BIOSIS
RESEARCH

Maldon Planning Study: Aboriginal and Non-Aboriginal Heritage Assessment

Report for Wollondilly Shire Council

March 2011

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Aboriginal Community

- Alfred Fassledene (Tharawal Local Aboriginal Land Council)

Government Departments

- Kashana Cohen-McMeekin, Receptionist/Search Coordinator (National Native Title Tribunal)
- Shannon Freeburn and Sharlene Freeburn (Planning and Aboriginal Heritage, Metropolitan Branch, Environmental Protection & Regulation, Department of Environment, Climate Change and Water)

Wollondilly Shire Council

- Kitty Carter (Wollondilly Shire Council)

Allied Mills

- Paul Maher and Janelle James (Allied Mills)

ABBREVIATIONS

AGD	Australian Geodetic Datum
AHC	Australian Heritage Council
AHIMS	Aboriginal Heritage Information Management System
ATSIC	Aboriginal and Torres Strait Islander Commission
CHL	Commonwealth Heritage List
CMP	Conservation Management Plan
DA	Determining Authority
DECCW	Department of Environment, Climate Change and Water (previously the Department of Environment and Climate Change (DECC) and Department of Environment and Conservation (DEC)
DEWHA	Department of Environment, Water, Heritage and Arts
DoP	Department of Planning
EP&A	Environmental Protection and Assessment
EPBC	Environment Protection and Biodiversity Conservation
ESC	Effective Survey Coverage
GDA	Geocentric Datum of Australia
GPS	Global Positioning System

GSV	Ground surface visibility
ICOMOS	International Council on Monuments and Sites
LALC	Local Aboriginal Land Council
LEP	Local Environmental Plan
LES	Local Environmental Study
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 DECCW)
REP	Regional Environment Plan
RNE	Register of the National Estate
SCA	Sydney Catchment Authority
SHI	State Heritage Inventory
SHR	State Heritage Register

EXECUTIVE SUMMARY

Biosis Research Pty. Ltd. was commissioned by Wollondilly Shire Council to undertake an Aboriginal and historic cultural heritage assessment of the proposed rezoning of the following Rural Lot / DP to Industrial (Figure 1 and Figure 2):

- Lot 2 DP 818975
- Lot 1 DP 732582
- Lot 2 DP 732582
- Lot 3 DP 732582
- Lot 1 DP 105348
- Lot 31 DP 731012
- Lot 30 DP 826690
- Lot 31 DP 826690
- Part of Lot 1 DP 1128013

The aim of the Aboriginal and non-Aboriginal cultural heritage assessment was to identify, record and assess the significance of archaeological sites within the Study Area. The results of this assessment will be included in the Planning Proposal that is being prepared by Wollondilly Shire Council.

Searches were carried out of relevant heritage registers and databases. One previously registered Aboriginal archaeological site is located within the current Study Area. Bulli Seam 12 is situated on Carriage Creek comprising a sandstone shelter with art. A total of 19 Aboriginal archaeological sites were identified within a 6 x 5 km radius of the proposed for rezoning. Predictive modelling suggests that sandstone overhangs may occur along the Nepean River and parts of Carriage Creek, while stone artefacts are likely to be encountered along river and creek banks, and where the undulating plain contains open flat ground.

No non-Aboriginal archaeological sites are listed within the Study Area. A number of heritage items are however listed within the vicinity of the Study Area. These include, Maldon Weir, Maldon Suspension Bridge over the Nepean River and Wilton Park.

At this stage, Aboriginal Community consultation process was undertaken with the Tharawal Local Aboriginal Land Council. Alfred Fassledene from the Tharawal LALC participated in the field surveys and was invited to comment on the recommendation and mitigation measures for the Study Area.

No new Aboriginal archaeological sites were identified, however, one previously registered site, BS12 (52-2-3692) was re-assessed. Areas of archaeological sensitivity were identified during the field survey across the entire Study Area.

No non-Aboriginal archaeological sites were noted within the Study Area as a result of the survey. However, a number of features associated with past and current land use were noted

within the Study Area although none will be considered for listed on the Wollondilly LEP 2011 or SHR.

RECOMMENDATIONS

Aboriginal Heritage

Recommendation 1: *Zoning to conserve areas of high Aboriginal sensitivity*

Areas of high Aboriginal archaeological sensitivity located in areas of bushland adjacent to the Nepean River and Carriage Creek should be rezoned E2 Environmental Conservation to provide a greater degree of protection for known and potential Aboriginal archaeological sites.

Recommendation 2: *Wollondilly Shire Aboriginal Heritage Study*

Information from this study and information on cultural heritage sites identified from further investigation shall be used to inform any future Wollondilly Shire Aboriginal Heritage Study. This study should involve detailed Aboriginal consultation as per the *Aboriginal cultural heritage consultation requirements for proponents 2010,* prior to the commencement of any additional archaeological work, including archaeological test excavations.

Recommendation 3: *Conduct test excavations in areas of high and moderate (archaeological) sensitivity*

It is recommended that archaeological test excavations be undertaken within areas of the high and moderate (archaeological) sensitivity, as identified in this report, prior to the design of any future subdivision. These investigations will provide certainty about the presence, extent and significance of subsurface archaeological deposits. These methods of investigation must follow the *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (the Code) (DECCW 2010).

Recommendation 4: *No further archaeological work required for the zone of low Aboriginal archaeological sensitivity*

No further archaeological work is required within zones of low Aboriginal archaeological sensitivity identified in this report except in the event that new sites / objects are unearthed during any phase of the project (refer to Recommendation 5 below).

Recommendation 5: *Stop work provision for any potential heritage sites identified during construction*

All Aboriginal places and objects are protected under the *NSW National Parks and Wildlife Act 1974*.

If construction proceeds without an approved AHIP, work must cease if Aboriginal objects or places are identified. Sydney Water and the project archaeologist must be notified to make an assessment of the find and advise on subsequent management.

All Aboriginal places and objects are protected under the *NSW National Parks and Wildlife Act 1974*. This protection extends to Aboriginal objects and places that have not been identified but might be unearthed during construction.

Historical archaeological sites are protected under the relics provisions (s139 – 146) of the *NSW Heritage Act 1977*. Should any historical archaeological sites be identified during any phase of the proposed development, all works must cease in the vicinity of the find and the project archaeologist and Sydney Water notified. Should the archaeological nature of the find be confirmed the Heritage Branch, NSW Department of Planning, will require notification.

Discovery of human remains

If any suspected human remains are discovered during any activity works, all activity in the vicinity must cease immediately. The remains must be left in place and protected from harm or damage. The following contingency plan describes the immediate actions that must be taken in instances where human remains or suspected human remains are discovered. Any such discovery at the activity area must follow these steps:

1. Discovery: If suspected human remains are discovered all activity in the vicinity must stop to ensure minimal damage is caused to the remains; and the remains must be left in place, and protected from harm or damage.

2. Notification: Once suspected human skeletal remains have been found, the Coroners Office and the NSW Police must be notified immediately. Following this, the find will be reported to the Aboriginal parties and DECCW NSW.

Recommendation 6: *Development Controls*

It is recommended that **Recommendation 2-4** be incorporated into Council's Wollondilly DCP 2011 and /or within specific site provisions. Landowners should be informed about their role with regard to Aboriginal heritage finds by including a Section 88B instrument with relevant restrictions on any new allotment which would potentially impact on Aboriginal heritage sites.

Non-Aboriginal Heritage

Recommendation 1 - *Stop work provision: Archaeology*

Should any previously unidentified historic archaeological objects or places be identified during excavation and construction, all works must cease in the vicinity of the find and the NSW Heritage Council notified. A qualified archaeologist should be contacted to assess the significance of any potential relics of local or State significance. Where relics are identified an

excavation permit will be required in accordance with Sections 138-146 of the NSW Heritage Act.

Recommendation 2 – *Managing Impacts on Listed Heritage Items within the vicinity of the Study Area*

Where development is proposed within the study area, an assessment of the impacts on heritage items in the vicinity should be undertaken. A Statement of Heritage Impact (SoHI) in accordance with NSW Heritage Branch guidelines should be prepared by a qualified heritage consultant to assess the potential impacts and mitigation measures for reducing impacts. No new development should compromise the existing heritage values of the Maldon area.

Recommendation 3 – *Rural Landscape Setting*

Rezoning of the area should not result in an 'urban' industrial landscape and should not impact on the greater rural landscape setting of the Picton/Razorback area. Controls should ensure sufficient landscaping and areas of open space are provided within any subdivisions and new industrial developments. Existing areas of remnant bushland should be retained where possible.

1.0 INTRODUCTION

1.1 Cultural Heritage in NSW

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 50,000 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 survey of this area.

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

1.2 Project Background

In October 2010 Biosis Research Pty Ltd was commissioned by Wollondilly Shire Council to undertake an archaeological and historical cultural heritage assessment for the proposed rezoning of a number of properties near Maldon, NSW (Figure 1).

Wollondilly Shire Council is considering a planning proposal to rezone the land within the Study Area from RU2 Rural Landscape to IN1 General Industrial and either E3 Environmental Management or E2 Environmental Conservation around the Nepean River and Carriage Creek pursuant to the Wollondilly LEP 2001.

Advice pursuant to Section 54 of the Environmental Planning and Assessment Act, 1979 was forwarded to the Department of Planning, with the Department indicating that the draft plan could proceed to Section 62 Consultations. These consultations revealed that a number of specialist investigations would be required, including an Aboriginal and non-Aboriginal

investigations of the Study Area. The rezoning project at Maldon has the potential to contribute to the Sydney metropolitan regions future for industrial land due to the availability of large, affordable sites. The Study Area is also accessible by road and rail.

Biosis Research and the Local Aboriginal community will assist Wollondilly Shire Council with the proposal by providing a detailed Aboriginal and non-Aboriginal assessment that will determine the significance of heritage places in the Study Area. Understanding the significance of a heritage place is essential for formulating management recommendations and making decisions on the suitability of the subject sites within the Study Area for rezoning.

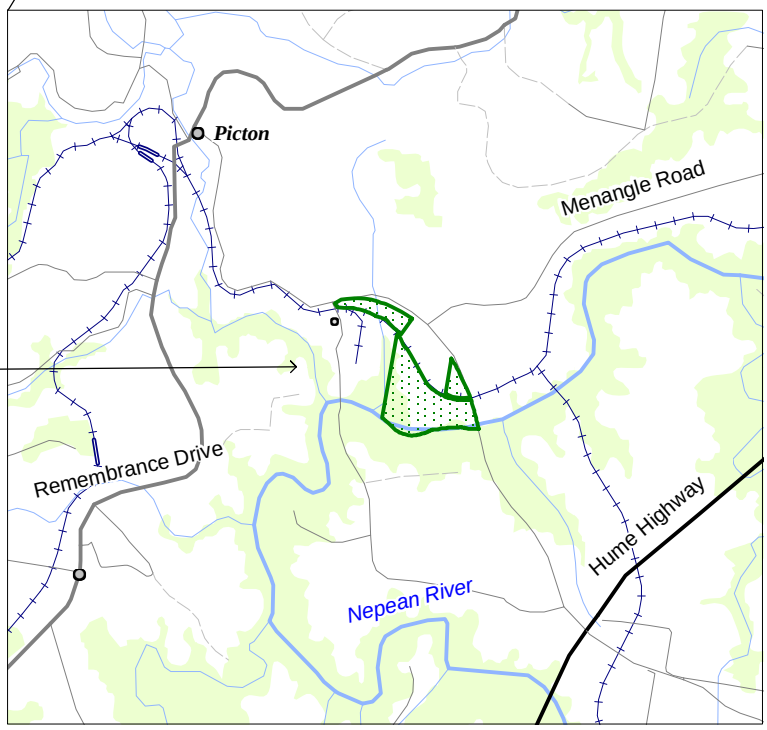

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Figure 1: Location of the Study Area in a regional context

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File number: 11928	Checked by: MT
Location: P:\11900s\11928\Mapping\11928 F1_Locality.WOR	

Scale: 0 1 2 3 4 kilometres

N W E S

Project Area

The Project Area is located in Maldon, Wollondilly Local Government Area (LGA), Parish of Picton, County of Camden (Figure 1).

The project area includes across nine properties located east of the township of Picton and extend across cleared lands south of Picton Road, south to the Nepean River, and as far east as Blue Circle cement work property. The Study Area includes the following lots:

Lot	Deposited Plan
Lot 1	DP 1128013
Lot 2	DP 818975
Lot 1	DP 732582
Lot 2	DP 732582
Lot 3	DP 732582
Lot 1	DP 105348
Lot 31	DP 731012
Lot 30	DP 826690
Lot 31	DP 826690

Table 1: Allotments over which the Project Area extends

These nine properties are situated in areas where the land rises steeply from the heavily vegetated Nepean River riparian area, where it undulates up to cleared grazing land adjacent to the Main Southern Railway line. Properties are largely cleared, flat and narrow due to their location, between the railway and the steep rise adjacent to Picton Road. The Study Area also includes the southern section of the Allied Mills site south of the southern rail line. Carriage Creek dissects the western area of this property and the Nepean River fronts the southern boundary. Other properties in the rezoning area comprise recreational areas, rural-residential and semi industrial locations.

1.3 Proposal

The aim of this cultural heritage investigation was to identify, record and assess the value of Aboriginal or historical archaeological sites within the properties included in the rezoning footprint. The results of this assessment will be included in a Local Environmental Study that is being prepared by TCG Planning.

1.4 Planning Approvals

This legislation and instruments under which the project will be assessed include:

- EPA Act 1979 (NSW)
- NPW Act 1974 (NSW)
- NPW Amendment Act 2010 (NSW)
- Wollondilly Local Environment Plan (LEP) 2011

1.5 Investigators and Contributors

The project was completed utilising a number of Biosis Research staff resources:

- Melanie Thomson holds a Bachelor of Science (Hons) Archaeology and has over 9 years of experience.
- Georgia Roberts holds a Bachelor of Science, Palaeoenvironments and Marine Geoscience and a Bachelor of Arts (Hons), Archaeology and Biological Anthropology. Georgia is currently undertaking Master of Archaeological Science + Research Candidate, Australian National University. Georgia has over 5 years experience.
- Craig McPherson holds a B.Des (Arch) M.HerCons and has over 5 years experience as a heritage consultant in NSW.
- Lyn Obrien holds a Bachelor of Arts (Hons) Archaeology and has over 10 years of experience

The project was completed with the following personnel from the Tharawal Local Aboriginal Land Council:

- Robin Straub – Administrator, Tharawal Local Aboriginal Land Council
- Alfred Fassledene - Aboriginal Site officer

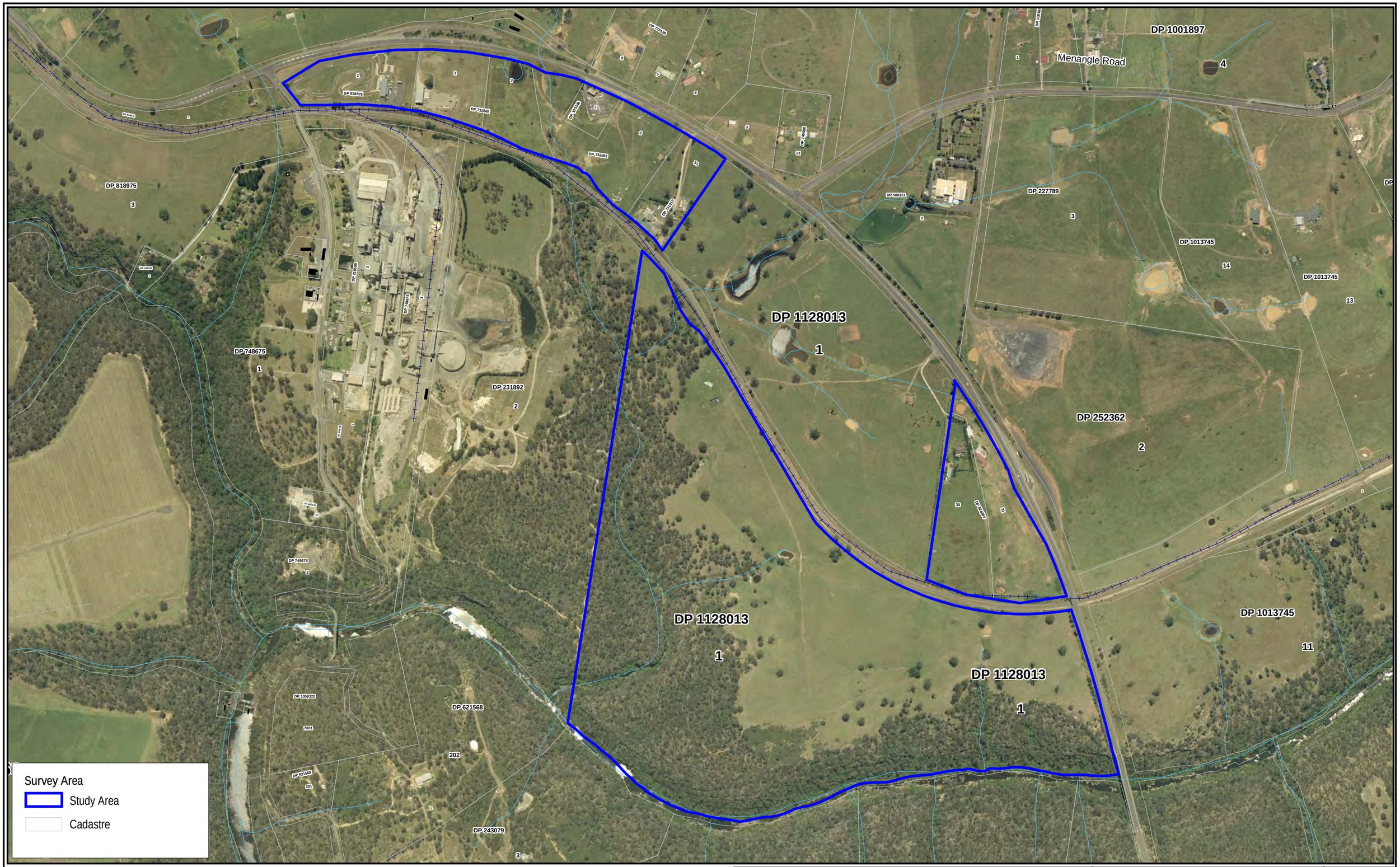

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Figure 2: Overview of properties, including selected Lot and DP numbers considered in this rezoning project.

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Acknowledgements:
Wollondilly Shire Council
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Scale: 1:8,000 at A3
Map Projection: Transverse Mercator
Horizontal Datum: Geocentric Datum of Australia 1994
Grid: Map Grid of Australia, Zone 56

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Figure 2

1.6 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.

- Preliminary consultation with the Tharawal Local Aboriginal Land Council who are the identified Aboriginal stakeholders for the Study Area.

- Undertake appropriate survey of the entire Study Area, with particular focus on 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 endorsed by The Department of Environment, Climate Change and Water NSW (DECCW) and the NSW Heritage Office.

