53A Warriewood Road, Warriewood: Aboriginal Due Diligence Assessment

FINAL REPORT

Prepared for PVD No. 21 Pty Ltd

5 October 2021

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- Craig and Rhodes: Andrew Morelli.

Biosis staff involved in this project were:

- Daeyoo Kang (mapping).

Summary

Biosis Pty Ltd (Biosis) has been commissioned by PVD No. 21 Pty Ltd to undertake an Aboriginal Due Diligence Assessment (ADDA) for the proposed residential subdivision at 53A Warriewood Road (Lot 2 DP 1115877), Warriewood, New South Wales (NSW) (the study area). The ADDA will inform a development application (DA2021/1478) to be submitted to Northern Beaches Council (Council).

The search of the Aboriginal Heritage Information Management System (AHIMS) database identified 110 Aboriginal archaeological sites within a 4.5 by 4.5 kilometre broader search area, centred on the proposed study area. None of these sites were located within the study area. Art (pigment or engraved) and rock engravings sites are the most common in the surrounding area. Background research identified that extensive disturbance has occurred throughout the study area.

A field investigation was undertaken on 28 September 2021 by Anthea Vella (Biosis, Project Archaeologist) and Uncle Kevin Telford (Metropolitan Local Aboriginal Land Council, Cultural Sites Officer). During the field investigation, areas of the proposed development were targeted, and no Aboriginal sites or objects were identified. The field investigation identified that the study area as a whole has been subject to disturbance and has low potential to contain intact archaeological deposits. As such, it is assessed that there is low potential for Aboriginal archaeological sites to occur within the study area.

Prior to any impacts occurring within the study area, the following is recommended:

Recommendation 1: No further archaeological assessment is required

No further archaeological work is required in the study area due to the entire study area assessed as having low archaeological potential.

Recommendation 2: Discovery of unanticipated Aboriginal objects

All Aboriginal objects and Places are protected under the *National Parks and Wildlife Act 1974* (NSW) (NPW Act). It is an offence to knowingly disturb an Aboriginal site without a consent permit issued by Heritage NSW, Department of Premier and Cabinet (Heritage NSW). Should any Aboriginal objects be encountered during works associated with this proposal, works must cease in the vicinity and the find should not be moved until assessed by a qualified archaeologist. If the find is determined to be an Aboriginal object the archaeologist will provide further recommendations. These may include notifying Heritage NSW and Aboriginal stakeholders.

Recommendation 3: Discovery of human remains

If any suspected human remains are discovered during any activity you must:

1. Immediately cease all work at that location and not further move or disturb the remains.
2. Notify the NSW Police and Heritage NSW' Environmental Line on 131 555 as soon as practicable and provide details of the remains and their location.
3. Not recommence work at that location unless authorised in writing by Heritage NSW.

Contents

Tables

Figures

Photos

Glossary

ADDA	Aboriginal Due Diligence Assessment
AHIMS	Aboriginal Heritage Information Management System
BP	Before Present
Biosis	Biosis Pty Ltd
Council	Northern Beaches Council
DSCA	Dominic Steel Consulting Archaeology
Due diligence code	*Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales*
EP&A Act	*Environmental Planning and Assessment Act 1979*
GSV	Ground Surface Visibility
Heritage NSW	Heritage NSW, Department of Premier and Cabinet (DPC)
ICOMOS	International Council on Monuments and Sites
JMCHM	Jo McDonald Cultural Heritage Management
LALC	Local Aboriginal Land Council
LEP	Local Environment Plan
LGA	Local Government Area
NPW Act	*National Parks and Wildlife Act 1974*
NSW	New South Wales
PAD	Potential Archaeological Deposit
Study area	53A Warriewood Road (Lot 2 DP 1115877)
The Code	The *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW*

1 Introduction

1.1 Project background

Biosis has been commissioned by PVD No. 21 Pty Ltd to undertake an Archaeological Due Diligence Assessment (ADDA) for the proposed residential subdivision at 53A Warriewood Road (Lot 2 DP 1115877), Warriewood, NSW (the study area). The ADDA will inform a development application (DA2021/1478) to be submitted to Council.

An assessment in accordance with the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW* (DECCW 2010a) has been undertaken for the study area in order to inform responsibilities with regards to Aboriginal archaeology in the area. In addition to the basic tasks required for a due diligence assessment, an extended background review, as well as an archaeological survey in accordance with the *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* (DECCW 2010b) (the Code) was conducted, in order to adequately map areas of high, moderate and low archaeological sensitivity.

1.2 Location of the study area

The study area is located within the Northern Beaches Local Government Area (LGA), Parish of Narrabeen, County of Cumberland (refer to Figure 1). The study area incorporates Lot 2 DP 1115877and is bounded by Warriewood Road to the north, Narrabeen Creek to the south, and residential properties to the east and west (refer to Figure 2).

1.3 Planning approvals

The proposed development will be assessed against Part 4 of the *Environmental Planning and Assessment Act 1979* NSW (EP&A Act). Other relevant legislation and planning instruments that will inform the assessment include:

- NPW Act.
- *National Parks and Wildlife Amendment Act 2010* (NSW).
- *Pittwater Local Environment Plan 2014* (LEP).

1.4 Scope of the assessment

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

- Conduct background research in order to recognise any identifiable trends in site distribution and location, including a search of AHIMS.
- Undertake archaeological survey as per requirement 5 of the Code, with particular focus on landforms with high potential for heritage places within the study area, as identified through background research.
- Record and assess sites identified during the survey in compliance with the guidelines endorsed by Heritage NSW.
- Determine levels of archaeological and cultural significance of the study area.

- Make recommendations to mitigate and manage any cultural heritage values identified within the study area.

1.5 Aboriginal consultation

Uncle Kevin Telford (Cultural Sites Officer) from Metropolitan LALC attended the archaeological field investigation on 28 September 2021. Uncle Kevin agreed during the field investigation that the study area has been heavily disturbed through the previous use of the land for market gardening and that the land adjacent to Narrabeen Creek would be subject to flooding. Uncle Kevin agreed that that there is low potential for Aboriginal objects to remain within the study area.

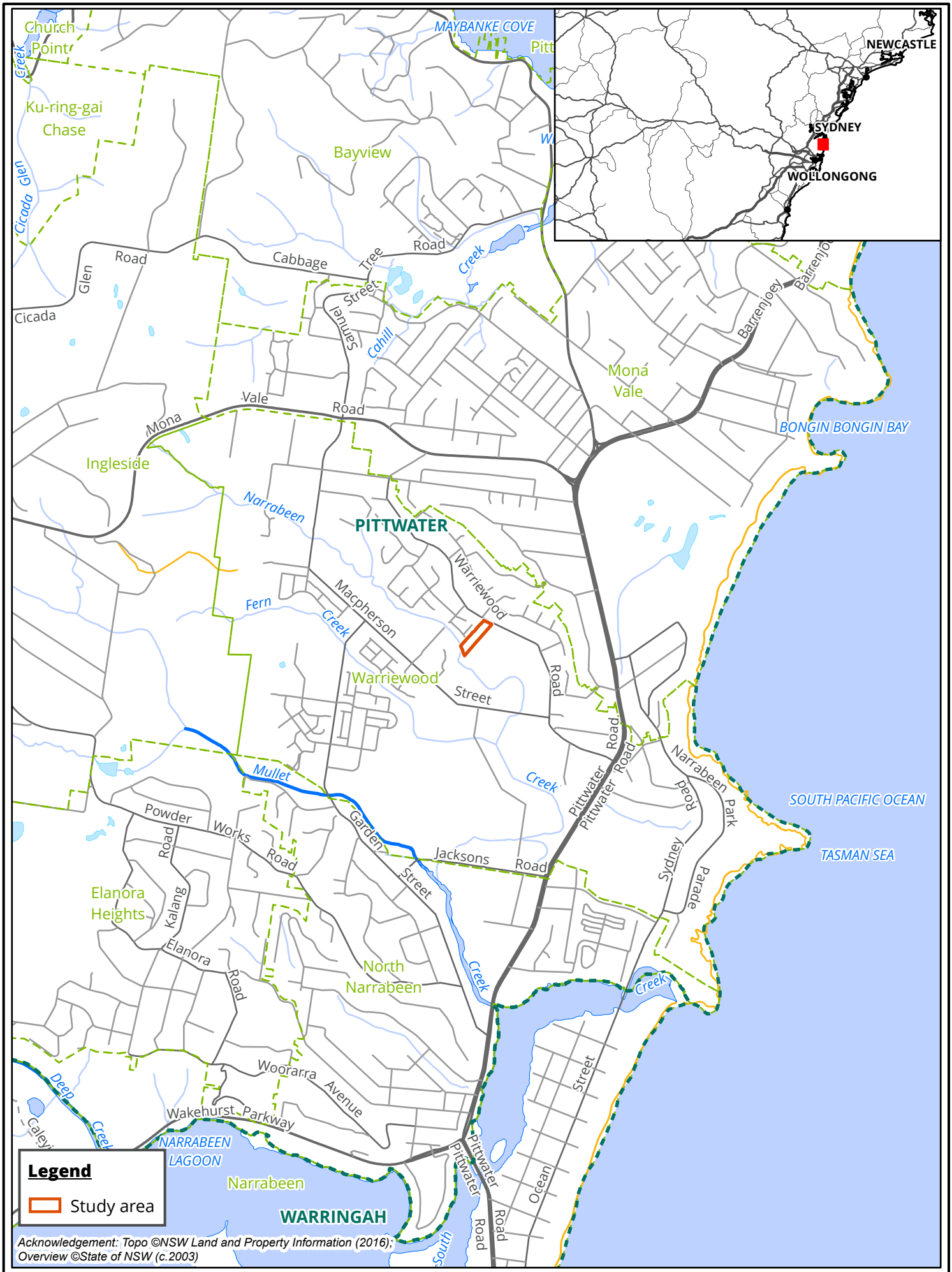

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Figure 1 Location of the study area

Matter: 36149
Date: 28 September 2021,
Drawn by: DK, Checked by: AV, Last edited by: dkang
Location:P:\36100s\36149\Mapping\
36149_53AWarriewoodRd_ADDA, Layout: 36149_ADDA_F1_Locality

0 200 400 600 800 1,000
Metres
Scale 1:1:25,000@ A4, GDA 1994 MGA Zone 56

N

Legend

- Study area
- Lot

Figure 2 Study area detail

0 10 20 30 40 50

Metres

Scale: 1:1,000@ A3

Coordinate System:
GDA 1994 MGA Zone 56

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Matter: 36149, Date: 28 September 2021,
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2 Desktop assessment

A brief desktop assessment has been undertaken to review existing archaeological studies for the study area and surrounding region. This information has been synthesised to develop some Aboriginal site predictive statements for the study area and identify known Aboriginal sites and/or places recorded in the study area. This desktop assessment has been prepared in accordance with requirements 1 to 4 of the Code.

2.1 Landscape context

It is important to consider the local environment of the study area in any heritage assessment. The local environmental characteristics can influence human occupation and associated land use and consequently the distribution and character of cultural material. Environmental characteristics and geomorphological processes can affect the preservation of cultural heritage materials to varying degrees or even destroy them completely. Lastly, landscape features can contribute to the cultural significance that places can have for people.

2.2 Geology, soils and landforms

The study area is located within the Northern Beaches. It is underlain by the Burralow Formation and an alluvial fan deposit (Figure 3). The Burralow Formation is part of the Narrabeen Group and features an interbedded shale, laminate, fine quartz lithic sandstone and medium to coarse quartzose sandstone and conglomerate (Cowley et al. 2019, p.3, Australian Government Geoscience Australia 2019). An alluvial fan deposit features gravel, sand, and silt. Alluvial fans are usually created as flowing water interacts with mountains, or hills (National Geographic 2021). This is a depositional process. The presence of underlying sandstone formations, indicates that sites such as grinding grooves and rock shelters/rock art, are more likely to be present.

The surrounding landform consists of level to gently undulating plains with slope gradients of less than 5%. The underlying soil landscape is the Warriewood soil landscape and is described in further detail below. Local relief within the Warriewood soil landscape is up to 10 metres that has mostly been cleared of native vegetation (Chapman et al. 2009, p.126). Topography within the study area includes a gradual slope towards Narrabeen Creek in the south (Figure 4).

