered sites within the Study Area.
- Areas of potential as identified by the background research predictive model (regional site patterns as compared to the physical environment of the Study Area, or items identified in historic plans).
- The proposed development footprint.

The survey was conducted exclusively within the Study Area as outlined in Section 1.2 only, and has used the following method:

Targeted survey –

A targeted field method was employed for the survey of the site. The survey targeted areas within the impact area of the proposed development, as well as landforms and areas identified in the predictive modelling as having high likelihood for the presence of sites.

7.1.1 Survey Effectiveness

Factors that influence the effectiveness of the survey include:

Ground Surface Visibility:

Ground Surface Visibility (GSV) is an average amount of the physical ground that could be viewed at the time of survey, and is expressed as a percentage. The primary effect on GSV is vegetation cover, however modern cultural material, such as concrete, rubble, rubbish or land fill can also hamper GSV.

Disturbance

Physical ground disturbance that occurs within the area has been noted and mapped. Ground disturbance includes events such as natural erosion and impacts from historical land-uses such as farming and construction. Ground disturbance can often result in areas of better GSV, therefore making it easier to identify sites, however, such sites tend to have been impacted by the disturbance event.

7.1.2 Aboriginal Participation

Aboriginal representatives from the Tharawal Local Aboriginal Land Council and the Cubbitch Barta Native Title Claimants Aboriginal Corporation participated in the survey. The representatives were asked to provide comment on the cultural significance of the locality and any archaeological objects or areas that were recorded during this survey.

7.1.3 Archaeological Survey Constraints

With any archaeological survey there are several factors that influence the effectiveness or the likelihood of finding sites. The factors that contribute most to how detectable archaeological sites may be are summarised as *visibility* and *exposure*. A brief discussion of these factors is presented below.

Visibility

In most Aboriginal archaeological reports and guidelines, visibility refers to *ground surface visibility*, and is usually a percentage estimate of the ground surface that is visible and allowing for the detection of (usually stone) artefacts that may be present on the ground surface (NSW NPWS 1997: Appendix 4). The visibility of sandstone overhang sites however is not considered here and differs to the visibility of other archaeological sites. The obtrusiveness of sandstone rock shelter and overhang sites, even in heavily vegetated areas is always high, so these sites are likely to be detected and inspected during survey. In comparison the obtrusiveness of surface sites, such as axe grinding grooves, engraved channels and motifs on sandstone platforms, or stone artefact scatters, which occur virtually anywhere, is low to very low because of the limited ground surface visibility described above.

Sandstone shelter sites aside, the primary factor that affects visibility across most of the Study Area is vegetation cover. Grassed paddocks obscure large areas of the ground surface throughout the open paddocks and creek lines in the central and western sections of the Study Area.

Exposure

Exposure refers to the geomorphic conditions of the local landform being surveyed, and attempts to describe the relationship between those conditions and factors that may allow for the exposure of (buried) archaeological materials. While also usually expressed as a percentage estimate, exposure is different to visibility in that it is in part a summation of geomorphic processes, rather than a simple observation of the ground surface (Burke and Smith 2004: 79, NSW NPWS 1997: Appendix 4).

Factors that affect archaeological exposure include the natural geomorphic process acting on a landscape—whether it is aggrading, stable or eroding—and the level of previous disturbance which will expose or potentially bury archaeological sites. A number of geomorphic processes were observed within the Study Area corridor, including fluvial, erosional and residual

components within the general landscape. Residual landscapes are likely to accumulate archaeological material over long periods but are not particularly likely to reveal buried artefacts. Erosional landscapes within the Study Area, particularly areas with shallower soils may expose artefacts as surface expressions. Fluvial areas associated with each of the creek banks will have been affected by various episodes of depositional and erosional processes caused from the varying flow levels of the creeks. These processes are most likely to have washed away any Aboriginal archaeological material associated with these areas.

Exposures occurred most frequently within the erosional and fluvial landscapes, as a result of surface disturbance, while exposures within residual landscapes were limited to intrusive processes, such as ploughing.

Disturbance

Disturbance in the Study Area is associated with natural and human agency. Natural agents generally effect small areas and include the burrowing and scratching in soil by animals such as foxes, and rabbits, and sometimes exposure from slumping or scouring. Disturbance associated with recent human action is prevalent in the Study Area, and covers large sections of the land surface. The agents include farming practices such as the initial vegetation clearance for the creation of paddocks, ploughing and cropping, fencing, pony, goats and cattle grazing and stock movement, unsealed tracks, excavation of dams and clearance of creek and drainage channels, and the development of the Hume Highway, Main Southern Railway Line and Moreton Park Road.

Accessibility

There were some issues of access for one of the private properties within the Goaf Gas Drainage Project Study Area. The property, in which a section of the surface pipeline reticulation system and borehole 703B is located, was not assessed by Registered Aboriginal Representatives as part of the cultural heritage assessment due to access not being granted for this type of assessment. This section of pipeline from borehole 703B is marked on Figure 2 in red. The surface pipeline route on this property has assessed by Renée Regal (archaeologist) from Biosis Research. No Aboriginal sites were identified.

Recorded Site Accuracy

As has been the case with many recent archaeological surveys, sites that have been previously recorded are not always easily relocated. This can be attributed to the original method of site recording. If sites were originally recorded by hand on a 1:25,000 map sheet, there is likely to be some inaccuracies. This coupled with a change in co-ordinate systems, from AMG to MGA, increases the likelihood of inaccuracies from the original recorded site co-ordinates. Quite often, recorded sites can be inaccurate to between 20 to 100 metres.

7.2 Survey Results

A total of three new Aboriginal archaeological sites were identified during the current archaeological survey for proposed Appin Area 7 Goaf Gas Drainage Project. These sites include one open artefact scatter sites and two isolated artefact occurrences.

The single previously recorded Aboriginal archaeological site within the Study Area was accessed for reassessment; however the artefact was not relocated.

The recorded Aboriginal archaeological site within the Study Area comprised of an isolated artefact.

The effective survey coverage of the Study Area is considered to be very low, primarily due to seasonal grass cover within the road reserve and adjacent private properties. Areas of ground surface visibility were limited to stock tracks, unsealed tracks, erosion on slopes and creek banks, farm dams, sheet wash and patchy grass cover.

7.2.1 Existing Condition of the Study Area

The Study Area is made up of open, cleared undulating hills that have been heavily disturbed by farming practices and cattle grazing as well as other site disturbances. Due to limited visibility from blackberries and long grass areas of erosion and exposure from both animal and human interaction were targeted as part of this survey.



Plate 1: Visibility on south eastern side of the goaf gas drainage project study area.



Plate 2: Areas of exposure at Mountbatten 1 (52-2-3674).

7.2.2 Aboriginal Archaeological Sites within Study Area

One previously recorded Aboriginal archaeological site (Mountbatten 1 52-2-3674) was visited during the current assessment. The site was rephotographed and reassessed for changes since the original site recording and a new, more accurate, site position was recorded using a hand held GPS. No previously recorded Aboriginal stone artefact sites could be relocated due to poor ground surface visibility. However four artefacts were relocated during a survey by Biosis Research on the 28th November 2008, during this survey both Renée Regal from Biosis Research and Donna Whillock from the Tharawal Local Aboriginal Land Council were present.

The following description of the site is taken from the AHIMS site card as well as the Biosis Research 2006a and 2009 reports.

Mountbatten 1 (52-2-3674)

Isolated Artefact

This site was identified originally during archaeological surveys for Appin Area 7 Longwalls 701-704 Subsidence Management Plan (Biosis Research 2006a). This site comprises an isolated stone artefact exposed in the scald of an existing farm vehicle track on the saddle, on the lower slopes of the eastern ridge line of Spaniards Hill. The track appears to have been used continuously, causing erosion along its entire length. The site consists of one multi-directional tuff core. No further cultural material was identified and due to the high levels of ground surface visibility, it is unlikely that further stone artefacts will occur here.

During the 2008 survey a further two artefacts were exposed these consisted of two chert flakes. One is a complete flake with retouch, made from a light grey chert, whilst the second is the distal end of a yellow chert that appears to have faded in sections due to sun exposure. This second flake does not have any retouch.



Plate 3: Western view of exposure where artefacts were relocated.



Plate 4: Southern end of exposure where artefacts identified. Note the vehicle tracks.



Plate 5: Exposure where the artefacts were identified during the survey conducted on 28th November 2008 by Biosis Research.



Plate 6: Dorsal side of light grey silcrete artefact with evidence of retouch.



Plate 7: Dorsal side of yellow chert broken flake with evidence of fading of artefact colour.



Plate 8: Original multi directional tuff core identified during Biosis Research's 2006. The picture was taken during the areas resurvey in 2008.

7.2.2.1 New Aboriginal Archaeological Sites

Three new Aboriginal archaeological sites were recorded during the assessment, all of which comprised open stone artefact scatters or isolated artefact occurrences.