- Make recommendations to mitigate and manage any cultural heritage values identified within the Study Area.

2.0 HERITAGE STATUS

2.1 Commonwealth Registers

2.1.1 National Heritage Registers

Under the *EPBC Act Amendments 2003* (No 88), two mechanisms have been created for protection of heritage places of National or Commonwealth significance. The National Heritage List (NHL) provides protection to places of cultural significance to the nation of Australia. The Commonwealth Heritage List (CHL) 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. There are no management constraints associated with listing on the CHL unless the listed place is owned by a Commonwealth agency.

Nominations to these two lists are assessed by the Australian Heritage Council (AHC), which also administers the (now static) Register of the National Estate (RNE), a list of places identified as having national estate values. Results of heritage register searches have been included in Figure 4.

APPLICATION TO THE STUDY AREA – NATIONAL HERITAGE REGISTERS

There are no sites listed on the CHL, the NHL or the RNE within the current Study Area.

Wilton Park, located 1km south of the Study Area, is listed on the State Heritage register (00257) and is also listed on the Register of the National Estate (RNE).

Suspension Bridge over the Nepean River is also listed on the Register of the National Estate (RNE).

2.1.2 National Native Title Register

The Commonwealth *Native Title Act* 1993 (Cth) establishes the principles and mechanisms for the recognition, determination of Native Title for Aboriginal people. The purpose of searching the register is to identify any Traditional Owner groups will current registered claims close to the Study Area that may identify themselves as relevant stakeholders with traditional knowledge or experience.

APPLICATION TO THE STUDY AREA – NATIONAL NATIVE TITLE REGISTER LISTINGS

A search of the National Native Title Register, the Register of Native Title Claims and the Register of Indigenous Land Use Agreements was completed on 1 November 2010.

There are no lands determined to have native title, however there is one registered native title claim NC97/7 Gundungurra Tribal Council Aboriginal Corporation #6. There are no indigenous land use agreements registered in the region. The land associated with native title claim NC97/7 Gundungurra Tribal Council Aboriginal Corporation #6 is located on the South Coast and will not

be prohibitive of the rezoning application. There is an unregistered claimant NC96/30.

2.2 State Registers

2.2.1 National Parks and Wildlife Act Registers

The Department of Environment, Climate Change and Water NSW (DECCW) 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 DECCW (lands such as National Parks) are listed on the Historic Heritage Information Management System (HHIMS). As the Study Area is not within lands managed by DECCW, the HHIMS Register was not searched.

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, Climate Change and Water NSW (DECCW) 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 27 of August, 2010 identified 19 previously recorded Aboriginal sites within a 5 x 6 km radius of each of the new urban precinct.

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 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. Items on the SHI have been identified as having heritage significance, but have not been included on the SHR.

If an item or place does not appear on the SHR 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 the SHR 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

There are no items within the Study Area listed on the NSW State Heritage Register.

The NSW *Heritage Act 1977* currently affords automatic statutory protection to 'certain relics' that form part of archaeological deposits. Sections 139–145 of the Act prevent the excavation of a relic, except in accordance with a gazetted exception or an excavation permit issued by the Heritage Council of New South Wales. 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.

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

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

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 an 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*.

APPLICATION TO THE STUDY AREA – WOLLONDILLY LEP 2011

The following items listed on the Wollondilly LEP 2011 within close proximity to the Study Area include:

- Maldon Aboriginal Heritage Conservation Area (Zone A and Zone B) – Part of Lot 32 DP 731012
- Maldon Weir (Lot 119 DP 751297)
- Suspension Bridge of the Nepean River (undescribed Lot)
- Wilton Park: Stables, Coach House, Water Tanks, Stallion Boxes, Covered Yards – 370 Wilton Park Road - Item I277.

Regional Environmental Plans: Under the EP&A Act, broad scale regional plans have also been developed that address cultural heritage resources that may extend beyond the geographic limit of one LGA. The following REPs with heritage provisions apply to parts of the current Study Area.

Sydney Regional Environmental Plan No 20—Hawksbury Nepean River (No 2 – 1997). The *Sydney Regional Environmental Plan No 20—Hawksbury Nepean River* provides general planning advice and strategies for protecting the environment of the Hawksbury-Nepean River system by ensuring that the impacts of future land uses are considered in a regional context. The plan identifies the following strategies for Aboriginal cultural heritage:

(a) encourage development which facilitates the conservation of heritage items if it does not detract from the significance of the items.

(b) Protect Aboriginal sites and place of significance.

(c) Consider an Aboriginal site survey where predictive models or current knowledge indicate the potential for Aboriginal sites and the development concerned would involve significance site disturbance.

(d) Consider the extent to which heritage items (either identified in other environmental planning instruments affecting the subject land or listed in Schedule 2) derive their heritage significance from the river.

With regards to Built Heritage, all demolition, altering a building, damaging or moving a relic, damaging or despoiling a place or building and sub-dividing land on which a relic is located, cannot be undertaken with prior Consent.

APPLICATION TO THE STUDY AREA – Sydney Regional Environmental Plan No 20—Hawksbury Nepean River (No 2 – 1997)

No items within the Study Area are listed in Schedule 1 Items of non-Aboriginal heritage in the Sydney Regional Environmental Plan No 20 — Hawksbury Nepean River (No 2 – 1997) The Nepean River Weir at Maldon, situated to the west, is listed.

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 items classified (listed) by the National Trust of Australia are located within the Study Area.

2.4 Summary of heritage listings in the Study Area

There are a number of previously identified heritage items a 5 x 6 km radius of the proposed urban precincts. These are summarised in Table 2 below.

Table 2: Summary of known heritage items within a 5 x 6 km area surrounding the Study Area

ITEM	*RNE*	*CHL*	*NHL*	*AHIMS*	*SHR*	*SHI*	*WLEP 2011*	*IREP 1986*	*SREP 20 1997*	*NATIONAL TRUST*
19 Aboriginal sites are located within a 5 x 6 km radius of the new urban precincts however none of these sites are located within the proposed urban precincts.	N	N	N	**Y**	N	N	N	N	N	N
Maldon Aboriginal Heritage Conservation Area	N	N	N	N	N	N	**Y**	N	N	N
Maldon Weir	N	N	N	N	N	N	**Y**	N	**Y**	N
Suspension Bridge of the Nepean River	**Y**	N	N	N	N	N	**Y**	N	N	N
Wilton Park	**Y**	N	N	N	**Y**	N	**Y**	N	N	**Y**

3.0 ENVIRONMENTAL CONTEXT

A description of the environmental background to the Study Area is provided in order to give context to the archaeological assessment. The environmental aspects of an area will influence the type of archaeological remains that are likely to be present.

Firstly, the environmental conditions of the Study Area may have influenced the land use by people in the past, and secondly, they will affect the processes by which sites are preserved. Environmental values of an area can also contribute to the cultural significance and attachments people have to a place.

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

3.1 Geology, Soils and Landforms

The geology of the study area is dominated by Hawkesbury Sandstone in the east and Wianamatta Shale in the west. The Hawkesbury Sandstone has been exposed where the overlying Wianamatta Formation has been dissected and eroded by major watercourses such as the Nepean River (Branagan and Packham 2000: 59). The topography of the Wianamatta Group shales consists of slope gradients of 20-80%, these are steep concave upper slopes with colluvial benches. Crests and ridges within this landscape are broad and rounded with convex upper slopes grading into concave lower slopes and broad drainage depressions and valley flats. Rock outcropping within this topography is absent (Hazelton & Tille 1990; 27). Mass movement is prominent due to soil creep and slump. Typically, the soil in the study area consists of shale with some sandstone beds and sandstone with intercalated shale (geosciences maps 1:250,000).

The Study Area is situated on the margin of the two physiographic regions: the Cumberland Plain and the Woronora Plateau. This area is commonly known as the Cumberland Lowlands, generally comprising rolling hills and river plains on shale soils, with most of the area being cleared for agriculture and small rural holdings. The overall topography of the Maldon region is characteristic of the Cumberland Lowlands topography. The major drainage feature of the Cumberland Lowlands is the Nepean River, which is deeply incised and characterised by high sandstone cliffs in some sections. Short tributaries drain south across the Study Area and into the Nepean River

The Study Area is solely comprised of the Hawkesbury Sandstone, Blacktown and Lucas Heights Soil landscape groupings (Hazelton & Tille 1990: 1:100,000 Sheet). Each soil landscape has distinct morphological and topological characteristics. This results in each landscape having different archaeological potential. Because they are defined by 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.

Blacktown soils are also present with the presence of Red Podzolic soils, Brown Podzolic soils and Yellow Podzolic soils and Soloths. This soil landscape in particular has undulating rises on shale soils. Local relief is up to 30m and slopes are very low to flat. No rock outcrop present, moderate to deep fertile soils and the landscape has been almost entirely cleared of the woodland and forests. Blacktown soils are usually associated with the Cumberland Plain area which covers the western domains (Hazelton and Tille, 1990). The Blacktown soils in the area north to the study area have 47% of the archaeological sites. These include a scarred tree, isolated artefacts and a potential archaeological deposit.

Hawkesbury soils, Earthy sands, Lithosola/ Silicious sands, Yellow Earths, which also contains Yellow and Red Podzolics are all evident in the Maldon region. The soil landscape for this particular area can be characterised by rugged sandstone escarpment and ridges, with moderate to steep slopes and narrow, deeply incised valleys of the Woronora Plateau. It is common to find Sandstone outcrops, which can occur as boulders, benches and large blocks which often form scarps up to 10m high. Confining to the margins to large rivers and tributaries it is a semi prominent feature in the Maldon area. Hawkesbury soils are usually very good markers for archaeological material including less than half of the AHIMS search indicates that 37% of sites are found. This can be attributed to the sandy, shallow and discontinuous nature of the Hawkesbury soils. Evidence of rock art in these particular areas is prominent, which is due to the suitability of platforms. Rock art shelters and isolated artefacts have been found in these areas. The soils in this landscape are subject to severe erosion especially when storms or human activity affect the area, for example 4 wheel driving, motorcycling and horse riding.

Lucas Heights soils consist of Yellow Podzolic Soils, Yellow Soloths and Lateric Podzolic soils, Yellow Earths and Earthy Sands. These have the following characteristics, undulating crests, ridges and plateau surfaces; they have a local relief between 10m to 50m and slopes of a low gradient. Rock outcrops are absent and are the soils are lateric. Confining to the ridge tops and gentle slopes the soil is situated predominately in the western domains, however in a lesser extant in the eastern domain. This area has 21% of the sites found, it consists of rock art shelters and one scarred tree. These soils in particular are subject to low erosion and contain Hawkesbury Sandstone and Ashfield Shale.

The current Study Area is part of the Nepean catchment, which is a large and occurring in the west and down to the south of the study area. Two tributaries run out from the Nepean river one to the south east of the study area and the other to the west of the site. Local stone sources are shale with some sandstone beds, quartz and sandstone with intercalated shale. Some of the other materials seen on the site cards including tuff, silcrete and mudstone were most likely traded and brought into the area due to trade. This is due the fact that they do not appear to form naturally in the study area.

3.2 Climate

In general, the climate within the region is warm to temperate. There are, however, significant variations within the various landscape types. Average maximum daytime temperatures in the Picton region range from 29.3°C in summer and 18.2°C in winter. February is the wettest time of the year and August the driest, with average annual rainfall at over 802.7 mm (Bureau of Meteorology 2011). Conditions in the region would have been relatively mild during human habitation of the region and would not have posed any major restriction to a hunter-gatherer lifestyle.

The climate of the region would have allowed a hunter-gather lifestyle year-round in the Holocene period (the last 10,000 years). The prior glacial period would have been cooler and drier. Sea levels were lower as most of the water was trapped in glacial ice. Mainland Australia had few glaciers, which were located in alpine areas. A cooler climate would have affected a hunter gatherer lifestyle as, for example, flora and fauna resources would be different than that found in today's warmer climates.

3.3 Flora and Fauna

The Study Area comprises open pastured paddocks as a result of land clearance for agricultural practices and settlement, being incorporated into the broad scale regional vegetation mapping of the Closed Grassland, Shale Sandstone Transition Forest, Western Sandstone Gully Forest and small areas of Riparian Forest.

Shale Sandstone Transition Forest (SSTF) occurs in the transition zone between the surrounding Hawkesbury Sandstone and the clay derived Cumberland Plain, with small patches occurring along Mallaty, Ouesdale, Leafs Gully and Nepean creeks. It is dominated by *Eucalyptus tereticornis*, with *E. eugenioides*, *E. crebra*, *E. fibrosa* with *E. punctata* occurring less frequently (Biosis Research 2011). The sub-community SSTF – High Sandstone Influence is dominated in the understorey by sandstone shrub-layer species such as *Kunzea ambigua* and *Persoonia linearis* (NPWS 2001). The other sub-community SSTF – Low Sandstone Influence is dominated in the understorey by *Bursaria spinosa*, *Themeda australis* and *Echinopogon ovatus* (NPWS 2001).

Western Sandstone Gully Forest is dominated by *Angophora costata*, *Corymbia gummifera* and *E. pilularis*, with *E. punctata* occurring sporadically on mid-slopes. This community is limited to the Georges River channel. A sparse layer of smaller trees is usually present, and dominated by *Ceratopetalum gummiferum* and *Allocasuarina littoralis*. The shrub and ground strata are also sparse and often contain slightly fewer species relative to ridgetop communities. Shrub species include *Acacia terminalis*, *Leptospermum trinervium*, *Persoonia linearis* and *Banksia spinulosa* var. *spinulosa*. In the ground stratum, the fern species *Pteridium esculentum* is invariably present, along with the climber *Smilax glycyphylla*. These species were seldom recorded in other communities. Other species frequently recorded in the ground stratum include *Entolasia stricta*, *Dianella caerulea*, *Lomandra obliqua*, *L. longifolia*, *L. gracilis*, *Lepidosperma laterale* and *Gonocarpus teucriodes* (Biosis Research 2011).

There is a narrow band of Riparian Forest (RF) of over the lower and mid-slopes of the gully in the southern section of Carriage Creek. Canopy of the lower and mid slopes is dominated by *Angophora subvelutina, Eucalyptus crebra, Eucalyptus elata* and *Eucalyptus punctata* with *Eucalyptus eugenioides* common in the higher areas. The sparse midstorey is dominated by *Acacia binervia, Allocasuarina littoralis* and regenerating canopy species. Common native shrubs or shrubs include *Acacia linearifolia, Bursaria spinosa* ssp *spinosa, Correa reflexa* var *speciosa, Kunzea ambigua, Nematolepis squamea* ssp *squamea* and *Leucopogon juniperinus.* Stands of *Backhousia myrtifolia, Notelaea longifolia* and *Pomaderris discolor* also occur in sheltered areas. Common native grasses comprise *Austrodanthonia fulva, Echinopogon ovatus, Eragrostis leptostachya, Imperata cylindrica* and *Themeda australis,* while some common herbs include *Brachyscome linearifolia, Calotis dentex, Lepidosperma laterale, Lomandra filiformis* ssp *filiformis* and *Lomandra longifolia* (Biosis Research 2011).

Closed Grassland is dominated by a groundcover stratum are *Bothriochloa macra* Red Grass, *Cynodon dactylon* Couch, *Dichelachne crinita* Longhair Plumegrass, *Microlaena stipoides* var *stipoides* Weeping Grass, *Themeda australis* Kangaroo Grass.

This transitional zone would have provided a wide diversity of resources, in a relatively small geographic area, for the Aboriginal hunter-gatherer population. This diversity is even greater when it is considered how close the coastal resource areas are to the rugged plateau. Land mammals such as kangaroos and arboreal mammals such as possums would have been important prey species within these vegetation communities. Birds, reptiles and fish would also have been important resources.

3.4 Resource Statement

The wider Wollondilly area generally provides a number of resources used by Aboriginal inhabitants.

The outcrops of shale and sandstone of the Wianamatta Group would have been in abundant supply within relatively close proximity to the Study Area. Locally, quartz cobbles and pebbles large enough to manufacture artefacts occur within the Hawkesbury Sandstone, and where exposed these would have been used opportunistically to manufacture artefacts. Silcrete is the most common raw material type used for stone tool making recovered from archaeological sites within the greater Wollondilly area. Elsewhere in the region, other raw materials suitable for stone artefact manufacture include silicified wood, tuff, mudstone, quartz, quartzite and basalt. Sandstone formations also provided areas where tools might be ground and sharpened and art might be engraved, of which a number are located along the Nepean River and Carriage Creek.

Aboriginal inhabitants of the region would have had access to a wide range of avian, terrestrial and marine fauna and repeated firing of the vegetation would have opened up the foliage allowing ease of access through and between different the resource zones available across the Cumberland Lowlands.

Plant resources were used in a variety of ways. Fibres were twisted into string, which was used for a many purposes, including the weaving of nets, baskets and fishing lines. String was also used for personal adornment. Bark was used in the provision of shelter; a large sheet of bark being propped against a stick to form a gunyah (Attenbrow 1987).

As well as being important food sources, animal products were also used for tool making and fashioning a myriad of utilitarian and ceremonial items. For example, tail sinews are known to have been used to make fastening cord, while 'bone points', which would have functioned as awls or piercers, are often an abundant part of the archaeological record. Animals such as Brush-tailed Possums were highly prized for their fur, with possum skin cloaks worn fastened over one shoulder and under the other. Kangaroo teeth were incorporated into decorative items, such as head bands (Attenbrow 1987).

4.0 ABORIGINAL CONTEXT

4.1 Ethnohistory & Contact History

Our knowledge of Aboriginal people and their land-use patterns and lifestyles prior to non-Aboriginal 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.

Despite a proliferation of Aboriginal sites there is considerable ongoing debate about the nature, territory and range of pre-contact Aboriginal language groups in the greater Sydney region. These debates have arisen largely since by the time colonial diarists, missionaries and proto-anthropologists began making detailed records of Aboriginal people in the late 19th Century, pre-European Aboriginal groups had been broken up and reconfigured by European settlement activity. The following information relating to Aboriginal people within the broader Wollondilly Shire area is based on such early detailed records.

Despite conflicting views between historical sources of the exact boundaries of tribal groups in the region, the linguistic evidence does identify distinct language groups at the time of European contact. The arrival of settlers in the region and new competition for resources began to restrict the freedom of movement of Aboriginal hunter-gatherer inhabitants from the early 1800's. European expansion across the Cumberland Plain to the margins of the Woronora Plateau was swift and soon there had been considerable loss of traditional lands to agriculture. This led to violence and conflict between Europeans and Aboriginal people as both groups sought to compete for the same resources (Dallas 1983). In the Wollondilly region, it began following the murder of an Aboriginal woman and her children, which resulted in violent clashes between several Aboriginal men and European settlers between 1814 and 1816 (Liston 1988: 50). The violence had escalated by 1816 following the outlaw proclamation by Macquarie, resulting in the massacre of 14 Aboriginal people hiding at Appin (Liston 1988:54). This event is known as the 'Appin Massacre' and is regarded as a pivotal part of the history of the destruction of the Dharawal people in the region.

