



# Review of Environmental Factors

## BERMAGUI RIVER BOAT RAMP AND BRUCE STEER POOL UPGRADE



OCTOBER 2018



## Document Verification



Project Title: Bermagui River Boat Ramp and Bruce Steer Pool Upgrade

Project Number: 18-328

Project File Name: Bermagui River Boat Ramp and Bruce Steer Pool REF Final\_v1

Revision	Date	Prepared by (name)	Reviewed by (name)	Approved by (name)
Draft v1	29/08/18	Vitaly Kolin and Clancy Bowman, Deb Frazer, Brooke Marshall	Jane Blomfield	Brooke Marshall
Final v1	31/10/18	Clancy Bowman	Jane Blomfield	Brooke Marshall

NGH Environmental prints all documents on environmentally sustainable paper including paper made from bagasse (a by-product of sugar production) or recycled paper.

NGH Environmental Pty Ltd (ACN: 124 444 622. ABN: 31 124 444 622)

[www.nghenvironmental.com.au](http://www.nghenvironmental.com.au)

e: [ngh@nghenvironmental.com.au](mailto:ngh@nghenvironmental.com.au)

**Sydney Region**  
18/21 mary st  
surry hills nsw 2010 (t 02 8202 8333)

**Canberra - NSW SE & ACT**  
8/27 yellourn st (po box 62)  
fyshwick act 2609 (t 02 6280 5053)

**Brisbane**  
suite 4, level 5, 87 wickham terrace  
spring hill qld 4000 (t 07 3129 7633)

**Newcastle - Hunter and North Coast**  
7/11 union st  
newcastle west nsw 2302 (t 02 4929 2301)

**Wagga Wagga - Riverina and Western NSW**  
suite 1, 39 fitzmaurice st (po box 5464)  
wagga wagga nsw 2650 (t 02 6971 9696)

**Bega - ACT and South East NSW**  
suite 11, 89-91 auckland st (po box 470)  
bega nsw 2550 (t 02 6492 8333)

# CONTENTS

<b>1</b>	<b>INTRODUCTION .....</b>	<b>1</b>
<b>2</b>	<b>THE PROPOSAL .....</b>	<b>1</b>
2.1	PURPOSE AND GENERAL SCOPE OF WORKS PROPOSED .....	1
2.1.1	Bermagui River boat ramp .....	1
2.1.2	Bruce Steer Pool .....	2
2.2	LOCATION OF THE ACTIVITIES .....	3
2.2.1	Bermagui River boat ramp .....	3
2.2.2	Bruce Steer pool .....	3
2.3	DESCRIPTION OF THE ACTIVITIES .....	4
2.3.1	Bermagui River boat ramp .....	4
2.3.2	Bruce Steer pool .....	6
2.4	REASONS FOR THE ACTIVITY AND CONSIDERATION OF ALTERNATIVES .....	10
2.4.1	Bermagui River boat ramp .....	10
2.4.2	Bruce Steer pool .....	10
<b>3</b>	<b>LEGAL AND POLICY REQUIREMENTS .....</b>	<b>12</b>
3.1	LEGAL PERMISSIBILITY .....	12
<b>4</b>	<b>CONSULTATION .....</b>	<b>22</b>
4.1	ISEPP CONSULTATION .....	22
4.2	GOVERNMENT AGENCIES CONSULTATION .....	23
4.2.1	Department of Primary Industries – Fisheries .....	23
4.2.2	Roads and Maritime Services .....	23
4.3	COMMUNITY CONSULTATION .....	23
4.3.1	Consultation undertaken .....	23
4.3.2	Ongoing community consultation .....	24
<b>5</b>	<b>ENVIRONMENTAL ASSESSMENT .....</b>	<b>25</b>
5.1	ASSESSMENT APPROACH .....	25
5.2	TOPOGRAPHY, GEOLOGY, SOILS, AND CONTAMINATION .....	25
5.2.1	Existing environment .....	25
5.2.2	Potential impacts .....	28
5.2.3	Safeguards and mitigation measures .....	30
5.3	HYDROLOGY, CATCHMENT VALUES AND WATER QUALITY .....	31
5.3.1	Existing environment .....	31

5.3.2	Potential impacts.....	31
5.3.3	Safeguards and mitigation measures.....	33
5.4	BIODIVERSITY.....	33
5.4.1	Assessment approach.....	33
5.4.2	Flora .....	34
5.4.3	Fauna.....	35
5.4.4	Assessment of impacts .....	37
5.4.5	Impact on relevant key threatening processes .....	43
5.4.6	Safeguards and mitigation measures.....	43
5.5	COMMUNITY AND SOCIOECONOMICS.....	45
5.5.1	Existing environment.....	45
5.5.2	Potential impacts.....	45
5.5.3	Safeguards and mitigation measures.....	46
5.6	AMENITY: VISUAL, AIR QUALITY AND NOISE.....	46
5.6.1	Existing environment.....	46
5.6.2	Potential impacts.....	48
5.6.3	Safeguards and mitigation measures.....	48
5.7	TRAFFIC AND ACCESS.....	49
5.7.1	Existing environment.....	49
5.7.2	Potential impacts.....	50
5.7.3	Safeguards and mitigation measures.....	51
5.8	CLIMATE CHANGE.....	51
5.8.1	Existing environment.....	51
5.8.2	Potential impacts.....	52
5.8.3	Safeguards and mitigation measures.....	52
5.9	INDIGENOUS HERITAGE.....	53
5.9.1	Approach.....	53
5.9.2	Existing environment and potential impacts.....	53
5.9.3	Safeguards and mitigation measures.....	54
5.10	NON-INDIGENOUS HERITAGE .....	54
5.10.1	Approach.....	54
5.10.2	Results.....	55
5.10.3	Potential impacts.....	55
5.10.4	Safeguards and mitigation measures.....	55

5.11	WASTE MINIMISATION AND MANAGEMENT .....	55
5.11.1	Potential impacts.....	56
5.11.2	Safeguards and mitigation measures.....	56
5.12	CUMULATIVE IMPACTS.....	57
5.12.1	Existing environment.....	57
5.12.2	Potential impacts.....	57
5.12.3	Safeguards and mitigation measures.....	57
5.13	MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE .....	57
5.13.1	Potential impacts.....	58
5.13.2	Safeguards and mitigation measures.....	58
5.14	PRINCIPLES OF ECOLOGICALLY SUSTAINABLE DEVELOPMENT .....	58
5.14.1	The precautionary principle.....	58
5.14.2	Inter-generational equity.....	59
5.14.3	Conservation of biological diversity and ecological integrity.....	59
5.14.4	Appropriate valuation of environmental factors.....	59
<b>6</b>	<b>SUMMARY OF SAFEGUARDS .....</b>	<b>60</b>
<b>7</b>	<b>SUMMARY OF LICENCES AND APPROVALS .....</b>	<b>66</b>
<b>8</b>	<b>CONCLUSION .....</b>	<b>67</b>
<b>9</b>	<b>REFERENCES.....</b>	<b>68</b>
<b>APPENDIX A</b>	<b>PLANS OF THE PROPOSAL .....</b>	<b>A-I</b>
<b>APPENDIX B</b>	<b>DUE DILIGENCE ASSESSMENT.....</b>	<b>B-I</b>
<b>APPENDIX C</b>	<b>THREATENED SPECIES EVALUATIONS .....</b>	<b>C-I</b>
<b>APPENDIX D</b>	<b>CLAUSE 228 CHECKLIST .....</b>	<b>D-I</b>
<b>APPENDIX E</b>	<b>BACKGROUND SEARCHES.....</b>	<b>E-I</b>

**TABLES**

Table 3-1	Legal requirements for the proposal .....	12
Table 4-1	ISEPP consultation checklist.....	22
Table 5-1	Works for which development consent is required based on land class .....	26
Table 5-2	Background searches undertaken for threatened entities and priority weeds. ....	33
Table 5-3	Construction activities with potential to result in water quality impacts .....	40
Table 5-4	Key Threatening Processes relevant to the proposal. ....	43

Table 5-5 Mitigation measures to prevent and minimise impact during construction works. ....	44
Table 5-6 Sensitive receptors Bermagui River boat ramp. ....	47
Table 5-7 Sensitive receptors Bruce Steer pool. ....	47
Table 5-8 Summary of heritage findings. ....	55
Table 5-9 Matters of National Environmental Significance. ....	58
Table 6-1 Environmental safeguards summary. ....	60
Table 7-1 Summary of licences and approvals required. ....	66

## **FIGURES**

Figure 2-1 Existing infrastructure and facilities at the Bermagui River boat ramp precinct. ....	1
Figure 2-2 Existing infrastructure and facilities at the Bruce Steer pool precinct (Spirre, 2016). ....	2
Figure 2-3 Bermagui River boat ramp location. ....	3
Figure 2-4 Bruce Steer Pool Accessibility Concept (DRAFT). ....	7
Figure 2-5 Bruce Steer Pool Accessibility Concept (DRAFT) ....	8
Figure 5-1 Distribution of mapped seagrass in relation to the Bermagui River boat ramp and Bruce Steer pool works areas. ....	39
Figure 5-2 Estuary Storm Tide Inundation Hazard 2050 horizon (BMT WBM, 2015) ....	52

## ACRONYMS AND ABBREVIATIONS

AHIMS	Aboriginal heritage information management system
ARI	Average Recurrence Interval
ASS	Acid Sulfate Soils
BC Act	<i>Biodiversity Conservation Act 2016 (NSW)</i>
Biosecurity Act	<i>Biosecurity Act 2015 (NSW)</i>
BTEX	Benzene, toluene ethylbenzene xylene
BVSC	Bega Valley Shire Council
Cwth	Commonwealth
DDA	<i>Disability Discrimination Act 1992</i>
DECC	Department of Environment and Climate Change (refer to OEH)
DECCW	Refer to OEH
EEC	Endangered ecological community – as defined under relevant law applying to the proposal
EPA	Environment Protection Authority
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999 (Cwth)</i>
EP&A Act	<i>Environmental Planning and Assessment Act 1979 (NSW)</i>
ESD	Ecologically Sustainable Development
FM Act	<i>Fisheries Management Act 1994 (NSW)</i>
Heritage Act	<i>Heritage Act 1977 (NSW)</i>
ISEPP	<i>State Environmental Planning Policy (Infrastructure) 2007 (NSW)</i>
KFH	Key Fish Habitat
km	kilometres
KTP	Key Threatened Processes
LEP	Local Environment Plan
LGA	Local Government Area
m	Metres
MNES	Matters of National environmental significance under the EPBC Act (c.f.)
NPW Act	<i>National Parks and Wildlife Act 1974 (NSW)</i>
NSW	New South Wales
OEH	(NSW) Office of Environment and Heritage, formerly Department of Environment, Climate Change and Water
PAHs	Polycyclic aromatic hydrocarbons
POEO Act	<i>Protection of the Environment Operations Act 1997</i>

REF	Review of Environmental Factors
SEPP	State Environmental Planning Policy (NSW)
SHI	NSW State Heritage Inventory
sp/spp	Species/multiple species
TEC	Threatened ecological community
TOC	Organic compounds (total)
WARR Act	<i>Waste Avoidance and Resource Recovery Act 2001</i>
WM Act	<i>Water Management Act 2000</i>



# 1 INTRODUCTION

This Review of Environmental Factors (REF) has been prepared for the Bega Valley Shire Council (BVSC) to assess the potential environmental impacts of a proposal to:

- Upgrade and expand the Bermagui River boat ramp, including increasing the sealed parking area, replacing the boat ramp and installing a finger pontoon.
- Upgrade facilities at Bruce Steer pool, including providing equitable access, landscaping works and demolishing and relocating the amenities building.

The proposals are located in Bermagui, Bega Valley Shire, NSW.

Bega Valley Shire Council is both the proponent and determining authority for the works proposed. As such, the proposal would be assessed under Part 5 of the *Environmental Planning and Assessment Act 1979*. This REF has been prepared according to the requirements of Section 5.5 of the *Environmental Planning and Assessment Act 1979*, specifying a “duty to consider environmental impact”. This REF provides a full analysis of all environmental, economic, physical and social implications of the proposal.

## 2 THE PROPOSAL

### 2.1 PURPOSE AND GENERAL SCOPE OF WORKS PROPOSED

#### 2.1.1 *Bermagui River boat ramp*

The Bermagui River Boat Ramp precinct currently includes a boat ramp, sealed access, unsealed and sealed carparking and grassed areas. The existing infrastructure and facilities can be seen in Figure 2-1.



Figure 2-1 Existing infrastructure and facilities at the Bermagui River boat ramp precinct.

The proposed upgrade will address erosion and dust emissions issues at the site, improve the visual amenity of the area, provide infrastructure and improve the usability of the boat ramp.

The proposal involves the following general activities:

- Upgrade of the boat ramp.
- Installation of a finger pontoon and access ramp.
- Upgrade to the western unsealed parking area, to provide additional sealed parking spaces.

- Repairs to the current sealed carpark.
- Install lighting at the site.

### 2.1.2 Bruce Steer Pool

The Bruce Steer pool precinct contains an existing boat ramp, jetty, sealed carpark, beach access, grassed areas and rocky groyne, navigational beacon and cairn. The existing infrastructure and facilities can be seen in Figure 2-2.



Figure 2-2 Existing infrastructure and facilities at the Bruce Steer pool precinct (Spirre, 2016).

The proposed upgrades would remove and replace the current amenities building, that has deteriorated with age. It also would improve the visual amenity of the site and, importantly, provide access to Bruce Steer Pool to comply with the clause 5 of the *Disability Discrimination Act 1992* (DDA Act).

The proposal involves the following general activities:

- Demolition of the existing amenities block and stairway.
- Construction of a new amenities block on-grade to the existing carparking area.
- Construction of a new stairway to the upper carpark.
- Construction of a new picnic area at the location of the existing amenities building (to be confirmed pending final design).
- Construction of on-grade concrete paths from the carpark to the beach and into the water.
- Construction of a picnic area at the eastern side of the precinct.

- Minor landscaping works.

## 2.2 LOCATION OF THE ACTIVITIES

### 2.2.1 *Bermagui River boat ramp*

Figure 2-3 shows the location of the Bermagui River boat ramp, located at:

- Site address: Bridge Motors Reserve, Lamont Street, Bermagui.
- Lot and DP: Lot 7027 DP 1052701 and Lot 7056 DP 1052702.
- Reserve: 97765 BVSC managed Crown Land.



Figure 2-3 Bermagui River boat ramp location.

### 2.2.2 *Bruce Steer pool*

Figure 2-5 shows the location of the Bruce Steer pool, located at:

- Site address: Posidonia Esplanade, Bermagui.
- Lot & DP: Lot 7062 DP 1118744 (upper bank and existing toilet block).
- Reserve: 83225 BVSC Managed Crown Land.



Figure 2-2 Bruce Steer pool Proposal location

## 2.3 DESCRIPTION OF THE ACTIVITIES

### 2.3.1 *Bermagui River boat ramp*

The Bermagui River boat ramp upgrade proposal consists of the following features:

- Removal of the existing concrete and concrete reinforced rubber matting on the existing boat ramp.
- Replacement of the existing boat ramp with a new two lane reinforced precast concrete boat ramp (finished area of approximately 180 square meters (m<sup>2</sup>)).
- Installation of a finger pontoon jetty adjacent to the upgraded boat ramp, including:
  - A 12 x 1.5 meter access walkway approximately perpendicular to the shore.
  - A 24 x 2.1 meter long pontoon jetty perpendicular to the access ramp and approximately parallel to the shore.
  - The maximum extent from the shoreline would be 16 meters and maximum extent along the shoreline would be 24 meters.
  - Two to three piles (driven) to secure the pontoons.
  - Concrete tie in to mount access walkway to shore.
- Upgrade of the current sealed parking area where warranted, including straighten / neaten edges and complete minor repairs to surface.
- Upgrade and sealing of the informal unsealed parking area to the west, including earthworks to improve grades (finished area approximately 880 m<sup>2</sup>).
- Potentially, construct bollards shore side, to prevent vehicle access to grassed areas.
- Installation of lighting.
- No pruning or clearing of terrestrial vegetation would occur, the exception of some areas of exotic grass.

The work is currently at the concept stage and further refinement of work elements and impact areas are likely. Existing grassed areas and foreshore pedestrian access would be retained. Existing rocks and the picnic table would be retained. No drainage works have been identified as part of the proposal except for modifying paved gradients.

## Construction methods

The proposal construction program would involve:

- Installation of temporary fencing around works area to prevent unauthorised access. No road closures or detours would be required, however the Bermagui River boat ramp and adjacent carpark would be closed during works.
- Installation of environmental controls, including booms to contain debris within the water way and sediment and erosion controls.
- Removal of the existing boat ramp using jackhammers and excavators, with waste material fully contained and removed from site.
- Preparation of the shoreside footing for the new boat ramp with excavators and compactors.
- Installation of the prefabricated reinforced concrete slabs using a mobile crane, attaching the slabs to the substrate using piled tie-ins within the water way and poured in-situ concrete on the shore side.
- Improving the grade of the informal parking area using an excavator, with any unsuitable/excess spoil disposed of offsite using tipper trucks, and compacting this area as required.
- Sealing the informal parking area to the west using hot mix asphalt.
- Straightening and tidying edges of the existing carpark.
- Installing upgraded lighting including excavations for footings of lights and use of mobile crane.
- Removal of environmental controls once stabilised and removal of temporary fencing.

## Proposed construction equipment

The following plant and equipment would be used during construction:

- Excavator (required to be less than 3 tonne).
- Compactors.
- Asphalt plant.
- Jackhammers.
- Piling machines including a piling barge.
- Concrete saws.
- Mobile crane.
- Truck and dog/tipper truck.
- Concrete trucks.
- General hand tools.

## Infrastructure maintenance

Ongoing maintenance at the site would continue, largely as it does at present. It would include repair of the asphalt areas, general cleaning and repainting of line markings as required.

## Timing

The proposed works would commence in the second half of 2019 and take approximately three months to complete. The construction of the proposal would not occur during the summer period or during school holidays.

The proposed works would be undertaken during standard construction hours:

- Monday to Friday: 7am to 6pm.
- Saturday: 8am to 1pm.
- Sunday and Public Holidays: No work.

### **2.3.2 Bruce Steer pool**

A draft concept plan has been developed for this site (Figure 2-4 and Figure 2-5). The Bruce Steer pool upgrade proposal consists of the following features:

- Demolition and removal of the current upper amenities building, located on the upper slope above the pool and carpark.
- Construction of a new amenities facility at the lower car park level (approx. dimensions 50 m<sup>2</sup>).
- Construction of new picnic and seating areas within the park south of Bruce Steer pool (approx. dimensions 25 m<sup>2</sup>).
- Construction of a DDA compliant access to Bruce Steer pool; precast concrete ramp and hand rails extending 50 m into the water at low tide, parallel to the existing break wall.
- Construction of concrete access paths to the pool access ramp, beach parkland, picnic shelter and amenities building at the site.
- Replacement of three existing car parking spaces with two disabled car parking spaces.
- Demolition of the concrete stairs to the upper carpark and replacement with ramp and stairs. Conduct embankment stabilisation and revegetation.

The work is currently at the concept stage and further refinement of works elements and impact areas are likely.

DRAFT




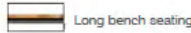

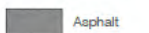
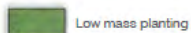
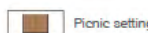
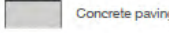
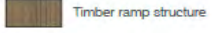


 Existing contour	 Asphalt surface treatment	 Grass	 Long bench seating
 Evergreen trees	 Asphalt	 Low mass planting	 Picnic setting
 Concrete paving	 Timber ramp structure	 Revegetation	 Picnic shelter



Figure 11: Bruce Steer Pool DRAFT Coastal Accessibility Plan

1:500 @ A3

Figure 2-4 Bruce Steer Pool Accessibility Concept (DRAFT).

# 08 COASTAL ACCESSIBILITY PLANS

## 8.1 BRUCE STEER POOL, BERMAGUI

The Bruce Steer Pool precinct will provide all abilities access from the lower car park to site features and the water's edge. Improvements will include enhanced open space and facilities, upgraded toilets and showers, and layout which enhances the intrinsic landscape values of the site.

A key element of the concept is a pedestrian path which links disabled parking, amenities, picnic facilities and access into the pool itself. The path will be generous in width and be wheelchair friendly. Improved parking arrangements and pedestrian connections to the surrounding open space areas have also been addressed. Access for boat launching at the boat ramp and boat trailer queuing area has been maintained.

### KEY RECOMMENDATIONS

#### 1 ALL ABILITIES ACCESS TO THE WATER – STAGE 1

Provide an all abilities concrete walkway into the water of Bruce Steer Pool which connects with surrounding pedestrian pavement areas. The walkway will be approximately 50m long and 2m wide with DDA compliant grade of 1:20 and landings at 15m intervals as required by Australian Standards.

#### 2 PAVED CONNECTIONS – STAGE 2

Provide wheelchair friendly paved connections between key features facilities within the precinct.

#### 3 SEATING AREA IN THE SUN

Provide new wheelchair accessible picnic settings and seating on the eastern side of the site to enable users the opportunity to sit in the sunshine.

#### 4 OPEN GRASS SPACE

Retain and enhance open grassed space between pathways and sand. Use adjacent paving to define grass edge to provide a continuous and easily maintained lawn area.

#### 5 PICNIC AND SEATING NODE IN THE SHADE

Provide a bespoke shade structure which references the existing Bermagui 'timber wharf' design language and include two picnic settings. Enhance opportunities to utilise shaded area by providing two long bench seats in the sand within proximity of the shelter area.

#### 6 SHARK/STINGRAY NET

Upgrade shark/stingray net at the northern end of the pool to ensure full net coverage during high tide.

#### 7 NEW AMENITIES FACILITY – STAGE 3

Provide new amenities building the bottom/lower level of the embankment for improved all abilities access. Provide disabled, male and female toilets within the facility. Consider unisex toilets and provision of baby change room. Provide indoor showers and outdoor shower. The new amenities building should also reference the existing Bermagui 'timber wharf' design language. Investigate service connections for water, sewer and power.

#### 8 OPEN GRASS ARRIVAL AREA

Improve arrival area adjacent Beacon with seating and interpretive signage. Retain navigational beacon. Consider providing a community noticeboard and bicycle rack.

#### 9 CAR PARKING + DISABLED SPACES

Reconfigure car parking arrangements to create regular and disabled parking area that includes two dedicated disabled car spaces that meet Australian Standards and are connected to facilities with pathways. Line-mark two disabled spaces. Allow for possible increase to four disabled spaces following further consultation. The parking area provides marked spaces facing the water. Provide a continuous path of travel from the car park to features and facilities of the site. Consider surface treatment to asphalt to define parking area.

#### 10 BOAT QUEUING AREA

Retain existing boat queuing areas in their current form. Provide low retaining wall and connecting pathway along toe of grassed batter. Retain sufficient asphalt area for boat launching requirements and the required turning radius of a service vehicle and similar sized vehicles.

#### 11 EMBANKMENT REVEGETATION

Introduce a weed removal and revegetation program to improve the visual amenity, stability and environmental values of the embankment. Ongoing maintenance should also form part of the program. Incorporate measures for the eradication and management of vermin and feral animals.

#### 12 STAIR AND BOARDWALK ACCESS

Improve the existing stair access between the upper and lower levels of the site. New stairs and boardwalk on steep slope will include handrails and landings as required. Retain the existing rock Cairn memorial.

#### 13 UPPER PICNIC AREA

Replace the old amenities block with a secondary picnic area that is accessible from the top of the embankment and provides a viewing area. Investigate opportunity to re-use existing concrete slab. Provide a bespoke shade structure which references the existing Bermagui 'timber wharf' design language, and includes two picnic settings.

To be finalised

#### 14 SIGNAGE

Provide new beach safety and social awareness signage in line with the Bega Valley Shire Council signage suite. Include new and additional interpretive signage where appropriate.

#### 15 BUS/COACH PARKING

Provide bus/coach parking bay to the south where flatter land is available and minimal earthworks will be required. Connect with proposed connecting pathway to enable users to access Bruce Steer pool along toe of batter adjacent boat queuing area.

#### 16 FISH CLEANING AND BOAT RAMP

Improve fish-cleaning and waste disposal facilities and on-going maintenance.

#### 17 ROCK GROUYNE ACCESS

Investigate opportunity to provide concrete pathway on rock groyne.

Figure 2-5 Bruce Steer Pool Accessibility Concept (DRAFT)



### Construction methods

- Installation of temporary fencing around works area to prevent unauthorised access. No road closures or detours would be required, however the boat ramp and adjacent carpark would be closed during works.
- Installation of environmental controls, including booms to contain debris within the water way and sediment and erosion controls.
- Demotion of the existing amenities building, concrete stairs and walkway would be using hand tools, jackhammers, concrete saws an excavator with waste material transported for offsite disposal in a truck and dog/tipper truck.
- Demotion of the existing concrete stairs using hand tools, jackhammers, concrete saws an excavator with waste material transported for offsite disposal in a truck and dog/tipper truck.
- Clearing, grubbing and bulk earthworks of sections of the embankment to provide footings for the proposed new stairs and access ramp
- If preferred by Council, construction of a new picnic shelter at the location of the existing amenities building on the existing concrete pad (if possible) or on an in-situ poured slab with prefabricated components (where possible), using a mobile crane and hand tools.
- Construction of a new amenities building on an in-situ poured slab with (where possible) prefabricated components, using a mobile crane and hand tools. Fill would be brought to site to raise the height of the new amenities building to a level above water inundation risk levels.
- Construction of a new accessible ramp to the water using prefabricated concrete slabs extended up to 50m into Bruce Steer pool with additions of handrails welded (as required).
- Removal of environmental controls once stabilised and removal of temporary fencing.

### Proposed construction equipment

The following plant and equipment would be used during construction:

- Excavator.
- Concrete saws.
- Jackhammer.
- Mobile crane.
- Truck and dog/tipper truck.
- Concrete trucks.
- Concrete pumps.
- Welding equipment.
- General hand tools.

### Timing

Elements of the proposed works would commence first half of 2019. Works would be staged. The construction of the proposal would not occur during the summer period or during school holidays.

The proposed works would be undertaken during standard construction hours:

- Monday to Friday: 7am to 6pm.
- Saturday: 8am to 1pm.
- Sunday and Public Holidays: No work.

## 2.4 REASONS FOR THE ACTIVITY AND CONSIDERATION OF ALTERNATIVES

### 2.4.1 *Bermagui River boat ramp*

#### Reasons for the activity

The key reason for the works is to enhance boating experiences by improving the quality of the boat ramp infrastructure at this location. Funding is available from Road and Maritime Services (Roads and Maritime) as part of the NSW Boating Now Program. Works are required to be undertaken prior to the end of 2019.

The improvements would allow a larger and more even surface from which to launch boats. The addition of a finger pontoon would help boaters launching single-handed and help boaters as they load and unload vessels. The proposed sealing of the informal parking area would not necessarily increase the current capacity of the parking area but would reduce the generation of dust and sediment in close proximity to the waterway. Line marking at the site may increase the effective parking capacity at the site. The edge tidying and lighting upgrade would improve the visual impression of the site and potentially improve overnight safety. In combination, these works are expected to improve the environmental performance, amenity and safety of the site for local users and visitors, continuing to attract boating and fishing tourism within the area.

#### Consideration of alternatives

##### OPTION 1 – DO NOTHING

This option would not improve the quality of boating infrastructure at the site. It would not increase the paved parking area available at the site and would not provide lighting. This option would minimise the potential impacts to marine vegetation and would have no impact to residents with regard to lighting.

##### OPTION 2 – UNDERTAKE PROPOSED UPGRADES

This option would improve the quality of boating infrastructure at the site. The construction of lighting may serve to improve the overnight safety of the site. Edge tidying and sealing of the site may improve the visual amenity of the site. This option would have the greatest construction impact and has the greatest potential to harm marine vegetation.

#### Selection of the preferred option

Option 2 is the preferred option as it best meets the reasons for the activity. On balance, the preferred option achieves the best balance of environmental, social and cost factors, provided the safeguards identified in Section 5 are implemented.

### 2.4.2 *Bruce Steer pool*

#### Reasons for the activity

The key reason for the works is to improve coastal accessibility. In this case, the infrastructure would allow disability access to the water by developing a low grade access ramp. There are currently very few sites in the region with disability access to coastal waters, allowing opportunities for protected swimming and snorkelling.

Additionally, there is an opportunity to remove structures that are at the end of their useful life (existing amenities structure) or simply unsafe (narrow, uneven concrete stair way). The amenities building would

need refurbishment or replacement in the near future. The picnic facilities would provide sunshade and recreation facilities for all users. In combination, these works are expected to improve the site for use as a recreation area for locals and continue to attract tourism within the area.

### **Consideration of alternatives**

#### **OPTION 1 - DO NOTHING**

This option would not improve the disabled access at the site and would not address the renewal of ageing infrastructure. This option has the least impact to the utility of the amenities facilities for boaters using the adjacent boat ramp and would have the lowest construction impact.

#### **OPTION 2 – UNDERTAKE WORKS PROGRAM**

This option would address renewal of ageing infrastructure, provide equitable access to the ocean and improve the recreation facilities available at the site. Few disabled access to the ocean sites are available in the region, and this proposal would improve recreational facilities for a broad range of community members and tourists alike. This option would have the highest construction impact and the relocation of the amenities facility may result in reduced utility of this infrastructure for boaters using the adjacent boat ramp.

### **Selection of the preferred option**

Option 2 is the preferred option as it best meets the reasons for the activity. On balance, the preferred option achieves the best balance of environmental, social and cost factors, provided the safeguards identified in Section 5 are implemented.

## 3 LEGAL AND POLICY REQUIREMENTS

### 3.1 LEGAL PERMISSIBILITY

Table 3-1 Legal requirements for the proposal

Law, Policy or Regulation	Objective	Requirement for the proposal
<b>Commonwealth</b>		
<b>Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)</b>	<p>The Commonwealth EPBC Act's objective is to protect Matters of National Environmental Significance (MNES), including threatened and migratory species, communities and populations, and heritage places.</p> <p>This Act provides an assessment and approvals system for:</p> <ul style="list-style-type: none"> <li>• Actions that have a significant impact on 'Matters of National Environmental Significance';</li> <li>• Actions that (indirectly or directly) have a significant environmental impact on Commonwealth land; and</li> <li>• Actions carried out by the Commonwealth Government.</li> </ul>	<p>The potential for the proposed activity to impact on MNES has been assessed in Section 5.13 of this REF.</p> <p>The proposal is not likely to impact on any matter of Commonwealth significance and referral to the Commonwealth Environment Minister is not required.</p>
<b>Native Title Act 1993</b>	<p>The <i>Native Title Act 1993</i> (Cwth) provides a legislative framework for the recognition and protection of common law native title rights. Native title is the recognition by Australian law that Indigenous people had a system of law and ownership of their lands before European settlement. Where that traditional connection to land and waters has been maintained and where government acts have not removed it, the law recognises the persistence of native title.</p> <p>A search of the National Native Title Tribunal Registers on 24<sup>th</sup> October found one Native Title Claim and no active applications within the Bega Valley LGA. The Native Title Claim is by the South Coast People. The claim is yet to be determined.</p>	<p>A Due Diligence Assessment has been undertaken for the proposed works. Consultation as part of the assessment was not required.</p> <p>Aboriginal Heritage is addressed in Section 5.9.</p>
<b>State Law</b>		
<b>State Environmental</b>	<i>State Environmental Planning Policy (Infrastructure) 2007</i> aims to facilitate the effective delivery of infrastructure across NSW.	The works would be carried out on behalf of a public authority and meet the requirements of exempt

Law, Policy or Regulation	Objective	Requirement for the proposal
<p><b>Planning Policy (Infrastructure) 2007 (ISEPP)</b></p>	<p>Schedule 1 of the <i>State Environmental Planning Policy (Infrastructure) 2007</i> lists exempt development. Clause 20A of the SEPP outlines for the purpose of specified in schedule 1, development is exempt development if:</p> <ul style="list-style-type: none"> <li>(a) It is carried out by or on behalf of a public authority, and</li> <li>(b) It meets the development standards specified in schedule 1,</li> <li>(c) It complies with clause 20.</li> </ul> <p>Exempt development as part of the proposed works include:</p> <ul style="list-style-type: none"> <li>• Access ramps for persons with a disability.</li> </ul> <p>Under Clause 66(1)(a)(i) states that development for any of the following purposes is exempt development if it is carried out by or on behalf of a public authority in connection with a public reserve (clause 65), and if it complies with clause 20:</p> <ul style="list-style-type: none"> <li>(a) construction, maintenance and repair of: <ul style="list-style-type: none"> <li>(i) walking tracks, boardwalks and raised walking paths, ramps, minor pedestrian bridges, stairways, gates.</li> <li>(v) viewing platforms with an area not exceeding 100m<sup>2</sup></li> <li>(viii) seats, picnic tables, barbecues, bins (including frames and screening), shelters or shade structures,</li> </ul> </li> </ul> <p>Clause 20 that the exempt development refers to, requires that the development:</p> <p>...(g) must not involve the removal or pruning of a tree or other vegetation that requires a permit or development consent for removal or pruning, unless that removal or pruning is undertaken in accordance with a permit or development consent.</p> <p>Under Clause 65(3)(a) Any of the following development may be carried out by or on behalf of a Council without consent on a public reserve under the control of or vested in the Council:</p> <ul style="list-style-type: none"> <li>(i) roads, pedestrian pathways, cycleways, single storey car parks, ticketing facilities, viewing platforms and pedestrian bridges,</li> <li>(iv) lighting, if light spill and artificial sky glow is minimised in accordance with the Lighting for Roads and Public Spaces Standard,</li> <li>(vi) amenities for people using the reserve, including toilets and change rooms,</li> </ul>	<p>development for the access ramps and boardwalks, under Schedule 1 of the ISEPP and Clause 66 (1a).</p> <p>The remaining of the works would be development permitted without consent, including:</p> <ul style="list-style-type: none"> <li>• Boat ramp and pontoon under Clause 68 (4).</li> <li>• Access road, carpark, lighting and amenities under Clause 65(3a).</li> </ul>

Law, Policy or Regulation	Objective	Requirement for the proposal
	<p>For the purpose of the boat ramp and pontoons, Clause (68) (4) states: Development for the purpose of wharf or boating facilities may be carried out by or on behalf of a public authority without consent on any land. However, such development may be carried out on land reserved under the <i>National Parks and Wildlife Act 1974</i> only if the development is authorised by or under that Act.</p> <p>The proposed works are not located on land reserved under the <i>National Parks and Wildlife Act 1974</i>. The proposed boat ramp and pontoon works are development permitted without consent under ISEPP.</p>	
<p><b>Environmental Planning and Assessment Act 1979 (EP&amp;A Act) &amp; Environmental Planning and Assessment Regulation 2000 (EP&amp;A Regulation)</b></p>	<p>The EP&amp;A Act provides for a co-ordinated approach to development ensuring the proper management, development and conservation of natural and cultural resources and promoting social and economic welfare and a better environment.</p> <p>Section 5.5 of the EP&amp;A Act requires a determining authority, when considering an activity, to <i>examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of that activity.</i>”</p> <p>Clause 228 of the EP&amp;A Regulation lists 16 factors that must be taken into account concerning the impact of an activity on the environment.</p>	<p>The proposal requires environmental assessment under Part 5 of the EP&amp;A Act.</p> <p>The preparation of the REF has been carried out in accordance with Section 5.5 of the Act. The REF also satisfies the requirements of Clause 228 of the <i>Environmental Planning and Assessment Regulation 2000</i>.</p> <p>A Clause 228 checklist is included in this REF in Appendix D.</p>
<p><b>Marine Safety Act 1998 and Marine Safety Regulation 2016</b></p>	<p>Clause 18 of the regulation provides that the operator of a vessel must not obstruct, or restrict or impede access to, any fairway or channel.</p> <p>Clause 19 of the regulation provides the operator of a vessel must not obstruct the approach to, or restrict or impede the proper use of, any wharf or other landing place, or any boatshed, launching ramp or courtesy or emergency mooring, otherwise than when launching or removing the vessel from the water in the usual manner.</p>	<p><u>Bermagui River boat ramp</u></p> <p>If a piling barge would be required for the construction of the boat ramp and jetty, consultation is required with Roads and Maritime to determine if an aquatic licence is required.</p> <p>Matters related to access are discussed in Section 5.7.</p> <p><u>Bruce Steer pool</u></p>

Law, Policy or Regulation	Objective	Requirement for the proposal
	<p>Clause 21 of the regulation provides a person must not cause any object or apparatus to float on, extend over or be in any navigable waters if it:</p> <ul style="list-style-type: none"> <li>a) obstructs, or is likely to obstruct, navigation, or</li> <li>b) causes, or is likely to cause, nuisance or danger to any person, or</li> <li>c) causes, or is likely to cause, damage to any property.</li> </ul> <p>Division 3 of the regulation provides conditions for the granting of an aquatic licence, which permits the holder to undertake an aquatic activity.</p> <p>An aquatic activity means:</p> <ul style="list-style-type: none"> <li>a) a race, competition or exhibition (whether or not involving vessels or equipment) that is conducted in or on any navigable waters, or</li> </ul> <p>any other activity (whether or not involving vessels or equipment) that is conducted in or on any navigable waters and that restricts the availability of those waters for normal use by the public.</p>	<p>Matters related to access are discussed in Section 5.7. Generally, the proposal is not likely to result in material impacts to the use of these waters.</p>
<p><b>Biodiversity Conservation Act 2016 (BC Act)</b></p>	<p>The BC Act establishes the new regulatory framework for assessing and offsetting the biodiversity impacts of proposals. The purpose of the Act is to maintain a healthy, productive and resilient environment for the greatest well-being of the community, now and into the future, consistent with the principles of ecologically sustainable development.</p> <p>The Act contains provisions relating to flora and fauna protection (repealing parts of the <i>National Parks and Wildlife Act 1974</i>), threatened species and ecological communities listing and assessment (repealing the <i>Threatened Species Conservation Act 1995</i> and section 5A of the EP&amp;A Act), a Biodiversity Offsets Scheme (BOS), a single Biodiversity Assessment Method (BAM), calculation and retirement of biodiversity credits and biodiversity assessment and planning approvals. The Act is supported by the <i>Biodiversity Conservation Regulation 2017</i>.</p>	<p>An assessment of the potential impacts of the proposal on threatened species, populations, ecological communities and critical habitat listed in the BC Act must be undertaken in accordance with Section 7.3 of the Act. An assessment of threatened species impacts is undertaken in Section 5.4.</p> <p>The proposal would involve the clearing of native vegetation at Bruce Steer Pool.</p>
<p><b>Biosecurity Act 2015</b></p>	<p>The <i>Biosecurity Act 2015</i> repealed the <i>Noxious Weeds Act 1993</i> and provides a framework for the prevention, elimination and minimisation of biosecurity risks. The Act and supporting <i>Biosecurity Regulation 2017</i> provide for the establishment and functions of Local Control</p>	<p>Measures have been included in the REF to ensure adequate weed hygiene during the works. Marine pests have also been addressed in Section 5.4.</p>

Law, Policy or Regulation	Objective	Requirement for the proposal
	<p>Authorities for weeds (LGA or County Councils), and weed control obligations on public and private land.</p>	
<p><b>National Parks and Wildlife Act 1974 (NPW Act)</b></p>	<p>The NPW Act promotes and regulates the management of national parks and historic sites or places of cultural value within the landscape and the conservation of certain fauna, native plants and Aboriginal objects and places.</p> <p>The NPW Act provides for a register of sites of archaeological and Aboriginal cultural significance (Schedule 14). A Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW (DECCW 2010) has been released to facilitate the protection of Aboriginal heritage under the Act. An Aboriginal Heritage Impact Permit from OEH is required for works impacting on an Aboriginal object or place.</p>	<p>Section 5.8 of this REF addresses potential impacts to Aboriginal heritage.</p>
<p><b>Fisheries Management Act 1994 (FM Act)</b></p>	<p>This Act sets out to conserve fish stocks and key fish habitats, threatened species, populations and ecological communities of fish and marine vegetation and biological diversity. Further, it aims to promote viable commercial fishing, aquaculture industries and recreational fishing opportunities.</p> <p>Section 200(1) of the FM Act requires that a local government authority “<i>must not carry out dredging or reclamation work except under the authority of a permit issued by the Minister</i>”.</p> <p>In Section 198A of this Act, the definition of “<i>dredging work</i>” includes any work that involves excavating “<i>water land</i>”, where water land is defined as “<i>land submerged by water... whether permanently or intermittently...</i>”</p> <p>Section 205 (2) of the FM Act outlines a “<i>person must not harm any such marine vegetation in a protected area, except under the authority of a permit issued by the Minister under this Part</i>”. Marine vegetation includes mangroves and seagrass.</p> <p>Section 219 of the FM outlines that a person must not block fish passage without a permit.</p>	<p>The proposal sites are located within Bermagui River which is mapped as Key Fish Habitat (KFH).</p> <p><u>Bermagui River boat ramp</u></p> <p>The proposal would involve the removal of an existing boat ramp and installation of a new boat ramp and finger pontoon jetty. These proposed works would be considered dredging or reclamation in ‘water land’ as defined by the FM Act. Additionally the proposed works have potential to harm marine vegetation and block fish passage. Accordingly, a permit is required to be obtained from NSW Fisheries prior to the works taking place.</p> <p><u>Bruce Steer pool</u></p> <p>The proposal would not involve placing a ramp in water land. These proposed works would be considered dredging or reclamation in ‘water land’ as defined by the FM Act. Additionally the proposed works have potential to harm marine vegetation. Accordingly, a permit is required to be obtained from NSW Fisheries prior to the works taking place.</p>



Law, Policy or Regulation	Objective	Requirement for the proposal
<p><b>Water Management Act 2000 (WM Act)</b></p>	<p>Certain activities, in, on or under waterfront land are controlled activities under the WM Act. The NSW Office of Water administers the WM Act and is required to assess the impact of any proposed controlled activity on waterfront land. Waterfront land includes the bed and bank of any river, lake or estuary and all land within 40m of the highest bank of the river, lake or estuary. A Controlled Activity Approval must be obtained from the NSW Office of Water before commencing the controlled activity, <u>unless an exemption applies</u>.</p> <p>The <i>Water Management (General) Regulation 2004</i> (the regulation) specifies exemptions from the requirement to obtain a controlled activity approval. Pursuant to Part 3, Division 2, Clause 38 of the Regulation, local Councils are exempt from the requirement to obtain a controlled activity approval in relation to all controlled activities that they carry out in, on or under waterfront land.</p> <p>The Act also governs the issue of new water licences and the trade of water licences and allocations for those water sources (rivers, lakes and groundwater) in NSW where water sharing plans have commenced.</p>	<p>As BVSC is the proponent of the proposed works, a controlled activity approval is not required for the proposed works.</p> <p>The works would not result require or result in the extraction of water from a river or aquifer and therefore no water licence is required under this Act.</p>
<p><b>Protection of the Environment Operations Act 1997 (POEO Act)</b></p>	<p>The POEO Act provides an integrated system of licensing for polluting activities within the objective of protecting the environment.</p> <p>Section 148 of this Act requires notification of pollution incidents</p> <p>Section 120 of this Act provides that it an offence to pollute waters.</p> <p>Schedule 1 of the POEO Act describes activities for which an Environment Protection Licence is required.</p>	<p>BVSC must ensure that all stages of the proposal are managed to prevent pollution, including pollution of waters.</p> <p>The contractor and BVSC are obliged to notify the relevant authorities (e.g. Environment Protection Authority (EPA)) when a ‘pollution incident’ occurs that causes or threatens ‘material harm’ to the environment.</p> <p>The proposal does not conform with the definition of a scheduled activity under this Act, therefore an Environment Protection Licence would not be required.</p>
<p><b>Heritage Act 1977</b></p>	<p>This Act aims to conserve heritage values. The Act defines ‘environmental heritage’ as those places, buildings, works, relics, moveable objects and precincts of State or local heritage</p>	<p>Section 5.10 of this REF addresses potential impacts on heritage items or places.</p>

Law, Policy or Regulation	Objective	Requirement for the proposal
	<p>significance. A property is a heritage item if it is listed in the heritage schedule of the local Council's LEP or listed on the State Heritage Register, a register of places and items of particular importance to the people of NSW.</p>	
<p><b>Crown Land Management Act 2016</b></p>	<p>Approval under the Act is required to reside, erect a structure or graze or drive stock on Crown land, or clear, dig up or cultivate or enclose Crown land. The Act replaces the <i>Crown Lands Act 1989</i>.</p>	<p>The proposed works would occur in Crown Land. However, BVSC is the manager for both reserves and the proposed works are being assessed under the EP&amp;A Act.</p> <p>Approval or concurrence is not required.</p>
<p><b>State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017</b></p>	<p>The State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017 (Veg SEPP) applies to land within certain LGAs and to land of zones within LEPs, including:</p> <ul style="list-style-type: none"> <li>• Zone W3 Working Waterways</li> <li>• Zone RE1 Public Recreation</li> </ul>	<p>The Bruce Steer pool site is located with zone W3 and RE1, both of which the Veg SEPP applies to. Council require a permit to clear vegetation within these zones.</p> <p>The Bermagui River boat ramp site is partly within the zone RE1, however no vegetation clearing is proposed.</p>
<p><b>State Environmental Planning Policy (Coastal Management) 2018</b></p>	<p>The aim of this Policy is to promote an integrated and co-ordinated approach to land use planning in the coastal zone in a manner consistent with the objects of the <i>Coastal Management Act 2016</i>, including the management objectives for each coastal management area, by:</p> <ol style="list-style-type: none"> <li>(a) managing development in the coastal zone and protecting the environmental assets of the coast, and</li> <li>(b) establishing a framework for land use planning to guide decision-making in the coastal zone, and</li> <li>(c) mapping the 4 coastal management areas that comprise the NSW coastal zone for the purpose of the definitions in the <i>Coastal Management Act 2016</i>.</li> </ol> <p>The 4 coastal management areas include:</p> <ul style="list-style-type: none"> <li>• Coastal wetland and littoral rainforest (and associated proximity areas)</li> <li>• Coastal vulnerability area</li> <li>• Coastal environment area</li> </ul>	<p>The proposed works would not occur within land mapped as coastal wetlands and littoral rainforest or their proximity zones.</p> <p>Due to no mapping yet being available for the coastal vulnerability area, it is unknown if the proposed works would occur within the area. However due to the works being located on the coast it is likely they would be located within this area.</p> <p>The proposed works are located within the Coastal environment area and coastal use area.</p> <p>This REF considers the proposed works impact on coastal processes, vegetation, access, amenity and heritage. Refer to Section 5.</p>

Law, Policy or Regulation	Objective	Requirement for the proposal
	<ul style="list-style-type: none"> <li>• Coastal use area</li> </ul> <p>Under Clause 10 works including:</p> <ul style="list-style-type: none"> <li>• Clearing of native vegetation;</li> <li>• Harm of marine vegetation; and</li> <li>• the carrying out of any earthworks, constructing a levee, draining of land or environmental protection works within the mapped Coastal wetland and littoral rainforest would require development consent.</li> </ul> <p>Works within the proximity area of Coastal wetlands and littoral rainforest must not be granted consent if the works would have a significant impact on the:</p> <ul style="list-style-type: none"> <li>• the biophysical, hydrological or ecological integrity of the adjacent coastal wetland or littoral rainforest, or</li> <li>• the quantity and quality of surface and ground water flows to and from the adjacent coastal wetland or littoral rainforest.</li> </ul> <p>The coastal vulnerability area is defined by the coastal vulnerability maps, which have not yet been produced. Clause 12 states that development consent must not be granted to development on land that is within the area identified as “coastal vulnerability area” unless the consent authority is satisfied that</p> <ul style="list-style-type: none"> <li>(a) if the proposed development comprises the erection of a building or works— the building or works are engineered to withstand current and projected coastal hazards for the design life of the building or works, and</li> <li>(b) the proposed development:                         <ul style="list-style-type: none"> <li>(i) is not likely to alter coastal processes to the detriment of the natural environment or other land, and</li> <li>(ii) is not likely to reduce the public amenity, access to and use of any beach, foreshore, rock platform or headland adjacent to the proposed development, and</li> <li>(iii) incorporates appropriate measures to manage risk to life and public safety from coastal hazards, and</li> </ul> </li> </ul>	

Law, Policy or Regulation	Objective	Requirement for the proposal
	<p>(c) measures are in place to ensure that there are appropriate responses to, and management of, anticipated coastal processes and current and future coastal hazards.</p> <p>Under Clause 13 development on land within the coastal environment area, consent authorities must consider and be satisfied impacts are avoided, minimised and mitigated (in that order), to a range of coastal environment factors including; coastal processes, water quality, vegetation, public areas and heritage.</p> <p>Under Clause 14 development on land within the coastal use area Consent authorities must consider and be satisfied impacts are avoided, minimised and mitigated (in that order), to a range of coastal environment factors including; maintaining existing safe and equitable access, amenity and views and heritage.</p>	
<p><b>State Environmental Planning Policy No 44-Koala Habitat Protection</b></p>	<p>State Environment Planning Policy No. 44 encourages the conservation and management of natural vegetation areas that provide habitat for Koalas to ensure that permanent free living populations will be maintained over their present range across 107 Council areas</p>	<p>BVSC is a listed Council area, however no feed trees were located with the proposal areas (refer to Section 5.4).</p>
<b>Local Law</b>		
<p><b>Bega Valley Local Environment Plan 2013</b></p>	<p>This plan establishes the framework for future development within the local government area of Bega Valley.</p> <p>The proposal site is zoned RE1 Public Recreation, W2 Recreational Waterways and W3 Working Waterways.</p>	<p>Objectives of RE1 include:</p> <ul style="list-style-type: none"> <li>• To enable land to be used for public open space or recreational purposes.</li> <li>• To provide a range of recreational settings and activities and compatible land uses.</li> <li>• To protect and enhance the natural environment for recreational purposes.</li> </ul> <p>Objectives of W2 include:</p> <ul style="list-style-type: none"> <li>• Protect the ecological, scenic and recreation values of recreational waterways.</li> </ul>

Law, Policy or Regulation	Objective	Requirement for the proposal
		<ul style="list-style-type: none"> <li>• To allow for water-based recreation and related uses.</li> <li>• To provide for sustainable fishing industries and recreational fishing.</li> </ul> <p>Objectives of W3 include:</p> <ul style="list-style-type: none"> <li>• To enable the efficient movement and operation of commercial shipping, water-based transport and maritime industries.</li> <li>• To promote the equitable use of waterways, including appropriate recreational uses.</li> <li>• To minimise impacts on ecological values arising from the active use of waterways.</li> <li>• To provide for sustainable fishing industries.</li> </ul> <p>Boating facilities and recreation areas are permitted with consent under both land zonings.</p> <p>ISEPP also operates to remove the requirement for consent, subject to assessment and determination in accordance with the EPA Act.</p>

## 4 CONSULTATION

### 4.1 ISEPP CONSULTATION

Part 2 of the State Environmental Planning Policy (Infrastructure) (ISEPP) contains provisions for public authorities to consult with local Councils and other public authorities prior to the commencement of certain types of development. This is detailed in Table 4-1 below.

Table 4-1 ISEPP consultation checklist

<b>Is consultation with public authorities other than Councils required under clause 16 of the infrastructure SEPP?</b>		
<b>Are the works adjacent to a national park, nature reserve or other area reserved under the <i>National Parks and Wildlife Act 1974</i>, or on land acquired under that Act?</b>	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
<b>Are the works on land in Zone E1 National Parks and Nature Reserves or in a land use zone equivalent to that zone?</b>	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
<b>Are the works adjacent to an aquatic reserve or a marine park declared under the <i>Marine Estate Management Act 2014</i>?</b>	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
<b>Is the proposal in the Sydney Harbour Foreshore Area as defined by the <i>Sydney Harbour Foreshore Authority Act 1998</i>?</b>	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
<b>Does the development comprise of a fixed or floating structure in or over navigable waters?</b>  The proposed works would include the use of piling barge to undertake works at Bermagui River boat ramp. A fixed floating structure would be constructed as part of the Bermagui River proposal. A Fixed structure would be constructed as part of the Bruce Steer Pool proposal. BVSC are required to consult with Roads and Maritime regarding the proposed works.	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
<b>Are the works for the purpose of residential development, an educational establishment, a health services facility, a correctional facility or group home in bush fire prone land?</b>	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
<b>Would the works increase the amount of artificial light in the night sky and that is on land within the dark sky region as identified on the dark sky region map? (Note: the dark sky region is within 200</b>	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

Is consultation with public authorities other than Councils required under clause 16 of the infrastructure SEPP?		
kilometres of the Siding Spring Observatory)		
Are the works on buffer land around the defence communications facility near Morundah? (Note: refer to Defence Communications Facility Buffer Map referred to in clause 5.15 of Lockhart LEP 2012, Narrandera LEP 2013 and Urana LEP 2011).	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Are the works on land in a mine subsidence district within the meaning of the <i>Mine Subsidence Compensation Act 1961</i> ?	<input type="checkbox"/> Yes	<input type="checkbox"/> No

## 4.2 GOVERNMENT AGENCIES CONSULTATION

### 4.2.1 Department of Primary Industries – Fisheries

Consultation would be undertaken with Department of Primary Industries (Fisheries) in regards to the proposed works at the Bermagui River boat ramp and Bruce Steer pool. A fisheries permit would be required to undertake reclamation and dredging, and the works have potential to block fish passage and harm marine vegetation.

### 4.2.2 Roads and Maritime Services

Consultation would be undertaken with Roads and Maritime with regards to the obstruction of navigable waters during construction works at both sites.