Stream order is recognised as a factor that assists the development of predictive modelling in Sydney Basin Aboriginal archaeology, and has seen extensive use in predictive modelling for the Sydney region, most notably by Jo McDonald Cultural Heritage management (JMCHM 2000, JMCHM 2005a, JMCHM 2005b, JMCHM 2008). These predictive models have a tendency to favour higher order streams as the locations of campsites and therefore archaeological remains. Larger water sources would have been more likely to provide a stable source of water and by extension other resources, which would have been used by Aboriginal groups.

The stream order system used for this assessment was originally developed by Strahler (1952). It functions by adding two streams of equal order at their confluence to form a higher order stream, as shown in Photo 1. As stream order increases, so does the likelihood that the stream would be a perennial source of water.

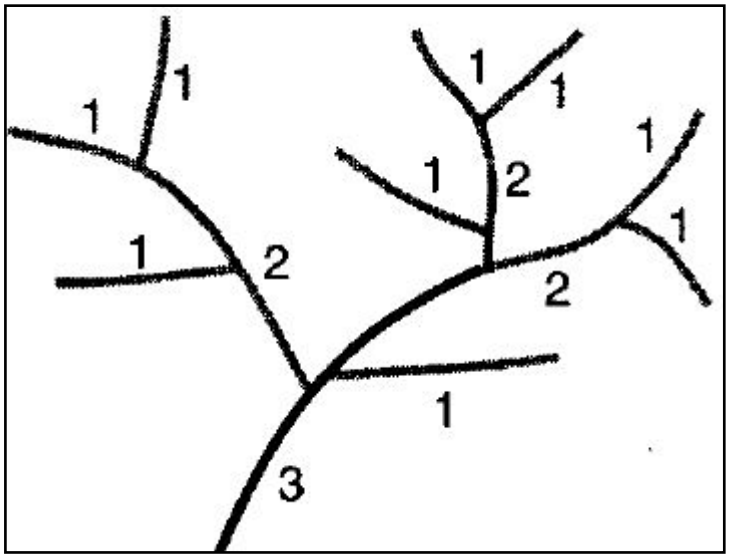


Photo 1 Diagram showing Strahler stream order (Ritter et al. 1995, pp. 151)

There are no watercourses present within the study area, with Narrabeen Creek, a second order non-perennial creek line is adjacent to the southern border (Figure 4). This is a tributary of Mullet Creek, a perennial third order water course, located approximately 980 metres south of the study area. Fern Creek, a first order non-perennial water course is located approximately 411 metres south of the study area. Narrabeen Lagoon is also located approximately 2.7 kilometres south of the study area. This area would have provided significant plant and animal resources for Aboriginal people occupying the land.

Soil landscapes have distinct morphological and topological characteristics that result in specific archaeological potential. They are defined by a combination of soils, topography, vegetation and weathering conditions. Soil landscapes are essentially terrain units that provide a useful way to summarise archaeological potential and exposure.

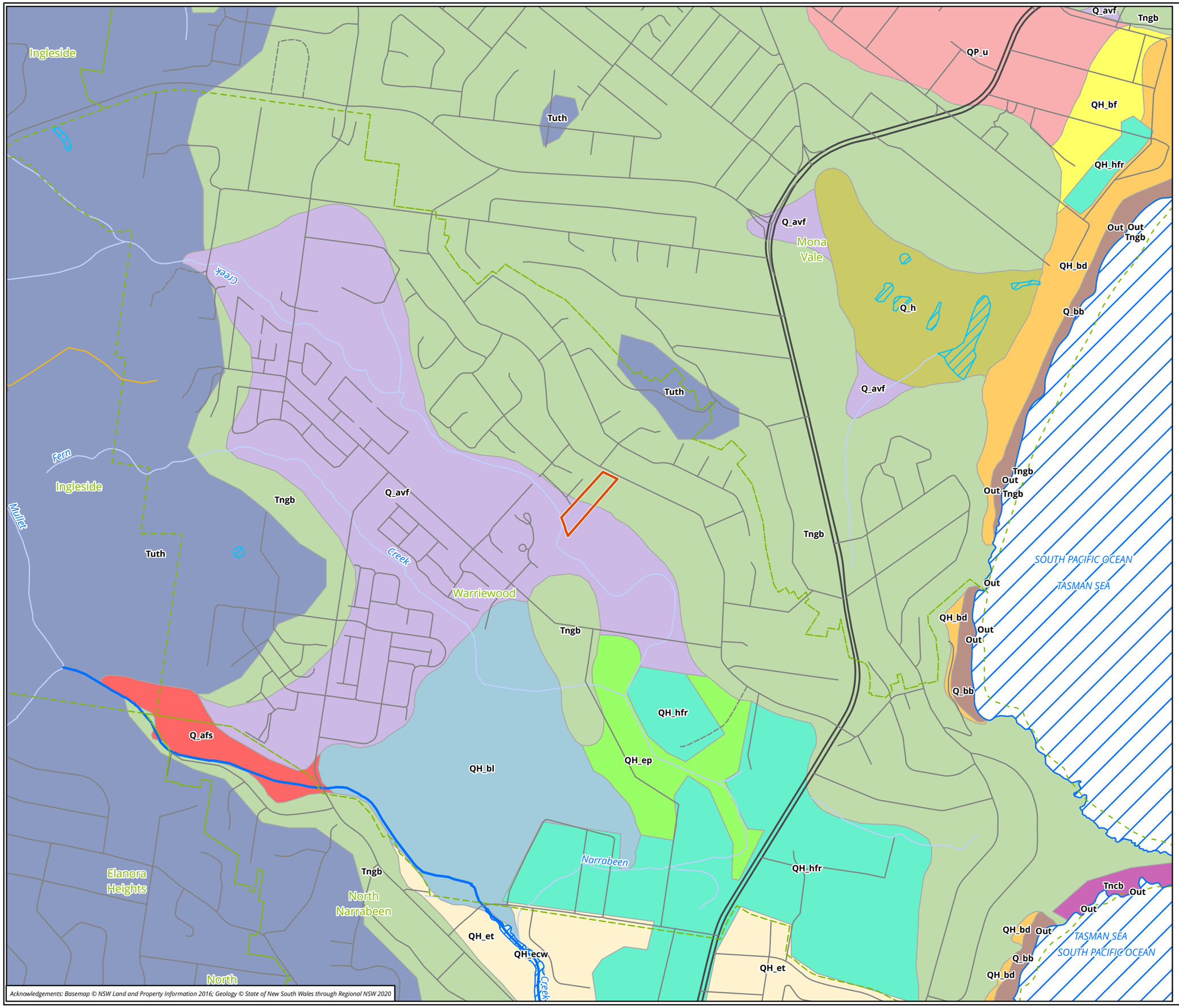
The Warriewood soil landscape is present within the study area and is characterised as a swamp landscape (Figure 5). Dominant soils consist of deep (>150 centimetres) well sorted sandy humus podzols and dark mottled siliceous sands that overlie buried acid peats in depressions; with deep (200 centimetres) podzols and pale siliceous sands on sandy rises (Chapman et al. 2009, p.126). Localised flooding and high water tables feature within this soils landscape. A description of the soils types within the Warriewood soil landscape is provided in Table 1.

Soils in swamp landscapes are subject to localised flooding, high water tables, waterlogging, and wind erosion. Due to these limitations swamp landscapes are unlikely to preserve intact archaeological deposits.

Table 1 Warriewood soil landscape characteristics (Chapman et al. 2009, pp.126–129)

Soil material	Description
Warriewood 1 (*wa1*) - Loose, speckled, dark grey loamy sand	This is a dark grey loamy sand with loose apedal single-grained structure and sandy fabric, that generally occurs as top-soil (A1 horizon The colour ranges from brownish-grey (10YR 4/1) to brownish/black (10YR 2/3) to black (10YR 2/1) with increasing organic matter. The pH ranges from strongly acid (pH 4.5) to neutral (pH 7.0) and lime has often been applied. This material is often water repellent. Roots are abundant and charcoal fragments are often present but there are no stones.
Warriewood 2 (*wa2*)- Bleached massive sand	This is a bleached sand with a pedal single-grained structure and sandy fabric. It commonly occurs as an A2 horizon. This material is composed almost entirely of

Soil material	Description
	clean quartz sand grains which have been compacted over time. It is weakly coherent with apedal massive structure when moist and non-cohesive with loose apedal single-grained structure when dry. The surface condition is loose. Dry colours are bleached and moist colour ranges from light grey (10YR 7/1) to dull yellow orange (10YR 6/3). The pH ranges from moderately acid (pH 5.5) to neutral (pH 7.0). Charcoal and stones are absent whilst roots are few.
Warriewood 3 (*wa3*)- Pale mottled massive sand	This is a commonly saturated pale mottled sand with apedal single-grained structure and sandy fabric. This material occurs as deep subsoil usually below the water table (B horizon). The texture varies from sand to less com-monly clayey sand. This material has apedal massive structure and sandy fabric. It is usually weakly cohesive. The colour varies from dull yellow (2.5Y 6/4) to brownish-grey (10YR 5/1) and grey, yellow or brown mottles are common with depth. The pH ranges from moderately acid (pH 5.5) to neutral (pH 7.0). Roots are rare and charcoal and stones are absent.
Warriewood 4 (*wa4*) - Black sticky peat	This is commonly saturated, black organic rich silt loam or silty clay loam with a pedal massive structure. It generally occurs as topsoil in low lying areas or as a buried soil (P or D horizon). Fibrous plant remains dominate this material which is moderately sticky and distinctly spongy. The colour is commonly black (10YR 1.7/1) or brownish-black due to the organic material present. It may become extremely hard setting when dry. The pH ranges from strongly acid (pH 4.5) to moderately acid (pH 5.5). Roots are common and stones are absent.
Warriewood 5 (*wa5*) - Brown soft iron pan	This is commonly a brown, iron-stained, sand to loamy sand with apedal massive structure and sandy fabric. It commonly occurs as subsoil above the water table (B horizon). Fabric is occasionally earthy. This material consists of quartz sand grains coated and weakly cemented with yellow to red sesquioxides. It requires up to a moderate force to disrupt. Colour varies from dull yellow orange (10YR 6/4) to brown (7.5YR 4/4). Dark orange, yellow and brown mottles are common. The pH ranges from moderately acid (pH 5.5) to neutral (pH 7.0). Roots are rare and stones and charcoal fragments are absent.
Warriewood 6 (*wa6*) - Dark brown soft organic pan	This is a dark brown· sand to loamy sand with apedal massive structure and sandy fabric. It usually occurs as subsoil (B horizon). Fabric is occasionally earthy. This material consists of quartz sand grains coated and weakly cemented with black organic aluminium compounds. It requires up to a moderate force to disrupt. The colour ranges from black (10YR 1.7 /1) to dark brown (10YR 3/3). The pH ranges from moderately acid (pH 5.5) to neutral (pH 7.0). Stones and charcoal are absent and roots are rare.



