

Northrop Consulting Engineers Pty Ltd

M

Curlewis St, Streetscape Upgrade

LGA: Waverley

Archaeological Due Diligence Assessment

24 March 2023

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EXECUTIVE SUMMARY

McCardle Cultural Heritage Pty Ltd (MCH) was engaged by Northrop Consulting Engineers Pty Ltd to undertake an Archaeological Due Diligence Assessment for the proposed upgrading of Curlewis Street, Bondi.

The project area consists of Quaternary alluvium, gravel, sand, silt and clays. The absence of suitable material for stone tool manufacturing or natural geological formations such as caves, rockshelters or sandstone surfaces for the application of art, indicated that the project area may not have been suitable for camping or time intensive activities.

Consisting of a gentle slope, the project area consists of the aeolian Tuggerah Soil Landscape. In terms of fresh water availability, there are no immediate local sources, nor any sandstone surfaces to collect potable water from, and as fresh water is necessary for survival, the project area would have been considered unsuitable for camping. Bondi Beach is located approximately 180 metres east of the project area and being a resource rich environment, the beach area and immediate surrounds would have been utilised by past Aboriginal people.

In relation to the survivability of archaeological materials, the project area has been subject to a range of both moderate and high impact landuses and impacts including full scale clearing, used for pastoral purposes (grazing), the wholesale clearance of native vegetation, the construction of housing and commercial and associated infrastructure (water, electricity, telephone) as well as the construction of Curlewis Street.

A search of the AHIMS register identified 103 known Aboriginal sites currently recorded within a 3 kilometre by 10-kilometre area and include 6 artefact sites, 3 shell middens, 19 PADs, 1 grinding groove, 40 art sites, 1 watering hole, 1 burial, 1 art/grinding groove, 15 artefact/shell, 2 shell/artefact/art sites, 2 shell/artefact/habitation sites and 2 restricted. There are no registered sites or Aboriginal Places within the project area. Considering the environmental context as well as the AHIMS results, local and regional archaeological investigations, given that fresh water was necessary for survival, the absence reliable of fresh water in the project area or close by, indicates the project area and immediate surrounds may have been used for hunting and gathering opportunities rather than large-scale long-term camping. Additionally, the absence of natural sandstone geological formations in the project area indicates no habitation or art sites would be present in the project area. Evidence of hunting and gathering activities manifest in the archaeological record as low-density background artefact scatters and isolated finds.

The project area, being highly disturbed was surveyed as one survey unit. The survey confirmed the past land uses including clearing and housing/commercial, associated utilities and the construction of Curlewis Road. These land uses have significantly altered the landscape of the project area resulting in none of the original landform remaining. No sites or PADs were identified and as such there are no impacts on the archaeological record and the following recommendations are provided:

- 1) The persons responsible for the management of onsite works will ensure that all staff, contractors and others involved in construction and maintenance related activities are made aware of the statutory legislation protecting sites and places of significance. Of particular importance is the National Parks and Wildlife Regulation 2019, under the National Parks and Wildlife Act 1974; and
- 2) Should any Aboriginal objects be uncovered during works, all work will cease in that location immediately and the Environmental Line contacted.

GLOSSARY

Aboriginal Place: are locations that have been recognised by the Minister (and gazetted under the *National Parks and Wildlife Act 1974*) as having special cultural significance to the Aboriginal community. An Aboriginal Place may or may not include archaeological materials.

Aboriginal Site: an Aboriginal site is the location of one or more Aboriginal archaeological objects, including flaked stone artefacts, midden shell, grinding grooves, archaeological deposits, scarred trees etc.

Artefact: any object that is physically modified by humans.

Artefact scatter: a collection of artefacts scattered across the surface of the ground (also referred to as open camp sites).

Assemblage: a collection of artefacts associated by a particular place or time, assumed generated by a single group of people, and can comprise different artefact types.

Backed artefact: a stone tool where the margin of a flake is retouched at a steep angle and that margin is opposite a sharp edge.

Background scatter: a term used to describe low density scatter of isolated finds that are distributed across the landscape without any obvious focal point.

Core: a chunk of stone from which flakes are removed and will have one or more negative flake scars but no positive flake scars. The core itself can be shaped into a tool or used as a source of flakes to be formed into tools.

Debitage: small pieces of stone debris that break off during the manufacturing of stone tools. These are usually considered waste and are the by-product of production (also referred to as flake piece).

Flake: any piece of stone struck off a core and has a number of characteristics including ring cracks showing where the hammer hit the core and a bulb of percussion. May be used as a tool with no further working, may be retouched or serve as a platform for further reduction.

Flaked piece/waste flake: an unmodified and unused flake, usually the by-product of tool manufacture or core preparation (also referred to asdebitage).

Harm: is defined as an act that may destroy, deface or damage an Aboriginal object or place. In relation to an object, this means the movement or removal of an object from the land in which it has been situated

In situ: archaeological items are said to be "in situ" when they are found in the location where they were last deposited.

Retouched flake: a flake that has been flaked again in a manner that modified the edge for the purpose of sharpening that edge.

Typology: the systematic organization of artefacts into types on the basis of shared attributes.

ACRONYMS

ACHA	Aboriginal Cultural Heritage Assessment
ACHMP	Aboriginal Cultural Heritage Management Plan
AHIMS	Aboriginal Heritage Information Management System
AHIP	Aboriginal Heritage Impact Permit

AHIMS SITE ACRONYMS

ACD	Aboriginal ceremonial and dreaming
AFT	Artefact (stone, bone, shell, glass, ceramic and metal)
ARG	Aboriginal resource and gathering
ART	Art (pigment or engraving)
BOM	Non-human bone and organic material
BUR	Burial
CFT	Conflict site
CMR	Ceremonial ring (stone or earth)
ETM	Earth mound
FSH	Fish trap
GDG	Grinding groove
HAB	Habitation structure
HTH	Hearth
OCQ	Ochre quarry
PAD	Potential archaeological deposit.
SHL	Shell
STA	Stone arrangement
STQ	Stone quarry
TRE	Modified tree (carved or scarred)
WTR	Water hole

1 INTRODUCTION

1.1 INTRODUCTION

McCardle Cultural Heritage Pty Ltd (MCH) has been engaged by Northrop Consulting Engineers Pty Ltd to undertake an Archaeological Due Diligence Assessment for the proposed upgrading of Curlews Street, Bondi.

The assessment has been undertaken to meet the Heritage NSW, Department of Premier & Cabinet Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW and the brief. The purpose of a due diligence assessment is to assist proponents to exercise due diligence when carrying out activities that may harm Aboriginal objects or Aboriginal places and to determine whether that should apply for a consent to harm Aboriginal objects or Places through an Aboriginal Heritage Impact Assessment (AHIP). The purpose of this due diligence report is to demonstrate that all reasonable and practicable measures have been undertaken to prevent harm to any Aboriginal objects and/or place within the project area. This report has met the Heritage NSW Due Diligence requirements and considered the relevant environmental and archaeological information, the project land condition, the nature of the proposed development activity and impacts, as well as preparing appropriate recommendations.

1.2 THE PROJECT AREA

The project area is located along Curlews Street, Bondi. The location of the project area is shown in Figures 1.1 and 1.2.

Figure 1.1 Location of the project area

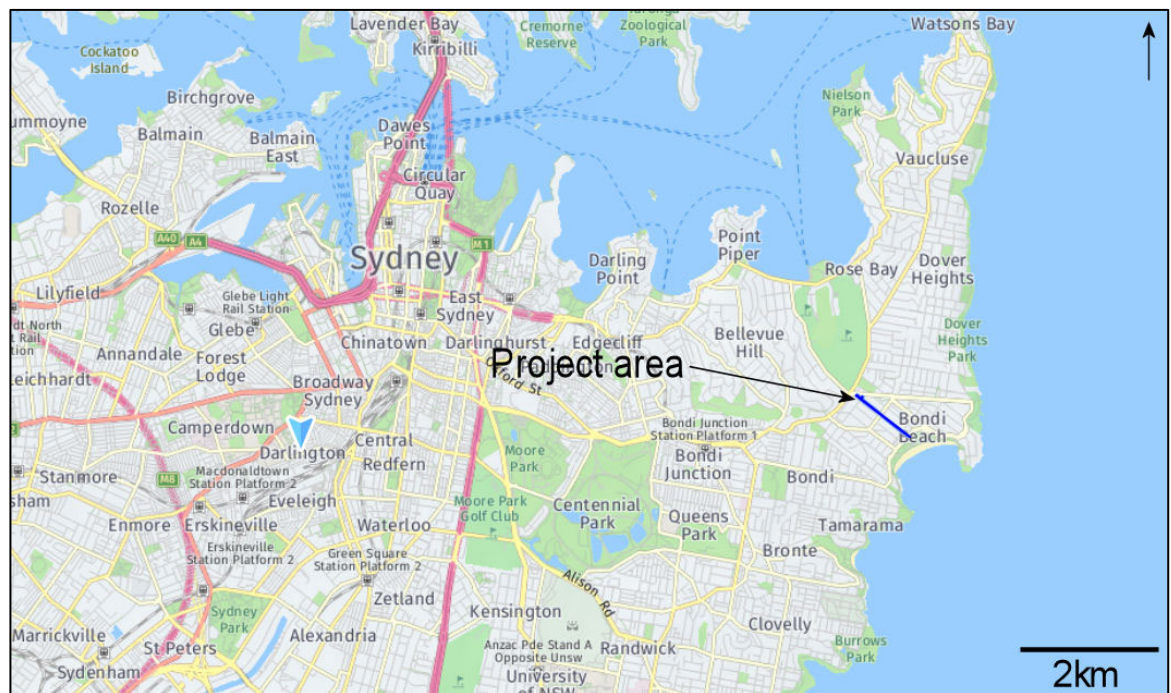
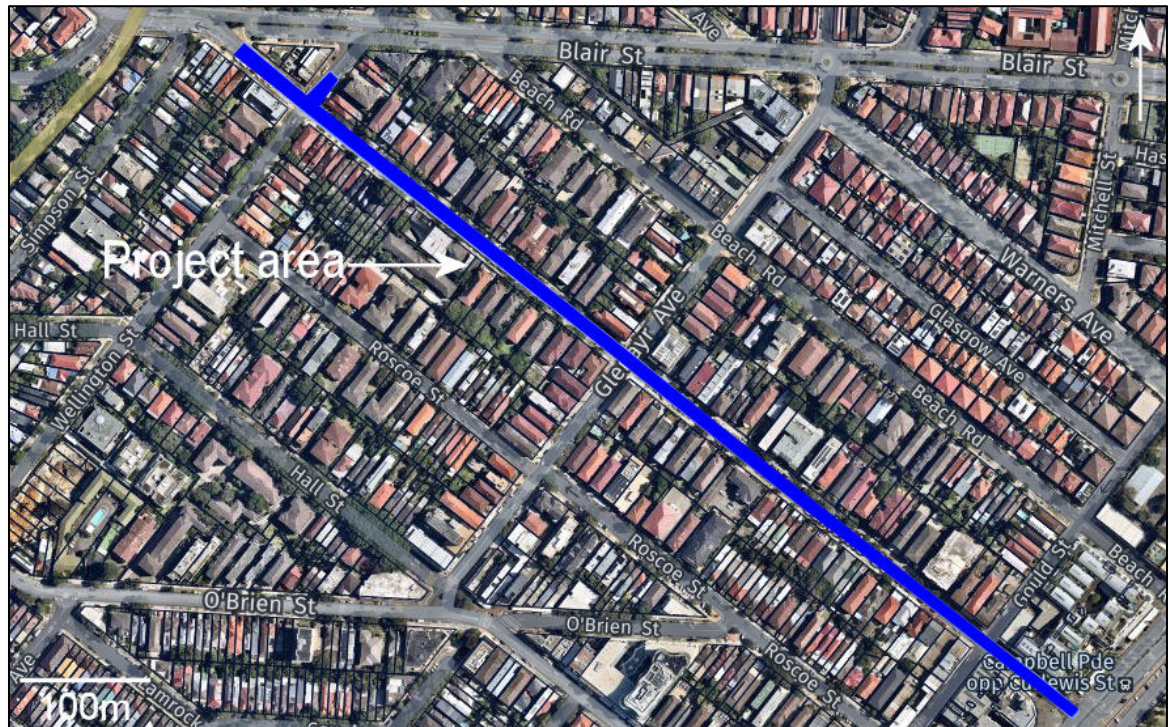