During the early settlement years, diseases, such as small pox, were having a devastating affect on Aboriginal populations. Death, starvation and disease were some of the disrupting factors that lead to a reorganisation of the social practices of Aboriginal communities after European contact. The formation of new social groups and alliances were made as Aboriginal people sought to retain some semblance of their previous lifestyle.

4.2 Regional Context

It is generally accepted that people have inhabited the Australian landmass for at least 50,000 years (Allen and O'Connell 2003). Dates of the earliest occupation of the continent by Aboriginal people are subject to continued revision as more research is undertaken. The 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 River, known as Shaws Creek K2, which has been dated to 14,700 $\pm$ 250 Before Present (BP) (Attenbrow 1987, 2002: 20). The assessment of the deposits concurred that the people living in the shelter exploited the food and resources from the nearby creeks and rivers, as well as the surrounding countryside. East of Campbelltown, a sandstone rock shelter site (known as Bull Cave) was excavated and yielded a basal date of 1,820 $\pm$ 90 BP (Koettig 1985). In general, the majority of both open and rock shelter sites in the Sydney region date to within the last 3,000 to 5,000 years. Dibden (2003) attributes the increase in apparent occupation intensity to sea level stabilisation after the last ice age at around 5,000 years ago. She states that,

> *'Following the stabilisation of sea levels, the development of coastal estuaries, mangrove flats and sand barriers would have increased the resource diversity, predictability, and the potential productivity of coastal environments for Aborigines.'*
> (Dibden 2003:27)

Archaeological evidence on the Cumberland Lowlands has been limited to a small number of development driven archaeological studies in response to increasing development activity in the region and changing legislation requirements. Results of archaeological work completed in the northern, central and southern Cumberland Plain region have clearly identified that the predominant recorded sites on the Cumberland Plain are open camp sites (Kohen 1986; Smith 1989; McDonald 1992; JMCHM 2006, 2007a, b & c; Dibden 2003). Towards the peripheries of the plain on Hawkesbury sandstone, shelters with art and/or deposit and grinding grooves have been recorded.

Archaeological evidence of Aboriginal occupation on the Cumberland Plain to the north west indicates that the area was intensively occupied from approximately 4,000 years BP (JMCHM 2007). Such 'young' dates are 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.

4.3 Local Context

4.3.1 Identified Aboriginal Archaeological Sites – Study Area

A search of the NSW DECCW Aboriginal Heritage Information Management System (AHIMS) database was conducted on 27 of August, 2010. The search identified those sites

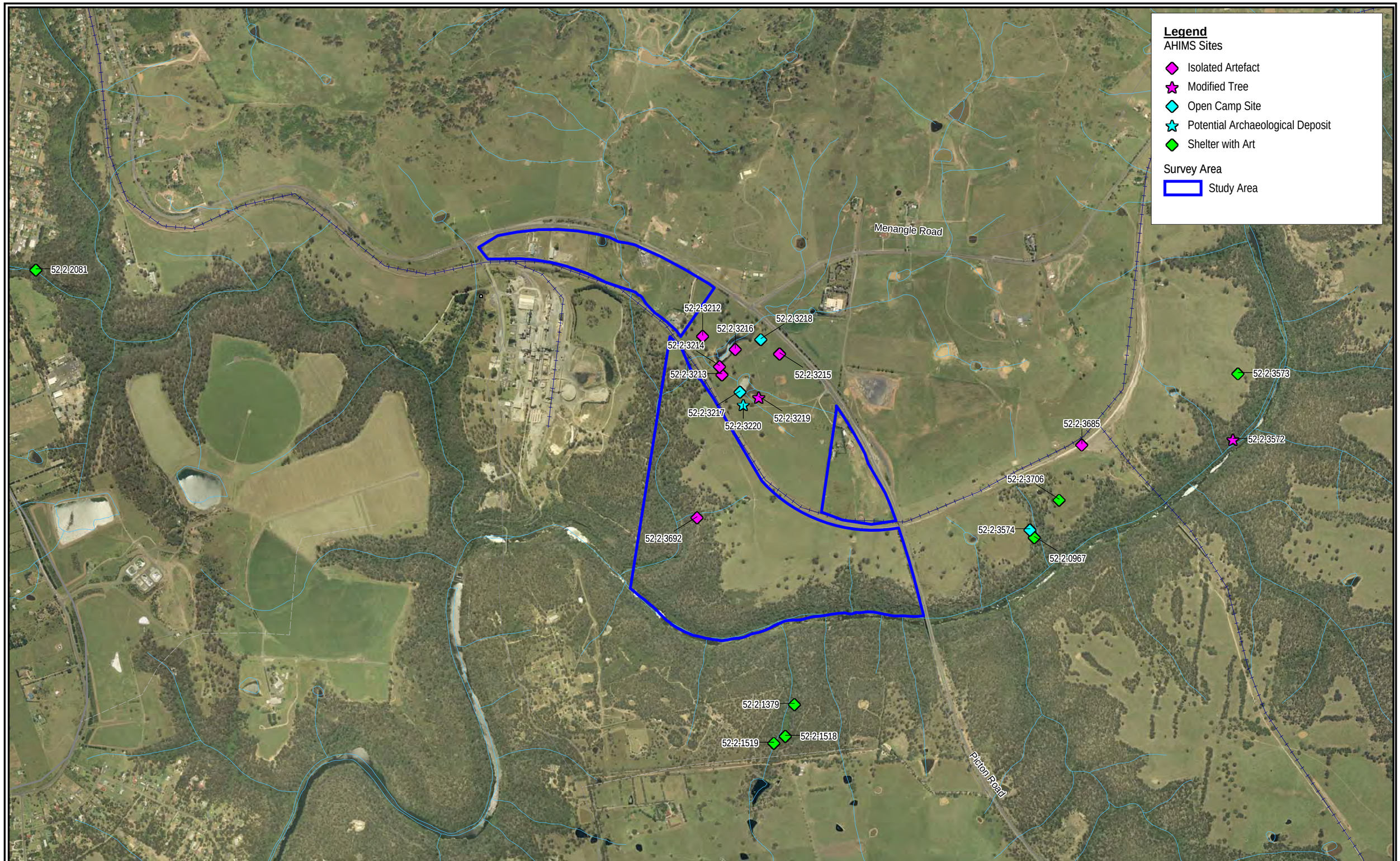
within a 5 x 6 km area. There were a total of 19 sites identified within the search area, one of these sites fell within the boundary of the proposed development (Figure 3).

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

Table 3 (following) provides a list of the Aboriginal archaeological sites by site type located within the AHIMS search area surrounding the Study Area.

Table 3: Aboriginal archaeological sites recorded within a 5 x 6 km search area surrounding the Study Area

SITE NUMBER	*SITE NAME*	*SITE TYPE*
52-2-3216	AMP IF 5	Isolated Artefact
52-2-3217	AMP OCS 1	Open Camp Site
52-2-3218	AMP OS 2	Open Camp Site
52-2-3219	AMP ST 1	Modified Tree
52-2-3220	AMP PAD 1	Potential Archaeological Deposit
52-2-3572	Maldon 01	Modified Tree
52-2-3573	Maldon 02	Shelter with Art
52-2-3574	Maldon 03	Open Camp Site
52-2-0967	Nepean River Gully, Maldon	Shelter with Art
52-2-1379	Shingle Hill	Shelter with Art
52-2-1518	James's Find	Shelter with Art
52-2-1519	Julian's Find	Shelter with Art
52-2-3212	AMP IF 1	Isolated Artefact
52-2-3213	AMP IF 2	Isolated Artefact
52-2-3214	AMP IF 3	Isolated Artefact
52-2-3215	AMP IF 4	Isolated Artefact
52-2-3685	Bulli Site 5	Isolated Artefact
52-2-3692	Bulli Site 12	Shelter with Art
52-2-3706	Bulli Site 26	Shelter with Art



BIOSIS RESEARCH Pty. Ltd.
8 Tate Street
Wollongong
NEW SOUTH WALES 2500

Figure 3: DECCW AHIMS search results within close proximity to the Study Area.

Date: 21 March 2011	Drawn by: ANP
File number: 11928	Checked by: MT
Location:-..P:\11900s\11928\Mapping\11928 F3_AHIMS.WOR	

Acknowledgements:
Site data from DECCW
Wollondilly Shire Council
This product incorporates Data which is copyright to the Commonwealth of Australia (c.2003-)

0 0.15 0.3 0.45 0.6 0.75
kilometres

Scale: 1:15,000 at A3
Map Projection: Transverse Mercator
Horizontal Datum: Geocentric Datum of Australia 1994
Grid: Map Grid of Australia, Zone 56

N
W E
S

Figure 3

Of the 19 previously recorded sites in the general region, the dominant site types are shelters with art (37%), isolated artefacts (32%), with open camp sites (16%), modified trees (10%), also represented to a lesser degree was a Potential Archaeological Deposit (PAD) (5%). All sites are in the surrounding locations around the study area except for one rock art shelter.

Table 4: Aboriginal sites by site type in the vicinity of Study Area

SITE TYPE	*NUMBER*	*AS % OF ALL SITES*
Shelter with Art	7	37%
Isolated artefact	6	32%
Open Campsite	3	16%
Modified trees	2	10%
Potential Archaeological Deposit	1	5%

4.3.2 Localised Archaeological Record

A small number of development driven assessments have been undertaken within the region surrounding the Study Area. The findings from this work have contributed a more informed understanding of Aboriginal cultural heritage across the Cumberland Plains and the Nepean River. Those most relevant to the current Study Area have been summarised below.

Austral Archaeology (2004) was commissioned by Kellog Brown and Root Pty Ltd to undertake an archaeological survey of Picton where an Allied Mills flour mill was being developed. The survey identified eight Aboriginal sites, including five isolated artefacts finds, two artefact scatters and one scarred tree.

Biosis (2009) completed an Aboriginal cultural heritage assessment proposed for BHP Billiton Illawarra Coal for the Bulli Seam Operations. The assessment came up with 44 new Aboriginal archaeological sites. Including 19 sandstone platforms with grinding grooves and engravings, 12 stone artefacts, 11 sandstone shelters with art/grinding grooves/ engraving deposits and two sandstone shelters with a deposit only. No scarred trees or Potential Archaeological Deposits were found in this particular assessment.

AECOM (2010) was engaged by Boral Resources Pty Ltd to undertake an Aboriginal and historic assessment for the development of the Maldon Rail Terminal. The survey did not identify any new Aboriginal sites, except for a possible scar tree.

Biosis Research (2010) completed an Aboriginal and Historical Due Diligence Assessment for the proposed

4.4 Predictive Model

The archaeological predictive model has been formulated based on the results of the landform, location and type of Aboriginal sites previously recorded within the regional area, the results of the AHIMS database search and information from previous archaeological work

completed throughout the region. 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 this information, the following predictive model for the Study Area has been developed, indicating the site types most likely to occur within the present Study Area. The definition of each site type is described firstly, followed by the predicted likelihood of this site type occurring within the current Study Area.

Open campsites, artefact scatters, isolated finds and raw material sources/quarries

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

The identification of these sites depends greatly on ground surface visibility, resulting in the boundaries of a site being defined by the visible extent of the artefacts on the surface.

Paddock grasses and open woodland vegetation occur within the Study Area and are likely to obscure stone artefact scatters or isolated occurrences. However, the relatively frequent occurrence of these sites across the southern region of the Study Area indicates that where ground exposure does occur, there is a moderate likelihood of finding stone artefacts. Low density artefact scatters and isolated artefact occurrences are likely to be the most commonly occurring site types within the Study Area.

These sites represent the prevalent site type identified across the Cumberland Lowlands, especially on level, well-drained land topographies and are thus likely to occur within the current Study Area. However, due to the predicted levels of site disturbance through flooding and European occupation, settlement and development, the probability of such sites surviving is moderate to low.

Potential Archaeological Deposits

Potential Archaeological Deposits (PADs) generally comprise stable deposits or landforms that are highly likely to contain intact sub-surface archaeological evidence of use or occupation. PAD areas generally have very minimal impact (natural and historic), comprise a stable landform, consist of predictable occupation locations and contain *in situ* archaeological material.

One PAD area has been previously identified within the region, and are situated adjacent to water courses in depositional soil landscapes or on high points within the region. It is likely that within the Study Area such landforms will occur, particularly close to water courses and on ridgelines where previous disturbance has been minimal.

Scarred and Carved Trees

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

Carved trees exhibit intricate geometric designs or figures by cutting the bark itself or by removing an area of bark and then cutting the underling hardwood. Carved trees can be associated with burial places or ceremonial/initiation ground. The existence of carved trees (dendroglyphs) is extremely rare occurrence in Australia and are generally limited to south east Queensland and north eastern New South Wales (Attenbrow 1992:144). Carved trees can be associated with both burial places and initiation grounds. Etheridge (1918) describes those trees associates with burial places as taphoglyphs, and those indicative of initiation grounds as teleglyphs.

Both types of carved trees exhibit intricate geometric designs or figures carved either on the bark or by removing an area of bark and then cutting designs or figures into the hardwood. Some of the earliest reported carved trees were located near Narellan and Picton. The closest carved trees to the Study Area are situated east of the tributary of the Nepean River (52-2-3219).

Land clearance for early agricultural purposes, including grazing, will have removed most large trees, as have periodic bush fires. Based on the current knowledge of existing vegetation within the Study Area, it is likely that carved or scarred trees will occur.

Axe Grinding Grooves

Axe grinding grooves are often found on large open and relatively flat areas of sandstone shelving and outcrops. Individual grooves are elongated, narrow depressions often found in sedimentary rock, such as sandstone, in association with water sources, including creeks and swamps.

There is potential for axe grinding grooves to occur along the Nepean River, due to the plainer sandstone platforms presented in Hawkesbury Sandstone. However due to limited access to the sandstone platforms (exposed within the Nepean River bed) and the associated limited visibility locating such sites would be difficult.

Burials

Aboriginal burial sites are generally situated within deep, soft sediments, caves or hollow trees. The locations of burials can be indicated by carved trees, or become exposed in eroding or shifting sand or soft sediment deposits. Such sites hold great significance for Aboriginal people and the disturbance of burials or burial places is a very sensitive issue.

The absence of soft alluvial soil deposits within the Study Area limit the likelihood for the presence of burials. Moreover, there is also low potential for burials to be preserved in this area due to extensive land clearance and agricultural practices.

Rock shelters with art and / or deposit

Rock shelter sites include rock overhangs, shelters or caves; generally occur on, or next to, moderate to steeply sloping ground as characterised by the cliff lines and escarpments. These naturally formed features may contain rock art, stone artefacts or midden deposits and may also be associated with grinding grooves. The sites will only occur where suitable sandstone exposures or overhangs possessing sufficient sheltered space exist. There are topographical features suitable for the formation of rock shelters and overhangs within the Study Area corridor. One area in particular has been found in the Study Area which indicates a strong likelihood that rock shelters are present in the rezoning area. An assessment of the area will determine whether the rock shelter will be harmed in the future when development proceeds.

Aboriginal Ceremony and Dreaming Sites

Such sites are often intangible places and features and are identified through oral histories, ethnohistoric data, or Aboriginal informants. These types of highly significant sites tend to occur at places where the connections and pathways between the spiritual and physical worlds occur. They are natural features of the landscape such as rock outcrops, waterholes or trees that often exist in marked contrast to their surroundings and bear a special significance because of their role in Aboriginal cosmology. Generally they are located away from habitation sites, although this is likely to require further testing when more of such site types are recorded.

Post-Contact Sites

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

Aboriginal Places

Aboriginal *places* may not contain any “archaeological” indicators of a site, but are nonetheless important to Aboriginal people. They may be places of cultural, spiritual or historic significance. Often they are places tied to community history and may include natural features (such as swimming and fishing holes), places where Aboriginal political events commenced or particular buildings. Often these places are significant in the living memory of a community. There are currently no known Aboriginal ‘Places’ within the Study Area.

Aboriginal Resource and Gathering Sites

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

Site Prediction Summary for Current Study Area

In summary the site types which are likely to be identified during the archaeological field survey include:

- Surface occurrences of stone artefacts, as isolated incidences or low-medium density scatters;
- Rock shelters with art with or without an archaeological deposit where the appropriate landforms occur;
- Areas of Potential Archaeological Deposit where sub-surface cultural material is likely to occur – generally in close proximity to water sources where disturbance has been minimal; and
- Mature trees that exhibit cultural scarring

5.0 HISTORICAL CONTEXT

This assessment has been undertaken to determine the potential non-Aboriginal heritage impacts for the proposed rezoning of lands in the Maldon area, Wollondilly LGA to 'General Industrial'. A site assessment and photographic record was undertaken in January 2011 to determine potential heritage items or archaeological deposits not currently covered by statutory heritage listings in NSW, and to understand the existing heritage context of the area.

Historical research has been undertaken to identify the non-Aboriginal historical context of the proposed study area. This history incorporates an understanding of land-use, building patterns and land-owner histories. Historical research has provided an increased understanding of potential heritage items on site or the historical archaeological potential for the site.

The potential heritage significance of items identified through site investigations has been assessed to determine the likelihood of heritage impacts. Recommendations are provided for mitigating any potential heritage impacts and recommending appropriate development in the area to conserve heritage values.

The following organisations are acknowledged in the assistance for preparation of the non-Aboriginal assessment:

- Picton & District Historical and Family History Society
- Oaks Historical Society – Wollondilly Heritage Centre
- Wollondilly Council

Limitations in this assessment were brought about by poor surface visibility during site inspections, allowing little visibility of some areas of the study area for determining the extent of ground surface archaeological deposits. This however has been complimented by an analysis of historic and modern maps and aerial photographs to determine any further potential archaeological deposits. Furthermore, little historical material is available on the area of Maldon, with most of the secondary resources for the area focusing on the development of Picton and Douglas Park. This, however, provides an understanding of the relative importance of Maldon in terms of its role in the overall historical development of the area.

A number of key historical resources have been used in the preparation of this assessment, namely:

- The Department of Lands Parish Maps Preservation Project - The maps contain information regarding the alienation of land, crown grants, mineral leases, resumptions and infrastructure such as road and rail corridors.

- Wollondilly Heritage Study JRC Planning Services, *Wollondilly Heritage Study*, 1986 – identifying significant themes in the development of the area, and identified cultural landscape units.

- Williams, Ken, *Along the Menangle Road*, Picton Historical Society, 2nd Edition, 2009 – providing historical information on the early development of land grants in the Maldon area

5.1 Land-use history of the Study Area

Early Exploration and Pastoral Expansion

The arrival of the First Fleet in 1788 heralded the arrival of cattle in Australia, with five cows and two bulls included in the stock (Fowler & Knox 1988:37). Four of these cattle escaped in June of 1788 and made their way to the area later to be known as the Cowpastures (Lyon 1982:2). They were not seen again until 1795, when a small scouting party was sent to the western mountains and discovered a small herd of approximately forty cattle (Fowler & Knox 1988:39). Ensign Barallier in 1802 noted herds of cattle of approximately 600 head in the areas of The Oaks, Stonequarry (Picton) and the Burragorang Valley (Lyon 1982:4). Governor Hunter saw the Cowpastures as a way to increase the cattle population in the new colony and was determined to protect the herd from the hungry colonists, establishing hefty penalties for anyone caught killing or capturing the wild herds (den Hertog 1987:7).