Legend

Study area

Geological units

- Out,Ungrouped Ordovician sedimentary units
- QH_bd,Coastal deposits - dune facies
- QH_bf,Coastal deposits - backbarrier flat facies
- QH_bl,Coastal deposits - lagoon facies
- QH_ecw,Estuarine channel deposits (subaqueous)
- QH_ep,Estuarine plain
- QH_et,Estuarine tidal-delta flat
- QH_hfr,Anthropogenic deposits - fill on Quaternary deposits
- QP_u,Pleistocene undifferentiated regolith
- Q_afs,Alluvial floodplain deposits - swamp facies
- Q_avf,Alluvial fan deposits
- Q_bb,Coastal deposits - beach facies
- Q_h,Anthropogenic deposits
- Tncb,Bald Hill Claystone
- Tngb,Burralow Formation
- Tuth,Hawkesbury Sandstone

Figure 3 Geological units in the vicinity of the study area

0 100 200 300 400 500

Metres

Scale: 1:10,000@ A3

Coordinate System:
GDA 1994 MGA Zone 56

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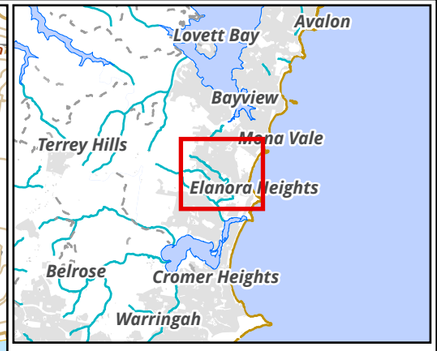

Legend

- Study area
- Contour (2m)

Strahler Order

- 1
- 2
- 3

Figure 4 Hydrology and topography in the vicinity of the study area

0 100 200 300 400 500

Metres

Scale: 1:10,000@ A3

Coordinate System:
GDA 1994 MGA Zone 56

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Matter: 36149, Date: 28 September 2021,
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Location: P:\36100s\36149\Mapping\,
36149_53AWarriewoodRd_ADDA, Layout:36149_ADDA_F4_Hydrology

Acknowledgements: Basemap © Land and Property Information 2016

Legend

Study area

Soil Landscape units

- dc - DEEP CREEK
- er - ERINA
- gy - GYMEA
- ha - HAWKESBURY
- la - LAMBERT
- na - NARRABEEN
- np - NEWPORT
- of - OXFORD FALLS
- so - SOMERSBY
- tg - TUGGERAH
- wa - WARRIEWOOD
- wn - WATAGAN
- xx - DISTURBED TERRAIN

Figure 5 Soil landscapes in the vicinity of the study area

0 200 400 600 800 1,000

Metres

Scale: 1:20,000@ A3

Coordinate System: GDA 1994 MGA Zone 56

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Matter: 36149Date: 28 September 2021,
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36149_53AWarriewoodRd_ADDA, Layout: 36149_ADDA_F5_Soils

Acknowledgements: Basemap © Land and Property Information 2016; Soils: Chapman G.A., Murphy, C.L., Tille P.J., Atkinson G. and Morse R.J., 2009 Ed. 4, Soil Landscapes of the Sydney 1:100,000 Sheet map, Department of Environment, Climate Change and Water, Sydney;

2.3 Flora and fauna

The Warriewood soil landscape has been extensively cleared. This landscape would have typically supported Broad-leaved Paper Bark *Melaleuca quinquenervia*, Coastal Banksia *Banksia integrifolia*, Swamp Oak *Casuarina glauca* and Swamp Mahogany *Eucalyptus robusta* (Chapman et al. 2009, p.126). Remaining scrub and understorey species include Coastal Tea Tree *Leptospermum laevigatum*, Spike Rushes *Eleocharis palustris,* and Tall Swamp Sedge *Gahnia sieberiana*.

Plant resources were used in a variety of ways. Fibres were twisted into string, which was used for many purposes, including the weaving of nets, baskets and fishing lines. String was also used for personal adornment. Bark was used in the provision of shelter; a large sheet of bark being propped against a stick to form a gunyah (Attenbrow 2002).

Native fauna that would have been present in the vicinity of the study area include: Lace Monitor *Varanus varius,* Eastern Blue-tongue *Tiliqua scincoides,* Red-bellied Black Snake *Pseudechis porphyriacus, E*astern Snake-necked Turtle *Chelodina (Chelodina) longicollis,* Common Ringtail Possum *Pseudocheirus peregrinus,* Swamp Wallaby *Wallabia bicolor,* Grey-headed Flying-fox *Pteropus poliocephalus,* Grey duck *Anas (Anas) superciliosa,* Sulphur-crested Cockatoo *Cacatua (Cacatua) galerita*, Eastern Spinebill *Acanthorhynchus tenuirostris,* and the Dusky Moorhen *Gallinula (Gallinula) tenebrosa*.

As well as being important food sources, animal products were also used for tool making and fashioning a myriad of utilitarian and ceremonial items. For example, tail sinews are known to have been used to make fastening cord, while 'bone points', which would have functioned as awls or piercers, are often an abundant part of the archaeological record. Animals such as Brush-tailed Possums were highly prized for their fur, with possum skin cloaks worn fastened over one shoulder and under the other. Kangaroo teeth were incorporated into decorative items, such as head bands (Attenbrow 2002).

2.4 Land use history

Historical aerial imagery allows for modern developments and land use to be identified within the study area.

An aerial image dated to 1965 (Photo 2) shows that Warriewood Road to the north has already been constructed, and that the study area and surrounding properties have been used for market gardening. There are eight greenhouses and two other structures present, as well evidence of cropping present in the southern portion. Extensive historical vegetation clearance has already taken place within the study area. Narrabeen Creek to the south is also visible.

Photo 2 An aerial photograph dated to 1965, with the study area outlined in red (Source: NSW Spatial Services)

An aerial photograph dated to 1986 (Photo 3) shows further development has occurred. A house has been constructed towards the north-eastern corner, and there are now seven greenhouses present. The greenhouses in the most northern section have been removed. The southern portion of the study area has had an increase in vegetation, however remains relatively unchanged. Residential development of the surrounding properties has increased.

Photo 3 An aerial photograph dated to 1986, with the study area outlined in red (Source: NSW Spatial Services)

An aerial photograph dated to 2005 (Photo 4) records little change. The house and a total of four and a half greenhouses remain. Current aerial imagery shows further change within the study area (Figure 2). All of the greenhouses have been removed, with the house remaining. Evidence of the previous location of the greenhouses is clear on the aerial. Little further change is visible.

Photo 4 An aerial photograph dated to 2005, with the study area outlined in orange (Source: NSW Spatial Services)

2.5 Additional database searches

A database search of the State Heritage Inventory, was also completed as part of this assessment. This search did not identify any historical heritage items within the study area, nor were there any conservation areas that included the study area.

3 Aboriginal context

3.1 Ethnohistory and contact history

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

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

There is some confusion relating to group names, which can be explained by the use of differing terminologies in early historical references. Language groups were not the main political or social units in Aboriginal life. Instead, land custodianship and ownership centred on the smaller named groups that comprised the broader language grouping. There is some variation in the terminology used to categorise these smaller groups; the terms used by (Attenbrow 2002) will be used here.

Early interactions between local Aboriginal groups in the Sydney region and European settlers varied in nature between peaceful and hostile. It was not long before the effects of colonisation proved detrimental to local groups, with farming practices employed by the settlers removing land that had until that point been used for subsistence (Attenbrow 2002).

Early observers made no note of the language of the local groups, and it was not until the latter part of the nineteenth century that the name Darug was used. Matthews (1901, p. 155 in Attenbrow 2002, p.32) stated that "The Dharuk speaking people adjoined the Thurrawal on the north, extending along the coast to the Hawkesbury River, and inland to what are now Windsor, Penrith, Campbelltown, and intervening towns". Subsistence activities varied based on the local landscapes, with Darug groups closer to the coast employing different food sources and means of hunting in order to survive, compared to those further inland (Kelleher Nightingale Consulting 2010, p.10).

Attenbrow suggests that a total of four dialects were spoken in the Sydney region:

- *Darug coastal dialect/s - the Sydney Peninsula (north of Botany Bay, south of Port Jackson, west to Parramatta), as well as the country to the north of Port Jackson, possibly as far as Broken Bay;*
- *Darug hinterland dialect - on the Cumberland Plain from Appin in the south to the Hawkesbury River in the north; west of the Georges River, Parramatta, the Lane Cove River and Berowra Creek;*
- *Dharawal - from south side of Botany Bay, extending south as far as the Shoalhaven River; from the coast to the Georges River and Appin, and possibly as far west as Camden,*
- *Gundungurra - southern rim of the Cumberland Plain west of the Georges River, as well as the southern Blue Mountains.* (Attenbrow 2002, p.34)

Work has been undertaken by a number of authors, including ethnographic information about local Aboriginal groups. This has included attempts to record what remains of the Darug language. A selection of place names for the western Sydney region recorded by Reverend W. B. Clarke are shown in Table 2.

Table 2 Darug place names (The Hills Shire Council 2014)

Darug language	Current geographic area
Wianamatta	South Creek
Borramaree	Between Toongabbie and Baulkham Hills
Noree	Baulkham Hills
Mogoaillee	Castle Hill
Narrung Dooral	Kenthurst
Cobbory Dooral	Towards Wiseman's; where much honey: good honey place
Budgoggerah	Near Tollgate
Burailee	Near Berowra
Wiamarra	Prospect

3.2 Regional context

Attenbrow (1990) undertook an investigation titled "The Port Jackson Archaeological Project" for the Australian Museum (Photo 5). The purpose of this report was to improve upon the existing literature about Aboriginal life utilising the archaeological record. Fieldwork focused largely on existing recorded Aboriginal sites, and also supplementary surveys in areas which had the potential to hold further Aboriginal sites. The project investigated the roles played by marine and land animals in the diet of Aboriginal people within the Port Jackson area, as well as their use of stone, bone and shell in implements and weapons. The survey relocated and recorded 112 sites with middens and deposits. Attenbrow (1990) concluded that the distance from the harbour mouth influenced the range and predominance of particular shellfish species in middens. It appears that Aboriginal people were occupying areas of the foreshore and exploiting shellfish for at least 4,500 years, and that over time there was a change in the predominance of particular shellfish species.

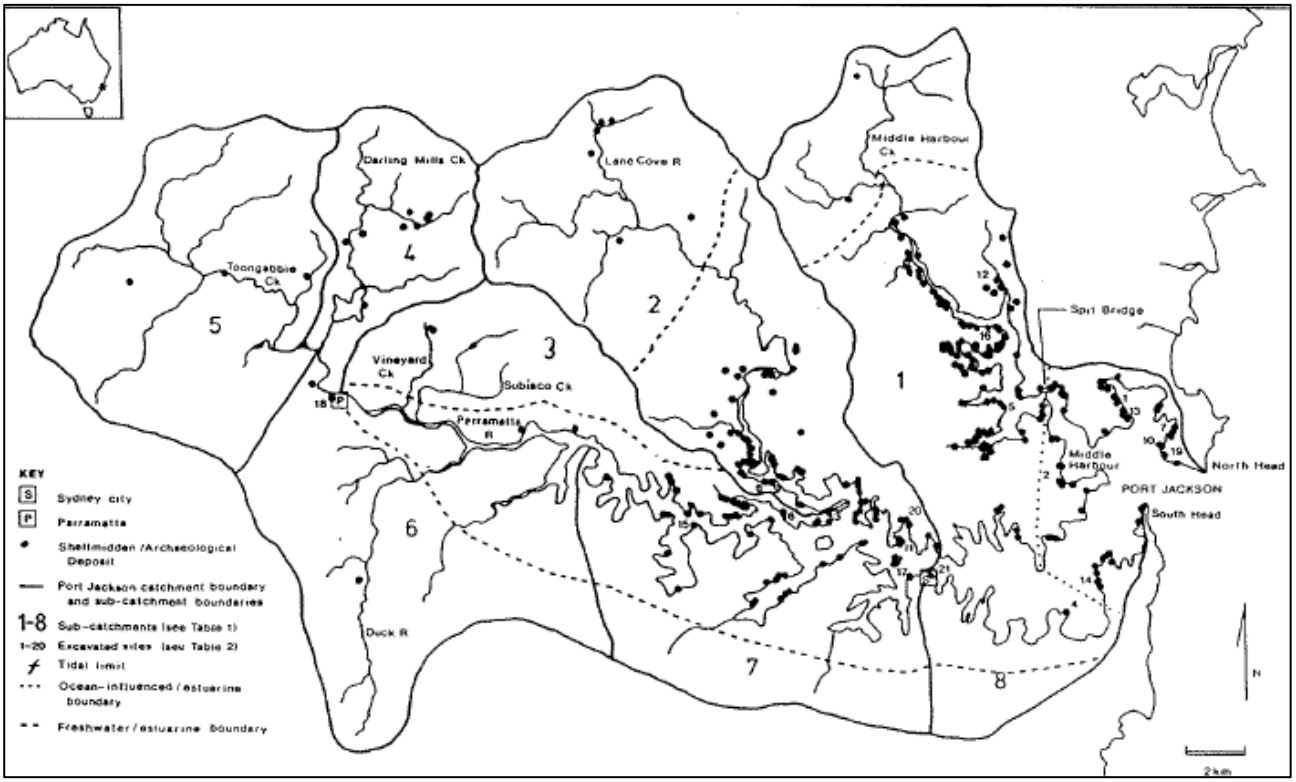


Photo 5 Port Jackson catchment area, subcatchment and aquatic zones, with registered shell midden and archaeological deposit sites as at 28 February 1990 and known excavated sites (Source: Attenbrow 1990)

Attenbrow (1990) reported on three weeks of excavations at two rock shelters with shell middens (AHIMS 45-6-560 and 45-6-1045) located in Neilson Park, Vaucluse, approximately 38 kilometres south of the study area, as part of Stage 2 of the Port Jackson Archaeological Project. At AHIMS site 45-6-560, an area measuring 2 by 1 metres was established within and outside of the rock shelter. Two instances of human bone were identified in two units within the shelter, and following consultation with the La Perouse LALC, the bones were left in-situ, and these areas were backfilled and no further work undertaken. Excavations continued in the units established outside of the shelter; the deposit was excavated to a maximum depth of 70 centimetres, but this varied due to the presence of sloping bedrock and rock slab. Soils in this location consisted of dark humic-rich soils, and were less stratified than the deposit within the shelter; a hearth was recovered and excavated at a depth of 2-5 centimetres. In addition to Aboriginal objects and cultural material, European artefacts were also recovered, with the shelter having been used during the Great Depression in the 1930s. At AHIMS 45-6-1045, an area measuring 1 by 1 metres, with an overall depth of 80 centimetres, where it reached rock. A hearth was identified, and the soils consisted of a black to very dark brown sandy sediment. The presence of rusted metal pieces throughout the soil profile suggests that the deposit was significantly disturbed; no further excavations took place at AHIMS 45-6-1045.

