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REVIEW OF ENVIRONMENTAL FACTORS

PART 5 ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

Proposed Bridge Replacement Works
Katchencarry Creek Bridge
Upper Brogo Road, Brogo, NSW

Bega Valley Shire Council

September 2023

Version	Final v2
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Document Control and Review

Review of Environmental Factors.

Proposed Bridge Replacement Works, Katchencarry Creek Bridge

Upper Brogo Road, Brogo, NSW

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Contents

1 Introduction

1.1 Proposal identification

Bega Valley Shire Council (Council) are responsible for the provision and maintenance of local road infrastructure in this Local Government Area as part of their responsibilities to their ratepayers and road users more broadly.

Council has identified that the existing single lane timber bridge crossing Katchencarry Creek on Upper Brogo Road is becoming aged and is due for replacement with a modern structure.

Upper Brogo Road is one of two main throughfares into the Brogo – Verona district to the west of the Princes Highway providing access to rural residential and agricultural properties.

Council propose to demolish the existing timber bridge and replace it with a single-span, two lane cast in place concrete bridge on same alignment and grade as the existing. Works are to be complete works under road closure with traffic detoured traffic via Verona Road.

The scope of the works is summarised as follows;

1. Implement traffic management plan, closure of Upper Brogo Road at the works site and diversion of traffic via Verona Road
2. Installation of temporary erosion and sediment controls & establishment of temporary works compound and stockpile area
3. Demolition of existing bridge structure and removal of its components
4. Construction of cast in place abutments
5. Construction of cast in place deck of new bridge
6. Construction of drainage and placement of required scour protection as required for new works
7. Reconstruction of approaches matched to new deck level
8. Bitumen sealing of approaches
9. Bridge furniture installation including railing and signage as required
10. Commissioning of new crossing
11. Rehabilitation of site including removal of temporary erosion control structures & all waste materials and ensuring site is not subject to accelerated erosion.

The proposal location and study area are identified on Map 1-1 of this report. The study area includes the site of the works and adjoining lands to the extent that they may be impacted by the works including the area of the bridge works, detour track and stockpile/ compound areas.

1.2 Site characteristics

The subject bridge crosses Katchencarry Creek, a second order stream draining rural lands to the north and flowing into Dry River 6km to the south. The landscape has transitioned from a traditionally dairy grazing uses to rural residential, ‘rural lifestyle’ blocks are frequent and generally cleared of woody vegetation and vegetated by pasture grasses. The riparian areas of Katchencarry Creek are well vegetated with both native and exotic species.

1.3 Purpose of the report

This Review of Environmental Factors (REF) has been prepared by Macrozamia Environmental on behalf of Council under Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). For these works Council is the proponent and the determining authority under this Act.

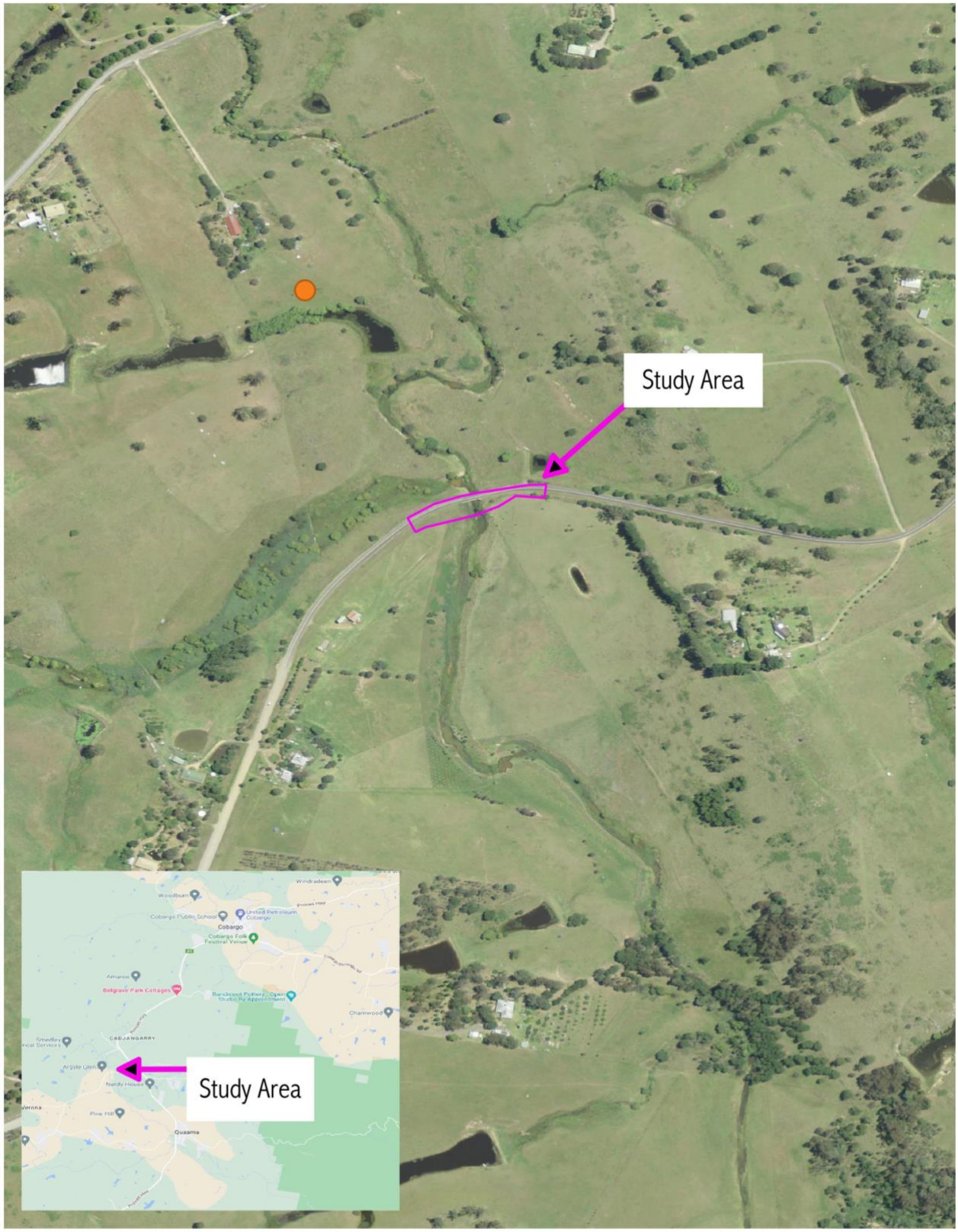
The purpose of the REF is to describe the proposal, to assess, quantify and document the possible impacts of the proposal on the environment, and to detail ameliorative measures to be implemented at the time of works and maintained after works have been completed in order for the proposal to have a minimal and acceptable environmental impact.