Moreton Park Road IA-1 (52-2-3671)

Isolated Artefact

This site comprises of a single mudstone flake. The site was located in an exposure in undulating cleared farmland on a private property on the eastern side of Moreton Park Road, Menangle NSW.

The area appears to have been used as a land fill at some stage as there were numerous shards of modern glass and ceramic across the exposure. There were also Welsh ponies grazing in the adjoining paddocks.



Plate 9: Dorsal surface of Moreton Park Road IA-1.



Plate 20: The exposure where Moreton Park Road IA-1 was relocated.

Moreton Park Road IA-2 (52-2-3672)

Isolated Artefact

The site comprises of a single silcrete artefact on the crest of a hill that has been partly cut away for the development of the Hume Highway. The site was also located on the same private property as Moreton Park Road IA-1.

The artefact is a broken red silcrete flake; whose distal end has broken off. It has 50% cortex present and no evidence of retouch.

Again this site is on an exposure of a highly disturbed nature as it lies right on the fence line; which has a telephone line running underneath it. There are currently a number of Welsh ponies grazing within the paddock that surrounds this site.



Plate 31: Location of Moreton Park Road IA-2 note the cut and fill scar on the western side of the fence

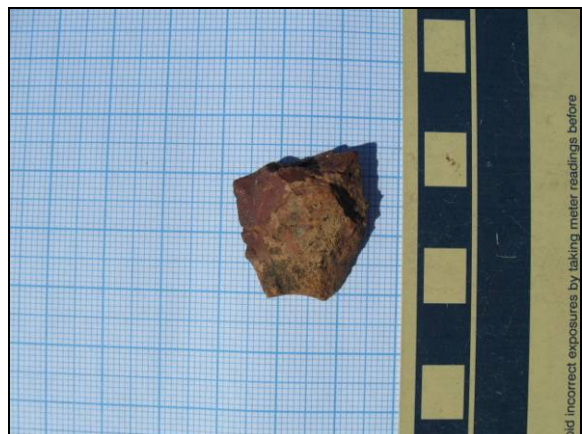


Plate 42: Dorsal surface of Moreton Park Road IA-2

line where the telephone cable was emplaced.

Moreton Park Road OCS-1 (52-2-3673)

Open Camp Site

This site consists of two artefacts; and was relocated in an exposure in undulating cleared farmland on a private property on the eastern side of Moreton Park Road, Menangle NSW.

The site has been heavily grazed. Again this site is quite close to the fence line; that has been disturbed by the emplacement of the telephone cable.

The first artefact was made from a dark orange silcrete and is a large intact flake (174.1 mm x 65.5 mm x 25.1 mm). The flake has evidence of retouch, and there are several scars where previous flakes have been removed. The second artefact was located approximately 5 metres from the first and is a light grey mudstone artefact (34.5 mm x 24.1 mm x 10.3 mm), with retouch on the dorsal edge and one previous flake scar.



Plate 53: Both artefacts from Moreton Park Road OCS-1



Plate 64: Welsh ponies still grazing at the location of Moreton Park Road OCS-1

7.2.3 Historic Sites

The current survey resulted in the assessment of no previously recorded historical archaeological sites.

8.0 SIGNIFICANCE ASSESSMENT

8.1 Introduction to the Assessment Process

Heritage assessment criteria in NSW fall broadly within the significance values outlined in the Australia ICOMOS Burra Charter (Australia ICOMOS 1999). This approach to heritage has been adopted by cultural heritage managers and government agencies as the set of guidelines

for best practice heritage management in Australia. These values include historical, aesthetic, social and scientific significance. The significance of Aboriginal and historic sites and places will be assessed on the basis of the significance values, the details of which are outlined in Appendix 2.

As well as the ICOMOS Burra Charter significance values guidelines, various government agencies have developed formal criteria and guidelines that have application when assessing the significance of heritage places within NSW. Of primary interest are guidelines prepared by the Commonwealth Department of Environment, Water, Heritage and the Arts (DEWH&A) and the NSW Department of Environment and Climate Change (DECC) and the Heritage Branch of the NSW Department of Planning. The relevant sections of these guidelines are detailed in Appendix 2.1. It includes the assessment of Aboriginal significance based on Part 1 of the *DECC Guidelines for Aboriginal Heritage Impact Assessment (1997)*, which are based on the ICOMOS Burra Charter significance values. In addition to the previously outlined heritage values, the *DECC Guidelines* also specify the importance of considering cultural landscapes when determining and assessing Aboriginal heritage values (see Appendix 2).

8.1.1 Aboriginal Archaeological Sites - Assessment of Significance

Table 4 presents the results of the significance assessment of the sites recorded within the Appin Area 7 Goaf Gas Drainage Project Study Area.

Table 4: Archaeological significance assessment for registered Aboriginal sites identified and considered as part of the proposed Appin Area 7 Goaf Gas Drainage Project study.

SITE NAME	DISCUSSION OF CONTRIBUTING FEATURES AND ASPECTS	ARCHAEOLOGICAL SIGNIFICANCE
Mountbatten 1 (52-2-3674)	<p><i>General:</i> This site contains three stone artefacts occurrence in an open context, giving only limited value under the general criteria.</p> <p><i>Representativeness:</i> The site has a limited number of artefacts and hence low representative value.</p> <p><i>Rarity:</i> Isolated stone artefact occurrences are not rare.</p> <p><i>Research Potential:</i> Isolated artefacts have limited research potential beyond their basic recording.</p> <p><i>Aesthetic:</i> Located on the upper slopes of a ridge with a vista of the surrounding region, the site has some aesthetic value.</p>	Low
Moreton Park Road IA-1 (52-2-3671)	<p><i>General:</i> This site contains an isolated artefact occurrence in an open context, giving only limited value under the general criteria.</p> <p><i>Representativeness:</i> The site has a limited number of artefacts and hence low representative value.</p> <p><i>Rarity:</i> Isolated stone artefact occurrences are not rare.</p> <p><i>Research Potential:</i> Isolated artefacts have limited research potential beyond their basic recording.</p> <p><i>Aesthetic:</i> Located on the lower slopes of an undulating plain it has little aesthetic value.</p>	Low

SITE NAME	DISCUSSION OF CONTRIBUTING FEATURES AND ASPECTS	ARCHAEOLOGICAL SIGNIFICANCE
<p>Moreton Park Road IA-2 (52-2-3672)</p>	<p><i>General:</i> This site contains an isolated artefact occurrence in an open context, giving only limited value under the general criteria.</p> <p><i>Representativeness:</i> The site has a limited number of artefacts and hence low representative value.</p> <p><i>Rarity:</i> Isolated stone artefact occurrences are not rare.</p> <p><i>Research Potential:</i> Isolated artefacts have limited research potential beyond their basic recording.</p> <p><i>Aesthetic:</i> Located on the lower slopes of an undulating plain it has little aesthetic value.</p>	<p>Low</p>
<p>Moreton Park Road OCS-1 (52-2-3673)</p>	<p><i>General:</i> This site contains two stone artefacts occurrence in an open context, giving only limited value under the general criteria.</p> <p><i>Representativeness:</i> The site has a limited number of artefacts and hence low representative value.</p> <p><i>Rarity:</i> Isolated stone artefact occurrences are not rare.</p> <p><i>Research Potential:</i> Isolated artefacts have limited research potential beyond their basic recording.</p> <p><i>Aesthetic:</i> Located on the upper slopes of a ridge with a vista of the surrounding region, the site has some aesthetic value.</p>	<p>Low</p>

Statement of Cultural Significance

All Aboriginal cultural heritage sites located in the Study Area are considered to be of cultural significance to the Tharawal Local Aboriginal Land Council and the Cubbitch Barta Native Title Claimants Aboriginal Corporation, and it is important that comment on the area is provided directly by members of these Aboriginal communities. Written comments from these Aboriginal stakeholders will be provided when received in Appendix 1.

The sites are evidence of past Aboriginal occupation and use of the area, and are the main source of information about the Aboriginal past. In addition, any recorded (and unrecorded) pre-contact sites are of cultural significance because they are rare or, at least, uncommon site-types. In particular, many sites in the greater Sydney region have been destroyed as a result of land clearance and land-use practices in the historical period.

Cultural landscape values / significance

We firstly approach the assessment of cultural landscape values by considering the value of the assemblage of sites within the identified Study Area – an assemblage of sites in a wider context of other sites, and in the context of the fragmented, localised bushland environment. It is important to note that the value of the cultural landscape as a social phenomenon does not have to rely on robust archaeological interpretation; but rather is a contemporary expression of value to the Aboriginal community, archaeologists, and the community at large. We believe this is in-line with current approaches and policy directions for the NSW DECC (NSW NPWS n.d., Byrne, Brayshaw and Ireland 2001).