When Governor King came to office in 1800, he was also determined to secure the future of the wild cattle, establishing a requirement to request permission from the Governor to cross the Nepean River. This ruling continued through Governor Bligh's governance, which began in 1806.

The Macarthur and Davidson families were given unrestricted access to the Cowpastures, when they were granted selections of 5000 and 2000 acres respectively in 1803 (Lyon 1982:5), with the grants confirmed in 1806 (den Hertog 1987: 8), effectively making Macarthur caretaker of the Cowpastures. Following a major flood event in October 1806, it was agreed that no further grants would be made within the Cowpastures, as the flood severely impacted crops and other resources on which the colony relied heavily (den Hertog 1987:8).

Governor King established three substantial estates for pasturing of the "Government Stock of Cattle and Sheep, and for purposes of Cultivation" on the Cumberland Plain (Nicolaides 2000: 8). Between the years 1802 and 1826, there were up to 13 Government Stock Farms in operation, originally concentrated on the Cumberland Plain but as the colony expanded, stock farms were established further afield including Emu Plains, Wellington Valley, Bathurst, Moreton Bay, Port Macquarie and Norfolk Island. Farms on the Cumberland Plain included Grose Farm (now the University of Sydney), Parramatta, Toongabbie, Castle Hill, Seven Hills and Cawdor.

Governor Macquarie came to office in 1810 and decided some control over the wild cattle was required. He travelled through the Cowpastures in 1815 on his inspection tour of the western districts of the colony (Banksia 2004: 12 – 13) and noted the excellence of the countryside. As a result, several government cattle stations were established within the Cowpastures and during 1815 the majority of the cattle were herded together (den Hertog 1987: 9). Cattle stations were located at Cawdor, Brownlow (east of Camden) and The Oaks. The cattle stations operated from approximately 1813 until 1825, with the majority of the cattle moved to Bathurst in 1822. The wild cattle of which the area gave its early name were deemed untameable with the quality of the herd decreasing, and the stockyards at Stonequarry were deemed not worthy maintaining. Upon Governor Brisbane's arrival in 1821, land grants were issued in the area of Picton. As such, the 'Cowpastures' were not settled until after 1822 (Williams 2009:1).

Land Grants and Pastoral Development in Maldon

The first land grant in the Picton area was to major Henry Antill who received 2000 acres in 1822. The grant was originally called 'Wilton' and later 'Jarvisfield' (Jervis Field) (Robinson 1979). On Antill's grant and to the west of the study area is the township of Picton (originally Stonequarry) (JRC Planning Services 1986:59). The town plan of Picton was laid out in 1845 as a government town, although a village reserve and burial ground had been established prior to this on Antill's land. By 1848, 23 houses and 120 inhabitants were located in Picton (JRC Planning Services 1986:101), with the population increasing as rail links to the area developed (JRC Planning 1986:102).

The 'Razorback area', including Maldon was occupied in conjunction with the opening up of the Picton area, as the main road south then crossed the Razorback Range (Pearson 2009: 9-10). Three major land grants west of Antill's land constitute the area now known as Maldon (Plate 1, Plate 2, Plate 3), all with frontages to the Nepean River (Williams 2009: 2). These grants are described below. The existing Menangle Road was constructed in c.1834 through these grants, replacing earlier bush tracks (Williams 2009: 2).

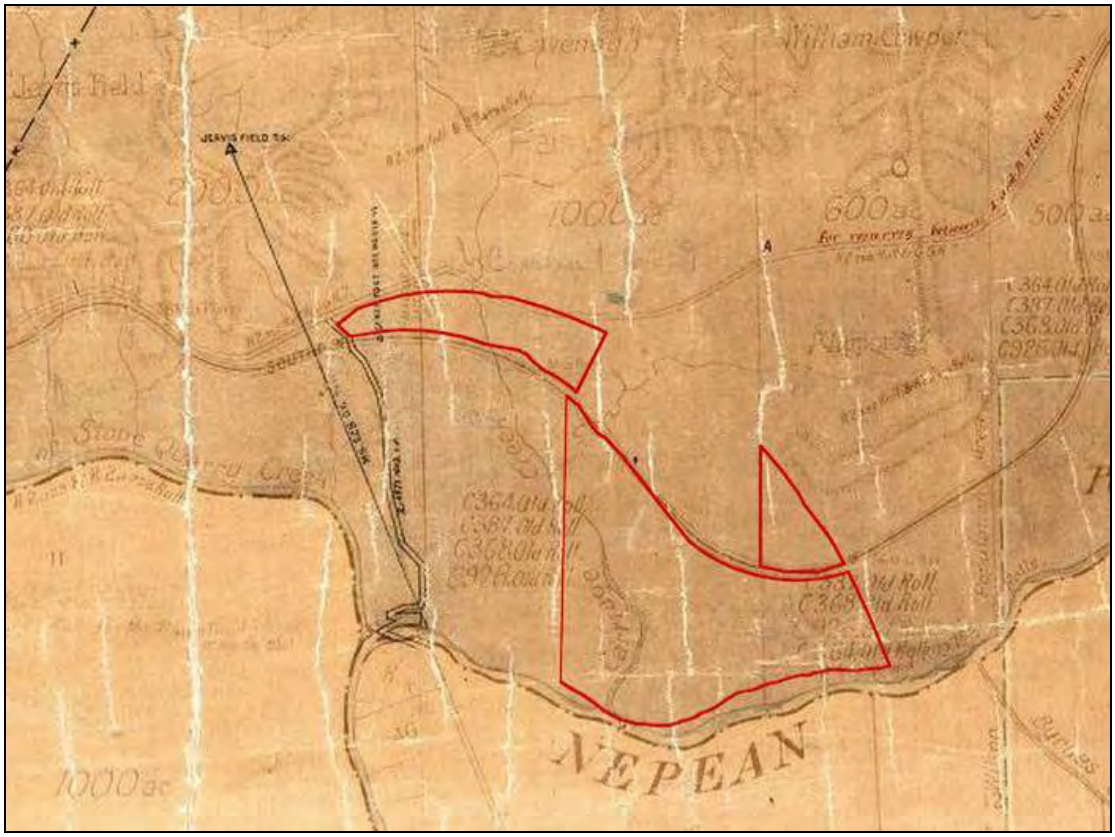


Plate 1 – Undated (earliest) parish map of Maldon – Parish of Picton showing study area in red. The image post-dates 1858 with the rail line clearly visible. Although unclear Antill's 'Jervis Field' grant is to the left, Cavenagh's 'Fairy Hill' centre and Cowper's 'Clifton' and 'Apperly' grants to the right. Other features indicated are Wilton Park Rd and Menangle Rd (Source: Dept. of Lands Parish Map Preservation Project).

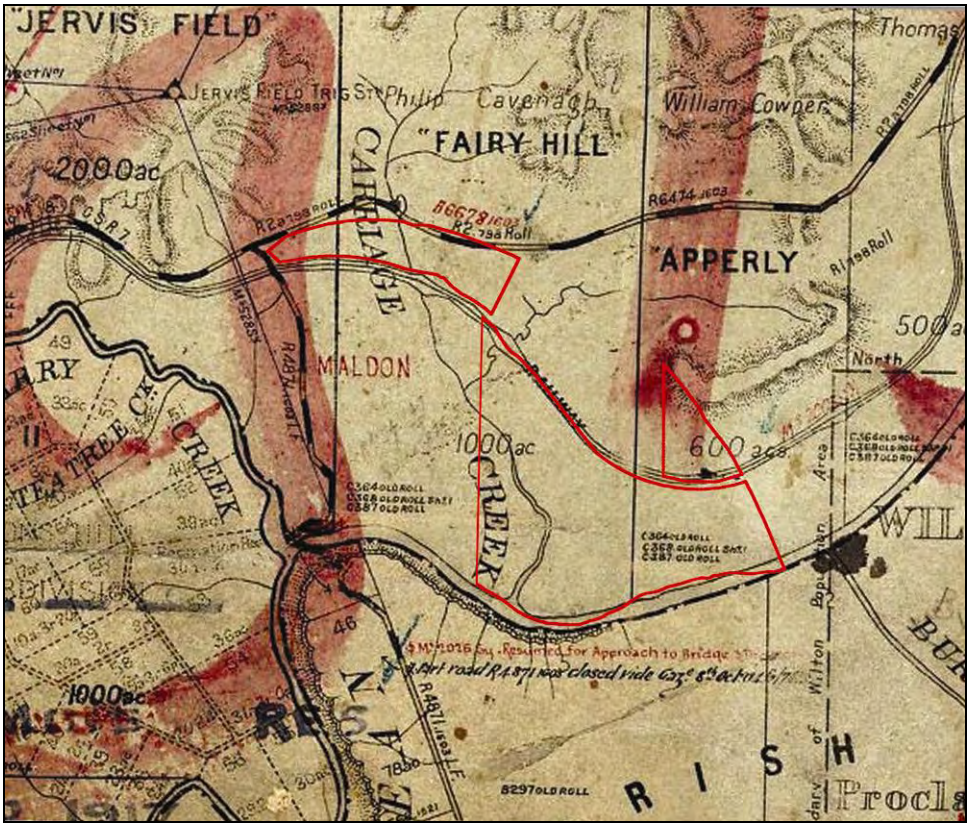


Plate 2 – 1900 parish map of Maldon – Parish of Picton showing study area in red. The name 'Maldon' first appears on the parish map, its origins are unknown. Antill's 'Jervis Field' grant is to the left, Cavenagh's 'Fairy Hill' centre and Cowper's 'Clifton' and 'Apperly' grants to the right. Clearly shown is the rail line, roads, and 'Carriage Creek' through 'Fairy Hill' grant. However, no other structures are indicated (Source: Dept. of Lands Parish Map Preservation Project).

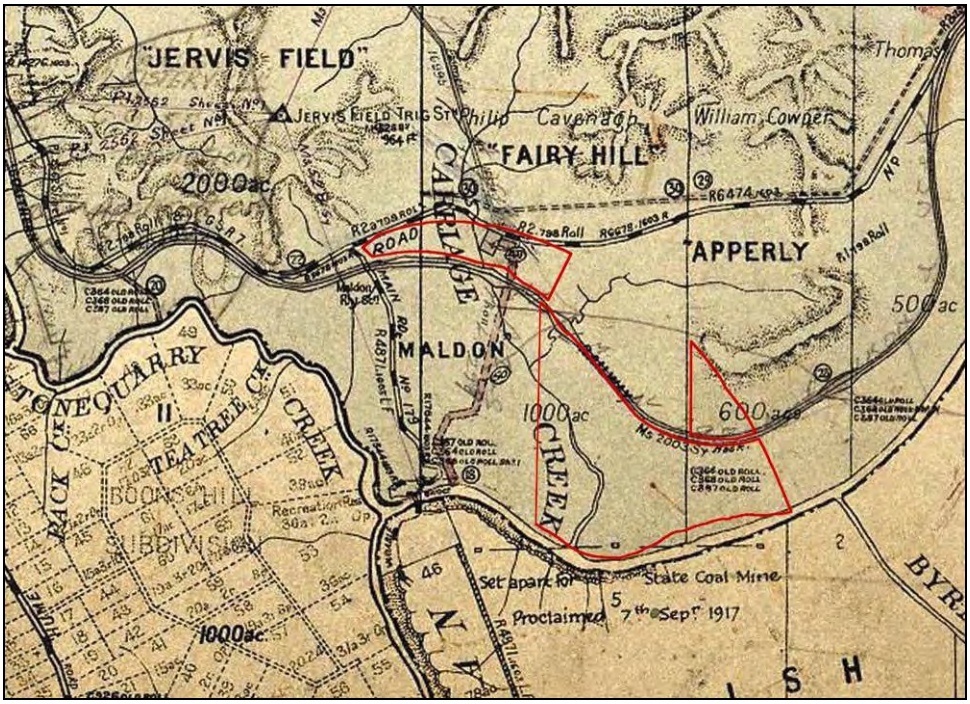


Plate 3 - 1948 parish map of Maldon – Parish of Picton showing study area in red. Antill's 'Jervis Field' grant is to the left, Cavenagh's 'Fairy Hill' centre and Cowper's 'Clifton' and 'Apperly' grants to the right. Clearly shown is the rail line, roads, and 'Carriage Creek' through 'Fairy Hill' grant. Features indicated include the Maldon Suspension Bridge, Maldon Railway Station, land resumed for the substation along Menangle Road and an easement for a transmission line shown in red (50) (Source: Dept. of Lands Parish Map Preservation Project).

'Clifton' and 'Apperly'

Arriving in Sydney in 1809, William Cowper was appointed Assistant Chaplain, and resident chaplain of St Phillips church in 1810. Cowper was granted 600 acres on November 22, 1822 with six convicts for use on the land 'Apperly'. His son Thomas was also granted 500 acres on November 1, 1822 by Governor Brisbane, with 4 cows and five convicts, and would appear to have taken over his father's grant 'Apperly' to manage the estate of 1100 acres known commonly as 'Clifton'. Cowper's other son Charles would later be the five times premier of NSW (Williams 2009:33).

It would appear that Thomas Cowper took up occupation of his two families grants early with *The Sydney Gazette* of May 1823 indicating Cowper was already supplying beef to the government stores. Population Land and Stock Books indicated by September 1824 that 35 acres had been cleared, with 12 acres sown to wheat, with 186 cattle. By 1825 this estate had increased to 10 staff, 80 cleared acres with 70 cultivated for wheat and maize, and 68 cattle for milking and cheese. Cowper built a cottage on the area now known as 'Cowper Hill', although the cottage no longer exists. Three 50 acre blocks were also provided for clearing leases, with lessees required to fence the blocks and construct logs huts on each within five years (Williams 2009: 34).

Thomas sold his grant to his father in 1830, who subsequently sold both blocks to Lachlan Macalister on 1 May 1833. Macalister had arrived to Sydney in 1817 as an officer of the 48th Regiment. Originally established in Goulburn he was appointed Resident Magistrate for the County of Argyle and Officer-in-Charge of the Mounted Police on the Goulburn Plains. Macalister on taking over Clifton sat on the Picton Bench. Macalister continued to accumulate tens of thousand of acres of land in NSW, as well as lead expeditions to Victoria (the Macalister River being named after him) (Williams 2009: 35).

An 1841 Census indicates two households on Clifton; one being Macalister's house with 32 staff the other headed by William Sawyer with 13 staff. Facing insolvency, Macalister mortgaged 'Clifton' to a number of people prior to his death in 1855 (Williams 2009:37) with title falling to his wife Christine McInnes and family. It would appear that farming activities continued over this period, with McInnes still owning Clifton in 1901 (Williams 2009: 37-41).

'Fairy Hill'

The other land grant in the area was 'Fairy Hill' granted to Phillip Cavenagh in 1823 with four convicts to work his grant. Cavenagh arrived in 1821 with Governor Brisbane and was appointed Assistant Surveyor of Lands. The early tenancy and subsequent ownership of 'Fairy Hill' are not well documented, and it would appear Cavenagh did not take up his grant, remaining in Sydney and then stationed in Tasmania between 1825 and 27. However, it would appear his brother George may have occupied the grant with his first child reported as being born at 'Fairy Hill' in 1832. There are no records of inhabitants in the 1824 Population Book, nor in the 1841 Census or 1860 Electoral Roll. Two lessees are however recorded, George Rust in 1837 and William Chapman in 1843, however, their occupation of the estate is unknown (Williams 2009: 43).

Possessory title of Fairy Hill was provided to William Pearce and John Hillas in 1896. The land was purchased by Lachlan Nicholson in 1897, passing to his wife Ellen in 1931, and later passing in parts to Marion Nicolson, Lachlan Nicolson and William Nicolson in 1939-41 (Williams 2009: 47).

In 1935 an orchardist is recorded in the area of Maldon (WHC archives), indicating a continuation of land use in the area through to the 20th Century. The location and extent of the orchard is unknown. Similarly farming activities are recorded as continuing in the Maldon area through the 20th century largely devoted to cattle grazing (Middleton 1965).

It would appear that the relationships between the residents of Fairy Hill and Clifton were strong with a number of similar surnames appearing as tenants, including Plow, Carpenter and Nicolson (Williams 2009: 47). No further historical information is known indicating the location of any early houses, farming buildings or which land was used for farming purposes on 'Clifton' or 'Fairy Hill'. Historical and physical evidence has not, however, indicated any concentration of activity within the portion of land included in the study area.

A study of a 1979 aerial photograph (Plate 4) of the area indicates the study area with a similar portion of cleared land likely used for pastoral usage for limited grazing stock. The image also indicates the F5 'Picton Road' under construction. Features still extant today within the study area include the residence and sheds located at 300 Picton Rd, the Picton Rd substation and the central dam located on the Allied Mills property south of the rail line. Elements extant today but not evident in the aerial photograph include the residence at 290 Picton Rd, modern residences and buildings located on Lots 30 and 31 DP 816690, shed located on the Allied Mills property south of the rail line (see descriptions below).

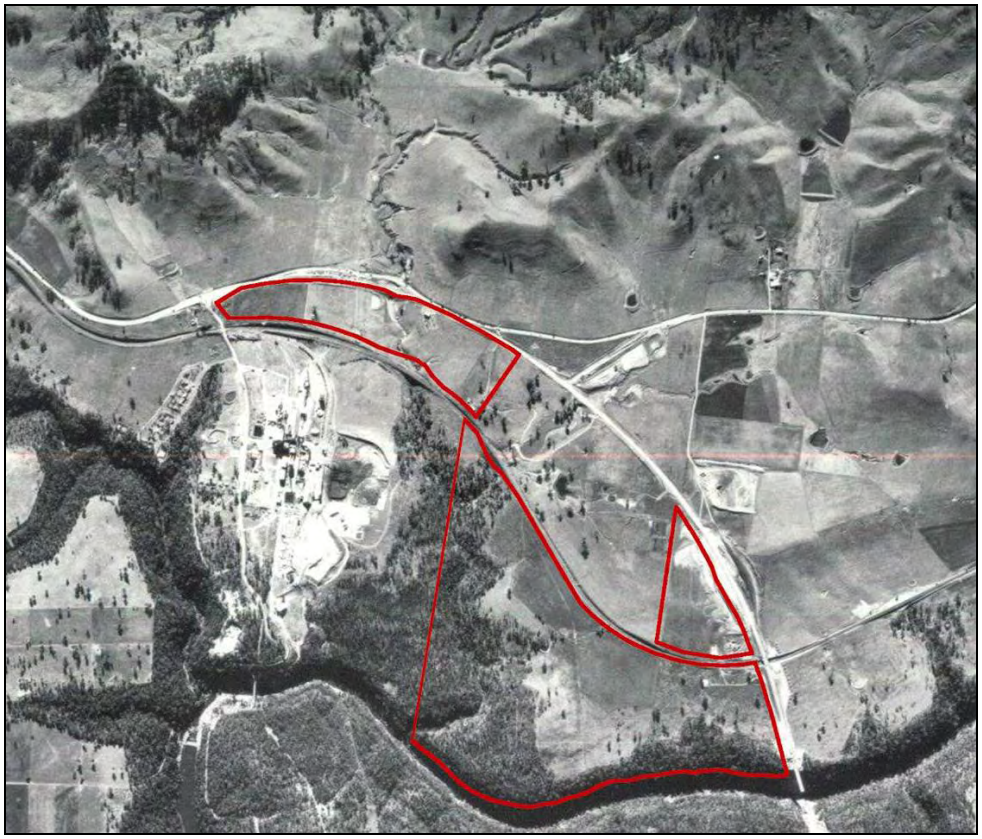


Plate 4 – 1979 aerial showing study area in red. Image indicates large areas of cleared land as well as bushland along Nepean River and Carriage Creek. The expanse of the Maldon Cement Works is evident, note limited development along Picton Rd and F5 under construction (completed in 1980). (Source: Wollondilly Council).

