

Nowra Bridge Project

Aboriginal Cultural Heritage
Assessment Report (PACHCI Stage
3)

Shoalhaven City Council

Report to SMEC

August 2018



Artefact Heritage
ABN 73 144 973 526
Level 4, Building B
35 Saunders Street
Pymont NSW 2009
Australia

+61 2 9518 8411
office@artefact.net.au

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EXECUTIVE SUMMARY

Introduction and background

Roads and Maritime Services NSW (Roads and Maritime) proposes to construct a new bridge on the A1 Princes Highway over the Shoalhaven River at Nowra (the proposal). The proposal includes the construction of a new four lane bridge to the west (upstream) of the existing bridge crossings and the removal of vehicular traffic from the existing southbound bridge. The proposal would also include the upgrade of about 1.6 kilometres of the Princes Highway in the vicinity of the bridge, as well as providing key intersection upgrades and modifications to the local road network. The proposal would improve access to Nowra and the surrounding areas, improve southbound access for large freight vehicles, and improve traffic flows.

The study area is located on the Princes Highway in Nowra, within the Shoalhaven Local Government Area. The study area is situated 120 kilometres south of Sydney and 30 kilometres south west of Kiama. The study area straddles the Shoalhaven River and comprises an irregularly shaped polygon of route options comprising a total area of 61 hectares centred on the Princes Highway, current bridge and road approaches (Figure 1.1). The study area varies greatly in degree and nature of development, ranging from open parkland to developed urban areas.

The study area comprises the interface between two distinct geomorphological and botanical zones. Such areas of varied landform and heightened biodiversity have been noted as having a high archaeological sensitivity. The study area is between 13 kilometres to 14 kilometres from the coastline, with similar locations regionally identified as containing a high density of Aboriginal sites, possibly resulting from activities including camping while travelling to or from the coast.

Artefact Heritage Pty Ltd (Artefact Heritage) has been engaged by SMEC, on behalf of Roads and Maritime, to prepare an Aboriginal Cultural Heritage Assessment Report (CHAR) in accordance with Stage 3 of the Procedure for Aboriginal Cultural Heritage Consultation and Investigation (PACHCI) (Roads and Maritime 2011).

This CHAR has also been prepared in accordance with the Guide to Investigating and Reporting on Aboriginal Cultural Heritage in NSW (the Guide) (Office of Environment & Heritage [OEH] 2011) and the Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales (the Code of Practice) (Department of Environment, Climate Change & Water [DECCW] 2010a).

Artefact Heritage (2018a) was engaged by SMEC in 2017 to prepare an Archaeological Survey Report (ASR) in accordance with Stage 2 of the PACHCI. The archaeological survey identified five Aboriginal sites and five areas of potential archaeological deposit (PAD):

- Nowra Bridge 1 (AHIMS ID 52-5-0852)
- Nowra Bridge 2 (AHIMS ID 52-5-0853)
- Nowra Bridge 3 (AHIMS ID 52-5-0855)
- Nowra Bridge 4 (AHIMS ID 52-5-0857)
- Nowra Bridge 5 (AHIMS ID 52-5-0856)
- Nowra Bridge PAD 1 (AHIMS ID 52-5-0859)
- Nowra Bridge PAD 2 (AHIMS ID 52-5-0860)
- Nowra Bridge PAD 3 Cliff & Rockshelter Complex (AHIMS ID 52-5-0861)
- Nowra Bridge PAD 4 (AHIMS ID 52-5-0858)
- Nowra Bridge PAD 5 (AHIMS ID 52-5-0854).

A test excavation methodology was prepared as part of the PACHCI Stage 2 investigations (Artefact 2018b). The excavation methodology was presented at an Aboriginal Focus Group (AFG) for Aboriginal stakeholder comment on 6 February 2018. The test excavation program was then conducted over 13 days from the 12 March to 6 April 2018. Eight representatives from the registered Aboriginal stakeholder groups and eight archaeologists from Artefact Heritage took part in the program.

The test excavation identified five additional Aboriginal sites:

- Nowra Bridge 6 (AHIMS ID 52-5-0872)
- Nowra Bridge 7 (AHIMS ID 52-5-0875)
- Nowra Bridge 8 (AHIMS ID 52-5-0876)
- Nowra Bridge 9 (AHIMS ID 52-5-0874)
- Nowra Bridge 10 (AHIMS ID 52-5-0873)

One Aboriginal site, Nowra Bridge 3 (AHIMS ID 52-5-0855) and two PADs, Nowra Bridge PAD 1 (AHIMS ID 52-5-0859) and Nowra Bridge PAD 2 (AHIMS ID 52-5-0860) were deregistered. Two previously recorded Aboriginal sites, Nowra Bridge 1 (AHIMS ID 52-5-0852) and Nowra Bridge 2 (AHIMS ID 52-5-0853) were updated as well as three PADs, Nowra Bridge PAD 3 Cliff & Rockshelter Complex (AHIMS ID 52-5-0861), Nowra Bridge PAD 4 (AHIMS ID 52-5-0858), and Nowra Bridge PAD 5 (AHIMS ID 52-5-0854).

Additional archaeological survey was conducted during the test excavation program due to changes in the study area. One newly identified Aboriginal site (Nowra Bridge 11 (AHIMS ID 52-5-0878)) was identified. One previously registered site, Nowra (AHIMS ID 52-5-0086), was found to be located within the updated study area. Based on the description and early date of recording it is likely that Nowra (AHIMS ID 52-5-0086) is the same site as Nowra Bridge 11 (AHIMS ID 52-5-0878). A site card update to Nowra (AHIMS ID 52-5-0086) has been submitted.

During background research for the cultural assessment it was established that Graham Lodge (State Heritage Register [SHR] No. 01699) is located within the southeast portion of the study area and was found to include Aboriginal objects and evidence of early European contact. Graham Lodge had not been previously registered as an Aboriginal site on the Aboriginal Heritage Information Management System (AHIMS). Therefore, a site card for Graham Lodge (AHIMS ID 52-5-0879) has been prepared and submitted for this site.

The following table summarises previously identified, new, and updated Aboriginal sites and PADs located in the study area.

Previously identified sites	Updated site	Newly identified sites	Deregistered sites
Nowra Bridge PAD 1 (AHIMS ID 52-5-0859) Nowra Bridge 1 (AHIMS ID 52-5-0852)	Nowra Bridge 1 (AHIMS ID 52-5-0852)		Nowra Bridge PAD 1 (AHIMS ID 52-5-0859)
Nowra Bridge PAD 2 (AHIMS ID 52-5-0860)		Nowra Bridge 6 (AHIMS ID 52-5-0872)	Nowra Bridge PAD 2 (AHIMS ID 52-5-0860)

Previously identified sites	Updated site	Newly identified sites	Deregistered sites
Nowra Bridge PAD 3 Cliff & Rockshelter Complex (AHIMS ID 52-5-0861) Nowra Bridge 2 (AHIMS ID 52-5-0853) Nowra Bridge 3 (AHIMS ID 52-5-0855)	Nowra Bridge 2 (AHIMS ID 52-5-0853), Nowra Bridge PAD 3 Cliff & Rockshelter Complex (AHIMS ID 52-5-0861)		Nowra Bridge 3 (AHIMS ID 52-5-0855)
Nowra Bridge PAD 3 Cliff & Rockshelter Complex (AHIMS ID 52-5-0861)		Nowra Bridge 7 (AHIMS ID 52-5-0875)	
Nowra Bridge PAD 4 (AHIMS ID 52-5-0858)		Nowra Bridge 8 (AHIMS ID 52-5-0876)	
Nowra Bridge PAD 4 (AHIMS ID 52-5-0858)	Nowra Bridge PAD 4 (AHIMS ID 52-5-0858)	Nowra Bridge 9 (AHIMS ID 52-5-0874)	
Nowra Bridge PAD 5 (AHIMS ID 52-5-0854)	Nowra Bridge PAD 5 (AHIMS ID 52-5-0854)	Nowra Bridge 10 (AHIMS ID 52-5-0873)	
Nowra (AHIMS ID 52-5-0086)		Nowra Bridge 11 (AHIMS ID 52-5-0878)	Nowra (AHIMS ID 52-5-0086)
		Graham Lodge (AHIMS ID 52-5-0879)	
Nowra Bridge 4 (AHIMS ID 52-5-0857)			
Nowra Bridge 5 (AHIMS ID 52-5-0856)			

Consultation

Consultation has commenced in accordance with PACHCI Stage 3 and the Aboriginal cultural heritage consultation requirements for proponents (the Consultation Requirements) (DECCW 2010b) for the Nowra Bridge Project. A summary of the consultation and process is provided in section 3.0.

Recommendations

- Prior to construction, an AHIP application must be lodged with OEH for the proposal
- Collection of surface artefacts across Nowra Bridge 1 (AHIMS ID 52-5-0852) and Nowra Bridge 2 (AHIMS ID 52-5-0853) should be conducted prior to construction in accordance with an AHIP.

- Targeted salvage excavation within Nowra Bridge 2 (AHIMS ID 52-5-0853), Nowra Bridge 7 (AHIMS ID 52-5-0875), Nowra Bridge 8 (AHIMS ID 52-5-0876), and Nowra Bridge 9 (AHIMS ID 52-5-0874) should be conducted prior to construction in accordance with an AHIP.
- Inadvertent impacts to sites and PADs outside of the impact area must be avoided by including information on the location of these sites in an Aboriginal Heritage Management Plan (AHMP).
- Long term arrangements for the management of excavated artefacts, such as reburial or a keeping place, should be determined in accordance with the recommendations of registered Aboriginal stakeholders and OEH guidelines
- Develop and implement a Heritage Interpretation Strategy in consultation with RAPs. This may include:
 - Interpretive signage
 - Plaques
 - Temporary display of a sample of the stone artefacts in an agreed upon place as determined by consultation with the RAPs. A Care Agreement for display artefacts must be entered into between Roads and Maritime and OEH if artefacts are to be put on display.
- All subsurface impact to Graham Lodge (AHIMS ID 52-5-0879) should be avoided. Should subsurface impacts to Graham Lodge (AHIMS ID 52-5-0879) be unavoidable, salvage excavations would be required under an AHIP and a Section 60 permit
- An Aboriginal Heritage Management Plan (AHMP) should be prepared and would provide a method to manage potential heritage constraints and unexpected finds during construction works. Aspects of site and cultural area protection that should be included in the AHMP include:
 - Establishing no-harm areas where appropriate. Depending on the nature and timing of works in the vicinity of identified Aboriginal sites or cultural areas that would not be impacted by the proposed works, it may be appropriate to establish visual markers around no-harm areas with appropriate signage to avoid inadvertent impacts.
 - Nature of the visual markers around no-harm areas. The AHMP should document what type of visual marker would be put in place, such as temporary fencing, high visibility tape, and temporary signage.
 - Provide clear guidance to all site workers on access restrictions to no-harm areas including site inductions and tool box talks.
 - Unexpected finds procedure in accordance with the Unexpected Heritage Items Procedure (Roads and Maritime 2015) would be followed.
 - Cultural heritage awareness training would be carried out for all personnel involved with site work prior to involvement in any works for the project.
- If any suspected human remains are located during any stage of the proposed works, work should stop immediately, and the procedures outlined in the Unexpected Heritage Items Procedure (Roads and Maritime 2015) and Requirement 25 of the Code of Practice must be followed.
- Should any changes be made to the proposed works that would involve additional impacts to Aboriginal heritage or areas outside of the AHIP, these changes would be assessed in accordance with Roads and Maritime PACHCI and further investigation may be necessary.
- The final version of the CHAR must be forwarded to registered Aboriginal parties and OEH.
- To keep consultation current, the registered Aboriginal parties should be sent an update on the project every six months.

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ABBREVIATIONS

ACHO	Aboriginal Cultural Heritage Officer (Roads and Maritime)
AFG	Aboriginal Focus Group
AHIP	Aboriginal Heritage Impact Permit
AHIMS	Aboriginal Heritage Information Management System
AHMP	Aboriginal Heritage Management Plan
ALR Act	<i>Aboriginal Land Rights Act 1983</i>
Artefact	Artefact Heritage Services Pty Ltd
ASR	Archaeological Survey Report
ATSHP Act	<i>Aboriginal and Torres Strait Islander Heritage Protection Act 1984</i>
CHAR	Cultural Heritage Assessment Report
Code of Practice	Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales (2010a)
Consultation Requirements	Aboriginal cultural heritage consultation requirements for proponents (2010b)
DECCW	Former NSW Department of Environment, Climate Change and Water (now OEH)
DLO	Darug Land Observations
EPBC Act	<i>Environmental Protection and Biodiversity Act 1999</i>
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
ESD	Ecological Sustainable Development
Guide	Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW
ha	hectares
ISEPP	State Environmental Planning Policy (Infrastructure) 2007
km	kilometre
LALC	Local Aboriginal Land Council
LGA	Local Government Area
m	metres
mm	millimetres
MPC	Multiple platform core

NHL	National Heritage List
NPW Act	<i>National Parks and Wildlife Act 1974</i>
NTSCorp	Native Title Service Corporation
OEH	Office of Environment and Heritage
PACHCI	Roads and Maritime Procedure for Aboriginal Cultural Heritage Consultation and Investigation
PAD	potential archaeological deposit
RAP	Registered Aboriginal Party
RNE	Register of the National Estate
Roads and Maritime	NSW Roads and Maritime Services
SHR	State Heritage Register
SU	Survey unit
TA	test area
the study area	Area of investigation surrounding the preferred option, provided by Roads and Maritime, shown in (Figure 1.1).

1.0 INTRODUCTION

1.1 Introduction

Roads and Maritime Services NSW (Roads and Maritime) proposes to construct a new bridge on the A1 Princes Highway over the Shoalhaven River at Nowra (the proposal). The proposal includes the construction of a new four lane bridge to the west (upstream) of the existing bridge crossings and the removal of vehicular traffic from the existing southbound bridge. The proposal would also include the upgrade of about 1.6 kilometres of the Princes Highway in the vicinity of the bridge, as well as providing key intersection upgrades and modifications to the local road network. The proposal would improve access to Nowra and the surrounding areas, improve southbound access for large freight vehicles, and improve traffic flows.

Artefact Heritage Pty Ltd (Artefact Heritage) has been engaged by SMEC, on behalf of Roads and Maritime, to prepare an Aboriginal Cultural Heritage Assessment Report (CHAR) in accordance with Stage 3 of the Procedure for Aboriginal Cultural Heritage Consultation and Investigation (PACHCI) (Roads and Maritime 2011).

This CHAR has also been prepared in accordance with:

- Guide to Investigating and Reporting on Aboriginal Cultural Heritage in NSW (the Guide) (Office of Environment & Heritage [OEH] 2011)
- Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales (the Code of Practice) (Department of Environment, Climate Change & Water [DECCW] 2010a).
- Aboriginal cultural heritage consultation requirements for proponents (DECCW 2010b)
- The Burra Charter 2013 (Australia ICOMOS 2013).

1.2 Background to this assessment

Prior to the Aboriginal archaeological test excavation and assessment of the proposal, Artefact Heritage was engaged by SMEC on behalf of Roads and Maritime in 2017 to prepare an archaeological survey report (ASR) as part of Stage 2 of the Roads and Maritime Procedure for Aboriginal Cultural Heritage Consultation and Investigation (PACHCI) for the project. The PACHCI Stage 2 archaeological survey (Artefact Heritage 2018a) identified five Aboriginal sites and five areas of potential archaeological deposit (PAD) (Figure 1.2):

- Nowra Bridge 1 (AHIMS ID 52-5-0852)
- Nowra Bridge 2 (AHIMS ID 52-5-0853)
- Nowra Bridge 3 (AHIMS ID 52-5-0855)
- Nowra Bridge 4 (AHIMS ID 52-5-0857)
- Nowra Bridge 5 (AHIMS ID 52-5-0856)
- Nowra Bridge PAD 1 (AHIMS ID 52-5-0859)
- Nowra Bridge PAD 2 (AHIMS ID 52-5-0860)
- Nowra Bridge PAD 3 Cliff & Rockshelter Complex (AHIMS ID 52-5-0861)
- Nowra Bridge PAD 4 (AHIMS ID 52-5-0858)
- Nowra Bridge PAD 5 (AHIMS ID 52-5-0854).

It was recommended that test excavations be conducted within the portions of identified PAD to be impacted, in order to determine the extent and nature of any archaeological deposit and to assess archaeological significance. Test excavation under the Code of Practice was conducted at four of the PADs (Figure 1.2):

- Nowra Bridge PAD 1 (AHIMS ID 52-5-0859)
- Nowra Bridge PAD 2 (AHIMS ID 52-5-0860)
- Nowra Bridge PAD 4 (AHIMS ID 52-5-0858)
- Nowra Bridge PAD 5 (AHIMS ID 52-5-0854).

Under the Code of Practice test excavations cannot occur within 50 metres of a rockshelter. As a result, an Aboriginal Heritage Impact Permit (AHIP) application was submitted for test excavation within the portion of Nowra Bridge PAD 3 Cliff & Rockshelter Complex (AHIMS ID 52-5-0861) to be impacted (Figure 1.3).

The AHIP application and supporting CHAR (Artefact Heritage 2018b) was submitted to OEH on 7 March 2018 and approved on 14 March 2018 (AHIP No. C0003480; Appendix 2). AHIP No. C0003480 is valid until 16 March 2020 and authorises harm, for the purposes of test excavations only, to the eastern portion of Nowra Bridge PAD 3 Cliff & Rockshelter Complex (AHIMS ID 52-5-0861), as well as the entirety of Nowra Bridge 2 (AHIMS ID 52-5-0853) and Nowra Bridge 3 (AHIMS ID 52-5-0855) which are comprised of isolated artefacts.

A test excavation methodology (Artefact Heritage 2018b) was prepared as part of the PACHCI Stage 2 investigations. The excavation methodology was presented at an Aboriginal Focus Group (AFG) for Aboriginal stakeholder comment on 6 February 2018. The test excavation program was then conducted over 13 days from the 12 March to 6 April 2018. Eight representatives from the registered Aboriginal stakeholder parties and eight archaeologists from Artefact Heritage took part in the program (section 6.2).

The test excavation identified five additional Aboriginal sites (Figure 1.4):

- Nowra Bridge 6 (AHIMS ID 52-5-0872)
- Nowra Bridge 7 (AHIMS ID 52-5-0875)
- Nowra Bridge 8 (AHIMS ID 52-5-0876)
- Nowra Bridge 9 (AHIMS ID 52-5-0874)
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One Aboriginal site (Nowra Bridge 3 (AHIMS ID 52-5-0855)), and two PADs, (Nowra Bridge PAD 1 (AHIMS ID 52-5-0859) and Nowra Bridge PAD 2 (AHIMS ID 52-5-0860)) were deregistered. Two previously recorded Aboriginal sites Nowra Bridge 1 (AHIMS ID 52-5-0852) and Nowra Bridge 2 (AHIMS ID 52-5-0853) were updated as well as three PADs (Nowra Bridge PAD 3 Cliff & Rockshelter Complex (AHIMS ID 52-5-0861), Nowra Bridge PAD 4 (AHIMS ID 52-5-0858), and Nowra Bridge PAD 5 (AHIMS ID 52-5-0854)).

Due to alterations to the study area, an addendum survey was conducted during the test excavation program across two days. The addendum survey resulted in the identification of one additional Aboriginal site (Nowra Bridge 11 (AHIMS ID 52-5-0878)).

During background research for the cultural assessment for this CHAR it was established that Graham Lodge (State Heritage Register [SHR] No. 01699) is located within the southeast portion of the study area and was found to include Aboriginal objects and evidence of early European contact. It was also found that one previously registered AHIMS site, Nowra (AHIMS ID 52-5-0086) is located within the extent of the updated study area. Based on the description of Nowra (AHIMS ID 52-5-0086), it is likely to be the same site as Nowra Bridge 11 (AHIMS ID 52-5-0878). A site card update was submitted to consolidate Nowra (AHIMS ID 52-5-0086) and Nowra Bridge 11 (AHIMS ID 52-5-0878).

1.3 Study area

The study area for the Nowra Bridge Project is located in Nowra, within the Shoalhaven Local Government Area (LGA) and in the Parish of Nowra, County of St Vincent. The study area is situated 128 kilometres south west of Sydney. The study area straddles the Shoalhaven River and comprises an irregularly shaped polygon of route options comprising a total area of 70 hectares centred on the Princes Highway, current bridge and road approaches (Figure 1.1). The study area varies greatly in degree and nature of development, ranging from open parkland to developed urban areas.

The study area comprises the interface between two distinct geomorphological and botanical zones. Such areas of varied landform and heightened biodiversity have been noted as having a high archaeological sensitivity. The study area is between 13 kilometres to 14 kilometres from the coastline, with similar locations regionally identified as containing a high density of Aboriginal sites, possibly resulting from activities including camping while travelling to or from the coast.

1.4 Proposal description

The main features of the proposal are:

- Construction of a new bridge to the west (upstream) of the existing bridge crossings over the Shoalhaven River including:
 - Four northbound lanes including a dedicated left turn only lane from Bridge Road to Illaroo Road
 - A three-metre wide shared use path on the western side of the bridge connecting the Illaroo Road intersection to the Bridge Road intersection
- Widening of the existing bridge over Bomaderry Creek to the west (upstream)
- Minor lane adjustments on the existing northbound bridge to convert it to three lanes of southbound traffic
- Removal of vehicular traffic from the existing southbound bridge. Additional works would be provided under a separate project to convert the existing southbound bridge for adaptive reuse
- Upgrading of the Princes Highway to provide three northbound and three southbound lanes from Bolong Road through to about 75 metres north of Moss Street
- Widening of Illaroo Road over a distance of about 340 metres
- Upgrading of the Princes Highway and Illaroo Road intersection to provide:
 - Two southbound right turn lanes from the Princes Highway into Illaroo Road
 - Three dedicated right turn lanes and one dedicated left turn lane from Illaroo Road to Princes Highway
- Upgrading of the Princes Highway and Bridge Road intersection to provide:
 - Two southbound right turn lanes from the Princes Highway into Bridge Road
 - One left turn lane from Bridge Road to the Princes Highway
- Local road adjustments including:
 - Closing the access between Pleasant Way and Princes Highway
 - Restricting turning movements at the intersection of Bridge Road and Scenic Drive
 - Construction of a new local road connecting Lyrebird Drive to the Princes Highway about 300 metres south of the existing Pleasant Way intersection
- Provision of pedestrian facilities at all intersections
- Dedicated off road shared paths and footpaths along the length of the proposal
- Urban design and social amenity improvements, and landscaping including foreshore pedestrian links to the truss bridge
- Relocation and/or protection of utility services within the affected road corridor
- Drainage and water quality management infrastructure along the road corridor

- Property works including acquisition, demolition, and adjustments to accesses
- Temporary ancillary facilities during construction including site offices, construction compounds, and stockpile sites.

1.5 Proposal framework

A concept design has been prepared, and the proposal will seek approval through preparation of a Review of Environmental Factors (REF) under Division 5.1 of the *Environmental Planning and Assessment Act* (EP&A Act).

1.6 Study objectives

The objectives of this CHAR, in conjunction with the Archaeological Technical Report (Artefact Heritage 2018c) are to identify and assess the impacts of the proposal on Aboriginal cultural heritage, identify appropriate management and mitigation measures and to support an AHIP application for impact to registered Aboriginal sites within the study area.

1.7 Author

This CHAR was prepared by Vanessa Edmonds (Principal, Artefact Heritage) and Ryan Taddeucci (Heritage Consultant, Artefact Heritage).

Vanessa has a Bachelor of Arts in Australian Prehistory and a Master of Letters degree in Archaeology and Palaeoanthropology. Vanessa has over 30 years of experience in Aboriginal cultural heritage management nationally. Vanessa prepared the Aboriginal cultural heritage assessment (section 8.0) and contributed to the body of the report through the previous CHAR (Artefact Heritage 2018b).

Ryan has a Bachelor of Arts with Honours in Archaeology and a Masters of Museum Studies. Ryan has over six years' experience in Aboriginal cultural heritage management in NSW, WA and QLD. Ryan prepared all remaining sections of this CHAR.

1.8 Report structure

The purpose of this report is to document the results of the investigation of Aboriginal heritage at the study area. The structure of this report includes:

- Section 1 - Introduction
- Section 2 – Statutory requirements: outlines relevant legislation for this assessment
- Section 3 – Consultation: provides information on the Aboriginal consultation process and results
- Section 4 - Environmental context: provides an overview of the environmental conditions to provide context for the predictive model
- Section 5 – Historical archaeological and Archaeological context: presents the results of the background ethnohistoric and literature research and database searches. This section also presents a predictive model as background to the survey sampling strategy
- Section 6 – Archaeological survey: discusses the aims, timing and personnel, constraints, survey sampling strategy, methodology and coverage

- Section 7 – Archaeological test excavation: discusses the aims, timing and personnel, constraints, excavation sampling strategy, methodology and coverage
- Section 8 – Assessment of Aboriginal cultural heritage values
- Section 9 – Significance assessment: provides an assessment of archaeological significance of Aboriginal sites found.
- Section 10 – Impact assessment: assesses potential impacts to identified Aboriginal sites and areas of potential archaeological deposit
- Section 11 – Avoiding and minimising harm
- Section 12 – Management and mitigation measures: outlines relevant management and mitigation measures for the proposal
- Section 13 – Recommendations
- Section 14 – References

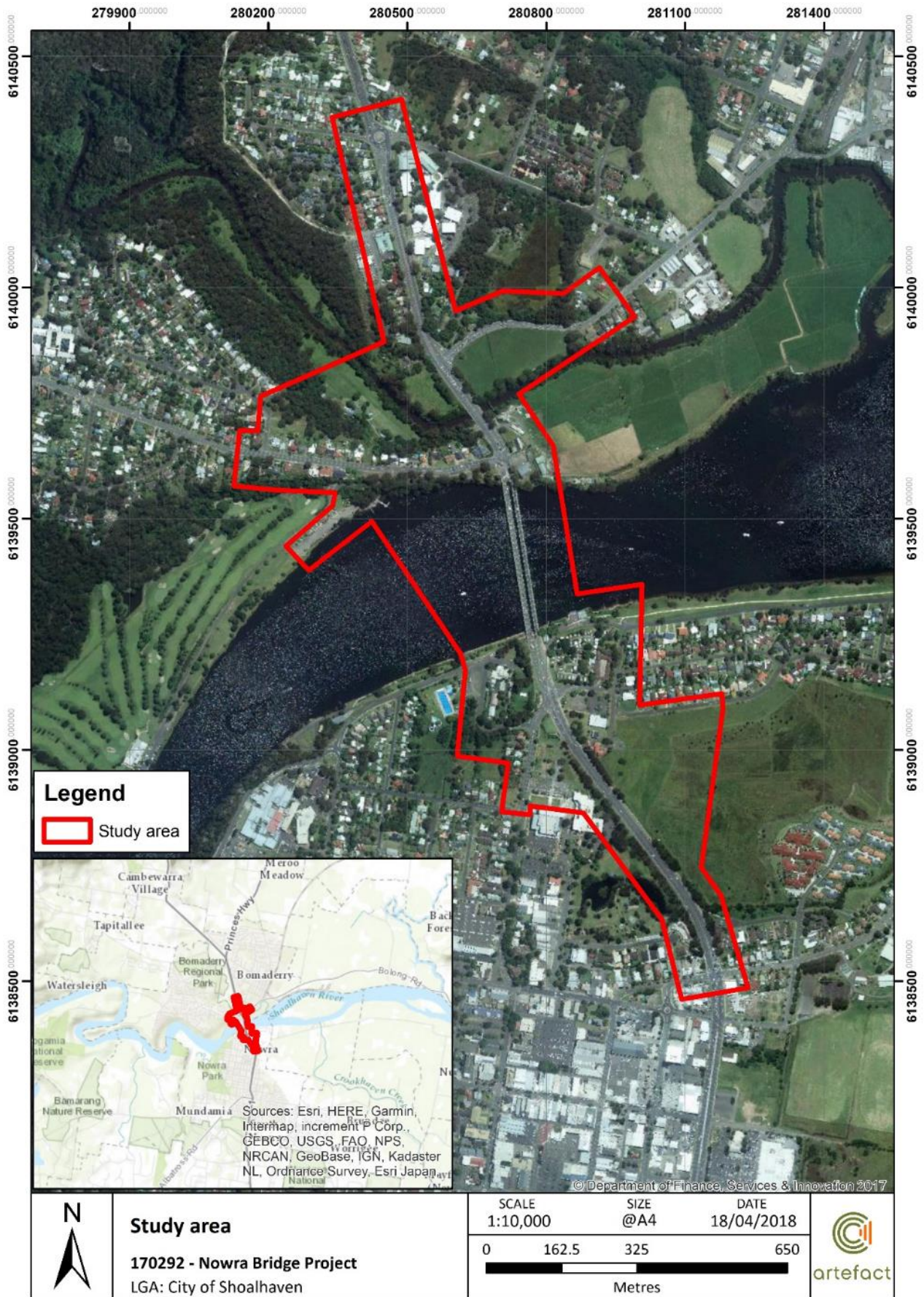


Figure 1.1: Location of the study area

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Figure 1.2: Results of Stage 2 investigations (Artefact Heritage 2018a)

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Figure 1.3: Nowra Bridge PAD 3 Cliff & Rockshelter Complex (AHIMS ID 52-5-0861) - Impact area subject to AHIP

Figure removed from public document

Figure 1.4: Current site locations

2.0 LEGISLATIVE CONTEXT

2.1 State legislation and guidelines

2.1.1 *National Parks and Wildlife Act 1974*

The *National Parks and Wildlife Act 1974* (NPW Act) provides statutory protection to all Aboriginal places and objects. An Aboriginal Place is declared by the Minister, under Section 86 of the Act, in recognition of its special significance with respect to Aboriginal culture. An Aboriginal object is defined as:

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

The protection provided to Aboriginal objects applies irrespective of the level of their significance or issues of land tenure. However, areas are only gazetted as Aboriginal Places if the Minister is satisfied that sufficient evidence exists to demonstrate that the location was and/or is of special significance to Aboriginal culture. There are no gazetted Aboriginal Places in the study area. All Aboriginal objects, whether recorded or not are protected under the NPW Act.

