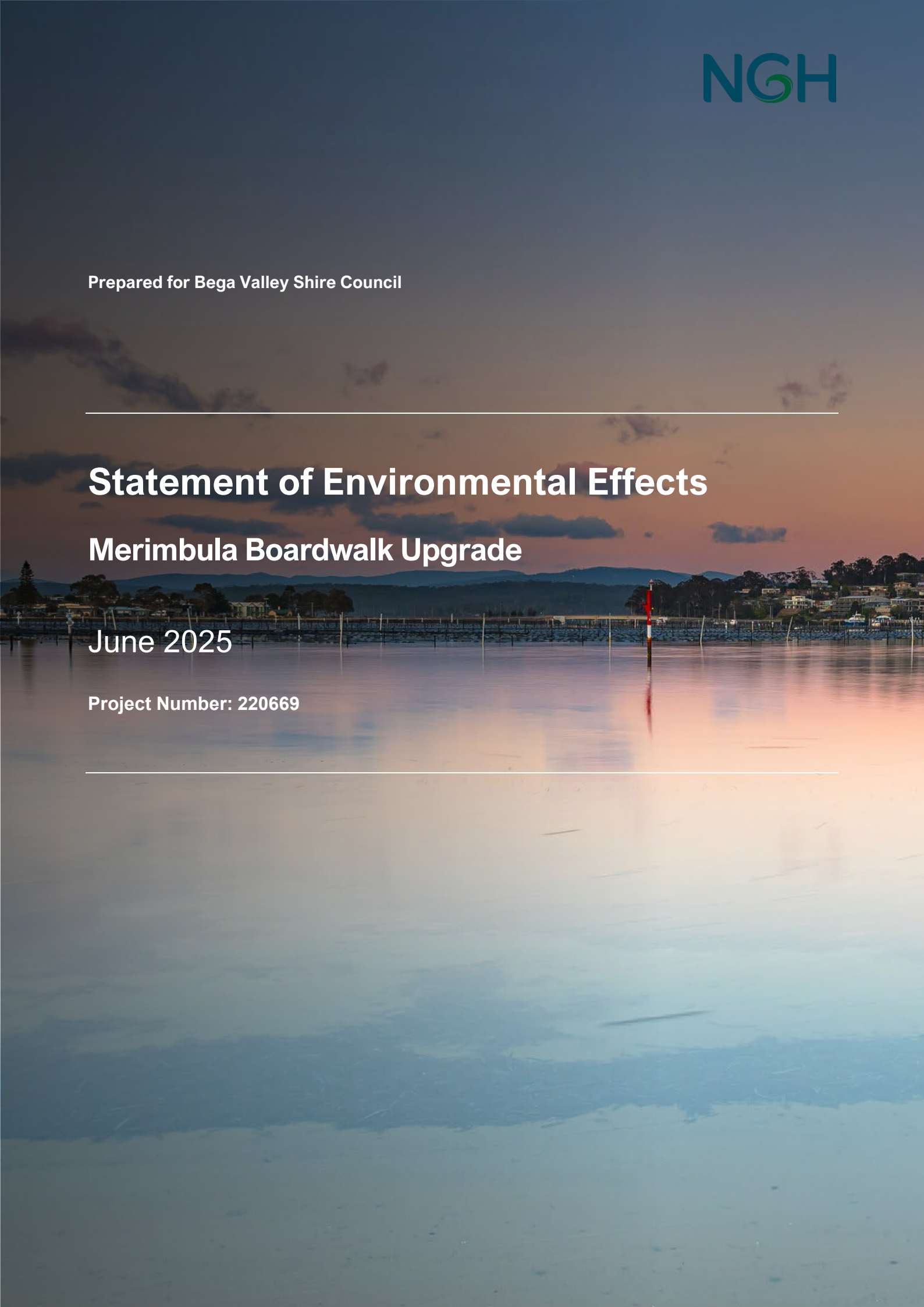

Prepared for Bega Valley Shire Council

Statement of Environmental Effects

Merimbula Boardwalk Upgrade

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Table of contents

1 Introduction 1

1.1. Overview 1

1.2. Subject land and locality 1

1.3. SEE structure and supporting plans and documents 1

1.4. Legislative context (summary) 2

2 Proposed development 9

2.1. Existing development 9

2.2. Proposed development (summary table) 13

2.3. General construction methodology 14

2.4. Justification for the proposed development 18

3 Environmental Analysis 20

3.1. Subject land 20

3.2. Site analysis and surrounds 20

3.3. Construction impacts 21

3.3.1. Soils 21

3.3.2. Water 23

3.3.3. Air quality 23

3.3.4. Noise 24

3.3.5. Access and traffic 27

3.3.6. Waste 28

3.4. Biodiversity 28

3.4.1. Methodology 28

3.4.2. Existing environment 29

3.4.3. Potential impacts 30

3.5. Aquatic Ecology 31

3.5.1. Methodology 31

3.5.2. Existing environment 32

3.5.3. Potential impacts 36

3.5.4. Recommendation and mitigation measures 39

3.6. Aboriginal cultural heritage 40

3.6.1. Background 40
3.6.2. Methodology 40
3.6.3. Existing environment 41
3.6.4. Potential impact 41
3.6.5. Recommendations and mitigation measures 41
3.7. Non-Aboriginal heritage 47
3.8. Visual 47
3.9. Consideration of other hazards 47
3.9.1. Flooding and overland flow 47
3.9.2. Contamination 48
3.9.3. Bushfire 48
4 Statutory framework 50
4.1. Commonwealth legislation 50
4.1.1. Environment Protection and Biodiversity Conservation Act 1999 50
4.2. State legislation 50
4.2.1. Environmental Planning and Assessment Act 1979 50
4.2.2. Biodiversity Conservation Act 2016 54
4.2.3. Fisheries Management Act 1994 55
4.2.4. State Environmental Planning Policies 55
4.3. Bega Valley Local Environmental Plan 2013 58
4.4. Bega Valley Development Control Plan (DCP) 63
5 Conclusion 64
6 References 65

Figures

Figure 1-1 Proposed development site and surrounds 4
Figure 1-2 Proposed development site (view 1 of 3) 5
Figure 1-3 Proposed development site (view 2 of 3) 6
Figure 1-4 Proposed development site (view 3 of 3) 7
Figure 1-5 Wider locality 8
Figure 2-1 Existing typical boardwalk infrastructure (Source: NGH, 2023) 9

Figure 2-2 Defects and camber of existing boardwalk are visible (Source: NGH, 2023) 10
Figure 2-3 Existing boardwalk on the far eastern end of the boardwalk (Source: NGH, 2023) 10
Figure 2-4 Existing boardwalk on eastern side of the boardwalk looking east (Source: NGH, 2023) 11
Figure 2-5 Oyster farms within Merimbula Lake adjacent to boardwalk (Source: NGH, 2023) 11
Figure 2-6 Existing infrastructure near kiosk and boat shed at western end of the site (Source: NGH, 2023) 12
Figure 2-7 Informal tracks along the boardwalk (Source: NGH, 2023) 12
Figure 3-1 ASS occurring within and nearby to the proposed development 22
Figure 3-2 Noise affected receivers 26
Figure 3-3 Merimbula Lake from eastern side of site (Source: NGH, 2024) 32
Figure 3-4 Key Fish Habitat within the proposed development site 35
Figure 3-5 Aboriginal sites around the Development site 43
Figure 3-6 Detailed map of proposed development site (1 of 3) 44
Figure 3-7 Detailed map of proposed development site (2 of 3) 45
Figure 3-8 Detailed map of proposed development site (3 of 3) 46
Figure 3-9 Bushfire prone land 49
Figure 4-1 Biodiversity values map of the subject land and surrounds 55
Figure 4-2 Coastal management areas under RH SEPP 56
Figure 4-3 BVLEP Land Zoning Map of development site 59

Tables

Table 1-1 Plans and supporting documents 2
Table 2-1 Proposed development summary 13
Table 2-2 Proposed works methodology 14
Table 3-1 Subject land from east to west 20
Table 3-2 Threatened Ecological Communities 29
Table 3-3 Indirect and prescribed impacts and recommended mitigation 30
Table 3-4 Ecosystem credit requirement 30
Table 3-5 Species credit requirement 31
Table 4-1 Integrated development provisions 50
Table 4-2 Designated development provisions 52

Appendices

Appendix A Development design plans ..... A-I

Appendix B Biodiversity Development Assessment Report ..... B-I

Appendix C Aquatic Ecology Assessment ..... C-I

Appendix D Heritage Due Diligence ..... D-I

Appendix E Letter of Heritage Advice ..... E-I

Appendix F Acid Sulfate Soil Management Plan ..... F-I

Acronyms and abbreviations

ACHA	Aboriginal Cultural Heritage Assessment
AEAR	Aquatic Ecology Assessment Report
AEP	Annual Exceedance Probability
AHD	Australian Height Datum
AHIMS	Aboriginal Heritage Information Management System
AHIP	Aboriginal Heritage Impact Permit
AOBVs	Areas of Outstanding Biodiversity Value
APZ	Asset Protection Zones
ARI	average recurrent interval
ASS	Acid Sulfate Soil
BC Act	*Biodiversity Conservation Act 2016* (NSW)
BAM	Biodiversity Assessment Methodology
BDAR	Biodiversity Development Assessment Report
BFPL	Bushfire Prone Land
BIA	Biologically Important Areas
Biosecurity Act	*Biosecurity Act 2015 (NSW)*
BVSC	Bega Valley Shire Council
CBD	Central Business District
CEMP	Construction environmental management plan
CLM Act	*Contaminated Land Management Act 1997*
CNET	Construction Noise Estimator Tool
CTMP	Construction Traffic Management Plan
DA	Development Application
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DCP	Development Control Plan
DD	Due Diligence
DPHI	Department of Planning, Housing and Infrastructure (NSW)
DPI	Department of Primary Industries
EDC	estimated development cost
EIS	Environmental impact statement

EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999 (Cwth)*
EP&A Act	*Environmental Planning and Assessment Act 1979 (NSW)*
FRP	Fibreglass Reinforced Polymer
GIS	Geographic information system
Heritage Act	*Heritage Act 1977 (NSW)*
IBRA	Interim Biogeographic Regionalisation for Australia
ICNG	Interim Construction Noise Guideline
FM Act	*Fisheries Management Act 1994*
KEFs	Key Ecological Features
KFH	Key Fish Habitat
km	kilometres
LEP	Local Environment Plan
LGA	Local government area
LSPS	Local Strategic Planning Statement
m	metres
ML	Megalitres
mm	millimetres
MNES	Matters of national environmental significance
NCAs	Noise catchment areas
NMLs	Noise management levels
NOA	Naturally Occurring Asbestos
NPW Act	*National Parks and Wildlife Act 1974 (NSW)*
NVMP	Noise and Vibration Management Plan
PBP	Planning for Bushfire for Protection 2019
PCT	Plant Community Types
PMF	Probable Maximum Flood
PMST	Protected Matters Search Tool
POEO Act	*Protection of the Environment Operations Ace 1997*
RBL	rating background level
RFS	Rural Fire Service
RH SEPP	State Environmental Planning Policy (Resilience and Hazards)

RSD	Regionally Significant Development
SAII	Serious and irreversible impact
SEE	Statement of Environmental Effects
SWL	Sound Power Level
TBDC	Threatened Biodiversity Database Collection
TEC	Threatened ecological community
TfNSW	Transport for NSW
WARR Act	*Waste Avoidance and Resource Recovery Act 2001*

For the purpose of this report, the **subject land** refers to all of the lots that are affected or partially affected by the proposed development.

For the purpose of this report, the proposed area of impact during construction and future operation of the boardwalk is referred to as the proposed **development site or footprint**.

Some supporting assessments may use slightly different terms; however, each will visually define the area that is referred to.

1 Introduction

1.1. Overview

This Statement of Environmental Effects (SEE) has been prepared by NGH, on behalf of Bega Valley Shire Council (BVSC) (the Applicant). BVSC requires development consent for proposed additions, alterations, and upgrades to the existing Merimbula Boardwalk and foreshore paths (referred to as the Merimbula Boardwalk).

The Merimbula Boardwalk is approximately 1.7 kilometres (km) in length along the northern edge of Merimbula Lake, between Market Street bridge (eastern extent) and Lakewood Drive Top Lake carpark (western extent). The existing boardwalk is comprised of timber planks on timber pylons and includes concrete and gravel sections on land. The existing development is located partly within the lake, on the lake edge, and on public and private land. A café, boat hire business and toilet facilities are located at the western end, in addition to existing carparks at both ends. It is a popular walk valued by tourists and the local community. The general location is shown at Figure 1-5.

The proposed upgrades to the boardwalk, associated paths and carparking areas would improve general usage and options for recreation as well as safety, and environmental outcomes.

1.2. Subject land and locality

The Merimbula Boardwalk is set within the northern foreshore of Merimbula Lake and located approximately 670m southwest of the Merimbula Central Business District (CBD).

The existing boardwalk is predominantly located on Crown land, for which BVSC is the appointed Crown land manager. The subject land comprises part of the following:

- Lot: 7032 DP1047318
- Lot 36 DP208862
- Lot: 1 DP109636
- Lot: E DP355155
- Lot: 98 DP747323
- Lot: 202 DP793447

Merimbula Lake is classified as a wave dominated barrier estuary with an open entrance and an average depth of 2.6 metres (m) (OEH, 2018). Merimbula Lake provides Class 1 major key fish habitat (DPI, 2018a). Oyster leases are present on reefs within the lake, including areas directly adjacent to the boardwalk.

The locality comprises mixed uses including residential and low-density settlement, coastal waterways, public parks, State forests, and National Parks as shown in Figure 1-5. Merimbula is the largest residential township in the Bega Valley. On the opposite side of Merimbula Lake is the airport, Arthur Kaine Drive and Merimbula beach.

