Aboriginal Archaeological and Cultural Heritage Impact Assessment

Royal North Shore Hospital
St Leonards, NSW

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July 2006

Report to Burns Bridge Services Pty Ltd

Executive Summary

This report presents the results of an Aboriginal Archaeological and Cultural Heritage Impact Assessment that has been prepared by *Dominic Steele Consulting Archaeology* on behalf of *Burns Bridge Services Pty Ltd* for the Royal North Shore Hospital site at St Leonards, NSW. The assessment has been undertaken with the objectives of identifying any 'clear and obvious' Aboriginal cultural heritage issues that may be apparent at this early stage of the planning process in order to inform plans that are currently proposed for the future upgrade and redevelopment of portions of the hospital site complex.

The current study involved the completion of background research, a site inspection, and subsequent assessment of the hospital grounds that was completed in partnership with the *Metropolitan Local Aboriginal Land Council* who represent Aboriginal cultural heritage interests in this area.

The site inspection did not result in the location of any sites or items of Aboriginal archaeological heritage, or the identification of any areas of potential Aboriginal archaeological or cultural heritage sensitivity. Furthermore, it is considered unlikely that any such heritage evidence that may have formerly been present on the hospital grounds will have survived due to the highly disturbed nature of the site that has occurred as a result of multiple phases of development and alteration of the place over time.

In conclusion, no previously recorded sites/items of Aboriginal cultural heritage have been located within the hospital site grounds, and no Aboriginal cultural concerns have been identified during the current study with respect to the proposed future upgrade and redevelopment works.

There are therefore no Aboriginal archaeological or cultural heritage constraints to the proposed future upgrade and redevelopment works proceeding as intended within the current boundaries of the hospital complex.

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1.0 Introduction

1.1 Background to the Project

Burns Bridge Services Pty Ltd has commissioned *Dominic Steele Consulting Archaeology* (DSCA) to undertake an Aboriginal Archaeological and Cultural Heritage Impact Assessment for Royal North Shore Hospital at St Leonards (see **Figure 1**).

The assessment included the entirety of the hospital complex and will inform the planning process for a proposed upgrade and redevelopment of portions of the hospital site. The current assessment of potential Aboriginal cultural heritage impacts has been undertaken to ensure that the Aboriginal cultural heritage values of the hospital site are not adversely affected by any future upgrades and redevelopments.

1.2 The Proposal

Planning for the currently proposed upgrade and redevelopment works is not currently finalised and is to be guided, amongst other things, by the current assessment. However it is understood that the works will include refurbishment of existing buildings and construction of additional buildings. These currently proposed works are to be restricted to the portions of the hospital site as indicated in **Figure 2**.

1.3 Statutory Context and Controls

1.3.1 Statutory Protection for Aboriginal Heritage

Two principal pieces of legislation provide automatic statutory protection for Aboriginal heritage and the requirements for its management in New South Wales. These are the *National Parks and Wildlife Act* (1974) and the *Environmental Planning and Assessment Act* (1979). The NPW Act is now administered by the *Department of Environment and Conservation* (DEC).

The implications of these statutory controls (specifically the NPW Act) within the context of the current development proposal are outlined below.

1.3.2 National Parks & Wildlife Act

The *National Parks & Wildlife Act* (1974) provides statutory protection for all Aboriginal 'objects' (consisting of any material evidence of the indigenous occupation of NSW) under Section 90 of the Act, and for 'Aboriginal Places' (areas of cultural significance to the Aboriginal community) under Section 84. Aboriginal objects are afforded automatic statutory protection in NSW whereby it is an offence (without the Minister's consent) to:

> *'damage, deface or destroy Aboriginal sites without the prior consent of the Director-General of the National Parks and Wildlife Service (*now the DEC*)'.*

The Act defines an Aboriginal 'object' as:

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

The protection provided to Aboriginal objects applies irrespective of the level of their significance or issues of land tenure. However, areas are only gazetted as Aboriginal Places if the Minister is satisfied that sufficient evidence exists to demonstrate that the location was and/or is, of special significance to Aboriginal culture.

1.3.3 Environmental Planning & Assessment Act

In contrast with the NPW Act, the *Environmental Planning & Assessment Act* 1979 (EP&A Act) is designed more specifically to cater for heritage issues within the context of new development projects and is closely linked with the process of preparing environmental impact studies. This act has three main parts of direct relevance to Aboriginal cultural heritage. Namely, Part III which governs the preparation of planning instruments, Part IV which relates to development assessment process for local government (consent) authorities and Part V which relates to activity approvals by governing (determining) authorities.

Part III deals primarily with development planning in which sites and places sacred or significant to Aboriginal communities are to be assessed and are to be taken into consideration in initial studies. Planning NSW has produced guidelines on the preparation of planning instruments such as *State Environmental Planning Policies* (SEPP's, REPs and LEPs) that explicitly list Aboriginal sites and places of significance as values which should be assessed as part of initial planning studies.

Part IV deals with decisions to be made within the context of development applications. The *Department of Environment & Conservation* is an approving body under Part V of the EP&A Act and will require formal consideration of a variety of cultural and community factors. These may variously include potential impact to significant anthropological, archaeological, cultural and historical values, and these will typically be addressed through a *Review of Environmental Factors* (REF).

SEPP (Major Projects) 2005[1] provides that hospital upgrades and construction works can be considered "state significant development" for planning purposes. If this status is sought for future works, it can trigger planning provisions under Part 3A of the EP&A Act 1979 (as amended), whereby the Minister for Planning becomes the consent authority, and some heritage protection provisions (such as the requirement for permits under s.87 and s.90 of the NPW Act) can be overridden.

1.3.4 Implications

Damage, destruction or removal of any Aboriginal 'places' or 'objects' is only permitted where a Permit or Consent has been issued by the Director-General of the DEC according to Sections 87 and 90 of the *NSW National Parks & Wildlife Act 1974* (as amended).

