BIOSIS
RESEARCH

Archaeological Assessment: Appin to West Cliff Pipeline, Appin, NSW

Report for Olsen Environmental Consulting

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- Tania Stellini and Tania Conerman (Department of Environment and Conservation)
- Glenda Chalker (Cubbitch Barta Native Title Claimants)
- Donna Whillock (Tharawal Local Aboriginal Land Council)
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- Matthew Richardson, Jamie Reeves and Robert Suansri (Biosis Research)

ABBREVIATIONS

AHC	Australian Heritage Council
AHIMS	Aboriginal Heritage Information Management System
ATSIC	Aboriginal and Torres Strait Islander Commission
CHL	Commonwealth Heritage List
CBNTC	Cubbitch Barta Native Title Claimants
DEH	Department of Environment and Heritage
EP&A	Environmental Protection and Assessment
EPBC	Environment Protection and Biodiversity Conservation
GSV	Ground surface visibility
ICOMOS	International Council on Monuments and Sites
LALC	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 DEC)
REP	Regional Environment Plan
RNE	Register of the National Estate
RTA	NSW Roads and Traffic Authority
SHI	State Heritage Inventory
SHR	State Heritage Register
TLALC	Tharawal LALC

CONTENTS

TABLES

FIGURES

EXECUTIVE SUMMARY

Biosis Research Pty Ltd was commissioned by Olsen Consulting to undertake an archaeological and cultural heritage assessment for the proposed water pipeline between the Appin Colliery and West Cliff Collieries, east of Appin (Figure 1).

Prior to this survey, only one section of the alignment had been previously surveyed, along the Georges River. A number of Aboriginal archaeological sites have been previously recorded along the Georges River and nearby Brennan's Creek; however none are situated within the immediate study area.

The current field survey was undertaken on 29 January 2007 with Donna Whillock (Tharawal Local Aboriginal Land Council), Glenda Chalker (Cubbitch Barta Native Title Claimants Aboriginal Corporation) and Melanie Thomson (Biosis Research Pty Ltd). Field conditions during the survey were fine.

During the field survey, one new Aboriginal archaeological site was recorded, an isolated artefact occurrence on the top of the ridge line that overlooks the Georges River to the north.

One historical archaeological site has been previously recorded within the study area, the Kings Falls Bridge that crosses the Georges River at the north western end of the pipeline route.

Aboriginal Cultural Heritage

The new recorded Aboriginal archaeological site is situated within close proximity to the current proposed water pipeline alignment, beneath the existing overhead power line easement on the eroded access track.

Recommendation 1

All attempts should be made to avoid the recorded Appin Pipeline 1 Aboriginal site by the construction works associated with proposed pipeline. The site should be flagged prior to the commencement of ground disturbance works to ensure this. The relevant Aboriginal stakeholders should be given the opportunity to inspect the initial ground disturbance works within 50 metres of the site.

Recommendation 2

The areas that have been identified as being of moderate Aboriginal archaeological potential, on the banks of the Georges River and within 50 metres of recorded site Appin Pipeline 1, should also be inspected during initial ground disturbance by relevant Aboriginal stakeholders.

Should any Aboriginal objects be identified at these locations, the sites will need to be registered with the NSW Department of Environment and Conservation. Following this an

application will need to be made to DEC to continue disturbance to the relics, or the project will need to be modified to avoid further disturbance to the relics.

All Aboriginal objects and places are protected under the *NSW National Parks and Wildlife Act 1974*. Should any Aboriginal relics be encountered during works associated with this proposal, works must cease in the vicinity of the find and the NSW Department of Environment and Conservation and Aboriginal stakeholders be notified. A qualified archaeologist may also be required to assess the find.

Historical Cultural Heritage

The water pipeline crosses the Georges River in the vicinity of Kings Falls Bridge. The bridge is a continuous concrete beam bridge that has previously been assessed as being of local heritage significance. The pipeline route is partly trenched within the identified heritage curtilage of the bridge and a small section of pipeline will be externally fixed to the Appin abutment. The impact assessment has identified that the proposed works are to have a negligible impact to the heritage value of the bridge and its immediate environment. Given this the proposed works may proceed within the parameters of the following recommendations.

Recommendation 3

The Kings Fall Bridge is listed heritage item with an identified curtilage of 1 m each side of the superstructure and 3 m at each end. This statement of heritage impact should be forwarded to the heritage branch of the RTA for review.

Recommendation 4

The proposed works will require the excavation of a trench within the bridge curtilage and installation of an externally mounted pipeline along the Appin abutment. Trenched sections of pipeline are considered to have no heritage impact to the bridge and its setting. The externally mounted section of pipeline, while having a minor impact to the fabric of the bridge, is considered acceptable based on the assessment and statement of heritage impact. Given this, it is recommended that the proposed works may proceed assuming BHP Illawarra Coal will take into account any conditions that the RTA Heritage Branch may impose on the works as the owner of the impacted asset.

Recommendation 5

All historical archaeological sites greater than 50 years of age are protected under the relics provisions of the *NSW Heritage Act 1977*. Should any historical relics (archaeological sites) be uncovered during works associated with this proposal, works must cease in the immediate vicinity of the find and the NSW Heritage Office be notified. A qualified archaeologist may also be required to assess the find.

It is an offence to disturb an historical archaeological site without an excavation permit issued by the NSW Heritage Office.

1.0 INTRODUCTION

Cultural heritage legislation protecting Aboriginal and historic 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 2 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 a study usually incorporates background research to collect information about the land relevant to the proposed development project (the study area). A second stage often involves a field inspection 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.

The subject matter of this report involves the use of a number of technical words and terms with which the reader may be unfamiliar. An extensive glossary has been included at the end of the report and reference to this may be of assistance.

1.1 Project background

This report has been commissioned by Olsen Environmental in order to identify and assess Aboriginal and historic cultural heritage values for the proposed construction of a water supply pipe for the West Cliff Mine. This investigation will be used to identify predicted impacts to heritage items and places associated with the proposed development area. Recommendations designed to minimise impacts to cultural heritage places have been formulated according to legislative constraints and 'best practice' heritage management.

1.2 Study area

The study area comprises a 900 m section of pipeline easement between the Appin Lease Boundary to the West Cliff Mine surface Coal Lease boundary, southeast of Appin, NSW (Figure 1). Figure 2 shows both the Appin Lease Boundary and the West Cliff Lease Boundary. The study area is located within the Wollondilly Local Government Area (LGA).

Commencing at Appin Colliery in the west, the pipeline follows an access road and established track before descending towards the Georges River in the vicinity of Kings Falls Bridge. The pipeline travels under the bridge and continues in a south-easterly direction along a dirt road alongside the Appin/Bulli Road. At the top of a road cutting, the pipeline easement turns to the east and crosses a 200 m section of bushland before meeting with the 33 KV overhead Electricity Transmission easement. The pipeline easement follows the electricity easement until it meets the boundary of the West Cliff mine. Excepting a small area of bushland, the proposed pipeline route is predominantly within existing services easements.

1.3 Proposal

Within the current survey area the pipeline will be constructed as a buried 110 mm poly pipeline. The pipeline will be laid into a trench 360 mm wide x 600 mm deep. The trench will be excavated in materials as found, including areas of both solid sandstone and soil strata. In areas of trenching through solid rock, the trench dimensions may be reduced to 250 mm wide x 300 mm deep. In such areas the trench will be backfilled with mass concrete. The trench through soil strata will be backfilled with excavated material.

The trenched sections of pipeline will be within a 10 m wide construction corridor. Machinery is not expected to operate outside the 10 m easement, except where needed for establishment of erosion and sediment control measures.

Following installation of the pipeline and trench backfilling, erosion control measures will be removed, unless required for ongoing protection. Any excess material shall be removed and the disturbed areas track rolled. Brush shall be cut from the surrounding vegetation and spread over the disturbed area to promote regrowth.

1.4 Planning approvals

The project has been included as a Major project under Part 3A of the Environmental Planning and Assessment Act 1979 and State Environmental Planning Policy (Major Projects) 2005.

Under Part 3A applications there are specific procedures that are required to be undertaken in regards to Aboriginal archaeological assessments as outlined within the *Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation* (Draft July 2005) that were prepared by the Department of Environment and Conservation. As a result certain procedures that are required for a Part 3A have been undertaken for this project. This

includes addressing Part 6 Approvals under the DEC guidelines, including advertisements in local newspapers and community consultation meetings with stakeholders.

1.5 Aims

The following is a summary of the major objectives.

- Conduct heritage register searches to identify any previously recorded cultural heritage sites within the survey 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.
- Consult with identified statutory stakeholders in the area.
- Undertake comprehensive survey of the study area where existing information is limited, Survey coverage should target landforms with high potential for heritage places within the study area, as identified through background research.
- Record and assess sites identified during the survey in compliance with the guidelines issues by the NSW Department of Environment and Conservation (DEC) and the NSW Heritage Office.
- Identify impacts to all identified Aboriginal and historic cultural heritage sites and places based on potential changes as a result of the proposed development.
- Make recommendations to minimise or mitigate impacts to cultural heritage values within the study area.

1.6 Consultation

1.6.1 Statutory

During the course of this project consultation with the DEC has been ongoing.

1.6.2 Aboriginal

Aboriginal consultation for this project has been undertaken in compliance with DEC guidelines. Consultation has been undertaken with representatives from the following Aboriginal stakeholder groups:

- Tharawal Local Aboriginal Land Council (Cliff Foley, Wendy Lewis, Leanne Hestalow and Donna Whillock)
- Cubbitch Barta Native Title Claimants Aboriginal Corporation (Glenda Chalker)
- Northern Illawarra Aboriginal Collective Inc. (Chris Illert)

Public notifications following the DEC *Interim Community Consultation Requirements for Applicants* were made in mid to late January 2007.

Two Aboriginal stakeholders have responded to these notifications, including NIAC and Cubbitch Barta Native Title Claimants. Other respondents included the Department of Environment and Conservation and Office of the Registrar, ALR Act 1983 (NSW).

As part of this process, all respondents received a proposed Methodology for ongoing community consultation and field survey for comment. None of the respondents provided comments on the methodology for the project.

Subsequently, correspondence was forwarded to the Tharawal Local Aboriginal Land Council, Cubbitch Barta Native Title Claimants and NIAC requesting their presence for preliminary consultation meetings to discuss the project.

Both the Tharawal LALC and Cubbitch Barta Native Tile Claimants agreed to meet to discuss the project and identify their experience working in the area and share cultural knowledge which they hold. Correspondence was forwarded to and received from NIAC in an attempt to organise attendance at a preliminary consultation meeting, however no response was received.

Subsequently, Aboriginal representatives from the Tharawal Local Aboriginal Land Council and Cubbitch Barta Native Tile Claimants participated in the archaeological field survey as both groups identified themselves as having relevant experience and cultural knowledge of the Appin region.

The representatives have been asked to provide comment on the cultural significance of the study area and the Georges River near Appin, and for any identified archaeological objects or areas that were recorded during this survey.

2.0 HERITAGE STATUS AND PLANNING DOCUMENTS

2.1 Commonwealth Registers

2.1.1 National Heritage Registers

The *Environment Protection and Biodiversity Conservation* Act 1999 (EPBC Act) establishes two mechanisms for protection of heritage places of National or Commonwealth significance. 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), who 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 RNE unless the listed place is owned by a commonwealth agency.

APPLICATION TO THE STUDY AREA – NATIONAL HERITAGE REGISTERS

No items within the study area are listed on the National Heritage List, the Commonwealth Heritage List of the Register of the National Estate.

2.1.2 National Native Title Register

The Commonwealth *Native Title Act* 1993 establishes the principles and mechanisms for the preservation of Native Title for Aboriginal people.

Registered native title claimants only have the right to negotiate over certain types of future acts. 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.

APPLICATION TO THE STUDY AREA

A search of the National Native Title Register was completed for the study area and no claims are listed. The search did identify those Traditional Owner groups will current registered claims close to the study area who may identify themselves as relevant stakeholders with traditional knowledge or experience

2.2 State Registers

2.2.1 National Parks and Wildlife Act Registers

The Department of Environment and Conservation (DEC) maintains two registers of heritage sites under the auspices of the NSW *National Parks and Wildlife Act 1974*. All Aboriginal sites in NSW are required to be registered on the Aboriginal Heritage Information Management System (AHIMS) register. Historic heritage places within lands managed by DEC (lands such as National Parks) are listed on the Historic Heritage Information Management System (HHIMS).