This REF considers the study area to be the site of the proposed works and immediately adjoining lands to the extent that they could potentially be impacted, including the site of the works area. Map 1-1 in this report shows this area.

The description of the proposed works and associated environmental impacts have been undertaken in context of clause 171 of the *Environmental Planning and Assessment Regulation 2021*, the *Biodiversity Conservation Act 2016* (BC Act), and the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). In doing so, the REF helps to fulfil the requirements of Section 5.5 (Duty to consider environmental impact) of the EP&A Act; that Council examines and takes into account to the fullest extent possible, all matters affecting or likely to affect the environment by reason of the activity.

The findings of the REF will be considered by the consent authority when assessing:

- Whether the proposal is likely to have a significant impact on the environment and therefore the necessity for an environmental impact statement to be prepared and approval to be sought from the Minister for Planning under Part 5 of the EP&A Act
- The significance of any impact on threatened species as defined by the BC Act and/or NSW *Fisheries Management Act 1994* (FM Act)
- The potential impact on Aboriginal Objects or places protected by the *National Parks and Wildlife Act 1974* (NP&W Act)
- The potential for the proposal to significantly impact a matter of national environmental significance or other Commonwealth matter and the need to make a referral to the Australian Government Department of the Environment for a decision by the Commonwealth Minister for the Environment on whether assessment and approval is required under the EPBC Act.



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Map 1-1
Study Area and Locality

0 100 200 m

2 Need and options considered

2.1 Strategic and community need for the proposal

The proposed bridge replacement works are needed to improve the reliability and safety of this part of Upper Brogo Road. The existing bridge structure is reaching the end of its useful life, by replacing it with a modern concrete structure before it becomes unserviceable Council are actively maintaining road infrastructure in a safe and functional condition in line with community expectations for reliability and safety.

By making improvements to road infrastructure, Council is contributing to their cumulative program of supporting the local community's needs, improving road user safety and the reliability of the road network. By undertaking the works Council are providing value for money to ratepayers while meeting their duty to provide and maintain adequate, safe facilities to the community.

2.2 Proposal objectives

The objectives of the proposal are to:

- Improve reliability of vehicular access into the Brogo and Verona districts to the west of the Princes Highway – particularly the integrity of the bridge structure during high flow or bushfire events
- Improve road user safety and comfort
- Reduce likelihood of unplanned road closure due to the bridge structure becoming unserviceable.

2.3 Alternatives and options considered

Council have considered the options to '*do nothing'*, to '*undertake the works as proposed*'.

The '*do nothing*' option must be considered for public infrastructure projects. In this case Council found that doing nothing would fail to address safety concerns relating to road access during minor flood events,

The proposed option of replacing the existing bridge with a modern concrete structure capable of remaining functional during minor flood events and bushfire meets all the objectives of the project without undue cost to Council.

Having regard to the above considerations it is determined that the works proposed by Council would provide the best value for money and greatest long-term benefit for the community.

3 Description of the proposal

3.1 The proposal

Council propose to remove the existing bridge and replace it with a concrete cast in place structure on the same alignment and grade as the existing bridge. Approaches to the bridge will also be upgraded as required. During works Upper Brogo Road will be closed at the works site and traffic diverted via Verona Road. It is intended that works will be completed in one stage in the 2023 – 2024 financial year, the timeframe for works is expected to be up to 12 weeks though this may be impacted by Council's operational schedule and weather conditions.

The following summarises the activities involved;

- Completion of design and planning approvals/ licences and permits as required
- Implementation of traffic management plan including closure of Upper Brogo Road at works site and detour via Verona Road
- Implement staged erosion and sediment controls as prescribed by erosion and sediment control plan
- Establishment of stockpile area
- Implementation of dewatering plan
- Demolition of existing bridge structure and removal of components including instream pier
- Excavation for abutments & construction of footings
- Install permanent formwork & steel reinforcing for cast in place structures
- Pour cast in place abutments & headwalls
- Construction of bridge deck
- Reconstruction of approaches and drainage as required
- Sealing of approaches wearing surface 2 coat 14mm/7mm bitumen seal matched to existing road alignment
- Installation of railings/ traffic barriers and signage as required
- Commissioning of new works
- Decommissioning and removal of temporary works including erosion and sediment controls
- Post construction works including clean-up and site rehabilitation.