[1] Formerly known as State Environmental Planning Policy (State Significant Development) 2005.

NPWS Permits and Consents are only granted where sufficient information is supplied in written form to the Director-General of the DEC from Aboriginal stakeholders, archaeologists and developers that demonstrate accuracy and transparency in the site assessment process and the good faith intended by each of these parties in applying for consent to either move, disturb and/or destroy statutorily protected objects.

Best practice advocates that development impact to documented and/or potential sites of Aboriginal cultural heritage sensitivity be avoided where practicable and/or mitigated at the minimum, and that all decisions made for either course of action be made consequent to direct guidance provided by Aboriginal stakeholders.

1.4 Report Objectives

The objectives of the current study have been to provide an Aboriginal archaeological survey and heritage impact assessment of the subject land according to the following directives.

1.4.1 Aboriginal Consultation

- To initiate consultation with the *Metropolitan Local Aboriginal Land Council* (MLALC).
- To involve the MLALC in the field survey of the subject land.
- To invite any Aboriginal cultural or historical knowledge about the subject land from the MLALC to inform the assessment.
- To incorporate into the assessment process the Aboriginal cultural views, concerns and recommendations provided by the MLALC.

1.4.2 Background Research

- To undertake background research into the location and nature of any previously recorded Aboriginal archaeological sites that may be present either within the hospital complex and/or in areas immediately adjacent.
- From a review of the known archaeology of the local region, to prepare a predictive model describing the archaeological sensitivity of the hospital complex and to predict the potential for unrecorded sites to occur within this area.

1.4.3 Site Survey & Assessment

- To undertake an archaeological survey of the hospital complex in partnership with a representative of the MLALC.
- To identify and record any items of Aboriginal cultural heritage that may be present and to assess their significance.
- To provide an assessment of the potential for undetected archaeological evidence to occur within the hospital complex.

1.4.4 Analysis, Evaluation and Report

- To prepare a report detailing the outcomes of the consultation undertaken with the MLALC, the results of the field survey, and an Aboriginal archaeological assessment of the hospital site that meets the requirements of the NPWS *Aboriginal Cultural Heritage Standards & Guidelines Kit*[2] (NPWS 1997).
- To provide management options and recommendations that present an appropriate framework for the protection of items of Aboriginal cultural heritage that may be located within the hospital complex.

1.5 Aboriginal Consultation

The hospital site falls within the administrative boundaries of the *Metropolitan Local Aboriginal Land Council* (MLALC). MLALC Cultural & Education Officer Mr Allen Madden was contacted by DSCA upon engagement for the current project and was invited to take part in an Aboriginal sites survey of the hospital site in conjunction with DSCA. Survey was undertaken on Tuesday 20 June 2006 by Paul Irish (DSCA archaeologist) and Mr Allen Madden.

Upon completion of the survey the potential Aboriginal cultural heritage significance of the hospital complex was discussed with Mr Madden. The MLALC were asked to provide an Aboriginal Cultural Heritage report to discuss any concerns they may have with respect to any future works within the hospital complex. This report has been included as **Appendix 1**.

1.6 Report Outline

This report presents the following:

- An introduction to the project (**Section 1.0**).
- A description of the environmental setting of the subject land that includes a review of its geology, topography, hydrology, vegetation and soils. This section also provides a brief summary of the land use history of the subject land (**Section 2.0**).
- A summary of the local Aboriginal archaeological context relevant to the project, and a prediction of the types of archaeological evidence that may be present within the subject land (**Section 3.0**).
- The methods employed to survey and record the study area, and the results of the site inspection (**Section 4.0**).
- The results and conclusions that have been developed for the project and an evaluation of Aboriginal archaeological significance and sensitivity relative to the

[2] Some components of this kit, such as the "Guidelines for Archaeological Survey Reporting" are still in draft form and have not been finalised. Other sections such as the "Standards for Archaeological Practice in Aboriginal Heritage Management" were intended as updatable guides though no supplement has been provided since the original edition in 1997. These documents are assumed therefore to be continuing valid expressions of best archaeological practice according to the NPWS (now Department of Environment & Conservation).

works proposed. This is presented in the form of a *Statement of Heritage Impact* (**Section 5.0**).

- The provision of management recommendations that detail advice on the nature and scope of further Aboriginal archaeological requirements that may potentially be required prior to and/or during future upgrade and redevelopment works at the place (**Section 6.0**).
- References cited in this report (**Section 7.0**).
- Correspondence provided by the *Metropolitan Local Aboriginal Land Council* for the project (**Appendix 1**).

1.7 Authorship

This report has been written by Paul Irish. Final editorial input has been provided by Dominic Steele.

1.8 Report Limitations

Recent changes to Aboriginal cultural heritage management policies provided by the *NSW Department of Environment & Conservation* concerning *'Public consultation for s87 Permits and s90 Consents* under *the National Parks & Wildlife Act (1974)'* bear relevance to this project (DEC 2004).

These primarily concern the outcomes of a court case that was determined in the *Land and Environment Court* in November 2004 (*'Williams v Director-General Department of Environment and Conservation, Country Energy and another'*). The Court decided on the 5th of November 2004 that:

> *'A consent and permit were invalid because Mr Williams had a legitimate expectation of being involved in the archaeological survey of the land to be affected. The decision extended the requirement to consult to the involvement of any Aboriginal people with an interest in the project in survey work and not just to considering specific proposals at completion of the survey and report development.'*

A letter of advice received from the DEC (November 2004) concerning this outcome concludes that:

> *'In the longer term for future projects, the Department is proposing to draft new guidelines on consultation to apply to applicants and will be seeking input from stakeholders on their content.'*

As of May 2006 the Aboriginal community and Aboriginal archaeological consultants are still awaiting finalised guidelines to give precise direction to this process and to which specific Aboriginal individuals/stakeholder groups would be required to be consulted with and/or involved in future Aboriginal archaeological projects in the area.