AHIMS: A search of the AHIMS register was undertaken at the commencement of the project. The AHIMS database is maintained by the Department of Environment and Conservation and contains a list of all Aboriginal objects, Aboriginal places and other Aboriginal heritage values in NSW that have been registered as required under the NSW *National Parks and Wildlife Act 1974*.

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 15/08/2006 identified 11 previously recorded Aboriginal sites along Georges River and Brennan's Creek (see Section 5.4 and Figure 2). None of these sites are located within the current study area.

2.2.2 Heritage Act Registers

The NSW Heritage Office, part of the Department of Planning, maintains registers of heritage and archaeological items that are of State or local significance to New South Wales.

State Heritage Register: 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

No items in the study area are listed on the State Heritage Register and no items listed on the State Heritage Inventory

S.170 provisions: 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.

APPLICATION TO THE STUDY AREA – GOVERNMENT AUTHORITY S.170 REGISTER

The Kings Falls Bridge is listed on the NSW Roads and Traffic Authority's s170 Heritage and Conservation Register as an item of local significance. The listing identifies the bridge structure, however consultation with the NSW RTA has also identified a curtilage of 1 m to each side of the structure and 3 m at each approach (R. McMullen *pers. comm*. 25/08/06).

2.2.3 Environmental Planning and Assessment Act 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 Area (LGA) 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 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*.

The study area is in the Wollondilly LGA. The relevant *LEP is the Wollondilly LEP Schedule 1991*.

APPLICATION TO THE STUDY AREA – WOLLONDILLY SHIRE COUNCILS LEP 1991 SCHEDULE 1

No items within the study area are listed in the heritage schedule of the *Wollondilly Shire Council LEP 1991*

Regional Environmental Plans: Under the *EP&A Act 1979*, broad scale regional plans have also been developed that address cultural heritage resources that may extend beyond the geographic limit of one LGA. The *Wollondilly Regional Environmental Plan 1991* applies to

the Wollondilly local government area and provides a planning and decision making framework for how to best use land resources, improve quality of life and protect regional interests and investment. The Wollondilly REP identifies the Appin region as possessing unique characteristics worth preserving and distinguishes items of cultural heritage.

APPLICATION TO THE STUDY AREA – WOLLONDILLY REP YEAR SCHEDULE 1991

No items within the study area are listed in the heritage schedule of the *Wollondilly REP 1991.*

2.3 Non-Statutory Registers

2.3.1 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)

No heritage items classified (listed) by the National Trust of Australia are located within the study area associated with this proposal.

2.4 Summary of heritage listings in the study area

There is one previously identified heritage item within the study area. This is the Kings Falls Bridge which is listed on the RTA S170 register.

No other heritage site or places are listed within the present study area.

3.0 ASSESSMENT METHODOLOGY – PART 6 APPLICATIONS

3.1 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: the type of development or project, environmental factors, ethnographic historical land-uses and previous archaeological and cultural heritage work.

3.2 Guiding Principles

This methodology has been designed to conform to the requirements of the relevant advisory documents and guidelines. These guidelines and documents are:

- DEC National Parks and Wildlife Act 1974: Part 6 Approvals – Interim Community Consultation Requirements for Applicants (2004) [hereafter referred to as 'DEC Part 6 Guidelines'].
- DEC Draft guidelines for Aboriginal Cultural Impact Assessment and Community Consultation (July 2005), for assessing potential impacts on Aboriginal cultural heritage for development applications assessed under Part 3A of the Environmental Planning and Assessment Act 1979 [hereafter referred to as 'DEC Part 3A Guidelines'].
- The Australia ICOMOS Burra Charter [hereafter referred to as 'the Burra Charter'].
- DEC Aboriginal Cultural Heritage Standards and Guidelines Kit [hereafter referred to as 'DEC Standards and Guidelines Kit'].
- DEC Guidelines for Aboriginal Heritage Impact Assessment (DRAFT) [hereafter referred to as 'DEC Draft Impact Guidelines'].

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

- 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 people are the primary determinants of the significance of their heritage.
- 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.
- Consideration should be given to measures that could be implemented to avoid, mitigate or offset likely impacts.

The DEC Part 6 Guidelines note 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.

3.3 Methodology

An understanding of these factors allows the selection of the most effective methods for the assessment. The following is a detailed outline of the methods employed for this assessment.

3.3.1 Background Research

The following activities will be undertaken during the background research phase:

- Search for sites on the NSW DEC AHIMS for the study area and surrounding vicinity
- Review of relevant site records for the study area and surrounding vicinity
- Review of relevant reports from the region
- Search of the NSW Heritage Office database and State Heritage Register
- Inspection of heritage lists in relevant local planning instruments

This data will be collated and mapped to show the locations of the previously recorded sites. The data will also be used to formulate predictive statements regarding Aboriginal archaeological site distribution within the study area. The predictive statements will be based on terrain units, and will be used to help design the specific locations of the field survey.

3.3.2 Cultural and Archaeological Survey

The cultural and archaeological survey will be conducted as follows:

- Known sites will be revisited to confirm their location, and to make a current record of their condition
- Pedestrian survey will be undertaken along the entirety of the proposed pipeline easement.
- The location of all sites will be recorded using a hand-held GPS unit
- Survey data will be recorded on purpose designed recording forms
- Details of sites will be recorded using purpose-designed recording forms
- Appropriate plans and maps will be prepared

- Photographs of all sites and features will be taken
- Appropriate Aboriginal Community representatives will be invited to assist with the field assessment

3.3.3 Scientific / Archaeological Significance Assessment

The scientific values of Aboriginal archaeological sites will be assessed using three main criteria; site contents (cultural material, organic remains and site structure), site condition (degree of disturbance of a site), and representativeness (the regional distribution of a particular site type, with consideration to its condition). Each site will be given a rating on the basis of these criteria — the overall scientific significance will be determined by the cumulative score.

4.0 ENVIRONMENTAL CONTEXT

The environmental background to the study area is important to consider in archaeological assessments as it provides a broader context in which to view the formation of archaeological sites. The environmental aspects of an area will influence the type of archaeological remains 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.

Geology, geomorphology and climate provide information on past environments, and allow an understanding of where sites might be found in the landscape, how old they may be and how sites might have been preserved or disturbed over time.

The following background is a brief summary of information relevant to the current assessment of archaeological values of the study area. The background information will also be used in the formulation of Aboriginal and historical site prediction models

4.1 Geology, soils and Landforms

The Appin study area is at the south-western area of the geological feature known as the Sydney Basin. The area is located on the north-eastern edge of the Woronora Plateau (Hazelton and Tille 1990), which is south of the transitional zone of the Cumberland Plain and the Woronora Plateau. The present study area is situated on Wianamatta Shale and Hawkesbury Sandstone, which date to the mid-Triassic period and comprises of lithic sandstone, quartz sandstone, claystones, siltstones, conglomerate (with plant, fish and amphibian fossils) (Branagan & Packham 2000:58).

The soil landscapes of the study area are mapped at a 1:100,000 scale as Hawkesbury soil (map unit ha) along the gully supporting Brennan's Creek and George's river over the majority of the study area (Hazleton and Tille 1990).

The Hawkesbury soil landscape is described as rugged, rolling to very steep hills on Hawkesbury Sandstone, it occurs where drainage lines have incised the plateau. Lucas Heights soil landscape is described as gently undulating crests, ridges and plateau surfaces of the Mittagong Formation (alternating bands of shale and fine-grained sandstones) (Hazleton and Tille 1990).

Hazelton and Tille (1990) have defined two soil landscapes within the study area. The physiographic features of the landform have been incised by the Georges River and Brennan's Creek, as well as small creek lines and tributaries. Each soil landscape has distinct morphological and topological characteristics. This results in each 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.

There is one residual landscape and one colluvial landscape in the study area. Residual soil landscapes are characterised by areas where soils are derived from the long-term, in situ weathering of parent materials. Examples of these types of soil landscapes are flats and plains, with poorly defined drainage lines. Colluvial soil landscapes are dominated by areas where mass movement is the principal agent of accumulation. Cliffs, scarps, and steep slopes are examples of colluvial soil landscapes.

Residual landscape

The Lucas Heights landscape is located along the western edge of the study area and accounts for approximately 10% of the land surface of the area in question. This soil landscape is a residual landscape that characterises much of the Woronora Plateau and the Cumberland Lowlands. It has gently undulating crests, ridges and plateau surfaces of the Mittagong Formation, although rock outcrop is absent. Local relief is between 10 and 50 m with slopes less than 10% grade. Gently undulating plateau surfaces and ridges 200-1000 m wide with level to gentle slope gradients are the dominant topography of this landscape (Hazelton and Tille 1990:23). The soils consist of moderately deep podzols and soloths (acid soils) on ridges, plateau surfaces and crests and earthy sands in valley flats. Such soils have reasonable potential to contain archaeological deposits, including stone artefact scatter sites. However, impact from vegetation clearance for pastures results in site disturbance and poor preservation.

Colluvial landscape

The Hawkesbury soil landscape is confined to the gorges around Georges River and Brennan's Creek and accounts for approximately 90% of the study area. The Hawkesbury soil landscape is described by Hazelton and Tille (1990:45) as 'steep, rugged sandstone slopes and ridges' with local relief between 100 – 200m and slope grades between 20% and 70%. Rock outcrops and surface rocks are abundant, occurring as sandstone benches, broken scarps and boulders, with the scarps being up to 10m high. The soils in this landscape are shallow, discontinuous and generally sandy. The sandstone formations of this landscape provide overhangs with suitable surfaces for rock art making this landscape archaeologically sensitive. These shelters can also contain small accumulations of cultural deposits; although the potential for deep, stratified archaeological sites is very limited. Previous archaeological work in the region has demonstrated an abundance of rock art associated with this landscape, and the steep gorges and gullies are where most archaeological survey has been focused.

4.2 Climate

The climate at Picton (15 kilometres west of the Appin) generally consists of mild summers with an average maximum of 28.6 degrees and minimum of 15.4 degrees in February, and cold, wet winters with an average minimum of 1.7 degrees and a maximum of 16.8 degrees in July (Bureau of Meteorology 2004). Recorded rainfall readings taken in 2004 indicate an average annual rainfall of 803.6 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 habitation of all parts of the region.

4.3 Flora and Fauna

The study area is located at the transition zone of two major vegetation communities. These vegetations communities are indicative of what once thrived across these areas prior to exploration and settlement in New South Wales. The vegetation communities have been identified within the study area includes Sydney Hinterland Dry sclerophyll forest and coastal valley grassy woodlands (Keith 2004).

The vegetation communities that will be impacted by the proposed pipeline include Exposed Sandstone Scribbly Gum Woodland along the ridgetop and Western Sandstone Gully Forest along the Georges River (in accordance with the vegetation community descriptions of DEC (NPWS 2003).

Within the study area, Exposed Sandstone Scribbly Gum occurs along the ridgetop across a small drainage line and underneath the slashed powerline easement. This vegetation community was dominated by *Eucalyptus racemosa* and *Corymbia gummifera* in the canopy, with a dense shrub layer of *Lambertia formosa, Leptospermum trinervium, Persoonia levis* and *Banksias serrata* occurring in the shrub layer. The understorey was dominated by *Pteridium esculentum, Pomax umbelata* and *Anisopogon avenaceus*. This vegetation was considered to be in Good condition, with no weed species present and all structural layers intact.

The vegetation along the Georges River and associated slopes was a transitional area between Western Sandstone Gully Forest and Exposed Sandstone Scribbly Gum Woodland, with characteristic species of both communities occurring. The canopy dominants in this area were *Eucalyptus racemosa, E. eugenioides* and *E. resinifera,* with *E. piperita* also occurring. The small tree layer supported *Angophora bakeri* and *Allocasuarina littoralis,* with *Kunzea ambigua, Dodonaea triquetra, Persoonia linearis* and *Acacia longifolia* occurring in the shrub layer. The understorey supported *Lomandra longifolia*, *Echinopogon ovatus* and *Dianella revoluta.*

These vegetation communities supported a range of faunal resources that would have been utilised by Aboriginal peoples. Terrestrial and avian resources were not only used for food, but also provided a significant contribution to the social and ceremonial aspects of Aboriginal life. The woodland areas would have been habitat for kangaroos, while the sheltered forest would have been home to koalas, rock wallabies, bandicoots as well as birds such as cockatoos, falcons and owls. Mammals such as kangaroos and wallabies and arboreal mammals such as possums can be used for food and also for tool making. Aquatic species such as freshwater crayfish would have been easily accessible in large waterways like the Georges River (Rosen 1995). Aquatic vertebrates such as fish and eels would also have been present in the larger creeks such as the George River and Brennan's Creek.

