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RESTRICTED REPORT

As the project area is located in Worimi Country and the sites are of particular Worimi cultural/spiritual and social high significance with traditional knowledge associated to the sites and area, at the request of Worimi, this information was not to be shared with non Worimi RAPs. This report is restricted and copies may only be provided with approval from Worimi.

Gan Gan Rd, Anna Bay ACHA Test Excavation

LGA: Port Stephens

Aboriginal Cultural Heritage Assessment (ACHA)

22 October 2023

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McCARDLE
CULTURAL HERITAGE

Report No: J2021109 ACHA	
Approved by:	Penny McCardle
Position:	Director
Signed:	
Date:	22 October 2023

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EXECUTIVE SUMMARY

McCardle Cultural Heritage Pty Ltd (MCH) has been engaged by dmps on behalf of GAD Projects Pty Ltd to prepare an Aboriginal Heritage Impact Assessment for the proposed application for subdivision of land at Nos. 196 Old Main Road, No.s 263, 271, 273,269,293,321 Gan Gan Road and Nos. 4492 and 4500 Nelson Bay Road, Anna Bay, NSW 2316 (+ Crown Road) ('the site'). Land adjoining the site is also under investigation.

The assessment has been undertaken to meet the Heritage NSW, Department of Premier & Cabinet Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (DECCW 2010), the Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW (OEH 2011), the DECCW Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales (DECCW 2010b) and the brief.

The project area is situated in Coastal Zone that consists of a variety of landforms including inner and outer Holocene dunes, the low lying, swampy interbarrier depression and Pleistocene dunes. The dunal systems overlooking the interbarrier depression and the beach dunes are considered to be suitable for past Aboriginal occupation as they include elevated dunes overlooking the interbarrier depression which would have provided an abundance of resources as would have the beach areas. The northern portion of the project area is located within the interbarrier depression (previous swamp) whilst the southern portion of the project area is located on both the interbarrier depression and the Inner Pleistocene barrier and sand dunes overlooking the interbarrier depression. The project area is situated on Quandary gravel, sand, silt, clay, 'Waterloo Rock', marine and freshwater deposits and consists of a range of soils landscapes including the Shoal Bay swamp variant, the Aeolian Shoal Bay soils landscape and the Bobs Farm soils landscape. The project area includes the resource rich inter-barrier depression (previous lagoon) an environment that was very well resourced in terms of fresh water and associated resources. The interbarrier depression was clearly favoured for hunting and gathering with an abundance of evidence of past Aboriginal land uses found along the dunes overlooking the interbarrier depression and at its interface. The project area has been subject to previous large scale clearing activities as well as agricultural and pastoral activities, with some residential developments along with the associated infrastructure and utilities. In terms of these land uses and impacts on the landscape and cultural materials these direct impacts to the land and associated cultural materials that may be present are easy to see and understand.

A search of the AHIMS register has shown that one Aboriginal Place and 72 known Aboriginal sites are currently recorded within five kilometres of the project area. AHIMS site #38-5-0248 (Gan Gan 5) is an artefact site. Unfortunately, no other information is available as the site card is not available from AHIMS.

Researching both the regional and local archaeological contexts, the following archaeological patterning is evident:

- The majority of sites within the region consist of shell middens (containing beach and/or estuarine species) and stone artefact scatters, with sites varying from single artefacts to dense concentrations of material in both a surface and sub-surface context.
- Other site types occur including a significant number of burials (usually exposed through erosion), scar trees and ceremonial sites.
- Within the stabilised dune fields, it is suggested that greater concentrations of archaeological material (in terms of site numbers and artefact densities) are located on low ridgelines, spurs and low dunes associated with wetland resources overlooking the interbarrier depression.

- Archaeological material within the active transgressive dune field and current deflation basin primarily consists of exposed and/or deflated deposits that were once associated with former stabilised surfaces and periods of stabilisation. Although some archaeological material may have been deposited during periods of instability (i.e. not in association with a stabile soil surface), this material is likely to have been limited in both extent and distribution.
- Due to vegetation coverage and the nature of sand deposits, the detection of sites is directly related to levels of exposure and visibility. Sub-surface deposits may be at a considerable depth below the current dune surface and therefore are unlikely to be detectable unless significant disturbance has occurred.

Based on the AHIMS search and both the regional and local archaeological contexts, it was predicted that within the specific project area, it is highly likely that additional sites will be concentrated along the dune overlooking the interbarrier depression in the southern portion of the project area. Evidence of past Aboriginal land use in these areas are manifest in the archaeological record as shell middens with stone artefacts all along the dunes within close proximity of the interbarrier depression. Although a reliable resource, the interbarrier depression itself was a previous lagoon/swamp and would not have been suitable for camping.

For ease of management, the project area was divided into 2 Survey Units (SUs) that were based on project area (north and south) then further divided in SU based on landforms. Survey unit 1a included the northern portion that is located in the interbarrier depression. Access was difficult due to lantana and as such a sample was surveyed in the western portion and the information obtained form that sample is extrapolated for the whole survey unit. This survey unit was low lying and damp underfoot with thick understory vegetation that included grass, ferns and lantana amongst open forest. Disturbances included clearing and housing construction along Nelson Bay Road and large tracks running north south through the middle and eastern portion of the project area. Being a low-lying water-logged area that was previously a lagoon/swamp, there is little to no potential for archaeological sites to be present in this location/landform.

Capitalise

survey unit 1b included the southern portion that is located in the interbarrier depression. Access was difficult due to lantana and as such a sample was surveyed in the southern and middle sections and the information obtained form that sample is extrapolated for the whole survey unit. This survey unit was low lying and damp underfoot with thick understory vegetation that included grass, ferns and lantana amongst open forest. Large sections were cleared for gardens and a number of man-made drains were located throughout along with tracks. Being a low-lying water-logged area that was previously a lagoon/swamp, there is little to no potential for archaeological sites to be present in this location/landform. However, the interface between the southern border of this survey unit to that of the dune ridge (SU2) is known to contain archaeological evidence due to erosion down slope.

Survey unit 2 included the southern portion and includes the high sand ridgeline that is located along the southern end of the project area that dips to a flat dune area along Gan Gan Road. The areas fronting Gan Gan Road had been disturbed through previous clearing and construction works associated with residential housing. The due itself appears to remain relatively undisturbed in the eastern portion whilst the western portion has been disturbed by a garden area. Vegetation in the eastern portion consisted of open woodland with thick understory and the western portion consisted of the garden and open woodland and thick underbrush outside the garden area. The garden was further disturbed by rabbit warrens which has revealed additional artefact and shell associated with AHIMS site #38-5-0248. Visibility was poor along the eastern portion and moderate in the western portion.

The results of the survey have confirmed the location of AHIMS site #38-5-0248. Located along the ridgeline and exposed throughout the garden in Survey Unit 2, this site is a shell midden. Consisting of a variety of shell species including Oyster, Cockle, Pipi and Turbine a number of tuff and silcrete stone tools were also exposed.

Being located along the ridge line overlooking the interbarrier depression with direct access to an abundance of resources, there is very high potential for additional cultural materials to be present. It is highly likely that the partially exposed surface site extends the length of the ridgeline (identified as GG/PAD1 – 38-5-0248) and will also include subsurface artefacts. This may represent either long term camping by large numbers of people (community-based camp) and/or short-term camping by a range of groups of people.

As the extent and nature of GG/PAD1 – 38-5-0248 remains unknown, the scientific significance remains unknown. As the development is yet to be finalised, any impacts or cumulative impacts to the archaeological remain unknown at this time and MCH recommended that if 38-5-0248 - GG/PAD1 will be harmed by any future development an AHIP for test excavation will be required prior to any works commencing at that location.

A total of 19 subsurface investigation pits were excavated along the dune crest. Being a narrow dune crest, test pits were first placed allowing a centre line and then placed at 20 metres. As the dune slopes were steep, no test pits were included on the slopes. No test excavations were included at the interface of the dune and the interbarrier depression as the that area, and the interbarrier depression will be filled with absolutely no excavation or disturbances to that location.

Surface disturbances across the PAD were clearly divided with the western half having the original dune crest removed, flattened and used as a garden whilst the eastern half retained the original landform. These two areas were clearly marked by scraped dune material/stockpile.

The overall general stratigraphy for the western side of the PAD (Test pits C1-C8 and A 1-3) included Unit 1 that consisted of an A soil horizon that varied in depth (4-43cm), was a loose speckled grey/cream coloured sand (topsoil) with inclusions of roots and few charcoal fragments and insects. This overlaid a clear sharp change to the B horizon of orange sand that began from 20cm+ below the surface.

The overall general stratigraphy for the eastern side of the PAD (Test pits C9-C16) consisted of:

- Unit 1: A_1 soil horizon varied in depth from 0-33cm, was a loose speckled grey brown loamy sand (topsoil), with roots, few charcoal fragments and insects present.
- Unit 2: A_2 soil horizon varied in (33-76cm), was loose bleached cream coloured sand with roots, few charcoal fragments and insects, all of which decrease with depth to zero inclusions towards its base.
- Unit 3: B soil horizon includes mottled cream and light orange sand that gradually changes to orange/brown sand with no inclusions

The test excavation identified a highly disturbed and distributed surface shell midden with few stone artefacts across the western part of the PAD (AHIMS site #38-5-0248). This is not surprising given that the top section of the dune crest had been removed or disbursed/flattened.

Of the 11 test pits in this area, 3 contained artefacts (total of 6 artefacts) and of those three test pits, one (CL7) contained minimal pipi shell fragments (2 small fragments in spit 2 and 5 small fragments in spit 3).

It is not possible to identify if the artefacts represent one site or multiple isolated sites and as such for ease of management, the artefacts have been assessed as representing one site. Artefact types included flakes manufactured from silcrete (n=2) and tuff (n= 4). Being disturbed through past land uses, the site and western side of the PAD have no potential for in situ cultural materials. Figure 9.3 shows the location of artefacts and artefact numbers in those test pits.

The test excavation of the eastern half of the PAD identified a significantly less disturbed site with a number of discrete low density artefact scatters/shell middens and isolated finds. This is not surprising given that the dune remains intact with no removal of the dune crest. Of the 8 test pits in this area, 4 contained artefacts and of those four, two (CL9 & CL14) contained pipi shell fragments.

Artefact types included flakes manufactured from silcrete (n=4) and tuff (n= 3). Being relatively undisturbed through past land uses, the site and eastern side of the PAD have potential for in situ cultural materials. Being low density artefacts scatters and shell middens, these appear to be discrete, isolated sites that form an overall site complex of sites along the narrow dune and is identified as a separate site (Gan Gan/01).

As each location of artefacts occur as very low density and the shell present is also low-density, this is indicative of isolated events. Additionally, as the dune is narrow and unsuitable for large camps, this further supports the likelihood of being individual sites. However, being located on a narrow dune along the inter barrier depression, a location with an excellent look out perspective, these sites may be linked and in association with each other by virtue of their location and use. These sites are connected across a landscape with the scatters and shell middens being of activity areas such as look out/hunting/gathering/single meal events.

In addition to this, the dune widens east of the test excavation area and has a larger area that would have been suitable for larger groups of people. Evidence from along the dune are also likely to be linked.

AHIMS site 38-5-0248 was assessed as being of low archaeological/scientific significance due to the highly disturbed nature of the sites.

GG/01 was assessed as being of high archaeological/scientific significance due to the undisturbed disturbed nature of the site, the nature of the site (complex) and likely connects to additional sites along the dune.

As the project area is located in Worimi Country and the sites are of particular Worimi cultural/spiritual and social high significance with traditional knowledge associated to the sites and area, at the request of Worimi, this information was not to be shared with non Worimi RAPs and as such only Worimi RAPs have provided the cultural significance of the sites below. Both sites have been assessed as being of high cultural/spiritual/social significance.

The results of the assessment show that 38-5-0248 and GG/01 may be impacted upon by the development. However, as the development is yet to be finalised, impacts remain unknown at this time 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 Amendment (Aboriginal Objects and Aboriginal Places) Regulation 2010, under the National Parks and Wildlife Act 1974;

2) Should any Aboriginal objects be uncovered during works, all work will cease in that location immediately and the Environmental Line contacted;

3) The involvement of the registered Aboriginal stakeholders in the ongoing management of the Aboriginal cultural materials within the project study should be promoted and included in the Aboriginal Heritage Management Plan that will be established prior to any works commencing on site; and

4) A cultural awareness program should be included as part of the site induction program and developed with the registered Aboriginal stakeholders and form part of the Aboriginal Heritage Management Plan.

5) As the area along the base of the dune, or the interface of the dune and the interbarrier depression, will no longer be excavated, but filled that portion of the PAD will be protected/conserve through the fill works;

6) If, at any time, any works will impact any portion of the interface of the dune and the interbarrier depression (up to 20 metres in width form the base of the dune) along the entire length of the project area, further archaeological investigations (test excavations) will be required prior to works commencing at that location.

7) If 38-5-0248 will be harmed by any future development an AHIP for community collection will be required prior to any works commencing at that location;

8) If GG/01 will be impacted upon by the development, an AHIP for salvage excavation along the length and width (3 metres in width) will be required prior to works commencing at that location;

9) if the project area at any time extends beyond the test excavation area of the dune, further investigation will be required prior to works commencing at that location, and

10) Due to the nature of Worimi burial locations throughout the area, monitoring of all works throughout the dune will be required.

GLOSSARY

Aboriginal Cultural Heritage Values: traditional values of Aboriginal people, handed down in spiritual beliefs, stories and community practices and may include local plant and animal species, places that are important and ways of showing respect for other people.

Aboriginal Place: are locations that have been recognised by the Minister for Climate Change and the Environment (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.

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.

Axe: a stone-headed axe usually having two ground surfaces that meet at a bevel.

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.

Blade: a flake that is at least twice as long as it is wide.

Bondi point: a small asymmetrical backed artefact with a point at one end and backing retouch.

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 as debitage).

Formation processes: human caused (land uses etc) or natural processes (geological, animal, plant growth etc) by which an archaeological site is modified during or after occupation and abandonment. These processes have a large effect on the provenience of artefacts or features.

Grinding stone: an abrasive stone used to abrade another artefact or to process food.

Hammer stone: a stone that has been used to strike a core to remove a flake, often causing pitting or other wear on the stone's surface.

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

Holocene: the post-glacial period, beginning about 10,000 B.P.

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

Pleistocene: the latest major geological epoch, colloquially known as the "Ice Age" due to the multiple expansion and retreat of glaciers. Ca. 3.000, 000-10,000 years B.P.

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

Stratified Archaeological Deposits: Aboriginal archaeological objects may be observed in soil deposits and within rock shelters or caves. Where layers can be detected within the soil or sediments, which are attributable to separate depositional events in the past, the deposit is said to be stratified. The integrity of sediments and soils are usually affected by 200 years of European settlement and activities such as land clearing, cultivation and construction of industrial, commercial and residential developments.

Taphonomy: the study of processes which have affected organic materials such as bone after death; it also involves the microscopic analysis of tooth-marks or cut marks to assess the effects of butchery or scavenging activities.

Traditional Aboriginal Owners: Aboriginal people who are listed in the Register of Aboriginal owners pursuant to Division 3 of the *Aboriginal Land Register Act (1983)*. The Registrar must give priority to registering Aboriginal people for lands listed in Schedule 14 of the *National Parks and Wildlife Act 1974* or land subject to a claim under 36A of the *Aboriginal Land Rights Act 1983*.

Traditional Knowledge: Information about the roles, responsibilities and practices set out in the cultural beliefs of the Aboriginal community. Only certain individuals have traditional knowledge and different aspects of traditional knowledge may be known by different people, e.g. information about men's initiation sites and practices, women's sites, special pathways, proper responsibilities of people fishing or gathering food for the community, ways of sharing and looking after others, etc.

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

Use wear: the wear displayed on an artefact as a result of use.

ACRONYMS

ACHMP	Aboriginal Cultural Heritage Management Plan
AHIMS	Aboriginal Heritage Information Management System. Data base of recorded sites across NSW managed by OEH

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. Used to define an area of the landscape that is believed to contain subsurface archaeological deposits.
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 dmps on behalf of GAD Projects Pty Ltd prepare an Aboriginal Heritage Impact Assessment for the proposed application for subdivision of land at Nos. 196 Old Main Road, No.s 263, 271, 273,269,293,321 Gan Gan Road and Nos. 4492 and 4500 Nelson Bay Road, Anna Bay NSW 2316 (+ Crown Road) ('the site'). Land adjoining the site is also under investigation.

The assessment has been undertaken to meet the Heritage NSW, Department of Premier & Cabinet Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (DECCW 2010), the Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW (OEH 2011), the DECCW Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales (DECCW 2010b) and the brief.

1.2 PROPONENT DETAILS

GAD Projects Pty Ltd

1.3 THE PROJECT AREA

The project area is defined by the proponent and includes 196 Old Main Road, No.s 263, 271, 273,269,293,321 Gan Gan Road and Nos. 4492 and 4500 Nelson Bay Road, Anna Bay (+ Crown Road) ('the site'). Land adjoining the site is also under investigation. Consisting of Lot 963 DP 731955, Lot 21 DP 590387, Lot 1 DP 536752 901, Lot 902 DP634550, Lot 1 DP 503876 and Lot 881 DP 524031, Lot 883 DP 737099, Lot 347 DP 753204, the site consists of a total land area of approximately 1,377,751m2 or 137.78 hectares (ha) and the location and extent of the project area is illustrated in Figures 1.1 to 1.3.

Figure 1.1 Regional location of the project area

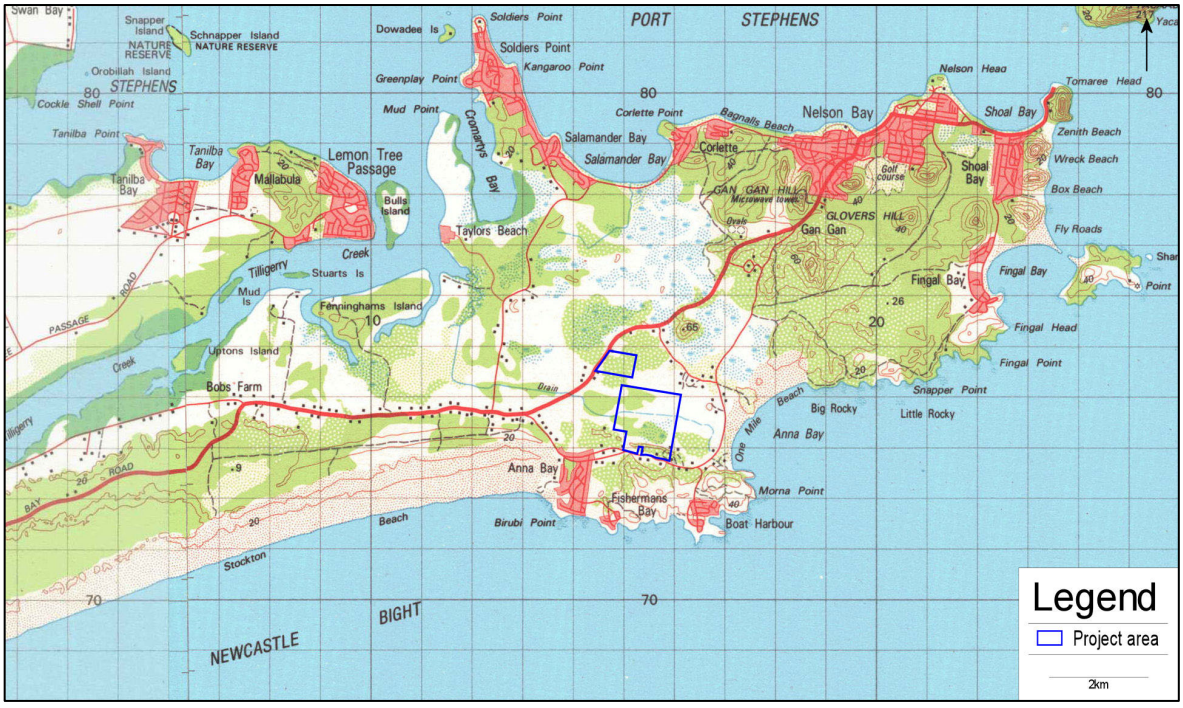


Figure 1.2 Local location of the project area

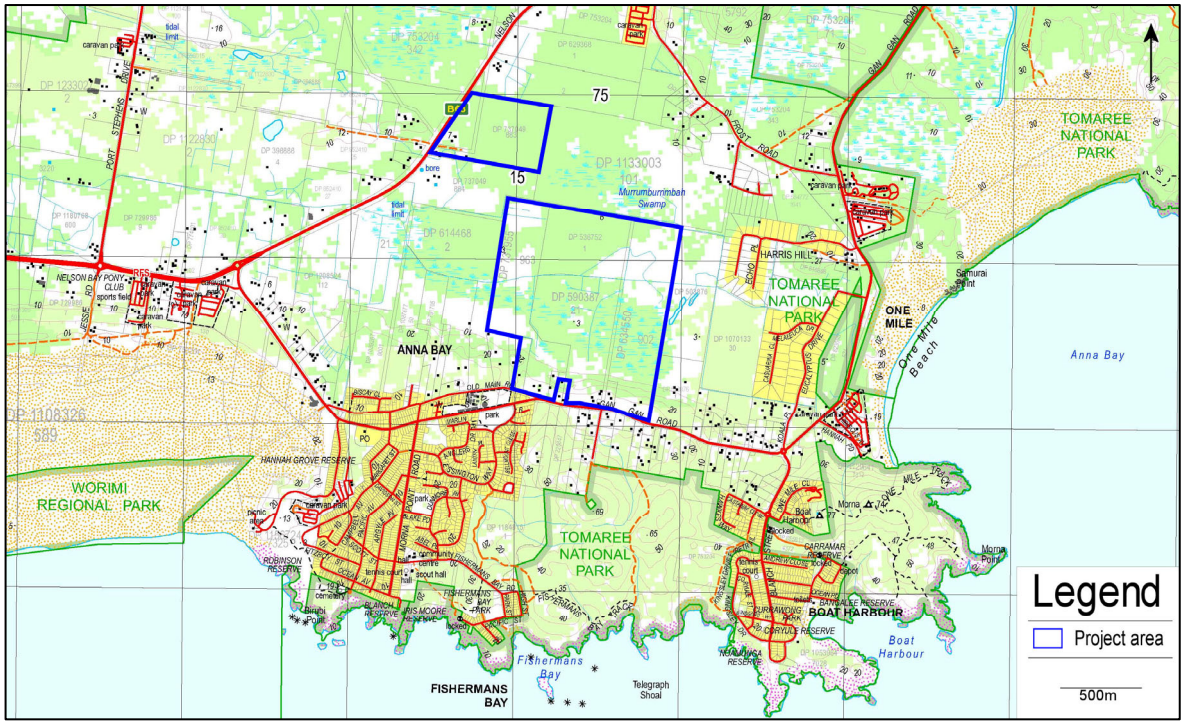


Figure 1.3 Aerial photograph of the project area (nearmap July 2021)

1.4 DESCRIPTION OF THE PROPOSED DEVELOPPMENT

The project is for rezoning and subdivision for residential land uses. As the project is in the rezoning stage, there is no development or impacts at this stage. The proponent confirms that every effort will be made with this development to avoid impacting on any Aboriginal objects. We note that detailed design plans have not been prepared at this early stage but where feasible and practical any future subdivision design will avoid disturbance of any cultural heritage on the site where feasible.

1.5 PURPOSE OF THE ARCAHEOLOGICAL ASSESSMENT

The purpose of the assessment is to assess any archaeological constraints to support the proposal and to provide opportunities and options to ensure any cultural materials present are protected in an appropriate manner

1.6 OBJECTIVE OF THE ASSESSMENT

The objective of the assessment is to identify areas of indigenous cultural heritage value, to determine possible impacts on any indigenous cultural heritage identified (including potential subsurface evidence) and to develop management recommendations where appropriate. The assessment employs a regional approach, taking into consideration both the landscape of the project area (landforms, water resources, soils, geology etc) and the regional archaeological patterning identified by past studies.

1.7 PROJECT BRIEF/SCOPE OF WORK

The following tasks were carried out:

- a review of relevant statutory registers and inventories for indigenous cultural heritage including the NSW Aboriginal Heritage Information Management System (AHIMS) for known archaeological sites, the State Heritage Register, the Australian Heritage Database (includes data from the World Heritage List UNESCO, National Heritage List, Commonwealth Heritage List, Register of the National Estate) and the Port Stephens Local Environmental Plan;
- a review of local environmental information (topographic, geological, soil, geomorphological and vegetation descriptions) to determine the likelihood of archaeological sites and specific site types, prior and existing land uses and site disturbance that may affect site integrity;
- a review of previous cultural heritage investigations to determine the extent of archaeological investigations in the area and any archaeological patterns;
- the development of a predictive archaeological statement based on the data searches and literature review;
- identification of human and natural impacts in relation to the known and any new archaeological sites archaeological potential of the project area;
- consultation with the Aboriginal stakeholders as per the Aboriginal Cultural Heritage Consultation Requirements for Proponents (2010);
- undertake a site inspection with the participation of the registered Aboriginal stakeholders, and

- the development of mitigation and conservation measures in consultation with the registered Aboriginal stakeholders.

1.8 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 affects 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 (2009)
- Environmental Planning and Assessment Act (1979)

1.8.1 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 OEH notified (DECCW 2010:13). The due diligence defence does not authorise continuing harm.

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

1.8.2 NATIONAL PARKS AND WILDLIFE REGULATION (2009)

The National Parks and Wildlife Regulation 2009 provides a framework for undertaking activities and exercising due diligence in respect to Aboriginal heritage. The Regulation (2009) recognises various due diligence codes of practice, including the Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW which is pertinent to this report, but it also outlines procedures for Aboriginal Heritage Impact Permit (AHIP) applications and Aboriginal Cultural Heritage Consultation Requirements (ACHCRs); amongst other regulatory processes.

1.8.3 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 by 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). This project falls under Part 4.

1.9 QUALIFICATIONS OF THE INVESTIGATOR

Penny McCardle: Principal Archaeologist & Forensic Anthropologist has 10 years experience in Indigenous archaeological assessments, excavation, research, reporting, analysis and consultation. Six years in skeletal identification, biological profiling and skeletal trauma identification.

- BA (Archaeology and Palaeoanthropology, 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

1.10 REPORT STRUCTURE

The report includes Section 1 which outlines the project, Section 2 provides the consultation, Section 3 presents the environmental context, Section 4 presents the cultural context, Section 5 the ethno historic context, Section 6 provides the archaeological background, Section 7 provides the results of the fieldwork, analysis and discussion; Section 8 presents the development impact assessment, Section 9 presents the mitigation strategies and Section 10 presents the management recommendations.

2 CONSULTATION

As per the Heritage NSW, Department of Premier & Cabinets' Aboriginal Cultural Heritage Consultation Requirements for Proponents (April 2010), MCH followed the four stages of consultation as set out below. All correspondences for each stage are provided in Appendix A.

In relation to cultural significance, MCH recognises and supports the indigenous system of knowledge. That is, that knowledge is not 'open' in the sense that everyone has access and an equal right to it. Knowledge is not always definitive (in the sense that there is only one right answer) and knowledge is often restricted. As access to this knowledge is power, it must be controlled by people with the appropriate qualifications (usually based on age seniority, but may be based on other factors). Thus, it is important to obtain information from the correct people: those that hold the appropriate knowledge of those sites and/or areas relevant to the project. It is noted that only the Aboriginal community can identify and determine the accepted knowledge holder(s) may be not archaeologists or proponents. If knowledge is shared, that information must be used correctly and per the wishes of the knowledge holder.

Whilst an archaeologist may view this information as data, a custodian may view this information as highly sensitive, secret/sacred information and may place restrictions on its use. Thus, it is important for MCH to engage in affective and long-term consultation to ensure knowledge is shared and managed in a suitable manner that will allow for the appropriate management of that site/area. MCH also know that archaeologists do not have the capability nor the right to adjudicate on the spirituality of a particular location or site as this is the exclusive right of the traditional owners who have the cultural and hereditary association with the land of their own ancestors. For these reasons, consultation forms an integral component of all projects and this information is sought form the registered stakeholders to be included in the report in the appropriate manner that is stipulated by those with the information.

2.1 STAGE 1: NOTIFICATION & REGISTRATION OF INTEREST

The aim of this stage is to identify, notify and register Aboriginal people and/or groups who hold cultural knowledge that is relevant to the project area, and who can determine the cultural significance of any Aboriginal objects and/or places within the proposed project area. In order to do this, the sources identified by Heritage NSW, Department of Premier & Cabinet (OEH 2010:10) and listed in Table 2.1, to provide the names of people who may hold cultural knowledge that is relevant to determining the significance of Aboriginal objects and/or places were contacted by letter on 9th August 2021 and it was stipulated that if no response was received, the project and consultation will proceed. Information included in the correspondence to the sources listed in Table 2.1 included the name and contact details of the proponent, an overview of the proposed project including the location and a map showing the location.

Table 2.1 Sources contacted

Organisations contacted	Response
Heritage NSW	27 groups
Worimi LALC	no response
Port Stephens Council	no response
Registrar Aboriginal Land Rights Act 1983	no response
National Native Title Tribunal	no claims
Native Title Services Corporation Limited	no response
Hunter Local Land Services	no response

Following this, MCH compiled a list of people/groups to contact (Refer to Appendix A). As per the Aboriginal cultural heritage consultation requirements for proponents (April 2010), archaeologists and proponents must write to all those groups provided asking if they would like to register their interest in the project. Unfortunately, some Government departments written to requesting a list of groups to consult with do not differentiate groups from different traditional boundaries and provide an exhaustive list of groups from across the region including those outside their traditional boundaries.

MCH wrote to all parties identified by the various departments on 24th August 2021, and an advertisement was placed in the Port Stephens Examiner on 26th August 2021. The correspondence and advertisement included the required information as per the Aboriginal Cultural Heritage Consultation Requirements for Proponents (April 2010) and requested to nominate the preferred option for the presentation of information about the proposed project: an information packet or a meeting and information packet (Refer to Stage 2). The Registered Aboriginal Parties (RAPs) are listed in Table 2.2.

Table 2.2 Registered Aboriginal Parties

RAP	Contact
Nur-Run-Gee Pty Ltd	Lennie Anderson
Mur-Roo-Ma Inc.	Anthony Anderson
WLALC	Jamie Merick
Didge Ngunawal Clan	Paul Boyd & Lilly Carroll
Widescope	Steven Hickey

2.2 STAGE 2: PRESENTATION OF INFORMATION

The aim of this stage is to provide the RAPs with information regarding the scope of the proposed project and the cultural heritage assessment process.

As the RAPs did not provide their preferred method of receiving information, an information packet was sent to all RAPs and included the required information as per the Aboriginal Cultural Heritage Consultation Requirements for Proponents (April 2010). The pack included the required information

as per the Aboriginal Cultural Heritage Consultation Requirements for Proponents (April 2010) and a written response to the proposed methods was due no later than 11th October 2021.

The information pack also stipulated that consultation was not employment, and requested that in order to assist the proponent in the engagement of field workers, that the groups provide information that will assist in the selection of field staff who may be paid on a contractual basis). This included, but was not limited to, experience in field work and in providing cultural heritage advice (asked to nominate at least two individuals who will be available and fit for work) and their relevant experience; and to provide a CV and insurance details.

The information pack also noted that failure to provide the required information by the date provided will result in a missed opportunity for the RAPs to contribute to their cultural heritage and the project will proceed.

2.3 STAGE 3: GATHERING INFORMATION ABOUT CULTURAL SIGNIFICANCE

The aim of this stage is to facilitate a process whereby the RAPs can contribute to culturally appropriate information gathering and the research methodology, provide information that will enable the cultural significance of any Aboriginal objects and or/places within the proposed project area to be determined and have input into the development of any cultural heritage management options and mitigation measures. In order to do his, included in the information pack sent for Stage 2, was information pertaining to the gathering of cultural knowledge. This included the following information;

- MCH noted that information provided by RAPs may be sensitive and MCH and the proponent will not share that information with all RAPs or others without the express permission of the individual. MCH and the proponent extended an invitation to develop and implement appropriate protocols for sourcing and holding cultural information including any restrictions to place on information, as well as the preferred method of providing information;
- request for traditional/cultural knowledge or information associated with ceremonial, spiritual, mythological beliefs, traditions and known sites from the pre-contact period;
- request for traditional/cultural knowledge or information regarding sites or places with historical associations and/or cultural significance which date from the post-contact period and that are remembered by people today (e.g. plant and animal resource use areas, known camp sites); and
- request for traditional/cultural knowledge or information in relation to any sites or places of contemporary cultural significance (apart from the above) which has acquired significance recently.

During this process, WLALC, Mur-Roo-Ma Inc. and Nur-Run-Gee Pty Ltd expressed to MCH the significance of the area to Worimi people and that they had undertaken a due diligence assessment of the project area previoulsy and identified one possible site and re-examined site 38-5-0248. This iste consisted of high denisty stone artefacts and shell midden materials on the dune overlooking the interbarrier depresison.

2.4 SURVEY

All RAPs were invited to participate in the survey on 28th October 2021. The survey areas were surveyed by representatives from the RAPs (Brendan Lilly – WLALC; Luke Knight – Mur-roo-ma;

Rachael Davis – Nur-run-gee) and the archaeologist in accordance with the proposed methodology provided to the stakeholders for review and approved.

During the survey, the RAPs were also asked of their traditional knowledge and of any areas of cultural significance within the project area and if they felt comfortable in sharing that information. Discussions centred on places associated with the dune ridge line and its significance being located along the interbarrier depression and being such a large ridge line was highly significant.

2.5 STAGE 4: REVIEW OF DRAFT CULTURAL HERITAGE ASSESSMENT

Copies of the DRAFT report were forwarded to all RAPs for their review and were asked to provide a written or verbal response no later than 3rd January 2022.

Mur-roo-ma, Nur-run Gee and WLALC all stated the project area is highly significant due to its location, known site and very high potential for more evidence to be present. There is a strong cultural connection to the land and the area, especially the swamp areas and the dune overlooking it. The RAPs agreed to the assessment and recommendations and suggested some test excavation along a drain in the interbarrier depression which will be considered during the next stage of the assessment (test excavation).

2.6 TEST EXCAVATION

All RAPs were invited to participate in the test excavation commencing on 14th June 2022. The test excavation was undertaken by representatives from the RAPs (Bec Young and Caitlan Moran – Mur-roo-ma; Ben Feeney - WLALC; and Dylan Russell – Nur-run-gee) and the archaeologist in accordance with the proposed methodology as per the AHIP.

During the survey, the RAPs were also asked of their traditional knowledge and of any areas of cultural significance within the project area and if they felt comfortable in sharing that information. Discussions centred on places associated with the dune ridge line and its significance being located along the interbarrier depression and being such a large ridge line was highly significant.

2.7 STAGE 4: REVIEW OF DRAFT CULTURAL HERITAGE ASSESSMENT

Copies of the DRAFT report were forwarded to all RAPs for their review and were asked to provide a written or verbal response no later 1st August 2022.

Mur-roo-ma, supported the recommendations and requested walk overs during construction works. All RAPs were provided a copy of the final report. All documentation regarding the consultation process is provided in Appendix A.

3 LANDSCAPE AND ENVIROMNEMATL CONTEXT

3.1 INTRODUCTION

Documenting and understanding the context of archaeological sites in relation to surrounding terrain features is essential to landscape archaeological studies worldwide (De Reu et al., 2013; De Reu et al., 2011; Turrero et al., 2013) and the nature and distribution of Aboriginal cultural materials in a landscape are strongly influenced by environmental factors such as topography, geology, landforms, climate, geomorphology, hydrology and the associated soils and vegetation (Hughes and Sullivan 1984). These factors influence the availability of plants, animals, water, raw materials, the location of suitable camping places, ceremonial grounds, burials, and suitable surfaces for the application of rock art. As site locations may differ between landforms due to differing environmental constraints that result in the physical manifestation of different spatial distributions and forms of archaeological evidence, these environmental factors are used in constructing predictive models of Aboriginal site locations.

Environmental factors also effect the degree to which cultural materials have survived in the face of both natural and human influences and affect the likelihood of sites being detected during ground surface survey. Site detection is dependent on a number of environmental factors including surface visibility (which is determined by the nature and extent of ground cover including grass and leaf litter etc) and the survival of the original land surface and associated cultural materials (by flood alluvium, erosion etc). It is also dependant on the exposure of the original landscape and associated cultural materials by human impacts (e.g. Aboriginal fire stick farming, clearing, logging, agricultural activities, construction works, mining etc), (Hughes and Sullivan 1984). Combined, these processes and activities are used in determining the likelihood of both surface and subsurface cultural materials surviving and being detected.

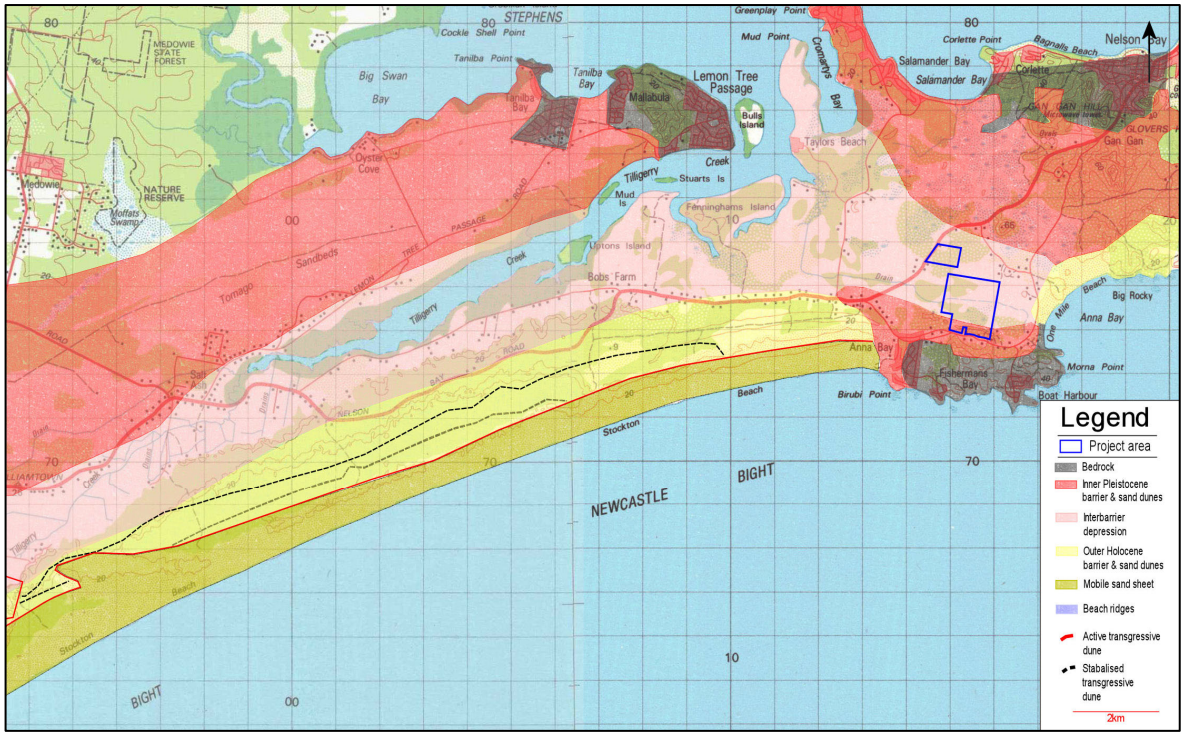
It is therefore necessary to understand the environmental factors, processes and activities, all of which affect site location, preservation and detection during surface survey and the likelihood of in situ subsurface cultural materials being present. The environmental factors, processes and disturbances of the surrounding environment and specific project area are discussed below.

3.2 TOPOGRAPHY

The topographical context is important to identify potential factors relating to past Aboriginal land use patterns. Story et al (1963) divided the Hunter Valley into eight main sub-regions including the Southern Mountains, Central Goulburn Valley, Merriwa Plateau, Liverpool and Mt Royal Ranges, Barrington tops, North-Eastern Mountains, Central lowlands and the Coastal Zone.

The study area is situated in Coastal Zone that consists of a variety of landforms including inner and outer Holocene dunes, the low lying, swampy interbarrier depression and Pleistocene dunes. The dunal systems overlooking the interbarrier depression and the beach dunes are considered to be suitable for past Aboriginal occupation as they include elevated dunes overlooking the interbarrier depression which would have provided an abundance of resources as would have the beach areas (Refer to Section 3.4 for more detail). The northern portion of the project area is located within the interbarrier depression (previous swamp) whilst the southern portion of the project area is located on both the interbarrier depression and the Inner Pleistocene barrier and sand ridgeline overlooking the interbarrier depression (Refer to Figure 3.1).

Figure 3.1 Landforms of the project area



3.3 GEOLOGY

The geology of a region is not only reflected in the environment (landforms, topography, geomorphology, vegetation, climate etc), it also influences past occupation and its manifestation in the archaeological record. The nature of the surrounding and local geology along with the availability and distribution of stone materials has a number of implications for Aboriginal land use and archaeological implications. The implications for past Aboriginal land use mainly relate to location of stone resources or raw materials and their procurement for manufacturing and modification for stone tools. Evidence of stone extraction, and manufacture, can be predicted to be concentrated in the areas of stone availability. However, stone can be transported for manufacture and/or trading across the region.

The project area is situated on Quantary gravel, sand, silt, clay, 'Waterloo Rock', marine and freshwater deposits (Newcastle Geological Map 1966). Materials most dominant in stone tool manufacture throughout the region is tuff that is sourced locally at Birubi Point and other materials such as silcrete, mudstone, and others derive from outside the project rea and when present, were transported/traded into the area.

3.4 GEOMORPHOLOGY

Geomorphology is the study of landscapes, their evolution and the processes operating within earth systems. Cultural remains are part of these systems, having being deposited on, and in part, resulting from interactions within landscapes of the past. An understanding of geomorphological patterning and alterations is therefore essential in assess and interpreting the archaeological record.

The Investigation Area is part of the Newcastle Bight sand barrier system, which is bounded in the east and south by the Hunter River and to the north by the bedrock hill slopes at Raymond Terrace

(Thom et al. 1992, Matthei 1995). The system incorporates both inner (Pleistocene: c.1.8 million to 10,000 years ago) and outer (Holocene: 10,000 years ago, to today) coastal barriers as well as the inter barrier system. Sediments include marine, estuarine Aeolian and paludal deposits. In addition to the beach ridges behind Stockton Bight there are three sets of transgressive dunes, two of which (landward) have been stabilised by natural vegetation, and the third (coastward) remains transgressive (Robson et al. 1993: 7). Between the inner and the outer barrier is a large inter-barrier depression that is followed by Tilligerry Creek and was originally an extensive lagoon. It is now filled with either estuarine or fresh water swamp deposits, mud and clay (Robson et al 1993: 7). All of the barrier sands identified as the Tomago sand beds have been mined for heavy minerals in places and are also an important source of groundwater tapped by the Hunter Water Board.

Although there has been a long history of geomorphic study of the barrier systems in this region dating back to Thom (1965) and their evolution has been determined, it is important to note that in recent years the Pleistocene/Holocene coastal chronology has been substantially modified and therefore the conventional model of inner and outer barriers needs to be reconsidered. Recent research has concluded that the dominant source and driver of sand to supply the barrier systems along the NSW coast were the shorefore disequilibrium during Holocene sea-level transgression, with a convex shoreface sand body providing the necessary conditions for onshore-directed sand supply by wave processes (Kinsela et al. 2016).

Stockton Bight is a large exposed south-facing embayment that has acted as a major sediment trap, resulting in a larger than average barrier for the region. It is also, together with the Myall Lakes system, the highest energy and most dynamic system on the NSW coast (Short 2020). The conventional understanding of the geomorphic evolution of the coast in this region is that the inner Pleistocene barrier was deposited during the last Inter Glacial period of high sea level (approximately 120,000 years ago) and was later modified by wind erosion and the development of transgressive sand sheets and freshwater swamps on its western margin. The inner barrier blocked off several valleys to form extensive swamps including the former Grahamstown Swamp that is now beneath the artificial Grahamstown Lake. At the height of the Last Glacial (circa 18,000 years before present [BP]), the sea level rose rapidly sweeping shelf sand before it to form the parallel sets of beach ridges and sales of the outer Holocene barrier. It is usually accepted that sea level reached its present height about 6,000 years BP and that this date marks the beginning of Holocene sand accumulation. The last 3,000 years have seen diminished geomorphic activity, with the most dramatic events being surges of aeolian action behind open-coast beaches. This phenomenon is thought to have initiated the transgressive behaviour noted in dunes along the eastern seaboard dated to around 800 to 250 years ago. More recently the severe storms of 1974 “cracked” the Newcastle Bight foredune, destabilising the landward side and initiating a blowout formation (GBAC 2010).

Young et al. (1993) seriously questioned the conventional model of coastal barrier development and suggested an alternate interpretation with four important elements:

1. That the sea level was at its present height by 7,000 years BP and that it rose another two metres until about 1,500 years BP;
2. Holocene transgressive dune activity varies from place to place and was a consequence of climate variation rather than sea level change;
3. That there was a fall of 2^{o}C in sea surface temperature after 3,000 years BP and this coincided with the onset of the present phase of barrier erosion; and
4. That there is evidence of the effects of at least three tsunamis on the NSW south coast in the last 3,000 years.

In later work, several of the same authors (Bryant et al., 1997; Haworth et al., 2002) confirmed that barrier formation on the NSW coast extended over 250,000 years with several phases of development and destruction. They also found evidence of remnants of the 'inner barrier' on the south coast with a peak phase of development at about 125,000 years BP when sea level was slightly higher than present. Their suggested explanation of the general absence of the inner barrier on the south coast is that such deposits were destroyed by tsunami, particularly one that occurred between 100,000-110,000 years BP. Murray-Wallace (2002) provided additional support for a prolonged history of barrier development in reporting sea levels for the New South Wales coast at Oxygen isotope Stage 5 (last interglacial, 125,000 years BP) as being consistently about four metres above present sea level. This is within the range of sea levels reported in many other parts of Australia for the last eleven inter-glacials. In applying these points to the Newcastle Barriers and to this site it should be noted that:

- The landward parts of the inner barrier may be substantially older than previously appreciated'
- That a mid-Holocene higher sea level could have an important influence on erosion and deposition of the outer barrier and on sediments and features in the Hunter estuary;
- That the ages of transgressive dune sheets need not be coincident from place to place; and
- That evidence of tsunami may also occur on the north coast.

The difference between the degree of soil development on inner and outer barrier sands can be attributed to the difference in age and the period of profile leaching. Periods of active dune movement may either re-work and effectively destroy archaeological sites or bury older land surfaces and potentially present sites. Although there is a good potential for in-situ sites in stable dune areas (both in Holocene and Pleistocene dunes), a range of other preservation factors including wind and water erosion, groundwater fluctuation and European disturbance may have influenced local site patterning.

The northern portion of the project area is located within the interbarrier depression (previous swamp) whilst the southern portion of the project area is located on both the interbarrier depression and the Inner Pleistocene barrier and sand dunes overlooking the interbarrier depression. Whilst the interbarrier depression was a resource rich environment, it was the dunes overlooking the interbarrier depression and the interface of the dunes and interbarrier depression that were favoured by past Aboriginal people.

3.5 SOILS

The nature of the surrounding soil landscape also has implications for Aboriginal land use and site preservation, mainly relating to supporting vegetation and the preservation of organic materials and burials. The deposit of alluvial and aeolian sediments and colluvium movement of fine sediments (including artefacts) results in the movement and burying of archaeological materials. The increased movement in soils by this erosion is likely to impact upon cultural materials through the post-depositional movement of materials, specifically small portable materials such as stone tools, contained within the soil profiles. The project area is situated on a range of soil landscapes that are summarised in Table 3.1 and derive from Murphy 1995 and illustrated in Figure 3.2.

Figure 3.2 Soil landscapes of the project area (Murphy 1995)

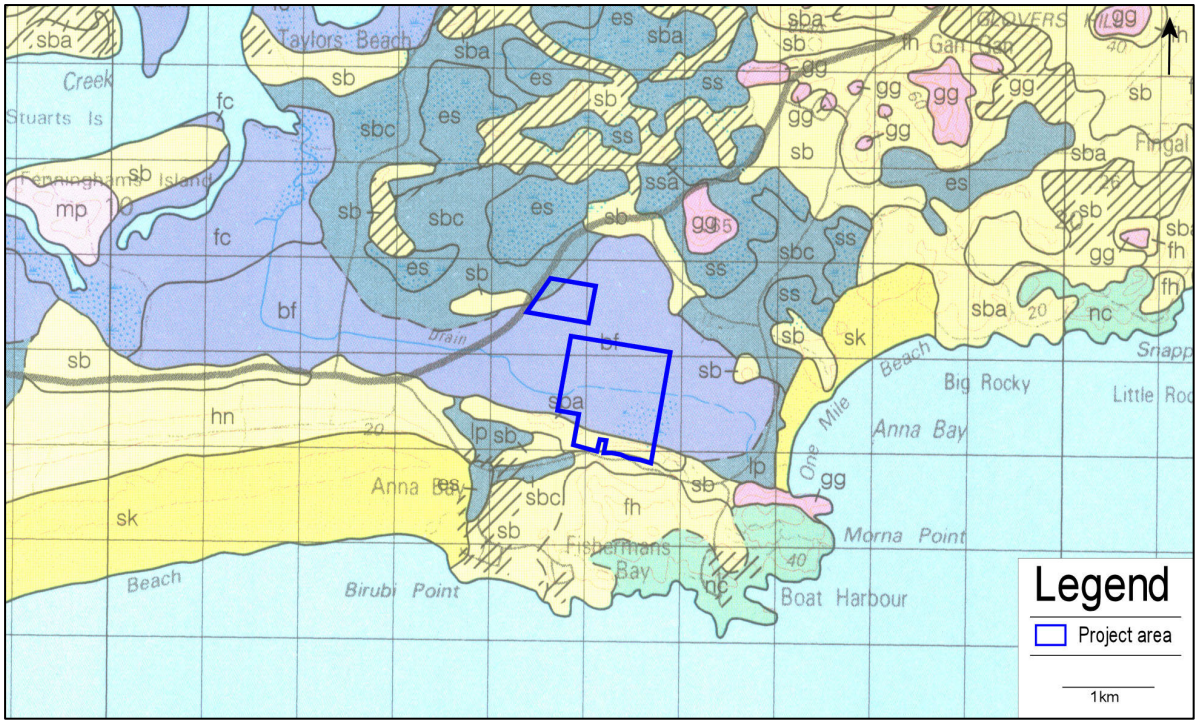


Table 3.1 Soil landscapes of the project area

Soil Landscape			Description
sbc	Shoal Bay variant	Swamp	Poorly drained Pleistocene sand sheets. Water tables are often close to the surface and small isolated permanent wet areas occur.
sb	Shoal Bay	Aeolian	Located on the well-drained Pleistocene sandy sheets and low dunes, the A1 Horizon (10-40cm) includes brownish grey loose sand that ranges from brownish black to brownish grey in colour with a speckled appearance, includes few grave sized charcoal fragments. The A2 Horizon includes bleached light grey loose sand (60-260cm) and the B Horizon includes coherent organic and iron-stained sand that is a combination of black to brownish black to a dull yellow orange colour. Boundaries are sharp.
bf	Bobs Farm	Estuarine	Situated on broad, flat, swampy, Holocene estuarine plains. A horizon of black organic loam up to 30cm that overlays the B horizon of grey plastic estuarine clay that is 20-80cm deep. This occasionally overlies >50 centimetres of saturated greyish yellow brown massive sandy clay loam. The boundaries between soils are sharp and total soil depth exceeds 300 centimetres.

3.6 CLIMATE

Climatic conditions would also have played a part in past occupation of an area as well as impacted upon the soils and vegetation and associated cultural materials. Rainfall throughout the area is summer-autumn dominated with minimum rainfall occurring during late winter and early spring. Average annual rainfall is highest along the coast (1,142mm) and decreases westwards (913mm). The maximum monthly rainfall occurs along the coast during March and the average minimum occurs in July and August. Average monthly maximum temperatures are highest in the west (190 in

December and January) and the average minimum range from 40C in July to 8.20C (Matthei 1995:5). During summer, the increased rainfall rate and reduced ground cover is reflected in a proportionately higher risk of erosion.

3.7 WATERWAYS

One of the major environmental factors influencing human behaviour is water as it is essential for survival and as such people will not travel far from reliable water sources. In those situations where people did travel far from reliable water, this indicates a different behaviour such as travelling to obtain rare or prized resources and/or trade. Proximity to water not only influences the number of sites likely to be found but also artefact densities. The highest number of sites and the highest density are usually found in close proximity to water and usually on an elevated landform. This assertion is undisputedly supported by the regional archaeological investigations carried out in the region where by such patterns are typically within 50 metres of a reliable water source.