1.9 Summary of Conclusions and Recommendations

The survey did not locate any items of Aboriginal cultural heritage or areas of Aboriginal archaeological potential. No items of Aboriginal cultural heritage have been registered on the DEC AHIMS Aboriginal Sites Register within or immediately adjacent to the subject land.

The subject land is situated on a hilltop with residual soils, in which Aboriginal cultural remains can be expected to have been largely restricted in the past to open campsites (stone artefacts) and culturally modified (scarred or carved) trees. The high impact of the construction and use of the hospital complex has ensured that most if not all traces of the original Aboriginal occupation of the area will not have survived. Any surviving Aboriginal cultural remains will be isolated or low density scatters of Aboriginal stone artefacts in totally disturbed contexts. These would have no *archaeological* significance and would be largely impossible to detect during construction works.

No intact or extensive Aboriginal cultural remains are considered likely to survive within the Royal North Shore Hospital site. There are therefore no adverse Aboriginal cultural heritage impacts anticipated from any future works within this site and there are no further requirements for additional archaeological works to be undertaken in relation to the current or any future proposals at the site.

It is recommended that:

I. No Aboriginal archaeological or cultural heritage constraints have been identified during the completion of this study that would prevent the proposed future upgrade and redevelopment works within the current boundaries of the hospital complex from proceeding as intended.

II. The proposed upgrade and redevelopment works should proceed as currently proposed and no further Aboriginal archaeological work is required to be undertaken prior to the commencement of development works should consent be obtained from Council.

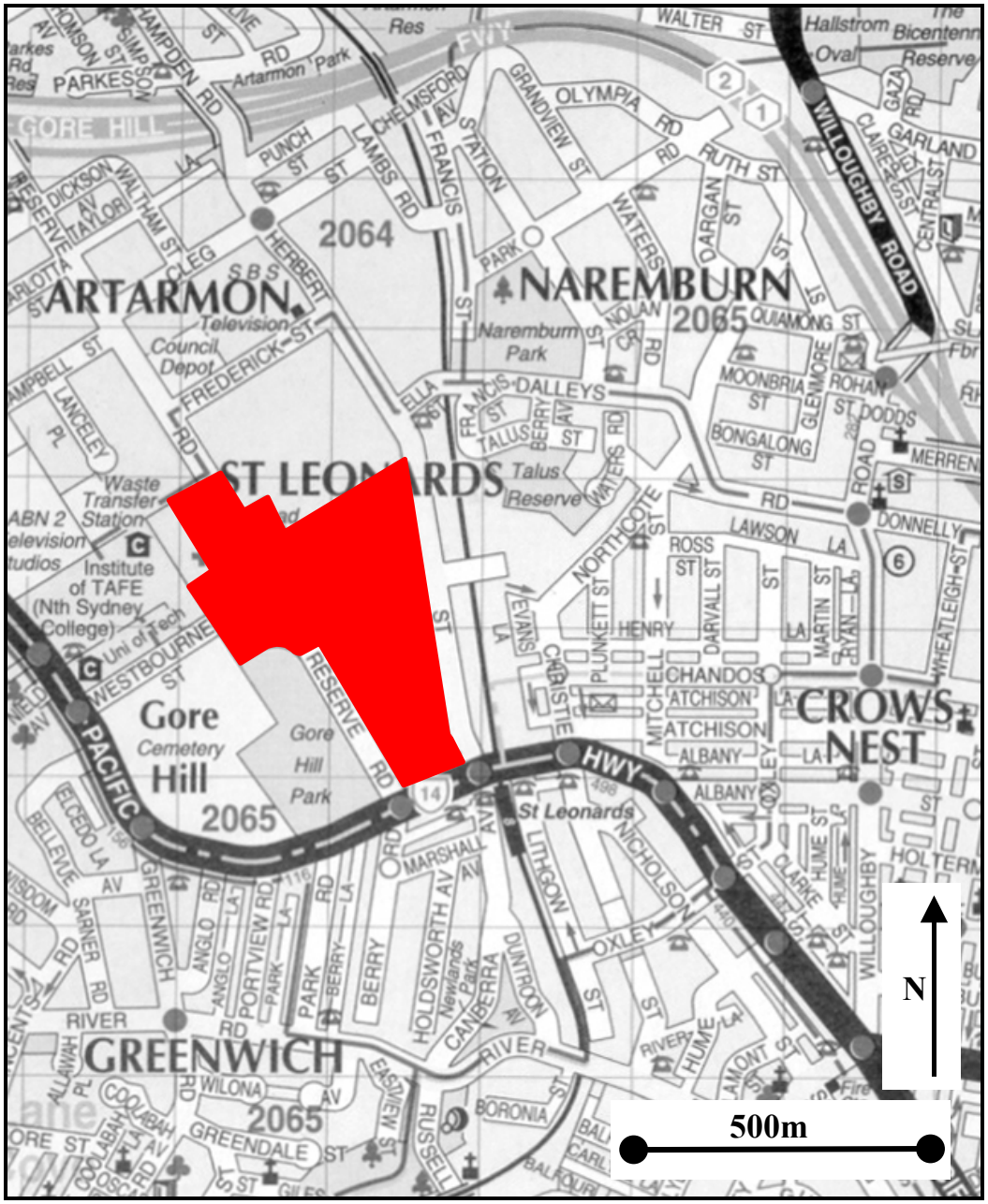

Figure 1. General location of Royal North Shore Hospital.