1.3. SEE structure and supporting plans and documents

This SEE has been prepared by NGH Pty Ltd (NGH) on behalf of the Applicant for the development, BVSC.

This SEE has been informed by the plans prepared by LOCI Design Collective on behalf of the Applicant as well as reports prepared by NGH and other specialist consultants.

This SEE:

- Describes the proposed works, the development site, and the wider locality.
- Describes the planning context and statutory approval requirements.
- Identifies and assesses the effects on environmental values.
- Provides mitigation measures to avoid, minimise or mitigate identified impacts.

This SEE should be read in conjunction with the accompanying plans and documentation listed in Table 1-1.

Table 1-1 Plans and supporting documents

Appendix	Description	Prepared by
A	Development Design Plans	LOCI Design Collective
B	Biodiversity Development Assessment Report	NGH
C	Aquatic Ecology Assessment Report	NGH
D	Letter of Heritage Advice	NGH
E	Aboriginal Due Diligence Assessment	NGH
F	Acid Sulfate Soils Management Plan	NGH

1.4. Legislative context (summary)

This SEE has been prepared in accordance with Part 4 of the *NSW Environmental Planning and Assessment Act 1979* (EP&A Act) to support a development application (DA) to BVSC. The council would assess the proposed development and make a recommendation to the Southern Regional Planning Panel for final determination. The proposed development is defined as Regionally Significant Development (RSD) given it is Council related development with an estimated development cost (EDC) of more than $5 million, as set out in the State Environmental Planning Policy (Planning Systems) 2021.

The proposed development involves works that are partly on land mapped as Coastal Wetlands under the provisions of the State Environmental Planning Policy (Resilience and Hazards) (RH SEPP) Chapter 2 Coastal Management. Accordingly, those works would be considered Designated Development under the RH SEPP. However, the proposed development is considered to be alterations and additions to existing development (the existing boardwalk).

Pursuant to schedule 3 section 48(1) of the *Environmental Planning and Assessment Regulation 2021* (EP&A Regulation), where development involves alterations or additions to existing or approved development, it is not considered Designated Development if, in the consent authority's opinion, the alterations or additions do not significantly increase the environmental impacts of the existing or approved development. This report provides justification that the proposed alterations and additions do not significantly increase the environmental impacts of the existing or approved development.

Further details are provided in section 4 of this report.

Figure 1-1 Proposed development site and surrounds

Figure 1-2 Proposed development site (view 1 of 3)

Figure 1-3 Proposed development site (view 2 of 3)

Figure 1-4 Proposed development site (view 3 of 3)

Figure 1-5 Wider locality

2 Proposed development

2.1. Existing development

According to Council records, a track similar to the alignment of the Merimbula Boardwalk was in existence many years prior to Council consenting to formalisation of the track and a section of boardwalk, located between Otway Close and Salmon Close (western section of the current boardwalk), in 1995 (DA95.1243). This was described as Stage 1 of the proposed boardwalk at that time. Subsequent approvals DA 27.1288 and DA98.1084 were granted for additional formalised sections of the boardwalk through to the eastern end at Market Street.

The initial intent of the formalised boardwalk and tracks was to avoid significant riparian damage as a result of residents and users walking and trampling through this sensitive coastal habitat.

Sections of the boardwalk have been replaced or repaired from time to time. The existing boardwalk and foreshore path comprises of timber and gravel sections. The timber sections are narrow with an average width of 1.5m. The gravel sections vary in width with a minimum 1.5m generally. There are paths that meet up with the boardwalk off the side streets are generally narrow informal 'bush' tracks.

Photographs of the typical existing infrastructure are provided at Figure 2-1 and Figure 2-6. Side tracks are typically informal tracks, refer Figure 2-7.

Figure 2-1 Existing typical boardwalk infrastructure (Source: NGH, 2023)

Figure 2-2 Defects and camber of existing boardwalk are visible (Source: NGH, 2023)

Figure 2-3 Existing boardwalk on the far eastern end of the boardwalk (Source: NGH, 2023)

Figure 2-4 Existing boardwalk on eastern side of the boardwalk looking east (Source: NGH, 2023)

Figure 2-5 Oyster farms within Merimbula Lake adjacent to boardwalk (Source: NGH, 2023)

Figure 2-6 Existing infrastructure near kiosk and boat shed at western end of the site (Source: NGH, 2023)

Figure 2-7 Informal tracks along the boardwalk (Source: NGH, 2023)

2.2. Proposed development (summary table)

The boardwalk would be a Class 1 walking track under Australian Standards for Walking Tracks AS 2156.2-2001: Classification and Signage. Due to the location of the boardwalk over water, it is not suitable or safe for bikes, scooters and the like.

The works proposed are summarised in Table 2-1.

Table 2-1 Proposed development summary

Element	Description
Development	Merimbula Boardwalk Upgrade
Development site	Approximately 1.3 hectares infrastructure area inclusive of the carpark areas.
Temporary construction site compound	A laydown area would be established at either end of the proposed development site during the commencement of construction, containing control facilities, storage areas, temporary site office and portable amenities. These would be removed, and surfaces and/or groundcovers re-established and reinstated as required at the completion of construction.
Construction hours	Standard daytime construction hours would be 7.00am to 6.00pm Monday to Friday and 8.00 am to 1.00 pm on Saturdays. Construction would not occur on Sundays or public holidays.
Construction timing	Approximately 12 months. Proposed staging: • Type 1 and 2 can be staged between temporary detours to reduce disruption. • Type 3 would be completed end to end. • Type 4 would be completed end to end at each location.
Workforce	Construction – Three people for piling, three to four people for boardwalk construction and one site manager: 7-8 in total. approximately 8 workers in total at peak times /approximately 8 workers on average.
Estimated development cost	Calculated at approximately $10 million. A cost summary report has been provided in support of this application.

Element	Description
Machinery	• Truck and trailers • Works lift/ platforms • Barge • Vibratory roller • Static roller • Grader • Skid steer • Loader • Excavators (varying sizes) • Bitumen truck • Asphalt paver • Concrete truck • Line pump • Crane (size depending on task)

2.3. General construction methodology

The proposed approach to the construction works is summarised in Table 2-2.

Table 2-2 Proposed works methodology

Works component	Description
Set up and early works including vegetation removal	• Set up of laydown areas at the carpark near end of boardwalk. • Installation of site fencing, environmental controls, including sediment and erosion controls, sediment booms and vegetation exclusion areas. • Minor clearing and trimming of mangroves.
Upgrade boardwalk and gravel and concrete path areas	• Remove existing boardwalk decking timbers. • Removal of boardwalk timber pylons. • Replace pile-driven pylons. The boardwalk sub-structure would be two posts and a hidden headstock (subject to detailed design), creating a slim profile and low visual impact. This option has longer durability. Piling works would be done at low tide. • Install new decking timbers or composite material. The width of the boardwalk would be 2.5m and would be straight edged and not curved. Proposed materials for the boardwalk are: ○ Portal timber frame and posts.

Works component	Description
	○ Timber or FRP (Fibreglass Reinforced Polymer) headstocks. ○ Predominantly FRP boardwalk deck with timber in 'special areas'. ○ Recycled wharf timber may supplement the special areas. ○ Timber post balustrades with galvanised panel inserts where required (Type A). ○ Timber post and rail balustrades (Type C). ○ Timber lean rails. ○ Timber kickrails. • Additions at the eastern end provide a cantilevered boardwalk area over the lake with balustrade. • Upgrade path and gravel areas as needed using crushed local Rhyolite (Screened Mine Gravel). Compacted and stabilised. Timber flush edge to gravel path to match timber kickrail along boardwalk. • Install local Merimbula Split Stone Mine and Nullica Rock walls. • Any upgraded or new concrete areas would be non-coloured concrete to match existing detail.
Furniture	Proposed furniture would include: • Place defining timber seating and benches. • Place defining playful timber and stone furniture with lighting. • Timber bollards. • Council standard picnic tables, shelters, bins and bubblers.
Lighting	The boardwalk would have limited lighting at both entries and for the carpark at the eastern entry upgrade only. Department of Fisheries prohibits lighting used elsewhere due to detrimental impact on marine life.
Jetties and look out platforms	• Jetty upgrades at the western end and eastern ends of the boardwalk retain the existing character and general location and provides more seating opportunities. • Existing seating areas would be removed and replaced with upgraded seating arrangements. • There are two additional small lookouts/platforms with seating proposed along the boardwalk.

Works component	Description
Upgrade carpark areas	• The eastern carpark upgrades would formalise access to the boardwalk and provide 14 car spaces and 2 disabled car spaces. The works would delineate pedestrian movement from vehicle movement areas. • The drainage and surface of the existing car park at the eastern end may be improved but would not be expanded. • There is a reconfigured car park midway at the sewer pump station (Bodalla Place) to support maintenance and operations. Proposed vehicle pavements in carparks are: • Bitumen seal to Council Standards. • Hardwood wheel stops. • Concrete paving to the Department of Fisheries driveway and boat ramp adjustments.
Install signage	Proposed materials for signage are: • Timber National Parks style direction signage. • Interpretive signage of recycled timber and local stone with routed and engraved text (to be developed further in an interpretative and cultural strategy).
Revegetation and completion works	• Complete landscaping and revegetation works along the boardwalk and within carpark areas. • Removal of environmental controls.

The construction approach would be tailored depending on ground surface conditions, with works typically divided into four different types as outlined below and shown in detailed design in Appendix A:

Type 1

- Access – Excavator will track within the construction corridor using bog mats as needed in wet areas.
- Pile type – 180mm diameter H6 treated hardwood timber pile, driven to minimum embedment requirement using hydraulic drop hammer on excavator.
- This type of work would involve following methodology:
    - Mobilise excavator to location of piles, starting in such a way the piles are installed and machine works its way out. All work and movements to remain inside work corridor.
    - Pile is pitched in position, pile driving commences with hammer installing pile until embedment requirement is met.
    - Pile cut off using chainsaw, saw dust to be collected and disposed of appropriately.

- Excavator moves to next line of piles, above process continues.

Type 2

- Access – Excavator to gain access within the construction corridor using bog mats as needed in wet areas.
- Pile type - 180mm diameter H6 treated hardwood timber pile driven into a cored/augered hole directly in rock.
- This type of work would involve following methodology:
  - Mobilize excavator to location of piles, starting in such a way the piles are installed and machine works its way out. All work and movements to remain inside work corridor.
  - Excavator to use core barrel/auger attachment to drill an underside hole in pile locations
  - If pneumatic rock breaking/drilling equipment is required, this to be utilised within work corridor.
  - Once hole is generated pile is pitched in position, pile driving commences with hammer installing pile until embedment requirement is met.
  - Pile cut off using chainsaw, saw dust to be collected and disposed of appropriately.
  - Excavator moves to next line of piles, above process continues.
  - Worksite to be cleaned up completely before tide washes in.
  - In areas submerged, utilise silt curtains to contain rock until it settles.
  - If water is required for any drilling or coring processes, slurry to be vacuumed up as process it being performed. No slurry to be stored onsite.
  - Work to be performed once worksite becomes dry, work to occur only during low tide events. All equipment and personnel to leave work area before tide rises above again.

Type 3

- Access – Excavator will track out on completed deck structure. Structure to be built and incrementally launched providing access above environmentally sensitive area's.
- Pile type – 180mm diameter H6 treated hardwood timber pile, driven to minimum embedment requirement using hydraulic drop hammer on excavator.
- This type of work would involve following methodology:
  - Mobilize excavator to location of piles.
  - Machine to reach out and pitch pile in position, pile driving commences with hammer installing pile until embedment requirement is met.
  - Pile cut off using chainsaw, saw dust to be collected and disposed of appropriately.
  - Machine remains in position until next section of deck is manufactured.
  - Excavator moves to next line of piles, above process continues.

Type 4

- Access – Excavator will be positioned on a work barge.
- Pile type – 180mm diameter H6 treated hardwood timber pile, driven to minimum embedment requirement using hydraulic drop hammer on excavator.
- This type of work would involve following methodology:
  - Mobilize barge utilizing boat ramp on the south side of the inlet. Excavator, equipment and materials to be loaded on barge in this location.
  - Barge to be pushed into location using tender vessel.

- Barge will only be afloat at high-mid tide so all movement to be restricted to that time frame.
- Barge to be positioned and spuds dropped to hold in position.
- Machine to reach out and pitch pile in position, pile driving commences with hammer installing pile until embedment requirement is met.
- Pile cut off using chainsaw, saw dust to be collected and disposed of appropriately.
- Barge to be repositioned for each pile location.
- Above process repeated.

2.4. Justification for the proposed development

The walkway upgrade has been identified as an opportunity to improve the quality of recreational infrastructure in the area. The existing boardwalk is frequented by both locals and tourists and is valued for the scenic attraction the walk provides. It can be subject to heavy usage/impact, from organised running events.

As indicated in Figure 2-2, the existing boardwalk is in a poor condition needing regular maintenance. Currently, the council conducts inspections twice a week to maintain the boardwalk in operable condition to meet the popular demand from the tourist and locals.

A condition assessment undertaken in 2022 identified that the boardwalk has reached the end of its serviceable life, and it requires renewal and upgrade to ensure it continues to provide recreation and tourism activation for Bega Valley Shire region. Without the renewal and upgrade, the boardwalk is likely to be in unusable condition within a couple of years, with some sections already subsided resulting in a cambered walkway and other sections show instability (noticeable movement) during use.

BVSC Business case for upgraded boardwalk suggested that the upgrade works would:

- Increase visitation by 17,222 over a 5-year period following completion.
- Increase tourism expenditure by $8 million over a 5-year period following completion.
- Extend the length of stay by 0.5 days.