Conyers (1990) completed an assessment which consisted of background research and a survey carried out to record the 'Aboriginal carvings and areas' in the Lane Cove River State Recreation Area, located approximately 26 kilometres south-west (Conyers 1990, p.1). The predictive modelling undertaken for this study identified the coastal margins of the area as the likely location of shell midden deposits, occurring in both open contexts and rock shelters. Areas where the underlying geology consists of shales were considered the locations where campsites, potential archaeological deposits (PADs), quarries and scarred trees would occur, with it being noted that due to extensive vegetation clearance scarred trees are unlikely to be identified. Areas overlying the Hawkesbury Sandstone were the likely locations of rock shelters, art sites, rock

engravings, and grinding grooves (Conyers 1990, pp.30–34). The survey relocated three previously recorded sites, identified seven new sites, and noted five potential habitation sites. The three relocated sites were all rock engravings. Two newly recorded sites were rock engravings, and five were middens. The five potential habitation sites were all rock shelters with PADs. It was recommended that all sites be managed appropriately, and in some cases be subject to further investigation.

White & McDonald (2010) undertook a review of previous work in the Rouse Hill development area, located approximately 35 kilometres east of the study area. Examining lithic artefact distribution in previous excavations were considered in determining Aboriginal occupation of the area, including stream order, distance from water, landform, aspect, and distance to silcrete sources. As a result of the assessment, the following statements were made:

- Stream order: water supply was a significant factor influencing Aboriginal land use and habitation in the area. There was a correlation between increasing stream order and larger numbers and higher densities of artefacts (from a comparison of first, second, and fourth order stream).
- Distance from water: the results show that an assumption that sites would be clustered within 50 metres of water sources was not entirely correct from the data available. In first order stream landscapes, there was no significant correlation between artefact distribution and distance to water. In second order landscapes, artefact density was highest within 50 metres of water, and then declined with increasing distance. In fourth order landscapes, density was highest between 51-100 metres from water.
- Landform: Artefact density was considered to be lowest on upper slopes and ridgetops, with density increasing on mid and lower slopes. Density was highest in terrace landforms, and lower on creek flats, likely due to repeated flooding events and the erosion it caused.
- Distance to silcrete sources: the results of the study showed no significant difference between sites located closer to or further away from silcrete sources. However, 6 kilometres was the maximum tested distance from silcrete sources, so the sample is only representative of a limited area.
- Aspect: only appeared to have an influence on sites in the lower parts of the valleys may have been sited to take advantage of steady factors such as the rising/setting sun and wind direction. Sites in higher parts of valleys may have been influenced by weather and other factors.

The study concluded that landform and distance from water had an impact on site distribution, with artefacts becoming more numerous closer to creeks, and along higher order creeks. It also found that artefacts are found on all landforms, landform type influences artefact distribution, with the preference being for slightly elevated, well-drained areas in the lower parts of valleys.

3.3 Local context

Brayshaw and McDonald (1987) conducted an archaeological survey of the Bicentennial Coastal Walkway from Queenscliff to Palm Beach, located approximately 3 kilometres south-east of the study area. In total five new sites and one area of scattered shell were recorded during this survey. Only one site, a shelter with midden deposit, required further assessment as it was the only site that was in good condition and relatively undisturbed. All of the other sites were either completely or partially destroyed and had very low or no archaeological potential.

Therin (2007) completed an Aboriginal heritage assessment of 84A McCarrs Creek Road, Church Point, located approximately 8.4 kilometres north-west of the study area. The assessment included background research and a field investigation. Therin developed the following statements:

- *"[…] the shore line and waters of Pittwater offer abundant food resources. A variety of shell fish are common (or were) around the foreshore and numerous fish species are present within the waters. The contents of Aboriginal middens located within the local area indicate that shellfish and fish were an important food resource for Aboriginal people living in the area.*
- *Geology is also an important factor influencing the distribution of Aboriginal sites in the local area. The presence of rock shelters, pigment and engraved art and grinding grooves is dictated by the presence of suitable sandstone outcrops. The Hawkesbury sandstone geology of the area means that these site types are relatively common,*
- *While the majority of the sites in the area are located in proximity to the shore line, this is not to say that areas away from the shore were not used by Aboriginal people. Terrestrial flora and fauna were also important in the Aboriginal diet.*" (Therin 2007, p.11)

The field investigation resulted in the identification of one rock shelter site with midden. Sydney cockle *Anadara trapezia* and Sydney Rock Oyster *Crassostrea commercialis* were identified within the midden. The extent of the midden could not be determined due to extensive grass coverage. Therin recommended that further assessment would be required, including a permit to test the rockshelter and Aboriginal community consultation.

Biosis (2011) undertook an ADDA for a proposed Ausgrid 11kV access track at Laurel Road East, Ingleside, located approximately 3.6 kilometres north-west of the study area. The ADDA included background research and a field investigation. Predictive modelling indicated that small shelters, rock art (particularly engravings) and axe grinding grooves may lie beneath the dense vegetation cover within the study area. The report concluded that vegetation clearance works should be monitored to prevent harm to rock engravings or axe grinding grooves.

Dominic Steele Consulting Archaeology (DSCA) (2012) completed an Aboriginal archaeological and cultural heritage impact assessment for a proposed subdivision at 100 South Creek Road, Cromer, located approximately 5.6 kilometres south of the study area. The assessment included background research, and a field inspection. DSCA noted sandstone outcropping outside of the study area. AHIMS 45-6-1760 and AHIMS 45-6-1850 were unable to be located in DSCA's assessment due to weathering of the sandstone. The following was noted in the predictive modelling:

- A considerable number of engraving sites are known to occur in the local Warringah landscape. Engravings can occur in groups with numerous depictions of animals, human figures, possible spiritual motifs, and other images of equipment such as shields, or single depictions that generally are found to occur on extensive level sandstone platforms along with smaller ledges and rock exposures.
- Axe grinding grooves may be found where suitable sandstone is exposed in, or adjacent to, creeks or on elevated platforms where wet-grinding techniques are possible adjacent to natural rock holes and shallow 'basins'. Axe/hatchet grinding grooves may occur in large 'clusters' that serves to facilitate their ready recognition, or may conversely comprise isolated items that are often difficult to detect within certain light conditions.
- Open camp sites are likely to occur on dry and relatively flat landforms along or adjacent to both major and minor watercourses, along with foreshore zones. However, repeatedly or continuously occupied sites are more likely to be located on elevated ground situated at principal creek confluences in the local landscape.

- Surface scatters of flaked stone artefacts (or potentially durable food remains such as animal and fish bone or shell) are often buried in alluvial or colluvial deposits and only become visible when subsurface sediments are exposed by erosion or disturbance.
- Isolated artefacts occur without any associated evidence for prehistoric activity or occupation anywhere in the landscape and may represent the random loss, deliberate discard or abandonment of artefacts, or the remains of dispersed artefact scatters.
- Manuports are items consisting of raw materials of stone that do not naturally occur within the soil profiles of a given region.

No additional sites were identified by the visual inspection and DSCA postulated that there were potential engravings that were covered by vegetation or may be buried. DSCA recommended that Metropolitan LALC and Council be involved in developing management measures for AHIMS 45-6-1760 (Site A), and that an AHIP be submitted for AHIMS 45-6-1851 (Site B). DSCA also recommended that an additional site (Area C) be investigated to determine if there was any Aboriginal heritage values related to Site A. Area C was noted to have sandstone outcrops outside of the study area.

Biosis (2014) completed a preliminary Aboriginal heritage assessment for the proposed redevelopment of a community health centre at Mona Vale Hospital, located approximately 820 metres east of the study area. The assessment included background research and a field investigation. Background research indicated that previously recorded Aboriginal sites are likely to be located within beaches and areas that have suitable sandstone overhangs for shelter sites. A review of the soil characteristics also indicated that the topsoil is very shallow and is not more than 300mm deep, and would be the only horizon with potential to contain archaeological deposits. The assessment determined that there was low potential for Aboriginal sites or objects to be present as geotechnical investigations undertaken had confirmed that the natural topsoil had been removed.

Biosis (2020) completed an Aboriginal archaeological assessment for the same study area as the at the DSCA (2012) report listed above. The assessment was required in order to determine if further investigation in the form of testing would be required for the project. The assessment included background research and a field investigation, which identified two areas of moderate archaeological potential. This was due to the presence of existing AHIMS sites within and in close proximity to the study area, the undisturbed nature of these locations, the topography, geology and soil landscapes present, and previous assessment by DSCA (2012). Biosis recommended that the proposed works avoid the AHIMS sites inside and outside the study area, and avoid the areas of moderate potential. If those areas were unable to be avoided as part of future development of the study area, further assessment would be required.

3.3.1 Identified Aboriginal archaeological sites

An extensive search of the AHIMS database was conducted on 24 September 2021 (Client service ID: 625108). The search identified 110 Aboriginal archaeological sites within a 4.5 by 4.5 kilometre search area, centred on the study area (Table 3). None of these registered sites are located *within* the study area (Figure 6). The mapping coordinates recorded for these sites were checked for consistency with their descriptions and location on maps from Aboriginal heritage reports where available. These descriptions and maps were relied upon where notable discrepancies occurred.