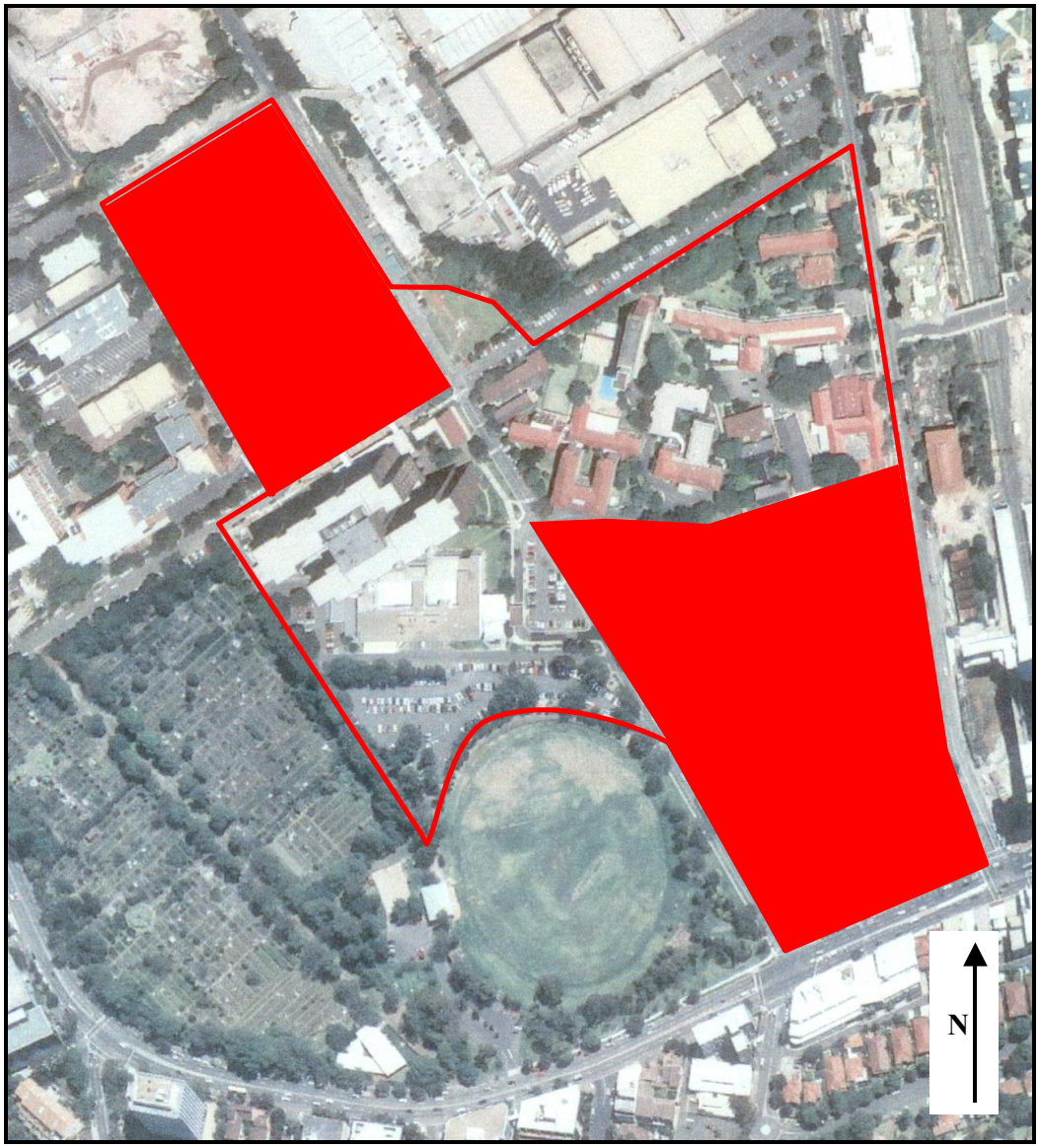

Figure 2. Detail of the hospital complex and areas of proposed works (shaded).

2.0 Environmental and Historical Context

2.1 How the Environment Affects Archaeological Patterning

Ongoing archaeological research in the Sydney region demonstrates that the original (pre-European contact) environment strongly influenced not only the availability of resources to Aboriginal people in the past, but also largely determines in the present context what types of archaeological sites are likely to be located when a given parcel of land is inspected to assess potential Aboriginal heritage sensitivity.

The distribution and availability of resources such as drinking water, plant and animal foods, raw materials of stone, wood and vegetable fibre used for tool production and maintenance are all influenced by the nature of soils, the composition of vegetation cover and climactic characteristics of a given region. The location of different site-types (such as open campsites, shell middens, scarred trees, axe grinding grooves and rock engravings etc) that may occur in the landscape are therefore influenced by factors such as these, along with a range of other associated features which are specific to different land-systems and bedrock geologies.

Furthermore, the nature and extent to which a given landscape has been subject to impacts as a result of post-Contact land-use practices will also define what types of Aboriginal archaeological evidence is likely to survive.

Documenting the environmental context of a study region is therefore an integral procedure necessary for understanding potential past Aboriginal land-use practices and/or predicting archaeological site distribution patterns.

The information outlined below is considered to be relevant to the assessment of archaeological potential, site visibility, and likely levels of disturbance within the context of the current study.

2.2 Geology, Topography, Hydrology, Vegetation and Soils

The hospital complex is within the present day suburb of St Leonards at a locality historically known as Gore Hill in northern Sydney. Gore Hill is located at the top of a south tending spur which forms part of a broad ridge between the Lane Cove River valley and Middle Harbour valley. The hospital complex is located on the crest and slopes of this rounded spur, which is flanked by the Gore Creek and Berry Creek valleys running south into the Lane Cove and Parramatta Rivers respectively. The spur ends in Greenwich Point several kilometres south of the hospital site, which forms the eastern side of the mouth of the Lane Cove River at its confluence with the Parramatta River.

The hospital complex slopes gently down from northwest to southeast but its original topography has been drastically altered by the construction of hospital buildings.

The hospital complex is underlain by Ashfield Shales of the Wianamatta Group, which caps older Hawkesbury Sandstone bedrock along the spur (Herbert 1980). Consequently it is unlikely that sandstone has naturally outcropped extensively at the site. Exposed sandstone can be seen in the creek valleys adjacent to the spur.