In order to undertake a proposed activity which is likely to involve harm to an Aboriginal place or object, it is necessary to apply to Office of Environment and Heritage (OEH) for an Aboriginal Heritage Impact permit (AHIP). AHIPs are issued by OEH under Section 90 of the NPW Act, and permit harm to certain Aboriginal objects or Aboriginal places.

2.1.2 *Native Title Act 1994*

The *Native Title Act 1994* was introduced to work in conjunction with the Commonwealth *Native Title Act 1993*. Native Title claims, registers and Indigenous Land Use Agreements are administered under the Act.

One registered Native Title claim has been identified for the study area (Table 2.1).

Table 2.1: Schedule of Native Title Determination applications

Tribunal ID	Name	Date lodged	Registration status
NC2017/003	South Coast People	3 August 2017	Accepted for registration 31 January 2018

2.1.3 *Aboriginal Lands Right Act 1983*

The *Aboriginal Land Rights Act 1983* (ALR Act) established Aboriginal Land Councils (at State and Local levels). These bodies have a statutory obligation under the ALR Act to:

(a) take action to protect the culture and heritage of Aboriginal persons in the council's area, subject to any other law, and

(b) promote awareness in the community of the culture and heritage of Aboriginal persons in the council's area.

There are no Registered Aboriginal Owners pursuant to Division 3 of the ALR Act for the project study area. The study area is within the boundary of the Nowra Local Aboriginal Land Council (LALC).

2.1.4 *Environmental Planning & Assessment Act 1979*

The *Environmental Planning and Assessment Act 1979* (EP&A Act) provides planning controls and requirements for environmental assessment in the development approval process. The EP&A Act consists of three main parts of direct relevance to Aboriginal cultural heritage; Part 3 which governs the preparation of planning instruments, Part 4 which relates to development assessment processes for local government (consent) authorities, and Part 5 which relates to activity approvals by governing (determining) authorities.

Planning decisions within LGAs are guided by Local Environmental Plans (LEPs). Each LGA is required to develop and maintain a LEP that includes Aboriginal and historical heritage items which are protected under the EP&A Act and the *Heritage Act 1977*. The study area is located within the boundaries of the Shoalhaven LGA and is covered by the Shoalhaven LEP 2014.

Under Shoalhaven LEP (Part 3, Clause 3.3) land identified as being of high Aboriginal cultural significance is an environmentally sensitive area where exempt or complying development may not be carried out. Under Part 5, Clause 5.10(2) development consent or a permit is required to disturb, destroy or excavate a place of Aboriginal heritage significance. Development consent is not required if the development is exempt.

With respect to the proposal, the provisions of the LEP are overridden by the State Environmental Planning Policy (Infrastructure) 2007 (ISEPP). The ISEPP system was introduced in order to streamline the development of infrastructure projects undertaken by state agencies, including Roads and Maritime. Generally, where there is conflict between the provisions of the ISEPP and other environmental planning instruments, the ISEPP prevails. Under the ISEPP, development for the purpose of a road or road infrastructure facilities may be carried out by a public authority without consent on any land. Roads and Maritime is only required to consult with council when development may have an impact that is not minor or inconsequential on a local heritage item.

2.1.5 *Heritage Act 1977*

The *Heritage Act 1977* (Heritage Act) is the primary item of State legislation affording protection to items of environmental heritage in NSW. The Heritage Act is designed to protect both listed heritage items, such as standing structures, and potential archaeological remains or relics. Under the Heritage Act, 'items of environmental heritage' include places, buildings, works, relics, moveable objects and precincts identified as significant based on historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic values. State significant items are listed on the NSW State Heritage Register (SHR) and are given automatic protection under the Heritage Act against any activities that may damage or affect its heritage significance.

To carry out activities within the curtilage of an item listed on the SHR, approval must be gained from the Heritage Council by securing a Section 60 permit. In some circumstances, under Section 57(2) of the Heritage Act, a Section 60 permit may not be required if works are undertaken in accordance with the Standard Exemptions for Works Requiring Heritage Council Approval or in accordance with agency specific exemptions. This includes work that is only minor in nature and will have minimal impact on the heritage significance of the place.

1.1.1.1 State Heritage Register

The SHR was established under Section 22 of the Heritage Act and is a list of places and objects of particular importance to the people of NSW, including archaeological sites. The SHR is administered by the Heritage Division of OEH. This includes a diverse range of over 1,500 items, in both private and public ownership. To be listed, an item must be deemed to be of heritage significance for the whole of NSW.

There is one item listed on the SHR located within the study area. This item is listed in Table 2.2 and shown in Figure 5.3. The item is described as containing Aboriginal objects and providing evidence of Aboriginal contact with early settlers. Further detail is provided in section 5.3.2.

Table 2.2: SHR items located within the study area

SHR No.	Name	Location	Significance
01699	Graham Lodge	10 Pleasant Way, Nowra	State

2.2 Commonwealth legislation

2.2.1 Environment Protection and Biodiversity Conservation Act 1999

The *Environment and Heritage Legislation Amendment Act (No. 1) 2003* amends the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) to include 'national heritage' as a matter of National Environmental Significance and protects listed places to the fullest extent under the Constitution. It also establishes the National Heritage List (NHL) and the Commonwealth Heritage List (CHL).

The *Australian Heritage Council Act 2003* (AHC Act) establishes a heritage advisory body - the Australian Heritage Council (AHC), to the Minister for the Environment and Heritage and retains the Register of the National Estate (RNE).

The *Australian Heritage Council (Consequential and Transitional Provisions) Act 2003* repeals the *Australian Heritage Commission Act 1975*, amends various Acts as a consequence of this repeal and allows the transition to the current heritage system.

Together, the above three Acts provide protection for Australia's natural, Indigenous and non-Indigenous heritage. The features include:

- A NHL of places of national heritage significance
- A CHL of heritage places owned or managed by the Commonwealth
- The creation of the AHC, an independent expert body to advise the Minister on the listing and protection of heritage places
- Continued management of the Register of the National Estate (RNE).

National Heritage List

The NHL is a list of places with outstanding heritage value to the nation, including places which have Indigenous heritage values. The heritage values of these places are so important that they are protected under the EPBC Act. This means that a person cannot take an action that has, will have, or is likely to have, a significant impact on the national heritage values of a national heritage place without the approval of the Australian Government Minister for the Environment and Energy. It is a

criminal offence not to comply with this law and there are significant penalties. There are no places listed on the NHL within the study area.

Commonwealth Heritage List

The CHL is a list of places managed or owned by the Australian Government. There are no places listed on the CHL within the study area.

Register of the National Estate

The Register of the National Estate (RNE) is an evolving record of Australia's natural, cultural and Aboriginal heritage places that are worth keeping for the future. The AHC compiles and maintains the RNE under the *Australian Heritage Council Act 2003*. Places on the RNE that are in Commonwealth areas, or subject to actions by the Australian Government, are protected under the EPBC Act by the same provisions that protect Commonwealth heritage places (see above).

Following amendments to the *Australian Heritage Council Act 2003*, the RNE was frozen on 19 February 2007, meaning no new places can be added, or removed. From 2012 all references to the RNE were removed from the EPBC Act and the AHC Act. The RNE is now maintained on a non-statutory basis as a publicly available archive. No Aboriginal sites were listed for Nowra on the RNE.

2.2.2 *Aboriginal and Torres Strait Islander Heritage Protection Act 1984*

The Commonwealth *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* (ATSIHP Act), deals with Aboriginal cultural property (intangible heritage) in a wider sense. Such intangible heritage includes any places, objects and folklore that 'are of particular significance to Aboriginals in accordance with Aboriginal tradition'. These values are not currently protected under the NPW Act.

There is no cut-off date and the ATSIHP Act may apply to contemporary Aboriginal cultural property as well as ancient sites. The ATSIHP Act takes precedence over state cultural heritage legislation where there is conflict. The Commonwealth Minister who is responsible for administering the ATSIHP Act can make declarations to protect these areas and objects from specific threats of injury or desecration. The responsible Minister may make a declaration under Section 10 of the Commonwealth Act in situations where state or territory laws do not provide adequate protection of intangible heritage.

Where an Aboriginal individual or organisation is concerned that intangible values within the proposal are not being adequately protected they can apply to the Minister for a declaration over a place. No intangible places were identified during any stage of the heritage investigations undertaken by Artefact Heritage.

3.0 CONSULTATION

3.1 Overview of Aboriginal stakeholder consultation

Roads and Maritime is committed to effective consultation with Aboriginal communities regarding Roads and Maritime activities and their potential for impact on Aboriginal cultural heritage. The aim of consultation is to integrate cultural and archaeological knowledge and ensure registered Aboriginal parties have information to make decisions on Aboriginal cultural heritage. For the preparation of this CHAR, consultation with Aboriginal people has been undertaken in accordance with the Consultation Requirements and the requirements of Clause 80C of the *National Parks and Wildlife Regulation 2009*.

Roads and Maritime advertised in local media (Appendix 3) and contacted potential Aboriginal stakeholders identified from government agency notification responses. Roads and Maritime invited Aboriginal people who hold knowledge relevant to determining the cultural heritage significance of Aboriginal objects and Aboriginal places in the area in which the proposed activity is to occur to register an interest in the project. Investigations for the Nowra Bridge Project have included consultation with the eight Aboriginal community groups, two individuals, and two Local Aboriginal Land Councils as listed in Table 3.1 below.

Table 3.1: Registered Aboriginal parties for the study area

Organisation	Contact
Darug Land Observations	Anna O'Hara
Three Ducks Dreaming Surveying and Consulting	Leonard Wright
NTSCorp	George Tonna
Nowra Local Aboriginal Land Council	Shane Snelson
Didge Ngunawal Clan	Paul Boyd
Guunamaa Sites and Surveying	Richard Campbell
Warra Bingi Nunda Gurri Indigenous Sites Conservation	Nathanial Kennedy
Tungai Tonghi	Troy Tungai
Jerrinja Local Aboriginal Land Council	Alfred Wellington
Murra Bidgee Mullangari Aboriginal Corporation	Darleen Johnson

Organisation	Contact
Individual	Ronald Carberry
Individual	Leanne Tungai

The formal consultation process has included:

- advertising for registered Aboriginal parties (RAPs) (Appendix 3)
- government agency notification letters (Appendix 4)
- notification to all Aboriginal groups/persons identified from responses to agency letters (Appendix 6)
- confirmation of registration to all Aboriginal groups/persons that responded to notification (Appendix 8)
- invitation to attend an Aboriginal Focus Group (AFG) meeting with a copy of the draft test excavation methodology, and the draft CHAR for the AHIP to undertake test excavations (Artefact 2018b), allowing a minimum 28 day review period. (Appendix 9)
- A provision of the AFG agenda and minutes (Appendix 10)
- an AFG meeting held on 6 February 2018 to discuss archaeological assessment methodology and cultural assessment. RAPs were also invited to identify individuals they regarded as knowledge holders for the area
- addressed RAP comments in the CHAR for test excavations
- AHIP forwarded to RAPs
- provision of the draft of this CHAR to RAPs for review, allowing a minimum 28 day review period along with an invitation to attend a second AFG meeting (Appendix 12)
- provision of agenda and minutes (Appendix 13)
- a second AFG meeting held on 18 May 2018 to discuss the results of the test excavation, additional survey, and this CHAR
- interviews with knowledge holders
- addressed RAP comments in this CHAR
- ongoing compilation of registrants list, through continuing to register individuals and groups for consultation on the project
- ongoing consultation with the local Aboriginal community.

3.2 Results of consultation

Nowra LALC has provided comment on the archaeological survey findings through their site officers, Jesse Ferguson and Adrian Smith (Artefact Heritage 2018b).

Two knowledge holders, Mr Sonny Simms and Mrs Delia Lowe were identified at the AFG1 meeting. Mrs Delia Lowe was interviewed on 23 May 2018 and Mr Sonny Simms was interviewed on 29 May 2018. Sections 8.1 and 8.3 outline the full details of those interviews.

The following points were made during the AFG2:

- There was lengthy discussion around the long term management of artefacts. The RAP's agreed that they would like to see artefacts kept at a keeping place so that artefacts could be accessible,

especially those with educational values. There was some discussion around opportunities for display. The display at Stockland's for Sandon Point was mentioned as an example. Concerns were expressed that if artefacts were displayed in a LALC there would be limited audience. Objections were made to the suggestion that the Nowra LALC office or Shoalhaven Entertainment Centre become the keeping place. Nowra museum was suggested as a location of the keeping place.

- Discussion about options of a Heritage Interpretation Plan for the project.
- Concern about the removal of Aboriginal items and questions about what Aboriginal people would get from the project i.e. the ongoing benefits to the community and local youth. Roads and Maritime Aboriginal Participation in Construction program was discussed.
- Concern expressed about the vibration impacts to the sandstone rock shelters in close proximity to the works and loss of heritage values.
- Discussion about the need for access to the artefacts to be used for educational purposes.
- Discussion about a relation to Bundle, the man who helped Charles Throsby and his party cross Shoalhaven River in 1812 on a bark canoe.
- Expression of support for an integrated heritage interpretation strategy, suggesting a plaque on the new bridge.
- Expression of interest in having another AFG meeting at the close of the consultation period.
- Discussion around the recommendations and consultation outcomes. Questions were raised on how items raised during consultation are addressed and how recommendations are determined i.e. which recommendations are implemented and which are not.
- Discussion around monitoring, particularly monitoring of the rockshelter to be impacted. The group was advised that Roads and Maritime has a no monitoring policy.
- Concern expressed regarding people not from country working or having input on the project.
- A request for a meeting regarding boundaries. OEH discussed the Aboriginal Cultural Heritage reforms and explained that this was outside the scope of the project or Roads and Maritime.

During the 28-day consultation period, comments were received from two RAPs, Darug Land Observations and the Jerringa LALC.

Darug Land Observations Pty Ltd provided comments on the draft of this CHAR on 18 May 2018. They support the methodology for the proposed construction of a new bridge on the A1 Princes Highway over the Shoalhaven River at Nowra. Darug Land Observations Pty Ltd commented that the recovered artefacts should be re-buried on Country (the study area) or displayed in an appropriate area within the study area.

Jerringa LALC held a meeting on 23 May 2018, to discuss the Nowra Bridge Project. At the meeting, the results of the test excavation were discussed, and the following list of recommendations was produced:

- At areas of high significance, consultation and monitoring at all levels of construction should occur from start to finish.
- At areas of medium significance monitoring of impacts to soils by machines should occur.

- Interpretation signage on both sides of the bridge, explaining the Jerringa's connection to the river, what it provides them, and a description of the sites and stories of the area.
- A plaque acknowledging Old Man Bundle and Young Kid Broughton providing access for the first road survey from Parramatta to Jervis through the South Coast by land.
- Name the bridge after Old Man Bundle
- A keeping place for artefacts, Dreamtime stories of sites, and photos (e.g. Berry's Coolangatta Mountain).
- Houses that may be demolished should be recycled for use as the keeping place of Aboriginal artefacts and to address housing issues
- The Boat Shed Guest House, formerly the Roseby Park Guest House, to be floated by barge back down the river, just like it was moved up the river in the 1900s.

4.0 ENVIRONMENTAL CONTEXT

The following information is summarised from the archaeological survey report (Artefact Heritage 2018a).

4.1 Environmental context

The study area forms part of the Illawarra region. Geologically, Nowra is situated on the rolling hilly surrounds and floodplains of the Shoalhaven River, about 13 kilometres west of the mouth of the Shoalhaven River at Berry's Bay. The study area is located within two distinct geomorphological zones that are for the most part divided by the alignment of the study area (NSW Geology Plus, 2016; eSpade, 2015). These two zones are the Shoalhaven Floodplains comprising of the Shoalhaven Soil Landscape and the Shoalhaven Plateaus comprising of the Nowra Soil Landscape and various other remnant soil landscapes. These zones are shown in Figure 4.1 and described below.

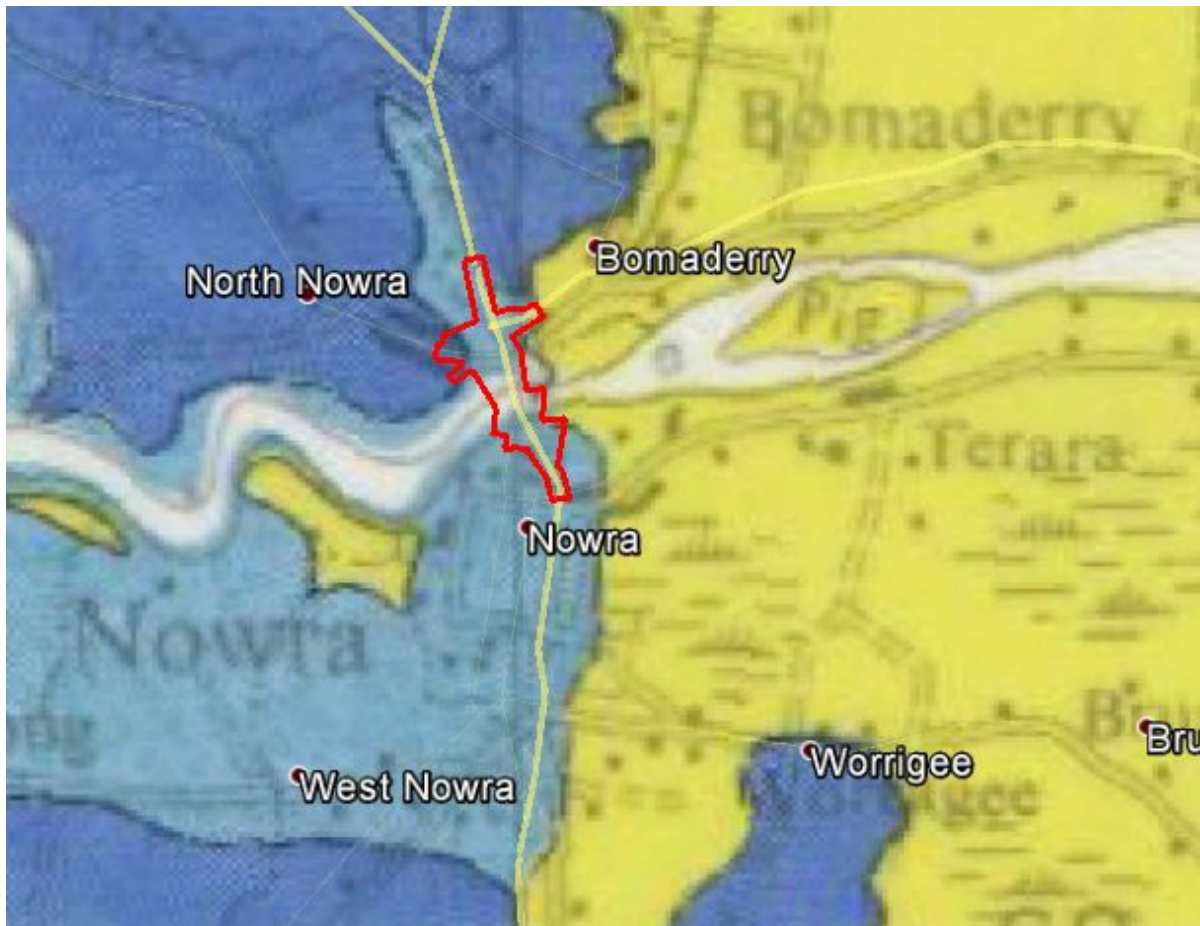


Figure 4.1: Study area in red. Shoalhaven Plateaus in blue, Shoalhaven Floodplains in yellow (NSW Geology Plus)

4.1.1 Shoalhaven Soil Landscape

The Shoalhaven Floodplains unit predominates to the east of the study area but can also be found along the dominant waterways. It is typified by level to gently undulating river banks and broad active floodplains with levees and backwater swamps. Swamps are particularly present approaching the coast. The Shoalhaven Floodplains unit includes the flat to gently undulating narrow terraces

with a relief of less than two metres. The area is subject to flooding and waterlogging. The Shoalhaven Floodplains would not generally contain suitable lithic material for stone tool manufacture. The natural environment of the Shoalhaven alluvial flats were described in 1805 by the Government surveyor James Meehan. Meehan recorded that the alluvial flats along the Shoalhaven were comprised of grassland and freshwater swamps and that the area was '*covered with rainforest, brush cedar, softwoods, coachwood, blackbutt, sassafras, flame trees, brushes, palms, ferns, vines, orchids, eucalyptus and casuarinas*' (Bayley 1975: 18).

The underlying geology consists of alluvial gravels, sands, silt and clays mainly derived from sandstone and shale deposits located upriver to the west. These deposits appear to be relatively recent, dating within the Holocene (11,000 years ago to present) (Rogers and Woodroffe 2015). The alluvial deposits overly buried estuarine sediments.

Soils have a very complex pattern on floodplains and soil material sequences have been described for four landscape features.

Levees will have up to 200 millimetres (mm) of hard setting brownish black fine sandy loam which overlies up to 500 mm of brown sandy clay loam. These are Prairie Soils; the boundaries are gradual, and the total depth of the deposit can be greater than 1000 mm.

Lower terraces can have up to 200 mm of hard setting brownish black fine sandy loam which overlies a dull yellowish brown sandy clay that can be greater than 800 mm in depth. They are Yellow Podzolic Soils which have clear boundaries and can reach a total depth greater than 1000 mm.

Upper terraces have up to 200 mm of hard setting brownish black sandy loam which overlies 800 mm of dull reddish brown moderately light medium clay. These are Red Podzolic Soils that have clear boundaries and can reach a depth greater than 1500 mm. On higher elevations the hard setting brownish black sandy loams can be greater than 200 mm and they overly a dull reddish brown sandy clay loam. These are Red Earths; the boundary is gradual, and the depth can be greater than 1500 mm.

Floodplains can have up to 1000 mm of brown sandy clay loam that has been redeposited as point bars and known as alluvial soils. Up to 300 mm of brown sandy clay loam is associated with greater than 300 mm of dark grey cat clay with yellow streaks. These are Gleyed Podzolic Soils with an abrupt boundary and can reach a depth greater than 1000 mm.

This soil landscape is prone to flooding and seasonal waterlogging, it is subject to scour or sheet erosion and may be covered in varying depths of alluvial material depending on the severity of a flood event. The dark grey cat clays occur near channels but are also scattered throughout the floodplain, probably in prior channels. Dull reddish brown earthy sandy clay loam occurs on upper terraces and the prairie soils on levees occur in small sections north of the Shoalhaven River. Peat swamp are localised.

4.1.2 Nowra Soil Landscape

The Shoalhaven Plateaus predominate to the west of the study area. These are characterised by broad plateau surfaces deeply dissected by north-south streams and the west-east course of the Shoalhaven River. Landforms generally comprise moderately to gently undulating rises to low hills of up to 40 metres elevation, with gradients frequently 10 per cent or greater.

The underlying geology is the Megalong conglomerate. In the study area, this is comprised of a local formation, Nowra Sandstone, a medium to coarse sandstone with inclusions of cobbles and pebbles of a range of materials. This is intermixed with Wandrawandian siltstone. The presence of this

Nowra Sandstone has resulted in the formation of benched sandstone outcrops adjacent to the Shoalhaven River, the Bomaderry Creek, and drainage lines (NSW Geology Plus, 2016; eSpade, 2015). The Shoalhaven Plateaus would contain in their conglomerates, sources of lithic material suitable for manufacture of stone tools. Soils can be moderately deep at 500 mm to 1,000 mm.

Brown Podzolic Soils occur on crests and upper slopes with a 400 mm hard setting dark reddish brown loamy sand which overlies a less than 300 mm dark olive sandy clay which overlies a less than 300 mm bright brown light clay. The boundaries of Brown Podzolic Soils are clear with a total depth less than 1200 mm.

Soloths and Yellow Earths occur on the mid slopes and have up to 100 mm of loose yellowish-brown sand or hard setting gravelly yellowish brown clayey sand which overlies a thin brown sandy clay loam which in turn overlies a bright brown light medium clay that will be less than 1000 mm. The boundaries are clear for Soloths and gradual for Yellow Earths and the total depth of deposit is less than 1500 mm.

Yellow Podzolic Soils occur on the lower slopes and drainage lines. They have up to 150 mm of hard setting dark reddish-brown loam sand which overlies a thin layer of brown sandy clay loam which overlies a light clay with mottling. The boundary is gradual to clear and the total depth of deposit is less than 1200 mm. The soils are generally low in fertility and topsoils are hard setting. They are moderately deep but stony and highly erodible if the topsoil is absent.

4.1.3 Hydrology

The study area is situated within the Shoalhaven River catchment and straddles the Shoalhaven River, a major waterway that flows west east, and is an integral part of the Nowra landscape, influencing the geomorphology and resources of the surrounding area. The Shoalhaven is an estuarine river with brackish water, it flows out into Berry's Bay near Shoalhaven Heads about 16 kilometres to the east of the study area. The river is dominated by steep rock shelves and alluvial terraces around the bends, west of Nowra Bridge. South of the bridge the river passes through low lying flats and swamps that are subjected to flooding.

Bomaderry Creek a tributary of the Shoalhaven River dissects the northern portion of the study area between Bolong Road and Illaroo Road. It flows in a general north-south direction and is characterised by steep alluvial banks and terraces a steep sandstone outcrops.

4.1.4 Vegetation

The natural vegetation of the area would once have largely been forms of the Shoalhaven Sandstone Forest. This is an open eucalypt forest or woodland with an abundant sclerophyll shrub stratum and a groundcover dominated by sedges. Common species include Turpentine (*Syncarpia glomulifera*), Grey Gum (*Eucalyptus punctate*), Scribbly Gum (*E. sclerophylla*), Sydney Peppermint (*E. piperita*), Thin-leaved Stringybark (*E. eugenoides*), Red Bloodwood (*E. gummifera*), Forest Oak (*Allocasuarina torulosa*) and Blackbutt (*E. pilularis*). The understory would have had Flaky-barked Tea Tree (*Leptospermum attenuatum*), Mountain devil (*Lambertia formosa*), Hairpin Banksia (*Banksia pinulosa*), Pine Leaf Geebung (*Persoonia pinifolia*) and Burrawang (*Macrozamia communis*) grow on sandier soils. Spotted Gum (*E. maculata*) and Grey Ironbark (*E. paniculate*) grow on heavy soils and the Decorative Paperbark (*Melaleuca decora*) grows in drainage lines.

The floodplains have been completely cleared except for scattered decorative paperbark (*Melaleuca decora*), Swamp Oak (*Casuarina glauca*), Illawarra flame Tree (*Brachychiton acerifolium*) on terraces and various reeds in swamps.

4.1.5 Land use

The Nowra region has grown to become a thriving dairy centre and the township of Nowra developed to service the surrounding prosperous agricultural industries. North of the Shoalhaven River, the study area for the Nowra Bridge project is relatively sparsely developed and contains within it remnant areas of farmland, particularly along Bomaderry Creek. South of the Shoalhaven River, the study area is within the central township of Nowra and is more densely developed. Most of the study area south of the Shoalhaven River comprises built infrastructure, or significantly altered landforms such as river levees and road cuttings.