4.4 Resource Statement

The geological landscapes would have provided various sources of stone material for the Aboriginal people, from which a range of stone tools could be manufactured. 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. Where outcrops occur, other potential raw materials for stone artefact making would have included tuff, mudstone, silcrete, chert, quartzite and basalt.

The year round water supply from the Georges River would have been a reliable water supply, while the diverse environment would have provided vast and plentiful flora and faunal resources. Many of the plants found within the area were important to the Aboriginal people inhabiting the area and could be used by the Aboriginal people for numerous purposes. These include using the wood to make implements; berries leaves and tubers for food and medicines as well as bark for shelters. Some of the plants exploited may have been the Eucalypt, whose leaves can be crushed and used for medicinal purposes, while the sap can be used as a sweet sugary food source and the bark could be used to make bowls and shelters (Botanic Gardens Trust 2005). The bark of the Hickory Wattle, which was found in the general area, could have been used to create string for fishing in the nearby Georges River (Zola and Gott 1992: 56). The various Fauna species present within the study area would have provided a range of resources for the Aboriginal people. Wallabies and kangaroos not only could be used as a source of food, but also provided a skin that when tanned could become clothing.

5.0 ABORIGINAL HISTORY

5.1 Ethnohistory

It is generally accepted that people have inhabited the Australian landmass for at least 50,000 years. Dates of the earliest occupation of the continent by Aboriginal people are subject to continued revision as more research is undertaken. The timing for the human occupation of the Sydney Basin is still uncertain. Whilst there is some possible evidence for occupation of the region around 40,000 years ago, the earliest undisputed radiocarbon date from the region comes from a rock shelter site north of Penrith on the Nepean, known as Shaws Creek K2, which has been dated to 14,700 +/- 250 BP (Attenbrow 2002: 20). This site is over 50 km north from the study area along the Nepean River. To the south, along the coast just north of Shellharbour the site of Bass Point has been dated at 17,101 +/- 750 BP (Flood 1999). Closer to the study area on the Woronora Plateau the oldest date for Aboriginal occupation so far recorded is 2,200 +/- 70 BP at Mill Creek 11 (Koettig 1985). Such a 'young' date is probably more a reflection of conditions of archaeological site preservation and sporadic archaeological excavation, rather than actual evidence of the presence or absence of an Aboriginal hunter-gatherer population prior to this time.

Our knowledge of Aboriginal people and their land-use patterns and lifestyles prior to European contact is mainly reliant on documents written by non-Aboriginal people. The inherent bias of the class and cultures of these authors necessarily affect such documents. They were also often describing a culture that they did not fully understand – a culture that was in a heightened state of disruption given the arrival of settlers and disease. Early written records can, however, be used in conjunction with archaeological information and surviving oral histories from members of the Aboriginal community in order to gain a picture of Aboriginal life in the region.

A variety of studies of the language groupings that made up the greater Sydney region have been summarised by Attenbrow (2002). She suggests four main language groupings for the region. In the vicinity of the study area there were two (a coastal and a hinterland) Darug dialects: Dharawal and Gundungurra. It is suggested the hinterland Darug dialect covered the Cumberland Plain from Appin to the Hawkesbury River to the west of the Georges River, Parramatta, the Lane Cove River and Berowra Creek. The Gundungurra covered the area west of the Georges River on the southern rim of the Cumberland Plain, as well as the southern Blue Mountains (Attenbrow 2002: 34). These areas are considered to be indicative only, and would have changed through time, and possibly also changed depending on circumstances.

At the time of European settlement the Georges River and its tributaries were occupied by the Tharawal (Tindale 1974). The Gandangarra were known to have inhabited much of the Wollondilly area in the 18th and 19th century according to early non-indigenous records (ERM 2002). The interface of these two groups seems to have been around Appin. Ethnographic evidence considered by Sefton (1988: 22-29) indicates population mobility on the Woronora Plateau with frequent contact with the neighbouring Gandangarra, Cobrakall (Liverpool and

Cabramatta) and Wodi Wodi (Illawarra). 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 many resource 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 1992).

The arrival if settlers in the region around Appian and new competition for resources began to restrict the freedom of movement of Aboriginal hunter-gatherer inhabitants from around 1813 (McGill 1994). European expansion was such that by 1814 there had been considerable loss of Tharawal land to agriculture. A severe drought in the same year as well as the displacement of other tribes through European expansion forced Aboriginal people to congregate in the Appin area in search of food and other resources. Hostilities between Aboriginal people and Europeans began in the district of Appin when a large group of Aborigines were fired upon. In May 1814 the local militia killed an Aboriginal boy. This resulted in a revenge attack on three militia members before they had time to reload, killing one of them (McGill 1994). By 1816 the increasing hostilities resulted in Governor Macquarie sending a punitive military expedition to the area to apprehend the Aborigines involved. Aborigines met by the detachment were to be taken prisoner and sent to Parramatta or Windsor Gaol. Resistors were to be shot and the bodies of men hung from trees as an example, and the women and children buried. On 16 April 1816 news came to the detachment that a group of outlawed Aborigines were at Broughton's farm in Appin. Wallis arrived at the camp at 2am, but found it deserted. When a child's cry was heard in the bush the soldiers formed into a line and pushed through the push towards a deep rocky gorge (Cataract River). As the soldiers pursued the group panic ensued of which fourteen Aboriginal men, women and children were shot or driven over the cliff to their deaths (Liston 1988; 52-54). The exact site of the massacre is not known, but Broughton's original 1810 land grant was at Brooks Point.

5.2 The Archaeological Record

Previous archaeological work in the region began in the early 1960s, with the identification of a large shelter containing Aboriginal art and deposit (McCarthy 1961). This shelter site became known as 'Whale Cave' and has been discussed as part of academic investigations into regional variations of rock art and the prehistory of the Illawarra (Officer 1984; Sefton 1988; and McDonald 1994). Very little archaeological excavation work has been undertaken in this region of the Sydney Basin. The majority of this work has focussed on coastal and estuarine regions. Those shelters that have been excavated within the inland plateau environment have yielded dates of 2220 $\pm$ 70 BP at Mill Creek 11 (Koettig 1985).

The current study area, east of Appin, has been subject to reasonably continuous archaeological study during the last 20 years. The majority of this work has been surveys for impact assessment, many associated with mining leases, or exploratory surveys by the Illawarra Prehistory Group. Archaeological excavations have been sporadic, and account for only a small volume of the work previously conducted in the region.

The previous work has revealed a range of site types to be present in the region, with the most abundant sites being sandstone rockshelters and overhang sites containing art and/or archaeological deposits. The abundance of these sites is a reflection of the dominant landscape features formed by the Hawkesbury Sandstone. Within the study area the majority of sandstone rockshelter sites are present along major drainage features such as the Georges River, Brennan's Creek, and larger tributary drainage features that are incised to a depth that results in outcropping sandstone (Sefton 1999; Sefton 2002). Other site types that have been recorded regionally include open artefact sites, grinding sites and scarred trees. Grinding groove sites are a common feature of exposed sandstone-dominated landscapes (Sefton 1998; Sefton 1999; Sefton 2002).

Surface stone artefact sites are common, but they are not a dominant component of the region's formally recorded archaeology (Sefton 1998:10). This may simply reflect the relatively small amount of survey in suitable areas for surface stone artefact sites to occur, especially when compared to the intensively focused and numerically abundant surveys that have searched for sandstone overhang sites. The abundance and distribution of the different site types is affected by variables such as exposure (the chance of finding the sites) and preservation (the chance of the site surviving). For example, sandstone shelter sites are more readily found than open artefact sites, which may be buried. Shelter sites in the region are also located in narrow valleys and gullies that have seen little land disturbance, whilst open artefact sites are usually present on the undulating land above the gullies, which almost without exception have been extensively impacted by pastoral development, meaning many sites may have been destroyed. There is little doubt that in the region the areas with the highest site density and sensitivity are the sandstone gullies and valleys associated with well incised drainage lines. The site types that are encountered in these environments are sandstone overhangs with art, artefacts and archaeological deposits. Grinding grooves, scarred trees, and stone artefacts can also be expected to occur within the study area, particularly along the Georges River.

5.3 Regional Overview

Several surveys and investigations have been carried out around the current study area. There have been large scale surveys of the O'Hares Catchment (the major tributary of the Georges River) by the Illawara Prehistory Group (Sefton 1988). In their survey of 62 km^2 of the O'Hares Catchment identified 120 shelters with are and/or archaeological deposits, 102 sites with grinding grooves, three rock engraving sites, 11 stone scatters of stone artefacts and 9 sites with engraved grooved channels.

A large and comprehensive survey by Sefton (1988) involved a survey of 138 km^2 of the Georges River Basin, including the O'Hares Catchment found 367 shelters with art and/or archaeological deposits, 236 grinding sites, 17 rock engravings, 16 engraved groove channel sites and 25 sites with surface scatter of stone artefacts. This survey also showed that archaeological sites are differently distributed on the Woronora Plateau. Shelters are located beneath ridgelines most frequently on the upper valley slopes but a large proportion can also

be located towards the valley bottom. Grinding sites are frequently located on flat sandstone outcrops at the head of a gully below an upland swamp and occasionally in creek beds or on ridge top sandstone adjacent to waterpans. Engraved groove channels and rock engravings are usually associated with grinding grooves. Surface scatters of stone artefacts are most frequently located near plateau level on the ridge side or as associated with a grinding site or a swamp.

5.4 AHIMS Results

A search of the DEC Aboriginal Heritage Information Management System (AHIMS), conducted in August, identified 7 Aboriginal archaeological sites along the Georges River, and 4 Aboriginal archaeological sites along nearby Brennan's Creek. Of these 11 sites, none are situated within the present study area. Information relating to these eleven sites is summarised in Table 1 below.

Site Number	*Site Name*	*Site Type*	*Notes*
52-2-2234	Georges River 1	Shelter with art	Comprises charcoal drawings
52-2-2243	Georges River 2	Shelter with art; Shelter with deposit	Comprises charcoal drawings and stone artefacts
52-2-2244	Georges River 3	Shelter with art	Comprises charcoal drawings
52-2-2242	Georges River 4	Shelter with art	Comprises charcoal drawings
52-2-2241	Georges River 5	Shelter with art	Comprises charcoal drawings
52-2-2235	Georges River 6	Shelter with art	Comprises charcoal drawings
52-2-2240	Georges River 7	Shelter with art; Shelter with deposit	Comprises charcoal drawings and stone artefacts
52-2-1368	Brennans Creek 2	Shelter with art	Comprises charcoal drawings
52-2-1371	Brennans Creek 5	Grinding grooves	Comprises a single grinding groove in Brennans Creek line
52-2-1372	Brennans Creek 6	Shelter with art	Comprises charcoal drawings
52-2-1373	Brennans Creek 7	Shelter with art	Comprises charcoal drawing and red ochre stencils

Table 1: Registered Aboriginal sites within the immediate vicinity of the study area

5.5 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 AHIIMS 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.

Based on previous archaeological work and recorded Aboriginal archaeological sites, the following predictive model for the study area has been developed, indicating the most likely through to the least likely site types.

- Rock shelters with either art or deposit are likely to be the most common site type to occur within the study area, and will be restricted to the escarpment area along Brennan's Creek valley within the Hawkesbury landscape;
- Axe grinding grooves have some potential to occur within the study, across areas of exposed sandstone along the George's River and other tributary drainage lines and nearby swamps;
- Open campsites (artefact scatters) are likely to be identified in association with shelter sites within the study area, although there is some potential for these to also occur along the tops of open ridge lines;
- Isolated finds are likely to occur anywhere in the study area;
- Scarred trees are also likely to occur within the study area due to continuous firing across the area;
- Burial sites are unlikely to be located within the study area as the landscape does not exhibit suitable soils and if they were present they are unlikely to be preserved.

Rock shelters with art and/or deposit

Rock shelters with art and/or deposit are the most frequently recorded site types within the study area and surrounding region. These sites generally occur within specific geological and topographical landscapes comprising sandstone exposures, shelving and overhangs. Suitable sandstone exposures or overhangs and cavities possessing sufficient sheltered space to contain potential archaeological deposit/art have been documented within the AHIMS search area.