Plate 5 – 1955 image of C3804 'Melbourne Express' enroute through Maldon showing cleared land of the area and Razorback (Source: State Records -195517420_a014_a014000206).

Rail Links

The construction of a railway to Campbelltown in 1858 resulted in a surge in the local economy of the area. The construction of the Campbelltown to Picton railway in 1860 necessitated the completion of a considerable bridge at Menangle, the largest engineering work completed in New South Wales to date (JRC Planning Services 1986:66). The further expansion of the railway to Mittagong in 1867 required a large viaduct of stone to be built over Stonequarry Creek at Picton, as well as several tunnels, which were the first rail tunnels in New South Wales (JRC Planning Services 1986:66). Duplication of the railway between Granville and Campbelltown, and Campbelltown and Picton, occurred in 1891 and 1892 respectively.

Maldon Railway Station was opened as 'Wilton' in 1889, and renamed in 1890. The station, initially east of the road, was relocated west of the road alongside the level crossing of the road from Picton to Wilton. The station featured two platforms and small platform shelters with a gatekeeper and Station Master's cottage (Plate 6, Plate 7, Plate 8).

Records indicate a sawmill at Maldon in 1913 (WHC archives) which is shown on a plan for the railway station (Plate 6) located to the south east of the station, and it is possible Maldon Station served local industries such as this prior to connection to the Cement Works in 1948.

The station closed in 1973 (Forsyth 2007) with buildings removed (Plate 9), although the line continues to be an important link for development and industry of the area.

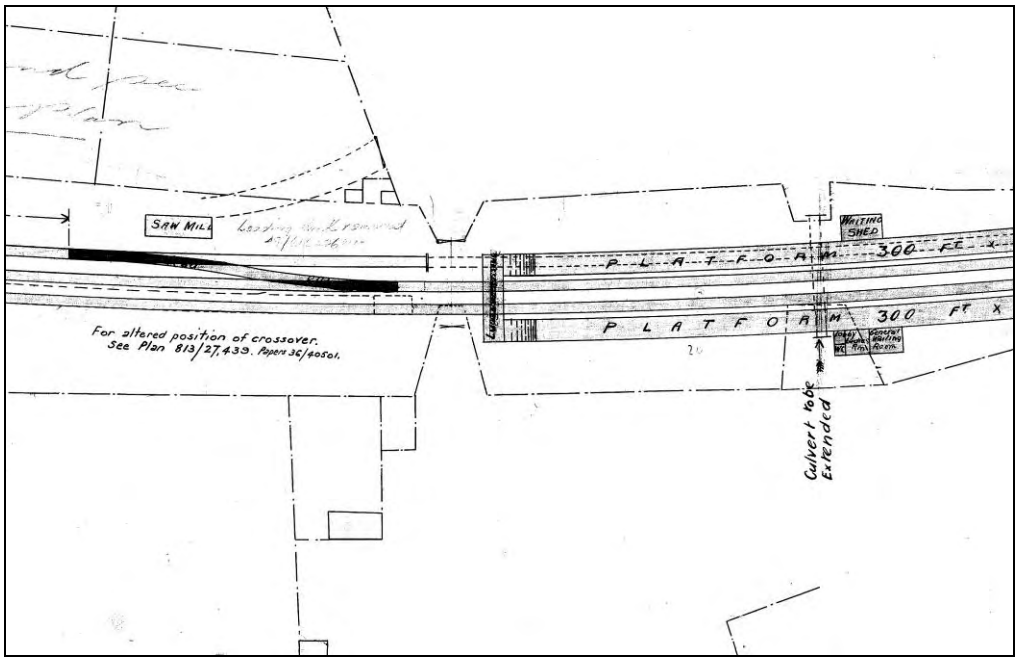


Plate 6 – Undated plan of Maldon Railway Station showing location of Sawmill (Source: RailCorp Plan Room).

Plate 7 – 1949 (May) photograph showing former Maldon Station (Source: Wollondilly Heritage Centre, Singleton Collection, WHC Photo 2066).

Plate 8 – 1963 image of Maldon Station with Locomotive 3803 (Source: Wollongong City Library - P09464)

Plate 9 – 2011 Photograph showing former location of Maldon Station Up platform (Source: Biosis Research).

Maldon Cement Works

Prior to the construction of the cement works, lime was burned in this area to make mortar for buildings in nearby Picton. Records indicate that schools at Razorback and Clifton held their annual picnic at lime kilns near Maldon (WHC archives). Locations of these kilns are not known.

There was a limited supply of cement in Australia in the 1940s, and with the construction of Warragamba Dam planned, supplies were needed urgently. The area of Maldon was chosen as a suitable site due to access to the rail line, clay shales, location near the Nepean River and inside the Sydney Metropolitan area and hence exempt from heavy road tax.

Site works commenced in 1949 for construction (Plate 10) of the cement works by the newly formed Metropolitan Portland Cement Ltd. A former plant in Detroit, USA was purchased, as it was quicker than erecting a new plant, arriving in Australia in January 1949. The first cement left Maldon in July 1951. (Pearson 2009: A143).

Cement from Maldon has been used in other major projects such as the Sydney Opera House and the Sydney Harbour Tunnel. The works have expanded considerably over the last 60 years, namely in 1965 and 1976 (Plate 11, Plate 12) and have continued to be a major source of employment for the area (Pearson 2009: A143).

Staff housing was built 1949, slightly west of the plant, which still survives and forms the main part of Maldon village.

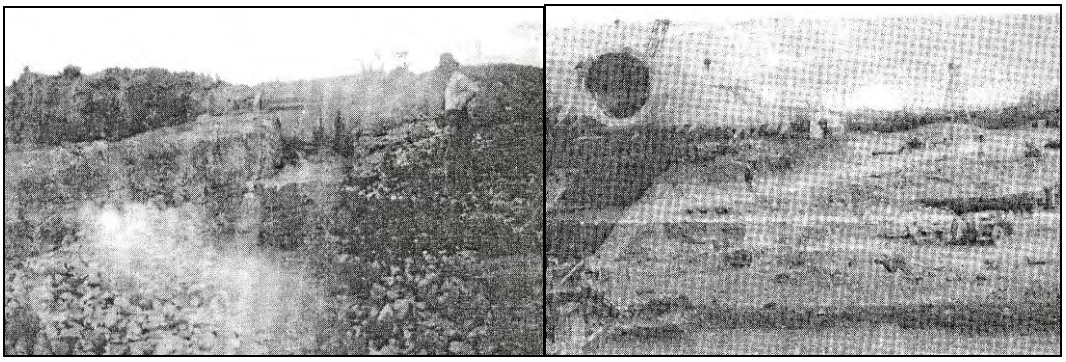


Plate 10 – Photographs showing Maldon during start of excavations for Cement Works (Source: Featon 1995: 11)

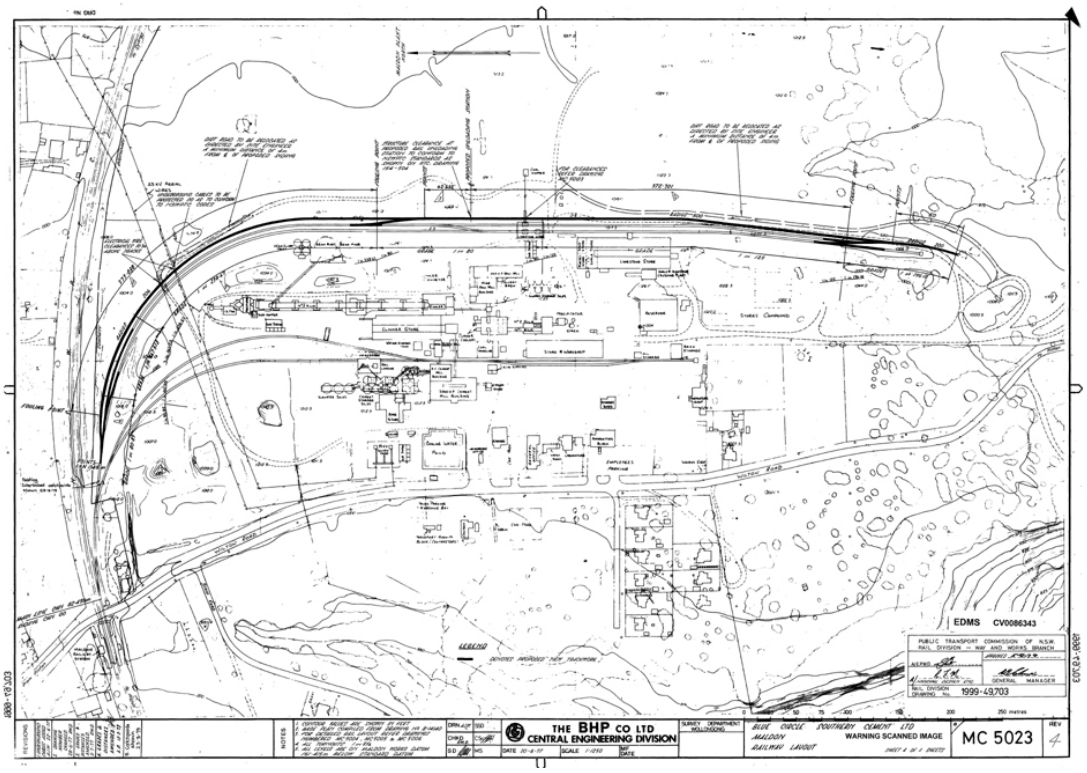


Plate 11 – 1979 plan showing layout of Cement Works and rail sidings (Source: RailCorp Plan Room).

Plate 12 – 2011 Photograph showing Maldon Cement Works today across railway cutting (Source: Biosis Research).

Engineering Works

The Maldon Suspension Bridge was constructed in 1903 to replace a stone causeway called Harvey's crossing. Following a bushfire in 1939 (Plate 13), the original timber towers were replaced with identical steel ones. With the opening of the F5 Freeway Maldon in 1980, the bridge was closed to traffic (Pearson 2009: A146).

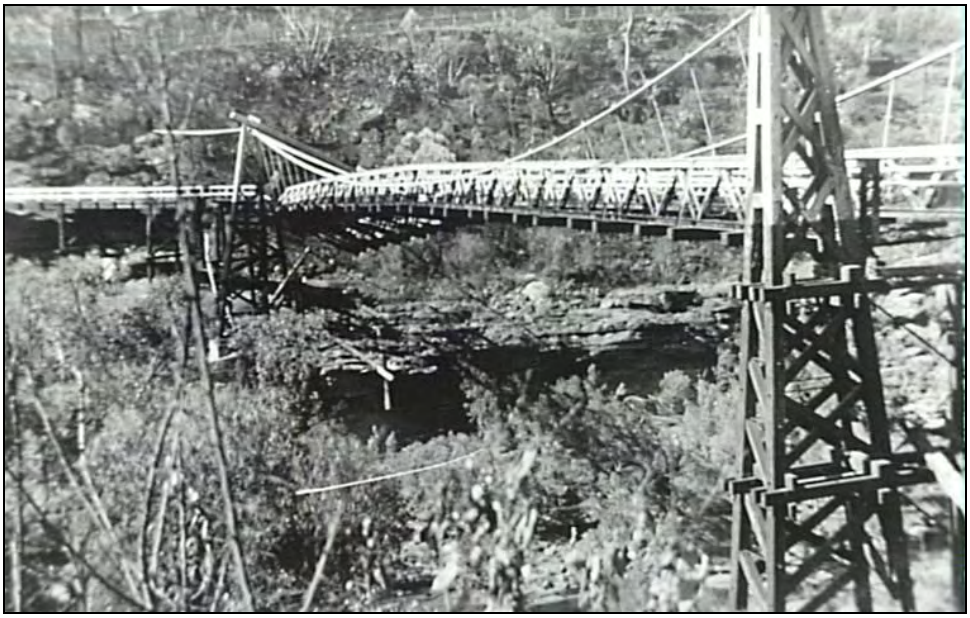


Plate 13 – c.1939 photograph showing Maldon Suspension Bridge after a bushfire (Source: Wollongong City Library - P11662).

Plate 14 – 2011 photograph showing Maldon Suspension Bridge no longer in use (Source: Biosis Research).

Dam building and water movement has been a major influence on the area since the late 19th Century (Oehm 2006:56). The Maldon Weir is part of the network of structures which form the complex system providing water to the Sydney region. Although it is not used to supply water, it was built as a consequence of the Upper Nepean Water Supply Scheme when water levels in the Nepean River were reduced downstream of the dams. The associations with the various supply dams through the Wollondilly area collectively demonstrate the achievements in engineering for capturing water to service the major centers of Sydney and Wollongong.

Plate 15 – 2011 photograph with view to Maldon Weir (Source: Biosis Research).

5.2 Heritage Registers and Studies

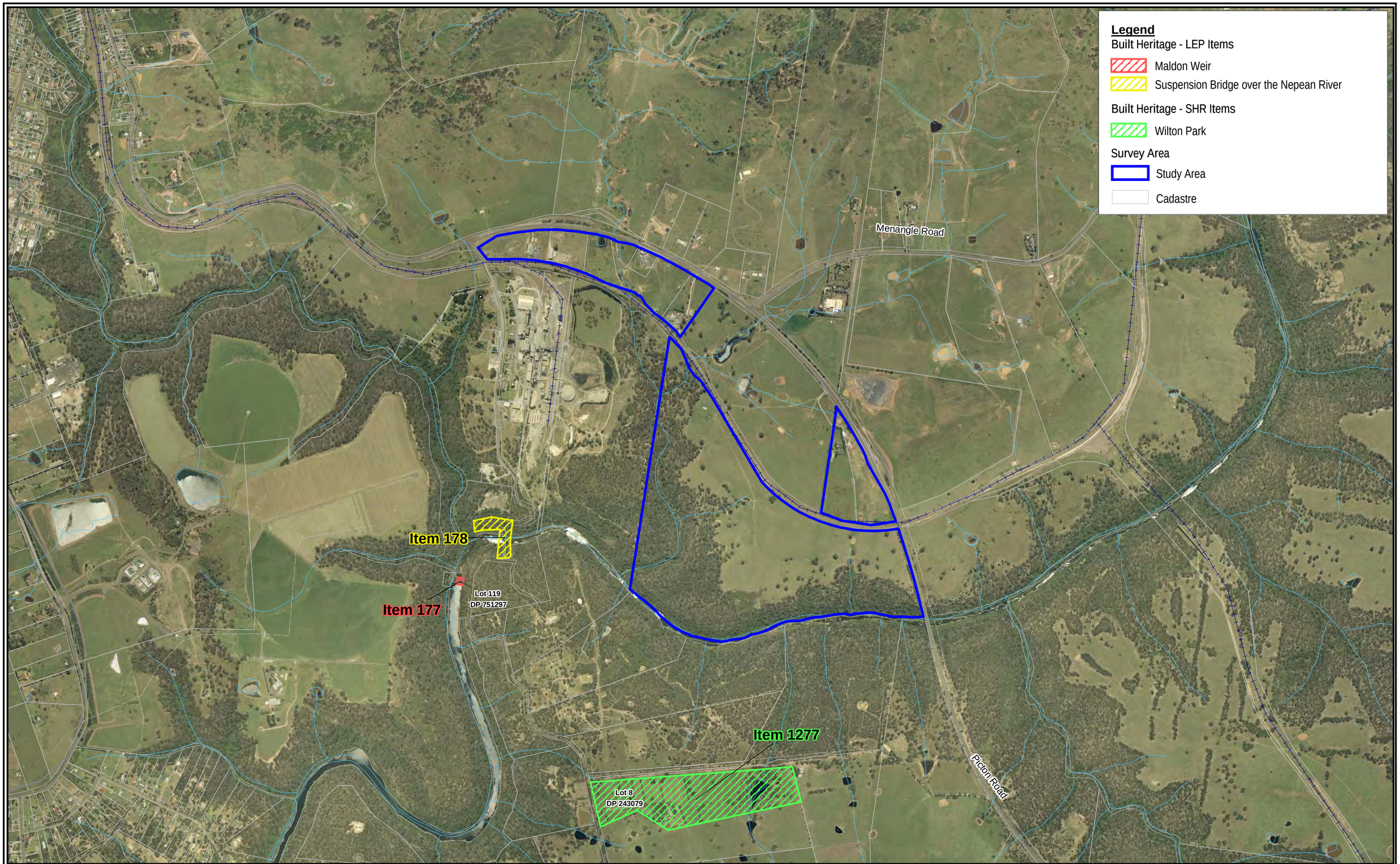
There are no heritage-listed properties currently within any of the study areas. There are however a number of heritage items listed on the Wollondilly LEP 2011 located in the vicinity of the study area as follows and as indicated on Figure 4:

- Maldon Aboriginal Heritage Conservation Area (Local Significance) – Item C2. No Listing on SHI.
- Maldon Weir - Item I77 – Nepean River (Local Significance).
- Suspension Bridge over the Nepean River (Local Significance) – Item I78. Also listed on the Register of the National Estate (RNE).
- Wilton Park: Stables, Coachhouse, Water Tanks, Stallion Boxes, Covered Yards – 370 Wilton Park Road - Item I277. Listed on the State Heritage register (00257). Also listed on the Register of the National Estate (RNE). No Listing Information on SHI.

Other Heritage Studies

A brick culvert associated with the period of duplication of the railway in 1892 was identified in the non-Aboriginal assessment for Allied Mills (assessment supplied by Wollondilly Council). The assessment identified the culvert has 'potential historic and aesthetic significance on a local level' for its historic links to the construction of the Great Southern Railway Line. It is noted that this item is not currently listed, and has been assessed as part of the preparation of this study.

Wollondilly Heritage Study identifies the study area as falling within the Mt Hunter/Glenmore Landscape Unit and states that "for the majority of this unit, little evidence of cultural heritage value exists in terms of broad landscape components and spatial patterns but the location and siting of building clusters, structures and other features provide a critical historical focus" (JRC Planning Services 1993:68). The study does not mention any conservation policies specific to Maldon, but rather focuses on landscape policies for the development of Picton and Douglas Park.