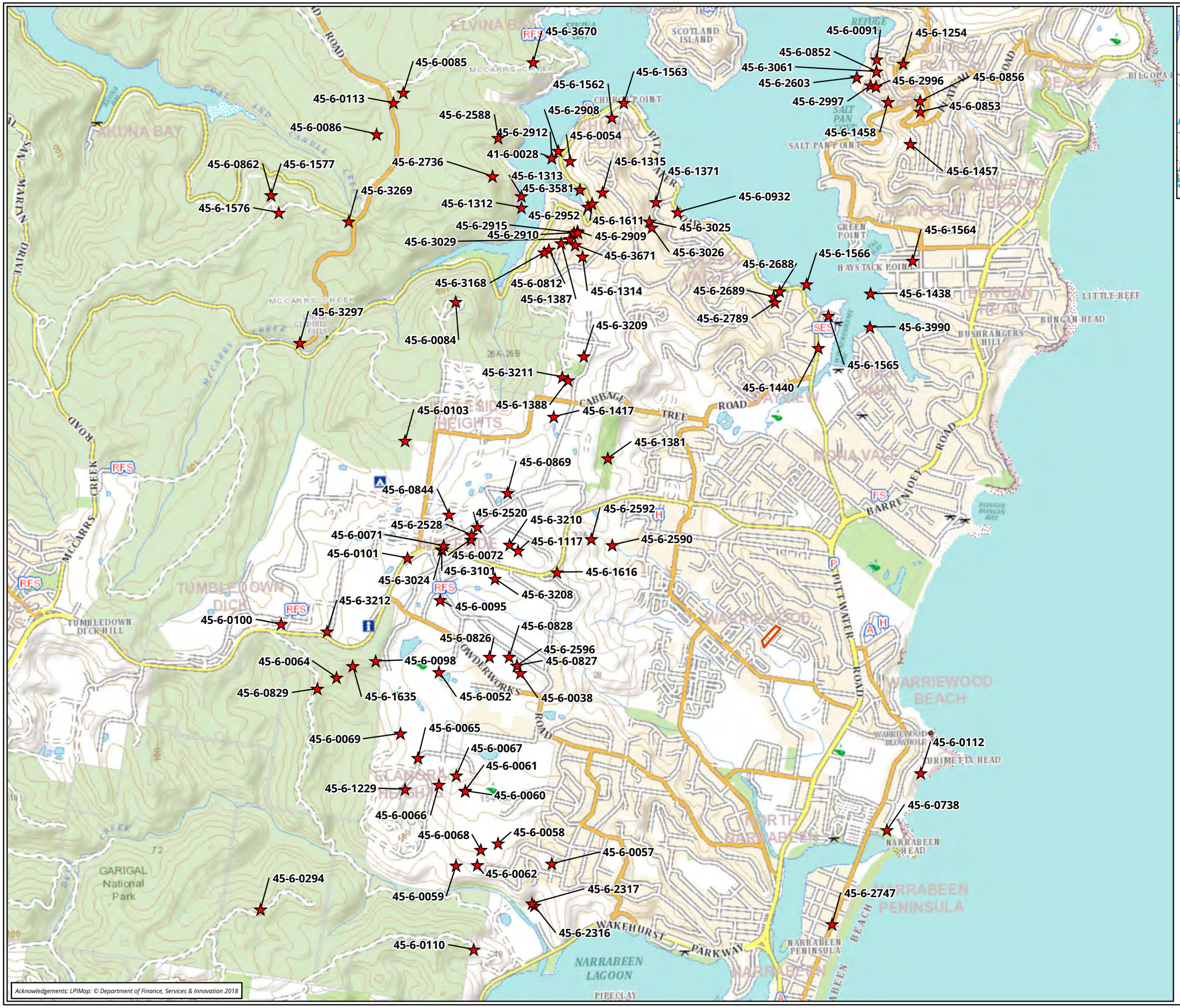
It should be noted that the AHIMS database reflects Aboriginal sites that have been officially recorded and included on the list. Large areas of NSW have not been subject to systematic, archaeological survey; hence AHIMS listings may reflect previous survey patterns and should not be considered a complete list of Aboriginal sites within a given area. Some recorded sites consist of more than one element, for example shell and artefacts, however for the purposes of this breakdown and the predictive modelling, all individual site

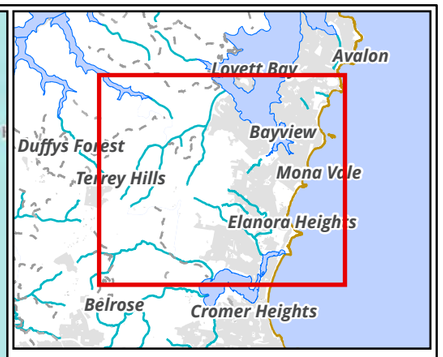
types will be studied and compared. This explains why there are 248 results presented here, compared to the110 sites identified in AHIMS.

Table 3 AHIMS search results

Site type	Occurrences	Frequency (%)
Art (pigment or engraved)	60	24.19
Rock engraving	42	16.94
Shell	39	15.74
Artefact	35	14.11
Grinding groove	14	5.65
Midden	13	5.25
Shelter with midden	11	4.43
PAD	8	3.22
Shelter with deposit	7	2.82
Axe grinding groove	6	2.42
Shelter with art	5	2.01
Water hole	4	1.61
Burial	3	1.21
Stone arrangement	1	0.40
Total	**248**	100

A simple analysis of the Aboriginal cultural heritage sites registered within a 4.5 by 4.5 kilometre search of the study area indicated that the dominant site type is art (pigment or engraved) representing 24.19% (n=60). This was followed by rock engraving (16.94%, n=42); shell (15.74%, n=39); and artefact (14.11%, n=35). Grinding groove represented 5.65% (n=14) and shelter with midden represented 4.43% (n=11). This was also followed by PAD (3.22%, n=8); shelter with deposit (2.82%, n=7); axe grinding groove (2.42%, n=6); and shelter with art (2.01%, n=5). Water hole (1.61%, n=4), burial (1.21%, n=3), and stone arrangement (0.40%, n=1) were the final sites identified within the search results.





Legend

- Study area
- AHIMS record

NOT TO BE MADE PUBLIC

Figure 6 AHIMS within the vicinity of the study area

0 300 600 900 1,200 1,500

Metres

Scale: 1:30,000@ A3

Coordinate System:
GDA 1994 MGA Zone 56

biosis

N

Matter: 36149, Date: 28 September 2021,
Drawn by: DK, Checked by: AV, Last edited by: dkang
Location: P:\36100s\36149\Mapping\
36149_53AWarriewoodRd_ADDA, Layout: 36149_ADDA_F6_AHIMS

3.3.2 Predictive statements

A series of statements been formulated to broadly predict the type and character of Aboriginal cultural heritage sites likely to exist throughout the study area and where they are more likely to be located.

These statements are based on:

- Local and regional site distribution in relation to landform features identified within the study area.
- Consideration of site type, raw material types and site densities likely to be present within the study area.
- Findings of the ethnohistorical research on the potential for material traces to present within the study area.
- Potential Aboriginal use of natural resources present or once present within the study area.
- Consideration of the temporal and spatial relationships of sites within the study area and surrounding region.

Based on this information, the following statements have been developed, indicating the site types most likely to be encountered during the survey and subsequent sub-surface investigations across the present study area (Table 4). The definition of each site type is described firstly, followed by the predicted likelihood of this site type occurring within the study area.

Table 4 Aboriginal site prediction statements

Site type	Site description	Potential
Flaked stone artefact scatters and isolated artefacts	Artefact scatter sites can range from high-density concentrations of flaked stone and ground stone artefacts to sparse, low-density 'background' scatters and isolated finds.	Moderate: Stone artefact sites have been previously recorded in the region on level, well-drained topographies in close proximity to reliable sources of fresh water. Due to the distance from permanent fresh water resources, the potential for artefacts to be present within the study area is assessed as moderate.
PADs	Potential sub surface deposits of cultural material.	Moderate: PADs have been previously recorded in the region across a wide range of landforms. PADs are likely to be present within areas adjacent to water courses or on high points in undisturbed landforms.
Grinding grooves	Grooves created in stone platforms through ground stone tool manufacture.	Moderate: Suitable horizontal sandstone rock outcrops could occur along drainage lines.
Rock shelters with art and / or deposit	Rock shelter sites include rock overhangs, shelters or caves, and generally occur on, or next to, moderate to steeply sloping ground characterised by cliff lines and escarpments. These naturally formed features may contain rock art, stone artefacts or midden deposits and may also be associated with grinding grooves.	Moderate: The underlying geology of the study area contains sandstone. Therefore there is moderate potential for this site type to be located within the study area.

Site type	Site description	Potential
Shell middens	Deposits of shells accumulated over either singular large resource gathering events or over longer periods of time.	Low: Shell midden sites were identified within the AHIMS search. There is a low potential for shell middens to be located in the study area as Narrabeen Creek is not a permanent source of water.
Quarries	Raw stone material procurement sites.	Low: There is no record of any quarries being within or surrounding the study area.
Modified trees	Trees with cultural modifications	Low: Due to extensive vegetation clearance no remnant trees remain within the study area.
Burials	Aboriginal burial sites.	Low: Aboriginal burial sites are generally situated within deep, soft sediments, caves or hollow trees. Areas of deep sandy deposits will have the potential for Aboriginal burials. The soil profiles associated with the study area are not commonly associated with burials.
Aboriginal Ceremony and Dreaming sites	Such sites are often intangible places and features and are identified through oral histories, ethnohistoric data, or Aboriginal informants.	Low: There are currently no recorded mythological stories for the study area.
Post-contact sites	These are sites relating to the shared history of Aboriginal and non-Aboriginal people of an area and may include places such as missions, massacre sites, post-contact camp sites and buildings associated with post-contact Aboriginal use.	Low: There are no post-contact sites previously recorded in the study area and historical sources do not identify one.
Aboriginal places	Aboriginal places may not contain any 'archaeological' indicators of a site, but are nonetheless important to Aboriginal people. They may be places of cultural, spiritual or historic significance. Often they are places tied to community history and may include natural features (such as swimming and fishing holes), places where Aboriginal political events commenced or particular buildings.	Low: There are currently no recorded Aboriginal historical associations for the study area.

3.4 Summary

Background research has identified that the study area is located in the Burralow Formation and an alluvial fan geological deposit unit commonly associated with grinding grooves and rock shelters/rock art (Conyers 1990, pp.30–34). Topographically, the study area lies within a broadly sloping landform, with Narrabeen Creek, a second order non-perennial creek line is adjacent to the southern border. This is a tributary of Mullet

Creek, a perennial third order water course, located approximately 980 metres south of the study area. Fern Creek, a first order non-perennial water course is located approximately 411 metres south of the study area. Narrabeen Lagoon is also located approximately 2.7 kilometres south of the study area. This area would have provided significant plant and animal resources for Aboriginal people occupying the land.

The study area is also underlain by the Warriewood swamp soil landscape. Soils in swamp landscapes are subject to localised flooding, high water tables, waterlogging, and wind erosion. Due to these limitations swamp landscapes are unlikely to preserve intact archaeological deposits. A search of the AHIMS register identified no sites to be located within the study area. However, based on previously recorded sites and archaeological assessments located within the vicinity of the study area, the most likely site types to be present are art (pigment or engraved) and rock engravings.

A review of historical aerial photographs show that the study area has predominately been used for market gardening and agricultural purposes. Disturbances include historical vegetation clearance, the construction of greenhouses, market gardening and cropping, the construction of a residential building, and subsurface infrastructure.

Overall, the study area has undergone significant disturbance reducing the Aboriginal archaeological potential in the study area.

4 Archaeological investigation

An archaeological investigation of the study area was undertaken on 28 September 2021 by Anthea Vella (Biosis, Project Archaeologist) and Uncle Kevin Telford (Metropolitan LALC, Cultural Sites Officer). The survey sampling strategy, methodology and a discussion of results are provided below.

4.1 Archaeological survey aims

The principle aims of the survey were to:

- Undertake a systematic survey of the study area targeting areas with the potential for Aboriginal heritage.
- Identify and record Aboriginal archaeological sites visible on the ground surface.
- Identify and record areas of Aboriginal archaeological and cultural sensitivity.

4.2 Survey methods

The survey was conducted on foot. Recording during the survey followed the archaeological survey requirements of the Code and industry best practice methodology. Information that recorded during the survey included:

- Aboriginal objects or sites present in the study area during the survey.
- Survey coverage.
- Any resources that may have potentially have been exploited by Aboriginal people.
- Landform elements, distinguishable areas of land approximately 40m across or with a 20m radius (CSIRO 2009).
- Photographs of the site indicating landform.
- Ground surface visibility (GSV) and areas of exposure.
- Observable past or present disturbances to the landscape from human or animal activities.
- Aboriginal artefacts, culturally modified trees or any other Aboriginal sites.

Where possible, the identification of natural soil deposits within the study area was undertaken. Photographs and recording techniques were incorporated into the survey including representative photographs of survey units, landform, vegetation coverage, GSV and the recording of soil information for each survey unit were possible. Any potential Aboriginal objects observed during the survey were documented and photographed. The location of Aboriginal cultural heritage and points marking the boundary of the landform elements were recorded using a hand-held Global Positioning System and the Map Grid of Australia (94) coordinate system.

4.3 Constraints to the survey

With any archaeological survey there are several factors that influence the effectiveness (the likelihood of finding sites) of the survey. The factors that contributed most to the effectiveness of the survey within the study area were extensive grass and vegetation coverage.

4.4 Visibility

In most archaeological reports and guidelines visibility refers to GSV, and is usually a percentage estimate of the ground surface that is visible and allowing for the detection of (usually stone) artefacts that may be present on the ground surface (DECCW 2010b). Visibility across the study area was generally low (5%) due to extensive grass coverage and leaf litter (Photo 6 to Photo 8).

Photo 6 General visibility in the study area, photo facing south-east

Photo 7 General visibility in the study area, photo facing north-west

Photo 8 General visibility along Narrabeen Creek, photo facing south-west

4.5 Exposure

Exposure refers to the geomorphic conditions of the local landform being surveyed, and attempts to describe the relationship between those conditions and the likelihood the prevailing conditions provide for the exposure of (buried) archaeological materials. Whilst also usually expressed as a percentage estimate, exposure is different to visibility in that it is in part a summation of geomorphic processes, rather than a simple observation of the ground surface (Burke & Smith 2004, p.79, DECCW 2010b). Overall, the study area displayed few areas of high exposure (Photo 9 to Photo 10). Low areas of exposure were due to the extensive grass coverage (see section 4.4). Approximately 5% of the study area was subject to exposure.