These assumptions are based on the Evaluation of Economic and Social Benefits Report and are a conservative estimate provided by BVSC.

In combination, the proposed works are expected to improve the site for use as an outdoor recreation facility and continue to attract and promote recreational tourism within the area.

The boardwalk will improve accessibility and inclusion for people with disability and accessible requirements by providing a level trail, free from trip hazards and uneven surfaces, and provide an accessible path of travel along the complete length.

The **Bega Valley Local Strategic Planning Statement (LSPS)** is a pivotal tool for local strategic land use planning across the shire through to 2040. The LSPS informs the Bega Valley Local Environmental Plan and gives effect to the South East and Tablelands Regional Plan 2036. Relevant planning priorities consistent with the proposed development are addressed below:

Priority 7: *Tourism - The natural and cultural assets of the Shire have been enhanced to create a flourishing year-round tourism industry supporting local employment in a wide range of associated businesses.*

The planning supports expansion of walking and accessible tourism through prioritised development of the shared path and cycle network and implementation of the BVSC Disability Inclusion Action Plan. This is in line with the purpose and objectives of the proposed Development.

Priority 8: *Transport - The attractiveness, sustainability and success of our Shire is enhanced by the accessible and reliable transport network which enables the movement of people and goods and provides travel choices including walking, cycling and public transport.*

The action plan proposes review of planning and subdivision controls to ensure a highly connected local street network with footpaths or shared paths connecting to town centres and recreation areas. This boardwalk would be upgraded to enhance connectivity between locals living on the western side of the lake to access the town centre by foot.

3 Environmental Analysis

3.1. Subject land

The land subject to the proposed development is identified in Table 3-1. As discussed earlier in this report, the proposed development is located along the northern edge of Merimbula Lake. The existing path provides access between Market Street bridge (the eastern extent of the boardwalk) and Lakewood Drive Top Lake carpark (the western extent of the boardwalk).

The proposal is located partly within the lake, on the lake edge, and on public and private land. Some public land is NSW Government Property, whilst other public land is identified as Crown Land for which BVSC is the appointed Crown Land Manager.

Table 3-1 Subject land from east to west

Legal Description	Address	Ownership	Zoning
Lot 36 DP: 208862 (Minor revegetation works only past the edge of existing car park)	Market Street	Government Property NSW	R3 Medium Density Residential
Lot: 1 DP: 109636	Market Street	Government Property NSW	R3 Medium Density Residential
Lot: E DP: 355155	10 Short Street	Private ownership	R3 Medium Density Residential
Lot: 7032 DP: 1047318	Crown Reserve R1003688 Lakewood Drive	Crown Land with BVSC as the appointed Crown Land manager	C2 Environmental Conservation
Lot: 98 DP: 747323	Kiama Place	Bega Valley Shire Council	C2 Environmental Conservation
Lot: 202 DP: 793447	21 Tern Close	Bega Valley Shire Council	C2 Environmental Conservation

3.2. Site analysis and surrounds

The proposed development site is generally flat and is located at an elevation of approximately 2m above mean sea level. Adjoining the proposed development site along its entire length is native vegetation immediately to the north, with urban residential development beyond (approximately 60m north). Five first order waterways pass under the existing boardwalk, before flowing into Merimbula Lake.

Merimbula Lake is a moderately disturbed estuary, with a catchment area of approximately 38 square kilometres (sq.km.) and an average depth of 2.6m. It is a semi-enclosed water body with an open connection to the ocean, and therefore fluctuating water levels. Water quality testing in recent years indicates the overall estuary health to be excellent (NSW Department of Environment and Heritage, 2023). Merimbula Lake

supports a variety of activities including recreation and sustainable aquaculture on oyster reefs. The Lake's estuarine, mangrove and saltmarsh vegetation provides habitat for many marine and migratory species.

3.3. Construction impacts

3.3.1. Soils

The proposed development is located partly within the lake and on the lakes edge. As indicated in the figure below, the proposed development falls within land classified as:

a) Class 1 Acid Sulfate Soil (ASS) in these areas are likely to be found on and below the natural ground surface.
b) Class 2 ASS in these areas are likely to be found below the natural ground surface.

ASS are naturally occurring in sediments and soils, which contain sulfides, mainly iron sulfide and iron disulfide or their precursors. Exposure of soil born sulfides to oxygen, as a result of drainage or excavation, can produce sulfuric acid in the presence of water. Sulfuric acid can impact the environmental and human health. Leaching of sulfuric acid into waterways impacts water quality, resulting in fish kills and damage to infrastructure such as floodgates and bridges.

Any of the following characteristics may indicate the presence of ASS:

- A sulphurous odour following soil disturbance.
- Pale yellow surface encrustations (jarosite).
- Excessive iron staining on drain surfaces or stream banks.
- Iron-stained drain water and orange red ochre deposits around water bodies.
- Excessive corrosion of concrete or steel structures exposed to ground or drainage waters, or rapid corrosion of fresh steel in the soil.
- Blue-grey, blue-green or grey waterlogged soils which smell of rotten eggs.
- Jarosite, milky white substance, iron staining and acidic runoff.

ASS are considered likely to be encountered within the proposed development site. The proposed development has been designed to avoid disturbing and exposing ASS as far as practicable by avoiding and minimising impacts to the lake bed through piling, where ASS would be expected. Furthermore, the construction methodology would involve cutting off existing piles at natural ground level and leaving these in situ. As such, minimal disturbance and exposure of potential ASS to oxygen would be limited.

Figure 3-1 ASS occurring within and nearby to the proposed development

As required by the BVLEP, an ASS Management Plan has been developed for the proposed works in accordance with the ASS Manual. The proposed mitigation and management measures are summarised below.

- Characterisation sampling will be required for all ground disturbing works where visual characteristics of ASS are observed.
- Where characterisation samples have returned the confirmed presence of ASS and a laboratory liming rate, during excavations, apply a guard layer of agricultural lime evenly along the floors and sides of the excavation as per the ASSMP.
- Where ASS are identified on-site, excavated impacted material will be stockpiled on a dedicated, bunded and impermeable treatment pad with a leachate collection system. Leachate will be neutralised or removed and disposed of at a licenced facility to receive such type of waste.
- ASS must be treated in accordance with the neutralising techniques outlined in the ASSMP and ASS Manual (ASSMAC 1998).
- An ASS tracking register will be used to track the excavation location, date and volume of ASS spoil removed, as well as liming rate (kg/m3), treatment location, date, validation results and reinstatement location or offsite disposal.
- Ongoing monitoring of the pH of the ASS stockpile/s undergoing treatment will continue until the material is neutralised.
- Treated ASS, which has been neutralised with confirmation following verification testing, will be reused as clean-fill onsite, or removed offsite.

3.3.2. Water

The proposed development site is located on and adjacent to Merimbula Lake. A detailed description of Merimbula Lake's environment is provided in Section 3.2 and 3.5.

The proposed works have potential to impact on water quality through sedimentation via the removal of pylons, use of anchors and runoff. The use of machinery, equipment and boats also pose a risk to water quality through spills and leaks of fuels and lubricants. Impacts on water quality have potential to impact on aquatic vegetation and fauna as well as the oyster farms that occupy the lake. These impacts and recommended mitigation measures are detailed in the Aquatic Ecology Assessment (Appendix C) and summarised in Section 3.5.

3.3.3. Air quality

The development site is set within a natural area in the wider urban environment of Merimbula. The Merimbula CBD is approximately 700m north of the eastern end of the boardwalk. Air quality in the area is considered to be good and is typical of the surrounding town and city centres. During the drier months, raised dust can contribute to sporadic reductions in air quality. Bushfires in recent times have also contributed to significantly elevated pollutant levels in the area. In winter, the burning of wood in solid fuel fires contributes to elevated levels of particulate matter in the atmosphere.

Air quality may be affected during the construction phase by vehicle and machinery exhaust emissions, although the emissions would be readily dispersed and any impacts to residents or workers at the site are expected to be transient and minor. Cutting of old timber posts, drilling and core barrel/auger to drill an underside hole in pile locations have a potential to generate dust. Construction vehicles assessing the tracks

may produce dust where the soil is exposed, and the bog mats are not in place. However, there are only few areas where the soil would be exposed and considering limited vehicles on the track, it is not likely to impact air quality in the vicinity.

Subject to mitigation measures, any dust or other air quality impacts are likely to be minor, temporary, and highly localised.

The following mitigation measures are proposed to minimise air quality impacts during construction:

- To minimise dust emissions from proposed development a water hose would be used to supress dust during movements on dry exposed soil/gravel surfaces.
- Saw dust from pile cutting activities is to be collected and disposed of appropriately
- Water is to be used for any drilling or coring processes, resulting slurry is to be vacuumed up as process it being performed. No slurry to be stored onsite.
- All rock fragments and slurry to be collected and disposed as soon as possible. Worksite to be cleaned up completely.

Operation of the boardwalk would not result in any air quality impact. This would rather encourage locals to walk to and from town centre whenever required and provide alternative to use of vehicles for short trips.

3.3.4. Noise

Methodology

The proposed development has the potential to affect the community due to noise during construction. The Interim Construction Noise Guideline (ICNG; DECC, 2009) was applied to set qualitative parameters for a quantitative application of the Transport for NSW (TfNSW) Construction Noise Estimator Tool (CNET) to assess the worst-case noise impact scenario during construction.

The following key factors were identified during assessment:

- Appropriate background noise levels
- Noise management levels (NMLs)
- Noise catchment areas (NCAs)
- Potential noise impacts
- Reasonable safeguards and mitigation measures.

The CNET was used to identify these factors for the development's worst-case construction duration. Noise area category "R1" was chosen as the representative noise area for the development given the area comprises residential land near the town centre and the vehicle movements along Market Street and other suburban streets.

As per the ICNG, NMLs are set to be 10dB(A) above the background noise level during standard hours:

- Monday to Friday: 7am – 6pm
- Saturday: 8am – 1pm (due to proximity to residential premises)
- No work on Sundays and Public Holidays.

The CNET was applied to assess potential worst-case noise impacts during construction. The selected distance based noisiest plant scenario as modelled by the CNET was adopted and a 5-ton Excavator with hammer L_{Aeq} Sound Power Level (SWL) of 119dB(A) was selected as a noisiest equipment operating on site.

Based on the variables above, the following conditions would apply to the Proposal:

- Background noise level (rating background level (RBL)) of 45 dB(A) during standard hours.
- NML of 55 dB(A) during standard hours.
- Noise environment: 'R1'.
- Noisiest plant: '5-ton Excavator with hammer' (LAeq) 119 dB(A).

Potential impacts

A summary of potential noise-affected sensitive receivers to the development site were found to be the following:

- Highly affected: Residents within 50m during standard hours.
- Moderately affected: Residents within 135m during standard hours.

There are no industrial, commercial, hospitals and places of worship and educational premises within the affected distances. The affected location in shown in Figure 3-2.

Noise would be generated by construction vehicles and equipment operating on the site. Application of the CNET assumed the worst-case scenario of the noisiest plant operating close to a residence and having direct line of sight. However, it is unlikely that this would occur for extended periods across the whole development site.

Given the quiet ambient noise levels, most construction activities would be likely to exceed the Noise Management Level for daytime works at the nearest receivers.

No increase in noise levels is anticipated from the operation of the proposed boardwalk.

Mitigation measures

A Noise and Vibration Management Plan (NVMP) will be prepared and implemented as part of the Construction Environmental Management Plan (CEMP) to manage impact of noise. The NVMP will generally follow the approach in the ICNG (DECC, 2009) and identify:

- All potential significant noise generating activities associated with the development.
- Arrangements for consultation with affected neighbours and sensitive receivers, including notification and complaint handling procedures.
- Contingency measures to be implemented in the event of non-compliance with noise and vibration criteria.

All sensitive receivers likely to be affected will be notified at least 14 days prior to commencement of any works associated with the activity that may have an adverse noise or vibration impact. Highly noise affected receivers will be contacted via phone call and provided with a respite period.

Where feasible the planning and scheduling of construction works should limit the simultaneous operation of noisy plant within a discernible range of a sensitive receptor and non-tonal broadband reversing alarms or beepers should be fitted on all construction vehicles and mobile plant.

Figure 3-2 Noise affected receivers

3.3.5. Access and traffic

During construction, all public access would be denied, with adequate signage erected at each potential pedestrian access point. The existing carparks at Market Street and Lakewood Drive would also be temporarily closed. The community would also be well notified by way of BVSC information sharing channels. Whilst a minor, temporary inconvenience, this is not considered likely to have off-site or adverse impacts for members of the community, given these facilities are predominantly used to access the boardwalk, which itself would also be inaccessible during the construction period.

This would mean that the carparks would be unavailable for public use. However, the carpark on the western end of the boardwalk will remain partially open for use at the boat club as the development would only be using eastern part of the northern carpark as shown in Figure 1-2.

Access to the proposed development site for construction contractors would be via the existing carparks at Market Street and Lakewood Drive. The existing carparks would be used temporarily as construction laydown and storage areas. Satisfactory signage and hoarding would be erected to ensure the security of construction vehicles and materials as well as public safety by way of exclusion zones.

Both Market Street and Lakewood Drive are sealed roads with a posted speed limit of 50km per hour. Market Street is a higher order road, connecting key areas; however, Lakewood Drive is a suburban street generally accessed by local residents only.

During construction, there would be decreased light vehicle movements in the area of Market Street and Lakewood Drive, with local residents and visitors unable to access and use the boardwalk. However, there would be an increase in construction traffic during start and end of construction period, including delivery and removal of construction machinery, construction vehicles and material delivery trucks. However, the intention is to store the machinery within the designated laydown areas for the duration of construction in order to avoid increased traffic on the local roads throughout the construction period. It is considered the existing road network can manage these temporary, minor increases in traffic and changes in the nature of vehicles. No road augmentation is noted to be required at this stage.