The hospital complex appears to be located at a boundary of two shale-derived soil landscapes and it is not currently clear if one or both landscapes are represented (Chapman et. al. 1989). The first of these are the erosional soils of the Glenorie Soil Landscape, which are typically located on gently sloping ridgeside contexts. These soils are usually characterised by up to 15cm of friable dark brown loam (A1 horizon) on 5-30cm of brown clay loam (A2 horizon) on clay subsoil (Chapman & Murphy 1989:69-70). The second are the residual soils of the Blacktown Soil Landscape typical of gently undulating rises. These soils are usually characterised by up to 30cm of friable brownish-black loam (A1 horizon) on 10-20cm of hardsetting brown clay loam (A2 horizon) on clay subsoil (Chapman & Murphy 1989:30-33).

Although generally in a less inclined location and thus less susceptible to natural erosion, ridgetop and upper ridgeslope contexts (especially where reasonably flat as in the current case) have borne the brunt of development impact and thus survival of intact soil horizons is rare.

The hospital site would largely have been characterised by Blue Gum High Forest, consisting of Sydney Blue Gum, Stringybarks, Blackbutts, Mahogany and Turpentine (Benson & Howell 1995:114). The hillslopes along Berrys Creek and Gore Creek were most likely characterised by Smooth-barked Apple and Sydney Peppermint with a shrubby understorey. Rush swamps and/or mangrove flats may have been present near the mouths of these creeks.

This vegetation would have provided Aboriginal people in the area with raw materials such as bark for shelters, canoes, containers and fishing line, wood for fires and containers as well as a variety of medicinal and food plants. This vegetation would also have fostered a variety of land mammals, reptiles and birds which may have been eaten by Aboriginal people. Similarly, the close proximity of the tidal portion of Gore Creek and the Lane Cove River and mudflats would have made fish, shellfish and crustaceans available.

Our understanding of the range of animal and plant foods consumed by Aboriginal people, the circumstances and timing of their use and cultural restrictions around food and totemic animals is quite limited for the Sydney region. A recent detailed description of the available archaeological and historical evidence provides valuable information (Attenbrow 2002), although it is not currently clear how uniform food gathering practices were across the Sydney region. Consequently although it can be stated that a variety of plant and animal foods and raw materials would have been available within close proximity to the subject land, it is not possible to infer gathering strategies or movement of people in relation to these.

Finally, fresh drinking water would have been available from the upper reaches of Berrys and Gore Creeks. It was probably also available from rock-pools and seepages within sandstone country away from the creeks.

2.3 Historical Land Use and Current Site Condition

The historical use of the area including the hospital complex has been described in detail in a recent historical archaeological assessment (GML 2006 Draft:7-14). Of relevance here is the evidence of historical disturbance which is likely to have affected the survival of Aboriginal cultural remains within the site. These can be summarised as follows:

- the site was granted to Provost-Marshall William Gore in the early 19th century, who cleared and farmed the land.
- by the late 1800s the site was part of the large Gore Hill Reserve.
- the hospital complex was built in stages from the early 20th century with works as recently as the last decade in the southern portion of the site.
- a brickworks was located immediately north of the hospital site from the late 19th century but it is unclear whether any quarrying took place within the current boundaries of the hospital complex.

As a result of this historical activity, it is unlikely that any traces of Aboriginal occupation will have survived intact or *in situ*.

3.0 Archaeological Overview

3.1 Regional Context

3.1.1 Introduction

Over 4,000 Aboriginal archaeological sites have been documented to occur in the greater Sydney region to date despite the impacts that have occurred to the landscape as a result of over 200 years of intensive landuse and development. Site types include shell middens and archaeological deposits in rock shelters, painted and engraved art in shelters, open campsites and middens, engraved images and axe grinding grooves on rock platforms, scarred and carved trees, stone arrangements, waterholes, burials, mythological sites, and post-Contact historical campsites and places.

3.1.2 Early Aboriginal Occupation

Ongoing archaeological research indicates that Aboriginal people have occupied the greater Sydney region for at least 20,000 years. Rock shelter sites in the Blue Mountains and its foothills have revealed dates that range from 15,000 and 22,000 years before present (see Stockton & Holland 1974 and Kohen et al 1984). Two dates ranging from between 10,500 to 12,000 ago have also been reported for an open camp site at Regentville (McDonald et al 1994), whilst a shelter on Darling Mills Creek at West Pennant Hills has also provided a date of a little over 10,000 years ago.

On the coast, the earliest dated sites are located at Burrill Lake (20,000 years ago) and Bass Point (17,000 years ago) and both of these locations would have been occupied at a time when sea levels were much lower and the present. At this time, the coastline would have been an inland environment drained by streams (see Lampert 1971 and Bowdler 1970).

Most recorded sites in the Sydney region however date to within the last 5,000 years and the majority of these are dated to within the last 2,500 to 3,000 years. Evidence suggests that the early Aboriginal occupation of the Sydney region was not intensive nor included large groups of people, and that around 5,000 to 6,000 years ago (when sea levels had stabilised at the present levels) more intensive use of the landscape by Aboriginal people began.

3.1.3 Changes over Time

The most prevalent (and durable) form of evidence that is available for understanding how Aboriginal people may have lived in the region in the past consist of flaked and ground stone artefacts. Most other items made and used from organic materials in the past, the remains of discarded food refuse, and art people may have created have generally not survived over time.

In this regard, a number of changes over time in stone tool assemblages and the use of certain types of raw materials used by Aboriginal people for tool manufacture are well documented through archaeological research.

It is assumed that changes in the stone toolkit are likely to have been accompanied by and/or triggered through other significant developments in the broader social, spiritual, economic and

technological lives of the traditional Aboriginal occupants of the region. Ongoing research is serving to confirm this likelihood.