The current Study Area is situated on the Cumberland Lowlands, between the Woronora Plateau and the Cumberland Plain, in an area that has been subject to moderate levels of disturbance from various land uses including agriculture and housing development. As a landscape, the Study Area contains limited value as only a small number of archaeological sites occur there and the majority of the Study Area has been cleared and been subject to some level of disturbance, the effect of which is to fragment and disassociate the sites from each other and the landscape. However, it is situated within a physiographic 'transition' zone, giving it a higher variation of site types, including isolated stone artefacts, open campsites, scarred trees, sandstone overhangs with art and / or deposit. These sites provide a record of Aboriginal use of the Study Area prior to European arrival in the region. In addition, the presence of many archaeological sites in the region is a well known fact amongst local Aboriginal communities. This gives the landscape value as a well known though often inaccessible (many places being in private land or restricted access areas such as water catchments) cultural resource for the local Aboriginal communities. Overall, the low frequency of known sites and high historical impact to the landscape of the Study Area suggest it must be considered to have low value as a cultural landscape.

8.2 Historic Sites – Assessment of Significance

8.2.1 Heritage Assessment Criteria

The State Heritage Register, which was established by the amendments to the NSW *Heritage Act* in 1999, has a separate set of significance assessment criteria broadly based on those of the Australia ICOMOS Burra Charter (1999) (see Appendix 2.2 for details of assessment criteria).

8.2.2 Historic sites – assessment of significance

No heritage items are located within the Appin Area 7 Goaf Gas Drainage Project Study Area.

9.0 IMPACT ASSESSMENT

9.1 Proposed Development

Impacts on remaining cultural heritage associated with the proposed development works include the following:

- BHP Billiton Illawarra Coal is proposing to drain goaf gas from the proposed longwall sections of Appin mine by drilling boreholes, called wells, between the goaf and the surface (Cardno Forbes Rigby 2008; 8).
- The goaf gas will be drawn up the boreholes by an extraction plant located on the surface to ensure underground concentrations remain well below 1.25%. The proposed gas extraction plant will be in a centralised location (Figure 2). This assessment involved looking at two possible options for the goaf gas extraction plant/s locations. The preferred option for the location of the extraction is on the property described as Lot 2 DP 576136 and a second contingency or back up extraction plant is proposed to be located on the property described as Lot 7 DP 250231. Both properties and proposed extraction plant locations were assessed as part of this assessment.
- Pipeline will also be placed in trench just below the ground surface as a reticulation system connecting multiple goaf gas wells to the extraction plant. This will involve the excavation of a small trench approximately 0.65 metres wide, to a depth of 1.4 metres. The pipeline route follows existing fence lines to minimise disruption to landowners.

9.2 Potential Impacts

As discussed above, the proposed development requires a small level of disturbance within the Study Area. This disturbance may impact the physical remains and significance of archaeological sites in the following ways:

The excavation of the trench to emplace the surface pipeline reticulation system may disturb the following sites Mountbatten 1 (52-2-3674), Moreton Park Road IA-1 (52-2-3671), Moreton Park Road IA-2 (52-2-3672) and Moreton Park Road OCS-1 (52-2-3673).

9.3 Recommendations

Ideally heritage management involves conservation of sites through the preservation and conservation of fabric and context. In cases where conservation is not possible or practical, several options for management are available. For archaeological sites management often involves mitigation through the salvage of features or artefacts and retrieval of information

through excavation or collection, and interpretation, especially where impact cannot be avoided

Aboriginal archaeological sites

There are 20 Aboriginal cultural heritage sites situated within the Goaf Gas Drainage Study Area. Four of these sites: Mountbatten 1 (52-2-3674), Moreton Park Road IA-1 (52-2-3671), Moreton Park Road IA-2 (52-2-3672) and Moreton Park Road OCS-1 (52-2-3673) may be impacted by the installation of the Goaf Gas Drainage surface pipeline reticulation system (Figure 2).

Aboriginal Recommendations

A copy of this report should be distributed to the Registered Stakeholder Aboriginal communities for their review and comment on receipt of final comments from BHP Billiton Illawarra Coal.

Recommendation 1 - Conservation

- Sites Mountbatten 1 (52-2-3674), Moreton Park Road IA-1 (52-2-3671), Moreton Park Road IA-2 (52-2-3672) and Moreton Park Road OCS-1 (52-2-3673) – comprising isolated stone artefact occurrences and open camp sites- are required to be registered as Aboriginal sites with NSW DECC. The sites will be listed on the Aboriginal Heritage Information Management System.
- Where practicable, BHP Billiton Illawarra Coal should avoid impact to Mountbatten 1 (52-2-3674), Moreton Park Road IA-1 (52-2-3671), Moreton Park Road IA-2 (52-2-3672) and Moreton Park Road OCS-1 (52-2-3673)
- If the archaeological sites can be avoided, they should be fenced prior to construction using protective barriers, and all contractors should be notified of the importance of avoiding archaeological sites prior to undertaking of ground disturbance activities.
- If the archaeological sites cannot be avoided then a Cultural Heritage Management Plan should be developed and implemented to facilitate the management, salvage and relocation of both sites.

Recommendation 2 – Aboriginal Cultural Heritage Management Plan

- An Aboriginal Cultural Heritage Management Plan (ACHMP) should be developed and implemented. This will outline the management of Mountbatten 1 (52-2-3674), Moreton Park Road IA-1 (52-2-3671), Moreton Park Road IA-2 (52-2-3672) and Moreton Park Road OCS-1 (52-2-3673), and the management of any Aboriginal cultural material uncovered during construction. The ACHMP will detail Aboriginal community consultation and involvement of registered stakeholder groups.

- The ACHMP will be included and implemented as part of the Environmental Management Plan (EMP).

Recommendation 3 - Stop work provision: Aboriginal sites

- All Aboriginal places and objects are protected under the *NSW National Parks and Wildlife Act 1974*. This protection includes Aboriginal places and objects which have not been identified in this report, but which may be identified during construction. Should any previously unidentified Aboriginal objects or places be identified during excavation and construction, all works must cease in the vicinity of the find and the following be notified:
 - NSW Department of Environment and Climate Change
 - A qualified archaeologist
 - Aboriginal stakeholders

Recommendation 4 – Human Remains

In the case of skeletal remains the following process will be implemented.

- The find will be reported to police and state coroner
- BHP Billiton Illawarra Coal and Cardno Forbes Rigby will be notified of the find
- Aboriginal stakeholders will be notified of the find
- NSW DECC will be notified of the find
- If the skeletal remains are of Aboriginal ancestral origin an appropriate management strategy will be developed in consultation with the Aboriginal stakeholders
- The find will be recorded in accordance with the National Parks and Wildlife Act 1974 (NSW) and the NSW NPWS Aboriginal Cultural Heritage Standards and Guidelines Kit
- This Aboriginal Cultural Heritage Management Plan will be amended to include the newly discovered Aboriginal ancestral remains in the management regime established by the plan

Historical archaeological sites

There were no new or previously registered historical archaeological sites within the Goaf Gas Drainage Project Study Area.