Once operational, it is hoped the boardwalk may attract increased visitors due to improvements made and safety concerns resolved. It is expected this may be a marginal increase on existing numbers and would not overly notable for surrounding residents.

There are considered to be no feasible alternatives to the temporary and short-term disruption to boardwalk access as well as the existing carparks at Market Street and Lakewood Drive. It is recommended a Construction Traffic Management Plan (CTMP) be prepared for the proposed works prior to the commencement of construction. The CTMP would generally address the following matters:

- Notification to neighbours if traffic control is required and may disrupt access.
- Management and coordination of the timing of delivery vehicle movements.
- Management of western carpark to minimise impact to the boat club users.
- All vehicles to enter and exit the site in a forward direction.
- Proactive management of roads, hardstands and laydown areas.
- Obtaining any relevant road and hoarding permits.

3.3.6. Waste

The following waste streams may be generated during the construction phase of the development:

- Excavation wastes, including rock, slurry and soils.
- Old timber, sawdust and posts from existing boardwalk.
- Vegetation wastes, from construction (clearing).
- Packaging materials associated with items delivered to site such as pallets, crates, cartons, plastics and wrapping materials.
- Wastes produced from the cleaning, repairing and maintenance of construction equipment, including liquid hazardous wastes.
- Chemicals and oils.

Legal requirements for the management of waste are established under the *Protection of the Environment Operations Act 1997* (POEO Act) and the POEO (Waste) Regulation 2005. Unlawful transportation and deposition of waste is an offence under section 143 of the POEO Act. Waste management would be undertaken in accordance with *the Waste Avoidance and Resource Recovery Act 2001* (WARR Act).

The CEMP developed for the proposal would also address construction waste streams and waste management processes implemented to avoid, minimise, reuse and recycle waste. Disposal will only occur as a last resort in accordance with the WARR Act.

3.4. Biodiversity

3.4.1. Methodology

The Biodiversity Development Assessment Report (BDAR) was preceded by a preliminary biodiversity assessment which was part of the desktop review for the BDAR. Background information such as landscape features and native vegetation cover was gathered using online resources available from the SEED portal (e.g. Interim Biogeographic Regionalisation for Australia (IBRA), State Vegetation Type Mapping), Threatened Biodiversity Database Collection (TBDC), BioNet along with GIS layers. Database searches for threatened entities and matters of national environmental significance were updated including BioNet, Protected Matters Search Tool (PMST), Biodiversity Values Mapping and Atlas of Living Australia.

On-site field surveys were conducted including rapid assessment points in 2023 to broadly characterize the vegetation, followed by Biodiversity Assessment Methodology (BAM) Plots to determine Plant Community Types (PCT) and zonation in 2024. In March 2024, a threatened flora survey transect was undertaken along both sides of the existing boardwalk and track. Fauna habitat assessments were undertaken across the subject land in 2024 followed by targeted fauna surveys in accordance with NSW and Commonwealth survey guidelines:

- Bush Stone-Curlew (*Burhinus grallarius*)
- Eastern Osprey (*Pandion cristatus)*
- Giant Burrowing Frog (*Heleioporus australiacus*)
- Green and Gold Bell Frog (*Litoria aurea*)
- Little Eagle (*Hieraaetus morphnoides)*
- Southern Myotis (*Myotis macropus*)

- Square-tailed Kite (*Lophoictinia isura)*
- Stuttering Frog (*Mixophyes balbus*)
- White-bellied Sea-Eagle (*Haliaeetus leucogaster).*

The proposal has been assessed as a small area linear development.

3.4.2. Existing environment

The subject land falls into the South East Coastal Ranges sub-region in the South East Corner IBRA. The subject land intersects three Mitchell Landscapes: Bodalla-Nadgee Coastal Sands; Bodalla-Nadgee Coastal Ranges and; Estuary. There are five ephemeral drainages lines that intersect the subject land while the Merimbula Lake, an intermittently closed tidal lake borders the development footprint. The Merimbula Lake is a national important wetland. There are no karst, caves, cliffs or other geological features of significance within the Assessment Area (500m of the subject land). The native vegetation cover in the Assessment Area was estimated as 16.21%. The subject land is surrounded by Merimbula township.

As the subject land occurs at the intersection of land and estuary, the vegetation and habitat provided along its' length is diverse. Seven PCTs were identified in the subject land:

- 3108 South Coast Scarp Wet Vine Forest
- 3639 South Coast Sands Bangalay Littoral Forest
- 4054 South Coast Tidal Flats Samolus Paperbark-Grey Box Forest
- 4056 Southern Estuarine Swamp Paperbark Creekflat Scrub
- 4091 Grey Mangrove-River Mangrove Forest
- 4097 Samphire Saltmarsh
- 4102 South Coast Bracelet Honey-myrtle Sea Rush Saltmarsh

Of these, four are associated with Threatened Ecological Communities as per Table 3-2. The vegetation condition was moderate for terrestrial communities and high for estuarine communities.

Table 3-2 Threatened Ecological Communities

TEC name	BC Act status	EPBC Act status	Associated vegetation zones within the subject land	Area within subject land (ha)
Brogo Vine Forest of the South East Corner Bioregion	Not listed	Endangered	PCT 3108	1.84
Bangalay Sand Forest of the Sydney Basin and South East Corner bioregions	Endangered	Not listed	PCT 3639	0.88
Coastal Saltmarsh in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	Endangered	Not listed	PCT 4097 PCT 4102	0.77
Subtropical and Temperate Coastal Saltmarsh	Not listed	Endangered	PCT 4097 PCT 4102	0.77

Numerous fauna were spotted opportunistically and during surveys in the subject land including more than 30 bird species, more than 14 mammal species, five amphibians and three reptiles. The intertidal zone provides sandy and muddy substrate and nearby oyster leases provide foraging opportunities for shorebirds. Rapid habitat assessments found that habitat structure varied over the subject land but overall understory density was medium to high and midstory density was medium. Rough-barked trees were ubiquitous, litter and fallen timber varied with high quantities recorded in some areas. Small patches of *Allocasuarina littoralis* occur along the eastern ridgeline in PCT 3108, providing foraging habitat for Glossy Black-cockatoo *Calyptorhynchus lathami*. Stick nest surveys throughout the Subject Land did not find any raptor stick nests but located numerous Ring-tailed Possum *Pseudocheirus peregrinus* dreys and small bird nests.

The existing boardwalk structure did not provide microbat habitat in the form of hollows and niches, being constructed of light timber. Sixteen microbat species were identified as 'present' or 'potentially present' from call signatures on Anabat devices, including one species credit species, Southern Myotis *Myotis Macropus.* Hollow-bearing trees are present at low frequency and despite several large individuals, the average DBH of trees is fairly low (10-40cm). Seventeen hollow-bearing trees were identified in the Subject Land including mangrove, *Melaleuca* and eucalypts.

3.4.3. Potential impacts

Measures described in this SEE have been undertaken to avoid and minimise impacts to biodiversity, particularly in sensitive areas such as mangrove and saltmarsh. Three hollow-bearing trees would be cleared, including dead *Melaleuca*. The likelihood and consequence of indirect and prescribed impacts are discussed in the BDAR, with key potential impacts and arising mitigation measures as per Table 3-3.

Table 3-3 Indirect and prescribed impacts and recommended mitigation

Indirect or prescribed impact type	Recommended mitigation
Inadvertent impacts on adjacent habitat or vegetation	Clear physical demarcation of retained vegetation / clearing area.
Cumulative loss of hollow-bearing trees	Unexpected finds procedure and nest box installation.
Rubbish dumping	CEMP to include list or map of lawful locations for dumping construction rubbish and requirement for construction contractor to maintain clean site.
Weed spread	Stock pile separation with weekly inspections.
Erosion and sedimentation of waterway	Standard erosion and sedimentation control practices.

Using the small area module in the BAM-Calculator (BAM-C) generated credits for threatened ecological communities and serious and irreversible impact (SAII) species, as per Table 3-4 and Table 3-5.

Table 3-4 Ecosystem credit requirement

Zone ID	PCT ID	PCT name	Zone area (ha)	Vegetation integrity score	Ecosystem credits required
1	3108	South Coast Scarp Wet Vine Forest	0.06	53.6	2
2	3639	South Coast Sands Bangalay Littoral Forest	0.06	57.9	2
3	4054	South Coast Tidal Flats Samolus Paperbark-Grey Box Forest	0.04	37.6	1
4	4056	Southern Estuarine Swamp Paperbark Creekflat Scrub	0.02	37.7	1
5	4091	Grey Mangrove-River Mangrove Forest	0.13	71.9	4
6	4097	Samphire Saltmarsh	0.08	72	3

Table 3-5 Species credit requirement

Species	Area (Ha)	Sensitivity to gain	Biodiversity risk weighting	Species credits required
Pied Oystercatcher	0.08	High	2	3
Swift Parrot	0.16	High	3	9
Southern Myotis	0.39	High	2	15
Eastern Curlew	0.24	High	3	13

3.5. Aquatic Ecology

An Aquatic Ecology Assessment Report (AEAR) was prepared by NGH for the proposed development. It is summarised below and attached in full at Appendix C.

3.5.1. Methodology

A review of aquatic ecological data was undertaken for Merimbula Lake for the development of a boardwalk upgrade. The desktop assessment addresses both Federal and State Legislation and Guidelines, providing key information for potential impacts of the boardwalk upgrade on aquatic environment and biodiversity.

Preliminary desktop analysis included a background data review and assessment of the likelihood of occurrence and impact, guiding the aquatic survey.

3.5.2. Existing environment

Merimbula Lake is a moderately disturbed estuary, with a catchment area of approximately 37.9 km^2. The Lake has a total volume of 12,923.9 megalitres (ML), a surface area of 5.6 km2 and an average depth of 2.6m. Water quality testing by the NSW Government in 2020-2021 determined that algal abundance, water clarity and overall estuary health were all categorised as excellent (NSW Department of Environment and Heritage, 2023). Merimbula Lake supports a variety of activities including recreation and oyster leasing areas.

Merimbula's estuarine, mangrove and saltmarsh ecosystems provide habitat for many marine and migratory species, including birds and mammals. All marine vegetation is protected under the EPBC Act, including seagrasses in Merimbula Lake such as Strapweed *Posidonia australis*.

Figure 3-3 Merimbula Lake from eastern side of site (Source: NGH, 2024)

Merimbula Lake contains areas where sustainable aquaculture takes place on oyster reefs, however only small sections of the oyster reef occur in or near the study area.

The study area meets the Type 1 classification as it is a marine or estuarine waterway with significant presence of *Posidonia australis*, in addition to >5m^2 of *Zostera* and *Ruppia* species, and >5m^2 of coastal saltmarsh. Merimbula Lake is also listed as coastal wetland under the Resilience and Hazards SEPP and in the Directory of Important Wetlands of Australia. In addition, protected or threatened species habitat under the FM Act is known in the area.

Following the classification of the proposed development site as Type 1 – Highly Sensitive Key Fish Habitat, it was determined that Merimbula Lake was confirmed as Class 1 - Major Key Fish Habitat under the *Fisheries NSW Policy and Guidelines for Fish Habitat Conservation and Management* (DPI, 2013).

Desktop assessment

A search of Matters of National Environmental Significance (MNES) within a 10km radius of the study area indicated that the following MNES occur or have the potential to occur within the development site or 10km buffer:

- One Commonwealth Marine Area (in buffer area only)
- Five Listed Threatened Ecological Communities (in feature area)
- 97 Listed Threatened Species (76 in feature area)
- 57 Migratory Species (46 in feature area)

"Other Protected Matters" under the EPBC Act within the development site or 10km buffer include:

- Three Commonwealth Lands (in buffer area only)
- 87 Listed Marine Species (82 in feature area)
- 14 Whales and Other Cetaceans (7 in feature area)

No declared critical habitat was identified in the development site or buffer zone through the EPBC Act Protected Matters Report. No Areas of Outstanding Biodiversity Value (AOBVs) under the BC Act occur within the development site or buffer zone.

The following marine species were identified through the EPBC Protected Matters search tool as likely to occur in Biologically Important Areas (BIA) in the development site for foraging or feeding:

- *Tursiops aduncus* – Indo-Pacific/Spotted Bottlenose Dolphin
- Thalassarche cauta cauta – Shy Albatross
- *Carcharias tauras* – Grey Nurse Shark

One marine Key Ecological Features (KEFs) (Upwelling east of Eden) was identified as occurring within the 10km buffer of the development site in the EPBC Act Protected Matters Report.

Key Fish Habitat (KFH) in the development site and buffer area were identified and mapped using layers from the NSW DPI Fisheries Spatial Data Portal. The map is shown in Figure 3-4.

Marine vegetation occurring within the study area and in the buffer zone of Merimbula Lake includes expanses of seagrass, primarily *Posidonia* and *Zostera* species, mangroves, and saltmarsh.

Marine species, populations and ecological communities that are currently listed as endangered, critically endangered and/or vulnerable (i.e. Schedule 4a and 5) under the FM Act (with the potential to occur in the general study area), are listed below.

Schedule 4a: Critically Endangered Species and Ecological Communities

- Grey nurse shark (*Carcharius taurus*) - critically endangered species

Schedule 5: Vulnerable Species and Ecological Communities

- White Shark, Great White Shark (*Carcharodon carcharias*) - critically endangered species
- Black Rockcod, Black Cod (*Epinephelus daemelii*) - vulnerable species

Protected Species

- All species of the families ‘Syngnathidae’, ‘Solenostomidae’ and ‘Pegasidae’ (seahorses, sea dragons, pipefishes and pipehorses).
- All species of marine vegetation including mangroves, seagrass, saltmarsh and seaweeds.