The most widely used terminology for the archaeological phases in south eastern Australia within what is currently known as the *Eastern Regional Sequence* are the *Capertian*, and the *Early, Middle* and *Late Bondaian*. The following sequence in the archaeological record is apparent.

The *Capertian* phase is essentially composed of large, heavy stone artefacts. Tool types include uniface pebble tools, core tools, denticulate stone saws, scrapers, hammerstones, some bipolar cores and flakes, and burins. The change from the *Capertian* to the *Bondaian* appears to have taken place some time after 5,000 years BP, and is defined by a noticeable shift in stone tool size, raw material use and in the range of raw materials utilised for tool production.

The three phases which are recognised as belonging to the *Bondaian* sequence are largely based on the timing of the introduction, and subsequent decline, of backed stone implements, as well as the increased use of bi-polar flaking techniques. Other technological innovations, which are evident during the *Bondaian*, included the introduction of ground edge implements (c4000 years BP), and the widespread use of shell fish hooks during the last 1000 years.

The three *Bondaian* phases are summarised in the tables below. The dates for each are only approximations.

Archaeological Phases for the Bondaian Period

Early Bondaian	
Date	5000 - 2800 years BP
Dominant raw materials	Fine grained siliceous cherts and silcretes.
Characteristics	Features of the *Capertian* appear to have continued in many areas, but backed and edge ground implements were widely introduced and used.

Middle Bondaian	
Date	2800 - 1600 years BP
Dominant raw materials	Fine grained siliceous cherts and silcretes. Increased use of quartz.
Characteristics	Increased of microblades such as *bondi points* and an increase of bipolar artefacts. Few ground edge implements

Late Bondaian	
Date	Last 1600 years
Dominant raw materials	Include quartz with some uses of other raw materials
Characteristics	Microblades including *Bondi points* are absent, but *Eloueras* and bipolar pieces are dominant in known assemblages. Edge ground implements are also more common. Bone and shell implements, including fish-hooks, occur at some sites.

3.2 Local Archaeological Context

Background research into archaeological investigations previously completed within the study area and its surrounds was undertaken prior to the commencement of the current Aboriginal archaeological survey and assessment program. Sources accessed included the *NSW DEC AHIMS (Aboriginal Heritage Information Management Systems) Aboriginal Sites Register,* the *DEC Catalogue of Archaeological Reports*, and other secondary sources.

3.2.1 AHIMS Aboriginal Archaeological Site Search

A search of the *AHIMS Aboriginal Sites Register* was carried out for the current study of an area measuring 5km (east-west) by 6km (north-south) centred on the hospital complex[3]. The search revealed that no previously recorded sites were present within the hospital complex, and only 8 out of a total of 106 registered sites within the search area were located within about 500m of the hospital complex. These sites included 6 shelters with midden, one shelter with midden and art and a rock engraving. These were all located in areas of exposed sandstone along Gore Creek. No open campsite or scarred trees have been recorded within the search area in shale bedrock areas similar to the hospital complex.

The vast majority of the sites registered within the search area were open middens or shelters with midden, art, burials or deposit (stone artefacts), largely along the Lane Cove River/Parramatta River foreshore portions of the search area. This reflects both the greater survival of Aboriginal sites in reserved/protected areas, their greater visibility (in comparison to stone artefact scatters) and hence bias in recording towards them.

3.2.2 Previous Research in the Local Landscape

A search of the *AHIMS Aboriginal Sites Register* and *DEC Catalogue of Archaeological Reports* suggests that no previous archaeological studies have been undertaken within the hospital complex.

[3] AHIMS Search of 5 June 2006. Zone 56, AMG Coordinates Eastings 330000 to 335000, Northings 6253000 to 6259000.

The majority of studies in the immediate area have been the result of research or management projects and have primarily focussed on the creek valleys and foreshore areas where evidence of Aboriginal occupation is less disturbed and better preserved in rockshelters and along the foreshore.

Of most direct relevance to the current study is the regional study of Aboriginal campsites[4] by Dr Val Attenbrow within the Port Jackson catchment (Attenbrow 1990). The study found that:

- Of the 369 archaeological deposits (open middens, rockshelter deposits and open campsites) considered by Attenbrow, about 85% (315 sites) came from catchments east of Homebush Bay (despite this eastern area comprising just over half the total study area).
- About 98% of sites were located on Hawkesbury sandstone, more prevalent in eastern Sydney.
- Only 2% (7 sites) of Attenbrow's 369 sites were open artefact scatters. A vast majority were open middens or middens in rockshelters.
- Most deposits were located on council reserves (62.5% of sites) or occupied crown land (21.5% of sites).

Attenbrow explains these trends as being results of the following (1990:43):

- The differential rate and scale of development and retention of bushland between areas. There is more reserved bushland in the northeast of Sydney with its incised sandstone gorges and infertile soils than the shale derived areas to the west.
- The higher visibility of shell leading to more midden sites being recorded than open artefact scatters.
- The greater visibility of sites on sandstone than those on shale. Sites on the latter bedrock are often covered with thick vegetation due to the fertile soils, or buried under sediment.
- More survey work has been done in the east of Sydney than the west.

3.3 An Archaeological Predictive Model

Predictive models of site location attempt to identify areas of relative archaeological sensitivity (high, moderate and low etc) as a tool that can be used for the planning and management of Aboriginal sites within redevelopment circumstances.

Predictive models are generally based upon information sources such as the types of landscape units that may be contained within a study area, the results of previous archaeological surveys conducted within the region, the distribution of recorded sites and known site densities, traditional Aboriginal land use patterns and the known importance of any parts of a given study area to the local Aboriginal community.

[4] Shell middens and archaeological deposits in open and rockshelter contexts.

Based upon information compiled within the *AHIMS Aboriginal Sites Register*, and the background data for the local archaeological context reviewed above, the types of sites which may be expected to occur within the boundaries of the study area are outlined below and are hierarchically ranked from most likely to least.