## 4.3 COMMUNITY CONSULTATION

### 4.3.1 Consultation undertaken

#### Bermagui River boat ramp

In regards to the Bermagui River boat ramp, the following consultation has been undertaken:

- During the preparation of BVSC Maritime Infrastructure Plan 2014 with the Bermagui Big Game Anglers Club and Bermagui Bait & Tackle.
- During the consultation phase of Transport for NSW Regional Boating Plan (Far South Coast Region) 2015. Consultation included Council workshops, an open online survey and two public information sessions.

The results of this consultation has been considered in the design of the proposed works.

## **Bruce Steer pool**

Stakeholder and community engagement was undertaken during the Coastal Accessibility Masterplan Project 2016. Consultation included community feedback surveys, key stakeholder meetings, listening posts and public exhibition of draft accessibility plans. The outcomes of survey included:

- Respondents visit a few times a week (31%) followed by weekly and monthly (both 27%).
- 75% of respondents travel to Bruce Steer Pool by car.
- The three activities that respondents participate in most at Bruce Steer Pool are swimming (96%), enjoying the scenery (43%) and exercising/fitness (36%).
- Key things that respondents think most need improving at Bruce Steer Pool include:
  - Amenities including disabled toilets and improved showers.
  - Ramp and hand rail providing access to the water.
  - Shade and picnic settings.
  - Repairs to the stingray net.
  - Disabled parking.
  - Pathways from parking areas to beach.
  - Vegetation maintenance and revegetation.

An online poll/survey was undertaken early 2018 for the design of the new amenities building element as part of the Masterplan.

The results of this consultation has been considered in the design of the proposed works.

### **4.3.2 Ongoing community consultation**

#### **Bermagui River boat ramp**

There are three main groups of businesses that have potential to be affected as a result of this proposal; recreation businesses such as Bermagui Bait and Tackle (located adjacent to the proposal site), hospitality businesses such as Anchorage Apartments Bermagui (located approximately 170 m from the proposal site) and aquaculture ventures, that operate throughout the Bermagui River system.

Consultation with businesses would be undertaken to ensure features of the proposal do not restrict normal business operation (such as obstruction of access routes to aquaculture leases, further discussed in Section 5.5). Businesses would also be informed, well in advance, of site closures, works periods, proposal details and alternative facilities.

Nearby residents would be consulted with regarding the proposed works. Consultation would include a proposed works program and proposal details.

Site users would be informed well in advance of site closures, works periods, proposal details and alternative facilities. Consultation would be undertaken with local fishing and boating clubs to identify opportunities to reduce timing conflicts.

#### **Bruce Steer pool**

Adjacent businesses would be informed, well in advance of site closures, works periods, proposal details and alternative facilities.

Nearby residents would be consulted with regarding the proposed works. Consultation would include a proposed works program and proposal details.



Site users would be informed well in advance of site closures, works periods, proposal details and alternative facilities.

## 5 ENVIRONMENTAL ASSESSMENT

### 5.1 ASSESSMENT APPROACH

Database searches were undertaken prior to the site inspection, to understand the potential for significant environmental issues in the works locations. All sites were inspected by an environmental consultant and senior consultant between August 1 and 3, 2018.

### 5.2 TOPOGRAPHY, GEOLOGY, SOILS, AND CONTAMINATION

#### 5.2.1 Existing environment

##### Geology

Both sites are located within the Narooma accretionary complex; comprised of Ordovician (440-480 million year old) turbidites (fine grained sedimentary rocks formed during the settlement of material suspended in water) (Office of Environment and Heritage, n.d.).

##### Soil Landscapes

A desktop assessment and review of the eSpade online reference tool (Office of Environment and Heritage, n.d.) was conducted and the results are summarised below.

##### **Bermagui River boat ramp**

The proposal site is located within the Tanja Soil Landscape. Topography in this landscape is characterised by undulating rises to low hills with slopes ranging from 3–20%. Slopes are typically 150–500 m long. Elevation ranges 0–150 m. Soil in this landscape are known to exhibit poor drainage, seasonal waterlogging and gully and sheet erosion. Topsoils and subsoils have low wet bearing strength. Soils are known to contain localised acidity and aluminium toxicity.

##### **Bruce Steer pool**

The proposal site is located within the Wapengo Lake Soil Landscape. Topography in this landscape is characterised by supratidal to intertidal flood-tide delta sand flats in quaternary marine sediments near the mouth of coastal estuaries. Elevation <1 m above sea level. Soil in this landscape contain non-cohesive, sodic, saline sands which may be potential acid sulfate materials. The soils are subject to severe flood hazard with waterlogging, permanently high water tables, water (wave) erosion hazard, groundwater pollution hazard and foundation hazard.

##### Acid sulfate soils

The Bega Valley LEP 2013 contains a map identifying acid sulfate soils (ASS) around the Bermagui River Boat Ramp and Bruce Steer Pool (Figure 5-1). The Bega Valley LEP Acid Sulfate Soils Maps establish 5 classes of land based on the level of risk associated with works and the probable distribution of acid sulfate soils. The majority of the proposed works occur on land which is mapped as Class 1 and Class 5 areas (refer to

Table 5-1 for area class requirements). Acid sulfate soils are likely to occur at both sites. At the Bermagui River Boat ramp, the boat ramp upgrade works have the highest likelihood of disturbing acid sulfate soils. At the Bruce Steer pool, excavations that extend below the water table have the highest likelihood of disturbing acid sulfate soils.

Table 5-1 Works for which development consent is required based on land class.

Class of land	Works
<b>1</b>	<ul style="list-style-type: none"> <li>• Any works</li> </ul>
<b>2</b>	<ul style="list-style-type: none"> <li>• Works below the natural ground surface.</li> <li>• Works by which the watertable is likely to be lowered.</li> </ul>
<b>3</b>	<ul style="list-style-type: none"> <li>• Works more than 1 m below the natural ground surface.</li> <li>• Works by which the watertable is likely to be lowered more than 1 m below the natural ground surface.</li> </ul>
<b>4</b>	<ul style="list-style-type: none"> <li>• Works more than 2 m below the natural ground surface</li> <li>• Works by which the watertable is likely to be lowered more than 2 m below the natural ground surface</li> </ul>
<b>5</b>	<ul style="list-style-type: none"> <li>• Works within 500 m of adjacent Class 1, 2, 3 or 4 land that is below 5 m Australian Height Datum and by which the watertable is likely to be lowered below 1 m Australian Height Datum on adjacent Class 1, 2, 3 or 4 land.</li> </ul>

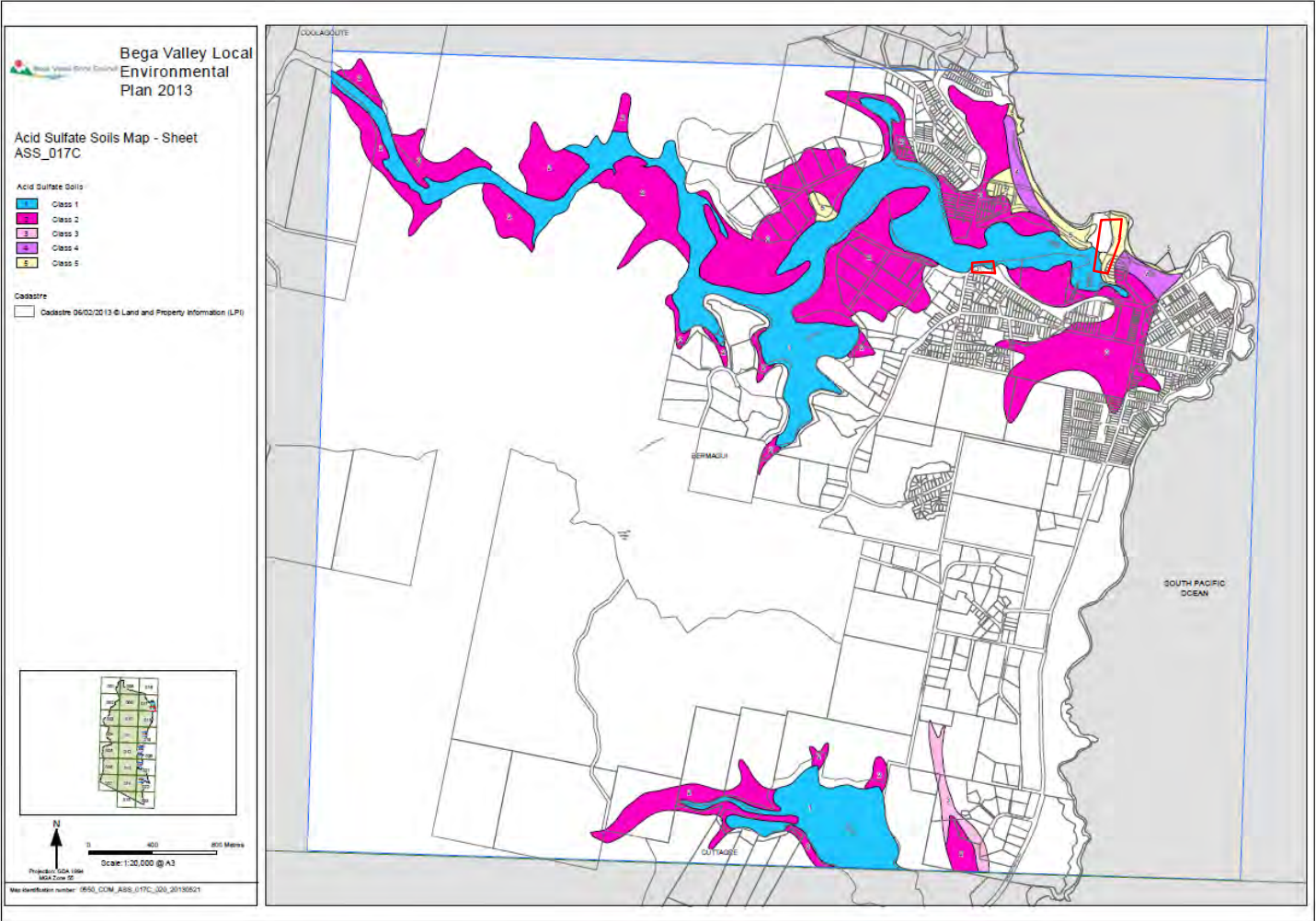


Figure 5-1 Acid Sulfate soils map (BVSC, 2013).

## Contaminated land

In areas where disturbance has occurred, there is a potential to encounter contamination. The more a site has been disturbed, the greater the risk of encountering contamination. Common sources of contamination include:

- Poor demolition practices.
- Industrial activities.
- Backfilling operations.
- Dumping and waste management.

A search of the Environmental Protection Authority (EPA) *Contaminated Lands Record of Notices* for the Bega Valley Shire LGA as of 24/07/2018, did not reveal any sites. A review of EPA *List of NSW Contaminated Sites Notified to EPA as of 02 July 2018* did not reveal any sites notified to the EPA related to the proposal site.

## Land stability

### BERMAGUI RIVER BOAT RAMP

A land stability assessment has not been conducted, however a maximum 3 tonne vehicle sign was observed at the entrance to the carpark. This is a relatively low threshold; with many currently available light vehicles allowing up to 6 tonnes gross combined mass. It is considered likely that many recreational boat users would exceed 3 tonnes gross combined mass during boat launching and retrieval.

Road base has been laid in an unsealed parking area and lawn is maintained in adjacent areas. The site appears stable but is susceptible to erosion from wind and rain that may adversely impact water quality.

### BRUCE STEER POOL

The site is comprised of sand shore and lawn is maintained in adjacent areas. On the steep bank to the amenities building, the soil surfaces are eroding but area some distance and well buffered in terms of adversely impact water quality.

## 5.2.2 Potential impacts

### Construction

#### SOILS AND EROSION

Key impacts to soils relate to excavation in soils known to be unstable, poorly drained and have varying degrees of acid sulfate soil potential. Bare areas of soil, exposed by excavation, could therefore present a pollution risk to Bermagui River, with ongoing sediment and acid run off potentially degrading water quality.

Erosion risks are considered relatively short-term and cut and fill areas would be stabilised post construction. Where soils are exposed, erosion resulting in turbidity and soil loss is possible. Piling works for the construction of the Bermagui River finger pontoon would have relatively short-term environmental impacts. Piling is likely to generate some turbidity during construction.

Access to the works area, manoeuvring of machinery and equipment laydown can cause soil compaction. Compaction can affect physical and biological processes and lead to problems such as reduced vegetation growth (resulting in bare areas susceptible to erosion) and incised areas that may promote higher water

flows (resulting in altered hydrology and erosion). Waterlogged soils, as occurring in the lower slopes and flats, are at highest risk of compaction. Works are proposed to be undertaken in a staged process to avoid the need to store equipment and materials such as gravel.

The use of concrete at the site has the potential to cause turbidity and pH impacts during construction if improperly managed. Fuels, lubricants, solvents and similar have the potential to cause pollution during construction if improperly managed.

#### ACID SULFATE SOILS

Acid Sulfate Soils are naturally occurring sediments, that when exposed to oxygen generate acid. This acid generation can kill immobile organisms (such as seagrass), kill mobile organisms if acidity is broadly distributed, corrode iron, concrete and some alloys and irritate skin and eyes of people. Both proposed sites are located within area of class 1 and 5 acid sulfate soils, which means this material is likely to occur. The presence of submerged marine sediments is indicative of this material.

Improper management of this material during the proposed works would have water quality implications for the Bermagui River (including causing harm to fisheries, the estuarine environment and aquaculture enterprises), and would create an ongoing management issues at the sites where the material was disturbed.

#### CONTAMINATED LAND

It is considered unlikely that contaminated land is encountered at either proposal site however, disturbance of contaminated material could result in water quality and public health risks if it is encountered at the site and managed incorrectly.

#### LAND STABILITY

##### **Bermagui River boat ramp**

During construction, use of heavy machinery may result in slumping or collapse of soil material if managed incorrectly.

##### **Bruce Steer pool**

Based on the typical characteristics of the soil landscape a foundation hazard may occur at the site. During construction, use of heavy machinery may result in slumping or collapse of soil material if managed incorrectly. Due to sea level rise (further discussed in 5.8) these risks are expected to worsen with time.

#### Operation

Post construction, impacts to soil would be largely concentrated to disturbed areas. These areas have potential to continue to be susceptible to erosion until groundcover is restored. The replacement of unsealed areas with non-porous hard surfaces would increase the quantity and velocity of water runoff. This would increase the erosive action of discharged water and may deposit increased loads of nutrient and silt into Bermagui River in high rainfall events. These impacts are expected to be minimal, due to the small spatial extent of works.

##### **Bermagui River boat ramp**

Due to land stability issues at the site, during operation, if vehicles that are too heavy access the site, there is a risk of damage to paved areas and vehicles getting stuck during parking, launching and retrieval of boats.

### 5.2.3 Safeguards and mitigation measures

Mitigation measure	Bermagui River boat ramp	Bruce Steer pool
<p>A site-specific sediment erosion control plan would be prepared. The plan would:</p> <ul style="list-style-type: none"> <li>• Be developed consistent with the Blue Book (Landcom 2004).</li> <li>• Be specific to the area of construction, reflecting different gradients, catchment sizes and sensitive features.</li> <li>• Detail the type and location of all sediment erosion controls to be installed.</li> </ul>	Yes	Yes
Sediment erosion controls would be maintained during works and adapted if required to ensure the objectives of the Blue Book are met.	Yes	Yes
Construction works should not be carried out in periods of forecast heavy rains or strong/gale wind warnings.	Yes	Yes
<p>Stockpile sites would be managed in accordance with the Blue Book (Landcom 2004), including:</p> <ul style="list-style-type: none"> <li>• On Council owned existing hard stand areas, requiring no additional native vegetation clearing.</li> <li>• At least 40 metres away from the nearest waterway.</li> <li>• On relatively level ground.</li> <li>• Outside the 1 in 10 year Average Recurrence Interval (ARI) floodplain.</li> </ul>	Yes	Yes
<p>A spill management plan would be developed including:</p> <ul style="list-style-type: none"> <li>• Requirements for spill kits will be kept on site during works using chemicals.</li> <li>• No chemicals stored onsite.</li> <li>• Emergency spill procedures.</li> </ul>	Yes	Yes
No concrete waste or excavated material to be disposed of onsite or in adjacent waterways. Concrete waste includes excess concrete, concrete washout and similar.	Yes	Yes
Access would be managed to minimise traffic on non-hardstand areas.	Yes	Yes
The smallest practical machinery would be used for works, to minimise areas of disturbance and compaction impacts.	Yes	Yes
All areas disturbed by works would be rehabilitated progressively to ensure stable surfaces are obtained as soon as practical. Species selection would be appropriate to the area of works – sterile cover crops and native mulching (thinly spread so germination from the seed bank is not impeded) is considered appropriate in this area. Monitoring will be required. Follow up seeding and mulching may be required to ensure that surfaces are stabilised.	Yes	Yes
Coordination would be undertaken with Council and other service providers to manage impacts to other services.	Yes	Yes
Acid sulfate soils are to be managed in accordance with the <i>Acid Sulfate Soil Manual</i> (Acid Sulfate Soil Management Advisory Committee, 1998). Contractors should	Yes	Yes

Mitigation measure	Bermagui River boat ramp	Bruce Steer pool
<p>demonstrate they have protocols to manage this impact. Management measures should include:</p> <ul style="list-style-type: none"> <li>• Identification and confirmation of the location and extent of ASS through analytic testing.</li> <li>• Minimisation of areas of ASS disturbed during works.</li> <li>• Management to prevent in-situ oxidisation of ASS.</li> <li>• Management to contain ASS to the works area.</li> <li>• Determining appropriate liming rates for ASS.</li> <li>• Disposal of ASS spoil at an appropriately licenced waste facility.</li> </ul>		
<p>If contaminated or suspicious material is encountered during works, a suitably qualified professional should be engaged to determine risks and management strategies.</p>	Yes	Yes

## 5.3 HYDROLOGY, CATCHMENT VALUES AND WATER QUALITY

### 5.3.1 Existing environment

Part of the proposal area at both sites extends into the Bermagui River estuarine system, 1.4 km<sup>2</sup> system. This system is important ecologically (further discussed in Section 5.4) and as a recreational and commercial fishery (further discussed in Section 5.5). The Geoscience Australia OzCoasts assessments of non-pristine estuaries found the Bermagui River to be in 'modified condition'.

The catchment for the system is 84 km<sup>2</sup>, urban area: 1.4 km<sup>2</sup> (1.7%). Crop/pasture and plantations comprise 34 % of the catchment. Native woody vegetation comprises 62 % of the catchment. The towns of Bermagui North and Bermagui are located either side of the river. Numerous aquaculture leases occur within the Bermagui River estuarine system, with the principal commodity Oysters.

### 5.3.2 Potential impacts

#### Construction

##### Spills

During construction hazardous materials (e.g. fuels, oils, solvents etc.) may be brought on site. Should spills occur these materials may cause environmental impacts on the site.

##### Earthworks

Earthworks has the potential to impact water quality through erosion causing turbidity issues within adjacent watercourses including the Bermagui River. If earthworks are to occur within waterways, the potential for these impacts is increased. Contamination (further discussed in Section 5.2) has the potential to result in considerable impacts to water quality should it not be managed correctly during earthworks.

At the Bermagui River boat ramp site, the proposal has the greatest potential to result in water quality impacts as the extent of the earthworks is greatest. The Bruce Steer impacts are most likely to occur as a result of:

- Disturbance of submerged sediments
- Runoff of from exposed soils and stockpiles

Provided the safeguards identified below are implemented, the impacts are considered to be short term and relatively localised.

#### **Pouring concrete in-situ**

Pouring concrete has the potential to have turbidity and pH impacts during construction, if this process is managed incorrectly. Activities such as ‘washouts’, poor formwork and underwater pours have the greatest potential to result in environmental impacts. The proposal does not include underwater pours.

Provided the safeguards identified below are implemented, the impacts at both sites are considered to be short term, relatively localised and therefore minor.

### **Operational**

#### **Sealing carparks with hot mix asphalt**

Sealing carparks has the potential to impact downstream water quality. Sealed surfaces are generally impervious and would cause materials on them to wash downstream, in this case entering the Bermagui River. Car parks tend to have a range of contaminants associated motorised transport – emissions particulates, oils, brake dusts and similar. Unpaved surfaces can act as a kind of filter, trapping and in some cases treating pollutants as they percolate through the permeable surface, the sealing of the unpaved carpark would remove this function.

Asphalt runoff is also a cause pollution. The United States Environmental Protection Agency (2011) found that asphalt sealants release polycyclic aromatic hydrocarbons (PAHs), a class of chemicals that is toxic to many form of biota. Coal tar asphalt sealants ‘have impacted survival and development of amphibians, embryo and larval mortality in fish, and growth and biodiversity of macroinvertebrates and benthic phytoplankton’ (United States Environmental Protection Agency, 2011). Coal tar asphalts (that are not used in NSW) have been found to release PAHs at a rate far greater rate (100-1000 times more) than crude oil derived asphalts. Whether or not asphalts that are currently used leach significant PAHs (or other toxins) is unclear.

The kind of pollution expected to occur from hot mix asphalt and carpark runoff, both as a result of leached toxins from asphalt and from runoff from the impervious surface include:

- Benzene, toluene ethylbenzene xylene (BTEX).
- Polycyclic aromatic hydrocarbons (PAHs).
- Organic compounds (total) (TOC) such as oils and fuels.
- Heavy metals (mercury, lead etc).
- Turbidity.

As part of the proposal, approximately 880 m<sup>2</sup> of area would be sealed, increasing the sealed area at the site from approximately 1200 m<sup>2</sup>. Although the area that is proposed to be sealed is relatively small, considering the sensitivity of estuarine systems and the cumulative impacts of development in the area this impact may result in an operational impact; potentially reducing local water quality, recreational fisheries, commercial aquaculture operations and reducing ecological integrity.



### 5.3.3 Safeguards and mitigation measures

Mitigation measure	Bermagui River boat ramp	Bruce Steer pool
Design Carpark in accordance with the NSW Government Roads and Maritime Services <i>Water sensitive urban design guideline</i> (2017). The key design principal is to capture and treat pollution prior to it entering the Bermagui River estuarine system by implementing control devices appropriate for sensitive receiving waters identified in Table 2 of the Guideline.	Yes	No

## 5.4 BIODIVERSITY

### 5.4.1 Assessment approach

#### Database searches and literature review

Background searches undertaken for the purposes of this assessment included Commonwealth and State databases to determine whether any threatened flora and fauna species, populations, ecological communities, migratory species and Areas of Outstanding Biodiversity Value as detailed in State and Commonwealth legislation occur or are likely to occur within the proposal sites (

Table 5-2).

Appendix C provides a list of threatened species that have been recorded from database searches. In Appendix C, the habitat characteristics of these species have been evaluated to determine their likelihood to occur within the study area.

Table 5-2 Background searches undertaken for threatened entities and priority weeds.

Resource	Target	Search date	Search area
<b>OEH BioNet Atlas</b>	Threatened flora and fauna species, populations and ecological communities listed under the BC Act	20/08/2018	10 km radius of the study area
<b>EPBC Act Protected Matters Search</b>	Threatened flora and fauna, endangered populations and ecological communities and migratory species	26/07/2018	10 km radius of the study area
<b>NSW Department of Primary Industries DPI Fisheries Threatened Species and aquatic TECs</b>	Aquatic TECs and Threatened species	20/08/2018	Bega Valley Shire Council
<b>DPI Weed Wise</b>	Priority weeds declared in the relevant LGA	26/07/2018	Bega Valley Shire Council

## Site inspection

A site assessment of the study area was undertaken on August 2 2018 by a senior environmental consultant for a total of 2 person hours. An assessment of the ecological value of the area as well as habitat types and their quality was undertaken.

Criteria recorded during the site inspection included:

- Native flora species and vegetation communities present (including seagrass).
- Potential of threatened species presence and/or habitat.
- Weed species and pathogens present.
- Landscape connectivity.
- Existing landscape condition and disturbances.
- Potential for ecological impacts.

### 5.4.2 Flora

#### Existing environment

The locality is characterised by residential and low-density settlement, coastal waterways, state forests, and public parks. Bermagui State Forest and Nature Reserve are approximate 4 km to the west of the study area.

Current land uses at the proposal site include:

- Low density residential properties on either side of Bermagui River.
- Businesses and community services associated with Bermagui township near the existing boat ramp.
- Tourism including recreation open areas including the Fisherman's Wharf, Lions Park and Dickson Park at within the vicinity of the Bruce Steer pool.

Bermagui River is classified as a wave dominated barrier estuary and provides Class 1 major key fish habitat (DPI, 2018a).

#### Vegetation and surrounds

The vegetation at both Bermagui River boat ramp and Bruce Steer pool has been highly modified and most native vegetation has been cleared from the area. Both works areas predominantly comprise of cleared areas of lawn and concrete or pavers, carparks and/or public amenities. Area of exposed soil contributing to erosion patches and/or broken concrete/pavers were observed. Lawn that is routinely mown is present at both sites, it primarily comprises exotic grass species and offers no biodiversity value.

#### BERMAGUI RIVER BOAT RAMP

The Bermagui River boat ramp works area does not support any terrestrial native vegetation that would be impacted by the works. Seagrass is present within the Bermagui River and the placement of the pontoon piers would impact this marine vegetation.

#### BRUCE STEER POOL

The Bruce Steer pool works area supports small patches of highly modified and disturbed remnant native vegetation. Four native trees (3 Eucalypts and 1 Teatree species) over an exotic grass understorey are present near the existing shelter table; these trees are young and not hollow bearing.

A native shrub layer dominated by Coastal Wattle (*Acacia Sopherae*) exists within the sandy slope between the current amenities block and grassed lawn area. A minor patch of Coastal Wattle and unidentified grass species is present along the breakwater rock wall and persists as an isolated shrubby patch subsiding within an otherwise cleared area and offers negligible biodiversity value.

Seagrass is not present within the works area.

### **Weeds and pathogens**

No weeds or pathogens were observed.

### **Threatened entities**

#### **DATABASE SEARCHES**

The NSW BioNet and the Commonwealth EPBC Act Protected Matters Search Tool database searches for threatened entities and communities identified 7 threatened flora species and 16 Threatened Ecological Communities (TECs) with the potential to occur within the locality (10 km radius).

The threatened species habitat evaluations (presented in Appendix C) determined that no threatened flora species are likely to occur within the study area due to the:

- Absence of required abiotic habitat features;
- High levels of disturbance;
- Absence of associated vegetation communities or flora species; and
- Lack of nearby (within 10 kilometres) records of the species.

#### **THREATENED ECOLOGICAL COMMUNITIES**

No threatened ecological communities occur within the works area.

### **5.4.3 Fauna**

#### **Terrestrial fauna habitat**

Terrestrial fauna habitat is limited within the works area. Prior clearance that would have occurred during the development of the existing concreted boat ramps and carparks has already simplified the area and the biodiversity value of the area has been all but removed.

Open grassland is dominant near the water's edge at both sites and provides limited habitat for fauna and is most likely primarily used for foraging by common or invasive bird species. There is limited habitat for mammals and reptiles in these areas, unless they are highly common species. The works area lacks the habitat diversity and structural complexity to support any unique or important habitat features. No breeding resources are present in the works area. Ongoing disturbances to fauna are also present due to recreation use of the area by the local community, with fishing (boat and land) and dog walking being a common activity.

Within the impact areas, minor fauna habitat present exists in the form of:

- Nectar, pollen, and seed foraging resources through Coastal Wattle for common birds (at Bruce Steer Pool only).
- Open grassland foraging resources for common and invasive birds (both sites).
- Very minor sandy patches for refuge for common marine birds, although it is unlikely foraging or breeding habitat (Bruce Steer Pool only).

## Marine fauna habitat

Bermagui River is classified as a wave dominated barrier estuary with an open entrance to the Tasman Sea with an average depth of 1.1m (OEH, 2018). The mouth of the river is protected by the break wall providing a barrier to the open sea. Expanses of seagrass are present throughout areas of the river, including *Posidonia sp.*, and *Zostera sp.*. Seagrass meadows are highly important marine habitat; acting as nurseries for juvenile fish and stabilising sediments among other environmental functions. Mangroves are present along the banks of the River across mudflats to the north and west of the proposal site. The river is a known fishing location, supporting a range of species including Mulloway (*Argyrosomus japonicus* or *hololepidotus*), Dusky Flathead (*Platycephalus fuscus*), Sand Whiting (*Sillago ciliata*), Yellowfin Bream (*Acanthopagrus australis*), Silver Trevally (*Pseudocaranx dentex*), Luderick (*Girella tricuspidata*), Mullet (*Liza argentea*), Garfish (*Belonidae sp.*) among others.

Bermagui River boat ramp is concreted and paved to the water's edge and is absent of immediate tidally exposed sand or mudflats but supports seagrass beds at its margins. Bruce Steer boat ramp however, supports small areas of sandy beaches exposed to tidal influences and no seagrass.

Habitat is limited for many shorebirds, especially threatened species, due to the lack of wide mudflats and sandflats. Nesting or breeding habitat is not available for shorebirds or waders, but marginal foraging habitat is available on the rivers margins during high tide and within seagrass beds during low tides. Habitat is also limited for migratory shorebirds for the reasons stated above. Both sites are considered too modified and exposed to too much ongoing disturbance to provide important threatened shorebirds and migratory marine birds habitat, although they may occur sporadically.

## Threatened entities

### DATABASE SEARCHES

The NSW BioNet and the Commonwealth EPBC Act Protected Matters Search Tool database searches for threatened entities and communities identified 96 threatened or migratory fauna species with the potential to occur within the locality (10 km). This included 59 birds, 14 mammals, 8 bats and gliders, 5 turtles, 7 fish, and 3 frogs. Many of these species are marine and/or pelagic (e.g. albatrosses, whales, migratory marine birds) and are unlikely to occur in the works area.

Within non-marine habitats (i.e. the cleared exotic grassland areas and patches of native shrubs), there is no unique habitat or resources for threatened terrestrial and/or arboreal mammals in the existing grassland due to the cleared nature of much of the area which is subject to repeated mowing from maintenance activities. Threatened bird or bat species with larger home ranges (i.e. raptor species or microbats) may fly over the works area on route to other better-quality foraging grounds as they are highly mobile and forage over extensive areas. It is highly unlikely they would stop to forage within the proposed development area given the paucity of adequate foraging resources there and would prefer larger areas of habitat that are available in the locality.

There was some potential for 6 shorebirds that occur in estuarine habitats to forage within the works area and included:

- Bar-tailed Godwit (*Limosa lapponica baueri*).
- Black-tailed Godwit (*Limosa limosa*).
- Curlew Sandpiper (*Calidris ferruginea*).
- Eastern Curlew (*Numenius madagascariensis*).
- Little Tern (*Sternula albifrons*).

- Pied Oystercatcher (*Haematopus longirostris*).

It was considered unlikely that the development would have any adverse impact on these shorebird species as the works area already sited within a highly modified area with ongoing disturbance and the development footprint is small. While these species can forage within seagrass and sandflats which are present in the locality, the works area encroaches on a small area of this habitat and the species are not expected to occur on a regular basis. The construction works would be temporary and would not affect any population of these species in the long term.

As a result, no threatened species would be materially impacted by the proposal. Additionally, other ongoing disturbances (residential housing, dog walking, noise from local traffic) would prevent many threatened species from permanently using the area.

#### THREATENED AND PROTECTED FISH

A search of the DPI Fishing and Aquaculture threatened and protected species website identified 7 threatened marine species with potential to occur within the locality (refer Appendix C). Four of these species were sharks. The other three records were fish species, the Australian Grayling (*Prototroctes maraena*), Black Rockcod (*Epinephelus daemeli*) and Southern Bluefin Tuna (*Thunnus maccoyi*).

The Australian Grayling can inhabit estuarine waters and coastal seas as juveniles and freshwater rivers as adults; however, most of the adult lifecycle is spent in freshwater rivers in cool clear waters with gravel substrate and pools. This habitat type is not available within the works areas and it is unlikely the species would occur there. The Black Rockcod primarily inhabits rocky reefs and juveniles prefer rock pools or rocky intertidal areas and this habitat type does not occur within the works area.

Members of the Syngnathidae (seahorses, pipefish, seadragons) were also highlighted as important aquatic species. Members of this family do not have a conservation listing but are protected under the FM Act and the EPBC Act in that it is an offence to kill, injure, take, trade, move or export any members of the family without a permit.

Syngnathidae are known to occur in various habitats, including seagrass habitat, and have the potential to occur on site but it is considered unlikely that they would occur in the seagrass near the very edge of the water's shore where the works are located. There are no adverse impacts expected to any population of these species as the impact to seagrass is minor and would occur on the periphery of potential habitat and does not fragment larger patches of seagrass. The species are more likely to occur in the larger patches of seagrass within the wider locality to the west of the works area.

#### **5.4.4 Assessment of impacts**

The upgrade and modifications of the Bermagui River boat ramp and Bruce Steer pool would have some impacts of the biodiversity of the works area but would be contained to the immediate shore edges or marine environment. The potential impacts include:

- Direct loss of seagrass (at Bermagui River boat ramp only).
- Potential injury, mortality or disturbance to aquatic fauna, primarily fish or members of the Syngnathidae family).
- Altered hydrology flow and water quality impacts.
- Potential to bring in weeds, pests and pathogens.

### **Direct loss of seagrass**

There is potential for direct loss of seagrass at Bermagui River boat ramp for the establishment of pontoon piers and indirect loss of seagrass immediately under the pontoon due to possible shading effects. No seagrass occurs at the Bruce Steer pool works area.

The NSW DPI Fisheries Spatial Data was accessed to review the extent of mapped seagrass within the locality of the Bermagui River boat ramp (DPI, 2018b). DPI mapping shows the proposed works to lie adjacent the edge of mapped seagrass (Figure 5-1). However, observations made from aerial imagery and during the site visit indicate the extent of the seagrass is closer to shore and further east than indicated in the mapping. A precautionary approach has been adopted and it is assumed seagrass would be impacted by the permanent installation of the pontoon (including the piers), but note that this would be a minor impact in occurrence if seagrass is actually present. It is estimated that around 150 m<sup>2</sup> of seagrass would be impacted because of the proposal. Impacts would result from construction works, shading of habitat following construction of estuarine structures and sediment scour for propeller wash of vessels using the site during operation.

As shown on Figure 5-1 contiguous areas of seagrass habitat are located outside the proposal area, especially to the north and west of the boat ramp. Although not mapped in the Fisheries Spatial Data (DPI, 2018b), a review of aerial imagery indicates a band of estuarine vegetation extends along the southern bank of the Bermagui River. This vegetation has been fragmented by the construction of the bridge for Wallaga Lake Road, and would be further fragmented by the construction of the proposal; reducing the connectivity of marine vegetation between the mouth of the River and the large Seagrass meadows to the west of the proposal area. The effect on the current distribution and abundance of seagrass habitat is expected to be minor and the proposal would not affect the longevity of this aquatic habitat.

### **Injury, mortality or disturbance to aquatic fauna**

Injury or mortality to common fauna species is likely given the location of the proposal and the abundance of small species throughout marine sediments.

The proposal has the potential to cause injury and mortality to sessile aquatic fauna species, in particular those slow moving or attached invertebrates located within the sediment, seagrass or attached to boulders at the breakwater wall near Bruce Steer pool. These impacts are likely to occur during the construction phase of the development. Members of the Syngnathidae family if present may be at risk, especially seahorses as they are generally slow-moving species that swim upright in the water, or wrap their tails around objects such as seagrass to stay stationary during feeding or turbulent water conditions (DPI, 2018c).

Invertebrates species would be common and found in high abundance in these types of habitat and any injury or mortality would only have a minor impact on their abundance in the locality. More mobile aquatic species such as stingrays and fish could potentially vacate the immediate area during construction due to vibration and noise impacts and other impacts to habitat. Due to the availability of similar aquatic habitats in surrounding areas, impacts are likely to be minor and temporary, with species moving back to the area following works.

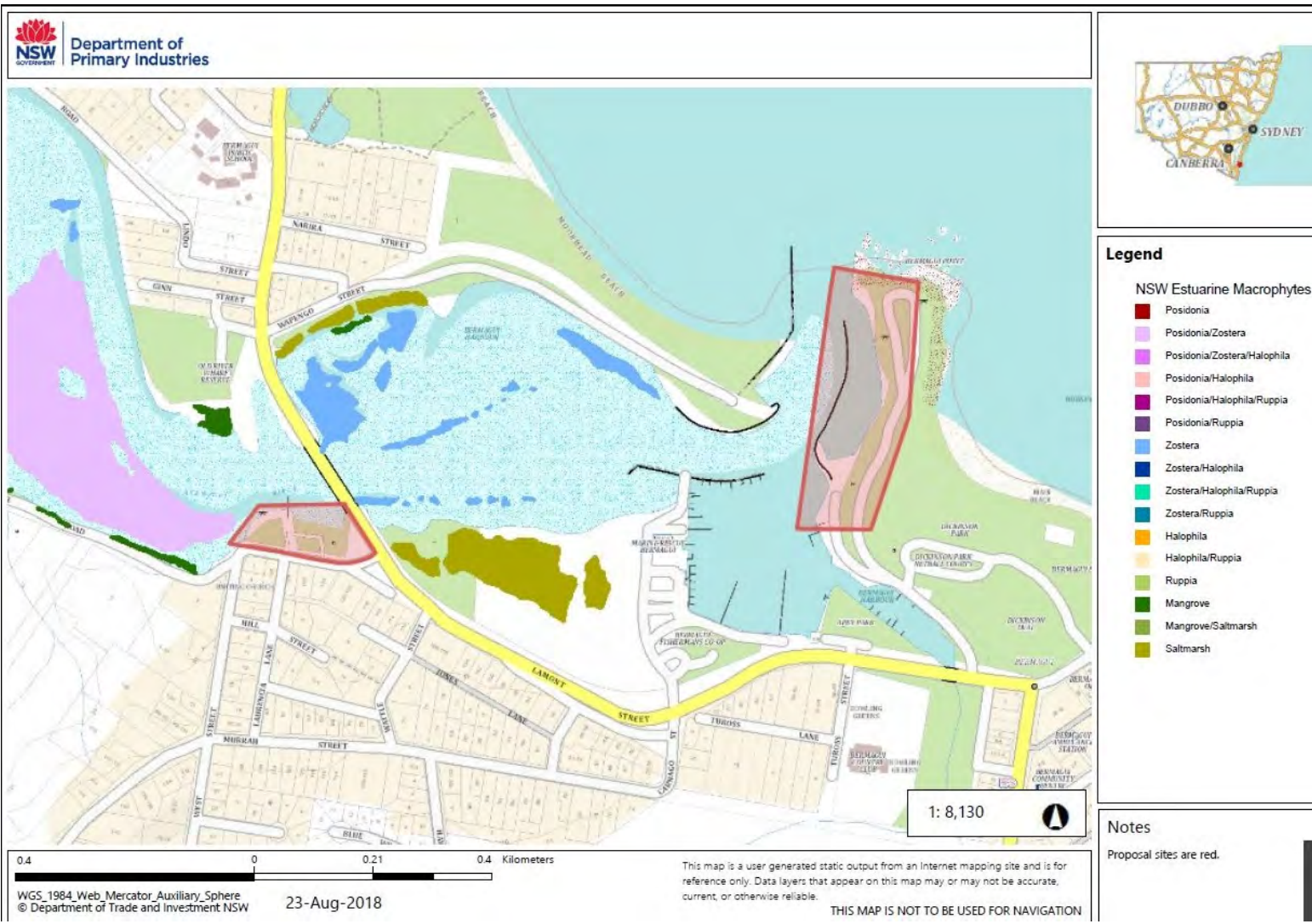


Figure 5-1 Distribution of mapped seagrass in relation to the Bermagui River boat ramp and Bruce Steer pool works areas.

### Altered hydrology flow and water quality impacts

Some increase in sedimentation and turbidity of the marine waters is likely to result during construction activities at both sites. The primary activities associated with the proposal that have potential to result in water quality impacts are detailed in Table 5-3 below.

Table 5-3 Construction activities with potential to result in water quality impacts

Works Area	Activity
<b>Bermagui River boat ramp</b>	<ul style="list-style-type: none"> <li>• Removal of the existing boat ramp / pavers at water’s edge.</li> <li>• Construction of the new boat ramp including poured in-situ concrete on the shore side.</li> <li>• Installation of pier footings for pontoon within waterway.</li> <li>• Improving sections of existing formal car park through tidying edges and concreting.</li> <li>• Levelling and sealing existing informal car park.</li> </ul>
<b>Bruce Steer pool</b>	<ul style="list-style-type: none"> <li>• Removal of existing amenities building and stairs located on upper slope and construction of new amenities building on lower car park level.</li> <li>• Construction of disability access concrete ramp 50 m into water.</li> <li>• Construction of poured concrete pathways and carparking.</li> </ul>

#### OVERVIEW

The construction, excavation and demolition works are not expected to increase sedimentation to a substantial degree and it is expected to be localised to the works area. A floating boom with a net curtain to catch sediment would be used for both works areas. Where feasible, precast concrete slabs would be fitted to prevent accidental contamination of waterways at both sites, with the exceptions of poured concrete at the immediate shore side for the Bermagui River boat ramp and improvements to the existing carparks. No major alterations to natural flow regimes are expected from the proposal.

Environmental safeguards are required as part of the construction of the proposal to implement standard best practice erosion and sedimentation controls, especially to prevent concrete in undesignated areas of the waterway (refer to Section 5.4.6 for mitigation measures and safeguards).

#### BERMAGUI RIVER BOAT RAMP

Seagrass is noted only for the Bermagui River boat ramp works area. Temporary sedimentation of seagrass beds could occur during increases in turbidity which may smother the grass or prevent light penetration to the bed and reduce growth. Water sediment controls (i.e. floating boom with a net curtain) have the potential to harm seagrass beds if they are used improperly (e.g. dragged along the bottom). Care to prevent damage to seagrass is required when using floating booms, operating vessels and works in estuarine environments to ensure sea grass impacts are prevented.

The installation of the pontoon and associated piers would not change the frequency, duration or volume of flow, although would locally change the flows at the proposal site by creating eddies during flood and ebb tides. The pontoon piers would be isolated to 2-3 pile driven footings and the estuary bed impact footprint is negligible. The construction of the pontoon would create shading during the proposal.

#### BRUCE STEER POOL

The disability access ramp would be constructed parallel to the existing breakwater wall and would not disrupt natural hydrological flows any more than that created by the artificial wall. There would be



disturbance to the sea bed for installation of the access ramp within the water but the substrate is sand and seagrass is not located within this area.

The relocation of the new amenities block within the lower carpark level of the works area may fall within an area susceptible to climate change induced sea-level rise. The amenities block must be designed in consideration of sea-level rise and the potential for water inundation during high-tide or storm events.

**Weeds, pests and pathogens**

The following species are considered threats to marine environments and could be introduced via propagules on construction equipment, or colonise areas disturbed during the construction of the works.

Species	Habitat and impact	Known locations	Site assessment
<i>Caulerpa taxifolia</i> (Caulerpa)	<ul style="list-style-type: none"> <li>- Colonises exposed and sheltered rocky reef and sandy areas, to 6m depth</li> <li>- Alters marine habitats and affect biodiversity, although it is no longer considered as severe in NSW as was once thought</li> </ul>	Batemans Bay, Botany Bay, Brisbane Waters, Burrill Lake, Durras Lake, Hawksbury River, Lake Conjola, Lake Macquarie, Pittwater, Port Hacking and Wallagoot Lake	Not known to occur at site, poses risk to site from outcompeting native species.
<i>Sabella spallanzanii</i> (European fan worm)	<ul style="list-style-type: none"> <li>- Exposed rocky reef and artificial structures in areas of good current flow, up to 200m depth</li> <li>- The species potential to compete with native filter-feeding organisms for food and space, and in high densities has the potential to have a negative effect on commercially important species (mussels and oysters)</li> </ul>	Twofold Bay and Botany Bay	Not known to occur at site, unlikely to pose risk to proposal site
European green crab ( <i>Carcinus maenas</i> )	<ul style="list-style-type: none"> <li>- lives in a variety of habitats but is generally found close to the shore on mudflats or amongst rocks in protected bays and estuaries</li> <li>- negatively impacted native species and aquaculture industries overseas. The species is a voracious predator that feeds on many</li> </ul>	Burrill Lake, Clyde River / Batemans Bay, Tomaga River, Candlagan Creek, Coila Lake, Lake Mummuga, Wagonga Inlet, Nangudga Lake, Corunna Lake, Tilba Tilba Lake, Merrica River, Wallaga Lake, Bermagui River, Cuttagee Lake, Wapengo Lake, Nelson	Known to occur at site

Species	Habitat and impact	Known locations	Site assessment
	types of organisms including shellfish and other crabs	Lagoon, Merimbula Lake, Pambula Lake, Twofold Bay, Wonboyn Lake and Nadgee Lake	
Japanese goby ( <i>Tridentiger trigonocephalus</i> )	<ul style="list-style-type: none"> <li>- Estuaries and rocky reef areas; resides on the bottom, near objects such as rocks, under which it can hide</li> <li>- Competes with native species</li> </ul>	Sydney Harbour and Port Kembla	Not known to occur at site, poses risk to site
New Zealand screwshell	<ul style="list-style-type: none"> <li>- Lying on, or partially buried in sand, mud or gravel, Intertidal to subtidal, From 1-130m depth</li> <li>- Densely blankets sea floor with live and dead shells Can affect growth of scallops and displace native shellfish</li> </ul>	Twofold Bay and continental shelf off Merimbula and Bermagui	Not known to occur at site, poses risk to site
The Pacific Oyster ( <i>Crassostrea gigas</i> )	<ul style="list-style-type: none"> <li>- found on a variety of hard substrates in the intertidal and shallow subtidal zones, to a depth of about 3 metres</li> <li>- Outcompete native and aquaculture species</li> </ul>	Most estuaries in NSW	Known to occur at site
Yellowfin Goby ( <i>Acanthogobius flavimanus</i> )	<ul style="list-style-type: none"> <li>- muddy or sandy estuaries, river mouths and bays</li> <li>- Yellowfin Goby compete directly with native species for space and food resources</li> </ul>	Botany Bay, Port Jackson, Hawkesbury and Hunter River estuaries	Not known to occur at site, poses risk to site
Tilapia (various species)	<ul style="list-style-type: none"> <li>- Habits reservoirs, lakes, ponds, rivers, creeks, drains, swamps and tidal creeks. Usually lives in mud bottomed, well-vegetated areas</li> <li>- Damages aquatic habitat and preys on and outcompetes native species</li> </ul>	Cudgen Lake near Cabarita Beach, also found in Victoria, Queensland and Western Australia	Not known to occur at site, poses some risk to Bermagui River system

A pest and pathogen management plan should be developed once the final works methods are determined.

**Other considerations**

The proposal would not fall within any area mapped as ‘Coastal Wetlands’ under the *Coastal Management Act 2016* and SEPP (Coastal Management); however, coastal wetlands are located within the locality approximately 0.23 km east and 0.35 km west of Bermagui River boat ramp, with the wetland proximity buffer even closer. Indirect impacts of the proposal to these coastal wetlands are not expected and sediment controls and stormwater treatment would minimise any impact occurring outside the demarcated works area.

**5.4.5 Impact on relevant key threatening processes**

Key threatening processes (KTPs) relevant for the proposal were reviewed and outlined below in Table 5-4.

Table 5-4 Key Threatening Processes relevant to the proposal.

Key Threatening Processes (KTPs)			
BC Act	EPBC Act	FM Act	Relevance
Clearing of native vegetation	Land clearance	The degradation of native riparian vegetation along NSW water courses	The works area is already degraded and would affect exotic grassland. The proposal would not contribute to this KTP.  Note: While removal of seagrass is not listed as a KTP, a primary objective of the Fish Conservation and Management Plan (Fairfull, 2013) is to ensure there is no net loss of seagrasses within the coastal and estuarine waters of NSW.
Alteration to the natural flow regimes of rivers and streams and their floodplains and wetlands		Instream structures and other mechanisms that alter natural flow	The construction works is not expected to alter the natural flow of the Bermagui River and the proposal would not contribute to this KTP.
Invasion of native plant communities by exotic perennial grasses			The works area is already degraded and with exotic species present. The proposal would not contribute to this KTP beyond that which is already occurring. However, weed management as part of routine maintenance operations would promote control of any existing weeds.

**5.4.6 Safeguards and mitigation measures**

The proposed works have been designed to minimise impacts, where possible, and would use the safeguards detailed in Table 5-5 to assist with minimising the impacts on biodiversity during construction and maintenance works.

Permits would be required from NSW DPI to harm protected marine vegetation (seagrass). Additional mitigations measures may be included in conditions prescribed by these permits.

Table 5-5 Mitigation measures to prevent and minimise impact during construction works.

Mitigation measures	Bermagui River boat ramp	Bruce Steer pool
<ul style="list-style-type: none"> <li>• Prior to the commencement of work, a physical clearing boundary at the approved clearing limit is to be demarcated and implemented. The delineation of such a boundary may include the use of temporary fencing, flagging tape, parawebbing or similar.</li> </ul>	Yes	Yes
<ul style="list-style-type: none"> <li>• A weed, pest and pathogen management plan would be developed prior to works to reduce the likelihood of introducing or exacerbating this risk.                             <ul style="list-style-type: none"> <li>○ Weed-free fill would be used for on-site earthworks.</li> <li>○ Species used for replanting and landscaping must not comprise noxious weeds.</li> <li>○ Machinery would be thoroughly cleaned before and after site access.</li> </ul> </li> </ul>	Yes	Yes
<ul style="list-style-type: none"> <li>• If used, floating booms with net curtains would be placed at strategic locations to prevent any sedimentation of seagrass. Care would be taken when installing the floating boom to ensure it does not directly impact any seagrass.</li> <li>• The use of boats in seagrass beds would be minimised where possible.</li> <li>• Boats would not enter seagrass beds at low tide or when water levels are low enough that there is a risk of propellers striking seagrass (dictated by draft of the vessel).</li> <li>• Anchoring would not occur within seagrass beds.</li> </ul>	Yes	
<ul style="list-style-type: none"> <li>• Additional measures required by DPI Fisheries would be included. Issues for consideration include:                             <ul style="list-style-type: none"> <li>○ Offsets for sea grass impacts (where relevant).</li> <li>○ Containment of debris during in water works.</li> <li>○ Machinery access to the water.</li> <li>○ Monitoring .</li> </ul> </li> </ul>	Yes	Yes
<ul style="list-style-type: none"> <li>• Post construction, BVSC to consider installing signage at boat launching sites to educate users about:                             <ul style="list-style-type: none"> <li>○ Their biosecurity obligations.</li> <li>○ Methods for users reduce the risk of weed and pest introduction.</li> <li>○ What weeds and pests occur at the site (that could be transported elsewhere) and what weeds and pests don't occur at the site (that could be introduced).</li> </ul> </li> </ul>	Yes	No

## 5.5 COMMUNITY AND SOCIOECONOMICS

### 5.5.1 Existing environment

Tourism is an important economic activity in the Bega Valley Region. Tourism Research Australia (a subsidiary of the Australian Government, Austrade) found that for the year of 2016, the Bega Valley local government area experienced 7.6 million visitors, an increase of 11% for the previous year.

Aquaculture has an economic output of \$25 million and generates 182 full time equivalent jobs across with the NSW South Coast region (University of Technology, Sydney, 2016). Numerous aquaculture leases occur within the Bega Valley Shire LGA. Within the Bermagui River estuarine system, the primary commodity is shellfish, which are highly susceptible to water quality both in terms of output and quality.

Recreational opportunity is important for residents. The lifestyle factors that add to the quality of the region for residential communities include access to coastal areas and recreational sites.

#### **Bermagui River boat ramp**

A study of the economics of recreational fishing in NSW found that the industry contributes 1,808 full time equivalent jobs and generates \$395 million dollars of output for the South Coast region (University of Wollongong, 2012). The site is an important location for recreational fishing. The Bermagui River boat ramp provides boating access to the Bermagui River and numerous locations seaward from this estuary.

The existing facility comprises a sealed parking area, a gravel informal parking area.

#### **Bruce Steer pool**

Bruce Steer pool currently comprises of a carpark shared between pool users and the adjacent boat ramp. The site includes a grassed area, a small sandy beach and a deep and calm pool extending towards the mouth of the river adjacent to the river break wall. Up a flight of stairs is a public amenity building, that does not have specific accessible features, however is valued by users of the boat ramp in its current configuration. It should be noted that a high use boat ramp is located adjacent to the proposal site, which is expected to experience higher visitation than Bruce Steer pool.

A desktop study of the *Australian accessible beach directory* (Accessible Beaches, n.d.) did not identify any accessible beaches in the South Coast region of NSW.

### 5.5.2 Potential impacts

#### **Construction**

Water quality impacts are discussed in Section 5.3. Water quality impacts may result in impacts for aquaculture leases within the Bermagui River system. Pollution issues may also reduce the ecological productivity of the system which in turn may impact the quality of the fisheries of the area.

Potential adverse economic impacts could result from public amenity impacts (discussed in Section 5.6) relating to adjacent to businesses and tourist operators. The timing of the proposal would be such that it does not impact the busy, high-use times such as the summer period.

## Operation

### BERMAGUI RIVER BOAT RAMP

The proposal is expected to meet the current demand for tourists and provide infrastructure for the anticipated growth in the area. The construction of the finger pontoon would improve the facility for use by boaters and improve accessibility of vessels as they are loaded and unloaded.

### BRUCE STEER POOL

The construction of equitable access to Bruce Steer pool would enable a large range of currently disadvantaged users to access the pool and the beach. These kinds of outdoor recreation activities are highly valued in the region; this proposal would act to enhance the site for the local community as well as tourists.