Much of the study area is within land that has been disturbed through the formation of roadways and often dense residential, public, and commercial construction. The Princes Highway has been at times substantially cut into local undulating landscapes. The south banks of the Shoalhaven River have been substantially disturbed. Large flood levees have been constructed in this location along the width of the study area. The surrounds of the footings of both the old and new Nowra Bridges have been considerably disturbed through construction.

4.1.6 Summary

The study area contains the interface of two distinct geological, landform and vegetative units. Each of these units would have supported a wide, and at times distinct, range of flora and fauna that were used by Aboriginal people in the past.

Species variety and abundance increases markedly at locations of two or more intersecting ecological areas such as in the study area (Butzer 1982). This interface of geological zones indicates the study area would have been a highly utilised location. It is one of the closest locations to the coast of habitable rockshelters and of stone material for the manufacture of tools.

Ground surface disturbance and vegetation clearance has occurred across much of the study area and is likely to have had a negative effect on the preservation of Aboriginal cultural heritage in the landscape.

5.0 HISTORICAL AND ARCHAEOLOGICAL CONTEXT

5.1 Ethnohistoric context

Archaeological evidence indicates that Aboriginal people have lived in the Illawarra region for at least 20,000 years (Lampert 1971), however, Aboriginal occupation in the region could be far older than this.

Traditional stories tell of the Dreamtime arrival of the Dharawal people at the mouth of Lake Illawarra in canoes when the Ancestors were animals. They brought the Dharawal or Cabbage Tree Palm (*Livistona australis*) with them from the north and are named for this sacred tree which is a significant local totem (Wesson 2005). The Dharawal people were led to their country by Mirrirul, the creator deity of their beliefs. One traditional teaching describes the Dharawal Dreamtime ancestors arriving by water in canoes (Mathews 1899).

Aboriginal tribal boundaries within Australia have been primarily reconstructed from linguistic evidence and are therefore only approximations. Social interaction, tribal boundaries and linguistic evidence may not always correlate, and it is likely that group boundaries and interaction and communication levels varied and fluctuated over time.

Tindale (1974), identified the study area as being a border between the Wodi Wodi and the Wandandian people. Tindale (1974), described the territory of the Wodi Wodi as extending from north of the Shoalhaven River at Nowra to Wollongong and inland to Moss Vale. The Wandandian people are described as extending from the Lower Shoalhaven to Ulladulla, and inland to Braidwood. The Wodi Wodi were recorded as speaking the Dharawal / Tharawal language, while the Wandandian people spoke the Dhurga language (Eades 1976).

A more recent representation of the relationship between local Aboriginal groups and country is seen in Figure 5.1, which is derived through historical research and consultation with Aboriginal people of the region. This shows Nowra as within the country of the Wodi Wodi speakers of the Dharawal language (Wesson 2005).

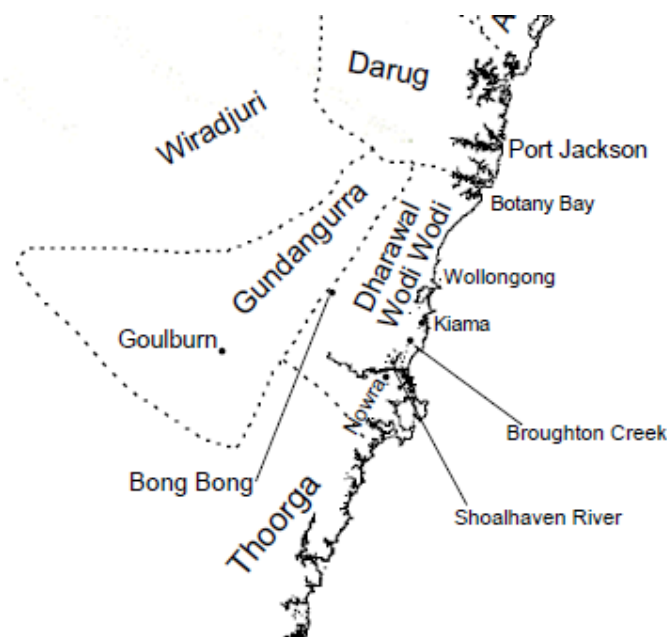


Figure 5.1: Aboriginal language groups of the mid-lower NSW coast

Dharawal speakers and their descendants lived and still live in the country from Botany Bay and Campbelltown in the north through the Nepean, Wollondilly, Georges, and Cataract water catchments, west to Moss Vale (Illillawatta) and south to the Shoalhaven River and Jervis Bay. Dharawal people have in the past defined themselves as being either fresh water or salt water people depending on whether they occupied the coastal regions or the plateaus and inland river valleys (Wesson 2005). Nowra is situated at the border between coastal saltwater and plateau freshwater country and it is possible that Nowra constituted a natural meeting place for coastal and inland Aboriginal people.

The Illawarra region had been noted by members of Cook's crew on the Endeavour on their way to Botany Bay (Organ and Speechley 1997: 11). Following the arrival of Governor Macquarie in 1810 the Illawarra was first opened to cedar getters and in 1814-1816, following drought on the Cumberland Plain, was opened to pastoralists. Although local Aboriginal people were generally accepted as peaceful, they were nevertheless subjected to violence including one massacre at Appin by the 46th Regiment in 1816 of 14 sleeping Aboriginal men women and children. To further demonstrate colonial authority the 46th Regiment then proceeded to set up camp on the most sacred Aboriginal site known to them in the area.

Early accounts by colonialists indicate that the Aboriginal people of Illawarra lived in a society where labour was often divided based upon gender and age. Men hunted larger species on land and fished, while women hunted smaller species and gathered vegetable products and shell fish. One activity that both undertook was fishing from canoes using shell hooks and fibre lines, fibre nets, or wooden spears. Accounts of women diving for lobsters off the entrance to the Shoalhaven River are known (Organ and Speechley 1997).

During a visit to Illawarra in October 1823, the Englishman Barron Field recorded an account of Aboriginal people in their canoes while night fishing off Red Point using burning torches to provide light and to attract fish. In 1848, Robert Marsh Westmacott, a local settler, published a description and lithographic view of Aborigines catching fish in Condon's Creek just south of Bass Point. They used a chemical method of fish stunning in which a creek was dammed to create a pond of trapped fish. A particular type of heated bark was thrown into this pond. The stunned fish would then be collected from the surface of the water (Organ and Speechley 1997).

Tools used by Aboriginal people in the past included those made of plant fibre, wood and shell as described above. These have not survived in the archaeological record. Most of what has survived from local traditional Aboriginal lifestyles are the flaked and shaped stone tools that they fabricated from the varied stone sources embedded in the local sandstone conglomerate, that were transported as river cobbles in the Shoalhaven River, or which may have been traded during travel or through exchange.

This section has so far largely spoken of Dharawal people as one unit, however Aboriginal life was also generally divided along complex intersecting lines of identity including family, totem, moiety, skin and dreaming. All these factors interplayed with the notion of 'country' or traditional territory. The physical nature of territory within which Aboriginal found themselves often played an overarching role in their construction of identity.

A broad scheme for categorising such multiple elements of identity with relation to country has been formulated by Stanner (1965) who proposed that a nested scheme of spatial meanings best represented Aboriginal attachments to place and social organisation. These were:

- The estate comprised core lands associated with an immediate patrilineal family group
- The range generally included the estate, but also included wider ranging hunting and foraging areas
- Domain was constituted of the combined estate and range.

Stanner (1965) describes the location of an Aboriginal group with respect to an over-arching land pattern or environment, (which may correlate to divisions in language group). Thus, Aboriginal groups may be depicted, or depict themselves, as River People, Dryland People, or Saltwater People to name a few examples.

Such divisions would seem applicable to the Dharawal people of the study area and surrounds. The Regimes of local Aboriginal people would likely have been divided between inland / freshwater and coastal / saltwater. The interface between these groups would likely have been at or near the natural landform divide between the Shoalhaven Plateau and Shoalhaven Floodplains, that is situated in the study area and would also have been reflected in likely choice of form and location of extended habitation sites.

In the inland / freshwater parts of the Dharawal country, associated with the Shoalhaven Plateau the eroded sandstone provides overhangs and caves within which Aboriginal people could sleep and shelter. Elsewhere, and particularly on the Shoalhaven Floodplains towards the coast, gunyahs (timber and bark huts) would have been built. Burials have been predominantly located in the sands of such coastal camps, often located at the rear of foreshore dunes (Organ and Speechley 1997: 6).

5.2 Historical land use

The following information is summarised from the Statement of Heritage Impact (Artefact Heritage 2018d)

In the early 19th century, Scottish-born surgeon, merchant and explorer Alexander Berry visited Shoalhaven while searching for land to occupy and graze his stock. Berry established his station at the foot of Mount Coolangatta (east of the Nowra Bridge) and slowly acquired additional land (Navin Officer 2007: 63). The northern portion of one of Berry's grants (which sat along the Shoalhaven River) is now associated with the southern approach to the Nowra Bridge and the majority of land surrounding it.

By the 1930s, a private hospital known as Bridge Road Hospital (since demolished) was located on the western side of the road, adjacent to Graham Lodge.

By 1840, Berry had acquired over 40,000 acres of land on which they grew maize, tobacco, wheat, barley and potatoes as well as rearing pigs and grazing cattle. Berry sold his produce at a store established on George Street, bought a ship to transport the goods to Sydney and established a road specifically for transport purposes (now part of the Princes Highway) (Perry 1966). Convict labour was used on the estate, and Berry was publicly accused of mistreatment and neglect on a number of occasions (Perry 1966). Despite this, many of Berry's convict workers remained in the area once they regained their freedom, living and working on tenant land released by Berry from 1842 onwards.

In 1876, planning for the construction of a timber bridge over the Shoalhaven River began. The initial budget for the bridge was £1200, however additional funds were provided in 1878 and the timber bridge design was overturned in favour of an iron bridge.

A number of Aboriginal people lived and worked on Berry's Coolangatta Estate between the time it was established and the late 1880s, when the estate began to be subdivided and the Aboriginal inhabitants were moved into the Roseby Park mission station on the coast east of Nowra (Kuskie 2008:13).

Although steam ships could easily navigate the Shoalhaven River and the nearby settlements of Numba and Terara, Nowra remained relatively inaccessible for seagoing ships due to a significant outcrop at Bomaderry Creek. The outcrop was removed in 1904 after which the Illawarra Steam

Navigation Co established an office in the town, in what is today the Sailing Club clubhouse (Cousins 1994: 71 and Morrissey 1994: 42).

By the mid-20th century the traffic demands on the bridge had grown. By 1967, the route of the proposed bypass of the city centre had been confirmed. This bypass connected with East Street at its junction with North Street. In the 1980s, the bypass was carried out and a new bridge was opened alongside the truss bridge to ease traffic congestion.

5.3 Database searches

5.3.1 Aboriginal Heritage Information Management System

The location of Aboriginal sites is considered culturally sensitive information. It is advised that this information, including the AHIMS data appearing on the heritage map for the proposal be removed from this report if it is to enter the public domain.

An extensive search of the Aboriginal Heritage Information System (AHIMS) database was undertaken on the 13 June 2018 for sites registered within the following coordinates:

GDA 1994 MGA 56	278124E – 282988E 6136428N – 6142387N
Buffer	0 m
Number of sites	68
AHIMS Search ID	350621

This search produced a total of 68 registered Aboriginal sites. The results of this search are provided in Table 5.1 and presented by type in Table 5.2. Their location is mapped in Figure 5.2. The location of Aboriginal sites is considered culturally sensitive information. Mapping and spatial data of sites must be removed from this report if it is to be released to public view.

The spatial distribution of known Aboriginal sites cannot be read as directly reflecting past Aboriginal activity. Factors such as visibility of artefacts, and the intensity of previous archaeological research in any given area will markedly affect the quantity and type of identified sites within it. Nevertheless, based on the results available, some tentative conclusions can be proposed.

One AHIMS registered site is located within the updated study area, Nowra (AHIMS ID 52-5-0086). Nowra (AHIMS ID 52-5-0086) was recorded by Peter Bindon in 1976 as an artefact site. The site also features a rockshelter and deposit. Nowra (AHIMS ID 52-5-0086) could not be located during the PACHCI Stage 2 or PACHCI Stage 3 survey. The GPS location of Nowra (AHIMS ID 52-5-0086) is likely to be inaccurate given that the grid reference would have been in AGD and originated from a topographic map. When AHIMS was updated to GDA most of the older registered sites could not be accurately located. The plotted location of Nowra (AHIMS ID 52-5-0086) is on an area of tarmac, meaning the site has either been destroyed or is plotted in the wrong location. It is likely that Nowra (AHIMS ID 52-5-0086) and Nowra Bridge 11 (AHIMS ID 52-5-0878) are the same site. The site card for Nowra (AHIMS ID 52-5-0086) does not include a map, drawings, photos or any additional description of the site that may assist in identifying where it is located. As a result, Nowra (AHIMS ID 52-5-0086) has been deregistered.

Table 5.1: AHIMS registered sites within 2.5 kilometres of the study area

AHIMS ID	Site name	Site type
52-5-0084	Nowra;	Grinding Groove

AHIMS ID	Site name	Site type
52-5-0086	Nowra;	Artefact
52-5-0087	Nowra;	Artefact
52-5-0088	Nowra;	Artefact
52-5-0090	Nowra;	Artefact
52-5-0262	Bomaderry Ck 5; Bomaderry Creek Nowra;	Artefact
52-5-0263	Bomaderry Ck 4; Bomaderry Creek Nowra;	Artefact
52-5-0110	Nowra;	Art (Pigment or Engraved) : -
52-5-0026	Nowra;	Art (Pigment or Engraved) : -
52-5-0028	Nowra;	Artefact, Art (Pigment or Engraved)
52-5-0029	Nowra;	Artefact
52-5-0030	Nowra;	Grinding Groove
52-5-0032	Nowra;	Art (Pigment or Engraved)
52-5-0034	Nowra; Hidden Valley;	Art (Pigment or Engraved)
52-5-0035	Nowra (Bomaderry)	Artefact
52-5-0036	Bomaderry;	Art (Pigment or Engraved), Artefact
52-5-0303	Tapitallee Ck 2;	Artefact
52-5-0033	Nowra; Bundanon Punt;	Grinding Groove, Artefact, Art (Pigment or Engraved)
52-2-1797	West Cambewarra Rd; Bomaderry Creek;	Grinding Groove
52-5-0538	BCP 001 Mosquito Shelter	Artefact
52-5-0539	BCRP 002 The black caves	Artefact
52-5-0540	BCRP 003 The blue metal site	Artefact
52-5-0541	BCRP 005 Leaning Cliff-Line Site	Artefact
52-5-0542	BCRP 006 Pipeline Shelter	Artefact
52-5-0543	BCRP 007 Stone Circle Site	Artefact
52-5-0544	BCRP 012 Pitt Street Narang	Artefact
52-5-0545	BCRP 013 West Cambewarra	Artefact
52-5-0546	BCRP 014 West Cambewarra	Artefact
52-5-0547	BCRP 015 West Cambewarra	Artefact
52-5-0548	BCRP 016 Scar Tree Site	Modified Tree (Carved or Scarred)

AHIMS ID	Site name	Site type
52-5-0549	BCRP 017 Stained Flake	Artefact
52-4-0261	BCRP 018 The largest shelter (duplicate of 52-5-0550)	Artefact
52-5-0550	BCRP 018 The largest Shelter	Artefact
52-5-0551	BCRP 019 Boulder Shelter	Artefact
52-5-0552	BCRP 020 Spotted Gum	Artefact
52-5-0553	BCRP 022-30 Metres West of Shelter Cave	Artefact
52-5-0554	BCRP 023 Charcoal Oval Art	Artefact
52-5-0555	BCRP 024 One Silcrete Flake	Artefact
52-5-0556	BCRP 025 Trenched Drip-line	Artefact
52-5-0557	BCRP 026 Rock Fall Canyon Shelter	Artefact
52-5-0558	BCRP 027 Feather Termination Shelter	Artefact
52-5-0878	Nowra Bridge 11	Grinding Groove, Habitation Structure
52-5-0879	Graham Lodge	Artefact, Potential Archaeological Deposit (PAD)
52-5-0872	Nowra Bridge 6	Artefact
52-5-0873	Nowra Bridge 10	Artefact
52-5-0874	Nowra Bridge 9	Artefact
52-5-0875	Nowra Bridge 7	Artefact, Habitation Structure
52-5-0876	Nowra Bridge 8	Artefact
52-5-0386	Big Bend	Art (Pigment or Engraved)
52-5-0387	Big Bend 2	Habitation Structure
52-5-0388	Big Bend 3	Habitation Structure
52-5-0389	Shelter Cave	Habitation Structure
52-5-0390	Bomaderry Site	Artefact
52-5-0453	BC1/E	Artefact
52-5-0454	BC1/B	Artefact
52-5-0455	BC1/F	Artefact
52-5-0580	PASA45	Potential Archaeological Deposit (PAD)

AHIMS ID	Site name	Site type
52-5-0852	Nowra Bridge 1	Artefact
52-5-0853	Nowra Bridge 2	Artefact
52-5-0854	Nowra Bridge PAD 5	Potential Archaeological Deposit (PAD)
52-5-0855	Nowra Bridge 3	Artefact
52-5-0856	Nowra Bridge 5	Artefact, Habitation Structure, Grinding Groove
52-5-0857	Nowra Bridge 4	Modified Tree (Carved or Scarred)
52-5-0858	Nowra Bridge PAD 4	Potential Archaeological Deposit (PAD)
52-5-0859	Nowra Bridge PAD 1	Potential Archaeological Deposit (PAD)
52-5-0861	Nowra Bridge PAD 3 Cliff & Rockshelter Complex	Potential Archaeological Deposit (PAD)
52-5-0845	Thompsons Point 01 (The Mini Wall)	Art (Pigment or Engraved)
52-5-0846	Thompsons Point 02 (The Pocketed Wall)	Art (Pigment or Engraved)

Table 5.2: AHIMS site types within 2.5 kilometres of the study area

Site type	Number of sites	Percentage of total sites
Artefact	41	60.29
Grinding Groove, Habitation Structure	1	1.47
Artefact, Potential Archaeological Deposit (PAD)	1	1.47
Potential Archaeological Deposit (PAD)	5	7.35
Artefact, Habitation Structure, Grinding Groove	1	1.47
Art (Pigment or Engraved)	7	10.29
Modified Tree (Carved or Scarred)	2	2.94
Grinding Groove, Artefact, Art (Pigment or Engraved)	1	1.47
Grinding Groove	3	4.41
Artefact, Habitation Structure	1	1.47
Habitation Structure	3	4.41

Artefact, Art (Pigment or Engraved)	2	2.94
TOTAL	68	100

Figure removed from public document

Figure 5.2: AHIMS registered sites in the proximity of the study area

5.3.2 State Heritage Register

There is one item listed on the SHR within the study area, Graham Lodge (SHR No. 01699). Although not listed specifically for its Aboriginal associations, Tracey and Tracey (1999) conducted archaeological excavations at Graham Lodge (SHR No. 01699) and found evidence of contact between early settlers and Aboriginal people in the form of stone artefacts and modified tools made from glass. The results of the AHIMS search indicate that Graham Lodge (SHR No. 01699) has not been registered on AHIMS. However, Graham Lodge (SHR No. 01699) is a place with Aboriginal heritage significance.

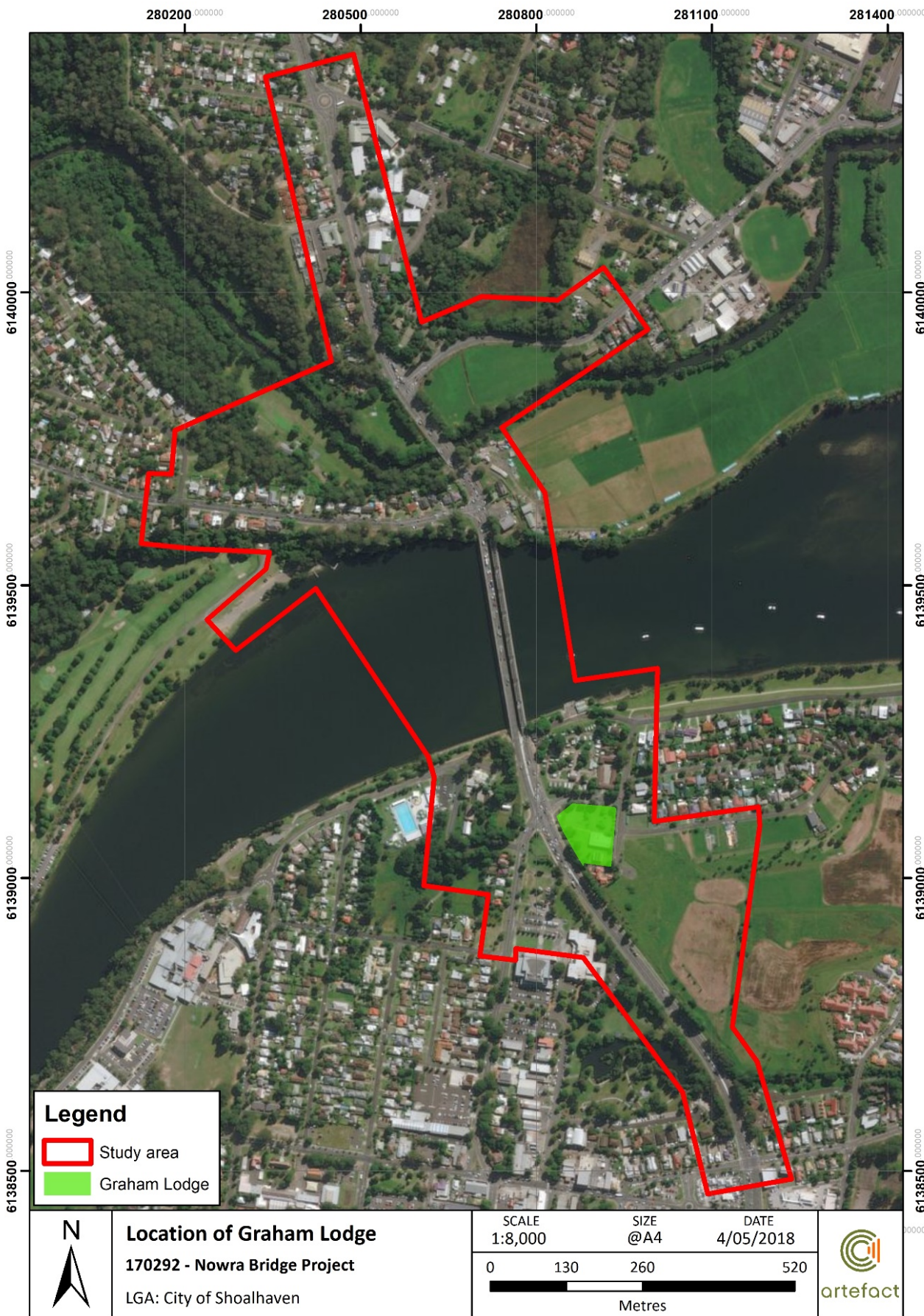


Figure 5.3: Graham Lodge

5.4 Archaeological context

There have been a small number of archaeological assessments close to and within the study area which are of relevance. The following summarises the available archaeological literature relating to the study area.

Artefact Heritage (2012) undertook a heritage assessment for a proposed transmission line near the study area. This included a very similar cross-section of landforms to that in the study area. Artefact Heritage (2012) noted that previously recorded sites in their study area had been largely associated with rockshelters and other areas in proximity to Bomaderry Creek. Survey carried out by Artefact Heritage (2012) did not result in the identification of any additional Aboriginal sites or objects.

Kelleher Nightingale (2010) conducted an Aboriginal heritage assessment for the proposed Nowra Link Road, approximately 2 kilometres northwest of the current study area. Kelleher Nightingale (2010) identified 28 sites within Bomaderry Creek Regional Park, eight of which had been previously recorded. Nineteen of these were rockshelter sites, some with art; and there were also four artefact scatters, one midden, two isolated finds, and a grinding groove.

Kuskie (2008) undertook a report for improvements to parts of the Shoalhaven Starches Environmental Farm, located along the northern banks of the Shoalhaven River, at closest 500 metres east of the study area at Nowra. Kuskie (2008) drew upon a number of studies that he and other archaeologists had previously carried out in the Nowra area. These generally indicated a lower density of Aboriginal sites in the sandy lowlands in the east of the study area, than in the higher sandstone formations that are located in the western parts of the current study area. Kuskie (2008) also cites survey and modelling by Byrne (1983) which indicated that a differentiation in land use was visible in the area between the coast and approximately 13 kilometres to 18 kilometres inland.

Tracey and Tracey (1999) conducted test excavations at Graham Lodge, in the southeast of the current study. Test excavations were conducted on the southern half of the Graham Lodge curtilage. Figure 5.4 shows that the proposed works will impact the untested portion of Graham Lodge. Artefacts recovered from the test excavations related to the early European occupation of Greenhills, the marginalised presence of Aboriginal people on the property, domestic and farming activities, and the construction and occupation of Graham Lodge. Excavation during the demolition of isolated structures to the west of Graham Lodge revealed both Aboriginal stone and modified glass tools. Further sites presenting Aboriginal artefacts were located within the extended western curtilage. These sites are outside the residence boundary, however close enough to consider that these may have been camp sites for Aborigines who had an association with the property, possibly as workers.

Byrne (1983) found that while the highest density sites in the region were located immediately near the coastline, this density fell off as one travelled inland. High density sites were once again identified in the hinterland between 13 kilometres to 18 kilometres inland. Walkington (1987) suggested that this may have been due to the fact that this distance (from 13 kilometres to 18 kilometres) is close to a maximum day's walk. Aboriginal people moving between the coast and the hinterland would have been unlikely to have camped in the intermediate sandy lowlands of the coast. The closest camping sites en route to or from the coast would be expected approximately one days walk inland.

Kuskie (2008) did not identify any Aboriginal objects during survey, which he largely attributed to the high level of localised ground disturbance in the area.

Clarke and Kuskie (2006) developed a predictive model for the Shoalhaven region in general. They suggested that the region could be divided into two main resource zones, each supporting a different range of occupation types (Clarke and Kuskie 2006: ii). These zones were called Primary and Secondary zones, and were defined by terrain units (landforms) as follows:

- Primary resource zones occur in close proximity to the Shoalhaven and Crookhaven Rivers and have higher probability of containing evidence for a wide range of occupation types including congregations of large groups of people, community base camps, nuclear / extended family base camps, camping by small hunting and/or gathering (without camping) and transitory movement. Occupation is likely to have been regular and potentially longer in duration in the primary zones.
- Secondary resource zones are located in close proximity to higher order creeks and/or wetlands, including Bomaderry, Mundamia, Calymea, Flat Rock, Bengalee and Sandy Creeks and their associated flats, slopes and terraces. Occupation is likely to have been sporadic and relatively short in duration.

The current study area passes through areas that correspond to both primary and secondary resource zones. It contains areas adjacent to the Shoalhaven River and also contains areas adjacent to the Bomaderry Creek.

Areas outside the primary and secondary resource zones include landforms some distance from higher order creeks and/or wetlands, such as lower order drainage depressions and associated slopes and crests. Occupation in these areas is likely to have involved hunting and/or gathering (without camping) and transitory movement and is likely to have been sporadic and very short in duration (Clarke and Kuskie 2006: ii).

Clarke and Kuskie (2006) also found that artefact scatters are likely to be the most common site type in the area, with potential for stone artefact evidence to occur across virtually the entire region. Typically, artefacts would occur in low densities consistent with background discard, though occasional areas of high density would occur, characteristically at camp sites within a primary resource zone.

Rockshelters and axe grinding grooves occur with relative frequency in the search area. Rockshelters are more likely to be located in moderate to steep drainage depressions or spur crest units, although they can also occur in gently sloping terrain where suitable stone outcrops occur. It is possible that larger shelters situated close to a wide variety of resources may have been used as base camps, with smaller shelters utilised when needed. Art sites may occur in any area with suitable surface. Likewise, grinding grooves may occur in any area with suitable stone outcrops (such as sandstone), generally immediately next to a water source (Clarke and Kuskie 2006).

Boot (2002) formulated a model for occupation patterns in the South Coast hinterland. He argues that small groups of people travelling in the hinterland are likely to have exploited resources from the immediate surrounds of a site and rarely exported these resources elsewhere, while larger groups would have congregated where abundant short-term resources occurred and would have engaged in export and trade of local resources. Therefore, greater intensity of occupation would have occurred in regions of greater biodiversity (Boot 2002: 317-319). As noted above, the study area at Nowra Bridge is at the intersection of two geomorphological and botanical regions. It would have constituted an area of particularly high biodiversity within a region that was already relatively abundant. According to Boot (2002) people living in this location would have been more likely to engage in exchange for export of local resources.