The main types of water sources include permanent (rivers and soaks), semi-permanent (large streams, swamps and billabongs), ephemeral (small stream and creeks) and underground (artesian). Stream order assessment is one way of determining the reliability of streams as a water source. Stream order is determined by applying the Strahler method to 1:25 000 topographic maps. Based on the climatic analysis (see Section 2.5), the project area will typically experience comparatively reliable rainfalls under normal conditions and thus it is assumed that any streams above a third order classification will constitute a relatively permanent water source.

The Strahler method dictates that upper tributaries do not exhibit flow permanence and are defined as first order streams. When two first order streams meet, they form a second order stream. Where two-second order streams converge, a third order stream is formed and so on. When a stream of lower order joins a stream of higher order, the downstream section of the stream will retain the order of the higher order upstream section (Anon 2003; Wheeling Jesuit University 2002).

When assessing the relationship between sites and water sources it must be noted that the Australian continent has undergone significant environmental changes during the past 60,000 years that people have lived here and that Pleistocene sites (older than 10,000 years) would have been located in relation to Pleistocene water sources that may not exist today. Stone tool type will assist with the age of sites (Pleistocene or Holocene).

The project area includes the resource rich inter-barrier depression (previous lagoon) an environment that was very well resourced in terms of fresh water and associated resources. The interbarrier depression was clearly favoured for hunting and gathering with an abundance of evidence of past Aboriginal land uses found along the dunes overlooking the interbarrier depression and at its interface.

3.8 FLORA AND FAUNA

The availability of flora and associated water sources affect fauna resources, all of which are primary factors influencing patterns of past Aboriginal land use and occupation. The assessment of flora has two factors that assist in an assessment including a guide to the range of plant resources used for food and medicine and to manufacture objects including nets, string bags, shields and canoes which would have been available to Indigenous people in the past. The second is what it may imply about current and past land uses and to affect survey conditions such as visibility, access and disturbances. The drainage throughout the project area would have supported a wide range of faunal populations including kangaroo, wallaby, goanna, snakes and a variety of birds and swamp species as well as medicinal resources.

3.9 LAND USES AND DISTURBANCES

Based upon archaeological evidence, the occupation of Australia extends back some 40,000 years (Mulvaney and Kamminga 1999) whilst Aboriginal people have been present within the Hunter Valley for at least 20,000 years (Koettig 1987). Although the impact of past Aboriginal occupation on the natural landscape is thought to have been relatively minimal, it cannot simply be assumed that 20,000 years of land use have passed without affecting various environmental variables. The practice of 'firestick farming' whereby the cautious setting of fires served to drive game from cover, provide protection and alter vegetation communities significantly influenced seed germination, thus increasing diversity within the floral community.

Following European settlement of the area in the 1820s, the landscape has been subjected to a range of different modifactory activities including extensive logging and clearing, agricultural cultivation (ploughing), pastoral grazing, residential developments and mining (Turner 1985). 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 previous large scale clearing activities as well as agricultural and pastoral activities, with some residential developments along with the associated infrastructure and utilities.

In terms of these land uses and impacts on the landscape and cultural materials that may be present, early vegetation clearing included the uprooting of trees by chaining will disturbed or destroy that may be present near or underneath trees and vegetation. Farming and agricultural activities also disturbed the landscape. Although pastoralism is a comparatively low impact activity, it does result in disturbances due to vegetation clearance and the trampling and compaction of grazed areas. These factors 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. As a sub-set of agricultural land use, ploughing typically disturbs the top 10-12 centimetres of topsoil (Koettig 1986) depending on the method and machinery used during the process. Ploughing increases the occurrence of erosion and can also result in the direct horizontal and vertical movement of artefacts, thus causing artificial changes in artefact densities and distributions. In fact, studies undertaken on artefact movement due to ploughing (e.g. Roper 1976; Odell and Cowan 1987) has shown that artefact move between one centimetre up to 18 metres laterally depending on the equipment used and horizontal movement. Ploughing may also interfere with other features and disrupt soil stratigraphy (Lewarch and O'Brien 1981). Ploughing activities are typically evidenced through 'ridges and furrows' however a lengthy cessation in ploughing activities dictates that these features may no longer be apparent on the surface.

Excavation works required for developments, including but not limited to business, residential, industrial, aviation 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 or 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). In terms of everyday land uses, the impacts of vehicular movements on sites have been well documented and based on several experiments (DeBloois, Green and Wylie 1974, Gallagher 1978), it has been shown that vehicle movements over an archaeological site is extremely destructive to the site through compaction and movement thus altering the spatial relationship and location of the artefacts. based on general observations it is expected that the creation of dirt tracks for vehicle access would result in the loss of vegetation and therefore will enhance erosion and the associated

relocation of cultural materials. Dumping of rubbish would have impacted on site through vehicular access (tracks) and movement of surface artefacts through the actual 'dumping' of rubbish.

3.10 NATURAL DISTURBANCES

It must be recognised that the disturbance of cultural materials can also be a result of 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 sediment accumulation is generally very high, artefacts deposited in such an environment will be buried shortly after being abandoned. Frequent and lengthy depositional events will also increase the likelihood of the presence of well-stratified cultural deposits (Waters 2000:538,540).

In a stable landscape with few episodes of deposition and minimal to moderate erosion, soils will form and cultural materials will remain on the surface until they are buried. Repeated and extended periods of stability will result in the compression of the archaeological record with multiple occupational episodes being located on one surface prior to burial (Waters 2000:538-539). Within the duplex soils artefacts typically stay within the A horizon on the interface between the A and B horizons.

If erosion occurs after cultural material is deposited, it will disturb or destroy sections 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 (Waters 2000:539; Waters and Kuehn 1996:484). Regional erosional events may entirely remove older sediments, soils and cultural deposits so that archaeological material or deposits of a certain time interval no longer exist within a region (Waters and Kuehn 1996:484-485).

The role of bioturbation is another significant factor in the formation of the archaeological record. Post-depositional processes can disturb and destroy artefacts and sites as well as preserve cultural materials. Redistribution and mixing of cultural deposits occur 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. Translocation can also occur as a result of tree falls (Balek 2002:41-42; Peacock and Fant 2002:92). Depth of artefact burial and movement as a result of bioturbation corresponds to the limit of major biologic activity (Balek 2002:43). Artefacts may also be moved as a result of an oscillating water table causing alternate drying and wetting of sediments, and by percolating rainwater (Villa 1982:279).

Experiments to assess the degree that bioturbation can affect material have been undertaken. In abandoned cultivated fields in South Carolina, Michie (summarised in Balek 2002:42-43) found that over a 100-year period 35% of shell fragments that had been previously used to fertilise the fields were found between 15 and 60 centimetres below the surface, inferred to be as a result of bioturbation and gravity. Earthworms have been known to completely destroy stratification within 450 years (Balek 2002:48). At sites in Africa, conjoined artefacts have been found over a metre apart within the soil profile. The vertical distribution of artefacts from reconstructed cores did not follow the order in which they were struck off (Cahen and Moeyersons 1977:813). These kinds of variations in the depths of conjoined artefacts can occur without any other visible trace of disturbance (Villa 1982:287).

However, bioturbation does not always destroy the stratigraphy of cultural deposits. In upland sites in America, temporally-distinct cultural horizons were found to move downwards through the soil as a layer within minimal mixing of artefacts (Balek 2002:48).

3.11 DISCUSSION

The regional environment provided resources, including raw materials, fauna, flora and water, that would have allowed for sustainable occupation of the area. Within the investigation area, the landforms of the dunal systems overlooking the interbarrier depression have proven to be favoured for past Aboriginal land use with an abundance of sites and a variety of site types throughout these landforms, both on the surface and subsurface.

In relation to modern alterations to the landscape, in locations where agricultural activities have occurred, minimal to moderate impact to cultural materials would have occurred whilst in locations where construction works have occurred, significantly high impacts to the archaeological record can be expected. On the other hand, in locations where reduced past land uses have occurred, minimal to no impacts to the archaeological record may be expected. In terms of subsurface cultural materials, these are present throughout the area and would only have been impacted through excavation works. Because of the natural and cultural processes discussed above, site integrity cannot be assumed for the project area. However, the existence of in situ cultural materials cannot be ruled out.

4 CULTURAL CONTEXT

4.1 TRADITIONAL KNOWLEDGE

Unfortunately, due to European settlement and associated destruction of past Aboriginal communities, their culture, social structure, activities and beliefs, little information with regards to the early traditional way of life of past Aboriginal societies remains. The following section is provided with permission of the RAPs and based on consultation, discussions of their knowledge, culture and the material trace it leaves to ensure a greater understanding of Worimi culture.

This Section examines and discusses the interdependent relationships of First Australians and their ancestral lands, their connection to Country and the custodian's responsibility of ensuring Country is cared for and sustained by the environment. The inter-relationship between traditional oral histories, traditional knowledge, ethnographic research and archaeological investigations will become evident. Local knowledge has been used to great benefit by archaeologists in explaining archaeological patterning, constructing cultural histories and identifying broad cultural trends and patterns. However, what has been poorly articulated is the interface of such understandings with the local or traditional knowledge of Aboriginal people.

Indigenous traditional knowledge has been described defined as the collective body of knowledge, experience, epistemology, ontology, traditions and values held by societies that explain, record and perpetuate their relationship with the world and all it contains, intersecting the past, present and future (Aikenhead and Ogawa 2007; Bannister and Solomon 2009; Bruchac 2014).

Traditional knowledge is conveyed both formally and informally among kin groups and communities through social gatherings, oral traditions, ritual ceremonies and other activities. Knowledge includes oral narratives that recount human histories, cosmological observations and modes of reckoning time, symbolic and decorative modes of communication, ceremonial activities, trade routes, meeting places, mand and women's places, storey lines, seasonal plants and animals (for clothing, baskets, canoes, shields, food), water and medicinal resources and their locations throughout the landscape and raw material sources for the manufacturing of stone implements amongst many other activities. This system or body of knowledge is based on individual and collectively learned experiences and conveyed and preserved through oral tradition and other forms of record keeping (such as art). What is not typically discussed, and is indeed difficult to describe, is the interdependent relationship of Aboriginal people and their ancestral lands. This connection to Country and the custodian's responsibility of ensuring Country is cared for and sustained by the environment is respected and the culture and the spirit of the land supported in the past present and future is part of being.

In contrast, Western knowledge is text based with tangible evidence based on categorisations. However, both forms of knowledge are constantly verified through repetition and verification, inference and prediction, observations and recognition of patters. Both forms of knowledge can complement each other and both provide valuable information about past Aboriginal people. Whilst traditional knowledge provides an important means of compiling and protecting local knowledge and community interests, in order to meet western legislative reporting requirements, this information is summarised into inventory-based research which reduces such knowledge to symbols on a map, which is problematic as local knowledge is not so arbitrarily or randomly/subjectively bound (Cruikshank 1998).

Traditional knowledge provides an opportunity to evaluate both ethnographic sources and archaeologically derived evidence, and vice versa, while also generating new questions that can inform our understanding of past Aboriginal lifeways as well as contemporary heritage concerns.

4.2 WORIMI COUNTRY

The following was provided to MCH by Worimi people and may not be reproduced without permission from the Worimi RAPs.

For the Aboriginal people, The Dreaming is an incredibly integral part of their lives that has heavy influenced and dictated on both the physical and spiritual aspects of their lives. Whilst similar to other religions, mythology and cultures around the world, The Dreaming has been maintained for thousands of years, being passed down from generation to generation to this day however for the Aboriginal people of Australia it is not a religion but a way of living.

A complex network of knowledge, The Dreaming dictated the way in which society was structured and how one was to behave in social situations. It also informed the Aboriginal people as to what ceremonies and rituals were needed to be performed in order to maintain the life of the land.

For Aboriginal people, spirituality refers to a way of being and ways of knowing. It represents a sense of belonging in ties with the land, the ocean, the people and our culture (our lifestyle) both in the past, present and the future. It is an essential way of how we see and think about the world. Everyone and everything have a purpose; a shared relationship across the landscape, an understanding about a shared system of relationships, living and culture (Andrew Smith WLALC pers. Comm).

Although different tribes around Australia had their own tales and stories which depict 'The Dreaming' there were certain aspects and principles of this system of beliefs which were prominent despite different tribes and locations. The Dreaming describes of a time when the earth, Aboriginal people, the animals, and landscapes were created from ancestral spirits who came to earth and created these by movement throughout the land.

It is said that where these ancestral beings walked, the rivers, lakes and mountains were created. Even to this day, Aboriginal people have knowledge of where these Ancestral beings have walked and where they rested. These are known as Dreaming Tracks (song lines) and join many Countries and communities and continues to pass on knowledge to the younger generations.

One of the spiritual ancestors which is shared between many Aboriginal communities across Australia is known as The Rainbow Serpent, a large snake – like creature. With art over six thousand years old depicting tales of The Rainbow Serpent, it is a powerful symbol of both the creative and destructive power of nature, telling the story that it had created all life. However, if not properly respected, The Rainbow Serpent can also be an incredibly destructive force. The Rainbow Serpent's dreaming track is always associated with water such as billabongs, rivers, creeks, and lagoons. To this day it is said that after rain has fallen upon the earth, replenishing vegetation and rivers, The Rainbow Serpent's spirit can be seen as a rainbow across the skies.

Located on the eastern coast of New South Wales, The Worimi are the Original Custodians of the Port Stephens Area. Their connection to Mother (earth) spans further than Westernized conceptual boundaries however; predominantly lies in the areas today, known as the Hunter River to Forster, and inland to the Barrington Tops.

Like all Aboriginal people; the Worimi too had traditions and beliefs which governed their way of life. An ancestral being known as Bayami, created life and gave it meaning. Bayami placed all shapes and sizes of plants upon the land and upon special places he created, he also placed men and women upon them. Bayami created the first laws that governed the way Aboriginal people lived and these remained unchanged through over thousands of years (RAPs, please check this and re-write as I think we missed the Byami meaning).

After creating, it was said that Bayami stayed in order to make sure that all living things were living together in harmony and when he was satisfied, he stepped back into the sky from whence he came, where he now watches over his people and creations.

In correlation with their beliefs, the Worimi people lived a hunter and gatherer lifestyle which had significant importance in regards to how they treated the land itself during the seasons. In order to allow for nature to regrow and rebirth what was taken, the Worimi people never stayed in one place for too long, moving to other areas within their own nation to survive in correlation to the seasons.

The knowledge that the Worimi people have in relation to the land is unsurpassed and is continued to be handed down from generation to generation. Their adaptive usage of the environment and what was available to them is incredibly advanced and this can be seen in the archaeological sites that are still being discovered to this day.

Due to the Worimi people living a semi nomadic lifestyle, the shelters that were built were basic but should not be disregarded as unsophisticated. Dependant on the season, the Worimi people would build different structures. In the hotter months of the year, their shelters were made from bush whilst in the colder months, their huts were made from bark. In 1826 Robert Dawson, a superintendent of the Australian Agricultural Company described their shelters during the winter as;

> ' *A small hut supported by three forked sticks, about three feet long, brought together at the top in a triangular formation ; the two sides towards the wind are covered by long sheets of bark whilst the third was always open. In the winter, each family has its own fire.* '(worimiconservationlands.com).

Similar to the other tribes located across Australia, the Worimi people had their own cultural set of practices and beliefs which were never broken. An incredibly progressive example of one of these practices is that the Worimi women had their own sacred sites known as Increase Sites. These were located close to fresh water and would be a place where the women could give birth safely to their child, usually they were accompanied by an older woman who acted as a midwife and no men were ever allowed at these Increase Sites. This was a place that provided shelter and safety for the mother and child where they would also stay until they were healthy enough to re-join the tribe (worimiconservationlands.com).

For the males, an initiation ceremony was carried out on what is known as The Bora Grounds – it was here that boys would take a step towards being seen as a man of the tribe. The front tooth of a young boy was removed by one of the elders by placing hit bottom tooth against the upper tooth and, by giving a sudden jerk, snapping off the boy's tooth. During these ceremonies women were excluded much similarly to how men were not allowed at their Increase Sites.

For the Worimi people, their burials were timed with the receding of the tide, believing that the spirit of the deceased would be carried out to sea. These graves were marked by a small She-Oak sapling that was always planted over the grave (worimiconservationlands.com).

With the Worimi country being a coastal area, fishing was one of the most important activities which was integrated heavily within their lives. There were two methods of fishing for the Worimi people. The first being the technique of using a spear, these were made by the men of three distinct and different parts – the main shaft being that of the Gigantic Gymea Lily, the dried flower stem of the Grass Tree and a barbed head made from Iron – Bark. The men would often fish from canoes and on the shoreline.

When it came to the women of the Worimi people, they instead used line and netting to catch fish. These were made from the inner bark of the young Kurrajong trees, the bark would be carefully stripped and soaked in water until the outer parts could be scraped away with a shell. This left a white fibre that was tough enough to be used for fishing, it was then rolled around the thigh of the

woman to the required thickness which was needed. The women of the Worimi typically fished from canoes and unlike the men, they would traditionally have the first joint of their little finger removed to symbolize that they were fishermen for their people.

Located close to their shelters, large communal ovens were often constructed. These were lined with stones to retain the heat from fire and embers whilst cooking. There were times where some foods would be wrapped up in green vegetation, covered in more hot stones to bake the contents slowly – food cooked with this method retained more moisture and sweetness.

An important archaeological site which is often found to this day and close to these communal ovens, is what is known a shell midden. A shell midden is an area where Aboriginal people would often feast, these sites would gain substantial amounts of bones and shell as they were used over generations (sometimes growing to be meters in height) and whilst non – aboriginal people tend to refer to these middens as 'waste dumps' it ignores the sophisticated cooking and crafting techniques of the aboriginal people.

Middens have the ability to inform present and future generations about the activities of the Worimi people. The types of shell and bones within one can inform us of what food sources were available and in what times of the year when the Worimi people used these sites. Generally, these Middens are located around sandy beaches and dunes at a pleasant space that was easy to access. Some of these middens have also been known to contain artefacts and tools which have been made from stone, whilst others have contained fishhooks made from bone or shell with some estimated to being over nine hundred years old.

During the warmer months of the year, the Worimi people had a varied and abundant resource of marine food which was heavily preferred amongst the people; fish, oysters, and pipi (commonly known as clams) were consumed during these months and tended to make the Worimi people more relaxed (worimiconservationlands.com).

It was during the winter months that their diet changed significantly from a diet rich in marine resources to living off the land itself. The Worimi people would travel further inland to hunt for kangaroo and wallaby, of which were the preferred meats to eat. Possum was considered a delicacy however and only eaten on special occasions.

Very little research has been conducted into mortuary practices and burials of the Port Stephens area that would enable one to predict where a burial or burial ground/cemetery may be located. However, Worimi oral testimony states that when a person passed away, the deceased were buried in places that overlooked a working area or campsite. Once the grass had covered the burial the deceased's name was never mentioned again (provided with the permission Mr Lennie Anderson, pers. comm). Burials also occur under or near middens. It is said that the deceased were placed for final internment in these areas to draw the spirits to an area of feasting and gathering and for protection. It is said that if an area contains a spirit or spirits, there is continuity in places of gathering (provided with the permission Mr Lennie Anderson, pers. comm). The location of the deceased in dunes and near or under shell middens is supported by both Forensic and archaeological evidence (Pers. Obs.).

The Worimi cultural heritage mapping shows all sites (physical, mythological and spiritual) and illustrates the connection or relationship(s) between these sites. These relationships are also known in Worimi oral testimony. For example, a lookout on top of a dune may overlook a large camping ground. The same lookout area will also view smaller campsites along the coast or dunal system, all of which are linked and may lead to a large corrobboree site where groups from all around the area met for various reasons. Such complex sites are well known to extend along the dunal systems from Port Stephens through Fern Bay and onto Newcastle and to Corobra Oval where the original corrobboree ground is located.

5 ETHNO-HISTORIC BACKGROUND

Unfortunately, due to European settlement and associated destruction of past Aboriginal communities, their culture, social structure, activities and beliefs, little information with regards to the early traditional way of life of past Aboriginal societies remains.

5.1 USING ETHNO-HISTORIC DATA

Anthropologists and ethnographers have attempted to piece together a picture of past Aboriginal societies throughout the Hunter Valley. Although providing a glimpse into the past, one must be aware that information obtained on cultural and social practices were commonly biased and generally obtained from informants including white settlers, bureaucrats, officials and explorers. Problems encountered with such sources are well documented (e.g. Barwick 1984; L'Oste-Brown et al 1998). There is little information about who collected information or their skills. There were language barrier and interpretation issues, and the degree of interest and attitudes towards Aboriginal people varied in light of the violent settlement history. Access to view certain ceremonies was limited. Cultural practices (such as initiation ceremonies and burial practices) were commonly only viewed once by an informant who would then interpret what he saw based on his own understanding and then generalise about those practices.

5.2 WORIMI ETHNO-HISTORIC ACCOUNTS

Early ethnographic records of the Port Stephens area are limited. Port Stephens consists of the submerged estuary of the Myall and Karuah Rivers. The area was described by surveyor Charles Grimes in 1795 as inhabited by the Worimi Tribe, whom he described as "taller" and "stouter" than Aboriginal people of the Sydney area, utilising a completely different language (Dowd, undated; Port Stephens Council, 2009). Prior to contact with settlers, the Worimi people extended from Port Stephens to Forster/Tuncurry in the north and west out to Gloucester. The Worimi comprised a number of tribes who lived on the water's edge and utilised both land and sea resources in their daily lifestyles (Leon, 1998; Port Stephens, 2011). These tribes included the Garuagal, Maiangal, Gamipingal, Garrawerrigal, Buraigal, Warringal, Birroongal, Birrimbai, Yeerungal and Wallamba (Enright, 1900; Sokoloff; 1976, Leon, 1998).

Social organisation for the Worimi included aspects such as leadership, government, punishments, duels, fights, marriage, totemism and family structure, within a social system that had both spiritual and social significance. Leadership was based around leading men, being older and fully initiated, who acted as general advisers. Disputes between groups for such things as territorial infringement were settled through battles, enacted to satisfy honour rather than being matters of mortal combat. Marriages were arranged by both kindred and parents; a number of patrilineal totemic clans had a bearing on both kinship and marriage, ensuring that strict laws were maintained, preserving tribal strength and avoiding in-breeding (Sokoloff; 1976). In 1830 Robert Dawson described the Worimi Tribe as utilising spears and shields, wearing belts of opossum fur, and using combs formed from the leg bones of kangaroos (Dawson, 1830: 115). Bark was described as an essential material used in the production of numerous items. Notches were cut into trees "large enough only [to] place the great toe in" to enable easy climbing to strip bark "in lengths from three to six feet" (Dawson, 1830: 19). This bark was used for covering huts; bark was also utilised for making string "as good as you can get in England, by twisting and rolling it in a curious manner with the palm of the hand on the thigh" to make nets, fishing lines and bags (Dawson, 1830: 67). Sally Wattle and Kurrajong tree barks were used in making string; fishing lines were waterproofed with the sap of the Bloodwood tree (Port Stephens Council, 2009).

The importance of the ocean as a source of food resource for the Worimi people in the Port Stephens area was noted in multiple sources, as were land resources for tools. Fish hooks, for example, were made from oyster and pearl shells and yellow gum from the Grass Tree was used in manufacture to affix the disparate elements together (Dawson, 1830: 67; Port Stephens Council, 2009). Spears were also used for fishing, made from the flowering stem of the Grass Tree or Gymea Lily, with prongs of ironbark used on the tips. Other hunting tools and weapons were also manufactured from plants, including Boomerangs, which were made from wild Myrtle (Sokoloff, 1975; Port Stephens Council, 2009). As well as utilising plant resources in tool manufacture, many were also used as food resources. The Gymea Lily's young flowering spikes were fire roasted and eaten after being soaked in water. Wild Cape Gooseberries grew on the nearby Cabbage Tree Island and were a highly prized food resource. Other items such as Fern root and daisy yam were a necessary supplement to diet, especially when there was a scarcity of the primary food resource of fish (Sokoloff, 1977; Port Stephens Council, 2009).

As viewing of rituals and ceremonies by Europeans was restricted, little is known of these past l practices. However, it is known that sacred and ceremonial activities were linked with the Aboriginal relationships with the land. Ground burials were the most common form of final internment inland. A shallow grave was dug and lined with grass. The deceased was wrapped in paperbark, tied up, placed in the grave, covered with grass, covered with another layer of bark and a final layer of grass and then covered with earth building up a mound (Bluff 7989). In the Port Stephens area burial practices appear to have varied and may in part have been determined by the environment (as well as social structure). Informants for Howitt (1996:465) state that in the area the body of the deceased was neatly folded in bark and placed in the grave at flood-tide. It was never placed at ebb as it was believed the retiring water would bear the spirit of the deceased to some distant country. An old couple who only had one daughter who died, built their hut over her grave close to the shore of the harbour and lived there many months. They then moved their hut a few yards away and remained there until the grass had completely covered the grave. They then left and never visited the grave again.

6 ARCHAEOLOGICAL CONTEXT

A review of the archaeological literature of the region, and more specifically the local area and the results of a AHIMS search provide essential contextual information for the current assessment. Thus, it is possible to obtain a broader picture of the wider cultural landscape highlighting the range of site types throughout the region, frequency and distribution patterns and the presence of any sites within the project area. It is then possible to use the archaeological context in combination with the review of environmental conditions to establish an archaeological predictive model for the project area.

6.1 HERITAGE REGISTER LISTINGS

The State Heritage Register, the Australian Heritage Database (includes data from the World Heritage List UNESCO, National Heritage List, Commonwealth Heritage List, Register of the National Estate) and the Port Stephens Local Environmental Plan have no sites listed. However, not all indigenous places are listed, and the Heritage Commission is consulting with Traditional Owners to gradually include indigenous information.

6.2 ABORIGINAL HERITAGE INFORMATION MANAGEMENT SYSTEM

MCH note that there are many limitations with an AHIMS search. Firstly, site coordinates are not always correct 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 enabling 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. In addition to this, other limitations include the number of studies in the local area.

Fewer studies suggest that sites have not been recorded, ground surface visibility also hinders site identification and the geomorphology of the majority of NSW soils and high levels of erosion have proven to disturb sites and site contents, and the extent of those disturbances is unknown (i.e. we do not know if a site identified at the base of an eroded slope derived from the upper crest, was washed along the bottom etc: thus altering our predictive modelling in an unknown way).

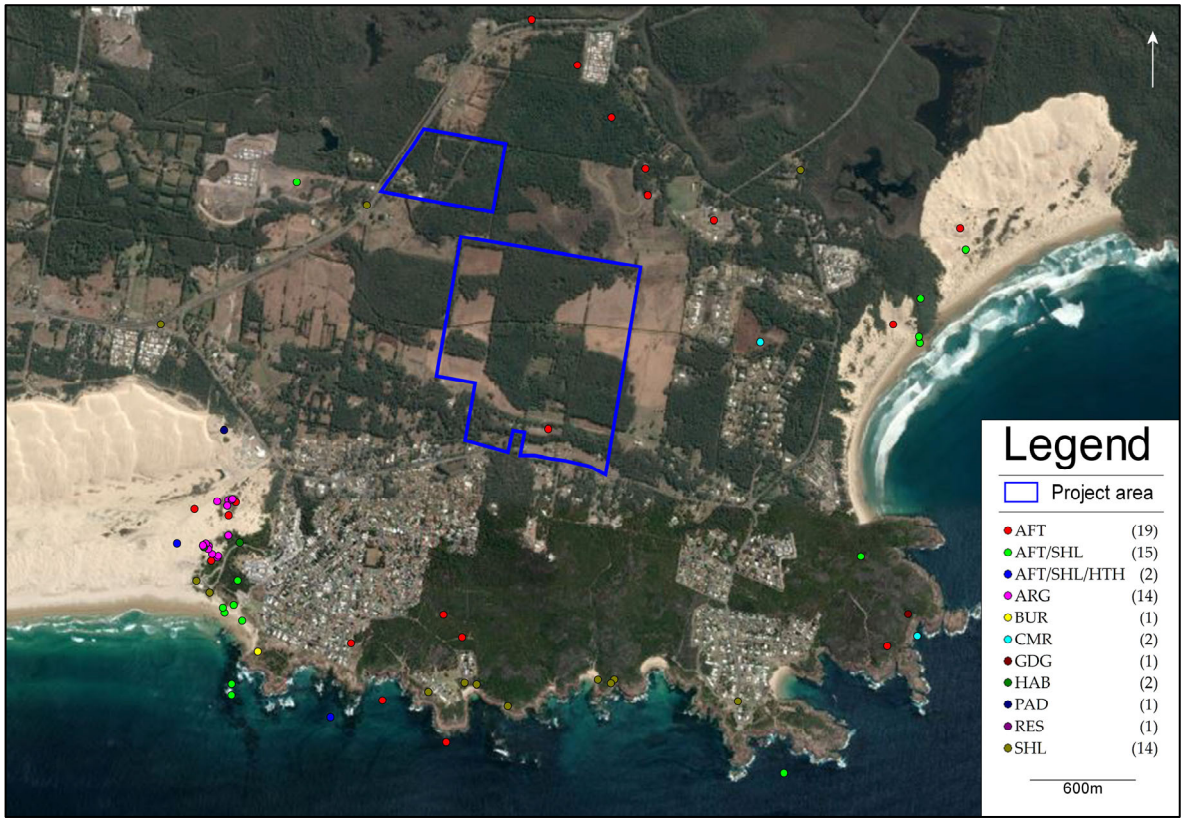
The AHIMS search is limited and provides a only a basis that aids in predictive modelling. The new terminology for site names including (amongst many) an 'artefact' site encompasses stone, bone, shell, glass, ceramic and/or metal and combines both open camps and isolated finds into the one site name. Unfortunately, this greatly hinders in the predictive modelling as different sites types grouped under one name provided inaccurate data.

A search of the AHIMS register has shown that one Aboriginal Place and 72 known Aboriginal sites are currently recorded within five kilometres of the project area and (Table 5.1). The AHIMs results are provided in Appendix B and the location of sites is shown in Figure 5.1.

Table 6.1 Summary of AHIMS sites

Site type	Frequency	Percent
AFT	19	26%
SHL	14	19%
PAD	1	1%
HAB	2	3%
GDG	1	1%
ARG	14	19%
BUR	1	1%
CMR	2	3%
AFT/SHL	15	21%
AFT/SHL/HTH	2	3%
RESTRICTED	1	1%
Subtotal	**72**	**100%**

Figure 6.1 Approximate location of AHIMS sites



6.3 ARCHAEOLOGICAL CONTEXT

All archaeological surveys throughout the area have been undertaken in relation to environmental assessments for developments. The most relevant investigations indicate differing results and observations based on surface visibility and exposure, alterations to the landscape (including

mining, industrial and residential development), proximity to water sources and geomorphology. The reports available from AHIMS are summarised below.

The definition of site curtilages in NSW are guided by the requirements for site registration in the AHIMS database, leading to geographically discrete sites as individual entities, existing in isolation. Such an approach is understandable, as it grows from the need to define sites as per legislatively guided parameters. This is further reinforced by the geographically focussed work of consultant archaeologists, limiting their analysis to a specific geographically constrained area based on individual project specifications (predominantly here related to proposed transmission lines, road bypasses, sand mining activities and other developments). While this is the common practice for recording individual sites, it is important to contextualise them within a broader archaeological and cultural landscape that links them together. In this way assemblages may be understood as a continuous scatter of cultural material across the landscape and the nature of activities and occupation can be identified through the analysis of artefact distributions across a landscape. In the case of this region there is a variety of evidence indicative of long-term Aboriginal habitation, particularly in relation to the Newcastle Bight sand system, which incorporates both inner (Pleistocene: c. 1.8 million to 10 000 years ago) and outer (Holocene: 10 000 years ago) coastal barriers as well as the interbarrier system.

Exploitation of swamp and wetland resources (the interbarrier depression) figured prominently in the lifestyle of the Worimi people as evidenced by the abundance of sites along both the Pleistocene and Holocene dunes overlooking this area as evidenced through a plethora of past archaeological assessments throughout the area (refer to Appendix C). Swamps such as the interbarrier depression were favoured with dense complex occupation sites along its fringes.

Of particular relevance to this study is the Dean-Jones' (1990) study. Dean-Jones undertook a detailed assessment of the nature and distribution of Aboriginal archaeological sites within both the Inner and Outer Barrier of Stockton Bight. The results of this assessment re-defined previous findings and predictive modelling with her findings on the Holocene dune sequence. The sites along the interbarrier margin and crests of the 4,500 BP Holocene dunes were assessed as holding high scientific significance and sites tended to retain stratigraphic integrity to depths of 30-40 cm. Some of these sites also contain charcoal which can be used for dating purposes. Dean-Jones suggested that the distribution and density of sites recorded along the face of the old Holocene dunes at the interbarrier depression suggests that this geomorphic environment has a high archaeological sensitivity and that many more sites are likely to be situated in this area. Dean-Jones identified geomorphic units within the Outer Barrier as having high archaeological sensitivity as follows:

- the seaward margin of the active transgressive dunes and the landward margin of the deflation basin, with the assumption being that the majority of sites in this context were associated with former;
- stabilised soil surfaces but have been exposed and/or deflated by dune transgression; and
- stabilised dunes bordering the Inter-Barrier depression; and • estuarine shorelines.

The inner Pleistocene dunes overlooking the interbarrier depression have also proven to be of high archaeological significance with occupation extending along the interbarrier margins and crests with one of the most significant sites identified, Moffats Swamp. Baker (1993) completed archaeological excavations across a series of large vegetated sand dune crests directly across Richardson Road from Moffats Swamp, Medowie between Newcastle and Port Stephens, NSW. Landforms across the investigation area consisted predominantly of swampland with associated dunes. Moffats Swamp was the main water source in the area, one of a series of swamps which occurred at the inner margin of the Newcastle Bight sandy country. It was noted that artefacts and shell material had been uncovered during sand extraction activity in the surrounding region and other sites in the general

area consisted predominantly of artefact scatters and middens. It was predicted that sites were most likely to occur on dune crests in association with water. This prediction was proved accurate by the results of the archaeological testing. Two sites were identified during subsurface testing across the area, both on dune crests and subsequent salvage provided evidence of past Aboriginal occupation in the inner Pleistocene barrier dated to 17,376 BP at Moffat's Swamp (Baker 1994).

Interestingly, ERMs' (2003) assessment for the proposed Electricity Supply upgrade between Tomago and Tomaree covered the three major units of the Newcastle Bight dune system, these being the inner Pleistocene barrier, the interbarrier depression and the outer barrier Holocene dune system with significant results. Ten new sites were identified and five previously recorded sites were found and seven PADs identified (two located on the Inner Pleistocene barrier system and five on the Holocene Barrier System). Consisting of shell middens with artefacts, ERM identified sites along the dunes overlooking the interbarrier depression, a reduction in sites in the dunes seaward and an increase in sites in closer proximity to the beach. ERM and MCH (2015) also noted that the distribution of shell species across the dune field suggests that shellfish were not transported across the barrier system. Sites with pipi (a marine species) are confined to the outer margin of the barrier and sites with *Pyrazus* and oyster (estuarine species) distributed across the inner barrier.

A series of archaeological investigations within the local area (e.g., Dyall 1975, 1979; Kuskie 1995; Besant 2001; MCH 2003, 2012c-d, 2021; Umwelt 2010, 2011; RPS 2011; Grant 2014) have addressed the patterning of archaeological sites within the region, which is acknowledged to be of high archaeological sensitivity and significance. The area would have provided access to both marine and estuarine subsistence resources and was an extremely rich resource zone, providing access to marine, estuarine and wetland resources in the immediate vicinity. In addition, the botanical resources of the Bight include numerous species known to have been valued by Aboriginal groups as food sources. In such a locality, the archaeological record of Aboriginal occupation is complex and extensive. A number of archaeological sites are known to occur within the stable dune system of the Bight, the majority of which appear to be small, surface scatters of midden materials including shell, bone and stone artefacts. Site frequency and density appears to increase in associated with wetlands and their subsistence resource, with several large, complex archaeological sites present adjacent to wetlands of the interbarrier depression, between Fullerton Cove and Tilligerry Creek.

Previous archaeological investigations conducted within the region have produced a significant volume of information in relation to the distribution and nature of archaeological material within this region. These previous assessments have been summarised and presented in Appendix C and on the basis of this information, a number of trends can be identified as follows.

- The majority of sites within the region consist of shell middens (containing beach and/or estuarine species) and stone artefact scatters, with sites varying from single artefacts to dense concentrations of material in both a surface and sub-surface context.
- Other site types occur including a significant number of burials (usually exposed through erosion), scar trees and ceremonial sites.
- Within the stabilised dune fields, it is suggested that greater concentrations of archaeological material (in terms of site numbers and artefact densities) are located on low ridgelines, spurs and low dunes associated with wetland resources overlooking the interbarrier depression.
- Archaeological material within the active transgressive dune field and current deflation basin primarily consists of exposed and/or deflated deposits that were once associated with former stabilised surfaces and periods of stabilisation. Although some archaeological material may have been deposited during periods of instability (i.e. not in association with a stabile soil surface), this material is likely to have been limited in both extent and distribution.

- Due to vegetation coverage and the nature of sand deposits, the detection of sites is directly related to levels of exposure and visibility. Sub-surface deposits may be at a considerable depth below the current dune surface and therefore are unlikely to be detectable unless significant disturbance has occurred.

6.4 SITE WITHIN THE PROJECT AREA

AHIMS site #38-5-0248 (Gan Gan 5) is an artefact site. Unfortunately, no other information is available as the site card is not available from AHIMS.

6.5 PREVIOUS ASSESSMENT OF THE RPOJECT AREA

Mur-roo-ma and Nur-run-gee (2018) undertook a due diligence assessment of the project aera and during the survey. AHIMS site 38-5-0248 was re-examined and was found to consist of high-density artefacts scatter and shell midden. Stone tools were manufactured form Nobby's tuff and silcrete and shell species included oyster, cockle, pipe and turbine. The site was exposed along the dune ridge/crest and cultural materials were exposed along the crest for approximately 50 metres.

Additionally, an area along a creek line/drain on a small hillock running adjacent to this drain, shell material was exposed. This possible midden site was disturbed and had been transported from the creek bed area. The edible shell material that was identified was large oyster shell, cockle with some pipi.

6.6 LOCAL & REGIONAL CHARACTER OF ABORIGINAL LAND USE & ITS MATERIAL TRACES

The following is a summary and discussion of previous investigations detailed in *Section 5.2*. It must be remembered, however, that there are various factors which will have skewed the results. These include but are not limited to:

- the landform on which a site area is observed is not necessarily its origin, for example, artefacts which would have originated on a crest may be located eroding down the slope;
- biases due to differential sampling of landforms based on decisions made by archaeologists and as a result of restrictions due to the locations of proposed development areas, levels of exposure on different landforms, and the variable level of reporting by archaeologists will affect the count of sites on each landform type, and
- artefact counts can be skewed due to factors such as differing levels of fragmentation of material and levels of ground surface visibility. A very large number of sites/ artefacts were located on exposures with either no or very few artefacts visible away from the exposures.

Therefore, the following summary provides an indication of what may be expected in terms of site location and distribution. The local archaeology of the area can be summarised as follows:

- sites are generally within 50 metres of reliable water;
- sites are located on both the Holocene and Pleistocene dunes overlooking the interbarrier depression;
- sites are not usually found in the interbarrier depression;
- there is a decrease in site numbers and site densities between the Inner Holocene dunes and the beach front;

- site types are typically shell middens with various shell species, stone tools and may also contain charcoal;
- artefact scatters, isolated finds, scarred trees, burials and ceremonial sites may also be found along the dunes;
- artefacts typically date to the Holocene but Pleistocene sites may be present in the Pleistocene dues;
- raw materials are tuff obtained locally and/or silcrete, chert or quartz that have been traded/transported from the Hunter Valley area;
- stone artefacts are typically flakes, flake pieces, broken flakes, cores and tools with fish hooks manufactured form local shell.

Variations between archaeologists' classifications of raw material types (for example tuff and indurated mudstone) will have an effect on the results of this count. Raw material type was not indicated in most reports and as such general comments are made. Again, this information is presented merely as an indication of what may be expected.

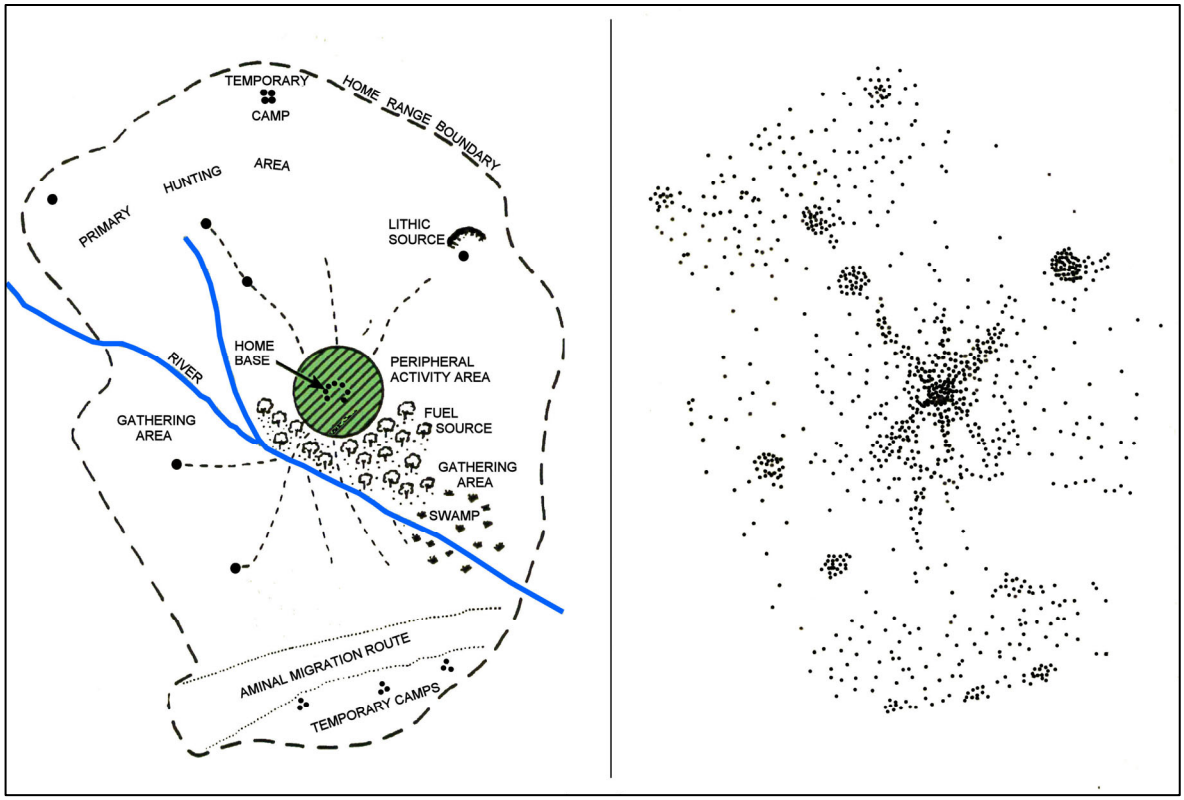
Due to differences in recording techniques, it is difficult to determine how many of each artefact type is represented across the region though types include flakes, broken flakes, retouched flakes, multi-platform cores, single platform cores, bipolar cores, flaked pieces, 'waste' pieces, debitage, 'geometric microliths', 'backed blades', 'bondi points', 'scrapers', 'blades', 'hatchets', edge-ground axes, anvils, hammer stones and heat. Due to variations in both the amount of data that is included in reports, and the terms different archaeologists used to describe artefact types, it is not practicable to provide a count of the different artefact types.

6.7 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 5.2. 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 6.2 Foley's model (L) and its manifestation in the archaeological record (R), (Foley 1981).



6.7.1 MODEL OF OCCUPATION FOR THE HUNTER VALLEY

Work in the Hunter Valley has aimed to understand the nature of Aboriginal occupation and determine the nature of land use. 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 Hunter Valley have been reviewed (Dean-Jones and Mitchell 1993; Rich 1995; Kuskie and Kamminga 2000) and the most commonly accepted model is summarised below.

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 predictions for the Hunter that is consistent with other studies (e.g., 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 general review of assemblage contents from a sample of excavated sites within the Hunter Valley, 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 such as 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. 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 5.2 has been adapted from Kuskie and Kamminga (2000).

To identify the specific activity areas through analysis of the composition of patterning of lithic assemblages, is utilised. However, this is applied to excavated materials as they provide more realistic data due to the lesser degree of disturbances, removal and breakages.

Table 6.2 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	• 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	• 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	• 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	• 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	• 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

6.8 PREDICTIVE MODEL FOR THE PROJECT AREA

Due to issues surrounding ground surface visibility and the fact that the distribution of surface archaeological material does not necessarily reflect that of sub-surface deposits, it is essential to establish a predictive model.

Previous archaeological studies undertaken throughout the area provide a good indication of site types and site patterning in the area. The research has shown that middens with stone implements, and middens with only shell are the most predominate site types. The most common site locations are the seaward margin of active transgressive dunes/active blowouts, Holocene and Pleistocene dunes overlooking the interbarrier depression and areas near water sources as evidenced through archaeological and landform mapping. Predictions about site patterning for the three landforms are discussed

Outer Pleistocene dunes:

There is a high potential for sites on this landform. Sites are predominantly middens (composed of either or both estuarine and marine shell species) and open camps, with a sparse scattering of cultural material along the ridgelines of the dunes and high-density sites situated on low flat ridgelines immediately adjacent to wetlands. It is predicted that ridges on the margins with the interbarrier depression have high archaeological potential.

Interbarrier depression:

The interbarrier depression was an important area for foraging as indicated by the prevalence of sites on the margins of both the Pleistocene and Holocene dune systems overlooking the depression. Although these sites are close to the depression, they are not located within it. Evidence of occupation within the depression is very limited and consists of a scattering of the remnants of midden between Boyces Track and Uralla (Dean-Jones 1990). The interbarrier depression, once the coastal margin and estuarine swamp, is now covered with Holocene estuarine sand, mud and clay ranging in depth from one to ten metres (Robson et al 1992: 13-19). This area has also been extensively disturbed through ploughing, grazing, road construction and development. It is therefore predicted that there is a very low potential for archaeological sites in this landform.

Inner Holocene dunes:

There is a high potential for both middens (including estuarine shell species, especially rock oysters and mud whelk) and open camp sites on the inner landward margin of the Holocene dunes. These dunes are stable and the potential to contain stratified deposits dating back to 4,500 PB (Dean-Jones 1992). Such occupational sequences are often high density and up to one metre in depth. There is a space scattering of cultural material along the ridges of this landform and high-density sites are present along the low flat ridgelines overlooking the wetland (interbarrier depression) area.

Within the project area, it is highly likely that additional sites will be concentrated along the dune overlooking the interbarrier depression in the southern portion of the project area. Evidence of past Aboriginal land use in these areas are manifest in the archaeological record as shell middens with stone artefacts all along the dunes within close proximity of the interbarrier depression. Although a reliable resource, the interbarrier depression itself was a previous lagoon/swamp and would not have been suitable for camping.

The accuracy of these predictions would be largely determined by the degree of disturbance. Soil surface disturbance within the study area means that the extent and spread of surface archaeological material may not reflect sub-surface deposits (it may be more a reflection of differential disturbance and exposure). The refinement of this predictive model will be dependent upon an investigation of the landforms and the occurrence of modern disturbances within the project area.

6.9 ARCHAEOLOGICAL POTENTIAL IN THE PROJECT AREA

Based on archaeological sites registered in the region and the results of past archaeological studies, two sites types are likely to occur throughout the project area:

- **Shell middens**

Shell middens are places where debris from eating shell fish has accumulated. Middens preserve a range of past dietary remains which have the potential to inform about past dietary consumption and availability of food resources. Most shell middens analysed to date pertain to coastal environments with few pertaining to inland middens. In NSW, middens are located on headlands, beaches and dunes, around estuaries, swamps, the tidal stretches of creeks and rivers and along the banks of inland rivers, creeks and lakes. Shell middens may be found in the open or in rock shelters and often those in the open are disturbed through erosion and land use impacts and those in shelters are usually well preserved. The location of middens is influenced by a variety of factors including, but not limited to, the availability of shell fish, aspect, accessibility and the nature of the immediate area and are typically located within a reasonable distance from water on level, sheltered surfaces.

Ranging in size from small scatters to deep layered deposits that have built up over time, the size of the midden may relate to its location (e.g., riverbank middens tend to be smaller than estuarine and coastal middens). Small middens may represent short term occupation or the debris from a single meal. Major estuarine species include bivalves such as cockle, whelk, mud and rock oyster and both edible and hairy mussels. Rock platform species of gastropods include limpets, turban shell, periwinkles, nerits, tritans and cartrut shell fish and the most important beach species is the pipi.

Shell middens may also include fish, sea birds, sea mammals and land mammals. Stone artefact are also typically found within middens and indicate trade and/or transportation of raw materials. Bone and shell artefacts, such as fish hooks and barbs, evidence of cooking may be present in the form of charcoal, ash, fire stones, hearths, burnt clay and/or burnt earth. The midden usually occurs within a soil or sand layer that is darker than the surrounding sediment. Middens may also contain burials and if present are usually located under the midden.

Preservation varies with food stuffs such as berries and fruits leaving no archaeological traces, sea foods such as cartilaginous fish, stingrays, octopus and fish eggs are likely to be equally invisible in the archaeological record. However, tissue such as shell and crustations and bone may be preserved. Preservation is also dependant on land use impacts and associated soil pH.

An important contribution to the study of coastal shell middens was made by Meehan (1975, 1977a, b) through ethnographic studies of coastal hunter and gatherers in northern Arnhem Land. Through a yearlong quantitative record of the total diet, Meehan provides unique insights into all aspects of shell fish gathering and the creation of shell middens with pertinent data to the interpretation of midden data. Shell middens may be distinguished from natural shell beds as follows (Attenbrow 1992; Bailey 1994; Gill 1951; Coutts 1966; Hughes and Sullivan 1974);

1) Middens contain charcoal, burnt wood, clay and/or earth, blackened shells, some artefacts, hearth stones. These are absent from natural shell beds.
2) Middens are either unstratified or roughly stratified whereas natural shell deposits are well stratified and exhibit sedimentary features of water laid deposits.
3) Middens contain edible species and sizes whereas shell beds contain shells of varied species and sizes as well as both edible and non-edible species.
4) Middens do not contain worn shell resulting from transportation from the off shore or beach zone, whereas shell beds do.

5) Middens contain mammal bones used in food consumption, shell beds do not.

6) Middens do not contain certain forms of marine life not used by Aboriginal people (e.g. corals, tube worms) but shell beds do.

Interpretation of shell middens usually falls into three main categories;

1) Taphonomy: differential survival value of different species may be considered.

2) Environmental/ecological: changes in habitat may bring about changes in the availability of species (Coutts 1970).

3) Economic/behavioural: changes in gathering habits brought about by some purely cultural factor may be considered (Bowdler 1970, 1976).

The interpretation of shell middens is only as good as one's analysis, which is only as good as one's sample, all of which are typically limited during surface survey only.

- 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 a small meal was cooked and/or consumed;
- Hunting and/or gathering events;
- Other events spatially separated from a camp site, or
- Transitory movement through the landscape.

Shell middens are a common site type in the locality. There is a high potential for shell middens to occur within the investigation area along the dunes overlooking the interbarrier depression. There is also the potential for such sites to be impacted on through past land uses and associated impacts.

- **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 a high potential for artefact scatters to occur within the project area along the dunes overlooking the interbarrier depression. There is also the potential for such sites to be impacted on through past land uses and associated impacts.

- **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 and associated impacts.

- **Burials**

Burials can occur anywhere (ground, cave, and hollow tree). Cave burials usually do not survive due to both animal and human disturbances and extant tree burials are rare due to logging and land clearance. Ground burials tend to be in soft sandy soils, but can be found in soil and clay. Burials are also commonly found in association with burial goods including stone axe heads (Howitt 1996:464-465). Generally, they are only identified through accidental exposure. Although factors such as land clearance and associated erosion reduce the likelihood of burials surviving intact, bone is durable and commonly survives in such environments, albeit in fragmentary form.

In the Port Stephens area, burials are typically under shell middens and may be found in any location and are exposed through erosion and land uses. There is a high number of known burials in the local area and undoubtedly more unfound burials. There is a high potential for burials to be located in dunes within the investigation area.