Figure 1.2 Aerial photograph of the project area (Nearmap January 2023)



1.3 DESCRIPTION OF THE PROPOSED DEVELOPMENT

The project will include the upgrading of the existing assets and incorporate improvements to the street scape and include road, pavements, footpaths, stormwater drainage, trees and street lighting, as well as a separated bike path, all contained within a disturbed context and will be limited to the existing road reserve.

1.4 OBJECTIVES OF THE DUE DILIGENCE ASSESSMENT

The objectives and primary tasks of this due diligence assessment were to:

- undertake a search of the Aboriginal Heritage Management System (AHIMS) and other relative registers;
- undertake research into the environmental and archaeological contexts of the project area;
- develop a predictive model of site location for the project area;
- undertake a field survey of the project area;
- assess the potential impacts of the proposed development on any identified Aboriginal sites or potential archaeological deposits (PADs) identified within the project area;
- assess the significance of any identified Aboriginal objects or sites identified within the project area;
- complete and submit site cards to AHIMS for any Aboriginal sites identified; and
- provide appropriate recommendations.

1.5 LEGISLATIVE CONTEXT

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

Land managers are required to consider the effects of their activities or proposed development on the environment under several pieces of legislation. Although there are a number of Acts and regulations protecting Aboriginal heritage, including places, sites and objects, within NSW, the three main ones include:

- National Parks and Wildlife Act (1974, as amended)
- National Parks and Wildlife Regulation (2019)
- Environmental Planning and Assessment Act (1979)

1.5.1 NATIONAL PARKS AND WILDLIFE ACT (1974, AS AMENDED)

The National Parks and Wildlife Act (1974), Amended 2010, is the primary legislation for the protection of Aboriginal cultural heritage in New South Wales. The NPW Act protects Aboriginal heritage (places, sites and objects) within NSW and the protection of Aboriginal heritage is outlined in s86 of the Act, as follows:

- “A person must not harm or desecrate an object that the person knows is an Aboriginal object” s86(1)
- “A person must not harm an Aboriginal object” s86(2)
- “A person must not harm or desecrate an Aboriginal place” s86(4)

Penalties apply for harming an Aboriginal object, site or place. The penalty for knowingly harming an Aboriginal object (s86[1]) and/or an Aboriginal place (s86[4]) is up to \$550,000 for an individual and/or imprisonment for 2 years; and in the case of a corporation the penalty is up to \$1.1 million. The penalty for a strict liability offence (s86[2]) is up to \$110,000 for an individual and \$220,000 for a corporation.

Harm under the National Parks and Wildlife Act (1974, as amended) is defined as any act that destroys defaces or damages the object, moves the object from the land on which it has been situated, causes or permits the object to be harmed. However, it is a defence from prosecution if the proponent can demonstrate that;

- 1) harm was authorised under an Aboriginal Heritage Impact Permit (AHIP) (and the permit was properly followed), or
- 2) the proponent exercised due diligence in respect to Aboriginal heritage.

The ‘due diligence’ defence (s87[2]), states that if a person or company has applied due diligence to determine that no Aboriginal object, site or place was likely to be harmed as a result of the activities proposed for the Project Area, then liability from prosecution under the NPW Act 1974 will be removed or mitigated if it later transpires that an Aboriginal object, site or place was harmed. If any Aboriginal objects are identified during the activity, then works should cease in that area and Heritage NSW, Department of Premier & Cabinet notified (DECCW 2010:13). The due diligence defence does not allow for continuing harm or as defence to s.86(1) or (4).

The archaeological due diligence assessment and report has been carried out in compliance with the Heritage NSW (DECCW 2010) Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW.

1.5.2 NATIONAL PARKS AND WILDLIFE REGULATION (2019)

The National Parks and Wildlife Regulation 2019 provides a framework for undertaking activities and exercising due diligence in respect to Aboriginal heritage. The Regulation (201909) recognises various due diligence codes of practice, including the Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW, but it also outlines procedures for Aboriginal Heritage Impact Permit (AHIP) applications and Aboriginal Cultural Heritage Consultation Requirements (ACHCRs); amongst other regulatory processes.

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

EP&A Act establishes the statutory framework for planning and environmental assessment in NSW and the implementation of the EP&A Act is the responsibility of the Minister for Planning, statutory authorities and local councils. The EP&A Act contains three parts which impose requirements for planning approval:

- Part 3 of the EP&A Act relates to the preparation and making of Environmental Planning Instruments (EPIs), State Environmental Planning Policies (SEPPs) and Local Environmental Plans (LEPs).
- Part 4 of the EP&A Act establishes the framework for assessing development under an EPI. The consent authority for Part 4 development is generally the local council, however the consent authority may be the Minister, the Planning Assessment Commission or a joint regional planning panel depending upon the nature of the development.
- Part 4, Division 4.1 of the EP&A Act establishes the assessment pathway for State Significant Development (SSD) declared by the State Environmental Planning Policy (State and Regional Development) 2011 (NSW). Once a development is declared as SSD, the Secretary's Environmental Assessment Requirements (SEARs) will be issued outlining what issues must be considered in the EIS.
- Part 5 of the EP&A Act provides for the control of 'activities' that do not require development consent and are undertaken or approved by a determining authority. Development under Part 5 that are likely to significantly affect the environment is required to have an EIS prepared for the proposed activity.
- Part 5.1 of the EP&A Act establishes the assessment pathways for State Significant Infrastructure (SSI). Development applications made for SSI can only be approved by the Minister. Once a development is declared as SSI, the SEARs will be issued outlining what issues must be addressed in the EIS.

The applicable approval process is determined by reference to the relevant environmental planning instruments and other controls, LEPs and State Environmental Planning Policies (SEPPs).

1.6 ABORIGINAL COMMUNITY CONSULTATION

A due diligence assessment relates to the physical identification of Aboriginal objects, sites and places. Community consultation is only required once Aboriginal objects, sites or places have been identified and an Aboriginal Heritage Impact Permit (AHIP) is deemed necessary. Section 5.2 of the

Heritage NSW (DECCW 2010) Due Diligence Code of Practice for the protection of Aboriginal Objects in NSW specifically states that;

'consultation with the Aboriginal community is not a formal requirement of the due diligence process' (2010:8).

1.7 QUALIFICATIONS OF THE INVESTIGATOR

Dr. Penny McCardle: Principal Archaeologist & Forensic Anthropologist has 22 years experience in Indigenous archaeological assessments, excavation, research, reporting, analysis and consultation and 19 years in skeletal identification, biological profiling and skeletal trauma identification for NPWS, NSW Police and the NSW Department of Forensic Medicine.

- BA (Archaeology and Palaeoanthropology): Indigenous archaeology, University of New England 1999
- Hons (Archaeology and Palaeoanthropology): Physical Anthropology, University of New England 2001
- Forensic Anthropology Course, University of New England 2003
- Armed Forces Institute of Pathology Forensic Anthropology Course, Ashburn, VA 2008
- Analysis of Bone trauma and Pseudo-Trauma in Suspected Violent Death Course, Erie College, Pennsylvania, 2009
- Documenting Scenes of War and Human Rights Violations. Institute for International Criminal Investigations, 2018
- PhD, University of Newcastle, 2019

1.8 REPORT STRUCTURE

The report includes Section 1 which outlines the project, Section 2 presents the environmental and archaeological context, Section 3 provides the results and discussion and Section 4 presents the Impact Assessment, Section 5 discusses the mitigation measures and Section 6 provides the management recommendations.

2 ENVIRONMENTAL AND ARCHAEOLOGICAL CONTEXT

The archaeological due diligence process and assessment requires that the available knowledge and information in relation to the environmental and archaeological contexts are considered. The purpose of this is to assist in identifying whether Aboriginal objects, sites or places are likely to be present within the project area based on archaeological predictive modelling and in what condition they may be found in given the environmental impacts, both natural and anthropogenic.

2.1 LOCAL ENVIRONMENT

Past site location and land use are closely linked to the environment including the landform, geology, geomorphology, soils, waterways and associated resources. The environmental context is important to identify potential factors relating to past Aboriginal land use patterns.