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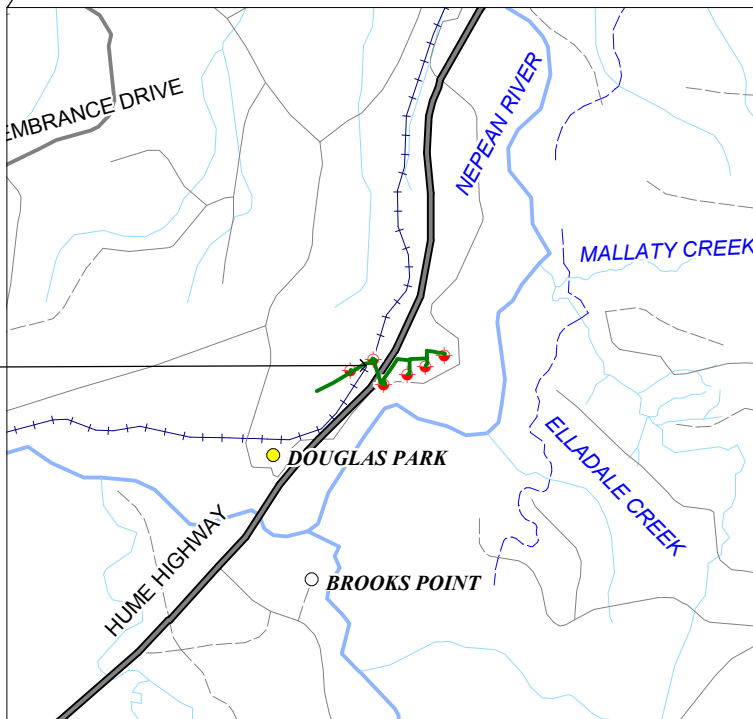
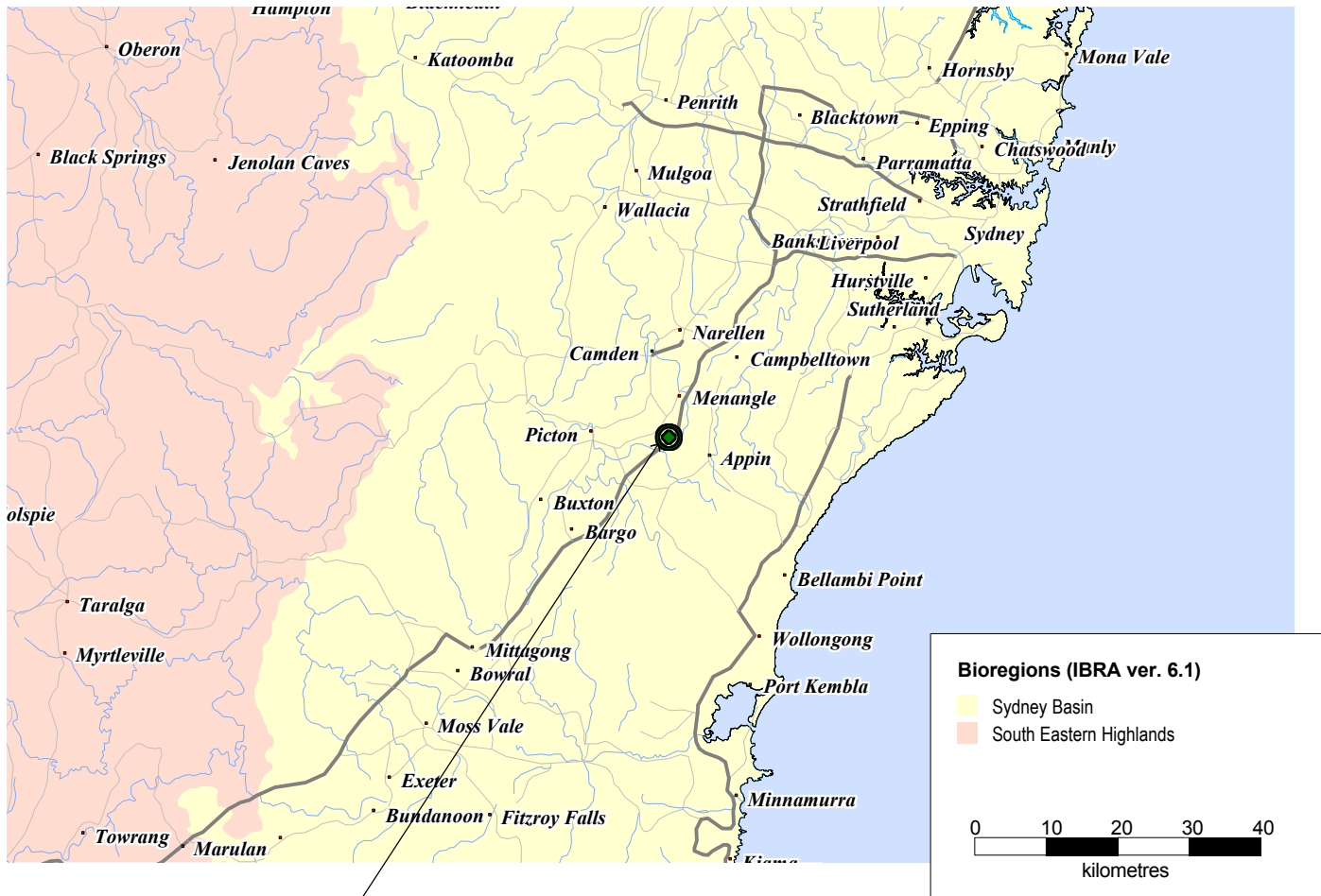
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FIGURES



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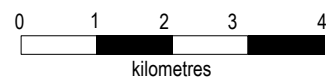
Figure 1: Location of the Study Area in a regional context.

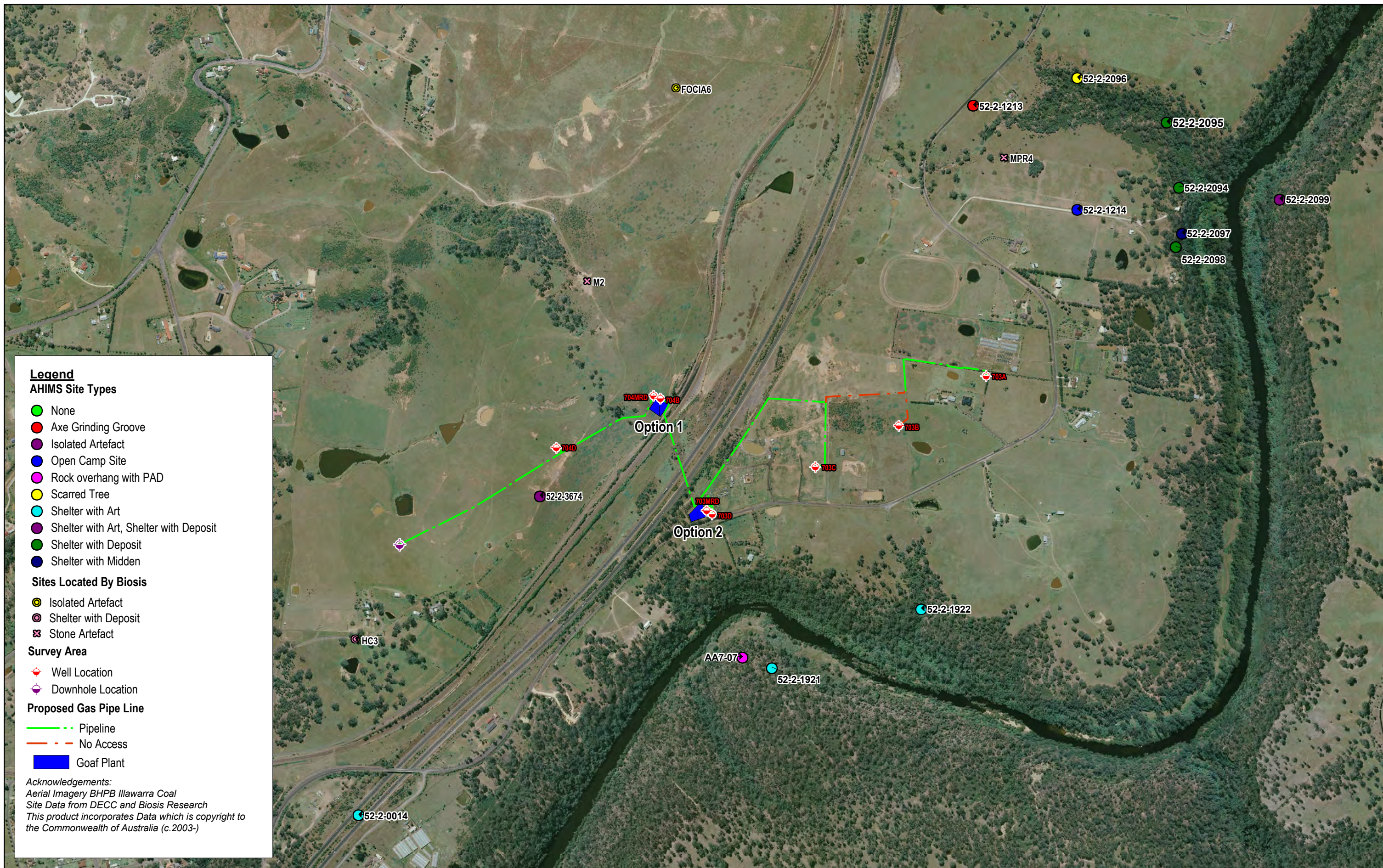
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- Legend**
- AHIMS Site Types**
- None
 - Axe Grinding Groove
 - Isolated Artefact
 - Open Camp Site
 - Rock overhang with PAD
 - Scarred Tree
 - Shelter with Art
 - Shelter with Art, Shelter with Deposit
 - Shelter with Deposit
 - Shelter with Midden

- Sites Located By Biosis**
- Isolated Artefact
 - Shelter with Deposit
 - Stone Artefact

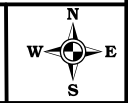
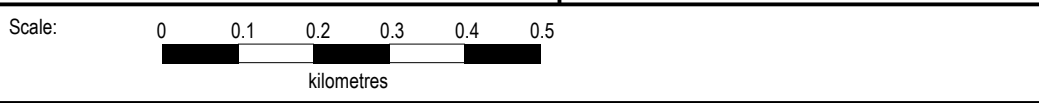
- Survey Area**
- ◆ Well Location
 - ◆ Downhole Location