5.5 Predictive modelling

This section provides a predictive model based on the information provided above. This information indicates that the study area is of moderate to high archaeological sensitivity and potential. Within this overall moderate to high sensitivity, locations of raised landforms such as sandstone cliffs and outcrops will be of further heightened sensitivity. It is predicted that:

- Rockshelters with occupation deposit and/or art may be present where suitable sandstone outcropping occurs
- Axe grinding grooves may also be present where suitable rock outcrops occur near water
- Middens may be present along the banks and terraces of creeks and rivers
- High density sites will be found along the coastline or within 13-18 kilometres from the coastline in the hinterland
- Stone artefact scatters whether surface or subsurface will be the most common site type found
- It is expected the study area will provide evidence of a wide range of site types in close proximity to the Shoalhaven River and Bomaderry Creek.

The most common Aboriginal site types likely to be identified in the study area include:

- Artefact scatters – These are the most frequently recorded site type in the 2.5 kilometres surrounding the study area. Taking into consideration that they are the least visible surface site type, this indicates that artefacts are likely to be present at any point in the study area, potentially at high densities, and that they likely indicate the presence of sub-surface artefact deposits. Surface stone artefacts may include a variety of lithic materials including those sourced from the local sandstone conglomerate and from Shoalhaven River cobbles. The area is modelled as a primary location for habitation, including as a location for extended camping and possibly for visitation and trade by neighbouring groups. As a result, a broad range of lithic materials may be present as a result of trade between groups. The likely presence of long-term intensive utilisation of the study area in the past may be reflected in a relatively high representation of formal tools and exhausted cores. Both these artefact types would be representative of intensive and repeat knapping in established campsites. Stone artefacts are most likely to be identified in areas of increased ground surface visibility.
- Art sites – These are likely to be present in areas where suitable stone surfaces are present, including in rockshelters, outcroppings and cliff walls. Painted art sites may have faded beyond ready identification, however inscribed/pecked/etched art may be more identifiable.
- Rockshelter/cave – These will be found in suitable sandstone outcrops in the study area and may contain occupation deposit (potentially hearths, midden, stone artefacts and animal/fish bone). They may also contain art (pigment or engraved), grinding grooves and burials.
- Grinding grooves – These are likely to occur at sandstone outcroppings immediately next to water sources. Water provided lubricant and cooling to facilitate stone grinding.
- Modified trees – These may occur at any point in the landscape where mature natural vegetation has been preserved. Only two of these items have been identified in the AHIMS search area. This is too small a number to allow for more detailed modelling.
- Burials – These may occur at any point in the landscape although human remains tended to be placed in sandy deposits or caves or in hollow trees. In some communities, mounds were built over the burials in areas of shallow deposit. Burials are unlikely in the study area due to the level of disturbance.



Figure 5.4: Historical test excavation area at Graham Lodge

6.0 ARCHAEOLOGICAL SURVEY

6.1 Aims

The primary aims of the survey were as follows:

- Undertake site survey in conjunction with the Aboriginal Cultural Heritage Officer (ACHO) (Roads and Maritime) and Aboriginal stakeholders
- Identify and record Aboriginal sites and objects
- Identify landforms and/or areas which might contain potential archaeological deposit (PAD)
- Identify areas of ground disturbance which may have impacted on areas which might otherwise have been of archaeological potential
- Consult with Aboriginal stakeholders on potential mitigation and management measures for any Aboriginal cultural heritage found.

6.2 Timing and personnel

The archaeological survey was undertaken over two days on 22 June and 31 August 2017. Further survey was undertaken on the 28 March and 6 April 2018, during the test excavation program, due to changes in the study area. Personnel and timing for the archaeological survey are presented in Table 6.1.

Table 6.1: Timing and personnel for archaeological survey

Participant	Organisation	Role	Dates of participation
Michael Lever	Artefact Heritage	Senior Heritage Consultant, survey supervisor	22 June 2017
Charlotte Simons	Artefact Heritage	Heritage Consultant	22 June 2017
Ryan Taddeucci	Artefact Heritage	Heritage Consultant	28 March 2018
Jennifer Norfolk	Artefact Heritage	Heritage Consultant, survey supervisor	28 March 2018 and 6 April
Adrian Smith	Nowra LALC	Site officer	22 June 2017 and 28 March 2018
Jesse Ferguson	Nowra LALC	Site officer	22 June 2017 and 31 August 2017
Nick Boyd	Roads and Maritime	Project Development Manager	22 June 2017
Nicole Stevenson	Roads and Maritime	Senior Project Development Officer	22 June 2017 and 31 August 2017
Lee Davison	Roads and Maritime	Aboriginal Cultural Heritage Officer	22 June 2017
Vanessa Edmonds	Artefact Heritage	Principal, survey supervisor	31 August 2017

Participant	Organisation	Role	Dates of participation
Yinika Person	Artefact Heritage	Archaeologist	28 March 2018
Ewan Kennaway	Artefact Heritage	Archaeologist	28 March 2018
Aaron Cowan	Nowra LALC	Site officer	28 March 2018 and 6 April
Gregory Connolly	Jerrinja LALC	Site officer	28 March 2018
Gerald Carberry	Jerrinja LALC	Site officer	28 March 2018

6.3 Survey sampling strategy

The survey was informed by the information acquired in sections 4.0 and 5.0, indicating the site types and the likely location and density sites near the study area. The study area contains three of the four landforms defined as archaeologically sensitive by the Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW (DECWW 2010) which indicates the following archaeologically sensitive landforms.

- Within 200 metres of waters – Large portions of the study area are within 200 metres of water
- Within a sand dune system – There are no dunes in the study area
- Within 200 metres below or above a cliff face – Vertical sandstone cliffs exist in the study area adjacent to the river
- Within 20 metres of or in a cave, rockshelter, or a cave mouth – Rockshelters potentially exist in the vertical sandstone cliffs.

These landforms broadly match the predictive modelling provided in Section 5.3.2. Hence, the survey sampling strategy was to inspect all potentially sensitive landforms in the study area. In addition, the predictive model identified that surface and sub-surface stone artefact scatters would be the most common site type found. Therefore, the survey targeted areas of ground surface exposure to determine if stone artefact scatters were present as well as identifying landforms with PAD which might contain sub-surface stone artefact scatters.

6.4 Methodology

The study area was divided into six survey units. These are listed in Table 6.2, and mapped in

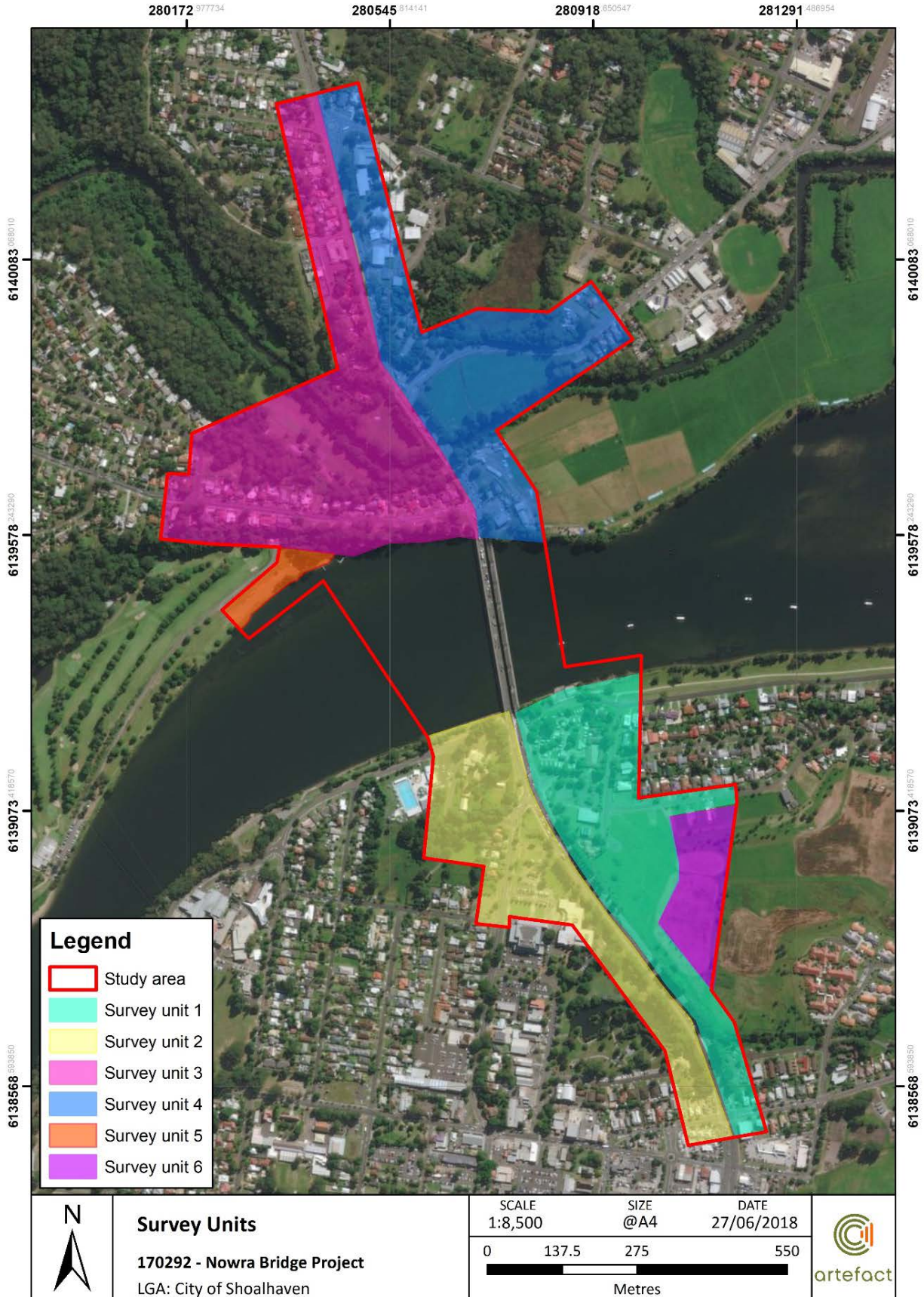


Figure 6.1. The methodology for survey units 1-4 is described in more detail by Artefact Heritage (2018a), the methodology for survey units 5 and 6 is described in more detail by Artefact Heritage (2018c).

Table 6.2: Summary of survey units

Survey unit	Size (hectares)	Location
1	12.2	South of the Shoalhaven River, east of Princes Highway. Primarily urban developed and disturbed land
2	11	South of the Shoalhaven River, west of Princes Highway. Primarily landscaped parks and some urban development
3	17	North of the Shoalhaven River, west of Princes Highway. Approximately equal distribution of urban development and reserves and farmland.
4	11.8	North of the Shoalhaven River, east of Princes Highway. Approximately equal distribution of urban development and reserves and farmland.
5	0.94	Off Fairway Drive, in the carpark area near the boat ramp at the base of the Sandstone shelf.
6	2.54	Off Lyrebird Drive and the Princes Highway. The majority of the area used for farming purposes, with the north east end developed for new housing plots
Total	55.48	Areas of urban development, reserves and farmland.

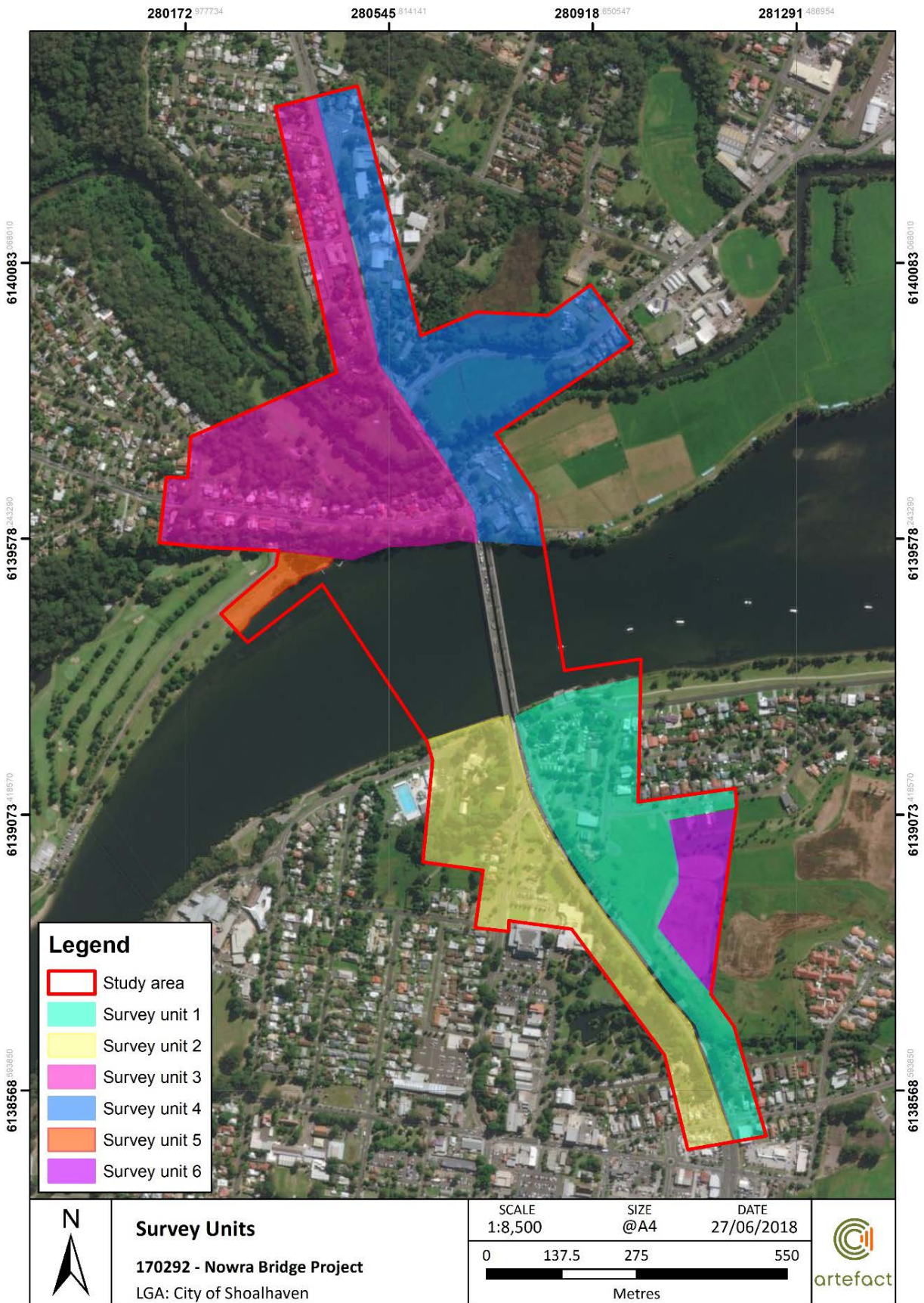


Figure 6.1: Location of survey units

6.5 Coverage

All publicly accessible parts of the study area were traversed on foot. A large portion of the study area is comprised of disturbed land, mostly areas that have been subject to urban development including roadways, housing, retail and industrial infrastructure, and areas of bulk earthworks including flood levees, road cuttings and preparation for residential development.

Table 6.3: Survey coverage summary – Survey unit 1

Landform	Survey unit area (m ²)	Landform (%)	Visibility (%)	Exposure (%)	Effective coverage (m ²)	Effective coverage (%)	Sites	PAD
Flat	121,500	99.5	5	5	304	.25	0	0
Slope	500	.5	5	5	1.25	.25	0	0
Total	122,000	100	5	5	305.25	.25	0	0

Table 6.4: Survey coverage summary - Survey unit 2

Landform	Survey unit area (m ²)	Landform (%)	Visibility (%)	Exposure (%)	Effective coverage (m ²)	Effective coverage (%)	Sites	PAD
Flat	109,050	99	5	5	273	.25	0	1
Slope	550	.5	5	5	1.4	.25	0	0
Hilltop	400	.35	5	5	1	.25	1	1
Total	110,000	100	5	5	275.4	.25	1	2

The area surveyed in survey unit 3 is greater than the mapped horizontal area of the survey unit. Measured horizontally on plan, survey unit 3 is 170,000 square metres (17 hectares). However, survey unit 3 contains a large area of near-vertical cliff face containing a rockshelter complex, which comprises vertically stacked horizontal areas of landform. The accurate measurement of the usable extent of cliff face and rockshelter floors would require detailed survey. This was not carried out as part of this survey. Dense vegetation and access considerations made it impossible to enter all cliff areas and estimate the average depth of rockshelters. For the purpose of this report it has been estimated that the exposed cliff face is 500 metres long from east to west, with an average height of 10 metres. This gives survey unit 3 an additional survey area of 5,000 square metres (cliff width x cliff height).

Table 6.5: Survey coverage summary - Survey unit 3

Landform	Survey unit area (m ²)	Landform (%)	Visibility (%)	Exposure (%)	Effective coverage (m ²)	Effective coverage (%)	Sites	PAD
Flat	63,000	36	5	5	158	.25	1	1
Slope	95,000	54	5	5	238	.25	0	0
Cliff top	12,000	7	10	5	60	.5	2	1

Landform	Survey unit area (m ²)	Landform (%)	Visibility (%)	Exposure (%)	Effective coverage (m ²)	Effective coverage (%)	Sites	PAD
Cliff Face	5,000	3	40	60	1,200	.25	2	0*
Total	175,000	100	5	5	275.4	.25	5	2

*counted within clifftop PAD

Table 6.6: Survey coverage summary - Survey unit 4

Landform	Survey unit area (m ²)	Landform (%)	Visibility (%)	Exposure (%)	Effective coverage (m ²)	Effective coverage (%)	Sites	PAD
Flat	52,000	44	5	5	130	.25	0	0
Slope	66,000	56	5	5	165	.25	0	1
Total	118,000	100	5	5	295	.25	0	1

Table 6.7: Survey coverage summary - Survey unit 5

Landform	Survey unit area (m ²)	Landform (%)	Visibility (%)	Exposure (%)	Effective coverage (m ²)	Effective coverage (%)	Sites	PAD
Embankment	9,400	100	50	20	940	10	0	0
Total	9,400	100	50	20	940	10	0	0

Table 6.8: Survey coverage summary - Survey unit 6

Landform	Survey unit area (m ²)	Landform (%)	Visibility (%)	Exposure (%)	Effective coverage (m ²)	Effective coverage (%)	Sites	PAD
Slope	24500	100	80	1	196	0.8	0	0
Total	24500	100	80	1	196	0.8	0	0

6.6 Results

The PACHCI Stage 2 archaeological survey identified five Aboriginal sites and five areas of PAD (Figure 1.2):

- Nowra Bridge 1 (AHIMS ID 52-5-0852)
- Nowra Bridge 2 (AHIMS ID 52-5-0853)
- Nowra Bridge 3 (AHIMS ID 52-5-0855)
- Nowra Bridge 4 (AHIMS ID 52-5-0857)
- Nowra Bridge 5 (AHIMS ID 52-5-0856)
- Nowra Bridge PAD 1 (AHIMS ID 52-5-0859)

- Nowra Bridge PAD 2 (AHIMS ID 52-5-0860)
- Nowra Bridge PAD 3 Cliff & Rockshelter Complex (AHIMS ID 52-5-0861)
- Nowra Bridge PAD 4 (AHIMS ID 52-5-0858)
- Nowra Bridge PAD 5 (AHIMS ID 52-5-0854).

7.0 ARCHAEOLOGICAL TEST EXCAVATION

The archaeological test excavation program at Nowra Bridge PAD 1 (AHIMS ID 52-5-0859), Nowra Bridge PAD 2 (AHIMS ID 52-5-0860), Nowra Bridge PAD 4 (AHIMS ID 52-5-0858), and Nowra Bridge PAD 5 (AHIMS ID 52-5-0854) was designed and undertaken in accordance with PACHCI Stage 3 and the Code of Practice. The Code of Practice prescribes guidelines for archaeological test excavation that may occur without an AHIP under the NPW Act. Consultation with registered Aboriginal parties has been an integral part of the test excavation program in accordance with subclause 80C (6) of the NPW Regulation.

Under the Code of Practice test excavations cannot occur within 50 metres of a rockshelter. Therefore, the archaeological test excavation program at Nowra Bridge PAD 3 Cliff & Rockshelter Complex (AHIMS ID 52-5-0861) was designed and undertaken in accordance with PACHCI Stage 3 and AHIP No. C0003480.

7.1 Aims

Five registered PADs that were identified as being fully or partially impacted were subject to archaeological test excavations:

- Nowra Bridge PAD 1 (AHIMS ID 52-5-0859)
- Nowra Bridge PAD 2 (AHIMS ID 52-5-0860)
- Nowra Bridge PAD 3 Cliff & Rockshelter Complex (AHIMS ID 52-5-0861)
- Nowra Bridge PAD 4 (AHIMS ID 52-5-0858)
- Nowra Bridge PAD 5 (AHIMS ID 52-5-0854).

The objectives of archaeological test excavation within the study area were to:

- Adequately identify the nature of any sub-surface archaeological deposits, including preliminary comparisons with results of other sub-surface archaeological investigations in the area
- Assess the scientific significance of any archaeological deposits identified during the excavation, following the assessment of test excavation results
- Provide an opportunity for registered Aboriginal stakeholders to comment on the Aboriginal cultural heritage values of the site
- Provide recommendations regarding the future management of any identified archaeological resources, such as requirements of an AHIP (if required).

7.2 Timing and personnel

The test excavation program was carried out across 13 days from the 12 March to 6 April 2018. Test excavation was directed by Vanessa Edmonds (Principal, Artefact Heritage) and supervised by Ryan Taddeucci (Heritage Consultant, Artefact Heritage). Table 7.1 lists all participants in the test excavation and their dates of participation.

Table 7.1: Participants in the test excavation program

Name	Organisation	Role	Date
Vanessa Edmonds	Artefact Heritage	Excavation director	12 – 20 March 2018 and 4 – 6 April 2018

Name	Organisation	Role	Date
Ryan Taddeucci	Artefact Heritage	Excavation supervisor	12 March – 6 April 2018
Jennifer Norfolk	Artefact Heritage	Excavation supervisor	12 March – 6 April 2018
Tanya Erofeev	Artefact Heritage	Excavation assistant	12 – 16 and 20 March 2018
Ewan Kennaway	Artefact Heritage	Excavation assistant	12 – 20 March 2018 and 4 – 6 April 2018
Yinika Person	Artefact Heritage	Excavation assistant	26 March – 6 April 2018
Cassandra Vinn	Artefact Heritage	Excavation assistant	4 – 6 April 2018
Georgia Burnett	Artefact Heritage	Excavation assistant	4 – 6 April 2018
Paul Boyd	Didge Ngunawal Clan (DNC)	Site officer	12 – 20 March 2018
Lilly Carroll	Didge Ngunawal Clan (DNC)	Site officer	12 – 16 March 2018
Jamie Workman	Darug Land Observations (DLO)	Site officer	12 – 20 March 2018
Bernice Brown	Wurra Binji Nunda Gurri (WBNG)	Site officer	12 – 20 March 2018
Nathaniel Kennedy	Wurra Binji Nunda Gurri (WBNG)	Site officer	19 – 20 March 2018
Gregory Connolly	Jerrinja LALC	Site officer	26 March – 6 April 2018
Gerald Carberry	Jerrinja LALC	Site officer	26 March – 6 April 2018
Adrian Smith	Nowra LALC	Site officer	26 March – 6 April 2018
Aaron Cowan	Nowra LALC	Site officer	26 March – 6 April 2018

7.3 Constraints

The test excavation was subject to a number of constraints during the course of the program. There was moderate rainfall during the excavation period, however, this did not impact excavation works.

Human teeth were identified within test pit 02 of Nowra Bridge PAD 1 (AHIMS ID 52-5-0859) on 12 March 2018. As a result, a stop work order was issued and the local police were contacted in accordance with Standard Management Procedure: Unexpected Heritage Finds (Roads and Maritime 2010). As per the test excavation methodology (Artefact Heritage 2018b) work could not continue at test area 1 until written authorisation from OEH had been received. This authorisation was received on 16 March 2018 and work resumed on 19 March 2018.

A further decision was made to stop work on 19 March 2018 to undertake additional consultation with the RAPs due to dissatisfaction from members of the Aboriginal community regarding test excavations and site officers.

In accordance with the Code of Practice, test excavation cannot occur within 50 metres of a rockshelter without an AHIP. Portions of Nowra Bridge PAD 4 (AHIMS ID 52-5-0858) were within 50 metres of a rockshelter which restricted the location of test excavations.

7.4 Sampling strategy

The PACHCI Stage 2 archaeological survey conducted by Artefact Heritage (2018a) recommended further archaeological investigation should take place within Nowra Bridge PAD 1 (AHIMS ID 52-5-0859), Nowra Bridge PAD 2 (AHIMS ID 52-5-0860), Nowra Bridge PAD 3 Cliff & Rockshelter Complex (AHIMS ID 52-5-0861), Nowra Bridge PAD 4 (AHIMS ID 52-5-0858), Nowra Bridge PAD 5 (AHIMS ID 52-5-0854).

A sampling strategy was developed in order to test the possible extent of any subsurface artefact deposits present within the study area. This strategy involved the establishment of seven test areas (TAs) based on the overlap of the area of impact with the five PADs (Figure 7.2). TA4 was separated from TA3 as it was located underneath the Cliff & Rockshelter Complex (AHIMS ID 52-5-0861) on a completely different landform.

A systematic grid was placed across each TA in order to test the fullest archaeological extent of each TA. The spacing of each grid varied depending on the size of the TA and the nature of the landform.

7.5 Methodology

7.5.1 Test excavation layout and excavation units

Test excavation involved hand excavation of 0.5 metre x 0.5 metre excavation units (hereafter referred to as test pits). Sixty hand excavated test pits were distributed across the seven testing areas (TA). Test pits were plotted along transects, at 5-30 metre intervals, in ArcGIS. The GIS data was downloaded into a handheld, non-differential GPS, which was used to plot the test pits within each testing area. Where this was not possible, the pit was offset from the transect, and the test pit location was determined using a long tape and compass bearing from a known marker. The test pits were labelled using a sequential numbering system (test pit 01, test pit 02, etc.). Test pits were laid out using spray paint and pegs.

TA6 had not been surveyed as part of the initial PACHCI Stage 2 assessment (Artefact Heritage 2018a) due to access restrictions. Desktop planning placed a series of test pits to systematically test the full extent of TA6. However, upon arrival at TA6 it was found that a rockshelter was located less than 16 metres from the northern most test pits. In accordance with the Code of Practice, test excavation cannot occur within 50 metres of a rockshelter without an AHIP. As a result, this test pit was moved to 50 metres east of the rockshelter.

7.5.2 Test excavation procedure

7.5.2.1 AHIP No. C0003480

Test excavation at Nowra Bridge PAD 3 Cliff & Rockshelter Complex (AHIMS ID 52-5-0861) was conducted in accordance with the conditions of AHIP No. C0003480.

Nowra Bridge PAD 3 Cliff & Rockshelter Complex (AHIMS ID 52-5-0861) comprises two distinct landforms. These are:

- Clifftop: The narrow extent of land along a clifftop overlooking the Shoalhaven River, and located immediately south of Illaroo Road, Nowra. This land extends approximately 270 metres west from the Princes Highway and does not continue into the western half of the PAD which is wholly

comprised of cliff face. Nowra Bridge 2 (AHIMS ID 52-5-0853) and Nowra Bridge 3 (AHIMS ID 52-5-0855) are located in this portion of the site and later salvage of these sites is recommended.

- Rockshelter: A complex of rockshelters exist within the cliff face. The exact location of rockshelters along the cliff face was not able to be determined due to inaccessibility (steepness of cliff) and vegetative cover. These rockshelters appear to be located at various intervals along the entire length of the PAD. Nowra Bridge 5 (AHIMS ID 52-5-0857) is a rockshelter with deposit recorded at the foot of this cliff. Another small unnamed rockshelter (part of Nowra Bridge PAD 3 Cliff and Rockshelter Complex AHIMS ID 52-5-0861) was located and accessed near the top of the cliff.

Along the clifftop, 19 test pit measuring 0.5 metre x 0.5 metre were plotted 30 metres apart along two transects 20 metres apart. As per condition 10b of AHIP No. C0003480 test pits were placed to capture the extent of Nowra Bridge 3 (AHIMS ID 52-5-0855). A test pit was not place on Nowra Bridge 2 (AHIMS ID 52-5-0853) as it could not be relocated, however a test was placed on the GPS location that was listed for Nowra Bridge 2 (AHIMS ID 52-5-0853).