7 RESULTS

7.1 METHODOLOGY

The survey areas were surveyed on foot by the archaeologist and registered Aboriginal stakeholder representatives in accordance with the proposed methodology provided to the stakeholders for review and approved. The survey included transects at approximately 5 metres apart walked in an east/west direction across the project area and focused on areas of ground surface visibility and exposures (erosional features, drain banks, tracks, cleared areas).

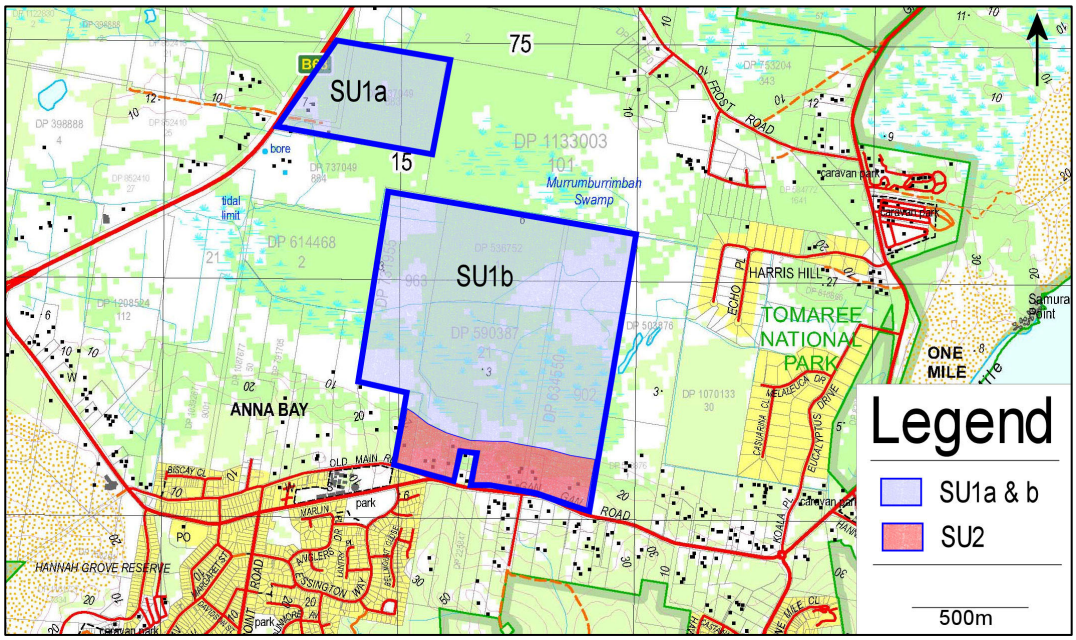
7.2 LANDFORMS

McDonald et al (1998) describes the categories of landform divisions. This is a two layered division involving treating the landscape as a series of 'mosaics'. The mosaics are described as two distinct sizes: the larger categories are referred to as landform patterns and the smaller being landform elements within these patterns. Landform patterns are large-scale landscape units, and landform elements are the individual features contained within these broader landscape patterns. There are forty landform pattern units and over seventy landform elements. However, of all the landform element units, ten are morphological types. For archaeological investigations they divide the landscape into standardised elements that can be used for comparative purposes and predictive modelling. As outlined in Section 3, the project area includes two landforms: interbarrier depression and dunes.

7.3 SURVEY UNITS

For ease of management, the project area was divided into 2 Survey Units (SUs) that were based on project area (north and south) then further divided in SU based on landforms (interbarrier depression and dunes) (Refer to Figure 6.1).

Figure 7.1 Survey Units



Survey Unit 1: interbarrier depression

SU1a: This survey unit included the northern portion that is located in the interbarrier depression. Access was difficult due to lantana and as such a sample was surveyed in the western portion and the information obtained form that sample is extrapolated for the whole survey unit. This survey unit was low lying and damp underfoot with thick understory vegetation that included grass, ferns and lantana amongst open forest. Disturbances included clearing and housing construction along Nelson Bay Road and large tracks running north south through the middle and eastern portion of the project area. Being a low-lying water-logged area that was previously a lagoon/swamp, there is little to no potential for archaeological sites to be present in this location/landform. Examples of this survey unit are provided in Figures 7.1 and 7.2.

Figure 7.2 SU1: western side facing east

Figure 7.3 SU1: western track facing north

SU1b: This survey unit included the southern portion that is located in the interbarrier depression. Access was difficult due to lantana and as such a sample was surveyed in the southern and middle sections and the information obtained form that sample is extrapolated for the whole survey unit. This survey unit was low lying and damp underfoot with thick understory vegetation that included grass, ferns and lantana amongst open forest. Large sections were cleared for gardens and a number of man-made drains were located throughout along with tracks. Being a low-lying water-logged area

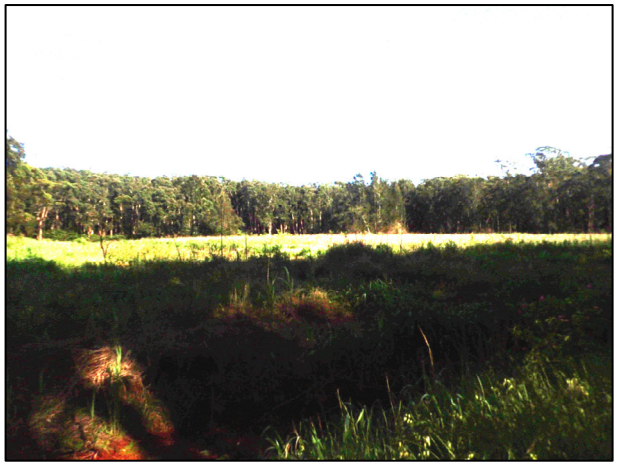
that was previously a lagoon/swamp, there is little to no potential for archaeological sites to be present in this location/landform. However, the interface between the southern border of this survey unit to that of the dune ridge (SU2) is known to contain archaeological evidence due to erosion down slope. Examples of this survey unit are provided in Figures 7.4 to 7.7.

Figure 7.4 Southern cleared/garden area facing west

Figure 7.5 Southern most man-mad drain through gardens (facing east)

Figure 7.6 Man-mad drain through to the northern clearing gardens (facing north)

Figure 7.7 South eastern corner of the northern cleared area (facing north west)



Survey Unit 2: dune ridgeline

This included the southern portion and includes the high sand ridgeline that is located along the southern end of the project area that dips to a flat dune area along Gan Gan Road. The areas fronting Gan Gan Road have been disturbed through previous clearing and construction works associated with residential housing. The due itself appears to remain relatively undisturbed in the eastern portion whilst the western portion has been disturbed by a garden area. Vegetation in the eastern portion consisted of open woodland with thick understory and the western portion consisted of the garden and open woodland and thick underbrush outside the garden area.

The garden was further disturbed by rabbit warrens which has revealed additional artefact and shell associated with AHIMS site #38-5-0248. Visibility was poor along the eastern portion and moderate in the western portion. Examples of this unit are provided in Figures 7.9 to 7.11.

Figure 7.8 Eastern side of the ridge line facing east

Figure 7.9 Western cleared/garden area facing west

Figure 7.10 Track leading down from the ridge garden to the gardens in SU1b

Figure 7.11 Example of the low-lying dune along Gan Gan Rd

7.4 EFFECTIVE COVERAGE

Effective coverage is an estimate of the amount of ground observed taking into account local constraints on site discovery such as vegetation and soil cover. There are two components to determining the effective coverage: visibility and exposure.

Visibility is the amount of bare ground on the exposures which may reveal artefacts or other cultural materials, or visibility refers to 'what conceals'. Visibility is hampered by vegetation, plant or leaf litter, loose sand, stony ground or introduced materials (such as rubbish) On its own, visibility is not a reliable factor in determining the detectability of subsurface cultural materials (DECCW 2010/783:39).

The second component in establishing effective coverage is exposure. Exposure refers to 'what reveals'. It estimates the area with a likelihood of revealing subsurface cultural materials rather than just an observation of the amount of bare ground. Exposure is the percentage of land for which erosion and exposure is sufficient to reveal cultural materials on the surface (DECCW 2010/783:37). The effective coverage for the project area was determined for both visibility and exposure ratings and Table 7.1 details the visibility rating system used.

Table 7.1 Ground surface visibility rating

Description	GSV rating %
Very Poor – heavy vegetation, scrub foliage or debris cover, dense tree of scrub cover. Soil surface of the ground very difficult to see.	0-9%
Poor – moderate level of vegetation, scrub, and / or tree cover. Some small patches of soil surface visible in the form of animal tracks, erosion, scalds, blowouts etc, in isolated patches. Soil surface visible in random patches.	10-29%
Fair – moderate levels of vegetation, scrub and / or tree cover. Moderate sized patches of soil surface visible, possibly associated with animal, stock tracks, unsealed walking tracks, erosion, blow outs etc, soil surface visible as moderate to small patches, across a larger section of the project area.	30-49%
Good – moderate to low level of vegetation, tree or scrub cover. Greater amount of areas of soil surface visible in the form of erosion, scalds, blowouts, recent ploughing, grading or clearing.	50-59%
Very Good – low levels of vegetation / scrub cover. Higher incidence of soil surface visible due to recent or past land-use practices such as ploughing, mining etc.	60-79%
Excellent – very low to non-existent levels of vegetation/scrub cover. High incidence of soil surface visible due to past or recent land use practices, such as ploughing, grading, mining etc.	80-100%
Note: this process is purely subjective and can vary between field specialists, however, consistency is achieved by the same field specialist providing the assessment for the one project area/subject site.	

As indicated in Table 7.2, the overall effective coverage for project area is 14.85% with grass being the limiting factor and moderate exposures.

Table 7.2 Effective coverage for the investigation area

SU	Landform	Area (m2)	Vis. %	Exp. %	Exposure type	Previous disturbances	Present disturbances	Limiting visibility factors	Effective coverage (m2)
1a	interbarrier depression	230,000	10%	35%	clearing, residential, tracks	clearing, residential, tracks	clearing, residential, tracks	vegetation	8,050
1b	interbarrier depression	975,000	25%	70%	clearing, gardens, drains, tracks	clearing, gardens, drains, tracks	clearing, gardens, drains, tracks	vegetation	170,625
2	ridge	145,000	30%	50%	garden, rabbits, erosion	garden, track, rabbits	garden, tracks, erosion	vegetation	21,750
Totals		**1,350,000**							**200,425**
								Effective coverage %	**14.85%**

The level and nature of the effective survey coverage is considered satisfactory to provide an effective assessment of the investigation area. The coverage was comprehensive for obtrusive site types (e.g. grinding grooves and scarred trees) but somewhat limited for the less obtrusive surface stone artefact sites by surface visibility constraints that included vegetation cover and minimal exposures.

In view of the predictive modelling (Section 5) and the results obtained from the effective coverage, it is concluded that the survey provides a valid basis for determining the probable impacts of the proposal and formulating recommendations for the management of the identified sites and potential Aboriginal sites.

7.5 ARCHAEOLOGICAL SITES

No new sites were located in the project area. AHIMS site #38-5-0248 was relocated and re-re-reordered (Section 7.5.3).

7.5.1 DEFINITION OF A SITE

A 'site' can be defined by various factors. For this study a 'site' was defined on the combination of the following inter-related factors:

- landform;
- exposure and visibility;
- visible boundaries of artefacts; and
- a feature identified by the Aboriginal community on the basis of their own cultural knowledge and significance.

The 'site area' was defined as the area in which artefacts were observed on a landform, though it must be remembered that this may not represent an accurate picture of site size. Visibility of artefacts is affected by differences in vegetation cover and hence ground surface visibility, as well as the degree of natural and human-induced disturbance.

7.5.2 DEFINITION OF SITE COMPLEX

Site complex refers to sites that occur in groups. For example, complexes may consist of burial grounds and carved trees, artefact scatters that represent different stages of procurement and manufacture or artefact scatters and shell middens. Complexes may also consist of artefact scatters that are connected across a landscape with the scatters being either specific activity centres (such as tool manufacturing sites) or larger base camp areas (with more artefacts and a variety of artefacts).

7.5.3 SITES IDENTIFIED

The results of the survey have confirmed the location of AHIMS site #38-5-0248. Located along the ridgeline and exposed throughout the garden in Survey Unit 2, this site is a shell midden. Consisting of a variety of shell species including Oyster, Cockle, Pipi and Turbine a number of tuff and silcrete stone tools were also exposed.

Being located along the ridge line overlooking the interbarrier depression with direct access to an abundance of resources, there is very high potential for additional cultural materials to be present. It is highly likely that the partially exposed surface site extends the length of the ridgeline and will also include subsurface artefacts. This may represent either long term caping by large numbers of people and/or short-term camping by a range of groups of people.

7.6 POTENTIAL ARCHAEOLOGICAL DEPOSIT (PAD)

The terms 'Potential Archaeological Deposit (PAD)' and 'area(s) of archaeological sensitivity' are used to describe areas that are likely to contain sub-surface cultural deposits. These sensitive landforms or areas are identified based upon the results of fieldwork, the knowledge gained from previous studies in or around the subject area and the resultant predictive models. Any or all of these attributes may be used in combination to define a PAD.

The likelihood of a landscape having been used by past Aboriginal societies and hence containing archaeologically sensitive areas is primarily based on the availability of local natural resources for subsistence, artefact manufacture and ceremonial purposes. The likelihood of surface and subsurface cultural materials surviving in the landscape is primarily based on past land uses and preservation factors.

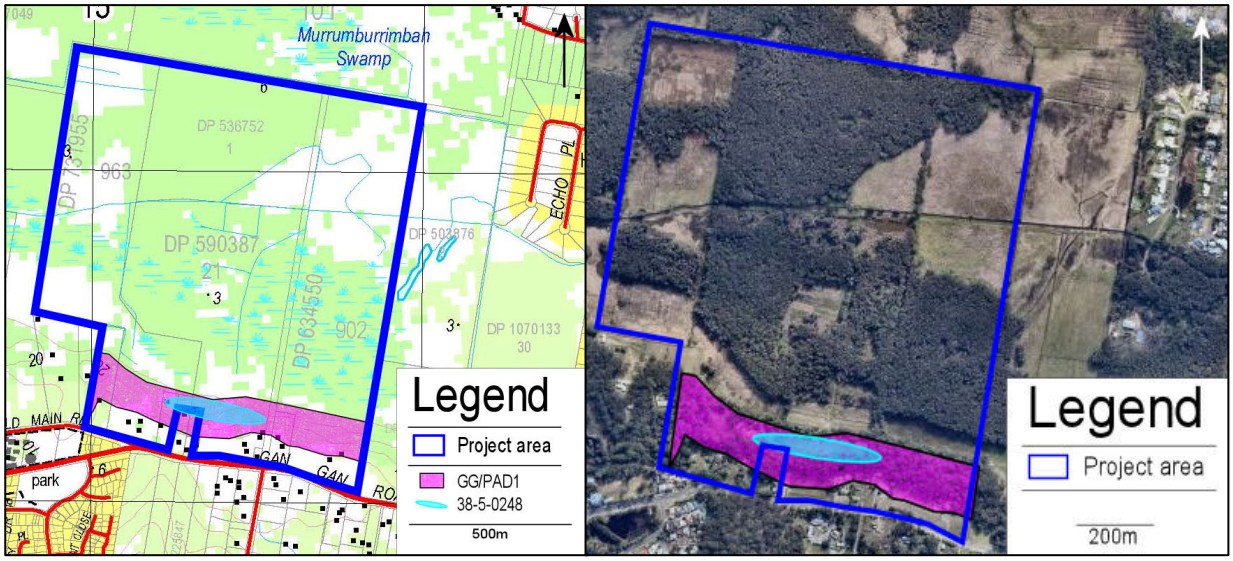
As the low-lying interbarrier depression is a former lagoon/swamp area with an abundance of resources, the actual lagoon/swamp itself was unsuitable for camping. However, it is the dunes along and overlooking the interbarrier depression that were favoured for camping as evidenced throughout the area by the presence of sites at such locations. One PAD has been identified in the project area, is associated with AHIMS site #38-5-0248 and is described in detail below.

7.6.1 GG/PAD1 – ASSOCIATED WITH 38-5-0248

This PAD includes the dune ridge located along the southern portion of the project area in from Gan Gan Road, Anna Bay. Appearing to be relatively undisturbed, this dune is high with an excellent vantage point and is overlooking the interbarrier depression (Figure 7.12). All of which have been proven to be favoured for past Aboriginal camping and burial locations. In particular, this is a high ridge and a ridge of this height has not been subject to further investigations in the local area and as such remains an unknown and is likely to be of high significance archaeologically and it is known to be of high cultural significance.

This PAD is associated with the partially exposed AHIMS site #38-5-0248 that is exposed from gardens along the western half of the ridge.

Figure 7.12 Location of GG/PAD1 - 38-5-0248



7.7 INTERPRETATION & OCCUPATION MODEL

The inferences that can be made about the nature of occupation within the investigation area and the specific sites identified area are limited by the small sample size. However, consistent with the Hunter Valley occupation model (Kuskie and Kamminga 2000), it is inferred from the evidence obtained during the survey that:

- Aboriginal people used and occupied the area at a moderate to high intensity within the past 4,000 years. Although occupation of the region extends back to at least 20,000 years ago, the environmental context would have been very different to the present over such an extended period of time;
- the area was very well suited for occupation including camping through repeated visits, longer duration, and/or visited by larger groups of people. This is expected due to the proximity to reliable water and resources (the interbarrier depression) as well as the presence of well drained elevated landforms (dune) overlooking the interbarrier depression. This is evidenced through the high number of sites and densities of those sites, however it is not possible to determine the evidence represents continued occupation including camping and hunting and/or gathering or numerous transitory movements;
- the stone material tuff was predominantly used for stone-working activities, largely because of its local availability, and it was probably procured from Nobbys;
- silcrete, not a locally obtained raw material, was likely to have been traded/transported in form outside the local area, and;
- shell material present representative of the previous lagoon/swamp.

The survey results are consistent with, or do not contradict the general model of occupation.

7.8 REGIONAL & LOCAL CONTEXT

Although the results from this assessment are limited by the sample size, the evidence can be compared with other assessment and sites from the region. The main purpose for this is to identify any differences or similarities with other assessments throughout the region (such as site patterning, site types, land form preference etc) in order to provide a framework to interpret and establish

representativeness for the identified sites within the investigation area. Several similarities have been recognised between the evidence within the investigation area and other assessments from the surrounding area. These are as follows:

- prevalence of stone artefact evidence (not surprising given the durability of stone);
- similar raw materials used for tool manufacture (tuff and silcrete);
- similar artefact types (flakes, broken flakes, flake pieces, cores);
- shell middens (oyster, pipi, cockle); and
- sites located on similar landforms (dunes overlooking the interbarrier depression); and
- absence of site within the interbarrier depression

7.9 REASSESSMENT OF THE PREDICTIVE MODEL

In view of the survey results, the predictive model of site location (refer to Section 5.2) can be reassessed for the investigation area.

The potential for bora/ceremonial, rock engraving and stone arrangement sites to occur within the investigation area remains assessed as very low or negligible.

The potential for carved tree or scarred tree sites to occur within the investigation remains assessed as low to moderate.

No direct evidence of lithic procurement sites was identified, however the potential for casual, opportunistic procurement of stone, such as tuff from Nobbys is likely.

No evidence was encountered of burial sites, and although the potential for skeletal remains to occur within the investigation area is considered to be moderate.

Sites of traditional cultural significance (such as mythological sites) were not identified by the Aboriginal stakeholders or stakeholder representatives involved in the investigation. The registered Aboriginal stakeholders also did not disclose any specific knowledge of other cultural values/places (for example, historically known places or resource use areas). However, the possibility cannot be excluded that traditional or historical Aboriginal values or associations may exist that were not divulged to MCH by the persons consulted, although this potential is assessed as low.

A shell midden with artefacts was identified within the investigation area. There remains a high potential for additional evidence to occur along the dune ridge in the areas currently obscured by vegetation, and is likely to occur in moderate to high density consistent with camping, food procurement and preparation, stone tool manufacturing and maintenance activities.

Site location, in relation to landforms and proximity to the interbarrier depression is also supported by the evidence.

7.10 DISCUSSION AND CONCLUSION

Sites provide valuable information about past occupation, use of the environment and its specific resources including diet, raw material transportation, stone tool manufacture, and movement of groups throughout the landscape. Previous broad-based regional research has shown that proximity to the interbarrier depression and the ocean were important factors in past occupation, with sites reducing in number significantly away from these sources. This research has also shown that occupation sites (shell middens, artefact scatters and isolated finds) are the most frequently recorded site type and are commonly located along the dunes overlooking the interbarrier depression in close

proximity to the food and medicinal resources the previous lagoon/swamp provided, and with a good vantage point(s).

The high dune ridge located in the southern part of the project area overlooks the interbarrier depression and is a relatively high dune ridge for the local area. Being located in such a prime location and with a vantage point, this ridge would have been favoured for continued camping for groups of people ranging from small to large numbers throughout the year or seasonally. Appearing to remain relatively undisturbed, it is expected that AHIMS site #38-5-0248 extends further than exposed and the entire ridge is assessed as having extremely high potential for additional sites to be present, both on the surface and subsurface. Such sites may be representative of a community-based camp with evidence such as artefacts assemblages of high density and high diversity, evidence of tool maintenance and repair and casual knapping, evidence for stone knapping, heat treatment pits, stone lined ovens, hearths, grindstones and ochre and cover a large area >100sqm with isolated camp sites and/or activity areas.

8 TEST EXCAVATION METHODOLOGY

8.1 OBJECTIVES

The purpose of archaeological test excavation was to collect information regarding the nature and extent of sub-surface Aboriginal objects, based on the sample obtained from these sub-surface investigations. The test excavation will contribute to the understanding of site characteristics and local and regional prehistory and was used to inform conservation goals and harm mitigation measures for the proposed activity. The test excavation also determined if an Aboriginal Heritage Impact Permit (AHIP) is required and what type of controlled salvage works may be required, if necessary, under the AHIP.

8.2 DATE OF COMMENCEMENT AND COMPLETION

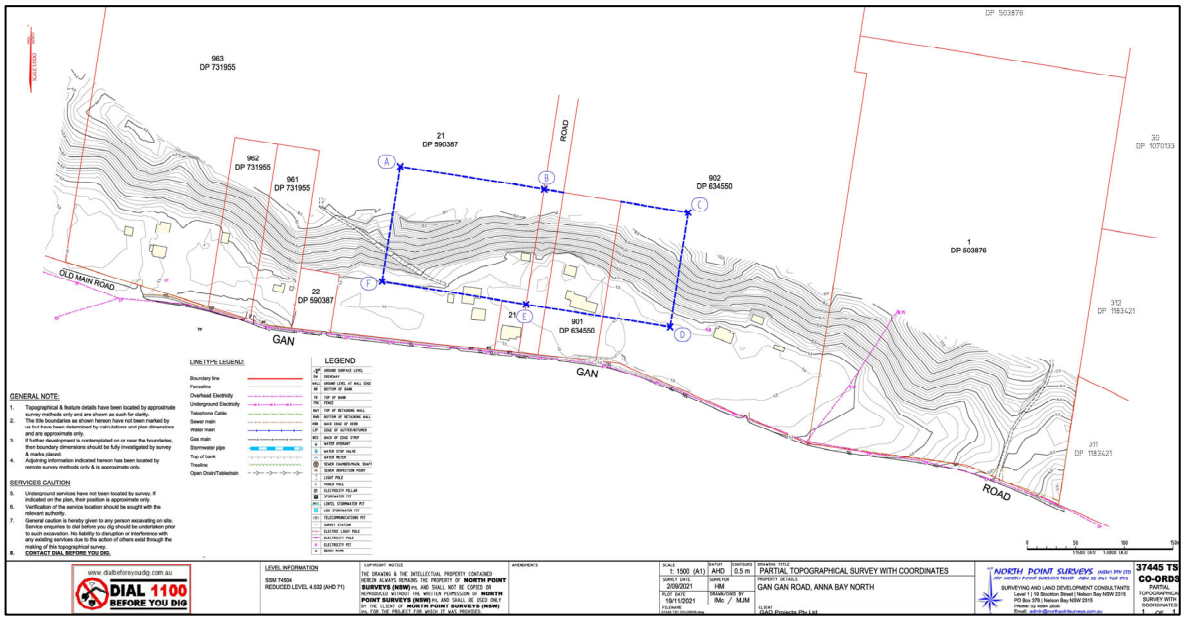
Start: 14th June 2022
End: 15th June 2022

8.3 EXCAVATION METHODS

The test excavation methodology under AHIP#4893 will include the access road corridor only (Figure 8.1) and was to include the dune and base of the dune (since excluded as this area will be filled with no excavation or disturbance to the natural landform. The test excavation methodology:

- the test excavation units will be placed within the area of impact only (road corridor);
- test excavations will be placed on a 20m x 20m grid across the PAD and AHIMS 38-4-0248;
- the test excavation will be pegged by a surveyor;
- test excavations units will be excavated using hand tools only;
- test pits will be 50cm x 50cm. If the deposit is present at depth and the 50cm x 50cm pit is too small to excavate at depth, the pit will be expanded to 50xm x 1m;
- the excavation units will be excavated and documented in 10 cm spits and may reduce depending if in situ artefacts are found in the test pit;
- all material excavated from the test excavation units will be sieved using a 5-mm wire-mesh sieve;
- depending on what is identified, additional test pits may be placed where appropriate to identify the extent of any sites;
- all cultural materials will be collected, bagged and labelled
- photographic and scale-drawn records of the stratigraphy/soil profile, features and informative Aboriginal objects will be made for each excavation point;
- test excavations units will be backfilled as completed;
- all artefacts will be removed at the end of each day for security and held with MCH until the artefact analysis was complete and will be handed to WLALC for temporary storage until reparation of the artefacts on site, and
- following the test excavation, an Aboriginal Site Card will be completed and submitted to the AHIMS Registrar.

Figure 8.1 Location of road corridor and test excavation



Test excavations will cease if human remains are uncovered and/or when enough information has been recovered to adequately characterise the objects present in relation to their nature, extent and significance.

Following the completion of the salvage excavations and community collections, an artefact analysis was undertaken and the details of the methods used are described below.

8.4 ARTEFACT ANALYSIS

8.4.1 THE BLOCK METHOD

Artefacts were measured using the block method that measures the greatest length (from the platform and perpendicular to the platform), the greatest width perpendicular to the length and the greatest thickness. Artefact dimension is a descriptive category reflecting the physical size of the artefact at the time of recovery. The physical dimensions of the artefacts were recorded to the nearest decimal place. The classification of artefact dimensions does not usually entail significant problems, other than when an artefact is broken. This method is used to assess differences in size classes of artefact types and raw materials and subsequently provides information in relation to the size of the whole flakes and cores discarded in the site. The rationale for looking at these attributes is that it indicates if any one raw material is being reduced more than another. It is generally accepted that as the raw material moves away from its source the cores will reduce in size as more flakes are removed. The flakes will also then reduce in size as core volume decreases.

8.4.2 ARTEFACT CLASSIFICATION AND TYPOLOGY

MCH employed classifications based on the materialist approach as opposed to the typological approach. Inherent problems with using classificatory schemes based on typologies have been outlined by Hiscock (2001; 2002). He notes that typological descriptions separate the artefacts into arbitrary classes as defined from an etic (outsiders) view point. They assume a set of design rules, do not account for the transition of forms, assume a consistency of 'type' specimens, and assume that artefact types are bounded and represent discontinuous entities. Materialist classifications do not

concentrate on the purpose or intention of the artefact maker but focus on how morphological features came into being. Whilst we will not be examining artefacts with as much detail as Hiscock's materialist classificatory scheme allows, we have chosen to use this scheme as opposed to typological classifications as we are not attempting to answer questions of design or function at this level of study. Artefact class is a technological category reflecting the mechanical processes which resulted in the physical form of the artefact at the time of recovery. Classes used include flakes, broken flakes, retouched flakes, flaked pieces, cores, flake used as a core, hammerstones, grindstones, ground-edge axes, heat-shattered fragments and non-diagnostic fragments. Classing artefacts does not usually entail significant problems, other than occasional ambiguities between flaked pieces and broken flakes, and between (retouched) flakes and flakes used as cores. This category is used to assess differences in provisioning strategies (e.g., core provisioning versus flake provisioning), differences in site function/use (e.g., presence/absence of grindstones), and the taphonomic effects of fire on site integrity (e.g., differences in the ratio of heat-shattered fragments to other artefact classes). Classifications used in this assessment and analysis included core, flake, broken flake (proximal, medial, distal, longitudinal), flake piece, platform type (cortex, broad, focal, faceted, shattered), termination types (feather, hinge, plunging, step, retroflexed), presence of retouch and usewear, hammerstones, grinding stones and any identifiable tools.

8.4.3 RAW MATERIALS

Raw material is an important attribute, which may broadly indicate the place of origin of an artefact. The dominance of one raw material or another may also be used to group or differentiate sites. Raw materials are also frequently used in concert with attributes in the creation of analytic units for more in-depth inter and intra site comparisons. Raw materials expected to be present based on other studies in the region include tuff or indurated mudstone/tuff and silcrete with few quartz and basalt. This category is usually without problems, though it is acknowledged that some disagreement exists as to the appropriate nomenclature for the material most frequently referred to as 'indurated mudstone'.

- Silcrete

Silcrete is an indurated soil duricrust formed when surface sand and gravel are cemented by dissolved silica. Silcrete is extremely hard and resistant to weathering and erosion but eventually weathers spherically to produce boulders and angular fragments. In Australia, silcrete was widely used by Aboriginal people for stone tool manufacture, and as such, it was a tradable commodity, and silcrete tools can be found in areas that have no silcrete groundmass at all. Silcrete comes in grey, whitish/cream, red, brown or yellow. Because silcrete varies in texture, it varies in the way it fractures when knapped and usually shatters easily into sharp, angular pieces with a conchoidal fracture. Due to its flaking properties and avaliability, this was an attractive material to past Aborigiunal people. Flakes have reasonable sharp and durable edges and as such was used for a variety of tasks including heavy-duty woodworking and for small spear babrs. The source of the material possibly comprises alluvial gravels associated with rivers and creeks.

- Indurated mudstone, tuff

Archaeologists have variously used the terms 'indurated mudstone' and 'tuff' as a description for the fine-textured, very hard, yellowish, orange, reddish-brown or grey rocks. The desire of archaeologists working in the region to offer a precise and accurate geological description of this material has fuelled debate about whether 'tuff' or 'mudstone' is the most appropriate label. Some of the samples of these problematic rocks that were examined petrographically were definitely not tuff. Until much more is known about the range of lithologies represented in this group of rocks, and ways are developed to distinguish between them, the term 'IMT' ('indurated mudstone/tuff') is an

acceptable alternative to the term 'mudstone' as a description for these fine-grained rocks. These materials have low fracture toughness (brittle) and as such were favoured as a raw material for artefact manufacture.

8.4.4 HEAT TREATMENT

Heating changes the stone structure making it more easily flaked. Patterns of raw material selection, as well as stone tool manufacture, maintenance and discard, and effectively the stone tool assemblage composition, are strongly influenced by the mechanical properties of the different types of raw material. The proliferation of tula adzes, backed artefacts and points, that were associated with retouching by pressure and delicate percussion required the use of high quality silcrete, microcrystalline or fine-grained, for these tools that were more curated (Flenniken and White 1985; Mulvaney & Kamminga 1999). Greater selectivity and an increasing emphasis on extending use-life of stone tools characterised the procurement of raw material. Heat treatment, both to procure and reduce stone, has been observed ethongraphically and replicative experiments have proven successful (Hankel 1983; Kuskie and Kamminga 2000). Heat treatment reduces point tensile stgength which makes flaking easier, especially in the manufacturing of long, thin blades such as microblades. Whilst Rick (1978) noted a decrease in edge angle for tools subject to heat treatment resulting in increased sharpness and cutting ability, Rick also noted that the treated edges were less durable and quickly blunted whilst untreated edges continued to cut at their initial rate. Rick thus argues that thermally treated artefacts were best suited for tasks involving cutting, penetrating (projectile points) or light duty scraping. Hanckle (1983) agrues that heat treatment was used in the manufacture of specific implements such as backed blades, end scrapers and thumbnail scrapers. Kuskie and Kaminga (2000) argue that part of the reson for heat treatment may also have been to obtain a desired colour as well as improving the knapping properties of the material. Suggesting the important symbolic meaning colours had in Aboriginal society, (e.g. red, pink and purple may have been important for amateurs of fighting and hunting spears) and argues that the reduced time and energy expenditure would have been a benefit in stone tool manufacture. Heat treatment appears to involve the use of a pit dug in sandy sediment, with cobbles or large primary flakes that are heated to a certain temperature then cooled in a controlled manner. The effects of heat treatment include alterations to the texture and structure, lustre, colour, water content, heat damage, conchoidal rippling upon flaking, compressive strength and point tensile strength (Kuskie and Clark 2005:107).

8.4.5 ARTEFACT COUNTS

Taphonomic and manufacturing processes can result in breakage of stone artefacts causing the counts to be inflated (see Hiscock 2002; Hiscock & Clarkson 2000). For this analysis, a study of the ratio between the specimens, knows as the NAS (including all flake fragments) and minimum number of flakes (MNF) (calculated by adding the number of complete flakes, distal or proximal flake fragments (whichever is the higher number) and left or right longitudinally broken flake fragments (whichever is the higher number) was used to reveal information regarding levels of fragmentation at sites and subsequently provide a more accurate indication of assemblage size.

8.4.6 USE-WEAR & RETOUCH

Use-wear is damage to the edges or working surfaces of artefacts caused by their use. It can be difficult to determine whether edge damage on artefacts is attributable to use-wear or the result of non-use related factors such as manufacturing, post-depositional factors (e.g. trampling by cattle; crushing from vehicles) or occurring during recovery and/or processing. For example, Jones (n.d.) studied artefacts from Dust Cave, Alabama, showing edge damage to determine if the damage was

caused by use-wear or non-use related factors. She found that several of the artefacts with edge damage identified with the naked eye did not show characteristics attributable to use-wear once examined under low and high-powered microscopes. Microscopes are a useful tool for determining the causes of edge damage but are not appropriate for work in the field or basic artefact analysis at this level. Analyses of artefacts using microscopes would be required to determine the true nature of the edge damage and may be appropriate at a later stage.

A retouched artefact is one that has been subsequently re-flaked usually by trimming, blunting or resharpening the edges. Easily obtainable raw material can sometimes result in early discard of broken or worn tools, whereas if raw material is scarce then tools are more likely to be refined and modified in order to extend the working life of the artefact. Whether retouch results in a steep or acute edge is important in relation to the possible functions of those edges. Acute retouch results in sharp edges suitable for cutting whilst steep retouch can be used to totally remove a sharp edge (to blunt as in backed artefacts) or to produce thick strong edges suitable for adzing or scraping. Thus, artefact function can be suggested by recording this attribute (residue and use-wear analysis can be used to substantiate these interpretations). The recording of the technique used for retouch addresses questions related to techniques of implement manufacture and thus another form of human behaviour that can be analysed within and between assemblages. The problem with this attribute is that this is a largely unambiguous descriptive attribute. The presence of retouch will be identified for this analysis but will not include the type of edge due to its subjectiveness.

8.4.7 PERCENTAGE AND TYPE OF CORTEX

Cortex refers to the 'skin' of a rock, the surface that has been weathered to a different texture and colour by exposure to the elements over a long period. The amount of cortex as a percentage of surface area will be measured on all artefacts (in relation to flakes, the cortex can, by definition only occur on the dorsal and platform surfaces). The nature of cortex – its shape and texture – will vary depending on where the raw material was sourced. Cortex will be recorded in all instances where it is present. This is a relatively unambiguous descriptive category. When a natural cobble is first selected it will usually be covered in cortex. Therefore, the first flakes produced from it will have a complete coverage of cortex on the dorsal surface (primary reduction). As the cobble is increasingly reduced the amount of cortex on the core and the flakes will decrease (secondary reduction) until it ceases to be present on artefacts (tertiary reduction). As a result of this trend, it should be possible to determine how early in the reduction sequence an artefact was produced. If large numbers of artefacts or a high proportion of the artefacts of a raw material retain cortex it may indicate that the site is located in proximity to the source.

Differences between the proportions of artefacts retaining cortex between different raw material sites indicates relative differences in distance to source. This does not necessarily mean distance in terms of measurable distance across the landscape; it may also reflect length of time since leaving the source. For example, the last campsite when a group is returning to the source of the raw material may be very close to the source in terms of distance, but distant in terms of time elapsed since the group left the source. If artefacts with cortex are occurring in sites a long distance from the place of origin of the natural cobble, then it is likely that raw materials were being transferred to the site when still only slightly reduced. This would imply an attempt to maximise the amount of stone being provisioned with the weight of transported material being a relatively minor concern.

8.4.8 BREAKAGE

At a basic level, flakes break in six different ways. Three are transverse (at 90° to the direction of percussion) – proximal, medial, distal; two are longitudinal (along the plane of percussion) – left,

right (oriented from the ventral view); and one ambiguous – marginal (where dorsal and ventral can be clearly distinguished, but the margin from which the piece has detached is uncertain). It is important to differentiate broken from complete flakes for the purposes of analysis, as the two are not comparable in regard to a number of measures. The amount of artefact breakage in an assemblage also indicates the degree of fragmentation to which the assemblage has been subject. In highly fragmented assemblages, the actual number of artefacts represented may be significantly exaggerated. Quantifying breakage allows a more accurate approximation of artefact numbers to be made. All breaks will be recorded during this analysis. It may difficult to be certain of the breakage on an artefact but in most cases the kind of breakage can be identified.

8.4.9 ARTEFACT ATTRIBUTES

Platform Type: platform preparation was undertaken when the knapper needed greater control of the force being applied to the core. The degree of platform preparation is reflected by the platform surface of the flake. The platform surface may also provide information regarding the stage of the reduction sequence from which the fake originated. The different platform surfaces include:

- *Broad platform*: applies to a platform which is wider than the width of the flake resulting in an angle of less than 90% between the platform and ridge and indicates a successful amount of pressure and force applied in creating the flake.

- *Focal platform*: applies to a platform which is narrower than the width of the flake, causing more than a 90 degrees angle between the platform and ridge. This is indicative of poor control in the knapping process as no further force can be applied to the flake due to the physical constraints of knapping and lack of platform surface remaining. Often a result of excessive overhang removal.

- *Crushed platform***:** indicates the use of too much force and can be used to indicate poor knapping ability. However, the type of raw material must also be taken into account. For example, in the reduction of the raw materials which are suitable for the manufacture of axes, many of the flakes removed during the shaping and thinning process will have crushed platforms and this is due to the large amounts of force often necessary to remove flakes from these anisotropic raw materials and not due to poor knapping ability.

- *Cortical (natural) platform*: a platform of unmodified natural surface, often covered in cortex and indicates earlier stages of flake production from the core.

- *Single flake platform*: a platform that has only one scar indicates that at least some de-cortication of the core occurred before the removal of the flake. It does not indicate platform preparation. This flake has been prepared through another flake coming of the core prior to its production. This platform is indicative of a later stage of flake production from the core than a natural surface.

- *Double flake surface*: a platform that has two scars and is indicative of the later stages of flake production from the core.

- *Faceted (ground/abraded) platform*: applies to a platform with several flake scars (three or more) and indicates platform preparation that suggests that the knapper was attempting to gain the greater knapping control necessary to produce flakes of a special shape and/or conserve the raw

material. This type of platform is indicative of later stage flake production and platform preparation.

Flake termination: flake termination takes many forms and is dependent on a number of factors including the amount of force struck to the core by the hammer stone, the direction of that force and the distance of the point of force application from the edge of the core. Additionally, the raw material type, the presence or absence of ridgelines on the core and any faults that may be contained within the core also may affect the flake termination. With the exception of the last point, these factors may be used to attest to the skill of the knapper. The different termination types include:

- *Feather termination*: minimal thickness as the distal end and an acute angle between the ventral (front) and distal (back) sides of the artefact. Occurs when the correct amount of force and direction of the force are transferred to the core of the hammer stone and is usually the result desired by the knapper and indicates a high degree of skill.

- *Hinge termination*: blunt rounded terminations formed at right angles to the cores surface and are caused by an outward and insufficient force, which results in the failure of the fracture to spread through the core without losing velocity and changing direction. Hinges can be an indentation of poor knapping control and may result in early discard of cores.

- *Plunging termination*: a termination that curves away from the face of the core with it and often forms a J-shape when viewed in a longitudinal cross section. This termination occurs when a flake passes through the core and removes the distal end of the core and is usually caused by excessive force but may also be initiated when a fracture follows a distinct ridgeline that passes beneath the core.

- *Step termination*: this occurs when an outward and sufficient amount of force is transferred from the hammer stone to the core and results in the fracture plane terminating at right angles to the core face. They can also be caused by incipient faults in raw material. Step terminations are recognised as a sign of poor knapping control.

- *Retroflexed and inflexed terminations*: may be found on flakes with a hinge or step termination. In these terminations, the fracture path loses velocity and turns to run in right angles to the surface of the core. Sometimes the fracture plane is so unstable that it turns again to run parallel to the surface of the core. This forms what has been termed a "final" on the flake termination.

8.5 SHELL MIDDEN ANALYSIS

Following the completion of the test excavation, an analysis of the shell will be undertaken along with a discussion and photographic record included in the report. Based on a reference collection of current shells and the use of photographs and malacological references, shells were sorted into morphological categories. And consisted of pipi shell only

8.5.1 BONE IDENTIFICATION

All bone recovered will be identified to a species where possible

8.6 RESEARCH QUESTIONS

The test excavation was designed to address a number of research hypothesis. The research questions listed below derive from Kuskies (2005) detailed work in the region and are used here for consistency in analysis and discussions as well as local and regional comparative research.

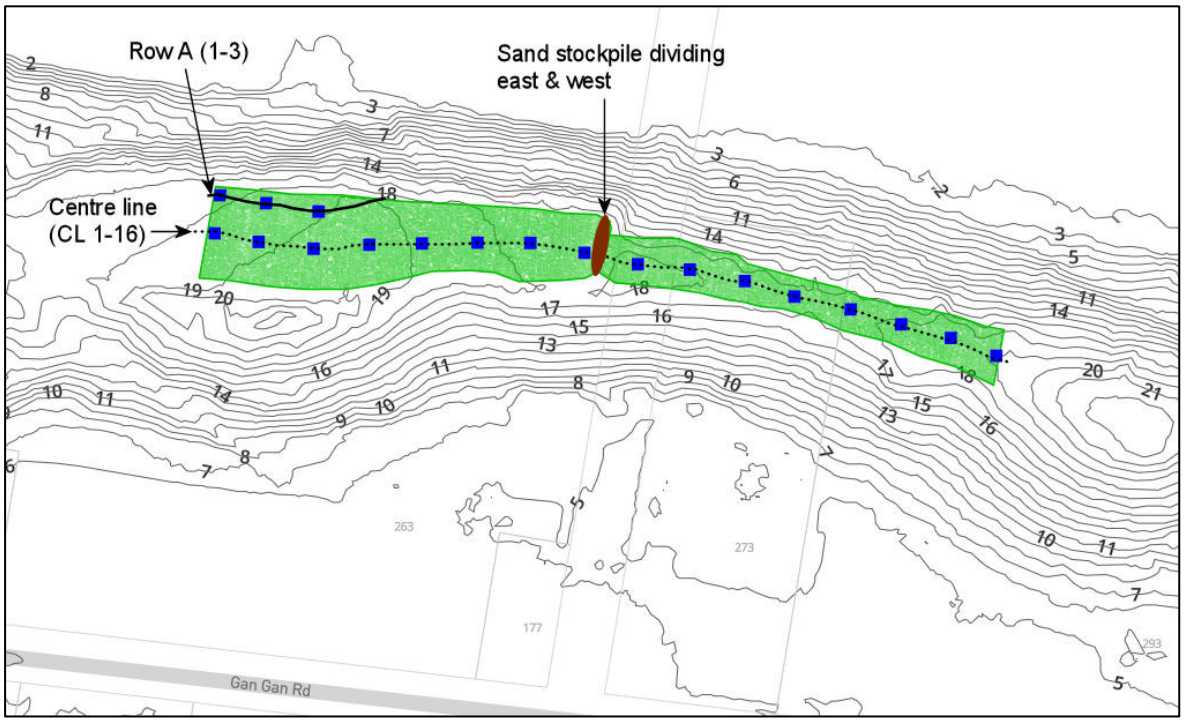
- What past Aboriginal activities occurred within the project area?
- What types of past Aboriginal occupation occurred within the project area (e.g. transitory movement, hunting, gathering, camping etc)?
- Were the types of activity and nature of occupation related to environmental factors (e.g. landforms, proximity to reliable water)?
- Does spatial patterning of activity areas occur within the project area?
- Did single or multiple episodes of occupation occur within the project area?
- Did episodes of occupation occur at different times over the whole time-span of occupation in the region within the project area?
- Is there potential for older evidence of occupation (i.e. early Holocene)?
- How intensive was occupation of the sites, in both a local and regional context?
- What shell midden materials are present?
- Did microblade and microlith production occur on the sites?
- Were other tools manufactured on the sites?
- Was maintenance of tools conducted on site?
- Was knapping of flakes largely casual and opportunistic, meeting requirements on 'as needed' basis?
- What raw materials were favoured for use on site within the project area and why?
- Did thermal alteration of raw materials occur within the project area?
- Is there evidence that this is an extension of existing sites in the immediate vicinity or local area?
- How does the evidence and inferred human behaviour represented within the project area compare with evidence from other locations in the region?
- How does the evidence relate to the regional and local models of occupation?

9 TEST EXCAVATION RESULTS AND DSICUSSION

The results of the test excavation, the analysis and discussion of these results are presented in this Section. A total of 19 subsurface investigation pits were excavated along the dune crest. Being a narrow dune crest, test pits were first placed allowing a centre line and then placed at 20 metres. As the dune slopes were steep, no test pits were included on the slopes.

No test excavations were included at the interface of the dune and the interbarrier depression as the that area, and the interbarrier depression will be filled with absolutely no excavation or disturbances to that location. The locations of all Pits excavated are illustrated in Figure 8.1 and all pit descriptions are provided below.

Figure 9.1 Test excavation plan



Surface disturbances across the PAD were clearly divided with the western half having the original dune crest removed, flattened and used as a garden whilst the eastern half retained the original landform. These two areas were clearly marked by scraped dune material/stockpile (Figures 9.1 and 9.2).

Figure 9.2 Eastern side of the western portion of the PAD (facing west)

Figure 9.3 Western side of the eastern portion of the PAD (facing east)

9.1 DISTURBANCES

9.1.1 WESTERN HALF

The western half of the PAD identified consistent disturbances throughout and included previous wholesale clearing, a vegetable garden with irrigation, vegetation roots along with very few small rocks and charcoal that decreased with depth. The A horizon was shallow (due to the crest being previously removed) and there was a clear sharp change from the cream/grey coloured A horizon to an orange/brown B horizon. A moderate to high amount of insect bioturbation was noted throughout the deposit and was consistent across the western half and included curl grubs, worms, ants, spiders, centipedes and beetles.

9.1.2 EASTERN HALF

The eastern half of the PAD identified consistent disturbances throughout and included previous clearing as evidenced through introduced vegetation with few small rocks and charcoal that decreased with depth. The A horizon was deep (due to the original crest being present). The A horizon consisted of a top layer of grey humic sand with a gradual change to cream coloured sand then a gradual change to an orange/brown B horizon. A moderate to high amount of insect

bioturbation was also noted throughout the deposit and was consistent across the western half and included curl grubs, worms, ants, spiders, centipedes and beetles.

9.2 STRATIGRAPHY

The stratigraphy is closely linked to the soil horizons throughout the PAD with differences between the western and eastern half directly due to the removal of the dune crest and vegetable garden in the western half and the eastern half remaining relatively undisturbed.

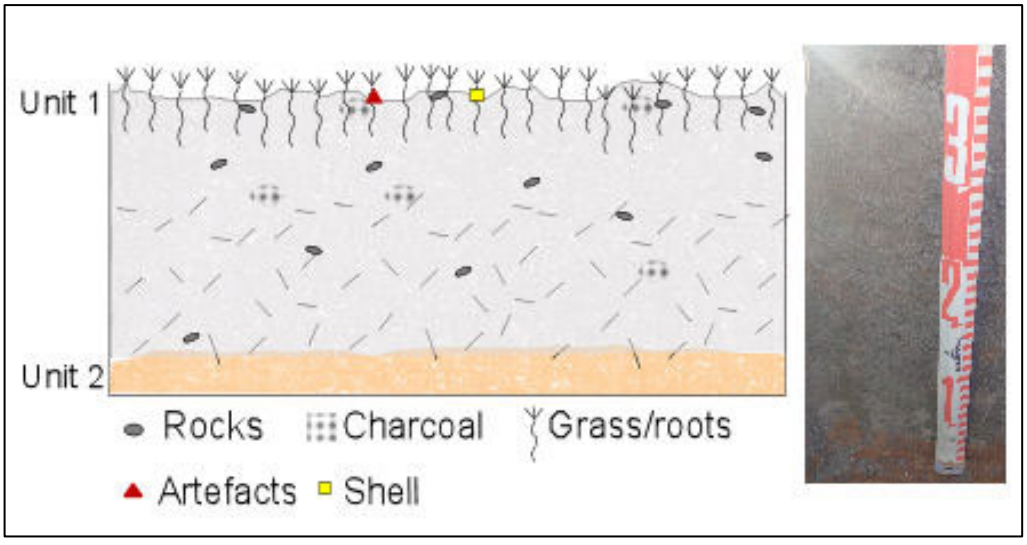
9.2.1 WESTERN HALF

The overall general stratigraphy for the western side of the PAD (Test pits C1-C8 and A 1-3) is described below.

- Unit 1: A soil horizon varies in depth from 4-43cm and is a loose speckled grey/cream coloured sand (topsoil). Inclusions are roots and few charcoal fragments. Insects are common.
- Unit 2: there is a clear and sudden change to the B horizon of orange sand and begins from 20cm+ below the surface.

Figure 9.4 can be taken as being representative of all the excavated pits within the western half of the PAD. Individual pit data is provided in Appendix C.

Figure 9.4 Representation of the western side of the PAD stratigraphy



The A horizon was consistent across the entire western section of the PAD and consisted of sand (10YR 4/1) that was neutral (pH 7) with inclusions of grass, roots, insects and very low-density small rocks and charcoal spread throughout the deposit that decreased to nil towards the end the A horizon. There was a clear and abrupt change to the B horizon being an orange/brown sand (10YR 3/6; 6 pH). Excavation ceased at the B horizon.

9.2.2 EASTERN HALF

The overall general stratigraphy for the eastern side of the PAD (Test pits C9-C16) is described below.

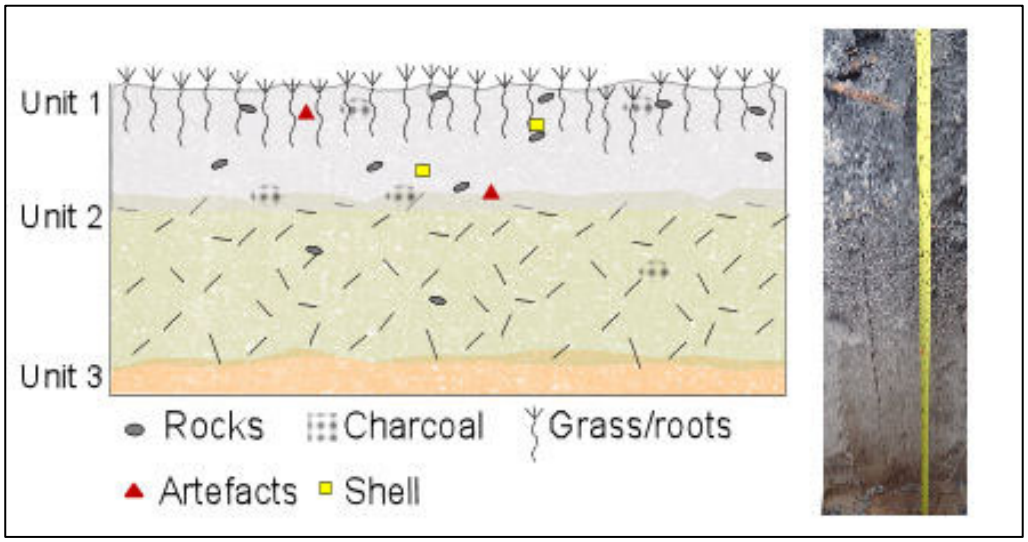
- Unit 1: A_1 soil horizon varies in depth from 0-33cm and is a loose speckled grey brown loamy sand (topsoil). Inclusions are roots and few charcoal fragments. Insects are common. This horizon is present only along the upper crest area.