BIOSIS RESEARCH Pty. Ltd.
8 Tate Street
Wollongong
NEW SOUTH WALES 2500

Figure 4: Listed Heritage Items within close proximity to the Study Area.

Date: 22 March 2011	Drawn by: ANP
File number: 11928	Checked by: MT
Location:-..P:\11900s\11928\Mapping\11928 F4_Heritage Items.WOR	

Acknowledgements:
Wollondilly Shire Council
This product incorporates Data which is copyright to the Commonwealth of Australia (c.2003-)

0 80 160 240 320 400
kilometres

Scale: 1:8,000 at A3
Map Projection: Transverse Mercator
Horizontal Datum: Geocentric Datum of Australia 1994
Grid: Map Grid of Australia, Zone 56

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Figure 4

6.0 FIELD SURVEY METHODS

6.1 Aims

The field survey of the Project Area aimed to:

- Identify, record and assess the condition of previously unrecorded Aboriginal cultural heritage sites
- Locate and update the information for documented archaeological sites where possible
- Help assess the archaeological (scientific) and cultural potential of the Study Area
- Identify and document cultural heritage values noted by the local Aboriginal people involved in the field survey and /or previously noted by the Aboriginal stakeholders

6.1.1 Methodology

Recording during the survey followed the guidelines of the DECCW, in particular the *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (DECCW 2010).

Information recorded during the survey included:

- Aboriginal sites
- Landforms elements, distinguishable areas of land approximately 40 m across or with a 20 m radius (Speight 1998)
- Ground surface visibility (GSV), distance visibility (DV) and areas of exposure (for definitions see Appendix 2)
- Observable past or present disturbances to the landscape from human or animal activities
- Any resources that may have potentially have been exploited by Aboriginal people

Distinguishing landform elements and their association with Aboriginal cultural heritage may help with the identification of site patterning, though with the awareness of the following limitations:

- The degree of GSV and amount of exposed areas can significantly bias the discovery of surface artefacts
- Cultural material exposed on the surface is not necessarily representative of the potential extent of the site (either horizontally or vertically)

Information about the presence of potentially exploitable resources helps contribute to predictions of the Aboriginal sites that may occur within the Study Area.

The details about GSV, DV and areas of exposures help to provide a general indication of the effectiveness of the survey for identifying Aboriginal cultural heritage exposed to the surface. Observable disturbances are also considered when assessing the integrity of known or potential sites for an area.

The location of Aboriginal cultural heritage and points marking the boundary of the landform elements were recorded using a hand-held Global Positioning System and the Map Grid of Australia (94) coordinate system.

The likelihood of Aboriginal cultural heritage with archaeological (scientific) value (referred to as archaeological sensitivity here) occurring throughout the landscape of the Study Area was assessed and zoned as low, moderate or high.

This sensitivity was based on a cross-consideration of the archaeological (scientific) significance criterion able to be assessed with the:

- Model for predicting the type and character of Aboriginal cultural heritage sites likely to exist(ed) throughout the Study Area and where they are more likely to be located.
- Site analysis (including land use history / previous disturbance)
- Information obtained from the field survey
- More specific areas of sensitivity identified by other assessments

6.1.2 Fieldwork

The field survey was conducted on the 17 January 2011. The weather was overcast, and light was adequate. The survey team included:

- Alfred Fassledene (Local Aboriginal Land Council)
- Melanie Thomson and Craig McPherson (Biosis Research Pty Ltd Archaeologists)

The team navigated through and around the Study Area by foot.

The team focused on areas and features within the Study Area where Aboriginal and non-Aboriginal cultural heritage was considered more likely to be identified, such as areas of erosional exposure, around the dams, man made features and trees that appeared to be mature.

The team did not walk through overgrown areas considered to be unsafe. Aboriginal and non-Aboriginal cultural heritage is highly unlikely to be identified in these areas from a direct walkover due to visibility limitations.

6.1.3 Constraints to the survey

With any archaeological survey there are several factors that influence the effectiveness (the likelihood of finding sites) of the survey. The factors that contributed most to how detectable

archaeological sites were in the Study Area were visibility, disturbance and exposure (see below).

Visibility

In most archaeological reports and guidelines visibility refers to *ground surface visibility*, and is usually a percentage estimate of the ground surface that is visible and allowing for the detection of (usually stone) artefacts that may be present on the ground surface (NSW NPWS 1997: Appendix 4). The primary factor that affects visibility is vegetation cover; however other things such as introduced fill will also significantly hamper visibility and surface site detection. Visibility within the Study Area was largely poor, with most of the area featuring dense grass cover. GSV was limited to scours along creek lines, gateways, fence lines, base of trees and sandstone overhang floors.

Exposure

Exposure refers to the geomorphic conditions of the local landform being surveyed, and attempts to describe the relationship between those conditions and the likelihood the prevailing conditions provide for the exposure of (buried) archaeological materials. Whilst also usually expressed as a percentage estimate, exposure is different to visibility in that it is in part a summation of geomorphic processes, rather than a simple observation of the ground surface (Burke and Smith 2004: 79, NSW NPWS 1997: Appendix 4). Overall, the Study Area displays low exposure, with much of the area used as grazing paddocks or current industrial/commercial purposes.

6.2 Aboriginal Heritage Survey Results

The field survey team identified several new areas of Aboriginal archaeological sensitivity and re-assessed one previously registered Aboriginal archaeological site (Table 5 below).

Table 5: Field survey results

Sites	Notes
Previously recorded within the Study Area	
BS 12 (52-2-3692)	Located in Carriage Creek – Lot 1 DP 1128013

The information recorded during the survey has been summarised by landform (Table 6) to add to general knowledge about the relationship between the landscape and Aboriginal cultural heritage sites across the Study Area.

Table 6: Effective survey coverage – landform summary

Landform type	Landform area (m²)	Exposure Area (%)	Visibility (%)	Effective Coverage Area (m²)	Area effectively surveyed (%)	Aboriginal cultural heritage sites
Undulating plain	366,646 m²	2%	5%	3,881.75 m²	>1%	-
Foot slopes	177,439 m²	5%	20%	366,646 m²	>1%	-

River/Creek Valley	186,354 m²	10%	5%	265.18 m²	>1%	Bulli Seam 12 (52-2-3692)
River/Creek Bank	262,497 m²	15%	10%	237.81 m²	>1%	-
Modified	129,280 m²	15%	25%	366,646 m²	>1%	-

The detailed survey effort results within all landform units are summarized in Table 7 following and illustrated on Figure 5.

Table 7: Survey Effort – divided by Landform Units

Location	**Wollondilly Shire Council LES rezoning**
The Proposal	Rezoning of a number of properties from Rural to Light Industrial or IN1 General Industrial pursuant to Draft Wollondilly LEP
Landform - River and Creek Valleys	
Approximate area (m²)	186,354 m²
Notable disturbances	Vegetation clearance on the margins of the landform, access by landowners to access water from the Nepean
Disturbance level	Low – steep cliff lines and banks due to restricted land use suitability
Visibility	Approximately 5% (low) overall due to vegetation cover – however, higher across overhang floors and high for visibility of sandstone overhang features
Notable exposures	Floor of sandstone overhangs and cliff lines, open sandstone platforms in bottom of creek
Area of exposure	Approximately 10% overall
Effective survey coverage	>1%
Aboriginal sites	BS 12 (52-2-3692) - see section 6.2.1 below for further details
Archaeological Sensitivity	High – sandstone shelters with art or deposit
Photo(s)	

Plate 16: Large sandstone overhangs and cliff lines along the Nepean River, facing south east

	
Plate 17: Carriage Creek valley – facing east – very few cliff lines occur away from the Nepean River	**Plate 18**: Incised valley of Carriage Creek at the northern end, facing south east
Landform - River and Creek Banks	
Approximate area (m²)	262,497 m²
Notable disturbances	Vegetation clearance on the margins of the landform, access by landowners to access water from the water ways
Disturbance level	Low – steep cliff lines and banks have restricted land use – some disturbance along upper reaches of Carriage Creek, some small dams have been built to capture
Visibility	Approximately 10% (low) overall due to vegetation cover, including leaf litter
Notable exposures	Around the bases of trees, banks scours, sandstone platforms exposed at top of bank, dam banks
Area of exposure	Approximately 15% overall
Effective survey coverage	>1%
Aboriginal sites	None
Archaeological Sensitivity	High – stone artefact occurrences on the flat above the break of slope
Photo(s)	
	
Plate 19: Exposure at top of Carriage Creek bank, facing east	**Plate 20:** Thick vegetation along the banks of Carriage Creek, close to the Nepean River, facing south east
Landform - Undulating Plain	
Approximate area (m²)	366,646 m²
Notable disturbances	Vegetation clearance, the excavation of dams on drainage features, fence lines, rail way line and associated features, existing residential and commercial developments.

Disturbance level	Moderate – vegetation clearance and land use practices – grazing and residential and commercial activities
Visibility	Approximately 5% (low) overall due to high, thick pasture grasses
Notable exposures	Around the bases of trees, farm vehicle tracks, fence lines
Area of exposure	Approximately 2% overall
Effective survey coverage	>1%
Aboriginal sites	None
Archaeological Sensitivity	Moderate – stone artefact occurrences on flatter crests of the landform
Photo(s)	

Plate 21: Open cleared pastured paddocks offer limited visibility, facing west

Plate 22: Thick grasses across undulating plain, facing south west

Landform - Foot Slopes	
Approximate area (m²)	177,439 m²
Notable disturbances	Vegetation clearance, fence lines and private residences
Disturbance level	Moderate – landuse practices, vegetation clearance
Visibility	Approximately 20% (moderate)
Notable exposures	Around the bases of trees, fence lines, driveways, around houses
Area of exposure	Approximately 5% overall
Effective survey coverage	>1%

Aboriginal sites	None
Archaeological Sensitivity	Low
Photo(s)	

Plate 23: Foot slopes on north western margin of study area – facing south across the undulating plain to the tree lined Nepean River

Plate 24: Exposure on foot slopes in the western section of the Study Area

Landform - Modified	
Approximate area (m²)	129,280 m²
Notable disturbances	Vegetation clearance, the excavation of drainage features, fence lines, existing residential and commercial developments.
Disturbance level	High – commercial developments
Visibility	Approximately 25% (low) due to ground disturbances
Notable exposures	Around existing buildings, fence posts, dam banks, existing residential houses, farm vehicle tracks
Area of exposure	Approximately 15% overall
Effective survey coverage	>1%
Aboriginal sites	None
Archaeological Sensitivity	Low
Photo(s)	

Plate 25: Excavated dam at the top of a minor Nepean River tributary, facing north.

Plate 26: Existing commercial development – Go-Kart track and associated buildings, facing south east

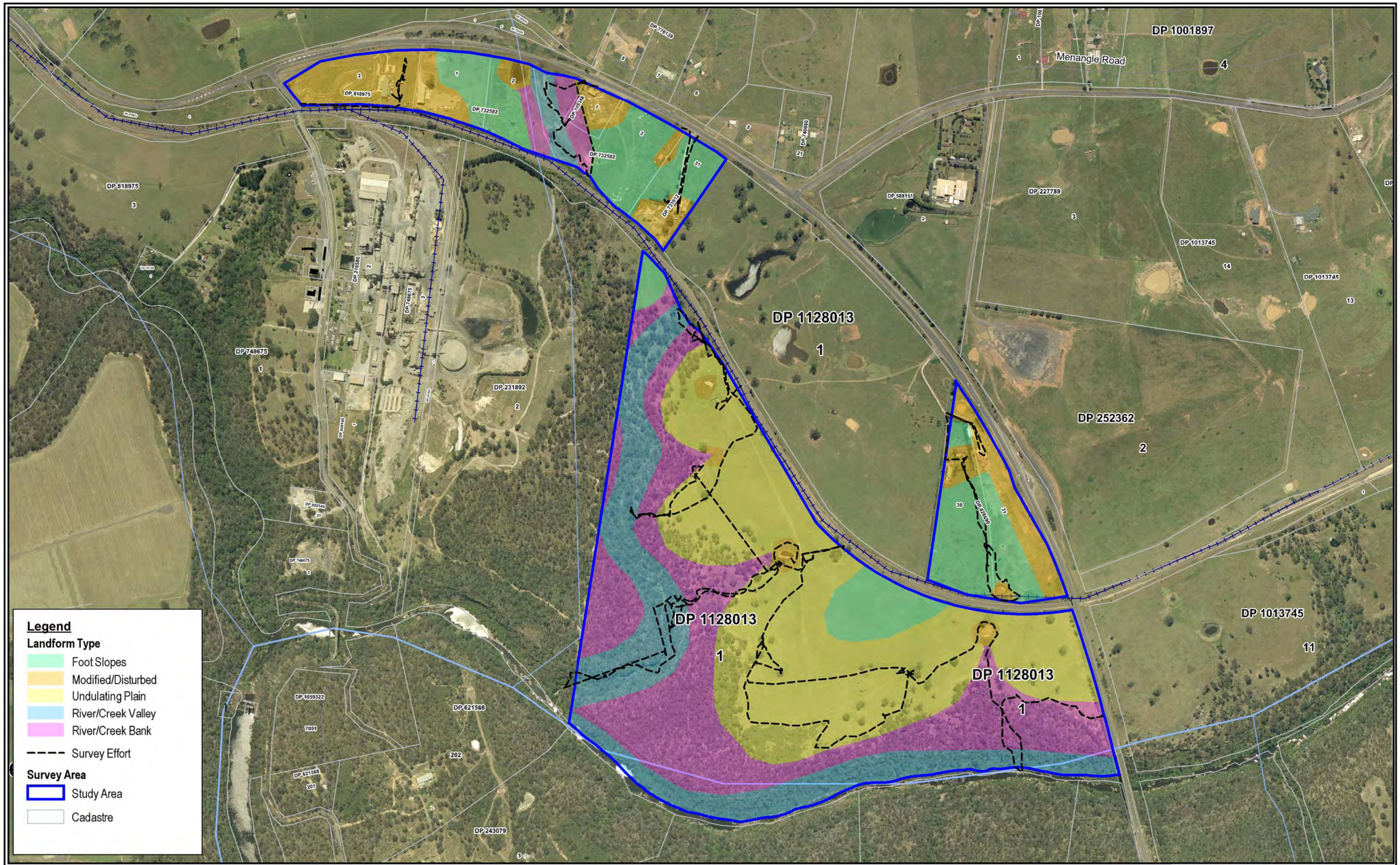

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Figure 5: Archaeological Survey Effort by Landform.

Date: 21 March 2011	Drawn by: ANP
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0 80 160 240 320 400
kilometres

Scale: 1:8,000 at A3
Map Projection: Transverse Mercator
Horizontal Datum: Geocentric Datum of Australia 1994
Grid: Map Grid of Australia, Zone 56

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Figure 5

6.2.1 Previously recorded Aboriginal sites

There is one previously recorded Aboriginal archaeological site identified within the current Study Area that was re-assessed during the field surveys.

Bulli Seam 12 (52-2-3692)

The shelter is located in the middle cliff of the tributary behind the mill. It is a large shelter, with a flat, rocky floor and a flat roof. There is a drop off in front of the shelter and it is located less than 50m west of a waterfall. It is 10m above the water level of the tributary, on the east bank. The art at the shelter consists of four red ochre stencils and one indeterminate patch of red ochre.

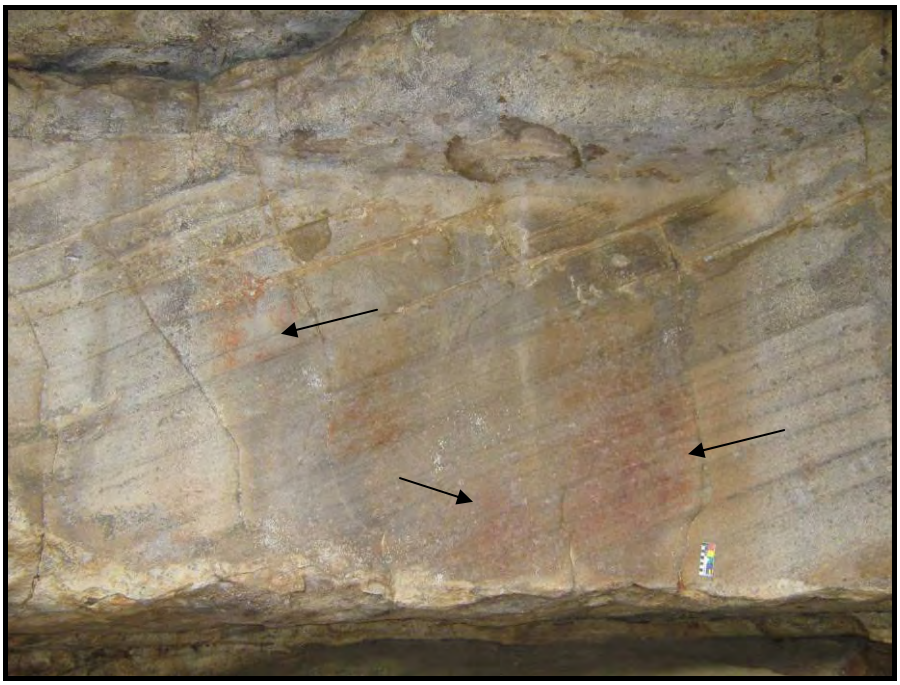

Plate 27: Red hand stencils in poor condition at BS 12

Plate 28: Large overhang at BS 12 – facing south east

6.2.2 Results Summary

One previously recorded Aboriginal archaeological site was re-assessed during the field survey. The site is a large sand stone overhang containing Aboriginal art. This site type is consistent with the prediction that the site type is one of most likely to be identified.

The other site type with a high likelihood of occurrence in the Study Area is stone artefact sites. However, due to very high and thick pasture grasses and native vegetation, this site type was not identified during the field survey.

The Study Area comprises approximately 1,122,380 $m^{2.}$ The overall effectiveness of the survey for examining the ground for Aboriginal sites was considered to be low due to poor ground surface visibility, as described above. There were few opportunities to observe ground surface exposure and these were limited to the edge of dams, slope scours and the base of trees.

The ability to see more obtrusive potential cultural heritage features from a distance within the Study Area overall was considered to be high due to sparse tree cover. This allowed for the easy identification of landforms and determining area of archaeological potential.

The general landscape over which the Study Area extends is characterised by undulating plain at the base of foot hills. Unmodified landforms types observed within the Study Area were limited to ‘River and Creek Valleys’ and some sections of ‘River and Creek Banks’. All other identified land forms had been subject to some form of disturbances from recent human

activities, including vegetation clearance, unsealed tracks and associated vehicle movement, commercial and residential properties, grazing and fencing.

Most trees have been cleared across the Study Area, although larger trees do occur along the margins of the Nepean River and Carriage Creek to the south. Overall, the number of apparent mature trees was very low.