Photo 9 Exposure within the study area

Photo 10 Exposure within the study area, photo facing north

4.6 Disturbances

Disturbance in the study area is associated with natural and human agents. Natural agents generally affect small areas and include the burrowing and scratching in soil by animals, such as wombats, foxes, rabbits and wallabies, and sometimes exposure from slumping or scouring. Disturbances associated with recent human action are prevalent in the study area and cover large sections of the land surface. Examples of human agents can include residential development such as landscaping and construction of residential buildings; farming practices, such as initial vegetation clearance for creation of paddocks, fencing and stock grazing; and agricultural practices.

The study area as a whole has been subject to disturbance by human activity. Historic and recent aerials (Photo 2 to Photo 4 and Figure 2) show that the study area has been subject to market gardening and agricultural purposes. Disturbances include historical vegetation clearance, construction of greenhouses and ancillary structures, market gardening and cropping, landform modification, construction of a residential building, and subsurface infrastructure over the last 50 years. These disturbances were noted during the archaeological survey and are shown in Photo 11 to Photo 14.

Photo 11 Disturbance associated with landform modification for market gardening, photo facing east

Photo 12 Disturbance associated with pipes in the southern portion of the study area

Photo 13 Disturbance associated with waterlogged soils, photo facing east

Photo 14 Disturbance associated with subsurface infrastructure, photo facing north-east

Photo 15 Disturbance associated with sandstone retaining wall, photo facing north-east

4.7 Investigation results and discussion

The archaeological investigation consisted of a total of a meandering pedestrian transect across the study area. The results of the field investigation have been summarised below and in Figure 7.

Background research has identified that the study area is located in the Burralow Formation and an alluvial fan geological deposit unit commonly associated with as grinding grooves and rock shelters/rock art. The study area is also underlain by the Warriewood swamp soil landscape. Soils in swamp landscapes are subject to localised flooding, high water tables, waterlogging, and wind erosion. Due to these limitations swamp landscapes are unlikely to preserve intact archaeological deposits. The field investigation demonstrated that the study area has been previously disturbed, and contained waterlogged soils. Upper soil profiles, where surface scatters and PADs are likely to occur, are not intact within the study area.

Topographically, the study area lies within a broadly sloping landform, with Narrabeen Creek, a second order non-perennial creek line is adjacent to the southern border. This is a tributary of Mullet Creek, a perennial third order water course, located approximately 980 metres south of the study area. Fern Creek, a first order non-perennial water course is located approximately 411 metres south of the study area. Narrabeen Lagoon is also located approximately 2.7 kilometres south of the study area. This area would have provided significant plant and animal resources for Aboriginal people occupying the land. However, the study area has been disturbed and landforms within the study area have also been modified.

Assessments undertaken in the vicinity of the study area conclude that archaeological potential is associated with a close proximity to permanent water sources (White & McDonald 2010, Therin 2007, DSCA 2012). Therefore, as distance from permanent water sources increases site intensity reduces (i.e. extensive or in situ sites reduce to background scatter). Ground disturbance reduces this likelihood of intact archaeological deposits to remain. The field investigation confirmed that the study area has been disturbed and is located more than 100 metres away from a permanent water source. Therefore there would be low potential for intact archaeological deposits to remain.

Historical aerial imagery has indicated that the study area has been disturbed from development related to market gardening practices. These include historical vegetation clearance, the construction of greenhouses, market gardening and cropping, landform modification, the construction of a residential building, and subsurface infrastructure.

During the field investigation no new Aboriginal sites or objects were identified. The field investigation suggested that the study area as a whole has been subject to disturbance and has low potential to contain intact or substantial archaeological deposits. As such, it is assessed that there is low potential for Aboriginal archaeological sites to occur within the study area (Figure 7).

Legend

- Study area
- Lot
- Survey track

Archaeological potential

- Low

Figure 7 Survey results and coverage

0 10 20 30 40 50

Metres

Scale: 1:1,000@ A3

Coordinate System:
GDA 1994 MGA Zone 56

N

Matter: 36149, Date: 28 September 2021,
Drawn by: DK, Checked by: AV, Last edited by: dkang
Location: P:\36100s\36149\Mapping\
36149_53AWarriewoodRd_ADDA, Layout: 36149_ADDA_F7_SurveyResults

5 Conclusions and recommendations

5.1 Conclusions

This assessment has determined that there is low potential for Aboriginal sites to be located within the study area. The field investigation conducted by Biosis did not identify any new archaeological sites or areas of potential due to previous ground disturbances within the study area. The results of this assessment are also demonstrated in the due diligence flow chart provided by the Code (Figure 8).

5.2 Recommendations

The following management recommendations have been developed relevant to the study area and influenced by:

- Predicted impacts to Aboriginal cultural heritage.
- The planning approvals framework.
- Current best conservation practise, widely considered to include:
  - Ethos of the Australia ICOMOS Burra Charter (2013).
  - The Code.

Prior to any impacts occurring within the study area, the following is recommended:

Recommendation 1: No further archaeological assessment is required

No further archaeological work is required in the study area due to the entire study area assessed as having low archaeological potential.

Recommendation 2: Discovery of unanticipated Aboriginal objects

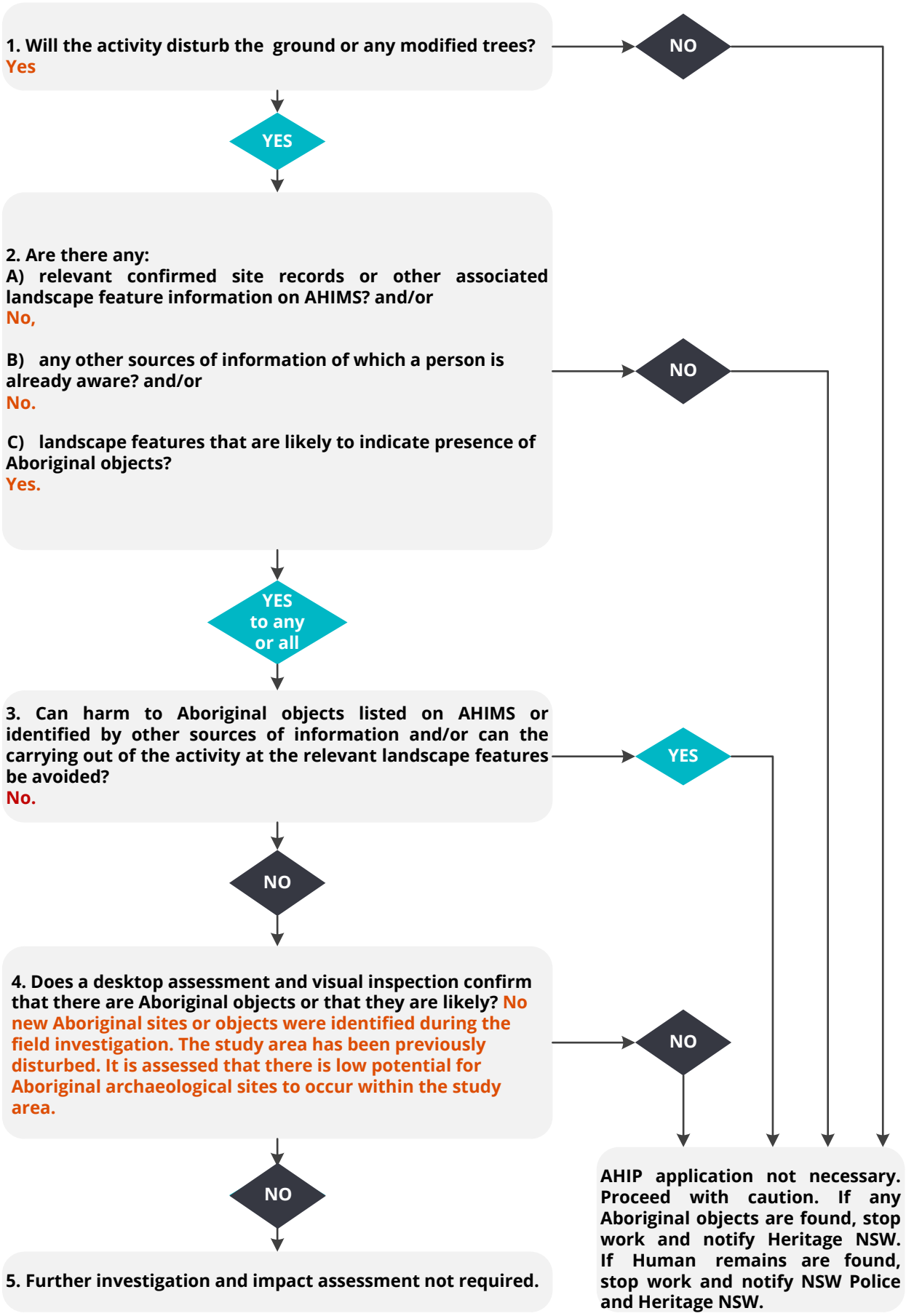
All Aboriginal objects and Places are protected under the NPW Act. It is an offence to knowingly disturb an Aboriginal site without a consent permit issued by Heritage NSW. Should any Aboriginal objects be encountered during works associated with this proposal, works must cease in the vicinity and the find should not be moved until assessed by a qualified archaeologist. If the find is determined to be an Aboriginal object the archaeologist will provide further recommendations. These may include notifying Heritage NSW and Aboriginal stakeholders.

Recommendation 3: Discovery of human remains

If any suspected human remains are discovered during any activity you must:

1. Immediately cease all work at that location and not further move or disturb the remains.
2. Notify the NSW Police and Heritage NSW' Environmental Line on 131 555 as soon as practicable and provide details of the remains and their location.
3. Not recommence work at that location unless authorised in writing by Heritage NSW.

Due Diligence Process



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Appendices

Appendix 1 AHIMS search results

This Appendix is not to be made public.

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : 36149 AV

Client Service ID : 625108

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
45-6-0294	two roos	GDA	56	337762	6268961	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	
	Contact	**Recorders**	Young,NPWS - Scheyville National Park,Mr.Steven Chapple					**Permits**		
45-6-3297	Duckholes Occupation Shelter	GDA	56	338100	6273829	Closed site	Valid	Art (Pigment or Engraved) : -		
	Contact	**Recorders**	NPWS - Scheyville National Park,Mr.Steven Chapple					**Permits**		
45-6-3269	West Head Gate Macropods	GDA	56	338520	6274873	Open site	Valid	Art (Pigment or Engraved) : -, Grinding Groove : -		
	Contact	**Recorders**	NPWS - Scheyville National Park,Mr.Steven Chapple					**Permits**		
45-6-0098	Foley's Hill;Powderworks Road;Group 45;	GDA	56	338752	6271092	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	1333
	Contact	**Recorders**	Fred McCarthy					**Permits**		
45-6-0061	Terrey Hills;DC/U2:E;	AGD	56	339416	6269790	Open site	Valid	Grinding Groove : -	Axe Grinding Groove	371,2212
	Contact	**Recorders**	University of Sydney					**Permits**		
45-6-0072	Foley's Hill Ingleside; Group 144	GDA	56	339570	6272138	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	
	Contact	**Recorders**	I.M Sim,Kelleher Nightingale Consulting Pty Ltd,Miss.Kristen Taylor					**Permits**		
45-6-2736	Kuringai Chase NP art site	AGD	56	339650	6275070	Closed site	Valid	Art (Pigment or Engraved) : -		
	Contact	**Recorders**	Mr.Mark Simon					**Permits**		
45-6-2588	Salt Pan Cove 2;Regatta Reserve;	AGD	56	339700	6275400	Open site	Valid	Shell : -, Artefact : -	Midden	
	Contact	**Recorders**	Huw Barton					**Permits**		
45-6-0828	Foleys Hill; Ingleside	GDA	56	339898	6271129	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	
	Contact	**Recorders**	Young,Ms.Lisa Campbell,Kelleher Nightingale Consulting Pty Ltd,Kelleher Nightinga					**Permits**		
45-6-3670	Hensford Shelter 3 PITT026	GDA	56	340105	6276240	Closed site	Valid	Shell : 100, Potential Archaeological Deposit (PAD) : 1		
	Contact	**Recorders**	Mr.Phil Hunt					**Permits**		
45-6-0932	Church Point;	AGD	56	341240	6274761	Closed site	Valid	Shell : -, Artefact : -, Burial : -	Burial/s,Shelter with Midden	
	Contact	**Recorders**	ASRSYS					**Permits**		
45-6-1566	Bayview;	AGD	56	342349	6274142	Open site	Valid	Shell : -, Artefact : -	Midden	417
	Contact	**Recorders**	ASRSYS					**Permits**		
45-6-0086	McCarr's Trig;Church Point 1;	GDA	56	338759	6275622	Open site	Valid	Art (Pigment or Engraved) : -, Grinding Groove : -	Axe Grinding Groove,Rock Engraving	1276
	Contact	**Recorders**	Fred McCarthy					**Permits**		
45-6-0067	Terrey Hills;Gunson Trig Station;	AGD	56	339340	6269920	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	