Shelter sites generally occur on, or next to, steeply sloping ground as characterised by the cliff lines bordering the escarpment along the Georges River and its large tributaries. Such topographical features are not located within the present study area and it is therefore unlikely that undocumented shelter sites will be identified within the study area.

Grinding Grooves

Grinding grooves are often found on large open and relatively flat areas of sandstone shelving and outcrops in close proximity to water. As the pipeline easement crosses the Georges River at a point where open areas of flat sandstone occur, grinding grooves have are likely to occur.

Open campsites, artefact scatters and isolated finds

These sites represent the most likely site type identified within the open plateau region, especially on level, well-drained land features within close proximity to water courses and are

thus highly likely to occur across the Lucas Heights Landscape within current study area. There is also some potential for these to occur throughout the Hawkesbury Landscape.

Scarred Trees

Scarred trees are unlikely to be located within the present study area due to a lack of old timber growth from continual fire through the region.

Burials

Aboriginal burial sites are generally situated within deep, soft sediments. In the wider region, burials have been limited to these deposits that occur along the coastline, to the east of the present study area. Within the study area, there is low potential for burials to occur or be preserved.

6.0 HISTORICAL BACKGROUND

Historical research has been undertaken to identify the historical context of the study area. This history incorporates an understanding of land-use, building patterns, areas of disturbance, as well, as land owner histories. This research will lead to understanding historical archaeological potential for the site.

6.1 Regional Background

6.1.1 Establishment of Appin

Establishment of a reliable food supply for the settlers of Sydney was one of the driving factors behind expansion of the infant settlement of Appin. Chronic food shortages in the Colony were to be addressed by the creation of farming centres on the Hawkesbury, Airds and Appin plains. Governor Macquarie established the five Macquarie towns in the Hawkesbury, while he designed Liverpool to be the capital of the southwest, with the townships of Campbelltown and Appin in the Airds and Appin parishes respectively (Jack and Jeans 1996:24).

Governor Macquarie named Appin in 1811 after a small coastal village in Argyleshire (Scotland) where his wife was born. Deputy Commissary General William Broughton received the first local land grant that year. He called his 1000 acres Lachlan Vale after the Governor (www.stonequarry.com.au/towns/appin.html).

The following year Macquarie gave 100 acres to Andrew Hume who had journeyed to NSW in 1789 as an instructor in agriculture. His sons were John and Hamilton, the latter becoming a noted explorer. With an Aboriginal guide the two Hume boys made their first exploratory trip south in 1814, crossing the Razorback range and examining the areas now occupied by Picton, Mittagong, Bowral, Berrima and Bong Bong. Two years later they travelled to the Goulburn Plains (www.stonequarry.com.au/towns/appin.html).

Hamilton Hume was granted 300 acres at Appin. The 1824 Hume and Hovell expedition to Port Phillip left from the Appin Road, at a point indicated by a monument erected in 1924 to mark the centenary of the expedition. The monument is made of stone taken from the Hume house (www.stonequarry.com.au/towns/appin.html).

Urban growth was slow, with most of the area held in large pastoral or agricultural holdings, settlers tending to establish cattle and wheat properties. The Appin town site was formally surveyed in 1834 by Mitchell.

6.1.2 Economic Expansion

Agricultural pursuits in the area commenced with grazing. Initially unplanned, following the escape of cattle which prospered in the area (ever after known as Cowpastures), more formal grazing pursuits commenced with establishment of the permanent settlement. Government stockyards were established and the landholders ran cattle. Later diversification saw dairying

assume increasing importance to the community, although this was after the introduction of the railway and refrigeration (JRC Planning 1993:21). There are several examples of early dairy farms with byres and bails in the Appin area.

Wheat was another important early industry, with the area around Appin particularly suited for growing wheat. In response to this, several mills were established, where the grain was ground prior to dispatch. Severe outbreaks of rust in the 1870s largely destroyed the wheat industry in the area (JRC Planning 1993:22).

With the collapse of the wheat industry, diversification of agriculture occurred. Dairying and its related services remained an important regional industry until well into the twentieth century, declining in the 1960s. Orcharding was taken up in the areas surrounding Appin, reaching its peak in the 1950s. Grape growing for wine production enjoyed success in a few limited locations, while there was also a (commercially unsuccessful) brewery in operation at Blaxland's Crossing. Smaller, boutique industries such as Tang nuts and mushrooms have also contributed to the local economy. In recent years many rural holding have been sold for residential development.

The advent of the railway opened the produce of the Appin area to larger markets. The railway did not pass through Appin, going instead to Picton. As a result, the increase in development such as was seen at settlements graced with a railway station or siding, was not experienced at Appin.

Coal mining was another major industry in the district that developed later in the twentieth century. Coal deposits had been found south of Campbelltown in the 1800s, but the inland Wollondilly coalfields were not developed until the 1930s (this is in contrast to the Illawarra coalfields which were operating from the 1850s). The Wollondilly coalfields were expanded after WWII. "With the expansion of the Appin mines and changing economies in the industry during the mid-1970s, coal was increasingly trucked by road to the Port Kembla coal-loader, built in 1964" (NSW RTA Kings Falls Bridge Listing).

6.1.3 Transport Corridors

Roads in the district developed from cattle routes, but by February 1814 the road from Sydney to Liverpool had been completed and was later extended to Appin (Appin Road), though it was little more than a dirt track; and in the 1820s it was maintained by convict road gangs. The Appin Road was an important communication and access corridor. From the 1830s through to the construction of the South Coast railway in the 1880s Appin was one of the main staging posts for people heading to the Illawarra (www.stonequarry.com.au/towns/appin.html). In the 19th Century produce from the farming areas around Appin was transported by horse and bullock drays to Sydney via the Appin Road.

A combination of cattle and cedar-getters' tracks were the first overland routes to the Illawarra coastal flats. In 1821 Cornelius O'Brien, a settler of the Bulli district, discovered a shorter and less steep route between the Illawarra and the district of Appin. O'Briens Road was operating

by 1822, although it was only a cattle road. “In the early 1830s, Surveyor-General Mitchell proposed that a road be constructed from Appin into the Illawarra district to provide a general line of communication to the coast as soon as possible” (NSW RTA Kings Falls Bridge Listing). Mitchell commenced work on the new route in late 1834, the route passing from Appin through Broughton's Pass to the top of Mount Keira before meeting up with O'Brien's Road. The road was made wide enough for a carriage by 1836, however the route was limited to horse traffic as the causeway at the Georges River was impassable by carriage.

The Bulli Pass through the coastal escarpment was discovered by Captain R. M. Westmacott in 1836. “The road from Appin to the Illawarra over the once impassable Bulli Mountain opened in 1838, increasing traffic via Appin and Campbelltown and it was proposed to run a mail coach on this route. Coach services remained the only form of public transport between Appin and the Illawarra until the railway from Sutherland to Wollongong was completed in 1887” (NSW RTA Kings Falls Bridge Listing).

6.1.4 Kings Fall Bridge

Kings Falls Bridge crosses the Georges River on the Bulli-Appin Road, just outside Appin, about fourteen kilometres south of Campbelltown. The crossing of the Georges River was initially a simple causeway along a sandstone exposure. In the late nineteenth century a wooden bridge was built across the river.

Following the introduction of a system of Federal aid for road development and the establishment of the Main Roads Board in 1925, improvements were carried out on the State's major roads, a process which also necessitated the replacement of bridges, which by that time were inadequate” (NSW RTA Kings Falls Bridge Listing). In 1927, following improvements to the road from Campbelltown to Bulli, the Board was asked to consider construction of a concrete bridge at King's Falls given the inadequacy of the timber bridge. The inadequacy of the timber structure was confirmed when a lorry fell through the deck in July of that year, following which a new bridge was urgently required. Mr F. Delattore's tender of just over £4,000 was accepted in May 1929 for the bridge and approaches. The bridge was completed by February 1930 (NSW RTA Kings Falls Bridge Listing).

> In the mid-1960s preliminary investigations were made into the widening of the pavement and improvement of approaches to the King's Falls Bridge. In 1969 a large earthmoving machine hit the Wollongong end of the bridge and the downstream side end post, cracking it and causing it to shift laterally. The abutment wing wall was also affected. An inspection revealed that there appeared to be no steel reinforcement in the concrete, so instead of extensive repairs it was recommended that the bridge be widened on the downstream side. In 1972 the handrails and endposts were replaced with corrugated steel guardrails. (RTA File: 496.1301). By the 1970s the Appin-Bulli Road was used heavily by coal haulage vehicles and the King's Falls Bridge is situated near a junction with the road to Appin Colliery.
>
> (NSW RTA Kings Falls Bridge Listing)

In the early 1970s extensive realignment of a section of the Appin-Bulli Road was planned to eliminate a crest curve combination east of Appin" (NSW RTA Kings Falls Bridge Listing). Both approaches to the bridge were reconfigured, the western in 1973 and the eastern two years later. As the approaches involved steep grades coal haulage vehicles increased speed on the downgrade in order to compensate for loss of speed on the upgrade. The bridge deck (with a width of 20 feet between kerbs) was considered dangerous, with the risk of speeding vehicles colliding on the Bridge. Given this it was recommended that the bridge deck be widened to 28 feet, the deck to be widened on the downstream side. Wollondilly Shire Council widened the bridge by 6.4m by at a cost of approximately $151,000, and it was re-opened to traffic in December 1981 (NSW RTA Kings Falls Bridge Listing).

6.2 Discussion

Based on the historic background of the study area the potential for historic sites is limited to the area surrounding the Kings Fall Bridge, and could consist of historic features relating to the construction of the bridge.

7.0 SURVEY

7.1 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 recorded 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 water pipeline between the Appin and West Cliff Collieries

The size of the proposed development allowed for almost 100% of the survey area to be assessed. Information recorded during the survey included the geology of the area, exploitable resources, identifiable land-use impacts and any archaeological sites present in the study area. This information was also used to assist in the identification of archaeological sites and areas of archaeological potential.

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.

- *Limitations*

Other limitations to the survey were also noted. Such limitations might generally include restricted access to private lands, or areas that were considered unsafe to survey.

7.2 Aboriginal Participation

Aboriginal representatives from Tharawal Local Aboriginal Land Council and the Cubbitch Barta Native Title Aboriginal Corporation have participated in the survey. The representatives have contributed input into the survey methods used, and have been asked to provide

comment on the cultural significance of the locality and any archaeological objects or areas that are recorded during this survey.

7.3 Survey Results

The archaeological field survey of the study area was conducted by Melanie Thomson (Biosis Research Pty Ltd) accompanied by Glenda Chalker (Cubbitch Barta Native Title Aboriginal Corporation) and Donna Whillock (Tharawal Local Aboriginal Land Council) on Monday 29 January 2007.

Weather conditions for the survey were fine but windy. The survey was completed in three consecutive linear transects that were defined by landscape features. The team walked side by side, approximately 5 m apart. This allowed the entire proposed pipeline corridor to be assessed (see Figure 2). The terrain with the alignment was not difficult due to the cleared existing gas pipeline easement and electricity easement allowed accessibility, and provided excellent ground surface visibility. No suitable sandstone overhangs or open sandstone outcrops were present within the study area. Ground surface exposures were targeted to identify the presence of any stone artefacts that might be evident.

7.3.1 Existing Condition of the Study Area

The study area consists of moderate sandstone ridgelines dissected by the Georges River and other minor creeks and tributaries. The present study area crosses all of these features. In the north west, the banks of the George River and river bed comprise gentle river banks and open, flat sandstone outcropping within the river bed. A number of rough vehicle tracks run across and along the river, allow access from both sides (Plate 1). The central section of the pipeline alignment consists of a large, steep slope, increasing to the south east. It consists of open sections of rough vehicle track and exposure along the gas pipeline easement that run parallel to Appin Road (Plate 2).

Plate 1: Open sandstone outcropping in Georges River bed near bridge at pipeline crossing

Plate 2: Undisturbed bushland and minor sandstone outcrops in central eastern section of pipeline corridor

On top of the ridge line, the alignment runs beneath an overhead power line and along the access track. Along this section is an open tract of regenerated bushland and access track that has exposed the underlying sandstone

7.3.2 Effective Survey Coverage

As required by the NSW National Parks and Wildlife Service Standards and Guidelines Kit, the following table outlining the effective survey coverage attained during the survey has been compiled (Table 3 below).