- Unit 2: A_2 soil horizon varies in depth from 33-76cm and is a loose bleached cream coloured sand. Inclusions are roots and few charcoal fragments with insects, all of which decrease with depth to zero inclusions towards its base.

- Unit 3: B soil horizon includes mottled cream and light orange sand that gradually changes to orange/brown sand and there are no inclusions.

Figure 9.5 can be taken as being representative of all the excavated pits within the PAD. Individual pit data is provided in Appendix C.

Figure 9.5 Representation of the eastern side of the PAD stratigraphy



The A horizon was consistent across the entire western section of the PAD and consisted of an A1 horizon of sand (10YR 3/1) that wase strongly acid (pH 5) with inclusions of grass, roots, insects and very low-density small rocks and charcoal spread throughout to the A 2 horizon (10YR 4/1; 7 pH) and then decreased to nil towards the end the A horizon. There was gradual change to the B horizon being an orange/brown sand (10YR 3/6; 6pH). Excavation ceased at the B horizon.

9.3 ARCHAEOLOGICAL SITES

This section discussed the site previously identified site (AHIMS site #38-5-0248) and its association/expansion with new sites identified during the test excavation.

9.4 DEFINITION OF A SITE

A 'site' can be defined by various factors. For this assessmnet, a 'site' was defined on the combination of the following inter-related factors:

- landform;

- exposure and visibility;
- visible boundaries of artefacts; and
- a feature identified by the Aboriginal community on the basis of their own cultural knowledge and significance.

The 'site area' was defined as the area in which artefacts were observed on a landform, though it must be remembered that this may not represent an accurate picture of site size. Visibility of artefacts is affected by differences in vegetation cover and hence ground surface visibility, as well as the degree of natural and human-induced disturbance that relocate or remove sites.

9.5 DEFINITION OF SITE COMPLEX

Site complex refers to sites that occur in groups. For example, complexes may consist of burial grounds and carved trees, artefact scatters that represent different stages of procurement and manufacture or artefact scatters and shell middens. Complexes may also consist of artefact scatters that are connected across a landscape with the scatters being either specific activity centres (such as tool manufacturing sites) or larger base camp areas (with more artefacts and a variety of artefacts).

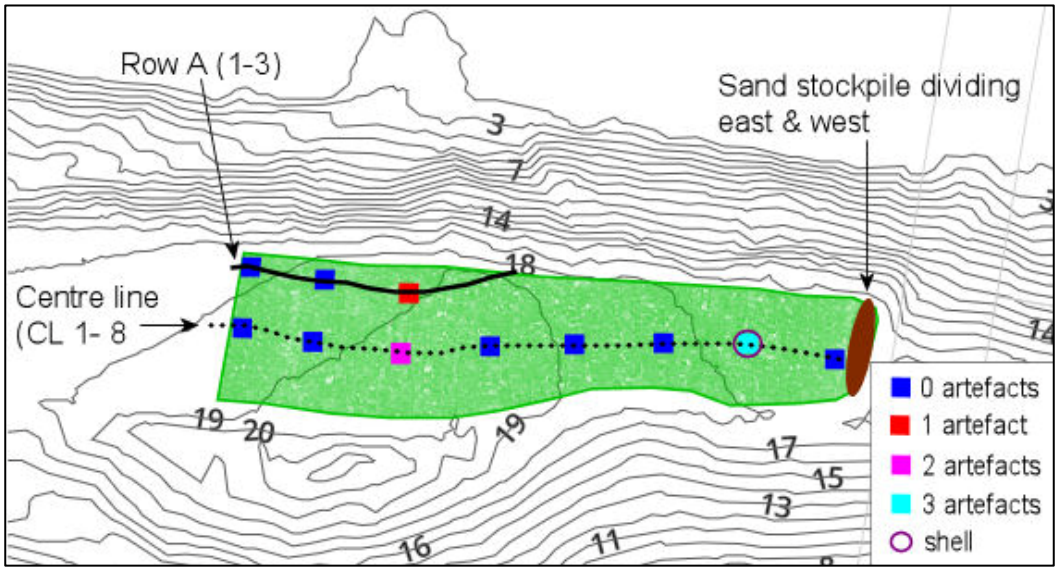
9.5.1 AHIMS SITE #38-5-0248 – WESTERN HALF

The test excavation identified a highly disturbed and distributed surface shell midden with few stone artefacts across the western part of the PAD (AHIMS site #38-5-0248). This is not surprising given that the top section of the dune crest had been removed or disbursed/flattened.

Of the 11 test pits in this area, 3 contained artefacts (total of 6 artefacts) and of those three test pits, one (CL7) contained minimal pipi shell fragments (2 small fragments in spit 2 and 5 small fragments in spit 3).

It is not possible to identify if the artefacts represent one site or multiple isolated sites and as such for ease of management, the artefacts have been assessed as representing one site. Artefact types included flakes manufactured from silcrete (n=2) and tuff (n= 4). Being disturbed through past land uses (refer to Sections 9.1 and 9.2), the site and western side of the PAD have no potential for in situ cultural materials. Figure 9.3 shows the location of artefacts and artefact numbers in those test pits.

Figure 9.6 Artefact and shell locations in western half of the PAD AHIMS site #38-5-0248



9.5.2 SITE #38-5-0248 – WESTERN HALF – SITE INTEGRITY

Site integrity can be examined through three main factors including land use history and natural processes, the horizontal and vertical distribution of artefacts and conjoins of artefacts and inferred associations between individual artefacts. The initial assessment identified that previous and present land uses and their impacts as well as natural impacts (such as bioturbation, erosion etc) within the investigation area were assessed as generally low to moderate. The potential effects of land use and their impacts on cultural heritage can be considered.

Although it is problematic to examine spatial distribution patterns through conjoining or association of artefacts of similar stone types in small, spatially discrete test pits, this form of analysis is more applicable to broader area excavations, it does aid in assessing site integrity generally. No conjoins were present in the artefacts recovered.

The test excavation did not identify evidence of integrity in the form of 'artefact association', which is the association of artefacts is based on spatial proximity, similar materials and shared technological and typological attributes of the artefacts. Soil horizon A contained significant evidence of past land uses with the A1 horizon being removed. There is no evidence of stratigraphy throughout the A horizon and the evidence indicates the western side of the PAD has been subject to high intensity impacts and as such the PAD is identified as a highly disturbed deposit with little to no likelihood of in situ deposits.

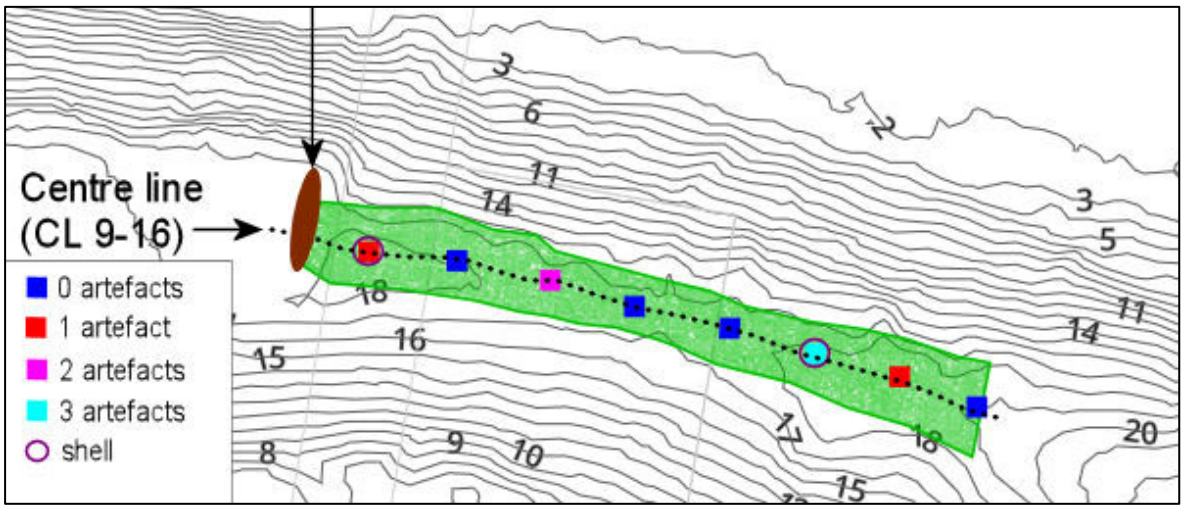
9.5.3 SITE GAN GAN/01 – EASTERN HALF OF THE PAD

The test excavation identified a significantly less disturbed site with a number of discrete low density artefact scatters/shell middens and isolated finds. This is not surprising given that the dune remains intact with no removal of the dune crest.

Of the 8 test pits in this area, 4 contained artefacts and of those four, two (CL9 & CL14) contained pipi shell fragments.

Artefact types included flakes manufactured from silcrete (n=4) and tuff (n= 3). Being relatively undisturbed through past land uses (refer to Sections 9.1 and 9.2), the site and eastern side of the PAD have potential for in situ cultural materials. Being low density artefacts scatters and shell middens, these appear to be discrete, isolated sites that form an overall site complex of sites along the narrow dune and is identified as a separate site (Gan Gan/01). Figure 9.7 shows the location of artefacts and artefact numbers in those test pits.

Figure 9.7 Artefact and shell locations in eastern half of the PAD (site GG/01)



As shown in Table 9.1, the pipi shell was distributed vertically, though confined to certain spits. This along with the presence of works and other insects, indicates disturbance/dispersal through bioturbation in the eastern side of the PAD.

Table 9.1 Shell data –GG/01

Pit	Spit	Shell species	# Fragments/wt
CL9	2	pipi	5g
	3	pipi	15 fragments
	4	pipi	7 fragments
CL14	1	pipi	3 fragments
	2	pipi	1g

Whilst it is not possible to identify if the artefacts and shell represent one site or multiple isolated sites, the minimal disturbances, lack of shell lenses in excavation walls indicating larger site(s), and a verry narrow dune crest, it is possible that these represent isolated events, but all linked by the landform and location (narrow dune overlooking the interbarrier depression (discussed further in Section9.6). Being relatively undisturbed the eastern side of the PAD has potential for in situ cultural materials.

9.5.4 SITE GG/01 – EASTERN HALF – SITE INTEGRITY

The test excavation of the eastern side identified the site retained integrity with the only disturbance being bioturbation with some surface disturbances.

Soil horizon A contained evidence of vertical movement only with shell and artefacts maintained within approximately 30cm and no or very limited lateral movement as evidenced by the absence of materials laterally. The eastern side of the PAD (GG/01) has been subject to minimal land uses and has retained integrity and as such there remains a high potential for additional in situ deposits.

9.6 SITE GG/01 – A SITE COMPLEX

As each location of artefacts occur as very low density and the shell present is also low-density, this is indicative of isolated events. Additionally, as the dune is narrow and unsuitable for large camps, this further supports the likelihood of being individual sites. However, being located on a narrow dune along the inter barrier depression, a location with an excellent look out perspective, these sites may be linked and in association with each other by virtue of their location and use. These sites are connected across a landscape with the scatters and shell middens being of activity areas such as look out/hunting/gathering/single meal events.

In addition to this, the dune widens east of the test excavation area and has a larger area that would have been suitable for larger groups of people. Evidence from along the dune are also likely to be linked.

9.7 ARTEFACT ANALYSIS

The lithic assemblage is comparable to other assemblages at both a local and regional scale with the inclusion of tuff and silcrete. An artefact catalogue is provided in Annex D.

9.7.1 LITHIC ITEMS

A total of 13 stone artefacts, all flakes, were recovered from the excavation. The lithic assemblage is comparable to other assemblages throughout both the local and regional area. Artefact manufactured from IMTC were the most dominant (N= 8) followed in lesser quantities by silcrete (N= 5). No sources of raw material were present within the PAD and the tuff is likely to have derived from Buribi Point (a well know raw material source location) and the silcrete from further up the Hunter Valley. The artefacts recovered represent non-specific flaking with no evidence of maintenance activities or tool manufacturing. Four artefacts showed evidence use-wear, indicating use and there was no evidence of re-touch. Table 9.2 provides an artefact summary and the artefacts is Figures 9.8 and 9.9.

Table 9.2 Artefact data AHIMS 38-5-0248

Pit	Spit	Raw material	Type	Usewear	Platform	Termination
Western side						
CL3	1	tuff	flake	y	crushed	step
		tuff	flake	y	focal	feather
CL7	3	tuff	flake		focal	feather
		tuff	flake	y	focal	feather
		silcrete	flake		crushed	step
A3	1	mudstone	flake	y	focal	feather
Eastern side						
CL9	4	tuff	flake		focal	step
CL11	3	tuff	flake		focal	step
		tuff	flake		focal	hinge
CL14	1	silcrete	flake		facet	step
	2	silcrete	flake		single flake	feather
	3	silcrete	flake		single flake	feather
CL15	2	silcrete	flake		single flake	feather

Figure 9.8 Artefacts and shell fragments from AHIMS site #38-5-0248

Figure 9.9 Artefacts from site GG/01

The artefact from CL3 has a crushed platform with a step termination indicating too much force and poor knapping ability. Two of the three artefacts from CL7 have a focal platform that is indicative of poor knapping ability bit a feather termination which is indicative of good knapping ability. This contradiction may be related to the raw material. The third artefact from CL7 has a crushed platform and feather termination, also contradictory and also likely the result of the raw material (course gained silcrete).

The artefact from CL9 had a focal platform and step termination, both indicative of poor knapping control. Both flakes from CL 11 had focal platforms and one with a step termination and the other with a hinge termination, also indicative of poor knapping control. Two of the three flakes from CL14

have a single flake platform with feather terminations indicative of a later stage of flake production from the core and good knapping ability, whilst the third flake has a facet platform and step termination. The facet platform indicates platform preparation that suggests that the knapper was attempting to gain the greater knapping control necessary to produce flakes of a special shape and/or conserve the raw material, whilst the step termination may represent poor control of fault in the raw material. The isolated artefact from CL15 has a single flake platform and feather termination

9.8 SHELL ANALYSIS

The very low density of shell recovered appear to represent single meals. Pipi was the only species excavated, few whole shells were present, all of moderate size and available locally.

9.9 SPACIAL PATTERNING, ACTIVITY TYPES AND ACTIVITY AREAS

The identification and assessment of variations in spatial patterning of past human occupation can greatly assist with the interpretation of the evidence and provide meaningful information about human behaviour that created that evidence. An activity location refers to a single location in which one or more activity events have resulted in the discard of items that constitute archaeological evidence. Activity locations represent concentrations of artefacts produced by activities carried out by people following some form of organisational strategy during a particular occupation (Biosmier 1991:19). Such activities include tool manufacture and repair, cooking, food processing and the disposal of refuse. These activity areas are hypothetical frameworks that were developed to potentially reflect the way that people may have organized their use of space in relation to other activities and other factors (Boisimer 1991:19; Kuskie and Kamminga 2000:449). Thus, an activity refers to the specific behaviour which results in the discard of a certain item.

One of the fundamental ways of identifying specific prehistoric activity areas is through the analysis of the composition and patterning of lithic assemblages. Best results are obtained when the artefacts represent a single episode of activity and the pattern is not disturbed by repeated cultural discard during subsequent use of the site. Even when there are long intervals between site uses, the artefacts from different periods may become mixed due to low rates of sedimentation and bioturbation processes. Whilst such mixed deposits pose considerable problems in interpretation, meaningful interpretations may still be derived from activity analysis (Kuskie and Kamminga 2000; Kuskie and Clark 2004).

Additionally, many activities will be ephemeral or invisible within the archaeological record and cannot be verified through archaeological means. It cannot be estimated as to how much material has been lost from these sites and to analyse the remainder material collected may result in the over or under estimation of the sites assemblages, activities and lengths of occupation (Woo 2014:120). This discussion is therefore undertaken by examining the distribution of artefacts and stone material types to identify notional activity types and areas within the PAD.

Various taphonomic processes can affect a site and the nature of the post depositional disturbances has been discussed and problems and issues arise with the interpretation of activity areas including the effects of post-depositional processes, effects of chronological variations (time of occupation when discard occurred) and the effects of multiple occupation in the form of content of sites and activity areas. Also, the effects of extended length occupations in the form and content of sites and activity areas, the extent to which artefact class distributions represent patterning of past occupation, the extent to which qualitative and quantitative differences represent different functions, the importation of items on site and the removal of items off site, and the effects of human behaviour such as ‘tossing’ or ‘dumping’ artefacts (Kuskie and Kamminga 2000:452).

The test excavation has identified a partially disturbed landscape and associated cultural deposits. The evidence derived from the relatively undisturbed eastern side is very useful for spatial analysis/activity types and location discussions. The artefacts recovered indicate activities limited to activities such as hunting/gathering/lookout/scouting by one or two people over short periods of time and possibly multiple events rather than one event. The landscape consists of a narrow dune crest and as such is not suitable for camping by medium or large numbers of people and there was no evidence of such as hearths, grinding stones, heat pits or ovens was evident. However, as the dune widens in the east, outside the test excavation footprint, such evidence of larger scale camping and activity areas may be present and associated with those along the narrow ridge.

9.9.1 SPATIAL DISTRIBUTION

The distribution pattern of sites across a landscape has the potential to indicate a great deal about the interaction between people and the environment and the nature of social organisations. The first step in spatial analysis is to map the known sites of similar dates (if known), then add aerial and/or topographic information. The distribution can then be analysed for signs of patterns, clustering and relationships between larger and smaller sites. Once this detail is obtained, questions may be asked relating to a variety of factors such as sites in relation to distance from water, to landforms, site densities, site types etc. However, the assumption that artefacts are spatially distributed as a result of patterned behaviour of past prehistoric societies so that the spatial structure is potentially informative about the nature in which the society was organised, may be problematic.

Distribution patterns must be viewed with caution due to post-depositional factors. For example, artefacts located along a creek or creek beds are likely to have derived upstream and moved due to flooding/stream movement. Fewer disturbances are likely in locations such as flat areas, although this is also dependant on other disturbances, both human and natural. Sample size will also affect the distribution patterns as a smaller sample will provide limited information while a larger sample provides more data. Therefore the inferences made from the results are limited but can provide some general information.

Using the well-established predictor variables relating to topography and resource proximity, or dunes overlooking the interbarrier depression, based on the consistent presence of what appears to be isolated, low-density events across the eastern side of the PAD (GG/01) and the fact that portion of the consists of a very narrow stabilised dune ridge in close proximity to a rich and extensive range of resources, it is logical to conclude that, the dune may have been used for lookout opportunities as well as small scale hunting/gathering activities that appear to have occurred along the narrow portion of the dune.

It is also noted that there are wider parts of the dune outside the current teste excavation area and project impact footprint that have not been subject to teste excavations and may in fact, have provided the room to allow for more home base focused camping and associated activities.

Whilst the archaeological sites are significant in their own right and on their own, they need to be considered as grouped entities; for example, as a series of linked sites, or site complex that are linked by virtue of the environmental and Aboriginal land uses contexts. It must be noted that the site complex conceivably stretches well beyond the boundaries of the present project, and thus its full extent is unknown. Additionally, there may be additional evidence of different events/activities along the dune at locations that are wider, allowing more room for more people.

9.9.2 CHRONOLOGY

Chronology is the science that deals with measuring time by regular divisions and that assigns to events to their proper dates. Holdaway *et al*. (1998: 3) identified four main difficulties applicable to recording surface sites. First, the lack of chronological control because of the absence of stratigraphy; second, the difficulty in determining site boundaries and features demarcated by a group of artefacts; third, identifying and interpreting artefacts in the field; and fourth, the problem of obtaining a representative sample from sites where there is uneven exposure or visibility.

In Australian archaeology, as in other parts of the world, stone artefacts contribute to developing a broad chronology for occupation, simply because they span the total period of occupation. In the absence of absolute dating techniques to establish chronology within the investigation area, relative dating may be applied. This includes using tool types that have been dated to specific period in Australian history. Artefacts such as backed artefacts have been reliable dated in rock shelters to around 4,000 years ago (Hiscock and Attenbrow 1998; Mulvaney and Kamminga 1999) and as such the artefacts with retouch are inferred to date within the last 4,000 years.

Given that the test excavation did not yield any material suitable for absolute dating, there is no reliable means to obtain absolute dates. Additionally, as no stone tools were uncovered, stone tool typology cannot be used.

9.10 INTREPRETATION

The archaeological evidence recovered from the investigation area, can be interpreted in relation to the traditional way of life that was practiced by Aboriginal people. Archaeological evidence tends to represent a 'two-dimensional' view of only selected aspects of the local population's way of life and history. It is important to consider the nature of human behaviour represented by the evidence. The general model of forager settlement patterning in the archaeological record established by Foley (1981) and the established model of occupation strategies based primarily upon ethnographic research that distinguishes between short-term or extended long-term occupation and makes some predictions about the likely location of different foraging and settlement activities by Kuskie and Kamminga (2000) has been discussed in Section 6.7.1. The following interpretation of the evidence recovered during the test excavation is based on those models of past Aboriginal occupation and land use.

The results of the test excavation identified a disturbed landscape in the western half of the PAD (site 38-5-0248) and whilst it is possible that the site may represent multiple episodes of occupation over a period of time, it is not possible to clarify this. The location of 38-5-0248 on a dune overlooking the interbarrier depression, indicates this location was favourable for past occupation, but with the top of the dune removed/disturbed along with the archaeological evidence being highly disturbed, it is not possible to determine the nature or extent of past Aboriginal land use at that location.

The results of the test excavation in relation to the eastern side of the PAD (GG/01), identified a relatively undisturbed narrow dune ridge overlooking the interbarrier depression with evidence of multiple isolated low-density activity areas.

Based on the evidence, limited shell midden materials, one species of shell present, the limited range of artefacts and stone types, evidence of discarded artefacts, no evidence of knapping, tool production or maintenance as well as the absence of labour/energy/time intensive evidence (hearths, grinding grooves, heat treatment pits etc) indicate that the nature of occupation within the investigation area represents evidence of hunting and gathering and, or camping by individuals and/or very small groups of people.

It is likely that the eastern side of the PAD (GG/01) along the anarrow portion of the dune ridge, represents multiple episodes of occupation over a period of time. There is no direct or circumstantial evidence for older occupation within the investigation area. Based on the evidence of the test excavation, the following can be inferred from the evidence:

- a number of episodes of land use are likely to have occurred within the investigation area, and may have involved either individuals and/or very small groups of people and for very short durations of time in association with lookout, hunting and gathering activities;
- the duration of each episode is unknown. However, the quality and quantity of the evidence suggests short-term hunting/gathering, lookout activities (one or several days). Transitory movement is also likely to have occurred, but not possible to identify;
- the primary activities represented by the small sample of artefacts and shell recovered during the test excavation was gathering and consumption of local resources; and
- proximity to water and associated resources was a primary factor influencing the nature and extent of past occupation of the investigation area.

As the dune ridge widened into a wider area east of the current test excavation/project footprint boundary, it is possible that larger camping/hunting/gathering activities may have occurred at that location, or any other larger area along the dune.

9.10.1 INTERPRETATION & OCCUPATION MODEL

The inferences that can be made about the nature of occupation within the investigation area are limited by the sample size of the test excavation. However, consistent with the regional occupation model (Kuskie and Kamminga 2000), it is inferred from the evidence obtained during the test excavation that:

- although occupation of the region extends back to at least 20,000 years ago, the environmental context would have been very different to the present over such an extended period of time;
- due to the elevated landform and proximity to reliable water, the dune is well suited for past Aboriginal land uses including being used as a look out area, hunting and gathering through repeated visits along the narrow portion of the dune ridge;
- camping through repeated visits, longer duration, and/or visited by larger groups of people may have also occurred along the dune at locations where the dune is wider allowing room for more people and more activities;
- the shell evidence is consistent with single meals consisting of local shell species;
- the artefact evidence is consistent with an occupation site and associated background scatter; and
- The stone material IMTC was predominantly used for stone-working activities, largely because of its local availability, and it was probably procured from local sources.

The test excavation results are consistent with, or do not contradict the general model of occupation and highlights the flexibility of past Aboriginal land uses within the environment.

9.10.2 REGIONAL & LOCAL CONTEXT

Although the results from this assessment are limited, the evidence can be compared with other assessment and sites from the region. The main purpose for this is to identify any differences or

similarities with other assessments throughout the region (such as site patterning, site types, land form preference etc) in order to provide a framework to interpret and establish representativeness for the identified sites within the investigation area. Several similarities have been recognised between the evidence within the investigation area and other assessments from the surrounding area. These are as follows:

- Prevalence of stone artefact evidence (not surprising given the durability of stone);
- Similar raw materials used for tool manufacture (IMTC);
- Similar artefact types (flakes);
- Similar shell species (Plebidonax deltoids);
- Sites located on similar landforms (elevated dune overlooking the interbarrier depression).

9.10.3 REASSESSMENT OF THE PREDICTIVE MODEL

In view of the survey results, the predictive model of site location can be reassessed for the investigation area.

The potential for bora/ceremonial, carved tree, scarred tree, rock engraving and stone arrangement sites to occur within the investigation remains assessed as very low or negligible.

No direct evidence of lithic procurement sites was identified, however the potential for casual, opportunistic procurement of stone from local sources, such as Birubi Point, cannot be discounted.

No evidence was encountered of burial sites, and the potential for skeletal remains to occur within the investigation area is considered to be moderate due to the Worimi tradition of burying the deceased under middens and in dunes.

Sites of traditional cultural significance (such as mythological sites) were not identified by the Aboriginal stakeholders or stakeholder representatives involved in the investigation. The registered Aboriginal stakeholders also did not disclose any specific knowledge of other cultural values/places (for example, historically known places or resource use areas) within the specific study area.

The western side of the PAD, or site 38-5-0248, is highly disturbed and there remains little potential for insitu deposits. The eastern side of the PAD however, remains relatively undisturbed, contains evidence of a number of likely isolated events, and there remains a high potential for additional evidence to be present along the narrow section of the PAD as well as outside the project impact area along the dune.

9.11 RESEARCH QUESTIONS

- *What past Aboriginal activities occurred within the project area?*

  The stone artefact evidence represents non-specific knapping and the evidence of very low-density shell midden materials and consisting on one species, are indicative of an individual or very small group of people hunting/gathering/scouting/lookout at one time.

- *What types of past Aboriginal occupation occurred within the project area (e.g., transitory movement, hunting, gathering, camping etc)?*

  Utilisation of the narrow dune ridge area was probably to have been undertaken over a number of separate episodes and likely to have involved individuals re very small groups of people over short durations of time.

- *Were the types of activity and nature of occupation related to environmental factors (e.g., landforms, proximity to reliable water)?*

  Whilst there is a range of variables that potentially influenced the nature and extent of past land use, it is concluded that proximity to the interbarrier depression was the primary factor.

- *Does spatial patterning of activity areas occur within the project area?*

  The western side of the PAD (38-5-0248) was disturbed through past land uses which have disturbed the cultural materials present. The results of the test excavation did not indicate any specific spatial patterning of activity areas due to the disturbed nature of the site.

  The eastern side of the PAD area remains relatively undisturbed and the results of the test excavation identified isolated, individual activities (single meals) and it is highly likely that additional evidence will be present along the dune.

- *Did single or multiple episodes of occupation occur within the project area?*

  Due to the nature of the evidence obtained, it appears the sites represent a number of single episodes, or multiple events occurring as isolated/single events over time.

- *Did episodes of occupation occur at different times over the whole time-span of occupation in the region within the project area?*

  It is not possible to address this question due to the lack of datable evidence recovered during the test excavation program.

- *Is there potential for older evidence of occupation (i.e., early Holocene)?*

  No direct or indirect evidence exists for occupation of the site that is older than the Holocene. However, as the dune is Pleistocene in age, it is not discounted.

- *How intensive was occupation of the sites, in both a local and regional context?*

  Whilst occupation appears to have been low intensity, involving individual camps and/or hunting/gathering/look out activities, this may in fact be due to the nature of the landform (narrow dune ridge). The evidence obtained indicates that each episode would have been of short duration by some individual and/or very low numbers of people.

  This is unusual as the dunes overlooking the interbarrier depression are typically larger and allow room for larger groups of people with evidence of nuclear or community base camps. By virtue of the landform, the evidence obtained during the test excavation indicates a varied use of the environment and it is likely that the wider sections of the dune may contain evidence of nuclear or community base camps.

- *What shell midden materials are present?*

  Yes, pipe was present and is a locally obtained species. All shell was very low density indicating single meals.

- *Did microblade and microlith production occur on the sites?*

  The absence of bladettes (preform blades) and a microlith indicates microblade and microlith production did not occur within the project area.

- *Were other tools manufactured on the sites?*

The purpose of the non-specific flaking debitage cannot be identified. Other tools may have been made that were removed from the site or not retrieved during the test excavation.

- *Was maintenance of tools conducted on site?*

  There is no evidence of tool maintenance.

- *What raw materials were favoured for use on site within the project area and why?*

  Tuff, or IMTC was used mainly for their flaking properties and local availability. The reasons for the inclusion of course gained silcrete is unknown as its fracturing suitability is unreliable as a raw material.

- *Did thermal alteration of raw materials occur within the project area?*

  There is no evidence of thermal alterations to the raw material.

- *Is there evidence that this is an extension of existing sites in the immediate vicinity or local area?*

  Yes. The presence of the highly disturbed site 38-5-0248 is located immediately adjacent to the undisturbed eastern side of the dune ridge. As sites are present along the length of the dune subject to the test excavation, it is highly likely that additional sites will be present along the dune, both within the test excavation area and outside.

- *How does the evidence and inferred human behaviour represented within the project area compare with evidence from other locations in the region?*

  The nature of the evidence obtained from the test excavation has been compared with other sites in the locality. Despite the numerous problems and constraints (such as different sampling strategies, reporting etc), comparison reveals that on a general level a number of similarities can be identified. This includes similar stone and artefact types, shell species, landform utilised and proximity to the interbarrier depression.

- How does the evidence relate to the regional and local models of occupation?

  Whilst no evidence was identified that is inconsistent with the model proposed and the evidence of low-density sites associated with hunting/gathering/look out activities is consistent with the model, the wider sections of the PAD have not been tested. The wider sections would have provided the space for larger scale camping opportunities and activities, which may in fact, also be inter-related to the individual sites identified along the narrow portions of the dune.

10 SIGNIFICANCE ASSESSMENT

10.1 THE SIGNIFICANCE ASSESSMENT PROCESS

One of the key steps in the process of cultural heritage management is the assessment of significance. Not all sites are equally significant and not all are worthy of equal consideration and management (Sullivan and Bowdler 1984; Pearson and Sullivan 1995: 7). The assessment of significance of archaeological sites and resources is defined in most cases by what these entities can contribute to our understanding or knowledge of a place or site. In most cases, it is not possible to fully articulate or comprehend the extent of the archaeological resource at the outset, let alone its value. Therefore, the evaluation of the significance of archaeological material is based on the potential this resource has to contribute to our understanding of the past and the contribution that it can make to our understanding of a place or a cultural landscape.

10.2 BASIS FOR EVALUATION

The significance of archaeological sites or cultural places can be assessed on the criteria of the Burra Charter, the Australian Heritage Commission Criteria of the National Estate, and the Heritage NSW guidelines that are derived from the former two. There are two realms of significance assessment:

- Aboriginal cultural significance
- Archaeological (scientific) significance

The Aboriginal cultural significance of the sites or landscape is assessed by the RAPs and the archaeological significance by a qualified archaeologist.

10.3 ARCHAEOLOGICAL (SCIENTIFIC) SIGNIFICANCE

Scientific significance is assessed according to the contents of a site, state of preservation, integrity of deposits, representativeness/rarity of the site type, and potential to answer research questions on past human behaviour (NPWS 1997). For open campsites, evidence required to adequately assess significance includes information about the presence of sub-surface deposits, the integrity of these deposits, the nature of site's contents and extent of the site. A review of information pertaining to previously recorded sites within the local area and region enables the rarity and representativeness of a site to be assessed. High significance is usually attributed to sites that are so rare or unique that the loss of the site would affect our ability to understand an aspect of past Aboriginal use/occupation of an area. In some cases, a site may be considered highly significant because its type is now rare due to destruction of the archaeological record through development. Medium significance can be attributed to sites that provide information on an established research question. Low significance is attributed to sites that cannot contribute new information about past Aboriginal use/occupation of an area. This may be due to site disturbance or the nature of the site's contents. In order to clarify the significance assessment, the criteria used are explained below.

10.3.1 RESEARCH POTENTIAL

Research potential refers to the potential for information gained from further investigations of the evidence to be used in answering research questions. Research questions can relate to any number of issues concerning past human material culture and associated behaviour (including cultural, social, spiritual etc) and/or use of the environment. Several inter-related factors to take into consideration include the intactness or integrity of the site, the connectedness of the site to other

sites, and the potential for a site to provide a chronology extending back in the past. Several questions are posed for each site or area containing evidence of past occupation:

- Can the evidence contribute information not available from any other resource?
- Can the evidence contribute information not available from any other location or environmental setting?
- Is this information relevant to questions of past human occupation (including cultural, social and/or spiritual behaviour) and/or environments or other subjects?

Assessing research potential therefore relies on comparisons with other evidence both within the local and regional context. The criteria used for assessing research potential include:

- potential to address specific local research questions;
- potential to address specific regional questions;
- potential to address general methodological and theoretical questions;
- potential sub-surface deposits; and
- potential to address future research questions.

The particular questions asked of the available evidence should be able to contribute information that is not available from other resources or evidence and are relevant to questions about past human societies and their material culture. Levels for defining research potential are as follows:

High	Has the potential to provide new information not obtained from any other resource to answer current and/or future research questions.
Medium	Has the potential to contribute significant additional information to answer current and/or future research questions.
Low	Has no potential to contribute significant information to answer current or future research questions.

10.3.2 REPRESENTATIVENESS AND RARITY

Representativeness and rarity are assessed at a local, regional and national level (although assessing at a national level is difficult and commonly not possible due to a lack of national reports and available database). As the primary goal of cultural resource management is to afford the greatest protection to a representative sample of Aboriginal heritage throughout a region, this is an important criterion. The more unique or rare the evidence is, the greater its value as being representative within a regional context.

The main criteria used for assessing representativeness and rarity include:

- the extent to which the evidence occurs throughout the region;
- the extent to which this type of evidence is subject to existing and potential future impacts in the region;
- the integrity of the evidence compared to that at other locations within the region;
- whether the evidence represents a primary example of its type within the region; and
- whether the evidence has greater potential for educational purposes than at other similar locations within the region.

10.3.3 NATURE OF THE EVIDENCE

The nature of the evidence is related to representativeness and research potential. For example, the less common the type of evidence, the more likely it is to have representative value. The nature of the evidence is directly related to its potential to be used in addressing current and/or future research questions. Criteria used in assessing the nature of the evidence include:

- presence, range and frequency of artefacts and artefact types; and
- presence and types of other features.

10.3.4 INTEGRITY

The state of preservation and disturbances of the evidence (integrity) is also related to representativeness and research potential. The higher the integrity (well preserved and not disturbed) of the evidence, the greater the level of information that is likely to be obtained from further study. This translates to greater importance for the evidence within a local and regional context, as it may be a suitable example for preservation/ conservation. The criteria used in assessing integrity include:

- horizontal and vertical spatial distribution of artefacts;
- preservation of intact features such as hearths or knapping floors;
- preservation of site contents such as charcoal which may enable direct dating providing a reliable date of occupation of a given area;
- preservation of artefacts which may enable use-wear/residue analysis to determine tool use and possibly diet; and
- preservation of other cultural materials that may enable interpretation of the evidence in relation to cultural/social behaviour (e.g. burial types and associated mortuary practices may have been based on cultural, social, age, and/or gender distinctions).

Many of these criteria can only be obtained through controlled excavation. Generally high levels of ground disturbance (such as erosion, tracks, dams etc) limit the possibility that an area would unlikely contain intact spatial distributions, intact features, in situ charcoal et cetera.Definitions for defining levels of site integrity and condition have been derived from Witter (1992) and HLA (2002) and are as follows:

Excellent	Disturbance, erosion or development is minimal.
Good	Relatively undisturbed deposits or partially disturbed with an obvious in situ deposit.
Fair	Some disturbance but the degree of disturbance is difficult to assess.
Poor	Clearly mostly destroyed or disturbed by erosion or development.
Very Poor	Sites totally disturbed or clearly not in situ.
Destroyed	A known site that is clearly no longer there.

10.3.5 SCIENTIFIC EVALUATION

The following is an evaluation of the scientific significance of the individual archaeological sites identified within the project area. Table 10.1 presents the archaeological significance assessment for the sites identified.

Table 10.1 Significance assessment

Site	Site Type	Representativeness	Integrity	Res. Pot	Sci. Sig
38-5-0248	midden	well represented	poor	low	low
GG/01	complex	not well represented	good	high	high

10.4 CULTURAL SIGNIFICANCE

While Aboriginal sites and places may have scientific significance, they also have cultural/social significance to the Aboriginal people from that area. Determining cultural/social significance can only be determined by the Aboriginal people from the area in which the sites and/or places were identified. Consultation with the Aboriginal community has been undertaken in order to document cultural/social significance and are discussed below.

As the project area is located in Worimi Country and the sites are of particular Worimi cultural/spiritual and social high significance with traditional knowledge associated to the sites and area, at the request of Worimi, this information was not to be shared with non Worimi RAPs and as such only Worimi RAPs have provided the cultural significance of the sites below.

10.4.1 AESTHETIC SIGNIFICANCE

Aesthetic value includes aspects of sensory perception for which criteria can and should be stated. Such criteria may include consideration of the form, scale, colour, texture and material of the fabric; the smells and sounds associated with the place and its use (Australia ICOMOS 1999:11). Table 8.2 provides information relating to the aesthetic value of 38-5-0248 and GG/01 by the Worimi RAPs.

Table 10.2 RAPs: Aesthetic values

RAP	
Nur-Run-Gee Pty Ltd	has assigned significant aesthetic significance
Mur-Roo-Ma Inc.	has assigned significant aesthetic significance
WLALC	has assigned significant aesthetic significance

10.4.2 HISTORIC SIGNIFICANCE

The historic value encompasses the history of aesthetics, science and society. A place may have historic value because it has influenced, or has been influenced by, an historic figure, event, phase or activity. It may also have historic value as the site of an important event. For any given place the significance will be greater where evidence of the association or event survives in situ, or where the settings are substantially intact, than where it has been changed or evidence does not survive. However, some events or associations may be so important that the place retains significance regardless of subsequent treatment (Australia ICOMOS 1999:11). Table 8.3 provides information relating to the historic value of 38-5-0248 and GG/01 by the RAPs.

Table 10.3 RAPs: Historic values

RAP	
Nur-Run-Gee Pty Ltd	has assigned significant historic significance
Mur-Roo-Ma Inc.	has assigned significant historic significance
WLALC	has assigned significant historic significance

10.4.3 SOCIAL/SPIRITUAL SIGNIFICANCE

Social value embraces the qualities for which a place has become a focus of spiritual, political, national or other cultural sentiment to a majority or minority group (Australia ICOMOS 1999:11). Table 8.4 provides information relating to the social/spiritual value of 38-5-0248 and GG/01 by the RAPs.

Table 10.4 RAPs: Social/spiritual values

RAP	
Nur-Run-Gee Pty Ltd	has assigned significant social/spiritual significance
Mur-Roo-Ma Inc.	has assigned significant social/spiritual significance
WLALC	has assigned significant social/spiritual significance

11 ASSESSMENT OF IMPACTS

The archaeological record is a non-renewable resource that is affected by many processes and activities. As outlined in Section 3 and 6, the various natural processes and human activities would have impacted on archaeological deposits through both site formation and taphonomic processes. Section 4 describes the impacts within the project area, showing how these processes and activities have disturbed the landscape and associated cultural materials in varying degrees.

11.1 IMPACTS

Detailed descriptions of the impacts are provided in Section 1.5 and the results of the survey in Section 6. The Heritage NSW, Department of Premier & Cabinet 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 indicated in Table 8.1, the results of the assessment show that 38-5-0248 and GG/01 may be impacted upon by the development. However, as the development is yet to be finalised, impacts remain unknown at this time.

Table 11.1 Impact summary

Site	Site type	Type of harm	Degree of harm	Consequence of harm
38-5-0248	midden	unknown	unknown	unknown
GG/01	complex	unknown	unknown	unknown

11.2 CUMULATIVE IMPACTS

As the development is yet to be finalised, any cumulative impacts to the archaeological remain unknown at this time.

Mitigation measures to minimise these impacts are outlined in the following chapter.

12 MITIGATION AND MANAGEMENT STRATEGIES

Specific strategies, as outlined through the Heritage NSW, Department of Premier & Cabinet: 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 within the project area.

One of the most important considerations in selecting the most suitable and appropriate strategy is the recognition that Aboriginal cultural heritage is very important to the local Aboriginal community. Decisions about the management of sites and potential archaeological deposits should be made in consultation with the appropriate local Aboriginal community.

12.1 CONSERVATION/PROTECTION

Heritage NSW, Department of Premier & Cabinet is responsible for the conservation/protection of Indigenous sites and they therefore require good reason for any impact on an indigenous site. 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 cultural significance and are managed in a way that is consistent with the nature of peoples' attachment to them.

Due to the identified highly disturbed nature and extent of AHIMS 38-5-0248, conservation/protection is not required.

Due to the identified relatively undisturbed nature and extent of GG/01, its unusual nature and possible links and association to other unknown sites along the dune, there remains an opportunity to conserve/protect the dune ridge landform, or part thereof.

Additionally, as the area along the base of the dune, or the interface of the dune and the interbarrier depression, will no longer be excavated, but filled that portion of the PAD will be protected/conserve through the fill works.

12.2 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 Potential Archaeological Deposit (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. However, testing may only be undertaken as per the Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW (DECCW 2011) and discussions/consultation with the local Aboriginal community.

As the nature and extent of AHIMS 38-5-0248 has been determined and identified as highly disturbed with no potential for in situ deposits, no further investigations are required.

As the nature of GG/01 has been determined and identified as a relatively undisturbed site complex consisting multiple individual sites (hunting/gathering/look out/scouting) and it is believed there would be additional evidence of such land uses along the narrow dune ridge, no further testing of that portion of the PAD is required.

However, if the project area at any time extends beyond the test excavation area of the dune, further investigation will be required prior to works commencing at that location.

If, at any time, any works will impact any portion of the interface of the dune and the interbarrier depression (up to 20 metres in width form the base of the dune) along the entire length of the project area, further archaeological investigations (test excavations) will be required prior to works commencing at that location.

12.3 AHIP

If harm will occur to an Aboriginal object or Place, then an AHIP is required from Heritage NSW, Department of Premier & Cabinet. 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 may be an appropriate strategy to enable the salvage of cultural objects. The AHIP may also include surface collection of artefacts.

If AHIMS 38-5-0248 will be impacted upon by the development, an AHIP for community collection will be required prior to works commencing at that location.

If GG/01 will be impacted upon by the development, an AHIP for salvage excavation along the length and width (3 metres in width) will be required prior to works commencing at that location.

12.4 MONITORING

Due to the nature of Worimi burial locations throughout the area, monitoring of all works throughout the dune will be required.

12.5 CULTURAL AWARENESS INDUCTION

Part of the site induction should include an induction on the cultural heritage of the project area. All personnel on site must be inducted and as such are made aware of the cultural heritage across the project area. The induction package can be included in the Environmental Management Plan.

12.6 ONGOING ABORIGINAL CONSULTATION & INVOLVEMENT

Procedures should be in place for the continued consultation and involvement with the Aboriginal stakeholders. This procedure can be included in the Environmental Management Plan.

13 RECOMMENDATIONS

13.1 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 Amendment (Aboriginal Objects and Aboriginal Places) Regulation 2010, under the National Parks and Wildlife Act 1974;

2) Should any Aboriginal objects be uncovered during works, all work will cease in that location immediately and the Environmental Line contacted;

3) The involvement of the registered Aboriginal stakeholders in the ongoing management of the Aboriginal cultural materials within the project study should be promoted and included in the Aboriginal Heritage Management Plan that will be established prior to any works commencing on site; and

4) A cultural awareness program should be included as part of the site induction program and developed with the registered Aboriginal stakeholders and form part of the Aboriginal Heritage Management Plan.

13.2 SITES & PAD

5) As the area along the base of the dune, or the interface of the dune and the interbarrier depression, will no longer be excavated, but filled that portion of the PAD will be protected/conserve through the fill works;

6) If, at any time, any works will impact any portion of the interface of the dune and the interbarrier depression (up to 20 metres in width form the base of the dune) along the entire length of the project area, further archaeological investigations (test excavations) will be required prior to works commencing at that location.

7) If 38-5-0248 will be harmed by any future development an AHIP for community collection will be required prior to any works commencing at that location;

8) If GG/01 will be impacted upon by the development, an AHIP for salvage excavation along the length and width (3 metres in width) will be required prior to works commencing at that location;

9) if the project area at any time extends beyond the test excavation area of the dune, further investigation will be required prior to works commencing at that location, and

10) Due to the nature of Worimi burial locations throughout the area, monitoring of all works throughout the dune will be required.

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Date	Consultation type	Heritage NSW requirement	Consult stage	RAP/Agency	Contact person	Description
9/8/21	Letter	4.1.2	1	MCH contacted Heritage NSW		Letter to identify Aboriginal parties. Requested response no later C.O.B. 23/8/2021
9/8/21	Letter	4.1.2	1	MCH contacted Worimi Local Aboriginal Land Council (WLALC)		Letter to identify Aboriginal parties. Requested response no later C.O.B. 23/8/2021
9/8/21	Letter	4.1.2	1	MCH contacted Registrar of Aboriginal Owners (RAO)		Letter to identify Aboriginal parties. Requested response no later C.O.B. 23/8/2021
9/8/21	Letter	4.1.2	1	MCH contacted Port Stephens Council (PSC)		Letter to identify Aboriginal parties. Requested response no later C.O.B. 23/8/2021
9/8/21	Letter	4.1.2	1	MCH contacted Native Title Tribunal (NNTT)		Letter to identify Aboriginal parties. Requested response no later C.O.B. 23/8/2021
9/8/21	Letter	4.1.2	1	MCH contacted NTSCORP Ltd		Letter to identify Aboriginal parties. Requested response no later C.O.B. 23/8/2021
9/8/21	Letter	4.1.2	1	MCH contacted Hunter Local Land Services (HLLS)		Letter to identify Aboriginal parties. Requested response no later C.O.B. 23/8/2021
12/8/21	Letter/e-mail	4.1.2	1	NNTT		No claims
20/8/21	Letter	4.1.2	1	Heritage NSW		Identified Aboriginal parties: 27
NA		4.1.2	1	LALC		No response
NA		4.1.2	1	RAO		No response
NA		4.1.2	1	Council		No response
NA		4.1.2	1	NTSCORP	Do not provide lists of possible stakeholders	
NA		4.1.2	1	HLLS	Do not provide lists of possible stakeholders	
23rd August 2021 C.O.B. Request for groups to consult with closed						
26/8/21	Public notice	4.1.3	1	All registered Aboriginal parties (RAPs)		Public notice The Port Stephens Examiner and requested registration no later than 9/9/2021
26/8/21	Letter & email	4.1.3, 4.1.4, 4.1.5, 4.2.1	1	All RAPs	those provided from sources above	Formal letter to identified RAPs. Letter requested registration of interest in the project, project outline, maps and asking for the preferred method to receive information (meeting/mail/email). Required registration by C.O.B. 9/9/2021

Date	Consultation type	Heritage NSW requirement	Consult stage	RAP/Agency	Contact person	Description
26/8/21	email	4.1.7, 4.1.8	1	Didge Ngunawal Clan	Paul Boyd	Registered for the project
5/9/21	email	4.1.7, 4.1.8	1	Widescope	Steven Hickey	Registered for the project
5/9/21	phone	4.1.7, 4.1.8	1	Nur-Run-Gee Pty Ltd	Lennie Anderson	Registered for the project
5/9/21	phone	4.1.7, 4.1.8	1	Mur-Roo-Ma Inc.	Anthony Anderson	Registered for the project
5/9/21	phone	4.1.7, 4.1.8	1	WLALC	Jamie Merick	Registered for the project
9th September 2021 C.O.B. Registration for project closed						
10/9/21	email & letter	1; s 4.1.6		Heritage NSW		Letter notifying Heritage NSW of RAPs
10/9/21	email & letter	1; s 4.1.6		WLALC		Letter notifying WLALC of RAPs
10/9/21	letter	4.2.1, 4.2.2, 4.2.3, 4.3.1, 4.3.2, 4.3.3, 4.3.4, 4.3.5, 4.3.6, 4.3.7	2 & 3	All RAPs		Formal letter and information packet sent to identified RAPs. Information packet included project outline, project area, critical timelines, impacts, brief cultural, environmental and archaeological context, proposed methods of investigation, proposed methods of gathering cultural knowledge, and maps. A response the proposed methodology was required registration by C.O.B. 11/10/2021
10/9/21	e-mail & letter	4.2.1, 4.2.2, 4.2.3, 4.3.1, 4.3.2, 4.3.3, 4.3.4, 4.3.5, 4.3.6, 4.3.7	2 & 3	Nur-Run-Gee Pty Ltd	Lennie Anderson	Responded to the information packet and knows of sites on the property
21/9/21	e-mail & letter	4.2.1, 4.2.2, 4.2.3, 4.3.1, 4.3.2, 4.3.3, 4.3.4, 4.3.5, 4.3.6, 4.3.7	2 & 3	WLALC	Jamie Merrick	Responded to the info pack and supported the methods
20/9/21	e-mail & letter	4.2.1, 4.2.2, 4.2.3, 4.3.1, 4.3.2, 4.3.3, 4.3.4, 4.3.5, 4.3.6, 4.3.7	2 & 3	Mur-Roo-Ma Inc.	Bec Young	Responded to the information packet and knows of sites on the property
11th October 2021 C.O.B. Response to information packet closed						
12/10/21	Letter / email		3	All RAPs		All RAPs sent a letter of invitation to attend and participate in the survey on 28/10/2021
12/10/21	Email	4.2.1, 4.2.2, 4.2.3, 4.3.1, 4.3.2, 4.3.3, 4.3.4, 4.3.5, 4.3.6, 4.3.7	2 & 3	WLALC	Jamie Merrick	Provided signed fieldwork paperwork

Date	Consultation type	Heritage NSW requirement	Consult stage	RAP/Agency	Contact person	Description
14/10/21	email	4.2.1, 4.2.2, 4.2.3, 4.3.1, 4.3.2, 4.3.3, 4.3.4, 4.3.5, 4.3.6, 4.3.7	2 & 3	Nur-Run-Gee Pty Ltd	Lennie Anderson	Provided signed fieldwork paperwork
20/10/21	email	4.2.1, 4.2.2, 4.2.3, 4.3.1, 4.3.2, 4.3.3, 4.3.4, 4.3.5, 4.3.6, 4.3.7	2 & 3	Mur-Roo-Ma Inc.	Bec Young	Provided signed fieldwork paperwork
28th October 2021 Survey						
2/12/21	email	4.3.5; 4.3.6; 4.3.7 4.4.1; 4.4.2; 4.4.3	3 & 4	All RAPs		Draft report and proposed test excavation methods sent to all RAPs for review
5/1/22	email	4.3.5; 4.3.6; 4.3.7 4.4.1; 4.4.2; 4.4.3	3 & 4	All RAPs		Reminder sent to all RAPs
5/1/22	email	4.3.5; 4.3.6; 4.3.7 4.4.1; 4.4.2; 4.4.3	3 & 4	Widescope	Steven HIckey	Supported the draft report, recommendations, and proposed test excavation methodology
5/1/22	email	4.3.5; 4.3.6; 4.3.7 4.4.1; 4.4.2; 4.4.3	3 & 4	Didge Ngunawal Clan	Paul Boyd	Supported the draft report, recommendations, and proposed test excavation methodology
5/1/22	email	4.3.5; 4.3.6; 4.3.7 4.4.1; 4.4.2; 4.4.3	3 & 4	Nur-Run-Gee Pty Ltd	Lennie Anderson	Suggested additional testing in the road easement and trenching the drain where old shell was found during a DD.
5/1/22		4.3.5; 4.3.6; 4.3.7 4.4.1; 4.4.2; 4.4.3	3 & 4	MCH		Responded to Lennie stating that the test excavation is up to 3 times wider than the road as the exact location of the road is unknown therefore the road corridor, easement and additional width will be test excavated. Also, that the drains typically contain old sea bed shell and being a large active drain, it may be safer to monitor whilst the drain is drained, and asked for his thoughts.
6/1/22		4.3.5; 4.3.6; 4.3.7 4.4.1; 4.4.2; 4.4.3	3 & 4	Mur-Roo-Ma Inc.	Bec Young	Supported the ACHA, recommendations and proposed test excavation methodology. Also suggested testing the drain where shell was located previously.
6/1/22		4.3.5; 4.3.6; 4.3.7 4.4.1; 4.4.2; 4.4.3	3 & 4	Nur-Run-Gee Pty Ltd	Lennie Anderson	Stated it was not the drain but about a meter away and was a mound about a meter in height that contained shell and artefacts identified during a previous DD assessment
6/1/22		4.3.5; 4.3.6; 4.3.7 4.4.1; 4.4.2; 4.4.3	3 & 4	MCH		Sent Bec and Lennie an aerial asking they mark on the aerial where this shell was located

3rd January 2022 C.O.B. Response to Draft Report Closed						
13/1/22		4..4.4; 4.4.5	4	All RAPs		Final report, and test excavation methodology sent to all RAPs
11/4/22		4..4.4; 4.4.5	4	All RAPs		Project update phone call to all RAPs stating waiting for AHIP
26/4/22		4..4.4; 4.4.5	4	All RAPs		copy of AHIP sent to all RAPs
13th January 2022 C.O.B. Assessment Complete						
11/5/22	Letter / email		3	All RAPs		All RAPs sent a letter of invitation to attend and participate in the test excavation commencing on 13/6/2022
12/5/22	Email	4.2.1, 4.2.2, 4.2.3, 4.3.1, 4.3.2, 4.3.3, 4.3.4, 4.3.5, 4.3.6, 4.3.7	2 & 3	WLALC	Jamie Merrick	Provided signed fieldwork paperwork
13/5/22	Email	4.2.1, 4.2.2, 4.2.3, 4.3.1, 4.3.2, 4.3.3, 4.3.4, 4.3.5, 4.3.6, 4.3.7	2 & 3	Mur-Roo-Ma Inc.	Bec Young	Provided signed fieldwork paperwork
14th & 15th June 2022 2022 Test excavation						
4/7/22	email	4.3.5; 4.3.6; 4.3.7 4.4.1; 4.4.2; 4.4.3	3 & 4	All Worimi RAPs		Draft report sent to Worimi RAPs for review
4/7/22	email	4.3.5; 4.3.6; 4.3.7 4.4.1; 4.4.2; 4.4.3	3 & 4	Non-Worimi RAPs		Informed that the report was restricted to Worimi Raps only due to culturally sensitive information
4/7/22	email	4.3.5; 4.3.6; 4.3.7 4.4.1; 4.4.2; 4.4.3	3 & 4	Nur-Run-Gee Pty Ltd	Lennie Anderson	Supported the draft report, and requested walk overs during works
1st August 2022 C.O.B. Response to Draft Report Closed						
12/8/22		4..4.4; 4.4.5	4	All RAPs		Final report sent to all RAPs
12th August 2022 C.O.B. Assessment Complete						

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P: 0412 702 396

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9 August 2021

Sir/Madam
NTSCORP Limited
information@ntscorp.com.au

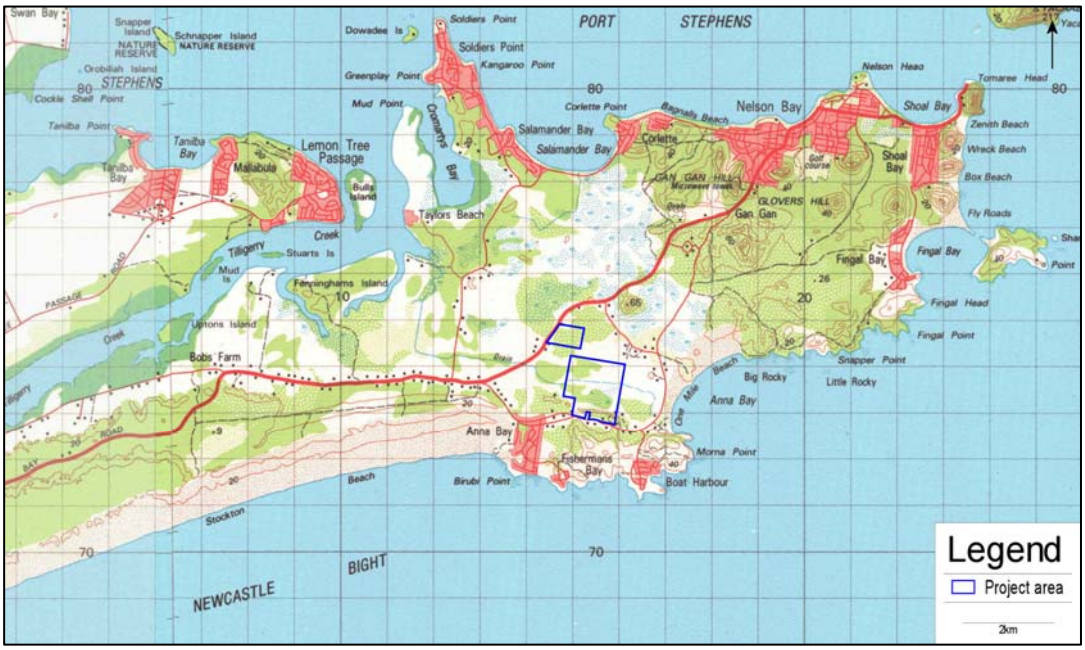
Dear Sir/Madam,

RE: Written notification of project proposal and registration of interest as required under Heritage NSW Aboriginal Cultural Heritage Consultation requirements for proponents 2010 (Stage 1)– Proposed subdivision along Gan Gan Road, Anna Bay

MCH have been engaged by dmps on behalf of the Proponent (GAD Project Pty Ltd, 1 Neridah Rd, Belmont North NSW 2280) to undertake an Aboriginal Cultural Heritage Assessment and prepare an Aboriginal Heritage Impact Permit (AHIP) application if required for a the proposed application for subdivision of land at Nos. 196 Old Main Road, No.s 263, 271, 293, 321 Gan Gan Road and Nos. 4492, 4494, 4500 Nelson Bay Road, Anna Bay, NSW 2316 (+ Crown Road) ('the site') and land adjoining the site is also under investigation, within Port Stephens Local Government Area (LGA).