The project area consists of Quaternary alluvium, gravel, sand, silt and clays (Sydney 1:250,000 Geological Map Series, 1966). The absence of suitable material for stone tool manufacturing or natural geological formations such as caves, rockshelters or sandstone surfaces for the application of art, indicated that the project area may not have been suitable for camping or time intensive activities. Consisting of a gentle slope, the project area consists of the aeolian Tuggerah Soil Landscape that is characterised by gently undulating to rolling coastal dunefields. Younger dunes with heathland vegetation consist of generally <2 metres of loose dull yellow orange sand and in some swales there may be an accumulation of organic matter on the top 10-30 centimetres of the soils and is a dark greyish brown. The older dunes with mature open-forest or woodland consist of 30 centimetres of loose speckled grey brown loamy sand (A₁ horizon) that overlays >100 centimetres of bleached loose sand (A₂ horizon). The A₂ horizon has a piped and convoluted boundary with intermixed black soft sandy organic pan materials (B horizon). The B horizon can be up to 50 centimetres thick and more than 200 centimetres of a dull yellow orange massive sand is present below this. The swampy swales occur with high water tables present (Chapman and Murphy 1989: 94-97).

In terms of fresh water availability, there are no immediate local sources, nor any sandstone surfaces to collect potable water from, and as fresh water is necessary for survival, the project area would have been considered unsuitable for camping. Bondi Beach is located approximately 180 metres east of the project area and being a resource rich environment, the beach area and immediate surrounds would have been utilised by past Aboriginal people.

In relation to land uses and associated impacts, Heritage NSW (DECCW 2010) defines disturbed lands as land that has been the subject of human activity that has changed the lands' surface and, or subsurface, these changes being changes that remain clear and observable. This definition is based on the types of disturbances classified in The Australian Soil and Land Survey Field Handbook (CSIRO 2010) and Table 2.1 provides a scale formulated by the CSIRO of the levels of disturbances and their classification, which will assist in determining the level of disturbance across the project area and its impact on potential cultural material that may be present.

Table 2.1 Land use scale (CSIRO 2010)

Minor disturbance	Moderate disturbance	Major disturbance
Cleared and/or grazed at some time, but apparently never ploughed	Cleared and/or grazed at some time, with ploughing also attested	Severe disturbance to natural soil profiles; complete-to-near complete topsoil loss/disturbance

0	No effective disturbance; natural	3	Extensive clearing (e.g., poisoning and ringbarking)	6	Cultivation: grain fed
1	No effective disturbance other than grazed by hoofed animals	4	Complete clearing: pasture native or improved, but never cultivated	7	Cultivation: irrigated, past and present
2	Limited clearing (e.g., selected logging)	5	Complete clearing: pasture native or improved, cultivated at some stage	8	Highly disturbed: e.g., quarry, road works, mining, landfill, urban

Regionally, following European settlement of the area in the 1820s, the regional landscape has been subjected to a range of different modifactory activities including extensive logging and clearing, agricultural cultivation (ploughing), pastoral grazing, residential developments and other construction works. The associated high degree of landscape disturbance has resulted in the alteration of large tracts of land and the cultural materials contained within these areas.

The project area has been subject to a range of both moderate and high impact landuses and impacts including full scale clearing, used for pastoral purposes (grazing), the wholesale clearance of native vegetation, the construction of housing and commercial and associated infrastructure (water, electricity, telephone) as well as the construction of Curlews Street. These landuses and how they impact on the landscape and deposits are discussed below.

Early vegetation clearing included the uprooting of trees by chaining which disturbed or destroyed that may be present near, or underneath trees and vegetation (Wood 1982). Farming and agricultural activities also disturbed the landscape. Pastoralism activities result in disturbances due to vegetation clearance and the trampling and compaction of grazed areas which accelerate the natural processes of sheet and gully erosion, which in turn can cause the horizontal and lateral displacement of artefacts. Furthermore, grazing by hoofed animals can affect the archaeological record due to the displacement and breakage of artefacts resulting from trampling (Yorston et al 1990). Pastoral land uses are also closely linked to alterations in the landscape due to the construction of dams, fence lines and associated structures.

Excavation works required for developments, including but not limited to business, residential, industrial, works depots and associated infrastructure and utilities, require excavation, cut and fill methods. These direct impacts to the land and associated cultural materials that may be present are easy to see and understand. Any form of construction or resource exploitation that involves the removal of, relocation of or compaction of soils sediments or minerals, requires the modification of the topography, thus displacing and/or destroying any cultural materials that may have been present (Wood 1982). These significant disturbances have results in none of the original topsoils remaining in situ.

Additional disturbances would have derived from natural processes. The patterns of deposition and erosion within a locality can influence the formation and/or destruction of archaeological sites. Within an environment where the rate of erosion is generally high, artefacts deposited in such an environment will be eroded downslope after being abandoned (Waters 2000; Waters and Kuehn 1996). If erosion occurs after cultural material is deposited, it will disturb or destroy sections, or all of, archaeological sites even if they were initially in a good state of preservation. The more frequent and severe the episodes of erosional events the more likely it is that the archaeological record in that area will be disturbed or destroyed. Additionally, bioturbation processes such as the redistribution and mixing of cultural deposits occurs as a result of burrowing and mounding by earthworms, ants

and other species of burrowing animals. Artefacts can move downwards through root holes as well as through sorting and settling due to gravity, and translocation can also occur as a result of tree falls (Balek 2002; Peacock and Fant 2002; Canti 2003; Stein 2003:).

Located within an environment that provided limited resources, including fresh water (which is necessary for survival), it is likely that the project area was utilised for transitory activities such as travel and hunting and gathering on the way to Bondi Beach area and associated subsistence resources. Such past Aboriginal land uses are manifest in the archaeological record as a background scatter of discarded artefacts (such as isolated artefacts and/or very low-density artefact scatters). In relation to modern alterations to the landscape, the previous large-scale clearing, grazing, housing/commercial developments and associated infrastructure and road works can be expected to have had high impacts upon the archaeological record resulting in none of the original landform remaining and any sites that may have been present highly disturbed or destroyed.

2.2 ARCHAEOLOGICAL CONTEXT

A review of the archaeological literature of the region, and more specifically the local area and the results of an AHIMS search provide essential contextual information for the current assessment.

2.2.1 HERITAGE REGISTER LISTINGS

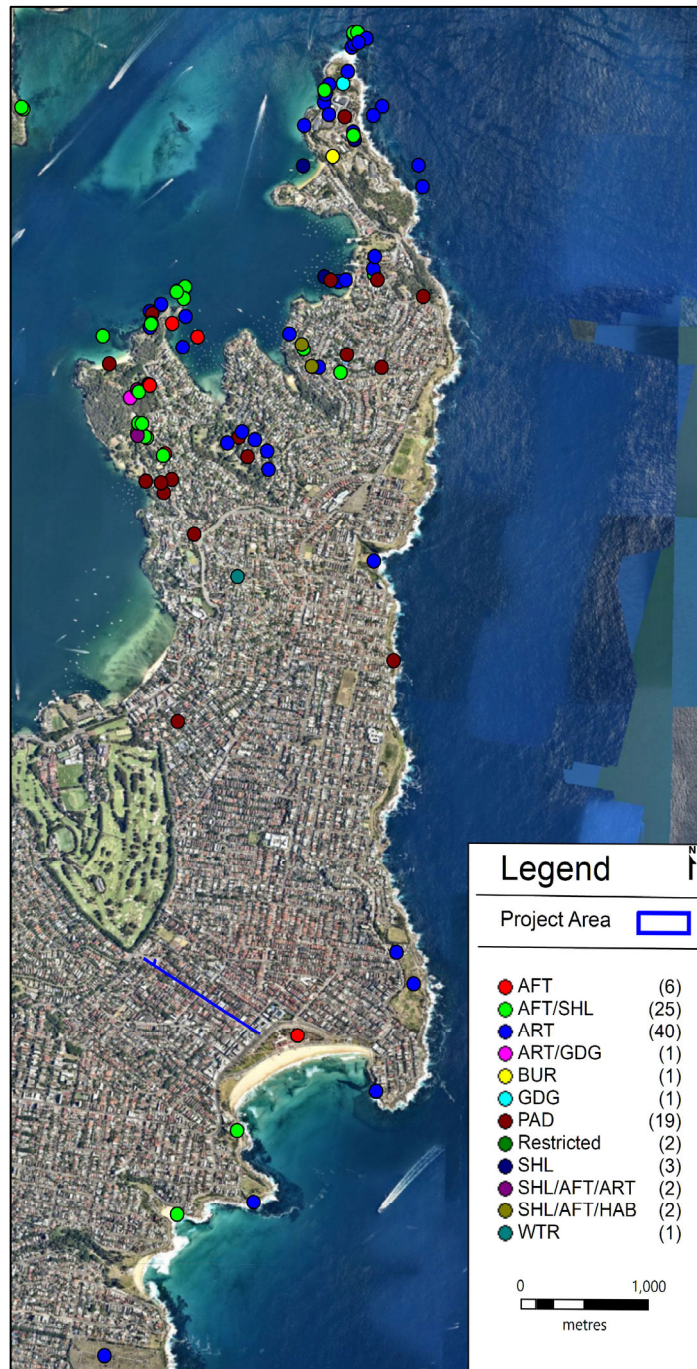
The National Heritage List, the Commonwealth Heritage List, the Australian Heritage Database, Australia's National Heritage List, The National Trust Heritage Register State Heritage Inventory the and the relevant Local Environmental Plan have no Aboriginal objects, sites or places listed.

2.2.2 ABORIGINAL HERITAGE INFORMATION MANAGEMENT SYSTEM (AHIMS)

It must be noted that there are many limitations with an AHIMS search including incorrect site coordinates due to errors and changing of computer systems at AHIMS over the years that failed to correctly translate old coordinate systems to new systems. Secondly, AHIMS will only provide up to 110 sites per search, thus limiting the search area surrounding the project area and limiting a more comprehensive analysis and finally, few sites have been updated on the AHIMS register to notify if they have been subject to a s87 or s90 and as such what sites remain in the local area and what sites have been destroyed, to assist in determining the cumulative impacts, is unknown.