- Open Camp Sites: These sites are likely to occur on dry relatively flat landforms along or adjacent to both major and minor watercourses. However, repeatedly or continuously occupied sites are more likely to be located on elevated ground situated at principal creek confluences.

  Open campsites consist of stone artefacts. Surface scatters of artefacts may be the result of mobile hunting activities, whilst single or low density occurrences might relate to tool loss, tool maintenance activities or abandonment. These types of sites are often buried in alluvial or colluvial deposits and only become visible when subsurface sediments are exposed by erosion or disturbance.

- Scarred or Carved Trees: These sites are the result of bark or wood removal to make shields, shelter, canoes containers or carving designs into the exposed wood. Carved trees which often display geometric patterns incised into the wood are believed to be markers of burial grounds or important places.

  These sites have rarely survived early timber clearance, bush fires and timber cutting. The definite ascription of scarring on a tree to an Aboriginal origin is not always possible. Europeans often removed bark for roofing material and stock watering troughs. Other scars may be the result of surveyor and miner blazes, lightning strikes or cockatoo pecking. Unless the tree is at least 100 years old the scarring is unlikely to have an Aboriginal origin.

In summary, the evidence for Aboriginal occupation which may exist in the hospital complex area is expected to be scant and consist of low density scatters of Aboriginal flaked stone artefacts with the possibility for individual stone artefact finds to occur throughout and a very low probability for tree scars of Aboriginal cultural origin.

4.0 Site Inspection & Recording

4.1 Methods

4.1.1 Site Survey and Recording

The investigations reported here have involved an archaeological field survey of the extent of the hospital complex. Due to the largely disturbed/built nature of this area, survey focussed on areas of minimal disturbance such as open space areas. All such areas were inspected on foot.

All items of Aboriginal cultural heritage located during the course of the field survey were to be recorded and plotted using a Garmin Geko 201 handheld GPS set to the AMG coordinate system onto pertinent 1:25,000 topographical maps and superimposed upon development concept plans. Maps of differing scale were also used to facilitate the location of pertinent field observations. Photographic records (using a Digital Pentax Optio 555 camera), sketch plans and diary descriptions have also been compiled as part of the field records.

Generally, reporting has been concerned with topography (whether sites, features or areas of potential archaeological sensitivity are located on slopes or flats etc), context, vegetation, ground exposures, the nature of ground visibility and the presence and extent of disturbance.

The distinction between site categories (open campsites vs isolated finds etc) have been determined according to the following categories:

- Isolated Finds consist of single artefacts that are located more than 50m apart.
- Sites comprise open artefact scatters that consist of two or more artefacts situated within 50m of each other.

The following attributes of each stone artefact located during the investigations have been recorded:

- Artefact Type: This category records the presence of items such as flakes, flaked pieces and cores etc.
- Raw Material: Raw materials may include silcrete and indurated mudstone etc.
- Dimensions: Maximum length, width and thickness of finds are to be recorded.
- Other: Comments include the presence of cortex and retouch etc.

4.1.2 Assessment of Archaeological Potential

Frequently used criteria inclusive of landform, aspect, topography and subsurface integrity have been employed in this study to define areas of *Potential Archaeological Deposit* (PAD). Within the context of the current project, areas of potential archaeological deposit (PAD) are considered to be principally associated with open areas which have undergone minimal surface disturbance and which retain original topsoil.

Common attributes of culturally scarred trees (see Irish 2004, Long 2005) have been used to assess whether trees within the subject land are likely to have been scarred by Aboriginal people. Any trees with scars identified which may possibly be of Aboriginal cultural origin will be recorded as such and be the subject of a visual (non-invasive) estimate of age by a qualified arborist prior to recording the scars as an Aboriginal site. As tree age is difficult to estimate and often the most crucial factor in determining whether scars have a cultural or natural origin, it is recommended that this occur prior to accessioning possibly scarred trees onto the AHIMS Register (Irish 2004).

4.2 Field Survey

Field survey was undertaken on Tuesday 20 June 2006 in fine weather by Paul Irish (DSCA archaeologist) and Mr Allen Madden (MLALC Cultural & Education Officer). The following observations were made.

The entirety of the hospital complex has been impacted by past and current landuse. 90% of the site comprises single or multi-storey buildings which will have obliterated any original soils with the potential to contain Aboriginal cultural remains (**Figure 3**).

If sandstone was originally exposed in certain portions of the site, this too has been highly impacted by construction of buildings, infrastructure and other facilities.

The remaining portion of the complex which is currently grassed or dirt and therefore possibly "natural/original" is in fact totally landscaped. In some instances tunnels exist underneath grassed areas (**Figure 4**). In other instances the nature of exposed soil deposits or adjacent features (e.g. retaining walls) shows that total disturbance has occurred (**Figures 5 & 6**).

The northern rim of Gore Hill Park appears to represent original topography (**Figure 7**) but here exposed clay shows that original soils have been totally removed (**Figure 8**).

No mature trees exist which are of sufficient age to bear scars of Aboriginal cultural origin. The largest tree exists between Gore Hill Park and Gore Hill Cemetery but is not scarred and is probably still of insufficient age to be scarred (**Figure 9**).

Figure 3. View south along Reserve Road showing existing buildings sealed surfaces.

Figure 4. Grassed areas outside main hospital building underlain by services.

Figure 5. Landscaped area in eastern portion of hospital complex.

Figure 6. Retaining wall and landscaped area in eastern portion of hospital complex.

Figure 7. Impacted natural landform at northern edge of Gore Hill Park.

Figure 8. Lag gravels on clay subsoil above Gore Hill Park.

Figure 9. Mature tree in hospital carpark.

4.3 Results of the Site Inspection

4.3.1 Survey Outcomes

The survey did not result in the identification of any items of Aboriginal cultural heritage or any areas with Aboriginal archaeological potential. Specifically no open campsites or isolated finds and no trees of sufficient age to contain scars of Aboriginal cultural origin were located.