3.2 Stockpile & work compound sites

Works compounds are used to store construction materials, machinery and chemicals that are typically used during road construction projects.

A suitable stockpile & works compound area occurs in the road reserve on the western side of the bridge and south side of Upper Brogo Road.

Controls need to be designed to prevent contamination of receiving waters from runoff from any stockpile area or compound. In the establishment and management of works compounds and stockpile areas the following general criteria must be complied with:

1. Be in areas previously cleared of native vegetation

2. Not be located in areas subject to flooding, outside the 1 in 10 year Average Recurrence Interval (ARI) – approximately 1.4m higher than the existing bridge deck
3. Be provided with erosion and sediment controls prior to occupation
4. Drainage controls including diversion drains and perimeter banks, and the bunding of liquid storage areas must be installed prior to the compounds being occupied and must be maintained and renewed as necessary during the construction period to ensure their effectiveness
5. Not unduly interfere with the business or other economic activities in the area
6. Allow access that is safe to use for site workers
7. Be restored at the completion of the occupation
8. Preference should be given to re-occupying previously established works compound sites, stockpile sites or other highly disturbed areas
9. Concrete trucks must not be washed out outside a suitably designed, designated concreate washout bund
10. The works compound should be securely fenced against theft and vandalism if considered necessary by the Project Manager
11. Plant and machinery should be secured against theft/ vandalism and unauthorised access when not in use
12. All chemicals stored on-site should be stored in a lockable storage facility with a floor and bund that is able to contain at least 110% of the volume of the largest container stored in it
13. Materials for the cleaning up of any chemical spills such as hydrocarbon absorbent booms (for use in waterways) and loose absorbent material would be kept at the works compound. Fire extinguishers of a type appropriate to the materials stored at the compound would also be kept on site
14. No fuels would be stored at the works compound. Plant and equipment should be refuelled from refuelling trucks on-site, or at a contractor's depot off-site. Refuelling and other machinery maintenance would be undertaken in specially designated bunded areas designed to enable any spilled fuels and oils to be contained on-site and cleaned up.

3.3 Project activities

3.3.1 Work methodology

Works will be completed in one stage as follows;

Preliminary activities

- Undertake environmental assessment & obtain licences or approvals as required
- Undertake pre-demolition microbat survey
- Identify/ locate services as required
- Complete and commence implementation of Construction Environmental Management Plan (CEMP)
- Complete Erosion and Sediment Control Plan (ESCP)
- Complete Traffic Management Plan (TMP)

- Complete project inductions

Site establishment and installation of traffic controls

- Installation of traffic controls in accordance with the traffic management plan
- Marking of the limit of works
- Installation of erosion and sediment controls in accordance with the ESCP and environmental specifications prescribed for the proposal and licence conditions if required
- Establishment of stockpile/ compound site

Demolition of existing bridge

- Implementation of de-watering plan as required
- Removal of bridge components with crane/ excavator directly to waiting truck
- Removal of bridge abutment material for reuse as fill were possible
- Removal of instream pier

Construction of new bridge

- Implementation of de-watering plan as required
- Excavation & construction of footings for abutments and central pier
- Installation of permanent cast-in-place formwork and steel reinforcement for abutments
- Pour concrete to meet design criteria and cure
- Construction of modular deck

Reconstruction of approaches

- Improve formation and drainage as required
- Sealing of wearing surface wide 2 coat 14mm/7mm bitumen seal matched to bridge deck and road alignment

Road furniture construction

- Installation/ upgrade of advisory signs where required
- Install traffic barriers as required
- Line marking as required

Post construction works

- Soil stabilisation & maintenance of erosion and sediment controls
- Rehabilitation of erosion and sediment controls in the event of failure, replacement of any reserved topsoils and revegetation with grasses of the works compound site including replacement of trees
- Removal of traffic controls.

3.3.2 Construction hours and duration

The proposed works would be undertaken within the following working hours:

- Monday – Friday: 7:00am to 6:00pm
- Saturday: 8:00am to 1:00pm

- Sunday and Public Holidays: no work.

It is anticipated the works will commence in the 2023 – 2024 financial year and be completed within 12 weeks, however, weather conditions and competing priorities of Council may alter this timeframe

3.3.3 Plant and equipment

Machinery to be used will consist of:

- Light vehicles
- Medium/ heavy ridged trucks
- Excavator
- Pile driver
- Crane
- Water carts for dust suppression
- Hand tools.

There may be a need to bring in other machinery as the need arises.

3.3.4 Earthworks

Earthworks will be required as follows;

- Construction of access pads/ tracks for stockpile area and sediment management structures
- Stockpiling of aggregates and topsoil
- Construction of approaches
- Excavation for footing construction
- Reshaping of road formation, batters and drainage construction

Generally balanced earthworks will reduce the need to import material. Depending on the quality of natural material, additional imported fill may be required to meet the requirements for controlled fill under roadways.

3.3.5 Source and quantity of materials

- Select fill for approach construction
- Cast in place formwork and reinforcing
- Concrete for bridge components and footings
- Aggregates & bitumen for road construction
- Fuels and oils for the machinery and equipment.

Materials will be sourced from local suppliers and the project is not expected to create a shortage of any materials available to the local economy.

3.3.6 Traffic management and access

The works occur on an important rural road providing access to the Brogo and Verona districts to the west of the Princes Highway.

A Traffic Management Plan (TMP) must be prepared in accordance with Council's policies and procedures.