Landsystem sample	Landform unit	Exposure type	Area (m^2)	Visibility overall	Est. of effective coverage (m^2)	Sites(s)
Ridge top	Prominent sandstone ridge top	Electricity easement access track and Telstra easement	3,700	80%	2,960 m^2	1 isolated artifact occurrence
Mid slope	Mid ridge slope and gully line	Undisturbed native vegetation and gas pipeline easement	9,300	25%	2325 m^2	-
Georges River	River bed and banks	Erosion scour, vehicle access tracks and gas pipeline easement	7,600	70%	5,320 m^2	-

Table 2: Effective survey coverage of sample areas within the study area

The majority of previously recorded Aboriginal archaeological sites that have occurred within the surrounding region have included rock shelters with art and deposit, and axe grinding groove sites. Very few stone artefact scatter or isolated artefact occurrence sites have been identified. In general, the identification of site types has been dependant on ground surface visibility. This can hinder the identification of stone artefacts and other cultural materials, however, this is not the case for rock shelters sites or axe grinding groove sites.

7.3.3 Aboriginal Sites

As a result of the archaeological survey, one new Aboriginal archaeological site was recorded (Figure 3). The details of this are summarised below:

Appin Pipeline 1

Description: This site comprises a single stone artefact (Plate3). It is situated on the break of the slope, at the top of the ridgeline that is located to the south east of the Georges River (Plate 4). The site was visible due to disturbance associated with the construction of the overhead electricity power line and vehicles using the easement access track. The artefact was sitting on the inner edge of a large wheel rut.

Site Condition: The artefact has been exposed in a wheel rut on the electricity easement access track in a disturbed context. There is very little topsoil across the top of the ridge line and has been subject to continuous erosion along the track from vehicles, wind and water.

Feature Description: The stone artefact was recovered from pale yellow shallow sand. It consisted of a single broken grey silcrete core, exhibiting one complete flake scar (Plate 3). As it was broken it was difficult to determine if it had been part of a unidirectional or multidirectional core. The raw material consisted of a pale grey silcrete with medium sized quartz crystal inclusions. It is likely that the artefact has been broken as a result of vehicle movement along the access track.

Plate 3: Broken grey silcrete core

Plate 4: Location of broken silcrete core on top of ridgeline on access track, facing east

7.3.4 Historic Sites

Kings Falls Bridge

- ***Physical Description***

The Kings Falls Bridge crosses the upper reaches of the Georges River running over broad sandstone outcrops in a wooded valley adjacent to the Appin colliery (Figure 3). Of the current bridge structure, the earlier component is a three span structure with three reinforced concrete beams which are continuous and have tapered haunches at the piers and abutments. The abutments are wall type with 0 degree returns, and the piers are solid wall type with tapers in both directions. The upstream face has a cutwater armoured with steel (possibly railway track).

Widening has been effected by constructing new piers adjacent to the earlier structure on the downstream side. The newer piers are of a similar design. The abutments are similarly extended. The new deck is of reinforced concrete supported on (and continuous with) pre-stressed concrete girders, of which there are four per span. All footings are presumably directly on rock.

At deck level, the bridge has New Jersey kerbs and rails on both sides, those on the older bridge presumably having been retrofitted at the time of the widening.

On the upstream, western bank, a small area of sandstone walling is evident (either an abutment or wing wall). The date of this feature is uncertain; it is possible that it is associated with a sandstone retaining wall for the Appin approach of the earlier timber bridge.

Also identified in the vicinity of the bridge was a surveyors mark cut into the bedrock of the creek bed. Comprising three wedge-shaped and two rectangular incisions, with a central depression, the surveyors mark is not annotated with a traceable bench-mark or datum number. The surveyors mark is outside the predicted impact area of the proposal and should not be affected by the proposed works.

Several metres upstream of the bridge there is embedded the remains of a timber pole cast with concrete into a rectangular rock socket. This may possibly have been part of an earlier structure but appears more likely to have been a power pole. This feature is just outside the study area and will not be impacted by the current proposal.

Plate 5: Kings Falls Bridge, upstream side. View of Appin approach, substructure and deck, facing north-west

Plate 6: Sandstone retaining wall at the upstream Appin approach, facing north.

Plate 7: Surveyors mark cut into the bedrock of the Georges River, from above.

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** 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 and Heritage (DEH) and the NSW Department of Environment and Conservation (DEC) and Heritage Office. The relevant sections of these guidelines are presented below.

8.2 Aboriginal Sites – Assessment of Significance

The following Aboriginal significance assessment is based on Part 1 of the *DEC Guidelines for Aboriginal Heritage Impact Assessment* (2006). 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.

8.2.1 Aboriginal community or cultural values

The NSW DEC 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

Aboriginal community comments - to be included when received…..

All pre-contact (pre-European settlement) sites that are 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 this Aboriginal community. 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.

8.2.2 Aboriginal archaeological or scientific values

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.

In the past, a consideration of scientific (archaeological) value was the focus of most approvals assessment processes for Aboriginal heritage, and this will still be an important component of most assessment processes. The intent of the *DEC Guidelines* (2006) is to ensure that these values are incorporated within a broader consideration of Aboriginal heritage significance.

While various criteria for archaeological assessment have been advanced over the years, most can be considered under the heading of research potential. Significance in this case lies in the potential of sites or places to elucidate past behaviour, rather than the potential to yield artefact collections or the potential to apply a particular analysis. The major issues in the assessment of research potential are considered to be:

- ***Site intactness or integrity***: This includes the state of preservation of particular remains (e.g. animal bones, plant remains, stone artefacts, and ancestral remains) 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, etc.

- ***Site representativeness***: This relates to the ability of a site to contribute to a conservation assemblage of sites of similar type.

- ***Site rarity*:** This refers to the regional distribution of a particular site type. Representativeness is assessed by whether the site is *common*, *occasional*, or *rare* in a given region. Assessments of rarity are subjectively biased by current knowledge of the distribution and number of archaeological sites in a region. This varies from place to place depending on the extent of archaeological research. Any such site should be subject to re-assessment as more archaeological research is undertaken.

- ***Site antiquity:*** This firstly relates to the potential of a site to provide a chronology extending back into the past. If this chronology is dateable its research potential is enhanced. In some environments the mere presence of a stratified deposit or a vertical series of artefact-bearing soils, may be a sufficiently rare occurrence as to put any site that has them into the 'higher research potential' category. It also considers that the connectedness of the site to other sites may be a major factor in its research potential. In other words, the site, taken in conjunction with other sites, may have a research potential it would not have in isolation.

Statement of Archaeological Significance

Appin Pipeline 1

This isolated stone artefact site is situated on top of a moderate ridgeline overlooking Georges River to the north, north west, giving it some aesthetic value. The site comprises a single broken grey silcrete core, considered to be uncommon within the area and moderate representativeness. The disturbance caused from vehicle movement and the construction of the overhead power line detracts from the research potential and value of archaeological deposit. High levels of exposure and low artefact count suggest that it is unlikely that further archaeological material will occur within the immediate vicinity.

8.2.3 Aboriginal Sites – Significance Summary

The determination of Aboriginal significance relies on a comprehensive approach to cultural heritage assessments and to the values that are attached to heritage places. Aboriginal 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 following summary of significance has been based on the results of the archaeological survey, an understanding of regional Aboriginal sites patterning, and from comment and input from the relevant Aboriginal groups.

SITE NAME AND NUMBER	*COMMUNITY OR CULTURAL VALUES*	*ARCHAEOLOGICAL OR SCIENTIFICIC VALUE*
Appin Pipeline 1	Yes	Low

8.3 Historic Sites – Assessment of Significance

8.3.1 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).

The significance assessment process seeks to identify inherent heritage values of items (the nature of the assessed item) as well as heritage values when the item is compared to similar items (comparative value). To be assessed for listing on the State Heritage Register an item will need to meet one or more of the following criteria:

CRITERION	*DESCRIPTION*	*CATEGORY*
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 3: 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 in Section 7.3.2.

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.

8.3.2 Grading of significance

The heritage guidelines on assessing significance also include a set of gradings of significance. These are used to identify if loss of integrity or condition diminishes significance.

GRADING	*JUSTIFICATION*	*STATUS*
Exceptional	Rare or outstanding element directly contributing to an item's local and State significance.	Fulfils criteria for local or State listing.
High	High degree of original fabric. Demonstrates a key element of the item's significance. Alterations do not detract from the significance.	Fulfils criteria for local or State listing.
Moderate	Altered or modified elements. Elements with little heritage value, but which contribute to the overall significance of the item.	Fulfils criteria for local or State listing.
Little	Alterations may detract from the overall significance but its role, function, design or fabric can still be interpreted.	Does not fulfil criteria for local or State listing.
Intrusive / Nil	Damaging to the item's heritage significance. Difficult to interpret.	Does not fulfil criteria for local or State listing.

Table 4: NSW Heritage Office grading of heritage significance

An assessment of significance is based on the attributed value of an item or place, while the grading also considers the current condition. The grading system works both ways. An item may be inherently significant at a State level, yet modifications and alterations have detracted from the significance, resulting in an assessment of Low State significance. Conversely, an item that is highly significant at the Local level may not fill the criteria for State significance. The context of items may affect the grading as well. Several items with Low Local significance at individual levels, when considered as a group, may be assessed as of Moderate or High Local significance.

The basis for these assessments is determined on a case-by-case scenario and is outlined in the following significance assessment.

8.3.3 Historic sites – assessment of significance

Kings Falls Bridge

The assessment and statement of significance is derived from the existing heritage listing of this item (http://www.rta.nsw.gov.au/cgi-bin/index.cgi?action=heritage.show&id=4309611).

ASSESSMENT OF SIGNIFICANCE	
Historical Significance	The Kings Falls Bridge is a component of a very important route in the development of communication and transport connections between Sydney and the Illawarra, enabling access to the Illawarra via the Bulli Pass from the late 1830s. The crossing is articulate about the history of the route; the geography of the streambed, comprised of sandstone shelving, suggesting that earliest crossings were probably by ford, followed by possibly two or more generations of timber bridges at the site. The existing bridge's construction is directly related to the program of road improvement funded by the Federal government and carried out by the newly established Main Roads Board from the late 1920s to upgrade the State's main roads and other important routes. Subsequent modifications, including widening and realignment of the bridge's approaches are associated with the development of the coal industry, particularly the establishment of the Appin Colliery adjacent to the bridge, which, from the 1970s has been used heavily by coal haulage vehicles, necessitating its adaptation to the greater speed and weight of such traffic. The site demonstrates the evolution of technology associated with bridge building, from timber structures to the reinforced concrete beam form developed from the mid-1920s and popular throughout the 1930s and 1940s; to the use of pre-stressed concrete girders (a technology developed in the mid-twentieth century) in the widening in 1981.
Aesthetic Significance	The bridge is a very robust structure, which sits well in its attractive natural setting. The robust nature of the bridge's design reflects a concern for the coal traffic.
Social Significance	The bridge and its site are apparently frequented and enjoyed by the youth of Appin and surrounds. It is not known whether the groups involved hold the bridge in any esteem.
Technical Significance	****
Integrity/Intactness	Moderate
Representativenes	****

ASSESSMENT OF SIGNIFICANCE

Rarity ****

STATEMENT OF SIGNIFICANCE

The Kings Falls Bridge has local historical and aesthetic significance. The bridge and its setting are articulate about the history of transport on this important route and demonstrate the evolution of various crossing types at the site, from ford through timber bridges to the existing bridge, with its later modifications. The bridge's construction is directly associated with the program of main road improvement in the State, funded federally and carried out by the Main Roads Board cum Department of Main Roads from the late 1920s. The robust design of the bridge reflects recognition of the heavy use of the crossing by industrial traffic associated with coal haulage. Subsequent modifications to the bridge reflect the increasing importance of coal in the local economy from the 1970s and the bridge's location on an important coal haulage route, adjacent to the Appin Colliery, has ensured that it continues as a vital component of the transport infrastructure in the area.

ASSESSED SIGNIFICANCE

Local

9.0 IMPACT ASSESSMENT

9.1 Development Potential Impacts

The proposed water pipeline between Appin Colliery and West Cliff Colliery will result in ground disturbance through the excavation of the pipeline trench.

It will also have potential impacts to the fabric of the Kings Fall Bridge if the pipeline is to be affixed to the bridge.