### 5.5.3 Safeguards and mitigation measures

Mitigation measures	Bermagui River boat ramp	Bruce Steer pool
Design to consider the maximum usefulness of the site, to a range of users, and to ensure that the utility of the site is not diminished unnecessarily.	No	Yes
Keep community informed regarding duration, timing of works and disruptions.	Yes	Yes
Notification to industry groups regarding duration, timing of works and disruptions.	Yes	Yes

## 5.6 AMENITY: VISUAL, AIR QUALITY AND NOISE

### 5.6.1 Existing environment

Public amenity impacts can occur through the generation of excessive noise, air quality, and visual impacts. The existing environment is characterised by a scenic coastal setting in high use recreational areas.

#### Bermagui River boat ramp

The proposal site is adjacent to three types of receivers: suburban residences, public foreshore recreational users and business operators. All receivers would be expected to have high air quality sensitivity. Existing noise and traffic regimes vary. The sensitivity of receivers to visual impacts would also be expected to vary, as set out in Table 5-6. No sensitive receivers, such as schools or hospitals, are located near the works areas.

Table 5-6 Sensitive receptors Bermagui River boat ramp.

Lot type	Lot size	Distance to nearest receptor	Existing noise regime	Visual sensitivity
<b>Public space</b>	Large	0 m	Medium - vehicles and pedestrian traffic. Maintenance of lawns, boats and other lake activity.	High – these receivers have come to the foreshore to experience the visual and other values of the area.
<b>Residential</b>	Small	20 m	Medium – adjacent to the public foreshore, these lots have the same noise regime.	High – these residences are orientated to maximise foreshore views.
<b>Business</b>	Large	20 m	Medium – adjacent to the public foreshore, these lots have the same noise regime.	Low – visual impacts do not impact on production values, the primary value of this receiver.

It should be noted that the sites are not currently lit.

### Bruce Steer pool

The proposal site is adjacent to three types of receivers: public foreshore recreational users, business operators and boating infrastructure users (boat ramps and marinas). All receivers would be expected to have high air quality sensitivity. Existing noise and traffic regimes vary. The sensitivity of receivers to visual impacts would also be expected to vary, as set out in Table 5-7. No sensitive receivers, such as schools or hospitals, are located near the works areas.

Table 5-7 Sensitive receptors Bruce Steer pool

Lot type	Lot size	Distance to nearest receptor	Existing noise regime	Visual sensitivity
<b>Public space</b>	Large	0 m	Low to medium - vehicles and pedestrian traffic. Maintenance of lawns, boats and other river activities.	High – these receivers have come to the foreshore to experience the visual and recreational values of the area.
<b>Business</b>	Moderate	250 m	Medium - vehicles and pedestrian traffic. Maintenance of lawns, boats and other river activities.	Moderate to high – hospitality businesses likely to be sensitive to views, charter operates moderately sensitive to views, but it is not core to their business.
<b>Boating infrastructure users</b>	Large	0 m	Medium - vehicles and pedestrian traffic. Maintenance of lawns,	Low – visual impacts do not impact on production values, the primary value of this receiver.

Lot type	Lot size	Distance to nearest receptor	Existing noise regime	Visual sensitivity
			boats and other river activities.	

### 5.6.2 Potential impacts

#### Construction

##### BERMAGUI RIVER BOAT RAMP

Construction machinery may generate noise, vibration, air quality impacts. During construction, moderate visual impacts as a result of construction works (machinery, fencing, stockpiles etc.) are expected to be visible to the receivers identified in Table 5-6.

During construction, the existing boat ramp and carpark would not be accessible. A small traffic impact would be present during construction. Machinery is likely to be stored onsite during works, reducing this impact on local roads.

##### BRUCE STEER POOL

Construction machinery may generate noise, vibration, air quality impacts. During construction, moderate visual impacts are expected.

#### Operation

Operational noise and traffic impacts may occur as a result of increased usage of the site, however these impacts are considered relatively minor.

The visual impact of the completed proposal is considered moderate. While the extent of carpark proposal is relatively minor, the addition of the finger pontoon would be visible from multiple outlooks. The lighting at the site has the potential to impact residential sites by illuminating these sites.

##### BRUCE STEER POOL

Operational impacts would include the additional noise generated by recreational users of the sites.

The completed proposal is likely to improve the visual amenity of the area, through the updating of the amenities building and the landscaping works.

### 5.6.3 Safeguards and mitigation measures

Mitigation measures	Bermagui River boat ramp	Bruce Steer pool
<b>General</b> <ul style="list-style-type: none"> <li>Activities would be completed in the shortest practical time.</li> </ul>	Yes	Yes



Mitigation measures	Bermagui River boat ramp	Bruce Steer pool
<ul style="list-style-type: none"> <li>Safe access to recreation areas would be maintained where practical.</li> </ul>		
<p><b>Noise</b></p> <ul style="list-style-type: none"> <li>A quantitative noise assessment in accordance with NSW Interim Construction Noise Guideline (DECC, 2009) would be required if the works in any one location exceed 3 weeks.</li> <li>Comply with the Interim Construction Noise Guideline (DECC, 2009) by restricting work to standard works hours:               <ul style="list-style-type: none"> <li>between 7am and 6pm Monday to Friday,</li> <li>between 8am and 1pm on Saturday,</li> <li>No works would be permitted on Sundays or public holidays.</li> </ul> </li> <li>Unnecessary noise emissions would be avoided by turning equipment off when it is unused for an extended period.</li> <li>Equipment would be maintained in good condition so that excessive noise is not emitted. Noise attenuation methods may be used on particularly noisy equipment if required.</li> </ul>	Yes	Yes
<p><b>Visual Impacts</b></p> <ul style="list-style-type: none"> <li>Lighting to be constructed in such a way as to not directly shine into residential dwellings or significantly illuminate residential areas (consider cowals where necessary).</li> <li>Where possible, materials to be selected to be consistent with the surrounding environment.</li> </ul>	Yes	No
<p><b>Air quality</b></p> <ul style="list-style-type: none"> <li>Machinery should be turned off while not in use (where possible).</li> <li>Machinery should be in good working order and compliant with the relevant emissions regulations .</li> <li>Earthworks should not be undertaken during periods of high wind.</li> <li>During dry conditions, exposed soils should be wetted down and stockpiles covered if not in use.</li> </ul>	Yes	Yes

## 5.7 TRAFFIC AND ACCESS

### 5.7.1 Existing environment

#### Bermagui River boat ramp

The Bermagui River boat ramp site currently provides parking in two areas; a sealed parking area (approximate area of 1,200 m<sup>2</sup>) and an informal gravel parking area (approximately 880 m<sup>2</sup>). The proposal site is accessed via Lamont Street which extends both east and west from the proposal site.

The proposal site includes a single lane public boat ramp. The site is located on the outer edge of a meander of the Bermagui River. The outer edges of rivers are typically characterised by stronger currents which result in deeper channels.

### **Bruce Steer Pool**

Bruce Steer pool currently has a small (320 m<sup>2</sup>) parking area, that is located adjacent to the Bermagui River boat ramp, and is access via a single unnamed road.

## **5.7.2 Potential impacts**

### **Construction**

#### **BERMAGUI RIVER BOAT RAMP**

During construction Bermagui River boat ramp and large areas of the existing carparks would be inaccessible. The use of piling barges and other plant and equipment required to construct the proposed finger pontoon and emplace the new boat ramp would obstruct access to navigable waters. Construction machinery would travel to and from the site during construction. Construction equipment movement is expected to have only a minor traffic impact.

#### **BRUCE STEER POOL**

During construction areas of the existing carparks would be inaccessible. Construction machinery would travel to and from the site during construction. Construction equipment movement is expected to have only a minor traffic impact.

### **Operation**

#### **BERMAGUI RIVER BOAT RAMP**

The proposal would improve the quality of infrastructure for boaters launching boats at the proposal site. The proposal includes the installation of a finger pontoon jetty extending 16 meters into and 24 meters along the Bermagui River. The Bermagui River at the location of the proposal is approximately 80 m wide, meaning the proposal obstructs approximately 20% of the river. However, the proposal site is located on the outer edge of a meander of the river, and therefore the finger pontoon is likely to extend adjacent to some of the deepest water within the river. This location would mean that boaters launching and retrieving vessels, and vessels tied to the jetty, would be directly adjacent to the preferred navigational route for access to the Bermagui River west of the proposal site.

#### **BRUCE STEER POOL**

Two disabled parking spaces would be provided at the site, representing a positive impact of the works.

The proposal does not include any features likely to impact vessel movements, as the proposal is located deep within a coastal bay enclosed on all sides.

### 5.7.3 Safeguards and mitigation measures

Mitigation measures	Bermagui River boat ramp	Bruce Steer pool
<p>A Traffic Management Plan would be prepared prior to construction, which would identify the need for, and extent of traffic controls for the works area. The Traffic Management Plan would include, but not be limited to consideration of:</p> <ul style="list-style-type: none"> <li>• Signage to indicate the works areas and any hazards.</li> <li>• Speed limit reductions, where required.</li> <li>• Parking of machinery and vehicles where this is required close to the works areas.</li> <li>• Notification of any changed traffic conditions would be advertised to the local community in advance of the works commencing. A contact number would be provided for community queries in relation to the works.</li> <li>• Installation of safety fences around works area.</li> </ul>	Yes	Yes
<p>The works program should be scheduled to be as short as practical to minimise access impacts.</p> <p>Access to adjacent facilities (boat ramps, public toilets etc.) should not be obstructed at any time.</p>	Yes	Yes

## 5.8 CLIMATE CHANGE

### 5.8.1 Existing environment

Since 1910, the average surface temperature in Australia has increased 0.9°C and between 1901 and 2010 sea levels have risen 0.19 m. Higher mean temperatures, rising sea levels and more severe storms are a pattern that is expected to continue into the future. BMT WBM (2015) published a *Bega Valley Shire Coastal Processes and Hazards Definition Study – Volume 1: Final Report* that Identify, assess and maps the potential extent of coastal hazards for the current year, 2050 and 2100 timeframes. The study identifies areas of inundation during storms. These areas are shown in Figure 5-2.

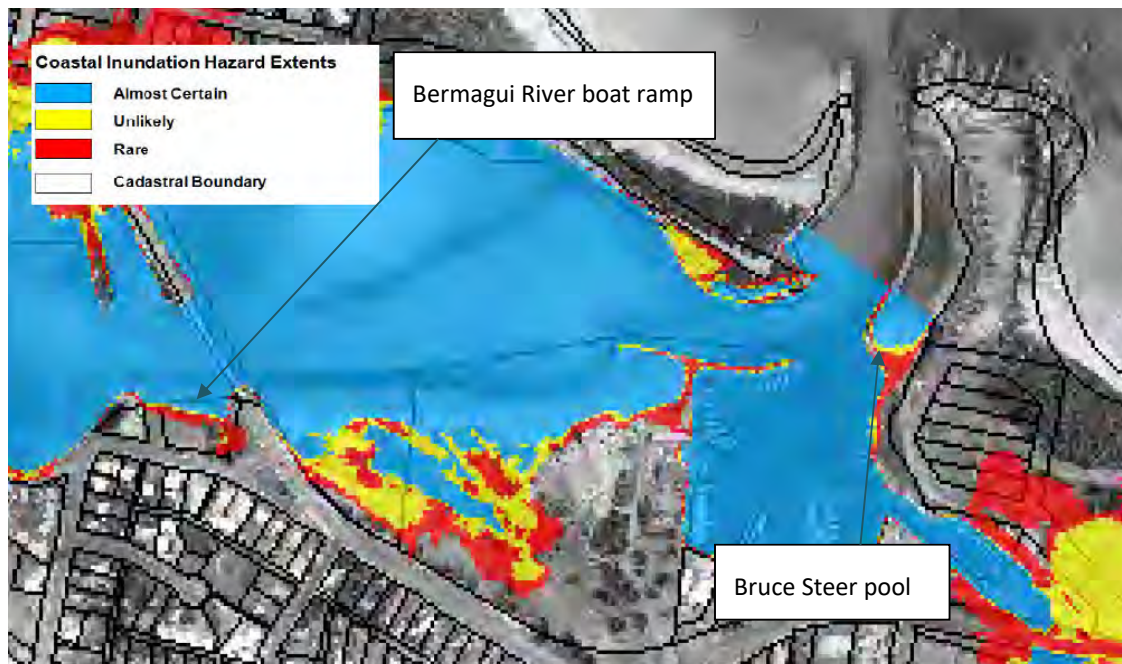


Figure 5-2 Estuary Storm Tide Inundation Hazard 2050 horizon (BMT WBM, 2015)

The inundation study has found that parts of both sites are likely to be inundated during tide storm events, and it is possible the entire Bruce Steer pool site would be inundated during storm tide events.

### 5.8.2 Potential impacts

Based on the projections made by BMT WBM (2015), the Bermagui River boat ramp proposal site would become somewhat inundated by 2050 during storm tide events. For the Bruce Steer pool proposal site it would become largely or entirely inundated by 2050 during storm tide events. Therefore both sites are expected to be subject to the effects for more severe weather events.

### 5.8.3 Safeguards and mitigation measures

Mitigation measure	Bermagui River boat ramp	Bruce Steer pool
<p>The useful life of the infrastructure should be considered at the design phase, with regard to effects of climate change. The following design principles should be incorporated:</p> <ul style="list-style-type: none"> <li>• The developments should be engineered to withstand current and future coastal hazards as much as practical.</li> <li>• The developments should not be located where it is likely they will become inundated within their lifespan (unless inundation doesn't diminish their usefulness, e.g. a boat ramp).</li> <li>• Measures should be taken to ensure that the developments don't increase the overall risk posed by climate change, for example by building in locations that will subsequently become unstable.</li> </ul>	Yes	Yes

Mitigation measure	Bermagui River boat ramp	Bruce Steer pool
During construction, stockpiling of materials and equipment would have consideration for high tide events.	Yes	Yes

## 5.9 INDIGENOUS HERITAGE

A Due Diligence Assessment has been prepared for the proposal. It is summarised here and is provided in Appendix B.

### 5.9.1 Approach

A search of the Aboriginal Heritage and Information Management System (AHIMS) was undertaken for the area defined by; GDA, Zone: 55, Eastings: 756000 - 762000, Northings: 5910000 - 5916000 with a Buffer of 50 meters. The search identified 88 Aboriginal sites within the search area.

A site inspection was undertaken by a qualified archaeologist of the proposal site on 2<sup>nd</sup> of August 2018.

### 5.9.2 Existing environment and potential impacts

#### **Bermagui River Boat Ramp (Bridge Motors Reserve, Lamont Street, Bermagui)**

The edge of the Bermagui River at this location has largely been impacted through the construction of the existing boat ramp but also through placement of concrete block paving along the edge of the river bank on the eastern side of the ramp and some rock walling on the western side of the existing ramp. This has reshaped the natural surface of the bank and the grassy area behind it. There is an existing sealed carpark adjacent to the boat ramp with a large (30 m x 30 m) area of bare ground most likely used as a turn-around area or overflow parking on slightly higher ground to the west.

This exposure provided an excellent opportunity to assess the ground surface and the potential for any Aboriginal cultural material to be present. The area was on a slight rise but consisted of a clayey deposit with rill erosion showing a continual clay substrate. It was sparsely covered in imported gravels and some remnant bitumen possibly indicating it was once sealed. Visibility within this area was excellent at about 75% effective visibility but no stone artefacts or shell material indicating midden was observed. It is not considered likely that subsurface cultural material would be present within the area identified for the boat ramp upgrade or the sealing and formalising of the carparking area.

While the Bermagui waterhole site is only about 80-100m to the south of the proposed boat ramp upgrade, it would not be affected by the proposal. While the location of the proposed works may once have been an ideal location for a campsite with midden and artefacts, it is considered that the disturbance and modification of the area has likely removed any site that may have been present.

#### **Bruce Steer Pool (Posidonia Esplanade, Bermagui)**

The Bruce Steer pool area appears to be largely man-made. The natural river bank forms the eastern side of the pool and a breakwater has been constructed northwards from a natural bend in the river bank. There is a small sandy beach, between the rock wall and the natural river bank with the car park constructed on largely reclaimed land behind the rock wall forming the current bank of the eastern side of the river. The existing toilet block is on top of the approximately 4 m high natural eastern bank, although the construction

of the toilet block and the associated concreted path and stairs leading to the pool has greatly disturbed the natural ground surface.

The sandy deposits extending from the car park north to the edge of the pool are not considered to comprise intact natural sand deposits, they appear to be largely made from yellow beach sand and therefore most likely have been imported into this area. The proposal therefore, to construct an all abilities access ramp across the sand to the pool and to modify the carpark to include disabled parking is unlikely to impact of natural ground surfaces and therefore has negligible potential to impact on Aboriginal heritage objects.

The removal of the existing toilet block from the top of the high bank is also unlikely to impact Aboriginal objects as no new construction is proposed, merely removing the existing facility. Construction of the new toilet block and associated picnic amenities on the sand flat is also unlikely to impact Aboriginal heritage sites due to this area mostly being of modern fill material and not *in situ* natural sand. Revegetation of the steep embankment is unlikely to impact on Aboriginal heritage due to the steepness (near vertical) of the bank. Although visibility was poor on the embankment due to existing vegetation, there is unlikely to be objects present. For the same reasons, and due to the previous construction of the existing footpath, construction of new path from the sand flat to the top of the bank is also unlikely to impact on Aboriginal heritage objects.

### 5.9.3 Safeguards and mitigation measures

Mitigation measures	Bermagui River boat ramp	Bruce Steer pool
Any activity proposed outside of the current assessment area should also be subject to an Aboriginal heritage assessment.	Yes	Yes
If any objects are found during construction that are suspected of being Aboriginal in origin, work must stop at that location and OEH notified.	Yes	Yes

## 5.10 NON-INDIGENOUS HERITAGE

### 5.10.1 Approach

A desktop assessment was undertaken to determine the heritage values of any objects or places within the proposal area, with particular focus on the area of the proposed works. Heritage database searches were conducted on 25 July 2018 and included:

- The Australian Heritage Database (for items listed in the National and Commonwealth Heritage Lists and World Heritage List).
- The NSW State Heritage Inventory (SHI) (for items listed on the State Heritage Register, Heritage and Conservation Registers of State Government agencies and local heritage items on the Bega Valley Shire Council Heritage Schedule).
- The local heritage listings (for items listed on *the Bega Valley Local Environmental Plan 2013*).

### 5.10.2 Results

The results of the heritage searches listed above indicate that no known historic items or places occur on the site. A summary of the results of the heritage searches are illustrated in Table 5-8. Details of listed items are provided below.

Table 5-8 Summary of heritage findings.

Name of register	Number of listings
World Heritage List	0
National Heritage List	5
Commonwealth Heritage Places	0
NSW State Heritage Register	12
NSW State Agency Heritage Register (section 170)	17
Bega Valley Local Environmental Plan (LEP) 2013	461

### 5.10.3 Potential impacts

The proposed works would not impact any of the heritage items identified above.

There would be no impact on heritage values as a result of the development and further assessment of heritage impacts relating to the proposed works is not warranted. The proposal is not considered likely to have a significant impact in accordance with the *NSW Heritage Act 1977*, the EP&A Act, or the EPBC Act, in terms of heritage.

### 5.10.4 Safeguards and mitigation measures

Mitigation measures	Bermagui River boat ramp	Bruce Steer pool
If any items suspected of being of historic value are uncovered during the works, works must cease in the vicinity of the find and advice would be sought from a heritage consultant as to whether the NSW Division Branch (OEH) must be notified in accordance with the <i>NSW Heritage Act 1977</i> . In this case, works would proceed only under direction of the Heritage Division.	Yes	Yes

## 5.11 WASTE MINIMISATION AND MANAGEMENT

Legal requirements for the management of waste are established under the Protection of the *Environment Operations (POEO) Act 1997* and the *POEO (Waste) Regulation 2005*. Unlawful transportation and deposition of waste is an offence under section 134 of the POEO Act. Littering is an offence under section 145 of the POEO Act.

The resource management hierarchy principles in order of priority as outlined in the *Waste Avoidance and Resource Recovery Act 2001* are:

- Avoidance of unnecessary resource consumption.
- Resource recovery (including reuse, reprocessing, recycling and energy recovery).
- Disposal.

Waste streams that would be produced during the construction works include:

- Cleared vegetation including weedy vegetation
- Surplus soil from excavations
- Contaminated soil
- Demolition wastes, from the demolition of the existing amenities building at the Bruce Steer pool and the existing boat ramp at the Bermagui River boat ramp
- Surplus timber, geofabric, gravel, fixings (expected to be minimal)
- Concrete washout
- General waste from staff (lunch packaging, portable toilets etc.)

The largest quantities of waste expected would be from demolition and earthworks activities during construction.

Limited operational waste streams are anticipated:

- Runoff from cleaning of vehicular trafficked paved surfaces is considered to be Liquid Waste
- Wastes from boat users, including fish offal is expected to continue to be generated at the Bermagui River boat ramp (no bins would be provided, users would be encouraged to take their wastes with them).
- General waste from pedestrian traffic (no bins would be provided, users would be encouraged to take their wastes with them).

### 5.11.1 Potential impacts

#### Construction

If waste is not adequately managed, it can have a range of possible impacts, including:

- Loss of potentially recoverable resources.
- Site contamination (including potential visual and ecological impacts)
- Offsite contamination due to inappropriate disposal or handling by unlicensed operators.

#### Operation

There are unlikely to be any significant operational impacts to waste.

### 5.11.2 Safeguards and mitigation measures

Mitigation measures	Bermagui River boat ramp	Bruce Steer pool
<ul style="list-style-type: none"> <li>• Built structures and any materials/areas suspected to contain hazardous materials must be surveyed and hazardous materials identified prior to demolition/disturbance works being undertaken.</li> <li>• If hazardous materials are found, control measures in accordance with the relevant regulations must be</li> </ul>	Yes	Yes



Mitigation measures	Bermagui River boat ramp	Bruce Steer pool
implemented to prevent and minimise contamination of the site.		
Waste would be managed according to the following hierarchy: <ul style="list-style-type: none"> <li>• Reuse as much as possible.</li> <li>• Recycle as much as possible of the remainder.</li> <li>• Dispose appropriately of waste that cannot be reused or recycled.</li> </ul>	Yes	Yes

## 5.12 CUMULATIVE IMPACTS

### 5.12.1 Existing environment

Cumulative impacts, for the purpose of this assessment, relate to the combined potential effects of different impact areas of the proposal (i.e. construction noise combined with visual impact) as well as the potential interaction with other activities in the local area (e.g. the combined effects of the works coinciding with other foreshore works).

### 5.12.2 Potential impacts

The Bermagui River boat ramp proposal, with regard to the presence of additional hardstand may result in a significant cumulative impact for water quality, as discussed in Section 5.3. For the remainder of the works, adverse cumulative impacts relate mostly to the construction phase of the proposed works. Public amenity impacts identified in Section 5.5 and 0 would be increased if other construction works were to coincide. This is considered a low likelihood, due to the location and scale of the works proposed.

The Bermagui River boat ramp and the Bruce Steer pool proposal both have potential to impact access to public boat launching facilities.

### 5.12.3 Safeguards and mitigation measures

Mitigation measures	Bermagui River boat ramp	Bruce Steer pool
The construction programs of Bermagui Boat Ramp and Bruce Steer Pool should not overlap to ensure that access to public boating facilities is not unduly impacted.	Yes	Yes

## 5.13 MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE

An EPBC Act Protected Matters Report was generated for a 10km radius around the proposed works on the 26 July 2018 to identify Matters of National Environmental Significance (MNES) that may be impacted by the proposed works. This report summarised below.

Table 5-9 Matters of National Environmental Significance.

MNES searches	Items within 10km of site	Potential for impact?
World Heritage Places	None	Nil
National Heritage Places	None	Nil
Wetlands of International Importance	None	Nil
Great barrier Reef Marine Park	None	Nil
Commonwealth Marine Areas	1	Nil – proposed works area not within marine environment.
Listed Threatened Ecological Communities	5	Assessed in Section 5.4 and Appendix C.
Listed Threatened Species	67	Assessed in Section 5.4 and Appendix C.
Listed Migratory Species	53	Assessed in Section 5.4 and Appendix C.

### 5.13.1 Potential impacts

Based on the results of the Protected Matters Search, the only MNES that may occur within proximity to the works are listed threatened Ecological communities and listed threatened and migratory species. The potential for the proposed works to impact on these species was assessed in Section 5.4 of this report. No impacts to listed threatened or migratory species are considered likely.

### 5.13.2 Safeguards and mitigation measures

No additional safeguards and mitigation measures are considered to be required for MNES.

## 5.14 PRINCIPLES OF ECOLOGICALLY SUSTAINABLE DEVELOPMENT

The *Protection of the Environment Administration Act 1991* outlines a number of principles of ecologically sustainable development (ESD). These are presented and discussed in relation to the subject proposal, below.

### 5.14.1 The precautionary principle

According to the precautionary principle, if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be seen as a reason not to protect the environment. The use of the precautionary principle implies that proposals should be carefully evaluated to identify possible impacts and assess the risk of potential consequences.

The precautionary principle has been observed in the assessment of conservation values and environmental threats and impacts throughout this REF. Measures have also been included to account for the inherent uncertainty relating to the impacts of weather on the activity.

#### **5.14.2 Inter-generational equity**

The principle of inter-generational equity requires the present generation to ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations.

The negative impacts of the proposal are likely to be localised and temporary, and would not significantly diminish the options regarding land and resource uses and nature conservation available to future generations.

There would be socio-economic benefits accruing from the proposal, in improved foreshore access.

#### **5.14.3 Conservation of biological diversity and ecological integrity**

Conservation of biological diversity and ecological integrity are a fundamental consideration of ESD. The impacts of the proposal on local populations of threatened species, threatened communities and their habitats have been assessed in detail in Section 5.4. Further investigation has been recommended if the prescriptions in this REF cannot be achieved.

#### **5.14.4 Appropriate valuation of environmental factors**

This principle requires that environmental assets and services should be appropriately valued. This REF has considered abiotic and biotic ecosystem values as well as social values, in identifying and mitigating potential impacts of the proposal.

## 6 SUMMARY OF SAFEGUARDS

Table 6-1 Environmental safeguards summary

Impact Category	Safeguards	Bermagui River boat ramp	Bruce Steer pool
<b>Topography, Geology Soils and Contamination</b>	A site-specific sediment erosion control plan would be prepared. The plan would: <ul style="list-style-type: none"> <li>• Be developed consistent with the Blue Book (Landcom 2004).</li> <li>• Be specific to the area of construction, reflecting different gradients, catchment sizes and sensitive features.</li> <li>• Detail the type and location of all sediment erosion controls to be installed.</li> </ul>	Yes	Yes
	Sediment erosion controls would be maintained during works and adapted if required to ensure the objectives of the Blue Book are met.	Yes	Yes
	Construction works should not be carried out in periods of forecast heavy rains or strong/gale wind warnings.	Yes	Yes
	Stockpile sites would be managed in accordance with the Blue Book (Landcom 2004), including: <ul style="list-style-type: none"> <li>• On Council owned existing hard stand areas, requiring no additional native vegetation clearing.</li> <li>• At least 40 metres away from the nearest waterway.</li> <li>• On relatively level ground.</li> <li>• Outside the 1 in 10 year Average Recurrence Interval (ARI) floodplain.</li> </ul>	Yes	Yes
	A spill management plan would be developed including: <ul style="list-style-type: none"> <li>• Requirements for spill kits will be kept on site during works using chemicals.</li> <li>• No chemicals stored onsite.</li> <li>• Emergency spill procedures.</li> </ul>	Yes	Yes
	No concrete waste or excavated material it to be disposed of onsite or in adjacent waterways. Concrete waste includes excess concrete, concrete washout and similar.	Yes	Yes
	Access would be managed to minimise traffic on non-hardstand areas.	Yes	Yes
	The smallest practical machinery would be used for works, to minimise areas of disturbance and compaction impacts.	Yes	Yes

Impact Category	Safeguards	Bermagui River boat ramp	Bruce Steer pool
	All areas disturbed by works would be rehabilitated progressively to ensure stable surfaces are obtained as soon as practical. Species selection would be appropriate to the area of works – sterile cover crops and native mulching (thinly spread so germination from the seed bank is not impeded) is considered appropriate in this area. Monitoring will be required. Follow up seeding and mulching may be required to ensure that surfaces are stabilised.	Yes	Yes
	Coordination would be undertaken with Council and other service providers to manage impacts to other services.	Yes	Yes
	Acid sulfate soils are to be managed in accordance with the <i>Acid Sulfate Soil Manual</i> (Acid Sulfate Soil Management Advisory Committee, 1998). Contractors should demonstrate they have protocols to manage this impact. Management measures should include: <ul style="list-style-type: none"> <li>• Identification and confirmation of the location and extent of ASS through analytic testing.</li> <li>• Minimisation of areas of ASS disturbed during works.</li> <li>• Management to prevent in-situ oxidisation of ASS.</li> <li>• Management to contain ASS to the works area.</li> <li>• Determining appropriate liming rates for ASS.</li> <li>• Disposal of ASS spoil at an appropriately licenced waste facility.</li> </ul>	Yes	Yes
	If contaminated or suspicious material is encountered during works, a suitably qualified professional should be engaged to determine risks and management strategies.	Yes	Yes
<b>Hydrology Catchment Values and Water Quality</b>	Design Carpark in accordance with the NSW Government Roads and Maritime Services <i>Water sensitive urban design guideline</i> (2017). The key design principal is to capture and treat pollution prior to it entering the Bermagui River estuarine system by implementing control devices appropriate for sensitive receiving waters identified in Table 2 of the Guideline.	Yes	No
<b>Biodiversity</b>	Prior to the commencement of work, a physical clearing boundary at the approved clearing limit is to be demarcated and implemented. The delineation of such a boundary may include the use of temporary fencing, flagging tape, parawebbing or similar.	Yes	Yes

Impact Category	Safeguards	Bermagui River boat ramp	Bruce Steer pool
	<ul style="list-style-type: none"> <li>• A weed, pest and pathogen management plan would be developed prior to works to reduce the likelihood of introducing or exacerbating this risk.                             <ul style="list-style-type: none"> <li>○ Weed-free fill would be used for on-site earthworks.</li> <li>○ Species used for replanting and landscaping must not comprise noxious weeds.</li> <li>○ Machinery would be thoroughly cleaned before and after site access.</li> </ul> </li> </ul>	Yes	Yes
	<ul style="list-style-type: none"> <li>• If used, floating booms with net curtains would be placed at strategic locations to prevent any sedimentation of seagrass. Care would be taken when installing the floating boom to ensure it does not directly impact any seagrass.</li> <li>• The use of boats in seagrass beds would be minimised where possible.</li> <li>• Boats would not enter seagrass beds at low tide or when water levels are low enough that there is a risk of propellers striking seagrass (dictated by draft of the vessel).</li> <li>• Anchoring would not occur within seagrass beds.</li> </ul>	Yes	
	<ul style="list-style-type: none"> <li>• Additional measures required by DPI Fisheries would be included. Issues for consideration include:                             <ul style="list-style-type: none"> <li>○ Offsets for sea grass impacts (where relevant).</li> <li>○ Containment of debris during in water works.</li> <li>○ Machinery access to the water.</li> <li>○ Monitoring.</li> </ul> </li> </ul>	Yes	Yes
	<ul style="list-style-type: none"> <li>• Post construction, BVSC to consider installing signage at boat launching sites to educate users about:                             <ul style="list-style-type: none"> <li>○ Their biosecurity obligations.</li> <li>○ Methods for users reduce the risk of weed and pest introduction.</li> <li>○ What weeds and pests occur at the site (that could be transported elsewhere) and what weeds and pests don't occur at the site (that could be introduced).</li> </ul> </li> </ul>	Yes	No
<b>Community and socioeconomics</b>	Design to consider the maximum usefulness of the site, to a range of users, and to ensure that the utility of the site is not diminished unnecessarily.	No	Yes
	Keep community informed regarding duration, timing of works and disruptions.	Yes	Yes
	Notification to industry groups regarding duration, timing of works and disruptions.	Yes	Yes
	<b>General</b>	Yes	Yes

Impact Category	Safeguards	Bermagui River boat ramp	Bruce Steer pool
<b>Amenity: Visual, Quality Noise</b> <b>Air and</b>	<ul style="list-style-type: none"> <li>Activities would be completed in the shortest practical time.</li> <li>Safe access to recreation areas would be maintained where practical.</li> </ul>		
	<b>Noise</b> <ul style="list-style-type: none"> <li>A quantitative noise assessment in accordance with <i>NSW Interim Construction Noise Guideline</i> (DECC, 2009) would be required if the works in any one location exceed 3 weeks.</li> <li>Comply with the <i>Interim Construction Noise Guideline</i> (DECC, 2009) by restricting work to standard works hours:               <ul style="list-style-type: none"> <li>between 7am and 6pm Monday to Friday,</li> <li>between 8am and 1pm on Saturday,</li> <li>No works would be permitted on Sundays or public holidays.</li> </ul> </li> <li>Unnecessary noise emissions would be avoided by turning equipment off when it is unused for an extended period.</li> <li>Equipment would be maintained in good condition so that excessive noise is not emitted. Noise attenuation methods may be used on particularly noisy equipment if required.</li> </ul>	Yes	Yes
	<b>Visual Impacts</b> <ul style="list-style-type: none"> <li>Lighting to be constructed in such a way as to not directly shine into residential dwellings or significantly illuminate residential areas (consider cowals where necessary).</li> <li>Where possible, materials to be selected to be consistent with the surrounding environment.</li> </ul>	Yes	No
	<b>Air quality</b> <ul style="list-style-type: none"> <li>Machinery should be turned off while not in use (where possible).</li> <li>Machinery should be in good working order and compliant with the relevant emissions regulations .</li> <li>Earthworks should not be undertaken during periods of high wind.</li> <li>During dry conditions, exposed soils should be wetted down and stockpiles covered if not in use.</li> </ul>	Yes	Yes
<b>Traffic Access</b> <b>and</b>	A Traffic Management Plan would be prepared prior to construction, which would identify the need for, and extent of traffic controls for the works area. The Traffic Management Plan would include, but not be limited to consideration of:	Yes	Yes

Impact Category	Safeguards	Bermagui River boat ramp	Bruce Steer pool
	<ul style="list-style-type: none"> <li>Signage to indicate the works areas and any hazards.</li> <li>Speed limit reductions, where required.</li> <li>Parking of machinery and vehicles where this is required close to the works areas.</li> <li>Notification of any changed traffic conditions would be advertised to the local community in advance of the works commencing. A contact number would be provided for community queries in relation to the works.</li> <li>Installation of safety fences around works area.</li> </ul>		
	<p>The works program should be scheduled to be as short as practical to minimise access impacts.</p> <p>Access to adjacent facilities (boat ramps, public toilets etc.) should not be obstructed at any time.</p>	Yes	Yes
<b>Climate Change</b>	<p>The useful life of the infrastructure should be considered at the design phase, with regard to effects of climate change. The following design principles should be incorporated:</p> <ul style="list-style-type: none"> <li>The developments should be engineered to withstand current and future coastal hazards as much as practical.</li> <li>The developments should not be located where it is likely they will become inundated within their lifespan (unless inundation doesn't diminish their usefulness, e.g. a boat ramp).</li> <li>Measures should be taken to ensure that the developments don't increase the overall risk posed by climate change, for example by building in locations that will subsequently become unstable .</li> </ul>	Yes	Yes
	<p>During construction, stockpiling of materials and equipment would have consideration for high tide events.</p>	Yes	Yes
<b>Indigenous Heritage</b>	<p>Any activity proposed outside of the current assessment area should also be subject to an Aboriginal heritage assessment.</p>	Yes	Yes
	<p>If any objects are found during construction that are suspected of being Aboriginal in origin, work must stop at that location and OEH notified.</p>	Yes	Yes



Impact Category	Safeguards	Bermagui River boat ramp	Bruce Steer pool
<b>Non-Indigenous Heritage</b>	If any items suspected of being of historic value are uncovered during the works, works must cease in the vicinity of the find and advice would be sought from a heritage consultant as to whether the NSW Division Branch (OEH) must be notified in accordance with the <i>NSW Heritage Act 1977</i> . In this case, works would proceed only under direction of the Heritage Division.	Yes	Yes
<b>Waste Minimisation and Management</b>	<ul style="list-style-type: none"> <li>• Built structures and any materials/areas suspected to contain hazardous materials must be surveyed and hazardous materials identified prior to demolition/disturbance works being undertaken.</li> <li>• If hazardous materials are found, control measures in accordance with the relevant regulations must be implemented to prevent and minimise contamination of the site.</li> </ul>	Yes	Yes
	<p>Waste would be managed according to the following hierarchy:</p> <ul style="list-style-type: none"> <li>• Reuse as much as possible.</li> <li>• Recycle as much as possible of the remainder.</li> <li>• Dispose appropriately of waste that cannot be reused or recycled.</li> </ul>	Yes	Yes
<b>Cumulative Impacts</b>	The construction programs of Bermagui Boat Ramp and Bruce Steer Pool should not overlap to ensure that access to public boating facilities is not unduly impacted.	Yes	Yes

## 7 SUMMARY OF LICENCES AND APPROVALS

Table 7-1 Summary of licences and approvals required.

Legal Instrument	Licence or Approval
<b><i>Fisheries Management Act 1994</i></b>	<ul style="list-style-type: none"><li>• Fisheries Permit for both sites.</li></ul>
<b><i>Marine Safety Act 1998 and Marine Safety Regulation 2016</i></b>	<ul style="list-style-type: none"><li>• Consultation is required with Roads and Maritime to determine if an aquatic licence is required for proposed works at Bermagui River boat ramp.</li></ul>
<b><i>State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017</i></b>	<ul style="list-style-type: none"><li>• Permit to clear vegetation at Bruce Steer pool.</li></ul>

## 8 CONCLUSION

This REF has assessed the potential construction and operational impacts associated with the following proposed works:

- Upgrade and expand the Bermagui River boat ramp, including increasing the sealed parking area, replacing the boat ramp and installing a finger pontoon.
- Upgrading facilities at Bruce Steer pool, including providing equitable access, landscaping works and demolishing and relocating the amenities building.

The proposed upgrade at the Bermagui River boat ramp is required to address erosion and dust emissions issues at the site. They would also improve the visual amenity of the area, and improve the usability of the boat ramp by providing new infrastructure.

The proposed upgrades at Bruce Steer pool would remove the current amenities building, that has deteriorated with age. It also would improve the visual amenity of the site and, importantly, provide access to Bruce Steer pool that is compliant with the *Disability Discrimination Act 1992*.

The key environmental risks of the works have been identified as soil and water, climate change, biodiversity, community amenity and traffic and access. A range of safeguards have been developed for the potential impacts identified. These would ensure that the negative impacts of the proposal are prevented, mitigated or limited as far as practical. Of benefit, the upgrades would provide improved facilities for the community. It is concluded that there would not be a significant impact on the environment stemming from the proposed upgrade of Bermagui River boat ramp and Bruce Steer pool.

## 9 REFERENCES

- Accessible Beaches, n.d., *Beach Directory*, accessed online August 2018, from <https://accessiblebeaches.com/directory/>
- Barclay, K., McIlgorm, A., Mazur, N., Voyer, M., Schnierer, S., Payne, A.M., 2016, *Social and Economic Evaluation of NSW Coastal Aquaculture*, Fisheries Research and Development Corporation (FRDC 2015/302) and University of Technology Sydney, Sydney, December.
- Bega Valley Shire Council, 2013, *Bega Valley Local Environment Plan*, viewed online July 2015, [http://www.begavalley.nsw.gov.au/CLEP\\_info/Info.htm](http://www.begavalley.nsw.gov.au/CLEP_info/Info.htm)
- BMT WBM, 2015, *Bega Valley Shire Coastal Processes and Hazards Definition Study – Volume 1: Final Report*, access online August 2018 from [https://www.begavalley.nsw.gov.au/attachments/FINAL Coastal Processes Hazards Definition Study.pdf](https://www.begavalley.nsw.gov.au/attachments/FINAL%20Coastal%20Processes%20Hazards%20Definition%20Study.pdf)
- Department of Environment and Climate Change, 2009, *Interim Construction Noise Guideline*, Sydney: Department of Environment and Climate Change.
- Department of Environment and Climate Change, 2010, *Due diligence Code for Practice for the Protection of Aboriginal Objects in New South Wales*, Sydney.
- DPI, 2018, *Fisheries NSW Spatial Data Portal*, accessed online August 2018 from [https://webmap.industry.nsw.gov.au/Html5Viewer/index.html?viewer=Fisheries Data Portal](https://webmap.industry.nsw.gov.au/Html5Viewer/index.html?viewer=Fisheries%20Data%20Portal)
- Landcom, 2004, *Managing Urban Stormwater: soils and construction* vol.1, 4<sup>th</sup> ed.
- NSW Government, 2018a, *Contaminated sites notified to EPA*, accessed August 2018, from <http://www.epa.nsw.gov.au/clm/publiclist.htm>
- NSW Government, 2018b, *NSW OEH contaminated site register*, accessed August 2018,, from <http://www.epa.nsw.gov.au/prclmapp/searchregister.aspx>
- OEH, 2018, *Estuaries of NSW: Bermagui River*, accessed online August 2018 from: <https://www.environment.nsw.gov.au/topics/water/estuaries/estuaries-of-nsw/bermagui-river>
- OEH, n.d., *eSPADE*, accessed online July 2018 from <https://www.environment.nsw.gov.au/eSpade2Webapp>
- Roads and Maritime Services, 2017, *Water sensitive urban design guideline*, Roads and Maritime Services, NSW.
- Rowe, A. and O'connor, T., 2011, *Assessment of Water Quality of Runoff from Sealed Asphalt Surfaces*. U.S. Environmental Protection Agency, Washington, DC, EPA/600/R-10/178.
- Spirre, 2016, *Coastal Accessibility Projects*, a report prepared for BVSC.
- Stone, Y., Ahern, C. R., and Blunden, B., 1998, *Acid Sulfate Soils Manual 1998*, Acid Sulfate Soil Management Advisory Committee, Wollongbar, NSW, Australia.

## **APPENDIX A PLANS OF THE PROPOSAL**

## Legend













	Existing contour		Asphalt surface treatment		Grass		Long bench seating
	Evergreen trees		Asphalt		Low mass planting		Picnic setting
	Concrete paving		Timber ramp structure		Revegetation		Picnic shelter



Figure 11: Bruce Steer Pool DRAFT Coastal Accessibility Plan

# 08 COASTAL ACCESSIBILITY PLANS

## 8.1 BRUCE STEER POOL, BERMAGUI

The Bruce Steer Pool precinct will provide all abilities access from the lower car park to site features and the water's edge. Improvements will include enhanced open space and facilities, upgraded toilets and showers, and layout which enhances the intrinsic landscape values of the site.

A key element of the concept is a pedestrian path which links disabled parking, amenities, picnic facilities and access into the pool itself. The path will be generous in width and be wheelchair friendly. Improved parking arrangements and pedestrian connections to the surrounding open space areas have also been addressed. Access for boat launching at the boat ramp and boat trailer queuing area has been maintained.

### KEY RECOMMENDATIONS

#### 1 ALL ABILITIES ACCESS TO THE WATER – STAGE 1

Provide an all abilities concrete walkway into the water of Bruce Steer Pool which connects with surrounding pedestrian pavement areas. The walkway will be approximately 50m long and 2m wide with DDA compliant grade of 1:20 and landings at 15m intervals as required by Australian Standards.

#### 2 PAVED CONNECTIONS – STAGE 2

Provide wheelchair friendly paved connections between key features facilities within the precinct.

#### 3 SEATING AREA IN THE SUN

Provide new wheelchair accessible picnic settings and seating on the eastern side of the site to enable users the opportunity to sit in the sunshine.

#### 4 OPEN GRASS SPACE

Retain and enhance open grassed space between pathways and sand. Use adjacent paving to define grass edge to provide a continuous and easily maintained lawn area.

#### 5 PICNIC AND SEATING NODE IN THE SHADE

Provide a bespoke shade structure which references the existing Bermagui 'timber wharf' design language and include two picnic settings. Enhance opportunities to utilise shaded area by providing two long bench seats in the sand within proximity of the shelter area.

#### 6 SHARK/STINGRAY NET

Upgrade shark/stingray net at the northern end of the pool to ensure full net coverage during high tide.

#### 7 NEW AMENITIES FACILITY – STAGE 3

Provide new amenities building the bottom/lower level of the embankment for improved all abilities access. Provide disabled, male and female toilets within the facility. Consider unisex toilets and provision of baby change room. Provide indoor showers and outdoor shower. The new amenities building should also reference the existing Bermagui 'timber wharf' design language. Investigate service connections for water, sewer and power.

#### 8 OPEN GRASS ARRIVAL AREA

Improve arrival area adjacent Beacon with seating and interpretive signage. Retain navigational beacon. Consider providing a community noticeboard and bicycle rack.

#### 9 CAR PARKING + DISABLED SPACES

Reconfigure car parking arrangements to create regular and disabled parking area that includes two dedicated disabled car spaces that meet Australian Standards and are connected to facilities with pathways. Line-mark two disabled spaces. Allow for possible increase to four disabled spaces following further consultation. The parking area provides marked spaces facing the water. Provide a continuous path of travel from the car park to features and facilities of the site. Consider surface treatment to asphalt to define parking area.

#### 10 BOAT QUEUING AREA

Retain existing boat queuing areas in their current form. Provide low retaining wall and connecting pathway along toe of grassed batter. Retain sufficient asphalt area for boat launching requirements and the required turning radius of a service vehicle and similar sized vehicles.

#### 11 EMBANKMENT REVEGETATION

Introduce a weed removal and revegetation program to improve the visual amenity, stability and environmental values of the embankment. Ongoing maintenance should also form part of the program. Incorporate measures for the eradication and management of vermin and feral animals.

#### 12 STAIR AND BOARDWALK ACCESS

Improve the existing stair access between the upper and lower levels of the site. New stairs and boardwalk on steep slope will include handrails and landings as required. Retain the existing rock Cairn memorial.

To be finalised

#### 13 UPPER PICNIC AREA

Replace the old amenities block with a secondary picnic area that is accessible from the top of the embankment and provides a viewing area. Investigate opportunity to re-use existing concrete slab. Provide a bespoke shade structure which references the existing Bermagui 'timber wharf' design language, and includes two picnic settings.

#### 14 SIGNAGE

Provide new beach safety and social awareness signage in line with the Bega Valley Shire Council signage suite. Include new and additional interpretive signage where appropriate.

#### 15 BUS/COACH PARKING

Provide bus/coach parking bay to the south where flatter land is available and minimal earthworks will be required. Connect with proposed connecting pathway to enable users to access Bruce Steer pool along toe of batter adjacent boat queuing area.

#### 16 FISH CLEANING AND BOAT RAMP

Improve fish-cleaning and waste disposal facilities and on-going maintenance.

#### 17 ROCK GROUYNE ACCESS

Investigate opportunity to provide concrete pathway on rock groyne.

## **APPENDIX B DUE DILIGENCE ASSESSMENT**



# Aboriginal Heritage Due Diligence Assessment

BEGA VALLEY RECREATION SITES



MAY 2019



## Document Verification



Project Title:

Bega Valley Recreation Sites

Project Number: 18-328

Project File Name: BVSC Recreation Sites DD Final

Revision	Date	Prepared by (name)	Reviewed by (name)	Approved by (name)
Draft	10/10/18	Matthew Barber & Bronwyn Partell		Matthew Barber
Final	22/05/19	Chelsea Jones and Matthew Barber	Matthew Barber	Matthew Barber

NGH Environmental prints all documents on environmentally sustainable paper including paper made from bagasse (a by-product of sugar production) or recycled paper.

NGH Environmental Pty Ltd (ACN: 124 444 622. ABN: 31 124 444 622).

[www.nghenvironmental.com.au](http://www.nghenvironmental.com.au)

e: [ngh@nghenvironmental.com.au](mailto:ngh@nghenvironmental.com.au)

**Sydney Region**  
18/21 mary st  
surry hills nsw 2010 (t 02 8202 8333)

**Newcastle - Hunter and North Coast**  
1/54 hudson st  
hamilton nsw 2303 (t 02 4929 2301)

**Canberra - NSW SE & ACT**  
8/27 yallourn st (po box 62)  
fyshwick act 2609 (t 02 6280 5053)

**Wagga Wagga - Riverina and Western NSW**  
suite 1, 39 fitzmaurice st (po box 5464)  
wagga wagga nsw 2650 (t 02 6971 9696)

**Brisbane**  
suite 4, level 5, 87 wickham terrace  
spring hill qld 4000 (t 07 3129 7633)

**Bega - ACT and South East NSW**  
89-91 auckland st (po box 470)  
bega nsw 2550 (t 02 6492 8333)

# CONTENTS

EXECUTIVE SUMMARY .....	I
BACKGROUND ASSESSMENT .....	I
FIELD ASSESSMENT .....	I
ASSESSMENT CONCLUSION .....	I
RECOMMENDATIONS .....	I
<b>1 INTRODUCTION.....</b>	<b>1</b>
1.1 PROJECT PARTICIPANTS .....	1
1.2 FORMAT OF THIS REPORT .....	1
<b>2 GROUND DISTURBANCE .....</b>	<b>3</b>
<b>3 REGISTER SEARCH AND LANDSCAPE ASSESSMENT .....</b>	<b>4</b>
3.1 LOCAL ARCHAEOLOGICAL STUDIES.....	22
<b>4 IMPACT AVOIDANCE .....</b>	<b>33</b>
<b>5 DESKTOP ASSESSMENT AND VISUAL INSPECTION .....</b>	<b>34</b>
5.1 BERMAGUI RIVER BOAT RAMP .....	34
5.2 BRUCE STEER POOL.....	34
5.3 BLACKFELLOWS LAGOON.....	35
5.4 PAMBULA BEACH .....	39
5.5 QUARANTINE BAY BOAT RAMP .....	40
5.6 MURUNNA POINT/CAMEL ROCK .....	40
5.7 MERIMBULA BOARDWALK.....	46
<b>6 FURTHER ASSESSMENT.....</b>	<b>47</b>
<b>7 RECOMMENDATIONS .....</b>	<b>49</b>
<b>8 REFERENCES.....</b>	<b>51</b>

## TABLES

Table 1. Breakdown of previously recorded Aboriginal sites in proximity to the Bermagui River Boat Ramp proposed works area. ....5

Table 2. Sites within ~1km of the Bermagui River Boat Ramp Proposed Works Area: .....5

Table 3. Breakdown of previously recorded Aboriginal sites in close proximity to the Quarantine Bay Boat Ramp proposed works area. ....8

Table 4. Sites within ~1km of the Quarantine Bay Boat Ramp Proposed Works Area: .....8

Table 5. Breakdown of previously recorded Aboriginal sites in close proximity to the Bruce Steer Pool proposed works area: .....	10
Table 6. Sites within ~1km of the Bruce Steer Pool Proposed Works Area:.....	10
Table 7. Breakdown of previously recorded Aboriginal sites in close proximity to the Pambula Beach Reserve proposed works area. ....	12
Table 8. Sites within ~1 km of the Pambula Beach Reserve Proposed Works Area:.....	12
Table 9. Breakdown of previously recorded Aboriginal sites within the Murunna Point/Camel Rock proposed works area. ....	14
Table 10. Sites within the Murunna Point/Camel Rock Proposed Works Area:.....	14
Table 11. Sites within ~1km of the Murunna Point/Camel Rock Proposed Works Area:.....	15
Table 12. All AHIMS Aboriginal sites listed within 1 km of the Murunna Point/Camel Rock proposed works area (including sites within the proposed works area).....	15
Table 13. Breakdown of previously recorded Aboriginal sites within the Merimbula Boardwalk project area. ....	17
Table 14. Sites within the Merimbula Boardwalk Proposed Works Area:.....	17
Table 15. Breakdown of previously recorded Aboriginal sites within 1 km of the Merimbula Boardwalk proposed works area. ....	18
Table 16. Sites within ~1km of the Merimbula Boardwalk Proposed Works Area:.....	18
Table 17. All AHIMS Aboriginal sites listed within 1km of Merimbula Boardwalk proposed works area (including sites within the proposed works area).....	20
Table 18. The archaeological potential for each proposed works area as determined through the desktop assessment.....	33
Table 19. Sites approved for harm under AHIP C0003582. ....	46

## FIGURES

Figure 1 Location of proposal areas.....	2
Figure 2. AHIMS Site locations within 1km of the proposed works area at the Bermagui Boat Ramp. ....	6
Figure 3. AHIMS Site locations surrounding the proposed works area at the Blackfellows Lake Boat Ramp. ....	7
Figure 4. AHIMS Site locations within 1km of the proposed works area at the Quarantine Bay Boat Ramp.	9
Figure 5. AHIMS Site locations within 1 km of the proposed works area at the Bruce Steer Pool. ....	11
Figure 6. AHIMS Site locations within 1 km of the proposed works area at the Pambula Beach Reserve...	13

Figure 7. AHIMS Site locations within 1 km of the proposed works area at Murunna Point / Camel Rock. 16

Figure 8. Results of AHIMS search for 1 km surrounding the Merimbula Boardwalk Proposed Works Area .....21

Figure 9. Location of artefacts on road to Blackfellows Lagoon.....38

Figure 10. Location of sites at Murunna Point.....45

**PLATES**

Plate 1. View west along edge of river to boat ramp. ....34

Plate 2. View south to large eroded carpark extension.....34

Plate 3. View north from top of bank to Pool and breakwater. ....35

Plate 4. View south east across sand flat to natural bank showing existing path and toilet block. Note the carpark and sand flat are not natural. ....35

Plate 5. View north along road showing cutting and imported road base. ....36

Plate 6. View north to lagoon at end of road. ....36

Plate 7. View south to start of site at range pole on road cutting. Artefacts also present along unsealed section of track in distance. ....37

Plate 8. View south along track, artefacts scattered along track and in erosion channel.....37

Plate 9. View west to road intersection showing built up roadway and underground stormwater drainage structures.....39

Plate 10. View north across existing facilities to club, note some exposures and panted conifers on left..39

Plate 11. View east to point where proposed boardwalk leaves sandy shore to enter headland proper behind the trees.....42

Plate 12. View south west to Murunna Walking Track Midden 1. ....42

Plate 13. Close up view of midden material eroding from track at Murunna Walking Track Midden 1. ....42

Plate 14. View south to location of Murunna Walking Track IF 1.....42

Plate 15. View north to location of Murunna Walking Track IF 2.....43

Plate 16. View north east to headland. Note thick grass cover and low visibility. Webster and Kuskie recorded midden material in this area. ....43

Plate 17. View north east to location of burial (near photographer) and revegetation of exposure. ....43

Plate 18. View north to Murunna Point headland.....43

Plate 19. View north across level area of proposed path, note poor visibility.....43

Plate 20. View north to exposure of shell, associated with site 62-7-0254 Locus B. ....43

Plate 21. View of exposure of shell, associated with site 62-7-0254 Locus B.....44

Plate 22. View west across lower slope to Murunna Walking Track Midden 2 at left of track near range pole.  
.....44

Plate 23. View of exposure showing midden material of Murunna Walking Track Midden 2. ....44

Plate 24. View north east to location of site 62-7-0267 on edge of walking track at range pole. ....44

Plate 25. View south west showing shell midden material eroding from the lake shore. This is part of the  
previously recorded site #62-6-0097.....47

Plate 26. View west showing shell midden material eroding from the lake shore. This is part of the  
previously recorded site #62-6-0135.....47

## ACRONYMS AND ABBREVIATIONS

AHIMS	Aboriginal heritage information management system
AHIP	Aboriginal Heritage Impact Permit
Km	kilometres
LALC	Local Aboriginal Land Council
M	Metres
NPW Act	<i>National Parks And Wildlife Act 1974 (NSW)</i>
NSW	New South Wales
OEH	(NSW) Office of Environment and Heritage, formerly Department of Environment, Climate Change and Water
PAD	Potential Archaeological Deposit

## EXECUTIVE SUMMARY

NGH Environmental was commissioned by Bega Valley Shire Council (BVSC) to undertake a Due Diligence assessment for Aboriginal sites for seven locations proposed for upgrade of public recreation facilities. The locations are as follows.