A search of the AHIMS register (Appendix A) has identified 103 known Aboriginal sites currently recorded within a 3 kilometre by 10-kilometre area and include 6 artefact sites, 3 shell middens, 19 PADs, 1 grinding groove, 40 art sites, 1 watering hole, 1 burial, 1 art/grinding groove, 15 artefact/shell, 2 shell/artefact/art sites, 2 shell/artefact/habitation sites and 2 restricted (Figure 2.1). There are no registered sites or Aboriginal Places within the project area.

Figure 2.1 Location of AHIMS sites



2.2.3 SUMMARY OF THE ARCHAEOLOGICAL CONTEXT

The majority of archaeological surveys and excavations throughout the region have been undertaken in relation to environmental assessments for various developments, including but not limited to, residential and industrial, infrastructure, utilities, mining and quarrying. A review of the of the most relevant investigations (Negerevich 1978, Rich 1984, Morris 4986, Attenbrow 1990a, b, 1994, 2001, Corkill 1990, Koettig 1986, 1991, Dallas 1994, Sullivan 2001, McDonald 2010, Nutley 2017), have highlighted that;

- a wide variety of site types are represented in the project area with art sites being the most common, followed by artefact and shell midden sites
- art sites are located within natural geological formations that allow for shelter and the application of art (i.e., caves, rock shelters, exposed sandstone surfaces)
- shell middens and artefact sites are located in close proximity to marine resources and where fresh water may be available in naturally occurring water holes
- generally, throughout the wider region, site in proximity to ephemeral water sources or located in the vicinity of headwaters of upper tributaries (1st order streams) have a sparse distribution and density and contain little more than a background scatter
- sites located in the vicinity of the upper reaches of minor tributaries (2nd order streams) also have a relatively sparse distribution and density and may represent evidence of localised one-off behaviour
- sites located in the vicinity of the lower reaches of tributaries (3rd order creeks) have an increased distribution and density and contain evidence that may represent repeated occupation or concentration of activity
- sites located in the vicinity of major tributaries (4th and 5th order streams/rivers) have the highest distribution and densities. These sites tend to be extensive and complex in landscapes with permanent and reliable water and contain evidence representative of concentrated activity
- sites located within close vicinity at the confluence of any order stream may be a focus of activity and may contain a relatively higher artefact distribution and density

2.3 SYNTHESIS OF ENVIRONMENTAL AND ARCHAEOLOGICAL CONTEXTS

When assessing sites in terms of distance to water, in the region there is a clear pattern of past land uses whereby the majority of high-density sites are situated within 50 metres of reliable fresh water (high order) and reduce in both numbers and densities with a decrease in stream order. Thus, it is apparent that open campsites/isolated finds are most concentrated in number and size within 50 metres of reliable fresh water.

As is to be expected, the majority of sites within 50 metres of water are present on elevated landforms in association with creek lines whilst slopes and crest/ridge formations are also common site locations, although with an absence of reliable fresh water, were used for more transitory activities. The frequent presence of sites on crest/ridges and slopes is also noticeable for sites located over 50 metres from water. Due to the importance of water in the grinding process, it is not surprising that sites of this type are situated close to water. Based on information gained from previous studies, both regionally and locally, and the environmental context, within a five by three-kilometre radius of our project area, it can be expected that:

- main site types are art sites and artefact/ shell middens
- the likelihood of locating sites increases with proximity to ocean resources
- the likelihood of sites increases whereby natural geological formations are present
- the likelihood of finding large sites of high densities increases markedly with proximity to reliable water and decreases with a reduction in stream order;

- a variety of stone artefact types will be located though the majority will be flakes, flaked pieces and debitage;
- grinding grooves may be located along or near water sources within sandstone formations;
- the likelihood of finding scarred trees is dependent on the level of clearing in an area;
- the vast majority of artefactual material in the region was observed on exposures with good to excellent ground surface visibility; and
- the majority of sites will be subject to disturbances including human and natural.

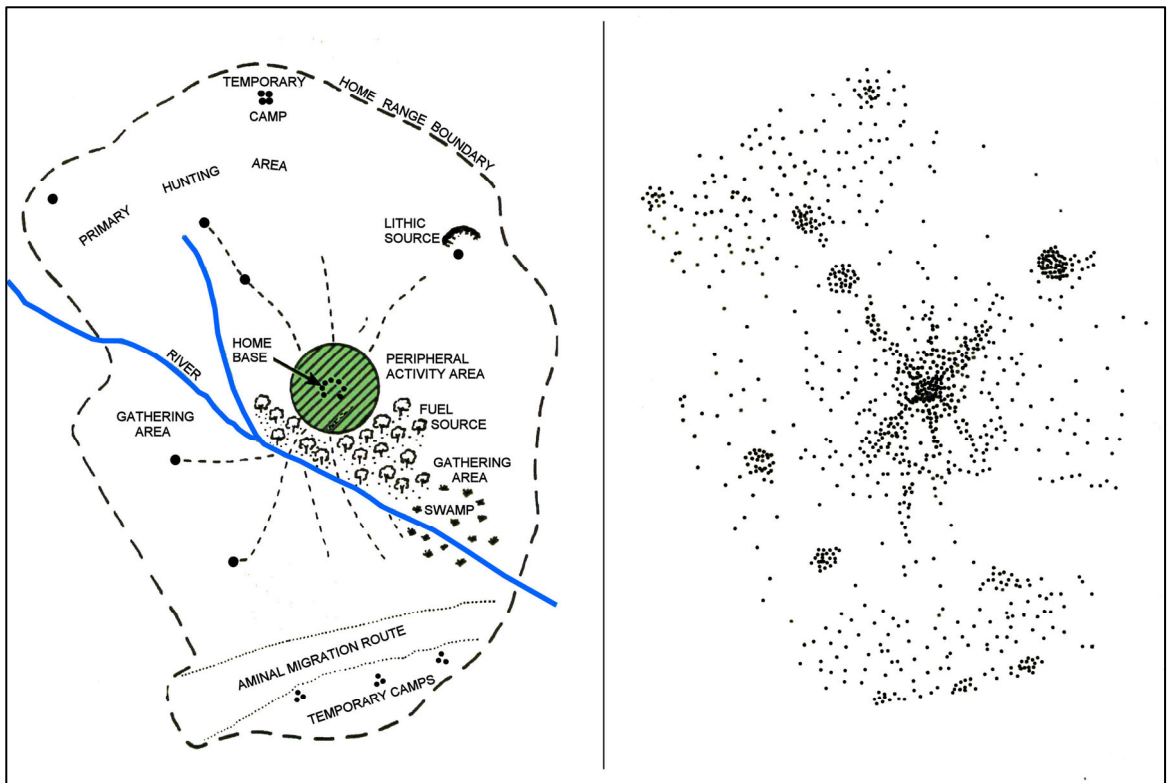
2.4 MODELS OF PAST ABORIGINAL LAND USE

The main aim of this project is to attempt to define both the nature and extent of occupation across the area. As a result, the nature of the analysis will focus on both the landform units and sites. The purpose of this strategy is to highlight any variations between sites and associated assemblages, landforms and resources across the area treating assemblages as a continuous scatter of cultural material across the landscape. In doing this, it is possible to identify variation across the landscape, landforms and assemblages that correspond with variation in the general patterns of landscape use and occupation. Thus, the nature of activities and occupation can be identified through the analysis of stone artefact distributions across a landscape. A general model of forager settlement patterning in the archaeological record has been established by Foley (1981). This model distinguishes the residential 'home base' site with peripheral "activity locations".

Basically, the home base is the focus of attention and many activities and the activity locations are situated away from the home base and are the focus of specific activities (such as tool manufacturing). This pattern is illustrated in Figure 2.2. Home base sites generally occur in areas with good access to a wide range of resources (reliable water, raw materials etc). The degree of environmental reliability, such as reliable water and subsistence resources, may influence the rate of return to sites and hence the complexity of evidence. Home base sites generally show a greater diversity of artefacts and raw material types (which represent a greater array of activities performed at the site and immediate area). Activity locations occur within the foraging radius of a home base camp (approximately 10 km); (Renfrew and Bahn 1991).

Based on the premise that these sites served as a focus of a specific activity, they will show a low diversity in artefacts and are not likely to contain features reflecting a base camp (such as hearths). However, it is also possible that the location of certain activities cannot be predicted or identified, adding to the increased dispersal of cultural material across the landscape. If people were opting to carry stone tools during hunting and gathering journeys throughout the area rather than manufacturing tools at task locations, an increased number of used tools should be recovered from low density and dispersed assemblages.

Figure 2.2 Foley's model (L) and its manifestation in the archaeological record (R), (Foley 1981).



2.5 MODEL OF OCCUPATION FOR THE LOCAL AREA

Work throughout NSW has aimed to understand the nature of Aboriginal occupation and to identify the nature of past Aboriginal land uses. This theme often aims to identify and explain archaeological patterning in site type, content and distribution. General theories have been developed outlining the relationship between land use patterns and the resulting archaeological evidence. A number of models developed for the region have been reviewed (McBryde 1976; Koettig 1994; Dean-Jones and Mitchell 1993; Rich 1995; Kuskie and Kamminga 2000; McDonald and White 2010). All models state that the primary requirements for repeated, concentrated or permanent occupation is access to reliable fresh water. Brief and possible repeated occupation may be represented in areas that have unreliable access to ephemeral water sources, however, these areas will not contain high archaeological evidence or potential (Goodwin 1999).

Kuskie and Kamminga (2000) established a general model of occupation strategies based primarily upon ethnographic research. Used as a starting point, it makes a general set of factors that are consistent with other studies (e.g., McDonald and White 2010, Nelson 1991). The model distinguishes between short-term or extended long-term occupation and makes some predictions about the likely location of different foraging and settlement activities. Combining this information with a review of assemblage contents from a sample of excavated sites within the region, a baseline of settlement activities may be determined (Barton 2001).

The model provides a number of archaeological expectations that may be tested. For example, the presence of features requiring a considerable labour investment (e.g., stone-lined ovens or heat-treatment pits) are likely to occur at places where occupation occurred for extended periods of time. The presence of grindstones is also a reliable indicator of low mobility and extended occupation as seed grinding requires a large investment of time and effort (Cane 1989). In most ethnographic

examples, seed grinding is an activity that takes place over an entire day to provide adequate energetic returns (Cane 1989; Edwards and O'Connell 1995).