As per the Heritage NSW, Department of Premier & Cabinet policy - Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010, (Stage 1, s4.1.1 to 4.1.2), MCH and the proponent are seeking community consultation with indigenous knowledge holders relevant to the project area who can determine the cultural significance of Aboriginal objects and/or places in the area of the proposed project.

Location of the project area



In order to comply with the Heritage NSW, Department of Premier & Cabinet policy - Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010, in particular Stage 1 (s4.1.2) - we are writing to advise you of the proposal and ask whether you could provide details of any Aboriginal groups or individuals that your organisation is aware of who may have an interest in the investigation area and hold knowledge relevant to determining the cultural significance of Aboriginal objects and/or places in the area of the proposed project.

Should you have this information, we request that you provide the names and contact details of these Aboriginal people/organisations, in writing, to the undersigned either via written correspondence or email (mcheritage@iprimus.com.au) within 14 working days of receipt of this letter.

Please note that in order to adhere to time constraints, and the minimal time requirements as stead in the Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010, the absence of a response by the prescribed timeline, will be taken by the proponent as your indication that your organisation is not aware of any such interested parties.

Should you wish to discuss this matter, please do not hesitate to contact me on 0412 702 396.

Yours sincerely,

for McCardle Cultural Heritage Pty Ltd

Dr. Penny McCardle
Principal Archaeologist
Forensic Anthropologist

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9 August 2021

Sir/Madam
Heritage NSW, Department of Premier & Cabinet
heritagemailbox@environment.nsw.gov.au

Dear Sir/Madam,

RE: Written notification of project proposal and registration of interest as required under Heritage NSW Aboriginal Cultural Heritage Consultation requirements for proponents 2010 (Stage 1)– Proposed subdivision along Gan Gan Road, Anna Bay

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Yours sincerely,

for McCardle Cultural Heritage Pty Ltd

Dr. Penny McCardle
Principal Archaeologist
Forensic Anthropologist

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9 August 2021

Sir/Madam
Hunter Local Land Services
admin.hunter@lls.nsw.gov.au

Dear Sir/Madam,

RE: Written notification of project proposal and registration of interest as required under Heritage NSW Aboriginal Cultural Heritage Consultation requirements for proponents 2010 (Stage 1)– Proposed subdivision along Gan Gan Road, Anna Bay

MCH have been engaged by dmps on behalf of the Proponent (GAD Project Pty Ltd, 1 Neridah Rd, Belmont North NSW 2280) to undertake an Aboriginal Cultural Heritage Assessment and prepare an Aboriginal Heritage Impact Permit (AHIP) application if required for a the proposed application for subdivision of land at Nos. 196 Old Main Road, No.s 263, 271, 293, 321 Gan Gan Road and Nos. 4492, 4494, 4500 Nelson Bay Road, Anna Bay, NSW 2316 (+ Crown Road) ('the site') and land adjoining the site is also under investigation, within Port Stephens Local Government Area (LGA).

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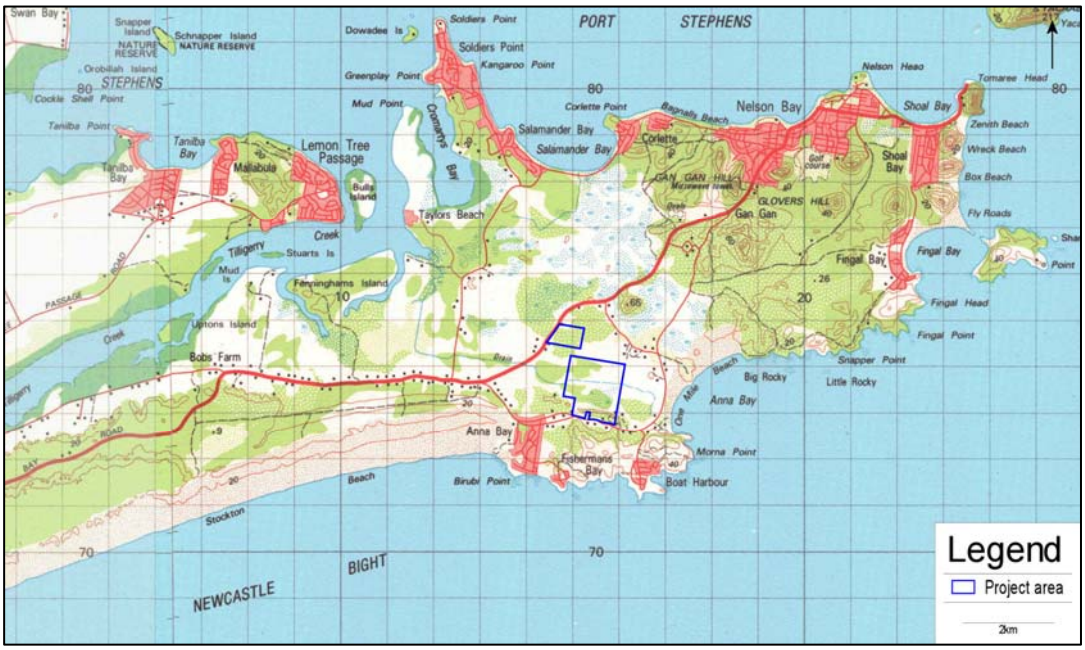

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Should you wish to discuss this matter, please do not hesitate to contact me on 0412 702 396.

Yours sincerely,

for McCardle Cultural Heritage Pty Ltd

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Principal Archaeologist
Forensic Anthropologist

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9 August 2021

Sir/Madam
National Native Title Tribunal
GeospatialSearch@NNTT.gov.au

Dear Sir/Madam,

RE: Written notification of project proposal and registration of interest as required under Heritage NSW Aboriginal Cultural Heritage Consultation requirements for proponents 2010 (Stage 1)– Proposed subdivision along Gan Gan Road, Anna Bay

MCH have been engaged by dmps on behalf of the Proponent (GAD Project Pty Ltd, 1 Neridah Rd, Belmont North NSW 2280) to undertake an Aboriginal Cultural Heritage Assessment and prepare an Aboriginal Heritage Impact Permit (AHIP) application if required for a the proposed application for subdivision of land at Nos. 196 Old Main Road, No.s 263, 271, 293, 321 Gan Gan Road and Nos. 4492, 4494, 4500 Nelson Bay Road, Anna Bay, NSW 2316 (+ Crown Road) ('the site') and land adjoining the site is also under investigation, within Port Stephens Local Government Area (LGA).

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Location of the project area

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Should you wish to discuss this matter, please do not hesitate to contact me on 0412 702 396.

Yours sincerely,

for McCardle Cultural Heritage Pty Ltd

Dr. Penny McCardle
Principal Archaeologist
Forensic Anthropologist

National Native Title Tribunal

Request for Spatial Search of Tribunal Registers

1: Your details

Your name:	DR Penny McCardle		
Your company:	McCardle Cultural Heritage Pty Ltd		
E-mail address:	penny@mcheritage.com.au	Phone:	0412 702 396
Your reference:	Gan Gan RD, Anna Bay	Your state:	NSW
☒	*I have read and acknowledge the terms and conditions on the next page.*		

2: Areas to be searched

Jurisdiction to be searched:		Tenure to be searched:	

Parcel or tenement identifiers (add up to 20 separate identifiers). **Please see over for parcel identifiers.**

Parcel 1:	Lot 963 DP 731955,	Parcel 2:	
Parcel 3:	Lot 21 DP 590387,	Parcel 4:	
Parcel 5:	Lot 1 DP 536752 901,	Parcel 6:	
Parcel 7:	Lot 902 DP634550,	Parcel 8:	
Parcel 9:	Lot 1 DP 503876	Parcel 10:	
Parcel 11:	Lot 881 DP 524031,	Parcel 12:	
Parcel 13:	Lot 883 DP 737099,	Parcel 14:	
Parcel 15:	Lot 347 DP 753204	Parcel 16:	
Parcel 17:		Parcel 18:	
Parcel 19:		Parcel 20:	

If your search area is not a non-freehold parcel or mining or petroleum tenement, you can enter other tenure or administrative regions here (e.g. local government area, townsite or county). Please provide as much detail as you can.

Click or tap here to enter text.

E-mail the completed form to GeospatialSearch@NNTT.gov.au

Parcel Identifiers

In most jurisdictions please identify parcels using lot on plan, or lot/section/plan as appropriate. The NNTT is generally not able to identify parcels using land title information. Where possible, the NNTT uses the terminology and formatting of unique identifiers used in each state to uniquely identify a land parcel. More details are below:

1. **Lot on plan**. Use for Western Australia and Queensland.
2. **Lot/Section/Plan**. Use for New South Wales.
3. **LAISKEY**. Use for the Northern Territory. The laiskey is a unique identifier for each parcel comprised of the location code, LTO code (derived from the survey plan) where applicable and the parcel number.
4. **Parcel ID** – Use for South Australia. Concatenation of Parcel Type, Parcel, Plan Type and Plan.
5. **SPI** (Standard Parcel Identifier) – Use for Victoria.

Terms and Conditions

1. Specify only one jurisdiction (e.g. Queensland) and one type of tenure (e.g. mining tenement) per form. You can add up to 20 separate tenements or parcels per search request. For more than 20 parcels or tenements please submit additional search requests or contact GeospatialSearch@NNTT.gov.au to discuss your requirements.

   Note: if your area of interest cannot be clearly identified from the search form, or is not held in NNTT datasets, we may instead provide search results for a surrounding local government area, or other suitable regional area.

2. Freehold land.

   Under the Native Title Act 1993 (Cth), the valid grant of a freehold estate (other than certain types of Aboriginal and Torres Strait Islander land) on or before 23 December 1996 is known as a 'previous exclusive possession act'. This means that native title has been extinguished over the area. Native title claimants are not allowed to include land and waters covered by previous exclusive possession acts in their applications; therefore they would normally exclude freehold areas. A native title application may, however, be made over freehold land on the basis that freehold was invalidly granted, but the chances of this happening are very low.

3. Cultural Heritage in NSW.

   The National Native Title Tribunal has undertaken steps to remove itself from the formal list of sources for information about indigenous groups in development areas. The existence or otherwise of native title is quite separate to any matters relating to Aboriginal cultural heritage. Information on native title claims, native title determinations and Indigenous Land Use Agreements is available on the Tribunal's website.

4. Spatial searches rely on data obtained from the relevant custodian. Whilst efforts are taken to update such datasets on a regular basis, the collection and interpretation of such datasets may be influenced by a number of factors that can impact of the completeness and accuracy of your search results.

Disclaimer

While the National Native Title Tribunal (NNTT) and the Native Title Registrar (Registrar) have exercised due care in ensuring the accuracy of the information provided, it is provided for general information only and on the understanding that neither the NNTT, the Registrar nor the Commonwealth of Australia is providing professional advice. Appropriate professional advice relevant to your circumstances should be sought rather than relying on the information provided. In addition, you must exercise your own judgment and carefully evaluate the information provided for accuracy, currency, completeness and relevance for the purpose for which it is to be used.

The information provided is often supplied by, or based on, data and information from external sources, therefore the NNTT and Registrar cannot guarantee that the information is accurate or up-to-date.

The NNTT and Registrar expressly disclaim any liability arising from the use of this information.

This information should not be relied upon in relation to any matters associated with cultural heritage.

M
McCARDLE
CULTURAL HERITAGE

PO Box 166
Adamstown 2289 NSW
penny@mcheritage.com.au
P: 0412 702 396

mcheritage.com.au

9 August 2021

Sir/Madam
Worimi Local Aboriginal Land Council
sites@worimi.org.au

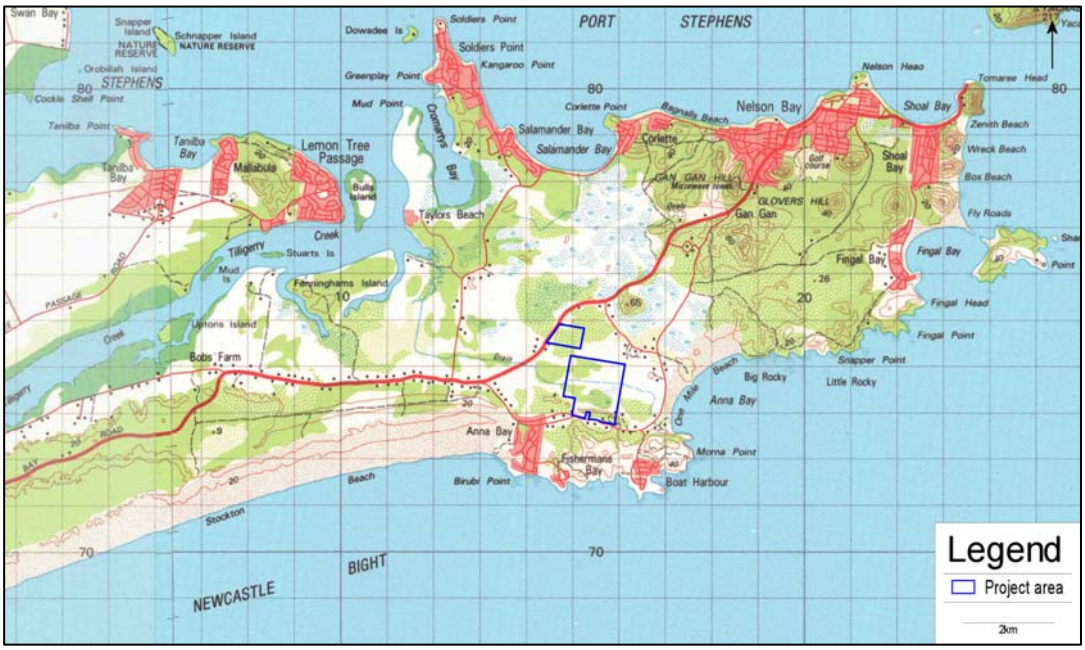
Dear Sir/Madam,

RE: Written notification of project proposal and registration of interest as required under Heritage NSW Aboriginal Cultural Heritage Consultation requirements for proponents 2010 (Stage 1)– Proposed subdivision along Gan Gan Road, Anna Bay

MCH have been engaged by dmps on behalf of the Proponent (GAD Project Pty Ltd, 1 Neridah Rd, Belmont North NSW 2280) to undertake an Aboriginal Cultural Heritage Assessment and prepare an Aboriginal Heritage Impact Permit (AHIP) application if required for a the proposed application for subdivision of land at Nos. 196 Old Main Road, No.s 263, 271, 293, 321 Gan Gan Road and Nos. 4492, 4494, 4500 Nelson Bay Road, Anna Bay, NSW 2316 (+ Crown Road) ('the site') and land adjoining the site is also under investigation, within Port Stephens Local Government Area (LGA).

As per the Heritage NSW, Department of Premier & Cabinet policy - Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010, (Stage 1, s4.1.1 to 4.1.2), MCH and the proponent are seeking community consultation with indigenous knowledge holders relevant to the project area who can determine the cultural significance of Aboriginal objects and/or places in the area of the proposed project.

Location of the project area



In order to comply with the Heritage NSW, Department of Premier & Cabinet policy - Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010, in particular Stage 1 (s4.1.2) - we are writing to advise you of the proposal and ask whether you could provide details of any Aboriginal groups or individuals that your organisation is aware of who may have an interest in the investigation area and hold knowledge relevant to determining the cultural significance of Aboriginal objects and/or places in the area of the proposed project.

Should you have this information, we request that you provide the names and contact details of these Aboriginal people/organisations, in writing, to the undersigned either via written correspondence or email (mcheritage@iprimus.com.au) within 14 working days of receipt of this letter.

Please note that in order to adhere to time constraints, and the minimal time requirements as stead in the Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010, the absence of a response by the prescribed timeline, will be taken by the proponent as your indication that your organisation is not aware of any such interested parties.

Should you wish to discuss this matter, please do not hesitate to contact me on 0412 702 396.

Yours sincerely,

for McCardle Cultural Heritage Pty Ltd

Dr. Penny McCardle
Principal Archaeologist
Forensic Anthropologist

McCARDLE
CULTURAL HERITAGE

PO Box 166
Adamstown 2289 NSW
penny@mcheritage.com.au
P: 0412 702 396

mcheritage.com.au

9 August 2021

Sir/Madam
Port Stephens Council
council@portstephens.nsw.gov.au

Dear Sir/Madam,

RE: Written notification of project proposal and registration of interest as required under Heritage NSW Aboriginal Cultural Heritage Consultation requirements for proponents 2010 (Stage 1)– Proposed subdivision along Gan Gan Road, Anna Bay

MCH have been engaged by dmps on behalf of the Proponent (GAD Project Pty Ltd, 1 Neridah Rd, Belmont North NSW 2280) to undertake an Aboriginal Cultural Heritage Assessment and prepare an Aboriginal Heritage Impact Permit (AHIP) application if required for a the proposed application for subdivision of land at Nos. 196 Old Main Road, No.s 263, 271, 293, 321 Gan Gan Road and Nos. 4492, 4494, 4500 Nelson Bay Road, Anna Bay, NSW 2316 (+ Crown Road) ('the site') and land adjoining the site is also under investigation, within Port Stephens Local Government Area (LGA).

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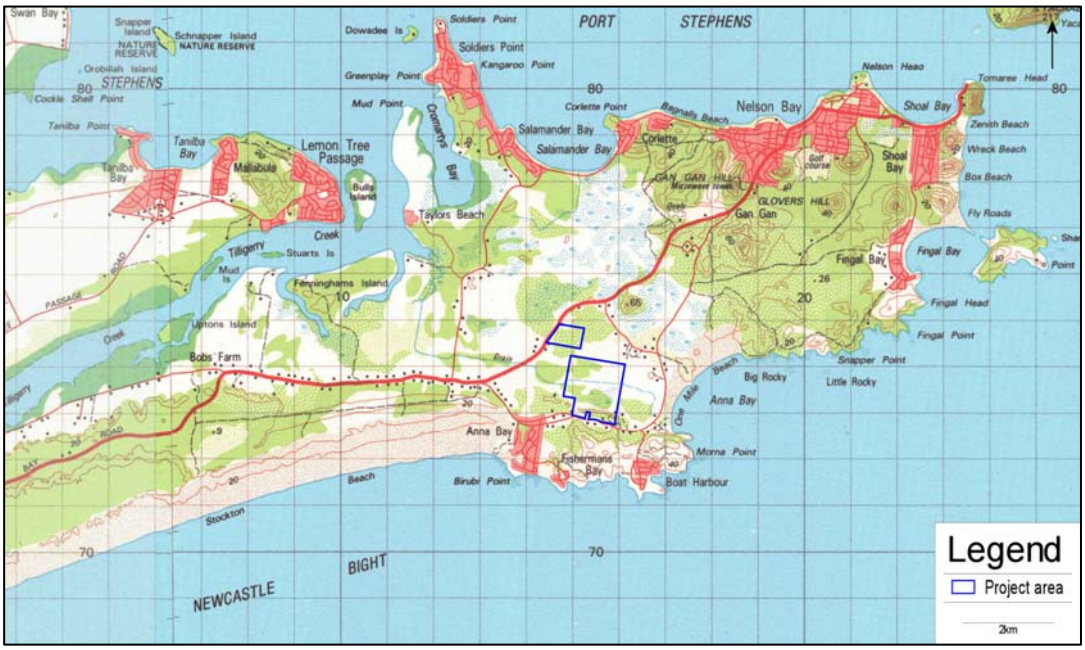
Location of the project area



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Should you have this information, we request that you provide the names and contact details of these Aboriginal people/organisations, in writing, to the undersigned either via written correspondence or email (mcheritage@iprimus.com.au) within 14 working days of receipt of this letter.

Please note that in order to adhere to time constraints, and the minimal time requirements as stead in the Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010, the absence of a response by the prescribed timeline, will be taken by the proponent as your indication that your organisation is not aware of any such interested parties.

Should you wish to discuss this matter, please do not hesitate to contact me on 0412 702 396.

Yours sincerely,

for McCardle Cultural Heritage Pty Ltd

Dr. Penny McCardle
Principal Archaeologist
Forensic Anthropologist

McCARDLE
CULTURAL HERITAGE

PO Box 166
Adamstown 2289 NSW
penny@mcheritage.com.au
P: 0412 702 396

mcheritage.com.au

9 August 2021

Rachel Rewiri
Office of the Registrar, Aborigianl Land Rights Act 1983
rachel.rewiri3@oralra.nsw.gov.au

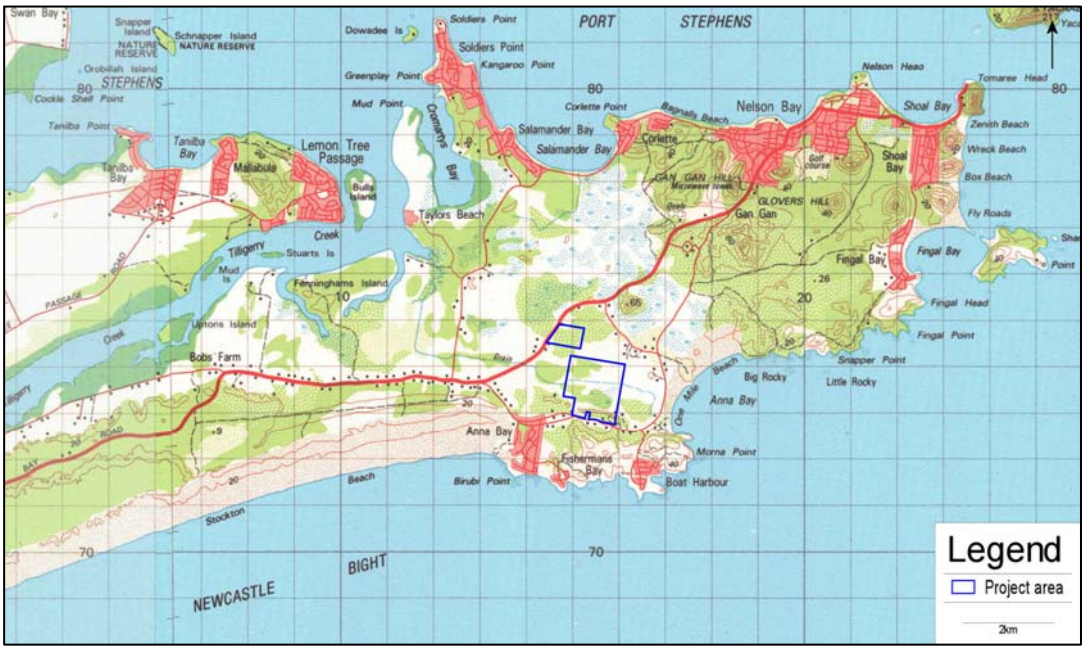
Dear Rachel Rewiri,

RE: Written notification of project proposal and registration of interest as required under Heritage NSW Aboriginal Cultural Heritage Consultation requirements for proponents 2010 (Stage 1)– Proposed subdivision along Gan Gan Road, Anna Bay

MCH have been engaged by dmps on behalf of the Proponent (GAD Project Pty Ltd, 1 Neridah Rd, Belmont North NSW 2280) to undertake an Aboriginal Cultural Heritage Assessment and prepare an Aboriginal Heritage Impact Permit (AHIP) application if required for a the proposed application for subdivision of land at Nos. 196 Old Main Road, No.s 263, 271, 293, 321 Gan Gan Road and Nos. 4492, 4494, 4500 Nelson Bay Road, Anna Bay, NSW 2316 (+ Crown Road) ('the site') and land adjoining the site is also under investigation, within Port Stephens Local Government Area (LGA).

As per the Heritage NSW, Department of Premier & Cabinet policy - Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010, (Stage 1, s4.1.1 to 4.1.2), MCH and the proponent are seeking community consultation with indigenous knowledge holders relevant to the project area who can determine the cultural significance of Aboriginal objects and/or places in the area of the proposed project.

Location of the project area



In order to comply with the Heritage NSW, Department of Premier & Cabinet policy - Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010, in particular Stage 1 (s4.1.2) - we are writing to advise you of the proposal and ask whether you could provide details of any Aboriginal groups or individuals that your organisation is aware of who may have an interest in the investigation area and hold knowledge relevant to determining the cultural significance of Aboriginal objects and/or places in the area of the proposed project.

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Should you wish to discuss this matter, please do not hesitate to contact me on 0412 702 396.

Yours sincerely,

for McCardle Cultural Heritage Pty Ltd

Dr. Penny McCardle
Principal Archaeologist
Forensic Anthropologist

penny@mcheritage.com.au

From: Geospatial Search Requests <GeospatialSearch@NNTT.gov.au>
Sent: Thursday, 12 August 2021 7:26 PM
To: 'penny@mcheritage.com.au'
Subject: RE: SR21/1229 - search - SR21/1229

UNCLASSIFIED

Native title search – *NSW Parcels – Multiple*
Your ref: *Gan Gan RD, Anna Bay* - **Our ref:** *SR21/1229*

Dear Penny McCardle **,**

Thank you for your search request received on 09 August 2021 in relation to the above area. Based on the records held by the National Native Title Tribunal as at 10 August 2021 it would appear that there are no Native Title Determination Applications, Determinations of Native Title, or Indigenous Land Use Agreements over the identified area.

Please note: The following parcel listed in your correspondence was not found on the National Native Title Tribunal's records as 10 August 2021 : *Lot 883 on DP737099.* To enable us to complete the search appropriately and adequately please provide us with additional details e.g. **DETAILED** map, plan or shape file.

Search Results
The results provided are based on the information you supplied and are derived from a search of the following Tribunal databases:

- Schedule of Native Title Determination Applications
- Register of Native Title Claims
- Native Title Determinations
- Indigenous Land Use Agreements (Registered and notified)

At the time this search was carried out, there were **no relevant entries** in the above databases.

Cadastral data as at: 01/02/2021

Parcel ID	Feature Area SqKm	Overlapping Native Title Feature

1//DP503876	0.1127	**Tenure**	**NNTT File Number**	**Name**	**Category**	**% Selected Feature**
		FREEHOLD	No overlap			0.00%
1//DP536752	0.1921	**Tenure**	**NNTT File Number**	**Name**	**Category**	**% Selected Feature**
		FREEHOLD	No overlap			0.00%
21//DP590387	0.2859	**Tenure**	**NNTT File Number**	**Name**	**Category**	**% Selected Feature**
		FREEHOLD	No overlap			0.00%
347//DP753204	0.0510	**Tenure**	**NNTT File Number**	**Name**	**Category**	**% Selected Feature**
		FREEHOLD	No overlap			0.00%
881//DP524031	0.0072	**Tenure**	**NNTT File Number**	**Name**	**Category**	**% Selected Feature**
		FREEHOLD	No overlap			0.00%
902//DP634550	0.3140	**Tenure**	**NNTT File Number**	**Name**	**Category**	**% Selected Feature**
		FREEHOLD	No overlap			0.00%
963//DP731955	0.2717	**Tenure**	**NNTT File Number**	**Name**	**Category**	**% Selected Feature**
		FREEHOLD	No overlap			0.00%

These items not found in NNTT Cadastral data:

Parcel ID
883//DP737099

For more information about the Tribunal's registers or to search the registers yourself and obtain copies of relevant register extracts, please visit our website.

Information on native title claims and freehold land can also be found on the Tribunal's website here: Native title claims and freehold land .

Please note: There may be a delay between a native title determination application being lodged in the Federal Court and its transfer to the Tribunal. As a result, some native title determination applications recently filed with the Federal Court may not appear on the Tribunal's databases.

The search results are based on analysis against external boundaries of applications only. Native title applications commonly contain exclusions clauses which remove areas from within the external boundary. To determine whether the areas described are in fact subject to claim, you need to refer to the "Area covered by claim" section of the relevant Register Extract or Schedule Extract and any maps attached.

Search results and the existence of native title
Please note that the enclosed information from the Register of Native Title Claims and/or the Schedule of Applications is **not** confirmation of the existence of native title in this area. This cannot be confirmed until the Federal Court makes a determination that native title does or does not exist in relation to the area. Such determinations are registered on the National Native Title Register.

The Tribunal accepts no liability for reliance placed on enclosed information
The enclosed information has been provided in good faith. Use of this information is at your sole risk. The National Native Title Tribunal makes no representation, either express or implied, as to the accuracy or suitability of the information enclosed for any particular purpose and accepts no liability for use of the information or reliance placed on it.

If you have any further queries, please do not hesitate to contact us via GeospatialSearch@NNTT.gov.au

Regards,

Geospatial Searches
National Native Title Tribunal | Perth
Email: GeospatialSearch@nntt.gov.au | **www.nntt.gov.au**

From: penny@mcheritage.com.au <penny@mcheritage.com.au>
Sent: Monday, 9 August 2021 8:28 AM
To: Geospatial Search Requests <GeospatialSearch@NNTT.gov.au>
Subject: SR21/1229 - search

Please see the attached search request.

Kind regards,

Dr. Penny McCardle
Archaeologist
Forensic Anthropologist

Premier & Cabinet

Reference: DOC21/679577-1

Dr Penny McCardle
McCardle Cultural Heritage
PO Box 166
ADAMSTOWN NSW 2289
penny@mcheritage.com.au

RE: Request for information on Aboriginal stakeholders for an Aboriginal cultural heritage assessment for "Proposed subdivision, Gan Gan Road, Anna Bay, NSW"

Dear Penny,

Thank you for your letter of 9 August 2021 about Aboriginal cultural heritage consultation for a "Proposed subdivision, Gan Gan Road, Anna Bay, NSW", within the Port Stephens local government area. I appreciate the opportunity to provide input.

Please find enclosed a list of known Aboriginal parties for the Port Stephens local government area (Attachment 1) that we consider likely to have an interest in the proposal. Note this is not an exhaustive list of all interested Aboriginal parties. Receipt of this list does not remove the requirement for a proponent/consultant to advertise the proposal in the local print media and contact other bodies and community groups seeking interested Aboriginal parties, in accordance with the '*Aboriginal cultural heritage consultation requirements for proponents 2010'* (the CRs).

We would also like to take this opportunity to remind the proponent and consultant to:

- Ensure that consultation is fair, equitable and transparent. If the Aboriginal parties express concern or are opposed to parts of or the entire project, we expect that evidence will be provided to demonstrate the efforts made to find common ground between the opponents and the proponent.

If you have any questions about this advice, please do not hesitate to contact me via paul.houston@environment.nsw.gov.au or 02 68835361.

Yours sincerely

Paul Houston
Aboriginal Heritage Planning Officer
Aboriginal Cultural Heritage Regulation - Northern
Heritage NSW
Department of Premier and Cabinet
20 August 2021

ATTACHMENT A

Table 1: List of Aboriginal stakeholder groups within the Port Stephens LGA. - that may have an interest in the project; provided as per the "OEH Aboriginal cultural heritage requirement for proponents 2010".

Port Stephens Local Government Area

Organisation/ Individual	Contact Name	Email Address/ Fax / Phone	Postal Address	Additional information
A1 Indigenous Services	Carolyn Hickey	Cazadirect@live.com 0411 650 057	10 Marie Pitt Place GLENMORE PARK NSW 2745	
Corroboree Aboriginal Corporation	Carroll-Johnson Marilyn	corroboreecorp@bigpond.com 0415 911 159 0288 244 324	PO Box 3340 ROUSE HILL NSW 2155	
Kawul Pty Ltd trading as Wonn1 Sites	Arthur Fletcher	Wonn1sites@gmail.com 0402 146 193 02 4954 7751	619 Main Road GLENDALE NSW 2285	
Lower Hunter Aboriginal Incorporated	David Ahoy	lowerhunterai@gmail.com 0421 329 520	5 Killara Drive CARDIFF SOUTH NSW 2285	
Michael Green Cultural Heritage Consultant	Michael Green	bunyipnick50@gmail.com 0497120032	115A Lakeview Parade BLACKSMITHS NSW 2281	
Wattaka Wonnarua CC Service	Des Hickey	deshickey@bigpond.com 0432 977 178 02 6573 3786	4 Kennedy Street SINGLETON NSW 2330	
Widescope Indigenous Group	Steven Hickey	Widescope.group@live.com 0425 230 693 0425 232 056	73 Russell Street EMU PLAINS NSW 2750	
Murra Bidgee Mullangari Aboriginal Corporation	Ryan Johnson & Darleen Johnson-Carroll	murrabidgeemullangari@yahoo.com.au 0497 983 332	PO Box 3035 Rouse Hill NSW 2765	
Didge Ngunawal Clan	Paul Boyd & Lilly Carroll	didgengunawalclan@yahoo.com.au	33 Carlyle Crescent CAMBRIDGE GARDENS NSW 2747	

		0426 823 944		
Lower Hunter Wonnarua Cultural Services	Lea-Anne Ball	lhwcs.lea@gmail.com 0472 698 659	712 Maitland Street KURRI KURRI NSW 2327	
Wonnarua Elders Council	Richard Edwards		PO Box 844 CESSNOCK NSW 2325	
Crimson-Rosie	Jeffery Matthews	02 6543 4791	6 Eucalypt Avenue MUSWELLBROOK NSW 2333	
Steve Talbott	Steve Talbott	gomeroi.namoi@outlook.com 0429 662 911	73 Kiah Road GILLIESTON HEIGHTS NSW 2321	
AGA Services	Ashley, Gregory & Adam Sampson	aga.services@hotmail.com Ashley Sampson 0401 958 050 Donna Sampson 0403 765 018	22 Ibis Parade WOODBERRY NSW 2322	
Cacatua Culture Consultants	Donna & George Sampson	cacatua4service@tpg.com.au 0403 765 019 0434 877 016	22 Ibis Parade WOODBERRY NSW 2322	
Tamara Towers	Tamara Towers	worimiacs@gmail.com 0402 360 356	Unit 4, 16-18 Simpson Court MAYFIELD NSW 2304	
Nur-Run-Gee Pty Ltd	Leonard Anderson OAM	lennie.anderson011@bigpond.com 0431 334 365	22 Popplewell Road FERN BAY NSW 2295	
Mur-Roo-Ma Inc.	Anthony Anderson	murroomainc1@gmail.com 0402 827 482 02 4928 1910	7 Vardon Road FERN BAY NSW 2295	
Mindaribba Local Aboriginal Land Council	CEO	ceo@mindaribbalalc.org 02 4934 8511	1A Chelmsford Drive METFORD NSW 2323	
Worimi Local Aboriginal Land Council	CEO	andrew@worimi.org.au 02 4965 1500	2163 Nelson Bay Road WILLIAMTOWN NSW 2318	
Worimi Traditional Owners Indigenous Corporation	Candy Lee Towers	worimitoc@hotmail.com 0412 475 362	36 Avon St MAYFIELD NSW 2304	

Hunters & Collectors	Tania Matthews	Tamatthews10@hotmail.com 407348384	Unit 1/19 South Street Gunnedah NSW 2320	
Robert Syron	Robert Syron	bobsam1@bigpond.com.au 0407209553	6a Cockshell Drive GAWLER EAST SA 5118	
Karuah Local Aboriginal Land Council	CEO	office@karuahaboriginal.com.au 02 4997 5733	16 Muston Road KARUAH NSW 2324	
Karuah Indigenous Corporation	David Feeney	karuahindigenous@outlook.com 0421 114 853 02 4997 5952	1/7 Mustons Rd KARUAH NSW 2324	
Lakkari NTCG	Mick Leon	doowakee@gmail.com 0402 751 584	C/- 4/39 Short Street FORSTER NSW 2428	
Carol Ridgeway-Bissett	Carol Ridgeway-Bissett	0411 650 057 02 4984 3113	33 Ullora Road NELSON BAY NSW 2315	

Notification of project proposal and registration of interest under Heritage NSW Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (Stage 1) – Proposed subdivision of land along Gan Gan Road, Anna Bay.

McCardle Cultural heritage (MCH) have been engaged by dmps, on behalf of GAD Projects Pty Ltd, No. 1 Neridah Road, Belmont North, NSW 2280 to prepare an Aboriginal Cultural Heritage Assessment (ACHA) and Section 90 Aboriginal Heritage Impact Permit (AHIP) application, if required, for the proposed proposed application for subdivision of land at Nos. 196 Old Main Road, No.s 263, 271, 293, 321 Gan Gan Road and Nos. 4492, 4494, 4500 Nelson Bay Road, Anna Bay, NSW 2316 (+ Crown Road) ('the site'). Land adjoining the site is also under investigation (Lot 963 DP 731955, Lot 21 DP 590387, Lot 1 DP 536752 901, Lot 902 DP634550, Lot 1 DP 503876 and Lot 881 DP 524031, Lot 883 DP 737099, Lot 347 DP 753204).

The purpose of community consultation with Aboriginal people is to assist the proposed applicant in the preparation of the AHIP application if required and to assist the Chief Executive of Heritage NSW, Department of Premier & Cabinet in his or her consideration and determination of the application should an AHIP be required.

In compliance with the Heritage NSW policy - Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010, MCH would like to extend an invitation to Aboriginal people who hold cultural knowledge relevant to the proposed project area and who can determine the significance of Aboriginal object(s) andr place(s) in the area of the proposed project to register an interest in the consultation process for this project.

Written registrations must be forward to MCH (P.O. Box 166 Adamstown, NSW, 2289; penny@mcheritage.com.au no later than C.O.B Thursday the 9th of September, 2021.

All registered parties will then be contacted to discuss the project in compliance with Heritage NSW policy. If you register your interest in this project, please also nominate your preferred option to receive the initial information. You may wish to attend a non-paid meeting and receive an information pack, or receive an information packet through the mail or e-mail.

Any parties to register are advised that, unless otherwise requested, their details will be forward to Heritage NSW and the relevant LALC within 28 days of the closing date of registration and in compliance with Heritage NSW policy.

penny@mcheritage.com.au

From: penny@mcheritage.com.au
Sent: Thursday, 26 August 2021 8:30 AM
To: 'Cazadirect@live.com'; 'corroboreecorp@bigpond.com'; 'Wonn1sites@gmail.com'; 'lowerhunterai@gmail.com'; 'bunyipnick50@gmail.com'; 'deshickey@bigpond.com'; 'Widescope.group@live.com'; 'murrabidgeemullangari@yahoo.com.au'; 'didgengunawalclan@yahoo.com.au'; 'lhwcs.lea@gmail.com'; 'gomeroi.namoi@outlook.com'; 'aga.services@hotmail.com'; 'cacatua4service@tpg.com.au'; 'worimiacs@gmail.com'; 'lennie.anderson011@bigpond.com'; 'murroomainc1@gmail.com'; 'ceo@mindaribbalalc.org'; 'andrew@worimi.org.au'; 'worimitoc@hotmail.com'; 'Tamatthews10@hotmail.com'; 'bobsam1@bigpond.com.au'; 'office@karuahaboriginal.com.au'; 'karuahindigenous@outlook.com'; 'doowakee@gmail.com'
Subject: Proposed subdivision along Gan Gan Road, Anna Bay

RE: Written notification of project proposal and registration of interest as required under Heritage NSW Aboriginal Cultural heritage Consultation requirements for proponents 2010 (Stage 1)– Proposed subdivision along Gan Gan Road, Anna Bay

MCH have been engaged by dmps on behalf of the Proponent (GAD Project Pty Ltd, 1 Neridah Rd, Belmont North NSW 2280) to undertake an Aboriginal Cultural Heritage Assessment and prepare an Aboriginal Heritage Impact Permit (AHIP) application if required for a the proposed application for subdivision of land at Nos. 196 Old Main Road, No.s 263, 271, 293, 321 Gan Gan Road and Nos. 4492, 4494, 4500 Nelson Bay Road, Anna Bay, NSW 2316 (+ Crown Road) ('the site') and land adjoining the site is also under investigation, within Port Stephens Local Government Area (LGA).

As per the Heritage NSW, Department of Premier & Cabinet policy - Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010, Stage 1 (s1.3 to 4.1.8), MCH and the proponent are seeking community consultation with indigenous knowledge holders relevant to the project area who can determine the cultural significance of Aboriginal objects and/or places in the area of the proposed project.

Location of the project area

The purpose of community consultation with Aboriginal people is to assist the proposed applicant in the preparation of an application for an AHIP (if required) and to assist the Chief Executive of Heritage NSW, Department of Premier & Cabinet policy, in his or her consideration and determination of the application should an AHIP be required.

This is an invitation for Aboriginal people who hold cultural knowledge relevant to the proposed project area and who can determine the significance of Aboriginal object(s) and/or place(s) in the area of the proposed project to register an interest in a process of community consultation. As per the Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (s 4.1.5, 4.1.7 and 4.1.8), you are advised of the following:

- unless otherwise specified, if you register your interest, your details will be provided to Heritage NSW and the LALC;
- the LALC's who hold cultural knowledge relevant to the proposed project area that is relevant to determining the significance of Aboriginal objects and/or places within the proposed project area who wish to register, must do so as an Aboriginal organisation not an individual;
- where an Aboriginal organisation representing Aboriginal people, who hold cultural knowledge relevant to the proposed project area and that is relevant to determining the significance of Aboriginal objects and/or places within the proposed project area who wish to register, must nominate a contact person **and** provide written confirmation and contact details of this person or persons.

MCH understands it is the Indigenous custom to elect knowledge holders and it is traditionally the Indigenous people who nominate who speak for country. Unfortunately, some RAPs and Government Departments have placed the onus of identifying traditional knowledge holders onto proponents and archaeologists. In order to do this, MCH are guided by the Aboriginal Cultural Heritage Consultation Requirements for Proponents (2010), the Burra Charter (2013) and Ask First (2002) which provide guidelines to identify traditional knowledge holders.

A number of questions are attached to assist MCH and the proponent in identifying traditional knowledge holders who are holders of specific detailed traditional knowledge, traditional knowledge holders who are holders of general traditional knowledge and knowledge holders who have knowledge based on other sources (such as but not limited to, ethnographic information, archaeological assessments, filed experience). MCH respectfully ask that you read the questions and provide your answers if you choose to register an interest in the project. MCH also sincerely apologise if you take offence to any questions or the manner in which we are guided to identify traditional knowledge holders; no offence is intended.

Should you wish to register your interest in this project, please register in writing no later than C.O.B. 9th September 2021 to:

Dr. Penny McCardle
McCardle Cultural Heritage
PO Box 166
Adamstown, NSW, 2289

If you register your interest in this project, please also nominate your preferred option to receive the project information. You may wish to have a non-paid meeting and receive an information pack, or receive information packet through the mail or e-mail. If a preferred method is not nominated, all information will be forward by mail or e-mail.

Please note that in order to adhere to time constraints, the absence of a response by the prescribed timeline, will be taken by the proponent as your indication that your organisation does not wish to register for this project.

All information provided will be included in the consultation component of the assessment report unless otherwise stated it is confidential.

Kind regards,

Dr. Penny McCardle
Archaeologist
Forensic Anthropologist

McCARDLE
CULTURAL HERITAGE

PO Box 166,
Adamstown 2289 NSW
P: 0412 702 396
mcheritage.com.au

penny@mcheritage.com.au

From: lilly carroll <didgengunawalclan@yahoo.com.au>
Sent: Thursday, 26 August 2021 9:16 AM
To: penny@mcheritage.com.au
Subject: Re: Proposed subdivision along Gan Gan Road, Anna Bay

Hi Penny

DNC would like to register an interest into The proposed subdivision along the Gan Gan Rd, Anna Bay

Sent from Yahoo Mail for iPhone

On Thursday, August 26, 2021, 8:30 am, penny@mcheritage.com.au wrote:

> RE: **Written notification of project proposal and registration of interest as required under Heritage NSW Aboriginal Cultural heritage Consultation requirements for proponents 2010 (Stage 1)– Proposed subdivision along Gan Gan Road, Anna Bay**
>
> MCH have been engaged by dmps on behalf of the Proponent (GAD Project Pty Ltd, 1 Neridah Rd, Belmont North NSW 2280) to undertake an Aboriginal Cultural Heritage Assessment and prepare an Aboriginal Heritage Impact Permit (AHIP) application if required for a the proposed application for subdivision of land at Nos. 196 Old Main Road, No.s 263, 271, 293, 321 Gan Gan Road and Nos. 4492, 4494, 4500 Nelson Bay Road, Anna Bay, NSW 2316 (+ Crown Road) ('the site') and land adjoining the site is also under investigation, within Port Stephens Local Government Area (LGA).
>
> As per the Heritage NSW, Department of Premier & Cabinet policy - Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010, Stage 1 (s1.3 to 4.1.8), MCH and the proponent are seeking community consultation with indigenous knowledge holders relevant to the project area who can determine the cultural significance of Aboriginal objects and/or places in the area of the proposed project.

Location of the project area

penny@mcheritage.com.au

From: WIDESCOPE . <widescope.group@live.com>
Sent: Sunday, 5 September 2021 11:39 AM
To: penny@mcheritage.com.au
Subject: RE: Proposed subdivision along Gan Gan Road, Anna Bay

H Penny,

Please register Steven Hickey for Aboriginal Community Consultation Re: Proposed subdivision along Gan Gan Road, Anna Bay

Please send information pack via Email thank you

Regards
Donna Hickey
Admin
0425232056

From: penny@mcheritage.com.au
Sent: Thursday, 26 August 2021 8:30 AM
To: Cazadirect@live.com; corroboreecorp@bigpond.com; Wonn1sites@gmail.com; lowerhunterai@gmail.com; bunyipnick50@gmail.com; deshickey@bigpond.com; Widescope.group@live.com; murrabidgeemullangari@yahoo.com.au; didgengunawalclan@yahoo.com.au; lhwcs.lea@gmail.com; gomeroi.namoi@outlook.com; aga.services@hotmail.com; cacatua4service@tpg.com.au; worimiacs@gmail.com; lennie.anderson011@bigpond.com; murroomainc1@gmail.com; ceo@mindaribbalalc.org; andrew@worimi.org.au; worimitoc@hotmail.com; Tamatthews10@hotmail.com; bobsam1@bigpond.com.au; office@karuahaboriginal.com.au; karuahindigenous@outlook.com; doowakee@gmail.com
Subject: Proposed subdivision along Gan Gan Road, Anna Bay

RE: Written notification of project proposal and registration of interest as required under Heritage NSW Aboriginal Cultural heritage Consultation requirements for proponents 2010 (Stage 1)– Proposed subdivision along Gan Gan Road, Anna Bay

MCH have been engaged by dmps on behalf of the Proponent (GAD Project Pty Ltd, 1 Neridah Rd, Belmont North NSW 2280) to undertake an Aboriginal Cultural Heritage Assessment and prepare an Aboriginal Heritage Impact Permit (AHIP) application if required for a the proposed application for subdivision of land at Nos. 196 Old Main Road, No.s 263, 271, 293, 321 Gan Gan Road and Nos. 4492, 4494, 4500 Nelson Bay Road, Anna Bay, NSW 2316 (+ Crown Road) ('the site') and land adjoining the site is also under investigation, within Port Stephens Local Government Area (LGA).