9.1.1 Aboriginal Site – Appin Pipeline 1

The proposed pipeline therefore has the potential to impact on recorded Aboriginal archaeological site, *Appin Pipeline 1*.

However, due to the size and nature of the development, it is highly likely that the pipeline route will avoid impact to the *Appin Pipeline 1* Aboriginal archaeological site.

9.1.2 Heritage Impact – Kings Falls Bridge

Objectives of a Statement of Heritage Impact

A statement of heritage impact (SoHI) is designed to assist in assessing development proposals and should address:

- Why the item is of heritage significance;
- What impact the proposed works will have on that significance;
- What measures are proposed to mitigate negative impacts; and
- Why more sympathetic solutions are not viable?

NSW Heritage Office (1996)

A SoHI needs to explain how the heritage value of an item (or range of items) is to be conserved or enhanced by the development *proposed*. This may include stabilisation and repair work, restoration, reconstruction or redevelopment for a new use that would ensure ongoing maintenance.

When assessing a SoHI, the NSW Heritage Council is not looking to see that heritage forms and finishes have been duplicated, but rather that the heritage values of a place have been used to inform a new development. Ultimately, the new design should be sympathetic in form and finish and respectful of context.

Potential impacts associated with the project should be evaluated against the significance assessment criteria applicable to the heritage item. The development should not diminish the heritage values of an item or place. Where this proves unavoidable, the SoHI needs to argue, clearly, why the proposed action is the only viable solution and why alternatives are not

appropriate. Adverse impacts should be clearly listed with statements supporting why the impact/s cannot be avoided and noting any actions to mitigate the impact/s.

RTA guiding principles

The RTA has established a guiding policy which outlines the RTA approach to heritage assets (RTA 2004a). This document – RTA Heritage Guidelines, Version 2 – identifies procedures and policies pertaining to the effective management of heritage values.

RTA Policy for the Management of Heritage Items is:

> To ensure that the Authority identifies and takes appropriate action in relation to all heritage items which it affects; that the Authority identifies and manages all heritage items which it owns or for which it has care or control; and that the heritage significance of the Authority's assets is established and maintained; in accordance with the requirements of relevant NSW and Federal legislation (RTA Heritage Guidelines, Version 2).

General Heritage Guidelines for RTA Maintenance Works

- Carry out heritage assessment of any areas affected by the proposed works. Check for existence of any Management documents.
- Prepare an appropriate Management Document if a heritage issue is involved.
- Carry out ALL works with due regard to heritage issues:
  - conserve original fabric wherever possible
  - repair original items rather than replace them
  - use sympathetic materials and construction techniques
  - minimise damage to surrounding environment

  If original stone culverts or woodblock road surfaces can be left in- situ, do not remove them. Retain and repair stone kerbs and gutters wherever possible.
- Brief contractors on heritage issues and ensure compliance with works standards in contracts.
- Report unexpected archaeological relics or aboriginal objects if they are found and follow the procedures in Figure 8.

Table 5: General Heritage Guidelines for RTA Maintenance Works (Source: RTA 2004a:3-18)

These policies emphasise the importance to the RTA of identifying, maintaining and, wherever possible, preserving the heritage significance of identified heritage items.

9.1.3 Proposed development

The vocsidizer pipeline will cross the Georges River at the Kings Falls Bridge and will impact the identified curtilage and fabric of the heritage item.

Drawings provided by Olsen Environmental Consulting show two construction methods within the vicinity of the bridge: external fixture to the Appin abutment of the bridge and trenched excavation into the bedrock of the Georges River within the identified curtilage. These construction methods are illustrated in Plate 8, and are discussed in further detail in the following section.

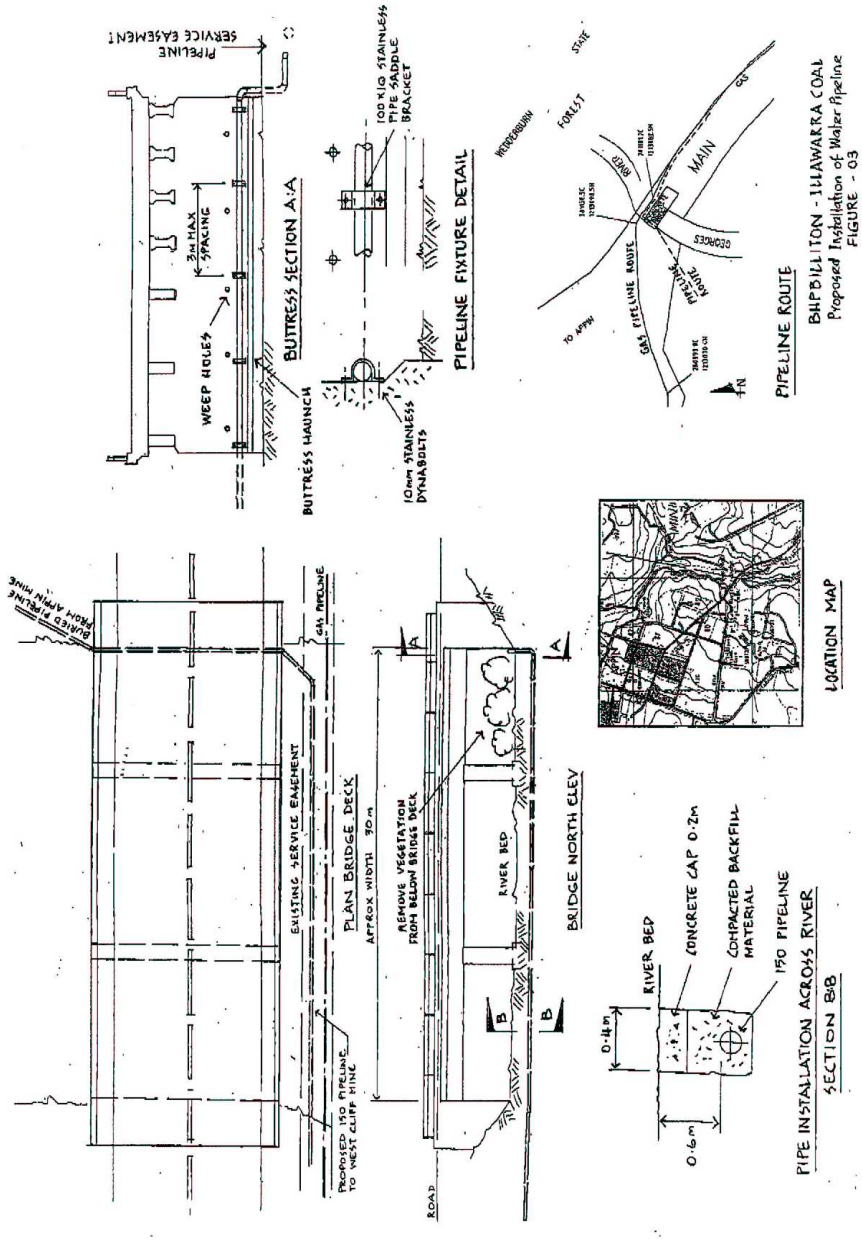


Plate 8: Pipeline construction methods at the Kings Falls Bridge (source: Olsen Environmental Consulting)

9.1.4 Physical impacts

Physical impacts would occur to the fabric of the bridge and within the curtilage of the heritage item.

The vocsidizer pipeline will be fixed to the Appin (north-western) abutment via a series of 100 x 10 mm stainless pipe saddle brackets held to the bridge sub-structure with 10 mm dynabolts. The fixture points would be required approximately every 3 m and would result in 5 such points evenly spaced along the bridge abutment (refer to Plate 8).

Once on the northern side of the bridge, the new pipeline would cross the Georges River in an existing services trench excavated into the riverbed bedrock and backfilled with concrete. The 150 mm diameter pipe would be installed into the existing services trench in a compacted backfill material, and this arrangement would be protected by a 200 mm thick concrete cap (refer to Plate 8).

This combination of construction methods has been devised to limit the requirement for the operation of large machinery below the bridge structure (where clearance is not enough for excavation machinery to safely operate). Whist requiring impact to the fabric of one bridge abutment, this has been a conscious choice to as to limit potential accidental damage to the bridge substructure or deck through operation of large machinery in a confined space.

9.1.5 Statement of heritage impact

How is the impact of the new development on the heritage significance of the item or area to be minimised?

There are considered to be no identified heritage impacts associated with the trenched areas of pipeline. Whilst situated within the curtilage, the trenched pipeline does not impact the fabric of the bridge nor detract from its form or function.

Identified impacts are associated specifically with the section of pipeline externally mounted to the Appin abutment of the bridge substructure. This section of pipeline will result in additions to the fabric of the bridge through bracket mountings and dynabolts. While the dynabolts will be difficult to remove in the future should the pipeline become redundant, they have been specifically chosen to prevent ongoing damage to the bridge through failure of the pipeline attachment points. The brackets may be removed in the future and the attachment system ground back to the brick surface. In this sense the visual impacts are reversible.

Why is the new development required to be adjacent to a heritage item?

The pipeline will link two collieries on opposite sides of the Georges River. The pipeline route utilise existing tracks where possible to localise impacts to already disturbed areas. Crossing the Georges River at the Kings Falls Bridge minimises impacts to previously undisturbed areas. The environment at the Georges River is already disturbed in the vicinity of the bridge and, as such, it seems reasonable to limit disturbance to this area.

How does the curtilage allowed around the heritage item contribute to the retention of its heritage significance?

No curtilage has been specified on the listing for the bridge, the curtilage identified is that verbally provided by the RTA Heritage Branch on specific application for this information. The curtilage serves as a management tool to preserve the setting and fabric of the bridge.

The heritage assessment of the bridge has identified that the natural environment contributes to aesthetic significance of the structure. The construction methods, while impacting the curtilage and fabric of the bridge, will not detract from the setting.

How does the development affect views to, and from, the heritage item? What has been done to minimise negative effects?

The water pipeline will be a buried service for the majority of the pipeline, the only area where it will be visible is along the substructure of the Kings Falls Bridge where the excavation machinery cannot operate. As such the pipeline will not be visible from the bridge deck by users of the bridge and will not affect views from the bridge. The pipeline will be visible from the Georges River bed, but as an externally mounted pipeline. The visual impact of the pipeline will not compete with the interest that the bridge provides in the landscape, and as such it is considered that there will be little impact to views to the heritage item.

Is the development sited on any known, or potentially significant archaeological deposits? If so, have alternative sites been considered? Why were they rejected?

There were at least two crossings of the Georges River prior to construction of the current Kings Falls Bridge, a simple ford crossing and a timber bridge. Presumably the earlier crossings were on the same, or a similar, alignment. A sandstone feature at the Appin approach suggests that the current bridge may be built on the same alignment as the earlier timber bridge. Usually, archaeological remains would be associated with a timber bridge, however, in this instance, the construction of the concrete bridge on the same alignment is considered to have impacted archaeological remains to the extent where they are considered unlikely.

The current bridge has been modified several times, including a program of major widening c. 1970. The immediate area around the bridge is considered highly disturbed and as such the pipeline is unlikely to impact any previously unidentified, intact archaeological remains or deposits

Is the new development sympathetic to the heritage item? In what way?

The externally mounted pipeline is not innately sympathetic to the heritage item. The pipeline has, however, been designed to exclude the possibility of large-scale damaging impacts to the

bridge by machinery if the pipeline was trenched under the bridge. In this sense, the externally mounted pipeline is cognisant of the heritage significance of the bridge and seeks to maximise the long term stability of the item with a minor visual impact.

Will the development visually dominate the heritage item? How has this been minimised?

The proposed development will have a negligible visual impact to the bridge substructure, the element which is least likely to be viewed by bridge users. The proposed works have been sited low along the abutment footing and will be fixed in a continuous line (i.e. there will be no corners etc to draw the eye).

Will the public, and the users of the item, still be able to view and appreciate its significance?

Currently the bridge substructure is not easily observed by the public, being best viewed from the Georges River. The substructure is not visible from the road approaches or bridge deck. Construction of an externally fixed section of pipeline to the Appin abutment will not detract from the visual statement the bridge makes in its setting, nor will it detract from the function of the bridge.

9.1.6 Summary

Heritage impacts associated with the installation of the pipeline in the vicinity of the Kings Falls Bridge have been assessed. In summary, construction of the pipeline (both the trenched sections and the externally fixed sections) are predicted to have little impact to the visual amenity, structural integrity or heritage significance of the bridge.