An evaluation of the occurrence and impact likelihood of threatened marine species in and surrounding the development site was undertaken in the form of a habitat table. This table is attached to Appendix B of the AEAR.

Figure 3-4 Key Fish Habitat within the proposed development site

Site survey

A field survey was carried out by NGH Ecologists which identified various saltmarsh plants and mangrove trees including:

- Austral Seablite *Suaeda australis,*
- Beaded Samphire *Sarcocornia quinqueflora*,
- Shrubby Glasswort *Teticornia arbuscula*,
- Grey Mangrove *Avicennia marina*,
- River Mangrove *Aegicera corniculatus*.

The survey also identified a mixed seagrass community of Eelgrass *Zostera sp*., Paddleweed *H. ovalis* and Strapweed *P. australis* on soft sandy substrate. A Blue Swimmer Crab and a moult of the same species were also observed. The habitat was dominated by bare soft sand with low density Paddleweed *H. ovalis.* Isolated patches of oysters, rocks and macroalgae stands including Neptune's Necklace *Hormosira banksia* and macroalgae *Sargassum sp.,* as well as isolated areas of denser Paddleweed provided valuable habitat.

The following fish species were observed:

- Light-bulb Ascidian Clavelina lepadiformis
- Smooth Toadfish Tetractenos glaber
- Port Jackson Glassfish Ambassis jacksoniensis
- Luderick Girella tricuspidate
- Exquisite Sandgoby Favonigobius exquisitus
- Estuary Glassfish Ambassis marianus
- Luderick Girella tricuspidate
- Smooth Stingrays Bathytoshia brevicaudata
- Sea Mullet Mugil cephalus.

During the surveys, no Syngnathiformes were observed.

It was also noted that overall, seagrass cover was relatively patchy with many transects showing a high variability of cover across quadrats. Some quadrats and transects contained very low cover, or no cover.

Four species of seagrasses were observed during the survey:

- Strapweed Posidonia australis,
- Eelgrass Zostera capricorni,
- Eelgrass Zostera muelleri
- Paddleweed Halophila ovalis.

Stationary fish plots surveys identified 20 species of fish and an additional 2 species were unidentified due to not being clearly visible in the camera frame. No protected fauna (Syngnathiformes) was observed in the stationary fish plots.

3.5.3. Potential impacts

None of the threatened or protected shark and fish species (including Syngnathiformes) listed in the habitat evaluation table (Appendix A of AEAR) were found to occur within the development footprint during the field

inspections. Although some of the threatened or protected species have the potential to occur within the 10km buffer zone (including deeper waters), it is considered unlikely that the proposed upgrades to the boardwalk would impact these species directly or indirectly, due to:

- Unsuitable or marginal habitat for the protected species in the development footprint and the 10m buffer zone (i.e. depth of water, lack of dense seagrass beds and intertidal rocky reefs in the construction footprint or its' buffer that could provide suitable habitat).
- Spatial separation from nearest deeper habitat and rocky reefs that occur near the entrance to Merimbula Lake and the coastal environment
- The proposed upgrades to the boardwalk are not expected to decrease the population size, areas of occupancy, critical habitat or fragment populations of threatened or protected species known to occur within the 10km buffer zone of the development footprint.

Despite the lack of suitable habitat for and the absence of Syngnathiformes observed during the field survey, the proposed upgrades to the boardwalk have the potential to result in some minor, direct impacts to the identified aquatic habitat and fauna within the development site. The development site and buffer area as well as the surrounding areas are characterised by a diverse mix of shallow sandflats, low to medium density seagrass beds interspersed with areas of bare sand, rock and mud, isolated small rocks colonised with oysters and macrophytes and areas with mangrove habitat. Oysters are animals that clean and filter the surrounding water, in addition to providing habitat and a source of food for some marine organisms. Poor water quality including pollution and sedimentation can reduce the available nutrition and silt over hard bottom habitat that oysters require (NOAA Fisheries, 2022). Accidental oil or fuel spills, in addition to sediment stirring due to movement and transportation, have the potential to impact the health of oysters in close proximity to the development site.

These impacts would be associated with the temporary removal of existing poles and pylons of the existing boardwalk and the eastern jetty, as well as the impacts to benthic fauna during the instalment of the new boardwalk footings. This would result in the loss of the sessile community of encrusting organisms, sponges and macroalgae that have colonised these structures over time, in addition to declines in oyster size and numbers. In turn, the shelter and habitat provided by the existing pylon, and pole structures would be temporarily lost and unavailable for the invertebrate and fish community (consisting of common species typical for the NSW South Coast).

Over time, it is expected that the replaced structures would be recolonised, and a similar habitat and shelter is provided to the fish, plant and invertebrate community by the pylons of the boardwalk and the jetty structures.

NGH recommends using mesh decking to allow sunlight to penetrate through to seagrass and substrate beneath the boardwalk.

The removal of existing structures and the use of a barge to access parts of the development footprint could result in the dispersal of adults or larvae of the invasive Light-bulb Ascidian *C. lepadiformis* and should be avoided to reduce the risk of further spreading this invasive species.

Seagrass meadows provide habitat and shelter for many marine species including fish, seahorses and sea turtles. Seagrass meadows also provide protection for juveniles. Due to the slow recolonisation rate of seagrasses once damaged, it is essential that the recommendations for minimising impacts to seagrass meadows are practiced (UNEP, 2024).

Mangroves, saltmarsh, and seagrasses are protected in NSW under the *Fisheries Management Act 1994* (FM Act). A permit is required from NSW DPI to undertake works or activities where damage or destruction of these plant groups is likely to occur. Damage includes cutting, trimming, removing, pulling up, gathering, shading, or poisoning. A permit is required for both live and dead, or detached material such as wrack (NSW DPI, 2023).

Potential impacts to saltmarsh, mangroves, macroalgae and seagrasses for the boardwalk upgrade include direct and indirect damage through the following activities:

- Removal of piles and old boardwalk structures
- Use of barge to deliver building materials and facilitate construction
- Anchoring or mooring of barge in areas with seagrass
- Use of vehicles and machinery for the construction of the boardwalk and trampling,
- Dumping of rubbish/waste and pollution.

Seagrasses are fragile and can become easily damaged, often by human-related disturbances such as boating or fishing activities, foreshore structures that inhibit sunlight conversion, sediment disturbance and stormwater runoff. Once seagrass meadows are damaged, regrowth and recolonisation is slow (NSW DPI, 2007). Strapweed *P. australis* does not readily recolonise areas where it has been removed or eliminated, which was abundant in many areas of the during the aquatic field surveys including close proximity to the existing Eastern car park. Paddleweed *H. ovalis* and Eelgrass *Zostera sp.* was present throughout the study area, particularly in shallow depths in close proximity to the existing boardwalk. Trampling and sunlight inhibition would be the highest potential impacts to seagrass.

Due to the patchy distribution of macroalgae in the study area, it is unlikely that there will be any impacts on species that use macroalgae as a source of food or shelter. Impacts to macroalgae would be associated with the removal of existing poles and pylons of the existing boardwalk and the eastern jetty, in addition to water pollution as a result of the construction process.

Particular care should be taken with mangrove seedlings during the construction process, particularly where machinery would occur. Further potential impacts to mangroves and saltmarsh are explored in the terrestrial report (BDAR in Appendix B).

A Part 7 *Fisheries Management Act* permit is required for the Merimbula boardwalk upgrade due to the following activities:

- Harming marine vegetation

A Permit Application will need to be completed by BVSC with the proposed methodology and details of the development including evaluation of potential impacts, consultation and risk evaluation. It is not evident that any vegetation will be removed through the proposed methodologies, however a permit is required if there is any cutting, trimming, removing, pulling up, gathering or shading of live or dead vegetation, as well as wrack.

Offset requirements

The proposed development site and study area are classed as Type 1 KFH. The policy and guidelines require a minimum 2:1 offset for Type 1–3 key fish habitats to help redress both direct and indirect impacts of development.

The total area of new additional impacts as a result of the boardwalk upgrade is 1,156.54 m^2. This does not include the area under the existing boardwalk structure. The offset requirements for these communities are fully calculated and described under the biodiversity offset methodology in the BDAR.

Seagrass is currently not included in the offset calculation due to the planned mitigation measures of meshed decking over seagrass areas.

3.5.4. Recommendation and mitigation measures

In order to limit the direct or indirect impacts associated with the boardwalk upgrades, following mitigation measures are recommended:

- Consultation with oyster farmers prior to construction, addressing any potential concerns and providing permit approval if necessary.
- Mitigation measures of construction impacts to oyster farm, including the use of sediment booms.
- Appropriate, safe fuel storage and refill locations for barge and construction vehicles.
- Implementation of an incident response plan for emergencies including spills.
- Limit the disturbance associated with the removal and replacement of existing structures such as pylons and footings, choose the minimal practical footprint or the same footprint and remove sessile organisms such as snails or shells, limpets and crabs before drilling or coring.
- Use decking with mesh to allow sunlight penetration while maintaining boardwalk stability to limit shading to the substrate underneath the boardwalk.
- Limit direct contact with seagrass meadows to reduce the likelihood of damage, in particular with Paddleweed and Eelgrass occurring in closer proximity to the shoreline.
- Limit disturbance and clearing/moving of wrack to reduce impacts to organisms living in or underneath wrack.
- In order to reduce the time that current habitat provided by the boardwalk is unavailable, limit time between removal and replacement of structures and stage the construction process.
- In areas where a barge is proposed to be used to upgrade the boardwalk or deliver materials, the barge should be of the smallest size and shallowest draft as practical to limit the disturbance of the benthos.
- Limit the number of barge movements in the intertidal area and move barge at high tide to minimise disturbance to the benthos.
- Limit the potential to spread invasive species such as Light-bulb *Ascidians C. lepadiformis* by disposing of old structures in a suitable way, and not re-using material that has the potential to be colonised by invasive species or hold parts of invasive species. Limit the disturbance of rocky substrate that is colonised by Light-bulb Ascidians within the development footprint as well as outside the development footprint as identified by the snorkel transect.
- Construction equipment used in the upgrade of the Merimbula Boardwalk should be thoroughly inspected for any remaining benthic material and cleaned and disinfected appropriately to prevent the spread of invasive species into other areas.
- Avoid anchoring or mooring boats over seagrass beds and travelling across seagrass at low tide to minimise risk of damage from propellers.
- Utilisation of bunting and/or fencing to minimise impact area during construction, limiting access and preserving undisturbed to saltmarsh areas in particular.
- Since seagrass distribution in the study area is relatively patchy, areas with little or no seagrass cover should be chosen as anchoring points where possible.

- Minimise barge movements in the intertidal area and move barge at high tide only to avoid direct contact with macroalgae and seagrass. This will also reduce the risk of direct disturbance of seagrass and limit the mobilisation of sediment which could smother seagrass in the area.
- Avoid walking and trampling through seagrass and macroalgae – particularly at low tide.
- Consider replacing decking with mesh to allow sunlight penetration for seagrass whilst also maintaining stability in boardwalk.
- Dispose of rubbish, oils, and chemicals in the correct and safe manner as soon as possible after the waste has been created for the health of all marine organisms.
- Since boardwalk upgrades are proposed in areas that are already disturbed, appropriate signage and fencing is recommended to limit expansion of impact areas during construction.

3.6. Aboriginal cultural heritage

3.6.1. Background

In 2018 BVSC was granted an Aboriginal Heritage Impact Permit (AHIP C0003582) valid for 20 years in relation to works along the existing alignment of the Merimbula Boardwalk and Foreshore Path. The AHIP authorises impacts to nine known heritage sites as a result of the proposed maintenance and upgrade works within the area assessed for the AHIP (refer to Appendix D and Appendix E for details).

In December 2023, NGH finalised an Aboriginal heritage due diligence assessment for the proposed boardwalk and ancillary areas associated with the proposed Merimbula Boardwalk and Foreshore Path project (Appendix D). The findings of this assessment report were that an Aboriginal Cultural Heritage Assessment, including a program of Aboriginal Community Consultation, was required of the Aboriginal heritage values of the proposed development site and to assess the impacts of the proposed activities on values identified.

Subsequent to the finalisation of the due diligence assessment, BVSC advised that the development site for the proposed works had been reduced to exclude the ancillary areas and the works would be confined to the area of the current boardwalk and foreshore path footprint in order to stay within the cost estimate and funding requirements. The revised development site comprises the subject area for AHIP C0003582 (Appendix E).

3.6.2. Methodology

The Due Diligence (DD) assessment was undertaken to evaluate whether Aboriginal objects are present, or likely to be present, within the proposed impact area of the development activity, and if those objects would be harmed by the activity.

A comprehensive visual survey of the development site was conducted on 13 September 2023 by an NGH Senior Heritage Consultant, assisted by representatives from the Djirringanj Elders Federation and (Bega LALC. The survey area consisted of trail corridors on flat lake shore and sloping hill and gully landforms that ranged from gentle to moderately sloping with some sections of trail on more steeply sloping landforms. The survey identified four isolated stone artefacts (see Plates 2, 3, 9 & 10 in the report) and five midden shell expressions (see Plates 4, 5 & 6 in the report) were identified during the site inspection. Much of the shell material identified is likely associated with previously recorded sites.

Post DD determination, NGH then reviewed the previous Aboriginal heritage assessments undertaken for the Merimbula Boardwalk and foreshore path area and conducted a comparative assessment and consistency review of the proposed works against the current AHIP and the Aboriginal Cultural Heritage Assessment (ACHA) report that supported the original AHIP application and subsequent assessments.