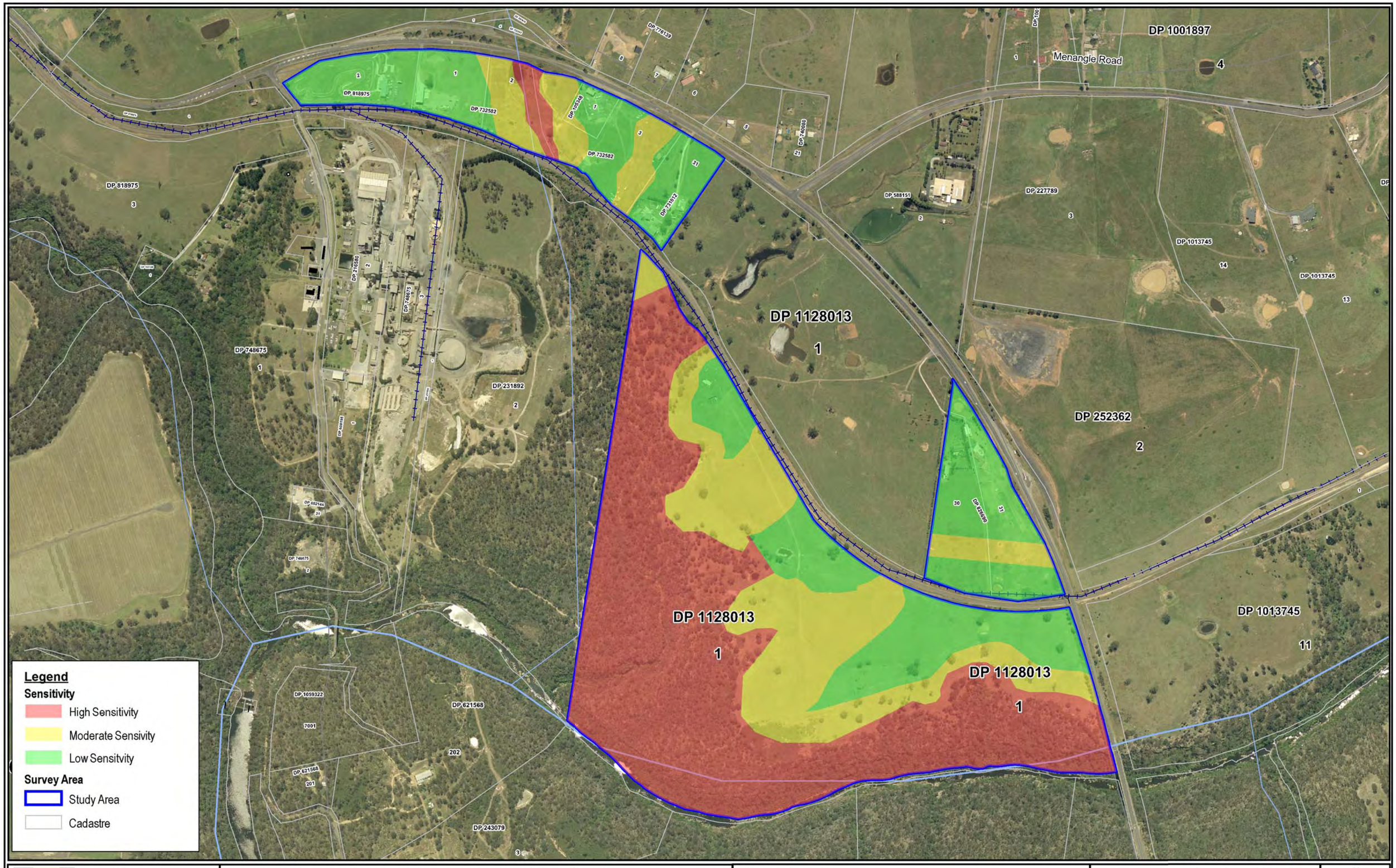

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Figure 6: Aboriginal archaeological sensitivity based on landforms within the Study Area.

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Scale: 1:8,000 at A3
Map Projection: Transverse Mercator
Horizontal Datum: Geocentric Datum of Australia 1994
Grid: Map Grid of Australia, Zone 56

N W E S

Figure 6

6.2.3 Results analysis and archaeological sensitivity zoning

Rivers and Creek valleys

The Nepean River and Carriage Creek are located on the largest property in the south of the Study Area. These features comprise deeply incised valleys that contain sandstone cliff lines and open flat sandstone platforms on the upper banks.

It is unlikely that the Nepean River at this locality would have been used to traverse through the region due to sheer, steep sandstone cliff lines. However, Carriage Creek line would have been used to access the Nepean River as a source water, other resources, and where suitable, for shelter in sandstone overhangs.

Carriage Creek flows south, and would have been used as a route between the Nepean River, the open undulating plains and the ridges lines of Donald's Ridge to the north. Not only would it have provided access within the immediate vicinity of the Study Area, but it allowed access to the head waters of Racecourse Creek, which flows north into the next valley, at the based of Razorback Range.

Within the Study Area, one previously registered Aboriginal site, BS 12 (52-2-3692), a shelter with art, is situated on Carriage Creek. This site contains four red ochre stencils and one indeterminate patch of red ochre. The floor of the shelter may also contain archaeological deposit and it consists of a suitable living floor area. While a number of other suitable sands stone overhangs are situated within the creek, no evidence of occupation was identified.

A number of Aboriginal archaeological sites are registered on the Carriage Creek line and bank within the existing Allied Mills property. These sites comprise isolated or low density artefact occurrences and one scarred tree.

The sensitivity of these parts of the Study Area is *high* and are indicated as such on Figure 6 following.

Undulating Plain

Gentle undulating plain occurs between the top of the drainage features in the south of the Study Area and the foot slopes in the north, similar to an undulating plain landscape. These areas are limited due to the short distance between the changed from the steep incised Nepean River valley and the steep slopes of Donald's Ridge. Aboriginal occupation sites are more likely to occur on more level ground situated within these areas.

Stone artefact discard is likely to be associated with tool manufacture and long term, seasonal occupation. Artefact counts are likely to be higher and consist of various raw materials and stone artefact types. These areas also lie between two distinct ecological zones and the resources available would have been highly varied.

Two Aboriginal archaeological sites and one Potential Archaeological Deposit are registered on the edge of the open plain above the Carriage Creek on the existing Allied Mills property. These sites comprise low density artefact scatters.

The sensitivity of parts of the Study Area on the undulating plain have been classified as *moderate* (Figure 6).

Foot slopes

Properties in the northern section of Study Area include foot slopes associated with Donald's Ridge to the north. These gentle foot slopes between the Nepean River and Donald's Ridge provide a break between these two prominent features.

In general, Aboriginal occupation across these foot slopes would have been transient. Stone artefact discard is likely to be associated with tool maintenance or limited artefact manufacture. Artefact counts are likely to be low and consist of a background scatter, although it should be noted that artefact counts may be higher depending on how often these areas were traversed or how many people used the area. Due to the steep nature of the Nepean River and the foot hills and ridges of Donald's Ridge, the foot slopes would have been traversed from east to west through the Study Area, which is not considered a typical pattern of movement.

The most suitable locations for short term occupation would have been flatter areas on the crests of the adjacent foot hills. Sites occurring on the foot slopes are likely to have been eroded by sheet wash which is exacerbated where vegetation has been cleared and on areas that have been disturbed. Cultural materials, such as stone artefacts, are likely to shift down slopes.

The sensitivity of parts of the Study Area on the hill slopes been classified as *low* (Figure 6).

Modified (Disturbed) Areas

There are parts of the Study Area that have been disturbed to the extent that the integrity of potential cultural materials is likely to be low. These include those parts associated with previous developments including the dams, existing commercial development, residential premises and land use landform modification.

The sensitivity of these parts of the Study Area has been classified as *low* (Figure 6).

Stratification

Stratified sites are likely to retain their spatial and temporal integrity within the soil profile.

Aboriginal shelter with art sites located within the Nepean River and Carriage Creek are likely to contain stratified deposits. Based on previous land use activities across all other parts

of the Study Area, no landforms within the Study Area where Aboriginal sites are likely to be stratified.

6.3 Non-Aboriginal Heritage Survey Results

A site assessment was undertaken in January 2011. The area is located within a largely rural landscape with views to the Razorback range to the north (Plate 30) and the Nepean River to the south. A major creek 'Carriage Creek' runs through the study area north-south. The study area features primarily disused farmlands with a section of remnant bushland located along Carriage Creek and the Nepean River (Plate 29).

As described above there are a number of heritage items in the vicinity of the study area including the Maldon Cement Works (now Blue Circle Southern Cement), which is a major landmark in the Maldon area. Adjacent to the study area is the recent Allied Mills site, which is also visible from views across Picton Rd and the rail line (Plate 31).

Plate 29 – 2011 photograph with view looking towards remnant bushland along Carriage Creek (Source: Biosis Research)

Plate 30 – 2011 photograph showing views across carpark at Go-Kart centre showing Razorback to background (Source: Biosis Research).

Plate 31 – View to Allied Mills Site (Source: Biosis Research, January 2010).

Along Picton Rd there are a number of modern buildings including a Go-Kart track, sheds, a substation and four residential buildings. In addition a number of non-Aboriginal remains or structures were identified during the site assessment within the study area, these items are described in Table 8 below and identified on Figure 7 following:

Table 8: Non-Aboriginal features located within the current Study Area

Name	Image	Description/ Location
1. Fencing - various	  	Located on allotments south of the rail line and east of the existing industrial zone (Lot 32 DP 731012, Lot 1 DP 1128013) are a number of fences and gate posts. Fences are primarily timber posts with some posts indicating evidence of former timber rail construction. There are also some iron rails used for posts. Fencing is mostly wire with some barbed wire. Most fencing is currently in a poor condition reflecting the current disuse of lands for farming activity.
2. Dam		Located on allotments south of the rail line and east of the existing industrial zone (Lot 32 DP 731012, Lot 1 DP 1128013) are two dams, excavated construction only.

Name	Image	Description/ Location
3. House Remains	 	Located on allotments south of the rail line and east of the existing industrial zone (Lot 32 DP 731012, Lot 1 DP 1128013) is the remains of a former residence. Materials indicate mid-20th Century construction including pressed bricks, fibro and corrugated iron. There is no evidence of clearing or footings indicating the remains were likely relocated here. The former location of a residence on the subject site is not evident, and is not apparent on the 1979 aerial photograph of Maldon or earlier plans. GPS Co-ordinates E282697/ N6213294.
4. Shed	 	Located on allotments south of the rail line and east of the existing industrial zone (Lot 32 DP 731012, Lot 1 DP 1128013) is a former shed likely used for hay storage. The shed is constructed of bush poles and is clad in corrugated iron. The shed is partly in ruin and features no roof and appears to have been disused for a number of years. The shed is also not evident on the 1979 aerial of the photograph, and may have been relocated from another location. The structure is a poor condition.

Name	Image	Description/ Location
5. Railway Culverts	 	Located along the railway line at the junction of Carriage Creek are two brick railway culverts, one approx 1.5m in diameter, the other 2.5m in diameter. The culverts are circular in construction with brick aches and retaining walls. One of the culverts was identified in the non-Aboriginal assessment for Allied Mills (assessment supplied by Wollondilly Council). Both culverts appear to date from duplication of the line in the 1890s. Only the southern ends of the culverts were inspected, although the previous report documents one culvert being extended in concrete.
6. House/ Office and Yard	 	Located at 300 Picton Rd is a former residence and workshop site. The building sits within a large allotment featuring exotic trees. The building is constructed of timber weatherboards with a corrugated iron roof. The building appears to date from the early 20th century, however, has been highly altered and extended in a number of stages, including replacement of all but one original timber double hung sash windows with large modern aluminium framed windows. The current owner purchased the building in 1996 and it is currently used as an office.

Name	Image	Description/ Location
7. House		Located at 290 Picton Rd is a small residence and large modern shed. The building is constructed of timber weatherboards with a tiled roof. The building appears to date from the mid 20th century, however, was relocated to the site in c.1995 (oral history from residents at 300 Picton Rd).
8. Substation		Located along Picton Rd is a electrical substation dating from post-1950. The building is constructed of brick and located within a fenced yard. The construction of the substation is likely connected to the development of the Cement Works in the mid 20th Century.
9. Concrete Rubble	 	Located on allotments bounded by Picton Road, rail line and west of the existing industrial zone (Lots 1 and 2 DP 732582, Lot 1 DP 105348) adjacent to the substation are a number of piles of concrete rubble including modern pressed bricks and a cast concrete sign reading 'Danger'. The origin of the rubble is not known but may be associated with the early construction of the adjacent substation site.

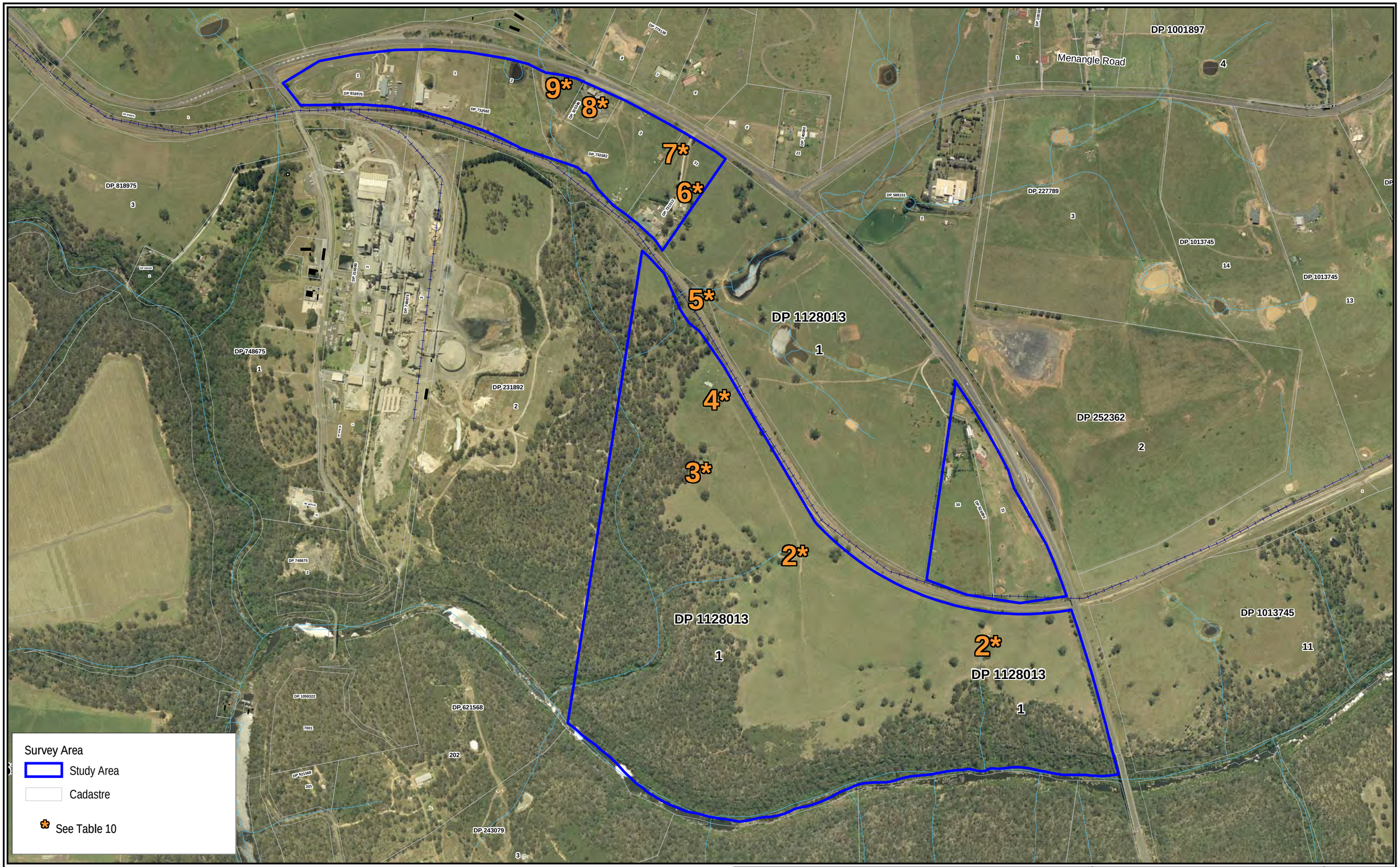

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Figure 7: Location of historic features noted throughout the Study Area. (Table 10)

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kilometres

Scale: 1:8,000 at A3
Map Projection: Transverse Mercator
Horizontal Datum: Geocentric Datum of Australia 1994
Grid: Map Grid of Australia, Zone 56

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Figure 7

6.4 Discussion Historical Context

An assessment of identified items has indicated that there are no heritage constraints relating to the identified non-Aboriginal buildings, structures or materials within the study area. Although, no other surface features were evident during site investigations, the possibility of sub-surface features is likely. It should be noted that the study areas are located within an area that has been occupied by European settlers since the early 1820s and it is likely that archaeological evidence may exist on site. Historical research has indicated that archaeological evidence could likely be related to pastoral farming uses or early use for burning lime.

The study area does not fall within an area with any particular identified cultural heritage landscape values, but open pastoral lands, the backdrop of the Razorback Mountains and remnant bushland have visual characteristics, which collectively contribute to the rural setting of the Picton/Razorback area. These characteristics evident in the landscape at Maldon contribute to the broader cultural landscape of the surrounding area characterised by rural homesteads, small villages, and native and introduced elements of the natural landscape.

There is an established significant industrial history in the area of Maldon associated with early lime burning, and evident in the significant Maldon Cement Works, the railway line as a prominent feature of the area, and significant engineering structures such as the Maldon Suspension Bridge and the Maldon Weir. This existing industrial context would support further similar industrial development.

7.0 SIGNIFICANCE ASSESSMENT

7.1 Introduction to the Assessment Process

Heritage assessment criteria in NSW fall broadly within the significance values outlined in the Australia International Council on Monuments and Sites (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 are provided as background and 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 cultural and archaeological significance of Aboriginal and historic sites and places is 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 the Environment, Water, Heritage and the Arts (DEWHA), the DECC and the Heritage Branch, NSW Department of Planning. The relevant sections of these guidelines are presented below.

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 should be made when evaluating archaeological and cultural significance for Aboriginal sites and places.

In addition to the previously outlined heritage values, the *DECC Guidelines* (DECC 2006) 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 archaeological and cultural significance for sites and places should then be expressed as *statements of significance* that preface a concise discussion of the contributing factors to Aboriginal cultural heritage significance.

7.2 Aboriginal community or cultural values

The DECCW recognises that 'Aboriginal community are the primary determinants of the significance of their heritage' (DECC 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 in Section 7.1 above that relate to community or cultural significance 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.

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' – generally 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. Cultural significance is 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.

7.2.1 Cultural Significance

All Aboriginal cultural heritage sites surrounding the Study Area are considered to be of cultural significance to the Tharawal Local Aboriginal Land Council (Appendix 1). The sites are evidence of past Aboriginal occupation and use of the area, and are the main source of information about the Aboriginal past. In addition, any recorded (and unrecorded) pre-contact sites are of cultural significance because they are rare or, at least, uncommon site-types. In particular, many sites in the greater Cumberland Lowlands region have been destroyed as a result of land clearance and land-use practices in the historic period.