Council must ensure that the work site is maintained in a safe and secure state with consideration of cyclist traffic incorporate appropriate signage and barriers as required.

3.4 Ancillary facilities

Construction works will require one stockpile/ compound site. There are suitable lands in the road reserve to develop these temporary facilities.

Any sites to be used for ancillary facilities will be located by Council in accordance with criteria identified in section 3.2 of this REF and within the study area of this REF. If these facilities are to be constructed outside the study area of this REF an assessment of the proposed area will be required.

3.5 Property acquisition and land access

Works occur on Council owned and managed road reserve, no access to private lands will be required. Council should confirm the boundaries of the road reserve and ensure cadastral information is up to date.

4 Statutory and planning framework

4.1 Local Environmental Plans

4.1.1 Bega Valley Local Environmental Plan 2013 (LEP)

Under this instrument the project area is zoned RU1 Primary Production.

The objectives of this zone are as follows;

RU1 Primary Production;

- To encourage sustainable primary industry production by maintaining and enhancing the natural resource base.
- To encourage diversity in primary industry enterprises and systems appropriate for the area.
- To minimise the fragmentation and alienation of resource lands.
- To minimise conflict between land uses within this zone and land uses within adjoining zones.
- To encourage development for tourism-related activities and other development that is compatible with agricultural activities, which will not adversely affect the environmental and cultural amenity of the locality.
- To maintain and protect the scenic value and rural landscape characteristics of land in the zone.

The proposed works are consistent with the objectives of the zone and permitted with consent.

Clause 5.10 Heritage Conservation

The objectives of this clause are as follows

(a) to conserve the environmental heritage of Bega Valley,

(b) to conserve the heritage significance of heritage items and heritage conservation areas, including associated fabric, settings and views,

(c) to conserve archaeological sites,

(d) to conserve Aboriginal objects and Aboriginal places of heritage significance.

The LEP lists no nearby local heritage items or places.

The Aboriginal Heritage Information Management System (AHIMS) identifies 3 Aboriginal sites and 0 Aboriginal places in the vicinity of the project area. Both are described as “Open Site” the nearest occurring 335m to the northwest of the project site. The AHIMS search result is provided in Appendix 3 of this REF.

Heritage matters are addressed in section 6.6 of this report.

Part 6 Additional local provisions

6.5 Terrestrial Biodiversity

No part of the project area is mapped as ‘*Biodiversity*’ on the *Terrestrial Biodiversity Map*, as such this clause does not apply.

Other additional local provisions

The project site is not mapped by other additional local provisions maps including Environmentally sensitive land, acid sulfate soils, coastal risk planning and riparian land and water courses.

4.2 State Environmental Planning Policies

4.2.1 State Environmental Planning Policy (Transport and Infrastructure) 2021

Chapter 2 of the State Environmental Planning Policy (Transport and Infrastructure) SEPP (T&ISEPP) aims to facilitate the effective delivery of infrastructure across the State by—

(a) improving regulatory certainty and efficiency through a consistent planning regime for infrastructure and the provision of services, and

(b) providing greater flexibility in the location of infrastructure and service facilities, and

(c) allowing for the efficient development, redevelopment or disposal of surplus government owned land, and

(d) identifying the environmental assessment category into which different types of infrastructure and services development fall (including identifying certain development of minimal environmental impact as exempt development), and

(e) identifying matters to be considered in the assessment of development adjacent to particular types of infrastructure development, and

(f) providing for consultation with relevant public authorities about certain development during the assessment process or prior to development commencing, and

(g) providing opportunities for infrastructure to demonstrate good design outcomes.

Division 1 of Chapter 2 of the T&ISEPP makes provisions for public authorities to consult with local Councils and other public authorities prior to the commencement of certain types of development. Consultation, including consultation as required by T&ISEPP (where applicable), is discussed in Section 5 of this REF.

4.2.2 State Environmental Planning Policy (Resilience and Hazards) 2021

Chapter 4 Remediation of land

(1) The object of this Chapter is to provide for a Statewide planning approach to the remediation of contaminated land.

(2) In particular, this Chapter aims to promote the remediation of contaminated land for the purpose of reducing the risk of harm to human health or any other aspect of the environment—

(a) by specifying when consent is required, and when it is not required, for a remediation work, and

(b) by specifying certain considerations that are relevant in rezoning land and in determining development applications in general and development applications for consent to carry out a remediation work in particular, and

(c) by requiring that a remediation work meet certain standards and notification requirements.

A consent authority must not consent to the carrying out of any development on land unless:

- it has considered whether the land is contaminated, and
- if the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for the purpose for which the development is proposed to be carried out, and
- if the land requires remediation to be made suitable for the purpose for which the development is proposed to be carried out, it is satisfied that the land will be remediated before the land is used for that purpose.

Contaminated land was considered on this site, signs of previous land uses such as sheep dips, waste materials, signs of past structures or land fill were considered, and none found. Additionally, the NSW EPA online search tool for contaminated land was used which found no contaminated sites on this database in the vicinity of the works.

Due to an absence of any signs of potentially contaminating activities in the past no further investigation under this SEPP was considered necessary. However, if any signs of contaminated land are revealed during works, works must cease and the potential for contaminated land to be considered guided by actions in this SEPP.

4.2.3 State Environmental Planning Policy (Biodiversity and Conservation) 2021

The State Environmental Planning Policy (Biodiversity and Conservation) 2021 (BC SEPP) consolidates several repealed SEPPs that help to manage conservation of biodiversity.