3.6.3. Existing environment

There are a total of 55 Aboriginal heritage sites registered in the Aboriginal Heritage Information Management System (AHIMS) database within a 1 km buffer of the development site . Of the sites surrounding the development site, there are 11 differing site types recorded.

As the majority of the proposed Development site has already been covered by targeted archaeological investigations (including the previous ACHA and associated AHIP), there is a low potential for any previously unrecorded sites to be located in those portions.

There are nine Aboriginal sites covered by the current AHIP as shown in Figure 3-5. Of these nine, three are within the Development site and cannot be avoided. Other 6 are outside of the Development site therefore, impact on these items can be avoided if needed.

3.6.4. Potential impact

The majority of the final Development site for the Merimbula Boardwalk will be within the area relating to AHIP number C0003582 and impacts to any Aboriginal objects within that area are authorised by the AHIP. The DD report assessed all areas of the final Development site that were beyond the bounds of the AHIP impact area, and the ancillary areas that are no longer part of the footprint.

The construction activities require moderate ground disturbance, the use of heavy machinery and laydown areas. Any Aboriginal sites within the disturbance footprint could therefore be subject to harm.

The DD and subsequent heritage assessment found that the proposed works can proceed within the cleared heritage area extent. This is based on a reasonable understanding of the AHIP C0003582 subject area and the findings of all Aboriginal heritage assessments.

3.6.5. Recommendations and mitigation measures

The recommendations below outline the requirements for the proposed works to proceed, based on the conditions outlined in both the ACHA and the AHIP (the latter taking precedence if there are any conflicts):

- If any proposed works for the asset renewal, upgrade and/or maintenance at the existing boardwalk and pathway are to be commenced under existing valid AHIP C0003582, these works must be compliant with all the conditions of AHIP C000358. The works should be confined to the land to which AHIP C0003582 is understood to apply and be as described in the documents outlined in AHIP C0003582 (specially the Bega Valley Shire Council Various Works ACHA by Dibden dated 23 October 2017).
- **The Cleared heritage area extent** comprises the land to which AHIP C0003582 is understood to apply and some adjacent areas that have been inspected and assessed during the 2023 due diligence assessment. All works should be confined to the **Cleared heritage area extent (**see Figure 3-6, Figure 3-7 and Figure 3-8).

- The implementation of works to upgrade the **boardwalk** facility should generally avoid impacts to areas of shoreline adjacent to the boardwalk. However, **specifically**, impacts to the adjacent shoreline and landform further inland must be avoided in the area mapped in the red polygon as **Shoreline avoidance area** to ensure there are no unauthorised impacts to **AHIMS sites # 62-6-0097 and # 62-6-0098** which **were not included** in *Schedule C Aboriginal Objects that may be harmed through the proposed works* in AHIP C0003582 (see Figure 3-8).
- If suspected human remains are discovered during the works, all work must cease in the immediate vicinity. Heritage NSW and the local police should be notified. Further assessment would be undertaken to determine if the remains were Aboriginal or non-Aboriginal. Should the remains be identified as Aboriginal in origin Heritage NSW will identify the appropriate course of action.

Figure 3-5 Aboriginal sites around the Development site

Figure 3-6 Detailed map of proposed development site (1 of 3)

Figure 3-7 Detailed map of proposed development site (2 of 3)

Figure 3-8 Detailed map of proposed development site (3 of 3)

3.7. Non-Aboriginal heritage

There are no items of State or local heritage within or near the subject land. Under the BVLEP, the closest listed item of heritage is considered to be the Old School Museum (I054), approximately 850m northeast of the site.

No non-Aboriginal heritage items would be impacted by the proposed development and no further assessment is considered required.

3.8. Visual

The replacement of the existing boardwalk aims to enhance both the aesthetic and functional aspects of the area. The development proposed an upgraded version of existing boardwalk. The new boardwalk would be slightly wider than the existing one as described in Section 2.2. These minor widening and upgrade works would not notably alter the existing landscape character.

Materials to be used for the boardwalk would be chosen to blend with the surrounding environment. The upgrade works is only planning to introduce lighting arrangements on the eastern car park. The surrounding area is reasonably illuminated, being a residential area, therefore introduction of lights in this carpark would not result in significant increase in light lighting in this area. Lighting is not proposed in other areas.

According to the NSW Coastal Design Guidelines, coastal development must protect and enhance natural coastal processes and environmental values, including natural character, scenic value, biodiversity, and ecosystem integrity and resilience. This includes minimising impacts on natural features and habitats. The guidelines also support maintaining and enhancing public access, amenity, use, and safety in coastal zones.

The proposed development aligns with these principles to ensure it benefits the community while protecting coastal resources. Refer to further detail outlined in relation to Chapter 2 Coastal management under the State Environmental Planning Policy (Resilience and Hazards) 2021 in this report.

3.9. Consideration of other hazards

3.9.1. Flooding and overland flow

According to the Merimbula and Back Lake Flood Study 2017, the area is subject to flood risk associated with Merimbula Lake. The modelling provided in the report shows Probable Maximum Flood (PMF) depth affecting the proposed development site, being 1-2m and a depth of 0.5-1m in the 1% Annual Exceedance Probability (AEP) flood event. The mapping shows the flow velocity at the Development site about 0.5-1m/s. At this low velocity it is unlikely to have a major impact on the infrastructure.

During construction of the proposed works, care would be taken during high rainfall events. These would be monitored, with construction works to be stopped as appropriate and all plant and equipment moved to unaffected areas/ higher ground.

During operation, the proposed works would not affect the movement of floodwaters in comparison to the existing development.

Both ends of the boardwalk would have a visible warning sign to warn users of flood risk. The boardwalk also should be closed when these high rainfall events are predicted to impact the path.

3.9.2. Contamination

The subject land is not mapped as being contaminated. A search of NSW EPA contaminated land record did not identify any sites within the Merimbula locality. A search of notified sites under section 60 of *Contaminated Land Management Act 1997* (CLM Act) identified two sites in the Merimbula locality. The closest one is former Mobil service station at 27 Market Street which is approximately 450m north from the eastern boundary of the proposed Development site. However, it is considered the site would have no implications for the proposed maintenance and upgrade of the boardwalk infrastructure.

The site is mapped as Class 1 and Class 2 ASS. Its impact and mitigation measures are discussed in 3.3.1.

The site is not mapped as an area comprising of Naturally Occurring Asbestos (NOA).

3.9.3. Bushfire

The proposed Development site is mapped as Category 1 Bushfire Prone Land (BFPL) and the associated buffer area (Figure 3-9). Stands of remnant native vegetation are present across the landscape and may pose a bushfire hazard.

The NSW Rural Fire Service (RFS) Planning for Bushfire for Protection 2019 (PBP) has some variations where specific constructions can proceed within bushfire prone land with the application of recommended measures. The proposed development can be classified to promote ecotourism. PBP states that due to the development's focus on the natural environment and creating minimal impact, the principles of ecotourism and the establishment of Asset Protection Zones (APZ) for bush fire mitigation are often in conflict. Due to the focus on minimising biodiversity and aquatic ecological impacts, the provision of defendable APZ and vehicular access is not possible for this proposed development.

The emphasis is therefore placed on emergency management, leaving early and non-operation on days of extreme or catastrophic fire weather which are included in the mitigation measures proposed:

- Always ensure the track remains a total fire ban zone unless it is a fire reduction burns conducted by RFS.
- Ensure signs are placed at both entrances of boardwalk to alert users of fire dangers in the track.
- Ensure signage are placed throughout the track to direct users to emergency exits which might be via the existing informal tracks.
- Construct the boardwalk using non-combustible or fire-resistant materials.
- Design the boardwalk with sturdy supports and minimal gaps to prevent embers from lodging underneath.

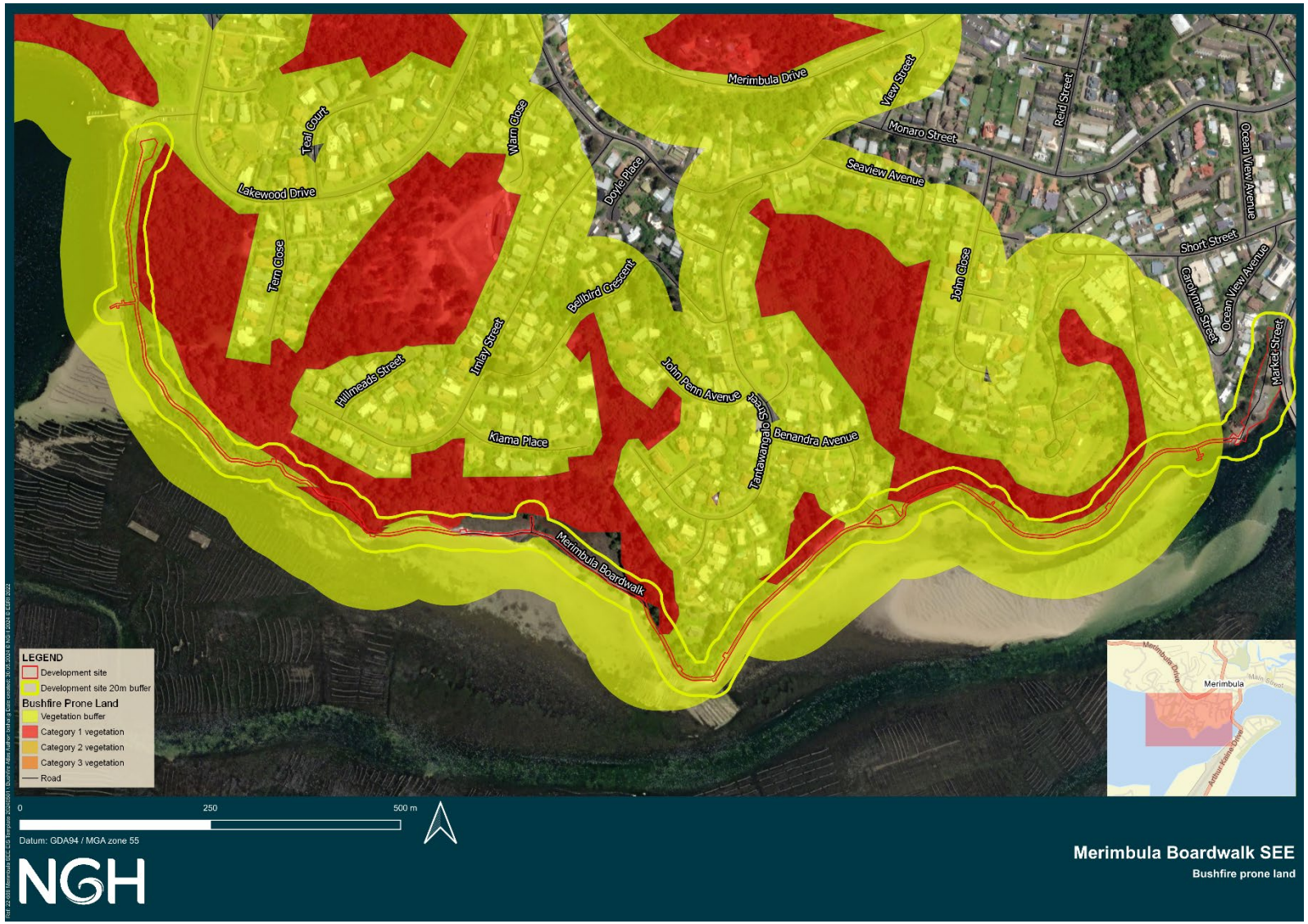

Figure 3-9 Bushfire prone land

4 Statutory framework

4.1. Commonwealth legislation

4.1.1. Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is administered by the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW). Under the EPBC Act, if the Minister determines that an action is a 'controlled action' then the action may not be undertaken without prior approval of the Minster.

Assessments of significance based on criteria listed in Significant Impact Guidelines 1.1 issued by the Commonwealth (Commonwealth of Australia 2013) are used to determine whether the proposed action is likely to have a significant impact (i.e. is likely to be considered a 'controlled action').

In the preparation of the BDAR and AEAR, database searches and site surveys were undertaken to determine the presence and likelihood of impact to threatened species and communities as relevant under the EPBC Act. As outlined earlier in this report, and in further detail in the respective reports, the proposed development is not likely to have a significant impact on threatened species and communities, migratory bird species and marine species listed under the EPBC Act. No referral is considered to be required.

4.2. State legislation

4.2.1. Environmental Planning and Assessment Act 1979

The proposed development would be assessed under Section 4.2 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). This Statement of Environmental Effects report and supporting documentation addresses the matters to be considered under Section 4.15 of the Act.

Integrated Development

In accordance with Section 4.46 of the EP&A Act, Integrated Development is development that in order for it to be carried out, requires development consent and one or more of the following approvals. A review of the proposed development against Integrated Development triggers has been carried out in Table 5 1.