- Proposed Gas Pipe Line**
- Pipeline
 - No Access
 - Goaf Plant

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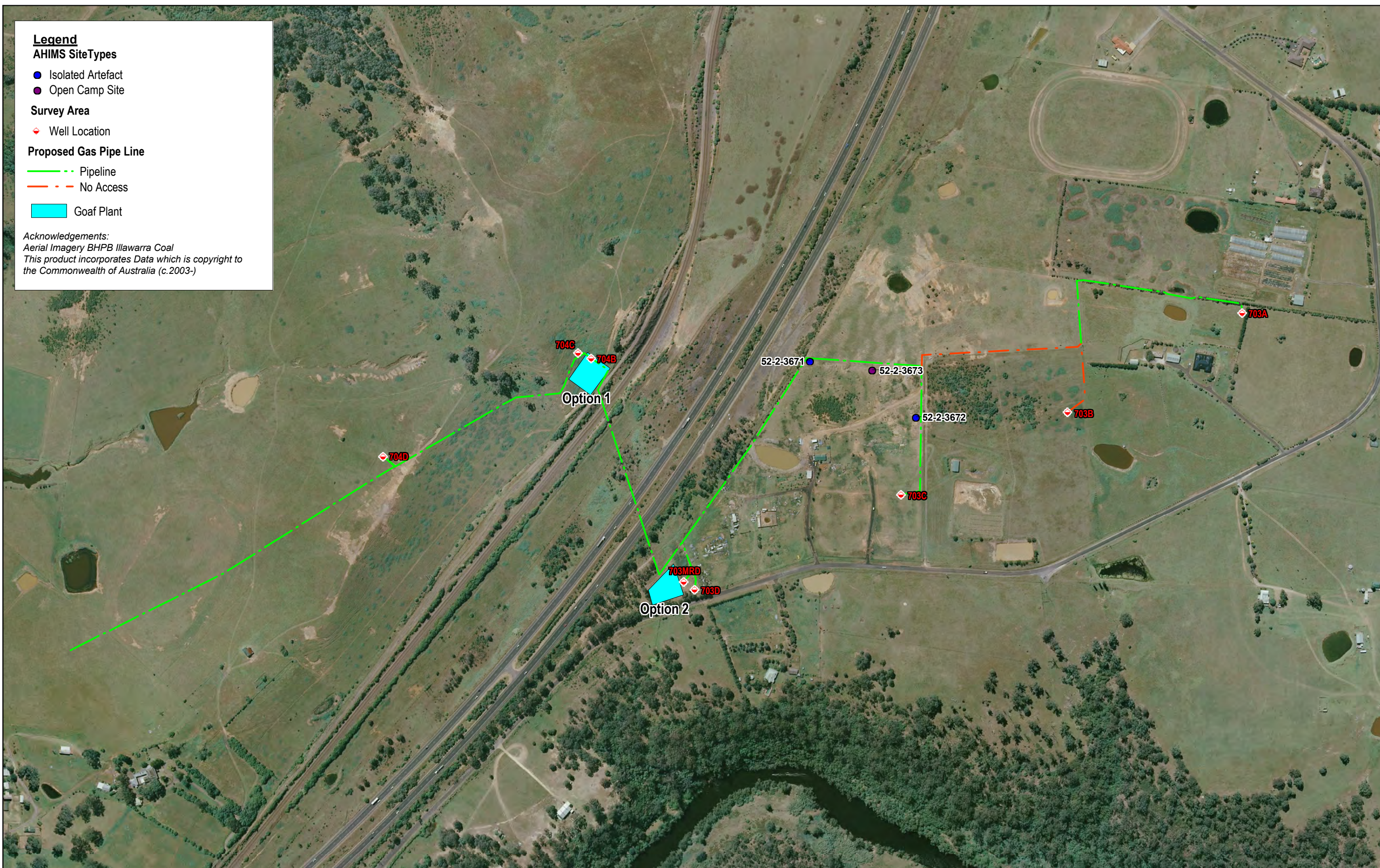
Figure 2: Previous Archaeological sites from the AHIMS Register within a regional context.

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Figure 2: Previous Archaeological sites from the AHIMS Register within a regional context.



Legend

AHIMS SiteTypes

- Isolated Artefact
- Open Camp Site

Survey Area


- ◆ Well Location

Proposed Gas Pipe Line

- - Pipeline
- - No Access

■ Goaf Plant

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Figure 3: New Archaeological sites identified during the current survey

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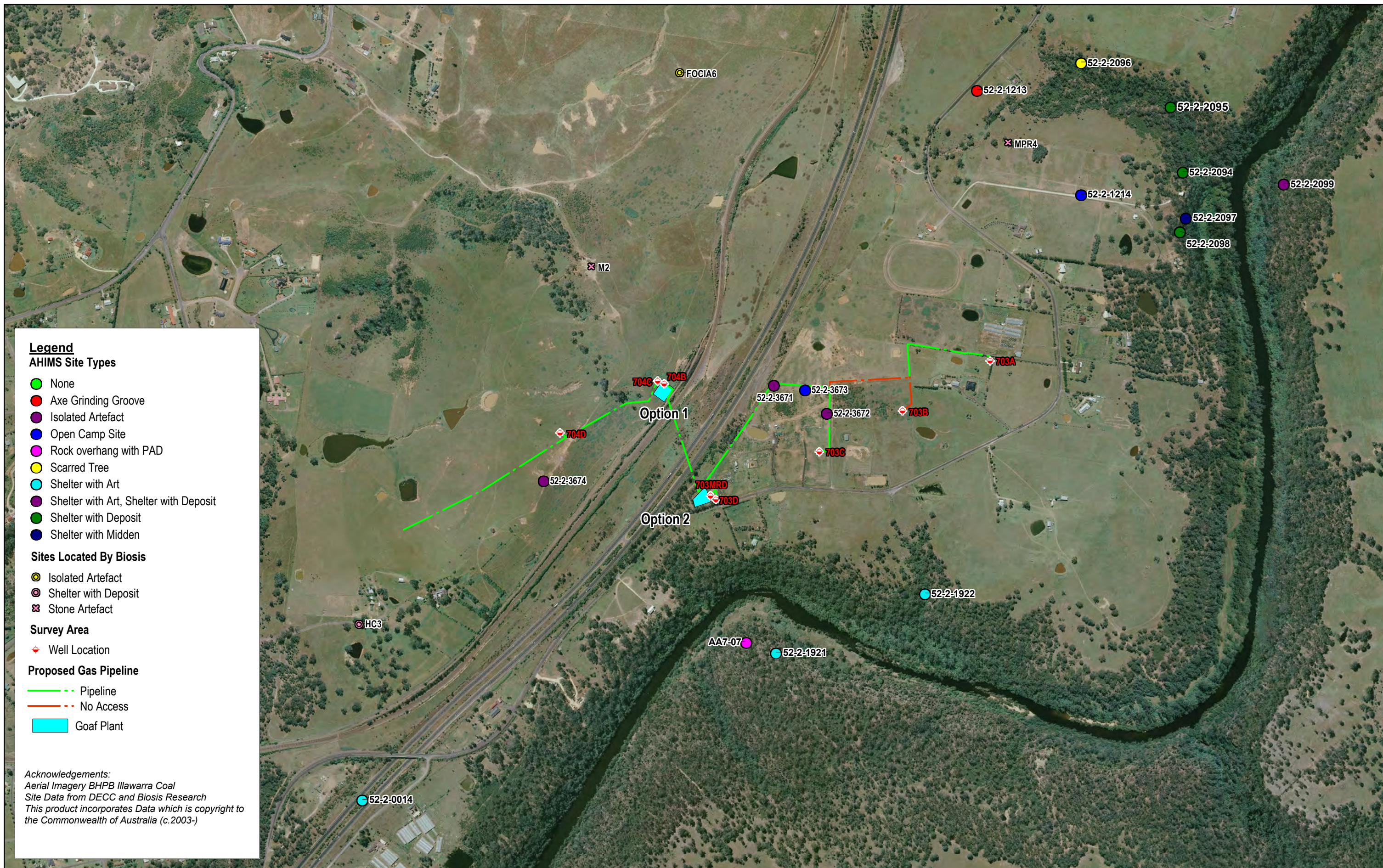
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Figure 3: New Archaeological sites identified during the current survey





Legend

AHIMS Site Types

- None
- Axe Grinding Groove
- Isolated Artefact
- Open Camp Site
- Rock overhang with PAD
- Scarred Tree
- Shelter with Art
- Shelter with Art, Shelter with Deposit
- Shelter with Deposit
- Shelter with Midden

Sites Located By Biosis

- Isolated Artefact
- Shelter with Deposit
- ⊗ Stone Artefact

Survey Area

- ⊕ Well Location

Proposed Gas Pipeline

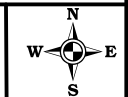
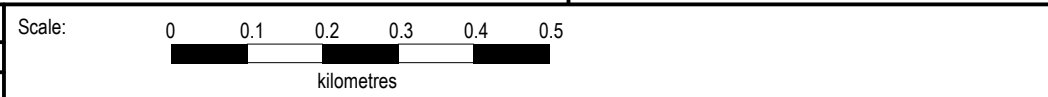
- Pipeline
- No Access
- Goaf Plant

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Figure 4: All recorded Aboriginal sites recorded within the present Study Area

Figure 4: All recorded Aboriginal sites recorded within the present Study Area

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APPENDICES

APPENDIX 1

1.0 ABORIGINAL COMMUNITY COMMENT

TO BE INCORPORATED WHEN RECEIVED.