Chapter 3 Koala habitat protection 2020 of the BC SEPP applies to this site.

Chapter 3 Koala habitat protection 2020

This Chapter aims to encourage the proper conservation and management of areas of natural vegetation that provide habitat for koalas to ensure a permanent free-living population over their present range and reverse the current trend of koala population decline—

> (a) by requiring the preparation of plans of management before development consent can be granted in relation to areas of core koala habitat, and
>
> (b) by encouraging the identification of areas of core koala habitat, and
>
> (c) by encouraging the inclusion of areas of core koala habitat in environment protection zones.

Under this Chapter the following steps are to be taken;

3.6 Step 1—Is the land potential koala habitat?

> (1) Before a council may grant consent to a development application for consent to carry out development on land to which this Part applies, the council must be satisfied as to whether or not the land is a potential koala habitat.
>
> (2) The council may be satisfied as to whether or not land is a potential koala habitat only on information obtained by it, or by the applicant, from a person who is qualified and experienced in tree identification.
>
> (3) If the council is satisfied—

(a) that the land is not a potential koala habitat, it is not prevented, because of this Chapter, from granting consent to the development application, or

(b) that the land is a potential koala habitat, it must comply with section 3.7.

3.7 Step 2—Is the land core koala habitat?

(1) Before a council may grant consent to a development application for consent to carry out development on land to which this Part applies that it is satisfied is a potential koala habitat, it must satisfy itself as to whether or not the land is a core koala habitat.

(2) The council may be satisfied as to whether or not land is a core koala habitat only on information obtained by it, or by the applicant, from a person with appropriate qualifications and experience in biological science and fauna survey and management.

(3) If the council is satisfied—

(a) that the land is not a core koala habitat, it is not prevented, because of this Chapter, from granting consent to the development application, or

(b) that the land is a core koala habitat, it must comply with section 3.8.

3.8 Step 3—Can development consent be granted in relation to core koala habitat?

(1) Before granting consent to a development application for consent to carry out development on land to which this Part applies that it is satisfied is a core koala habitat, there must be a plan of management prepared in accordance with Part 3 that applies to the land.

Under this Chapter, potential koala habitat means *areas of native vegetation where trees of the types listed in Schedule 1 constitute at least 15% of the total number of trees in the upper or lower strata of the tree component*.

No eucalyptus trees occur in the project area, therefore core koala habitat is not present.

4.3 Other relevant legislation

4.3.1 Environmental Planning and Assessment Act 1979 & Environmental Planning and Assessment Regulation 2021

The Environmental Planning and Assessment Act 1979 (EP&A Act) supports a range of objects that encourage appropriate development across the state. It meets varied outcomes associated with promotion of social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources and economically and environmentally sustainable development.

The Environmental Planning and Assessment Regulation 2021 (The Regulation) is a Statutory Instrument that supports the EP&A Act.

Clause 171 of Part 8 of The Regulation provides a list of factors to be taken into account when consideration is being given to the likely impact of an activity on the environment. Section 8 of this REF addresses these factors describing the nature of any impacts.

4.3.2 Biodiversity Conservation Act 2016

The purpose of the Biodiversity Conservation Act 2016 (BC Act) is to maintain a healthy, productive and resilient environment for the greatest well-being of the

community, now and into the future, consistent with the principles of ecologically sustainable development. Specifically, it aims to conserve biodiversity at bioregional and state scales, providing mechanisms to assess extinction risk of species and ecological communities, and identify key threatening processes to biodiversity values, support biodiversity conservation on private land, avoid, minimise and offset the impacts of proposed developments and land use changes on biodiversity and an offset scheme providing a market based offset trading economy.

The BC Act provides a clearing threshold, Biodiversity Values Map and test of significance triggers to determine the necessity for the impacts on biodiversity of a development to be assessed using the BC Act's Biodiversity Assessment Methodology (BAM) through a Biodiversity Development Assessment Report (BDAR). While assessment under the BAM is optional for Part V proposals the potential to impact matters protected under the BC Act have been considered.

Sections 7.2 and 7.3 of the BC Act considers the likelihood of impact on threatened matters and the requirement for further assessment. If there is a chance of an impact on a BC Act listed matter a test of Significance is required to determine the significance of the impact. If this assessment establishes that there is a likelihood for a significant impact on threatened species, populations and their habitat or on ecological communities further assessment through a BDAR would be undertaken.

Due to a low risk of biodiversity impact, Council has elected to not undertake a Biodiversity Assessment Report. Biodiversity matters are addressed in section 6.2 of this REF.

4.3.3 Fisheries Management Act 1994

The FM Act aims to conserve, develop and share the fishery resources of NSW for the benefit of present and future generations. In particular, the objects of this Act are to:

- Conserve fish stocks and key fish habitats
- Conserve threatened species, populations and ecological communities of fish and marine vegetation
- Promote ecologically sustainable development, including the conservation of biological diversity.

The FM Act identifies threatened aquatic species, populations and ecological communities and requires an Assessment of significance for potential significant impacts to any of these entities. Any potential significant impact triggers the need for a test of significance.

Impacts to listed fish have been considered along with terrestrial matters in Section 6.2 of this REF.

4.3.4 Heritage Act 1977 & National Parks and Wildlife Act 1974

The NSW *Heritage Act 1977* (Heritage Act) is a statutory tool designed to conserve the cultural heritage of NSW and used to regulate development impacts on the State's heritage assets. This Act details the statutory requirements for protecting historic buildings and places and includes any place, building, work, relic, movable object, or precinct, which may be of historic, scientific, cultural, social, archaeological, natural or aesthetic value.