Where group mobility was high and campsites frequently shifted throughout the landscape, artefact assemblages are not expected to contain elements such as grindstones, heat-treatment pits, ovens and the diversity of implements frequently discarded at places of extended residential occupation. It may also have been the case that the location of particular activities could not be predicted by tool users, adding to the increased low-density scattering of artefacts over the landscape. Also, if individuals were opting to carry a number of stone tools during hunting and gathering activities and maintaining these tools rather than manufacturing new tools at each task location, the ratio of used tools to unworn flakes in these assemblages should be high. Table 2.2 has been adapted from Kuskie and Kamminga (2000).

Table 2.2 Site descriptions (Kuskie & Kamminga 2000).

Occupation Pattern	Activity Location	Proximity to water	Proximity to food	Archaeological expectations
Transitory movement	all landscape zones	not important	not important	<ul style="list-style-type: none"> assemblages of low density & diversity evidence of tool maintenance & repair evidence for stone knapping
Hunting &/or gathering without camping	all landscape zones	not important	near food resources	<ul style="list-style-type: none"> assemblages of low density & diversity evidence of tool maintenance & repair evidence for stone knapping high frequency of used tools
Camping by small groups	associated with permanent & temporary water	near (within 100m)	near food resources	<ul style="list-style-type: none"> assemblages of moderate density & diversity evidence of tool maintenance & repair evidence for stone knapping & hearths
Nuclear family base camp	level or gently undulating ground	near reliable source (within 50m)	near food resources	<ul style="list-style-type: none"> assemblages of high density & diversity evidence of tool maintenance, repair, casual knapping evidence for stone knapping heat treatment pits, stone lined ovens grindstones
Community base camp	level or gently undulating ground	near reliable source (within 50m)	near food resources	<ul style="list-style-type: none"> assemblages of high density & diversity evidence of tool maintenance, repair, casual knapping evidence for stone knapping heat treatment pits, stone lined ovens grindstones & ochre large area >100sqm with isolated camp sites

2.6 PREDICTIVE MODEL FOR THE PROJECT AREA

An archaeological predictive model is established to identify areas of archaeological sensitivity so it can be used as a basis for the planning and management of Aboriginal heritage. It involves reviewing existing literature to identify basic site distribution patterns. These patterns are then modified according to the specific environment of the project area to form a predictive model for site location within the current project area. A sampling strategy is then used to test the model and the results of the survey used to confirm, refute or modify the model.

Land-systems and environmental factors are commonly used factors in predictive modelling based on the assumption that they provide distinctive sets of constraints and opportunities that influenced past Aboriginal land use patterns. As land use patterns may differ between zones (due to different

environmental conditions), this may result in the physical manifestation of different spatial distributions and forms of archaeological evidence. The predictive model presented here is based on landform units, previous archaeological assessments conducted within the region, distribution of known sites and site densities and traditional Aboriginal land use patterns. Also taken into consideration are land use impacts (both natural and anthropomorphic) that may have resulted in a disturbed landscape and associated archaeological record.

Considering the environmental context as well as the AHIMS results, local and regional archaeological investigations, given that fresh water was necessary for survival and no reliable fresh water is located near the project area, the absence of reliable fresh water indicates the project area and immediate surrounds may have been used for hunting and gathering opportunities rather than large-scale long-term camping. Additionally, the absence of natural sandstone geological formations in the project area indicates no habitation or art sites would be present in the project area. Evidence of hunting and gathering activities manifest in the archaeological record as low-density background artefact scatters and isolated finds.

Non-indigenous settlement and land uses have significantly impacted the investigation area, most noticeably from excavation works associated with the residential/commercial construction works, utilities as well as road construction works. These land uses would have impacted on the archaeological record by removing any cultural materials that may have been present in the project area.

The presence of past Aboriginal people and their use of the landscape are undeniable and evidence is seen in the cultural materials that have survived both natural and human land uses since colonisation of the area in the 1800's. Whilst it is clear Aboriginal people lived across the landscape, the evidence will have been impacted and/or destroyed through such land uses.

The site types that may have been present within the project area prior to excavation works for the house, concrete slab at the back and drainage along the southern border within the project area, include shell middens, very low-density artefact scatters and, or isolated artefacts, both of which are described below.

- **Artefact scatters**

Also described as open campsites, artefact scatters and open sites, these deposits have been defined at two or more stone artefacts within 50 metres of each other and will include archaeological remains such as stone artefacts and may be found in association with camping where other evidence may be present such as shell, hearths, stone lined fire places and/or heat treatment pits. These sites are usually identified as surface scatters of artefacts in areas where ground surface visibility is increased due to lack of vegetation. Erosion, agricultural activities (such as ploughing, grazing) and access ways can also expose surface campsites. Artefact scatters may represent evidence of;

- Large camp sites, where everyday activities such as habitation, maintenance of stone or wooden tools, manufacturing of such tools, management of raw materials, preparation and consumption of food and storage of tools has occurred;
- Medium/small camp sites, where activities such as minimal tool manufacturing occurred;
- Hunting and/or gathering events;
- Other events spatially separated from a camp site, or
- Transitory movement through the landscape.

Artefact scatters are a common site type in the locality and the broader region. There is potential for very low-density artefact scatters to occur within the project area and consist of a background scatter

of discarded artefacts associated with opportunistic hunting and gathering activities and, or travel. However, there is also the potential for such sites to be impacted on through past land uses.

- **Isolated finds**

Isolated artefacts are usually identified in areas where ground surface visibility is increased due to lack of vegetation. Erosion, agricultural activities (such as ploughing) and access ways can also expose surface artefacts. Isolated finds may represent evidence of;

- Hunting and/or gathering events; or
- Transitory movement through the landscape.

Isolated finds are a common site type in the locality and the broader region. There is potential for isolated artefacts to occur across the project area and across all landforms. There is also the potential for such sites to be impacted on through past land uses.

3 RESULTS AND DISCUSSION

To comply with the due diligence requirement that a visual inspection of the project area be undertaken, an archaeological survey across the project area was undertaken by MCH archaeologist Dr. Penny McCardle on 10th March 2023. The survey focused on areas of high ground surface visibility and exposures (erosional features, cleared areas).

3.1 SURVEY UNITS

The project area, being highly disturbed was surveyed as one survey unit. The survey confirmed the past land uses including clearing and housing/commercial, associated utilities and the construction of Curlews Road. These land uses have significantly altered the landscape of the project area resulting in none of the original landform remaining. Visibility was low and hindered by structures and as such ground surface visibility ratings are unsuitable in this case.

The level and nature of the effective survey coverage is considered satisfactory to provide an effective assessment of the project area. The coverage was comprehensive for obtrusive site types (e.g., grinding grooves and scarred trees) as well as for the less obtrusive surface stone artefact sites.

In relation to land uses and the associated impacts on the landscape and any cultural materials that may have been present, the project area has been subject to large scale clearing, at least one ploughing event, grazing, excavation and construction works for the housing and the associated utilities as well as the construction of Curlews Street and as indicated in Table 3.2, these disturbances are assessed as high.

Table 3.1 Land use scale (CSIRO 2010) and land uses in the project area

Minor disturbance		Project area	Moderate disturbance		Project area	Major disturbance		Project area
0	No effective disturbance; natural		3	Extensive clearing (e.g., poisoning and ringbarking)		6	Cultivation: grain fed	
1	No effective disturbance other than grazed by hoofed animals		4	Complete clearing: pasture native or improved, but never cultivated		7	Cultivation: irrigated, past and present	
2	Limited clearing (e.g., selected logging)		5	Complete clearing: pasture native or improved, cultivated at some stage		8	Highly disturbed: e.g., quarry, road works, mining, landfill, urban	

3.2 ARCHAEOLOGICAL SITES AND ARCHAEOLOGICAL SENSITIVITY

No sites or areas of potential archaeological sensitivity were identified in the project areas during the survey and this is due to the significantly high impacts from previous land uses across the project area (clearing, ploughing, residential utilities, road construction). Additionally, being located at a distance from reliable fresh water and resources, indicates the project area may have been utilised

for more transitory activities such as hunting and gathering rather than camping. Evidence of such past Aboriginal land uses manifests in the archaeological record as a background scatter of discarded artefacts, which would have been disturbed/destroyed through past land uses.

In view of the predictive modelling and the results obtained from the effective coverage and disturbance rating, it is concluded that the survey provides a valid basis for determining the probable impacts of the proposal and formulating recommendations for the project. The survey results demonstrate the absence of Aboriginal objects within the project area. The results are consistent with those obtained from other studies in the local area. The results indicate a number of possible past Aboriginal land use within the project area;

- No Aboriginal occupation
- Significant ground disturbances having disturbed or removed evidence

Considering general models of occupation for the locality, the results of this and local investigations, the locality may have been utilised by Aboriginal people. As there is no fresh water source in the immediate area and as the project area itself is located over 180 metres from ocean resources, the project area is unlikely to have been utilised more than a low intensity usage such as transitory movement or hunting/gathering activities.

3.3 CONCLUSION

It is well established that proximity to water was an important factor in past occupation of the area, with sites reducing in number significantly away from water with most sites located within 50 metres of fresh water and an increase in site numbers and densities with higher order water sources. The project area, with an absence of a fresh water supply and located over 180 metres from the ocean and associated subsistence resources, and no natural geological formations for shelter or the application of art, indicates the project area would not have been suitable for camping but likely to have been used during travel and hunting and gathering activities.

In relation to modern alterations to the landscape, previous large-scale clearing, grazing and construction works associated with residential/commercial developments, associated utilities as well as the construction of Curlews Street, have had high impacts upon the landscape and archaeological record resulting in none of the original landform or soils remaining, nor any cultural materials that may have been present.

4 ASSESSMENT OF IMPACTS

The archaeological record is a non-renewable resource that is affected by many processes and activities. As outlined in Section 2 and Section 3, the various natural processes and human activities have impacted on archaeological deposits through both site formation and taphonomic processes.

4.1 IMPACTS

The Heritage NSW Code of Practice for the Archaeological Investigation of Aboriginal Objects in New South Wales (2010:21) describes impacts to be rated as follows:

- 1) Type of harm: is either direct, indirect or none
- 2) Degree of harm is defined as either total, partial or none
- 3) Consequence of harm is defined as either total loss, partial loss, or no loss of value

As no sites or PADs were identified, there are no impacts on the archaeological record.