Glenda Chalker (Cubbitch Barta Native Title Claimants Aboriginal Corporation) has been contacted in regards to their community comments on the proposed development. Glenda committed to getting written comments to Renée Regal, however these comments are yet to be received by Biosis Research.



THARAWAL LOCAL ABORIGINAL LAND COUNCIL

Gibbergunyah (Formerly Stonequarry Lodge)
50 Matthews Lane, Picton NSW 2571

Biosis Research
Renee Regal
8 Tate Street,
WOLLONGONG NSW 2500

26th of May 2009

Re: The proposed Goaf Gas Drainage, Douglas Park

Dear Renee,

I have read report 1 and report 2 on the Goaf Gas drainage project at Douglas Park and I am pleased with your recommendations for Aboriginal sites to be avoided if possible. However I am aware that there are a couple of sites that will be affected by the proposed Gas project and I was relieved that you recommended fencing the area off and also the possible collection of artefacts till the work is completed and the re-dispersal of artefacts back in the original area after completion of the Goaf Gas project.

I support your recommendations.

Donna Whillock
Cultural and Heritage Representative
Tharawal Local Aboriginal Land Council

**PO Box 20
Buxton NSW 2571
Phone: 02 4681 0059 Fax: 02 4683 1375
tharawal.lalc@bigpond.com**

APPENDIX 2

2.0 ASSESSMENT OF SIGNIFICANCE

2.1 Significance Assessment Process

Heritage assessment criteria in NSW fall broadly within the significance values outlined in the Australia ICOMOS Burra Charter (Australia ICOMOS 1999). This approach to heritage has been adopted by cultural heritage managers and government agencies as the set of guidelines for best practice heritage management in Australia. These values include:

- **historical** significance (evolution and association) refers to historic values and encompasses the history of aesthetics, science and society, and therefore to a large extent underlies all of the terms set out in this section. A place may have historic value because it has influenced, or has been influenced by, an historic figure, event, phase or activity. It may also have historic value as the site of an important event. For any given place the significance will be greater where evidence of the association or event survives in situ, or where the settings are substantially intact, than where it has been changed or evidence does not survive. However, some events or associations may be so important that the place retains significance regardless of subsequent treatment.
- **aesthetic** significance (Scenic/architectural qualities, creative accomplishment) refers to the sensory, scenic, architectural and creative aspects of the place. It is often closely linked with social values and may include consideration of form, scale, colour, texture, and material of the fabric or landscape, and the smell and sounds associated with the place and its use.
- **social** significance (contemporary community esteem) refers to the spiritual, traditional, historical or contemporary associations and attachment that the place or area has for the present-day community. Places of social significance have associations with contemporary community identity. These places can have associations with tragic or warmly remembered experiences, periods or events. Communities can experience a sense of loss should a place of social significance be damaged or destroyed. These aspects of heritage significance can only be determined through consultative processes with local communities.
- **scientific** significance (Archaeological, industrial, educational, research potential and scientific significance values) refers to the importance of a landscape, area, place or object because of its archaeological and/or other technical aspects. Assessment of scientific value is often based on the likely research potential of the area, place or object and will consider the importance of the data involved, its rarity, quality or representativeness, and the degree to which it may contribute further substantial information.

The significance of Aboriginal and historic sites and places will be assessed on the basis of the significance values outlined above. As well as the ICOMOS Burra Charter significance values guidelines, various government agencies have developed formal criteria and guidelines

that have application when assessing the significance of heritage places within NSW. Of primary interest are guidelines prepared by the Commonwealth Department of Environment, Water, Heritage and the Arts (DEWH&A) and the NSW Department of Environment and Climate Change (DECC) and the Heritage Branch, NSW Department of Planning. The relevant sections of these guidelines are presented below.

Aboriginal Sites – Assessment of Significance

The following Aboriginal significance assessment is based on Part 1 of the *DEC Guidelines for Aboriginal Heritage Impact Assessment* (1997). These guidelines state that an area may contain evidence and associations which demonstrate one or any combination of the ICOMOS Burra Charter significance values outlined above in reference to Aboriginal heritage. Reference to each of the values will be made when evaluating Aboriginal significance for sites and places.

In addition to the previously outlined heritage values, the *DEC Guidelines* also specify the importance of considering cultural landscapes when determining and assessing Aboriginal heritage values. The principle behind a cultural landscape is that ‘the significance of individual features is derived from their inter-relatedness within the cultural landscape’. This means that sites or places cannot be ‘assessed in isolation’ but must be considered as parts of the wider cultural landscape. Hence the site or place will possibly have values derived from its association with other sites and places. By investigating the associations between sites, places, and (for example) natural resources in the cultural landscape the stories behind the features can be told. The context of the cultural landscape can unlock ‘better understanding of the cultural meaning and importance’ of sites and places.

Although other values may be considered – such as educational or tourism values – the two principal values that are likely to be addressed in a consideration of Aboriginal sites and places are the cultural/social significance to Aboriginal people and their archaeological or scientific significance to archaeologists. The former is discussed in greater depth below, as it is more comprehensively addressed in the *Guidelines for Aboriginal Impact Assessment*. However we note here that it is best practice for archaeologists when undertaking significance assessments to keep in mind that scientific assessments are part of a larger picture.

The determinations of Aboriginal significance for sites and places will then be expressed as *statements of significance* that preface a concise discussion of the contributing factors to Aboriginal cultural heritage significance. Nomination of the level of value—high, moderate, low or not applicable—for each relevant category will also be proposed and presented in a summary table.

Aboriginal community or cultural values

The NSW DECC recognises that ‘Aboriginal community are the primary determinants of the significance of their heritage’ (NSW DEC 2004). Biosis Research recognises that our role in

the cultural heritage assessment process is to provide specialist skills, particularly in regard to archaeological and heritage management expertise. These specialist skills can be articulated and enhanced through consultation with the Aboriginal community, with the aim of providing a comprehensive assessment of cultural heritage significance.

The heritage assessment criteria outlined above that relate to community or cultural values include social, historic and aesthetic value. Social and aesthetic values are often closely related. Social value refers to the spiritual, traditional, historical or contemporary associations and attachment that the place or area has for the present-day Aboriginal community. Aesthetic values related to Aboriginal sites and places that may contain particular sensory, scenic, architectural and creative values and meaning to Aboriginal people. Historic value refers to the associations of a place with a person, event, phase or activity of importance to the history of an Aboriginal community. Gaining a sufficient understanding of this aspect of significance will often require the collection of oral histories and archival or documentary research, as well as field documentation. Places of post-contact Aboriginal history have generally been poorly recognised in investigations of Aboriginal heritage, and the Aboriginal involvement and contribution to important regional historical themes is often missing from accepted historical narratives.

These aspects of heritage significance can only be determined through consultative processes with one or more Aboriginal communities. In terms of Aboriginal communities, heritage places – including those that are otherwise defined as ‘archaeological sites’ – will always attract differing values. These may include custodianship obligations, education, family or ancestral links, identity, and symbolic representation. History and traditions are important: this generation has an obligation to future generations to retain certain things as they are currently seen and understood. This includes retaining alternative understandings to those that come through scientific assessments. Heritage places are often more complex than is identified through the scientific determination of value. Cultural and social values can be complex and rich - the past is a vital component of cultural identity. Feelings of belonging and identity are reinforced by knowledge of the existence of a past, and this is further reinforced and maintained in the protection of cultural heritage.

Statement of Cultural Significance

All Aboriginal cultural heritage sites located in the Study Area are considered to be of cultural significance to the Tharawal Local Aboriginal Land Council and the Cubbitch Barta Native Title Claimants Aboriginal Corporation, and it is important that comment on the area is provided directly by members of these Aboriginal communities. The sites are evidence of past Aboriginal occupation and use of the area, and are the main source of information about the Aboriginal past. In addition, any recorded (and unrecorded) pre-contact sites are of cultural significance because they are rare or, at least, uncommon site-types. In particular, many sites in the greater Sydney region have been destroyed as a result of land clearance and land-use practices in the historic period.