The *National Parks and Wildlife Act 1974* (NPW Act) is the primary legislation for the protection of some aspects of Aboriginal cultural heritage in NSW. Under section 86 of the NPW Act, it is an offence to 'harm' an Aboriginal object. 'Harm' means any act or omission that:

- *Destroys, defaces, damages or desecrates the object*
- *Moves the object from the land on which it had been situated, or*
- *Causes or permits the object to be harmed.*

No state heritage matters have been identified in proximity to the works, heritage issues are addressed in Section 6.7 of this REF.

4.4 Commonwealth legislation

4.4.1 Environment Protection and Biodiversity Conservation Act 1999

Under the EPBC Act a referral is required to the Australian Government for proposed 'actions that have the potential to significantly impact on matters of national environmental significance or the environment of Commonwealth land.

The EPBC Act identifies nine matters of national environmental significance being:

- *World Heritage properties*
- *National heritage places*
- *Wetlands of international importance (Ramsar wetlands)*
- *Threatened species and ecological communities*
- *Migratory species*
- *Commonwealth marine areas*
- *Nuclear actions*
- *Great Barrier Reef Marine Park*
- *Water impacts from coal seam gas and large coal mining actions*.

An assessment of the above matters has been undertaken and has concluded that none of these matters require further consideration due either to the absence of items of significance or relevance and the absence of suitable habitats for migratory and threatened flora and fauna and ecological communities.

4.5 Confirmation of statutory position

By adopting the requirements of the T&ISEPP, the proposal may be carried out without the need for development consent. The proposal is subject to environmental impact assessment under Part 5 of the EP&A Act. Bega Valley Shire Council is the proponent and determining authority for the proposal.

5 Stakeholder and community consultation

5.1 Landowners and community

The project site occurs in a rural district, the local community is composed of those living and working in the rural environment. The community is heavily reliant on the road network for transport in the absence of alternatives such as public transport, the remoteness of the community from urban centres also makes alternatives such as walking or cycling impractical. Consequently, the road network is essential to enable the community to access work, shopping, school and other economic activities and social commitments.

All adjoining and nearby landholdings are agricultural properties, many also with residential uses.

It is important that Council engage with the community to ensure any concerns about traffic disruptions are suitably managed. Council must have in place a complaint handling process enabling concerned members of the community to contact Council in relation to the project during the construction phase and discuss issues with the concerned parties.

Given the improvement to reliability of the road, traffic flow efficiency and road safety that the project will result in, it is expected that the proposal will not be contentious in the community. The proposal will result in a temporary detour over a period of up to 12 weeks adding 4 to 6 minutes to the typical journey time.

5.2 Aboriginal community involvement

It is possible that artefacts important to the Aboriginal community could be found in the project area during works, if suspected finds are made Council will invite the Local Aboriginal Land Council to comment on the works.

5.3 T&ISEPP consultation

Chapter 2 Division 1 of T&ISEPP require that public authorities undertake consultation with Councils and other public authorities, when proposing to carry out development without consent. Table 5-1 of this report lists these items and assesses whether these are relevant to the proposal.

Table 5-1 T&ISEPP Chapter 2 Division 1 Consultation Factors

Item	Response
Clause 2.10 Consultation with councils—development with impacts on council-related infrastructure or services	
A substantial impact on stormwater management services provided by a Council	Not applicable – the proposal would not involve substantial impacts to a stormwater system. The road design does allow for drainage and appropriate dispersal of water this is consistent with the existing design of the road.
Likely to generate traffic to an extent that will strain the capacity of the road system in a local government area.	While many truck movements would be required during the construction phase, they would be managed to limit impacts. Given the scale of the proposal, it is unlikely the capacity of the road system would be strained.
Involves connection to, and a substantial impact on the capacity of, any part of a sewerage system owned by a Council.	Not applicable – the proposal would not involve connection to or impacts to a sewerage system.
Involves connection to, and use of a substantial volume of water from, any part of a water supply system owned by a Council	Not applicable – the proposal would not involve connection to or substantial use of water from a Council-owned water supply system.
Involves the installation of a temporary structure on, or the enclosing of, a public place that is under a Council's management or control that is likely to cause a disruption to pedestrian or vehicular traffic that is not minor or inconsequential.	There will be some disruption to vehicular traffic during construction, through traffic management and closure of Upper Brogo Road. The increase in traffic using Verona Road due to the detour is not expected to result in substantial delays or other disruption to that route.
Involves excavation that is not minor or inconsequential of the surface of, or a footpath adjacent to, a road for which a Council is the roads authority under the Roads Act 1993 (if the public authority that is carrying out the development, or on whose behalf it is being carried out, is not responsible for the maintenance of the road or footpath).	The proposal would involve excavation of existing road surfaces. Council is the proponent and relevant road authority for the roads affected by the proposal.
Clause 2.11 Consultation with councils—development with impacts on local heritage	
(1) This section applies to development carried out by or on behalf of a public	Not applicable – the proposal does not affect any local heritage items or