One 0.5 metre x 0.5 metre test pit was placed within the rockshelter (Figure 7.1) at a location that was predicted to yield a maximum depth of deposit, and most significant archaeological material. The standard methodology for archaeological excavations within a rockshelter is to place test pits on the inner edge of the dripline to exploit the densest concentrations of artefacts. Aboriginal people exploited rockshelters for habitation, especially during periods of rainfall. Firepits would have been placed at the front of the rockshelter to prevent smoke inhalation but within the dripline to prevent fire extinguishment. Therefore, an archaeological assemblage with charcoal is most likely to be present at the mouth of the rockshelter, within the dripline. Charcoal is archaeologically significant as it can be radiocarbon dated and the results used to produce a chronological sequence of Aboriginal assemblages. Rockshelters protect archaeological deposits from the majority of natural, post depositional processes.

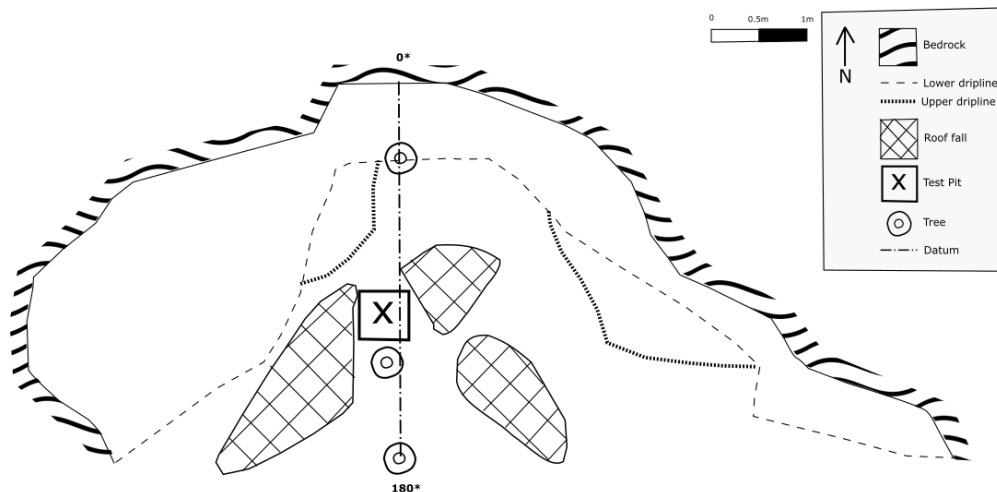


Figure 7.1: Location of test pit within rockshelter

7.5.2.2 Code of Practice

Test excavation at Nowra Bridge PAD 1 (AHIMS ID 52-5-0859), Nowra Bridge PAD 2 (AHIMS ID 52-5-0860), Nowra Bridge PAD 4 (AHIMS ID 52-5-0858) and Nowra Bridge PAD 5) (AHIMS ID 52-5-0854) was conducted in accordance with PACHCI Stage 3 and the Code of Practice.

In accordance with PACHCI Stage 3 and the Code of Practice, the initial test pit in each testing area was excavated in 50 mm spits. Subsequent test pits were excavated in 100 mm spits until the archaeologically sterile layer was reached.

A context sheet for each test pit was completed in the field. Details recorded included date of excavation, name of excavators, depth, number of buckets and soil description. Additionally, one representative section wall from each excavation test pit was scale drawn, and photographs were recorded of each section wall and base. Additionally, pH and Munsell soil colour was determined on a representative sample at each test area.

All retrieved deposit from each test pit was placed in buckets and transported to a sieve area. All retrieved deposit was dry sieved using three millimetre sieves.

All test pits were back-filled by hand with the sieved material using shovels.

7.5.3 Aboriginal objects

All Aboriginal objects retrieved during the course of test excavation were placed in re-sealable bags for further analysis and recording. Once test excavation was completed, the artefact assemblage was recorded and stored as stipulated by PACHCI Stage 3 and the Code of Practice. This included recording key attributes of material, artefact type, platform type, and dimensions, as well as a photographic record of representative artefacts (Table 7.2). All recorded information was entered into a Microsoft Excel table with detail linked to the provenance of each artefact. Once entered into the Excel table (Appendix 15), the data can be readily supplied with the test excavation report to OEH and RAPs in either electronic or hard-copy form.

All artefacts were stored in double re-sealable snap lock bags. A permanent marker was used to record the provenance of the artefacts in each bag in writing on the outside of the bag and on an archival grade tag such as Dupont™ Tyvek® paper.

For each AHIMS site that has been impacted during the course of the test excavation program, an Aboriginal Site Impact Recording Form was submitted to the AHIMS registrar.

Consultation with the RAPs as part of this assessment has indicated that appropriate long-term management strategy for the artefacts retrieved from the test excavation is the establishment of a keeping place. The keeping place would be in a neutral location to ensure that all Aboriginal group who are connected to the study area have access to the artefacts for educational purposes. Artefacts deemed to be of low significance to the RAPs would be reburied on country. The items are temporarily stored in a secure cabinet at the Artefact Heritage head office, Pymont.

Table 7.2: Recorded artefact attributes

Artefact attributes	Recorded details
Site details	Site name
Test pit	Location of the northwest corner of the test pit on the X Y grid
Spit	Spit number
Raw material	Raw material type and colour. Raw material types included: basalt, chalcedony, chert, dolerite, ironstone, mudstone, quartz, quartzite, silcrete
Typological class/ reduction type	Debris, complete flake, flake fragment marginal, transverse fragments, longitudinal fragments, multiple platform core (MPC), single platform core (SPC), core fragment, muller, Other.
Formal tool type (if applicable)	Backed, blade, tula adze, burren adze, burin, scrapper, retouched, geometric microlith (GML)

Artefact attributes	Recorded details
Dimensions	Orientated length, width and thickness of complete flakes
Cortex	Cortex coverage of whole artefact.
Weight	Measured to the 0.1 gram (gm). Artefacts less than 0.05 gm were rounded up to 0.05 gm, whilst artefacts greater than 0.05 gm were rounded up to 0.1 gm

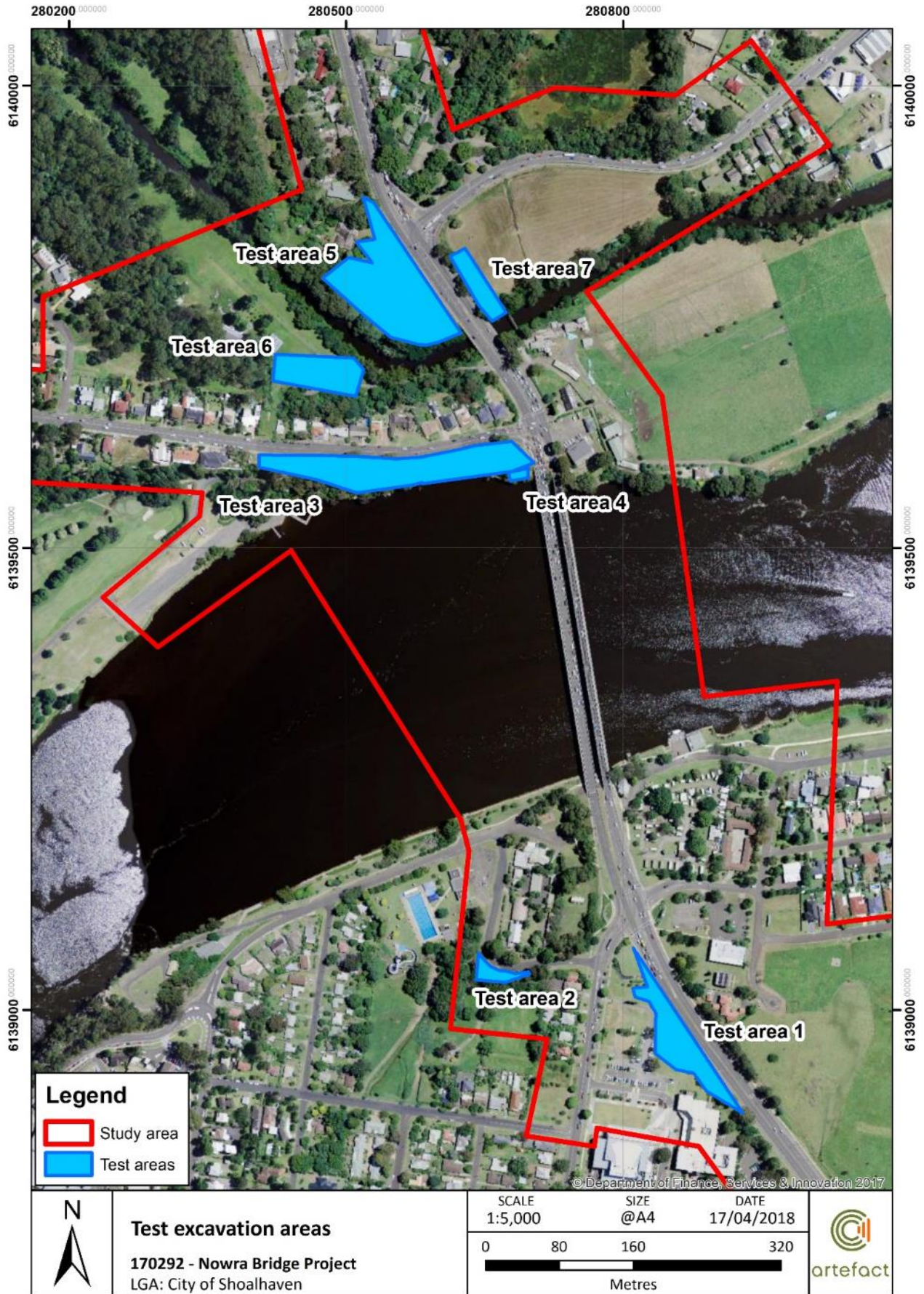


Figure 7.2: Location of test areas 1-7

7.6 Results

A total of five PADs were excavated during the test excavation program. Aboriginal objects were identified at all five PADs. Based on the artefacts recovered from the test excavation, four new artefact scatters, and one habitation site/artefact scatter have been identified across the study area. In addition, two previously recorded surface artefact sites were redefined from isolated artefacts to artefact scatters. Table 7.3 lists identified subsurface artefact scatters and previously recorded sites that were redefined.

Detailed descriptions of each newly identified site and updates to previously recorded sites are located in the Archaeological Technical Report (Artefact Heritage 2018c).

Table 7.3: Assessment areas and associated sites

TA	Previously identified sites	Updated site	Newly identified sites	Deregistered sites
TA01	Nowra Bridge PAD 1 (AHIMS ID 52-5-0859), Nowra Bridge 1 (AHIMS ID 52-5-0852)	Nowra Bridge 1 (AHIMS ID 52-5-0852)		Nowra Bridge PAD 1 (AHIMS ID 52-5-0859)
TA02	Nowra Bridge PAD 2 (AHIMS ID 52-5-0860)		Nowra Bridge 6 (AHIMS ID 52-5-0872)	Nowra Bridge PAD 2 (AHIMS ID 52-5-0860)
TA03	Nowra Bridge PAD 3 Cliff & Rockshelter Complex (AHIMS ID 52-5-0861), Nowra Bridge 2 (AHIMS ID 52-5-0853), Nowra Bridge 3 (AHIMS ID 52-5-0855)	Nowra Bridge 2 (AHIMS ID 52-5-0853), Nowra Bridge PAD 3 Cliff & Rockshelter Complex (AHIMS ID 52-5-0861)		Nowra Bridge 3 (AHIMS ID 52-5-0855)
TA04	Nowra Bridge PAD 3 Cliff & Rockshelter Complex (AHIMS ID 52-5-0861)		Nowra Bridge 7 (AHIMS ID 52-5-0875)	
TA05	Nowra Bridge PAD 4 (AHIMS ID 52-5-0858)		Nowra Bridge 8 (AHIMS ID 52-5-0876)	
TA06	Nowra Bridge PAD 4 (AHIMS ID 52-5-0858)	Nowra Bridge PAD 4 (AHIMS ID 52-5-0858)	Nowra Bridge 9 (AHIMS ID 52-5-0874)	
TA07	Nowra Bridge PAD 5 (AHIMS ID 52-5-0854)	Nowra Bridge PAD 5 (AHIMS ID 52-5-0854)	Nowra Bridge 10 (AHIMS ID 52-5-0873)	

The test excavation found that all sites within the study area had been highly disturbed. Low concentrations of artefacts were observed across the study area. With the spatial integrity of the site compromised, further excavations to determine the distribution of artefacts across the study area would not yield meaningful results.

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Figure 7.3: Newly identified and updated sites during test excavation

8.0 ABORIGINAL CULTURAL HERITAGE ASSESSMENT

8.1 Methodology

The cultural assessment in this report includes information collected through desktop assessment including database searches, consultation during survey, interviews with knowledge holders and test excavation and AFG consultation. Two Aboriginal Knowledge Holders were identified during PACHCI consultation by Roads and Maritime. Knowledge holder, Mrs Delia Lowe, was interviewed by Vanessa Edmonds (Principal, Artefact Heritage) on 23 May 2018. Knowledge holder, Sonny Simms, was interviewed by Vanessa Edmonds (Principal, Artefact Heritage) on 29 May 2018. A summary of these interviews is provided in section 8.3. The cultural heritage values identified through these interviewed are included in Table 8.1 below.

8.2 Cultural landscape

The World Heritage Convention of United Nations Educational, Scientific and Cultural Organisation (UNESCO) defines a cultural landscape as one which has ‘...powerful religious, artistic or cultural associations of the natural element rather than material cultural evidence, which may be insignificant or even absent’ (UNESCO 1991). The relationship between Aboriginal Australians and the land is conceived in spiritual terms rather than primarily in material terms (Andrews et al 2006). Aboriginal cultural knowledge has been defined as:

Accumulated knowledge which encompasses spiritual relationships, relationships with the natural environment and the sustainable use of natural resources, and relationships between people, which are reflected in language, narratives, social organisation, values, beliefs and cultural laws and custom (Andrews et al 2006).

Aboriginal cultural knowledge was traditionally bequeathed through oral traditions from generation to generation. Within all Aboriginal communities there was a time of dislocation and upheaval associated with the arrival of colonial settlers. This widespread disruption resulted in much of the detailed knowledge and understanding of many of the elements of the cultural landscape being lost from the Aboriginal community, nonetheless many Aboriginal people maintain a strong connection to the land of their ancestors and collectively possess a wealth of knowledge passed down through the generations.

8.3 Knowledge holder interviews

During the interview with Mrs Lowe, she described in detail her connections to Country through family. Mrs Lowe also described and discussed the significance of two Dreaming sites in the landscape – one a beginnings site and the other a departure site. While neither of these two Dreaming sites occur within the study area and are unlikely to be impacted by the Nowra Bridge Project, their presence to the southeast and to the west of the study area confirms the deep connection to the landscape by Aboriginal people – past and present and the cultural significance of that landscape which includes the study area. Mrs Lowe is currently preparing a family history book and has requested that details of her interview are restricted.

Key comments from the interview with Mr Sonny Simms are summarised below.

- Mr Simms connection to Country (the Shoalhaven region) comes through his mother, Barbara (Dixon) Tilbury and the Wodi tribe from south of the river

- Mr Simms stated that the Shoalhaven provided a natural tribal boundary in the landscape with Wodi Wodi located south of the river and the Wandj Wandj to the north
- Mr Simms stated that consultation regarding cultural heritage on the north side of the river should be undertaken with Illawarra LALC as they represented many people who associated with the Wandj Wandj tribe
- Paringa Park was previously a dairy farm then a caravan park. It has remained unmodified over the years he has known the area. The caravan park (Paringa Park) was swept away in the last big flood in 1975
- During the 1975 flood, Mr Simms stated that the rockshelter (Nowra Bridge 7 (AHIMS ID 52-5-0875)) was inundated. This rockshelter has been a refuge for the homeless for many years
- Mr Simms thoughts were that any artefacts in the flood zone would have been carried downstream and deposited through flooding, including those in Nowra Bridge 7 (AHIMS ID 52-5-0875)
- In the past, Graham Lodge was a place where offcuts from the sawmill were dumped
- Historically, there were Koori campsite areas around the swamp 'at the back' of the Bomaderry Children's Home. Families such as the Dixons, Stewarts and Cooks got their water from the swamp. These families were moved onto Mumbulla Street, South Nowra, Woorigee and Orient Point
- There was another camp at the back (south) of the Council Chambers (adjacent to Nowra Bridge 1 (AHIMS ID 52-5-0852))
- Barbara Dixon used to speak about 'lots of sites' being located further upstream along Bomaderry Creek. There were also lots of platypus in the creek

8.4 Aboriginal cultural heritage values

For many Aboriginal people there are strong social and historical connections to Nowra and its surrounds through their association (grandparents, parents or themselves) with the Bomaderry Aboriginal Children's Home.

The continuity of this connection to Country is reiterated in the location of the Nowra LALC which is housed on the same site. At present, Nowra is still home to a number of Aboriginal families linked to the area.

Spiritually, the traditional connection to Country is strengthened through Dreaming or Creation stories associated with prominent topographic features such as the Shoalhaven River and Bomaderry Creek (section 9.1.1). Physically, the traditional connection to Country is evidenced through the numerous and diverse archaeological site types and complexes recorded through the area such rockshelters with art and deposit and stone arrangements. These sites likely reflect the strong religious, social and cultural networks operating in the region.

Table 8.1 summarises some of the cultural heritage values identified through the consultation process and background research. Whilst none of the cultural values can be directly linked to the archaeological sites identified within the study area nevertheless they highlight the general importance of the study area to past and present Aboriginal populations.

Table 8.1: Summary of cultural heritage values for the study area

Cultural heritage value	Description	Source
Bomaderry Aboriginal Children's Home (1908-1988) – place of social significance	<p>....'The former Bomaderry Aboriginal Children's Home provides tangible evidence of the social and religious theory of the twentieth century whereby the lives of Aboriginal people were controlled by the Government with the assistance of Christian Missionaries.'</p> <p>... 'The Bomaderry Home is associated with former Home children now known as the Stolen Generation</p> <p>The Bomaderry Aboriginal Children's Home has strong social significance for the former residents and for the families and communities from whom the children were removed. Former residents have strong memories and feelings from their time spent in the home and some speak of a sense of healing when they return. The Home buildings provide a tangible link to the past for former residents and an opportunity to find answers to things they previously did not understand or were not told.'</p> <p>The former Bomaderry Aboriginal Children's Home now houses the Nowra LALC offices.</p>	<p>State Heritage Register (Database Number 5061330)</p> <p>(http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=5061330)</p> <p>Paul Boyd (Site officer, Didge Ngunawal) stated during the test excavation and follow-up phone calls that his wife Lilly Carrol was the last family to leave Children's Home</p>
Dharawal - Cabbage Tree Palm (<i>Livistona australis</i>) – food resource; social/religious totem	<p>Significant local item. Possibly where the <u>Tharawal</u> language derives its name. Dharawal brought the Cabbage Tree Palm (<i>Livistona australis</i>) with them from the north and are named for this sacred tree which is a significant local totem (Wesson 2005).</p> <p>New growth of the tree could be cooked or eaten raw and the heart of the trunk could be cooked as a medicine to ease a sore throat. Leaves of the cabbage-tree palm were used for shelter and fibres for string, rope and fishing lines</p>	<p>Watt (2014: 11); Wesson (2005)</p>
Shoalhaven River – waterways providing resources for past and present Aboriginal populations	<p>Importance of water resource to past Aboriginal and present populations for food, shelter transport, and good camping spots. Trees used for spears, shields, bush tucker and firewood.</p> <p>Charles Throsby taken across Shoalhaven river in Bundle's bark canoe, upstream of the Nowra Bridge</p> <p>Features in a Dreaming/Creation stories (section 9.1.1).</p>	<p>Adrian Smith (Nowra LALC) in Artefact Heritage 2018a</p> <p>Noted by Mrs Delia Lowe during interview and other Jerrinja LALC members during AFG2</p>
Bomaderry Creek- waterways providing resources for past and present Aboriginal populations	<p>Importance of water to Aboriginal populations for food, shelter, transport, freshwater for drinking and good camping spots. Trees used for spears, shields, bush tucker and firewood</p>	<p>Adrian Smith (Nowra LALC) in Artefact Heritage 2018a</p> <p>During the interview with Mr Sonny Simms, he noted his mother had told him that there were lots of sites further upstream and that platypuses (food source) have been seen in the creek</p>

Cultural heritage value	Description	Source
Nowra – place where Aboriginal people presently live and work	6.1 per cent of the total population of Nowra – Bomaderry identify as Indigenous Australians	https://en.wikipedia.org/wiki/Nowra,_New_South_Wales
Nowra – place where Aboriginal people previously live and work	'Koori' camps located at the back of what is now the Council Chambers near Nowra Bridge 1 and at the back of the Children's Home both near swamps	Noted by Mr Sonny Simms during interview
Graham Lodge - evidence of Aboriginal contact with early settlers	Located at 10 Pleasant Way, Nowra. 'The site has significance particularly for the archaeological potential associated with the 'Greenhills' estate, including remnants from the demolished cottages and sheds recorded in historic paintings, evidence of both pre- and post-contact Aboriginal artefacts...'	State Heritage Register (Database Number 0169) (http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=5052090)
Archaeological sites	The study region contains a large and diverse record of past Aboriginal occupation including rockshelters with art and occupation deposit, axe grinding grooves, stone arrangements, middens and burials	AHIMS

9.0 SIGNIFICANCE ASSESSMENT

An assessment of the cultural heritage significance of an item or place is required in order to form the basis of its management. OEH (2011) provides guidelines for heritage assessment with reference to the Burra Charter (Australia ICOMOS 2013) and the Heritage Office guidelines (2001). The assessment is made in relation to four values or criteria (Table 9.1). In relation to each of the criteria, the significance of the subject area should be ranked as high, moderate or low.

In addition to the four criteria, OEH requires consideration of the following:

- Research potential: does the evidence suggest any potential to contribute to an understanding of the area and/or region and/or state’s natural and cultural history?
- Representativeness: how much variability (outside and/or inside the subject area) exists, what is already conserved, how much connectivity is there?
- Rarity: is the subject area important in demonstrating a distinctive way of life, custom, process, land-use, function or design no longer practised? Is it in danger of being lost or of exceptional interest?
- Education potential: does the subject area contain teaching sites or sites that might have teaching potential?

It is important to note that heritage significance is a dynamic value.

Table 9.1: Heritage significance criteria

Criterion	Description
Social	The spiritual, traditional, historical or contemporary associations and attachments the place or area has for Aboriginal people. Social or cultural value is how people express their connection with a place and the meaning that place has for them. Does the subject area have strong or special association with the Aboriginal community for social, cultural or spiritual reasons?
Historic	Historic value refers to the associations of a place with a historically important person, event, phase or activity in an Aboriginal community. Is the subject area important to the cultural or natural history of the local area and/or region and/or state?
Scientific	This refers to the importance of a landscape, area, place or object because of its rarity, representativeness and the extent to which it may contribute to further understanding and information. Information about scientific values will be gathered through any archaeological investigation undertaken. Does the subject area have potential to yield information that will contribute to an understanding of the cultural or natural history of the local area and/or region and/or state?
Aesthetic	This refers to the sensory, scenic, architectural and creative aspects of the place. It is often linked with the social values. It may consider form, scale, colour, texture and material of the fabric or landscape, and the smell and sounds associated with the place and its use. Is the subject area important in demonstrating aesthetic characteristics in the local area and/or region and/or state?

9.1 Significance criteria

9.1.1 Social significance

The significance of a site does not relate only to its scientific or research value. Aboriginal people's views on the significance of archaeological sites are usually related to traditional, cultural and educational values, although some Aboriginal people also value any scientific information a site may be able to provide.

Aboriginal community consultation is required in order to make a valid assessment of Aboriginal cultural values; especially those Aboriginal memories, stories and associations between the Aboriginal people and their traditional lands or Country. Aboriginal people frequently express an enduring connection to their Country, a connection that transcends generations, both past and present. That connection is often expressed as a sense of belonging, which may manifest through physical objects or place; alternatively, it may be presented as an intangible idea, where an appreciation of an unseen quality or non-materialistic value connects a place in the landscape, tradition, observance, custom, lore belief and/or history to the person or group describing the item, event or value. The notion of intangible, social, or community values is essential to Aboriginal people as '*...the effective protection and conservation of this heritage is important in maintaining the identity, health and wellbeing of Aboriginal people*' (Australia ICOMOS 2000).

Nowra LALC has provided comment on the archaeological survey findings through their site officers, Jesse Ferguson and Adrian Smith (Artefact Heritage 2018a). Their comments suggest the study area would have been used as a travel route, for fishing and camping with bush tucker resources, trees for manufacture of weapons and tools and a good fresh water source (Artefact Heritage 2018a).

From the perspective of traditional Aboriginal people the natural landscapes of the lower Shoalhaven region were the spiritual and economic basis for survival. Spiritually, The Shoalhaven landscape is imbued with spiritual meaning and embedded in prominent topographic features such as Coolangatta Mountain, Cambewarra Mountain, Pulpit Rock and the Shoalhaven River. C. W. Peck (1925) references two creation/dreaming stories for the Shoalhaven River entitled 'Vicious birds' and 'The Fish and the Crayfish'. Other stories connect the Shoalhaven River with the Devils Hands rock art site at Mundamia, 3.5 kilometres west of the study area.

... the devil once lived up the Shoalhaven River at Braidwood [headwaters of the Shoalhaven], and he got washed down in the floods. That [the Devils Hands rockshelter] was the only place where he could actually grab a hold of the rocks to climb out of the current. And when he climbed, because he was so mad and angry at being washed down he burnt his handprints in as he climbed up and out of the shelter to safety (DEC 2005:67; Bindon 1976).

Interviews with knowledge holders Mrs Delia Lowe and Mr Sonny Simms support this strong social connection to the landscape surrounding the study area.

9.1.2 Historic significance

Historic value refers to the associations of a place with a historically important person, event, phase or activity in an Aboriginal community.

In 1805 the coastline was mapped from the land by Lieutenant Kent and assistant surveyor-general James Meehan. They explored the area, noting the dense rainforest and stands of solid timber.

The first non-Aboriginal occupants of the Shoalhaven region were cedar getters who logged trees in the area from at least 1811. The first recorded cargo of cedar was brought from the Shoalhaven River

to Sydney in December 1812, and the timber industry continued to grow, with timber getters exploiting the patches of cedar along the local rivers and creeks. In 1812 surveyor George William Evans and his party, guided by an Aboriginal man named Bundle, journeyed from Jervis Bay to the Shoalhaven River. They crossed it in a bark canoe about where Nowra Animal Park is now located and climbed Cambewarra Mountain. At AFG2 representatives from Jerrinja LALC noted that Bundle is a member of their family. Delia Lowe, knowledge holder, mentioned that her great grandfather was James Bundle. Charles Throsby was taken across Shoalhaven river in Bundle's bark canoe, upstream of the Nowra Bridge. During this period, there was conflict between cedar getters and local Aboriginal people, and in 1815 Governor Macquarie forbade timber getters from visiting the district after a cedar party was killed by Aboriginal people (Navin Officer 2007:60-61).

A number of Aboriginal people lived and worked on Berry's Coolangatta Estate between the time it was established and the late 1880s, when the estate began to be subdivided and the Aboriginal inhabitants were moved into the Roseby Park mission station on the coast to the east of the study area (Kuskie 2008:13).

Graham Lodge is a state significant, 19th century Victorian Georgian residence that was the focus of the "Greenhills" estate, an early European settlement in the region. Graham Lodge is located in the southeast of the study area (Figure 5.3), east of Nowra Bridge 1 (AHIMS ID 52-5-0852). The house has important historical significance for its history of contact between European and Aboriginal people. The watercolourist, Samuel Elyard, recorded the presence of Aboriginal people on Greenhills during the late 1860s - early 1870s (Figure 9.1). Elyard's depiction shows Aboriginal people in European dress including head covering, seated by campfires near the Worrigeer Swamp to the east of Graham Lodge. Excavation at Graham Lodge conducted by Heritage Archaeology (2000) revealed both Aboriginal stone artefacts and modified glass tools.

As a result, the study area is considered to be of high historical significance.



Figure 9.1: Samuel Elyard's water colour of Aboriginal people on Greenhills during the late 1860s - early 1870s (source: Heritage Archaeology 2000)

9.1.3 Aesthetic significance

This refers to the 'sensory' value of a place, and can include aspects such as form, texture, and colour, and can also include the smell and sound elements associated with use or experience of a site (Australian ICOMOS 2000). Aesthetic significance can be closely linked to the social value of a site.