5 MITIGATION AND MANAGEMENT STRATEGIES

Specific strategies, as outlined through the Heritage NSW Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales (DECCW 2010b), the Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW (OEH 2011), and the Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW (DECCW 2010c), are considered below for the management of the identified site(s) within the project area.

5.1 CONSERVATION/PROTECTION

Conservation is the first avenue and is suitable for all sites, especially those considered high archaeological significance and/or cultural significance. Conservation includes the processes of looking after an indigenous site or place so as to retain its significance and managed in a way that is consistent with the nature of peoples' attachment to them.

As no sites or PADs were identified conservation/protection is not required.

5.2 FURTHER INVESTIGATION

An Aboriginal Heritage Impact Permit (AHIP) is no longer required to undertake test excavations (providing the excavations are in accordance with the Code of Practice for Archaeological Investigations in NSW). Subsurface testing is appropriate when a PAD has been identified, and it can be demonstrated that sub-surface Aboriginal objects with potential conservation value have a high probability of being present, and that the area cannot be substantially avoided by the proposed activity.

As no sites or PADs were identified further investigations are not justified.

5.3 AHIP

If harm will occur to an Aboriginal object or Place, then an AHIP should be sought from Heritage NSW, Department of Premier & Cabinet as a defence to that harm. If a systematic excavation of the known site could provide benefits and information for the Aboriginal community and/or archaeological study of past Aboriginal occupation, a salvage program, and, or community collection, may be an appropriate strategy to enable the salvage of cultural objects.

As no sites or PADs were identified an AHIP is not required.

6 RECOMMENDATIONS

6.1 GENERAL

- 1) The persons responsible for the management of onsite works will ensure that all staff, contractors and others involved in construction and maintenance related activities are made aware of the statutory legislation protecting sites and places of significance. Of particular importance is the National Parks and Wildlife Regulation 2019, under the National Parks and Wildlife Act 1974; and
- 2) Should any Aboriginal objects be uncovered during works, all work will cease in that location immediately and the Environmental Line contacted.

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APPENDIX A

AHIMS Search Results

Penny Mccardle

Date: 09 March 2023

Po Box 166

Adamstown New South Wales 2289

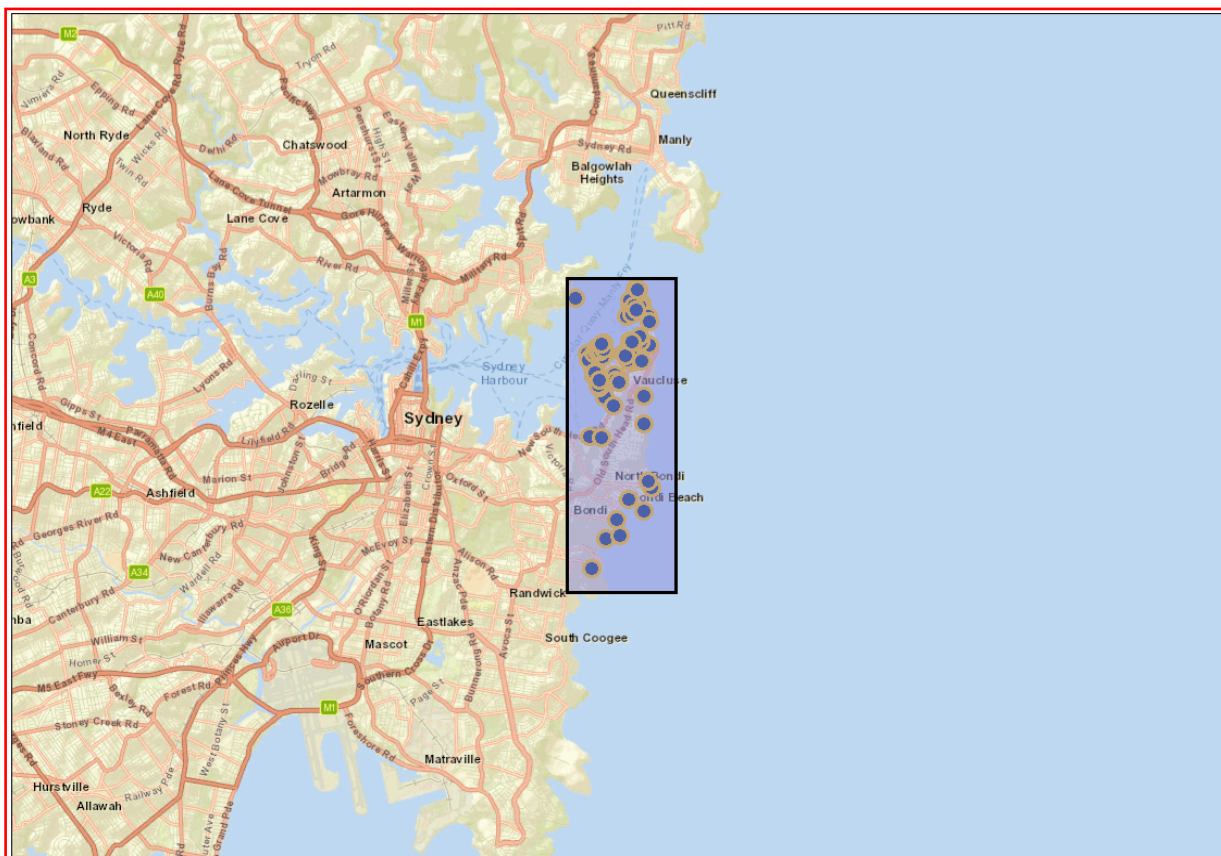
Attention: Penny Mccardle

Email: penny@mchheritage.com.au

Dear Sir or Madam:

AHIMS Web Service search for the following area at Datum :GDA, Zone : 56, Eastings : 339000.0 - 342000.0, Northings : 6246000.0 - 6255300.0 with a Buffer of 0 meters, conducted by Penny Mccardle on 09 March 2023.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.



A search of Heritage NSW AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

103	Aboriginal sites are recorded in or near the above location.
0	Aboriginal places have been declared in or near the above location. *

If your search shows Aboriginal sites or places what should you do?

- You must do an extensive search if AHIMS has shown that there are Aboriginal sites or places recorded in the search area.
- If you are checking AHIMS as a part of your due diligence, refer to the next steps of the Due Diligence Code of practice.
- You can get further information about Aboriginal places by looking at the gazettal notice that declared it. Aboriginal places gazetted after 2001 are available on the [NSW Government Gazette \(https://www.legislation.nsw.gov.au/gazette\)](https://www.legislation.nsw.gov.au/gazette) website. Gazettal notices published prior to 2001 can be obtained from Heritage NSW upon request

Important information about your AHIMS search

- The information derived from the AHIMS search is only to be used for the purpose for which it was requested. It is not to be made available to the public.
- AHIMS records information about Aboriginal sites that have been provided to Heritage NSW and Aboriginal places that have been declared by the Minister;
- Information recorded on AHIMS may vary in its accuracy and may not be up to date. Location details are recorded as grid references and it is important to note that there may be errors or omissions in these recordings,
- Some parts of New South Wales have not been investigated in detail and there may be fewer records of Aboriginal sites in those areas. These areas may contain Aboriginal sites which are not recorded on AHIMS.
- Aboriginal objects are protected under the National Parks and Wildlife Act 1974 even if they are not recorded as a site on AHIMS.
- This search can form part of your due diligence and remains valid for 12 months.

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
45-6-1521	Shark Beach;Neilson Park Sydney Harbour N.P;	GDA	56	339475	6253040	Closed site	Valid	Shell : -, Artefact : -	Shelter with Midden	
	Contact	Recorders	Mr.Peter Brookhouse							Permits
45-6-1609	Shark Bay;Greycliffe House;	GDA	56	339740	6253102	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	
	Contact	Recorders	ASRSYS							Permits
45-6-2060	South Bondi Cave;	AGD	56	340320	6247930	Closed site	Valid	Shell : -, Artefact : -	Shelter with Midden	1809
	Contact	Recorders	Michael Guider							Permits
45-6-0922	South Head Site D	AGD	56	340590	6254420	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	595,1985
	Contact	Recorders	Mr.Peter Brookhouse							Permits
45-6-2172	Parsley Bay 5;	GDA	56	340821	6252831	Closed site	Valid	Shell : -, Artefact : -	Shelter with Midden	
	Contact	Recorders	Michael Guider,Mr.Matthew Kelleher,Kelleher Nightingale Consulting Pty Ltd (Gen							Permits
45-6-2971	South Head(duplicate copy of 45-6-1518)	GDA	56	340880	6255025	Open site	Valid	Artefact : -		
	Contact	Recorders	Mr.Peter Brookhouse							Permits
45-6-2084	Gibsons Beach Cave;	GDA	56	341001	6253470	Closed site	Valid	Shell : -, Artefact : -	Shelter with Midden	1809
	Contact	Recorders	Michael Guider							Permits
45-6-3971	The Caves	GDA	56	341280	6253335	Closed site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Mr.Paul Irish,Coast History & Heritage							Permits
45-6-0719	Bondi Golf Links;North Bondi;	AGD	56	341300	6248900	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	
	Contact	Recorders	Mr.Peter Brookhouse							Permits
45-6-3754	KRB Rockshelter	GDA	56	340012	6251770	Closed site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Ms.Fenella Atkinson,Coast History & Heritage							Permits
45-6-1947	Tamarama Beach Cave;	AGD	56	339990	6247380	Closed site	Valid	Shell : -, Artefact : -	Shelter with Midden	
	Contact	Recorders	Michael Guider							Permits
45-6-2665	Restriction applied. Please contact ahims@environment.nsw.gov.au.					Open site	Destroyed			102152
	Contact	Recorders	Brad Welsh,Mr.David Ingrey							Permits
45-6-1629	Vaucluse;Hermitage Reserve;	GDA	56	339735	6252388	Open site	Valid	Shell : -, Artefact : -	Midden	
	Contact	Recorders	W Newell							Permits
45-6-1676	Shark Beach Bay 1;Sydney Harbour National Park;	GDA	56	339740	6253102	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	
	Contact	Recorders	Michael Smith							Permits