The subject land has been disturbed in the past by clearance of original timber and consequent heightened natural erosion, and more significantly by the extensive earthworks and construction works associated with the building of the hospital complex.

4.3.2 Conclusions

Effective survey coverage for the current survey was generally extremely low due to the nearly ubiquitous presence of buildings and sealed surfaces across the hospital complex. However, the presence of these features provides ample evidence that no Aboriginal cultural remains will have survived intact or *in situ* within the hospital complex.

There is therefore no Aboriginal archaeological potential within any portions of the Royal North Shore Hospital site.

5.0 Heritage Impact Assessment

5.1 Impact of the Proposed Works

The proposed upgrade and redevelopment works, or any other future works within the current boundaries of the hospital complex will not impact on any identified items of Aboriginal cultural heritage or any areas with Aboriginal archaeological potential. The survey undertaken for the current project was comprehensive and it is considered highly unlikely that any *in situ* evidence of Aboriginal occupation is present within the subject land.

5.2 Evaluation

On the basis of the above considerations, it is concluded that the proposed works are unlikely to have an adverse impact upon the Aboriginal cultural heritage values of the land concerned and should proceed as proposed, contingent upon the implementation of the actions and advice that are recommended in **Section 6.0.**

6.0 Management Recommendations

6.1 Basis for Recommendations

The following recommendations are based upon the legal requirements and automatic statutory protection provided to Aboriginal 'objects' and 'places' under the terms of the *National Parks and Wildlife Act of 1974*, where it is;

> *an offence to knowingly damage, deface or destroy Aboriginal sites or relics without the prior consent of the Director General of the National Parks and Wildlife Service,*

in conjunction with;

the results of the Aboriginal archaeological and cultural heritage investigations for the proposal which are documented in this report;

and;

the views and recommendations provided by the *Metropolitan Local Aboriginal Land Council* as outlined within the appended correspondence.

6.2 Recommendations

It is recommended that:

I No Aboriginal archaeological or cultural heritage constraints have been identified during the completion of this study that would prevent the proposed future upgrade and redevelopment works within the current boundaries of the hospital complex from proceeding as intended.

II The proposed upgrade and redevelopment works should proceed as currently proposed and no further Aboriginal archaeological work is required to be undertaken prior to the commencement of development works should consent be obtained from Council.

III A copy of this report should be forwarded to:

The Chairperson
Metropolitan Local Aboriginal Land Council
PO Box 1103
Strawberry Hills, NSW, 2012

IV Two copies of this report should be forwarded to:

The Manager
Central Aboriginal Cultural Heritage Unit
NSW Department of Environment & Conservation
P.O. Box 1967
Hurstville, NSW, 2770

7.0 References

Attenbrow, V. 1990. *The Port Jackson Archaeological Project. Report on Stage 1* (Report to the Australian Institute of Aboriginal and Torres Strait Islander Studies, Canberra).

Attenbrow, V. 2002. *Sydney's Aboriginal Past. Investigating the archaeological and historical records.* (University of NSW Press; Sydney).

Benson, D. & Howell, J. 1995. *Taken for Granted, The bushland of Sydney and its Suburbs*. (Kangaroo Press; Sydney).

Bowdler, S. 1970 *Bass Point - the excavation of a south-eastern Australian shell midden showing cultural and economic change*. B.A. (Hons) University of Sydney.

Chapman, G.A., Murphy, 1989. *Sydney Soil Landscape Series Sheet 9130.* (Soil Conservation Service of NSW, Sydney).

Chapman, G.A., Murphy, C.L. Tille, P.J., Atkinson, G. and Morse, R.J. 1989. *Sydney 1:100,00 Soil Landscape Map.* (Soil Conservation Service of NSW, Sydney).

Department of Environment and Conservation 2004. *National Parks And Wildlife Act 1974: Part 6 Approvals. Interim Community Consultation Requirements for Applicants*.

Department of Environment and Conservation Aboriginal Heritage Information Management System: Register of Aboriginal Sites and Catalogue of Archaeological Reports.

Godden Mackay Logan Heritage Consultants. 2006 (Draft). Royal North Shore Hospital, St Leonards. Archaeological Assessment (Report to Burns Bridge Services Pty Ltd).

Herbert, C. (ed.) 1980. *Geology of the Sydney 1:100 000 sheet.* (New South Wales Geological Survey).

Irish, P. 2004. "When is a scar a scar. Evaluating scarred and marked trees at Sydney Olympic Park", *Australian Archaeology* 59:59-61

Kohen, J.L., Stockton, E.D. & Williams, M.A.J. 1984. "Shaws Creek KII rockshelter: A prehistoric occupation site in the Blue Mountains piedmont, eastern New South Wales", *Archaeology in Oceania* 19:57-93.

Lampert, R.J. 1971. 'Burrill Lake and Currarong' in *Terra Australis 1.* Department of Prehistory. Research School for Asia and Pacific Studies, ANU. Canberra.

Long, A. 2005. *Aboriginal scarred trees in New South Wales. A Field Manual* (Sydney; Department of Environment & Conservation).

McDonald, J., Rich, E. & Barton, H. 1994. 'The Rouse Hill Infrastructure Project (Stage 1) on the Cumberland Plain, Western Sydney', in Archaeology in the North.*' Proceedings of the 1993 Australian Archaeological Association Conference*:259-293.

NSW National Parks and Wildlife Service. 1997. *DRAFT Aboriginal Cultural Heritage: Standards and Guidelines Kit. Sydney* (NSW NPWS, Sydney).

Stockton, E.D. & Holland, W.N. 1974 "Cultural sites and their environment in the Blue Mountains", *Archaeology and Physical Anthropology in Oceania* 9(1):36-65.

Appendix 1: Aboriginal Community Correspondence