- Bermagui River Boat Ramp
- Blackfellows Lake Boat Ramp, Kalaru
- Quarantine Bay Boat Ramp, Eden
- Bruce Steer Pool, Bermagui
- Pambula Beach Reserve
- Murunna Point/Camel Rock
- Merimbula Boardwalk

## BACKGROUND ASSESSMENT

Aboriginal heritage sites have been recorded along the south coast of NSW, including the proposed works areas within the Bega Valley Shire Council. Based upon the desktop assessment there is a varying potential for Aboriginal Cultural Heritage to occur within the proposed works areas. This assessment is largely based upon the information available of registered sites within the AHIMS database, and also in accordance with the landscape model provided in the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales*.

A number of previously recorded sites exist close to or within the proposed work areas, in particular at Murunna Point and on the Merimbula boardwalk areas.

## FIELD ASSESSMENT

No field assessment was deemed warranted for the Quarantine Bay proposal area. However, inspections were carried out at all other locations.

Aboriginal heritage sites were found at Blackfellows Lagoon comprising an artefact scatter.

There were 13 previously recorded sites within the project boundary at Murunna Point and the survey identified four new sites comprising two shell middens and two isolated finds. This area was identified as having high archaeological potential and high potential for subsurface deposits.

No sites were located at the other proposed work locations.

## ASSESSMENT CONCLUSION

The proposed works would impact the site at Blackfellows Lagoon and would impact a number of sites and sensitive area at Murunna Point. Further archaeological assessment would be required for the project to proceed at these areas and an Aboriginal Heritage Impact Permit would be required.

It is unlikely that the proposed works would impact Aboriginal objects at the other work locations.

## RECOMMENDATIONS

The following recommendations are based on the results of this Due Diligence assessment and an appraisal of the potential for Aboriginal sites to occur within the proposed work areas.

The recommendations for Bermagui River Boat Ramp and Bruce Steer Pool are:



1. Works may proceed with caution at each location.
2. Any activity proposed outside of the current assessment area should also be subject to an Aboriginal heritage assessment
3. If any objects are found during construction that are suspected of being Aboriginal in origin, work must stop at that location and OEH notified.

The recommendations for Quarantine Bay boat ramp are:

1. Works may proceed with caution.
2. Any activity proposed outside of the current assessment area should also be subject to an Aboriginal heritage assessment
3. No activity including laydowns or ancillary construction parking and site offices should occur on the eastern side of the peninsula, to avoid previously recorded sites in that area.
4. If any objects are found during construction that are suspected of being Aboriginal in origin, work must stop at that location and OEH notified.

Recommendation for Blackfellows Lagoon road upgrade are:

1. No activity including road upgrades, grading, gravelling or other earthworks can occur within the identified site Blackfellows Lagoon AFT 1 until an Aboriginal Heritage Impact Permit (AHIP) from OEH to impact the site has been granted.
2. To obtain an AHIP, BVSC will require a suitably qualified heritage consultant to undertake an Aboriginal Cultural Heritage Assessment (ACHA) including consultation with the Aboriginal community. The ACHA would need to support the issue of an AHIP and be submitted with an application to OEH.
3. If the proposed work is confined to the existing road disturbance area, no subsurface testing is considered necessary but an AHIP will still be required.

The recommendations for Pambula Beach are:

1. Works may proceed with caution.
2. Any activity proposed outside of the current assessment area should also be subject to an Aboriginal heritage assessment
3. If any objects are found during construction that are suspected of being Aboriginal in origin, work must stop at that location and OEH notified.

Recommendation for Murunna Point/Camel Rock walking trail upgrade are:

1. No ground disturbing activity including importation of gravel or other materials can occur within the proposed work areas without further archaeological assessment.
2. An Aboriginal Heritage Impact Permit (AHIP) from OEH would be required to impact the sites identified.
3. To obtain an AHIP, BVSC will require a suitably qualified heritage consultant to undertake an Aboriginal Cultural Heritage Assessment (ACHA) including consultation with the Aboriginal community in accordance with the OEH *Aboriginal cultural heritage consultation requirements for proponents 2010*. The ACHA would need to support the issue of an AHIP and be submitted with an application to OEH.
4. Subsurface testing may be required for sections of the proposed works to ascertain the presence and significance of archaeological sites.
5. Plans should be amended to realign the walking trail away from the burial and there should be no lookouts, seating or other infrastructure in this area.

Bega Valley Shire Council are reminded that it is an offence under the NSW *National Parks and Wildlife Act 1974* to disturb, damage or destroy an Aboriginal object without a valid Aboriginal Heritage Impact Permit.

# 1 INTRODUCTION

NGH Environmental was commissioned by Bega Valley Shire Council (BVSC) to undertake a Due Diligence assessment for Aboriginal sites for seven locations proposed for upgrade of public recreation facilities. The locations are as follows.

- Bermagui River Boat Ramp
- Blackfellows Lake Boat Ramp, Kalaru
- Quarantine Bay Boat Ramp, Eden
- Bruce Steer Pool, Bermagui
- Pambula Beach Reserve
- Murunna Point/Camel Rock
- Merimbula Boardwalk

The location of each lie between Eden and Wallaga Lake on the far south coast of NSW and are shown in Figure 1.

## 1.1 PROJECT PARTICIPANTS

The Due Diligence assessment was carried out by qualified archaeologists Matthew Barber and Bronwyn Partell of NGH Environmental. This included background research, field inspection and the completion of this report.

The due diligence process does not formally require consultation with Aboriginal community groups. No Aboriginal groups were contacted for this due diligence level assessment. The project area is within the boundaries of the Eden, Bega and Merrimans Local Aboriginal Land Councils.

## 1.2 FORMAT OF THIS REPORT

This report has been drafted in keeping with the sequence of steps identified in the NSW Office of Environment and Heritage's *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW* (OEH 2010). The Code of Practice provides a five-step approach to determine if an activity is likely to cause harm to an Aboriginal object, as defined by the NSW *National Parks and Wildlife Act 1974*. The steps follow a logical sequence of questions, the answer to each question determines the need for the next step in the process.

The progress through the steps in the Code of Practice is aimed at providing an assessment of the potential for an activity to impact either a known Aboriginal object, or whether it is likely that unrecorded Aboriginal objects are present that may be impacted. The result of the process is aimed at providing the proponent with information about the likelihood that their activity will impact an Aboriginal object and whether an Aboriginal Heritage Impact Permit may be required.

Each section below follows the relevant step outlined in the Code of Practice.



Location of Proposals

BVSC Recreation Sites

 BVSC\_site\_boundaries

Notes:  
 - Data collected by nghenvironmental (2018)  
 - Client data courtesy of BVSC, received 2018  
 - Base map Copyright © Esri and its data suppliers.  
 - Datum GDA 94 zone 55

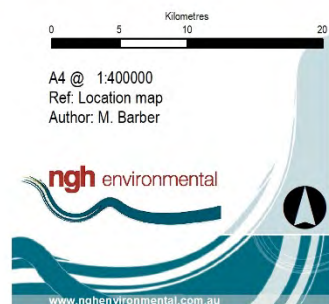


Figure 1 Location of proposal areas.

## 2 GROUND DISTURBANCE

### **Step 1. Will the activity disturb the ground surface or any culturally modified trees?**

An overview of proposed works by site is as follows:

#### **Bermagui River Boat Ramp (Bridge Motors Reserve, Lamont Street, Bermagui)**

- Replacement of the existing boat ramp with a new reinforced concrete double boat ramp;
- Installation of a finger pontoon jetty;
- Upgrade and sealing of the informal parking area;
- Upgrade of lighting.

#### **Blackfellows Lake Boat Ramp (Blackfellows Lake Road, Kalaru)**

- Replacement of the existing boat ramp with a new reinforced concrete single boat ramp;
- Upgrade (widening and sealing) of 600m of access road, including shoulder parking and car/trailer turnaround points;
- Installation of lighting;
- Installation of a finger pontoon jetty.

#### **Quarantine Bay Boat Ramp (Quarantine Bay Road, Eden)**

- Removal of the original, stepped timber jetty;
- Renewal and extension of the five finger pontoon jetty to provide adequate capacity.

#### **Bruce Steer Pool (Posidonia Esplanade, Bermagui)**

- All abilities access ramp to the water and paved accessible connections;
- Disabled car parking;
- New amenities facility plus picnic and seating areas;
- Stair and boardwalk access;
- Embankment revegetation.

#### **Pambula Beach Reserve (Coraki Drive, Pambula Beach)**

- Renewed precinct entrance and carpark upgrade;
- Improved drainage;
- New amenities facility and pedestrian links;
- All abilities play space, access and picnic area;
- Dune and embankment revegetation.

#### **Murrunga Point/Camel Rock (Wallaga Street, Wallaga Lake)**

- Construction of boardwalk (approx. 250m);
- Construction of gravel headland path (approx. 1730m);
- Construction of 3 new seats/shelters.

#### **Merimbula Boardwalk**

- Renewal and/or upgrade of existing boardwalk sections;
- Renewal and/or upgrade of existing gravel path sections;
- Installation of additional seating, signage, shelters and the like;
- Revegetation of any area disturbed during the works.

These activities potentially require significant ground disturbance through the use of heavy machinery (including access paths) and laydown areas. Any Aboriginal sites within the disturbance footprint would therefore be subject to harm. The affirmation that ground disturbance will occur requires the next step in the due diligence process.

### 3 REGISTER SEARCH AND LANDSCAPE ASSESSMENT

#### ***Step 2a. Search the AHIMS Database and other information sources***

A search of relevant heritage registers for Aboriginal sites and places provides an indication of the presence of previously recorded sites. It is to be noted that a register search is not conclusive, as it reflects only those areas that have been surveyed and that sites recorded are added to the register. As a starting point the search will indicate whether any sites are known within or adjacent to the investigation area. The Aboriginal Heritage Information Management System (AHIMS) is maintained by OEH and provides a database of Aboriginal heritage sites registered previously. The results of the search are able to be relied upon for 12 months for the purposes of a due diligence level assessment.

As the current report covers seven different proposed works areas, multiple AHIMS database extensive searches were run to capture all necessary data. There was a total of five searches completed to cover the seven proposed works areas.

- The Eden area was searched on 31/07/2018 for Matthew Barber (Client Service ID: 361155) for the following area at Datum: GDA, Zone: 55, Eastings: 754000 - 760000, Northings: 5889000 - 5895000 with a Buffer of 50 meters.
- The Pambula Beach area was searched on 31/07/2018 for Matthew Barber (Client Service ID: 361153) for the following area at Datum: GDA, Zone: 55, Eastings: 756000 - 762000, Northings: 5905000 - 5910000 with a buffer of 50 meters.
- The Merimbula area was searched on 31/07/2018 for Matthew Barber (Client Service ID: 361152) for the following area at Datum: GDA, Zone: 55, Eastings: 756000 - 762000, Northings: 5910000 - 5916000 with a Buffer of 50 meters.
- The Kalaru / Tathra area was searched on 31/07/2018 by Matthew Barber (Client Service ID: 361151) for the following area at Datum: GDA, Zone: 55, Eastings: 760000 - 765000, Northings: 5928000 - 5934000 with a Buffer of 50 meters.
- The Bermagui / Wallaga area was searched on 24/08/2018 by Matthew Barber (Client Service ID: 366323) for the following area: Datum in GDA, Zone: 56, Eastings: 235550 - 238950, Northings: 5962800 - 5972800 with a Buffer of 50 meters.

The results of these AHIMS searches are outlined for each site below.

**Bermagui River Boat Ramp:**

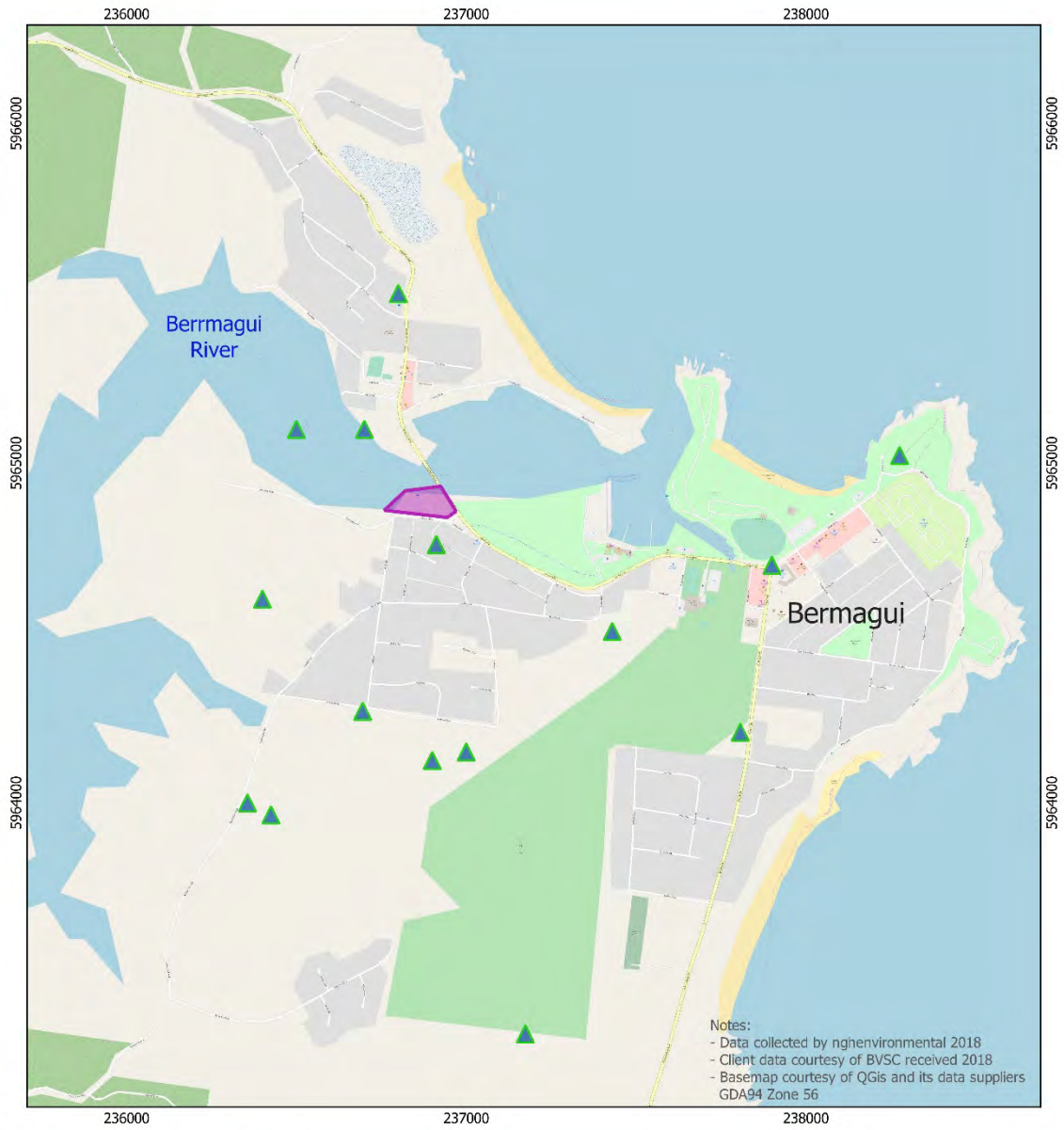
Table 1. Breakdown of previously recorded Aboriginal sites in proximity to the Bermagui River Boat Ramp proposed works area.

Site Type	Number
Artefact	6
Midden	5
Waterhole	1
Burials	1
<b>TOTAL</b>	<b>13</b>

There are a total of 13 Aboriginal heritage sites registered in the AHIMS database within 1 km of the proposed works area at the Bermagui Boat Ramp (outlined in table 2, below). All of the registered sites are, however, separated from the proposed works area by either urban development or bodies of water. Therefore there is no risk of impact on any of these registered sites. The large majority of sites are either artefact scatter or midden deposit site types, indicating that if any previously unrecorded sites were to be encountered, they would be likely of these two site types.

Table 2. Sites within ~1km of the Bermagui River Boat Ramp Proposed Works Area:

Site Number	Site Name	Site Type	distance to project (m)
62-7-0035	Bermagui Waterhole	Waterhole / well	~85 m
62-7-0313	Bermagui Waterhole Midden	Midden	~85 m
62-7-0132	Bermagui 36/19b	Burial(s)	~215 m
62-7-0036	Bermagui	Midden	~350 m
62-7-0002	Horse Shoe Bay; Bermagui	Midden	~445 m
62-7-0014	Bermagui	Midden	~580 m
62-7-0291	BCC2	Artefact	~585 m
62-7-0305	BCC Survey Unit 5	Artefact	~600 m
62-7-0304	BCC Survey Unit 4	Artefact	~695 m
62-7-0306	BCC Survey Unit 6	Artefact	~715 m
62-7-0292	BCC 3	Artefact	~950 m
62-7-0016	Bermagui South	Midden	~950 m
62-7-0307	BCC Survey Unit 11	Artefact	~975 m



**BVSC Recreation Sites**

**Bermagui River Boat Ramp  
 AHIMS sites**

**Legend**

-  AHIMS registered sites
-  Bermagui River Boat Ramp Proposed Works Area

0 0.5 1 km

A4 @ 1:15000  
 Ref: 18-328 BVSC  
 Author: B Partell  
 Date: 27/08/2018






Figure 2. AHIMS Site locations within 1km of the proposed works area at the Bermagui Boat Ramp.



**Blackfellows Lake Boat Ramp:**

There are no Aboriginal sites registered in the AHIMS database within 1 km of the proposed works area at Blackfellows Lake Boat Ramp.

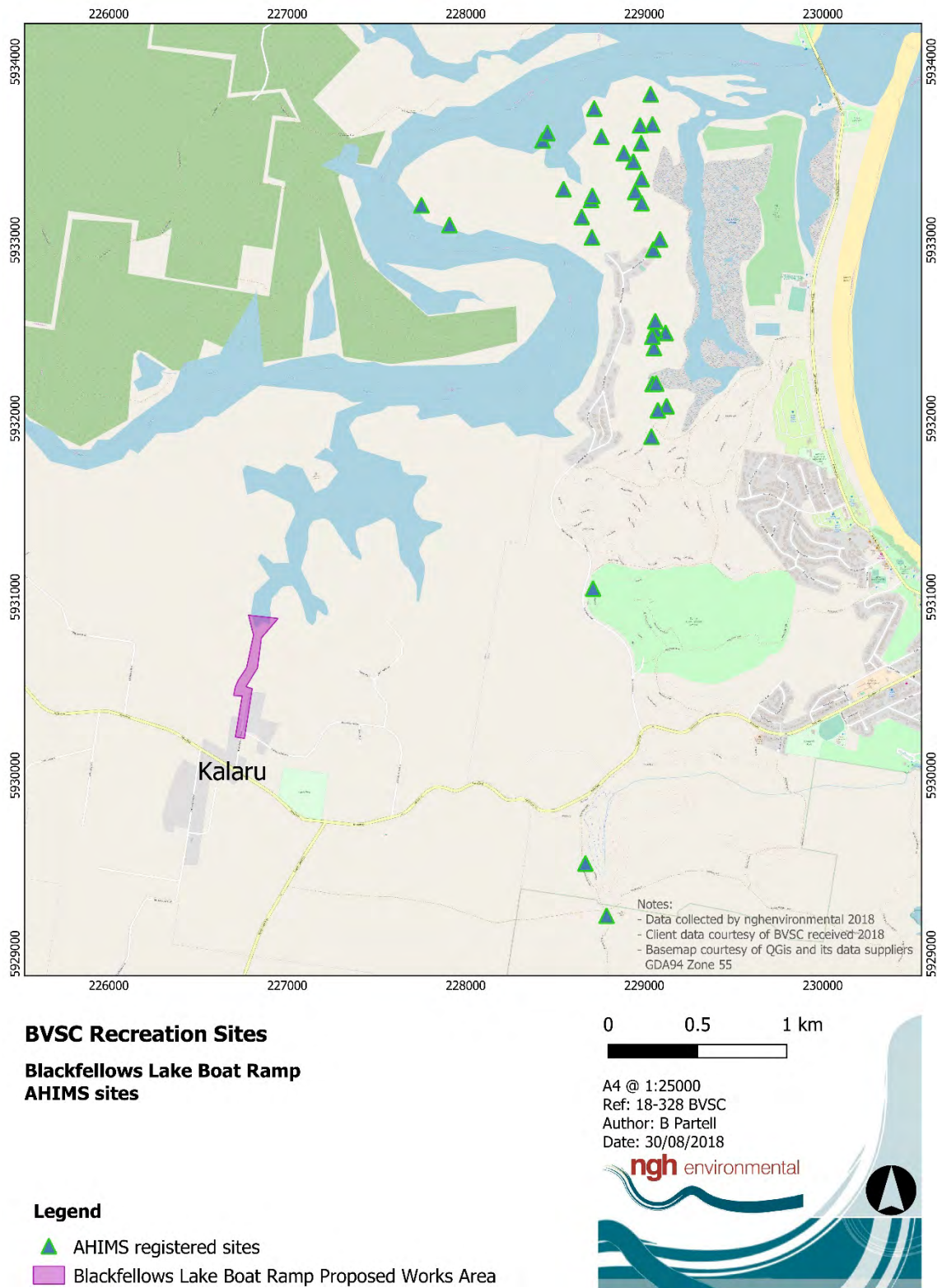


Figure 3. AHIMS Site locations surrounding the proposed works area at the Blackfellows Lake Boat Ramp.

### Quarantine Bay Boat Ramp

Table 3. Breakdown of previously recorded Aboriginal sites in close proximity to the Quarantine Bay Boat Ramp proposed works area.

Site Type	Number
Midden with artefacts	2
Burial in Midden with artefacts	2
<b>TOTAL</b>	<b>4</b>

There are four sites registered in the AHIMS database within 1 km of the proposed works area at the Quarantine Bay boat ramp (outlined in table 4, below). One site has been identified within 100 m of the proposed works, the midden containing artefacts on Cocora Beach to the east of the works area. Important to note is the presence of two identified burials within middens, and one other midden deposit within 1 km of the proposed works area. Based on these results the most likely site type to encounter within this works area will be shell middens, and care must be taken as such deposits in the area are known to contain human remains.

Table 4. Sites within ~1km of the Quarantine Bay Boat Ramp Proposed Works Area:

Site Number	Site Name	Site Type	distance to project (m)
63-3-0086	Cocora Beach	Midden with artefacts	~100 m
63-3-0085	Cocora Point	Midden with artefacts	~250 m
63-3-0291	Legge's Beach Burial 2	Midden Burial	~600 m
63-3-0290	Shadracks Beach Burial	Midden Burial (with artefacts)	~680 m



**BVSC Recreation Sites**

**Quarantine Bay  
 AHIMS sites**

**Legend**

- Quarantine Bay Boat Ramp Proposed Works Area
- AHIMS Sites

0 0.25 0.5 0.75 1 km



A4 @ 1:12000  
 Ref: 18-328 BVSC  
 Author: B Partell  
 Date: 27/08/2018

**ngh** environmental



Figure 4. AHIMS Site locations within 1km of the proposed works area at the Quarantine Bay Boat Ramp.

**Bruce Steer Pool:**

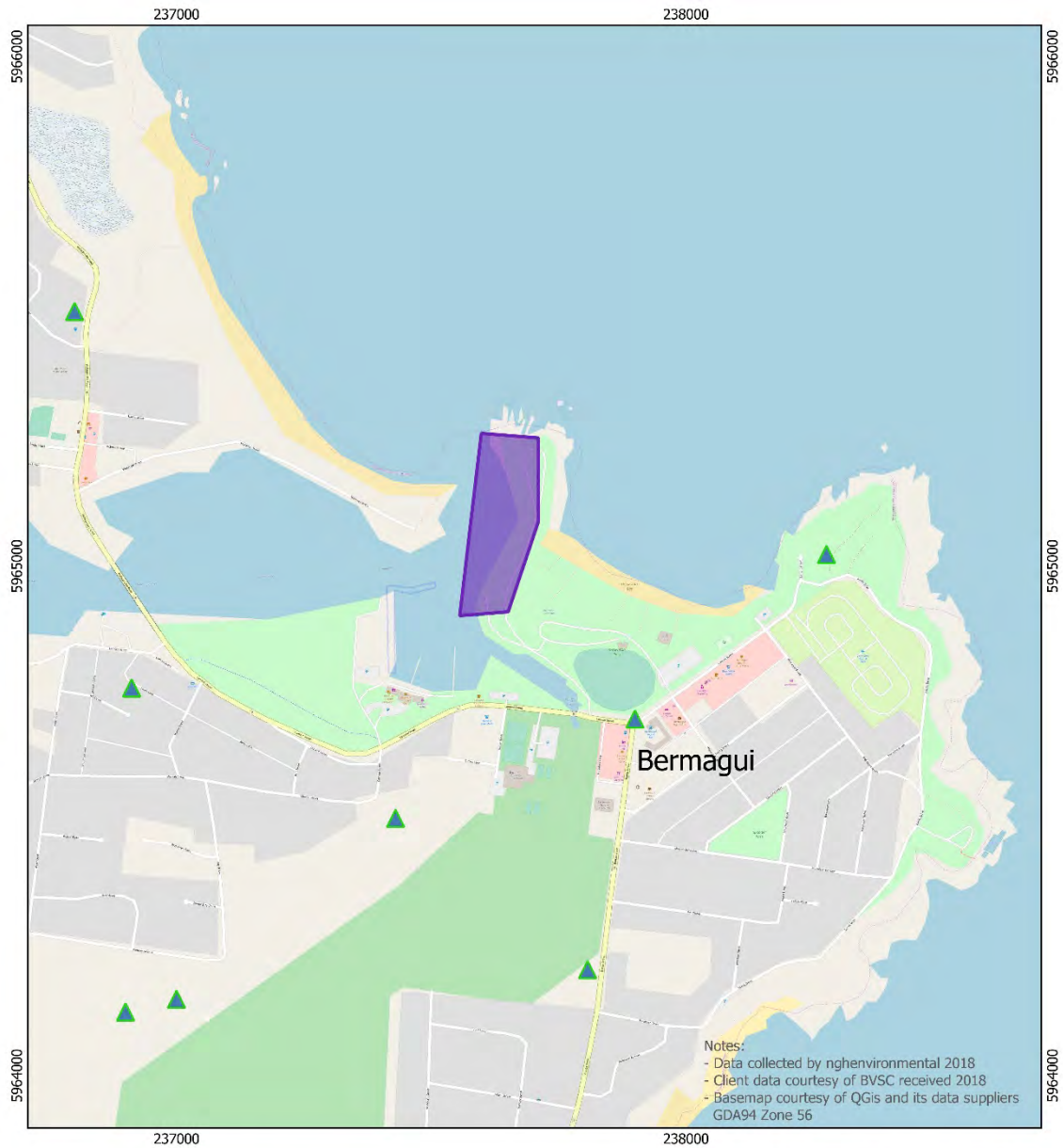
Table 5. Breakdown of previously recorded Aboriginal sites in close proximity to the Bruce Steer Pool proposed works area:

Site Type	Number
Artefact	4
Midden	3
Waterhole	1
Burial	1
<b>TOTAL</b>	<b>9</b>

There are a total of nine Aboriginal heritage sites registered in the AHIMS database within 1 km of the proposed works area at the Bermagui Boat Ramp (outlined in table 6, below). All of the registered sites are, however, separated from the proposed works area by either urban development or bodies of water. Therefore, there is no risk of impact on any of these registered sites. The majority of sites are either artefact scatter or midden deposit site types, indicating that if any previously unrecorded sites were to be encountered, they would be likely of these two site types.

Table 6. Sites within ~1km of the Bruce Steer Pool Proposed Works Area:

Site Number	Site Name	Site Type	distance to project (m)
62-7-0291	BCC2	Artefact	~420 m
62-7-0016	Bermagui South	Midden	~315 m
62-7-0373	Bermi HD	Artefact	~585 m
62-7-0035	Bermagui Waterhole	Waterhole / well	~660 m
62-7-0313	Bermagui Waterhole Midden	Midden	~660 m
62-7-0290	BCC 1	Artefact	~735 m
62-7-0132	Bermagui 36/19b	Burial(s)	~870 m
62-7-0014	Bermagui	Midden	~845 m
62-7-0304	BCC Survey Unit 4	Artefact	~935 m



**BVSC Recreation Sites**

**Bruce Steer Pool  
AHIMS sites**

**Legend**

- Bruce Steer Pool Proposed Works Area
- AHIMS registered sites

0 200 400 600 m

A4 @ 1:10000  
Ref: 18-328 BVSC  
Author: B Partell  
Date: 27/08/2018

**ngh** environmental



Figure 5. AHIMS Site locations within 1 km of the proposed works area at the Bruce Steer Pool.

**Pambula Beach Reserve:**

Table 7. Breakdown of previously recorded Aboriginal sites in close proximity to the Pambula Beach Reserve proposed works area.

Site Type	Number
Artefact	1
Midden with artefacts	4
Midden	2
<b>TOTAL</b>	<b>7</b>

There are a total of seven Aboriginal heritage sites registered in the AHIMS database within 1 km of the proposed works area at Pambula Beach Reserve (outlined in table 8, below). All of the registered sites except 62-6-0183 are, however, separated from the proposed works area by either urban development or bodies of water. The midden with artefacts 62-6-0183 is the closest site registered in the AHIMS database to the proposed works area, however it is described as being on the headland past the proposed works area. Therefore, there is no risk of impact on any of these registered sites. The majority of sites are midden deposit site types (with or without included artefacts), indicating that if any previously unrecorded sites were to be encountered, they would be likely a type of midden deposit.

Table 8. Sites within ~1 km of the Pambula Beach Reserve Proposed Works Area:

Site Number	Site Name	Site Type	distance to project (m)
62-6-0183	Pambula Beach	Midden with artefacts	~240 m
62-6-0667	Lot 222 / Locale 1	Artefact	~265 m
62-6-0756	Pambula Beach 1	Midden	~635 m
62-6-0075	Pambula Lake 9	Midden with artefacts	~650 m
62-6-0463	PRMS	Midden	~835 m
62-6-0012	Severs Beach; Pambula River	Midden with artefacts	~900 m
62-6-0077	Pambula Lake 11	Midden with artefacts	~935 m

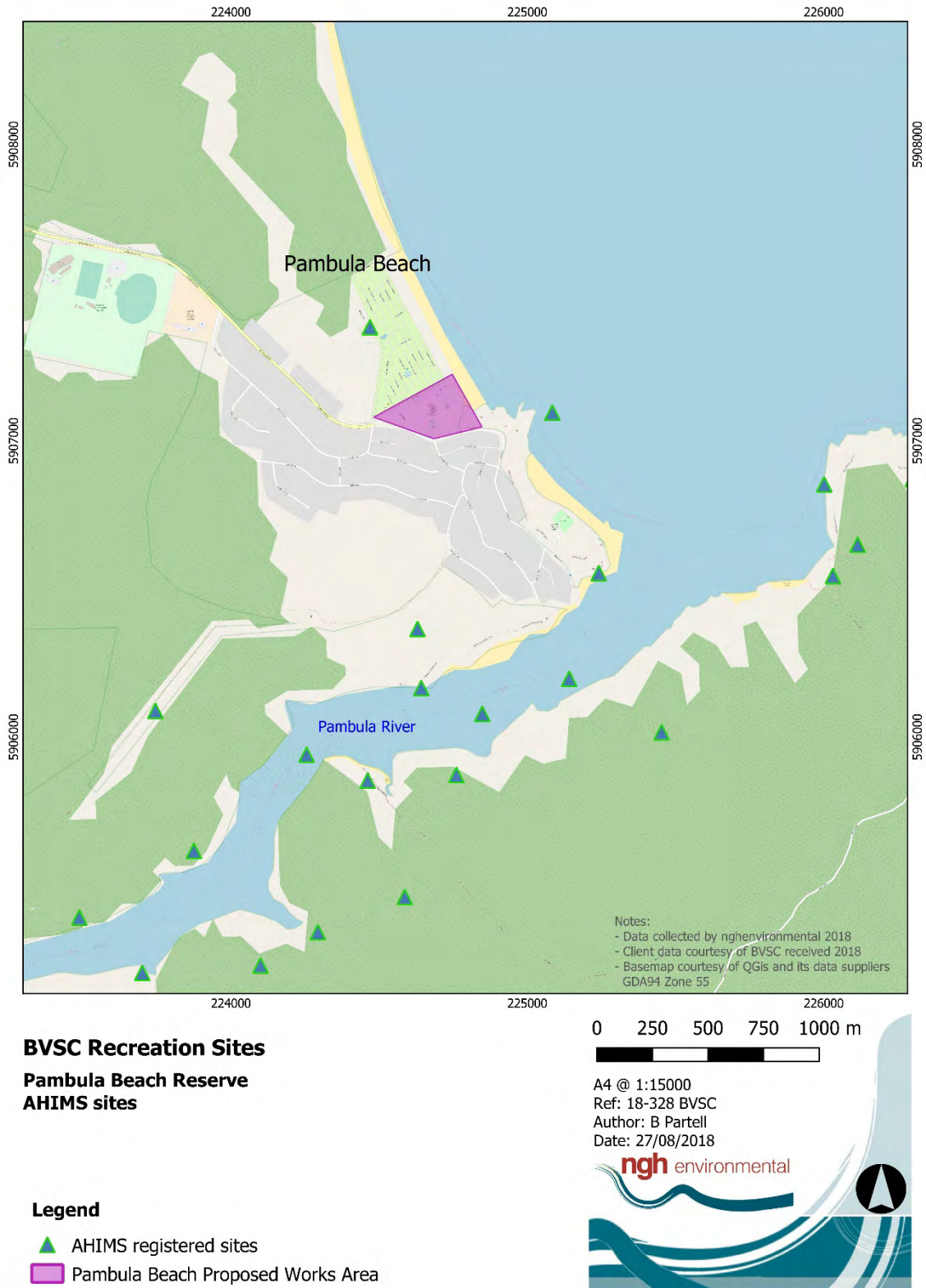


Figure 6. AHIMS Site locations within 1 km of the proposed works area at the Pambula Beach Reserve.

**Murunna Point / Camel Rock:**

Table 9. Breakdown of previously recorded Aboriginal sites within the Murunna Point/Camel Rock proposed works area.

Site Type	Number
Artefact scatter	3
Midden with artefacts	7
Midden	2
Midden with burial and artefacts	1
<b>TOTAL</b>	<b>13</b>

As highlighted in Table 9 (above), there are 13 Aboriginal sites registered in the AHIMS database that fall within the proposed works area at Murunna Point/Camel Rock. The site types and identification details are outlined in Table 10 (below), showing that that the majority of sites recorded are midden deposits also containing artefacts and one burial also recorded. There are also a further 8 sites located within 1 km of the proposed works at Murunna Point/Camel Rock (outlined in Tables 11 and 12, below).

Table 10. Sites within the Murunna Point/Camel Rock Proposed Works Area:

Site Number	Site Name	Site Type	Ddistance to project (m)
62-7-0017	Regatta Point; Camel Rock Beach	Midden with artefacts	Within area
62-7-0267	Murunna Point 1	Midden	On track, within area
62-7-0255	VW3	Midden	Within area
62-7-0254	VW4	Midden with artefacts	Within area
62-7-0258	VW7	Artefact scatter	Within area
62-7-0252	VW6	Midden with artefacts	Within area
62-7-0256	VW8	Artefact scatter	Within area
62-7-0251	VW9	Artefact scatter	Within area
62-7-0018	Wallaga Lake 3	Midden with artefacts	Within area
62-7-0312	Marunna Point	Midden with artefacts	Within area
62-7-0253	VW5	Midden with artefacts	Within area
62-7-0257	VW10	Burial within Midden and artefacts	On track within area
62-7-0268	Murunna Point 11	Midden with artefacts	On track within area



There are a total of 17 Aboriginal heritage sites registered in the AHIMS database within a 1 km buffer of the proposed works area at Murunna Point / Camel Rock including the 13 sites outlined above in Tables 9 and 10. The additional sites are outlined in Table 11 and are all middens with artefacts.

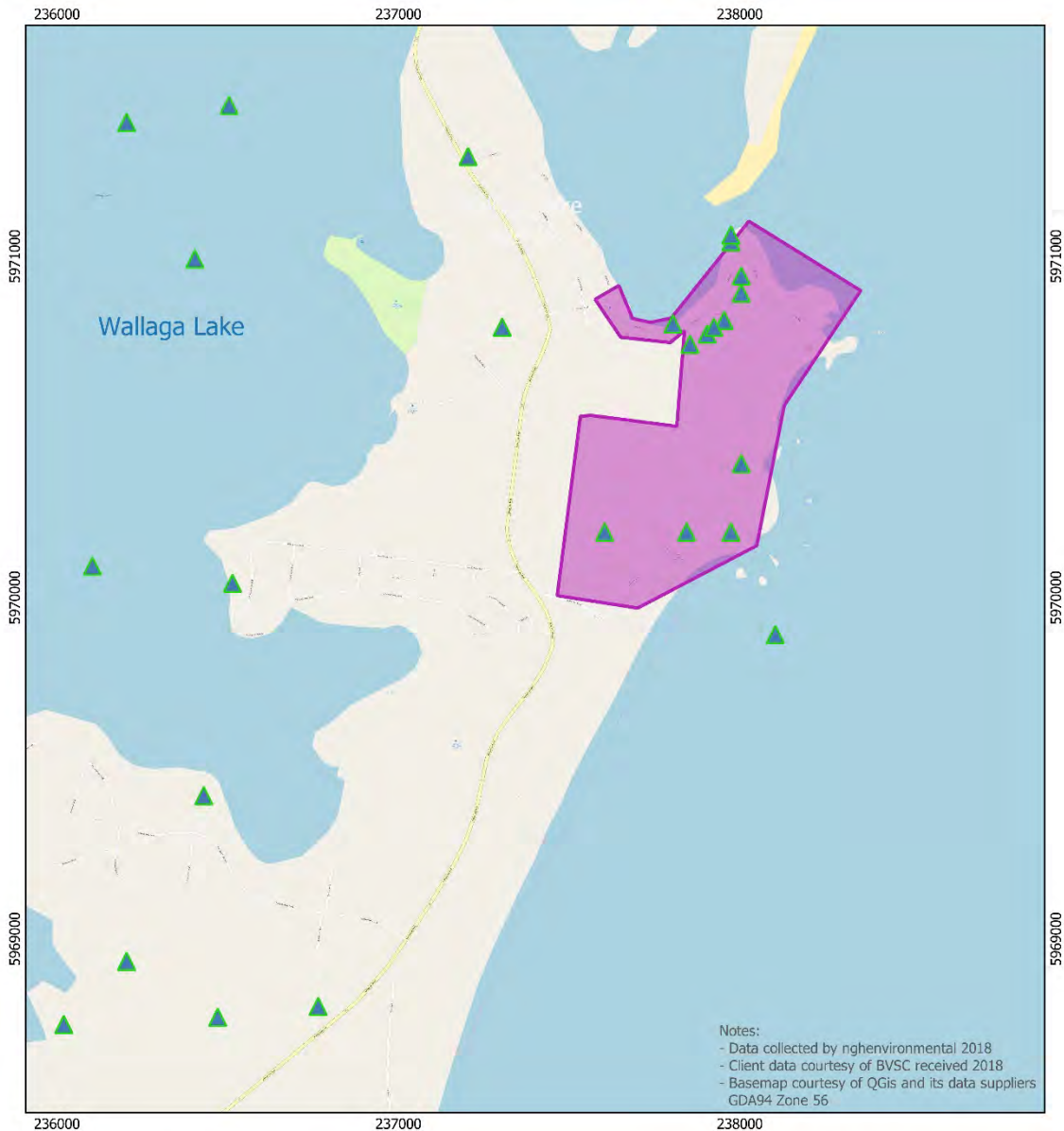
Table 11. Sites within ~1km of the Murunna Point/Camel Rock Proposed Works Area:

Site Number	Site Name	Site Type
62-7-0125	Murunna Point / Regatta Point 32/199b	Midden with artefacts
62-7-0020	Camel Rock	Midden with artefacts
62-2-0233	Brain Horsefall Property; Wallaga Lake	Midden with artefacts
62-7-0249	Beauty Point	Midden with artefacts

The AHIMS database results for the Murunna Point/Camel Rock proposed works area highlights a sensitive landscape for Aboriginal sites. The most common site type is midden deposit with artefacts (70%), with all except one midden listed containing artefacts. This evidence reinforces the trend along this section of the NSW South Coast, where the most common site types identified are midden deposits and/or artefact scatters. Although the proposed works area has already been covered by targeted archaeological investigations (including an extensive survey for the BVSC Wallaga Lake Coastal Zone Management Plan), there is some potential that previously unrecorded sites are located within the area. Changes in the visibility conditions and the survey transect locations may reveal additional sites. There is, therefore, an identified need to visually inspect the area to determine the impact zones for proposed works, and any potential impacts to the sites identified within the proposed works area.

Table 12. All AHIMS Aboriginal sites listed within 1 km of the Murunna Point/Camel Rock proposed works area (including sites within the proposed works area).

Site Type	Number
<b>Artefact</b>	4
<b>Midden with artefacts</b>	11
<b>Midden</b>	1
<b>Midden with burial and artefacts</b>	1
<b>TOTAL</b>	<b>17</b>



**BVSC Recreation Sites**

**Murunna Point / Camel Rock  
AHIMS sites**

**Legend**

- ▲ AHIMS registered sites
- Murunna Point Proposed Works Area

0 250 500 750 1000 m

A4 @ 1:15000  
Ref: 18-328 BVSC  
Author: B Partell  
Date: 27/08/2018



Figure 7. AHIMS Site locations within 1 km of the proposed works area at Murunna Point / Camel Rock. Note some AHIMS sites have been converted to GDA but still plot incorrectly.

**Merimbula Boardwalk:**

Table 13. Breakdown of previously recorded Aboriginal sites within the Merimbula Boardwalk project area.

Site Type	Number
<b>Midden with artefacts</b>	3
<b>Midden</b>	3
<b>TOTAL</b>	<b>6</b>

As highlighted in Table 14 (above), there are six Aboriginal sites registered in the AHIMS database that fall within the proposed works area for the Merimbula Boardwalk. The site types and identification details are outlined in Table 15 (below), showing that all sites recorded are midden deposits, with half also containing artefacts.

Table 14. Sites within the Merimbula Boardwalk Proposed Works Area:

Site Number	Site Name	Site Type	distance to project (m)
62-6-0097	Merimbula Lake 1	Midden with Artefacts	Within
62-6-0099	Merimbula Lake 4	Midden with Artefacts	Within
62-6-0100	Merimbula Lake 3	Midden with Artefacts	Within
62-6-0783	Merimbula Boardwalk 1	Midden	Within
62-6-0784	Merimbula Boardwalk 2	Midden	Within
62-6-0785	Merimbula Boardwalk 3	Midden	Within

There are a total of 46 Aboriginal heritage sites registered in the AHIMS database within a 1 km buffer of the proposed works area for the Merimbula Boardwalk. This includes the six sites outlined above in Tables 14 and 15. Of the sites surrounding the proposed works area, there is a wide variety of 10 differing site types recorded. The majority are midden deposits containing artefacts, with four other midden deposit types also recorded. Tables 16 and 17 (below) outlines the details of sites within a 1 km buffer of the proposed works area (not including sites from within the works area).

Table 15. Breakdown of previously recorded Aboriginal sites within 1 km of the Merimbula Boardwalk proposed works area.

Site Type	Number
Midden with artefacts	16
Midden	3
Midden with Burial	3
Midden with PAD	3
Midden with Art	1
Artefact	7
Artefact with PAD	2
Open Camp Site with Artefact	2
Modified Tree (Carved or Scarred)	2
Burial	1
<b>TOTAL</b>	<b>40</b>

Table 16. Sites within ~1km of the Merimbula Boardwalk Proposed Works Area:

Site Number	Site Name	Site Type	distance to project (m)
62-6-0782	Merimbula Boardwalk 4	Artefact	>10 m
62-6-0789	Bimbimbie IF 1	Artefact	~10 m
62-6-0135	Merimbula Heights Estate MHE8 Merimbula	Midden with Artefacts	~30 m
62-6-0139	Merimbula Heights Estate MHE12 Merimbula	Midden with Artefacts	~30 m
62-6-0134	Merimbula Heights Estate MHE7 Merimbula	Midden with Artefacts	~65 m
62-6-0140	Merimbula Heights Estate MHE13 Merimbula	Open Camp Site / Artefact	~95 m
62-6-0141	Merimbula Heights Estate MHE14 Merimbula	Midden with Artefacts	~150 m
62-6-0544	Burial, Merimbula	Burial	~280 m
62-6-0136	Merimbula Heights Estate MHE9 Merimbula	Midden with Artefacts	~120 m
62-6-0137	Merimbula Heights Estate MHE10 Merimbula	Midden with Artefacts	~170 m
62-6-0138	Merimbula Heights Estate MHE11 Merimbula	Midden with Artefacts	~115 m

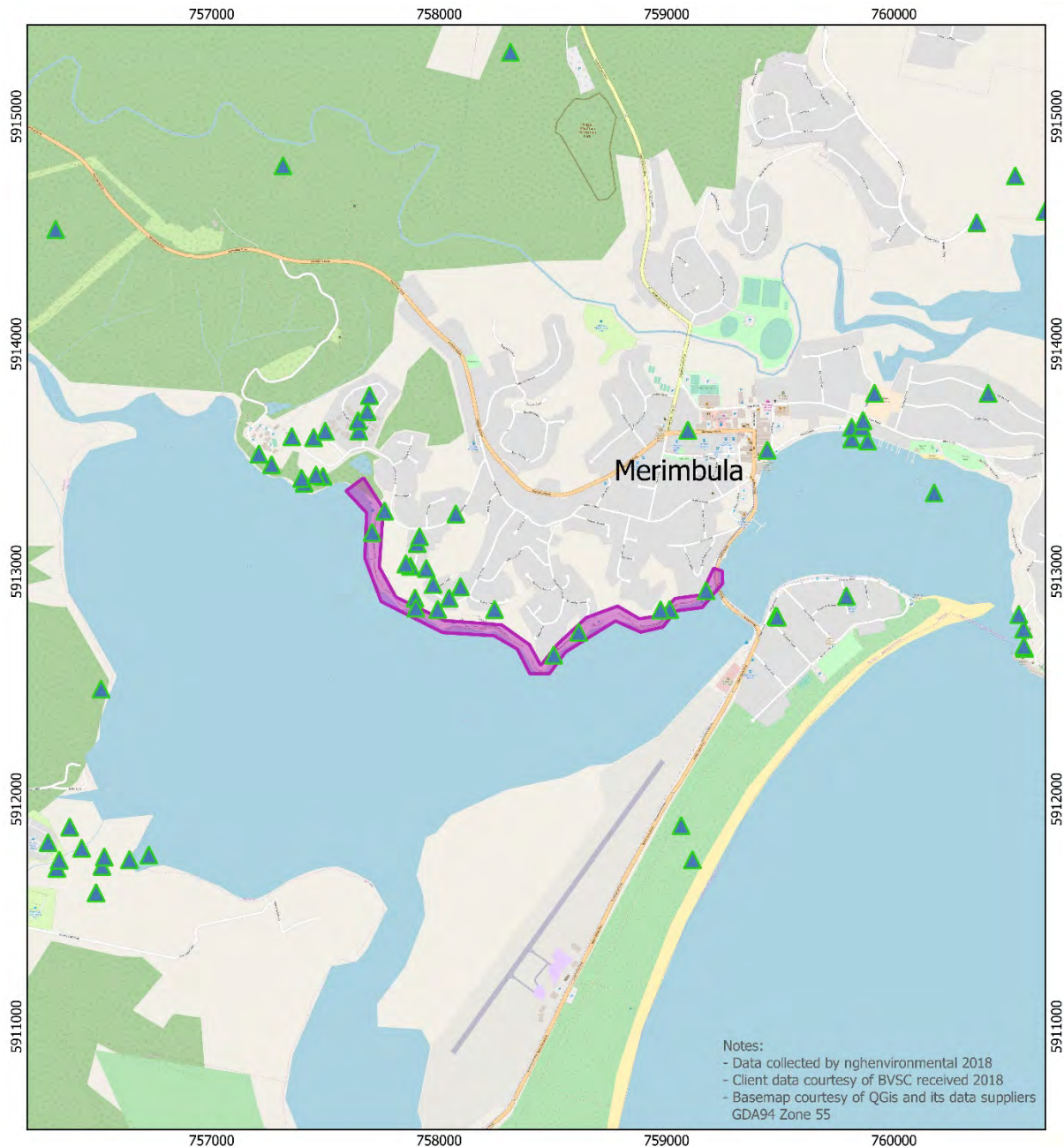
62-6-0472	Merimbula Cove 3	Midden and Art	~115 m
62-6-0473	Merimbula Cove 2	Midden with artefacts	~155 m
62-6-0474	Merimbula Cove 1	Midden with artefacts	~170 m
62-6-0142	Merimbula Heights Estate MHE15 Merimbula	Midden with artefacts	~320 m
62-6-0542	Merimbula Lake Midden - Fishpen	Midden with Burial	~280 m
62-6-0684	No. 2 Marine Pde	Artefact	~560 m
62-6-0654	Merimbula Beach Street Site 1	Midden with artefacts and PAD	~570 m
62-6-0689	Dry Cleaners	Artefact	~620 m
62-2-0014	Merimbula Creek; Merimbula	Midden with Burial	~815 m
62-6-0001	Merimbula Lake Main St	Midden with Burials (2)	~850 m
62-6-0686	Main Street 1	Midden with artefacts	~860 m
62-6-0193	Merimbula Beach 2; MB2	Modified Tree (Carved or Scarred)	~870 m
62-6-0301	Lot 15/4	Open Camp Site / Artefact	~900 m
62-6-0500	Rotary Park Merimbula	Midden with artefacts + Modified Tree (Carved or Scarred)	~1 km
62-6-0515	Merimbula Public School	Midden with artefacts	~1 km
62-6-0192	Merimbula Beach 1; MB1	Midden with artefacts	~1 km
62-6-0469	Merimbula Cove 11/A	Midden with artefacts	~120 m
62-6-0470	Merimbula Cove 10/B, 10/C	Midden with artefacts	~190 m
62-6-0694	Robyns Nest 5 (RN5) Pambula / Merimbula Cove (MC) 10/A	Midden	~200 m
62-6-0695	Robyns Nest 6 (RN6) Pambula	Midden	~150 m
62-6-0691	Robyns Nest 2 (RN2) Pambula	Midden with artefacts + PAD	~350 m

62-6-0690	Robyns Nest 1 (RN1) Pambula	Midden + PAD	~415 m
62-6-0692	Robyns Nest 3 (RN3) Pambula	Artefact + PAD	~340 m
62-6-0693	Robyns Nest 4 (RN4) Pambula	Artefact + PAD	~270 m
62-6-0632	Merimbula Cove 6/C	Artefact	~270 m
62-6-0471	Merimbula Cove 12/A	Artefact	~210 m
62-6-0533	Merimbula Cove 6/A	Midden	~250 m
62-6-0534	Merimbula Cove 6/B	Artefact	~290 m
62-6-0535	Merimbula Cove 7/A	Midden with artefacts	~360 m

The AHIMS database results for Merimbula Boardwalk proposed works area highlights a sensitive landscape for Aboriginal sites. There are a total of six sites recorded within or adjacent to the works area, and a further 40 sites within a 1 km surrounding buffer zone (making a total of 46 sites). Table 18 below outlines the combined site type data for all 46 sites. This shows a majority of midden deposit site types (70%), with the majority being midden deposits also containing artefacts (41%). This evidence reinforces the trend along this section of the NSW South Coast, where the most common site types identified are midden deposits and/or artefact scatters. As the proposed works area has already been covered by targeted archaeological investigations, there is a low potential for any previously unrecorded sites to be located. There is, however, an identified need to visually inspect the area to determine the impact zones for proposed works, and any potential impacts to the six sites identified within the proposed works area.