As per the Heritage NSW, Department of Premier & Cabinet policy - Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010, Stage 1 (s1.3 to 4.1.8), MCH and the proponent are seeking community consultation with indigenous knowledge holders relevant to the project area who can determine the cultural significance of Aboriginal objects and/or places in the area of the proposed project.

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10 September 2021

Heritage NSW, Department of Premier & Cabinet
heritagemailbox@environment.nsw.gov.au

Dear Sir/madam,

RE: Written notification of project proposal and registration of interest as required under Heritage NSW Aboriginal Cultural Heritage Consultation requirements for proponents 2010 (s4.1.6): provision of Registered Aboriginal Parties (RAPs): Proposed subdivision along Gan Gan Road, Anna Bay

In compliance with the Heritage NSW, Department of Premier & Cabinet policy - Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (Stage 1; s 4.1.6), please find attached records of Registered Aboriginal Parties (RAPs) for the above-named project.

Also, in compliance with the Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (Stage 1: s 4.1.3 and 4.1.6), please also find attached a copy of the public notification placed in the Port Stephens Examiner.

If you have any questions or would like any additional information please don't hesitate to contact me on 0412 702 396 or via e-mail on penny@mcheritage.com.au.

Yours sincerely,
for McCardle Cultural Heritage Pty Ltd

Dr. Penny McCardle
Principal Archaeologist
Forensic Anthropologist

Registered Aboriginal Parties

Company	Contact
Nur-Run-Gee Pty Ltd	Leonard Anderson OAM
Mur-Roo-Ma Inc.	Anthony Anderson
Worimi Local Aboriginal Land Council	Jamie Merrick
Widescope	Steven HIckey
Didge Ngunawal Clan	Paul Boyd & Lilly Carroll

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10 September 2021

Worimi Local Aboriginal Land Council
Jamie Merrick
sites@worimi.org.au

Dear Jamie,

RE: Written notification of project proposal and registration of interest as required under Heritage NSW Aboriginal Cultural Heritage Consultation requirements for proponents 2010 (s4.1.6): provision of Registered Aboriginal Parties (RAPs): Proposed subdivision along Gan Gan Road, Anna Bay

In compliance with Heritage NSW, Department of Premier & Cabinet policy - Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (Stage 1; s 4.1.6), please find attached records of Registered Aboriginal Parties (RAPs) for the above-named project.

Also, in compliance with the Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (Stage 1: s 4.1.3 and 4.1.6), please also find attached a copy of the public notification placed in the Port Stephens Examiner.

If you have any questions or would like any additional information please don't hesitate to contact me on 0412 702 396 or via e-mail on penny@mcheritage.com.au.

Yours sincerely,
for McCardle Cultural Heritage Pty Ltd

Dr. Penny McCardle
Principal Archaeologist
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Registered Aboriginal Parties

Company	Contact
Nur-Run-Gee Pty Ltd	Leonard Anderson OAM
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Worimi Local Aboriginal Land Council	Jamie Merrick
Widescope	Steven HIckey
Didge Ngunawal Clan	Paul Boyd & Lilly Carroll

penny@mcheritage.com.au

From: penny@mcheritage.com.au
Sent: Friday, 10 September 2021 8:44 AM
To: 'lennie.anderson011@bigpond.com'; 'murroomainc1@gmail.com'; 'sites@worimi.org.au'; 'didgengunawalclan@yahoo.com.au'; 'widescope.group@live.com'
Subject: Gan Gan Road, Anna Bay - Information PAck
Attachments: ACHAR Info Pack 2021.pdf

RE: Heritage NSW Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (Stage 2 & 3) – Presentation of information about the proposed project and request for comment on the proposed methods of investigation – Proposed subdivision along Gan Gan Road, Anna Bay

McCardle Cultural Heritage (MCH) would like to thank you for registering your interest in this project. MCH sent a letter extending an invitation to register your interest and asking if you would prefer to have a meeting to discuss the project or have an information pack sent to you. As MCH did not receive your preferred option, we are posting the information packet.

In order for the proponent to fulfil its cultural heritage consultation requirements per the Heritage NSW, Department of Premier & Cabinet policy - Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (Stage 2; s 4.2.1 to 4.2.4; Stage 3, s 4.3.1 to 4.3.7) please find enclosed an Aboriginal Cultural Heritage Assessment Information Packet that the proposed project including, but not limited to, details of the proposed the project including maps indicating the impact areas , an outline of the impact assessment process, summary of the cultural, environmental and archaeological contexts, a site specific predictive model, details of the proposed methodology, the roles and responsibilities of all parties, and provide an opportunity for you to identify and raise any cultural concerns, perspectives and assessment requirements you may have.

MCH would appreciate your input on;

- The proposed methodology
- Any Aboriginal objects and/or place(s) of cultural value within the investigation area and/or an any issues of cultural significance you are aware of
- Any protocols and/or restrictions you may wish to implement in relation to any information you may like to provide, and
- Any other factors you consider relevant to the heritage assessment;

Please make your written submission to MCH by close of business 11th October 2021. The absence of a response by the requested timeline will be taken as your indication that your organisation has no comments regarding the above.

The proponent intends to engage a number of RAPs (relative to the scale and nature of the investigations) to participate in the field work. If you wish to be considered for paid participation in the field investigations please review and complete the Aboriginal stakeholder site officer application form attached to the information packet provided. Aboriginal representatives will be selected by the proponent based upon merits of the applications received with respect to the selection criteria. Late application will not be accepted by the proponent.

Please note that the number of people engaged and the duration of any engagement will be at the sole discretion of the proponent who will notify MCH of the successful applicants. MCH will notify the successful applicants and all RAPs will be invited to participate in the field investigations regardless of remuneration and subject to Occupational Health and Safety requirements and operational requirements.

Please note that regardless of participation in the field investigations, RAPs will be consulted in accordance with the Heritage NSW, Department of Premier & Cabinet policy - Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 for the remainder of the assessment.

As all communications, including phone calls, faxes, letters, and e-mails must be included in the consultation component of the report as per the Heritage NSW, Department of Premier & Cabinet requirements, please ensure that any items that you or your group deem confidential are either stated at the beginning of a conversation or stamped/written on each piece of paper communicate.

MCH looks forward to your response and working with you on this project. Please do not hesitate to contact myself on 0412 702 396 should you have any questions.

Kind regards,

Dr. Penny McCardle
Archaeologist
Forensic Anthropologist

M
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Gan Gan Rd, Anna Bay

LGA: Port Stephens

Aboriginal Cultural Heritage Assessment Information Packet

10 September 2021

McCARDLE CULTURAL HERITAGE PTY LTD

ACN 104 590 141 • ABN 89 104 590 141

PO Box 166, Adamstown, NSW 2289
Mobile: 0412 702 396 • Email: penny@mcheritage.com.au

McCARDLE
CULTURAL HERITAGE

Report No: J202171 Info Pack	
Approved by:	Penny McCardle
Position:	Director
Signed:	
Date:	10 September 2021

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GLOSSARY

Aboriginal Cultural Heritage Values: traditional values of Aboriginal people, handed down in spiritual beliefs, stories and community practices and may include local plant and animal species, places that are important and ways of showing respect for other people.

Aboriginal Place: are locations that have been recognised by the Minister for Climate Change and the Environment (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.

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

Traditional Aboriginal Owners: Aboriginal people who are listed in the Register of Aboriginal owners pursuant to Division 3 of the *Aboriginal Land Register Act (1983)*. The Registrar must give priority to registering Aboriginal people for lands listed in Schedule 14 of the *National Parks and Wildlife Act 1974* or land subject to a claim under 36A of the *Aboriginal Land Rights Act 1983*.

Traditional Knowledge: Information about the roles, responsibilities and practices set out in the cultural beliefs of the Aboriginal community. Only certain individuals have traditional knowledge and different aspects of traditional knowledge may be known by different people, e.g. information about men's initiation sites and practices, women's sites, special pathways, proper responsibilities of people fishing or gathering food for the community, ways of sharing and looking after others, etc.

1 INTRODUCTION

McCardle Cultural Heritage Pty Ltd (MCH) has been engaged by dmps on behalf of GAD Projects Pty Ltd prepare an Aboriginal Heritage Impact Assessment for the proposed application for subdivision of land at Nos. 196 Old Main Road, No.s 263, 271, 293, 321 Gan Gan Road and Nos. 4492, 4494, 4500 Nelson Bay Road, Anna Bay, NSW 2316 (+ Crown Road) ('the site'). Land adjoining the site is also under investigation.

The assessment will determine the potential impacts upon the indigenous cultural heritage within the development area. It is intended that any areas of indigenous cultural heritage value will be identified and appropriate management recommendations will be established through consultation with the registered Aboriginal parties.

In compliance with the Heritage NSW, Department of Premier & Cabinet policy - Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (Stage 2, s4.21 to 4.2.4 and Stage 3 s4.3.1 to 4.3.7), this Aboriginal Cultural Heritage Information packet provides information about the proposed project including, but not limited to, details of the proposed the project including maps indicating the impact areas, an outline of the impact assessment process, cultural context, summary of the environmental and archaeological contexts, a site specific predictive model, details of the proposed methodology the roles and responsibilities of all parties, and provide an opportunity for you to identify and raise any cultural concerns, perspectives and assessment requirements you may have.

The assessment has been undertaken to meet the Heritage NSW, Department of Premier & Cabinet Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010a, the Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW 2011, the Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales 2010b, and the brief.

1.1 CONSULTATION

Consultation will be undertaken as per the Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 and will be detailed in the Aboriginal Cultural Heritage Assessment report (ACHA).

1.2 PROJECT AREA

The project area is defined by the proponent and includes 196 Old Main Road, No.s 263, 271, 293, 321 Gan Gan Road and Nos. 4492, 4494, 4500 Nelson Bay Road, Anna Bay (+ Crown Road) ('the site'). Land adjoining the site is also under investigation. Consisting of Lot 963 DP 731955, Lot 21 DP 590387, Lot 1 DP 536752 901, Lot 902 DP634550, Lot 1 DP 503876 and Lot 881 DP 524031, Lot 883 DP 737099, Lot 347 DP 753204, the site consists of a total land area of approximately 1,377,751m2 or 137.78 hectares (ha) and the location and extent of the project area is illustrated in Figures 1.1 and 1.2.

Figure 1.1Location of the project area

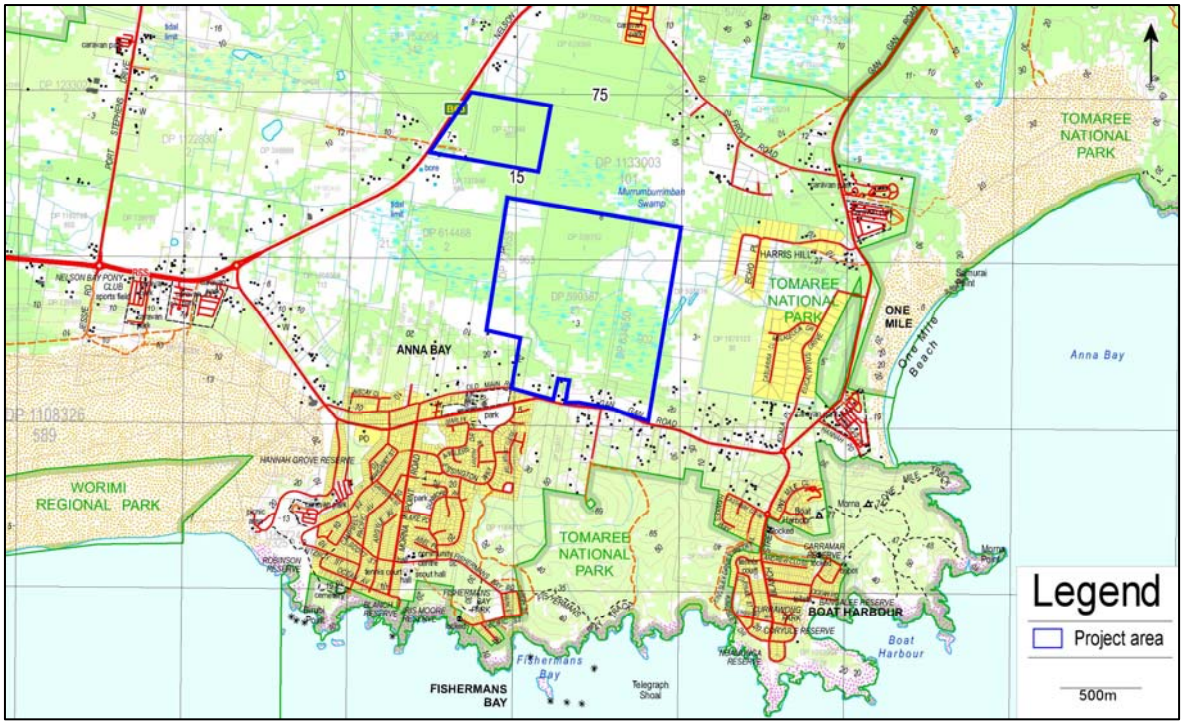
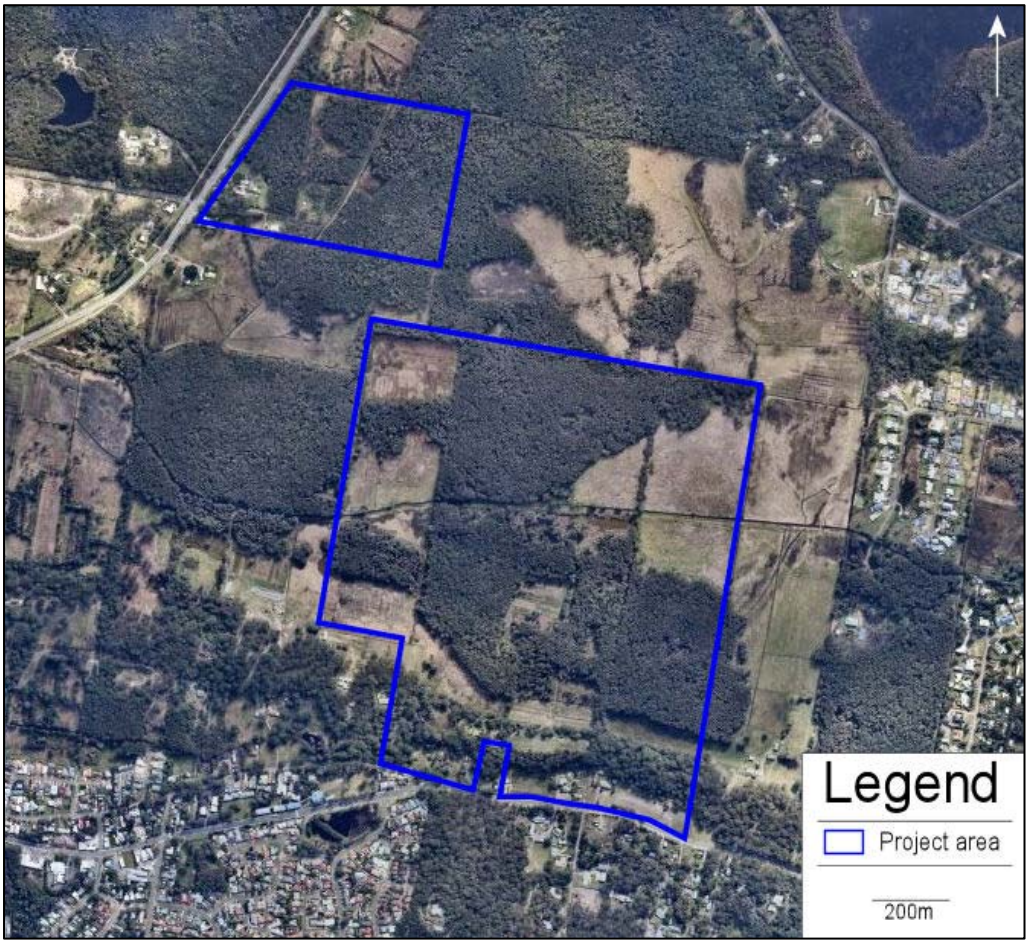


Figure 1.2 Aerial photograph of the project area



1.3 PROJECT OUTLINE AND IMPACTS

The project is for rezoning and subdivision for residential land uses. As the project is in the rezoning stage, there is no development or impacts at this stage. The proponent confirms that every effort will be made with this development to avoid impacting on any Aboriginal objects. We note that detailed design plans have not been prepared at this early stage but where feasible and practical any future subdivision design will avoid disturbance of any cultural heritage on the site where feasible.

1.4 CRITICAL DEVELOPMENT TIME LINES

The proponent wishes to commence works as soon as possible but also acknowledges the need to undertake indigenous cultural heritage investigations on the site. Ideally these would be undertaken prior to any works commencing on the site, however, it would be possible to stage the development to exclude areas identified for investigation until the investigations are complete.

1.5 CRITICAL ARCHAEOLOGICAL TIMELINE

The following Table indicates the timelines critical for the archaeological assessment. However, please note that consultation may be increased or decreased depending on response times and knowledge sharing.

1.1 Archaeological timeline

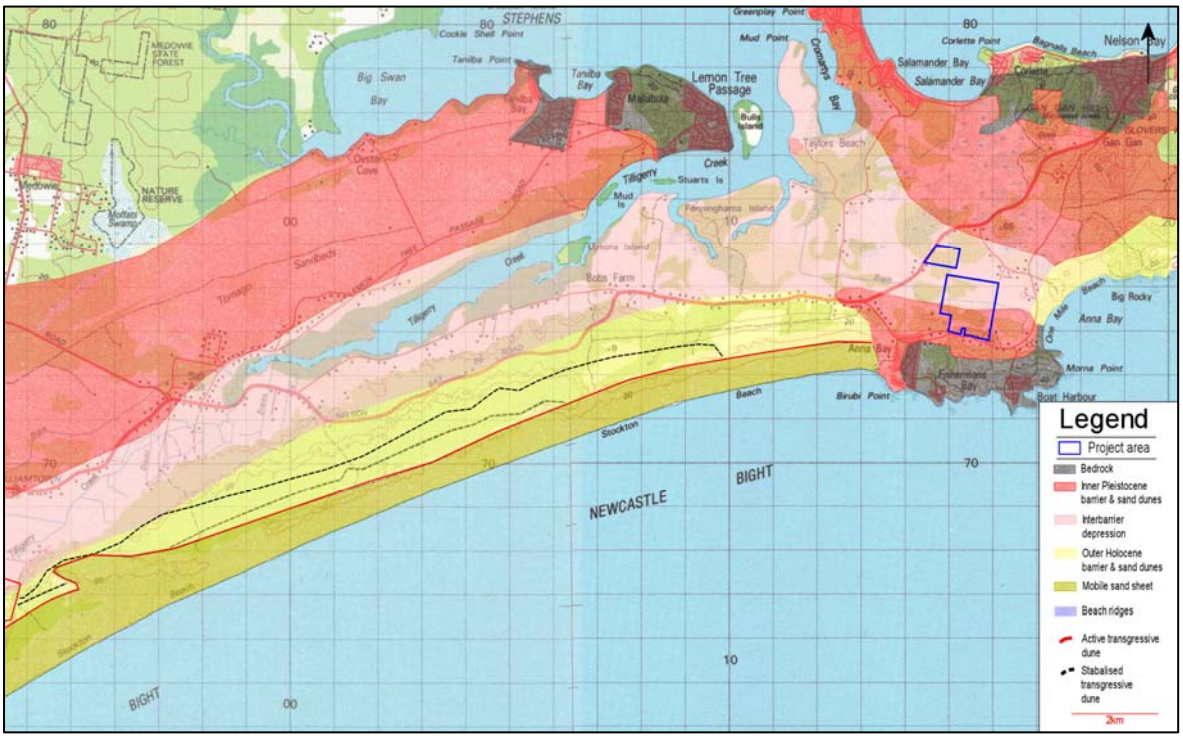
	Week														
Stages	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
Stage 1: consultation	Gov. letters		RAP letters		Information pack				2 weeks' notice for survey & survey			Draft report review			
Stage 2: gathering of knowledge															
Stage 2: contextual research															
Stage 3: survey															
Stage 4: reporting															
Stage 5: finalisation															

2 ENVIRONMENTAL CONTEXT

The environmental context provides a background to the landforms and potential resources that may have been available in the past. The land uses also assists in an understanding of potential impacts they would have had on the landscape and associated cultural materials. This information is utilised with the archaeological context in order to ascertain a reliable predictive model of not only sit location and site type, but also the likelihood of survivability within that landscape.

The study area is situated in Coastal Zone that consists of a variety of landforms including inner and outer Holocene dunes, the low lying, swampy interbarrier depression and Pleistocene dunes. The dunal systems overlooking the interbarrier depression and the beach dunes are considered to be suitable for past Aboriginal occupation as they include elevated dunes overlooking the interbarrier depression which would have provided an abundance of resources as would have the beach areas. The northern portion of the project area is located within the interbarrier depression (previous swamp) whilst the southern portion of the project area is located on both the interbarrier depression and the Inner Pleistocene barrier and sand dunes overlooking the interbarrier depression (Refer to Figure 2.1).

Figure 2.1 Landforms of the project area



The project area is situated on Quantary gravel, sand, silt, clay, 'Waterloo Rock', marine and freshwater deposits and consists of a range of soils landscapes including the Shoal Bay swamp variant, the Aeolian Shoal Bay soils landscape and the Bobs Farm soils landscape. The project area includes the resource rich inter-barrier depression (previous lagoon) an environment that was very well resourced in terms of fresh water and associated resources. The interbarrier depression was clearly favoured for hunting and gathering with an abundance of evidence of past Aboriginal land uses found along the dunes overlooking the interbarrier depression and at its interface.

The project area has been subject to previous large scale clearing activities as well as agricultural and pastoral activities, with some residential developments along with the associated infrastructure and utilities. In terms of these land uses and impacts on the landscape and cultural materials that may be

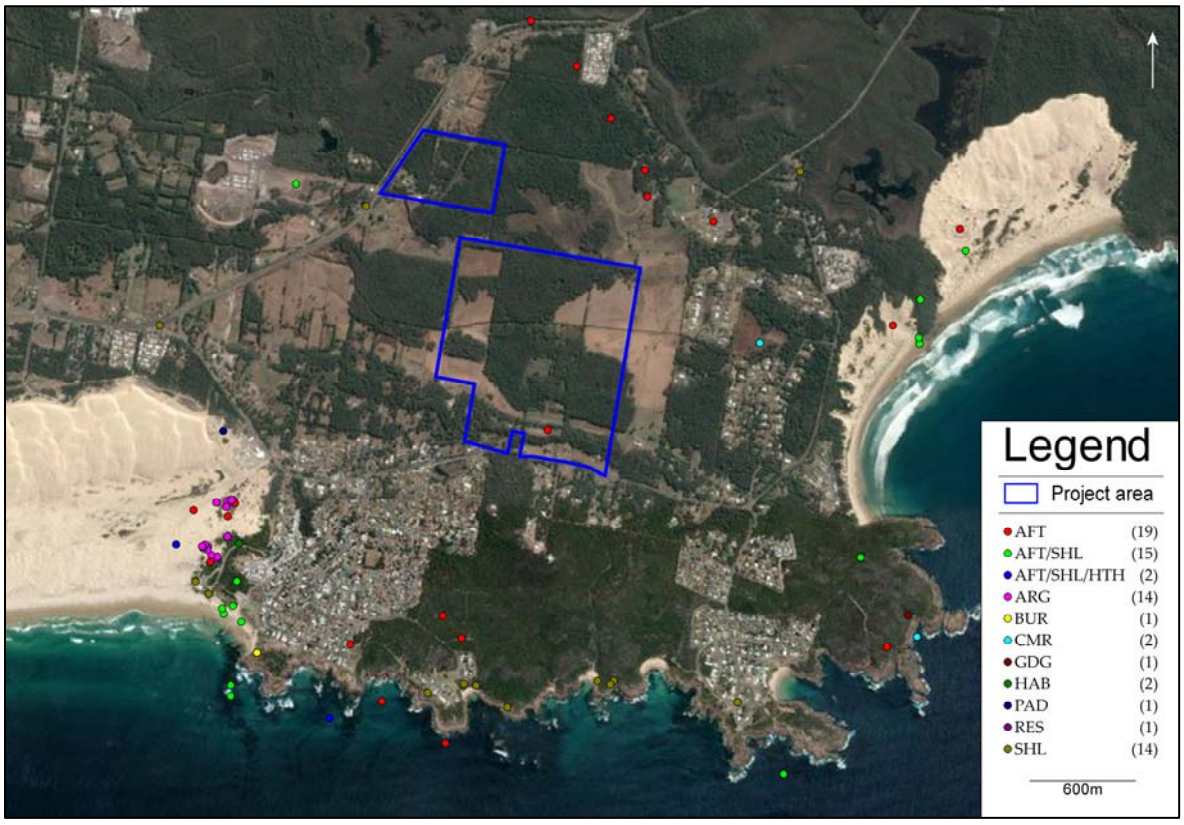
present, early vegetation clearing included the uprooting of trees by chaining will disturbed or destroy that may be present near or underneath trees and vegetation. Farming and agricultural activities also disturbed the landscape and these direct impacts to the land and associated cultural materials that may be present are easy to see and understand. Although pastoralism is a comparatively low impact activity, it does result in disturbances due to vegetation clearance and the trampling and compaction of grazed areas. Furthermore, grazing by hoofed animals can affect the archaeological record due to the displacement and breakage of artefacts resulting from trampling. Pastoral land uses are also closely linked to alterations in the landscape due to the construction of dams, fence lines and associated structures. As a sub-set of agricultural land use, ploughing typically disturbs the top 10-12 centimetres of topsoil (Koettig 1986) depending on the method and machinery used during the process. Ploughing increases the occurrence of erosion and can also result in the direct horizontal and vertical movement of artefacts, thus causing artificial changes in artefact densities and distributions. Excavation works required for developments, including but not limited to business, residential, industrial, aviation and associated infrastructure and utilities require excavation, cut and fill methods.

3 ARCHAEOLOGICAL CONTEXT

The archaeological background provides context to the project area and wider cultural landscape in which the project area is situated. It identifies known sites, their landform location and proximity to subsistence resources. It also provides the nature and extent of known sites as well as their distribution across the landscape, thereby enabling a site-specific predictive model to be developed.

A search of the AHIMS register has shown that one Aboriginal Place and 72 known Aboriginal sites are currently recorded within five kilometres of the project area. The AHIMs results are provided in Appendix B and the location of sites is shown in Figure 3.1.

Figure 3.1 Approximate location of AHIMS sites



Researching both the regional and local archaeological contexts, the following archaeological patterning is evident:

- The majority of sites within the region consist of shell middens (containing beach and/or estuarine species) and stone artefact scatters, with sites varying from single artefacts to dense concentrations of material in both a surface and sub-surface context.
- Other site types occur including a significant number of burials (usually exposed through erosion), scar trees and ceremonial sites.
- Within the stabilised dune fields, it is suggested that greater concentrations of archaeological material (in terms of site numbers and artefact densities) are located on low ridgelines, spurs and low dunes associated with wetland resources overlooking the interbarrier depression.
- Archaeological material within the active transgressive dune field and current deflation basin primarily consists of exposed and/or deflated deposits that were once associated with former stabilised surfaces and periods of stabilisation. Although some archaeological material may have been deposited during periods of instability (i.e. not in association with a stabile soil surface), this material is likely to have been limited in both extent and distribution.
- Due to vegetation coverage and the nature of sand deposits, the detection of sites is directly related to levels of exposure and visibility. Sub-surface deposits may be at a considerable depth below the current dune surface and therefore are unlikely to be detectable unless significant disturbance has occurred.

3.1 SITE WITHIN THE PROJECT AREA

AHIMS site #38-5-0248 (Gan Gan 5) is an artefact site. MCH are still waiting for a copy of the site card from AHIMS for more information.

3.1.1 PREDICTIVE MODEL

Just as the environmental context and the results of the regional and local archaeological contexts have assisted in formulating a predictive model, the predictive modeling has assisted in formulating the field investigation methodology (Section 4).

Based on the AHIMS search and both the regional and local archaeological contexts, it was predicted that within the specific project area, it is highly likely that additional sites will be concentrated along the dune overlooking the interbarrier depression in the southern portion of the project area. Evidence of past Aboriginal land use in these areas are manifest in the archaeological record as shell middens with stone artefacts all along the dunes within close proximity of the interbarrier depression. Although a reliable resource, the interbarrier depression itself was a previous lagoon/swamp and would not have been suitable for camping.

4 METHODS OF INVESTIGATION

There are two methods of investigation including the gathering of cultural significance knowledge and archaeological assessment. These are briefly outlined below.

4.1 GATHERING OF INFORMATION OF CULTURAL SIGNIFICANCE

MCH and the proponent understand that unlike the written word, Aboriginal cultural knowledge is not static, but responds to change through absorbing new information and adapting to its implications. Aboriginal cultural knowledge is handed down through oral tradition (song, story, art, language and dance) from generation to generation, and preserves the relationship to the land (DECCW 2010).

Specific details and parts of cultural knowledge are usually held and maintained by individuals or within particular family groups. Although the broader community may be aware of the general features of that knowledge, it is not a common practice within Aboriginal society for detailed cultural knowledge to be known in the broader community or within Aboriginal community organisations. However, at times these organisations may defer to particular individuals or family groups as being the knowledge-holders of particular sets of cultural knowledge about places or the environment (DECCW 2010).

Proposed methods of gathering information of cultural significance are provided in the Cultural Heritage information packet.

All responses to the cultural information packet will be considered in the final methods which will adapt accordingly. Any other changes to the methods may occur on site in order adapt to unforeseen field conditions.

4.2 ARCHAEOLOGICAL ASSESSMENT

This entails an archaeological assessment of the proposed project area. It includes the gathering of both environmental and archaeological information to gain an understanding of the environment, disturbances and provide a predictive model for the proposed project area.

Following the completion of the survey, a report that includes detailed environmental and archaeological background, results, discussion, the cultural significance as determined by the registered Aboriginal parties and mitigation measures will be provide to all registered parties for their review. This will also include opportunities for the registered Aboriginal parties to provide feedback on any management or mitigation recommendations. All registered parties will also be required to provide their own report/letter within a specified time and a copy of the final report will be provided to all parties. A summary of the regional and local archaeological contexts is provided in order to assist in the development of a predictive model for the project area that will in turn assist in determining the survey methodology/strategy.

5 PROPOSED METHODS OF GATHERING INFORMATION ABOUT CULTURAL SIGNIFICANCE

There are two methods of investigation including the gathering of information about cultural significance and an archaeological assessment. The archaeological assessment was discussed in the Archaeological information packet provided to you. The gathering of information about cultural significance for the Cultural heritage Assessment is briefly outlined below.

5.1 GATHERING OF INFORMATION OF CULTURAL SIGNIFICANCE

The aim of the cultural heritage assessment is to facilitate a process whereby RAPs can;

1) Contribute culturally appropriate information
2) Contribute to the proposed methodology
3) Provide information that will enable the cultural significance of Aboriginal objects and/or places within the project area to be determined.

MCH and the proponent understand that unlike the written word, Aboriginal cultural knowledge is not static, but responds to change through absorbing new information and adapting to its implications. Aboriginal cultural knowledge is handed down through oral tradition (song, story, art, language and dance) from generation to generation, and preserves the relationship to the land (DECCW 2010).

Specific details and parts of cultural knowledge are usually held and maintained by individuals or within particular family groups. Although the broader community may be aware of the general features of that knowledge, it is not a common practice within Aboriginal society for detailed cultural knowledge to be known in the broader community or within Aboriginal community organisations. However, at times these organisations may defer to particular individuals or family groups as being the knowledge-holders of particular sets of cultural knowledge about places or the environment (DECCW 2010).

In some cases the information provided may be sensitive and MCH and the proponent will not share that information with all registered Aboriginal parties or others without the express permission of the individual. MCH and the proponent would like to develop and implement appropriate protocols for sourcing and holding cultural information.

5.2 IDENTIFYING KNOWLEDGE HOLDERS

The aim is to identify Traditional Owners/traditional knowledge holders who have knowledge that is relevant to the project area so that any potential effects of the project or activity on the Indigenous heritage values of objects and/or places can be identified.

It also aims to identify Indigenous people who may not necessarily be Traditional Owners/traditional knowledge holders but who do have interests in the area so that any effects of the project or activity on the Indigenous heritage values of objects and/or places, such as mission stations and historic buildings, will be identified.

MCH understands it is the Indigenous custom to elect knowledge holders and it is traditionally the Indigenous people who nominate who speak for country. Unfortunately, some RAPs and Government Departments have placed the onus of identifying traditional knowledge holders onto proponents and archaeologists. In order to do this, MCH are guided by the Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW 2010), the Burra Charter (2013) and Ask First (2002) which provide guidelines to identify traditional knowledge holders.

Knowledge holders are defined as follows:

a) Traditional knowledge holder of specific, detailed knowledge passed directly by a traditional knowledge holder in a traditional manner

b) Traditional knowledge holder of general knowledge passed directly by a traditional knowledge holder in a traditional manner

c) Knowledge holder of recent information obtained through other means (such as, but not limited to, ethnographic sources, internet searches, assessment reports, personal experience etc).

Knowledge holders have been initially identified through the Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW 2010), Stage 1 (S. 4.1.1 to 4.1.2) that seeks to identify, notify and register Aboriginal people who hold cultural knowledge relevant to determining the cultural significance of Aboriginal objects and/or places in the area of the proposed project.

Additionally, knowledge holders were sought to be identified through the Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW 2010), Stage 1 (S. 4.1.3 to 4.1.8) that sought to identify, notify and register Aboriginal people who identify as knowledge holders (using the above defined knowledge holder criteria) who hold cultural knowledge relevant to determining the cultural significance of Aboriginal objects and/or places in the area of the proposed project.

Native Title Claimant Groups/individuals are acknowledged as knowledge holders due to the requirements through the Native Title Registration process. Native Title Claimant groups/individuals are also asked to further define the knowledge holder using the above defined knowledge holder criteria.

This process ensures consistent consultation for all RAPs and adheres to the Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW 2010).

5.3 IDENTIFYING CULTURAL SIGNIFICANCE

Cultural significance is embodied in the place—in its fabric, setting, use, associations and meanings. It may exist in: objects at the place or associated with it; in other places that have some relationship to the place; and in the activities and traditional and customary practices that may occur at the place or that are dependent on the place. A place may be of cultural significance if it satisfies one or more of these criteria. Satisfying more criteria does not mean a place is necessarily more significant.

Only Aboriginal people who are descendants of the people from the traditional lands in which the project is situated can identify the cultural significance of their own cultural heritage.

The cultural significance of a place is assessed by analysing evidence gathered through the physical investigation of the place, research and consultation for this project in line with the Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW 2010), Code of Practice for Archaeological Investigations of Aboriginal Objects in New South Wales (DECCW 2010) and the ICOMS Burra Charter (2013).

Part of the process is to evaluate its qualities against a set of criteria that are established for this purpose. The criteria used include those set out by the Burra Charter (see below).

5.4 VALUES AND QUESTIONS TO CONSIDER

The following values and questions are derived from the Burra Charter (2913) to facilitate your consideration when providing information on the cultural significance of any Aboriginal objects(s) and/or place(s). The criteria discussed below are a means to assess cultural significance in order to meet the Government Departmental requirements. MCH understands that the method of assessing cultural significance presented may not be culturally appropriate and considered offensive to some; it is not intended to be so.

There are five terms or values, which are listed alphabetically in the Burra Charter, and are often included in Australian heritage legislation. Criteria are also used to help define cultural and natural significance, and there is now a nationally agreed set of heritage assessment criteria and each of these criteria may have tangible and intangible aspects and it is essential that both are acknowledged.

The five criteria include Aesthetic value, Historic value, Scientific value, Social value and Spiritual value. These are discussed below along with some questions for consideration when you consider reporting on the cultural significance.

5.4.1 AESTHETIC SIGNIFICANCE

Aesthetic value includes aspects of sensory perception for which criteria can and should be stated. It is how we respond to visual and non-visual aspects such as sounds, smells and other factors that can have a strong impact on your thoughts, feelings and attitudes. It may also include consideration of the form, scale, colour, texture and material and its beauty (Australia ICOMOS 2013).

When considering the aesthetic value and significance of a site and/or PAD, some questions to consider may include:

- Does the object or place have special compositional or uncommonly attractive qualities involving combinations of colour, textures, spaces, massing, detail, movement, unity, sounds, scents?
- Is the object or place distinctive within the setting or a prominent visual landmark?
- Does the object or place have qualities which are inspirational or which evoke strong feelings or special meanings?
- Is the object or place symbolic for its aesthetic qualities: for example, does it inspire artistic or cultural response, is it represented in art, photography, literature, folk art, folk lore, mythology or other imagery or cultural arts?
- Does the object or place display particular aesthetic characteristics of an identified style or fashion?
- Does the object or place show a high degree of creative or technical achievement?

5.4.2 HISTORIC SIGNIFICANCE

The historic value encompasses all aspects of history. For example, it may include the history of aesthetics, art, science, society and spirituality. A place may have historic value because it has influenced, or has been influenced by, an historic figure, event, phase or activity. It may also have historic value as the site of an important event. For any given place the significance will be greater where evidence of the association or event survives in situ, or where the settings are substantially intact, than where it has been changed or evidence does not survive. However, some events or associations may be so important that the place retains significance regardless of subsequent treatment (Australia ICOMOS 2013).

When considering the historic value and significance of a site and/or PAD, some questions to consider may include:

- Is the object or place associated with an important event or theme in Worimi and/or your history?
- Is the object or place important in showing patterns in the development of Worimi and/or your history locally, in a region, or on a state-wide, or national or global basis?
- Does the object or place show a high degree of creative or technical achievement for a particular period?
- Is the object or place associated with a particular person or cultural group important in the history of the local area, state, nationally or globally?

5.4.3 SCIENTIFIC SIGNIFICANCE

The scientific value refers to the information content of a place and its ability to reveal more about an aspect of the past through examination or investigation of the place, including the use of archaeological techniques. The relative scientific value of a place is likely to depend on the importance of the information or data involved, on its rarity, quality or representativeness, and its potential to contribute further important information about the place itself or a type or class of place or to address important research questions (Australia ICOMOS 2013). Whilst the scientific value and significance will be discussed in detail in the Archaeological Heritage Impact Assessment report, it is important to consider this value when assessing the cultural values and significance of an object and/or place.

When considering the scientific value and significance of a site and/or PAD, you may consider:

- Would further investigation of the place have the potential to reveal substantial new information and new understandings about people, places, processes or practices which are not available from other sources?

5.4.4 SOCIAL VALUE

Social value refers to the associations a place has for a particular community or cultural group and the cultural or social meaning it has for that community or cultural group (Australia ICOMOS 2013).

When considering the social value and significance of a site and/or PAD, some questions to consider may include:

- Is the object or place important as a local marker or symbol?
- Is the object or place important as part of Worimi community identity or the identity of another particular cultural group?
- Is the object or place important to the Worimi people, community or other cultural group because of associations and meanings developed from long use and association?

5.4.5 SPIRITUAL VALUE

Spiritual value embraces the intangible values and meanings embodied in or evoked by a place which gives importance to the spiritual identity, or traditional knowledge, art and practices of a cultural group. Spiritual value may also be reflected in the intensity of aesthetic and emotional responses or community associations, and be expressed through cultural practices and related places (Australia ICOMOS 2013). The qualities of the place may inspire a strong and/or spontaneous emotional or metaphysical response in people, expanding their understanding of their place, purpose and obligations in the world, particularly in relation to the spiritual realm (Australia ICOMOS 2013).

When considering the spiritual value and significance of a site and/or PAD, some questions to consider may include:

- Does the object or place contribute to the spiritual identity or belief system of the Worimi or another cultural group?
- Is the place a repository of knowledge, traditional art or lore related to spiritual practice of the Worimi people or another a cultural group?
- Is the object or place important in maintaining the spiritual health and wellbeing of Worimi people or another culture or group?
- Do the physical attributes of the object or place play a role in recalling or awakening an understanding of an individual or a group's relationship with the spiritual realm?

- Do the spiritual values of the object or place find expression in Worimi cultural practices or human-made structures, or inspire creative works?

5.5 PROVIDING YOUR KKNOWLEDGE AND CULTURAL SIGNIFICANCE INFORMATION

It is difficult to provide options that will ensure every individual's needs are met. In light of this, the following proposed options are provided are in no way the only options available. If you have alternative ways of providing your knowledge and cultural significance information, please notify MCH to ensure we can facilitate your requirements where appropriate.

It is acknowledged and understands that the methods and options discussed are not traditional customs and some may take offence. MCH sincerely apologise for any offence taken as none is intended.

1) Discussion in the field during the survey
2) Written documentation (letter, e-mail, fax)
3) Meeting to discuss and/or provide written documentation
4) Formal interview with specific questions/answers and/or discussions
5) Phone conversation
6) Skype conversation
7) Using the attached form/questioner

5.6 PROPOSED CULTURAL HERITAGE ASSESSMENT REPORT

MCH will undertake the cultural heritage assessment as traditional knowledge holders/Traditional Owners and contemporary knowledge holders will be identified as set out above. The cultural heritage assessment will include, but not be limited to:

- Background ethnographic, historic and contemporary research of the Aboriginal people of the area, including but not limited to, past land uses, resources, customs and traditions where the information is available to examine connection to country throughout the past and into the future;
- Discussions with knowledge holders and those who identify themselves as having an interest in the project, taking into account that Indigenous people may have differing degrees of knowledge about heritage places and their importance;
- Discussion will also take place during the survey (as well as throughout the project) as requested by some knowledge holders;
- An additional focused field survey if required to identify, locate and record any Indigenous heritage values of objects and/or places in a manner that is appropriate;
- The writing of a cultural heritage assessment report with the knowledge holders and RAPs ensuring the content is appropriate and sensitive to the knowledge holders; and
- All detailed information provided will be confidential unless otherwise stipulated by the knowledge holders, however, in order to protect any Indigenous heritage values of objects and/or places, their location must be known (not necessarily documented in detail or mapped) in order to discuss the appropriate mitigation and management options and recommendations.

5.7 FORMS

You will find forms attached for your connivance. However, if you prefer to use your own, please feel free to do so. Please ensure that these are either filled out in full or your own forms/letters answer the questions and return to MCH no later than 11th October 2021.

6 ARCHAEOLOGICAL INVESTIGATION METHODS

6.1.1 OBJECTIVES

The objective of the investigation is to determine whether subsurface cultural material exists in the areas identified as having archaeological potential. The detection of surface material will drive the management recommendations and mitigation measures to ensure that any significant cultural resources are identified and protected where possible or is subject to minimal impact by the proposed development.

The Archaeological investigation will be carried out in accordance with Heritage NSW, Department of Premier & Cabinet, Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (DECCW 2010).

6.1.2 ARCHAEOLOGICAL HERITAGE ASSESSMENT METHODOLOGY & REPORT

Overall, the assessment will include, but not limited to, the following;

The provision of an Archaeological Heritage Impact Assessment Report that will include:

- Project background, including project description, detailed maps, legislative context, qualifications of the investigator
- Consultation outlining the process as per the Heritage NSW Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010
- Landscape context including, landforms, soils, geology, geomorphology, water sources, fauna and flora, history of land use and impacts and, natural impacts
- Archaeological context including review of previous regional and local work in the area, AHIMS search, summary and discussion of the local and regional character of Aboriginal land use and its material traces, occupation model and site-specific predictive model
- Results that will include the survey results (see below for proposed survey methodology), detailed descriptions of landforms (survey units), vegetation cover, exposures, land uses and disturbances, site(s) and PAD(s). It will also include any analysis and discussion
- An assessment of scientific values and significance assessment
- An impact assessment
- Management and mitigation measures
- Recommendations
- References
- Appendices will include the AHIMS results and community consultation log and communications

6.1.3 PROPOSED SURVEY METHODOLOGY

The survey methodology is in accordance with the Heritage NSW, Department of Premier & Cabinet policy - Code of Practice for Archaeological Investigations of Aboriginal Objects in New South Wales 2010, Section 2.2. This proposed methodology is subject to variation due to unforeseen field conditions/constraints.

- Survey units identified based on landforms
- Transects will be via foot with the survey team spaced at 5-10 metres apart across the entire investigation area of impact
- Ground surface visibility recorded for each survey unit and given a % rating of vegetation cover
- Exposures recorded for each survey unit given a % rating of exposure and exposure type

- Using the effective coverage and exposure information, calculate the effective survey coverage for each survey unit and the entire investigation area
- Disturbances recorded for each survey unit
- Take representative photographs of survey units
- All sites and/or PADs recorded in each survey unit and accurately mapped

Sites and their boundaries will be defined as;

- The spatial extent of the visible objects or direct evidence of their location
- Obvious physical boundaries where present such as, but not limited to, mound sites, middens, ceremonial grounds, disturbances (i.e. road, building)
- Identification by the Aboriginal community on the basis of cultural information

All sites and PADs will include, but not limited to, the following:

- Site type and content
- Survey unit (landform)
- Distance from water sources
- Vegetation cover (if any)
- Exposure (if any)
- Disturbances (if any)
- GPS co-ordinates
- Identified site boundaries
- Potential for in situ deposits
- Photographs (with a metric scale)

7 ROLES, RESPONSIBILITIES AND FUNCTIONS OF PARTIES

The roles, responsibilities and functions of all parties are outlined below and is taken from DECCW (2010).

7.1 HERITAGE NSW, DEPARTMENT OF PREMIER & CABINET

The Chief Executive of Heritage NSW, Department of Premier & Cabinet is the decision-maker who decides to grant or refuse an Aboriginal Heritage Impact Permit (AHIP) application. If an AHIP is issued, conditions are usually attached and Heritage NSW, Department of Premier & Cabinet is responsible for ensuring the AHIP holder complies with those conditions. When considering an application under Part 6 of the NPW Act, the Chief Executive will review the information provided by proponents in line with its internal policies and procedures to assess potential or actual harm to Aboriginal objects or places (DECCW, 2009).

The Environment Protection and Regulation Group (EPRG) of Heritage NSW, Department of Premier & Cabinet is responsible for administering the regulatory functions under Part 6 of the NPW Act. Heritage NSW, Department of Premier & Cabinet expects that proponents and Aboriginal people should:

- be aware that Part 6 of the NPW Act establishes the Chief Executive or delegate of Heritage NSW, Department of Premier & Cabinet as the decision-maker; and
- recognise that the Chief Executive's (or delegates) decisions may not be consistent with the views of the Aboriginal community and/or the proponent. However, Heritage NSW, Department of Premier & Cabinet will consider all relevant information it receives as part of its decision-making process.

7.2 PROPONENT

All proponents operate within a commercial environment which includes:

- strict financial and management issues, priorities and deadlines;
- the need to gain community support in order to secure any necessary approval/consent/ licence/permit to operate;
- the need for clearer processes and certainty of outcomes;
- the need for suitable access to land for the purpose of their development project;
- the need to work efficiently within the project's time, quality and cost planning and management parameters; and
- the need for culturally appropriate assessment findings relevant to their project.

Under these requirements, proponents should undertake the following:

- bring the registered Aboriginal parties or their nominated representatives together and be responsible for ensuring appropriate administration and management of the consultation process;
- consider the cultural perspectives, views, knowledge and advice of the registered Aboriginal parties involved in the consultation process in assessing cultural significance and developing any heritage management outcomes for Aboriginal object(s) and/or place(s);
- provide evidence to Heritage NSW, Department of Premier & Cabinet of consultation by including information relevant to the cultural perspectives, views, knowledge and advice provided by the registered Aboriginal parties; and
- accurately record and clearly articulate all consultation findings in the final cultural heritage assessment report.

7.3 REGISTERED ABORIGINAL STAKEHOLDERS

The interests and obligations of Aboriginal people relate to the protection of Aboriginal cultural heritage. It is only Aboriginal people who can determine who is accepted by their community as being authorised to speak for Country and its associated cultural heritage. Where there is a dispute about who speaks for Country, it is appropriate for Aboriginal people, not Heritage NSW, Department of Premier & Cabinet or the proponent, to resolve this dispute in a timely manner to enable effective consultation to proceed.

Aboriginal people who can provide information about cultural significance are, based on Aboriginal lore and customs, the traditional owners or custodians of the land that is the subject of the proposed project area. Traditional owners or custodians with appropriate cultural heritage knowledge necessary to make informed decisions who wish to register as an Aboriginal party are those people who:

- continue to maintain a deep respect for their ancestral belief system, traditional lore and customs;
- recognise their responsibilities of their community, knowledge and obligations to protect and conserve their culture and heritage and to care for their traditional lands or country; and
- have the trust of their community, knowledge and understanding of their culture and permission to speak about it.

The registered Aboriginal parties should undertake the following;

- ensure the appropriate cultural knowledge holder is providing the appropriate information;
- uphold and respect the traditional rights, obligations and responsibilities of Aboriginal people within their own boundaries and not to infringe in other areas or Aboriginal people outside their own boundaries;
- consider and provide the proponent the cultural perspectives, views, knowledge and advice during the consultation process, assessing cultural significance and developing any heritage management outcomes for Aboriginal object(s) and/or place(s); and
- need to work efficiently within the project's time and provide feedback in a timely manner.

7.4 LOCAL ABORIGINAL LAND COUNCILS

The NSW Aboriginal Land Council (NSWALC) and Local Aboriginal Land Councils (LALCs) have statutory functions relevant to the protection of Aboriginal culture and heritage under the NSW Aboriginal Land Rights Act 1983. These requirements do not extend the role of NSWALC and LALCs in the significance assessment process. That is, these requirements do not provide NSWALC and/or LALCs any additional or specific decision-making role in the assessment of significance of Aboriginal object(s) and/or place(s) that are subject to an AHIP application under Part 6 of the NPW Act.

LALCs may choose to register an interest to be involved in the consultation process, or may assist registered Aboriginal parties to participate in the consultation process established by these requirements. In order to ensure effective consultation and the subsequent informed heritage assessment, LALCs are encouraged to identify and make contact with Aboriginal people who hold cultural knowledge in their area.

7.5 EMPLOYMENT

The proponent may engage a number of Aboriginal representatives from the registered parties (based on the size and nature of the project) to participate and assist in the fieldwork component of this project. If you would like to be considered for paid field work, please answer the selection criteria attached and ensure you attach certificates of currency for the relevant insurances, CV(s), any certificates and references. MCH will then pass this information onto the proponent for their consideration to make the selection for

fieldwork participants should they wish to do so. MCH will ensure all Aboriginal parties are invited to participate in fieldwork; however paid participation is determined by the proponent.

7.6 FORMS

You will find forms attached for your connivance. However, if you prefer to use your own, please feel free to do so. Please ensure that these are either filled out in full or your own forms/letters answer the questions and return to MCH no later than 11th October 2021.

REFERENCES

Australian Heritage Commission. 2002. Ask First. A Guide to respecting Indigenous Heritage Places and Values.

Australian International Council on Monuments and Sites (ICOMOS). 2013a. The Burra Charter.

Australian ICOMOS. 2013b. The Practice Note – Understanding and assessing cultural significance

Australian ICOMOS. 2013c. The Practice Note – The Burra Charter and archaeological practice

Australian ICOMOS. 2013d. The Practice Note – The Burra Charter and Indigenous cultural heritage management

Department of Environment, Climate Change and Water (DECCW). 2010a. *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010.* Department of Environment, Climate Change and Water NSW, Sydney.

Department of Environment, Climate Change and Water (DECCW). 2010b. *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales*. Department of Environment, Climate Change and Water NSW, Sydney.

Appendix A

MCH would like to clearly state that, should you wish to provide feedback in another form, you are encouraged to do so. You are under no obligation to complete the current form.

However, should you wish to use this form, please complete, sign and return to MCH using one of the following;

E-mail: penny@mcheritage.com.au

Postal address: MCH

PO Box 166

Adamstown, NSW 2289

ABORIGINAL STAKEHOLDER SITE OFFICER APPLICATION

Position description

A site officer must demonstrate that they have satisfactorily participated in previous archaeological fieldwork with an archaeologist. A trainee site officer does not need to demonstrate previous archaeological experience. Site officers must be able to:

- undertake direction from the project archaeologist
- work in a range of climates wearing protective clothing
- work in teams with a wide range of people
- identify a broad range of Aboriginal objects across the landscape

To qualify as a site officer, appropriate training in identifying Aboriginal objects must have been undertaken (such as the NPWS sites awareness training course, or other relevant secondary or tertiary studies) or equivalent knowledge or experience must be demonstrated.