Table 4-1 Integrated development provisions

Integrated approvals	Relevant
Coal Mine Subsidence Compensation Act 2017	
s 22 approval to alter or erect improvements, or to subdivide land within a mine subsidence district	Not relevant.
Fisheries Management Act 1994	

Integrated approvals	Relevant
s 144 aquaculture permit	Not proposed.
s 201 permit to carry out dredging or reclamation work	Not proposed
s 205 permit to cut, remove, damage, or destroy marine vegetation on public water land or an aquaculture lease, or on the foreshore of any such land or lease	Minor trimming and clearing of vegetation
s 219 permit to: *(a) set a net, netting or other material, or* *(b) construct or alter a dam, floodgate, causeway, or weir, or* *(c) otherwise create an obstruction, across or within a bay, inlet, river, or creek, or across or around a flat*	Not proposed.
Heritage Act 1977	
s 58 approval in respect of the doing or carrying out of an act, matter or thing referred to in s 57 (1)	Not proposed.
Mining Act 1992	
ss 63, 64 grant of mining lease	Not proposed.
National Parks and Wildlife Act 1974	
s 90 consent to knowingly destroy, deface, or damage or knowingly cause or permit the destruction or defacement of or damage to, a relic or Aboriginal place	The works are to be conducted under AHIP C0003582 which is currently in place for upgrade and maintenance activities.
Petroleum (Onshore) Act 1991	
s 16 grant of production lease	Not proposed.
Protection of the Environment Operations Act 1997	
ss 43 (a), 47 and 55 Environment protection licence to authorise carrying out of scheduled development work at any premises	Not proposed.
ss 43 (a), 47 and 55 Environment protection licence to authorise carrying out of scheduled development work at any premises	Not proposed.
ss 43 (b), 48 and 55 Environment protection licence to authorise carrying out of scheduled activities at any premises (excluding any activity described as a "waste activity" but including any activity described as a "waste facility")	Not proposed.
ss 43 (d), 55 and 122 Environment protection licences to control carrying out of non-scheduled activities for the purposes of regulating water pollution resulting from the activity	Not proposed.
Roads Act 1993	

Integrated approvals	Relevant
s 138 consent to: *(a) erect a structure or carry out a work in, on or over a public road, or* *(b) dig up or disturb the surface of a public road, or* *(c) remove or interfere with a structure, work, or tree on a public road, or* *(d) pump water into a public road from any land adjoining the road, or* *(e) connect a road (whether public or private) to a classified road*	BVSC is not required to obtain a section 138 permit for works upon public roads under the control of BVSC.
Rural Fires Act 1997	
s 100B authorisation under Section 100B in respect of bush fire safety of subdivision of land that could lawfully be used for residential or rural residential purposes or development of land for special fire protection purposes	No
Water Management Act 2000	
ss 89, 90, 91 water use approval, water management work approval or activity approval under Part 3 of Chapter 3	A public authority is exempt from the requirement to obtain a permit according to section 41 of the WM Regulation 2018.

Designated Development

The proposed development on coastal wetlands identified under Chapter 2 Coastal management of State Environmental Planning Policy (Resilience and Hazards) 2021 is considered designated development.

However, given the nature of the proposed development, the replacement of an existing boardwalk and foreshore path on coastal wetlands, the works are considered to be alterations and additions to existing development. Pursuant to section 48 of schedule 3 of the EP&A Regulation 2021, development involving alterations or additions to development, whether existing or approved, is not designated development if, in the consent authority's opinion, the alterations or additions do not significantly increase the environmental impacts of the existing or approved development.

The impacts of the proposed alterations and additions to the existing boardwalk are not considered to significantly increase the environmental impacts of the existing development, as described in the table below.

Table 4-2 Designated development provisions

48 Alterations or additions to existing or approved development
(1) Development involving alterations or additions to development, whether existing or approved, is not designated development if, in the consent authority's opinion, the alterations or additions do not significantly increase the environmental impacts of the existing or approved development.
(2) In forming its opinion, a consent authority must consider the following— *(a) the impact of the existing development, including the following—*

48 Alterations or additions to existing or approved development	
(i) previous environmental management performance, including compliance with the conditions of any consents, licences, leases or authorisations by a public authority and compliance with any relevant codes of practice,	BVSC as a public authority has undertaken all previous work to the boardwalk including maintenance in accordance with legislative requirements, consent conditions, licences and licences.
(ii) rehabilitation or restoration of any disturbed land,	All previously disturbed areas, where required along the boardwalk have been rehabilitated.
(iii) the number and nature of all past changes and their cumulative effects,	Previous work to the boardwalk relates to ongoing maintenance to ensure it is an operable condition. All works would occur within the existing boardwalk footprint and include minimal changes to the existing infrastructure. Undertaking these upgrade works would reduce the current ongoing maintenance works that are occurring.
(b) the likely impact of the proposed alterations or additions, including the following—	
(i) the scale, character or nature of the proposal in relation to the development,	The proposed boardwalk has been carefully designed to be as similar to the existing boardwalk as possible and confine impacts to existing disturbed areas where possible.
(ii) the existing vegetation, air, noise and water quality, scenic character and special features of the land on which the development is, or will be, carried out and the surrounding locality,	The majority of potential impacts of the proposed boardwalk are associated with construction and therefore would be short term and manageable through mitigation measures outlined in this SEE. During construction the proposed boardwalk would result in: • Minor removal of native and aquatic vegetation and habitat of threatened species. • Generation of dust and exhaust fumes from the use of machinery and equipment, cutting of the timber posts and installation of the new piles. • Generation of noise from the use of machinery and equipment and workers onsite. • Potential impacts to water quality and aquatic habitat and species through the stirring of silt, spills of contaminants and exposure of ASS. The existing boardwalk is proposed to be upgraded and be slightly wider than the existing one. It is proposed that replacement of the existing boardwalk aims to enhance both the aesthetic and functional aspects of the area. Materials to be used for the boardwalk would be chosen to blend with the surrounding environment. These minor widening and upgrade works would not notably alter the existing landscape character. The proposed works would improve the quality recreational experience of the boardwalk.

48 Alterations or additions to existing or approved development	
	The proposed works are not considered to significantly impact the environment.
(iii) the degree to which the potential environmental impacts can be predicted with adequate certainty,	The proposed works including the removing of pylons and installation of pylons is an understood and common methodology. The existing environment has been thoroughly surveyed through desktop and site inspections to understand the environmental aspects of the site. Therefore, the potential impacts of the proposed works can be adequately predicted and suitable mitigation measures recommended.
(iv) the capacity of the receiving environment to accommodate changes in environmental impacts,	The receiving environment is noticeable sensitive being a lake that supports oyster farms, recreational activities and popular location for tourists. However, the proposed works are minor, and highly manageable with the implementation of mitigation measures. Operational the upgraded boardwalk is unlikely to change the receiving environment through its adequate design.
(c) proposals to mitigate the environmental impacts and manage residual risk,	Measures outlined in this SEE would mitigate any potential impacts or residual risks of the proposed works.
(d) proposals to facilitate compliance with relevant standards, codes of practice or guidelines published by the Department or other public authorities.	BVSC would prepare a CEMP to ensure all measures outlined in this SEE and conditions received on approval are implemented, monitored and audited to ensure compliance.

If the alterations or additions to existing development are considered to not significantly increase the environmental impacts of the existing development, the proposed works are not categorised as designated development. Accordingly, an Environmental Impact Statement (EIS) is not required to be prepared.

4.2.2. Biodiversity Conservation Act 2016

Development assessed under Part 4 of the EP&A Act must also address the relevant requirements of the *Biodiversity Conservation Act 2016* (BC Act).

The proposed development must be assessed in accordance with the provisions outlined in clause 7.2 of the BC Act, to determine whether the development is likely to significantly affect threatened species. According to clause 7.7(2) of the BC Act, if the proposed development is likely to significantly affect threatened species, the development application is to be accompanied by a biodiversity development assessment report (BDAR). According to this clause, development is considered likely to significantly affect threatened species if:

a. *it is likely to significantly affect threatened species or ecological communities, or their habitats, according to the test in section 7.3, (5 part Test) or*
b. *the development exceeds the biodiversity offsets scheme threshold if the biodiversity offsets scheme applies to the impacts of the development on biodiversity values, or*
c. *it is carried out in a declared area of outstanding biodiversity value.*

The proposed development would not be carried out in a declared area of outstanding biodiversity value; however, part of the proposed development would occur on land mapped on the Biodiversity Values Map under the BC Regulation.

Final BDAR to confirm whether the proposed development would not be likely to significantly affect threatened species or ecological communities, or their habitats, or exceed the biodiversity offsets scheme threshold (by way of the area of clearing or by direct or indirect impacts on land mapped as biodiversity value).

Figure 4-1 Biodiversity values map of the subject land and surrounds

4.2.3. Fisheries Management Act 1994

As detailed above, mangroves, saltmarsh, and seagrasses are protected in NSW under the FM Act. As such, any clearing or trimming of mangroves will require a permit under Part 7 of the FM Act.

4.2.4. State Environmental Planning Policies

State Environmental Planning Policy (Resilience and Hazards) 2021

Chapter 2 Coastal management

Chapter 2 Coastal Management of the State Environmental Planning Policy (Resilience and Hazards) 2021 (RH SEPP) applies to the subject land.

Division 1 Coastal wetlands

Part of the proposed development site comprises of mapped Coastal Wetlands under the RH SEPP.

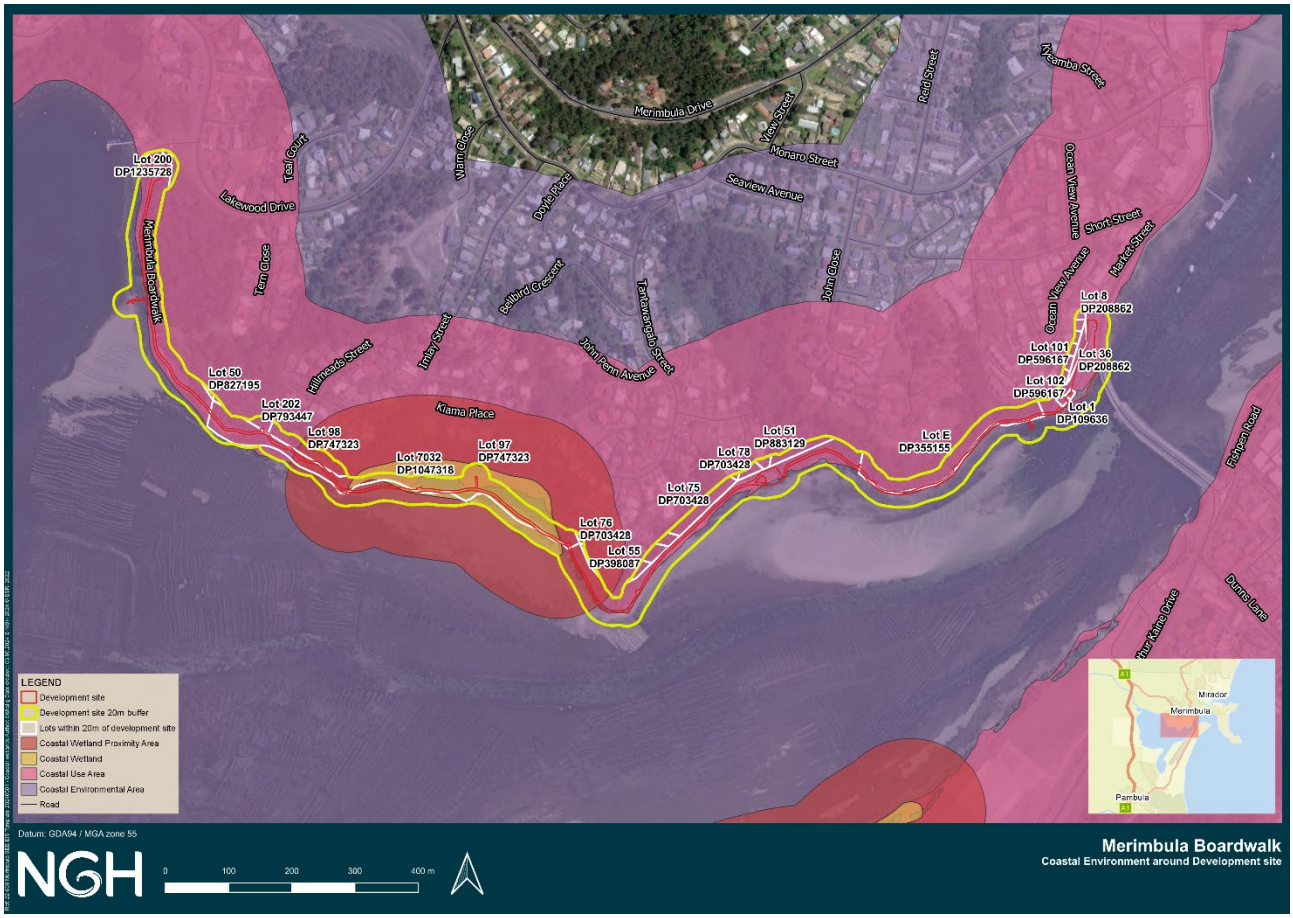

Figure 4-2 Coastal management areas under RH SEPP

Pursuant to section 2.7(1) of the RH SEPP, development consent is required for works within a coastal wetland area. Therefore, BVSC has been unable to carry out these works as development permitted without consent, under Part 5 of the EP&A Act.

Where development within coastal wetland areas is not for the purposes of environmental protection works; such development is considered Designated Development under the EP&A Act. The proposed development is considered alterations and additions to Designated Development, pursuant to schedule 3 section 48 of the EP&A Regulation, as outlined earlier in this report.

As indicated in Figure 4-2, land surrounding the mapped area of coastal wetland is considered as a coastal wetland proximity area. Development within a proximity area is not considered Designated Development. In accordance with Section 2.8(1) of the RH SEPP, development consent must not be granted unless the consent authority is satisfied that the proposed development will not significantly impact on:

a) the biophysical, hydrological or ecological integrity of the adjacent coastal wetland or
b) the quantity and quality of surface and ground water flows to and from the adjacent coastal wetland.

The construction methodologies for the proposed development have been modified to minimise the impact to the above qualities. With the implementation of mitigation measures proposed in the AEAR, the impact to the coastal wetlands would be further minimised.

Division 2 Coastal vulnerability area

Coastal vulnerability areas have not been identified under the RH SEPP at this time.