Table 17. All AHIMS Aboriginal sites listed within 1km of Merimbula Boardwalk proposed works area (including sites within the proposed works area).



Site Type	Number
<b>Midden with artefacts</b>	19
<b>Midden</b>	6
<b>Midden with Burial</b>	3
<b>Midden with PAD</b>	3
<b>Midden with Art</b>	1
<b>Artefact</b>	7
<b>Artefact with PAD</b>	2
<b>Open Camp Site with Artefact</b>	2
<b>Modified Tree (Carved or Scarred)</b>	2
<b>Burial</b>	1
<b>TOTAL</b>	<b>46</b>



**BVSC Recreation Sites**

**Merimbula Boardwalk  
AHIMS sites**

**Legend**

-  AHIMS registered sites
-  Merimbula Boardwalk Proposed Works Area

0 250 500 750 1000 m

A4 @ 1:22500  
 Ref: 18-328 BVSC  
 Author: B Partell  
 Date: 27/08/2018



Figure 8. Results of AHIMS search for 1 km surrounding the Merimbula Boardwalk Proposed Works Area

### 3.1 LOCAL ARCHAEOLOGICAL STUDIES

#### **Bega Valley Shire Council – Previous Archaeological Investigations:**

Aboriginal people have utilised the resources of the South Coast hinterland and adjacent coast for the past 20,000 years (Boot 1996, 2002). Despite evidence for the Pleistocene occupation of the area at Burrill Lake, Bass Point and Wallen Creek, it is recognised that the majority of sites in the region date to within the last 5,000 years (Boot 1996). This however could be representative of a change in sea levels with the majority of the Pleistocene coastline no longer visible. The Pleistocene occupation is generally thought to have been sporadic and low intensity, reflecting the low population at the time. It was not until the mid-Holocene when sea levels reached their present level that we begin to see an increase in Aboriginal occupation of the region reflected in the archaeological record.

The project area is located in the territory of the Yuin people, of which there were several clans. The Yuin territory extends south along the coast from the Shoalhaven in the north to around Eden in the south, and inland to the eastern edge of the tablelands (Howitt 1996, Egloff et al 2005). Today, the term 'Yuin' is generally used to describe all tribes between the Merimbula and Port Jackson areas. Tindale (1974), an anthropologist and ethnologist mapped Australia by Aboriginal language groupings. The Yuin people are split into five clans or language groups, the Thaua, Djiringanj, Walbanga, Bidawal and Ngarigo. The northern portion of the BVSC falls within the Djiringanj language grouping, and from the Merimbula area heading south is the Thaua language group (Tindale, 1974). The Thaua are further split into the Katungal (sea coast people) and the Baianbal or Paienbara (tomahawk people). In addition to a rich ceremonial tradition, ethnohistorical sources indicate the diverse economy of the Yuin people. In terms of food sources or subsistence activities recorded, fish and fishing are commonly noted, in addition to the gathering of shellfish and also the exploitation of sea mammals where possible (Boot 1994, Sullivan 1982:25-27). In hinterland areas macropods and possums are the most frequently mentioned animal foods. Other animal food items mentioned include birds, honey, reptiles, dogs, grubs and bandicoots (Sullivan 1982:44). The most commonly mentioned plant foods are fruits, berries, cabbage palms and macrozamia (burrawangs), and there are references to roots and yams (Sullivan 1982:43).

The Aboriginal people of the area also had a diverse material culture, and ethnographically recorded items include; spears, both barbed and unbarbed and possibly made from two pieces of wood and pointed, clubs made of "heavy wood", bark canoes which ranged from about 7'6" to 12' in length, fishing lines and nets, stone axes, vine traps, ropes, weirs (for catching fish), bark huts, bark containers and shields, containers made from knots on trees, possum and kangaroo skin cloaks, possum fur string, items of personal adornment such as kangaroo tooth necklaces, body paint, belts and 'kilts' for ceremonial occasions, and ceremonial items such as bull roarers (Sullivan 1982:25-77, Egloff 1979). Recollections of early 20<sup>th</sup> century life at Congo, to the north of the Bega Valley Shire Council area, include observations that Aboriginal people used 'a broad track that went as far as Wallaga Lake' (in the Bermagui region) that seemed 'a highway constantly in use' (Williams 2016:10).

By the mid to late 1880's traditional Yuin life had been severely disrupted. The initial ravages of disease combined with continued and accelerated loss of access to land, particularly after the passing of the 1861 Robertson Land Acts, meant the fully traditional Yuin way of life ceased (Sullivan 1982, AIATSIIS Encyclopaedia of Aboriginal Australia). Nonetheless, Yuin people adapted to European life practices while retaining a great deal of their traditional knowledge and values.

Aboriginal people have utilised the resources of the South Coast hinterland for the past 20,000 years (Lampert 1971, Boot 1996a & b). Excavations in rock shelters confirm that the hinterland has been occupied



for that period of time. Despite this evidence for the great antiquity of human occupation in the area, it is recognised that the majority of sites in the region date to within the last 5000 years (Boot 1996b:277).

The south coast of NSW has been the subject of considerable archaeological assessment over the last 25 years. This work has come in the form of academic research and more recently through the requirement to conduct impact assessment prior to land development. The number of surveys that has been conducted has resulted in a large database of recorded sites in the region. This allows for a good comparison of site types and contents along the coast from Ulladulla to the Victorian border.

The most common sites on the coastal strip are shell middens, which are numerous. They exist in a range of environmental locations and their content generally reflects immediately available resources. The middens vary in size from single eating events, to sites thousands of square metres in area. Organic material in shell middens tends to preserve well and the shell itself is able to be radiocarbon dated.

A synthesis of work carried out by the ANU between 1981 and 1994 shows that particular research program recorded 2207 archaeological sites on the south coast between Ulladulla and Batemans Bay, and inland to the Clyde River (Knight 1996). These sites comprised 1142 open artefact scatters, 678 isolated artefacts, 349 shell middens, 24 rock shelters, 11 axe grinding groove sites, and three scarred trees. 18,783 stone artefacts were recorded in this study area (Knight 1996:6).

The study shows that while middens are common on the coastline open artefact scatters are the most common site type to be found away from the immediate coastline and lakeshores, although they also occur in these locations. These types of sites are characterised by flaked stone artefacts lying in clusters on the open ground. These sites can represent overnight camps, specific manufacturing or maintenance activities, base camps or a combination of all these. Most of these artefacts were either waste flakes (debitage), or were general purpose cutting and scraping tools. There were a few types of flaked artefacts that were specially shaped, principally artefacts which are termed 'backed artefacts'. These artefacts are deliberately blunted on one edge and come in several relatively distinctive forms. They are used by archaeologists as broad temporal markers, having proliferated in the period of around 5000BP to 1500BP, although there are a few specimens dated to before and after this time bracket (Hiscock and Attenbrow 1998).

It would appear that sites of this type are generally found on ridge lines and spurs where relatively level ground is available (Treloar 1985:119), although large sites can also be found on the margins of waterways and in large river valleys (Hunt 1992:62).

Knight found that the most notable characteristic of artefact scatters in the south coast study area was the relatively small amount of variation in artefact scatter size. Peaks, riverbanks, headlands and lakeshores contained sites with the highest average number of artefacts per site, but the differences were not great (Knight 1996:31). Knight classed scatters containing between 56 and 5000 artefacts as 'larger scatters'. Other site types known for the area include:

- scarred trees, which are trees whose bark was cut away to make containers, canoes or shelters,
- stone quarries, which are a source of stone exploited by Aboriginal people,
- burials, and
- ceremonial sites which include stone arrangements, ceremonial grounds and natural / mythological sites.

### **The Bermagui Area**

Encompassing the northern tip of the Bega Valley Shire Council (BVSC) limits, along the eastern coastline of Australia, the Bermagui area reaches up to and includes the southern and eastern shores of Wallaga

Lake and the peninsula area between the lake and the ocean. Three of the proposed works sites are within this area; the Murunna Point/Camel Rock works site, the Bruce Steer Pool and the Bermagui River Boat Ramp.

Within the Wallaga Lake lies the first Aboriginal Places to be gazetted in NSW under the *National Parks and Wildlife Act 1974*, Merrimans Island Aboriginal Place (the former Wallaga Lake Aboriginal Reserve; NPW Act Gazette number 145). Across the lake from the proposed works areas lies a cemetery that has been identified as Aboriginal, which is described and managed under the Wallaga Lake Aboriginal Mission Cemetery Management Plan 2015-2020 (Eurobodalla Shire Council, 2015). The establishment of this management plan included a GPR survey of the cemetery area that was undertaken in 2014. As a result, 240 graves (including possible graves) have been identified in the Wallaga Lake Cemetery, with evidence of middens and midden material having also been recorded through the cemetery area (Eurobodalla Shire Council, 2015). Owned by the Merrimans Local Aboriginal Land Council (LALC), the cemetery is just one site complex within a significant cultural landscape. Other significant sites in the area include the Wallaga Lake, Mount Dromedary, and the Bermagui Waterhole. Wallaga Lake (and its surrounding shores) is noted as a significant resource for the Yuin people, providing a constant source of traditional foods and medicine, with evidence from midden sites along the lake shore indicating at least 6,000 years of occupation (Peter Spurway & Associates, 2006).

Also gazetted as an Aboriginal Place under the NSW NPW Act (gazette number 182), the Bermagui Waterhole (AHIMS #62-7-0035) lies only 85m south of the Bermagui River Boat Ramp works site. This waterhole is currently surrounded by urban development, and under the management of the Merrimans LALC. The site has been identified as a significant Aboriginal Place through its use as a camping ground from pre-1788 right through into the early 1920's. It's importance as a camping location is also evidenced through the midden remains associated with the site (AHIMS #62-6-0313) which include estuarine and rocky shore shellfish, as well as stone and glass tools. The Bermagui waterhole is also recorded as a permanent freshwater source and exists as a part of a walking track along the coast between significant ceremonial sites of the Yuin language group.

In 2002, Webster and Kuskie undertook a survey of Murunna Point for proposed works to the carpark and trails across the headland. The study area covered the entirety of the headland area, at approximately 5,000m<sup>2</sup>, with close to 100% coverage (Webster & Kuskie, 2002:16). Their survey recorded a total of 170 stone artefacts and 24 lithic fragments across 10 Aboriginal archaeological sites, three shell middens with no stone artefacts, four shell middens containing artefacts, and three stone artefact scatters (Webster & Kuskie, 2002: 19). All data recorded within the survey comes from within the current proposed works area at Murunna Point/Camel Rock. Webster and Kuskie (2002:27) summarise the surface archaeological integrity of the area surveyed as being of moderate to highly disturbed ground. They have also identified impacts that have affected the preservation of sites such as vegetation removal, erosion (promoted by vegetation removal, human visitation and vehicle use), pastoral activities, agriculture, focalised impacts including roads and car parks, occupational disturbance and bioturbation.

Also in 2003, Kuskie assessed the significance of the previously recorded shell midden (AHIMS 62-7-0249) at Beauty Point (Wallaga Lake), which lies to the south-west of the proposed works area at Murunna Point. This assessment determined that while the area may have retained some scientific value, the midden site only held an extremely low significance due to it's highly degraded nature from significant levels of impacts.

In 2005, ERM completed an Aboriginal Archaeological Assessment for the Bermagui-Wallaga Lake Sewerage Scheme. The survey that was conducted for this report included the residential area at Wallaga Lake Heights, adjacent to the north-west of the Murunna Point proposed works area. The survey recorded evidence of both shell middens and artefact deposits visible within erosion exposures. Varying densities of

shell material were recorded within 21 exposures identified in the Wallaga Lake villages, with five exposures containing a total of nine stone artefacts (ERM, 2005: Tables 5.2 & 5.3). All deposits were described as significantly disturbed by urban development.

In 2009, Sue Feary reported on the discovery of a previously unrecorded Aboriginal burial at Murunna Point. The burial was within a previously recorded midden deposit (#62-7-0257), becoming visible due to erosion. The site was at the end of an unofficial vehicle access track from the carpark area out to the point. A member of the public notified the police, who consequently requested Feary to confirm the nature of the remains. After examining the visible remains, which included a portion of the cranium and some teeth, Feary (2009:3) concluded that the remains were Aboriginal and likely from the pre-contact era. After consultation with the local Aboriginal community, it was decided that the remains would be left *in situ* and conservation methods would be established to prevent any further damage to the site. The site was covered with a Geotech fabric with rocks and backfill used to completely cover the deposit from view (Feary, 2009:5). The site has known management issues, with the closure of the vehicle track that runs over the eroding section of the site not accepted by locals who continued to remove any means used to block the path (gates and bollards). There was also continued erosion that caused the geofabric to become exposed and the access was used by machinery to keep the lake mouth open when it silted up.

In 2015, Dibden wrote an ACHAR for the application of an AHIP for erosion control and weed removal at the Fairhaven boat ramp on an inlet in the south of Wallaga Lake. These proposed works included foreseeable impact to a shell midden (AHIMS site #62-7-0037) which was already highly eroded. During her survey of the area, Dibden (2015:36) records eight stone artefacts, one milky quartz single-platform core, and seven flake fragments. Only one silcrete fragment was identified, one brown quartzite flaked piece, one of an unidentified raw material, and four milky quartz fragmented flakes (Dibden, 2015:36). Results from the survey conducted indicate a highly disturbed landscape with road construction, recreational activities and general use of the area has left no original topsoil intact, with no stratified portion of the midden deposit remaining *in situ* (Dibden, 2015:34).

Within the Bermagui area, culturally significant sites include burials, stone arrangements, sacred or scarred trees, bunan ground, several midden sites and lithic deposits. Murunna Point, (the location of proposed works including a boardwalk, gravel path and seating), is identified as a sacred place to the Yuin people within the BVSC Wallaga Lake Coastal Zone Management Plan.

### **The Tathra / Kalaru Area (Blackfellow's Lagoon)**

Within the Tathra/Kalaru region there is one proposed works area at Blackfellows Lagoon boat ramp. While there are no records of archaeological investigations within the immediate vicinity, there have been a number of archaeological investigations within the wider region. Within the Tathra/Kalaru region, culturally significant sites include burials, ceremonial sites, scarred or modified trees, lithic deposits, rock shelters, and midden sites.

Evidence of the significance of the Mogareeka-Moon Bay area remains in the form of a Bunan ground, which consists of raised rings of stones used in male initiation ceremonies. A rock shelter with occupation deposits is located nearby (Byrne 1983). Other types of archaeological sites recorded or likely to be present include burials, which are typically found when exposed in aeolian sands. Isolated stone artefacts can occur anywhere in the landscape and may represent the random loss or deliberate discard of artefacts, or the remains of dispersed artefact scatters. Scarred trees may still occur in areas containing vegetation which contains trees of sufficient age.

The suite of archaeological sites recorded in the Tathra River Estate area, about 3 km to the north east of Blackfellows Lagoon includes large artefact scatters, most of which contain subsurface deposits, and a small

shell midden. Such high densities of Aboriginal sites, in particular stone artefacts, reveal a potentially intensive use of resource rich areas. The area at Tathra includes a section of the Bega River and Black Ada Swamp, with sites situated on high ridges and spur crests overlooking these resources. The distribution of sites indicated that Aboriginal people had a preference for such areas for camping and also shows intensive Aboriginal activity in this part of the coast and hinterland (Williams and Barber 1993, 1994).

### **The Merimbula and Pambula Beach Area**

There has been extensive archaeological work undertaken along the south coast generally concentrated around Merimbula, Bournda, Widgeran and Bega. Within this region are two of the proposed works areas; the Merimbula Boardwalk site and Pambula Beach Reserve. The Pambula Beach Reserve proposed works location has been included within this area as it sits at the southern point of Merimbula Bay. In the general vicinity of the proposed works on the Merimbula Boardwalk there have been a number of studies undertaken. The major relevant studies around Merimbula and Pambula Beach are summarised below.

Sullivan conducted survey and excavation on the margins of Pambula and Wagonga Lakes as part of her PhD research. As part of her research into shell middens in the coastal landscape she resurveyed parcels of land and middens that had been originally investigated by Anderson in the late 19th century. Of the middens recorded by Anderson around Wagonga Lake, most had been disturbed and Sullivan estimated that of the material recorded approximately 10% survived at Wagonga Lake and 95% survived at Pambula Lake (Sullivan 1982:165-188). Sullivan also recorded two middens associated with Back Lagoon. Sullivan conducted an excavation in a midden at Pambula Lake that returned a basal date of around 2700 ± 175 BP and with subsequent dates indicating intermittent occupation up to the contact period (Sullivan 1982, p.199).

The vast majority of the shell recovered by Sullivan comprised of estuarine species with lower units being dominated by Mud Oyster, the middle levels being dominated by Hairy Mussel and Mud Oyster and the upper levels being mainly Common Edible Mussel and Hairy Mussel. It was estimated that the midden contained in the order of 36,000 individuals per cubic metre of deposit. Also included in the midden were stone artefacts, bone and ochre. The bone included bird bone, various marsupials and sea mammals although most of the bone was fish bone. Twelve species of fish were identified including Snapper, Bream, Leatherjacket, Wrasse, Nannygai, Mullet, Jewfish, Sergeant Baker, Morwong, Whiting, Rock Cod and Flathead. The stone artefacts included backed pieces in the lower levels, and a change to a quartz dominated assemblage occurred at around 1900 BP (Sullivan 1982, pp.213–237).

In 1982 Hughes conducted an archaeological survey of the proposed Merimbula Waterslide. The study area was 24 hectares of hilly country that comprised the crest and upper slopes of a ridge and a steep drop Merimbula Creek. Hughes used a gradient map and surveyed areas in the 0-10% slope class. He located a single open artefact scatter containing four artefacts (Hughes 1982).

In 1983 Hughes conducted a survey of the Merimbula Heights Estate, a tract of land that fronts the northern shore of Merimbula Lake. He recorded nine sites including eight middens and an artefact scatter. The middens were found in various topographic locations around the foreshore of the lake and varied in nature from discontinuous scattered material to discrete middens with identifiable mounds. Some of the middens covered a large area, up to around 3000 square metres and were composed mainly of estuarine species. The artefact scatter was located along a track and comprised 46 stone artefacts. The lithologies recorded were acid volcanic material (n=36), quartz (n=9) and silcrete (n=1) (Hughes 1983). A number of these sites are in proximity to the current Merimbula boardwalk assessment area.

In 1989 Navin conducted an archaeological assessment of three alternative routes for Princes Highway Merimbula Bypass. The study corridor was 2 km long, approximately 400 metres wide and crossed

Millingandi Creek. Seven archaeological sites were located during this study. Two were located on the north side of Millingandi Creek on ridge spurs, one on the north bank of Millingandi Creek, and four on elevated terraces at the edge of the Millingandi Creek flood plain. All the sites were artefact scatters the largest of which was 21 artefacts found on the edge of a terrace. The material recorded was predominantly quartz, rhyolite and silcrete (as cited in Barber 1998).

In 1997, Purcell surveyed the southern headland of the Pambula River mouth, and associated access tracks to both Barmouth and Shelley Beaches. Four archaeological sites were located and described within this study (Purcell, 1997: Table 5). Three shell middens were recorded, predominantly containing the mud oyster *Ostrea angasi* and gastropod species. Two of these middens were also recorded containing lithic artefacts if quartz, silcrete and rhyolite. Also recorded was one artefact scatter, containing four quartz flakes <7 mm (Purcell, 1997: Table 5).

In 1998 Williams conducted a survey of a 7.2-hectare area of land fronting the northeast section of Back Lagoon to develop the land as a health retreat. He surveyed the area concentrating on the main spur and recorded one Aboriginal artefact scatter. The site consisted of three stone artefacts located on a spur crest over an area of 15 m. All artefacts were flakes made of purple rhyolite (Williams 1998).

In 1998 Barber surveyed Lot 15A, 22 Beach Street Merimbula approximately 1 km east of the current assessment area. The two stone artefacts previously noted in the area were unable to be relocated and no additional stone artefacts were found. Shell material (estuarine and rocky shore shellfish) was identified across the disturbed topsoil of the property however no dense concentrations of shell were found, with the material likely a part of a midden that was extensively disturbed (Barber 1998).

In 2000 Kuskie and Gutierrez conducted a survey of the ten hectare Merimbula Cove property located on the northern shores of Merimbula Lake. A total of six sites were located including middens, an artefact scatter and an isolated stone artefact. The stone artefacts were manufactured from locally available rhyolite and quartz material. The sites were tethered to level to moderate sloping simple slopes and spur crests within 100m of the lake margin (as cited in Dibden 2009).

Oakley (2000) examined a house lot at 16 Main Street Merimbula where shell had been identified. Oakley was not convinced of the Aboriginal origin of the shell, despite it being bleached and of the edible estuarine species, due to the level of disturbance of the area. However, it was noted that there was potential for *in situ* deposits to exist below the imported fill layer.

In 2002 Kuskie surveyed six hectares of the proposed Lakewood residential development on the northern shore of Merimbula Lake. No Aboriginal sites were recorded and this result was explained to be a factor of the steepness of the hill slopes and accordingly the low archaeological potential of the area (as cited in Dibden 2009).

Shell material and artefacts were recovered from excavations undertaken at the Merimbula Public School on Main Street (Wheeler et al. 2003). Excavations and monitoring of ground disturbance found that while there were areas that had been disturbed through topsoil extraction and that fill had been spread across the area to varying depths, intact cultural horizons were still present. Stone artefacts were found wherever the remnant A horizon was still present, and in one area (Area C), shell midden material was also identified. Hundreds of artefacts were recorded from the excavations, with density varying but the results clearly showed despite extensive disturbance of the deposits over the historic period, archaeological material survived relatively intact. In particular, where the A horizon soils consisting of brown to dark grey to black humic silty sands occurred, archaeological material was present.

In 2004 Oakley conducted an assessment of the Carrington Development at Merimbula (on the barrier dune system between Merimbula Lake and the ocean) following the discovery of a midden material during

monitoring works at a development site by Eden LALC representatives. The midden was found to be relatively undisturbed and comprised of estuarine species. Stone artefacts were also recorded. Aboriginal skeletal remains were also subsequently recorded at the site (as cited in Dibden 2009).

In 2005 Kuskie surveyed the proposed Bega Valley Shire Council works at Rotary Park, Merimbula on a bedrock hill above the sand flats of Merimbula Lake. He located 110 stone artefacts and some dispersed midden material. A previously recorded scarred tree was considered to more likely be of natural origin rather than cultural (Kuskie 2005).

In 2005 ERM Australia surveyed approximately four kilometres of proposed pipeline between the Merimbula sewage treatment plant and Oaklands farm and an area proposed for a storage pond at Oaklands. No Aboriginal objects were identified during the survey. The proposal areas were assessed to generally be of low archaeological sensitivity (ERM 2005).

In 2005 Dibden conducted a survey at Millingandi for the redevelopment of a caravan park. The area was located adjacent to Merimbula Lake and included an elevated flat landform and bedrock slopes. A number of stone artefacts were recorded in exposures and a program of subsurface test excavation was undertaken that revealed a high density and consistent distribution of stone artefacts across the entire area (as cited in Dibden 2009).

In 2006, Hughes and Sullivan conducted an archaeological assessment for a proposed upgrade to the Barmouth carpark and walking tracks adjacent to the Pambula River (encompassing the headland to the south of the river mouth). The survey was conducted in three sections, with the raw material, artefact type, and dimensions recorded (Hughes and Sullivan, 2006: Table 4). The first survey section encompassed the ridge crest and had one flaked silcrete piece, as well as two broken quartz flakes. The second section covered the shoulder of the headland, with two broken silcrete flakes, one quartz flake with minimal edge damage, and a broken acid volcanic flake (likely rhyolite) recorded. The final portion of the survey covered the lower slopes, recording only one broken flake of acid volcanic nature (likely rhyolite). Hughes and Sullivan conclude by determining the area a low potential for any subsurface archaeological deposits.

In 2006 Dibden carried out an archaeological investigation of a property on the corner of Beach and Alice Streets, known as Merimbula Plaza (as cited in Ironbark Heritage and Environment 2013, 2014). While excavating for footings as part of a building extension within a courtyard area, shell was noted in one of the trenches. After an inspection by the Department of Environment and Conservation (DEC), Dibden was contracted to undertake an archaeological investigation and assessment. Dibden (2006) identified four layers in the soil profile in trench 1 (2.6 m x 1.45 m x 0.7 m). The upper surface unit consisted of obvious fill material and building debris to a depth of 30-50 mm; a laminated sandy silt layer, most likely imported, containing small round pebbles and a metal knife, to a depth of 180 mm; a grey silty sand containing edible species of shellfish, Sydney cockle (*Anadara*) and mud whelk (*Pyrazus*) with two distinct lenses of shell in the east section, the upper lens crushed and the lower one with mostly whole shell, to a depth of 550 mm; and a mottled yellow and dark brown sand with no other material to the base of the trench at 700 mm (as cited in Ironbark Heritage and Environment 2013, 2014).

Dibden noted that within trench 2, there was a thin layer of recent building debris, underneath which shell was present in both disturbed and apparently undisturbed deposits within the trench. The cockle shell was found to be scattered but within the grey silty sand layer situated close to the top of the profile. Trench 3, the closest trench to Beach Street, contained scattered and isolated pieces of shell in a grey silty layer. Stone artefacts were observed in spoil material that may have come from trench 1 and scattered shell and three stone artefacts were observed in deposits outside the property in exposed ground along a boundary fence. This material was found in a light grey sandy deposit which also contained scattered fragments of cockle shell (as cited in Ironbark Heritage and Environment 2013, 2014).

Dibden subsequently undertook salvage excavation of the site at Merimbula Plaza. Excavations revealed that while the upper levels of the deposit had been disturbed with modern building rubble over an imported fill material, there was intact shell midden and *in situ* stone artefacts present across the site. Midden material consisted mostly of estuarine species such as cockle, mud whelk and rock oyster (*Saccostrea*). All of these species are readily obtainable from Merimbula Lake (as cited in IHE 2013 and 2014). Dibden concluded that despite the previous ground disturbance the site contained substantial areas of deposit with vertical integrity. The site was also considered likely to extend beyond the boundaries of the 15 m x 15 m area of her investigation, in particular to the west and south (as cited in Ironbark Heritage and Environment 2013, 2014).

In 2007, Dibden conducted a subsurface test excavation of Lot 22 Deposited Plan 1090501 on Pambula Beach Road, Pambula. The investigation was undertaken via 15 augur holes which were placed throughout the study area. Out of the 15 augur holes, 14 were found to contain lithic artefacts to a combined total of 246 artefacts (Dibden, 2007: Table 2). While the results indicate a large subsurface deposit, they were not consistent with nine of the augur holes bearing less than 10 artefacts. The average artefact density recorded in this study is 58 artefacts per square metre. Dibden (2007) concludes that the deposit investigated is of a low/moderate archaeological significance.

In 2009 Dibden undertook an Aboriginal archaeological assessment of test bores sites associated with the proposed dune exfiltration project at Merimbula. The study area was situated opposite the Merimbula Airport in the dunes that form the Merimbula Bay Barrier. The area was part of reserve/vacant land to the north of Boyd National Park. No Aboriginal objects were recorded in the proposed impact areas during the field inspection. Dibden noted that the potential for subsurface stone artefacts and shell midden material was considered to be low however the potential for Aboriginal skeletal material and burials in the Merimbula Bay Barrier landform was high (Dibden 2009).

In 2013 Ironbark Heritage and Environment (IHE) undertook a due diligence assessment for the proposed Twyford Hall Theatre Development (Ironbark Heritage and Environment 2013). The development area was located in the north-eastern sector of the existing Twyford Hall allotment at the corner of Market and Beach Streets in Merimbula. It was recommended that prior to any construction activity commencing that the presence and significance of any remnant archaeological deposits should be assessed through a program of subsurface testing.

IHE (2014) subsequently undertook subsurface testing with six test pits excavated. Masonry pavers/bricks were lifted and sections of concrete pathways were cut and removed to provide access to the deposit below. Examination of the deposit supported the broad three-fold deposit profile established by Dibden in 2006 for the adjoining Merimbula Plaza property comprising Group A - Historic and Recent Construction Deposits, Group B – Midden Deposits, Group C – Sub-Midden Soils and Beach Sands. Despite the prior disturbance in the area the subsurface testing program revealed that there were undisturbed stratified deposits with *in situ* cultural material present.

Of the six test pits excavated five contained stone artefacts with a total of 59 flaked artefacts recovered (Ironbark Heritage and Environment 2014). The vertical distribution through the deposit profile shows that artefacts were retrieved from spits associated with Group A and B horizons and spits associated with the mixed subsoil profile transition between group B and C horizons. The highest density of artefacts was retrieved from spits associated with the base of the group B horizon and the mixed transition deposit between Group B and C horizons. Quartz was the dominant material identified in the assemblage. Three of the five test pits contained varying amounts of shell. The shell assemblage retrieved from the excavation comprised overwhelmingly disarticulated shell of species and size that were targeted for consumption by Aboriginal people. Cockle (*Anadara* sp.) and Mud Oyster (*Ostrea*. sp) dominate the shell assemblage and

all shells present are typically identified in Aboriginal middens in the region including the midden excavated on the property adjoining the subject area. The sub surface investigation confirmed that the midden site AHIMS # 62-6-0654 recorded on the adjoining property to the east continues in the sub surface deposits of the Twyford Hall courtyard area. Although no human remains were found during the excavations, the presence of remains could not be discounted, given the previous history of human remains found in Merimbula (Ironbark Heritage and Environment 2014).

Consequently, previous research in the region suggests that archaeological sites in coastal environments are most likely to consist of shell middens and stone artefact scatters. Locations of higher archaeological potential are suggested to be in areas associated with water, with high resource availability, along relatively level elevated ground and on rock ledges in association with the highwater mark. Burials are also known to occur within shell midden deposits in coastal regions. At Merimbula, a number of burials have been recorded, including at a house site on Main Street and at the Carrington development site on the barrier dune system between the ocean and Merimbula Lake. Consequently, there is potential for additional human remains to be located anywhere in the Merimbula area where shell midden and artefact deposits remain. Merimbula Lake and its surrounds have been noted to be an area of intense Aboriginal cultural activity and the remnant cultural material evidence of this occupation holds significance to local Aboriginal people. In particular, high significance is attributed to any human remains.

### **The Eden Area**

Within the Eden area lies the proposed works site for the Quarantine Bay boat ramp. Navin Officer Pty Ltd (2000) conducted a Cultural Heritage Assessment at East Boyd Bay, which is the opposing side of Twofold Bay to the Quarantine Bay boat ramp. Subsurface testing was completed on the proposed site of the Naval Munitions Storage Facility (NMSF), investigating an identified area of potential archaeological deposit. Out of the 27 test pits hand-excavated during the investigation, 24 were recorded containing lithic artefacts to a total of 572 artefacts. This lithic assemblage was categorised by stone material into five geological types; quartz (42% of assemblage); chert (35%); silcrete (19%); quartzite; and ochre. These lithics were largely identified as debitage from primary bipolar flaking of quartz cores and the fashioning of spear barbs, representing standard knapping methods and techniques from this region (Navin Officer, 2000). Navin Officer (2000) conclude that the material evidence is indicative of occasional activity concentrated around the crestline and headland, as opposed to sustained camping.

The Bundian Way, an historic pathway between Mt. Kosciuszko and Fisheries Beach (Twofold Bay) connecting the highest point on this continent with the coast (and associated resources including whaling), was surveyed in 2010-2011 by John Blay and the Eden LALC. This survey has resulted in the route, which is possibly over 40,000 years old, being listed on the NSW State Heritage Register. Stage 7 of the survey covered the area from Bilgalera (Fisheries Beach) up to Eden, describing the area as having 'frequent and very large middens and artefact scatters' (Blay & Eden LALC, 2011). The Bundian Way has been listed on the NSW State Heritage Register as a 'rare surviving ancient pathway used by Aboriginal people over thousands of years linking the high country at Kosciuszko and the coast at Eden' (NSW State Heritage Register listing 01906).

The previous research available from this area indicates that it follows the trend along the south coast of NSW, with predominant site types being midden and artefact deposits.

### **Archaeological Potential within the Proposed Works Areas:**

Based on the presented literary review, the area encompassed by the BVSC along the south coast of NSW predominantly features two site types; middens and lithic artefact scatters. While human remains have been identified within deposits around the region (particularly around the Merimbula area and at Wallaga



Lake), lower numbers of these site types have been recorded. The following site predictions have been made:

### **Middens**

These deposits are predominantly comprised of shell, with some also containing stone artefacts, human remains, and/or bone. They are the most commonly recorded site type within the area, with the location and environment being a determining factor for species variation. Midden sites around lakes will have a dominant composition of estuarine species, while rocky-shore platform species are found in higher concentrations along the coastal and headland contexts.

There is potential for midden sites to occur within the proposed works areas, particularly at Murunna Point/Camel Rock, Merimbula and Pambula Beach.

### **Stone Artefacts**

Stone artefacts can be located on the surface, or within subsurface deposit contexts. The most common raw materials utilised for stone tool manufacture within this region are quartz and silcrete, with evidence of numerous volcanic lithics also identified. Stone artefacts have been widely recorded throughout the region, with Dibden (2009) suggesting it is environmental factors that determine significant density variations evident between deposits. She goes on to suggest that flat land at an elevated height, within approximately 100m of a reliable freshwater source (high order stream), a higher density and complexity can be observed in stone artefact assemblages (Dibden, 2009:19).

The detection of these deposit types is largely dependant on ground surface conditions, with prior ground disturbance, vegetation cover, and sedimentation levels effecting the visibility of archaeological deposit bearing soils. Stone artefact assemblages have been recorded along all landscape features in this region of the south coast, indicating a potential for these site types to occur within the proposed works areas, either as artefact scatters or within midden deposits.

### **Grinding Grooves**

Grinding grooves are created on exposed sandstone rock surfaces, however given the absence of such geological formations within the proposed works areas, it is unlikely that this site type would occur.

### **Burials:**

Aboriginal burial sites have been identified within the region (in particular around the Merimbula area) and at Murunna Point. These site types are generally only visible in disturbed deposits, whether disturbed through natural erosion or human activity. This being the case, the majority of human burials along the south coast area are found in highly disturbed settings and out of archaeological context. While two relatively intact burials have been recorded at Murrarrang (Dibden, 2009) and Wonboyn Beach (Bowdler, 1982), it is rare to locate undisturbed burial sites with an associated archaeological context.

There is potential for burial deposits to occur within the works areas, most likely within a midden context.

### **Rock Shelters:**

These site types occur in a variety of formations, with the common feature being a vertical faced rock profile incorporating a rock overhang. Rock shelters will often contain further archaeological deposits within, including middens, stone artefact scatters, human burials, and rock art.

The proposed works areas are devoid of any appropriate rock features, with no large vertical rock outcrops identified with any outcropping components. Therefore, there is a low potential for these site types to occur within the proposed works areas.

**Scarred or Carved Trees:**

Formed as a result of Aboriginal people removing sections of bark from trees, these site types have been identified within the wider region of the south coast surrounding the proposed works sites. Scars are formed as a result of Aboriginal people removing sections of bark to create a variety of items. These site types have been classified by Dibden (2009) as being more likely to occur on low gradient or flat areas of land, close to either ceremonial or habitation sites.

Generally speaking, the preservation of scarred trees in this area is dependent on their identification and subsequent conservation/protection, however these site types can occur in any environment where trees of a sufficient age are present. The extent to which land within and around these proposed works areas has been cleared by differing factors (for example; bushfires, urban development and general land clearing) indicates a low potential for these site types to occur within the proposed works areas.

**Stone Quarry and Procurement Sites:**

Hiscock & Mitchell (1993:32) describe a stone quarry or procurement site as the location in which a stone source has been exploited. These site types will only occur along rock outcrops of suitable lithic materials and bear evidence of extraction and preliminary flaking. The landscape geology of this region does not provide many rock sources suitable for quarry sites, making them a rare site type to occur. It is highly unlikely for this site type to occur within the proposed works areas.

**Water Hole Sites:**

These site types were used as locations for tool manufacture and maintenance, and a possible source of freshwater (for drinking). These occur in natural hollows which were in some cases enlarged, modified, or linked to a network of hollows within an exposed rock surface using axe heads or similar larger tools. There is an identified water hole within 85 m of the Bermagui Boat Ramp proposed works site, indicating a potential for this site type to occur in the region, however the evidence collected in the desktop review indicates a low potential for a previously un-recorded water hole to be located within the proposed works areas.

**Ceremonial Ground:**

Aboriginal ceremonial places are also known as Bunan grounds. Often meeting places and/or the location of specialised ceremonies (such as initiation ceremonies), these sites reflect the spiritual beliefs of the Aboriginal people using them. Often detected more concisely from aerial imagery, these sites will often feature markings made manually on the ground surface (commonly two connected circles identified by raised earth banks). There are corroboree sites recorded within the Bermagui area, which are often characterised by a singular raised circle in the ground surface. While this site type has been identified within the region, the potential for new or unrecorded sites within the proposed works areas is low.

**Step 2b. Are there undisturbed landscape features likely to contain Aboriginal objects?**

*The Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* outlines a range of landscape features that have higher potential to contain Aboriginal objects. It is also necessary to consider whether there are landscape features of undisturbed land that may contain Aboriginal objects. These include land that is:

- within 200 m of water,
- located within a sand dune system,
- located on a ridge top, ridge line or headland,
- located within 200 m below or above a cliff face, or
- within 20 m of a cave, rock shelter or cave mouth.

As outlined above, Aboriginal heritage sites have been recorded in the district, with two of the proposed works locations including sites within the boundaries. Based upon the initial desktop assessment, using satellite imagery and topographic data, it appears that there is a differing potential for Aboriginal Cultural Heritage to occur across the proposed works areas. The archaeological potential for each work area is summarised in table 21 below.

Table 18. The archaeological potential for each proposed works area as determined through the desktop assessment.

Works Area:	Registered sites within (Y/N)	Archaeological Potential
<b>Murunna Point/Camel Rock</b>	<b>Yes</b>	<b>High</b>
<b>Bruce Steer Pool</b>	<b>No</b>	<b>Low</b>
<b>Bermagui River Boat Ramp</b>	<b>No</b>	<b>Low</b>
<b>Blackfellows Lake Boat Ramp</b>	<b>No</b>	<b>Moderate</b>
<b>Merimbula Boardwalk</b>	<b>Yes</b>	<b>Moderate to high</b>
<b>Pambula Beach Reserve</b>	<b>No</b>	<b>Low to moderate</b>
<b>Quarantine Bay Boat Ramp</b>	<b>No</b>	<b>Low</b>

Based upon the previous archaeological investigations of the area and currently recorded AHIMS sites there is potential for a range of site types, in particular midden deposits (including those containing artefacts and/or burials), artefact scatters, isolated artefacts and burials. Scarred trees, occupation sites, and ceremonial and dreaming sites also have potential to occur within the proposed works areas.

The desktop assessment therefore, indicates that there are landscapes present within the project areas that have the potential to contain Aboriginal sites. The nature of the works being undertaken at these sites will involve significant ground disturbance and it is therefore important that a visual inspection be undertaken.

## 4 IMPACT AVOIDANCE

### **Step 3. Can any AHIMS listed objects, or landscape features be avoided?**

The proposed works areas are situated at multiple water access locations along the south coast of NSW, within the Bega Valley Shire Council. As all of these proposed works areas are within 200 m of water, all landscapes have been identified as sensitive locations for Aboriginal Heritage sites. As such is it unlikely that any of the landforms can be avoided by the proposed works. The desktop assessment alone is not sufficient to conclusively appraise the archaeological potential of the landscape or the location of any sites, the next step in the process, a visual inspection, must be conducted to properly appraise the presence and potential for Aboriginal sites to occur.

## 5 DESKTOP ASSESSMENT AND VISUAL INSPECTION

The assessment process is primarily a desktop exercise, using available information such as the AHIMS search results and relevant archaeological reports that have been previously completed in the area. Visual inspection is also required where undisturbed landscape features are present that may contain sites.

### 5.1 BERMAGUI RIVER BOAT RAMP

The edge of the Bermagui River at this location has largely been impacted through the construction of the existing boat ramp but also through placement of concrete block paving along the edge of the river bank on the eastern side of the ramp (Plate 1) and some rock walling on the western side of the existing ramp. This has reshaped the natural surface of the bank and the grassy area behind it. There is an existing sealed carpark adjacent to the boat ramp with a large (30 m x 30 m) area of bare ground most likely used as a turn-around area or overflow parking (Plate 2) on slightly higher ground to the west.

This exposure provided an excellent opportunity to assess the ground surface and the potential for any Aboriginal cultural material to be present. The area was on a slight rise but consisted of a clayey deposit with rill erosion showing a continual clay substrate. It was sparsely covered in imported gravels and some remnant bitumen possibly indicating it was once sealed. Visibility within this area was excellent at about 75% effective visibility but no stone artefacts or shell material indicating midden was observed. It is not considered likely that subsurface cultural material would be present within the area identified for the boat ramp upgrade or the sealing and formalising of the carparking area.

While the Bermagui waterhole site is only about 80-100m to the south of the proposed boat ramp upgrade, it would not be affected by the proposal. While the location of the proposed works may once have been an ideal location for a campsite with midden and artefacts, it is considered that the disturbance and modification of the area has likely removed any site that may have been present.



Plate 1. View west along edge of river to boat ramp.



Plate 2. View south to large eroded carpark extension.

### 5.2 BRUCE STEER POOL

The Bruce Steer pool area appears to be largely man-made. The natural river bank forms the eastern side of the pool and a breakwater has been constructed northwards from a natural bend in the river bank (Plate 3). There is a small sandy beach, between the rock wall and the natural river bank with the car park constructed on largely reclaimed land behind the rock wall forming the current bank of the eastern side of

the river. The existing toilet block is on top of the approximately 4 m high natural eastern bank, although the construction of the toilet block and the associated concreted path and stairs leading to the pool has greatly disturbed the natural ground surface (Plate 4).

The sandy deposits extending from the car park north to the edge of the pool are not considered to comprise intact natural sand deposits, they appear to be largely made from yellow beach sand and therefore most likely have been imported into this area. The proposal therefore, to construct an all abilities access ramp across the sand to the pool and to modify the carpark to include disabled parking is unlikely to impact of natural ground surfaces and therefore has negligible potential to impact on Aboriginal heritage objects.

The removal of the existing toilet block from the top of the high bank is also unlikely to impact Aboriginal objects as no new construction is proposed, merely removing the existing facility. Construction of the new toilet block and associated picnic amenities on the sand flat is also unlikely to impact Aboriginal heritage sites due to this area mostly being of modern fill material and not *in situ* natural sand. Revegetation of the steep embankment is unlikely to impact on Aboriginal heritage due to the steepness (near vertical) of the bank. Although visibility was poor on the embankment due to existing vegetation, there is unlikely to be objects present. For the same reasons, and due to the previous construction of the existing footpath, construction of new path from the sand flat to the top of the bank is also unlikely to impact on Aboriginal heritage objects.



Plate 3. View north from top of bank to Pool and breakwater.



Plate 4. View south east across sand flat to natural bank showing existing path and toilet block. Note the carpark and sand flat are not natural.

### 5.3 BLACKFELLOWS LAGOON

The proposed road upgrade at the southern end of the access would have very low potential to impact on Aboriginal heritage objects. The road has been cut and benched into the side of a spur to a depth of between 0.2 m and 1 m, thus removing any natural ground surface (Plate 5). The banks of the cutting were inspected to identify if any artefacts were eroding out from the cutting but none were found.

At the ‘dog-leg’ turn in the existing road, the road surface is closer to the natural level but is alongside a shallow creekline, in a depression. This section has also been sheeted with imported material including sand and gravels and no natural ground surface was visible. Either side of the road the vegetation was thick grass and bracken and no ground surface was exposed. It was also noted there was a water pipeline marker on the western side indicating the presence of a buried pipeline.

As the road progresses north, the road splits with an access driveway to the east while the track to the boat ramp continues north along a low gradient side slope, partially cut into the side of a gentle spur. The road gradually rises up towards the crest of the spurline until at the end of the road adjacent to the lagoon, it is essentially on a spur crest. The road is mostly natural surface of a sandy clayey deposit but has been sealed for about 80 m from the lagoon up to the lagoon edge.

At the end of the access road there is a steep but short drop off at the termination of the spur to the lagoon, about 3 m below the spur crest. The road is cut through the natural surface exposing a section of the deposits which reveal a 20-30 cm grey brown loam over a light yellow brown silty clay over a yellow gravelly clay. The edge of the lagoon is low lying and eroded and considered to be disturbed by the sealed road to the waters edge and two loop roads used for turning circles cut in either side of the main access road (Plate 6).

The relatively level spur crest elevated above the lagoon is characteristic of a location used for Aboriginal camping and therefore identified as having archaeological potential although the road construction and cuttings have increased the disturbance of the area. Despite the disturbance, an artefact scatter was located in this area.

The site *Blackfellows Lagoon AFT 1* was a scatter of stone artefacts spread for 120 m from the edge of the drop-off south along the access road. Artefacts were found on the edge of the road cutting near the termination of the spur and also along the unsealed section of the access track (Plate 7). Artefacts were observed in the run-off channels along the edge of the track as well as in the middle of the track (Plate 8). Thirteen artefacts were recorded in detail but the site is estimated to contain about 20 artefacts. It is unlikely that there would be substantial subsurface deposit remaining on the access track but some may exist within the undisturbed spur crest.

Any work to be undertaken on the access road including grading, widening, gravelling or sealing would impact Aboriginal artefacts and an Aboriginal Heritage Impact Permit (AHIP) would be required. If work was restricted to the current width of the track, from cutting to the table drain and bench there is unlikely to be any subsurface deposits present and therefore no testing would be required.



Plate 5. View north along road showing cutting and imported road base.



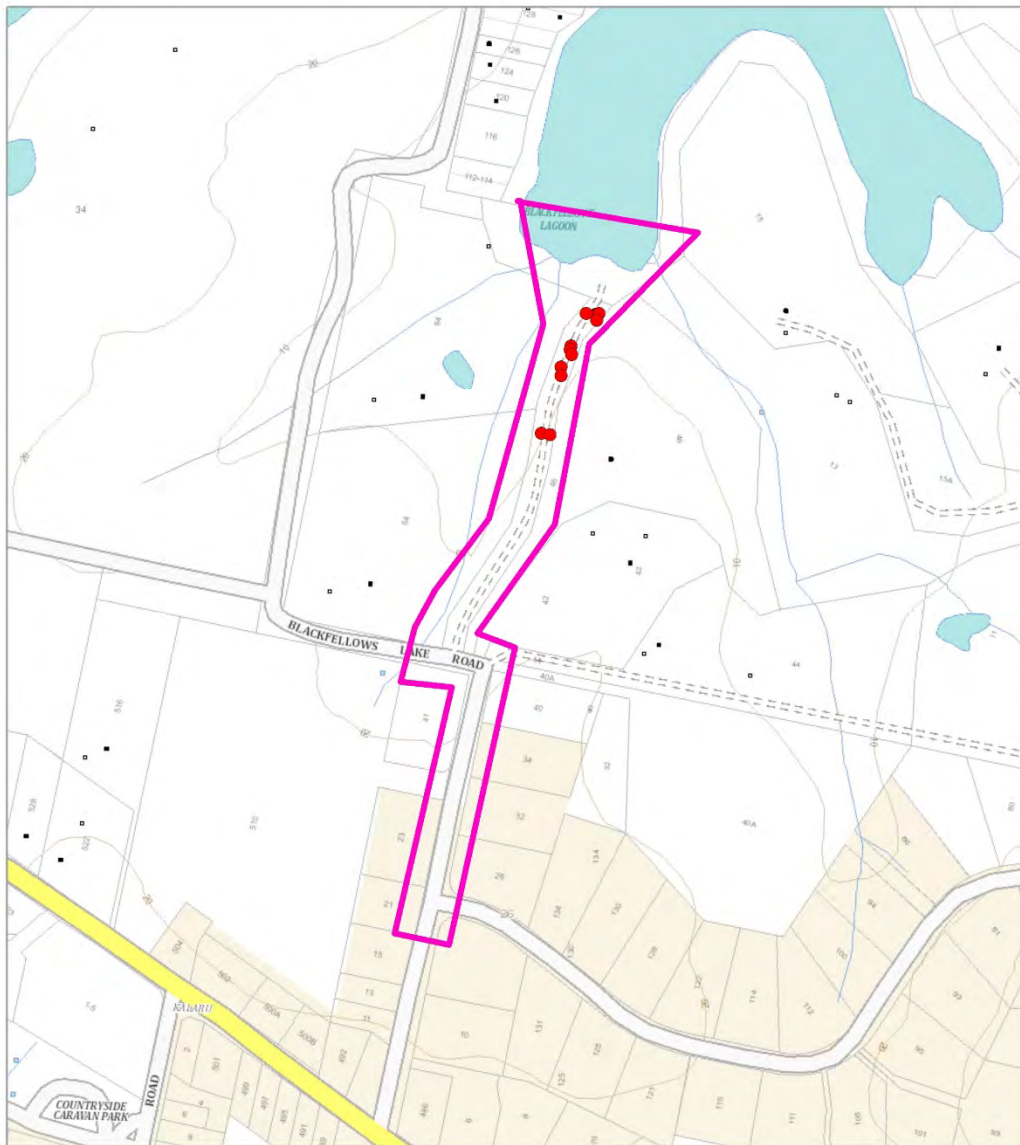
Plate 6. View north to lagoon at end of road.



Plate 7. View south to start of site at range pole on road cutting. Artefacts also present along unsealed section of track in distance.



Plate 8. View south along track, artefacts scattered along track and in erosion channel.



Location of Artefacts

Blackfellows Lagoon

● artefact\_sample  
□ BVSC\_site\_boundaries

Notes:  
- Data collected by nghenvironmental (2018)  
- Client data courtesy of BVSC, received 2018  
- Base map Copyright © Esri and its data suppliers.  
- Datum GDA 94 zone 55

0 50 100 200 Metres

A4 @ 1:5000  
Ref. Blackfellows Results  
Author: M. Barber





## 5.4 PAMBULA BEACH

The location for the proposed road upgrade with the installation of a roundabout at Pambula Beach has been subject to extensive disturbance through the existing road access and associated underground drainage works. The existing road is built up with material likely imported or obtained from the immediate area and has nil archaeological potential (Plate 9).

The carpark has been sealed and the location of the toilet block is clearly on imported reddish gravelly clay. The existing surf club situated in the midst of the open area has been built on a raised sandy pad. The material for the pad appears to be a white sand mostly and the similar colours and textures of the surrounding area suggest the pad material was scraped up from the immediate area. The exposures present provided excellent visibility of up to 80% showing a compacted white to light yellow sandy clay, with some patches of gravels (Plate 10). No artefactual material or midden shell was observed, either in the pad on which the building sits or in the surrounding exposures, including at the edges of the carpark.

The playground and picnic shelter on the southern side of the surf lifesaving club show also a disturbed and likely stripped surface, within a slight hollow of depression. It is not clear if the depression is natural or an outcome of the stripping of material for the building pad. A large stand of conifers has also been planted within the residual flat.

While the location of the proposed work at Pambula would be considered archaeologically sensitive, being in a flat area behind a beach and near a small rocky headland, the apparent degree of disturbance observed and the most likely mechanical removal of the upper deposits to form the raised pad for the surf club building, means that the potential for finding archaeological material is low. There is some potential for residual stone artefacts or shell midden material to be present beneath the present ground surface, but as there was no observable change in the deposits such as dark humic sand and moderate exposures with no stone artefacts, our conclusion is that this is a low possibility.

The proposed works including installation of pedestrian links, children's play spaces and some drainage works are considered unlikely to impact on unrecorded Aboriginal heritage objects.



Plate 9. View west to road intersection showing built up roadway and underground stormwater drainage structures.



Plate 10. View north across existing facilities to club, note some exposures and planted conifers on left.

## 5.5 QUARANTINE BAY BOAT RAMP

An inspection was not carried out at the Quarantine Bay boat ramp location at Murrumbulga Point as the level of modification to the natural headland was considered to be extensive. The proposal to replace the jetties and potentially stabilise some of the existing fish cleaning tables would all be carried out on what is considered to be artificial or reclaimed land. While Aboriginal sites have been recorded on the eastern side of the headland, they have been found in natural, unaltered environment. The western side of the headland containing the boat ramp, jetties and carparking has been modified heavily from its natural state.

A break wall has been constructed from the beach south to the headland and subsequently backfilled and levelled which has enabled a flat area to be sealed and used for carparking and the construction of the jetties and boat ramp. There are no natural ground surfaces present where the works are proposed and therefore there is no potential for the work to encounter Aboriginal heritage objects.

## 5.6 MURUNNA POINT/CAMEL ROCK

The Murunna Point/Camel Rock area has 13 previously identified sites close to the proposed works. The site inspection for the current proposals involved walking the existing track alignment that was to be upgraded. Therefore, not all previously recorded sites were identified as some were outside the proposed work corridor.