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : Bondi

Client Service ID : 761986

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
45-6-0029	Vaucluse Point Sydney Harbour N.P.	GDA	56	339800	6253250	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	
	<u>Contact</u>	<u>Recorders</u>	Michael Guider,Mr.Paul Irish							
45-6-3964	Woollahra Possible Shelter WAH124	GDA	56	340345	6252389	Closed site	Valid	Art (Pigment or Engraved) : -		
	<u>Contact</u>	<u>Recorders</u>	Mr.Paul Irish,Coast History & Heritage							
45-6-1666	South Head;Sydney Harbour NP;	GDA	56	340700	6254570	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	
	<u>Contact</u>	<u>Recorders</u>	Mr.Peter Brookhouse							
45-6-3816	Kutti Beach Cave	GDA	56	340721	6253448	Closed site	Valid	Shell : -		
	<u>Contact</u>	<u>Recorders</u>	Mr.Paul Irish,Coast History & Heritage							
45-6-0921	South Head Site A;Sydney Harbour National Park;	GDA	56	340728	6254493	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	595,1985
	<u>Contact</u>	<u>Recorders</u>	J Wyeth							
45-6-3943	Watson GG1	GDA	56	340805	6254693	Open site	Valid	Grinding Groove : -		
	<u>Contact</u>	<u>Recorders</u>	Mr.Paul Irish,Coast History & Heritage							
45-6-0716	South Head Site C;Sydney Harbour National Park;	GDA	56	340850	6254930	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	595,1985
	<u>Contact</u>	<u>Recorders</u>	Mr.Peter Brookhouse							
45-6-0920	South Head Site G;Sydney Harbour National Park;	GDA	56	340867	6254384	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	595,1985
	<u>Contact</u>	<u>Recorders</u>	T Negerevich							
45-6-0918	South Head Site S	GDA	56	340864	6254950	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	595,1985
	<u>Contact</u>	<u>Recorders</u>	Mr.Peter Brookhouse							
45-6-3960	Camp Cove Shelters	GDA	56	340876	6254336	Closed site	Valid	Shell : -		
	<u>Contact</u>	<u>Recorders</u>	Mr.Paul Irish,Coast History & Heritage							
45-6-0733	South Head Site B;Sydney Harbour National Park;	GDA	56	341029	6254555	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	595,1985
	<u>Contact</u>	<u>Recorders</u>	Mr.Peter Brookhouse							
45-6-1046	Manly Ferry Cave;	GDA	56	339889	6253335	Closed site	Valid	Shell : -, Artefact : -	Shelter with Midden	
	<u>Contact</u>	<u>Recorders</u>	Mr.Peter Brookhouse,Paul Johnson,Peter Johnson							
45-6-1045	Hydrofoil Cave;	GDA	56	339902	6253339	Open site	Valid	Shell : -, Artefact : -	Midden	1910
	<u>Contact</u>	<u>Recorders</u>	W Newell,Mr.R Taplin							
45-6-1522	Vaucluse Bay;25 Coolong Road Vaucluse;	GDA	56	340010	6253045	Closed site	Valid	Artefact : -	Shelter with Deposit	1809
	<u>Contact</u>	<u>Recorders</u>	Val Attenbrow,Mr.Peter Brookhouse							
45-6-0694	Middle Head;Port Jackson;	AGD	56	339594	6246471	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	
	<u>Contact</u>	<u>Recorders</u>	Unknown Author							

Report generated by AHIMS Web Service on 09/03/2023 for Penny Mccardle for the following area at Datum :GDA, Zone : 56, Eastings : 339000.0 - 342000.0, Northings : 6246000.0 - 6255300.0 with a Buffer of 0 meters.. Number of Aboriginal sites and Aboriginal objects found is 103

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SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
45-6-1621	Vaucluse;Hermitage Reserve,;	GDA	56	339636	6252641	Open site	Valid	Art (Pigment or Engraved) : -, Grinding Groove : -	Axe Grinding Groove,Rock Engraving	768
	Contact	Recorders	W Newell							
45-6-3956	Nielsen Park Shelter 3	GDA	56	339738	6252729	Closed site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Mr.Paul Irish,Coast History & Heritage							
45-6-1164	Whale Cave;Vaucluse Point;	GDA	56	339739	6253204	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	
	Contact	Recorders	W Newell							
45-6-3958	Nielsen Park Shelter 2	GDA	56	339751	6253188	Closed site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Mr.Paul Irish,Coast History & Heritage							
45-6-3952	Woollahra Possible Shelter WAH117	GDA	56	339836	6252036	Closed site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Mr.Paul Irish,Coast History & Heritage							
45-6-2797	28 Carrara Road Archaeological Deposit (formerly PAD)	AGD	56	339733	6252108	Open site	Destroyed	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Austral Archaeology							
45-6-2169	Bondi Beach;	AGD	56	340650	6248550	Open site	Valid	Artefact : -	Open Camp Site	
	Contact	Recorders	Michael Guider							
45-6-3951	Woollahra Possible Shelter WAH121	GDA	56	340856	6252948	Closed site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Mr.Paul Irish,Coast History & Heritage							
45-6-1665	South Head;Sydney Harbour NP;	GDA	56	340858	6255011	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	
	Contact	Recorders	Mr.Peter Brookhouse							
45-6-3945	South Head Site T WAH088	GDA	56	340978	6254494	Open site	Valid	Art (Pigment or Engraved) : -		
	Contact	Recorders	Mr.Paul Irish,Coast History & Heritage							
45-6-0717	South Head;Watson's Bay;	GDA	56	340995	6253506	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	
	Contact	Recorders	Michael Guider,Mr.Peter Brookhouse							
45-6-1515	Diamond Bay (Vaucluse South)	AGD	56	341030	6251620	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	97439
	Contact	Recorders	Mr.Peter Brookhouse							

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Extensive search - Site list report

Your Ref/PO Number : Bondi

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SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
45-6-3959	Nielsen Park Shelter 1	GDA	56	339747	6253130	Closed site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Mr.Paul Irish,Coast History & Heritage							
45-6-3968	Woollahra Possible Shelter WAH120	GDA	56	340253	6252404	Closed site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Mr.Paul Irish,Coast History & Heritage							
45-6-1469	Vaucluse Park	GDA	56	340416	6252317	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	
	Contact	Recorders	Michael Guider,Mr.Paul Irish							
45-6-3351	Camp Cove 1 (CC1)	GDA	56	340588	6254161	Open site	Valid	Shell : 1		103797
	Contact	Recorders	Comber Consultants Pty Limited,Mr.David Nutley							
45-6-2175	Parsley Bay 2;	GDA	56	340610	6252978	Closed site	Valid	Shell : -, Artefact : -	Shelter with Midden	
	Contact	Recorders	Michael Guider							
45-6-0709	Vaucluse;Parsley Bay;	GDA	56	340699	6252863	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	
	Contact	Recorders	Unknown Author							
45-6-3947	Woollahra Possible Engraving WAH148	GDA	56	340708	6254646	Open site	Valid	Art (Pigment or Engraved) : -		
	Contact	Recorders	Mr.Paul Irish,Coast History & Heritage							
45-6-0712	Watson's Bay;Vaucluse;	GDA	56	340800	6253420	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	
	Contact	Recorders	ASRSYS							
45-6-0718	Bondi;Hugh Bamford Park;	AGD	56	341200	6249100	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	
	Contact	Recorders	Mr.Peter Brookhouse							
45-6-0724	South Head Site L;Sydney Harbour National Park;	GDA	56	341240	6254180	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	595,1985
	Contact	Recorders	Unknown Author							
45-6-0560	Mt. Trefle Nelson Park Point 1 Mt. Trefle Midden Mt. Trefle Cave	GDA	56	339674	6252694	Closed site	Valid	Shell : -, Artefact : -, Art (Pigment or Engraved) : -	Shelter with Art,Shelter with Midden	1910,1911,229 3,2864
	Contact	Recorders	Val Attenbrow,Michael Guider,W Newell,W Stanley							
45-6-2173	Parsley Bay 4;	GDA	56	340528	6253077	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	
	Contact	Recorders	Michael Guider							
45-6-2176	Parsley Bay 2	GDA	56	340659	6252867	Closed site	Valid	Shell : -, Artefact : -, Habitation Structure : -	Shelter with Midden	
	Contact	Recorders	Michael Guider,Coast History & Heritage ,Mr.Matthew Kelleher,Kelleher Nightingal							

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SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
45-6-3946	Woollahra Possible Engraving WAH147	GDA	56	340706	6254625	Open site	Valid	Art (Pigment or Engraved) : -		
	<u>Contact</u>	<u>Recorders</u>	Mr.Paul Irish,Coast History & Heritage					<u>Permits</u>		
45-6-0713	South Head Site F;Sydney Harbour National Park;	GDA	56	340726	6254686	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	595,1985
	<u>Contact</u>	<u>Recorders</u>	Mr.Peter Brookhouse					<u>Permits</u>		
45-6-0714	South Head Site H;Sydney Harbour National Park;	GDA	56	340830	6254772	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	595,1985
	<u>Contact</u>	<u>Recorders</u>	Mr.Peter Brookhouse					<u>Permits</u>		
45-6-1519	South Head;Sydney Harbour NP,;	GDA	56	340858	6255021	Open site	Valid	Shell : -, Artefact : -	Midden	
	<u>Contact</u>	<u>Recorders</u>	Mr.Peter Brookhouse					<u>Permits</u>		
45-6-3955	Woollahra Possible Shelter WAH115	GDA	56	341020	6253435	Closed site	Valid	Potential Archaeological Deposit (PAD) : -		
	<u>Contact</u>	<u>Recorders</u>	Mr.Paul Irish,Coast History & Heritage					<u>Permits</u>		
45-6-1044	Vaucluse Point 2;Bottle Glass Cave;	GDA	56	339934	6253365	Open site	Valid	Shell : -, Artefact : -	Midden	
	<u>Contact</u>	<u>Recorders</u>	Mr.Peter Brookhouse					<u>Permits</u>		
45-6-1698	Georges Head 1	AGD	56	339000	6254490	Closed site	Valid	Shell : -, Artefact : -	Midden,Shelter with Deposit	1293,2025,2988
	<u>Contact</u>	<u>Recorders</u>	Val Attenbrow					<u>Permits</u>		
45-6-2089	Mt Treffe 2;	GDA	56	339685	6252680	Closed site	Valid	Shell : -, Artefact : -	Shelter with Midden	1809
	<u>Contact</u>	<u>Recorders</u>	Michael Guider					<u>Permits</u>		
45-6-1627	Milk Beach 2;	GDA	56	339723	6252394	Open site	Valid	Shell : -, Artefact : -	Midden	768
	<u>Contact</u>	<u>Recorders</u>	W Newell					<u>Permits</u>		
45-6-2352	Mt Trefle 3;	GDA	56	339745	6252723	Closed site	Valid	Artefact : -	Shelter with Deposit	
	<u>Contact</u>	<u>Recorders</u>	Michael Guider					<u>Permits</u>		
45-6-0711	Watson's Bay;Vaucluse.	GDA	56	340840	6253430	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	
	<u>Contact</u>	<u>Recorders</u>	Unknown Author					<u>Permits</u>		
45-6-3954	Woollahra Possible Engraving WAH116	GDA	56	341002	6253584	Open site	Valid	Art (Pigment or Engraved) : -		
	<u>Contact</u>	<u>Recorders</u>	Mr.Paul Irish,Coast History & Heritage					<u>Permits</u>		
45-6-2895	Dover Heights PAD	GDA	56	341152	6250980	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	<u>Contact</u>	<u>Recorders</u>	Kate Sullivan & Associates Pty Ltd					<u>Permits</u>		
45-6-3969	Woollahra Possible Shelter WAH119	GDA	56	339880	6252123	Closed site	Valid	Potential Archaeological Deposit (PAD) : -		