Division 3 Coastal environment area

As indicated in Figure 4-2, almost the entire development is to be carried out in an area mapped as a coastal environment area. According to Section 2.10, development consent must not be granted unless the consent authority has considered whether the proposed development is likely to cause an adverse impact on the following -

c) *the integrity and resilience of the biophysical, hydrological (surface and groundwater) and ecological environment,*
d) *coastal environmental values and natural coastal processes,*
e) *the water quality of the marine estate (within the meaning of the Marine Estate Management Act 2014), in particular, the cumulative impacts of the proposed development on any of the sensitive coastal lakes identified in Schedule 1,*
f) *marine vegetation, native vegetation and fauna and their habitats, undeveloped headlands and rock platforms,*
g) *existing public open space and safe access to and along the foreshore, beach, headland or rock platform for members of the public, including persons with a disability,*
h) *Aboriginal cultural heritage, practices and places,*
i) *the use of the surf zone.*

The construction methodologies for the proposed development have been modified to minimise the impact to the above qualities. With the implementation of mitigation measures proposed in the AEAR, the impact to the coastal environment area would be further minimised.

Division 4 Coastal use area

As indicated in Figure 4-2, the proposed development would be carried out in an area mapped as a coastal use area. According to Section 2.11, development consent must not be granted unless the consent authority has considered whether the proposed development is likely to cause an adverse impact on the following -

i. *existing, safe access to and along the foreshore, beach, headland or rock platform for members of the public, including persons with a disability,*
ii. *overshadowing, wind funnelling and the loss of views from public places to foreshores,*
iii. *the visual amenity and scenic qualities of the coast, including coastal headlands,*
iv. *Aboriginal cultural heritage, practices and places,*
v. *cultural and built environment heritage.*

The construction methodologies for the proposed development have been modified to minimise the impact to the above qualities. With the implementation of mitigation measures proposed in the AEAR, the impact to the coastal use area would be further minimised.

Chapter 4 Remediation of land

Chapter 4 requires the consent authority to consider whether land is contaminated, whether the land is in a suitable state for the proposed development and whether land requires remediation to reach a state that is suitable for that development.

Whilst the site is considered to comprise ASS, these would not be considered contaminated land for the purpose of the RH SEPP. No physical evidence of land contamination was observed by NGH staff during numerous site inspections and surveys. At this stage, no potentially contaminating activities as identified in

the Managing Land Contamination – Planning Guideless SEPP 55 – Remediation of land (Department of Urban Affairs and Planning, 1998) have been known to be carried out on the subject land.

A search of the EPA contaminated sites register under section 58 of CLM Act was undertaken on 14 May 2024.

A search of the EPA contaminated land record of notices under section 60 of CLM Act was undertaken on 14 May 2024.

The proposed development does not involve a change of use or introduction of a more sensitive activity. The proposed development involves upgrades to the existing boardwalk (defined as an environmental facility). No further assessment of potential contamination is considered necessary.

State Environmental Planning Policy (Planning Systems) 2021

According to Schedule 6 of the State Environmental Planning Policy (Planning Systems) 2021, the proposed development would be defined as Council related development, being development on land owned by the Council and development to be undertaken by the Council. The development has an estimated development cost (EDC) of approximately $10 million and is therefore considered Regionally Significant Development (RSD).

The development application would be assessed by BVSC and referred to the Southern Regional Planning Panel (SRPP) for determination.

4.3. Bega Valley Local Environmental Plan 2013

The land is subject to the provisions of the Bega Valley Local Environmental Plan 2013 (BVLEP). The proposed development would be carried out on land in the W1 Natural Waterways zone, R3 Medium Density Residential zone, C2 Environmental Conservation zone and RE1 Public Recreation zone as shown in Figure 4-3.

The proposed development would be defined as an environmental facility according to the predetermined definitions of the BVLEP 2013. An environmental facility *means a building or place that provides for the recreational use or scientific study of natural systems, and includes walking tracks, seating, shelters, board walks, observation decks, bird hides or the like, and associated display structures.*

The proposed development is permitted with consent in the affected zones.

According to section 2.3, the consent authority must have regard to the objectives for development in a zone when determining a development application. The zone objectives of the W1, R3, C2 and RE1 zones are highly variable; however, the proposed environmental facility would be considered complementary to the zone objectives for the W1, C2 and RE1 zones. Whilst not the primary nature of the R3 zone, the proposed environmental facility would not obstruct or offend the zone objectives.

Figure 4-3 BVLEP Land Zoning Map of development site

Section 5.7 Development below mean high water mark

Parts of the proposed development include work below the mean high-water mark. According to the BVLEP 2013, development consent is required to carry out development on any land below the mean high-water mark of any body of water subject to tidal influence (including the bed of any such water). Development consent is sought by way of this application.

Section 5.21 Flood planning

Parts of the proposed development site are considered subject to flooding associated with Merimbula Lake, according to the relevant floodplain risk management study. Therefore, these areas would constitute part of the flood planning area for the purpose of this section. The consent authority must be satisfied the proposed development meets the following requirements in order to grant development consent.

(a) is compatible with the flood function and behaviour on the land, and

(b) will not adversely affect flood behaviour in a way that results in detrimental increases in the potential flood affectation of other development or properties, and

(c) will not adversely affect the safe occupation and efficient evacuation of people or exceed the capacity of existing evacuation routes for the surrounding area in the event of a flood, and

(d) incorporates appropriate measures to manage risk to life in the event of a flood, and

(e) will not adversely affect the environment or cause avoidable erosion, siltation, destruction of riparian vegetation or a reduction in the stability of river banks or watercourses.

The floodplain risk management study for Merimbula Lake indicated the 1% AEP flood event as modelled would cause inundation of the development site of around 0.5m-1m depth and 0.5-1m/sec floodwater velocity. In the unlikely event of a major flood, residents would be expected to naturally avoid the area, as they do in relation to the existing boardwalk infrastructure in such a situation. The proposed development would have no impact on the safe occupation of residents, the efficient evacuation of people, nor exceed the capacity of existing evacuation routes.

It is considered to be compatible with the flood function and behaviour on the land. The proposed development, the upgrade of the existing boardwalk, would not alter the existing flooding risk in the area and would not adversely affect flood behaviour.

Irrespective of flood affectation, the proposed development has been carefully designed and would be sensitively constructed to avoid adverse effects on the environment or avoidable erosion, siltation, destruction of riparian vegetation or a reduction in the stability of banks or watercourses.

During construction of the proposed works, care would be taken during high rainfall events. These would be monitored, with construction works to be stopped as appropriate and all plant and equipment moved to unaffected areas/ higher ground.

Section 6.1 Acid sulfate soils

The subject land has been identified as subject to ASS risk and the provisions of this section apply to the proposed development. BVLEP mapping indicates the land is considered Class 1 and 2 ASS. Under the section, development consent must not be granted unless an acid sulphate soils management plan has been prepared for the proposed works in accordance with the Acid Sulphate Soils Manual and has been provided to the consent authority.

An ASSMP has been prepared for the proposed development to satisfy these requirements.

Section 6.2 Earthworks

Consent is sought for the proposed development, an environmental facility, which includes some earthworks as outlined in this report.

Section 6.4 Coastal risk planning

Section 6.4 Coastal risk planning applies to the proposed development site, being land in the coastal zone below the 3m Australian Height Datum (AHD) contour and/or land at or below the level of a 1:100 ARI (average recurrent interval) coastal inundation or erosion event.

Development consent must not be granted unless the consent authority is satisfied that the development—

(a) is not likely to cause detrimental increases in coastal risks to other development or properties, and

(b) is not likely to alter coastal processes and the impacts of coastal hazards to the detriment of the environment, and

(c) incorporates appropriate measures to manage risk to life from coastal risks, and

(d) is likely to avoid or minimise adverse effects from the impact of coastal processes and the exposure to coastal hazards, particularly if the development is located seaward of the immediate hazard line, and

(e) provides for the relocation, modification or removal of the development to adapt to the impact of coastal processes and coastal hazards.

The proposed development has been carefully designed and would be sensitively constructed to avoid adverse effects on this sensitive coastal environment. The proposed works have been designed to be very similar to the existing boardwalk and foreshore path and remain within an already disturbed corridor. The proposed development would not be expected to alter coastal processes. It would not introduce any new sensitive uses or activities that could increase the risk to life from coastal risks. The boardwalk was originally implemented in the late 1990s to contain pedestrian activity along the foreshore to a defined corridor, thereby minimising the potential damaging impacts of coastal processes and avoiding damage to the sensitive coastal environment.

The construction methodologies for the proposed development have been modified to minimise the impact to the above qualities. With the implementation of mitigation measures proposed in the AEAR, the impact to the coastal processes would be further minimised.

Section 6.5 Terrestrial biodiversity

Most of the proposed development site is mapped as sensitive land on the Terrestrial Biodiversity LEP Map. The LEP provisions aim to maintain terrestrial biodiversity by protecting native flora and fauna as well as their habitats and ecological processes necessary for their existence.

The consent authority must consider the impact of the proposed development on the following matters:

(i) any adverse impact on the condition, ecological value and significance of the fauna and flora on the land, and

(ii) any adverse impact on the importance of the vegetation on the land to the habitat and survival of native fauna, and

(iii) any potential to fragment, disturb or diminish the biodiversity structure, function and composition of the land, and

(iv) any adverse impact on the habitat elements providing connectivity on the land, and

(b) any appropriate measures proposed to avoid, minimise or mitigate the impacts of the development.

The boardwalk was originally implemented in the late 1990s to contain pedestrian activity along the foreshore to a defined corridor, thereby avoiding damage to the sensitive terrestrial and aquatic habitat in the area.

The proposed upgrade works have been carefully designed and would be sensitively constructed to avoid adverse effects on the condition, ecological value and significance of the fauna and flora on the land. The proposed development has been refined to contain impacts to already disturbed areas. It would be unlikely to fragment, disturb or diminish the biodiversity structure, function, and composition of the land.

The construction details provided in this report outline the measures proposed to avoid, minimise, or mitigate the impacts. Whereas, once constructed, the upgraded boardwalk would have essentially the same impacts as the existing boardwalk.

Section 6.6 Riparian land and watercourses

The proposed development site is within the riparian land and watercourses as identified by Bega Valley LEP. The consent authority must consider:

(a) whether or not the development is likely to have any adverse impact on the following—

(i) the water quality and flows within the watercourse,

(ii) aquatic and riparian species, habitats and ecosystems of the watercourse,

(iii) the stability of the bed and banks of the watercourse,

(iv) the free passage of fish and other aquatic organisms within or along the watercourse,

(v) any future rehabilitation of the watercourse and riparian areas, and

(b) whether or not the development is likely to increase water extraction from the watercourse, and

(c) any appropriate measures proposed to avoid, minimise or mitigate the impacts of the development.

The proposed upgrade works have been carefully designed and would be sensitively constructed to avoid adverse effects on the water quality, flow, habitats and ecosystems of the watercourse, stability of bed and

banks of watercourse, free passage of aquatic organisms along the watercourse and future rehabilitation of watercourse and riparian areas. The proposed development has been refined to contain impacts to already disturbed areas. It would be unlikely to fragment, disturb or diminish the aquatic biodiversity structure, function, and composition of the watercourse.

4.4. Bega Valley Development Control Plan (DCP)

The proposed development would not impact the “coastal village charm” as identified in Bega Valley DCP. The proposed works are classified as upgrade to existing boardwalk hence, the proposed development would not impact the theme for Merimbula to function as a large coastal village.

The proposed development would also satisfy the precinct specific objective 2.4.4.3 for ‘Precinct 5 – Market Street Village’ by enhancing pedestrian connection and movement and exploration of town centre.

5 Conclusion

This SEE has addressed the requirements of Section 4.15 of the *Environmental Planning and Assessment Act 1979*. The proposed development site has been refined in response to early investigations in order to minimise environmental impacts. The proposed boardwalk has been carefully designed to be as similar to the existing boardwalk as possible and confine impacts to existing disturbed areas where possible.

The Applicant commits to carrying out the development in accordance with the safeguards and mitigation measures outlined in this SEE and supporting assessments. Overall, the proposed development is expected to have minimal additional environmental, and amenity impacts as compared with the existing development. The development would result in a positive impact for the community and local economy.

Impacts to Aboriginal heritage would be managed by keeping the development activities within the previously approved areas as identified by AHIP. The visual impacts are consistent with the existing boardwalk. Noise impacts would be elevated during construction but would only affect nearby receivers for a short duration. This would be managed with the help of proposed mitigation measures.

Impacts to biodiversity include the minor removal of native vegetation and fauna habitat. The potential aquatic impacts of the proposed boardwalk upgrades include minor direct impacts to the identified aquatic habitat and fauna within the proposed development site due to the temporary removal of existing structures. This would result in the loss of the sessile community of encrusting organisms, sponges, and macroalgae that have colonised these structures over time. The invasive Light-bulb Ascidian could potentially spread due to disturbance caused by the removal of existing structures and the use of a barge to access parts of the proposed development site. Water quality and subsequently aquatic species including oysters have potential to be impacted by the proposed works via sedimentation and pollution. Recommendations to minimise these impacts have been proposed in this SEE which would help minimise the potential impact from the development.

This SEE and all supporting documents have shown that there are reasonable grounds to grant consent for the proposed development.

6 References

DECCW. (2010). *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW.* Retrieved from https://www.environment.nsw.gov.au/research-and-publications/publications-search/code-of-practice-for-archaeological-investigation-of-aboriginal-objects-in-nsw

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OEH. (2011). *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in New South Wales.* Retrieved from https://www.environment.nsw.gov.au/research-and-publications/publications-search/guide-to-investigating-assessing-and-reporting-on-aboriginal-cultural-heritage-in-nsw

Appendix A Development design plans

Appendix B Biodiversity Development Assessment Report

Appendix C Aquatic Ecology Assessment

Appendix D Heritage Due Diligence

Appendix E Letter of Heritage Advice

Appendix F Acid Sulfate Soil Management Plan

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