Commencing at the Wallaga Heights carpark, the site inspection proceeded along the edge of Wallaga Lake towards the entrance. The proposed alignment is for a boardwalk to be constructed along the edge of the sandy lake shore (see Plate 11). The boardwalk would then turn onto the solid ground forming part of the base of the headland, following an existing pathway rising up to the headland. Previously recorded site 62-7-0268 has been recorded on the shoreline in this vicinity, about 30 m east of this point, extending for 50 m along the shoreline and consisting of a moderately dense scatter of shell and three stone artefacts (Webster and Kuskie 2002). Little evidence of this site was observable during the current survey although some small fragmented pieces of shell were noted.

It should also be noted that in an AHIP granted to BVSC (C0003582) on 1 June 2018, this site was listed as a no harm site and therefore the activities approved by the AHIP for other sites within the BVSC (see below) are not able to impact the site. No clear evidence for the site was observed at the location for the boardwalk meeting the land but some modern oyster shell fragments were observed.

About 140 m from the boardwalk/track junction, upslope on the slope of the headland a small scatter of shell was identified, and two stone artefacts were also found each about a further 50 m further east along the existing walking track. These sites are described below.

### *Murunna Walking Track Midden 1*

A small scatter of mostly *Anadara* shell eroding from the waling track. The site is on a slight bench of lesser slope at the top of the lake cliff line, the surrounding slopes about 5-8 degrees. Soils are a dark grey humic sandy loam and visibility about 40% but much reduced off the track due to leaf litter (Plates 12 and 13). The visible extent of the site is approximately 8 x 3 m but the potential sites area could be much larger. The shell midden is eroded but there are likely to be intact and further midden material either side of the track and there is high potential for subsurface deposits.

### *Murunna Walking Track Isolated Find 1*

About 50 m further north along the track from the midden a quartzite flake was identified on the walking track. The flake measured 20 x 20 x 5 mm had a focal, cortical platform and a feather termination. The flake

was a primary flake with 95% pebble cortex. It was situated in a similar environment to the midden being in a grey sandy humic loam deposit, eroding from the track which had about 50% visibility but with surrounding leaf litter and grass severely restricting further finds. The site is likely to be larger. It was also situated at the top of the cliff line, on a relatively low gradient slope (Plate 14).

#### *Murunna Walking Track Isolated Find 2*

Another 50 m north from IF1, another stone artefact was found. This distal portion of a quartz flake measured 19 x 13 x 5 mm and had a feather termination. The walking track was quite narrow at this location due to encroaching vegetation but the area was level and contained the same grey sandy loam deposit (Plate 15). There is a high potential that additional artefacts would be located in the area and there is high potential for subsurface deposits.

The proposed walking trail upgrade continued out to the location of previously recorded sites 62-7-0257 (Midden, burial and artefacts) and 62-7-0253 (midden and artefacts), on a north facing headland forming the southern bank of the Wallaga Lake entrance. Each of these sites were recorded by Webster and Kuskie (2002) as comprising a number of loci of cultural material. It can be extrapolated from their results that midden material, some eroded but some still likely to be *in situ* exists across the headland and that erosion and disturbances contributed to the exposure of the site. Currently, the area is well revegetated with thick kikuyu grass and visibility was only about 5% thus no further cultural material was observed (Plate 16).

The location of the burial on the steep slope above the rocky headland has been revegetated and sandbags used to prevent further downslope erosion (Plate 17). This has been moderately successful but would need to be continually monitored to ensure the burial is not exposed in the future.

The proposed walking trail turns south and then east to the Murunna Point headland. This section crosses relatively low to moderate gradient slopes and down a spur crest to the headland. Visibility was very poor with thick grass cover but there were areas of level ground at the top of the cliffs and back towards the ridge of high ground forming the headland. All of these areas and across areas of high archaeological potential, although nothing was found during the current inspection. These areas are also relatively undisturbed, with a lack of previous vehicle tracks that led to the erosion that exposed the sites further west on the headland recorded by Webster and Kuskie (Plates 18 and 19).

As the walking trail proceeds southward it enters an area thick with Ti-tree at the top of a very high cliff. This section had mostly low potential due to the rugged and difficult access to the cliffs. Visibility was fair on the foot track at about 50%, with the deposits consisting of a grey sandy loam.

As the path traversed a slight rise on top of the cliff above a very minor rocky protrusion between two beaches, some small amounts of shell were observed eroding from the edge of the path. The shell was highly fragmented but included *Anadara*. Visibility in the immediate areas was very poor with thick vegetation. The site was elevated about 20 m above sea level on a relatively level area on the edge of the cliff. There is high potential that the shell material is an eroding midden, probably small but relatively *in situ*. The shell was exposed in an area of about 7 m along the track (Plates 20 and 21). This site is in the approximate position of locus B of the previously recorded site 62-7-0254 (Webster and Kuskie 2002).

The walking trail continues south and down off the high headland onto a lower slope and across a wide drainage depression. At the base of the slope there is an extensive shell midden.

#### *Murunna Walking Track Midden 2*

A large midden comprising mostly *Anadara* but also some rocky shore species was found on sandy deposits elevated above a creekline/ wetland depression. The extent of the midden is difficult to determine due to thick vegetation, with a number of exposures within an area of 25 x 15 m showing midden material (Plates

22 and 23). Stone artefacts were also observed. The midden is in a foredune context on yellow beach sands but there is high potential for subsurface deposits, although erosion and sand movement may have contributed to disturbance of the midden. The midden material was located immediately east of the walking rail but may extend across the trail and include subsurface deposits.

Previously recorded site 62-7-0255, is about 80 m to the east of the this site but the site description indicates that Murunna Walking Track Midden 2 was not the same site.

The walking trail alignment crosses a small outlet creek from the wetland and then crosses another small *Anadara* midden, previously recorded as site 62-7-0267 (Plate 24). This site contains a small exposure of shell on the southern edge of the drainage line with high potential to be larger and contain subsurface material.

All sites are shown in Figure 9.



Plate 11. View east to point where proposed boardwalk leaves sandy shore to enter headland proper behind the trees.



Plate 12. View south west to Murunna Walking Track Midden 1.



Plate 13. Close up view of midden material eroding from track at Murunna Walking Track Midden 1.



Plate 14. View south to location of Murunna Walking Track IF 1.



Plate 15. View north to location of Murunna Walking Track IF 2.



Plate 16. View north east to headland. Note thick grass cover and low visibility. Webster and Kuskie recorded midden material in this area.

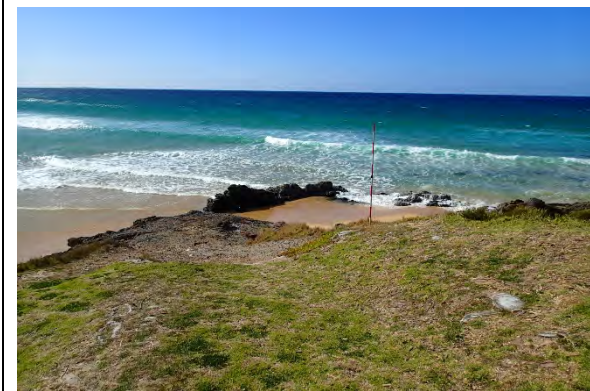


Plate 17. View north east to location of burial (near photographer) and revegetation of exposure.



Plate 18. View north to Murunna Point headland.



Plate 19. View north across level area of proposed path, note poor visibility.



Plate 20. View north to exposure of shell, associated with site 62-7-0254 Locus B.



Plate 21. View of exposure of shell, associated with site 62-7-0254 Locus B.



Plate 22. View west across lower slope to Murunna Walking Track Midden 2 at left of track near range pole.



Plate 23. View of exposure showing midden material of Murunna Walking Track Midden 2.



Plate 24. View north east to location of site 62-7-0267 on edge of walking track at range pole.







Location of Sites

Murunna Point

0 50 100 200 Metres

A4 @ 1:7500  
Ref. Murunna Point Results  
Author: M. Barber

-  Murunna\_artefact
-  Murunna\_Point\_sites
-  Bermagui\_Wallaga\_AHIMS\_GDA
-  BVSC\_site\_boundaries

- Notes:
- Data collected by nghenvironmental ( 2018)
  - Client data courtesy of BVSC, received 2018
  - Base map Copyright © Esri and its data suppliers.
  - Datum GDA 94 zone 56



Figure 10. Location of sites at Murunna Point.

## 5.7 MERIMBULA BOARDWALK

The proposals involve replacement of the wooden sections of the boardwalk which are all elevated above the water and currently there are no proposals for updating the hard paths on land. The BVSC were issued an Aboriginal Heritage Impact Permit (C0003582) on 1 June 2018 to allow harm to a number of sites within proposed work areas managed by BVSC. These include nine sites situated on or close to the Merimbula boardwalk being assessed by the current report. Section D of the AHIP outlines the proposed work on the Merimbula Lake Boardwalk/Track that may impact the sites as:

“Conduct asset renewal, upgrade and/or maintenance work at the existing boardwalk and pathway. Associated carpark upgrade at east end at road/carpark and installation of recreational facilities at the west end”.

The current proposal to upgrade the wooden sections of the boardwalk therefore fits within the permitted impacts by the AHIP.

When conducting the inspection particular attention was made to the location of the sites with the AHIP and how they corresponded to the proposed boardwalk upgrading. Table 20 shows the sites approved for harm in the AHIP issued to BVSC for the Merimbula boardwalk.

Table 19. Sites approved for harm under AHIP C0003582.

Site ID	Site Type	Location
62-6-0783 Merimbula Boardwalk 1	Shell	
62-6-0784 Merimbula Boardwalk 2	Shell	
62-6-0785 Merimbula Boardwalk 3	Shell	
62-6-0782 Merimbula Boardwalk 4	Shell	
62-6-0100 Merimbula Lake 3	Shell	
62-6-0099 Merimbula Lake 4	Shell	
62-6-0135 Merimbula Heights Estate 8	Artefacts and shell	
62-6-0138 Merimbula Heights Estate 11	Shell	
62-6-0139 Merimbula Heights Estate 12	Artefacts and shell	

The survey did not identify any new sites during the field inspection. Midden material was observed eroding from the lake shore at the mapped location of Merimbula Lake 1 (#62-6-0097). This site is not covered by the AHIP but the boardwalk is approximately 5 m from the shore at this location, having been built elevated from the water (Plate 25). It may be reasonably assumed therefore that the proposed upgrade work will not impact the midden.

Shell material was noted eroding from the shore at a minor headland in the lake where the wooden boardwalk across the water meets the land and changes to a concrete pathway (Plate 26). The shell was eroding from the flat above exposed bedrock. The nearest recorded site is Merimbula Heights Estate 8 (#62-6-0135) about 90 m from the exposure of shell observed. However, after checking the site card and the associated map it is clear that the original recording of the site comprised a number of separate shell midden concentrations, including the area observed during this survey. It is concluded therefore that the shell midden material observed is covered by the AHIP.



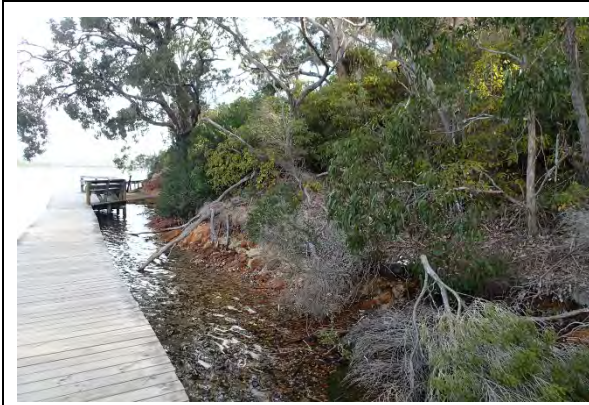


Plate 25. View south west showing shell midden material eroding from the lake shore. This is part of the previously recorded site #62-6-0097.



Plate 26. View west showing shell midden material eroding from the lake shore. This is part of the previously recorded site #62-6-0135.

## 6 FURTHER ASSESSMENT

### ***Step 5. Is further investigation or impact assessment required?***

The Due Diligence Code of Practice states that if, after the desktop research and visual inspection is completed, it is evident that harm will occur to Aboriginal objects or heritage places, then further and more detailed assessment is required. If however, the research and inspection conclude that there are no, or unlikely to be any, objects impacted by the proposed activity, then the activity can proceed with caution.

The following is a summary of the results of the Aboriginal assessment of each of the proposed works areas.

#### **Bermagui River Boat Ramp**

The level of disturbance and modification to the areas of the proposed boat ramp and carpark upgrade are such that it is unlikely that Aboriginal objects would be impacted by the proposed works. Therefore, no further Aboriginal assessment is considered necessary.

#### **Blackfellows Lake Boat Ramp**

An archaeological site containing a scatter of stone artefacts was identified and recorded within the proposed works area, namely on the road leading to the proposed boat ramp. Any work in this area would therefore impact the site. The proposed work cannot proceed unless an AHIP is obtained from OEH. Note that grading of the road is also an impact and an AHIP would be required for maintenance activities.

#### **Quarantine Bay Boat Ramp**

The level of disturbance and the modifications to the area including importation of material to form a reclaimed land surface means that there is negligible potential to impact Aboriginal objects and no further assessment of this proposal is required. Note that any work on the eastern side of the peninsula would require further assessment.

#### **Bruce Steer Pool**

The area of sand extending from the carpark are not considered to be natural and therefore any work in this area is unlikely to impact Aboriginal objects. The proposed works on the steep bank and toilet area are

also unlikely to contain Aboriginal objects. Therefore, no further Aboriginal assessment is considered necessary.

**Pambula Beach Reserve**

It is considered that much of the surface deposit in this area has been removed and used in construction of the building pad for the surf club building. The area for the proposed road upgrade has also undergone considerable disturbance and modification. Therefore, no further Aboriginal assessment is considered necessary.

**Murrunga Point/Camel Rock**

The Murrunga Point/Camel Rock area contains a large number of Aboriginal heritage sites, some recorded from previous studies and new sites recorded as part of the current assessment. The entire headland area may be considered to have high archaeological potential and any work is likely to impact Aboriginal heritage. Any work in this area would require an Aboriginal heritage impact permit. However, it is further noted that the presence of an Aboriginal burial within a midden means that burials are possible in other locations on the headland and especially within sand dune systems. There are also areas of subsurface archaeological deposits, although their true nature and extent have not been determined.

**Merimbula Boardwalk**

While there are a number of previously recorded sites in the vicinity of the boardwalk, BVSC have been issued an AHIP that allows certain activities to occur that may impact these sites, including the upgrade and maintenance of the boardwalk. No new sites were recorded during the current assessment and therefore, the proposed work is unlikely to impact on unrecorded sites and no further Aboriginal heritage assessment is required.

## 7 RECOMMENDATIONS

The following recommendations are based on a number of considerations including:

- Background research into the area;
- Landscape assessment;
- Field inspection;
- Consideration of the proposed works, and
- Legislative context for the development proposal.

The recommendations for Bermagui River Boat Ramp and Bruce Steer Pool are:

1. Works may proceed with caution at each location.
2. Any activity proposed outside of the current assessment area should also be subject to an Aboriginal heritage assessment
3. If any objects are found during construction that are suspected of being Aboriginal in origin, work must stop at that location and OEH notified.

The recommendations for Quarantine Bay boat ramp are:

1. Works may proceed with caution.
2. Any activity proposed outside of the current assessment area should also be subject to an Aboriginal heritage assessment
3. No activity including laydowns or ancillary construction parking and site offices should occur on the eastern side of the peninsula, to avoid previously recorded sites in that area.
4. If any objects are found during construction that are suspected of being Aboriginal in origin, work must stop at that location and OEH notified.

Recommendation for Blackfellows Lagoon road upgrade are:

1. No activity including road upgrades, grading, gravelling or other earthworks can occur within the identified site Blackfellows Lagoon AFT 1 until an Aboriginal Heritage Impact Permit (AHIP) from OEH to impact the site has been granted.
2. To obtain an AHIP, BVSC will require a suitably qualified heritage consultant to undertake an Aboriginal Cultural Heritage Assessment (ACHA) including consultation with the Aboriginal community. The ACHA would need to support the issue of an AHIP and be submitted with an application to OEH.
3. If the proposed work is confined to the existing road disturbance area, no subsurface testing is considered necessary but an AHIP will still be required.

The recommendations for Pambula Beach are:

1. Works may proceed with caution.
2. Any activity proposed outside of the current assessment area should also be subject to an Aboriginal heritage assessment
3. If any objects are found during construction that are suspected of being Aboriginal in origin, work must stop at that location and OEH notified.

Recommendation for Murunna Point/Camel Rock walking trail upgrade are:

1. No ground disturbing activity including importation of gravel or other materials can occur within the proposed work areas without further archaeological assessment.
2. An Aboriginal Heritage Impact Permit (AHIP) from OEH would be required to impact the sites identified.
3. To obtain an AHIP, BVSC will require a suitably qualified heritage consultant to undertake an Aboriginal Cultural Heritage Assessment (ACHA) including consultation with the Aboriginal community in accordance with the OEH *Aboriginal cultural heritage consultation requirements for proponents 2010*. The ACHA would need to support the issue of an AHIP and be submitted with an application to OEH.
4. Subsurface testing may be required for sections of the proposed works to ascertain the presence and significance of archaeological sites.
5. Plans should be amended to realign the walking trail away from the burial and there should be no lookouts, seating or other infrastructure in this area.

Bega Valley Shire Council are reminded that it is an offence under the NSW *National Parks and Wildlife Act 1974* to disturb, damage or destroy an Aboriginal object without a valid Aboriginal Heritage Impact Permit.

## 8 REFERENCES

- AIATSIS. Encyclopaedia of Aboriginal Australia. CD-ROM Version, AIATSIS Library, Canberra. Barber, M 1998, An archaeological Investigation of Lot 15A, 22 Beach Street Merimbula, Far south Coast, NSW, Unpublished Report to the D'Arcy Family.
- Blay, J. & Eden LALC. (2011). *Report on a Survey of The Bundian Way 2010-2011*. Report to Eden Local Aboriginal Land Council.
- Boot, P. 1994. 'Recent Research into the Prehistory of the Hinterland of the South Coast of New South Wales' in Sullivan, M., Brockwell, S., and Webb ,A. (eds) *Archaeology in the North: Proceedings of the 1993 Australian Archaeological Association Conference*. NARU, Darwin.
- Boot, P. 1996a. 'Aspects of Prehistoric Change in the South Coast Hinterland of New South Wales' in *Tempus* 6: 63-79
- Boot, P. 1996b. 'Pleistocene Sites in the South Coast Hinterland of New South Wales' in *Tempus* 6: 275-288
- Boot, P. 2002 *Didthul, Gulaga and Wadbilliga: An archaeological study on the Aboriginals of the New South Wales South Coast hinterland*. Unpublished PhD thesis: The Australian National University: Canberra.
- Byrne, D. 1983. *The Five Forests An Archaeological and Anthropological Investigation*. Report to NSW National Parks and Wildlife Service.
- Dibden, J. 2007. *Lot 22 DP 1090501 Pambula Beach Road Pambula Beach- Subsurface test Excavation*.
- Dibden, J 2009, *Proposed Test Bore Sites Related to a Proposed Dunal Exfiltration Scheme at Merimbula, NSW Aboriginal Archaeological Assessment*, Unpublished report to NGH Environmental.
- Dibden, J. 2015 Fairhaven Boat Ramp, Wallaga Lake, via Bermagui NSW. Aboriginal Cultural Heritage Assessment Report. Report to Bega Valley Shire Council.
- Egloff, B. 1979. *Mumbulla Mountain: An Anthropological and Archaeological Investigation*. Report for Aboriginal and Historical Resources, NSW NPWS.
- Egloff, B. Peterson, N. and Wesson, S. 2005. *Biamanga and Gulaga: Aboriginal Cultural Association with Biamanga and Gulaga National Parks*. NSW Office of the Registrar – Aboriginal Land Rights Act (1983), Surrey Hills - Sydney.
- ERM 2005, *Merimbula Aboriginal Archaeological Assessment*, Unpublished Report to the Bega Valley Sewerage Program.
- Eurobodalla Shire Council. 2015. *Wallaga Lake Aboriginal Cemetery: Caring for the Ancestors. Management Plan 2015 – 2020*. Unpublished report to Eurobodalla Shire Council.
- Feary, S. 2009. An Aboriginal Burial at Murunna Point, NSW Far South Coast.
- Hiscock, P, and Attenbrow, V. 1998. 'Early Holocene backed artefacts from Australia' in *Archaeology in Oceania*. 33(2): 49-62.

- Hiscock, P and Mitchell, P. 1993. *Stone Artefact Quarries and Reduction Sites in Australia: Towards a Type Profile*. AGPS, Canberra.
- Hughes, P 1982, *An Archaeological Survey of the Proposed Merimbula Waterslide Development*. Merimbula, NSW, Unpublished report to Sinclair Knight and Partners Pty Ltd.
- Hughes, P 1983, *An Archaeological Survey of Stage 2 of the proposed Developments of Merimbula Heights Estate Area, Merimbula, NSW*, Unpublished report to Sinclair Knight & Partners Pty Ltd.
- Hughes, P. and Sullivan, M 2006. *Further Archaeological Assessment of the Proposed Upgrading of the Carparks and Beach Access Tack at Barmouth, Ben Boyd National Park, Far South Coast, NSW*. Report to Department of Environment and Conservation, Parks and Wildlife Division.
- Hunt, P. 1992. *Movement and Landscape: An Examination of Aboriginal Movement in Forested Environments*. Unpublished BA Hons Thesis, Dept of Archaeology and Anthropology, ANU.
- Howitt, A W. 1996. *The Native Tribes of South-East Australia*, Aboriginal Studies Press, Canberra.
- Ironbark Heritage and Environment 2013, *A Cultural Heritage Due Diligence Assessment for the proposed Twyford Hall Theatre Development, Merimbula, NSW*, Unpublished Report to Michael Marshman and Associates (MMA).
- Ironbark Heritage and Environment 2014, *Aboriginal Cultural Heritage Assessment (stage 2) Subsurface Test Excavation Twyford Hall Theater Development Merimbula, NSW*, Unpublished Report to Michael Marshman and Associates (MMA).
- Knight, T. 1996. *The Batemans Bay Forests Project: Site Distribution Analysis*. Unpublished Report, Dept of Archaeology and Anthropology, ANU.
- Kuskie, P 2005, *An Aboriginal Heritage Assessment of Proposed Bega Valley Shire Council Works at Rotary Park, Merimbula, Far South Coast of New South Wales*, Unpublished Report to Bega Valley Shire Council.
- Lampert, R.J. 1971. *Burrill Lake and Currarong: Coastal Sites in Southern New South Wales*. Terra Australis No 1. Canberra.
- Navin Officer Heritage Consultants. 2000. *Proposed Multi Purpose Wharf, Commercial Facility and Navy Ammunitioning Facility, Twofold Bay, NSW. Further Cultural Heritage Assessment at East Boyd including Aboriginal, Historic and Maritime Components*. Unpublished report to URSCorp.
- Oakley, B 2000, *Indigenous Heritage Assessment, 16 Main Street Merimbula, NSW, Bega Shire Council DA 99.1971*, Unpublished Report to Judy Hori.
- OEH 2010, *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales*,.
- Peter Spurway & Associates Pty Ltd. 2006. *Wallaga Lake Coastal Zone (Estuary) Management Plan*, Unpublished report to Bega Valley and Eurobodalla Shire Councils.
- Purcell, R. 1997. *An archaeological survey of the proposed upgrading development of Barmouth and Shelley Beach access tracks, Haycocks Point, Ben Boyd National Park*. Unpublished report to National Parks & Wildlife Service, Merimbula.

- Sullivan, H. 1982. *Aboriginal Usage of the Forest Environment: an Ethnohistorical Study of the South Coast of NSW*. Report to Aboriginal and Historic Resources Section, NSW NPWS.
- Tindale, NB 1974, *Aboriginal tribes of Australia: their terrain, environmental controls, distribution, limits, and proper names*, ANU Press, Canberra.
- Treloar, M. 1985. *Topographical Analysis of Aboriginal Sites of the New South Wales South Coastal Hinterlands*. Unpublished BA Hons Thesis, Dept of Archaeology and Anthropology, ANU.
- Webster, V. and Kuskie, P. 2002 *An Archaeological Assessment of a Proposed Car Park and Walking Trails at Murunna Point, Far South Coast of New South Wales*. Report to Bega Valley Shire Council.
- Wheeler, J, Wright, R, Douglas, P, Wilson, P, Tuck, D & Steele, D 2003, *Aboriginal Archaeological Test Excavation Report & Development Impact Mitigation Plan for Proposed Re-Development of Merimbula Public School, Merimbula, NSW*, Unpublished Report to NSW Departments of Education and Commerce.
- Williams, D 1998, *An Archaeological Survey of a Proposed Health Retreat near Merimbula, far South Coast, NSW*, Unpublished Report to Kos Health Retreats Pty Ltd.
- Williams, D. 2016. *Aboriginal Cultural Heritage Assessment Report: 670 Congo Road, Congo South Coast NSW*. Report to Patrick Dunn and Tina Smith.
- Williams, D and Barber, M. 1993 *Tathra River Estate: An Archaeological Review*. Report to Crowther and Sadler Pty Ltd.
- Williams, D and Barber, M. 1994 *Subsurface Probing of Archaeological Sites within Stage 2 of Tathra River Estate, NSW*. Report to Crowther and Sadler Pty Ltd.

Merimbula Boardwalk Approved AHIP (cooo3582)



## APPENDIX C THREATENED SPECIES EVALUATIONS

The tables below evaluate the potential for threatened species, ecological communities and endangered populations that are known to occur within a 10 km radius surrounding the study area which may be affected by the works. Candidate species and communities for evaluation were determined on August 2018 using the following online database search tools:

- NSW OEH Bionet Atlas database for species, populations and communities listed under the NSW *Biodiversity Conservation Act 2016* (BC Act) and Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act);
- NSW Department of Primary Industries DPI Fisheries Threatened Species website for species and communities listed under the *Fisheries Management Act 1994* (FM Act); and
- Commonwealth EPBC Act *Protected Matters Search Tool* and SPRAT database for threatened species and communities listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

The likelihood of occurrence is based on presence of habitat, proximity of nearest records and mobility of the species. The assessment of potential impact is based on the nature of the proposal, the ecology and sensitivity of the species and its likelihood of occurrence. The evaluation table includes key ecological information about the threatened entity and how the proposal may impact on it.

The following categories and terms are used:

### **Presence of habitat:**

- Present: Potential or known habitat present in the study area
- Absent: No potential or known habitat present in the study area
- Marginal: Some habitat elements present in the study area, potential affected by site disturbance factors or distant from known distribution range

### **Likelihood of occurrence**

- Unlikely: Species known or predicted within the locality but unlikely to occur in the study area based on habitat quality and/or field investigations
- Possible: Species could occur in the study area based on habitat and distribution range
- Present: Species was recorded during the field investigations, or previous records exist for the study area

### **Possibility of impact**

- No: The proposal would not adversely impact this species or its habitats. No Assessment of Significance (AOS) is necessary
- Yes: The proposal could adversely impact this species or its habitats. An AOS may be required.

The distribution and habitat information used in the evaluation has been sourced from species profiles in the online OEH threatened species database, Commonwealth Species Profiles and Threats database (SPRAT) or relevant listing determinations unless otherwise stated.

### **Acronyms and abbreviations**

<b>BC Act</b>	NSW <i>Biodiversity Conservation Act 2016</i>
<b>EPBC Act</b>	Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i>
<b>FM Act</b>	NSW <i>Fisheries Management Act 1994</i>
<b>CE</b>	Listed as Critically Endangered (species or ecological community)
<b>E</b>	Listed as Endangered
<b>P</b>	Listed as Priority Species
<b>V</b>	Listed as Vulnerable

## C.1 EVALUATION OF THE LIKELIHOOD AND EXTENT OF IMPACT ON TECS AND THREATENED FLORA SPECIES

Threatened Ecological Community	BC Act	EPBC Act	Presence of habitat	Likelihood of occurrence	Potential for impact
<b>Ecological Communities</b>					
Araluen Scarp Grassy Forest in the South East Corner Bioregion	E		Absent	None	No
Bangalay Sand Forest of the Sydney Basin and South East Corner bioregions	E		Absent	None	No
Brogo Wet Vine Forest in the South East Corner Bioregion	E		Absent	None	No
Coastal Saltmarsh in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	E	V	Absent	None	No
Coastal Swamp Oak ( <i>Casuarina glauca</i> ) Forest of New South Wales and South East Queensland ecological community		E	Absent	None	No
Dry Rainforest of the South East Forests in the South East Corner Bioregion	E		Absent	None	No
Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	E		Absent	None	No
Illawarra and south coast lowland forest and woodland ecological community		CE	Absent	None	No
Littoral Rainforest and Coastal Vine Thickets of Eastern Australia	E	CE	Absent	None	No
Lowland Grassy Woodland in the South East Corner Bioregion	E	CE	Absent	None	No
Montane Peatlands and Swamps of the New England Tableland, NSW North Coast, Sydney Basin, South East Corner, South Eastern Highlands and Australian Alps bioregions	E	E	Absent	None	No
River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	E		Absent	None	No
Subtropical and Temperate Coastal Saltmarsh		V	Absent	None	No
Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	E		Absent	None	No
Tablelands Snow Gum, Black Sallee, Candlebark and Ribbon Gum Grassy Woodland in the South Eastern Highlands, Sydney Basin, South East Corner and NSW South Western Slopes Bioregions	E		Absent	None	No

Threatened Ecological Community	BC Act	EPBC Act	Presence of habitat	Likelihood of occurrence	Potential for impact
Themeda grassland on seacliffs and coastal headlands in the NSW North Coast, Sydney Basin and South East Corner Bioregions			Absent	None	No

Common Name	Species Name	BC Act	EPBC Act	Presence of Habitat	Likelihood of Occurrence	Potential for Impact
<b>Flora</b>						
Australian Saltgrass	<i>Distichlis distichophylla</i>	E		Absent	None	No
Bodalla Pomaderris	<i>Pomaderris bodalla</i>	V		Absent	None	No
Chef's Cap Correa	<i>Correa baeuerlenii</i>	V	V	Absent	None	No
Matted Bush-pea	<i>Pultenaea pedunculata</i>	E		Absent	None	No
Narrow-leafed	<i>Wilsonia backhousei</i>	V		Absent	None	No
Square Raspwort	<i>Haloragis exalata subsp. exalata</i>	V	V	Absent	None	No
Tall Knotweed	<i>Persicaria elatior</i>	V	V	Absent	None	No

## C.2 EVALUATION OF THE LIKELIHOOD AND EXTENT OF IMPACT ON THREATENED FAUNA

Common Name	Species Name	BC Act / FM Act	EPBC Act	Presence of Habitat	Likelihood of Occurrence	Potential for Impact
<b>Aves - Diurnal</b>						
Australian Painted Snipe	<i>Rostratula australis</i>	E	V, M	Absent	None	No
Australasian Bittern	<i>Botaurus poiciloptilus</i>	E	E	Absent	None	No
Barking Owl	<i>Ninox connivens</i>	V		Absent	None	No
Brown Treecreeper (eastern subspecies)	<i>Climacteris picumnus victoriae</i>	V		Absent	None	No
Bush Stone-curlew	<i>Burhinus grallarius</i>	E		Absent	None	No
Dusky Woodswallow	<i>Artamus cyanopterus cyanopterus</i>	V		Absent	None	No
Eastern Bristlebird	<i>Dasyornis brachypterus</i>	E	E	Absent	None	No
Eastern Ground Parrot	<i>Pezoporus wallicus wallicus</i>	V		Absent	None	No
Flame Robin	<i>Petroica phoenicea</i>	V		Absent	None	No
Gang-gang Cockatoo	<i>Callocephalon fimbriatum</i>	V		Absent	None	No
Glossy Black-Cockatoo	<i>Calyptorhynchus lathami</i>	V		Absent	None	No
Little Eagle	<i>Hieraaetus morphnoides</i>	V		Marginal	Unlikely	No - Could fly over works area on occasion while passing through area. Foraging habitat is limited and type of works would not impact this arboreal species.
Little Lorikeet	<i>Glossopsitta pusilla</i>	V		Absent	None	No
Masked Owl	<i>Tyto novaehollandiae</i>	V		Absent	None	No
Orange-bellied Parrot	<i>Neophema chrysogaster</i>	CE	CE, M	Absent	None	No

Common Name	Species Name	BC Act / FM Act	EPBC Act	Presence of Habitat	Likelihood of Occurrence	Potential for Impact
Painted Honeyeater	<i>Grantiella picta</i>	V	V	Absent	None	No
Powerful Owl	<i>Ninox strenua</i>	V		Absent	None	No
Regent Honeyeater	<i>Anthochaera phrygia</i>	E	CE	Absent	None	No
Scarlet Robin	<i>Petroica boodang</i>	V		Absent	None	No
Sooty Owl	<i>Tyto tenebricosa</i>	V		Absent	None	No
Spotted Harrier	<i>Circus assimilis</i>	V		Absent	None	No
Square-tailed Kite	<i>Lophoictinia isura</i>	V		Marginal	Unlikely	No - Could fly over works area on occasion while passing through area. Foraging habitat is limited and type of works would not impact this arboreal species.
Swift Parrot	<i>Lathamus discolor</i>	E	CE	Absent	None	No
Varied Sittella	<i>Daphoenositta chrysoptera</i>	V		Absent	None	No
White-fronted Chat	<i>Epthianura albifrons</i>	V		Absent	None	No
<b>Aves - shorebirds/waders</b>						
Bar-tailed Godwit	<i>Limosa lapponica baueri</i>		M	Marginal	<b>Possible</b>	No - species forages within seagrass and sandflats which are present in the locality, but largely absent from the works area and the species is not expected to occur on a regular basis.
Black-tailed Godwit	<i>Limosa limosa</i>	V		Marginal	<b>Possible</b>	No - species forages within seagrass and sandflats which are present in the locality, but largely absent from the works area and the species is not expected to occur on a regular basis.
Curlew Sandpiper	<i>Calidris ferruginea</i>	E	CE,	Marginal	<b>Possible</b>	No - species forages within seagrass and sandflats which are present in the locality, but largely absent from the works area and the species is not expected to occur on a regular basis.
Eastern Curlew	<i>Numenius madagascariensis</i>		CE	Marginal	<b>Possible</b>	No - species forages within seagrass and sandflats which are present in the locality, but largely absent

Common Name	Species Name	BC Act / FM Act	EPBC Act	Presence of Habitat	Likelihood of Occurrence	Potential for Impact
						from the works area and the species is not expected to occur on a regular basis.
Fairy Prion (southern)	<i>Pachyptila turtur subantarctica</i>		V	Absent	None	No
Hooded Plover	<i>Thinornis rubricollis</i>	E	V	Marginal	Unlikely	No - works area lacks larger sandy areas used for nest sites
Little Tern	<i>Sternula albifrons</i>	E		Marginal	<b>Possible</b>	No - species forages within shallow estuarine waters and coasts but habitat in the works area is highly degraded and not expected to occur there on a regular basis, but could occur elsewhere in the locality.
Northern Siberian Bar-tailed Godwit	<i>Limosa lapponica menzbieri</i>		CE	Marginal	Unlikely	No - usually inhabits larger expanses of mudflats and sandy beaches.
Pied Oystercatcher	<i>Haematopus longirostris</i>	E		Marginal	<b>Possible</b>	No - species forages within shallow estuarine waters and coasts but habitat in the works area is highly degraded and not expected to occur there on a regular basis, but could occur elsewhere in the locality.
Red Knot	<i>Calidris canutus</i>		E	Marginal	Unlikely	No - usually inhabits larger expanses of mudflats and sandy beaches.
Sooty Oystercatcher	<i>Haematopus fuliginosus</i>	V		Marginal	Unlikely	No - favours rock headlands and exposed rock at low tides for foraging. Preferred habitat is not available within the works area.
<b>Aves - Marine</b>						
Australian Fairy Tern	<i>Sternula nereis nereis</i>		V	Absent	None	No
Antipodean Albatross	<i>Diomedea antipodensis</i>	V	V	Absent	None	No
Black-browed Albatross	<i>Thalassarche melanophris</i>	V	V, M	Absent	None	No
Buller's Albatross	<i>Thalassarche bulleri</i>		V, M	Absent	None	No

Common Name	Species Name	BC Act / FM Act	EPBC Act	Presence of Habitat	Likelihood of Occurrence	Potential for Impact
Campbell Albatross	<i>Thalassarche impavida</i>		V, M	Absent	None	No
Chatham Albatross	<i>Thalassarche eremita</i>		E, M	Absent	None	No
Comb-crested Jacana	<i>Irediparra gallinacea</i>	V		Absent	None	No
Eastern Osprey	<i>Pandion cristatus</i>	V		Absent	None	No
Gibson's Albatross	<i>Diomedea gibsoni</i>	V	V	Absent	None	No
Gould's Petrel	<i>Pterodroma leucoptera leucoptera</i>	V	E	Absent	None	No
Northern Buller's Albatross	<i>Thalassarche bulleri platei</i>		V, M	Absent	None	No
Northern Giant-Petrel	<i>Macronectes halli</i>	V	V	Absent	None	No
Northern Royal Albatross	<i>Diomedea sanfordi</i>		E, M	Absent	None	No
Providence Petrel	<i>Pterodroma solandri</i>	V		Absent	None	No
Salvin's Albatross	<i>Thalassarche salvini</i>		V, M	Absent	None	No
Shy Albatross	<i>Thalassarche cauta</i>	V	V	Absent	None	No
Sooty Albatross	<i>Phoebastria fusca</i>	V	V, M	Absent	None	No
Southern Giant Petrel	<i>Macronectes giganteus</i>	E	E	Absent	None	No
Southern Royal Albatross	<i>Diomedea epomophora</i>		V, M	Absent	None	No
Wandering Albatross	<i>Diomedea exulans</i>	E	E	Absent	None	No
White-bellied Sea-Eagle	<i>Haliaeetus leucogaster</i>	V		Present	Possible	No - Could fly over works area on occasion while passing through area. Works would not impact this arboreal species.
White-bellied Storm-Petrel	<i>Fregetta grallaria grallaria</i>		V	Absent	None	No



Common Name	Species Name	BC Act / FM Act	EPBC Act	Presence of Habitat	Likelihood of Occurrence	Potential for Impact
White-capped Albatross	<i>Thalassarche cauta steadi</i>		V, M	Absent	None	No
<b>Terrestrial Mammals</b>						
Brush-tailed Phascogale	<i>Phascogale tapoatafa</i>	V		Absent	None	No
Brush-tailed Rock-wallaby	<i>Petrogale penicillata</i>	E	V	Absent	None	No
Eastern Pygmy-possum	<i>Cercartetus nanus</i>	V		Absent	None	No
Koala	<i>Phascolarctos cinereus</i>	V	V	Absent	None	No
Long-nosed Potoroo	<i>Potorous tridactylus</i>	V	V	Absent	None	No
Smoky Mouse	<i>Pseudomys fumeus</i>	CE	E	Absent	None	No
Southern Brown Bandicoot (eastern)	<i>Isoodon obesulus obesulus</i>	V		Absent	None	No
Spot-tailed Quoll	<i>Dasyurus maculatus maculatus (SE mainland population)</i>	V	E	Absent	None	No
<b>Microbats / Gliders</b>						
Eastern Bentwing-bat	<i>Miniopterus schreibersii oceanensis</i>	V		Marginal	Unlikely	No - Could fly over works area on occasion while passing through area. Foraging habitat is limited and type of works would not impact this arboreal species.
Eastern False Pipistrelle	<i>Falsistrellus tasmaniensis</i>	V		Marginal	Unlikely	No - Could fly over works area on occasion while passing through area. Foraging habitat is limited and type of works would not impact this arboreal species.
Greater Broad-nosed Bat	<i>Scoteanax rueppellii</i>	V		Marginal	Unlikely	No - Could fly over works area on occasion while passing through area. Foraging habitat is limited

Common Name	Species Name	BC Act / FM Act	EPBC Act	Presence of Habitat	Likelihood of Occurrence	Potential for Impact
						and type of works would not impact this arboreal species.
Greater Glider	<i>Petauroides volans</i>		V	Absent	None	No
Grey-headed Flying-fox	<i>Pteropus poliocephalus</i>	V	V	Absent	None	No
Large-eared Pied Bat	<i>Chalinolobus dwyeri</i>	V	V	Marginal	Unlikely	No - Could fly over works area on occasion while passing through area. Foraging habitat is limited and type of works would not impact this arboreal species.
Yellow-bellied Glider	<i>Petaurus australis</i>	V		Absent	None	No
Southern Myotis	<i>Myotis macropus</i>	V		Marginal	Unlikely	No - Could fly over works area on occasion while passing through area. Foraging habitat is limited and type of works would not impact this arboreal species.
<b>Marine Mammals</b>						
Blue Whale	<i>Balaenoptera musculus</i>	E	E	Absent	None	No
Fin Whale	<i>Balaenoptera physalus</i>		V	Absent	None	No
Humpback Whale	<i>Megaptera novaeangliae</i>	V	V	Absent	None	No
New Zealand Fur-seal	<i>Arctocephalus forsteri</i>	V	M	Absent	None	No
Sei Whale	<i>Balaenoptera borealis</i>		V	Absent	None	No
Southern Right Whale	<i>Eubalaena australis</i>	E	E	Absent	None	No
<b>Fish</b>						
Australian Grayling	<i>Prototroctes maraena</i>	E	V	Marginal	Unlikely	No - Can inhabit estuarine waters and coastal seas as juveniles and freshwater rivers as adults. Most of the lifecycle is spent in freshwater rivers in cool clear waters with gravel substrate and pools. This habitat type is not available within the works areas.

Common Name	Species Name	BC Act / FM Act	EPBC Act	Presence of Habitat	Likelihood of Occurrence	Potential for Impact
Black Rockcod	<i>Epinephelus daemeli</i>	V	V	Marginal	Unlikely	No - Adults live in rocky reefs and juveniles prefer rock pools or rocky intertidal areas which do not occur within the works area.
Great White Shark	<i>Carcharodon carcharias</i>		V	Absent	None	No
Grey Nurse Shark	<i>Carcharias taurus (east coast population)</i>	CE	CE	Absent	None	No
Sandtiger Shark	<i>Odontaspis ferox</i>	P		Absent	None	No
Syngnathiadae Family (Pipefish, Pipehorse, Seahorse, Seadragon)		P		Marginal	<b>Possible</b>	No - These species are not listed as threatened, rather priority species but have been included in the assessment as a precautionary measure. Seagrass may provide habitat for these species but there are no adverse impacts expected to these species as the impact to seagrass is minor and does not fragment large patches of seagrass. If the species occur they are expected to occur in the larger patches of seagrass.
Southern Bluefin Tuna	<i>Thunnus maccoyi</i>	E		Absent	None	No
Whale Shark	<i>Rhincodon typus</i>		V	Absent	None	No
<b>Turtles</b>						
Flatback Turtle	<i>Natator depressus</i>		V	Marginal	Unlikely	No – Largely a marine species and unlikely to occur within works area.
Green Turtle	<i>Chelonia mydas</i>	V	V	Absent	None	No
Hawksbill Turtle	<i>Eretmochelys imbricata</i>		V	Absent	None	No
Leatherback Turtle	<i>Dermochelys coriacea</i>	E	E	Absent	None	No
Loggerhead Turtle	<i>Caretta caretta</i>	E	E	Absent	None	No
<b>Frogs</b>						
Giant Burrowing Frog	<i>Heleioporus australiacus</i>	V	V	Absent	None	No

Common Name	Species Name	BC Act / FM Act	EPBC Act	Presence of Habitat	Likelihood of Occurrence	Potential for Impact
Green and Golden Bell Frog	<i>Litoria aurea</i>	E	V	Absent	None	No
Littlejohn's Tree Frog	<i>Litoria littlejohni</i>	V		Absent	None	No

## APPENDIX D CLAUSE 228 CHECKLIST

A checklist of factors that should be considered in the assessment of impacts prior to its determination is included within Clause 228 of the *Environmental Planning and Assessment Regulation 2000*. This clause identifies sixteen issues that need to be addressed. The following text provides summary details of each of the issues, the majority of which have been addressed within the body of this document.

Factor	Impact
<p>a. <b>Any environmental impact on a community?</b>                      The works are located within public reserves of Bermagui. There would be some minor and temporary impacts on the community through amenity and traffic impacts. These impacts have been assessed in Section 5. Positive impacts would be achieved for the community through improved facilities.</p>	Short term negative Long term positive
<p>b. <b>Any transformation of a locality?</b>                      The proposed works would not transform the locality. The proposal site is an existing public reserve with facilities. These would be just upgraded.</p>	Nil
<p>c. <b>Any environmental impact on the ecosystems of the locality?</b>                      There is potential for impacts to local ecosystems, as discussed in Section 5.4. Safeguards have been recommended to manage risks.</p>	Short term negative
<p>d. <b>Any reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality?</b>                      Construction impacts would be temporary and would not result in long term adverse effects to aesthetics, recreational, scientific, or environmental quality. Improved access is considered a positive community impact.</p>	Short term negative Long term positive
<p>e. <b>Any effect on a locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present or future generations?</b>                      Heritage impacts are investigated in Sections 5.9 and 5.10. The proposed works are unlikely to impact on any heritage items. Mitigation measures are recommended.</p>	Nil
<p>f. <b>Any impact on the habitat of protected fauna (within the meaning of the <i>Biodiversity Conservation Act 2016</i>)?</b>                      There is potential for impacts to threatened entities, as discussed in Section 5.4. Safeguards have been recommended to manage potential impacts</p>	Short term negative
<p>g. <b>Any endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air?</b>                      There is potential for impacts to threatened entities, as discussed in Section 5.4. Safeguards have been recommended to manage potential impacts</p>	Short term negative
<p>h. <b>Any long-term effects on the environment?</b>                      The proposed works would have no adverse long-term effect on the environment.</p>	Nil
<p>i. <b>Any degradation of the quality of the environment?</b>                      The proposed works would potentially degrade the quality of the environment in the short-term until the site is stabilised, however the potential impacts would be minimised with the implementation of the safeguards of this REF.</p>	Short term negative

Factor	Impact
<p>j.       <b>Any risk to the safety of the environment?</b>  Machinery pose a safety hazard to pedestrians, cyclists and vehicles within the area but measures such as fencing or signage would be implemented to minimise this risk during construction. The proposed works would not have any risks to the safety of the environment in the long term.</p>	Short term negative
<p>k.       <b>Any reduction in the range of beneficial uses of the environment?</b>  There may be some inconvenience and altered traffic and access conditions temporarily during works. Ongoing impacts would not result.</p>	Short term negative
<p>l.       <b>Any pollution of the environment?</b>  The proposed works could generate pollution risks for soils and water during construction works. These risks would be confined to the construction phase, and are manageable with implementation of the safeguards outlined in Section 5 which include monitoring until stable land surfaces are obtained.</p>	Short term negative
<p>m.       <b>Any environmental problems associated with the disposal of waste?</b>  Section 5 discusses the waste products associated with the proposal. Specific protocols are set out to manage waste and waste disposal.</p>	Nil
<p>n.       <b>Any increased demands on resources (natural or otherwise) that are, or are likely to become, in short supply?</b>  The proposal does not require resources that are in short supply.</p>	Nil
<p>o.       <b>Any cumulative environmental effect with other existing or likely future activities?</b>  The cumulative impacts of the proposal are discussed in Section 5. The proposal may contribute to an accumulation of amenity and traffic impacts, however the effects of this would be minimal due to the temporary nature of the works.</p>	Short term negative
<p>p.       <b>Any impact on coastal processes and coastal hazards, including those under projected climate change conditions?</b>  Investigation and management of acid sulfate soils is recommended. Design measures are recommended based on projected storm tide events.</p>	Short term negative Long term negative

## **APPENDIX E BACKGROUND SEARCHES**

[Home](#) [Contaminated land](#) [Record of notices](#)

## Search results

Your search for: LGA: Bega Valley Shire Council

did not find any records in our database.

If a site does not appear on the record it may still be affected by contamination. For example:

- Contamination may be present but the site has not been regulated by the EPA under the Contaminated Land Management Act 1997 or the Environmentally Hazardous Chemicals Act 1985.
- The EPA may be regulating contamination at the site through a licence or notice under the Protection of the Environment Operations Act 1997 (POEO Act).
- Contamination at the site may be being managed under the [planning process](#).

More information about particular sites may be available from:

- The [POEO public register](#)
- The appropriate planning authority: for example, on a planning certificate issued by the local council under [section 149 of the Environmental Planning and Assessment Act](#).

See [What's in the record and What's not in the record](#).

If you want to know whether a specific site has been the subject of notices issued by the EPA under the CLM Act, we suggest that you search by Local Government Area only and carefully review the sites that are listed.

This public record provides information about sites regulated by the EPA under the Contaminated Land Management Act 1997, including sites currently and previously regulated under the Environmentally Hazardous Chemicals Act 1985. Your inquiry using the above search criteria has not matched any record of current or former regulation. You should consider searching again using different criteria. The fact that a site does not appear on the record does not necessarily mean that it is not affected by contamination. The site may have been notified to the EPA but not yet assessed, or contamination may be present but the site is not yet being regulated by the EPA. Further information about particular sites may be available from the appropriate planning authority, for example, on a planning certificate issued by the local council under section 149 of the Environmental Planning and Assessment Act. In addition the EPA may be regulating contamination at the site through a licence under the Protection of the Environment Operations Act 1997. You may wish to search the [POEO public register](#)


For


20 July 2018

**business and industry** 

**For local government** 

### Contact us

 131 555 (tel:131555)

 [info@epa.nsw.gov.au](mailto:info@epa.nsw.gov.au) (mailto:info@epa.nsw.gov.au)

Search Again

Refine Search

#### Search TIP

To search for a specific site, search by LGA (local government area) and carefully review all sites listed.

... [more search tips](#)



 [EPA Office Locations \(https://www.epa.nsw.gov.au/about-us/contact-us/locations\)](https://www.epa.nsw.gov.au/about-us/contact-us/locations)

[Accessibility \(https://www.epa.nsw.gov.au/about-us/contact-us/website-service-standards/help-index\)](https://www.epa.nsw.gov.au/about-us/contact-us/website-service-standards/help-index)

[Disclaimer \(https://www.epa.nsw.gov.au/about-us/contact-us/website-service-standards/disclaimer\)](https://www.epa.nsw.gov.au/about-us/contact-us/website-service-standards/disclaimer)

[Privacy \(https://www.epa.nsw.gov.au/about-us/contact-us/website-service-standards/privacy\)](https://www.epa.nsw.gov.au/about-us/contact-us/website-service-standards/privacy)

[Copyright \(https://www.epa.nsw.gov.au/about-us/contact-us/website-service-standards/copyright\)](https://www.epa.nsw.gov.au/about-us/contact-us/website-service-standards/copyright)

Find us on



[Twitter](https://twitter.com/NSWEPA)



[Facebook](https://www.facebook.com/NSWEPA)



[LinkedIn](https://www.linkedin.com/company/epa-nsw)



[YouTube](https://www.youtube.com/channel/UC...)



# EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about [Environment Assessments](#) and the EPBC Act including significance guidelines, forms and application process details.

Report created: 26/07/18 10:13:07

[Summary](#)

[Details](#)

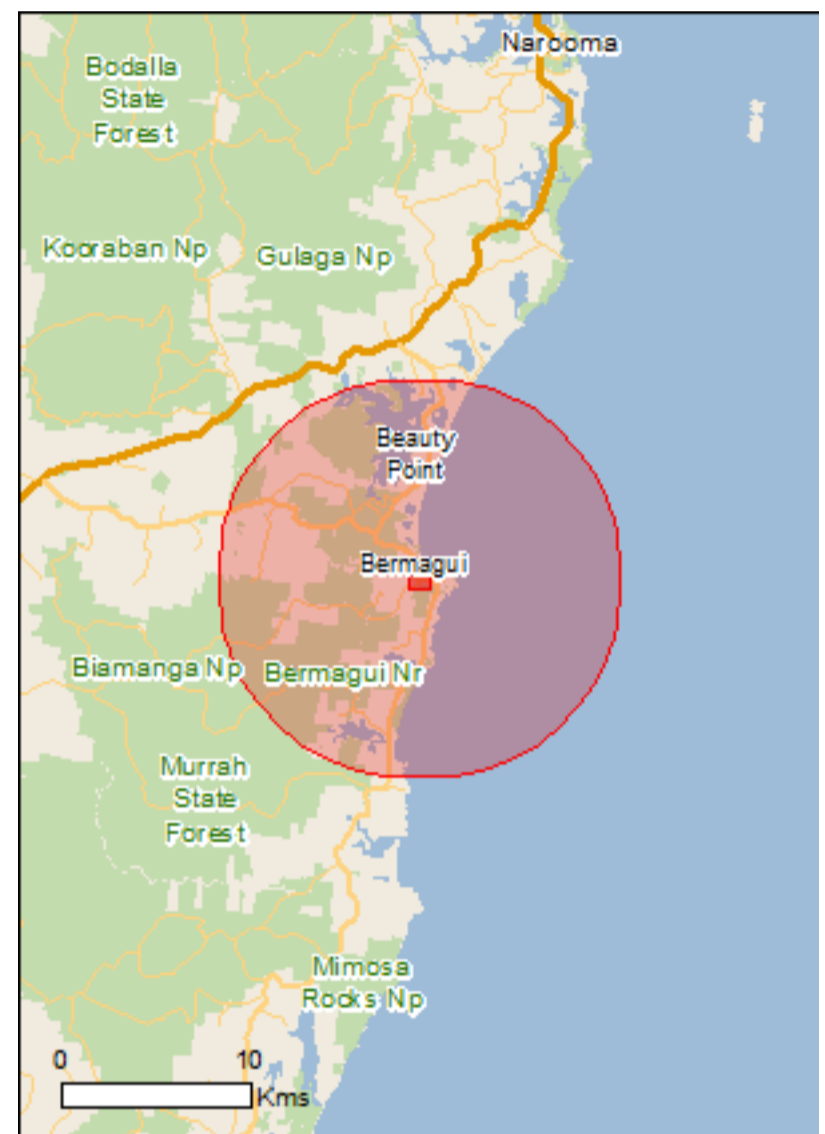
[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

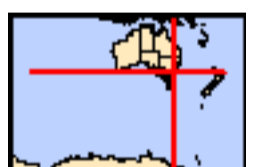
[Acknowledgements](#)



This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2010

[Coordinates](#)

[Buffer: 10.0Km](#)



# Summary

## Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the [Administrative Guidelines on Significance](#).