The study area is considered to be of moderate aesthetic based on proximity to aesthetically pleasing features such as the creek and trees.

9.1.4 Scientific significance assessment

A summary of scientific significance for the study area is outlined below (Table 9.2). Potential archaeological deposits in the study area are assessed as demonstrating unknown scientific significance (Table 9.2). The nature, extent and significance of these places cannot be determined without further investigation comprising archaeological test excavation.

Nowra Bridge 1 (AHIMS ID 52-5-0852)

Nowra Bridge 1 (AHIMS ID 52-5-0852) is a high-density artefact scatter located on a heavily disturbed landform. The assemblage does not feature any especially representative or rare raw materials. However, the assemblage includes representative examples of several formal tools, grinding objects and retouched artefacts. As the integrity of the site has been heavily compromised by significant disturbance, Nowra Bridge 1 (AHIMS ID 52-5-0852) is considered to be of low archaeological significance.

Nowra Bridge 2 (AHIMS ID 52-5-0853)

Nowra Bridge 2 (AHIMS ID 52-5-0853) is a high-density artefact scatter located on a clifftop directly above a habitation site (Nowra Bridge 7 (AHIMS ID 52-5-0875) and directly east of a grinding groove within a rockshelter (Nowra Bridge 11 (AHIMS ID 52-5-0878)). The assemblage features a relatively diverse variety of raw materials. It also features a variety of artefact types, including grinding stones, hammerstones, a geometric microlith. The relationship between Nowra Bridge 2 (AHIMS ID 52-5-0853), Nowra Bridge 4 (AHIMS ID 52-5-0857), Nowra Bridge 5 (AHIMS ID 52-5-0856), and Nowra Bridge 7 (AHIMS ID 52-5-0875), and Nowra Bridge 11 (AHIMS ID 52-5-0878) holds significant educational and research significance. Therefore, Nowra Bridge 2 (AHIMS ID 52-5-0853) is considered to be of high archaeological significance.

Nowra Bridge 4 (AHIMS ID 52-5-0857)

Nowra Bridge 4 (AHIMS ID 52-5-0857) is a scarred tree located on a clifftop. The site is part of complex which includes Nowra Bridge 2 (AHIMS ID 52-5-0853), Nowra Bridge 5 (AHIMS ID 52-5-0856), Nowra Bridge 7 (AHIMS ID 52-5-0875) and Nowra Bridge 11 (AHIMS ID 52-5-0878). The relationship between the sites within the complex holds significant educational and research significance. Therefore, Nowra Bridge 4 (AHIMS ID 52-5-0857) is considered to be of high archaeological significance.

Nowra Bridge 5 (AHIMS ID 52-5-0856)

Nowra Bridge 5 (AHIMS ID 52-5-0856) is a low density, surface artefact scatter located within close proximity to a rockshelter. The site is part of complex which includes Nowra Bridge 2 (AHIMS ID 52-5-0853), Nowra Bridge 4 (AHIMS ID 52-5-0857), Nowra Bridge 7 (AHIMS ID 52-5-0875) and Nowra Bridge 11 (AHIMS ID 52-5-0878). The relationship between the sites within the complex holds significant educational and research significance. Therefore, Nowra Bridge 5 (AHIMS ID 52-5-0856) is considered to be of high archaeological significance.

Nowra Bridge 6 (AHIMS ID 52-5-0872)

Nowra Bridge 6 (AHIMS ID 52-5-0872) is a low density artefact scatter located on a heavily disturbed. The assemblage did not feature any especially representative or rare artefact types or raw materials. Therefore, the site is considered to be of low archaeological significance.

Nowra Bridge 7 (AHIMS ID 52-5-0875)

Nowra Bridge 7 (AHIMS ID 52-5-0875) is a rockshelter that was found to contain subsurface archaeological material. This indicates that Nowra Bridge 7 (AHIMS ID 52-5-0875) is a habitation site. Habitation sites are rare within the wider archaeological context and hold significant research and educational value. Future research could aim at examining the relationship between Nowra Bridge 2 (AHIMS ID 52-5-0853), Nowra Bridge 4 (AHIMS ID 52-5-0857), Nowra Bridge 5 (AHIMS ID 52-5-0856), Nowra Bridge 7 (AHIMS ID 52-5-0875), and Nowra Bridge 11 (AHIMS ID 52-5-0878). Therefore, the site is considered to be of high archaeological significance.

Nowra Bridge 8 (AHIMS ID 52-5-0876)

Nowra Bridge 8 (AHIMS ID 52-5-0876) is a low density artefact scatter located on an alluvial floodplain. Most artefacts in the area are located on rock. Assemblages in floodplains and levees are considered rare. The variety of raw materials and tool types possesses moderate research potential. Therefore, the site is considered to be of moderate archaeological significance.

Nowra Bridge 9 (AHIMS ID 52-5-0874)

Nowra Bridge 9 (AHIMS ID 52-5-0874) is a low density artefact scatter located on an alluvial floodplain. Most artefacts in the area are located on rock. Assemblages in floodplains and levees are considered rare. The variety of raw materials and tool types possesses moderate research potential. Therefore, the site is considered to be of moderate archaeological significance.

Nowra Bridge 10 (AHIMS ID 52-5-0873)

Nowra Bridge 10 (AHIMS ID 52-5-0873) is a low-density artefact scatter located on a significantly disturbed landform. The assemblage did not feature any especially representative or rare artefact types or raw materials. Therefore, the site is considered to be of low archaeological significance.

Nowra Bridge 11 (AHIMS ID 52-5-0878)

Nowra Bridge 11 (AHIMS ID 52-5-0878) is a grinding groove located on the dripline of a rockshelter. While grinding grooves have been recorded within the wider region, they are relatively rare. The presence of portable grinding stones (mullers) with the nearby artefact assemblages indicates that there is considerable potential for broader archaeological research and education. Therefore, Nowra Bridge 11 (AHIMS ID 52-5-0878) is considered to be of high archaeological significance.

Graham Lodge (AHIMS ID 52-5-0879)

Graham Lodge (AHIMS ID 52-5-0879) is a contact site which features glass Aboriginal artefacts. Contact sites are very rare within the regional context. As a result, of the high rarity of glass artefacts Graham Lodge (AHIMS ID 52-5-0879) has high research and educational potential. Therefore, the site is considered to be of high archaeological significance.

Nowra Bridge PAD 3 Cliff & Rockshelter Complex (AHIMS ID 52-5-0861)

Nowra Bridge PAD 3 Cliff & Rockshelter Complex (AHIMS ID 52-5-0861) identified within the study area is assessed as demonstrating unknown archaeological significance. This is due to the fact that these features are located in areas with limited surface visibility and the nature, extent and significance cannot be determined without further investigation.

The archaeological significance of each PAD cannot be accurately assessed until further archaeological investigations have been conducted.

Nowra Bridge PAD 4 (AHIMS ID 52-5-0858)

Nowra Bridge PAD 4 (AHIMS ID 52-5-0858) identified within the study area is assessed as demonstrating unknown archaeological significance. This is due to the fact that these features are located in areas with limited surface visibility and the nature, extent and significance cannot be determined without further investigation.

The archaeological significance of each PAD cannot be accurately assessed until further archaeological investigations have been conducted.

Nowra Bridge PAD 5 (AHIMS ID 52-5-0854)

Nowra Bridge PAD 5 (AHIMS ID 52-5-0854) identified within the study area is assessed as demonstrating unknown archaeological significance. This is due to the fact that these features are located in areas with limited surface visibility and the nature, extent and significance cannot be determined without further investigation.

The archaeological significance of each PAD cannot be accurately assessed until further archaeological investigations have been conducted.

Table 9.2: Summary of scientific and archaeological significance

Site name (AHIMS ID)	Research potential	Representativeness	Rarity	Education potential	Overall significance assessment
Nowra Bridge 1 (AHIMS ID 52-5-0852)	Low	Low	Low	Low	Low
Nowra Bridge 2 (AHIMS ID 52-5-0853)	High	Moderate	High	High	High
Nowra Bridge 4 (AHIMS ID 52-5-0857)	High	Moderate	Moderate	High	High
Nowra Bridge 5 (AHIMS ID 52-5-0856)	High	Moderate	Moderate	High	High
Nowra Bridge 6 (AHIMS ID 52-5-0872)	Low	Low	Low	Low	Low
Nowra Bridge 7 (AHIMS ID 52-5-0875)	High	Moderate	Moderate	High	High
Nowra Bridge 8 (AHIMS ID 52-5-0876)	Moderate	Moderate	Moderate	Low	Moderate
Nowra Bridge 9 (AHIMS ID 52-5-0874)	Moderate	Moderate	Moderate	Low	Moderate
Nowra Bridge 10 (AHIMS ID 52-5-0873)	Low	Low	Low	Low	Low
Nowra Bridge 11 (AHIMS ID 52-5-0878)	High	Moderate	Moderate	High	High
Graham Lodge (AHIMS ID 52-5-0879)	High	Moderate	High	High	High

Site name (AHIMS ID)	Research potential	Representativeness	Rarity	Education potential	Overall significance assessment
Nowra Bridge PAD 3 Cliff & Rockshelter Complex (AHIMS ID 52-5-0861)	Unknown	Unknown	Unknown	Unknown	Unknown
Nowra Bridge PAD 4 (AHIMS ID 52-5-0858)	Unknown	Unknown	Unknown	Unknown	Unknown
Nowra Bridge PAD 5 (AHIMS ID 52-5-0854)	Unknown	Unknown	Unknown	Unknown	Unknown

9.2 Statement of significance

The study area contains Aboriginal sites which range in significance from high to low. Nowra Bridge 2 (AHIMS ID 52-5-0853), Nowra Bridge 4 (AHIMS ID 52-5-0857), Nowra Bridge 5 (AHIMS ID 52-5-0856), Nowra Bridge 7 (AHIMS ID 52-5-0875), Nowra Bridge 11 (AHIMS ID 52-5-0878), and Graham Lodge (AHIMS ID 52-5-0879) are considered to be of high scientific significance. Nowra Bridge 8 (AHIMS ID 52-5-0876) and Nowra Bridge 9 (AHIMS ID 52-5-0874) were assessed as being of moderate scientific significance. The remaining sites within the study area are of low scientific significance. All Aboriginal sites are considered to be of social and cultural significance to the contemporary Aboriginal community as part of an increasingly rare archaeological resource providing a tangible connection to the pre-contact Aboriginal people of the area. The entire area of the Nowra Bridge PAD 3 Cliff & Rockshelter Complex (AHIMS ID 52-5-0861) is considered to be of high aesthetic significance.

The remainder of the study area is considered to have no scientific or aesthetic value. The study features a strong, documented history of Aboriginal people and is therefore considered to be of high historical value. Consultation with Aboriginal stakeholders has indicated that there is a strong social connection to the study area.

10.0 IMPACT ASSESSMENT

10.1 Consideration of impacts

The impact assessment is based on the likely area of disturbance including land required for road infrastructure (roads, bridges, drainage, batter slopes etc.) as well as potential ancillary sites (such as construction compounds, bridge construction sites, and stockpile sites). All construction would be contained within the study area construction footprint. All sites within the construction footprint would be impacted by the proposal. Table 10.1 provides a summary of the potential impacts on all identified sites and PADs within the study area as demonstrated in Figure 10.1.

10.1.1 Graham Lodge (SHR No. 01699)

The impact area extends into the heritage curtilage of the SHR listed Graham Lodge (SHR No. 01699), involving the use of the existing carpark and hardstand area located at the northern portion of the item for a construction compound site. The use of the area for a construction compound could possibly require storage and movement of equipment and machinery, removal of vegetation and localised earthworks within the heritage item's curtilage.

It is noted the proposal would result in closure of vehicular access between Pleasant Way and Princes Highway and establishment of a cul-de-sac adjacent to the heritage curtilage of Graham Lodge. It is assumed that construction works associated with this aspect of the proposal would not be within the heritage curtilage of Graham Lodge.

It is recommended that subsurface impacts within the curtilage of Graham Lodge be avoided. Should impacts to the SHR listed Graham Lodge not be avoided, an AHIP would be required in addition to a Section 60 (s60) permit from the NSW Heritage Council. Background research indicates that Graham Lodge has been previously subjected to archaeological test excavation. The results of that excavation would need to be reviewed in conjunction with detailed design plans for the works within the curtilage. Aboriginal test or salvage excavations under an AHIP and s60 may be required depending on the results of the previous assessment.

It is recommended that no subsurface impacts be carried out during construction within the SHR curtilage of Graham Lodge. If subsurface impacts are unavoidable salvage excavations under an AHIP and s60 permit should be completed.

Table 10.1: Impact assessment

Site name	Type of harm	Degree of harm	Consequence of harm
Nowra Bridge 1 (AHIMS ID 52-5-0852)	Direct	Total	Total loss of value
Nowra Bridge 2 (AHIMS ID 52-5-0853)	Direct	Total	Total loss of value
Nowra Bridge 4 (AHIMS ID 52-5-0857)	None	None	No loss of value
Nowra Bridge 5 (AHIMS ID 52-5-0856)	None	None	No loss of value

Site name	Type of harm	Degree of harm	Consequence of harm
Nowra Bridge 6 (AHIMS ID 52-5-0872)	Direct	Total	Total loss of value
Nowra Bridge 7 (AHIMS ID 52-5-0875)	Direct	Total	Total loss of value
Nowra Bridge 8 (AHIMS ID 52-5-0876)	Direct	Total	Total loss of value
Nowra Bridge 9 (AHIMS ID 52-5-0874)	Direct	Total	Total loss of value
Nowra Bridge 10 (AHIMS ID 52-5-0873)	Direct	Total	Total loss of value
Nowra Bridge 11 (AHIMS ID 52-5-0878)	None	None	No loss of value
Nowra Bridge PAD 3 Cliff & Rockshelter Complex (AHIMS ID 52-5-0861)	None	None	No loss of value
Nowra Bridge PAD 4 (AHIMS ID 52-5-0858)	None	None	No loss of value
Nowra Bridge PAD 5 (AHIMS ID 52-5-0854)	None	None	No loss of value
Graham Lodge (SHR No. 01699)/Graham Lodge (AHIMS ID 52-5-0879)	Direct	Partial	Partial loss of value

Figure removed from public document.

Figure 10.1: Sites potentially impacted by the proposal (within the construction footprint)

11.0 AVOIDING AND MINIMISING HARM

11.1 Consideration of alternatives and justification of impacts

The objectives of the proposed activity are to:

- Reduce crash rates on the Princes Highway between Bolong Road and Bridge Road
- Support future traffic growth accessing the Princes Highway associated with planned land use in the Nowra Bomaderry area
- Provide southbound access for over height vehicles and higher mass limits (HML) freight on the Princes Highway across the Shoalhaven River
- Reduce delays and queuing on the Princes Highway between Bolong Road and Bridge Road
- Enable safe and efficient maintenance activities on the Shoalhaven River crossings without causing extended delays to the road network

Much of the study area has been considerably impacted by previous developments. Subsurface deposit still remains within Nowra Bridge 2 (AHIMS ID 52-5-0853), Nowra Bridge 7 (AHIMS ID 52-5-0875), Nowra Bridge 8 (AHIMS ID 52-5-0876), Nowra Bridge 9 (AHIMS ID 52-5-0874), and Graham Lodge (AHIMS ID 52-5-0879) which have the potential for yielding further information on the occupation and utilisation of resources in the study area and may contribute to understanding social and trading networks.

As Graham Lodge (AHIMS ID 52-5-0879) is also registered as Graham Lodge (SHR No. 01699) on the SHR, consultation should be undertaken with the Heritage Division of OEHL with regards to the proposed impacts and mitigation measures for Graham Lodge (SHR No. 01699)

The majority of the archaeological remains from Nowra Bridge 1 (AHIMS ID 52-5-0852), Nowra Bridge 6 (AHIMS ID 52-5-0872) and Nowra Bridge 10 (AHIMS ID 52-5-0873) have been removed as a result of the test excavation. Therefore, there would be minimal impact to the physical remains of these subsurface archaeological sites.

11.2 Ecologically sustainable development principles

The Guide (OEHL 2011) specifies that Ecological Sustainable Development (ESD) principles must be considered when assessing harm and recommending mitigation measures in relation to Aboriginal objects.

The following relevant ESD principles are outlined in Section 3A of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*:

- Decision-making processes should effectively integrate both long term and short term economic, environmental, social and equitable considerations (the 'integration principle')
- If there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation (the 'precautionary principle')
- The present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations (the 'principle of intergenerational equity').

11.2.1 The integration principle

The proposal would comply with the integration principle in regard to Aboriginal heritage. The Aboriginal heritage values of the study area have been considered as part of the planning process for the proposed works. Development and implementation of a Heritage Interpretation Strategy for Aboriginal cultural heritage values of the study area will assist in complying with the integration principle.

11.2.2 The precautionary principle

If there are threats of serious or irreversible environmental damage, lack of full scientific confidence should not be used as a reason for postponing measures to prevent environmental degradation (the 'precautionary principle').

Five areas of PAD were identified during the archaeological survey for the project. In order to address the uncertainty associated with the area of archaeological potential, archaeological test excavations were conducted. The combination of predictive models and the results of the test excavation have been used to assess the probable nature of the archaeological record within the study area.

To ensure full scientific confidence staged salvage is recommended within Nowra Bridge 2 (AHIMS ID 52-5-0853), Nowra Bridge 7 (AHIMS ID 52-5-0875), Nowra Bridge 8 (AHIMS ID 52-5-0876), and Nowra Bridge 9 (AHIMS ID 52-5-0874). This excavation would give better scientific confidence and contribute to the understanding of the archaeological record providing information regarding land use, environmental adaption and resource gathering strategies of Aboriginal people over a potentially long timespan.

11.2.3 The principle of intergenerational equity

The proposed works would adhere, as close as possible, to the principle of intergenerational equity by collating scientific and cultural information on former Aboriginal occupation of the study area through the test excavations and proposed further investigations. The development and implementation of a Heritage Interpretation Strategy in consultation with the RAPs will enhance the proposal and benefit future generations.

11.2.4 Conservation of biodiversity

Cultural values of biodiversity are intertwined with the lives of Aboriginal people and their use of the landscape. Biological impacts of the proposal are considered in separate technical report.

11.2.5 Improved valuation, pricing and incentive mechanisms

Roads and Maritime are committed to cultural heritage protection as a key component of project development. The costs and time required to ensure these high standards of assessment and protection measures are maintained as a standard part of road infrastructure planning. Roads and Maritime strive to comprehensively assess impacts, avoid impacts (where feasible), work with the community, and implement mitigation and management measures which strike a balance between meeting the state's infrastructure needs and protecting Aboriginal heritage values, for the betterment of all.

11.2.6 Cumulative impacts

A cumulative impact is an impact on Aboriginal cultural heritage resulting from the incremental impact of the action/s of a development when added to other past, present and reasonably foreseeable future actions. There are 69 registered Aboriginal sites within an approximate 2.5 kilometre buffer of the study area. Most of the registered sites are located along Bomaderry Creek upstream of the project. All of those sites impacted by the proposal have been assessed in light of their relationship to the archaeological landscape as a whole and their removal will result in a cumulative impact.

Nowra Bridge 2 (AHIMS ID 52-5-0853), and Nowra Bridge 7 (AHIMS ID 52-5-0875) are the only representative sites of that particular landform (Cliff & Rockshelter Complex), which represents the highest point adjacent to the Shoalhaven in the surrounding landscape – including Bomaderry Creek. The loss of Nowra Bridge 2 (AHIMS ID 52-5-0853) is somewhat offset by the presence of the as yet untested remainder of Nowra Bridge PAD 3 Cliff & Rockshelter Complex (AHIMS ID 52-5-0861). As a consequence of the assessment it can be stated that the cumulative impact on the archaeological landscape within a 2.5 kilometre radius of the project will be high. Impacts to any of these sites would have a cumulative impact on the remaining sites.

12.0 MANAGEMENT AND MITIGATION MEASURES

12.1 Site avoidance

The overall guiding principle for cultural heritage management is that where possible Aboriginal sites should be conserved. If conservation is not practicable, measures should be taken to mitigate against impacts to Aboriginal sites. Current design plans indicate that no impacts would be made to Nowra Bridge 4 (AHIMS ID 52-5-0857), Nowra Bridge 5 (AHIMS ID 52-5-0856), Nowra Bridge PAD 3 Cliff & Rockshelter Complex (AHIMS ID 52-5-0861), Nowra Bridge PAD 4 (AHIMS ID 52-5-0858), or Nowra Bridge PAD 5 (AHIMS ID 52-5-0854).

Should any changes be made to the proposed works that would involve additional impacts to Aboriginal heritage or areas outside of the study area, these changes should be assessed by an archaeologist in consultation with the registered Aboriginal stakeholder groups and further investigation may be necessary.

Nowra Bridge 1 (AHIMS ID 52-5-0852), Nowra Bridge 2 (AHIMS ID 52-5-0853), Nowra Bridge 6 (AHIMS ID 52-5-0872), Nowra Bridge 7 (AHIMS ID 52-5-0875), Nowra Bridge 8 (AHIMS ID 52-5-0876), Nowra Bridge 9 (AHIMS ID 52-5-0874), and Nowra Bridge 10 (AHIMS ID 52-5-0873) would be impacted by the current design plan.

During background research for the cultural assessment it was established that Graham Lodge (State Heritage Register [SHR] No. 01699) is located within the southeast portion of the study area and was found to include Aboriginal objects and evidence of early European contact although was not registered as an Aboriginal site on the Aboriginal Heritage Information Management System (AHIMS) at the time. A site card for Graham Lodge (AHIMS ID 52-5-0879) is being prepared for this site.

If Graham Lodge (AHIMS ID 52-5-0879), which has identified Aboriginal cultural values, cannot be avoided salvage excavations would be required under an AHIP and s60 permit.

Where unavoidable impacts occur then measures to mitigate and manage impacts are proposed. Mitigation measures primarily concern preserving the heritage values of sites beyond the physical existence of the site. The most common methods involve detailed recording of Aboriginal objects, archaeological test and salvage excavations, artefact analysis and, where appropriate, reburial of Aboriginal objects in a location determined by the registered Aboriginal parties.

Mitigation measures vary depending on the assessment of archaeological significance of a particular Aboriginal site and are based on its research potential, rarity, representatives and educational value. In general, the significance of a site would influence the choice of preferred conservation outcomes and appropriate mitigation measures, usually on the following basis:

- **Low archaeological significance** - Conservation where possible, but usually no mitigation required if impacts are unavoidable
- **Moderate archaeological significance** - Conservation where possible. If conservation is not practicable, salvage excavations or similar mechanisms determined in consultation with the Aboriginal community may be necessary
- **High archaeological significance** - Conservation as a priority. Only if all practicable alternatives have been exhausted would impacts be considered justified. Comprehensive salvage excavations may be necessary

Sites Nowra Bridge 1 (AHIMS ID 52-5-0852), Nowra Bridge 6 (AHIMS ID 52-5-0872), and Nowra Bridge 10 (AHIMS ID 52-5-0873) have been assessed as demonstrating low archaeological significance. Therefore, no mitigation is required.

Nowra Bridge 8 (AHIMS ID 52-5-0876) and Nowra Bridge 9 (AHIMS ID 52-5-0874) have been assessed as demonstrating moderate archaeological significance. Nowra Bridge 2 (AHIMS ID 52-5-0853) and Nowra Bridge 7 (AHIMS ID 52-5-0875) have been assessed as demonstrating high archaeological significance. As conservation is not practical at these four sites, targeted archaeological salvage is necessary to mitigate against the loss of archaeological value.

12.2 Heritage Interpretation Strategy

Impacts can be further mitigated through interpretation that acknowledges the Aboriginal occupation and utilisation of the study area. In consultation with RAPs, a Heritage Interpretation Strategy must be prepared, and implemented, which addresses the cultural significance of this location within the Dharawal landscape and the archaeological finds from the study area. Methods of incorporating identified Aboriginal heritage values into the design process could include interpretive displays and artistic elements within the new premises, and external elements such as paving components and plantings, providing information on Aboriginal land-use and life-ways within the study area and surrounds. Samples or reconstructions of the archaeological finds could be considered for incorporation into the internal interpretive elements.

Any strategy for interpretation must be developed in consultation and agreement with the RAPs.

12.3 Aboriginal Heritage Impact Permit

An area based AHIP should be obtained for Nowra Bridge 1 (AHIMS ID 52-5-0852), Nowra Bridge 2 (AHIMS ID 52-5-0853), Nowra Bridge 6 (AHIMS ID 52-5-0872), Nowra Bridge 7 (AHIMS ID 52-5-0875), Nowra Bridge 8 (AHIMS ID 52-5-0876), Nowra Bridge 9 (AHIMS ID 52-5-0874), and Nowra Bridge 10 (AHIMS ID 52-5-0873); as impacts cannot be avoided by the proposed new bridge.

Collection of surface artefacts across Nowra Bridge 1 (AHIMS ID 52-5-0852) and Nowra Bridge 2 (AHIMS ID 52-5-0853) should be conducted in accordance with an AHIP prior to construction works.

Targeted salvage excavation should be conducted in accordance with an AHIP within Nowra Bridge 2 (AHIMS ID 52-5-0853), Nowra Bridge 7 (AHIMS ID 52-5-0875), Nowra Bridge 8 (AHIMS ID 52-5-0876), and Nowra Bridge 9 (AHIMS ID 52-5-0874).

12.4 Aboriginal Heritage Management Plan

An Aboriginal Heritage Management Plan (AHMP) should be prepared in consultation with the RAPs. The AHMP would provide a method to manage potential heritage constraints and unexpected finds during construction works. Aspects of site area protection that should be included in the AHMP include:

- Establishing no-harm areas where appropriate. Depending on the nature and timing of works in the vicinity of identified Aboriginal sites that would not be impacted by the proposed works, it may be appropriate to establish visual markers around no-harm areas to avoid inadvertent impacts. This would include signage that clearly denotes the area as a “No Go Zone” Environmentally Sensitive area.
- Cultural heritage awareness training will be carried out, in consultation with the RAPs, for all personnel involved with site work prior to involvement in any works for the project.
- Nature of the visual markers around no-harm areas. The AHMP should document what type of visual marker will be put in place, such as temporary fencing, high visibility tape, and temporary signage.

- Provide clear guidance to all site workers on access restrictions to no-harm areas through site inductions, tool box talks and daily heritage discussions.
- Unexpected finds procedure in accordance with the Unexpected Heritage Items Procedure 2015 (Roads and Maritime 2015) would be followed.

12.5 Salvage excavation

Where salvage excavation is recommended, the extent and nature of the proposed excavations would be carried out in accordance with the:

- Assessed significance of the site
- Degree of impact to each site
- Research aims to be addressed for each site.

Based upon the archaeological analysis conducted for this assessment, salvage excavation would be designed to address the following research aims:

- Land use – To establish a more comprehensive understanding of land use patterns in wetland areas and the wider archaeological sensitivity of areas subject to seasonal inundation.
- Site formation – To establish an understanding of the formation of the site, and any identifiable environmental changes which may have affected Aboriginal occupation.
- Comparative – Compare the results and significance of identified Aboriginal sites with previous archaeological investigations in the region.
- Samples for dating – to retrieve samples of organic matter and/ or sediments for dating. This process, combined with an assessment of site formation processes, would provide a significant opportunity to date the identified extent of the archaeological resources within the study area.

Detailed analysis of salvaged material would also be carried out and the results incorporated into a detailed technical report (archaeological salvage report).

A salvage excavation methodology must be prepared in consultation with the RAPs and AHIP obtained for OEI prior to construction.

12.6 Discovery of human remains

If suspected human skeletal remains are uncovered at any time throughout undertaking the proposed works, procedures outlined in the Unexpected Heritage Items Procedure 2015 (Roads and Maritime 2015) and Requirement 25 of the Code of Practice must be followed.

12.7 Changes to the proposed works

This CHAR is based upon the most recent information made available to Artefact Heritage as of the date of preparation of this report. Any changes made to the proposal should be assessed by an archaeologist in consultation with the RAPs. Any changes that may impact on Aboriginal sites not assessed as part of the proposal may warrant further investigation and result in changes to the recommended management and mitigation measures.

12.8 Ongoing consultation with registered Aboriginal parties

Consultation with RAPs would continue throughout the life of the project, as necessary. Ongoing consultation with RAPs would take place throughout determination of the REF, any salvage

excavations, care and control of retrieved artefacts, the development of the heritage interpretation strategy, and in the event of any unexpected Aboriginal objects being identified during works.