Aboriginal (Scientific) Significance

Archaeological significance (also called scientific significance) refers to the value of archaeological objects or sites as they relate to research questions that are of importance to the archaeological community, including indigenous communities, heritage managers and academic archaeologists. Generally the value of this type of significance will be determined on the basis of the potential for sites and objects to provide information regarding the past life-ways of people (Burke and Smith 2004: 249, NPWS 1997). For this reason, the NSW NPWS summarises the situation as ‘while various criteria for archaeological significance assessment have been advanced over the years, most of them fall under the heading of archaeological research potential’ (NPWS 1997: 26). The NPWS criteria for archaeological significance assessment are based largely on the Register of the National Estate Criteria, and under the heading of ‘research potential’ include the following aspects and definitions (NPWS 1997):

General site considerations, including factors such as:

- *Site intactness or integrity*: This includes the state of preservation of archaeological objects, as well as the stratigraphic integrity of the site, the taphonomic processes acting on the site, the impact of past artefact collections made at the site.
- *The connectedness* of the site to other sites – when considered as part of a larger assemblage or landscape the site may have greater research potential than if it was simply considered in isolation.
- *Chronological potential* refers to the potential of a site to provide a dateable framework extending back into the past. The potential antiquity of a site is also an important consideration, as older sites are relatively less common than younger sites. In many cases stratified, dateable artefact bearing deposits are sufficiently rare to be a very valuable resource.

Representativeness

- *Representativeness* refers to the ability of a site or object to serve as a representative example of sites in the same class. This aspect of value is only meaningful when considered in conjunction with a conservation goal, and must be determined against the archaeological record at various scales of consideration - local, regional and continental for example. It takes into account site and object variability, connectedness and a consideration of what is already, and likely to be, conserved. Burke and Smith (2004: 247) define representativeness as ‘an assessment of whether or not a place is a good example of its type, illustrating clearly the attributes of its significance.’

Rarity

- *Rarity* is, of course, closely related to representativeness (if a site is rare, it is likely to have high representative value), and will include a consideration of those issues discussed under general site considerations. In many ways, the determination of rarity is a summation of exceptional research potential, or a representative of a small class of sites or objects. Burke and Smith (2004: 247) further describe rarity as ‘an assessment of whether the place represents a rare, endangered or unusual aspect of our history or cultural environment that has few parallels elsewhere.’

Research Potential

Research potential is essentially a summation of the above values in the general, representativeness and rarity criteria (NPWS 1997). Pearson and Sullivan note that Aboriginal archaeological sites are generally of high research potential because ‘they are the major source of information about Aboriginal prehistory’ (1999: 149). Indeed, the often great time depth of Aboriginal archaeological sites gives them research value from a global perspective, as they are an important record of humanity’s history. Research potential can also refer to specific local circumstances in space and time – a site may have particular characteristics (well preserved samples for absolute dating, or a series of refitting artefacts, for example) that mean it can provide information about certain aspects of Aboriginal life in the past that other less or alternatively valuable sites may not (Burke and Smith 2004: 247-8). When determining research potential value particular emphasis has been placed on the potential for absolute dating of sites.

In addition to the research potential related value factors, the NSW NPWS (1997: 32) also discuss *Educational Potential* and *Aesthetic Significance*, as items that may be included in scientific significance. The NPWS general advice is that archaeologists should give careful consideration prior to attempting to determine educational and aesthetic values (NPWS 1997: 32). We make no attempt to determine educational potential of sites under scientific assessment, but do consider educational value as a contributing factor that may be included in an assessment of social significance by the Aboriginal community.

Aesthetic values

There is a diverse yet accessible literature regarding identifying aesthetic values and determining aesthetic significance (Burke and Smith 2004: 248-9, Kerr 1996: 15-16, Pearson and Sullivan 1999: 134-8). It is generally agreed that aesthetic values are an important part of cultural heritage significance, however they are dependent on an individual’s sensory response, which means determining aesthetic value is fraught with difficulty, and should be applied on a case-by-case basis as it is not always a value applicable to archaeological sites (Burke and Smith 2004: 248). However, when dealing with shelter and rock art sites aesthetic values and landscape context are an important consideration. The question ‘does the place have a relationship between its parts and the setting which reinforces the quality of both’, while originally proposed in an architectural context (Kerr 1996: 15), is relevant also for rock

art and shelter sites in a bushland setting where there is often an important relationship between the cultural site and natural environment.

2.2 Historic Sites – Assessment of Significance

The State Heritage Register, which was established by the amendments to the NSW *Heritage Act* in 1999, has a separate set of significance assessment criteria broadly based on those of the Australia ICOMOS Burra Charter (1999).

To be assessed for listing on the State Heritage Register an item will need to meet one or more of the following criteria:

<i>CRITERION</i>	<i>DESCRIPTION</i>	<i>CATEGORY</i>
A	An item is important in the course, or pattern, of NSW's cultural or natural history;	Nature of
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;	Nature of
C	An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW;	Nature of
D	An item has strong or special association with a particular community or cultural group in NSW for social, cultural or spiritual reasons;	Nature of
E	An item has the potential to yield information that will contribute to an understanding of NSW's cultural and natural history;	Nature of
F	An item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history;	Comparative
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.	Comparative

Table 5 : Criteria for the assessment of historic cultural heritage

Amendments to the *Heritage Act* clarify and strengthen responsibility for the management of heritage items at the Local and State level. Consequently, items can be assessed as having **Local** or **State** level significance. Items should also be assigned a grading, in order to better explain its place within a cultural landscape. Criteria for grading an item or place are discussed below.

An item cannot be excluded from listing on the State Heritage Register on the basis that items with similar characteristics have already been listed. These criteria can be applied to items of State and Local significance.

These assessment criteria are useful in considering a wide range of heritage items, and may be applied to sites with items of standing heritage as well as areas with the potential to contain archaeological deposits.

APPENDIX 3

3.0 LEGISLATION

COMMONWEALTH LEGISLATION

ENVIRONMENT PROTECTION AND BIODIVERSITY CONSERVATION ACT 1999

In January 2004 the Commonwealth *Australian Heritage Commission Act 1975* was repealed and in its place amendments to the EPBC Act were made. The amendments were contained in three new pieces of Commonwealth Heritage Legislation. The three new Acts are the:

1. Environment and Heritage Legislation Amendment Act (No. 1) 2003 which:
 - (a) amends the Environment Protection and Biodiversity Conservation Act 1999 to include 'national heritage' as a new matter of National Environmental Significance and protects listed places to the fullest extent under the Constitution
 - (b) establishes the National Heritage List
 - (c) establishes the Commonwealth Heritage List
2. Australian Heritage Council Act 2003 which establishes a new heritage advisory body to the Minister for the Environment and Heritage, the Australian Heritage Council, and retains the Register of the National Estate.
3. Australian Heritage Council (Consequential and Transitional Provisions) Act 2003 which repeals the Australian Heritage Commission Act, amends various Acts as a consequence of this repeal and allows for the transition to the new heritage system.

Any place that has been nominated and assessed as having cultural heritage significance at a national level can be added to the National Heritage List.

Under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) an action requires approval from the Federal Environment Minister if the action will, or is likely to, have a significant impact on a matter of national environmental significance. Matters of national environmental significance relating to cultural heritage are:

- World Heritage Places, and
- National Heritage Places.

An action includes a project, development, undertaking, activity, or series of activities.

Actions that are likely to have a significant impact on the environment of Commonwealth land (even if taken outside Commonwealth land), and actions taken by the Commonwealth that are likely to have a significant impact on the environment anywhere in the world, may also require approval under the EPBC Act.

NATIVE TITLE ACT 1993

The Commonwealth Native Title Act establishes the principles and mechanisms for the preservation of Native Title for Aboriginal people.

Under Subdivision P of the Act, *Right to negotiate*, native title claimants can negotiate about some proposed developments over land and waters (known as 'Future Acts') if they have the right to negotiate. Claimants gain the right to negotiate if their native title claimant application satisfies the registration test conditions.

The right to negotiate applies over some proposed developments or activities that may affect native title. These are known as future acts under the Native Title Act 1993. Native title claimants only have the right to negotiate over certain types of future acts, such as mining. Activities such as exploration and prospecting on the land do not usually attract the right to negotiate.

The right to negotiate is not a right to stop projects going ahead — it is a right to have a say about how the development takes place. In some situations, the right to negotiate does not apply. In these circumstances, claimants may have the right to be notified, to be consulted, to object and to be heard by an independent umpire.

The right to negotiate is triggered when a government issues a notice to say that it intends to allow certain things to happen on land, such as granting a mining lease. This notice is called a 'section 29 notice'.

People who claim to hold native title in the area, but have not yet made a native title claimant application, have three months from the date given in the section 29 notice to file a claim if they want to have a say about the proposed development. To get the right to negotiate, the claim must be registered within a month after that.

If the right to negotiate applies, the government, the developer and the registered native title parties must negotiate 'in good faith' about the effect of the proposed development on the registered native title rights and interests of the claimants.

The parties can ask the National Native Title Tribunal to mediate during the negotiations.

If the negotiations do not result in an agreement the parties can ask the Tribunal (no sooner than six months after the notification date) to decide whether or not the future act should go ahead, or on what conditions it should go ahead.