Report generated by AHIMS Web Service on 24/09/2021 for Samantha Keats for the following area at Datum :GDA, Zone : 56, Eastings : 337714.716 - 343436.0, Northings : 6268232.634 - 6276273.996 with a Buffer of 0 meters.. Number of Aboriginal sites and Aboriginal objects found is 110

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : 36149 AV

Client Service ID : 625108

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
	Contact	**Recorders**	Young,University of Sydney,Ms.Lisa Campbell					**Permits**		
45-6-1312	Church Point;McCarr's Creek	AGD	56	339900	6274800	Open site	Valid	Shell : -, Artefact : -	Midden	
	Contact	**Recorders**	Alan Heath					**Permits**		
45-6-2316	GA-3;Deep Creek Reserve;	AGD	56	340010	6268800	Closed site	Valid	Artefact : -	Shelter with Deposit	2227
	Contact	**Recorders**	Robert "Ben" Gunn					**Permits**		
45-6-0057	Elanora;Narrabeen Golf Links;	AGD	56	340160	6269161	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	371,2212
	Contact	**Recorders**	University of Sydney					**Permits**		
45-6-2908	Botham Reserve Midden 1; PITT-210	GDA	56	340320	6275480	Open site	Valid	Shell : -		
	Contact	**Recorders**	Mr.Phil Hunt					**Permits**		
45-6-1314	Church Point;McCarr's Creek;	AGD	56	340424	6274379	Open site	Valid	Shell : -, Artefact : -	Midden	
	Contact	**Recorders**	ASRSYS					**Permits**		
45-6-2590	BR1;Boundary Road, Ingleside;	AGD	56	340680	6271900	Closed site	Valid	Artefact : -	Shelter with Deposit	3893
	Contact	**Recorders**	Mary Dallas Consulting Archaeologists (MDCA)					**Permits**		
45-6-2689	1927 Pittwater Rd Midden 2	AGD	56	342066	6274034	Open site	Valid	Shell : -, Artefact : -		
	Contact	**Recorders**	Jim Wheeler					**Permits**	1991	
45-6-2997	Hanson's Wharf 3 - PITT 036	GDA	56	343004	6276040	Closed site	Valid	Art (Pigment or Engraved) : -, Shell : -, Potential Archaeological Deposit (PAD) : -		
	Contact	**Recorders**	Aboriginal Heritage Office					**Permits**		
45-6-1458	Salt Pan Cave;	AGD	56	343050	6275710	Open site	Valid	Artefact : -, Shell : -	Midden	
	Contact	**Recorders**	ASRSYS					**Permits**		
45-6-1577	Ku-ring-gai;Centre Track 2;	GDA	56	337853	6275098	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	
	Contact	**Recorders**	ASRSYS					**Permits**		
45-6-3212	MVRW 1	GDA	56	338333	6271347	Open site	Valid	Art (Pigment or Engraved) : -		
	Contact	**Recorders**	Mr.Mark Rawson,Kelleher Nightingale Consulting Pty Ltd					**Permits**		
45-6-0069	Foleys Hill (Elanora Heights)	AGD	56	338860	6270280	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	371,1026,2212
	Contact	**Recorders**	Ms.Lisa Campbell					**Permits**		
45-6-0085	Elvina Bay Track Engraving Site	GDA	56	338989	6275977	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	1276
	Contact	**Recorders**	Fred McCarthy,Mr.Oliver Descoeudres					**Permits**		
45-6-3101	Foleys Hill, Ingleside Pitt 110	GDA	56	339319	6272050	Open site	Valid	Art (Pigment or Engraved) : 1		
	Contact	**Recorders**	Mr.Phil Hunt					**Permits**		

Report generated by AHIMS Web Service on 24/09/2021 for Samantha Keats for the following area at Datum :GDA, Zone : 56, Eastings : 337714.716 - 343436.0, Northings : 6268232.634 - 6276273.996 with a Buffer of 0 meters.. Number of Aboriginal sites and Aboriginal objects found is 110

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : 36149 AV

Client Service ID : 625108

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
45-6-3024	Foley's Hill, Ingleside, Group 144 - PITT 110	GDA	56	339321	6272053	Open site	Valid	Art (Pigment or Engraved) : 5		
	Contact	**Recorders**	Kelleher Nightingale Consulting Pty Ltd,Aboriginal Heritage Office,Miss.Kristen Tay					**Permits**		
45-6-2528	Lane Cove Road 1;	GDA	56	339576	6272177	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	
	Contact	**Recorders**	Mr.Kelvin Officer,Kelleher Nightingale Consulting Pty Ltd,Miss.Kristen Taylor					**Permits**		
45-6-0826	Foleys Hill	GDA	56	339730	6271129	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	371
	Contact	**Recorders**	Young,Ms.Lisa Campbell,Mr.Phil Hunt,Kelleher Nightingale Consulting Pty Ltd,Miss					**Permits**		
45-6-0869	Foleys Hill;	AGD	56	339780	6272350	Open site	Valid	Grinding Groove : -, Water Hole : -	Axe Grinding Groove,Water Hole/Well	
	Contact	**Recorders**	ASRSYS					**Permits**		
45-6-2912	Botham Reserve Midden 2; Pitt-211.	GDA	56	340265	6275420	Open site	Valid	Shell : -		
	Contact	**Recorders**	Mr.Phil Hunt					**Permits**		
45-6-3029	Barcoola Engraving PITT082	GDA	56	340420	6274720	Open site	Valid	Art (Pigment or Engraved) : -		
	Contact	**Recorders**	Mr.Phil Hunt,Aboriginal Heritage Office					**Permits**		
45-6-3671	Barcoola Shelter 2 PITT083	GDA	56	340465	6274670	Open site	Valid	Shell : 100, Potential Archaeological Deposit (PAD) : 1		
	Contact	**Recorders**	Mr.Phil Hunt					**Permits**		
45-6-2909	Shelter PAD 1 Browns Bay; PITT-099	GDA	56	340485	6274790	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	**Recorders**	Mr.Phil Hunt					**Permits**		
45-6-2603	WE-S-1	AGD	56	342780	6275920	Closed site	Valid	Artefact : -	Shelter with Deposit	
	Contact	**Recorders**	Unknown Author					**Permits**		
45-6-0856	Scotland Island;Refuge Bay;	AGD	56	343325	6275716	Closed site	Valid	Shell : -, Artefact : -	Shelter with Midden	
	Contact	**Recorders**	ASRSYS					**Permits**		
45-6-1229	Deep Creek	AGD	56	338900	6269800	Open site	Not a Site	Art (Pigment or Engraved) : -	Not an Aboriginal Site	
	Contact	**Recorders**	A Heath					**Permits**		
45-6-0103	Sugarloaf Hill, Foley's Hill 3	AGD	56	338900	6272795	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	
	Contact	**Recorders**	Ms.Lisa Campbell					**Permits**		
45-6-0095	Foley's Hill;Powderworks Road;Group 144;	AGD	56	339201	6271429	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	
	Contact	**Recorders**	Ms.Lisa Campbell					**Permits**		

Report generated by AHIMS Web Service on 24/09/2021 for Samantha Keats for the following area at Datum :GDA, Zone : 56, Eastings : 337714.716 - 343436.0, Northings : 6268232.634 - 6276273.996 with a Buffer of 0 meters.. Number of Aboriginal sites and Aboriginal objects found is 110

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : 36149 AV

Client Service ID : 625108

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
45-6-0068	Gunson Trig. Station (Terrey Hills)	AGD	56	339550	6269280	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	371,1026,1333, 2212
	Contact	**Recorders**	University of Sydney					**Permits**		
45-6-0827	Foleys Hill;Ingleside	GDA	56	339965	6271055	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	
	Contact	**Recorders**	Young,Ms.Lisa Campbell,Mr.Phil Hunt					**Permits**		
45-6-1117	Foleys Hill Art	GDA	56	339975	6272042	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	
	Contact	**Recorders**	Mr.R Taplin,Kelleher Nightingale Consulting Pty Ltd,Miss.Kristen Taylor					**Permits**		
45-6-0812	Church Point	GDA	56	340240	6274630	Closed site	Valid	Shell : -, Artefact : -	Shelter with Midden	
	Contact	**Recorders**	Mr.Phil Hunt					**Permits**		
45-6-2915	Shelter PAD 2 Browns Bay; PITT-212	GDA	56	340455	6274775	Closed site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	**Recorders**	Mr.Phil Hunt					**Permits**		
45-6-3209	Ingleside 4	GDA	56	340540	6273714	Open site	Valid	Art (Pigment or Engraved) : -		
	Contact	**Recorders**	Mr.Mark Rawson,Kelleher Nightingale Consulting Pty Ltd					**Permits**		
45-6-2789	1927 Pittwater Rd - PAD	AGD	56	342078	6273986	Open site	Valid	Potential Archaeological Deposit (PAD) : 1		
	Contact T Russell	**Recorders**	Jim Wheeler					**Permits**		
45-6-1565	Bayview;	AGD	56	342537	6273871	Open site	Valid	Shell : -, Artefact : -	Midden	417
	Contact	**Recorders**	ASRSYS					**Permits**		
45-6-0091	Scotland Island;Hanson's Wharf;	AGD	56	342952	6276074	Closed site	Valid	Art (Pigment or Engraved) : -, Artefact : -	Shelter with Art,Shelter with Deposit	
	Contact	**Recorders**	Australian Museum					**Permits**		
45-6-1564	Crystal Bay;	AGD	56	343260	6274343	Open site	Valid	Shell : -, Artefact : -	Midden	417
	Contact	**Recorders**	ASRSYS					**Permits**		
45-6-0064	Deep Creek;Elanora Heights;	GDA	56	338416	6270952	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	1333
	Contact	**Recorders**	Warren Bluff					**Permits**		
45-6-0066	Terrey Hills;Gunsom Trig Station;	AGD	56	339190	6269840	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	1333
	Contact	**Recorders**	Ms.Lisa Campbell					**Permits**		
45-6-0844	Foleys Hill;	AGD	56	339278	6272162	Open site	Valid	Grinding Groove : -, Art (Pigment or Engraved) : -	Axe Grinding Groove,Rock Engraving	
	Contact	**Recorders**	ASRSYS					**Permits**		

Report generated by AHIMS Web Service on 24/09/2021 for Samantha Keats for the following area at Datum :GDA, Zone : 56, Eastings : 337714.716 - 343436.0, Northings : 6268232.634 - 6276273.996 with a Buffer of 0 meters.. Number of Aboriginal sites and Aboriginal objects found is 110