12.9 Management of Aboriginal objects

Consultation with the RAPs as part of this assessment has indicated that appropriate long-term management strategy for the artefacts retrieved from the test excavation is the establishment of a keeping place. The keeping place would be in a neutral location to ensure that all Aboriginal group who are connected to the study area have access to the artefacts for educational purposes. Artefacts deemed to be of low significance to the RAPs would be reburied on country.

Suggestions for a possible keeping place for the artefacts included the Shoalhaven Entertainment Centre, the Nowra LALC office and the Nowra museum. At AFG2, objections were raised to keeping artefacts at the Shoalhaven Entertainment Centre and the Nowra LALC. Representatives from Jerringa LALC suggested the repurposing of an existing building for the keeping place.

Further consultation with registered Aboriginal stakeholders will take place regarding the appropriate strategy for future long-term management of the retrieved artefact assemblage from test excavation and salvaged artefacts.

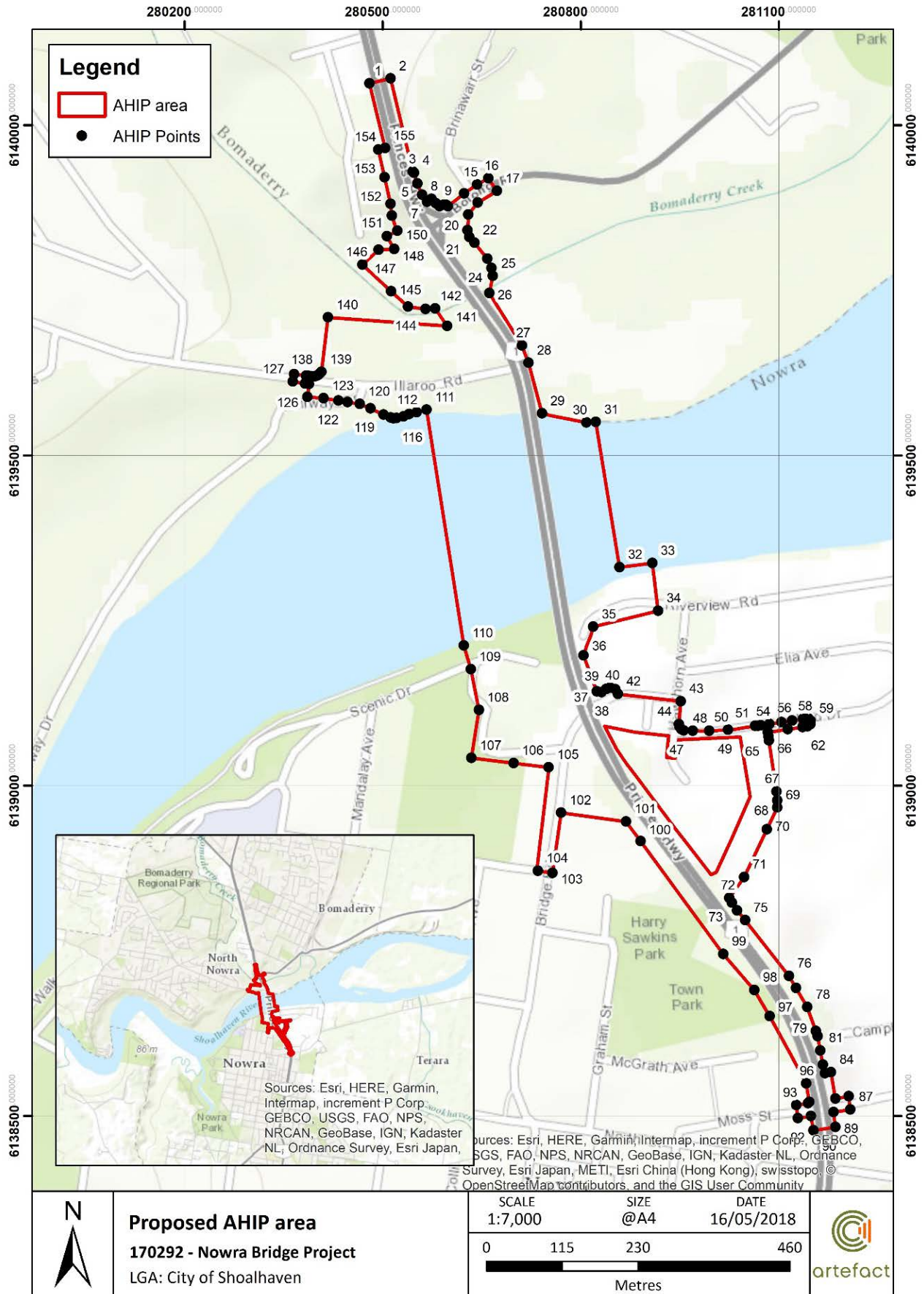


Figure 12.1: Proposed AHIP area

Table 12.1: List of AHIP points

AHIP point No.	Easting	Northing	AHIP point No.	Easting	Northing
1	280479.8754	6140063.147	79	281156.0222	6138628.242
2	280511.978	6140070.613	80	281158.9768	6138620.1
3	280545.5735	6139929.494	81	281162.8205	6138598.54
4	280547.2434	6139927.494	82	281166.6641	6138576.981
5	280552.6407	6139911.295	83	281169.9495	6138564.061
6	280559.5737	6139894.558	84	281179.0208	6138565.823
7	280567.1469	6139883.906	85	281185.8901	6138525.865
8	280573.9818	6139888.266	86	281205.7231	6138529.243
9	280580.7103	6139881.363	87	281208.287	6138509.316
10	280586.1146	6139877.124	88	281183.11	6138505.221
11	280591.9508	6139879.242	89	281185.6839	6138482.587
12	280595.9902	6139879.236	90	281152.6623	6138477.733
13	280598.8119	6139877.01	91	281148.7265	6138499.191
14	280623.0848	6139896.636	92	281128.7873	6138496.042
15	280642.7832	6139909.865	93	281126.6085	6138515.837
16	280659.7742	6139919.495	94	281144.3582	6138518.856
17	280673.0215	6139900.24	95	281146.1137	6138520.474
18	280643.6969	6139882.532	96	281141.3465	6138548.695
19	280629.7332	6139864.495	97	281086.2049	6138650.66
20	280628.5161	6139840.696	98	281062.9246	6138690.156
21	280631.0561	6139830.536	99	281015.8838	6138744.709
22	280638.8349	6139821.963	100	280890.6703	6138915.55
23	280658.2024	6139797.833	101	280868.7216	6138945.497
24	280664.7112	6139783.387	102	280770.2698	6138958.623
25	280666.6162	6139771.639	103	280757.1483	6138867.664
26	280661.3968	6139745.479	104	280735.0098	6138870.789
27	280710.762	6139666.361	105	280751.3216	6139027.526

AHIP point No.	Easting	Northing	AHIP point No.	Easting	Northing
28	280720.9699	6139640.024	106	280698.1318	6139033.911
29	280741.1571	6139563.454	107	280634.3388	6139041.569
30	280808.546	6139549.635	108	280645.58	6139114.21
31	280822.9009	6139550.42	109	280633.3712	6139175.865
32	280858.7184	6139330.624	110	280622.8491	6139211.798
33	280908.2569	6139336.693	111	280566.2386	6139568.853
34	280917.0932	6139264.533	112	280551.4557	6139564.897
35	280818.8998	6139240.304	113	280540.0649	6139562.255
36	280804.2391	6139197.111	114	280531.5499	6139558.6
37	280824.435	6139142.236	115	280521.0842	6139556.317
38	280831.4942	6139141.418	116	280516.1315	6139556.1
39	280838.503	6139146.111	117	280511.9405	6139557.03
40	280844.5043	6139147.888	118	280501.3008	6139561.419
41	280852.3181	6139145.529	119	280481.3582	6139571.14
42	280856.3683	6139138.535	120	280465.2136	6139577.652
43	280951.4719	6139127.495	121	280446.5992	6139580.653
44	280948.7888	6139092.688	122	280432.8457	6139582.761
45	280949.3874	6139088.947	123	280410.3972	6139586.201
46	280952.1391	6139084.937	124	280385.8369	6139588.301
47	280956.0002	6139083.028	125	280388.113	6139607.843
48	280969.5503	6139082.722	126	280382.1648	6139608.619
49	280994.5017	6139082.591	127	280363.6424	6139611.602
50	281022.8385	6139084.26	128	280365.5399	6139622.823
51	281064.2103	6139090.378	129	280383.7174	6139620.519
52	281068.5261	6139090.087	130	280385.7007	6139620.26
53	281072.5841	6139090.967	131	280387.6838	6139620.001
54	281085.6974	6139093.01	132	280391.5547	6139619.496

AHIP point No.	Easting	Northing	AHIP point No.	Easting	Northing
55	281103.958	6139095.776	133	280394.5524	6139619.223
56	281120.1164	6139098.224	134	280397.2487	6139619.505
57	281136.9192	6139100.769	135	280400.6589	6139620.673
58	281144.6524	6139101.192	136	280402.9586	6139622.103
59	281148.2808	6139097.607	137	280404.9409	6139623.95
60	281147.8444	6139092.611	138	280406.2209	6139625.535
61	281143.4336	6139089.639	139	280407.2651	6139626.262
62	281136.0342	6139088.484	140	280417.0916	6139708.725
63	281113.2559	6139084.985	141	280597.474	6139695.782
64	281083.4094	6139080.401	142	280579.4507	6139722.144
65	281084.1485	6139074.357	143	280564.6273	6139721.315
66	281084.8875	6139068.313	144	280538.1686	6139725.083
67	281096.3999	6138990.726	145	280512.6249	6139748.514
68	281097.764	6138977.273	146	280468.9969	6139788.713
69	281097.7596	6138966.609	147	280493.8366	6139811.145
70	281081.8098	6138933.305	148	280517.1742	6139812.43
71	281047.2793	6138861.202	149	280506.2423	6139831.746
72	281025.1236	6138829.589	150	280522.094	6139839.911
73	281028.7323	6138822.474	151	280513.6767	6139862.928
74	281036.7128	6138810.67	152	280511.7786	6139880.637
75	281048.8614	6138795.799	153	280502.7894	6139920.816
76	281115.2792	6138711.543	154	280493.3765	6139962.889
77	281126.0932	6138693.126	155	280503.455	6139965.151
78	281142.9989	6138664.309			

13.0 RECOMMENDATIONS

The following recommendations are based on consideration of:

- Legislative, policy and procedural requirements for the assessment of Aboriginal cultural heritage
- The recommendations of the PACHCI Stage 2 survey report
- The findings of the PACHCI Stage 3 test excavation
- ESD principles
- The views and information provided by registered Aboriginal stakeholder groups
- The likely impacts of the proposed development.

It was found that:

- There are nine Aboriginal sites and three areas of PAD located within the study area
- The proposal would directly impact seven Aboriginal sites (Nowra Bridge 1 (AHIMS ID 52-5-0852), Nowra Bridge 2 (AHIMS ID 52-5-0853), Nowra Bridge 6 (AHIMS ID 52-5-0872), Nowra Bridge 7 (AHIMS ID 52-5-0875), Nowra Bridge 8 (AHIMS ID 52-5-0876), Nowra Bridge 9 (AHIMS ID 52-5-0874), and Nowra Bridge 10 (AHIMS ID 52-5-0873)
 - Sites Nowra Bridge 1 (AHIMS ID 52-5-0852), Nowra Bridge 6 (AHIMS ID 52-5-0872), and Nowra Bridge 10 (AHIMS ID 52-5-0873) have been assessed as demonstrating low archaeological significance
 - Nowra Bridge 8 (AHIMS ID 52-5-0876) and Nowra Bridge 9 (AHIMS ID 52-5-0874) have been assessed as demonstrating moderate archaeological significance
 - Sites Nowra Bridge 2 (AHIMS ID 52-5-0853) and Nowra Bridge 7 (AHIMS ID 52-5-0875) have been assessed as demonstrating high archaeological significance
- The proposal would partially impact one State Heritage Registered site, Graham Lodge (SHR No. 01699) which has identified Aboriginal cultural values.

It is therefore recommended that:

- Prior to construction, an AHIP application must be lodged with OEH for the proposal
- Collection of surface artefacts across Nowra Bridge 1 (AHIMS ID 52-5-0852) and Nowra Bridge 2 (AHIMS ID 52-5-0853) should be conducted prior to construction in accordance with an AHIP
- Targeted salvage excavation within Nowra Bridge 2 (AHIMS ID 52-5-0853), Nowra Bridge 7 (AHIMS ID 52-5-0875), Nowra Bridge 8 (AHIMS ID 52-5-0876), and Nowra Bridge 9 (AHIMS ID 52-5-0874) should be conducted prior to construction in accordance with an AHIP
- Inadvertent impacts to sites and PADs outside of the impact area must be avoided by including information on the location of these sites in an Aboriginal Heritage Management Plan (AHMP)
- Long term arrangements for the management of excavated artefacts, such as reburial or a keeping place, should be determined in accordance with the recommendations of registered Aboriginal stakeholders and OEH guidelines
- Develop and implement a Heritage Interpretation Strategy in consultation with RAPs. This may include:
 - Interpretive signage
 - Plaques
 - Temporary display of a sample of the stone artefacts in an agreed upon place as determined by consultation with the RAPs. A Care Agreement for display artefacts must be entered into between Roads and Maritime and OEH if artefacts are to be put on display.
- All subsurface impact to Graham Lodge (AHIMS ID 52-5-0879) should be avoided. Should subsurface impacts to Graham Lodge (AHIMS ID 52-5-0879) be unavoidable, salvage excavations would be required under an AHIP and a Section 60 permit.

- An Aboriginal Heritage Management Plan (AHMP) should be prepared and would provide a method to manage potential heritage constraints and unexpected finds during construction works. Aspects of site and cultural area protection that should be included in the AHMP include:
 - Establishing no-harm areas where appropriate. Depending on the nature and timing of works in the vicinity of identified Aboriginal sites or cultural areas that would not be impacted by the proposed works, it may be appropriate to establish visual markers around no-harm areas with appropriate signage to avoid inadvertent impacts.
 - Nature of the visual markers around no-harm areas. The AHMP should document what type of visual marker would be put in place, such as temporary fencing, high visibility tape, and temporary signage.
 - Provide clear guidance to all site workers on access restrictions to no-harm areas including site inductions and tool box talks.
 - Unexpected finds procedure in accordance with the Unexpected Heritage Items Procedure (Roads and Maritime 2015) would be followed.
 - Cultural heritage awareness training would be carried out for all personnel involved with site work prior to involvement in any works for the project.
- If any suspected human remains are located during any stage of the proposed works, work should stop immediately, and the procedures outlined in the Unexpected Heritage Items Procedure (Roads and Maritime 2015) and Requirement 25 of the Code of Practice must be followed.
- Should any changes be made to the proposed works that would involve additional impacts to Aboriginal heritage or areas outside of the AHIP, these changes would be assessed in accordance with Roads and Maritime PACHCI and further investigation may be necessary.
- The final version of the CHAR must be forwarded to registered Aboriginal parties and OEH.
- To keep consultation current, the registered Aboriginal parties should be sent an update on the project every six months.

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APPENDIX 1 - GLOSSARY

Aboriginal cultural heritage: The material (objects) and intangible (mythological places, dreaming stories etc) traditions and practices associated with past and present day Aboriginal communities.

Aboriginal object: Any deposit, object or material evidence (not being a handicraft made for sale), including Aboriginal remains, relating to the Aboriginal habitation of NSW.

Aboriginal place: Any place declared to be an Aboriginal place under s.94 of the *National Parks and Wildlife Act 1974*.

Aboriginal stakeholders: Members of a local Aboriginal land council, Aboriginal groups or other Aboriginal people who have registered their interest with the RTA to be consulted about a proposed RTA project or activity

AHIMS: Acronym for 'Aboriginal heritage information management system'. AHIMS is a register that contains information about NSW Aboriginal heritage, and it is maintained by DECCW.

Alluvium: A deposit left by the flow of water. It can include sediments of gravel, mud or sand.

Angular fragment: A flaked piece of stone that does not have characteristic features which allow for it to be positively identified as a flake, core or tool.

Archaeological site: A location that has evidence of past Aboriginal activity (both material and mythological/ritual).

Archaeology: The scientific study of human history, with focus on material remains and ethnographic evidence.

Area of archaeological sensitivity: A part of the landscape that contains demonstrated occurrences of cultural material. The precise level of sensitivity will depend on the density and significance of the material.

Artefact: An item of cultural material created by humans.

Artefact scatter: Where two or more stone artefacts are found within an area of potential archaeological deposit or a site.

Backed blade/ artefact: Bladelets that have one edge blunted by steep retouch to form a back.

Basalt: A common volcanic rock. It is fine grained (approximately 45-50 per cent silica) and rich in iron and magnesium.

Bedrock: A consolidated rock that is unbroken and un-weathered, located beneath soil or rock fragments.

Bifacial flaking: The removal of flakes from two faces of a single platform.

Bipolar: A method of flaking stone, especially quartz, where cores are rested upon an anvil during flaking.

Bipolar core: A core used to create bipolar flakes.

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

Bioturbation: Disturbance in soil profiles caused by living organisms, such as ants and roots.

Bora ground: These are usually identified as flat, mounded earth rings that were used for Aboriginal ceremonial activities.

Bulb of percussion: A partial cone of force produced when a flake is struck off a core. The cone occurs on the ventral (inside surface) of the flake.

Burials: Burial sites may be composed of a single burial, isolated individuals in a general area, or cemeteries containing many individuals.

Carved/ modified trees: Carved trees exhibit evidence of purposeful removal of bark, but differ from scarred trees in that geometric patterns and figures are cut into the tree. The motifs of the mid-north coast region are mostly linear geometric patterns (Craib and Bonhomme 1995: 27).

Chalcedony: A mineral with high silica content that has a microcrystalline structure. It is often described as 'waxy' and can be translucent. It is found in a variety of colours such as white, grey, greyish-blue or brown.

Chert: A fine grained rock composed of cryptocrystalline silica. It exhibits a range of textures and colours including red, green or black. Chert is easy to work and retains a sharp edge for an extensive period of time before resharpening is required. It has a low to medium fracture toughness.

Clast: A broken fragment of rock or crystal particle that was created either through erosion or weathering.

Clay: A type of sediment with particles less than 4 microns in size and that is composed of clay minerals (Keary 2001: 49).

Conglomerate: Is a geological term used to describe clasts that are cemented in a fine grained matrix. It is a sedimentary rock.

Core: A stone piece from which a flake has been removed by percussion (striking it) or by pressure. It is identified by the presence of flake scars showing the negative attributes of flakes, from where flakes have been removed.

Cortical platform: This term is used to describe a platform that has cortex present and may indicate that the core's surface (where the flake was struck) was previously un-worked.

Cortex: The outer weathered surface of stone; if smooth, it can indicate the source of stone was a pebble.

Crushed platform: This term is used to describe a flake that has a damaged platform and where the platform's attributes cannot be recorded as a result.

Cultural heritage assessment report: A report combining an Aboriginal archaeological assessment and Aboriginal cultural assessment, required to be submitted to DECCW for any Part 6 *National Parks and Wildlife Act 1974* approval or prepared for projects under Section 5.1 of the *Environmental Planning and Assessment Act 1979* where Aboriginal cultural heritage is identified as a key issue.

Debitage: Small, unmodified flakes produced as part of the flaking process, but discarded unused.

Distal: Term of view used to describe the lower portion of a flake in respect to where the striking force terminates.

Distal flake: A broken flake with the presence of a termination and the absence of a platform or impact point.

Dorsal: The side of a flake that was originally part of the core's outer surface (often referred to as the 'dorsal surface').

Easting: This is a measurement used to determine location. The easting is the x-coordinate and relates to the vertical lines on a map, which divide east to west. It increases in size when moving further east.

Edge damage: Where the edge of a tool has been used, resulting in microscopic fractures along the surface.

Exposure: The level of ground exposure is based on whether the landform is eroding, aggrading or stable.

Faceted platform: A faceted platform has three or more flake scars present on its surface.

Feather termination: A feather termination has a 'minimal thickness at the distal end and an acute angle between the dorsal and ventral surfaces' (Holdaway and Stern 2008: 129). In appearance, a feather termination becomes gradually thinner towards the end of the flake.

Fine grained siliceous material: A rock that has a high content of silica and that is fine grained in appearance without any further identifying characteristics.

Flake: A stone piece removed from a core by percussion (striking it) or by pressure. It is identified by the presence of a striking platform and bulb of percussion, not usually found on a naturally shattered stone.

Flake scar: Often called a 'negative flake scar', it is the remnant of a previous flake that was struck from the core. This appears on the dorsal surface of a flake.

Flaked fragment: This is a chipped stone artefact which cannot be classed as a flake, core or retouched flake, the reason being that the defining attributes are missing. This often happens when a core contains a number of incipient fracture planes. Artefacts that are heavily weathered or which have been shattered in a fire are also difficult to categorise.

Flaked platform: This term is used to describe a platform that has been worked previously; one or more flakes were removed prior.

Floodplain: The area covered by water during a major flood and/or the area of alluvium deposits laid down during past floods.

Fluvial: Pertaining to or produced from a river.

Focalised platform: A small platform that is intentionally prepared for percussion by overhang removal.

Footprint: The scale, extent or mark that a development makes on the land in relation to its surroundings.

Geometric microliths: Backed at one end, the other end or both, these tools are made on geometric shaped flakes, <80 mm maximum dimension.

Geomorphic: Relating to the structure, shape and development of landforms.

Hammerstone: A piece of stone used to knock flakes from a core. Evidence of pitting or bashing can usually be seen along some part of the margins of this artefact.

Hinge termination: A hinge termination occurs ‘when the fracture meets the surface of the core at approximately right angles to the longitudinal axis of the flake’ (Holdaway and Stern 2008: 130). This can present as a rounded surface that curves downwards at the distal end of a flake.

Holocene: The Holocene epoch forms part of the late Quaternary period and extends from about 11,000 years ago to the present day.

Humic: Soil that contains organic matter (from ‘humus’).

Igneous: After magma or lava cools and solidifies, it forms igneous rock. This can happen in volcanic and plutonic (under the surface of the earth) scenarios. An example of this is basalt.

In situ: A description of any cultural material that lies undisturbed in its original point of deposition.

Ironstone: A type of sedimentary rock that contains iron.

Knapping: The removal of flakes and flaked pieces from a stone core by the use of percussion.

Layer: In stratigraphy, it is used to describe a horizon (soil, rock, charcoal) that is distinct from its surrounds.

Landform: Description for an area of land based on an assessment of a series of environmental characteristics including geology, geomorphology, soils and vegetation.

Loam: Soil that contains roughly equal concentrations of silt, sand and clay.

Longitudinally split flake: This is a flake that is broken (split) from the point of percussion (the strike) through to the termination.

Manuport: An unmodified piece of stone transported to a site by humans.

Medial: Term of view referring to the intermediate section or middle section of a broken flake.

Medial flake: Absence of proximal and distal margins, but with an identifiable ventral surface.

Metamorphism: The process where an existing rock (which can be sedimentary or igneous) is transformed into another mineral through the application of temperature and pressure. An example of this is hornfels.

Mudstone: A sedimentary rock formed from mud/clay.

Muller: A large stone artefact which differs in construction depending on the environment. These were used as an aide for processing seeds and other low return plant material or ochre.

Multiple platform core: Is a core with more than one identifiable platform.

Munsell colour: This is a colour code chart used to standardise colour specifications.

Non-diagnostic: An amorphous piece of stone that is neither a flake, flaked fragment, core or retouched flake.

Northing: This is a measurement used to determine location. The northing is the y-coordinate and relates to the horizontal lines on a map, which divide north to south. It increases in size when moving further north.

Notched tool: Flakes that exhibit a small area of retouch, forming a concave edge on lateral or distal margin.

Oriented length: This is a measurement taken from the point of impact through to the termination.

Oriented thickness: This is a measurement taken from where the oriented width and oriented length intersect.

Oriented width: This is a measurement taken across the middle of a flake (halfway between the point of impact and the termination).

Overhang removal: This occurs when a platform is prepared for striking; small flakes are struck before a flake is detached, leaving visible scars behind.

Potential Archaeological Deposit (PAD): A PAD is a location that is considered to have a potential for sub-surface cultural material. This is determined from a visual inspection of the site, background research of the area and the landform's cultural importance.

pH: A measure of the acidity or alkalinity of the soil. Neutral is indicated by a pH of 7, with strongly acidic being 0 and strongly basic (alkaline) being 14. The 'pH' is said to stand for 'potential of hydrogen'.

Platform: On a flake, this is a core remnant from where the flake was struck off the core.

Platform width: This is a measurement taken across the width of a platform between the two lateral margins of a flake.

Platform thickness: This is a measurement taken from the ventral to dorsal surfaces of a flake (beginning at the point of impact/percussion).

Plunge termination: This occurs when the ventral surface 'curves markedly away from the face of a core...and continues directly into the core, removing the base of the core' (Holdaway and Stern 2008: 132). This can present as a 'J' shape when holding the flake in profile.

Proximal: Term of view used to describe the upper portion of a flake in respect from where it was initially struck off a core.

Proximal flake: A broken flake with the presence of a platform, but the absence of a termination.

Pot-lidded: The damage caused by exposure to extreme heat, resulting in a circular depression on the surface of a stone artefact.

Pressure flaking: A process to remove a flake from a core by applying pressure (from a piece of wood or bone) along the core's edge.

Quarry: In this report, 'quarry' can refer to a native source of stone that was mined by Aboriginal people in the past. Rock from these sites could be used to make artefacts.

Quartz: A mineral composed of silica with an irregular fracture pattern. The quartz used in artefact manufacture is generally semi-translucent, although it varies from milky white to glassy. Glassy quartz can be used for conchoidal flaking, but poorer quality material is more commonly used for block fracturing techniques. Quartz can be derived from water worn pebbles, crystalline or vein (terrestrial) sources.

Quartzite: A form of metamorphosed sandstone. It is often white or grey in colour, but can occur in other shades due to mineral impurities.

Refit: Knapping is a reductive technology. As such, it is possible to 'refit' tools back together after breakage or knapping (i.e. refitting a proximal and distal flake back together or refitting a flake back to the core it was knapped from).

Resource area: An area of the landscape or part of the environment that provides a resource (be it food or material items such as a source of stone for making artefacts) for Aboriginal people. Swamps are good examples of rich resource zones.

Retouch: A flake, flaked piece or core with intentional secondary flaking along one or more edges.

Sand: A material composed of small grains (0.625-2.0 mm) (Keary 2001: 233). Sand is formed from a variety of minerals and rocks, but commonly contains silica, such as quartz.

Sandstone: Is a sedimentary rock formed from sand-sized grains.

Scarred trees: Trees that feature Aboriginal derived scars are distinct due to the scar's oval or symmetrical shape and the occasional use of steel, or more rarely, stone axe marks on the scar's surface. Scarred trees are identified by the purposeful removal of bark for use in the manufacture of artefacts such as containers, shields and canoes. The bark was also used for the construction of shelters. Other types of scarring include toeholds cut in the trunks or branches of trees for climbing purposes and the removal of bark to indicate the presence of burials in the area.

Sediment: Is a mineral that has undergone erosion or weathering and that is then deposited via aeolian, glacial or fluvial means.

Sedimentary: Sedimentary rock is formed through the accumulation of sediment deposits that are then consolidated. An example of this is mudstone.

Shale: A sedimentary rock of well-defined layers comprised of small particles (less than 4 microns in size) (Keary 2001: 16) sourced from weathered or eroded materials.

Significant ground disturbance: Means disturbance of (a) the topsoil or surface rock layer of the ground; or (b) a waterway, by machinery in the course of grading, excavating, digging, dredging or deep ripping, but does not include ploughing other than deep ripping.

Silt: A sediment with grains ranging from 4.0-62.5 microns in size (Keary 2001: 245). It can be found as a soil or in water.

Single platform core: Is a core with one identifiable platform.

Scraper: A stone tool, usually with steep retouch along its edges that was ethnographically used to make wooden implements or process foods and other resources.

Silcrete: Soil, clay or sand sediments that have silicified under basalt through groundwater percolation. It ranges in texture from very fine grained to coarse grained. At one extreme it is cryptocrystalline with very few clasts. It generally has characteristic yellow streaks of titanium oxide that occur within a grey and less commonly reddish background. Used for flaked stone artefacts.

Spit: Refers to an arbitrarily defined strata of soil removed during excavation (often 50 millimetres to 100 millimetres in depth).

Step termination: This occurs when a 'flake terminates abruptly in a right-angle break' (Holdaway and Stern 2008: 130).