<a href="#">World Heritage Properties:</a>	None
<a href="#">National Heritage Places:</a>	None
<a href="#">Wetlands of International Importance:</a>	None
<a href="#">Great Barrier Reef Marine Park:</a>	None
<a href="#">Commonwealth Marine Area:</a>	1
<a href="#">Listed Threatened Ecological Communities:</a>	5
<a href="#">Listed Threatened Species:</a>	67
<a href="#">Listed Migratory Species:</a>	53

## Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at <http://www.environment.gov.au/heritage>

A [permit](#) may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

<a href="#">Commonwealth Land:</a>	None
<a href="#">Commonwealth Heritage Places:</a>	None
<a href="#">Listed Marine Species:</a>	85
<a href="#">Whales and Other Cetaceans:</a>	14
<a href="#">Critical Habitats:</a>	None
<a href="#">Commonwealth Reserves Terrestrial:</a>	None
<a href="#">Australian Marine Parks:</a>	None

## Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

<a href="#">State and Territory Reserves:</a>	5
<a href="#">Regional Forest Agreements:</a>	2
<a href="#">Invasive Species:</a>	36
<a href="#">Nationally Important Wetlands:</a>	1
<a href="#">Key Ecological Features (Marine)</a>	1

# Details

## Matters of National Environmental Significance

### Commonwealth Marine Area

[\[ Resource Information \]](#)

Approval is required for a proposed activity that is located within the Commonwealth Marine Area which has, will have, or is likely to have a significant impact on the environment. Approval may be required for a proposed action taken outside the Commonwealth Marine Area but which has, may have or is likely to have a significant impact on the environment in the Commonwealth Marine Area. Generally the Commonwealth Marine Area stretches from three nautical miles to two hundred nautical miles from the coast.

#### Name

EEZ and Territorial Sea

### Marine Regions

[\[ Resource Information \]](#)

If you are planning to undertake action in an area in or close to the Commonwealth Marine Area, and a marine bioregional plan has been prepared for the Commonwealth Marine Area in that area, the marine bioregional plan may inform your decision as to whether to refer your proposed action under the EPBC Act.

#### Name

[Temperate East](#)

### Listed Threatened Ecological Communities

[\[ Resource Information \]](#)

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Name	Status	Type of Presence
<a href="#">Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community</a>	Endangered	Community likely to occur within area
<a href="#">Illawarra and south coast lowland forest and woodland ecological community</a>	Critically Endangered	Community may occur within area
<a href="#">Littoral Rainforest and Coastal Vine Thickets of Eastern Australia</a>	Critically Endangered	Community likely to occur within area
<a href="#">Lowland Grassy Woodland in the South East Corner Bioregion</a>	Critically Endangered	Community likely to occur within area
<a href="#">Subtropical and Temperate Coastal Saltmarsh</a>	Vulnerable	Community likely to occur within area

### Listed Threatened Species

[\[ Resource Information \]](#)

Name	Status	Type of Presence
<b>Birds</b>		
<a href="#">Anthochaera phrygia</a> Regent Honeyeater [82338]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Botaurus poiciloptilus</a> Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area
<a href="#">Calidris canutus</a> Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area
<a href="#">Dasyornis brachypterus</a> Eastern Bristlebird [533]	Endangered	Species or species habitat likely to occur

Name	Status	Type of Presence within area
<a href="#">Diomedea antipodensis</a> Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Diomedea antipodensis gibsoni</a> Gibson's Albatross [82270]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Diomedea epomophora</a> Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Diomedea exulans</a> Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Diomedea sanfordi</a> Northern Royal Albatross [64456]	Endangered	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Fregetta grallaria grallaria</a> White-bellied Storm-Petrel (Tasman Sea), White-bellied Storm-Petrel (Australasian) [64438]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Grantiella picta</a> Painted Honeyeater [470]	Vulnerable	Species or species habitat may occur within area
<a href="#">Lathamus discolor</a> Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Limosa lapponica baueri</a> Bar-tailed Godwit (baueri), Western Alaskan Bar-tailed Godwit [86380]	Vulnerable	Species or species habitat may occur within area
<a href="#">Limosa lapponica menzbieri</a> Northern Siberian Bar-tailed Godwit, Bar-tailed Godwit (menzbieri) [86432]	Critically Endangered	Species or species habitat may occur within area
<a href="#">Macronectes giganteus</a> Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
<a href="#">Macronectes halli</a> Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
<a href="#">Neophema chrysogaster</a> Orange-bellied Parrot [747]	Critically Endangered	Species or species habitat may occur within area
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Pachyptila turtur subantarctica</a> Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Phoebetria fusca</a> Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area
<a href="#">Pterodroma leucoptera leucoptera</a> Gould's Petrel, Australian Gould's Petrel [26033]	Endangered	Species or species habitat may occur within area
<a href="#">Rostratula australis</a> Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area

Name	Status	Type of Presence
<a href="#">Sternula nereis nereis</a> Australian Fairy Tern [82950]	Vulnerable	Breeding likely to occur within area
<a href="#">Thalassarche bulleri</a> Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area
<a href="#">Thalassarche bulleri platei</a> Northern Buller's Albatross, Pacific Albatross [82273]	Vulnerable	Species or species habitat may occur within area
<a href="#">Thalassarche cauta cauta</a> Shy Albatross, Tasmanian Shy Albatross [82345]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Thalassarche cauta steadi</a> White-capped Albatross [82344]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Thalassarche eremita</a> Chatham Albatross [64457]	Endangered	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Thalassarche impavida</a> Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
<a href="#">Thalassarche melanophris</a> Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
<a href="#">Thalassarche salvini</a> Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Thinornis rubricollis rubricollis</a> Hooded Plover (eastern) [66726]	Vulnerable	Species or species habitat known to occur within area
<b>Fish</b>		
<a href="#">Epinephelus daemeli</a> Black Rockcod, Black Cod, Saddled Rockcod [68449]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Prototroctes maraena</a> Australian Grayling [26179]	Vulnerable	Species or species habitat likely to occur within area
<b>Frogs</b>		
<a href="#">Heleioporus australiacus</a> Giant Burrowing Frog [1973]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Litoria aurea</a> Green and Golden Bell Frog [1870]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Litoria littlejohni</a> Littlejohn's Tree Frog, Heath Frog [64733]	Vulnerable	Species or species habitat may occur within area
<b>Mammals</b>		
<a href="#">Balaenoptera borealis</a> Sei Whale [34]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Balaenoptera musculus</a> Blue Whale [36]	Endangered	Species or species habitat may occur within area
<a href="#">Balaenoptera physalus</a> Fin Whale [37]	Vulnerable	Foraging, feeding or related behaviour likely

Name	Status	Type of Presence
<a href="#">Chalinolobus dwyeri</a> Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	to occur within area Species or species habitat likely to occur within area
<a href="#">Dasyurus maculatus maculatus (SE mainland population)</a> Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat known to occur within area
<a href="#">Eubalaena australis</a> Southern Right Whale [40]	Endangered	Species or species habitat known to occur within area
<a href="#">Isoodon obesulus obesulus</a> Southern Brown Bandicoot (eastern), Southern Brown Bandicoot (south-eastern) [68050]	Endangered	Species or species habitat likely to occur within area
<a href="#">Megaptera novaeangliae</a> Humpback Whale [38]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
<a href="#">Petauroides volans</a> Greater Glider [254]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Petrogale penicillata</a> Brush-tailed Rock-wallaby [225]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)</a> Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Potorous tridactylus tridactylus</a> Long-nosed Potoroo (SE mainland) [66645]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Pseudomys fumeus</a> Smoky Mouse, Konoom [88]	Endangered	Species or species habitat may occur within area
<a href="#">Pteropus poliocephalus</a> Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
<b>Plants</b>		
<a href="#">Caladenia tessellata</a> Thick-lipped Spider-orchid, Daddy Long-legs [2119]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Correa baeuerlenii</a> Chef's Cap [17007]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Cryptostylis hunteriana</a> Leafless Tongue-orchid [19533]	Vulnerable	Species or species habitat may occur within area
<a href="#">Haloragis exalata subsp. exalata</a> Wingless Raspwort, Square Raspwort [24636]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Persicaria elatior</a> Knotweed, Tall Knotweed [5831]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Thesium australe</a> Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Zieria tuberculata</a> Warty Zieria [56736]	Vulnerable	Species or species habitat known to occur

Name	Status	Type of Presence within area
<b>Reptiles</b>		
<a href="#">Caretta caretta</a> Loggerhead Turtle [1763]	Endangered	Breeding likely to occur within area
<a href="#">Chelonia mydas</a> Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
<a href="#">Dermochelys coriacea</a> Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area
<a href="#">Eretmochelys imbricata</a> Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Natator depressus</a> Flatback Turtle [59257]	Vulnerable	Species or species habitat known to occur within area
<b>Sharks</b>		
<a href="#">Carcharias taurus (east coast population)</a> Grey Nurse Shark (east coast population) [68751]	Critically Endangered	Species or species habitat likely to occur within area
<a href="#">Carcharodon carcharias</a> White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Rhincodon typus</a> Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area
<b>Listed Migratory Species [ Resource Information ]</b>		
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
<b>Migratory Marine Birds</b>		
<a href="#">Apus pacificus</a> Fork-tailed Swift [678]		Species or species habitat likely to occur within area
<a href="#">Ardenna carneipes</a> Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Foraging, feeding or related behaviour likely to occur within area
<a href="#">Diomedea antipodensis</a> Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Diomedea epomophora</a> Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Diomedea exulans</a> Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Diomedea sanfordi</a> Northern Royal Albatross [64456]	Endangered	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Macronectes giganteus</a> Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
<a href="#">Macronectes halli</a> Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
<a href="#">Phoebastria fusca</a> Sooty Albatross [1075]	Vulnerable	Species or species



Name	Threatened	Type of Presence
<a href="#">Sternula albifrons</a> Little Tern [82849]		habitat may occur within area  Breeding known to occur within area
<a href="#">Thalassarche bulleri</a> Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area
<a href="#">Thalassarche cauta</a> Tasmanian Shy Albatross [89224]	Vulnerable*	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Thalassarche eremita</a> Chatham Albatross [64457]	Endangered	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Thalassarche impavida</a> Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
<a href="#">Thalassarche melanophris</a> Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
<a href="#">Thalassarche salvini</a> Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Thalassarche steadi</a> White-capped Albatross [64462]	Vulnerable*	Foraging, feeding or related behaviour likely to occur within area
<b>Migratory Marine Species</b>		
<a href="#">Balaena glacialis australis</a> Southern Right Whale [75529]	Endangered*	Species or species habitat known to occur within area
<a href="#">Balaenoptera borealis</a> Sei Whale [34]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Balaenoptera edeni</a> Bryde's Whale [35]		Species or species habitat may occur within area
<a href="#">Balaenoptera musculus</a> Blue Whale [36]	Endangered	Species or species habitat may occur within area
<a href="#">Balaenoptera physalus</a> Fin Whale [37]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Caperea marginata</a> Pygmy Right Whale [39]		Foraging, feeding or related behaviour likely to occur within area
<a href="#">Carcharodon carcharias</a> White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Caretta caretta</a> Loggerhead Turtle [1763]	Endangered	Breeding likely to occur within area
<a href="#">Chelonia mydas</a> Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
<a href="#">Dermochelys coriacea</a> Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area

Name	Threatened	Type of Presence
<a href="#">Eretmochelys imbricata</a> Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Lagenorhynchus obscurus</a> Dusky Dolphin [43]		Species or species habitat may occur within area
<a href="#">Lamna nasus</a> Porbeagle, Mackerel Shark [83288]		Species or species habitat likely to occur within area
<a href="#">Manta birostris</a> Giant Manta Ray, Chevron Manta Ray, Pacific Manta Ray, Pelagic Manta Ray, Oceanic Manta Ray [84995]		Species or species habitat may occur within area
<a href="#">Megaptera novaeangliae</a> Humpback Whale [38]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
<a href="#">Natator depressus</a> Flatback Turtle [59257]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Orcinus orca</a> Killer Whale, Orca [46]		Species or species habitat likely to occur within area
<a href="#">Rhincodon typus</a> Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area
<b>Migratory Terrestrial Species</b>		
<a href="#">Cuculus optatus</a> Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area
<a href="#">Hirundapus caudacutus</a> White-throated Needletail [682]		Species or species habitat known to occur within area
<a href="#">Monarcha melanopsis</a> Black-faced Monarch [609]		Species or species habitat known to occur within area
<a href="#">Myiagra cyanoleuca</a> Satin Flycatcher [612]		Species or species habitat known to occur within area
<a href="#">Rhipidura rufifrons</a> Rufous Fantail [592]		Species or species habitat known to occur within area
<b>Migratory Wetlands Species</b>		
<a href="#">Actitis hypoleucos</a> Common Sandpiper [59309]		Species or species habitat likely to occur within area
<a href="#">Calidris acuminata</a> Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
<a href="#">Calidris canutus</a> Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area
<a href="#">Calidris melanotos</a> Pectoral Sandpiper [858]		Species or species habitat may occur within

Name	Threatened	Type of Presence area
<a href="#">Gallinago hardwickii</a> Latham's Snipe, Japanese Snipe [863]		Foraging, feeding or related behaviour may occur within area
<a href="#">Gallinago megala</a> Swinhoe's Snipe [864]		Foraging, feeding or related behaviour likely to occur within area
<a href="#">Gallinago stenura</a> Pin-tailed Snipe [841]		Foraging, feeding or related behaviour likely to occur within area
<a href="#">Limosa lapponica</a> Bar-tailed Godwit [844]		Species or species habitat known to occur within area
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Numenius minutus</a> Little Curlew, Little Whimbrel [848]		Foraging, feeding or related behaviour likely to occur within area
<a href="#">Pandion haliaetus</a> Osprey [952]		Species or species habitat known to occur within area
<a href="#">Tringa nebularia</a> Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area

## Other Matters Protected by the EPBC Act

### Listed Marine Species [\[ Resource Information \]](#)

\* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
<b>Birds</b>		
<a href="#">Actitis hypoleucos</a> Common Sandpiper [59309]		Species or species habitat likely to occur within area
<a href="#">Apus pacificus</a> Fork-tailed Swift [678]		Species or species habitat likely to occur within area
<a href="#">Ardea alba</a> Great Egret, White Egret [59541]		Species or species habitat known to occur within area
<a href="#">Ardea ibis</a> Cattle Egret [59542]		Species or species habitat may occur within area
<a href="#">Calidris acuminata</a> Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
<a href="#">Calidris canutus</a> Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area

Name	Threatened	Type of Presence
<a href="#">Calidris melanotos</a> Pectoral Sandpiper [858]		Species or species habitat may occur within area
<a href="#">Catharacta skua</a> Great Skua [59472]		Species or species habitat may occur within area
<a href="#">Cuculus saturatus</a> Oriental Cuckoo, Himalayan Cuckoo [710]		Species or species habitat may occur within area
<a href="#">Diomedea antipodensis</a> Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Diomedea epomophora</a> Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Diomedea exulans</a> Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Diomedea gibsoni</a> Gibson's Albatross [64466]	Vulnerable*	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Diomedea sanfordi</a> Northern Royal Albatross [64456]	Endangered	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Gallinago hardwickii</a> Latham's Snipe, Japanese Snipe [863]		Foraging, feeding or related behaviour may occur within area
<a href="#">Gallinago megala</a> Swinhoe's Snipe [864]		Foraging, feeding or related behaviour likely to occur within area
<a href="#">Gallinago stenura</a> Pin-tailed Snipe [841]		Foraging, feeding or related behaviour likely to occur within area
<a href="#">Haliaeetus leucogaster</a> White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
<a href="#">Hirundapus caudacutus</a> White-throated Needletail [682]		Species or species habitat known to occur within area
<a href="#">Lathamus discolor</a> Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Limosa lapponica</a> Bar-tailed Godwit [844]		Species or species habitat known to occur within area
<a href="#">Macronectes giganteus</a> Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
<a href="#">Macronectes halli</a> Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
<a href="#">Merops ornatus</a> Rainbow Bee-eater [670]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
<a href="#">Monarcha melanopsis</a> Black-faced Monarch [609]		Species or species habitat known to occur within area
<a href="#">Myiagra cyanoleuca</a> Satin Flycatcher [612]		Species or species habitat known to occur within area
<a href="#">Neophema chrysogaster</a> Orange-bellied Parrot [747]	Critically Endangered	Species or species habitat may occur within area
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Numenius minutus</a> Little Curlew, Little Whimbrel [848]		Foraging, feeding or related behaviour likely to occur within area
<a href="#">Pachyptila turtur</a> Fairy Prion [1066]		Species or species habitat likely to occur within area
<a href="#">Pandion haliaetus</a> Osprey [952]		Species or species habitat known to occur within area
<a href="#">Phoebastria fusca</a> Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area
<a href="#">Puffinus carneipes</a> Flesh-footed Shearwater, Fleshy-footed Shearwater [1043]		Foraging, feeding or related behaviour likely to occur within area
<a href="#">Rhipidura rufifrons</a> Rufous Fantail [592]		Species or species habitat known to occur within area
<a href="#">Rostratula benghalensis (sensu lato)</a> Painted Snipe [889]	Endangered*	Species or species habitat may occur within area
<a href="#">Sterna albifrons</a> Little Tern [813]		Breeding known to occur within area
<a href="#">Thalassarche bulleri</a> Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area
<a href="#">Thalassarche cauta</a> Tasmanian Shy Albatross [89224]	Vulnerable*	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Thalassarche eremita</a> Chatham Albatross [64457]	Endangered	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Thalassarche impavida</a> Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
<a href="#">Thalassarche melanophris</a> Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
<a href="#">Thalassarche salvini</a> Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Thalassarche sp. nov.</a> Pacific Albatross [66511]	Vulnerable*	Species or species

Name	Threatened	Type of Presence
<a href="#">Thalassarche steadi</a> White-capped Albatross [64462]	Vulnerable*	habitat may occur within area Foraging, feeding or related behaviour likely to occur within area
<a href="#">Thinornis rubricollis</a> Hooded Plover [59510]		Species or species habitat known to occur within area
<a href="#">Thinornis rubricollis rubricollis</a> Hooded Plover (eastern) [66726]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Tringa nebularia</a> Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area
<b>Fish</b>		
<a href="#">Acentronura tentaculata</a> Shortpouch Pygmy Pipehorse [66187]		Species or species habitat may occur within area
<a href="#">Cosmocampus howensis</a> Lord Howe Pipefish [66208]		Species or species habitat may occur within area
<a href="#">Heraldia nocturna</a> Upside-down Pipefish, Eastern Upside-down Pipefish, Eastern Upside-down Pipefish [66227]		Species or species habitat may occur within area
<a href="#">Hippocampus abdominalis</a> Big-belly Seahorse, Eastern Potbelly Seahorse, New Zealand Potbelly Seahorse [66233]		Species or species habitat may occur within area
<a href="#">Hippocampus breviceps</a> Short-head Seahorse, Short-snouted Seahorse [66235]		Species or species habitat may occur within area
<a href="#">Hippocampus minotaur</a> Bullneck Seahorse [66705]		Species or species habitat may occur within area
<a href="#">Hippocampus whitei</a> White's Seahorse, Crowned Seahorse, Sydney Seahorse [66240]		Species or species habitat may occur within area
<a href="#">Histiogamphelus briggsii</a> Crested Pipefish, Briggs' Crested Pipefish, Briggs' Pipefish [66242]		Species or species habitat may occur within area
<a href="#">Histiogamphelus cristatus</a> Rhino Pipefish, Macleay's Crested Pipefish, Ring-back Pipefish [66243]		Species or species habitat may occur within area
<a href="#">Hypselognathus rostratus</a> Knifesnout Pipefish, Knife-snouted Pipefish [66245]		Species or species habitat may occur within area
<a href="#">Kaupus costatus</a> Deepbody Pipefish, Deep-bodied Pipefish [66246]		Species or species habitat may occur within area
<a href="#">Kimblaeus bassensis</a> Trawl Pipefish, Bass Strait Pipefish [66247]		Species or species habitat may occur within area
<a href="#">Leptoichthys fistularius</a> Brushtail Pipefish [66248]		Species or species habitat may occur within area
<a href="#">Lissocampus runa</a> Javelin Pipefish [66251]		Species or species

Name	Threatened	Type of Presence
<a href="#">Maroubra perserrata</a> Sawtooth Pipefish [66252]		habitat may occur within area  Species or species habitat may occur within area
<a href="#">Mitotichthys semistriatus</a> Halfbanded Pipefish [66261]		Species or species habitat may occur within area
<a href="#">Mitotichthys tuckeri</a> Tucker's Pipefish [66262]		Species or species habitat may occur within area
<a href="#">Notiocampus ruber</a> Red Pipefish [66265]		Species or species habitat may occur within area
<a href="#">Phyllopteryx taeniolatus</a> Common Seadragon, Weedy Seadragon [66268]		Species or species habitat may occur within area
<a href="#">Solegnathus robustus</a> Robust Pipehorse, Robust Spiny Pipehorse [66274]		Species or species habitat may occur within area
<a href="#">Solegnathus spinosissimus</a> Spiny Pipehorse, Australian Spiny Pipehorse [66275]		Species or species habitat may occur within area
<a href="#">Solenostomus cyanopterus</a> Robust Ghostpipefish, Blue-finned Ghost Pipefish, [66183]		Species or species habitat may occur within area
<a href="#">Stigmatopora argus</a> Spotted Pipefish, Gulf Pipefish, Peacock Pipefish [66276]		Species or species habitat may occur within area
<a href="#">Stigmatopora nigra</a> Widebody Pipefish, Wide-bodied Pipefish, Black Pipefish [66277]		Species or species habitat may occur within area
<a href="#">Stipecampus cristatus</a> Ringback Pipefish, Ring-backed Pipefish [66278]		Species or species habitat may occur within area
<a href="#">Syngnathoides biaculeatus</a> Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish [66279]		Species or species habitat may occur within area
<a href="#">Urocampus carinirostris</a> Hairy Pipefish [66282]		Species or species habitat may occur within area
<a href="#">Vanacampus margaritifer</a> Mother-of-pearl Pipefish [66283]		Species or species habitat may occur within area
<a href="#">Vanacampus phillipi</a> Port Phillip Pipefish [66284]		Species or species habitat may occur within area
<a href="#">Vanacampus poecilolaemus</a> Longsnout Pipefish, Australian Long-snout Pipefish, Long-snouted Pipefish [66285]		Species or species habitat may occur within area
<b>Mammals</b>		
<a href="#">Arctocephalus forsteri</a> Long-nosed Fur-seal, New Zealand Fur-seal [20]		Species or species habitat may occur within area
<a href="#">Arctocephalus pusillus</a> Australian Fur-seal, Australo-African Fur-seal		Species or species

Name	Threatened	Type of Presence
[21]		habitat may occur within area
<b>Reptiles</b>		
<a href="#">Caretta caretta</a> Loggerhead Turtle [1763]	Endangered	Breeding likely to occur within area
<a href="#">Chelonia mydas</a> Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
<a href="#">Dermochelys coriacea</a> Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area
<a href="#">Eretmochelys imbricata</a> Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Natator depressus</a> Flatback Turtle [59257]	Vulnerable	Species or species habitat known to occur within area
<b>Whales and other Cetaceans</b>		<b>[ Resource Information ]</b>
Name	Status	Type of Presence
<b>Mammals</b>		
<a href="#">Balaenoptera acutorostrata</a> Minke Whale [33]		Species or species habitat may occur within area
<a href="#">Balaenoptera borealis</a> Sei Whale [34]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Balaenoptera edeni</a> Bryde's Whale [35]		Species or species habitat may occur within area
<a href="#">Balaenoptera musculus</a> Blue Whale [36]	Endangered	Species or species habitat may occur within area
<a href="#">Balaenoptera physalus</a> Fin Whale [37]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Caperea marginata</a> Pygmy Right Whale [39]		Foraging, feeding or related behaviour likely to occur within area
<a href="#">Delphinus delphis</a> Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area
<a href="#">Eubalaena australis</a> Southern Right Whale [40]	Endangered	Species or species habitat known to occur within area
<a href="#">Grampus griseus</a> Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area
<a href="#">Lagenorhynchus obscurus</a> Dusky Dolphin [43]		Species or species habitat may occur within area
<a href="#">Megaptera novaeangliae</a> Humpback Whale [38]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
<a href="#">Orcinus orca</a> Killer Whale, Orca [46]		Species or species habitat likely to occur within area



Name	Status	Type of Presence
<a href="#">Tursiops aduncus</a> Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area
<a href="#">Tursiops truncatus s. str.</a> Bottlenose Dolphin [68417]		Species or species habitat may occur within area

## Extra Information

### State and Territory Reserves [\[ Resource Information \]](#)

Name	State
Bermagquee	NSW
Bermagui	NSW
Biamanga	NSW
Gulaga	NSW
Murrah	NSW

### Regional Forest Agreements [\[ Resource Information \]](#)

Note that all areas with completed RFAs have been included.

Name	State
<a href="#">Eden RFA</a>	New South Wales
<a href="#">Southern RFA</a>	New South Wales

### Invasive Species [\[ Resource Information \]](#)

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resources Audit, 2001.

Name	Status	Type of Presence
------	--------	------------------

### Birds

Acridotheres tristis Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
Alauda arvensis Skylark [656]		Species or species habitat likely to occur within area
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area
Carduelis carduelis European Goldfinch [403]		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species

Name	Status	Type of Presence
Turdus merula Common Blackbird, Eurasian Blackbird [596]		habitat likely to occur within area  Species or species habitat likely to occur within area
<b>Mammals</b>		
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Feral deer Feral deer species in Australia [85733]		Species or species habitat likely to occur within area
Lepus capensis Brown Hare [127]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Sus scrofa Pig [6]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
<b>Plants</b>		
Alternanthera philoxeroides Alligator Weed [11620]		Species or species habitat may occur within area
Anredera cordifolia Madeira Vine, Jalap, Lamb's-tail, Mignonette Vine, Anredera, Gulf Madeiravine, Heartleaf Madeiravine, Potato Vine [2643]		Species or species habitat likely to occur within area
Asparagus aethiopicus Asparagus Fern, Ground Asparagus, Basket Fern, Sprengi's Fern, Bushy Asparagus, Emerald Asparagus [62425]		Species or species habitat likely to occur within area
Asparagus asparagoides Bridal Creeper, Bridal Veil Creeper, Smilax, Florist's Smilax, Smilax Asparagus [22473]		Species or species habitat likely to occur within area
Chrysanthemoides monilifera subsp. monilifera Boneseed [16905]		Species or species habitat likely to occur within area
Chrysanthemoides monilifera subsp. rotundata Bitou Bush [16332]		Species or species habitat likely to occur within area

Name	Status	Type of Presence
Cytisus scoparius Broom, English Broom, Scotch Broom, Common Broom, Scottish Broom, Spanish Broom [5934]		Species or species habitat likely to occur within area
Lantana camara Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892]		Species or species habitat likely to occur within area
Lycium ferocissimum African Boxthorn, Boxthorn [19235]		Species or species habitat likely to occur within area
Nassella neesiana Chilean Needle grass [67699]		Species or species habitat likely to occur within area
Nassella trichotoma Serrated Tussock, Yass River Tussock, Yass Tussock, Nassella Tussock (NZ) [18884]		Species or species habitat likely to occur within area
Pinus radiata Radiata Pine Monterey Pine, Insignis Pine, Wilding Pine [20780]		Species or species habitat may occur within area
Rubus fruticosus aggregate Blackberry, European Blackberry [68406]		Species or species habitat likely to occur within area
Salix spp. except S.babylonica, S.x calodendron & S.x reichardtii Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow [68497]		Species or species habitat likely to occur within area
Salvinia molesta Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed [13665]		Species or species habitat likely to occur within area
Senecio madagascariensis Fireweed, Madagascar Ragwort, Madagascar Groundsel [2624]		Species or species habitat likely to occur within area
Ulex europaeus Gorse, Furze [7693]		Species or species habitat likely to occur within area

### Nationally Important Wetlands [\[ Resource Information \]](#)

Name	State
<a href="#">Wallaga Lake</a>	NSW

### Key Ecological Features (Marine) [\[ Resource Information \]](#)

Key Ecological Features are the parts of the marine ecosystem that are considered to be important for the biodiversity or ecosystem functioning and integrity of the Commonwealth Marine Area.

Name	Region
<a href="#">Upwelling East of Eden</a>	South-east

# Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species distributions have been derived through a variety of methods. Where distributions are well known and if time permits, maps are derived using either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc) together with point locations and described habitat; or environmental modelling (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where very little information is available for species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc). In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More reliable distribution mapping methods are used to update these distributions as time permits.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

# Coordinates

-36.42199 150.06021,-36.42199 150.07141,-36.42993 150.07141,-36.42993 150.06021,-36.42199 150.06021

# Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

- [-Office of Environment and Heritage, New South Wales](#)
- [-Department of Environment and Primary Industries, Victoria](#)
- [-Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [-Department of Environment, Water and Natural Resources, South Australia](#)
- [-Department of Land and Resource Management, Northern Territory](#)
- [-Department of Environmental and Heritage Protection, Queensland](#)
- [-Department of Parks and Wildlife, Western Australia](#)
- [-Environment and Planning Directorate, ACT](#)
- [-Birdlife Australia](#)
- [-Australian Bird and Bat Banding Scheme](#)
- [-Australian National Wildlife Collection](#)
- [-Natural history museums of Australia](#)
- [-Museum Victoria](#)
- [-Australian Museum](#)
- [-South Australian Museum](#)
- [-Queensland Museum](#)
- [-Online Zoological Collections of Australian Museums](#)
- [-Queensland Herbarium](#)
- [-National Herbarium of NSW](#)
- [-Royal Botanic Gardens and National Herbarium of Victoria](#)
- [-Tasmanian Herbarium](#)
- [-State Herbarium of South Australia](#)
- [-Northern Territory Herbarium](#)
- [-Western Australian Herbarium](#)
- [-Australian National Herbarium, Canberra](#)
- [-University of New England](#)
- [-Ocean Biogeographic Information System](#)
- [-Australian Government, Department of Defence Forestry Corporation, NSW](#)
- [-Geoscience Australia](#)
- [-CSIRO](#)
- [-Australian Tropical Herbarium, Cairns](#)
- [-eBird Australia](#)
- [-Australian Government – Australian Antarctic Data Centre](#)
- [-Museum and Art Gallery of the Northern Territory](#)
- [-Australian Government National Environmental Science Program](#)
- [-Australian Institute of Marine Science](#)
- [-Reef Life Survey Australia](#)
- [-American Museum of Natural History](#)
- [-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania](#)
- [-Tasmanian Museum and Art Gallery, Hobart, Tasmania](#)
- [-Other groups and individuals](#)

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the [Contact Us](#) page.

## Search Results

**92 results found.**

<a href="#">Acacia Constablei Site, East Boyd State Forest</a>	Eden, NSW, Australia ( <a href="#">Registered</a> ) Register of the National Estate (Non-statutory archive)
<a href="#">Barn at Penders</a> Haighs Rd	Tanja, NSW, Australia ( <a href="#">Registered</a> ) Register of the National Estate (Non-statutory archive)
<a href="#">Bega Boer War Memorial</a> Upper St	Bega, NSW, Australia ( <a href="#">Indicative Place</a> ) Register of the National Estate (Non-statutory archive)
<a href="#">Bega Courthouse</a> Carp St	Bega, NSW, Australia ( <a href="#">Registered</a> ) Register of the National Estate (Non-statutory archive)
<a href="#">Bega General Cemetery</a> Princes Hwy	Bega, NSW, Australia ( <a href="#">Indicative Place</a> ) Register of the National Estate (Non-statutory archive)
<a href="#">Bega Primary School Group</a> 25-33 Auckland St	Bega, NSW, Australia ( <a href="#">Registered</a> ) Register of the National Estate (Non-statutory archive)
<a href="#">Bega Race Course</a> East St	Bega, NSW, Australia ( <a href="#">Indicative Place</a> ) Register of the National Estate (Non-statutory archive)
<a href="#">Bell Bird Creek Nature Reserve</a> Princes Hwy	Eden, NSW, Australia ( <a href="#">Registered</a> ) Register of the National Estate (Non-statutory archive)
<a href="#">Ben Boyd National Park</a> Princes Hwy	Eden, NSW, Australia ( <a href="#">Registered</a> ) Register of the National Estate (Non-statutory archive)

<a href="#">Bermagabee Nature Reserve</a> Head of Cuttagee Rd	Bermagui, NSW, Australia	( <a href="#">Registered</a> ) Register of the National Estate (Non-statutory archive)
<a href="#">Bittangabee Ruins</a> Bittangabee Bay	Eden, NSW, Australia	( <a href="#">Registered</a> ) Register of the National Estate (Non-statutory archive)
<a href="#">Bournda National Park</a>	Tathra, NSW, Australia	( <a href="#">Interim List</a> ) Register of the National Estate (Non-statutory archive)
<a href="#">Bournda National Park and Bournda Nature Reserve</a> Sapphire Coast Dr	Tura Beach, NSW, Australia	( <a href="#">Nomination now ineligible for PPAL</a> ) National Heritage List
<a href="#">Bournda Nature Reserve</a> Kalaru Merimbula Rd	Wolumla, NSW, Australia	( <a href="#">Registered</a> ) Register of the National Estate (Non-statutory archive)
<a href="#">Box Range Shrub Community Sites</a>	Pambula, NSW, Australia	( <a href="#">Registered</a> ) Register of the National Estate (Non-statutory archive)
<a href="#">Boyds Tower Fish Fossils</a>	Eden, NSW, Australia	( <a href="#">Registered</a> ) Register of the National Estate (Non-statutory archive)
<a href="#">Boydton Group</a> 87 Boydton Park Rd	Boydton, NSW, Australia	( <a href="#">Registered</a> ) Register of the National Estate (Non-statutory archive)
<a href="#">Bridge House Group</a> Princes Hwy	Brogo, NSW, Australia	( <a href="#">Registered</a> ) Register of the National Estate (Non-statutory archive)
<a href="#">Brogo Wilderness</a>	Bemboka, NSW, Australia	( <a href="#">Indicative Place</a> ) Register of the National Estate (Non-statutory archive)
<a href="#">Bundian Way Area</a> Monaro Hwy	Bombala, NSW, Australia	( <a href="#">Nomination now ineligible for PPAL</a> ) National Heritage List

<a href="#">Cathcart Forest Area</a> Mt Darragh Rd	Rocky Hall, NSW, Australia	( <a href="#">Indicative Place</a> ) Register of the National Estate (Non-statutory archive)
<a href="#">Church Ruins</a> 87 Boydton Park Rd	Boydton, NSW, Australia	( <a href="#">Registered</a> ) Register of the National Estate (Non-statutory archive)
<a href="#">Cobargo Soldiers Memorial</a> Moruya St	Cobargo, NSW, Australia	( <a href="#">Indicative Place</a> ) Register of the National Estate (Non-statutory archive)
<a href="#">Coolangubra Forest Area</a> Inlay Rd	Bombala, NSW, Australia	( <a href="#">Registered</a> ) Register of the National Estate (Non-statutory archive)
<a href="#">Coolangubra Forest Area Extensions</a>	Bombala, NSW, Australia	( <a href="#">Registered</a> ) Register of the National Estate (Non-statutory archive)
<a href="#">Courthouse / Police Station and Cell Block (former)</a> 26-30 Toalla St	Pambula, NSW, Australia	( <a href="#">Registered</a> ) Register of the National Estate (Non-statutory archive)
<a href="#">Courunga House, Grounds and Trees</a> Monaro St	Tura Beach, NSW, Australia	( <a href="#">Registered</a> ) Register of the National Estate (Non-statutory archive)
<a href="#">Deua - Tuross - Brogo National Park Proposal</a>	Araluen, NSW, Australia	( <a href="#">Indicative Place</a> ) Register of the National Estate (Non-statutory archive)
<a href="#">Devils Creek Catchment Area</a>	Candelo, NSW, Australia	( <a href="#">Indicative Place</a> ) Register of the National Estate (Non-statutory archive)
<a href="#">Dr George Mountain</a>	Bega, NSW, Australia	( <a href="#">Registered</a> ) Register of the National Estate (Non-statutory archive)



<a href="#">East Boyd Bay Area</a> Edrom Rd	East Boyd via Eden, NSW, Australia	( <a href="#">Indicative Place</a> ) Register of the National Estate (Non-statutory archive)
<a href="#">Eastern Monaro - Bega Valley Escarpment Trails</a>	Bemboka, NSW, Australia	( <a href="#">Indicative Place</a> ) Register of the National Estate (Non-statutory archive)
<a href="#">Eden Courthouse</a> 233 Imlay St	Eden, NSW, Australia	( <a href="#">Registered</a> ) Register of the National Estate (Non-statutory archive)
<a href="#">Eden Geological Site</a> Bramble St	Eden, NSW, Australia	( <a href="#">Registered</a> ) Register of the National Estate (Non-statutory archive)
<a href="#">Edrom Lodge</a> Edrom Road	Eden, NSW, Australia	( <a href="#">Registered</a> ) Register of the National Estate (Non-statutory archive)
<a href="#">Egan Peaks Nature Reserve</a> Fire Rd	Towamba, NSW, Australia	( <a href="#">Registered</a> ) Register of the National Estate (Non-statutory archive)
<a href="#">Family Hotel</a> Auckland St	Bega, NSW, Australia	( <a href="#">Indicative Place</a> ) Register of the National Estate (Non-statutory archive)
<a href="#">Green Cape Lighthouse and Residences Group</a>	Eden, NSW, Australia	( <a href="#">Registered</a> ) Register of the National Estate (Non-statutory archive)
<a href="#">House</a> 21 Auckland St	Bega, NSW, Australia	( <a href="#">Registered</a> ) Register of the National Estate (Non-statutory archive)
<a href="#">Indigenous Place</a>	Bermagui, NSW, Australia	( <a href="#">Registered</a> ) Register of the National Estate (Non-statutory archive)

<a href="#">Indigenous Place</a>	Bermagui, NSW, Australia	<a href="#">(Indicative Place)</a> Register of the National Estate (Non-statutory archive)
<a href="#">Indigenous Place</a>	Pambula, NSW, Australia	<a href="#">(Indicative Place)</a> Register of the National Estate (Non-statutory archive)
<a href="#">Indigenous Place</a>	Tathra, NSW, Australia	<a href="#">(Registered)</a> Register of the National Estate (Non-statutory archive)
<a href="#">Jellat Jellat</a> Tathra Rd	Bega, NSW, Australia	<a href="#">(Registered)</a> Register of the National Estate (Non-statutory archive)
<a href="#">Kameruka Estate</a> Bega Rd	Candelo, NSW, Australia	<a href="#">(Indicative Place)</a> Register of the National Estate (Non-statutory archive)
<a href="#">Kianinny Bay Acacia Georgensis Site</a>	Tathra, NSW, Australia	<a href="#">(Registered)</a> Register of the National Estate (Non-statutory archive)
<a href="#">Letts Mountain, Mount Poole and Waalimma Range Area</a> Nungatta Rd	Cathcart, NSW, Australia	<a href="#">(Indicative Place)</a> Register of the National Estate (Non-statutory archive)
<a href="#">Mimosa Rocks National Park (1980 boundary)</a> Aragunnu Beach Rd	Bega, NSW, Australia	<a href="#">(Registered)</a> Register of the National Estate (Non-statutory archive)
<a href="#">Montreal Goldfield</a> Wallaga Lake Rd	Bermagui, NSW, Australia	<a href="#">(Registered)</a> Register of the National Estate (Non-statutory archive)
<a href="#">Mount Imlay National Park</a> Mt Imlay Rd	Eden, NSW, Australia	<a href="#">(Registered)</a> Register of the National Estate (Non-statutory archive)

<a href="#">Mount Poole Area, Yambulla State Forest</a>	Eden, NSW, Australia	<a href="#">(Registered)</a> Register of the National Estate (Non-statutory archive)
<a href="#">Mumbulla Coast</a>	Bermagui, NSW, Australia	<a href="#">(Indicative Place)</a> Register of the National Estate (Non-statutory archive)
<a href="#">Mumbulla Mountain (Biamanga)</a> Fieldbuckers Forrest Rd	Quaama, NSW, Australia	<a href="#">(Registered)</a> Register of the National Estate (Non-statutory archive)
<a href="#">Murrunna Point Coastal Area</a>	Bermagui, NSW, Australia	<a href="#">(Registered)</a> Register of the National Estate (Non-statutory archive)
<a href="#">Nadgee Nature Reserve</a> Faunal Reserve Rd	Eden, NSW, Australia	<a href="#">(Registered)</a> Register of the National Estate (Non-statutory archive)
<a href="#">Nadgee Nature Reserve</a> Greenslades Rd	Wonboyn Lake, NSW, Australia	<a href="#">(Nomination now ineligible for PPAL)</a> National Heritage List
<a href="#">Nadgee Wilderness Area</a>	Wonboyn Lake, NSW, Australia	<a href="#">(Registered)</a> Register of the National Estate (Non-statutory archive)
<a href="#">Nalbaugh National Park</a> Mines Rd	Bombala, NSW, Australia	<a href="#">(Registered)</a> Register of the National Estate (Non-statutory archive)
<a href="#">Narrabarba Hill Area, Nadgee State Forest</a>	Eden, NSW, Australia	<a href="#">(Registered)</a> Register of the National Estate (Non-statutory archive)
<a href="#">Nethercote Waterfall and Associated Rhyolite Outcrops</a>	Pambula, NSW, Australia	<a href="#">(Registered)</a> Register of the National Estate (Non-statutory archive)

<a href="#">Nullica State Forest Pseudanthus Site</a>	Nethercote, NSW, Australia	<a href="#">(Registered)</a> Register of the National Estate (Non-statutory archive)
<a href="#">Nungatta National Park</a> Cann River Rd	Bombala, NSW, Australia	<a href="#">(Registered)</a> Register of the National Estate (Non-statutory archive)
<a href="#">Old Candelo Cemetery</a> Candelo Kameruka Rd	Candelo, NSW, Australia	<a href="#">(Indicative Place)</a> Register of the National Estate (Non-statutory archive)
<a href="#">Old Hut Creek Phebalium Site 2</a> Back Creek Fire Rd	Nethercote, NSW, Australia	<a href="#">(Registered)</a> Register of the National Estate (Non-statutory archive)
<a href="#">PS Mimosa Shipwreck</a>	Tanja, NSW, Australia	<a href="#">(Registered)</a> Register of the National Estate (Non-statutory archive)
<a href="#">Panbula Goldfield</a>	Pambula, NSW, Australia	<a href="#">(Registered)</a> Register of the National Estate (Non-statutory archive)
<a href="#">Pomaderris sp nov Site, Yambulla State Forest</a>	Eden, NSW, Australia	<a href="#">(Registered)</a> Register of the National Estate (Non-statutory archive)
<a href="#">Post Office (former)</a> 155-157 Imlay St	Eden, NSW, Australia	<a href="#">(Indicative Place)</a> Register of the National Estate (Non-statutory archive)
<a href="#">Robert Kidman Grave</a> Tantawangalo La	Candelo, NSW, Australia	<a href="#">(Indicative Place)</a> Register of the National Estate (Non-statutory archive)
<a href="#">Rosevear Jewellers Shopfront</a> 165 Carp St	Bega, NSW, Australia	<a href="#">(Registered)</a> Register of the National Estate (Non-statutory archive)

<a href="#">School and Residence (former)</a> 85-87 Main St	Merimbula, NSW, Australia	<a href="#">(Registered)</a> Register of the National Estate (Non-statutory archive)
<a href="#">Sea Horse Inn</a> 87 Boydtown Park Rd	Boydtown, NSW, Australia	<a href="#">(Registered)</a> Register of the National Estate (Non-statutory archive)
<a href="#">Shrub Community Sites, Nullica State Forest</a> Back Creek Trl	Pambula, NSW, Australia	<a href="#">(Registered)</a> Register of the National Estate (Non-statutory archive)
<a href="#">Soldiers Memorial Gates</a> Carp St	Bega, NSW, Australia	<a href="#">(Indicative Place)</a> Register of the National Estate (Non-statutory archive)
<a href="#">South East Forests National Park and Egan Peaks Nature Reserve</a> Mt Darragh Rd	Wyndham, NSW, Australia	<a href="#">(Nomination now ineligible for PPAL)</a> National Heritage List
<a href="#">St John the Evangelist Anglican Church Hall</a> Church St	Bega, NSW, Australia	<a href="#">(Indicative Place)</a> Register of the National Estate (Non-statutory archive)
<a href="#">St Pauls Anglican Church</a> Bermagui Rd	Tanja, NSW, Australia	<a href="#">(Indicative Place)</a> Register of the National Estate (Non-statutory archive)
<a href="#">Swamp Road Area, Nadgee State Forest</a>	Eden, NSW, Australia	<a href="#">(Registered)</a> Register of the National Estate (Non-statutory archive)
<a href="#">Tantawangalo Creek Catchment</a> Tantawangalo Mountain Road	Bemboka, NSW, Australia	<a href="#">(Registered)</a> Register of the National Estate (Non-statutory archive)
<a href="#">Tantawangalo Koala Nature Reserve</a> Tantawangalo Mountain Rd	Tantawangalo, NSW, Australia	<a href="#">(Indicative Place)</a> Register of the National Estate (Non-statutory archive)

<a href="#">Tarraganda Bridge</a> Tarraganda La	Bega, NSW, Australia	( <a href="#">Destroyed</a> ) Register of the National Estate (Non-statutory archive)
<a href="#">Tathra Wharf and Reserve</a> Wharf Rd	Tathra, NSW, Australia	( <a href="#">Registered</a> ) Register of the National Estate (Non-statutory archive)
<a href="#">The Black-Allan Line Border</a> Cairns	Delegate, VIC, Australia	( <a href="#">Nomination now ineligible for PPAL</a> ) National Heritage List
<a href="#">Wadbilliga National Park</a> Bourkes Rd	Bemboka, NSW, Australia	( <a href="#">Registered</a> ) Register of the National Estate (Non-statutory archive)
<a href="#">Wallaga Lake National Park</a> Princes Hwy	Bermagui, NSW, Australia	( <a href="#">Registered</a> ) Register of the National Estate (Non-statutory archive)
<a href="#">Wog Wog Invertebrate Habitat Study Area</a>	Bombala, NSW, Australia	( <a href="#">Interim List</a> ) Register of the National Estate (Non-statutory archive)
<a href="#">Woolingubrah Inn</a>	Cathcart, NSW, Australia	( <a href="#">Indicative Place</a> ) Register of the National Estate (Non-statutory archive)
<a href="#">Wyndham General Cemetery</a> Glencairn Rd	Wyndham, NSW, Australia	( <a href="#">Indicative Place</a> ) Register of the National Estate (Non-statutory archive)
<a href="#">Yowaka Forest Area / Egan Peaks Extension Area</a> Burragate Fire Rd	Eden, NSW, Australia	( <a href="#">Registered</a> ) Register of the National Estate (Non-statutory archive)
<a href="#">Yowaka Reserve Proposal</a> Nethercote Rd	Pambula, NSW, Australia	( <a href="#">Indicative Place</a> ) Register of the National Estate (Non-statutory archive)

<a href="#">Zieria Sp Box Range North Site</a>	Pambula, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
<a href="#">Zieria Sp Nov Site (Lochiel)</a>	Pambula, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)

**Report Produced: Fri Jul 20 13:43:42 2018**





[Home](#) > [Topics](#) > [Heritage places and items](#) > [Search for heritage](#)

## Search for NSW heritage

[Return to search page where you can refine/broaden your search.](#)

### Statutory listed items

Information and items listed in the State Heritage Inventory come from a number of sources. This means that there may be several entries for the same heritage item in the database. For clarity, the search results have been divided into three sections.

- **Section 1** - contains Aboriginal Places declared by the **Minister for the Environment** under the National Parks and Wildlife Act. This information is provided by the Heritage Division.
- **Section 2** - contains heritage items listed by the **Heritage Council of NSW** under the NSW Heritage Act. This includes listing on the State Heritage Register, an Interim Heritage Order or protected under section 136 of the NSW Heritage Act. This information is provided by the Heritage Division.
- **Section 3** - contains items listed by **local councils** on Local Environmental Plans under the Environmental Planning and Assessment Act, 1979 and **State government agencies** under s.170 of the Heritage Act. This information is provided by local councils and State government agencies.

### Section 1. Aboriginal Places listed under the National Parks and Wildlife Act.

Your search returned 3 records.

Aboriginal place name	Local government area	Local Aboriginal Land Council	Latitude	Longitude	Gazettal date and page numbers	Comments
<a href="#">Bermagui Waterhole</a>	Bega Valley	Merrimans	-36.4263631089	150.065325266	12/14/2007 p. 9647	
<a href="#">Biamanga</a>	Bega Valley	Merrimans	-36.5370493905	149.896133343	06/01/1984 p. 2824	Located predominantly within Biamanga National Park
<a href="#">Merriman Island</a>	Bega Valley	Merrimans	-36.3665533745	150.063405448	11/25/1977 p. 5201	

### Section 2. Items listed under the NSW Heritage Act.

Your search returned 12 records.

Item name	Address	Suburb	LGA	SHR
<a href="#">Baronda</a>	Nelson Lake Road Nelson Lagoon	Mimosa Rocks National Park, Tanja	Bega Valley	01915
<a href="#">Bundian Way</a>	Mount Kosciuszko to Eden	Kosciuszko	Tumbarumba	01906
<a href="#">CBC Bank (former)</a>	21 Auckland Street	Bega	Bega Valley	00588
<a href="#">Courunga</a>	Monaro Street	Merimbula	Bega Valley	00235
<a href="#">Davidson Whaling Station</a>	35km South Of	Eden	Bega Valley	00984
<a href="#">Green Cape Maritime Precinct</a>	Green Cape Road	Green Cape	Bega Valley	01897
<a href="#">Ness Property</a>	Reserve Road	Wapengo	Bega Valley	00519



<a href="#">New Buildings Bridge over Towamba River</a>	Wyndham (south west)	Wyndham	Bega Valley	01477
<a href="#">Oaklands</a>	Princes Highway	Pambula	Bega Valley	01686
<a href="#">Penders</a>	Haighs Road (within Mimosa Rocks National Park)	Tanja	Bega Valley	01913
<a href="#">Tathra Wharf and building</a>	Wharf Road	Tathra	Bega Valley	00405
<a href="#">Yowaka Bridge near Eden</a>	State Highway 1	Eden	Bega Valley	01486

### Section 3. Items listed by Local Government and State Agencies.

Your search returned 478 records.