The duties of the site officer under the direction of the project archaeologist may include, but not limited to:

- walking the project area
- meeting general and site-specific Occupational Health and Safety requirements

Selection criteria

The proponent will offer positions based on the following key selection criteria:

- an individual's ability to undertake the tasks specified above
- an individual's availability to undertake the activity (physically able to undertake field work)
- an individual's experience in undertaking similar activities. Applications may be subject to a reference check
- individuals with demonstrated cultural knowledge relevant to the local area
- individuals who can demonstrate they can communicate the results of the field work back to their managers and RAPs
- in addition to a consideration of the key selection criteria, the Proponent may give preference to applicants who live locally

The proponent is under no obligation to offer site officer positions based on an individual's association with a cultural group or area. The proponent makes no guarantee that registered parties will be engaged to undertake archaeological field activities. The number of site officer positions available will be based on need as described in the archaeological methodology. However, MCH will ensure all registered stakeholders are invited to participate in the fieldwork regardless of engagement arrangements between the stakeholder(s) and the proponent. Applicants will be notified whether they have been successful or unsuccessful in their application for renumeration for fieldwork.

Engagement

The Proponent selects and has final approval on who will be engaged as a site officer. Successful applicants will be engaged to provide the services through a written contract that will be provided at a later date. The proponent will only engage Service Providers with NSW workers compensation insurance, public liability insurance, and comprehensive motor vehicle insurance or third-party property damage insurance.

Payment

The proponent will pay the Service Provider at a rate that will be based on the project budget. The quoted rate is the rate to be paid by the Proponent to the Service Provider - not to the individual site officer/trainee site officer. Payment will only be made for the provision of the services (actual hours worked), and not for the time spent travelling to and from site. Payment will be made upon the receipt of a cultural heritage report and receipt of your response to the draft report.

ABORIGINAL SITE OFFICER APPLICATION FORM

Gan Gan Rd, Anna Bay

An Aboriginal site officer application form must be filled out for each individual seeking engagement as a site officer.	
Name of organisation (if relevant)	
Name	
Contact number	
Mailing address	
Email address	
Fax	
Position applied for	Site officer ☐ Trainee Site Officer ☐
Please list any formal qualifications or relevant experience to the position applied for (attach documentation as required)	
Please list any previous archaeological, sites, survey, excavation or other relevant experience (attach additional sheets as required)	
Please provide the contact details of at least one archaeologist (other than the project archaeologist) who can be contacted as a referee	

INSURANCES		
Public Liability	Expiry date:	(attach certificate of currency)
Worker Compensation	Expiry date:	(attach certificate of currency)
Comprehensive Motor Vehicle	Expiry date:	(attach certificate of currency)

Failure to provide up to date Certificate of Currencies will prevent you participating in any fieldwork. MCH may have received copies previously, however, they must be provided for each project.

OCCUPATIONAL HEALTH & SAFETY (OH&S)

All participants are required to comply with MCH and the proponents OH&S requirements.

This includes high visibility clothing, hat, sunscreen and steel caped boots. You will be advised of any additional requirements.

This also includes appropriate and acceptable behaviour at all times.

Failure to comply will prevent you from participating in the field work.

COMMENTS ON PROPOSED METHODOLOGY

Gan Gan Rd, Anna Bay

I, _____ (*please insert your name*) of _____ (*please insert the name of your group*), **agree to the methodology** outlined by MCH in relation to gathering information about cultural significance:

_____

_____

Signed: _____ Date: _____

Position within organisation: _____

I, _____ (*please insert your name*) of _____ (*please insert the name of your group*), **do not agree to the methodology** outlined by MCH in relation to gathering information about cultural significance for the following reasons (*please explain your reasons for disagreeing):*

_____

_____

I would like to suggest the following (please provide your reasoning):_____

_____

Signed: _____ Date: _____

Position within organisation: _____

PROVIDING KNOWLEDGE ABOUT CULTURAL SIGNIFICANCE

Gan Gan Rd, Anna Bay

Company Name):_____

Contact:_____

Postal address:_____

_____

Mobile No:_____

E-Mail:_____

Date:_____

I would like to provide knowledge about cultural significance using the following method(s). Please tick your preferred method(s):

1) Discussion in the field during the survey
2) Written documentation (letter, e-mail, fax)
3) Meeting to discuss and/or provide written documentation
4) Formal interview with specific questions/answers and/or discussions
5) Phone conversation
6) Skype conversation
7) Using the attached form/questioner

Other: Please provide details:

_____

_____

_____

_____

penny@mcheritage.com.au

From: lennie.anderson011 lennie.anderson011 <lennie.anderson011@bigpond.com>
Sent: Friday, 10 September 2021 10:55 AM
To: penny@mcheritage.com.au
Subject: Re: Gan Gan Road, Anna Bay - Information PAck

Hi Penny,

Bec and I have been on that property before! there is a large drain that crosses it from Nth East. It is full of Shell etc. Up on the Rise just behind Eddy Davies Melon Patch we also uncovered artefacts. Bec is going to tey find the report and send it to you.

Lennie A

------ Original Message ------
From: penny@mcheritage.com.au
To: lennie.anderson011@bigpond.com; murroomainc1@gmail.com; sites@worimi.org.au; didgengunawalclan@yahoo.com.au; widescope.group@live.com
Sent: Friday, 10 Sep, 2021 At 8:44 AM
Subject: Gan Gan Road, Anna Bay - Information PAck

RE: **Heritage NSW Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (Stage 2 & 3) – Presentation of information about the proposed project and request for comment on the proposed methods of investigation – Proposed subdivision along Gan Gan Road, Anna Bay**

McCardle Cultural Heritage (MCH) would like to thank you for registering your interest in this project. MCH sent a letter extending an invitation to register your interest and asking if you would prefer to have a meeting to discuss the project or have an information pack sent to you. As MCH did not receive your preferred option, we are posting the information packet.

In order for the proponent to fulfil its cultural heritage consultation requirements per the Heritage NSW, Department of Premier & Cabinet policy - Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (Stage 2; s 4.2.1 to 4.2.4; Stage 3, s 4.3.1 to 4.3.7) please find enclosed an Aboriginal Cultural Heritage Assessment Information Packet that the proposed project including, but not limited to, details of the proposed the project including maps indicating the impact areas , an outline of the impact assessment process, summary of the cultural, environmental and archaeological contexts, a site specific predictive model, details of the proposed methodology, the roles and responsibilities of all parties, and provide an opportunity for you to identify and raise any cultural concerns, perspectives and assessment requirements you may have.

MCH would appreciate your input on;

- The proposed methodology

PROVIDING KNOWLEDGE ABOUT CULTURAL SIGNIFICANCE

Gan Gan Rd, Anna Bay

Company Name): Worimi Local Aboriginal Land Council

Contact: Jamie Merrick

Postal address: _____

_____

Mobile No: 0429994292

E-Mail: _____

Date: 21/09/21

I would like to provide knowledge about cultural significance using the following method(s). Please tick your preferred method(s):

1) Discussion in the field during the survey x
2) Written documentation (letter, e-mail, fax)
3) Meeting to discuss and/or provide written documentation
4) Formal interview with specific questions/answers and/or discussions
5) Phone conversation
6) Skype conversation
7) Using the attached form/questioner

Other: Please provide details:

_____

_____

_____

_____

ABORIGINAL SITE OFFICER APPLICATION FORM

Gan Gan Rd, Anna Bay

An Aboriginal site officer application form must be filled out for each individual seeking engagement as a site officer.	
Name of organisation (if relevant)	Murrooma Incorporated
Name	Bec Young
Contact number	0421078695
Mailing address	9 Vardon Rd Fern Bay
Email address	murroomainc1@gmail.com
Fax	
Position applied for	Site officer [X] Trainee Site Officer [ ]
Please list any formal qualifications or relevant experience to the position applied for (attach documentation as required)	Degree in Aboriginal Studies 2 - NPWS Aboriginal Sites Identification Courses OHS White Card
Please list any previous archaeological, sites, survey, excavation or other relevant experience (attach additional sheets as required)	Over 20 years experience working within the field of Cultural Heritage- Including, field work surveys,reports and excavations
Please provide the contact details of at least one archaeologist (other than the project archaeologist) who can be contacted as a referee	Nicola Roche- 0427125685

INSURANCES

Public Liability	Expiry date: 31-08-2022	(attach certificate of currency)
Worker Compensation	Expiry date: 30-11-2021	(attach certificate of currency)
Comprehensive Motor Vehicle	Expiry date: Feb 2022	(attach certificate of currency)

Failure to provide up to date Certificate of Currencies will prevent you participating in any fieldwork. MCH may have received copies previously, however, they must be provided for each project.

OCCUPATIONAL HEALTH & SAFETY (OH&S)

All participants are required to comply with MCH and the proponents OH&S requirements.

This includes high visibility clothing, hat, sunscreen and steel caped boots. You will be advised of any additional requirements.

This also includes appropriate and acceptable behaviour at all times.

Failure to comply will prevent you from participating in the field work.

COMMENTS ON PROPOSED METHODOLOGY

Gan Gan Rd, Anna Bay

I, Bec Young (*please insert your name*) of Murrooma Incorporated (*please insert the name of your group*), **agree to the methodology** outlined by MCH in relation to gathering information about cultural significance:

Murrooma Agrees with this methodology outlined and happy to provide relevant information as Traditional Owners of this Worimi area.

Signed: R.Young Date: 21-09-2021

Position within organisation: Operations Manager

I, _____ (*please insert your name*) of _____ (*please insert the name of your group*), **do not agree to the methodology** outlined by MCH in relation to gathering information about cultural significance for the following reasons (*please explain your reasons for disagreeing):*

_____

_____

I would like to suggest the following (please provide your reasoning):_____

_____

Signed: _____ Date: _____

Position within organisation: _____

PROVIDING KNOWLEDGE ABOUT CULTURAL SIGNIFICANCE

Gan Gan Rd, Anna Bay

Company Name): Murrooma Inc

Contact: Bec Young

Postal address: 9 Vardon Rd Fern Bay

Mobile No: 0421078695

E-Mail: murroomainc1@gmail.com

Date: 21-09-2021

I would like to provide knowledge about cultural significance using the following method(s). Please tick your preferred method(s):

1) Discussion in the field during the survey
2) Written documentation (letter, e-mail, fax)
3) Meeting to discuss and/or provide written documentation
4) Formal interview with specific questions/answers and/or discussions
5) Phone conversation
6) Skype conversation
7) Using the attached form/questioner

Other: Please provide details:

McCARDLE
CULTURAL HERITAGE

PO Box 166
Adamstown 2289 NSW
penny@mcheritage.com.au
P: 0412 702 396

mcheritage.com.au

12 October 2021

Nur-Run-Gee Pty Ltd
Leonard Anderson OAM
lennie.anderson011@bigpond.com

Dear Lenny,

RE: Heritage NSW Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (Stage 3) –Survey invitation and letter of engagement- Proposed subdivision along Gan Gan Road, Anna Bay

The proponent (GAD Project Pty Ltd) has received a number of applications and after careful consideration has selected whom they wish to engage in a paid capacity. The proponent and MCH would like to advise that your application for paid participation has been successful. MCH would like to organise the survey for the above-named project for the 28th October 2021 starting at 8am (meeting location to be advised). We anticipate work will be complete within a day, however, please be advised this time may change.

As part of the assessment process the proponent require an appropriate person from your organisation to participate in the survey of the study area to identify known or potential cultural heritage features. A cultural heritage report must be prepared following the survey and receipt of the draft archaeological report within the required 28 days review period. The cultural heritage report will identify known or potential Aboriginal objects or places and/or any other cultural heritage matters that may be affected by the project.

GAD Project Pty Ltd and MCH wishes to reiterate our intent to positively engaging with the local Aboriginal community. In this spirit an invitation has been extended to all registered applicants to attend the survey. If you accept the terms outlined in the Letter of Engagement (attached) please sign the Letter of Engagement and return to McCardle Cultural Heritage. Participation in the program is dependent on the receipt of the Letter of engagement and insurance certificate of currencies.

As all communications, including phone calls, faxes, letters, and e-mails must be included in the consultation component of the report as per the Heritage NSW, Department of Premier & Cabinet requirements, please ensure that any items that you or your group deem confidential are made apparent to your field representative prior to field work to ensure that information remains confidential if required. Failure to disclose that information is confidential may result in the information being included in the report.

Should you have any questions regarding these terms and conditions or the project please contact myself on 0412 702 396.

Yours sincerely,
for McCardle Cultural Heritage Pty Ltd

Dr. Penny McCardle
Principal Archaeologist
Forensic Anthropologist

Aboriginal Site Officer/Trainee Site Officer

Letter of Engagement

GAD Project Pty Ltd wishes to engage Nur-Run-Gee Pty Ltd (Service Provider) to provide one Site Officer to undertake an archaeological survey of the proposed development along Gan Gan Road, Anna Bay

The proponent and Service Provider agree to the terms and conditions of the engagement as follows:

Services
The Service Provider will engage one Site Officer to undertake the following:

- Archaeological survey of the project area
- a cultural heritage report and invoice within 28 days of receiving the draft report from MCH

Fees
The proponent will pay the following Fees to the Service Provider for Services:

- $100.00 + GST per person per hour for work undertaken by a Site Officer

Payment will be within 28 days of receipt of a correct invoice and cultural heritage report. Invoices are to be provided at the end of the month.

Invoices are to be addressed to:
GAD Project Pty Ltd
C/O- MCH
penny@mcheritage.com.au

Time sheets
The Service provider must ensure that the Site Officers sign a time sheet at the start and finish of each day the Services are provided. Fees will not be paid unless time sheets for each Site Officer has been completed. The archaeologist will have a time sheet that may be used.

Work performance
The Service Provider must ensure that the Site Officers are fit for work, undertake the Services in a timely manner, with reasonable care, skill and professionalism and in accordance with all applicable laws and any reasonable directions or requirements made by the proponent and/or MCH.

Absences
All field staff must call MCH the evening before work to notify their absence for the following day and organise for a replacement. If no notice is provided, that staff members place in the field team will be suspended until MCH are notified they will be back at work. It is the responsibility of the Service Provider to organise a replacement site officer from the list of persons provided to MCH at the start of the project.

Proponent and MCH property
All materials and equipment provided by MCH or the proponent during the term of engagement remain the property of MCH or the proponent and must be returned upon completion of the Services or termination of the agreement.

Confidentially
All information provided by MCH or the proponent to the Service Provider and/or Site Officer in relation to the services or the business or operations of the proponent and MCH are confidential. The Service Provider will ensure it and the Site Officer keep such information confidential at all times (including after the completion of the Services) and must not disclose it to any other person without the prior written consent from the proponent and/or MCH.

OH&S Requirements
Before commencement of work, you must provide MCH with certificate of currencies for Workers Comp and Public Liability. Field representatives participating in the survey will be required to wear steel cap boots, long pants and long shirt (hi-visibility) with appropriate sun protection including a hat. It is recommended that participants bring adequate amounts of food and water for the day.

COVID requirements
All field staff will be required to be double vaccinated, a negative COVID test no more than 3 days prior to commencing field work, and adhere to the required NSW Health orders at time of all field work (e.g. face masks, social distancing, quarantining if required). Proof of vaccination and negative COVID test will be required at the start of field work. In order to ensure the safety of all staff, any field staff who do not provide the required information will not be permitted on site or to participate in the field work.

Early termination
The proponent reserves the right to terminate this agreement at any time by giving 1-week written notice to the Service Provider. If the proponent terminates this agreement under this clause, then, subject to satisfactory performance of the Services, the proponent will pay the Service provider a proportionate part of the Fee according to the amount or proportion of Services supplied up to the date of termination.

No subcontracting
The Service Provider must not subcontract the provision of the Services without the proponent's prior written consent.

Insurances
The Service Provider must provide certificates of currency for Workers Comp, Public Liability and Comprehensive Motor vehicle insurances prior to the Services being provided.

Indemnity and release
The Service Provider undertakes the Services at its sole risk and the proponent and MCH will not be liable for any loss, damage, injury or death sustained by any person as a result of the Services being provided.

The Service provider indemnifies and releases the proponent and MCH against any loss the proponent or MCH suffers or any claims made against the proponent or MCH by any person arising out of the provisions of the Services except to the extent that any loss or claims arise from any negligence by the proponent or MCH.

Variations
No changes to these terms can be made without the prior written agreement with the proponent.

Exclusion of other terms
This letter contains the sole agreement of the parties and all other terms are excluded.

If you agree that the contents of this letter correctly set out the terms of engagement between the proponent and your organisation then please sign both copies, keep one for yourself, and return the other signed copy to MCH within 10 days.

Acceptance (Survey at Gan Gan Road, Anna Bay)

Signed by Nur-Run-Gee Pty Ltd	
I/we agree to the terms set out in this letter and acknowledge that it forms a binding legal contract. **I/we declare that I/we are authorised to sign this letter on behalf of Nur-Run-Gee Pty Ltd.** **Please provide your ABN:**	
Signature of Witness	**Signature of authorised person**
Print name of Witness	**Print name of authorised person**
	Print title and position of authorised person
Date:	**Date:**

McCARDLE
CULTURAL HERITAGE

PO Box 166
Adamstown 2289 NSW
penny@mcheritage.com.au
P: 0412 702 396

mcheritage.com.au

12 October 2021

Mur-Roo-Ma Inc.
Anthony Anderson
murroomainc1@gmail.com

Dear Anthony,

RE: Heritage NSW Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (Stage 3) –Survey invitation and letter of engagement- Proposed subdivision along Gan Gan Road, Anna Bay

The proponent (GAD Project Pty Ltd) has received a number of applications and after careful consideration has selected whom they wish to engage in a paid capacity. The proponent and MCH would like to advise that your application for paid participation has been successful. MCH would like to organise the survey for the above-named project for the 28th October 2021 starting at 8am (meeting location to be advised). We anticipate work will be complete within a day, however, please be advised this time may change.

As part of the assessment process the proponent require an appropriate person from your organisation to participate in the survey of the study area to identify known or potential cultural heritage features. A cultural heritage report must be prepared following the survey and receipt of the draft archaeological report within the required 28 days review period. The cultural heritage report will identify known or potential Aboriginal objects or places and/or any other cultural heritage matters that may be affected by the project.

GAD Project Pty Ltd and MCH wishes to reiterate our intent to positively engaging with the local Aboriginal community. In this spirit an invitation has been extended to all registered applicants to attend the survey. If you accept the terms outlined in the Letter of Engagement (attached) please sign the Letter of Engagement and return to McCardle Cultural Heritage. Participation in the program is dependent on the receipt of the Letter of engagement and insurance certificate of currencies.

As all communications, including phone calls, faxes, letters, and e-mails must be included in the consultation component of the report as per the Heritage NSW, Department of Premier & Cabinet requirements, please ensure that any items that you or your group deem confidential are made apparent to your field representative prior to field work to ensure that information remains confidential if required. Failure to disclose that information is confidential may result in the information being included in the report.

Should you have any questions regarding these terms and conditions or the project please contact myself on 0412 702 396.

Yours sincerely,
for McCardle Cultural Heritage Pty Ltd

Dr. Penny McCardle
Principal Archaeologist
Forensic Anthropologist

Aboriginal Site Officer/Trainee Site Officer

Letter of Engagement

GAD Project Pty Ltd wishes to engage Mur-Roo-Ma Inc. (Service Provider) to provide one Site Officer to undertake an archaeological survey of the proposed development along Gan Gan Road, Anna Bay

The proponent and Service Provider agree to the terms and conditions of the engagement as follows:

Services
The Service Provider will engage one Site Officer to undertake the following:

- Archaeological survey of the project area
- a cultural heritage report and invoice within 28 days of receiving the draft report from MCH

Fees
The proponent will pay the following Fees to the Service Provider for Services:

- $100.00 + GST per person per hour for work undertaken by a Site Officer

Payment will be within 28 days of receipt of a correct invoice and cultural heritage report. Invoices are to be provided at the end of the month.

Invoices are to be addressed to:
GAD Project Pty Ltd
C/O- MCH
penny@mcheritage.com.au

Time sheets
The Service provider must ensure that the Site Officers sign a time sheet at the start and finish of each day the Services are provided. Fees will not be paid unless time sheets for each Site Officer has been completed. The archaeologist will have a time sheet that may be used.

Work performance
The Service Provider must ensure that the Site Officers are fit for work, undertake the Services in a timely manner, with reasonable care, skill and professionalism and in accordance with all applicable laws and any reasonable directions or requirements made by the proponent and/or MCH.

Absences
All field staff must call MCH the evening before work to notify their absence for the following day and organise for a replacement. If no notice is provided, that staff members place in the field team will be suspended until MCH are notified they will be back at work. It is the responsibility of the Service Provider to organise a replacement site officer from the list of persons provided to MCH at the start of the project.

Proponent and MCH property
All materials and equipment provided by MCH or the proponent during the term of engagement remain the property of MCH or the proponent and must be returned upon completion of the Services or termination of the agreement.

Confidentially
All information provided by MCH or the proponent to the Service Provider and/or Site Officer in relation to the services or the business or operations of the proponent and MCH are confidential. The Service Provider will ensure it and the Site Officer keep such information confidential at all times (including after the completion of the Services) and must not disclose it to any other person without the prior written consent from the proponent and/or MCH.

OH&S Requirements
Before commencement of work, you must provide MCH with certificate of currencies for Workers Comp and Public Liability. Field representatives participating in the survey will be required to wear steel cap boots, long pants and long shirt (hi-visibility) with appropriate sun protection including a hat. It is recommended that participants bring adequate amounts of food and water for the day.

COVID requirements
All field staff will be required to be double vaccinated, a negative COVID test no more than 3 days prior to commencing field work, and adhere to the required NSW Health orders at time of all field work (e.g. face masks, social distancing, quarantining if required). Proof of vaccination and negative COVID test will be required at the start of field work. In order to ensure the safety of all staff, any field staff who do not provide the required information will not be permitted on site or to participate in the field work.

Early termination
The proponent reserves the right to terminate this agreement at any time by giving 1-week written notice to the Service Provider. If the proponent terminates this agreement under this clause, then, subject to satisfactory performance of the Services, the proponent will pay the Service provider a proportionate part of the Fee according to the amount or proportion of Services supplied up to the date of termination.

No subcontracting
The Service Provider must not subcontract the provision of the Services without the proponent's prior written consent.

Insurances
The Service Provider must provide certificates of currency for Workers Comp, Public Liability and Comprehensive Motor vehicle insurances prior to the Services being provided.

Indemnity and release
The Service Provider undertakes the Services at its sole risk and the proponent and MCH will not be liable for any loss, damage, injury or death sustained by any person as a result of the Services being provided.

The Service provider indemnifies and releases the proponent and MCH against any loss the proponent or MCH suffers or any claims made against the proponent or MCH by any person arising out of the provisions of the Services except to the extent that any loss or claims arise from any negligence by the proponent or MCH.

Variations
No changes to these terms can be made without the prior written agreement with the proponent.

Exclusion of other terms
This letter contains the sole agreement of the parties and all other terms are excluded.

If you agree that the contents of this letter correctly set out the terms of engagement between the proponent and your organisation then please sign both copies, keep one for yourself, and return the other signed copy to MCH within 10 days.

Acceptance (Survey at Gan Gan Road, Anna Bay)

Signed by Mur-Roo-Ma Inc.
I/we agree to the terms set out in this letter and acknowledge that it forms a binding legal contract. **I/we declare that I/we are authorised to sign this letter on behalf of Mur-Roo-Ma Inc..** **Please provide your ABN:**

Signature of Witness	**Signature of authorised person**
Print name of Witness	**Print name of authorised person**
	Print title and position of authorised person
Date:	**Date:**

McCARDLE
CULTURAL HERITAGE

PO Box 166
Adamstown 2289 NSW
penny@mcheritage.com.au
P: 0412 702 396

mcheritage.com.au

12 October 2021

Worimi Local Aboriginal Land Council
Jamie Merick
sites@worimi.org.au

Dear Jamie,

RE: Heritage NSW Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (Stage 3) –Survey invitation and letter of engagement- Proposed subdivision along Gan Gan Road, Anna Bay

The proponent (GAD Project Pty Ltd) has received a number of applications and after careful consideration has selected whom they wish to engage in a paid capacity. The proponent and MCH would like to advise that your application for paid participation has been successful. MCH would like to organise the survey for the above-named project for the 28th October 2021 starting at 8am (meeting location to be advised). We anticipate work will be complete within a day, however, please be advised this time may change.

As part of the assessment process the proponent require an appropriate person from your organisation to participate in the survey of the study area to identify known or potential cultural heritage features. A cultural heritage report must be prepared following the survey and receipt of the draft archaeological report within the required 28 days review period. The cultural heritage report will identify known or potential Aboriginal objects or places and/or any other cultural heritage matters that may be affected by the project.

GAD Project Pty Ltd and MCH wishes to reiterate our intent to positively engaging with the local Aboriginal community. In this spirit an invitation has been extended to all registered applicants to attend the survey. If you accept the terms outlined in the Letter of Engagement (attached) please sign the Letter of Engagement and return to McCardle Cultural Heritage. Participation in the program is dependent on the receipt of the Letter of engagement and insurance certificate of currencies.

As all communications, including phone calls, faxes, letters, and e-mails must be included in the consultation component of the report as per the Heritage NSW, Department of Premier & Cabinet requirements, please ensure that any items that you or your group deem confidential are made apparent to your field representative prior to field work to ensure that information remains confidential if required. Failure to disclose that information is confidential may result in the information being included in the report.

Should you have any questions regarding these terms and conditions or the project please contact myself on 0412 702 396.

Yours sincerely,
for McCardle Cultural Heritage Pty Ltd

Dr. Penny McCardle
Principal Archaeologist
Forensic Anthropologist

Aboriginal Site Officer/Trainee Site Officer

Letter of Engagement

GAD Project Pty Ltd wishes to engage Worimi Local Aboriginal Land Council (Service Provider) to provide one Site Officer to undertake an archaeological survey of the proposed development along Gan Gan Road, Anna Bay

The proponent and Service Provider agree to the terms and conditions of the engagement as follows:

Services
The Service Provider will engage one Site Officer to undertake the following:

- Archaeological survey of the project area
- a cultural heritage report and invoice within 28 days of receiving the draft report from MCH

Fees
The proponent will pay the following Fees to the Service Provider for Services:

- $100.00 + GST per person per hour for work undertaken by a Site Officer

Payment will be within 28 days of receipt of a correct invoice and cultural heritage report. Invoices are to be provided at the end of the month.

Invoices are to be addressed to:
GAD Project Pty Ltd
C/O- MCH
penny@mcheritage.com.au

Time sheets
The Service provider must ensure that the Site Officers sign a time sheet at the start and finish of each day the Services are provided. Fees will not be paid unless time sheets for each Site Officer has been completed. The archaeologist will have a time sheet that may be used.

Work performance
The Service Provider must ensure that the Site Officers are fit for work, undertake the Services in a timely manner, with reasonable care, skill and professionalism and in accordance with all applicable laws and any reasonable directions or requirements made by the proponent and/or MCH.

Absences
All field staff must call MCH the evening before work to notify their absence for the following day and organise for a replacement. If no notice is provided, that staff members place in the field team will be suspended until MCH are notified they will be back at work. It is the responsibility of the Service Provider to organise a replacement site officer from the list of persons provided to MCH at the start of the project.

Proponent and MCH property
All materials and equipment provided by MCH or the proponent during the term of engagement remain the property of MCH or the proponent and must be returned upon completion of the Services or termination of the agreement.

Confidentially
All information provided by MCH or the proponent to the Service Provider and/or Site Officer in relation to the services or the business or operations of the proponent and MCH are confidential. The Service Provider will ensure it and the Site Officer keep such information confidential at all times (including after the completion of the Services) and must not disclose it to any other person without the prior written consent from the proponent and/or MCH.

OH&S Requirements
Before commencement of work, you must provide MCH with certificate of currencies for Workers Comp and Public Liability. Field representatives participating in the survey will be required to wear steel cap boots, long pants and long shirt (hi-visibility) with appropriate sun protection including a hat. It is recommended that participants bring adequate amounts of food and water for the day.

COVID requirements
All field staff will be required to be double vaccinated, a negative COVID test no more than 3 days prior to commencing field work, and adhere to the required NSW Health orders at time of all field work (e.g. face masks, social distancing, quarantining if required). Proof of vaccination and negative COVID test will be required at the start of field work. In order to ensure the safety of all staff, any field staff who do not provide the required information will not be permitted on site or to participate in the field work.

Early termination
The proponent reserves the right to terminate this agreement at any time by giving 1-week written notice to the Service Provider. If the proponent terminates this agreement under this clause, then, subject to satisfactory performance of the Services, the proponent will pay the Service provider a proportionate part of the Fee according to the amount or proportion of Services supplied up to the date of termination.

No subcontracting
The Service Provider must not subcontract the provision of the Services without the proponent's prior written consent.

Insurances
The Service Provider must provide certificates of currency for Workers Comp, Public Liability and Comprehensive Motor vehicle insurances prior to the Services being provided.

Indemnity and release
The Service Provider undertakes the Services at its sole risk and the proponent and MCH will not be liable for any loss, damage, injury or death sustained by any person as a result of the Services being provided.

The Service provider indemnifies and releases the proponent and MCH against any loss the proponent or MCH suffers or any claims made against the proponent or MCH by any person arising out of the provisions of the Services except to the extent that any loss or claims arise from any negligence by the proponent or MCH.

Variations
No changes to these terms can be made without the prior written agreement with the proponent.

Exclusion of other terms
This letter contains the sole agreement of the parties and all other terms are excluded.

If you agree that the contents of this letter correctly set out the terms of engagement between the proponent and your organisation then please sign both copies, keep one for yourself, and return the other signed copy to MCH within 10 days.

Acceptance (Survey at Gan Gan Road, Anna Bay)

Signed by Worimi Local Aboriginal Land Council	
I/we agree to the terms set out in this letter and acknowledge that it forms a binding legal contract. I/we declare that I/we are authorised to sign this letter on behalf of Worimi Local Aboriginal Land Council. **Please provide your ABN:**	
Signature of Witness	**Signature of authorised person**
Print name of Witness	**Print name of authorised person**
	Print title and position of authorised person
Date:	**Date:**

penny@mcheritage.com.au

From: penny@mcheritage.com.au
Sent: Tuesday, 12 October 2021 8:20 AM
To: 'widescope.group@live.com'
Subject: Gan Gan Rd, Anna Bay

Dear Steven,

RE: Heritage NSW Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (Stage 3) –Survey invitation - Proposed subdivision along Gan Gan Road, Anna Bay

The proponent received a number of applications and after careful consideration we regret to advise that your application for paid participation has been unsuccessful. We do appreciate the time taken to submit an application and wish to reconfirm our intention to positively engage with the local Aboriginal community. In this spirit, if you wish to still participate in the survey on an unpaid basis, or be kept up-to-date on the progress of the survey, please contact Penny McCardle. Please note that if you intend to participate in the site survey then:

- Before commencement you must notify MCH for access arrangements and notification and provide MCH with a Certificate of Currency for Workers Compensation and Public Liability insurance. MCH will also provide you with our OH&S requirements for field staff and request that you ensure all field staff participating in the project have read and understood the document fully prior to going out on site; and

- All field participants must wear covered shoes, long pants and long shirt (hi-visibility) with appropriate sun protection including hat. It is recommended that participants bring adequate amounts of food and water for the day.

COVID requirements

All field staff will be required to be double vaccinated, a negative COVID test no more than 3 days prior to commencing field work, and adhere to the required NSW Health orders at time of all field work (e.g. face masks, social distancing, quarantining if required). Proof of vaccination and negative COVID test will be required at the start of field work. In order to ensure the safety of all staff, any field staff who do not provide the required information will not be permitted on site or to participate in the field work.

As all communications, including phone calls, faxes, letters, and e-mails must be included in the consultation component of the report as per the Heritage NSW, Department of Premier & Cabinet requirements, please ensure that any items that you or your group deem confidential are made apparent to your field representative prior to field work to ensure that information remains confidential if required. Failure to disclose that information is confidential may result in the information being included in the report.

Following the completion of the survey, a draft copy of the assessment will be made available to you for comment. Should you have any further questions, please do not hesitate to contact Penny McCardle on 0412 702 396.

Kind regards,

Dr. Penny McCardle
Archaeologist
Forensic Anthropologist

McCARDLE
CULTURAL HERITAGE

PO Box 166,
Adamstown 2289 NSW
P: 0412 702 396
mcheritage.com.au

penny@mcheritage.com.au

From: penny@mcheritage.com.au
Sent: Tuesday, 12 October 2021 8:19 AM
To: 'didgengunawalclan@yahoo.com.au'
Subject: Gan Gan Rd, Anna Bay

Dear Paul,

RE: Heritage NSW Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (Stage 3) –Survey invitation - Proposed subdivision along Gan Gan Road, Anna Bay

The proponent received a number of applications and after careful consideration we regret to advise that your application for paid participation has been unsuccessful. We do appreciate the time taken to submit an application and wish to reconfirm our intention to positively engage with the local Aboriginal community. In this spirit, if you wish to still participate in the survey on an unpaid basis, or be kept up-to-date on the progress of the survey, please contact Penny McCardle. Please note that if you intend to participate in the site survey then:

- Before commencement you must notify MCH for access arrangements and notification and provide MCH with a Certificate of Currency for Workers Compensation and Public Liability insurance. MCH will also provide you with our OH&S requirements for field staff and request that you ensure all field staff participating in the project have read and understood the document fully prior to going out on site; and

- All field participants must wear covered shoes, long pants and long shirt (hi-visibility) with appropriate sun protection including hat. It is recommended that participants bring adequate amounts of food and water for the day.

COVID requirements

All field staff will be required to be double vaccinated, a negative COVID test no more than 3 days prior to commencing field work, and adhere to the required NSW Health orders at time of all field work (e.g. face masks, social distancing, quarantining if required). Proof of vaccination and negative COVID test will be required at the start of field work. In order to ensure the safety of all staff, any field staff who do not provide the required information will not be permitted on site or to participate in the field work.

As all communications, including phone calls, faxes, letters, and e-mails must be included in the consultation component of the report as per the Heritage NSW, Department of Premier & Cabinet requirements, please ensure that any items that you or your group deem confidential are made apparent to your field representative prior to field work to ensure that information remains confidential if required. Failure to disclose that information is confidential may result in the information being included in the report.

Following the completion of the survey, a draft copy of the assessment will be made available to you for comment. Should you have any further questions, please do not hesitate to contact Penny McCardle on 0412 702 396.

Kind regards,

Dr. Penny McCardle
Archaeologist
Forensic Anthropologist

McCARDLE
CULTURAL HERITAGE

PO Box 166,
Adamstown 2289 NSW
P: 0412 702 396
mcheritage.com.au

Variations
No changes to these terms can be made without the prior written agreement with the proponent.

Exclusion of other terms
This letter contains the sole agreement of the parties and all other terms are excluded.

If you agree that the contents of this letter correctly set out the terms of engagement between the proponent and your organisation then please sign both copies, keep one for yourself, and return the other signed copy to MCH within 10 days.

Acceptance (Survey at Gan Gan Road, Anna Bay)

Signed by Worimi Local Aboriginal Land Council

I/we agree to the terms set out in this letter and acknowledge that it forms a binding legal contract. I/we declare that I/we are authorised to sign this letter on behalf of Worimi Local Aboriginal Land Council.
Please provide your ABN:

Signature of Witness	**Signature of authorised person**
Print name of Witness	**Print name of authorised person**
Lori Parish	Jamie Merrick
	Print title and position of authorised person
	snr site officer
Date: 12/10/21	**Date:** 12/10/21

M
MCCARDLE
CULTURAL HERITAGE

PO Box 166
Adamstown 2289 NSW
penny@mcheritage.com.au
P: 0412 702 396

mcheritage.com.au

14 October 2021

«First_Name» «Last_Name»
«Company»
«Address1»

Dear «First_Name»,

RE: Heritage NSW Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (Stage 3) –Survey invitation and letter of engagement- Proposed subdivision along Gan Gan Road, Anna Bay

The proponent (GAD Project Pty Ltd, City Property Solutions Pty Ltd & AB Rise Pty Ltd) has received a number of applications and after careful consideration has selected whom they wish to engage in a paid capacity. The proponent and MCH would like to advise that your application for paid participation has been successful. MCH would like to organise the survey for the above-named project for the 28th October 2021 starting at 8am at No. 273 Gan Gan Road, ANNA BAY. We anticipate work will be complete within a day, however, please be advised this time may change.

As part of the assessment process the proponent requires an appropriate person from your organisation to participate in the survey of the study area to identify known or potential cultural heritage features. A cultural heritage report must be prepared following the survey and receipt of the draft archaeological report within the required 28-day review period. The cultural heritage report will identify known or potential Aboriginal objects or places and/or any other cultural heritage matters that may be affected by the project.

GAD Project Pty Ltd, City Property Solutions Pty Ltd & AB Rise Pty Ltd and MCH wishes to reiterate our intent to positively engage with the local Aboriginal community. In this spirit, an invitation has been extended to all registered applicants to attend the survey. If you accept the terms outlined in the Letter of Engagement (attached) please sign the Letter of Engagement and return to McCardle Cultural Heritage. Participation in the program is dependent on the receipt of the Letter of engagement and insurance certificate of currencies.

As all communications, including phone calls, faxes, letters, and e-mails must be included in the consultation component of the report as per the Heritage NSW, Department of Premier & Cabinet requirements, please ensure that any items that you or your group deem confidential are made apparent to your field representative prior to field work to ensure that information remains confidential if required. Failure to disclose that information is confidential may result in the information being included in the report.

Should you have any questions regarding these terms and conditions or the project please contact myself on 0412 702 396.

Yours sincerely,
for McCardle Cultural Heritage Pty Ltd

Dr. Penny McCardle
Principal Archaeologist
Forensic Anthropologist

Aboriginal Site Officer/Trainee Site Officer

Letter of Engagement

GAD Project Pty Ltd, City Property Solutions Pty Ltd & AB Rise Pty Ltd wishes to engage «Company» (Service Provider) to provide one Site Officer to undertake an archaeological survey of the proposed development along Gan Gan Road, Anna Bay

The proponent and Service Provider agree to the terms and conditions of the engagement as follows:

Services
The Service Provider will engage one Site Officer to undertake the following:

- Archaeological survey of the project area
- a cultural heritage report and invoice within 28 days of receiving the draft report from MCH

Fees
The proponent will pay the following Fees to the Service Provider for Services:

- $100.00 + GST per person per hour for work undertaken by a Site Officer

Payment will be within 28 days of receipt of a correct invoice and cultural heritage report. Invoices are to be provided at the end of the month.

Invoices are to be addressed to:
AB Rise Pty Ltd
C/O- MCH
penny@mcheritage.com.au

Time sheets
The Service provider must ensure that the Site Officers sign a time sheet at the start and finish of each day the Services are provided. Fees will not be paid unless time sheets for each Site Officer has been completed. The archaeologist will have a time sheet that may be used.

Work performance
The Service Provider must ensure that the Site Officers are fit for work, undertake the Services in a timely manner, with reasonable care, skill and professionalism and in accordance with all applicable laws and any reasonable directions or requirements made by the proponent and/or MCH.

Absences
All field staff must call MCH the evening before work to notify their absence for the following day and organise for a replacement. If no notice is provided, that staff members place in the field team will be suspended until MCH are notified they will be back at work. It is the responsibility of the Service Provider to organise a replacement site officer from the list of persons provided to MCH at the start of the project.

Proponent and MCH property
All materials and equipment provided by MCH or the proponent during the term of engagement remain the property of MCH or the proponent and must be returned upon completion of the Services or termination of the agreement.

Confidentially
All information provided by MCH or the proponent to the Service Provider and/or Site Officer in relation to the services or the business or operations of the proponent and MCH are confidential. The Service Provider will ensure it and the Site Officer keep such information confidential at all times (including after the completion of the Services) and must not disclose it to any other person without the prior written consent from the proponent and/or MCH.

OH&S Requirements
Before commencement of work, you must provide MCH with certificate of currencies for Workers Comp and Public Liability. Field representatives participating in the survey will be required to wear steel cap boots, long pants and long shirt (hi-visibility) with appropriate sun protection including a hat. It is recommended that participants bring adequate amounts of food and water for the day.

COVID requirements
All field staff will be required to be double vaccinated, a negative COVID test no more than 3 days prior to commencing field work, and adhere to the required NSW Health orders at time of all field work (e.g. face masks, social distancing, quarantining if required). Proof of vaccination and negative COVID test will be required at the start of field work. In order to ensure the safety of all staff, any field staff who do not provide the required information will not be permitted on site or to participate in the field work.

Early termination
The proponent reserves the right to terminate this agreement at any time by giving 1-week written notice to the Service Provider. If the proponent terminates this agreement under this clause, then, subject to satisfactory performance of the Services, the proponent will pay the Service provider a proportionate part of the Fee according to the amount or proportion of Services supplied up to the date of termination.

No subcontracting
The Service Provider must not subcontract the provision of the Services without the proponent's prior written consent.

Insurances
The Service Provider must provide certificates of currency for Workers Comp, Public Liability and Comprehensive Motor vehicle insurances prior to the Services being provided.

Indemnity and release
The Service Provider undertakes the Services at its sole risk and the proponent and MCH will not be liable for any loss, damage, injury or death sustained by any person as a result of the Services being provided.

The Service provider indemnifies and releases the proponent and MCH against any loss the proponent or MCH suffers or any claims made against the proponent or MCH by any person arising out of the provisions of the Services except to the extent that any loss or claims arise from any negligence by the proponent or MCH.

Variations
No changes to these terms can be made without the prior written agreement with the proponent.

Exclusion of other terms
This letter contains the sole agreement of the parties and all other terms are excluded.

If you agree that the contents of this letter correctly set out the terms of engagement between the proponent and your organisation then please sign both copies, keep one for yourself, and return the other signed copy to MCH within 10 days.

Acceptance (Survey at Gan Gan Road, Anna Bay)

Signed by «Company»
I/we agree to the terms set out in this letter and acknowledge that it forms a binding legal contract. **I/we declare that I/we are authorised to sign this letter on behalf of «Company».** **Please provide your ABN:**

Signature of Witness	**Signature of authorised person**
Print name of Witness	**Print name of authorised person**
	Print title and position of authorised person
Date:	**Date:**

NUMERUH-GEE PTY LTD

Signed by «Company»

(DIRECTOR)

e agree to terms set out in this letter and acknowledge that it forms a binding legal contract.
I/we declare that I/we are authorised to sign this letter on behalf of «Company».

Please provide your ABN: 37-086-397-701

Signature of Witness

Signature of authorised person

LISA MELDRUM

Print name of Witness

Print name of authorised person

KEONAILY JAMES ALLPASS OAM ASM (DIRECTOR)

Print title and position of authorised person

14/Oct/21

Variations
No changes to these terms can be made without the prior written agreement with the proponent.

Exclusion of other terms
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Acceptance (Survey at Gan Gan Road, Anna Bay)

Signed by «Company»	MURROOMA INC

I/we agree to the terms set out in this letter and acknowledge that it forms a binding legal contract.
I/we declare that I/we are authorised to sign this letter on behalf of «Company».
Please provide your ABN: 97 807 719 484

Signature of Witness	**Signature of authorised person**
	R.Young
Print name of Witness	**Print name of authorised person**
	Rebecca Young
	Print title and position of authorised person
	Operations Manager
Date:	**Date:**
	20/10/2021

McCARDLE
CULTURAL HERITAGE

PO Box 166
Adamstown 2289 NSW
penny@mcheritage.com.au
P: 0412 702 396

mcheritage.com.au

2 December 2021

Hi all,

RE: Heritage NSW Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (Stage 3 & 4 –Review of Draft Cultural Heritage Assessment - Proposed subdivision along Gan Gan Road, Anna Bay

Please find enclosed a copy of the draft Aboriginal Cultural Heritage Assessment (ACHA) for the above-named project for your review.

The cultural heritage Assessment includes information provided by the knowledge holders and is included with their permission. As required by the Heritage NSW, Department of Premier & Cabinet Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW 2010), Stage 3 (S. 4.3.5; 4.3.6; 4.3.7) and Stage 4 (S. 4.4.1; 4.4.2; 4.4.3) and based on the information provided by knowledge holders throughout the project, the cultural significance will be included in the final report.

MCH would like to provide further opportunity to provide your further input and request your comments on the draft ACHA. Additionally, any concerns you may have are also important and we would like the opportunity to address any concerns you may have.

As outlined in the Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW 2010), Stage 4 (S. 4.4.3) MCH would appreciate your input and your comments on the draft reports no later than C.O.B. 3rd January (additional time provide due to Christmas and New Year).

As all communications, including phone calls, faxes, letters, and e-mails must be included in the consultation component of the report as per the Heritage NSW, Department of Premier & Cabinet requirements, please ensure that if any response to the draft report is deemed confidential that this is either stated at the beginning of a conversation or stamped/written on each piece of paper communicate.

Please note that in order to adhere to time constraints, the absence of a response by the requested timeline, will be taken by the proponent as your indication that your organisation has no comments regarding the draft ACHA.

Yours sincerely,
for McCardle Cultural Heritage Pty Ltd

Dr. Penny McCardle
Principal Archaeologist
Forensic Anthropologist

penny@mcheritage.com.au

From: WIDESCOPE . <widescope.group@live.com>
Sent: Wednesday, 5 January 2022 1:55 PM
To: penny@mcheritage.com.au
Subject: Re: Gan Gan

Good afternoon Penny,

Thank you and a happy new year to you
I have reviewed and support the ACHA and the proposed test excavation methodology

Regards
Steven Hickey

Get Outlook for Android

From: penny@mcheritage.com.au <penny@mcheritage.com.au>
Sent: Wednesday, January 5, 2022 1:17:50 PM
To: lennie.anderson011@bigpond.com <lennie.anderson011@bigpond.com>; 'Anthony Anderson' <murroomainc1@gmail.com>; sites@worimi.org.au <sites@worimi.org.au>; didgengunawalclan@yahoo.com.au <didgengunawalclan@yahoo.com.au>; Widescope.group@live.com <Widescope.group@live.com>
Subject: Gan Gan

Hi All,

Hope you had a great Christmas and New Year,

Just chasing up your response to the draft Gan Gan report and proposed test excavation methodology (response was due 3/1/2022).

I will be finalising this tomorrow.

Kind regards,

Dr. Penny McCardle
Archaeologist
Forensic Anthropologist

M
McCARDLE
CULTURAL HERITAGE

PO Box 166,
Adamstown 2289 NSW
P: 0412 702 396
mcheritage.com.au

penny@mcheritage.com.au

From: lilly carroll <didgengunawalclan@yahoo.com.au>
Sent: Wednesday, 5 January 2022 2:23 PM
To: penny@mcheritage.com.au
Subject: Re: Gan Gan

Hi Penny

DNC is happy with the Gan Gan report/ Test excavation and looks forward to working with you again!

Sent from Yahoo Mail for iPhone

On Wednesday, January 5, 2022, 1:18 pm, penny@mcheritage.com.au wrote:

> Hi All,
>
> Hope you had a great Christmas and New Year,
>
> Just chasing up your response to the draft Gan Gan report and proposed test excavation methodology (response was due 3/1/2022).
>
> I will be finalising this tomorrow.
>
> Kind regards,
>
> Dr. Penny McCardle
> Archaeologist
>
> Forensic Anthropologist

penny@mcheritage.com.au

From: lennie.anderson011 lennie.anderson011 <lennie.anderson011@bigpond.com>
Sent: Wednesday, 5 January 2022 3:08 PM
To: penny@mcheritage.com.au
Cc: murroomainc1@gmail.com; Jamie Merrick
Subject: Re: Gan Gan

Hi Penny,

In the Test Excavation I would like to see that Dot Point 1 Be changed to include the 'easement area not just the Road Corridor, as their vehicles will traverse the area outside the road corridor. The ACHA Should read that the spoils from the large drain (left hand side) going South West should be trenched in Places as when myself and another Sites Investigator conducted a Due Diligence the Bank and adjacent areas yielded plenty of 'OLD' shells etc.

This is what we informed the Proponent, and if this is not investigated I will offer my field notes to OEH.

Lennie

------ Original Message ------
From: penny@mcheritage.com.au
To: lennie.anderson011@bigpond.com; "'Anthony Anderson'" <murroomainc1@gmail.com>; sites@worimi.org.au; didgengunawalclan@yahoo.com.au; Widescope.group@live.com
Sent: Wednesday, 5 Jan, 2022 At 1:17 PM
Subject: Gan Gan

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Hope you had a great Christmas and New Year,

Just chasing up your response to the draft Gan Gan report and proposed test excavation methodology (response was due 3/1/2022).

I will be finalising this tomorrow.

Kind regards,

Dr. Penny McCardle
Archaeologist

penny@mcheritage.com.au

From: penny@mcheritage.com.au
Sent: Wednesday, 5 January 2022 3:37 PM
To: 'lennie.anderson011 lennie.anderson011'
Cc: 'murroomainc1@gmail.com'; 'Jamie Merrick'
Subject: RE: Gan Gan

HI Lennie,

The road corridor we will be testing is twice if not three times the width of the road as they are unsure where in that corridor it will be placed, so we will be testing all of it which will cover the actual road and easement area plus more.

The drainage is usually the natural sea bed shells and trenching through the drain would be problematic, however, perhaps monitoring whilst it is drained and excavated may be the better safety option.

Let me know your thought on the above.

Kind regards,

Dr. Penny McCardle
Archaeologist
Forensic Anthropologist

M
McCARDLE
CULTURAL HERITAGE

PO Box 166,
Adamstown 2289 NSW
P: 0412 702 396
mcheritage.com.au

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Subject: Re: Gan Gan

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penny@mcheritage.com.au

From: Anthony Anderson <murroomainc1@gmail.com>
Sent: Thursday, 6 January 2022 11:26 AM
To: penny@mcheritage.com.au
Subject: Re: Gan Gan

Hi Penny
Murrooma happy with the Draft ACHA for Gan Gan rd and the methodology for the proposed test excavation.

I understand that you have advised that the drain out on the low swampy area potentially is the natural sea bed however I'd also like to see this investigated a bit further as it was not accessed during the survey.
The material that was identified on a previous survey where all large mixed edible species with no smaller shells evident.

Thanks
Bec

On Wednesday, January 5, 2022, <penny@mcheritage.com.au> wrote:

> Hi All,
>
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>
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> I will be finalising this tomorrow.
>
> Kind regards,
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> Dr. Penny McCardle
> Archaeologist
>
> Forensic Anthropologist

penny@mcheritage.com.au

From: lennie.anderson011 lennie.anderson011 <lennie.anderson011@bigpond.com>
Sent: Thursday, 6 January 2022 11:36 AM
To: penny@mcheritage.com.au
Cc: murroomainc1@gmail.com; Jamie Merrick
Subject: Re: RE: Gan Gan

Hi Pen,

I think just a 'cut' into the spoils not the drain itself. the mound on the left (about a metre off the drain wall) was probably a metre high (he said 'jokingly' If it's not seen who will know? Yes it yielded a lot of Old Artefacts also.

\Lennie

------ Original Message ------
From: penny@mcheritage.com.au
To: "'lennie.anderson011 lennie.anderson011'" <lennie.anderson011@bigpond.com>
Cc: murroomainc1@gmail.com; "'Jamie Merrick'" <jamie.merrick@worimi.org.au>
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Let me know your thought on the above.

Kind regards,

Dr. Penny McCardle
Archaeologist

Forensic Anthropologist

penny@mcheritage.com.au

From: penny@mcheritage.com.au
Sent: Thursday, 6 January 2022 2:18 PM
To: 'Anthony Anderson'
Subject: RE: Gan Gan
Attachments: Aerial with PAD.jpg

Thanks Bec.

Ca you draw on the attached aerial where the drain and shell was?

Kind regards,

Dr. Penny McCardle
Archaeologist
Forensic Anthropologist

M
McCARDLE
CULTURAL HERITAGE

PO Box 166,
Adamstown 2289 NSW
P: 0412 702 396
mcheritage.com.au

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To: penny@mcheritage.com.au
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The material that was identified on a previous survey where all large mixed edible species with no smaller shells evident.

Thanks

penny@mcheritage.com.au

From: penny@mcheritage.com.au
Sent: Thursday, 6 January 2022 2:19 PM
To: 'lennie.anderson011 lennie.anderson011'
Cc: 'murroomainc1@gmail.com'; 'Jamie Merrick'
Subject: RE: RE: Gan Gan
Attachments: Aerial with PAD.jpg

Thanks Lennie.

Ca you draw on the attached aerial where the drain and shell was?

Kind regards,

Dr. Penny McCardle
Archaeologist
Forensic Anthropologist

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PO Box 166,
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Sent: Thursday, 6 January 2022 11:36 AM
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Cc: murroomainc1@gmail.com; Jamie Merrick <jamie.merrick@worimi.org.au>
Subject: Re: RE: Gan Gan

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\Lennie

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PO Box 166
Adamstown 2289 NSW
penny@mcheritage.com.au
P: 0412 702 396

mcheritage.com.au

13 January 2022

«First_Name» «Last_Name»
«Company»
«Address1»

Dear «First_Name»,

RE: Heritage NSW Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (Stage 4 –Final Cultural Heritage Assessment - Proposed subdivision along Gan Gan Road, Anna Bay

MCH and GAD Project Pty Ltd (Proponent) would like to take this opportunity to thank you for your involvement in the above-named project. Your time and input has been instrumental throughout the project

As outlined in the Heritage NSW, Department of Premier & Cabinet Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW 2010), Stage 4 (S. 4.4.5) please find enclosed copy of the final Aboriginal Cultural Heritage Assessment for your records.