Further comment on the cultural significance of Aboriginal cultural heritage relevant to the Project Area was sought from the Aboriginal parties with the provision of this assessment on 16 February 2011.

7.2.2 Cultural Landscape Values / Significance

The principle behind a cultural landscape is that 'the significance of individual features is derived from their inter-relatedness within the cultural landscape' (DECC n.d.: 5-6). This means that sites or places cannot be 'assessed in isolation' but must be considered as parts of a wider context of features with cultural and social value. Hence the site or place may possibly have values derived from its association with other sites and places, and its context within the physical landscape. 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 (DECC n.d.: 5).

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

7.3 Archaeological (Scientific Significance) Values - Aboriginal

The archaeological (scientific) significance of sites was assessed in accordance with the following criteria:

- 'Standards Manual for Archaeological Practise in Aboriginal Heritage Management', a companion document of the 'Aboriginal Cultural Heritage Standards and Guidelines Kit' (NPWS (now DECCW) 1997)
- 'Australia International Council on Monuments and Sites (ICOMOS) Burra Charter' (Australia ICOMOS 1999)

Use of these guidelines in combination is widely considered to represent best practise for archaeological (significance) assessments of Aboriginal cultural heritage.

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

General site considerations, including factors such as:

- *Site intactness or integrity:* This includes the state of preservation of archaeological objects, as well as the stratigraphic integrity of the site, the taphonomic processes acting on the site (i.e. the factors that affect a site after its original use), and the impact of past artefact collections made at the site.

- *The connectedness* of the site to other sites – when considered as part of a larger assemblage or landscape the site may have greater research potential than if it was simply considered in isolation.

- *Chronological potential* refers to the potential of a site to provide a dateable framework extending back into the past. The potential antiquity of a site is also an important consideration, as older sites are relatively less common than younger sites. In many cases stratified, dateable artefact bearing deposits are sufficiently rare to be a very valuable resource.

Representativeness

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

Rarity

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

Research Potential

Research potential is essentially a summation of the above values in the general, representativeness and rarity criteria (DECC NPWS 1997). Pearson and Sullivan note that Aboriginal archaeological sites are generally of high research potential because 'they are the major source of information about Aboriginal prehistory' (1995: 149). Indeed, the often great time depth of Aboriginal archaeological sites gives them research value from a global perspective, as they are an important record of humanity's history. Research potential can also refer to specific local circumstances in space and time – a site may have particular characteristics (well preserved samples for absolute dating, or a series of refitting artefacts, for example) that mean it can provide information about certain aspects of Aboriginal life in the past that other less or alternatively valuable sites may not (Burke and Smith 2004: 247-8). When determining research potential value particular emphasis has been placed on the potential for absolute dating of sites.

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

Aesthetic values

There is a diverse yet accessible literature regarding identifying aesthetic values and determining aesthetic significance (Burke and Smith 2004: 248-9, Kerr 1996: 15-16, Pearson and Sullivan 1999: 134-8). It is generally agreed that aesthetic values are an important part of cultural heritage significance, however they are dependent on an individual's sensory response, which means determining aesthetic value is fraught with difficulty, and should be applied on a case-by-case basis as it is not always a value applicable to archaeological sites (Burke and Smith 2004: 248). However, when dealing with some types of sites aesthetic values and landscape context are an important consideration. The question 'does the place have a relationship between its parts and the setting which reinforces the quality of both', while originally proposed in an architectural context (Kerr 1996: 15), is relevant also for many sites in a local setting—such as in forests, deserts, coastlines or indeed wetlands—where there is often an important relationship between the cultural site and natural environment, which contribute to the values of a 'sense of place'.

The following sections provide statements of significance for the Indigenous archaeological sites recorded during the field survey for the assessment. The significance of each site follows the assessment process outlined above. This includes a statement of significance based on the categories defined in the Burra Charter. These categories include social, historic, scientific, aesthetic and cultural (in this case archaeological) landscape values. Nomination of the level of value—high, moderate, low or not applicable—for each relevant category is also proposed. Where suitable the determination of cultural (archaeological) landscape value is applied to both individual sites and places (to explore their associations) and also, the Study Area as a whole. The nomination levels for the archaeological significance of each site are summarised below.

7.3.1 Statements of Archaeological Significance

Summary statements of the assessed archaeological (scientific) significance of the sites located within the Study Area are provided below along with a discussion of the factors considered in these assessments (Table 8).

Table 9: Archaeological (scientific) significance summary statements

Aboriginal Archaeological Site	***Discussion***	***Archaeological (scientific) significance***
Sites within the Study Area		
Bulli Seam 12 (52-2-3692)	This description is based on updated information about the site obtained from Biosis Research during the current field survey that was originally registered by Biosis Research in 2010. **General:** Features at this site have low value under the general criteria. The site is considered to have little archaeological potential. **Representativeness:** The site has low representative value of this class of site. **Rarity:** This type of site is common in this area. **Aesthetic:** The location of this site affords the site limited aesthetic value.	Low

7.4 Historic Sites – Assessment of Significance

Significance Assessment Criteria

Items identified through historical and physical analysis are described in the table below (Table 10) with an accompanying assessment of heritage significance. An item will be considered to be of State (or local) heritage significance if, in the opinion of the Heritage Council of NSW, it meets one or more of the following criteria:

> Criterion (a) - An item is important in the course, or pattern, or NSW's cultural or natural history (or the cultural or natural history of the local area).
>
> Criterion (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 (or the cultural or natural history of the local area);
>
> Criterion (c)- An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area);
>
> Criterion (d) - An item has strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons;
>
> Criterion (e) - An item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area);

Criterion (f) - An item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history (or the cultural or natural history of the local area);

Criterion (g) -An item is important in demonstrating the principal characteristics of a class of NSW's (or the local area's) cultural or natural places; or cultural or natural environments.

Table 10 - Assessment of Significance for Identified Items

Name	Image	Description/ Location	Assessment of Significance
1. Fencing - various	 	Located on allotments south of the rail line and east of the existing industrial zone (Lot 32 DP 731012, Lot 1 DP 1128013) are a number of fences and gate posts. Fences comprise primarily timber posts with some posts indicating evidence of former timber rail construction. There are also some iron rails used for posts. Fencing is mostly wire with some barbed wire. Most fencing is currently in a poor condition reflecting the current disuse of lands for farming activity.	Fencing contributes to the demonstration of previous pastoral uses on site. However, current evidence does not demonstrate any significant pastoral activity within the study area or associations with early farming activity and/or development of the Maldon/Picton area. Fencing techniques are not considered unique or good representative examples of their type. The fencing *does not* meet criteria for heritage listing at a State or local level, no heritage constraints apply.

Name	Image	Description/ Location	Assessment of Significance
			
2. Dam		Located on allotments south of the rail line and east of the existing industrial zone (Lot 32 DP 731012, Lot 1 DP 1128013) are two dams, excavated construction only.	The dams contribute to the demonstration of previous pastoral uses on site. However, current evidence does not demonstrate any significant pastoral activity within the study area or associations with early farming activity and/or development of the Maldon/Picton area. Dam construction techniques are not considered unique or good representative examples of their type. The dams *do not* meet criteria for heritage listing at a State or local level, no heritage constraints apply.

Name	Image	Description/ Location	Assessment of Significance
3. House Remains	 	Located on allotments south of the rail line and east of the existing industrial zone (Lot 32 DP 731012, Lot 1 DP 1128013) is the remains of a former residence. Materials indicate mid-20th Century construction including pressed bricks, fibro and corrugated iron. There is no evidence of clearing or footings indicating the remains were likely relocated here. The former location of a residence on the subject site is not evident, and is not apparent on the 1979 aerial photograph of Maldon or earlier plans. GPS Co-ordinates E282697/ N6213294.	The remnants of the former house are modern and are not associated with the pastoral development of the area, and the location of the remains is unknown. Building materials and remains not considered unique or good representative examples of their type. The house remains *do not* meet criteria for heritage listing at a State or local level, no heritage constraints apply.

Name	Image	Description/ Location	Assessment of Significance
4. Shed	 	Located on allotments south of the rail line and east of the existing industrial zone (Lot 32 DP 731012, Lot 1 DP 1128013) is a former shed likely used for hay storage. The shed is constructed of bush poles and is clad in corrugated iron. The shed is partly in ruin and features no roof and appears to have been disused for a number of years. The shed is also not evident on the 1979 aerial of the photograph, and may have been relocated from another location. The structure is a poor condition.	The former shed appears to be a modern structure using recycled materials. The shed is not associated with the early pastoral development of the area, and its former location is not known. Building materials and construction techniques are not considered unique or good representative examples of their type. The shed *does not* meet criteria for heritage listing at a State or local level, no heritage constraints apply.

Name	Image	Description/ Location	Assessment of Significance
5. Railway Culverts	 	Located along the railway line at the junction of Carriage Creek are two brick railway culverts, one approx 1.5m in diameter, the other 2.5m in diameter. The culverts are circular in construction with brick aches and retaining walls. One of the culverts was identified in the non-Aboriginal assessment for Allied Mills (assessment supplied by Wollondilly Council). Both culverts appear to date from duplication of the line in the 1890s. Only the southern ends of the culverts were inspected, although the previous report documents one culvert being extended in concrete.	The railway culverts appear to retain a high level of integrity and are representative of railway construction techniques from the late 19th century. Brick culverts are however numerous in NSW and not readily identified as heritage items due to their standard construction techniques and limited visibility for public view. A search of the State Heritage Inventory for comparative analysis indicates approximately 20 statutory listed culverts in NSW. The only two railway culverts listed are sandstone culverts associated with the earliest railway construction phases in NSW. Both culverts at Maldon are not visible from public access and do not demonstrate any unique or distinguishing features. The culverts *do not* meet criteria for heritage listing at a State or local level, no heritage constraints apply.

Name	Image	Description/ Location	Assessment of Significance
6. House/ Office and Yard	 	Located at 300 Picton Rd is a former residence and workshop site. The building sits within a large allotment featuring exotic trees. The building is constructed of timber weatherboards with a corrugated iron roof. The building appears to date from the early 20th century, however, has been highly altered and extended in a number of stages, including replacement of all but one original timber double hung sash windows with large modern aluminium framed windows. The current owner purchased the building in 1996 and it is currently used as an office.	The history of the building is not known, but appears to be the oldest surviving building within the study area. The building however has a low level of integrity and does not demonstrate well any particular phase of development. The building does not demonstrate any unique or distinguishing features. The building *does not* meet the criteria for heritage listing at a State or local level, no heritage constraints apply. The surrounding garden and landscape contribute to the rural landscape setting of the area, but *do not* meet the criteria for heritage listing at a State or local level, no heritage constraints apply.

Name	Image	Description/ Location	Assessment of Significance
7. House		Located at 290 Picton Rd is a small residence and large modern shed. The building is constructed of timber weatherboards with a tiled roof. The building appears to date from the mid 20th century, however, was relocated to the site in c.1995 (oral history from residents at 300 Picton Rd).	The history of the building is not known, but the building was relocated to the site in recent times and does not contribute to the historical development of the area. The building does not demonstrate any unique or distinguishing features. The building *does not* meet the criteria for heritage listing at a State or local level, no heritage constraints apply.
8. Substation		Located along Picton Rd is a electrical substation dating from post-1950. The building is constructed of brick and located within a fenced yard. The construction of the substation is likely connected to the development of the Cement Works in the mid 20th Century.	The substation does not demonstrate any particular architectural or technical features. Its associations with the Maldon Cement Works is not evident. The building does not demonstrate any unique or distinguishing features. The building *does not* meet the criteria for heritage listing at a State or local level, no heritage constraints apply.

Name	Image	Description/ Location	Assessment of Significance
9. Concrete Rubble	 	Located on allotments bounded by Picton Road, rail line and west of the existing industrial zone (Lots 1 and 2 DP 732582, Lot 1 DP 105348) adjacent to the substation are a number of piles of concrete rubble including modern pressed bricks and a cast concrete sign reading 'Danger'. The origin of the rubble is not known but may be associated with the early construction of the adjacent substation site.	The concrete rubble could be associated with industrial development of Maldon in the 1950s, but its origins are unknown and it is unlikely to yield any significant understanding on the development of the area. Building materials and remains are not considered unique or good representative examples of their type. The concrete rubble *does not* meet criteria for heritage listing at a State or local level, no heritage constraints apply.

8.0 IMPACT ASSESSMENT

8.1 Proposed Development

Wollondilly Shire Council is considering a planning proposal to rezone the land within the Study Area from RU2 Rural Landscape to IN1 General Industrial and either E3 Environmental Management or E2 Environmental Conservation around the Nepean River and Carriage Creek pursuant to the Wollondilly LEP 2001.

Given the high Aboriginal archaeological sensitivity of the landforms located in areas of bushland adjacent to the Nepean River and Carriage Creek it is considered that this land should be rezoned E2 Environmental Conservation to provide a greater degree of protection for any Aboriginal archaeological sites.

8.2 Potential Impacts – Aboriginal Heritage

The land proposed to be rezoned for employment uses is likely to results in the subdivision of the land, which will involve the construction of industrial buildings and infrastructure. This development has the potential to impact on subsurface Aboriginal archaeological sites, particularly in areas of moderate and high archaeological sensitivity.

8.3 Potential Impacts – Non-Aboriginal Heritage

Archaeology

The construction of both the buildings and accompanying infrastructure could impact unidentified subsurface archaeological deposits through excavation and movement of soil and the passage of large machinery and vehicles. The Heritage Act requires a person who has discovered a relic that notification must be provided to the NSW Heritage Council of the discovery within a reasonable time. This stop-work provision would apply to any development within the study area, and an excavation permit may be required before works can commence.

Heritage Items in the Vicinity

New development could impact on heritage items in the vicinity of the study area. These impacts are likely to be minimal based on the findings of the heritage component of this study.

Rural Landscape Setting

The existing rural landscape characteristics of Maldon are not considered of heritage significance, but contribute to the overall rural setting of the Picton/Razorback area and identified cultural landscape units (Wollondilly Heritage Study). New development could impact on this existing context.

9.0 RECOMMENDATIONS

Aboriginal Heritage

Recommendation 1: *Zoning to conserve areas of high Aboriginal sensitivity*

Areas of high Aboriginal archaeological sensitivity located in areas of bushland adjacent to the Nepean River and Carriage Creek should be rezoned E2 Environmental Conservation to provide a greater degree of protection for known and potential Aboriginal archaeological sites.

Recommendation 2: *Wollondilly Shire Aboriginal Heritage Study*

Information from this study and information on cultural heritage sites identified from further investigation shall be used to inform any future Wollondilly Shire Aboriginal Heritage Study. This study should involve detailed Aboriginal consultation as per the *Aboriginal cultural heritage consultation requirements for proponents 2010,* prior to the commencement of any additional archaeological work, including archaeological test excavations.

Recommendation 3: *Conduct test excavations in areas of high and moderate (archaeological) sensitivity*

It is recommended that archaeological test excavations be undertaken within areas of the high and moderate (archaeological) sensitivity, as identified in this report, prior to the design of any future subdivision. These investigations will provide certainty about the presence, extent and significance of subsurface archaeological deposits. These methods of investigation must follow the *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (the Code) (DECCW 2010).

Recommendation 4: *No further archaeological work required for the zone of low Aboriginal archaeological sensitivity*

No further archaeological work is required within zones of low Aboriginal archaeological sensitivity identified in this report except in the event that new sites / objects are unearthed during any phase of the project (refer to Recommendation 5 below).

Recommendation 5: *Stop work provision for any potential heritage sites identified during construction*

All Aboriginal places and objects are protected under the *NSW National Parks and Wildlife Act 1974*.

If construction proceeds without an approved AHIP, work must cease if Aboriginal objects or places are identified. Sydney Water and the project archaeologist must be notified to make an assessment of the find and advise on subsequent management.

All Aboriginal places and objects are protected under the *NSW National Parks and Wildlife Act 1974*. This protection extends to Aboriginal objects and places that have not been identified but might be unearthed during construction.

Historical archaeological sites are protected under the relics provisions (s139 – 146) of the *NSW Heritage Act 1977*. Should any historical archaeological sites be identified during any phase of the proposed development, all works must cease in the vicinity of the find and the project archaeologist and Sydney Water notified. Should the archaeological nature of the find be confirmed the Heritage Branch, NSW Department of Planning, will require notification.

Discovery of human remains

If any suspected human remains are discovered during any activity works, all activity in the vicinity must cease immediately. The remains must be left in place and protected from harm or damage. The following contingency plan describes the immediate actions that must be taken in instances where human remains or suspected human remains are discovered. Any such discovery at the activity area must follow these steps:

3. Discovery: If suspected human remains are discovered all activity in the vicinity must stop to ensure minimal damage is caused to the remains; and the remains must be left in place, and protected from harm or damage.

4. Notification: Once suspected human skeletal remains have been found, the Coroners Office and the NSW Police must be notified immediately. Following this, the find will be reported to the Aboriginal parties and DECCW NSW.

Recommendation 6: *Development Controls*

It is recommended that **Recommendation 2-4** be incorporated into Council's Wollondilly DCP 2011 and /or within specific site provisions. Landowners should be informed about their role with regard to Aboriginal heritage finds by including a Section 88B instrument with relevant restrictions on any new allotment which would potentially impact on Aboriginal heritage sites.

Non-Aboriginal Heritage

Recommendation 1 - *Stop work provision: Archaeology*

Should any previously unidentified historic archaeological objects or places be identified during excavation and construction, all works must cease in the vicinity of the find and the NSW Heritage Council notified. A qualified archaeologist should be contacted to assess the significance of any potential relics of local or State significance. Where relics are identified an excavation permit will be required in accordance with Sections 138-146 of the NSW Heritage Act.

Recommendation 2 – *Managing Impacts on Listed Heritage Items within the vicinity of the Study Area*

Where development is proposed within the study area, an assessment of the impacts on heritage items in the vicinity should be undertaken. A Statement of Heritage Impact (SoHI) in accordance with NSW Heritage Branch guidelines should be prepared by a qualified heritage consultant to assess the potential impacts and mitigation measures for reducing impacts. No new development should compromise the existing heritage values of the Maldon area.

Recommendation 3 – *Rural Landscape Setting*

Rezoning of the area should not result in an 'urban' industrial landscape and should not impact on the greater rural landscape setting of the Picton/Razorback area. Controls should ensure sufficient landscaping and areas of open space are provided within any subdivisions and new industrial developments. Existing areas of remnant bushland should be retained where possible.

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APPENDICES

APPENDIX 1: ABORIGINAL COMMUNITY COMMENTS

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 Parramatta.

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 Department of Planning, Heritage Branch.

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) is of State or local significance.*

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 Branch. The contact details are:

Heritage Branch, NSW Department of Planning
3 Marist Place

PARRAMATTA NSW 2150
Ph: (02) 9873 8500
Fax: (02) 9873 8599

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

ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

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

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

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

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

The Local Government Act 1993

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