Item name	Address	Suburb	LGA	Information source
<a href="#">All Saints Anglican Church</a>	11 Wallaga Street	Bermagui	Bega Valley	LGOV
<a href="#">Allsops Creek Weir</a>		Bega	Bega Valley	SGOV
<a href="#">Alsops Creek Bridge</a>	Princes Highway	near Brogo	Bega Valley	SGOV
<a href="#">Ambulance Station</a>	1-3 Canning Street	Bega	Bega Valley	LGOV
<a href="#">Anchor</a>	221 Imlay Street	Eden	Bega Valley	LGOV
<a href="#">Anchor</a>	Imlay Street	Eden District	Bega Valley	LGOV
<a href="#">Art Deco Shops</a>	26-32 Church Street	Bega	Bega Valley	LGOV
<a href="#">Ayrdale Dairy Village</a>	297 Wanatta Lane	Frogs Hollow	Bega Valley	LGOV
<a href="#">Baddeley's Cottage</a>	26 Monaro Street	Pambula	Bega Valley	LGOV
<a href="#">Bank Hotel</a>	42 Church Street	Bega	Bega Valley	LGOV
<a href="#">Bank of NSW (former)</a>	213 Imlay Street	Eden	Bega Valley	LGOV
<a href="#">Barton's, The</a>	28 William Street	Candelo	Bega Valley	LGOV
<a href="#">Bega Band Room</a>	23 Canning Street	Bega	Bega Valley	LGOV
<a href="#">Bega Cemetery</a>	Princes Highway	Bega	Bega Valley	LGOV
<a href="#">Bega Commercial Conservation Area</a>	Carp Street	Bega	Bega Valley	LGOV
<a href="#">Bega Courthouse</a>	Carp Street and Gipps Street	Bega	Bega Valley	SGOV
<a href="#">Bega Courthouse</a>	Corner of Carp and Gipps	Bega	Bega	LGOV

	Streets		Valley	
<a href="#"><u>Bega Fire Station</u></a>	Gipps Street	Bega	Bega Valley	SGOV
<a href="#"><u>Bega Public School</u></a>	21 Auckland Street	Bega	Bega Valley	LGOV
<a href="#"><u>Bega Showground Pavilion and other buildings</u></a>	Upper Street	Bega	Bega Valley	LGOV
<a href="#"><u>Bega Street Conservation area</u></a>	Bega Street	Bega	Bega Valley	LGOV
<a href="#"><u>Bega Uniting Church</u></a>	125 Gipps Street	Bega	Bega Valley	LGOV
<a href="#"><u>Bellbird Creek Bridge</u></a>	Princes Highway	4.63 km north of Eden	Bega Valley	SGOV
<a href="#"><u>Bemboka Butter Factory (former)</u></a>	2712 Snowy Mountains Highway	Bemboka	Bega Valley	LGOV
<a href="#"><u>Bemboka Police Station and Official Residence</u></a>	35-39 Loftus Street	Bemboka	Bega Valley	SGOV
<a href="#"><u>Bemboka Post Office</u></a>	68 Loftus Street	Bemboka	Bega Valley	LGOV
<a href="#"><u>Bemboka Primary School - classrooms/administration building and residence</u></a>	35-45 Kameruka Street	Bemboka	Bega Valley	LGOV
<a href="#"><u>Bemboka River Bridge</u></a>	Snowy Mountains Highway	Morans Crossing	Bega Valley	SGOV
<a href="#"><u>Bemboka War Memorial</u></a>	91 Loftus Street	Bemboka	Bega Valley	LGOV
<a href="#"><u>Benny Buildings, The</u></a>	74 Princes Highway	Cobargo	Bega Valley	LGOV
<a href="#"><u>Bently Bros Hairdressers (former)</u></a>	195 Carp Street	Bega	Bega Valley	LGOV
<a href="#"><u>Bermagui Cemetery</u></a>	Tathra Bermagui Road	Bermagui	Bega Valley	LGOV
<a href="#"><u>Bermagui War Memorial</u></a>	Lamont Street	Bermagui	Bega Valley	LGOV
<a href="#"><u>Bermagui Waterholes</u></a>	Hill Street	Bermagui	Bega Valley	LGOV
<a href="#"><u>Bermagui Wharf Remains</u></a>	Lamont Street	Bermagui	Bega Valley	LGOV
<a href="#"><u>Bismark House</u></a>	187-189 Newtown Road	Bega	Bega Valley	LGOV
<a href="#"><u>Bittangabee Ruins</u></a>	Bittangabee Bay, Ben Boyd National Park	Edrom	Bega Valley	LGOV
<a href="#"><u>Blue Pool, The</u></a>	Scenic Drive	Bermagui	Bega Valley	LGOV
<a href="#"><u>Boer War Memorial and Bega Park</u></a>	Upper Street	Bega	Bega Valley	LGOV

<a href="#"><u>Boiling Down Works site</u></a>	87 Boydton Park Road	Boydton	Bega Valley	LGOV
<a href="#"><u>Boyd's Tower</u></a>	Off Edrom Road	Edrom	Bega Valley	LGOV
<a href="#"><u>Boydton's Church and grave sites</u></a>	87 Boydton Park Road	Boydton	Bega Valley	LGOV
<a href="#"><u>Brick bungalow</u></a>	15 Peden Street	Bega	Bega Valley	LGOV
<a href="#"><u>Brick chambers (Part of Blomfield chambers)</u></a>	131 Carp Street	Bega	Bega Valley	LGOV
<a href="#"><u>Brick cottage, Claremont</u></a>	32 Carp Street	Bega	Bega Valley	LGOV
<a href="#"><u>Brick dwelling</u></a>	61 Parker Street	Bega	Bega Valley	LGOV
<a href="#"><u>Brick dwelling</u></a>	56 Bega Street	Tathra	Bega Valley	LGOV
<a href="#"><u>Brick federation House</u></a>	58 Bega Street	Tathra	Bega Valley	LGOV
<a href="#"><u>Brick house</u></a>	34 Carp Street	Bega	Bega Valley	LGOV
<a href="#"><u>Brick house</u></a>	22 Union Street	Bega	Bega Valley	LGOV
<a href="#"><u>Brick residence</u></a>	36 Carp Street	Bega	Bega Valley	LGOV
<a href="#"><u>Brick residence and garden setting</u></a>	264 Newtown Road	Bega	Bega Valley	LGOV
<a href="#"><u>Brick-faced shop</u></a>	205 Carp Street	Bega	Bega Valley	LGOV
<a href="#"><u>Brickworks</u></a>	564 Bega-Tathra Road	Kalaru	Bega Valley	LGOV
<a href="#"><u>Bridge House and associated buildings</u></a>	29 Blanchard's Road	Brogo	Bega Valley	LGOV
<a href="#"><u>Brogo Dam</u></a>	Brogo River	Bega	Bega Valley	SGOV
<a href="#"><u>Brogo River Bridge</u></a>	Princes Highway	Brogo	Bega Valley	SGOV
<a href="#"><u>Brown Mountain Power Station</u></a>	Rutherford Creek (Brown Mountain)	Bemboka	Bega Valley	LGOV
<a href="#"><u>Building</u></a>	86 Gipps Street	Bega	Bega Valley	LGOV
<a href="#"><u>Building</u></a>	34 Church Street	Bega	Bega Valley	LGOV
<a href="#"><u>Building</u></a>	237 Imlay Street	Eden	Bega Valley	LGOV
<a href="#"><u>Building</u></a>	227-239 Carp Street	Bega	Bega Valley	LGOV
<a href="#"><u>Building</u></a>	110-114 Carp Street	Bega	Bega	LGOV

			Valley	
<b><u>Building</u></b>	161 Carp Street	Bega	Bega Valley	LGOV
<b><u>Building</u></b>	209-211 Carp Street	Bega	Bega Valley	LGOV
<b><u>Building</u></b>	22 Quondolo Street	Pambula	Bega Valley	LGOV
<b><u>Building</u></b>	153-155 Carp Street	Bega	Bega Valley	LGOV
<b><u>Building</u></b>	157 Carp Street	Bega	Bega Valley	LGOV
<b><u>Building</u></b>	27 Sharpe Street	Candelo	Bega Valley	LGOV
<b><u>Building</u></b>	19 Hoyer Street	Cobargo	Bega Valley	LGOV
<b><u>Building</u></b>	27 Sharpe Street	Candelo	Bega Valley	LGOV
<b><u>Building (Bangles Pottery)</u></b>	66 Princes Highway	Cobargo	Bega Valley	LGOV
<b><u>Building (Cobargo Newsagency)</u></b>	58-60 Princes Highway	Cobargo	Bega Valley	LGOV
<b><u>Building (Cobargo Pharmacy)</u></b>	62 Princes Highway	Cobargo	Bega Valley	LGOV
<b><u>Building (Cobargo Service Station)</u></b>	53 Princes Highway	Cobargo	Bega Valley	LGOV
<b><u>Building (Ex AJS Bank)</u></b>	8 Bermagui Road	Cobargo	Bega Valley	LGOV
<b><u>Building (Former Bank of NSW)</u></b>	2-6 Bermagui Road	Cobargo	Bega Valley	LGOV
<b><u>Building (former Blacksmith's Shop)</u></b>	21 Sharpe Street	Candelo	Bega Valley	LGOV
<b><u>Building (former CBC Bank)</u></b>	19 Auckland Street	Bega	Bega Valley	LGOV
<b><u>Building (former Commercial Bank &amp; Blacksmiths)</u></b>	23 Sharpe Street	Candelo	Bega Valley	LGOV
<b><u>Building (former Queens Hotel)</u></b>	46 William Street	Candelo	Bega Valley	LGOV
<b><u>Building (Gosch House)</u></b>	55 Princes Highway	Cobargo	Bega Valley	LGOV
<b><u>Building (McPhersons Drapery)</u></b>	33 Princes Highway	Pambula	Bega Valley	LGOV
<b><u>Building (Shekina Gallery)</u></b>	7 Bermagui Road	Cobargo	Bega Valley	LGOV
<b><u>Building (Simply Cobargo Tea Room)</u></b>	72 Princes Highway	Cobargo	Bega Valley	LGOV
<b><u>Building (Telefix)</u></b>	9 Bermagui Road	Cobargo	Bega Valley	LGOV

<a href="#"><u>Building (the former Roan Horse Inn)</u></a>	2-4 Mount Darragh Road	South Pambula	Bega Valley	LGOV
<a href="#"><u>Building (The Grain Store)</u></a>	59 Princes Highway	Cobargo	Bega Valley	LGOV
<a href="#"><u>Building (Toad Hall)</u></a>	55 Toallo Street	Pambula	Bega Valley	LGOV
<a href="#"><u>Building Blomfield Chambers</u></a>	127 Carp Street	Bega	Bega Valley	LGOV
<a href="#"><u>Building Country Energy</u></a>	219 Carp Street	Bega	Bega Valley	LGOV
<a href="#"><u>Building Fenton</u></a>	67 Blairlands Road	Lochiel	Bega Valley	LGOV
<a href="#"><u>Building Fish and Chips</u></a>	225 Carp Street	Bega	Bega Valley	LGOV
<a href="#"><u>Building Kings Cinema former</u></a>	104-108 Carp Street	Bega	Bega Valley	LGOV
<a href="#"><u>Building Red Cross Centre</u></a>	33 Church Street	Bega	Bega Valley	LGOV
<a href="#"><u>Buildings</u></a>	241-247 Carp Street	Bega	Bega Valley	LGOV
<a href="#"><u>Buildings (former T Thomas Stores)</u></a>	25 Sharpe Street	Candelo	Bega Valley	LGOV
<a href="#"><u>Bungalow</u></a>	8 Bega Street	Bega	Bega Valley	LGOV
<a href="#"><u>Bungalow</u></a>	81 Bega Street	Bega	Bega Valley	LGOV
<a href="#"><u>Bungalow</u></a>	83 Bega Street	Bega	Bega Valley	LGOV
<a href="#"><u>Bungalow</u></a>	8 Cobargo Street	Cobargo	Bega Valley	LGOV
<a href="#"><u>Bungalow</u></a>	79 Bega Street	Bega	Bega Valley	LGOV
<a href="#"><u>Bungalow and palm tree</u></a>	47 Upper Street	Bega	Bega Valley	LGOV
<a href="#"><u>Burragate Conservation Area</u></a>	Various Various	Burragate	Bega Valley	LGOV
<a href="#"><u>Café (former Miss Fosters)</u></a>	79 - 81 Loftus Street	Bemboka	Bega Valley	LGOV
<a href="#"><u>Candelo Hotel</u></a>	9-11 Sharpe Street	Candelo	Bega Valley	LGOV
<a href="#"><u>Candelo Main Street Conservation Area</u></a>	William Street Sharpe Street	Candelo	Bega Valley	LGOV
<a href="#"><u>Candelo Police Station and Official Residence</u></a>	Queen Street	Candelo	Bega Valley	SGOV
<a href="#"><u>Candelo School of Arts</u></a>	38 William Street	Candelo	Bega Valley	LGOV
<a href="#"><u>Candelo Service Station</u></a>	40 William Street	Candelo	Bega	LGOV

			Valley	
<a href="#">Candelo Showground Pavilion</a>	Candelo-Bega Road	Candelo	Bega Valley	LGOV
<a href="#">Canning Street Conservation Area</a>	Canning Street	Bega	Bega Valley	LGOV
<a href="#">Carp Street survey pole</a>	Carp Street (in front of 187 Carp Street)	Bega	Bega Valley	LGOV
<a href="#">Carpet Court</a>	247 Carp Street	Bega	Bega Valley	LGOV
<a href="#">Catholic Presbytery (former)</a>	14 Bega Street	Pambula	Bega Valley	LGOV
<a href="#">Central Hotel and associated buildings</a>	90-94 Gipps Street	Bega	Bega Valley	LGOV
<a href="#">Christ Church</a>	5-11 Hoyer Street	Cobargo	Bega Valley	LGOV
<a href="#">Christ Church Anglican Church</a>	32 Quondolo Street	Pambula	Bega Valley	LGOV
<a href="#">Christ Church Anglican Church</a>	51 - 57 Bemboka Street	Bemboka	Bega Valley	LGOV
<a href="#">Clock Tower</a>	Gipps Street (centre of Gipps Street at intersection with Carp Street)	Bega	Bega Valley	LGOV
<a href="#">Cobandrah Farm</a>	300 Mt Darragh Road	Lochiel	Bega Valley	LGOV
<a href="#">Cobargo Butter Factory and Co-op</a>	1464 Cobargo-Bermagui Road	Cobargo	Bega Valley	LGOV
<a href="#">Cobargo Cemetery</a>	Princes Highway	Cobargo	Bega Valley	LGOV
<a href="#">Cobargo Hotel</a>	Princes Highway	Cobargo	Bega Valley	LGOV
<a href="#">Cobargo Main Street Conservation Area</a>	Princes Highway	Cobargo	Bega Valley	LGOV
<a href="#">Cobargo Post Office</a>	57 Princes Highway	Cobargo	Bega Valley	LGOV
<a href="#">Cobargo Public School - classrooms (circa 1898 and 1930)</a>	20-40 Wandella Road	Cobargo	Bega Valley	LGOV
<a href="#">Cobargo Roman Catholic Conservation Area</a>	Wandella Road	Cobargo	Bega Valley	LGOV
<a href="#">Collinswood homestead</a>	1339 Candelo-Wolumla Road	Toothdale	Bega Valley	LGOV
<a href="#">Colombo Creek Weir</a>		Bemboka	Bega Valley	SGOV
<a href="#">Commercial Hotel</a>	147-151 Carp Street	Bega	Bega Valley	LGOV
<a href="#">Commercial Hotel, The</a>	18 Quondolo Street	Pambula	Bega Valley	LGOV

<a href="#"><u>Commonwealth Bank Former</u></a>	96 Gipps Street	Bega	Bega Valley	LGOV
<a href="#"><u>Cottage</u></a>	32 Kameruka Street	Candelo	Bega Valley	LGOV
<a href="#"><u>Cottage</u></a>	46 Mitchell Street	Eden	Bega Valley	LGOV
<a href="#"><u>Cottage</u></a>	12 Flinders Street	Eden	Bega Valley	LGOV
<a href="#"><u>Cottage</u></a>	46 Bermagui Road	Cobargo	Bega Valley	LGOV
<a href="#"><u>Cottage</u></a>	21 Panbula Street	Candelo	Bega Valley	LGOV
<a href="#"><u>Cottage</u></a>	19 Bermagui Road	Cobargo	Bega Valley	LGOV
<a href="#"><u>Cottage</u></a>	9 Canning Street	Bega	Bega Valley	LGOV
<a href="#"><u>Cottage</u></a>	6 Canning Street	Bega	Bega Valley	LGOV
<a href="#"><u>Cottage</u></a>	10 Canning Street	Bega	Bega Valley	LGOV
<a href="#"><u>Cottage</u></a>	36 Bega Street	Bega	Bega Valley	LGOV
<a href="#"><u>Cottage</u></a>	50 Belmore Street	Bega	Bega Valley	LGOV
<a href="#"><u>Cottage</u></a>	3 Bega Street	Cobargo	Bega Valley	LGOV
<a href="#"><u>Cottage</u></a>	95 Upper Street	Bega	Bega Valley	LGOV
<a href="#"><u>Cottage</u></a>	99 Upper Street	Bega	Bega Valley	LGOV
<a href="#"><u>Cottage</u></a>	101 Upper Street	Bega	Bega Valley	LGOV
<a href="#"><u>Cottage</u></a>	2 Mitchell Street	Eden	Bega Valley	LGOV
<a href="#"><u>Cottage</u></a>	61 Loftus Street	Bemboka	Bega Valley	LGOV
<a href="#"><u>Cottage</u></a>	93 Upper Street	Bega	Bega Valley	LGOV
<a href="#"><u>Cottage</u></a>	4 Bega Street	Bega	Bega Valley	LGOV
<a href="#"><u>Cottage</u></a>	37 Princes Highway	Cobargo	Bega Valley	LGOV
<a href="#"><u>Cottage</u></a>	52 Parker Street	Bega	Bega Valley	LGOV
<a href="#"><u>Cottage</u></a>	92 Parker Street	Bega	Bega Valley	LGOV
<a href="#"><u>Cottage</u></a>	108 Upper Street	Bega	Bega	LGOV

			Valley	
<a href="#">Cottage</a>	124 Upper Street	Bega	Bega Valley	LGOV
<a href="#">Cottage</a>	126 Upper Street	Bega	Bega Valley	LGOV
<a href="#">Cottage</a>	31 Peden Street	Bega	Bega Valley	LGOV
<a href="#">Cottage</a>	4 Queen Street	Candelo	Bega Valley	LGOV
<a href="#">Cottage</a>	113 Upper Street	Bega	Bega Valley	LGOV
<a href="#">Cottage</a>	3 Candelo Street	Candelo	Bega Valley	LGOV
<a href="#">Cottage</a>	14 Bega Street	Bega	Bega Valley	LGOV
<a href="#">Cottage</a>	32 Bega Street	Bega	Bega Valley	LGOV
<a href="#">Cottage</a>	34 Bega Street	Bega	Bega Valley	LGOV
<a href="#">Cottage</a>	18 Gordon Street	Wyndham	Bega Valley	LGOV
<a href="#">Cottage</a>	5 Bega Street	Cobargo	Bega Valley	LGOV
<a href="#">Cottage</a>	35 Bermagui Road	Cobargo	Bega Valley	LGOV
<a href="#">Cottage</a>	39 Bermagui Road	Cobargo	Bega Valley	LGOV
<a href="#">Cottage</a>	10 Chandos Street	Eden	Bega Valley	LGOV
<a href="#">Cottage</a>	6 Manning Street	Towamba	Bega Valley	LGOV
<a href="#">Cottage</a>	39 Auckland Street	Candelo	Bega Valley	LGOV
<a href="#">Cottage</a>	8 Perico Street	Burragate	Bega Valley	LGOV
<a href="#">Cottage</a>	42 Princes Highway	Cobargo	Bega Valley	LGOV
<a href="#">Cottage</a>	150 Newtown Road	Bega	Bega Valley	LGOV
<a href="#">Cottage</a>	25 Canning Street	Bega	Bega Valley	LGOV
<a href="#">Cottage</a>	49 Toallo Street	Pambula	Bega Valley	LGOV
<a href="#">Cottage</a>	3 Monaro Street (east side)	Pambula	Bega Valley	LGOV
<a href="#">Cottage</a>	1 Little Gahan Street	Pambula	Bega Valley	LGOV



<a href="#">Cottage</a>	65 Toallo Street	Pambula	Bega Valley	LGOV
<a href="#">Cottage</a>	26 Carp Street	Bega	Bega Valley	LGOV
<a href="#">Cottage</a>	44-46 Carp Street	Bega	Bega Valley	LGOV
<a href="#">Cottage</a>	4 Ives Street	Pambula	Bega Valley	LGOV
<a href="#">Cottage</a>	Bombala Road, South Pambula (next to dairy factory)	Pambula	Bega Valley	LGOV
<a href="#">Cottage</a>	172 Auckland Street	Bega	Bega Valley	LGOV
<a href="#">Cottage</a>	32-34 Princes Highway	Cobargo	Bega Valley	LGOV
<a href="#">Cottage</a>	7 Little Church Street	Bega	Bega Valley	LGOV
<a href="#">Cottage</a>	23 Panbula Street	Candelo	Bega Valley	LGOV
<a href="#">Cottage</a>	32 Panbula Street	Candelo	Bega Valley	LGOV
<a href="#">Cottage</a>	52 Carp Street	Bega	Bega Valley	LGOV
<a href="#">Cottage</a>	30 Toallo Street	Pambula	Bega Valley	LGOV
<a href="#">Cottage</a>	11 Monaro Street	Pambula	Bega Valley	LGOV
<a href="#">Cottage</a>	47 Toallo Street	Pambula	Bega Valley	LGOV
<a href="#">Cottage</a>	11 Quondolo Street	Pambula	Bega Valley	LGOV
<a href="#">Cottage (former CBC Bank)</a>	36 William Street	Candelo	Bega Valley	LGOV
<a href="#">Cottage (Weetah)</a>	12 Canning Street	Bega	Bega Valley	LGOV
<a href="#">Cottage and building (former Pambula Co-operative Creamery Dairy Co Ltd)</a>	256 Mount Darragh Road	South Pambula	Bega Valley	LGOV
<a href="#">Cottage on Rise</a>	22 Mine Street	Wolumla	Bega Valley	LGOV
<a href="#">Council offices</a>	114-116 Mitchell Street	Eden	Bega Valley	LGOV
<a href="#">Courthouse and Police station</a>	42 Toallo Street	Pambula	Bega Valley	LGOV
<a href="#">Courunga House and grounds</a>	20 Monaro Street	Merimbula	Bega Valley	LGOV
<a href="#">Craft shop</a>	41 Scott Street	Wolumla	Bega Valley	LGOV

<a href="#"><u>Crown and Anchor Inn, The</u></a>	239 Imlay Street	Eden	Bega Valley	LGOV
<a href="#"><u>Cuttagee Bridge</u></a>	Tathra-Bermagui Road	Cuttagee	Bega Valley	LGOV
<a href="#"><u>Cuttagee House</u></a>	3579 Tathra-Bermagui Road	Barraga Bay	Bega Valley	LGOV
<a href="#"><u>CWA</u></a>	5 Bermagui Road	Cobargo	Bega Valley	LGOV
<a href="#"><u>Daisybank homestead and associated outbuildings</u></a>	210 Reedy Swamp Road	Tarraganda	Bega Valley	LGOV
<a href="#"><u>Dar El and Trees in garden</u></a>	50 Mitchell Street	Eden	Bega Valley	LGOV
<a href="#"><u>Davidson's Whaling Station and associated buildings</u></a>	Boyd Road	Edrom	Bega Valley	LGOV
<a href="#"><u>Dick Rixon's House</u></a>	221 Newtown Road	Bega	Bega Valley	LGOV
<a href="#"><u>Durham House</u></a>	42 Bega Street	Bega	Bega Valley	LGOV
<a href="#"><u>Dwelling</u></a>	14 Scott Street	Wolumla	Bega Valley	LGOV
<a href="#"><u>Dwelling</u></a>	137 Gipps Street	Bega	Bega Valley	LGOV
<a href="#"><u>Dwelling</u></a>	30-32 Scott Street	Wolumla	Bega Valley	LGOV
<a href="#"><u>Dwelling</u></a>	45-47 Scott Street	Wolumla	Bega Valley	LGOV
<a href="#"><u>Dwelling</u></a>	34 Scott Street	Wolumla	Bega Valley	LGOV
<a href="#"><u>Eastwood Homestead</u></a>	507 Tarraganda Road via Bega	Tarraganda	Bega Valley	LGOV
<a href="#"><u>Eden Cemetery</u></a>	Aslings Beach Road	Eden	Bega Valley	LGOV
<a href="#"><u>Eden Courthouse</u></a>	Imlay Street	Eden	Bega Valley	SGOV
<a href="#"><u>Eden Courthouse</u></a>	231 Imlay Street	Eden	Bega Valley	LGOV
<a href="#"><u>Eden Killer Whale Museum</u></a>	182 Imlay Street	Eden	Bega Valley	LGOV
<a href="#"><u>Eden Log Cabin Library</u></a>	38 Bass Street	Eden	Bega Valley	LGOV
<a href="#"><u>Eden Official Residence 2</u></a>	127 Imlay Street	Eden	Bega Valley	SGOV
<a href="#"><u>Eden Police Station</u></a>	129 Imlay Street	Eden	Bega Valley	SGOV
<a href="#"><u>Eden Police Station building</u></a>	229 Imlay Street	Eden	Bega Valley	LGOV
<a href="#"><u>Eden Post Office (former)</u></a>	155-157 Imlay Street	Eden	Bega	LGOV

			Valley	
<a href="#"><u>Eden Public School (circa 1857 School Building)</u></a>	124 Imlay Street	Eden	Bega Valley	LGOV
<a href="#"><u>Edrom Lodge &amp; associated buildings</u></a>	Off Edrom Road	Edrom	Bega Valley	LGOV
<a href="#"><u>Edrom Lodge and associated buildings</u></a>	Jews Head, Twofold Bay	Boydton	Bega Valley	LGOV
<a href="#"><u>Elmgrove Homestead</u></a>	220 Angledale Road	Bega	Bega Valley	LGOV
<a href="#"><u>Family Museum Building (former Family Hotel)</u></a>	89-91 Bega Street	Bega	Bega Valley	LGOV
<a href="#"><u>Farm Cottage with red roof</u></a>	Princes Highway	Greigs Flat	Bega Valley	LGOV
<a href="#"><u>Farmhill homestead Clydebank</u></a>	3120 Snowy Mountains Highway	Bemboka	Bega Valley	LGOV
<a href="#"><u>Federation cottage</u></a>	44 Bega Street	Bega	Bega Valley	LGOV
<a href="#"><u>Federation dwelling, Narroon</u></a>	257 Newtown Road	Bega	Bega Valley	LGOV
<a href="#"><u>Federation residence</u></a>	3 Parrabel Street	Bega	Bega Valley	LGOV
<a href="#"><u>Fire Station</u></a>	114 Gipps Street	Bega	Bega Valley	LGOV
<a href="#"><u>Fishermen's Lookout</u></a>	Lake Street	Merimbula	Bega Valley	LGOV
<a href="#"><u>Former Alcock and Sons Butchers</u></a>	63 Loftus Street	Bemboka	Bega Valley	LGOV
<a href="#"><u>Former Butcher Shop</u></a>	69 Loftus Street	Bemboka	Bega Valley	LGOV
<a href="#"><u>Former Police Station</u></a>	4 Bega Street	Wolumla	Bega Valley	LGOV
<a href="#"><u>Former police station</u></a>	46 - 48 Loftus Street	Bemboka	Bega Valley	LGOV
<a href="#"><u>Former Post Office</u></a>	28 Scott Street	Wolumla	Bega Valley	LGOV
<a href="#"><u>French's Building</u></a>	45-47 Church Street	Bega	Bega Valley	LGOV
<a href="#"><u>Gables, The</u></a>	22-24 Tarlinton Street	Cobargo	Bega Valley	LGOV
<a href="#"><u>Gates and Pillars for Gas works</u></a>	27 Upper Street	Bega	Bega Valley	LGOV
<a href="#"><u>General Store</u></a>	48 William Street	Candelo	Bega Valley	LGOV
<a href="#"><u>Georgian Building and shop</u></a>	243 Imlay Street	Eden	Bega Valley	LGOV
<a href="#"><u>Glenall Homestead</u></a>	South Wolumla Road	South Wolumla	Bega Valley	LGOV

<a href="#"><u>Goddard's Motors</u></a>	29 Quondolo Street	Pambula	Bega Valley	LGOV
<a href="#"><u>Grand Hotel</u></a>	236 Carp Street	Bega	Bega Valley	LGOV
<a href="#"><u>Grange building, The</u></a>	Northview Drive	South Pambula	Bega Valley	LGOV
<a href="#"><u>Granite kerb and gutter</u></a>	Various	Bega	Bega Valley	LGOV
<a href="#"><u>Great Southern Inn, The</u></a>	156-158 Imlay Street	Eden	Bega Valley	LGOV
<a href="#"><u>Green Cape Lighthouse and residences group</u></a>	Ben Boyd National Park	Green Cape	Bega Valley	LGOV
<a href="#"><u>Greenpoint house and sheds</u></a>	71 Greenpoint Road	Millingandi	Bega Valley	LGOV
<a href="#"><u>Harbour Master's Restaurant</u></a>	15-17 Bega Street	Tathra	Bega Valley	LGOV
<a href="#"><u>Hardware Store &amp; blacksmith shop former</u></a>	70 - 72 Loftus Street	Bemboka	Bega Valley	LGOV
<a href="#"><u>Haven, The</u></a>	25 Bega Street	Tathra	Bega Valley	LGOV
<a href="#"><u>Hobb's Store (1889), cottage (c1890) &amp; storage shed</u></a>	71 - 73 Loftus Street	Bemboka	Bega Valley	LGOV
<a href="#"><u>Holy Trinity Anglican Church</u></a>	22 Clarke Street	Wyndham	Bega Valley	LGOV
<a href="#"><u>Holy Trinity Church and Cemetery</u></a>	Candelo-Bega Road	Kameruka	Bega Valley	LGOV
<a href="#"><u>Homestead Ottonville</u></a>	35 Ottonville Road	Bega	Bega Valley	LGOV
<a href="#"><u>Hopetoun House</u></a>	5 Bass Street	Eden	Bega Valley	LGOV
<a href="#"><u>Horseshoe Bay Hotel</u></a>	10 Lamont Street	Bermagui	Bega Valley	LGOV
<a href="#"><u>House</u></a>	233 Imlay Street	Eden	Bega Valley	LGOV
<a href="#"><u>House</u></a>	25-27 Cobargo Street	Quaama	Bega Valley	LGOV
<a href="#"><u>House</u></a>	41 Upper Street	Bega	Bega Valley	LGOV
<a href="#"><u>House</u></a>	2A Union Street	Bega	Bega Valley	LGOV
<a href="#"><u>House</u></a>	39 Upper Street	Bega	Bega Valley	LGOV
<a href="#"><u>House</u></a>	25 Peden Street	Bega	Bega Valley	LGOV
<a href="#"><u>House (former Courthouse)</u></a>	2 Cocora Street	Eden	Bega Valley	LGOV
<a href="#"><u>House (former Rectory)</u></a>	26 Glebe Avenue	Bega	Bega	LGOV

			Valley	
<a href="#"><u>House (former Roman Catholic School)</u></a>	Wandella Road	Cobargo	Bega Valley	LGOV
<a href="#"><u>House (former Victoria Inn)</u></a>	38-40 Auckland Street	Bega	Bega Valley	LGOV
<a href="#"><u>House (former Westpac residence)</u></a>	139 Carp Street	Bega	Bega Valley	LGOV
<a href="#"><u>House (Kookaburra)</u></a>	58 Upper Street	Bega	Bega Valley	LGOV
<a href="#"><u>House and associated buildings</u></a>	165 Pericoe Road	Towamba	Bega Valley	LGOV
<a href="#"><u>House and Garden Dr Loftus</u></a>	21-23 Peden Street	Bega	Bega Valley	LGOV
<a href="#"><u>Inter war building</u></a>	15 Sharpe Street	Candelo	Bega Valley	LGOV
<a href="#"><u>Jacaranda House</u></a>	28 Carp Street	Bega	Bega Valley	LGOV
<a href="#"><u>Jellat Jellat Homestead (garden and outbuildings)</u></a>	Tathra Road	Bega	Bega Valley	LGOV
<a href="#"><u>Kameruka Group incl. store, hall, gate lodge, tower clock, homestead &amp; outbuild.</u></a>	Kameruka Estate Road	Kameruka	Bega Valley	LGOV
<a href="#"><u>Kenilworth</u></a>	22 George Street	Bermagui	Bega Valley	LGOV
<a href="#"><u>Kenya Homestead</u></a>	134 Loftus Street	Bemboka	Bega Valley	LGOV
<a href="#"><u>Lawson House</u></a>	53 Parker Street	Bega	Bega Valley	LGOV
<a href="#"><u>Littleton House</u></a>	24 - 30 Bega Street	Bega	Bega Valley	LGOV
<a href="#"><u>Lyttleton</u></a>	62 Loftus Street	Bemboka	Bega Valley	LGOV
<a href="#"><u>Malcolm House</u></a>	16 Canning Street	Bega	Bega Valley	LGOV
<a href="#"><u>Mary McKillop Hall (former Star of The Sea Church)</u></a>	86-90 Calle Calle Street	Eden	Bega Valley	LGOV
<a href="#"><u>Masonic Centre</u></a>	18 Canning Street	Bega	Bega Valley	LGOV
<a href="#"><u>Masonic Temple</u></a>	40 Toallo Street	Pambula	Bega Valley	LGOV
<a href="#"><u>Mataganah Bridge</u></a>	Near Rocky Hall	Rocky Hall	Bega Valley	LGOV
<a href="#"><u>Matt Howard's Store</u></a>	178 Imlay Street	Eden	Bega Valley	LGOV
<a href="#"><u>McNamara Centennial building and shops</u></a>	53-61 Church Street	Bega	Bega Valley	LGOV
<a href="#"><u>Memorial casuarina tree planting</u></a>	Princes Highway	Pambula	Bega	LGOV

	(Pambula River Flats)		Valley	
<a href="#">Memorial Garden Bega High School</a>	Upper Street	Bega	Bega Valley	LGOV
<a href="#">Merimbula Wharf and cargo sheds</a>	Wharf Street on Long Point	Merimbula	Bega Valley	LGOV
<a href="#">Merrimans Island</a>		Wallaga Lake	Bega Valley	LGOV
<a href="#">Mitchie's wharf and shed</a>	Fishpen	Merimbula	Bega Valley	LGOV
<a href="#">Montreal Goldfields</a>	Wallaga Lake Road	Wallaga Lake	Bega Valley	LGOV
<a href="#">Morella House</a>	55 Parker Street	Bega	Bega Valley	LGOV
<a href="#">Morrows Motor Garage/Corner Store</a>	7 Sharpe Street	Candelo	Bega Valley	LGOV
<a href="#">Motor Garage former</a>	217 Carp Street	Bega	Bega Valley	LGOV
<a href="#">Mumbulla Mountain</a>		Mumbulla	Bega Valley	LGOV
<a href="#">Murrah Hall</a>	Tathra-Bermagui Road	Murrah	Bega Valley	LGOV
<a href="#">Murrah River Bridge</a>	Tathra-Bermagui Road	Murrah	Bega Valley	LGOV
<a href="#">Natural Energy Centre</a>	76 - 78 Loftus Street	Bemboka	Bega Valley	LGOV
<a href="#">Ness Property</a>	343 Wapengo Lake Road	Wapengo	Bega Valley	LGOV
<a href="#">Nethercote Hall</a>	Nethercote Road	Nethercote	Bega Valley	LGOV
<a href="#">New Buildings Bridge</a>	New Buildings Road	New Buildings	Bega Valley	LGOV
<a href="#">New Buildings Bridge over Towamba River</a>	Regional Road 248	Wyndham (South West)	Bega Valley	SGOV
<a href="#">Nungatta Station</a>	1551 Nungatta Road	Nungatta	Bega Valley	LGOV
<a href="#">Oaklands associated outbuildings and grounds</a>	3546 Princes Highway	Pambula	Bega Valley	LGOV
<a href="#">Old Bega Hospital (Main building and outbuildings)</a>	277 Princes Highway	Bega	Bega Valley	LGOV
<a href="#">Old Hospital</a>	31 Kameruka Street	Candelo	Bega Valley	LGOV
<a href="#">Old Pambula Cemetery</a>	Princes Highway	Pambula	Bega Valley	LGOV
<a href="#">Old Rocky Hall School</a>	1325 Big Jack Mountain Road	Rocky Hall	Bega Valley	LGOV
<a href="#">Old School Museum</a>	85-87 Main Street	Merimbula	Bega Valley	LGOV

<a href="#"><u>Old Towamba General Store</u></a>	2474 Towamba Road	Towamba	Bega Valley	LGOV
<a href="#"><u>Orana House</u></a>	34 Tathra Road	Bega	Bega Valley	LGOV
<a href="#"><u>Pambula Butchery</u></a>	21 Quondolo Street	Pambula	Bega Valley	LGOV
<a href="#"><u>Pambula Cemetery</u></a>	Munje Street	Pambula	Bega Valley	LGOV
<a href="#"><u>Pambula Goldfield</u></a>	4 km south-southwest of Pambula in the Nullica State Forest	Greigs Flat	Bega Valley	LGOV
<a href="#"><u>Pambula Main Street Conservation Area</u></a>	Quondolo Street	Pambula	Bega Valley	LGOV
<a href="#"><u>Pambula Milk Bar</u></a>	31 Quondolo Street	Pambula	Bega Valley	LGOV
<a href="#"><u>Pambula School of Arts</u></a>	13 Quondolo Street	Pambula	Bega Valley	LGOV
<a href="#"><u>Pambula Town Wells</u></a>	Merimbola Street	Pambula	Bega Valley	LGOV
<a href="#"><u>Pambula War Memorial</u></a>	In front of 22 Quondolo Street	Pambula	Bega Valley	LGOV
<a href="#"><u>Parkview</u></a>	65 Parker Street	Bega	Bega Valley	LGOV
<a href="#"><u>Parkview House</u></a>	26 Union Street	Bega	Bega Valley	LGOV
<a href="#"><u>Peden Street Conservation Area</u></a>	Peden Street	Bega	Bega Valley	LGOV
<a href="#"><u>Pickled Pear Bed and Breakfast (former)</u></a>	60 Carp Street	Bega	Bega Valley	LGOV
<a href="#"><u>Picturesque Gothic Dwelling</u></a>	161 Auckland Street	Bega	Bega Valley	LGOV
<a href="#"><u>Police Barracks (former)</u></a>	156 Newtown Road	Bega	Bega Valley	LGOV
<a href="#"><u>Police residence</u></a>	24 - 26 Bermagui Road	Cobargo	Bega Valley	LGOV
<a href="#"><u>Police residence</u></a>	4 Wallaga Street	Bermagui	Bega Valley	LGOV
<a href="#"><u>Police Station</u></a>	58 William Street	Candelo	Bega Valley	LGOV
<a href="#"><u>Police Station building</u></a>	35-39 Loftus Street	Bemboka	Bega Valley	LGOV
<a href="#"><u>Post Office</u></a>	52-54 William Street	Candelo	Bega Valley	LGOV
<a href="#"><u>Presbyterian Church (former)</u></a>	121 Gipps Street	Bega	Bega Valley	LGOV
<a href="#"><u>Pretty Point Bridge</u></a>	New Buildings Road	Wyndham	Bega Valley	LGOV

<a href="#"><u>Quaama Cemetery</u></a>	Orient Street	Quaama	Bega Valley	LGOV
<a href="#"><u>Quaama Primary School (former residence, circa 1889, and classrooms, circa 1885)</u></a>	48 Cobargo Street	Quaama	Bega Valley	LGOV
<a href="#"><u>Quaama School of Arts</u></a>	2 Cobargo Street	Quaama	Bega Valley	LGOV
<a href="#"><u>Quaama Store</u></a>	2-6 Bega Street	Quaama	Bega Valley	LGOV
<a href="#"><u>Racecourse, grandstand, show pavilion and associated buildings</u></a>	Munje Street	Pambula	Bega Valley	LGOV
<a href="#"><u>Residence</u></a>	7 Oak Street	Wyndham	Bega Valley	LGOV
<a href="#"><u>Residence</u></a>	4 Wandella Road	Cobargo	Bega Valley	LGOV
<a href="#"><u>Residence</u></a>	44 Princes Highway	Cobargo	Bega Valley	LGOV
<a href="#"><u>Residence</u></a>	37 Princes Highway	Cobargo	Bega Valley	LGOV
<a href="#"><u>Residence</u></a>	31 Princes Highway	Cobargo	Bega Valley	LGOV
<a href="#"><u>Residence</u></a>	15 Hoyer Street	Cobargo	Bega Valley	LGOV
<a href="#"><u>Residence</u></a>	3 Avernus Street	Cobargo	Bega Valley	LGOV
<a href="#"><u>Residence</u></a>	30 Hoyer Street	Cobargo	Bega Valley	LGOV
<a href="#"><u>Residence</u></a>	32 Hoyer Street	Cobargo	Bega Valley	LGOV
<a href="#"><u>Residence</u></a>	5 Wandella Road	Cobargo	Bega Valley	LGOV
<a href="#"><u>Residence</u></a>	2 Main Street	Merimbula	Bega Valley	LGOV
<a href="#"><u>Residence</u></a>	45 Main Street	Merimbula	Bega Valley	LGOV
<a href="#"><u>Residence (Dippity Dip)</u></a>	73 Avernus Street	Cobargo	Bega Valley	LGOV
<a href="#"><u>Residence (Greenmount)</u></a>	7 New Buildings Road	Wyndham	Bega Valley	LGOV
<a href="#"><u>Residence (Scots Hut)</u></a>	702 New Buildings Road	Wyndham	Bega Valley	LGOV
<a href="#"><u>Retreat building, The</u></a>	26-30 Quondolo Street	Pambula	Bega Valley	LGOV
<a href="#"><u>Robbie Burns Hotel</u></a>	22 Monaro Street	Wyndham	Bega Valley	LGOV
<a href="#"><u>Rockleigh, homestead and garden</u></a>	Hergenahns Lane	Bega	Bega Valley	LGOV



<a href="#"><u>Rocky Hall Hall</u></a>	1474 Big Jack Mountain Road	Rocky Hall	Bega Valley	LGOV
<a href="#"><u>Roman Catholic Church</u></a>	1-5 Scott Street	Wolumla	Bega Valley	LGOV
<a href="#"><u>Roman Catholic Church</u></a>	19 Bega Street	Tathra	Bega Valley	LGOV
<a href="#"><u>Roman Catholic Church and Presbytery</u></a>	Wandella Road	Cobargo	Bega Valley	LGOV
<a href="#"><u>Roman Catholic Church building (former)</u></a>	Princes Highway	Kiah	Bega Valley	LGOV
<a href="#"><u>Roman Catholic Convent</u></a>	Wandella Road	Cobargo	Bega Valley	LGOV
<a href="#"><u>Roman Catholic Presbytery</u></a>	Wandellow Road	Cobargo	Bega Valley	LGOV
<a href="#"><u>Rosemount (former Catholic Convent)</u></a>	34 Auckland Street	Candelo	Bega Valley	LGOV
<a href="#"><u>Rosevear shopfront</u></a>	165 Carp Street	Bega	Bega Valley	LGOV
<a href="#"><u>RSL Hall and Cobargo Soldiers Memorial</u></a>	43-45 Princes Highway	Cobargo	Bega Valley	LGOV
<a href="#"><u>Salting Down House/Store site</u></a>	87 Boydtown Park Road	Boydtown	Bega Valley	LGOV
<a href="#"><u>Salvation Army Hall and cottage</u></a>	170 Auckland Street	Bega	Bega Valley	LGOV
<a href="#"><u>School building (c1903) and tree (Pinus species)</u></a>	6 Wallaga Lake Road	Bermagui	Bega Valley	LGOV
<a href="#"><u>School of Arts</u></a>	18 Bermagui Road	Cobargo	Bega Valley	LGOV
<a href="#"><u>School of Arts Hall</u></a>	26 Clarke Street	Wyndham	Bega Valley	LGOV
<a href="#"><u>Seahorse Inn, church &amp; grave sites, salting down house/store, boiling down works</u></a>	87 Boydtown Park Road	Boydtown	Bega Valley	LGOV
<a href="#"><u>Shop</u></a>	3 Wallaga Lake Road	Bermagui	Bega Valley	LGOV
<a href="#"><u>Shop</u></a>	121 Carp Street	Bega	Bega Valley	LGOV
<a href="#"><u>Shop</u></a>	99 Carp Street	Bega	Bega Valley	LGOV
<a href="#"><u>Shop with Art Deco parapet</u></a>	146 Imlay Street	Eden	Bega Valley	LGOV
<a href="#"><u>Single storey building</u></a>	5 Bullara Street	Pambula	Bega Valley	LGOV
<a href="#"><u>Slab and batten cottage</u></a>	198 Newtown Road	Bega	Bega Valley	LGOV
<a href="#"><u>Slab house</u></a>	1464 Big Jack Mount Road	Rocky Hall	Bega Valley	LGOV

<a href="#"><u>Soldiers memorial gates, park and artillery</u></a>	Carp Street	Bega	Bega Valley	LGOV
<a href="#"><u>Sorrento Lodge</u></a>	2-6 Lamont Street	Bermagui	Bega Valley	LGOV
<a href="#"><u>South Wolumla Butter Factory complex</u></a>	South Wolumla Road	South Wolumla	Bega Valley	LGOV
<a href="#"><u>St Columba's Catholic Church</u></a>	121 Loftus Street	Bemboka	Bega Valley	LGOV
<a href="#"><u>St Georges Uniting Church</u></a>	16B-18 Chandos Street	Eden	Bega Valley	LGOV
<a href="#"><u>St John's Anglican Church</u></a>	98 Calle Calle Street	Eden	Bega Valley	LGOV
<a href="#"><u>St John's Anglican Rectory - church, hall and lych gate</u></a>	80 Auckland Street	Bega	Bega Valley	LGOV
<a href="#"><u>St Joseph's Catholic Church and Catholic School</u></a>	11 & 16-18 Kameruka Street	Candelo	Bega Valley	LGOV
<a href="#"><u>St Joseph's Roman Catholic Church</u></a>	11 Norwood Street	Wyndham	Bega Valley	LGOV
<a href="#"><u>St Joseph's Convent (former)</u></a>	83 Parker Street	Bega	Bega Valley	LGOV
<a href="#"><u>St Patrick's Church and Presbytery and St Joseph's Convent</u></a>	130 Gipps Street	Bega	Bega Valley	LGOV
<a href="#"><u>St Pauls Community Church</u></a>	4 Towamba Street	Towamba	Bega Valley	LGOV
<a href="#"><u>St Peter's Anglican Church</u></a>	3-7 William Street	Candelo	Bega Valley	LGOV
<a href="#"><u>St Peter's Roman Catholic Church</u></a>	12 Monaro Street	Pambula	Bega Valley	LGOV
<a href="#"><u>St Saviours Church</u></a>	1 Cobargo Street	Quaama	Bega Valley	LGOV
<a href="#"><u>Star Newspaper and printing office former</u></a>	203 Carp Street	Bega	Bega Valley	LGOV
<a href="#"><u>Stone cottage</u></a>	6 Bullara Street	Pambula	Bega Valley	LGOV
<a href="#"><u>Street trees</u></a>	Peden Street (both sides)	Bega	Bega Valley	LGOV
<a href="#"><u>Tanja Community Hall</u></a>	Barrabooka Road	Tanja	Bega Valley	LGOV
<a href="#"><u>Tanja Public School (former residence, circa 1885, and classroom, circa 1925)</u></a>	7 Tathra-Bermagui Road	Tanja	Bega Valley	LGOV
<a href="#"><u>Tarraganda Homestead</u></a>	48 Wren-Moore Road	Tarraganda	Bega Valley	LGOV
<a href="#"><u>Tathra Bunker</u></a>	Wharf Road	Tathra	Bega Valley	LGOV
<a href="#"><u>Tathra Conservation Area</u></a>	Bega Street	Tathra	Bega Valley	LGOV

<a href="#">Tathra Grocery Store</a>	32 Bega Street	Tathra	Bega Valley	LGOV
<a href="#">Tathra Headland Conservation Area</a>	Bega Street	Tathra	Bega Valley	LGOV
<a href="#">Tathra Hotel</a>	8-12 Bega Street	Tathra	Bega Valley	LGOV
<a href="#">Tathra Lodge</a>	27 Bega Street	Tathra	Bega Valley	LGOV
<a href="#">Tathra survey marker (carved tree trunk on side of road)</a>	411 Tathra Bermagui Road	Mogareeka	Bega Valley	LGOV
<a href="#">Tathra war memorial</a>	Bega Street	Tathra	Bega Valley	LGOV
<a href="#">Tathra Wharf and building</a>	Wharf Road	Tathra	Bega Valley	LGOV
<a href="#">Teacher cottage</a>	19 Monaro Street	Pambula	Bega Valley	LGOV
<a href="#">Timber cottage</a>	16 Quondolo Street	Pambula	Bega Valley	LGOV
<a href="#">Tourist office</a>	Gipps Street	Bega	Bega Valley	LGOV
<a href="#">Towamba Bridge</a>	Towamba Road	Towamba	Bega Valley	LGOV
<a href="#">Towamba Public School former residence(c1885) and administration building(c1890)</a>	7-9 Towamba Street	Towamba	Bega Valley	LGOV
<a href="#">Trolley Way Mirador Tramway, Pages Creek Dam</a>	Off Mirador Drive	Merimbula	Bega Valley	LGOV
<a href="#">Twyford Hall</a>	16 Market Street	Merimbula	Bega Valley	LGOV
<a href="#">Union Church</a>	5 West Street	Bermagui	Bega Valley	LGOV
<a href="#">Upper Street Conservation Area</a>	Upper Street	Bega	Bega Valley	LGOV
<a href="#">Victorian cottage</a>	7 Mitchell Street	Eden	Bega Valley	LGOV
<a href="#">Victorian Georgian style residence, "Cranbrook"</a>	225 Newtown Road	Bega	Bega Valley	LGOV
<a href="#">Victorian weatherboard cottage</a>	52 Bega Street	Tathra	Bega Valley	LGOV
<a href="#">Wallaga Lake Bridge</a>	Wallaga Lake Road	Wallaga Lake	Bega Valley	LGOV
<a href="#">War memorial</a>	Dr William Loftus Park	Candelo	Bega Valley	LGOV
<a href="#">Warragaburra Homestead</a>	1364 Tathra Road	Bega	Bega Valley	LGOV
<a href="#">Weatherboard and lattice dwelling</a>	71A Parker Street	Bega	Bega Valley	LGOV

<a href="#">Weatherboard cottage</a>	52 Belmore Street	Bega	Bega Valley	LGOV
<a href="#">Weatherboard cottage</a>	46 Belmore Street	Bega	Bega Valley	LGOV
<a href="#">Weatherboard cottage</a>	50 Bega Street	Bega	Bega Valley	LGOV
<a href="#">Weatherboard cottage</a>	52 Bega Street	Bega	Bega Valley	LGOV
<a href="#">Weatherboard cottage</a>	54 Bega Street	Bega	Bega Valley	LGOV
<a href="#">Weatherboard cottage</a>	3 Little Gahan Street	Pambula	Bega Valley	LGOV
<a href="#">Weatherboard cottage</a>	75 Scott Street	Wolumla	Bega Valley	LGOV
<a href="#">Weatherboard cottage</a>	15 Scott Street	Wolumla	Bega Valley	LGOV
<a href="#">Weatherboard cottage</a>	15 Merimbola Street	Pambula	Bega Valley	LGOV
<a href="#">Weatherboard cottage</a>	69 Toallo Street	Pambula	Bega Valley	LGOV
<a href="#">Weatherboard cottage</a>	10 Bega Street	Bega	Bega Valley	LGOV
<a href="#">Weatherboard cottage</a>	16 Bega Street	Bega	Bega Valley	LGOV
<a href="#">Weatherboard cottage</a>	18 Bega Street	Bega	Bega Valley	LGOV
<a href="#">Weatherboard cottage</a>	20 Bega Street	Bega	Bega Valley	LGOV
<a href="#">Weatherboard cottage</a>	22 Bega Street	Bega	Bega Valley	LGOV
<a href="#">Weatherboard cottage</a>	47 Belmore Street	Bega	Bega Valley	LGOV
<a href="#">Weatherboard cottage</a>	210 Newtown Road	Bega	Bega Valley	LGOV
<a href="#">Weatherboard cottage</a>	51 Toallo Street	Pambula	Bega Valley	LGOV
<a href="#">Weatherboard cottage - blue walls</a>	255 Newtown Road	Bega	Bega Valley	LGOV
<a href="#">Weatherboard Cottage (former Post Office)</a>	32 Cobargo Street	Quaama	Bega Valley	LGOV
<a href="#">Weatherboard dwelling</a>	53 Monaro Street	Wyndham	Bega Valley	LGOV
<a href="#">Weatherboard dwelling</a>	32 Belmore Street	Bega	Bega Valley	LGOV
<a href="#">Weatherboard dwelling</a>	38 Belmore Street	Bega	Bega Valley	LGOV
<a href="#">Weatherboard house</a>	15 Quondolo Street	Pambula	Bega	LGOV

			Valley	
<a href="#">Weatherboard workers cottage</a>	64 Loftus Street	Bemboka	Bega Valley	LGOV
<a href="#">Wellington</a>	49 Carp Street	Bega	Bega Valley	LGOV
<a href="#">Whipstick Molybdenum Mine</a>	Mt Darragh Road (Nullica/Gnupa State Forest)	Whipstick	Bega Valley	LGOV
<a href="#">Wolumla Anglican Church</a>	15 -19 Bega Street	Wolumla	Bega Valley	LGOV
<a href="#">Wolumla Community Hall</a>	36 Scott Street	Wolumla	Bega Valley	LGOV
<a href="#">Wolumla Conservation Area</a>	Various Various	Wolumla	Bega Valley	LGOV
<a href="#">Wonboyn River Bridge</a>	Princes Highway	near Eden	Bega Valley	SGOV
<a href="#">Woodlands house</a>	8 Bullara Street	Pambula	Bega Valley	LGOV
<a href="#">Wool Store site</a>	87 Boydtown Park Road	Boydtown	Bega Valley	LGOV
<a href="#">Worland's Boarding House</a>	58 Loftus Street	Bemboka	Bega Valley	LGOV
<a href="#">Wyndham (south west) - Bridge</a>	Wyndham (south west)	Wyndham (south west)	Bega Valley	LGOV
<a href="#">Wyndham Cemetery</a>	Clarke Street	Wyndham	Bega Valley	LGOV
<a href="#">Wyndham Conservation Area</a>	Various Various	Wyndham	Bega Valley	LGOV
<a href="#">Wyndham Police Station Former</a>	10 Gordon Street	Wyndham	Bega Valley	LGOV
<a href="#">Wyndham Public School (library and former residence, circa 1892)</a>	31 Monaro Street	Wyndham	Bega Valley	LGOV
<a href="#">Wyndham War Memorial</a>	Monaro Street	Wyndham	Bega Valley	LGOV
<a href="#">Yarranung Butter Factory</a>	184 Angledale Road	Bega	Bega Valley	LGOV
<a href="#">Yarranung homestead</a>	47 Angledale Road	Bega	Bega Valley	LGOV
<a href="#">Yowaka Bridge</a>	Princes Highway	Greigs Flat	Bega Valley	LGOV
<a href="#">Yowaka Bridge near Eden</a>	Princes Highway	14 km north of Eden	Bega Valley	SGOV

There was a total of 493 records matching your search criteria.

**Key:**

LGA = Local Government Area

GAZ = NSW Government Gazette (statutory listings prior to 1997), HGA = Heritage Grant Application, HS = Heritage Study,

LGOV = Local Government, SGOV = State Government Agency.

**Note:** While the Heritage Division seeks to keep the Inventory up to date, it is reliant on State agencies and local councils to provide their data. Always check with the relevant State agency or local council for the most up-to-date information.