We look forward to continue working with you in the future.

Yours sincerely,
for McCardle Cultural Heritage Pty Ltd

Dr. Penny McCardle
Principal Archaeologist
Forensic Anthropologist

penny@mcheritage.com.au

From: penny@mcheritage.com.au
Sent: Tuesday, 26 April 2022 1:58 PM
To: 'lennie.anderson011@bigpond.com'; 'murroomainc1@gmail.com'; 'sites@worimi.org.au'; 'didgengunawalclan@yahoo.com.au'; 'widescope.group@live.com'
Cc: 'Nicole Davis'; 'Emma Brown'
Subject: AHIP 4893 - Test Excavations, Proposed Subdivision, Anna Bay NSW 2316, Issued!~~~
Attachments: AHIP 4893 -Test Excavations - Proposed Subdivision Anna Bay NSW 2316, 26.4.2022.pdf

Importance: High

Hi all,

Please find the AHIP attached for the Gan Gan project. I will be in touch regarding the test excavation next week.

If you have any weeks you cannot attend over the next 2 months due to scheduled work, please let me know now and Ill try to work around that.

Kind regards,

Dr. Penny McCardle
Archaeologist
Forensic Anthropologist

M
McCARDLE
CULTURAL HERITAGE

PO Box 166,
Adamstown 2289 NSW
P: 0412 702 396
mcheritage.com.au

M
MCCARDLE
CULTURAL HERITAGE

PO Box 166
Adamstown 2289 NSW
penny@mcheritage.com.au
P: 0412 702 396

mcheritage.com.au

11 May 2022

Worimi RAPs

Dear All ,

RE: Heritage NSW Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (Stage 3) –Test excavation invitation and letter of engagement- Proposed subdivision along Gan Gan Road, Anna Bay

MCH and the proponent would like to organise the test excavation for the above-named project commencing on 13th June 2022 starting at 8am at No. 273 Gan Gan Road, Anna Bay. We anticipate work will be complete within 2 weeks, however, please be advised this time may change.

As part of the assessment process the proponent requires an appropriate person from your organisation to participate in the survey of the study area to identify known or potential cultural heritage features. A cultural heritage report must be prepared following the survey and receipt of the draft archaeological report within the required 28-day review period. The cultural heritage report will identify known or potential Aboriginal objects or places and/or any other cultural heritage matters that may be affected by the project.

GAD Project Pty Ltd, City Property Solutions Pty Ltd & AB Rise Pty Ltd and MCH wishes to reiterate our intent to positively engage with the local Aboriginal community. In this spirit, an invitation has been extended to all registered applicants to attend the survey. If you accept the terms outlined in the Letter of Engagement (attached) please sign the Letter of Engagement and return to McCardle Cultural Heritage. Participation in the program is dependent on the receipt of the Letter of engagement and insurance certificate of currencies.

As all communications, including phone calls, faxes, letters, and e-mails must be included in the consultation component of the report as per the Heritage NSW, Department of Premier & Cabinet requirements, please ensure that any items that you or your group deem confidential are made apparent to your field representative prior to field work to ensure that information remains confidential if required. Failure to disclose that information is confidential may result in the information being included in the report.

Should you have any questions regarding these terms and conditions or the project please contact myself on 0412 702 396.

Yours sincerely,
for McCardle Cultural Heritage Pty Ltd

Dr. Penny McCardle
Principal Archaeologist
Forensic Anthropologist

Aboriginal Site Officer/Trainee Site Officer

Letter of Engagement

GAD Project Pty Ltd, City Property Solutions Pty Ltd & AB Rise Pty Ltd wishes to engage «Company» (Service Provider) to provide one Site Officer to undertake an archaeological survey of the proposed development along Gan Gan Road, Anna Bay

The proponent and Service Provider agree to the terms and conditions of the engagement as follows:

Services
The Service Provider will engage one Site Officer to undertake the following:

- Archaeological test excavation of the project area
- a cultural heritage report and invoice within 28 days of receiving the draft report from MCH

Fees
The proponent will pay the following Fees to the Service Provider for Services:

- $100.00 + GST per person per hour for work undertaken by a Site Officer (inclusive of travel)

Payment will be within 28 days of receipt of a correct invoice and cultural heritage report. Invoices are to be provided at the end of the month.

Invoices are to be addressed to:
AB Rise Pty Ltd
C/O- MCH
penny@mcheritage.com.au

Time sheets
The Service provider must ensure that the Site Officers sign a time sheet at the start and finish of each day the Services are provided. Fees will not be paid unless time sheets for each Site Officer has been completed. The archaeologist will have a time sheet that may be used.

Work performance
The Service Provider must ensure that the Site Officers are fit for work, undertake the Services in a timely manner, with reasonable care, skill and professionalism and in accordance with all applicable laws and any reasonable directions or requirements made by the proponent and/or MCH.

Absences
All field staff must call MCH the evening before work to notify their absence for the following day and organise for a replacement. If no notice is provided, that staff members place in the field team will be suspended until MCH are notified they will be back at work. It is the responsibility of the Service Provider to organise a replacement site officer from the list of persons provided to MCH at the start of the project.

Proponent and MCH property
All materials and equipment provided by MCH or the proponent during the term of engagement remain the property of MCH or the proponent and must be returned upon completion of the Services or termination of the agreement.

Confidentially
All information provided by MCH or the proponent to the Service Provider and/or Site Officer in relation to the services or the business or operations of the proponent and MCH are confidential. The Service Provider will ensure it and the Site Officer keep such information confidential at all times (including after the completion of the Services) and must not disclose it to any other person without the prior written consent from the proponent and/or MCH.

OH&S Requirements
Before commencement of work, you must provide MCH with certificate of currencies for Workers Comp and Public Liability. Field representatives participating in the survey will be required to wear steel cap boots, long pants and long shirt (hi-visibility) with appropriate sun protection including a hat. It is recommended that participants bring adequate amounts of food and water for the day.

COVID requirements
All field staff will be required to be double vaccinated, a negative COVID test no more than 3 days prior to commencing field work, and adhere to the required NSW Health orders at time of all field work (e.g. face masks, social distancing, quarantining if required). Proof of vaccination and negative COVID test will be required at the start of field work. In order to ensure the safety of all staff, any field staff who do not provide the required information will not be permitted on site or to participate in the field work.

Early termination
The proponent reserves the right to terminate this agreement at any time by giving 1-week written notice to the Service Provider. If the proponent terminates this agreement under this clause, then, subject to satisfactory performance of the Services, the proponent will pay the Service provider a proportionate part of the Fee according to the amount or proportion of Services supplied up to the date of termination.

No subcontracting
The Service Provider must not subcontract the provision of the Services without the proponent's prior written consent.

Insurances
The Service Provider must provide certificates of currency for Workers Comp, Public Liability and Comprehensive Motor vehicle insurances prior to the Services being provided.

Indemnity and release
The Service Provider undertakes the Services at its sole risk and the proponent and MCH will not be liable for any loss, damage, injury or death sustained by any person as a result of the Services being provided.

The Service provider indemnifies and releases the proponent and MCH against any loss the proponent or MCH suffers or any claims made against the proponent or MCH by any person arising out of the provisions of the Services except to the extent that any loss or claims arise from any negligence by the proponent or MCH.

Variations
No changes to these terms can be made without the prior written agreement with the proponent.

Exclusion of other terms
This letter contains the sole agreement of the parties and all other terms are excluded.

If you agree that the contents of this letter correctly set out the terms of engagement between the proponent and your organisation then please sign both copies, keep one for yourself, and return the other signed copy to MCH within 10 days.

Acceptance (Test excavation at Gan Gan Road, Anna Bay)

Signed by «Company»	
I/we agree to the terms set out in this letter and acknowledge that it forms a binding legal contract. **I/we declare that I/we are authorised to sign this letter on behalf of «Company».** **Please provide your ABN:**	
Signature of Witness	**Signature of authorised person**
Print name of Witness	**Print name of authorised person**
	Print title and position of authorised person
Date:	**Date:**

penny@mcheritage.com.au

From: penny@mcheritage.com.au
Sent: Wednesday, 11 May 2022 12:30 PM
To: 'didgengunawalclan@yahoo.com.au'; 'widescope.group@live.com'
Subject: Gan Gan

RE: Heritage NSW Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (Stage 3) –Test excavation - Proposed subdivision along Gan Gan Road, Anna Bay

The proponent received a number of applications and after careful consideration we regret to advise that your application for paid participation has been unsuccessful. We do appreciate the time taken to submit an application and wish to reconfirm our intention to positively engage with the local Aboriginal community. In this spirit, if you wish to still participate in the survey on an unpaid basis, or be kept up-to-date on the progress of the survey, please contact Penny McCardle. Please note that if you intend to participate in the site survey then:

- Before commencement you must notify MCH for access arrangements and notification and provide MCH with a Certificate of Currency for Workers Compensation and Public Liability insurance. MCH will also provide you with our OH&S requirements for field staff and request that you ensure all field staff participating in the project have read and understood the document fully prior to going out on site; and
- All field participants must wear covered shoes, long pants and long shirt (hi-visibility) with appropriate sun protection including hat. It is recommended that participants bring adequate amounts of food and water for the day.

COVID requirements

All field staff will be required to be double vaccinated, a negative COVID test no more than 3 days prior to commencing field work, and adhere to the required NSW Health orders at time of all field work (e.g. face masks, social distancing, quarantining if required). Proof of vaccination and negative COVID test will be required at the start of field work. In order to ensure the safety of all staff, any field staff who do not provide the required information will not be permitted on site or to participate in the field work.

As all communications, including phone calls, faxes, letters, and e-mails must be included in the consultation component of the report as per the Heritage NSW, Department of Premier & Cabinet requirements, please ensure that any items that you or your group deem confidential are made apparent to your field representative prior to field work to ensure that information remains confidential if required. Failure to disclose that information is confidential may result in the information being included in the report.

Following the completion of the survey, a draft copy of the assessment will be made available to you for comment. Should you have any further questions, please do not hesitate to contact Penny McCardle on 0412 702 396.

Kind regards,

Dr. Penny McCardle
Archaeologist
Forensic Anthropologist

M
McCARDLE
CULTURAL HERITAGE

PO Box 166,
Adamstown 2289 NSW
P: 0412 702 396
mcheritage.com.au

Variations
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Acceptance (Test excavation at Gan Gan Road, Anna Bay)

Signed by «Company» Worimi Local Aboriginal Land Council

I/we agree to the terms set out in this letter and acknowledge that it forms a binding legal contract.
I/we declare that I/we are authorised to sign this letter on behalf of «Company».
Please provide your ABN: 51 352 201 603

Signature of Witness	Signature of authorised person
D Witt	JMerrick
Print name of Witness	**Print name of authorised person**
Donna Witt	Jamie Merrick
	Print title and position of authorised person
	Snr Site Officer
Date: 11/05/22	**Date:** 11/05/22

Variations
No changes to these terms can be made without the prior written agreement with the proponent.

Exclusion of other terms
This letter contains the sole agreement of the parties and all other terms are excluded.

If you agree that the contents of this letter correctly set out the terms of engagement between the proponent and your organisation then please sign both copies, keep one for yourself, and return the other signed copy to MCH within 10 days.

Acceptance (Test excavation at Gan Gan Road, Anna Bay)

Signed by «Company» Murrooma Inc

I/we agree to the terms set out in this letter and acknowledge that it forms a binding legal contract.
I/we declare that I/we are authorised to sign this letter on behalf of «Company».
Please provide your ABN: 97 807 719 484

Signature of Witness	**Signature of authorised person**
	RYoung
Print name of Witness	**Print name of authorised person**
	Rebecca Young
	Print title and position of authorised person
	Operations Manager
Date:	**Date:** 13/5/22

penny@mcheritage.com.au

From: penny@mcheritage.com.au
Sent: Monday, 4 July 2022 9:00 AM
To: 'didgengunawalclan@yahoo.com.au'; 'widescope.group@live.com'
Subject: Proposed subdivision along Gan Gan Road, Anna Bay

RE: Heritage NSW Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (Stage 3 & 4 – Review of Draft Cultural Heritage Assessment - Proposed subdivision along Gan Gan Road, Anna Bay

Due to the culturally sensitivity of the project area to the Worimi people and the information in the ACHA, the ACHA is restricted and only available to non-Worimi people upon request from Worimi.

For this reason, the draft report is not available to you for review and a final report will not be available without written consent from the Worimi RAPs.

Kind regards,

Dr. Penny McCardle
Archaeologist
Forensic Anthropologist

M
McCARDLE
CULTURAL HERITAGE

PO Box 166,
Adamstown 2289 NSW
P: 0412 702 396
mcheritage.com.au

penny@mcheritage.com.au

From: penny@mcheritage.com.au
Sent: Monday, 4 July 2022 9:00 AM
To: 'lennie.anderson011@bigpond.com'; 'murroomainc1@gmail.com'; 'sites@worimi.org.au'
Subject: Proposed subdivision along Gan Gan Road, Anna Bay - Draft Report (Restricted)
Attachments: Gan Gan Rd, Anna Bay ACHA Test Excavation DRAFT.pdf

Hi all,

RE: Heritage NSW Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (Stage 3 & 4 – Review of Draft Cultural Heritage Assessment - Proposed subdivision along Gan Gan Road, Anna Bay

Please find enclosed a copy of the draft Aboriginal Cultural Heritage Assessment (ACHA) for the above-named project for your review. Also, as requested, due to the sensitive nature of the report and information, this report has not been provided to non-Worimi RAPs.

The cultural heritage Assessment includes information provided by the knowledge holders and is included with their permission. As required by the Heritage NSW, Department of Premier & Cabinet Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW 2010), Stage 3 (S. 4.3.5; 4.3.6; 4.3.7) and Stage 4 (S. 4.4.1; 4.4.2; 4.4.3) and based on the information provided by knowledge holders throughout the project, the cultural significance will be included in the final report.

MCH would like to provide further opportunity to provide your further input and request your comments on the draft ACHA. Additionally, any concerns you may have are also important and we would like the opportunity to address any concerns you may have.

As outlined in the Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW 2010), Stage 4 (S. 4.4.3) MCH would appreciate your input and your comments on the draft reports no later than C.O.B. 1st August 2022 (additional time provide due to Christmas and New Year).

As all communications, including phone calls, faxes, letters, and e-mails must be included in the consultation component of the report as per the Heritage NSW, Department of Premier & Cabinet requirements, please ensure that if any response to the draft report is deemed confidential that this is either stated at the beginning of a conversation or stamped/written on each piece of paper communicate.

Please note that in order to adhere to time constraints, the absence of a response by the requested timeline, will be taken by the proponent as your indication that your organisation has no comments regarding the draft ACHA.

Kind regards,

Dr. Penny McCardle
Archaeologist
Forensic Anthropologist

McCARDLE
CULTURAL HERITAGE

PO Box 166,
Adamstown 2289 NSW
P: 0412 702 396
mcheritage.com.au

penny@mcheritage.com.au

From: lennie.anderson011 lennie.anderson011 <lennie.anderson011@bigpond.com>
Sent: Monday, 4 July 2022 10:54 AM
To: penny@mcheritage.com.au
Cc: murroomainc1@gmail.com; Jamie Merrick; Dave Feeney
Subject: Re: Proposed subdivision along Gan Gan Road, Anna Bay - Draft Report (Restricted)

Hi Penny,

Thank You, I would also like to see that the 'Drain Tailings' be scrutinized once disturbance occurs! In earlier studies vast amounts of shell and Artefacts were uncovered. (REF Bec and Myself) earlier walkover. but groundcover and foliage have since covered the area. Also under Traditional Practices I would like to have approval for the RAP's to visit the site any time during work schedules (with safety) in writing.

Yours in the Struggle

Lennie Anderson OAM ASM
Worimi Traditional Custodian
Senior Fellow in Ceremony
Native Title Recipient
Keeper of the Stories
Indigenous Archaeologist
Nur-Run-Gee Pty Ltd
(Director)

------ Original Message ------
From: penny@mcheritage.com.au
To: lennie.anderson011@bigpond.com; murroomainc1@gmail.com; sites@worimi.org.au
Sent: Monday, 4 Jul, 2022 At 9:00 AM
Subject: Proposed subdivision along Gan Gan Road, Anna Bay - Draft Report (Restricted)

Hi all,

RE: **Heritage NSW Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (Stage 3 & 4 – Review of Draft Cultural Heritage Assessment - Proposed subdivision along Gan Gan Road, Anna Bay**

Please find enclosed a copy of the draft Aboriginal Cultural Heritage Assessment (ACHA) for the above-named project for your review. Also, as requested, due to the sensitive nature of the report and information, this report has not been provided to non-Worimi RAPs.

The cultural heritage Assessment includes information provided by the knowledge holders and is included with their permission. As required by the Heritage NSW, Department of Premier & Cabinet Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW 2010), Stage 3 (S. 4.3.5; 4.3.6; 4.3.7) and Stage 4 (S. 4.4.1; 4.4.2; 4.4.3) and based on the information provided by knowledge holders throughout the project, the cultural significance will be included in the final report.

MCH would like to provide further opportunity to provide your further input and request your comments on the draft ACHA. Additionally, any concerns you may have are also important and we would like the opportunity to address any concerns you may have.

As outlined in the Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW 2010), Stage 4 (S. 4.4.3) MCH would appreciate your input and your comments on the draft reports no later than C.O.B. 1st August 2022 (additional time provide due to Christmas and New Year).

As all communications, including phone calls, faxes, letters, and e-mails must be included in the consultation component of the report as per the Heritage NSW, Department of Premier & Cabinet requirements, please ensure that if any response to the draft report is deemed confidential that this is either stated at the beginning of a conversation or stamped/written on each piece of paper communicate.

Please note that in order to adhere to time constraints, the absence of a response by the requested timeline, will be taken by the proponent as your indication that your organisation has no comments regarding the draft ACHA.

Kind regards,

Dr. Penny McCardle
Archaeologist

Forensic Anthropologist

M
MCCARDLE
CULTURAL HERITAGE

PO Box 166
Adamstown 2289 NSW
penny@mcheritage.com.au
P: 0412 702 396

mcheritage.com.au

12 August 2022

Via eamil

Dear all,

RE: Heritage NSW Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (Stage 4 –Final Cultural Heritage Assessment - Proposed subdivision along Gan Gan Road, Anna Bay

MCH and GAD Project Pty Ltd (Proponent) would like to take this opportunity to thank you for your involvement in the above-named project. Your time and input has been instrumental throughout the project

As outlined in the Heritage NSW, Department of Premier & Cabinet Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW 2010), Stage 4 (S. 4.4.5) please find enclosed copy of the final Aboriginal Cultural Heritage Assessment for your records.

We look forward to continue working with you in the future.

Yours sincerely,
for McCardle Cultural Heritage Pty Ltd

Dr. Penny McCardle
Principal Archaeologist
Forensic Anthropologist

ANNEX B

AHIMS search results

AHIMS Web Services (AWS)
Search Result

Your Ref/PO Number : Gan Gan Rd, Anna Bay

Client Service ID : 611734

Penny Mccardle

Po Box 166

Adamstown New South Wales 2289

Attention: Penny Mccardle

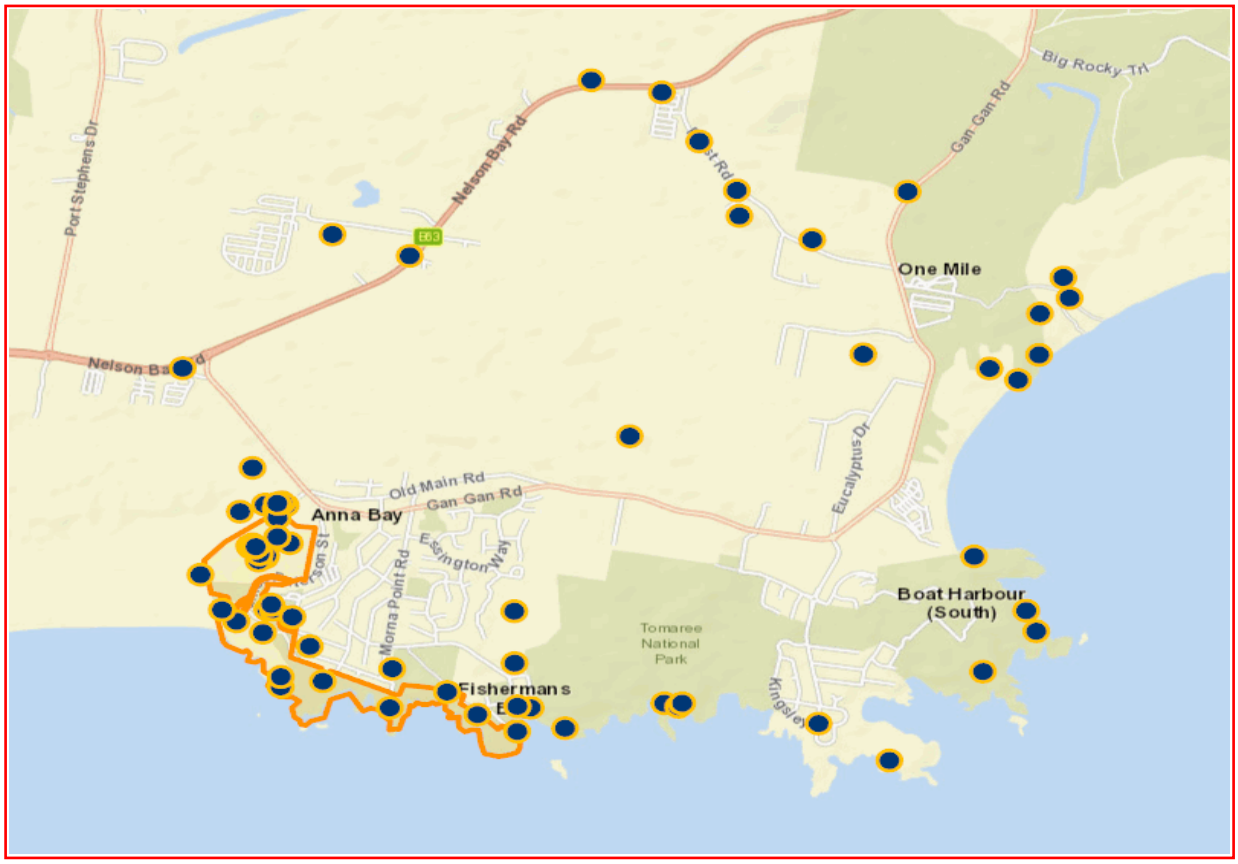
Email: penny@mcheritage.com.au

Date: 08 August 2021

Dear Sir or Madam:

AHIMS Web Service search for the following area at Datum :GDA, Zone : 56, Eastings : 413000.0 - 418000.0, Northings : 6371000.0 - 6376000.0 with a Buffer of 0 meters, conducted by Penny Mccardle on 08 August 2021.

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:

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

ID	Aboriginal Place Name
134	Birubi Point

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) 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 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.

Level 6, 10 Valentine Ave, Parramatta 2150
Locked Bag 5020 Parramatta NSW 2124
Tel: (02) 9585 6345

ABN 34 945 244 274
Email: ahims@environment.nsw.gov.au
Web: www.heritage.nsw.gov.au

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : Gan Gan Rd, Anna Bay

Client Service ID : 611734

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
38-5-0168	Morna Trig/ Point	AGD	56	417600	6372100	Open site	Valid	Ceremonial Ring (Stone or Earth) : -	Bora/Ceremonial	102128
	Contact	**Recorders**	Brad Welsh					**Permits**		
38-5-0153	Isolated Artefact Fishermans Bay 1;	AGD	56	414850	6372200	Open site	Valid	Artefact : -	Isolated Find	3184
	Contact	**Recorders**	Mr.Peter Kuskie					**Permits**		
38-5-0110	Mona Point 1;	AGD	56	415600	6375400	Open site	Valid	Artefact : -	Open Camp Site	1845,102128,102218
	Contact	**Recorders**	Ms.Bronwyn Conyers,Pam Dean-Jones,M Heath					**Permits**	3352	
38-5-0112	Mona Point 3;	AGD	56	416000	6374800	Open site	Valid	Artefact : -	Open Camp Site	1845,102128,102218
	Contact	**Recorders**	Ms.Bronwyn Conyers,M Heath					**Permits**		
38-5-0113	Mona Point 4;	AGD	56	415800	6375100	Open site	Valid	Artefact : -	Open Camp Site	1845,102128,102218
	Contact	**Recorders**	Ms.Bronwyn Conyers,Pam Dean-Jones					**Permits**		
38-5-0012	Morna/Birubi Point	GDA	56	413632	6372246	Open site	Partially Destroyed	Shell : -, Artefact : -	Midden	102128,102382
	Contact	**Recorders**	Len Dyall,Umwelt (Australia) Pty Limited - Individual users,Miss.Nicola Roche					**Permits**	747,4418,4524	
38-5-0013	Morna/Birubi Point Cloned	GDA	56	413632	6372246	Open site	Partially Destroyed	Artefact : -, Shell : -	Midden,Open Camp Site	102128
	Contact	**Recorders**	Len Dyall,Umwelt (Australia) Pty Limited - Individual users,Miss.Nicola Roche					**Permits**	4418,4524	
38-5-0014	Birubi Point/Annabay;Morna Point;Birubi point;	GDA	56	413654	6372389	Open site	Partially Destroyed	Shell : -, Artefact : -	Midden,Open Camp Site	1845,102128,102382
	Contact	**Recorders**	Pam Dean-Jones,R.H Moffatt,Umwelt (Australia) Pty Limited - Individual users,Umv					**Permits**	1026,1054,1058,4524	
38-5-0015	Morna Point;Birubi Point;	AGD	56	413624	6371786	Open site	Valid	Shell : -, Artefact : -	Midden	102128
	Contact	**Recorders**	Unknown Author					**Permits**		
38-5-0016	Morna Point;Birubi Point; Headland Midden	AGD	56	413624	6371724	Open site	Valid	Shell : -, Artefact : -	Midden	309,315,1457,102128,102218,102382
	Contact	**Recorders**	Len Dyall					**Permits**		
38-5-0017	Anna Bay midden	AGD	56	417601	6373801	Open site	Valid	Shell : -, Artefact : -	Midden	315,102128,102218
	Contact	**Recorders**	Len Dyall					**Permits**	4637	
38-5-0034	Morna Point;Cemetery Point;	AGD	56	413775	6371975	Open site	Valid	Burial : -	Burial/s	102128
	Contact	**Recorders**	Bill Lord					**Permits**		
38-5-0037	Morna Point;Boat Harbour;	AGD	56	416833	6371298	Open site	Valid	Shell : -, Artefact : -	Midden	315,102128
	Contact	**Recorders**	Unknown Author					**Permits**		
38-5-0038	Anna Bay One Mile Beach	AGD	56	417269	6372558	Open site	Valid	Shell : -, Artefact : -	Midden	315,102128
	Contact	**Recorders**	Unknown Author					**Permits**		
38-5-0039	Morna Point	AGD	56	417546	6372226	Open site	Valid	Grinding Groove : -	Axe Grinding Groove	102128
	Contact	**Recorders**	Unknown Author					**Permits**		

Report generated by AHIMS Web Service on 08/08/2021 for Penny Mccardle for the following area at Datum :GDA, Zone : 56, Eastings : 413000.0 - 418000.0, Northings : 6371000.0 - 6376000.0 with a Buffer of 0 meters.. Number of Aboriginal sites and Aboriginal objects found is 72

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : Gan Gan Rd, Anna Bay

Client Service ID : 611734

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
38-5-0040	Anna Bay; (wrong site card upload) 38-5-0040 site card is missing	AGD	56	417603	6374055	Open site	Valid	Shell : -, Artefact : -	Midden	102128,102218
	Contact	**Recorders**	Ms.Vanessa Edmonds					**Permits**		
38-5-0191	Harris 1	AGD	56	416675	6373797	Open site	Valid	Ceremonial Ring (Stone or Earth) : 1		97576,102128
	Contact	**Recorders**	Mrs.Angela Besant					**Permits**		
38-5-0196	STOCKTON BIGHT	AGD	56	413500	6372500	Open site	Valid	Artefact : -		102128
	Contact	**Recorders**	Mr.Warren Mayers					**Permits**		
38-5-0210	Stockton Bight Anna Bay 4wd access	AGD	56	413400	6372800	Open site	Valid	Artefact : -		102128
	Contact	**Recorders**	Laurence Penman					**Permits**	3575	
38-5-0211	A1 - Stockton Bight	GDA	56	413300	6372600	Open site	Valid	Shell : -, Artefact : -, Hearth : -		102128
	Contact	**Recorders**	Mr.Warren Mayers					**Permits**		
38-5-0227	Iris Moore Reserve	AGD	56	414200	6371600	Open site	Valid	Shell : -, Hearth : -, Artefact : -		102128
	Contact	**Recorders**	Mr.Warren Mayers					**Permits**		
38-5-0239	AB1	AGD	56	413682	6372154	Open site	Valid	Artefact : -, Shell : -		98595,102128
	Contact	**Recorders**	MCH - McCardle Cultural Heritage Pty Ltd					**Permits**		
38-5-0240	AB2	AGD	56	413580	6372200	Open site	Valid	Artefact : -, Shell : -		98595,102128
	Contact	**Recorders**	MCH - McCardle Cultural Heritage Pty Ltd					**Permits**		
38-5-0241	AB3	AGD	56	413570	6372230	Open site	Valid	Artefact : -, Shell : -		98595,102128
	Contact	**Recorders**	MCH - McCardle Cultural Heritage Pty Ltd					**Permits**		
38-5-0242	Gan Gan Site 1	AGD	56	416900	6374800	Open site	Valid	Shell : 1		102128
	Contact	**Recorders**	Wildthing Environmental Consultants					**Permits**		
38-5-0246	Restriction applied. Please contact ahims@environment.nsw.gov.au.					Open site	Valid			
	Contact	**Recorders**	Ms.Penny Mccardle					**Permits**	2260	
38-5-0247	Frosts 1	AGD	56	416015	6374643	Open site	Valid	Artefact : 2		102128
	Contact Searle	**Recorders**	Stedinger Associates					**Permits**		
38-5-0248	GAN GAN 5	AGD	56	415449	6373282	Open site	Valid	Artefact : -		102128
	Contact Searle	**Recorders**	Stedinger Associates					**Permits**		
38-5-0268	Cec Dee open campsite2	AGD	56	413664	6372608	Open site	Valid	Habitation Structure : 15		102128
	Contact Mr.Leonard (Lennie) Andersor	**Recorders**	Mr.Leonard (Lennie) Anderson					**Permits**		
38-5-0272	Anna Bay access track open campsite	AGD	56	413640	6372841	Open site	Valid	Artefact : 50		102128
	Contact Mr.Leonard (Lennie) Andersor	**Recorders**	Mr.Leonard (Lennie) Anderson					**Permits**	3437,4413	
38-5-0269	Cec Dee open campsite 3	AGD	56	413598	6372647	Open site	Valid	Aboriginal Resource and Gathering : 6		102128
	Contact Mr.Leonard (Lennie) Andersor	**Recorders**	Mr.Leonard (Lennie) Anderson					**Permits**		

Report generated by AHIMS Web Service on 08/08/2021 for Penny Mccardle for the following area at Datum :GDA, Zone : 56, Eastings : 413000.0 - 418000.0, Northings : 6371000.0 - 6376000.0 with a Buffer of 0 meters.. Number of Aboriginal sites and Aboriginal objects found is 72

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : Gan Gan Rd, Anna Bay

Client Service ID : 611734

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
38-5-0270	Cec Dee open campsite 4	AGD	56	413598	6372765	Open site	Valid	Artefact : 3		102128
	Contact	**Recorders**	Mr.Leonard (Lennie) Anderson					**Permits**	4413	
38-5-0111	Mona Point 2;	AGD	56	416400	6374500	Open site	Valid	Artefact : -	Open Camp Site	1845,102128,102218
	Contact	**Recorders**	Ms.Bronwyn Conyers,Pam Dean-Jones,M Heath					**Permits**		
38-5-0291	Birubi open campsite	AGD	56	413479	6372580	Open site	Valid	Aboriginal Resource and Gathering : 100		102128
	Contact Mr.Leonard (Lennie) Anderson	**Recorders**	Mr.Leonard (Lennie) Anderson					**Permits**		
38-5-0292	Birubi open campsite transport corridor	AGD	56	413485	6372585	Open site	Valid	Aboriginal Resource and Gathering : 50		
	Contact Mr.Peter Anderson	**Recorders**	Mr.Leonard (Lennie) Anderson					**Permits**		
38-5-0293	Birubi transport corridor campsite	AGD	56	413536	6372520	Open site	Valid	Aboriginal Resource and Gathering : 50		
	Contact Mr.Leonard (Lennie) Anderson	**Recorders**	Mr.Leonard (Lennie) Anderson					**Permits**		
38-5-0294	Birubi access campsite	AGD	56	413540	6372530	Open site	Valid	Aboriginal Resource and Gathering : 60		
	Contact Mr.Leonard (Lennie) Anderson	**Recorders**	Mr.Leonard (Lennie) Anderson					**Permits**		
38-5-0295	Gan Gan road beach access	AGD	56	413505	6372540	Open site	Valid	Aboriginal Resource and Gathering : 71		
	Contact Mr.Leonard (Lennie) Anderson	**Recorders**	Mr.Leonard (Lennie) Anderson					**Permits**		
38-5-0296	Gan Gan Road Site	AGD	56	413482	6372570	Open site	Valid	Aboriginal Resource and Gathering : 37		102128
	Contact Mr.Leonard (Lennie) Anderson	**Recorders**	Mr.Leonard (Lennie) Anderson					**Permits**		
38-5-0280	Robinson's Quarry open campsite 5	AGD	56	413531	6372845	Open site	Valid	Aboriginal Resource and Gathering : 5		102128
	Contact Mr.Leonard (Lennie) Anderson	**Recorders**	Mr.Leonard (Lennie) Anderson					**Permits**	3437,3575	
38-5-0035	Morna Point Fisherman's Bay	AGD	56	414872	6371460	Open site	Valid	Artefact : -	Open Camp Site	315,102128
	Contact	**Recorders**	Unknown Author					**Permits**		
38-5-0281	Robinsons Quarry open campsite 4	AGD	56	413596	6372853	Open site	Valid	Aboriginal Resource and Gathering : 7		
	Contact Mr.Leonard (Lennie) Anderson	**Recorders**	Mr.Leonard (Lennie) Anderson					**Permits**	3437	
38-5-0282	Robinsons quarry open campsite 3	AGD	56	413590	6372820	Open site	Valid	Aboriginal Resource and Gathering : 5		102128
	Contact Mr.Leonard (Lennie) Anderson	**Recorders**	Mr.Leonard (Lennie) Anderson					**Permits**	3437	
38-5-0283	Robinson Quarry open campsite 2	AGD	56	413616	6372854	Open site	Valid	Aboriginal Resource and Gathering : 7		102128
	Contact Mr.Leonard (Lennie) Anderson	**Recorders**	Mr.Leonard (Lennie) Anderson					**Permits**	3437	
38-5-0284	Birubi access open campsite	AGD	56	413468	6372600	Open site	Valid	Aboriginal Resource and Gathering : 6		102128
	Contact Mr.Leonard (Lennie) Anderson	**Recorders**	Mr.Leonard (Lennie) Anderson					**Permits**		
38-5-0285	Birubi swail entrance	AGD	56	413457	6372580	Open site	Valid	Habitation Structure : 8		

Report generated by AHIMS Web Service on 08/08/2021 for Penny Mccardle for the following area at Datum :GDA, Zone : 56, Eastings : 413000.0 - 418000.0, Northings : 6371000.0 - 6376000.0 with a Buffer of 0 meters.. Number of Aboriginal sites and Aboriginal objects found is 72

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : Gan Gan Rd, Anna Bay

Client Service ID : 611734

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
	Contact Mr.Leonard (Lennie) Anderson	**Recorders**	Mr.Leonard (Lennie) Anderson					**Permits**		
38-5-0286	Buruibi Track	AGD	56	413451	6372590	Open site	Valid	Aboriginal Resource and Gathering : 15		102128
	Contact Mr.Leonard (Lennie) Anderson	**Recorders**	Mr.Leonard (Lennie) Anderson					**Permits**		
38-5-0288	Robinsons Sand Quarry campsite 1	AGD	56	413620	6372860	Open site	Valid	Aboriginal Resource and Gathering : 20		102128
	Contact Mr.Leonard (Lennie) Anderson	**Recorders**	Mr.Leonard (Lennie) Anderson					**Permits**	3437	
38-5-0150	Fishermans Bay 1	AGD	56	414500	6371700	Open site	Valid	Artefact : -	Isolated Find	102128
	Contact	**Recorders**	Mr.Peter Kuskie					**Permits**	1065	
38-5-0309	Landcom FB1	GDA	56	414959	6372070	Open site	Valid	Artefact : 1		
	Contact	**Recorders**	Umwelt (Australia) Pty Limited - Individual users,Miss.Nicola Roche					**Permits**		
38-5-0317	RPS Birubi Point Midden 1	GDA	56	413492	6372315	Open site	Partially Destroyed	Shell : -		
	Contact	**Recorders**	Umwelt (Australia) Pty Limited - Individual users,RPS Australia East Pty Ltd - Ham					**Permits**	4418	
38-5-0318	OFOC4	GDA	56	413195	6373870	Open site	Partially Destroyed	Shell : 1		
	Contact	**Recorders**	Umwelt (Australia) Pty Limited - Individual users,Miss.Nicola Roche,Miss.Nicola Rc					**Permits**	3621,3758	
38-5-0316	Surf Club Midden - Birubi Pt	GDA	56	413415	6372385	Open site	Partially Destroyed	Shell : 1		103888
	Contact	**Recorders**	Miss.Philippa Sokol,RPS East Australia Pty Ltd - Echuca Victoria					**Permits**	3607	
38-5-0360	NGH Samurai Midden I	GDA	56	417863	6374342	Open site	Partially Destroyed	Artefact : -, Shell : -		
	Contact	**Recorders**	Mr.Matthew Barber,Mr.Matthew Barber,NGH Heritage - Fyshwick,NGH Heritage - F					**Permits**	4637	
38-5-0379	L1AW/1	GDA	56	414385	6374572	Open site	Valid	Shell : -		
	Contact	**Recorders**	MCH - McCardle Cultural Heritage Pty Ltd,Ms.Penny Mccardle					**Permits**		
38-5-0380	L1/1	GDA	56	413977	6374700	Open site	Valid	Artefact : -, Shell : -		
	Contact	**Recorders**	MCH - McCardle Cultural Heritage Pty Ltd,Ms.Penny Mccardle					**Permits**		
38-5-0378	Samurai Beach Artefact Reburial	GDA	56	417829	6374468	Open site	Valid	Artefact : -		
	Contact	**Recorders**	Mr.Matthew Barber,NGH Heritage - Fyshwick					**Permits**		
38-5-0393	Nelson Bay Road OS 01	GDA	56	415332	6375661	Open site	Valid	Artefact : 1		
	Contact	**Recorders**	Mr.Phillip CAMERON,AREA Environmental Consultants and Communication					**Permits**		
38-5-0383	TCW new site Kingsley site 2	GDA	56	415844	6371831	Open site	Valid	Shell : -		
	Contact	**Recorders**	Mr.Warren Mayers,DPIE - Armidale					**Permits**		
38-5-0384	TCW new site Fishermanâ€™s Bay 1	GDA	56	414976	6371805	Open site	Valid	Shell : -		
	Contact	**Recorders**	Mr.Warren Mayers,DPIE - Armidale					**Permits**		
38-5-0386	TCW new site Fishermanâ€™s Bay site 2	GDA	56	415046	6371796	Open site	Valid	Shell : -		
	Contact	**Recorders**	Mr.Warren Mayers,DPIE - Armidale					**Permits**		
38-5-0387	TCW new site Fishermanâ€™s Bay site 4	GDA	56	416563	6371712	Open site	Valid	Shell : -		
	Contact	**Recorders**	Mr.Warren Mayers,DPIE - Armidale					**Permits**		

Report generated by AHIMS Web Service on 08/08/2021 for Penny Mccardle for the following area at Datum :GDA, Zone : 56, Eastings : 413000.0 - 418000.0, Northings : 6371000.0 - 6376000.0 with a Buffer of 0 meters.. Number of Aboriginal sites and Aboriginal objects found is 72

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : Gan Gan Rd, Anna Bay

Client Service ID : 611734

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
38-5-0370	NGH TCW AFT 1	GDA	56	414315	6372030	Open site	Valid	Artefact : -		
Contact	Recorders	Mr.Matthew Barber,NGH Heritage - Fyshwick						Permits		
38-5-0375	NGH TCW AFT 3	GDA	56	417426	6372039	Open site	Valid	Artefact : -		
Contact	Recorders	Mr.Matthew Barber,NGH Heritage - Fyshwick						Permits		
38-5-0376	One Mile Beach / Middle Rock	GDA	56	417445	6373905	Open site	Valid	Artefact : -		
Contact	Recorders	Tegan Burton,DPIE - Armidale						Permits		
38-5-0365	NGH TCW Midden 2	GDA	56	417596	6373835	Open site	Valid	Shell : -		
Contact	Recorders	Mr.Matthew Barber,NGH Heritage - Fyshwick						Permits		
38-5-0367	NGH TCW Midden 1	GDA	56	414766	6371752	Open site	Valid	Shell : -		
Contact	Recorders	Mr.Matthew Barber,NGH Heritage - Fyshwick						Permits		
38-5-0368	NGH TCW Midden 3	GDA	56	417596	6373835	Open site	Valid	Artefact : -, Shell : -		
Contact	Recorders	Mr.Matthew Barber,NGH Heritage - Fyshwick						Permits		
38-5-0395	TCW- Kingsley new site 2	GDA	56	415749	6371830	Open site	Valid	Shell : -		
Contact	Recorders	Mr.Warren Mayers,DPIE - Armidale						Permits		
38-5-0396	TCW new site Fisherman's Bay site 3	GDA	56	415228	6371672	Open site	Valid	Shell : -		
Contact	Recorders	Mr.Warren Mayers,DPIE - Armidale						Permits		
38-5-0397	TCW - Kingsley new site 1	GDA	56	415825	6371809	Open site	Valid	Shell : -		
Contact	Recorders	Mr.Warren Mayers,DPIE - Armidale						Permits		
38-5-0398	58 GanGanRd_PAD	GDA	56	413568	6373260	Open site	Valid	Potential Archaeological Deposit (PAD) : -		
Contact	Recorders	RPS Australia East Pty Ltd - Newcastle,Miss.Kate Morris						Permits		

**** 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

Report generated by AHIMS Web Service on 08/08/2021 for Penny Mccardle for the following area at Datum :GDA, Zone : 56, Eastings : 413000.0 - 418000.0, Northings : 6371000.0 - 6376000.0 with a Buffer of 0 meters.. Number of Aboriginal sites and Aboriginal objects found is 72

ANNEX C

Test excavation data

Pit No	Strat. Unit	Depth (cm)	Spit #	Average depth below surface (cm)	Soil pH	Munsell	Disturbances
CL1	1	33	1	10	7	10YR 4/1	grass roots,small pieces of gravel, insects
			2	10			reduced grass roots,small pieces of gravel, insects
			3	30			small pieces of charcoal
			4	33			small pieces of charcoal
	2	33+	NA	33+	6	10YR3/6	B horizon
CL2	1	47	1	10	7	10YR 4/1	grass roots,small pieces of gravel, insects, piece of broken ceramic
			2	20			reduced grass roots, small pieces of gravell, insects, few piecesof charcaol
			3	30			reduced grass roots, small pieces of gravell, insects, few piecesof charcaol
			4	40			reduced grass roots, few piecesof charcaol
			5	47			few piecesof charcaol
	2	47+	NA	47+	6	10YR3/6	B horizon
CL3	1	35	1	10	7	10YR 4/1	grass roots,small pieces of gravel, insects
			2	10			reduced grass roots,small pieces of gravel, insects
			3	30			small pieces of charcoal, few small rocks
	2	30+	NA	30+	6	10YR3/6	B horizon
CL4	1	43	1	10	7	10YR 4/1	grass roots,small pieces of gravel and few pieces of chrcoal
			2	20			roots, slight increase in small pieces of charcoal, few small rocks
			3	30			reduced roots,small pieces of charcoal
			4	40			reduced charcoal
			5	43			few pieces of charcoal
	2	43+	NA	43+	6	10YR3/6	B horizon
CL5	1	33	1	10	7	10YR 4/1	grass roots,small pieces of gravel, few pieces of chrcoal
				20			roots, slight increase in small pieces of charcoal, few small rocks
				30			reduced roots,small pieces of charcoal
				33			reduced charcoal
	2	33+	2	33+	6	10YR3/6	B horizon
CL6	1	40	1	10	7	10YR 4/1	grass roots,small pieces of gravel, few pieces of chrcoal
				20			roots, slight increase in small pieces of charcoal, few small rocks
				30			reduced roots,small pieces of charcoal
				40			reduced charcoal
	2	40+	2	40+	6	10YR3/6	B horizon
			1	10			grass roots, insects, small pieces of gravel and few pieces of chrcoal

Pit No	Strat. Unit	Depth (cm)	Spit #	Average depth below surface (cm)	Soil pH	Munsell	Disturbances
CL7	1	34	2	20	7	10YR 4/1	roots, slight increase in small pieces of charcoal, few small rocks
			3	30			reduced roots,small pieces of charcoal
			4	34			reduced charcoal
	2	34+	NA	34+	6	10YR3/6	B horizon
CL8	1	34	1	10	7	10YR 4/1	grass roots, insects, small pieces of gravel and few pieces of chrcoal
			2	20			roots, slight increase in small pieces of charcoal, few small rocks
			3	30			reduced roots,small pieces of charcoal
			4	34			reduced charcoal
	2	34+	NA	34+	6	10YR3/6	B horizon
CL9	1	33	1	10	5	10YR 3/1	roots, leaf litter, insects, very few small rocks
			2	20			roots, small pieces of charcoal, few small rocks
			3	30			reduced roots, small pieces of charcoal
	2	76	4	40	7	10YR 4/1	few roots, few pieces of charcoal
			5	50			few roots, few pieces of charcoal
			6	60			few roots, few pieces of charcoal
			7	70			no inclusions
			8	76			root
	3	76+	NA	76+	6	10YR 3/6	B horizon
CL10	1	33	1	10	5	10YR 3/1	roots, leaf litter, insects, very few small rocks
			2	20			roots, small pieces of charcoal, few small rocks
			3	30			reduced roots, small pieces of charcoal
	2	73	4	40	7	10YR 4/1	few roots, few pieces of charcoal
			5	50			few roots, few pieces of charcoal
			6	60			few roots, few pieces of charcoal
			7	70			tree roots
	3	73+	NA	73+	6	10YR 3/6	B horizon
CL11	1	34	1	10	5	10YR 3/1	roots, leaf litter, insects, very few small rocks
			2	20			roots, small pieces of charcoal, few small rocks
			3	30			reduced roots, small pieces of charcoal
	2	65	4	40	7	10YR 4/1	tree roots, few pieces of charcoal
			5	50			tree roots, few pieces of charcoal

Pit No	Strat. Unit	Depth (cm)	Spit #	Average depth below surface (cm)	Soil pH	Munsell	Disturbances
	2	65	6	60	7	10YR 4/1	tree roots, few pieces of charcoal
			7	65			tree roots
	3	65+	NA	65+	6	10YR 3/6	B horizon
CL12	1	34	1	10	5	10YR 3/1	roots, leaf litter, insects, very few small rocks
			2	20			roots, small pieces of charcoal, few small rocks
			3	30			reduced roots, small pieces of charcoal
	2	67	4	40	7	10YR 4/1	tree roots, few pieces of charcoal
			5	50			tree roots, few pieces of charcoal
			6	60			tree roots, few pieces of charcoal
			7	67			tree roots
	3	67+	NA	67+	6	10YR 3/6	B horizon
CL13	1	32	1	10	5	10YR 3/1	roots, leaf litter, insects, very few small rocks
			2	20			roots, small pieces of charcoal, few small rocks
			3	30			reduced roots, small pieces of charcoal
	2	65	4	40	7	10YR 4/1	tree roots, few pieces of charcoal
			5	50			tree roots, few pieces of charcoal
			6	60			tree roots, few pieces of charcoal
			7	65			tree roots
	3	65+	NA	65+	6	10YR 3/6	B horizon
CL14	1	31	1	10	5	10YR 3/1	roots, leaf litter, insects, very few small rocks
			2	20			roots, small pieces of charcoal, few small rocks
			3	30			reduced roots, small pieces of charcoal
	2	64	4	40	7	10YR 4/1	tree roots, few pieces of charcoal
			5	50			tree roots, few pieces of charcoal
			6	60			tree roots, few pieces of charcoal
			7	64			tree roots
	3	64+	NA	64+	6	10YR 3/6	B horizon
CL15	1	31	1	10	5	10YR 3/1	roots, leaf litter, insects, very few small rocks
			2	20			roots, small pieces of charcoal, few small rocks
			3	30			reduced roots, small pieces of charcoal
	2	71	4	40	7	10YR 4/1	tree roots, few pieces of charcoal
			5	50			tree roots, few pieces of charcoal

Pit No	Strat. Unit	Depth (cm)	Spit #	Average depth below surface (cm)	Soil pH	Munsell	Disturbances
	2	71	6	60	7	10YR 4/1	tree roots, few pieces of charcoal
			7	71			tree roots
	3	71+	NA	71+	6	10YR 3/6	B horizon
CL16	1	30	1	10	5	10YR 3/1	roots, leaf litter, insects, very few pieces of charcoal
			2	20			roots, small pieces of charcoal
			3	30			reduced roots, small pieces of charcoal
	2	64	4	40	7	10YR 4/1	tree roots, few pieces of charcoal
			5	50			tree roots, few pieces of charcoal
			6	60			tree roots, few pieces of charcoal
			7	64			tree roots
	3	64+	NA	64+	6	10YR 3/6	B horizon
E1	1	43	1	10	7	10YR 4/1	grass roots,small pieces of gravel, insects
				20			reduced grass roots,smallpieces of gravel, insects
				30			small pieces of charcoal,very few small rocks
				40			small pieces of charcoal,very few small rocks
				43			small pieces of charcoal,very few small rocks
	2	43+	NA	43+	6	10YR3/6	B Horizon
E2	1	37	1	10	7	10YR 4/1	kangaroo carpals (2) on surface, grass roots, smallamunts of gravel
				20			small pieces of charcoal,very few small rocks
				30			small pieces of charcoal,very few small rocks
				37			small pieces of charcoal,very few small rocks
	2	37+	NA	37+	6	10YR3/6	B horizon
E3	1	36	1	10	7	10YR 4/1	kangaroo carpals (2) on surface, grass roots, smallamunts of gravel
				20			small pieces of charcoal,very few small rocks
				30			small pieces of charcoal,very few small rocks
				46			small pieces of charcoal,very few small rocks
	2	36+	NA	36+	6	10YR3/6	B horizon

Pit	Spit	Raw material	Type	L (mm)	Wid(mm)	T (mm)	Usewear	Platform	Termination
Western side of the PAD									
CL3	1	tuff	flake	12	12	2	y	crushed	step
		tuff	flake	9	16	3	y	focal	feather
CL7	3	tuff	flake	18	12	3		focal	feather
		tuff	flake	14	9	3	y	focal	feather
		silcrete	flake	16	20	4		crushed	step
A3	1	mudstone	flake	16	19	8	y	focal	feather
		ochre	red/brown	8	6	4			
Eastern side of the PAD									
CL9	4	tuff	flake	12	25	3		focal	step
CL11	3	tuff	flake	22	6	2		focal	step
		tuff	flake	9	13	3		focal	hinge
CL14	1	silcrete	flake	21	19	4		facet	step
	2	silcrete	flake	14	15	4		single flake	feather
	3	silcrete	flake	28	42	6		single flake	feather
CL15	2	silcrete	flake	32	36	8		single flake	feather

Pit	Spit	Raw material	# fragments
Western side of the PAD			
CL7	2	pipi	2 fragments
	3	pipi	5 fragments
CL9	2	pipi	5g
	3	pipi	15 fragments
	4	pipi	7 fragments
CL14	1	pipi	3 fragments
	2	pipi	1g