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : 36149 AV

Client Service ID : 625108

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
45-6-0060	Terrey Hills;DC/U2:F;	AGD	56	339416	6269787	Open site	Valid	Grinding Groove : -	Axe Grinding Groove	371,2212
	Contact	**Recorders**	University of Sydney					**Permits**		
45-6-1616	Mona Vale Road	GDA	56	340310	6271857	Closed site	Valid	Art (Pigment or Engraved) : -, Artefact : -	Shelter with Art,Shelter with Deposit	510,3893
	Contact	**Recorders**	Margrit Koettig,Doctor.Jo McDonald,Kelleher Nightingale Consulting Pty Ltd,Miss.K					**Permits**		
45-6-1315	Church Point;Browns Bay;	AGD	56	340596	6274931	Open site	Valid	Shell : -, Artefact : -	Midden	
	Contact	**Recorders**	ASRSYS					**Permits**		
45-6-1438	Bayview;	AGD	56	342899	6274061	Closed site	Valid	Shell : -, Artefact : -	Shelter with Midden	
	Contact	**Recorders**	ASRSYS					**Permits**		
45-6-0738	QP5;Narrabeen Head;	AGD	56	343040	6269450	Open site	Valid	Artefact : -, Shell : -	Midden,Open Camp Site	1263
	Contact	**Recorders**	Doctor.Jo McDonald,Smith					**Permits**		
45-6-0100	Sugarloaf Hill, Foley's Hill 1	AGD	56	337834	6271220	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	
	Contact	**Recorders**	Ms.Lisa Campbell					**Permits**		
45-6-0113	Church Point;	AGD	56	338800	6275700	Open site	Valid	Stone Arrangement : -, Art (Pigment or Engraved) : -	Rock Engraving,Stone Arrangement	1276
	Contact	**Recorders**	Fred McCarthy					**Permits**		
45-6-0101	Sugarloaf Hill, Foley's Hill 2	AGD	56	338920	6271789	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	
	Contact	**Recorders**	Ms.Lisa Campbell					**Permits**		
45-6-0071	Foley's Hill Ingleside Group 144	GDA	56	339336	6272084	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	510
	Contact	**Recorders**	Margrit Koettig,Young,I.M Sim,Kelleher Nightingale Consulting Pty Ltd,Kelleher Nig					**Permits**		
45-6-0062	Narrabeen;Elanora;	AGD	56	339520	6269149	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	2212
	Contact	**Recorders**	University of Sydney					**Permits**		
45-6-0038	Mclean Street Ingleside	AGD	56	339890	6270800	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	832
	Contact	**Recorders**	Denis Byrne,Doctor.Jo McDonald					**Permits**	6	
45-6-1313	Church Point;McCarr's Creek	AGD	56	339900	6274900	Open site	Valid	Shell : -, Artefact : -	Midden	
	Contact	**Recorders**	ASRSYS					**Permits**		
41-6-0028	Botham Reserve Midden 2; PITT-211 (same as 45-6-2912)	GDA	56	340265	6275420	Open site	Valid	Shell : -		
	Contact	**Recorders**	Mr.Phil Hunt					**Permits**		
45-6-3211	Ingleside 1	GDA	56	340355	6273535	Open site	Valid	Grinding Groove : -		
	Contact	**Recorders**	Mr.Mark Rawson,Kelleher Nightingale Consulting Pty Ltd,Kelleher Nightingale Con					**Permits**		
45-6-3025	Minkara Shelter 2 PITT 079	GDA	56	341104	6274870	Closed site	Valid	Shell : -		

Report generated by AHIMS Web Service on 24/09/2021 for Samantha Keats for the following area at Datum :GDA, Zone : 56, Eastings : 337714.716 - 343436.0, Northings : 6268232.634 - 6276273.996 with a Buffer of 0 meters.. Number of Aboriginal sites and Aboriginal objects found is 110

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : 36149 AV

Client Service ID : 625108

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
	Contact	Recorders	Aboriginal Heritage Office					Permits		
45-6-1371	Church Point;	AGD	56	341055	6274849	Closed site	Valid	Shell : -, Artefact : -, Art (Pigment or Engraved) : -	Shelter with Art,Shelter with Midden	
	Contact	Recorders	ASRSYS					Permits		
45-6-2688	1927 Pittwater Rd Midden 1	AGD	56	342118	6274082	Open site	Destroyed	Shell : -, Artefact : -		
	Contact	Recorders	Jim Wheeler					Permits	1991,2062,2371	
45-6-2747	Ocean - Octavia Street Burial	AGD	56	342568	6268642	Open site	Valid	Burial : -		
	Contact	Recorders	Doctor.Jo McDonald					Permits	2162	
45-6-2996	Hanson's Wharf 2 - PITT 024	GDA	56	343050	6276030	Closed site	Valid	Art (Pigment or Engraved) : -, Shell : -, Potential Archaeological Deposit (PAD) : -		
	Contact	Recorders	Aboriginal Heritage Office					Permits		
45-6-3061	Salt Pan Cove #2	GDA	56	343054	6276160	Closed site	Valid	Shell : 10		
	Contact	Recorders	Mr.Phil Hunt					Permits		
45-6-0862	McCarr's Creek;Centre Trail;	GDA	56	337853	6275098	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	
	Contact	Recorders	ASRSYS					Permits		
45-6-1576	Ku-ring-gai;Centre Track 1;	GDA	56	337919	6274947	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	
	Contact	Recorders	ASRSYS					Permits		
45-6-0829	Foleys Hill 1;	GDA	56	338250	6270857	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	1447
	Contact	Recorders	Young,Charles.D Power					Permits		
45-6-1635	Sugarloaf Hill 3	AGD	56	338450	6270860	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	
	Contact	Recorders	J Cressbrook					Permits		
45-6-0059	Narrabeen;Elanora;	AGD	56	339337	6269145	Closed site	Valid	Artefact : -	Shelter with Deposit	371,2212
	Contact	Recorders	University of Sydney					Permits		
45-6-0084	Church Point;McCarrs Ck;	AGD	56	339334	6273992	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	101883
	Contact	Recorders	Ms.Lisa Campbell					Permits		
45-6-2520	Ingleside Rd 1	GDA	56	339626	6272246	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	
	Contact	Recorders	Mr.Kelvin Officer,Kelleher Nightingale Consulting Pty Ltd,Miss.Kristen Taylor					Permits		
45-6-3210	Ingleside 2	GDA	56	339902	6272093	Open site	Valid	Art (Pigment or Engraved) : -		
	Contact	Recorders	Mr.Mark Rawson,Kelleher Nightingale Consulting Pty Ltd					Permits		

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AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : 36149 AV

Client Service ID : 625108

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
45-6-3168	BARCOOLA SHELTER 3 PITT225	GDA	56	340200	6274605	Closed site	Valid	Potential Archaeological Deposit (PAD) : -		
	Contact	**Recorders**	Mr.Phil Hunt					**Permits**		
45-6-1417	Ingleside;Cabbage Tree Rd;	AGD	56	340177	6273003	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	
	Contact	**Recorders**	ASRSYS					**Permits**		
45-6-1387	McCarr's Creek;	GDA	56	340345	6274685	Closed site	Valid	Art (Pigment or Engraved) : -, Shell : -, Artefact : -	Rock Engraving,Shelter with Art,Shelter with Midden	
	Contact	**Recorders**	Doctor.Jo McDonald,Mr.Phil Hunt					**Permits**		
45-6-1388	Foleys Hill;;	GDA	56	340405	6273508	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	
	Contact	**Recorders**	ASRSYS,Kelleher Nightingale Consulting Pty Ltd,Kelleher Nightingale Consulting Pt					**Permits**		
45-6-2952	MC1 Rock Shelter with Midden	GDA	56	340576	6275000	Closed site	Valid	Artefact : 1		101883
	Contact	**Recorders**	Michael Therin					**Permits**	3293	
45-6-1611	Browns Bay;Church Point;	AGD	56	340507	6274838	Open site	Valid	Shell : -, Artefact : -	Midden	
	Contact	**Recorders**	ASRSYS					**Permits**		
45-6-3026	Minkara Shelter 3 - PITT 080	GDA	56	341124	6274820	Closed site	Valid	Shell : -		
	Contact	**Recorders**	Aboriginal Heritage Office					**Permits**		
45-6-0852	Salt Pan Cove - PITT 030	GDA	56	343054	6276160	Closed site	Valid	Shell : -, Artefact : -, Art (Pigment or Engraved) : -	Rock Engraving,Shelter with Midden	
	Contact	**Recorders**	Aboriginal Heritage Office					**Permits**		
45-6-0853	Scotland Island;Salt Pan Cove;	AGD	56	343326	6275624	Closed site	Valid	Shell : -, Artefact : -, Grinding Groove : -	Axe Grinding Groove,Shelter with Midden	
	Contact	**Recorders**	ASRSYS					**Permits**		
45-6-0065	Terrey Hills;Deep Creek;Elanora Heights;DC/MR:A;	AGD	56	339010	6270070	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	2212
	Contact	**Recorders**	University of Sydney					**Permits**		
45-6-0052	Monash Country Club;Elanora Heights;	AGD	56	339190	6270810	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	1333
	Contact	**Recorders**	Warren Bluff					**Permits**		
45-6-0110	Narrabeen;	AGD	56	339489	6268424	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	
	Contact	**Recorders**	Fred McCarthy					**Permits**		
45-6-0058	Elanora;Narrabeen Golf Links;	AGD	56	339699	6269335	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	371,1333,2212
	Contact	**Recorders**	University of Sydney					**Permits**		

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AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : 36149 AV

Client Service ID : 625108

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
45-6-3208	Ingleside 3	GDA	56	339776	6271801	Open site	Valid	Art (Pigment or Engraved) : -		
	Contact	**Recorders**	Mr.Mark Rawson,Kelleher Nightingale Consulting Pty Ltd					**Permits**		
45-6-2596	AB-1;?;	GDA	56	339965	6271055	Open site	Valid	Art (Pigment or Engraved) : -	Rock Engraving	
	Contact	**Recorders**	A Boleyn,Mr.Phil Hunt,Kelleher Nightingale Consulting Pty Ltd,Miss.Kristen Taylor					**Permits**		
45-6-2317	GA-4;Deep Creek Reserve;	AGD	56	339990	6268820	Closed site	Valid	Artefact : -	Shelter with Deposit	2227
	Contact	**Recorders**	Robert "Ben" Gunn					**Permits**		
45-6-0054	Church Point;	AGD	56	340317	6275200	Closed site	Valid	Shell : -, Artefact : -	Shelter with Midden	
	Contact	**Recorders**	Melanie Kennedy					**Permits**		
45-6-2910	Shelter Browns Bay; PITT-097	GDA	56	340490	6274775	Closed site	Valid	Shell : -		
	Contact	**Recorders**	Mr.Phil Hunt					**Permits**		
45-6-3581	Church Point Midden	GDA	56	340506	6275147	Open site	Valid	Shell : -		
	Contact	**Recorders**	Miss.Alandra Tasire,Comber Consultants Pty Limited					**Permits**		
45-6-2592	BR2;Burrawang Ridge Estate, Healesville;	AGD	56	340500	6271950	Closed site	Valid	Art (Pigment or Engraved) : -	Shelter with Art	3893
	Contact	**Recorders**	Mary Dallas Consulting Archaeologists (MDCA)					**Permits**		
45-6-1381	Foleys Hill;	AGD	56	340641	6272646	Open site	Not a Site	Art (Pigment or Engraved) : -, Water Hole : -	Not an Aboriginal Site,Rock Engraving,Water Hole/Well	
	Contact	**Recorders**	ASRSYS					**Permits**		
45-6-1562	Church Point;	AGD	56	340676	6275573	Open site	Valid	Shell : -, Artefact : -	Midden	417
	Contact	**Recorders**	Unknown Author					**Permits**		
45-6-1563	Church Point.	GDA	56	340884	6275890	Open site	Valid	Shell : -, Artefact : -	Midden	417
	Contact	**Recorders**	Mary Dallas Consulting Archaeologists (MDCA),Unknown Author,Mr.Paul Irish					**Permits**	4249,4480	
45-6-1440	Bayview Midden;	AGD	56	342451	6273595	Closed site	Valid	Shell : -, Artefact : -	Shelter with Midden	
	Contact	**Recorders**	ASRSYS					**Permits**		
45-6-3990	Winji Jimmi Reserve Midden	GDA	56	342998	6273963	Open site	Valid	Shell : -		
	Contact	**Recorders**	Mr.Bob Conroy					**Permits**		
45-6-1254	Newport	AGD	56	343180	6276040	Open site	Not a Site	Art (Pigment or Engraved) : -	Not an Aboriginal Site	
	Contact	**Recorders**	M Young					**Permits**		
45-6-1457	Salt Pan Cove;	AGD	56	343240	6275348	Open site	Valid	Shell : -, Artefact : -	Midden	
	Contact	**Recorders**	ASRSYS					**Permits**		
45-6-0112	Turimetta Head;	AGD	56	343330	6269940	Closed site	Valid	Shell : -, Artefact : -	Shelter with Midden	1263

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AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : 36149 AV

Client Service ID : 625108

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
	Contact	Recorders	Metro Water Sewerage Drainage Board					Permits	3735	

**** 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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