The pipeline has been designed to follow an already heavily disturbed route wherever possible and in the vicinity of the bridge, will not impact associated features such as the sandstone retaining wall, surveyors mark or telegraph pole. The only direct impact to the fabric of the bridge will be the installation of dynabolts to affix brackets for the external mounting of the pipeline.

This minor impact is considered acceptable as it reduces the opportunity for major damage to the bridge substructure and underside of the deck if trenching machinery were to operate in the confined space under the bridge.

10.0 RECOMMENDATIONS

10.1 Recommendations

10.1.1 Aboriginal Cultural Heritage

The following recommendations have been devised in consultation with the Aboriginal representative present during the field assessment.

Recommendation 1

All attempts should be made to avoid the recorded Appin Pipeline 1 Aboriginal site by the construction works associated with proposed pipeline. The site should be flagged prior to the commencement of ground disturbance works to ensure this. The relevant Aboriginal stakeholders should be given the opportunity to inspect the initial ground disturbance works within 50 metres of the site.

Recommendation 2

The areas that have been identified as being of moderate Aboriginal archaeological potential, on the banks of the Georges River and within 50 metres of recorded site Appin Pipeline 1, should also be inspected during initial ground disturbance by relevant Aboriginal stakeholders.

Should any Aboriginal objects be identified at these locations, the sites will need to be registered with the NSW Department of Environment and Conservation. Following this an application will need to be made to DEC to continue disturbance to the relics, or the project will need to be modified to avoid further disturbance to the relics.

All Aboriginal objects and places are protected under the *NSW National Parks and Wildlife Act 1974*. Should any Aboriginal relics be encountered during works associated with this proposal, works must cease in the vicinity of the find and the NSW Department of Environment and Conservation and Aboriginal stakeholders be notified. A qualified archaeologist may also be required to assess the find.

10.1.2 Historical Cultural Heritage

The water pipeline crosses the Georges River in the vicinity of Kings Falls Bridge. The bridge is a continuous concrete beam bridge that has previously been assessed as being of local heritage significance. The pipeline route is partly trenched within the identified heritage curtilage of the bridge and a small section of pipeline will be externally fixed to the Appin abutment. The impact assessment has identified that the proposed works are to have a negligible impact to the heritage value of the bridge and its immediate environment. Given this the proposed works may proceed within the parameters of the following recommendations.

Recommendation 3

The Kings Fall Bridge is listed heritage item with an identified curtilage of 1 m each side of the superstructure and 3 m at each end. This statement of heritage impact should be forwarded to the heritage branch of the RTA for review.

Recommendation 4

The proposed works will require the excavation of a trench within the bridge curtilage and installation of an externally mounted pipeline along the Appin abutment. Trenched sections of pipeline are considered to have no heritage impact to the bridge and its setting. The externally mounted section of pipeline, while having a minor impact to the fabric of the bridge, is considered acceptable based on the assessment and statement of heritage impact. Given this, it is recommended that the proposed works may proceed assuming BHP Illawarra Coal will take into account any conditions that the RTA Heritage Branch may impose on the works as the owner of the impacted asset.

Recommendation 5

All historical archaeological sites greater than 50 years of age are protected under the relics provisions of the *NSW Heritage Act 1977*. Should any historical relics (archaeological sites) be uncovered during works associated with this proposal, works must cease in the immediate vicinity of the find and the NSW Heritage Office be notified. A qualified archaeologist may also be required to assess the find.

It is an offence to disturb an historical archaeological site without an excavation permit issued by the NSW Heritage Office.

REFERENCES

Australia ICOMOS 1999 *Australia ICOMOS Charter for the Conservation of Places of Cultural Significance (the Burra Charter), revised edition*, Australia ICOMOS, Canberra.

Anon (n.d.), *Towns and Villages of the Wollondilly Region of NSW: Appin* – http://www.stonequarry.com.au/towns/appin.html

Australia ICOMOS (1999), *Australia ICOMOS Charter for the Conservation of Places of Cultural Significance (the Burra Charter), revised edition*, Australia ICOMOS, Canberra.

Attenbrow, V. 2002, *Sydney's Aboriginal Past: investigating the archaeological and historical records*, UNSW Press, Sydney.

Botanic Gardens Trust 2005, Australian Bush Foods, Website: http://www.rbgsyd.gov.au/

Branagan, D.F. & Packham, G.H. 2000, *Field Geology of New South Wales.*, Department of Mineral resources New South Wales, Sydney.

Bureau of Meteorology 2005, Climate average data for Wollongong, website: http://www.bom.gov.au/

Flood, J. 1999, *Archaeology of the dreamtime: the story of prehistoric Australia and its people* (revised edition), Angus and Robertson, Sydney.

Hazelton, P.A. & Tille, P.J. 1990, *Soil Landscapes of the Wollongong-Port Hacking 1:100 000 Sheet,* Soil Conservation Service of NSW, Sydney.

Jack, R. I. and D. N. Jeans (1996), *Regional Histories of NSW.* Heritage Office and Department of Urban Affairs and Planning, Sydney.

JRC Planning Services (1993), *Wollondilly Heritage Study.* Technical report to Wollondilly Council and the Department of Planning.

Keith, D. 2004, Ocean Shores to Desert Dunes: The native vegetation of New South Wales and the ACT. Department of Environment and Conservation, Hurstville.

Koettig, M.K. 1985, *Archaeological investigation of three sites on Upper Mill Creek, near Lucan Heights, Sydney*. Unpublished report to MWDA. Report held by NSW NPWS.

Liston, C. 1998, The Dharawal and Gandangara in Colonial Campbeltown, New South Wales, 1788-1830 in *Aboriginal History 1988.*

Marquis-Kyle, P. & Walker, M. 1992, *The Illustrated Burra Charter: Making Good Decisions about the Care of Important Places*, Australia ICOMOS, Brisbane.

Matthews, R.H. 1901, The Thurrawal Language. *Journal and Proceedings of the Royal Society of NSW* 35:127-160.

McCarthy, F.D. 1976 *Australian Aboriginal Stone Implements*, The Australian Museum Trust, Sydney.

McDonald, J.J. 1994, Dreamtime Superhighway: An analysis of Sydney Basin Rock Art and Prehistoric Information Exchange. Unpublished PhD Thesis, Australian National University.

McDonald, J. 1992, 'Chapter 2: Aboriginal Usage of the Hawkesbury-Nepean In Prehistory', in Sue Rosen Pty. Ltd. (ed) *Hawkesbury-Nepean Historic Environmental Changes Study.* Volume II, Water Resources Branch - Water Board, Sydney-Illawarra-Blue Mountains.

McGill, R. 1994, The Appin Massacre, Unpublished essay, lodged at Campbelltown Library.

NSW Department of Environment and Conservation. (2006), *Guidelines for Aboriginal Heritage Impact Assessment.*

NSW Heritage Office (1996), *NSW Heritage Manual.* NSW Heritage Office and Department of Urban Affairs & Planning, Sydney.

NSW Heritage Office (2001), *Assessing Heritage Significance*. NSW Heritage Office, Sydney.

NSW NPWS (1997), *National Parks and Wildlife Service 'Guidelines for Archaeological Survey Reporting (Working Draft)'*, Cultural Heritage Services Division, Sydney.

NSW RTA (2004a), *RTA Heritage Guidelines, Version 2.* RTA policy document.

NSW RTA *S170 Heritage and Conservation Register Listing: Kings Falls Bridge* - http://www.rta.nsw.gov.au/cgi-bin/index.cgi?action=heritage.show&id=4309611

Pearson, M. and S. Sullivan (2001), *Looking After Heritage Places*. Melbourne University Press, Carlton.

Rosen, S. (1995), *Losing Ground: an environmental history of the Hawkesbury-Nepean catchment area.* Hale & Iremonger, Sydney.

Sefton, C. 1988, Prehistory of the Illawarra. Unpublished MA Thesis, University of Sydney, Sydney.

Sefton, C. 1989, *Archaeological survey of the Cordeaux River and Woronora River*. By the Illawarra Prehistory Group.

Sefton, C. 1998, Site and Artefact Patterns on the Woronora Plateau. Ma Thesis, University of Sydney.

Sefton, C. 1999,

Sefton, C. 2002, *Archaeological Investigation of West Cliff Colliery Longwalls 5A5 to 5A8*, for BHP Billiton, Carbon Steel Materials, Illawarra Coal.

Tindale, N. 1940. "Distribution of Australian Aboriginal Tribes: A field survey" in *Transactions of the Royal Society of South Australia.* Vol 64 (1) pp 140–230.

Tindale, N.B. 1974, *Aboriginal Tribes of Australia*, Australian National University, Canberra.

Wesson, S. 2000. *An Historical Atlas of the Aborigines of Eastern Victoria and Far South-Eastern New South Wales.* Monash Publications in Geography No.53., Melbourne.

Wollongong City Library 2005, Place Names of Wollongong, website: http://www.wollongong.nsw.gov.au/

Zola, N. and B. Gott 1992, *Koori Plants, Koori People: Traditional Aboriginal Food, Fibre and Healing Plants.* Koori Heritage Trust, Melbourne.