authority if the development— (a) is likely to affect the heritage significance of a local heritage item, or of a heritage conservation area, that is not also a State heritage item, in a way that is more than minor or inconsequential, and (b) is development that this Chapter provides may be carried out without consent. (2) A public authority, or a person acting on behalf of a public authority, must not carry out development to which this section applies unless the authority or the person has— (a) had an assessment of the impact prepared, and (b) given written notice of the intention to carry out the development, with a copy of the assessment and a scope of works, to the council for the area in which the heritage item or heritage conservation area (or the relevant part of such an area) is located, and (c) taken into consideration any response to the notice that is received from the council within 21 days after the notice is given.	heritage conservation areas.
Clause 2.12 Consultation with councils—development with impacts on flood liable land	
(1) In this section, flood liable land means land that is susceptible to flooding by the probable maximum flood event, identified in accordance with the principles set out in the manual entitled Floodplain Development Manual: the management of flood liable land published by the New South Wales Government and as in force from time to time. (2) A public authority, or a person acting on behalf of a public authority, must not carry out, on flood liable land, development that this Chapter provides may be carried out without consent and that will change flood patterns other than to a minor extent unless the authority or person has—	Council is the proponent, the proposal has been designed to withstand flooding events and will not increase patterns to more than a minor extent.

(a) given written notice of the intention to carry out the development (together with a scope of works) to the council for the area in which the land is located, and (b) taken into consideration any response to the notice that is received from the council within 21 days after the notice is given.	
Clause 2.13 Consultation with State Emergency Service—development with impacts on flood liable land	
(1) A public authority, or a person acting on behalf of a public authority, must not carry out development on flood liable land that may be carried out without development consent under a relevant provision unless the authority or person has— (a) given written notice of the intention to carry out the development (together with a scope of works) to the State Emergency Service, and (b) taken into consideration any response to the notice that is received from the State Emergency Service within 21 days after the notice is given. (2) Any of the following provisions in Part 2.3 is a relevant provision— (a) Division 1 (Air transport facilities), (b) Division 2 (Correctional centres and correctional complexes), (c) Division 6 (Emergency services facilities and bush fire hazard reduction), (d) Division 10 (Health services facilities), (e) Division 14 (Public administration buildings and buildings of the Crown), (f) Division 15 (Railways), (g) Division 16 (Research and monitoring stations), (h) Division 17 (Roads and traffic), (i) Division 20 (Stormwater management systems). (3) This section does not apply in relation to the carrying out of minor alterations or additions to, or the demolition of, a building, emergency works or routine	Not applicable, none of these circumstances apply to the proposed road upgrade

maintenance. (4) In this section, flood liable land means land that is susceptible to flooding by the probable maximum flood event, identified in accordance with the principles set out in the manual entitled Floodplain Development Manual: the management of flood liable land published by the New South Wales Government and as in force from time to time.	
2.14 Consultation with councils—development with impacts on certain land within the coastal zone	
(1) This section applies to development on land that is within a coastal vulnerability area and is inconsistent with a certified coastal management program that applies to that land. (2) A public authority, or a person acting on behalf of a public authority, must not carry out development to which this section applies, which this Chapter provides may be carried out without development consent, unless the authority or person has— (a) given written notice of the intention to carry out the development to the council for the local government area in which the land is located, and (b) taken into consideration any response to the notice that is received from the council within 21 days after the notice is given.	Not applicable, works do not occur in a coastal vulnerability area.
2.15 Consultation with public authorities other than councils	
(1) A public authority, or a person acting on behalf of a public authority, must not carry out specified development that this Chapter provides may be carried out without consent unless the authority or person has— (a) given written notice of the intention to carry out the development (together with a scope of works) to the specified authority in relation to the development, and (b) taken into consideration any response to the notice that is received	Not applicable, none of these circumstances apply to the proposed road upgrade works.

from that authority within 21 days after the notice is given. (2) For the purposes of subsection (1), the following development is specified development and the following authorities are specified authorities in relation to that development— (a) development adjacent to land reserved under the National Parks and Wildlife Act 1974 or to land acquired under Part 11 of that Act—the Office of Environment and Heritage, (b) development on land in Zone E1 National Parks and Nature Reserves or in a land use zone that is equivalent to that zone, other than land reserved under the National Parks and Wildlife Act 1974—the Office of Environment and Heritage, (c) development comprising a fixed or floating structure in or over navigable waters—Transport for NSW, (d) development that may increase the amount of artificial light in the night sky and that is on land within the dark sky region as identified on the dark sky region map—the Director of the Observatory, (e) development on defence communications facility buffer land within the meaning of clause 5.15 of the Standard Instrument—the Secretary of the Commonwealth Department of Defence, (f) development on land in a mine subsidence district within the meaning of the Mine Subsidence Compensation Act 1961—the Mine Subsidence Board.	

In relation to the above Clauses it is important to note Clause 2.17 Exceptions;

> (1) Sections 2.10–2.15 do not apply with respect to development to the extent that—
>
> (a) they would require notice of the intention to carry out the development to be given to a council or public authority from whom an approval is required in order for the development to be carried out lawfully, or
>
> (b) they would require notice to be given to a council or public authority with whom the public authority that is carrying out the development, or on whose behalf it is being carried out, has an agreed consultation protocol that applies to the development, or

(c) they would require notice to be given to a council or public authority that is carrying out the development or on whose behalf it is being carried out, or

(d) the development is exempt development or complying development under any environmental planning instrument (including this Chapter), or

(e) the development comprises emergency works, or

(f) the development is carried out in accordance with a code of practice approved by the Minister for the purposes of this section and published in the Gazette.

5.4 Government and utility consultation

NSW Department of Planning and Environment (Environment and Heritage)

Council will consult with EES if unforeseen heritage (including Aboriginal Heritage) or biodiversity issues are raised during works.

5.5 Ongoing or future consultation

Council will engage with the local community, the Aboriginal Community and Government Agencies as required during the works if unforeseen issues arise.