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : Bondi

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SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
	<u>Contact</u>	<u>Recorders</u>	Mr.Paul Irish,Coast History & Heritage					<u>Permits</u>		
45-6-0704	Vaucluse Bay Vaucluse	GDA	56	339927	6252974	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	
	<u>Contact</u>	<u>Recorders</u>	Ms.Lisa Campbell,Mr.Paul Irish					<u>Permits</u>		
45-6-3957	Woollahra Potential Shelter WAH113	GDA	56	339514	6252856	Closed site	Valid	Potential Archaeological Deposit (PAD) : -		
	<u>Contact</u>	<u>Recorders</u>	Mr.Paul Irish,Coast History & Heritage					<u>Permits</u>		
45-6-3799	Restriction applied. Please contact ahims@environment.nsw.gov.au.					Open site	Valid			
	<u>Contact</u>	<u>Recorders</u>	Mr.Paul Irish,Coast History & Heritage					<u>Permits</u>	4670	
45-6-1681	Shark Bay Shelter;Sydney Harbour National Park;	GDA	56	339746	6253122	Closed site	Valid	Shell : -, Artefact : -	Shelter with Midden	
	<u>Contact</u>	<u>Recorders</u>	Michael Smith					<u>Permits</u>		
45-6-3953	Woollahra Possible Shelter WAH118	GDA	56	339820	6252101	Closed site	Valid	Potential Archaeological Deposit (PAD) : -		
	<u>Contact</u>	<u>Recorders</u>	Mr.Paul Irish,Coast History & Heritage					<u>Permits</u>		
45-6-1628	Milk Beach 1;	GDA	56	339838	6252286	Closed site	Valid	Artefact : -	Shelter with Deposit	768
	<u>Contact</u>	<u>Recorders</u>	W Newell					<u>Permits</u>		
45-6-0903	Vaucliffe; Radcliffe Residence	GDA	56	340190	6252365	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	
	<u>Contact</u>	<u>Recorders</u>	Unknown Author,Mr.Paul Irish					<u>Permits</u>		
45-6-1330	Vaucluse Vaucluse House	GDA	56	340272	6252438	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	
	<u>Contact</u>	<u>Recorders</u>	Unknown Author,Mr.Paul Irish					<u>Permits</u>		
45-6-0750	Marks Park;Tamarama;Bondi Beach;	AGD	56	340420	6247470	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	
	<u>Contact</u>	<u>Recorders</u>	Mr.Peter Brookhouse					<u>Permits</u>		
45-6-1517	South Head;Sydney Harbour NP;;	GDA	56	340700	6254650	Open site	Valid	Shell : -, Artefact : -	Midden	
	<u>Contact</u>	<u>Recorders</u>	Mr.Peter Brookhouse					<u>Permits</u>		
45-6-1518	South Head;Sydney Harbour NP;(duplicate copy of 45-6-1908)	GDA	56	340880	6255025	Closed site	Valid	Shell : -, Artefact : -	Shelter with Midden	
	<u>Contact</u>	<u>Recorders</u>	Mr.Peter Brookhouse					<u>Permits</u>		
45-6-0715	South Head Site E;Sydney Harbour National Park;Hornby Lighthouse;	GDA	56	340932	6254986	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	595,1985
	<u>Contact</u>	<u>Recorders</u>	Mr.Peter Brookhouse					<u>Permits</u>		
45-6-3967	Woollahra Possible Shelter WAH122	GDA	56	341053	6252870	Closed site	Valid	Potential Archaeological Deposit (PAD) : -		
	<u>Contact</u>	<u>Recorders</u>	Mr.Paul Irish,Coast History & Heritage					<u>Permits</u>		

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AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : Bondi

Client Service ID : 761986

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
45-6-2295	Eastside Cave;Vaucluse;	GDA	56	339865	6253129	Closed site	Valid	Artefact : -	Shelter with Deposit	
	Contact	Recorders	Michael Guider							
45-6-1524	Vaucluse Midden;Neilson Park;	GDA	56	339928	6253291	Open site	Valid	Shell : -, Artefact : -	Midden	
	Contact	Recorders	W Newell							
45-6-1677	Vaucluse Bay;Behind 37 Coolong Road;	GDA	56	339940	6253175	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	
	Contact	Recorders	Mr.Peter Brookhouse							
45-6-1757	Georges Head 2	AGD	56	338990	6254500	Open site	Valid	Artefact : -, Shell : -	Midden,Open Camp Site	2025,2988
	Contact	Recorders	Val Attenbrow,Val Attenbrow,A.K Morris							
45-6-1626	Milk Beach 3;	GDA	56	339679	6252416	Open site	Valid	Shell : -, Artefact : -	Midden	768
	Contact	Recorders	W Newell							
45-6-0001	Cabarita Park 1;Vaucluse;Milk Beach;	GDA	56	339681	6252402	Open site	Valid	Shell : -, Artefact : -, Art (Pigment or Engraved) : -	Midden,Rock Engraving	
	Contact	Recorders	Elizabeth Rich,Michael Guider,W Newell							
45-6-1651	Milk Beach 5;Hermitage Reserve;	GDA	56	339685	6252479	Closed site	Valid	Shell : -, Artefact : -	Shelter with Midden	
	Contact	Recorders	W Newell							
45-6-1652	Milk Beach 4	GDA	56	339705	6252477	Open site	Valid	Shell : -, Artefact : -	Midden	1888
	Contact	Recorders	W Newell							
45-6-1761	Hermit Bay;	GDA	56	339828	6252276	Open site	Valid	Shell : -, Artefact : -	Midden	
	Contact	Recorders	J Wyler							
45-6-2650	Emmas Well	GDA	56	340262	6251501	Open site	Valid	Water Hole : -		
	Contact	Recorders	Barbara Le Maistre							
45-6-3624	The Wanderers Cave	GDA	56	340305	6252280	Closed site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Mr.Paul Irish,Coast History & Heritage							
45-6-1588	31 Olola Ave	GDA	56	340425	6252200	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	
	Contact	Recorders	Unknown Author,Mr.Paul Irish							
45-6-2174	Parsley Bay 3	GDA	56	340600	6253009	Closed site	Valid	Shell : -, Artefact : -, Habitation Structure : -	Shelter with Midden	
	Contact	Recorders	Michael Guider,Coast History & Heritage ,Mrs.Julia McLachlan							
45-6-3961	Kutti Beach Shelter with PAD	GDA	56	340756	6253427	Closed site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Mr.Paul Irish,Coast History & Heritage							

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Extensive search - Site list report

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SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
45-6-2353	Camp Cove 2	GDA	56	340754	6254226	Open site	Valid	Burial : -	Burial/s	
	<u>Contact</u>	<u>Recorders</u>	Michael Guider					<u>Permits</u>		
45-6-3965	Woollahra Possible Shelter WAH125	GDA	56	340817	6254482	Closed site	Valid	Potential Archaeological Deposit (PAD) : -		
	<u>Contact</u>	<u>Recorders</u>	Mr.Paul Irish,Coast History & Heritage					<u>Permits</u>		
45-6-0096	Campcove shelter Watsons Bay	GDA	56	340868	6254364	Closed site	Valid	Shell : -, Artefact : -	Shelter with Deposit	103797
	<u>Contact</u>	<u>Recorders</u>	P Terrill,Ms.Melissa Carter					<u>Permits</u>		
45-6-0919	South Head Site K;Sydney Harbour National Park;	GDA	56	340888	6254960	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	595,1985
	<u>Contact</u>	<u>Recorders</u>	T Negerevich					<u>Permits</u>		
45-6-0720	Bondi Bay;Ben Bucker;	AGD	56	341100	6248200	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	
	<u>Contact</u>	<u>Recorders</u>	Mr.Peter Brookhouse					<u>Permits</u>		
45-6-0723	South Head Site M;Sydney Harbour National Park;	GDA	56	341265	6254038	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	595,1985
	<u>Contact</u>	<u>Recorders</u>	Mr.Peter Brookhouse					<u>Permits</u>		
45-6-0902	Vaucluse;Vaucluse Point;	GDA	56	339887	6253333	Open site	Valid	Shell : -, Artefact : -	Midden	
	<u>Contact</u>	<u>Recorders</u>	ASRSYS					<u>Permits</u>		
45-6-3745	RSGC Area of Sensitivity	GDA	56	339940	6250555	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	<u>Contact</u>	<u>Recorders</u>	Mr.Paul Irish,Coast History & Heritage					<u>Permits</u>	4591	

** Site Status

Valid - The site has been recorded and accepted onto the system as valid

Destroyed - The site has been completely impacted or harmed usually as consequence of permit activity but sometimes also after natural events. There is nothing left of the site on the ground but proponents should proceed with caution.

Partially Destroyed - The site has been only partially impacted or harmed usually as consequence of permit activity but sometimes also after natural events. There might be parts or sections of the original site still present on the ground

Not a site - The site has been originally entered and accepted onto AHIMS as a valid site but after further investigations it was decided it is NOT an aboriginal site. Impact of this type of site does not require permit but Heritage NSW should be notified

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