Stratification: The way in which soil forms in layers.

Stratigraphy: The study of soil stratification (layers) and deposition.

Sub-surface testing: An archaeological method used to determine the cultural sensitivity of an area by excavating small (0.5 metre x 0.5 metre) pits and recording the stratigraphy, material remains (such as stone tools) and disturbance.

Survey: In archaeological terms, this refers to walking over a surface while studying the location of artefacts and landmarks. These are then recorded and photographed.

Termination: Refers to the shape of the distal end of a flake.

Tool: A stone flake that has undergone secondary flaking or retouch.

Usewear: A pattern of wear that is left on a stone artefact due to utilisation.


Ventral: The side of a flake that was originally attached to the core (often called the 'ventral surface'). Features such as the bulb of percussion are found on this surface of a flake.

Visibility: Refers to the degree to which the surface of the ground can be observed. This may be influenced by natural processes such as wind erosion or the character of the native vegetation, and by land use practices, such as ploughing or grading. It is generally expressed in terms of the percentage of the ground surface visible for an observer on foot.

APPENDIX 2 - AHIP NO. C0003480

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APPENDIX 3 - NEWSPAPER ADVERTISEMENT



Roads and Maritime Services

Aboriginal Heritage

Nowra Bridge Project

Roads and Maritime Services is inviting Aboriginal people and Aboriginal groups who hold cultural knowledge relevant to determining the significance of Aboriginal objects and places for the Nowra Bridge project to register their interest in being consulted.

Roads and Maritime proposes to build a new bridge over the Shoalhaven River at Nowra.

The proposal may result in Roads and Maritime:

- Applying for an Aboriginal Heritage Impact Permit (AHIP) under Part 6 of the *National Parks and Wildlife Act 1974*, and/or
- Carrying out investigations in accordance with the *Code of practice for archaeological investigations in NSW 2010*, and/or
- Carrying out an environmental impact assessment under the *Environmental Planning & Assessment Act 1979*.

To register please contact: Nick Boyd,
Project Development Manager
PO Box 477, Wollongong NSW 2520,
Phone 1800 331 713 or email
nowrabridgeproject@rms.nsw.gov.au

Registrations must be received by phone or in writing by Wednesday 13 December 2017.

BLZ130021

APPENDIX 4 - AGENCY LETTER



28 August 2017

Greg Peterson
Nowra Local Aboriginal Land Council
59 Bienda Street
Bomaderry
NSW 2541

Dear Greg,

To seek Aboriginal knowledge holders to assist Roads and Maritime Services (RMS) to prepare a cultural heritage assessment report for the Nowra Bridge project.

The RMS is seeking the names of Aboriginal people who may hold cultural knowledge relevant to determining the significance of Aboriginal objects and/or places within the project area for the Nowra Bridge project.

Aboriginal people identified by your agency will be notified of the project and invited to participate in the assessment process as described in OEH's requirements. Please forward the details of relevant Aboriginal people to the RMS before **11 September 2017**.

The contact details for this project are:

Roads and Maritime Services Project Manager, Nick Boyd.
Mai: PO Box 477, Wollongong NSW 2520
Email: nowrabridgeproject@rms.nsw.gov.au or call 1800 331 713.

The project includes planning a new crossing over the Shoalhaven River on the A1 Princes Highway at Nowra.

The new bridge would tie in to the existing A1 Princes Highway between Illaroo Road to the north, and Bridge Road to the south of the Shoalhaven River.

The project would provide access for high productivity and Higher Mass Limit (HML) vehicles, address the poor condition of the existing bridge, reduce ongoing bridge maintenance costs and improve journey reliability and network connectivity.

SMEC is the consultant carrying out the concept design and environmental assessment for the project. SMEC is currently progressing preliminary investigations for the purpose of gathering

information required for this work. The general community will be invited to give feedback on the proposal later this year.

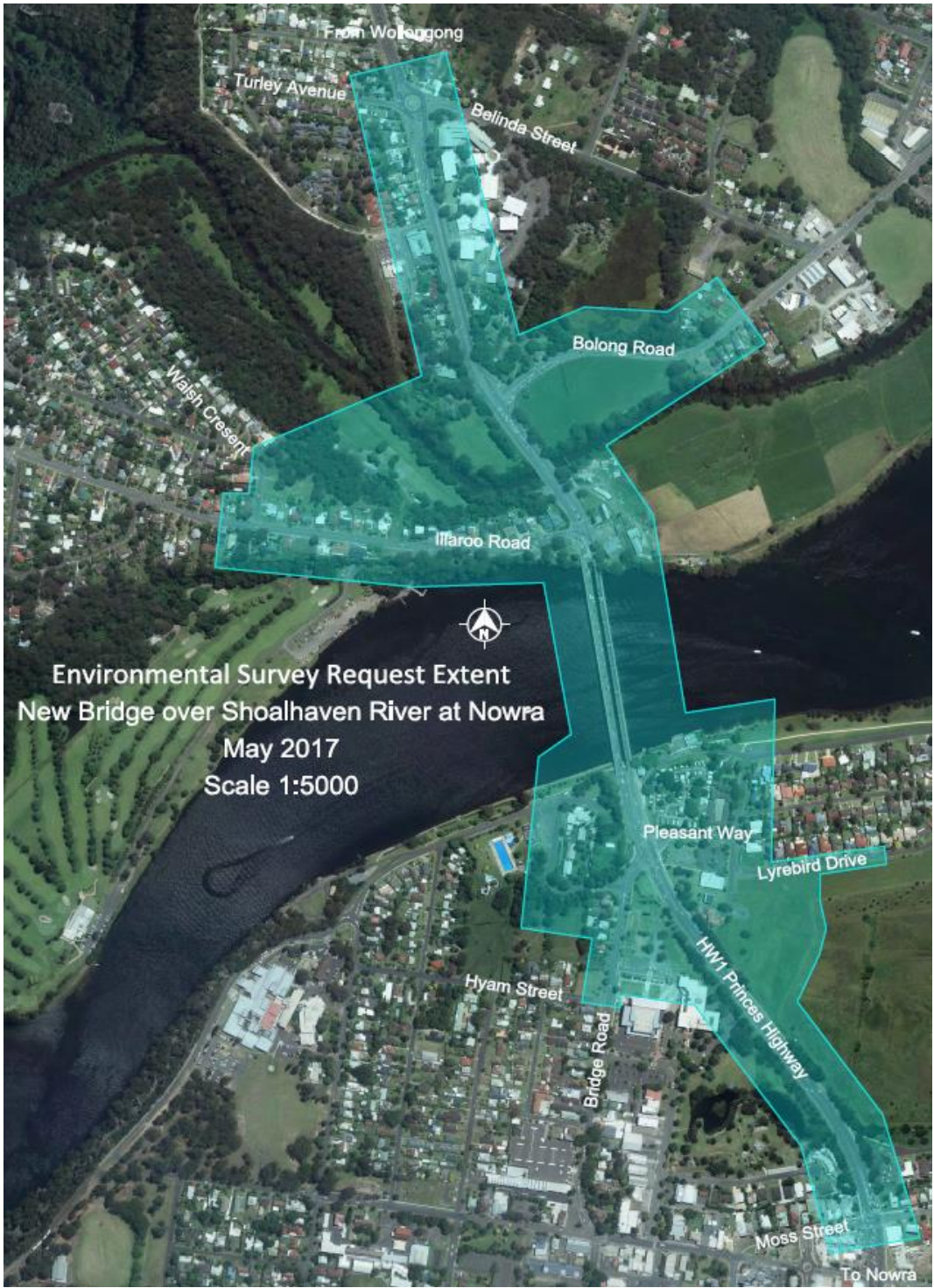
Attached is a map outlining the study area.

This letter forms part of the RMS's commitment to actively identify relevant Aboriginal people in accordance with section 4.1.2 of the Office of Environment and Heritage (OEH) *Aboriginal cultural heritage consultation requirements for proponents* (2010).

Yours sincerely



Lee Davison
Aboriginal Cultural Heritage Officer
Stakeholder and Community Engagement



APPENDIX 5 - RESPONSE TO AGENCY LETTERS

Appendix removed from public document.

APPENDIX 6 - STAKEHOLDER INVITATION TO REGISTER



21 November 2017

Nowra Local Aboriginal Land Council

Nowra Local Aboriginal Land Council

PO Box 528

Nowra NSW

2541

Dear Sir/Madam

Aboriginal community consultation notification for the proposed Nowra Bridge project.

You have been identified by Roads and Maritime as an Aboriginal person or organisation with the potential to hold cultural knowledge relevant to determining the significance of Aboriginal objects and places within the project area. Accordingly, Roads and Maritime Services (RMS) invites you to participate in community consultation for this project.

To register your interest to be consulted about this project, please contact the following:

Nick Boyd, Roads and Maritime Services Project Development Manager

PO Box 477, Wollongong NSW 2520

Phone: 1800 331 713

Email: nowrabridgeproject@rms.nsw.gov.au

To be involved in the consultation process, responses must be received by Wednesday 6th December 2017.

The RMS proposes to build a new bridge over the Shoalhaven River at Nowra. The study area is shown on the attached map.

This notification is being undertaken in accordance with section 4.1.1 of the Office of Environment and Heritage's *Aboriginal cultural heritage consultation requirements for proponents (2010)*.

Community consultation may assist the RMS to (a) prepare an Aboriginal Heritage Impact Permit (AHIP) application for the project, or (b) undertake archaeological testing in accordance with OEH's *Code of practice for archaeological testing in NSW*, or (c) prepare an environmental assessment under Part 4.1 or 5.1 of the *Environmental Planning & Assessment Act 1979*.

Yours sincerely,

Nick Boyd

Project Development Manager

Roads & Maritime Services



APPENDIX 7 - RESPONSES TO INVITATION TO REGISTER

Appendix removed from public document.

APPENDIX 8 - RECEIPT OF REGISTRATION LETTER



16 January 2018



Dear [Redacted]

Receipt of registration to participate in Aboriginal cultural heritage assessment process for the Nowra Bridge project

Thank you for registering your interest with the Roads and Maritime Services to be involved in the Aboriginal cultural heritage consultation process for this project.

Shortly, you will receive an invitation to attend an Aboriginal focus group meeting. At this meeting, Roads and Maritime Services will present an overview of the project; describe the statutory approvals process; outline critical milestones and invite you to discuss or present cultural information relevant to the Aboriginal objects or places that may be affected by the project.

You will receive a copy of a draft archaeological methodology which will outline how the Roads and Maritime Services proposes to manage its impact on Aboriginal objects and/or places. You are invited to review this methodology and provide comment.

As part of the consultation process Roads and Maritime Services is required to give the Office of Environment and Heritage (OEH) and the relevant local Aboriginal land council(s) the names of all parties that have registered. **If you do not want your name to be forwarded, please inform the contact person for this project.**

Aboriginal community consultation will be undertaken in accordance with:

- The Office of Environment and Heritage (OEH) Aboriginal cultural heritage consultation requirements for applicants 2010; and
- The Roads and Maritime Services *Procedure for Aboriginal cultural heritage consultation and investigation* 2010.

The contact person for this project is:
Daniel McClure, Project Development Manager
Mail: PO Box 477, Wollongong NSW 2520
Email: nowrabridgeproject@rms.nsw.gov.au
Phone: 1800 331 713

Yours faithfully,

A handwritten signature in black ink, appearing to read 'Daniel McClure'.

Daniel McClure
Project Development Manager

Roads & Maritime Services

APPENDIX 9 - INVITATION TO AFG1 AND PROVIDE FEEDBACK ON TEST EXCAVATION METHODOLOGY AND CHAR



18 January 2018



Dear [REDACTED]

Invitation to participate in the heritage assessment process and to attend an Aboriginal focus group meeting for the Nowra Bridge project

Roads and Maritime Services (RMS) proposes to build a new bridge over the Shoalhaven River at Nowra.

RMS believes that the project may have an impact on Aboriginal cultural heritage. As a consequence, the RMS may require approvals under *National Parks & Wildlife Act 1974* and/or the *Environmental Planning & Assessment Act 1979* for this project.

As part of the consultation process, the RMS seeks cultural information to identify:

- Whether there are any Aboriginal objects of cultural value to Aboriginal people in the area of the proposed project.
- Whether there are any places of cultural value to Aboriginal people in the area of the proposed project. This includes places of social, spiritual and cultural value, historic places with cultural significance, and potential places/areas of historic, social, spiritual and/or cultural significance.

RMS will be holding an Aboriginal focus group meeting to discuss the management of Aboriginal cultural heritage for this project at **Shoalhaven Entertainment Centre, Tuesday 6th February 2018**. An agenda for the meeting has been enclosed. Lunch will be provided from 1230pm with the meeting to commence at 1pm.

Also find enclosed a copy of the draft archaeological methodology and draft cultural heritage assessment report (CHAR) for your review and comment.

All comments on the cultural values of the study area, the archaeological methodology and/or archaeological report must be received by **Monday 16th February 2018**. Comments can be provided in writing, by phone or at the Aboriginal focus group meeting.

Aboriginal site officers may be required to undertake archaeological field work for this project. If you would like to nominate an Aboriginal person (including you) to be considered for a site officer role, please fill in and return the attached Aboriginal Site Officer Application Form.

Please advise RMS whether any specific disability assistance may be required to assist in your attendance at the meeting, such as wheelchair access, hearing loops, and advise of any dietary requirements.

Roads & Maritime Services

Please note that travel expenses will not be reimbursed for attendance at focus group meetings and site visits for this project.

To register your interest in attending the Aboriginal focus group meeting, you should write, email or phone:

Daniel McClure, Project Development Manager
Mail: PO Box 477, Wollongong NSW 2520
Email: nowrabridgeproject@rms.nsw.gov.au
Phone: 1800 331 713.

We look forward to your participation in the assessment of this project.

Yours faithfully,

Daniel McClure
Project Development Manager



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Level 6, 90 Crown St, Wollongong, NSW 2500 | PO Box 477 Wollongong, NSW, 2500
T 1800 331 713 | E nowrabridgeproject@rms.nsw.gov.au

APPENDIX 10 - AFG 1 AGENDA AND MINUTES

RESOURCE 20

Name of meeting: Nowra Bridge Aboriginal Focus Group Meeting

Location of meeting: Shoalhaven Entertainment Centre
42 Bridge Road, Nowra, NSW

Meeting facilitator: Jo Damcevski, RMS Aboriginal Cultural Heritage Officer

Date: Tuesday 6th Feb 2018 **Time:** 12:30pm

Attendees: Daniel McClure, Project Development Manager, RMS
Nicole Stevenson, Project Development Manager, RMS
Michelle Toms, Environment Officer, RMS
Daniel Percival, Environment Officer (Heritage), RMS
Bobbi Brodie, Senior Aboriginal Engagement Specialist, RMS
Jo Damcevski, Aboriginal Cultural Heritage Officer, RMS
Michael Lever, Archaeologist, Artefact Heritage Consultants
Joy Duncan, Technical Principal - Environmental Planning & Assessment, SMEC

Please read: Test Excavation Methodology and Cultural Heritage Assessment Report (CHAR)

1. Welcome to country/acknowledgement (5 mins)

Jo Damcevski

2. Introductions and apologies (5 mins)

Jo Damcevski

3. Define roles and scope of meeting (10 mins)

Daniel McClure

4. The proposal (10 mins)

Daniel McClure

- Outline project details and known impact (environmental/other)
- Environmental Assessment process
- Critical timeframes and milestones for completion of assessment activities and delivery of reports

5. Archaeological assessment (30 mins)

Michael Lever

- Discussion of survey results
- Proposed methodology for further investigations
- AHIP
- 28 day review period and provide comment

6. Cultural assessment (30 mins)

Michael Lever and all parties

- Aboriginal parties to identify and discuss cultural concerns, perspectives and assessment requirements
- Knowledge holders
- Identify any unknown cultural objects, places, or areas that may be affected by the proposal
- Discuss how culturally sensitive or restricted information should be used
- 28 day period to provide cultural information

7. Site officer applications (15 mins)

Jo Damcevski

- Number and duration of site officers required
- Expected site officer conduct and Work Health and Safety requirements
- Applications for site officers

8. Review of outcomes/actions (10 mins)

Jo Damcevski

9. General Business (5 mins)

Meeting End

Name of meeting: Nowra Bridge Project, Aboriginal Focus Group 1

Location of meeting: Shoalhaven Entertainment Centre

Meeting facilitator: Daniel McClure

Date: 6/02/2018

Time: 12.30-3.30pm

Attendees:	Tanya Laughton	Michael Lever (Artefact)	Daniel McClure (RMS)
	Anna O'Hara	Jen Norfolk (Artefact)	Michelle Toms (RMS)
	Jamie Workman	Kym McNamara (OEH)	Bobbi Brodie (RMS)
	Joy Duncan (SMEC)	Julia Maskell (OEH)	Jo Damcevski (RMS)

Subject: Nowra Bridge Project, Aboriginal Focus Group 1

MEETING MINUTES

1. Welcome to country

- o Bobbi Brodie

2. Introductions and apologies

- o Bobbi Brodie provided a brief introduction.
- o Apologies: Troy Tungai, Nicole Stevenson (RMS), Daniel Percival (RMS)

3. Define roles and scope of meeting

- o Dan McClure (Project Development Manager) provided the following:
 - housekeeping information
 - terms of reference
 - definition of roles, functions, and responsibilities
 - scope of meeting.

4. The proposal

- o Dan McClure outlined the following project information
 - project details and background
 - brief history of the bridge
 - options considered including the preferred western/upstream option
 - project timeframes.

5. Archaeological assessment

- o Michael Lever presented the following information:
 - Description of study area
 - Background information and assessment undertaken to date

- Detail of the site survey including levels of disturbance observed and sites/PAD's identified
 - 5 PAD's were identified
 - 5 sites were identified (4 artefact scatters and 1 scarred tree)
- Discussion of proposed impacts to identified sites and PAD's. Discussion around impact to the rockshelters and clarification of which rockshelter would be subject to test excavation
- Details of proposed test excavations including methodology, test pit locations, and legislative context (areas requiring testing under an AHIP vs. areas requiring testing under Code of Practice)

6. Cultural assessment

- Michael Lever discussed cultural heritage and asked for any cultural information or local knowledge holder nominations to help inform the preparation of a detailed cultural assessment
- Tanya Laughton recommended Uncle Les Simons as a person who may hold cultural information
- Contact Jo Damcevski or Daniel McClure to nominate knowledge holders.

7. Site officer applications

- The Site Officer application process and times frames were outlined.
- Site Officer application forms were provided at the meeting.
- Site Officer applications close at close of business Friday 16th February 2018.
- Work is expected to start in March 2018.
- Between 4-6 site officers would be required for up to 10 days.
- Site Officer selection process will be based on merit.

8. Meeting End

- Dan McClure closed the meeting and advised that the next AFG meeting would be in April 2018.
- Meeting minutes will be circulated to those who attended today's meeting and the list of RAP's.
- Contact with RMS should be made via:

Jo Damcevski, Aboriginal Cultural Heritage Officer

E Jo.Damcevski@rms.nsw.gov.au

T 02 4221 2767

Dan McClure, Project Development Manager

E nowrabridgeproject@rms.nsw.gov.au

T 1800 331 713

In addition general project information and updates can be found on the RMS website
<http://www.rms.nsw.gov.au/projects/south-coast/nowra-bridges-shoalhaven-river/index.html>

APPENDIX 11 - RESPONSES TO TEST EXCAVATION METHODOLOGY AND CHAR REVIEW

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APPENDIX 12 - INVITATION TO ATTEND AFG2 AND PROVIDE FEEDBACK ON CHAR



4 May 2018

Nowra Local Aboriginal Land Council
Shane Snelson
PO Box 528
Nowra NSW 2541

Dear Shane,

Invitation to participate in the heritage assessment process and to attend an Aboriginal focus group meeting for the Nowra Bridge project

Roads and Maritime Services proposes to build a new bridge over the Shoalhaven River at Nowra, which is located within the Nowra Local Aboriginal Land Council boundaries.

Roads and Maritime believes that the project may have an impact on Aboriginal cultural heritage. As a consequence, the Roads and Maritime may require approvals under *National Parks & Wildlife Act 1974* and/or the *Environmental Planning & Assessment Act 1979* for this project.

As part of the consultation process, the Roads and Maritime seeks cultural information to identify:

- Whether there are any Aboriginal objects of cultural value to Aboriginal people in the area of the proposed project.
- Whether there are any places of cultural value to Aboriginal people in the area of the proposed project. This includes places of social, spiritual and cultural value, historic places with cultural significance, and potential places/areas of historic, social, spiritual and/or cultural significance.

Roads and Maritime will be holding an Aboriginal focus group meeting to discuss the management of Aboriginal cultural heritage for this project at **Shoalhaven Entertainment Centre, 42 Bridge Road, Nowra on Friday 18 May 2018**. An agenda for the meeting has been enclosed. Lunch will be provided from 12pm with the meeting to commence at 1230pm.

Also find enclosed a copy of the draft Aboriginal Cultural Heritage Assessment Report (CHAR) for your review and comment.

All comments on the cultural values of the study area and the CHAR must be received by **Friday 1 June 2018**. Comments can be provided in writing, by phone or at the Aboriginal focus group meeting.

Please advise Roads and Maritime whether any specific disability assistance may be required to assist in your attendance at the meeting, such as wheelchair access, hearing loops, and advise of any dietary requirements.

Please note that travel expenses will not be reimbursed for attendance at focus group meetings and site visits for this project.

Roads & Maritime Services

To register your interest in attending the Aboriginal focus group meeting, you should write, email or phone:

Daniel McClure, Project Development Manager
Mail: PO Box 477, Wollongong NSW 2520
Email: nowrabridgeproject@rms.nsw.gov.au
Phone: 1800 331 713.

We look forward to your participation in the assessment of this project.

Yours faithfully,

A handwritten signature in black ink, appearing to read 'Daniel McClure', with a stylized flourish at the end.

Daniel McClure
Project Development Manager

APPENDIX 13 - AFG 2 AGENDA AND MINUTES

AGENDA



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RESOURCE 20

Name of meeting: Nowra Bridge Aboriginal Focus Group Meeting

Location of meeting: Shoalhaven Entertainment Centre
42 Bridge Road, Nowra, NSW (Atrium meeting room)

Meeting facilitator: Jo Damcevski, RMS Aboriginal Cultural Heritage Officer

Date: Friday 18th May 2018 **Time:** 12:30pm (lunch provided from 12pm)

Attendees: Daniel McClure, Project Development Manager, RMS
Michelle Toms, Environment Officer, RMS
Bobbi Brodie, Senior Aboriginal Engagement Specialist, RMS
Jo Damcevski, Aboriginal Cultural Heritage Officer, RMS
Vanessa Edmonds, Archaeologist, Artefact Heritage Consultants
Joy Duncan, Technical Principal - Environmental Planning & Assessment, SMEC

Please read: Cultural Heritage Assessment Report (CHAR)

1. Welcome to country/acknowledgement (5 mins)

Jo Damcevski

2. Introductions and apologies (5 mins)

Jo Damcevski

3. Define roles and scope of meeting (10 mins)

Daniel McClure

4. The proposal (10 mins)

Daniel McClure

- Outline project details and known impact (environmental/other)
- Environmental Assessment process
- Critical timeframes and milestones for completion of assessment activities and delivery of reports

5. Archaeological assessment (30 mins)

Vanessa Edmonds

- Discussion of test excavation results
- Results of additional survey
- Long term arrangements for the management of excavated artefacts
- AHIP

6. Cultural assessment (30 mins)

Vanessa Edmonds and all parties

- Aboriginal parties to identify and discuss cultural concerns, perspectives and assessment requirements
- Knowledge holders
- Identify any unknown cultural objects, places, or areas that may be affected by the proposal
- Discuss how culturally sensitive or restricted information should be used
- Proposed strategies for management of impacts to Aboriginal Cultural heritage
- 28 day period to provide cultural information

8. Review of outcomes/actions (10 mins)

Jo Damcevski

9. General Business (5 mins)

All

Meeting End

Name of meeting: Nowra Bridge Project, Aboriginal Focus Group 2

Location of meeting: Shoalhaven Entertainment Centre, Atrium Meeting Room
42 Bridge Road, Nowra

Meeting facilitator: Dan McClure

Date: 18/05/2018

Time: 12.30-3.30pm

Attendees:	Dan McClure (RMS)	Vanessa Edmonds (Artefact)	Graham Carberry (Jerrinja)
	Jo Damcevski (RMS)	Ryan Taddeucci (Artefact)	Ronald Carberry (Jerrinja)
	Michelle Toms (RMS)	Rose O'Sullivan (OEH)	Alfred Wellington (Jerrinja)
	Chloe Leng (RMS)	Joy Duncan (SMEC)	Nathanial Kennedy (Warra Bingi)

Subject: Nowra Bridge Project, Aboriginal Focus Group 2

MEETING MINUTES

1. Welcome to country/acknowledgement

- Dan McClure (Project Development Manager)

2. Introductions and apologies

- Dan McClure
- Apologies: Paul Boyd (Didge Ngunawal), Anna O'Hara (Darug Land Observations), Jamie Workman (Darug Land Observations)

3. Define roles and scope of meeting

- Dan McClure provided housekeeping information, terms of reference, definition of roles, functions, and responsibilities, and scope of meeting.

4. The proposal

- Dan McClure outlined the project background, brief history of the bridge, details of the project, options considered, preferred western/upstream option, and timeframes.

5. Archaeological assessment

Ryan Taddeucci presented the following information:

- Background of assessment undertaken to date including mapping of original sites and PAD's
- Details of test areas and test excavation findings at each site
- Details of new, updated, and deregistered sites
- Details of the two additional survey areas
- Discussion of proposed impacts to identified sites and PAD's
- Proposed mitigation measures

6. Cultural assessment

- Ryan Taddeucci and Vanessa Edmonds discussed cultural heritage and asked for comment regarding cultural information presented in the CHAR.
- It was discussed that Knowledge Holders had been nominated but had not been able to be contacted to date.

7. General discussion

- There was lengthy discussion around the long term management of artefacts. The RAP's agreed that they would like to see artefacts kept at a keeping place so that artefacts could be accessible, especially those with educational values. There was some discussion around opportunities for display. The display at Stocklands for Sandon Point was mentioned as an example. Concerns were expressed that if artefacts were displayed in a LALC there would be limited audience.
- Vanessa discussed the option of a Heritage Interpretation Plan for the project.
- Jerrinja raised concerns over the removal of Aboriginal items for the project and questioned what Aboriginal people would get from the project. Graham asked about the ongoing benefits to the community and youth of Nowra. Jo Damcevski advised of the Aboriginal Participation in Construction program.
- Ronald expressed concerns over the vibration impacts to the sandstone rock shelters in close proximity to the works and loss of heritage values.
- Ronald expressed the wish to have another AFG meeting at the close of the consultation period.
- There was discussion around the recommendations and consultation outcomes. Jerrinja questioned how items raised during consultation are addressed and how recommendations are determined i.e. which recommendations are implemented and which are not.
- There was discussion around monitoring, particularly monitoring of the rockshelter to be impacted. The group was advised that RMS has a no monitoring policy.
- Jerrinja expressed concerns regarding people not from country working or having input on the project.
- A meeting was requested by Ronald regarding boundaries. OEH discussed the Aboriginal Cultural Heritage reforms and explained that this was outside the scope of the project or Roads and Maritime.

8. Meeting End

- Dan McClure closed the meeting and provided a reminder that the comment period closes on Friday 1 June 2018.
- Meeting minutes will be circulated to those who attended today's meeting and the list of RAP's.
- Contact with RMS should be made via:
Jo Damcevski, Aboriginal Cultural Heritage Officer
E Jo.Damcevski@rms.nsw.gov.au T 02 4221 2767
Dan McClure, Project Development Manager
E nowrabridgeproject@rms.nsw.gov.au T 1800 331 713
- In addition general project information and updates can be found on the RMS website <http://www.rms.nsw.gov.au/nowrabridge>

APPENDIX 14 - RESPONSES TO CHAR REVIEW

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APPENDIX 15 - ARCHAEOLOGICAL TECHNICAL REPORT

Report removed from public document

APPENDIX 16 - ARCHAEOLOGICAL SURVEY REPORT

Report removed from public document

APPENDIX 17 - AHIMS SITE CARDS AND ABORIGINAL SITE IMPACT RECORDING FORMS

Report removed from public document



artefact

Artefact Heritage

ABN 73 144 973 526
Level 4, Building B
35 Saunders Street
Pyrmont NSW 2009
Australia

+61 2 9518 8411
office@artefact.net.au
www.artefact.net.au