The National Native Title Tribunal administers the future act processes under the Commonwealth legislation. The Tribunal's role includes mediating between parties, conducting inquiries and making decisions (called 'future act determinations') where parties can't reach agreements.

When the Tribunal receives a future act determination application, it must conduct an inquiry (an arbitration) in order to determine whether the future act can be done and if so whether any conditions should be imposed.

A member of the Tribunal (or a panel of three members) will be appointed to conduct the inquiry, and will initially hold a preliminary conference and set directions for the parties to provide submissions and evidence. Members who have mediated a particular matter are not usually appointed as inquiry members. Inquiry members conduct hearings, receive submissions and evidence from the parties and take into account matters set out in section 39 of the Native Title Act such as:

- the effect of the future act on the enjoyment by the native title party of their registered native title rights and interests; their way of life, culture and traditions; the development of their social, cultural and economic structures; their freedom of access to the land and freedom to conduct ceremonies and other cultural activities; and the effect of the future act on any area or site of particular (special) significance to the native title party;
- the interests, proposals, opinions or wishes of the native title party;
- the economic or other significance of the future act;
- the public interest; and
- the presence of any existing non-native title rights and interests and use of the land by other persons (for instance, pastoralists).

ABORIGINAL AND TORRES STRAIT ISLANDER HERITAGE PROTECTION ACT 1984

The Commonwealth *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* provides protection for Aboriginal cultural property. Whereas the State Act provides legal protection for all the physical evidence of past Aboriginal occupation, the Commonwealth Act deals with Aboriginal cultural property in a wider sense. Such cultural property includes any places, objects and folklore that 'are of particular significance to Aboriginals in accordance with Aboriginal tradition'. There is no cut-off date and the Act may apply to contemporary Aboriginal cultural property as well as ancient sites.

PROTECTION OF MOVABLE CULTURAL HERITAGE ACT 1986

Australia's movable cultural heritage is protected at both Commonwealth and State levels. This web site only provides information on the Commonwealth laws.

In 1970 the United Nations Educational, Scientific and Cultural Organisation (UNESCO) adopted the UNESCO Convention on the Means of Prohibiting the Illicit Import, Export and Transfer of Ownership of Cultural Property. Australia ratified the convention by passing the *Protection of Movable Cultural Heritage Act 1986* (the Act), giving the 1970 Convention force in Australian law.

The Act regulates the export of Australia's significant cultural heritage objects. It is not intended to restrict normal and legitimate trade in cultural property and does not affect an individual's right to own or sell within Australia.

It implements a system of export permits for certain heritage objects defined by the Act as 'Australian protected objects'. Australian protected objects are objects which form part of the movable cultural heritage of Australia and which meet the criteria established under the National Cultural Heritage Control List. The Control List is located in the Regulations to the Act, and divides Australian protected objects into two classes:

- Class A objects which may not be exported
- Class B objects which may be exported if granted a permit under the Act.

A person wishing to export a Class B object is required to apply for a permit in writing. Applications are processed in accordance with the legislative process established under section 10 of the Act.

Certificates of Exemption, granted under section 12 of the Act, allow Australian protected objects that are currently overseas to be imported into Australia and subsequently re-exported. This includes Class A objects.

The Act also includes provisions that allow Australia to respond to an official request by a foreign government to return movable cultural heritage objects that have been illegally exported from their country of origin.

The *Protection of Movable Cultural Heritage Act 1986* is administered by the Minister for the Environment and Heritage. This responsibility was transferred from the Minister for Communication, Information Technology and the Arts in November 2001.

The Movable Cultural Heritage Unit in the Department of the Environment and Heritage provides the Secretariat to the National Cultural Heritage Committee

STATE LEGISLATION

NATIONAL PARKS AND WILDLIFE ACT 1974

The *National Parks and Wildlife Act 1974* provides for the protection of Aboriginal objects (sites, relics and cultural material) and Aboriginal places. Under the Act (S. 5), an Aboriginal object is defined as:

any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises New South Wales, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction, and includes Aboriginal remains.

This includes individual artefacts, scatters of stone artefacts, rock art sites, ancient camp sites, human burials, scarred trees, and ruins and archaeological deposits associated with Aboriginal missions or reserves.

Aboriginal places (areas of cultural significance to the Aboriginal Community declared by the Minister) are protected under Section 84 of the Act.

Aboriginal objects (any material evidence of the Aboriginal occupation of NSW) are protected under Sections 86, 87 and 90 of the Act. Section 86 of the Act identifies that a person, other than the Director-General or a person authorised by the Director-General in that behalf, who:

(a) *disturbs or excavates any land, or causes any land to be disturbed or excavated, for the purpose of discovering an Aboriginal object*

is guilty of an offence under the NPW Act.

The *National Parks and Wildlife Act* requires that a permit from the Director General be obtained before archaeological fieldwork involving disturbance to an Aboriginal site is carried out. Consent is granted under section 87 and 90 of the Act. Queries and applications to excavate or disturb an Aboriginal archaeological site for purposes of archaeological fieldwork, should be directed to the relevant Planning and Aboriginal Section Manager at the appropriate Environment Protection and Regulation Branch office. For this study the relevant branch office is at Sydney.

Section 91 of the Act requires the mandatory reporting of the discovery of Aboriginal objects, and establishes a mechanism for interim protection orders that may be used to protect objects. Identified Aboriginal objects and sites are registered with the NSW Department of Environment and Conservation (DEC) on the Aboriginal Heritage Information Management System (AHIMS). DEC administers *the National Parks and Wildlife Act 1974*.

HERITAGE ACT 1977

The *Heritage Act 1977* details statutory responsibilities for historic buildings and gardens, historic places and objects, historical archaeological sites, and historic shipwrecks. The Act is administered by the Heritage Council of New South Wales, through the NSW Heritage Office.

The aim of the Act is to conserve the 'environmental heritage' of the state, which includes items such as buildings, works, relics, moveable objects or precincts significant for historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic values. A 'Place' is defined as an area of land, with or without improvements and a 'Relic' is defined as any:

deposit, object or material evidence:

- (a) *which relates to the settlement of the area that comprises New South Wales, not being Aboriginal settlement, and*
- (b) *which is 50 or more years old.*

An excavation permit is required for any works, excavations or activities, associated with an archaeological site. Excavation permits are issued by the Heritage Council of New South Wales in accordance with sections 60 or 140 of the *Heritage Act*.

It is an offence to disturb or excavate land to discover, expose or move a relic without obtaining a permit from the NSW Heritage Council.

139 Excavation permit required in certain cases

- (1) *A person must not disturb or excavate any land knowing or having reasonable cause to suspect that the disturbance or excavation will or is likely to result in a relic being discovered, exposed, moved, damaged or destroyed unless the disturbance or excavation is carried out in accordance with an excavation permit.*
- (2) *A person must not disturb or excavate any land on which the person has discovered or exposed a relic except in accordance with an excavation permit.*

Excavation permits are usually issued subject to a range of conditions that will relate to matters such as reporting requirements and artefact cataloguing, storage and curation. A permit may be required from the Heritage Council of NSW for works or activities associated with a registered place or object.

General queries about site issues and permit applications can be made to the archaeological officers at the Heritage Office. The contact details are:

NSW Heritage Office

3 Marist Place

PARRAMATTA NSW 2150

Ph: (02) 9873 8500

Fax: (02) 9873 8599

Consultation and discussion with the NSW Heritage Office should begin well before lodging an application for a permit to disturb or destroy a historical archaeological site.

ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

The *NSW Environmental Planning and Assessment Act* will have relevance for all development projects because it requires that environmental impacts are considered in land-use planning and decision making. The definition of 'environment impacts' includes impacts on the cultural heritage of the project area. The Act has three relevant parts: Part III, which governs the preparation of planning instruments; Part IV, which relates to development where consent is required under an environmental planning instrument (EPI); and Part V, which relates to activity where development consent is not required but some other government approval assessments are needed.

Under the Act, local government authorities and The Department of Infrastructure, Planning and Natural Resources (formerly Planning NSW) prepare local and regional environmental planning instruments (LEPs and REPs) to give statutory force to planning controls. These may incorporate specific provisions for conserving and managing archaeological sites.

Integrated Development Assessment (IDA) was introduced under the *Environmental Planning and Assessment Act* so that all matters affecting a development application would be considered by the consent authority in an integrated way.

Integrated Development is one which requires development consent as well as one or more approvals from different government agencies. Such agencies may include NSW DEC or the NSW Heritage Council. If a development is likely to impact a heritage item, the consent authority must refer it, to NSW DEC (for Indigenous objects) or the NSW Heritage Council (for sites listed on the State Heritage Register) prior to approval determination.

The Local Government Act 1993

Under the State Local Government Act, councils can prepare local approvals policies that set out specific matters for consideration in relation to applications to demolish, build or undertake works. Archaeological sites could be considerations under such policies.