Web Sites

www.stonequarry.com.au/towns/appin.html

http://www.sca.nsw.gov.au/dams/flows.html

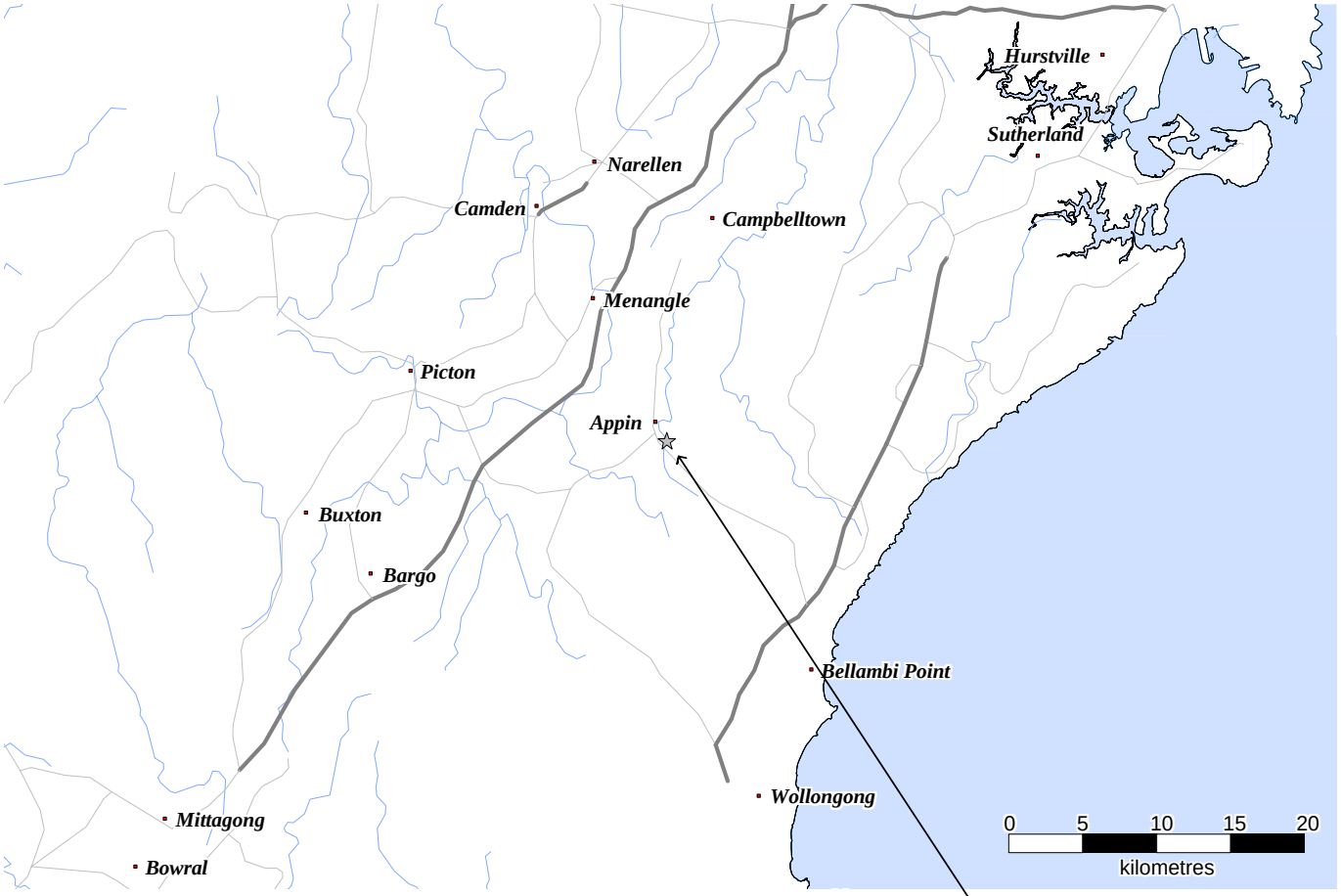
http://www.bom.gov.au

http://www.ga.gov.au/geosience

http://www.dlwc.nsw.gov.au/care/soil/index.html

http://www.dlwc.nsw.gov.au/care/water/wr/sca_wml.html

FIGURES



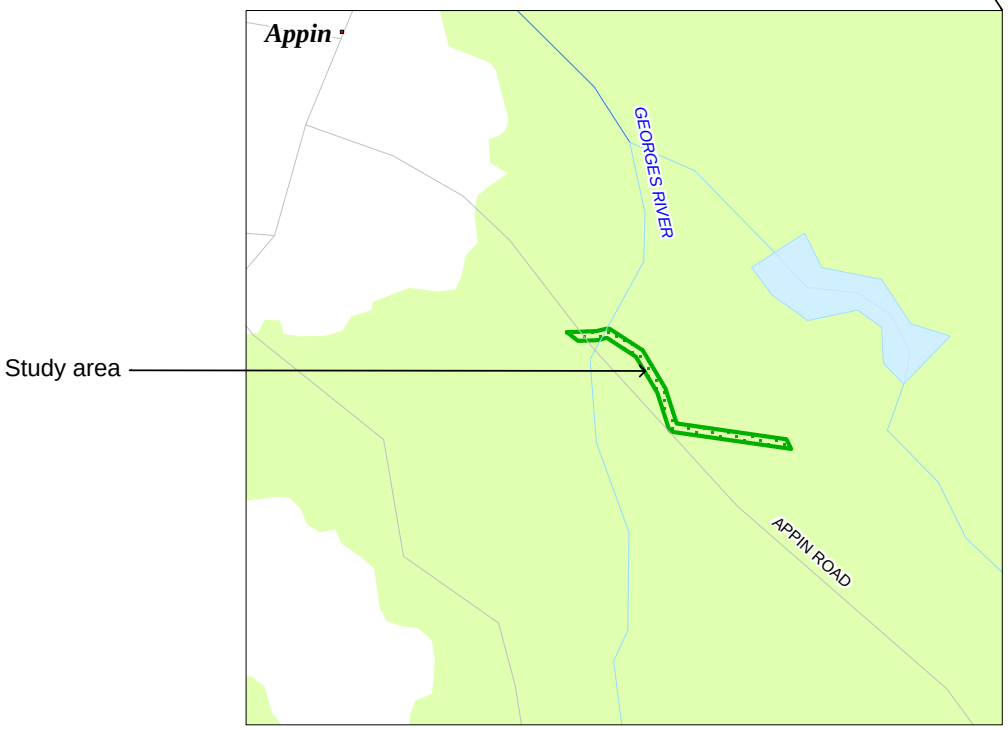


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Figure 1: Location of the Study Area in a regional context.

DATE: 26 February 2007

Checked by: TE | File number: S4640

Location:-...4000\4600s\4641\Mapping\S4641 F1_locality.WOR

Scale: 0 0.25 0.5 0.75 1.0 kilometres

N W E S

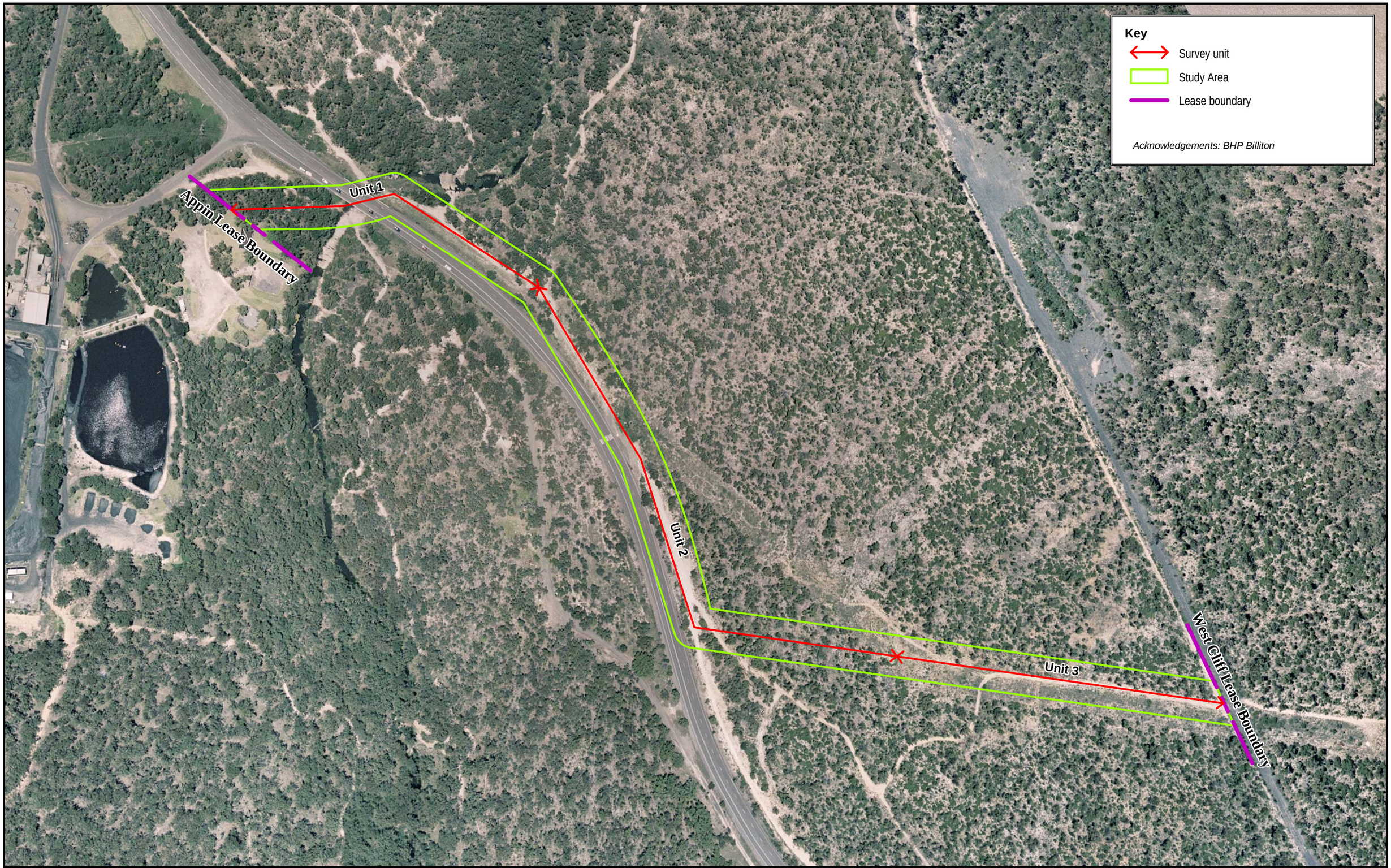

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Figure 2: Survey units.

DATE: 26 February 2007

Checked by: TE/SQM | File number: S4641

Location:-..4000\4600s\4641\Mapping\S4641 F2_survey.WOR

Scale: 0 25 50 75 100 125 metres

N W E S

Figure 2: Survey units.

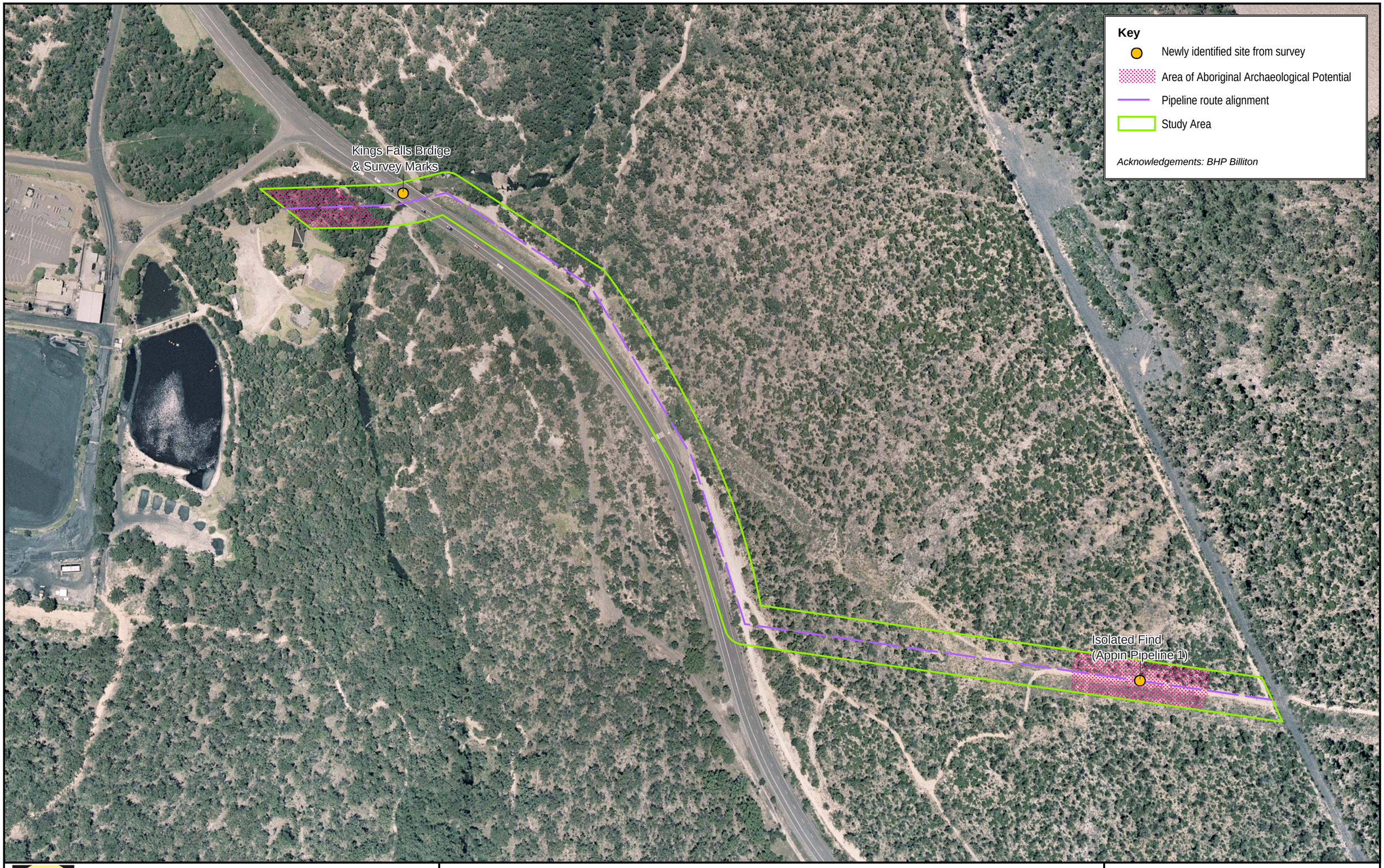

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Figure 3: Survey results.

DATE: 26 February 2007

Checked by: TE/SQM | File number: S4641

Location:-..4000\4600s\4641\Mapping\S4641 F3_results.WOR

Scale: 0 25 50 75 100 125 metres

N W E S

Figure 3: Survey results.

APPENDICES

APPENDIX 1: ABORIGINAL COMMUNITY COMMENT

TO BE INCORPORATED WHEN RECEIVED.

APPENDIX 2: 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 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.

The Appin to West Cliff Pipeline project is to be assessed under Part 3A of the Environmental Planning and Assessment Act 1979. Under Part 3A applications there are specific procedures that are required to be undertaken in regards to Aboriginal archaeological assessments as outlined within the *Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation* (Draft July 2005) that were prepared by the Department of Environment and Conservation. These requirements are identified by the Director General for the Department of Planning and must be considered prior to submission to the Department of Planning.

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.