6 Environmental assessment

All potential environmental impacts associated with the construction and operation of the proposal, given its scale and use, are addressed below as required under Clause 171, Part 8 Infrastructure and environmental impact assessment, of the Environmental Planning and Assessment Regulation 2021.

6.1 Traffic

6.1.1 Existing environment

The existing traffic is that serviced by a rural arterial road, it is used largely by the local community who live and work in this rural district to access adjoining rural areas it is one of two key thoroughfares between the Verona – Brogo District to the west of the Princes Highway and centres including Cobargo to the north and Bega to the south.

6.1.2 Potential impacts

Construction

Traffic impacts during construction will be the closure of Upper Brogo Road and diversion via Verona Road. This will be a temporary impact for up to 12 weeks adding 4 to 6 minutes to the typical journey time.

Operation

The proposal is designed to improve road functionality as well as road user safety and comfort and reduce road and bridge maintenance costs. Any increases in traffic at the project site during operation would be due to ordinary growth in the region, rather than as a result of the proposal.

The proposal would provide operational benefits with respect to increased safety, road network performance & reliability and reduced maintenance costs.

6.1.3 Safeguards and management measures

Impact	Environmental safeguards	Responsibility	Timing
Traffic and access	• A TMP must be prepared and controls established at the site in accordance with Council policies.	Contractor	Pre-construction
Access impacts	• Works must not disrupt property or business access.	Contractor	Construction

6.2 Biodiversity

6.2.1 Existing environment

The proposal occurs in a highly modified environment, nearby lands are all grazing enterprises with little native vegetation. The riparian area of Katchencarry Creek in the vicinity of the project area is well vegetated with exotic species including phalaris and willow trees. Native species are less frequent and include *Phragmities australis, Poa labalidarii*. The bridge itself is of potential habitat value to fauna that may roost or build nests in its structure, including threatened microbats. The watercourse is a very valuable habitat component for fauna providing a water source, microhabitats and a movement corridor.

6.2.2 Direct Impacts

Works are within the existing road and bridge alignment, impacts have been designed to be restricted to areas that are already disturbed by existing infrastructure.

No clearing of vegetation is proposed.

There is potential for the following threatened species of microbats to make use of the existing bridge prior to its demolition;

- Southern Myotis (*Myotis macropus*)
- Little Bent-winged Bat (*Miniopterus australis*)
- Large Bent-winged Bat (*Miniopterus orianae oceanensis*)

To manage this risk, the bridge structure must be inspected prior demolition, if any signs of microbats are present impact to these species must be reconsidered and an Assessment of Significance undertaken

6.2.3 Indirect Impacts

There is a risk that plant and equipment used for the works may transport weed material along the site or from other sites and that if the site is not rehabilitated after works that erosion may become accelerated due to changes in surface-water flows. Mitigation measures provided in this REF address these risks.

6.2.4 Cumulative Impacts

Cumulative impacts have been considered as part of this assessment. Council aims to continually improve the condition of assets under its management. This programme improves safety for the community as well as reducing maintenance costs associated.

While construction impacts can affect local biodiversity to an extent, the cumulative environmental impact of improving and maintaining assets is generally positive.

6.2.5 Safeguards and mitigation measures

To minimise or eliminate potential adverse impacts on flora and fauna and to ensure that the project does not have a negative impact on biodiversity the following controls are recommended:

Impact	Environmental safeguards	Responsibility	Timing
Weed invasion	In order to manage the risk of indirect impacts of invasive species establishing in the project area, a weed management plan will be prepared and implemented to ensure the project does not increase the occurrence of weed species on the site or adjoining land the plan will incorporate the following practices; • Plant and equipment will be cleaned prior to entering any part of the site ensuring no mud/ soil or vegetation material is imported into the area	Council & Contractor	Pre-construction & Post-construction

Impact	Environmental safeguards	Responsibility	Timing
	• The site manager will ensure that procedures are in place to ensure plant and equipment entering the site are clean and free of mud, soil and vegetation material. A weed management plan will be prepared and implemented to ensure the project does not increase the occurrence of weed species on the site or adjoining land.		
Microbats roosting in existing bridge structure	Due to the possibility of the existing bridge structure becoming roosting habitat for the following threatened species of microbats a pre-demolition inspection for microbats is to be undertaken within three days before proposed demolition by a suitably experienced ecologist. If evidence of microbat presence is found an Assessment of Significance is to be undertaken. • Southern Myotis (*Myotis macropus*) • Little Bent-winged Bat (*Miniopterus australis*) • Large Bent-winged Bat (*Miniopterus orianae oceanensis*). In order to manage the risk of microbats roosting in the bridge structure the Construction Environmental Management Plan is to include an unexpected finds procedure for microbats including the following; • A daily inspection for microbats roosting in the bridge structure is to be undertaken and documented including investigating for bats, guano and sounds of bats • If bats or their signs are present a suitably qualified and experienced ecologist is to be engaged to investigate further Any bats found are not to be touched	Council & Contractor	Pre-construction & construction

6.3 Soil and water

6.3.1 Existing environment

The proposed works occur in the Murrah River Catchment. Runoff from the project area flows via Dry River and Murrah River to the ocean 30km downstream.

Soils on the site are stable, protected by vegetation and gentle slopes.

The aquatic environment is considered in detail in the attached Aquatic Biodiversity Assessment at Appendix 4.

6.3.2 Potential impacts

Construction impacts

There is potential for disturbances to soils through establishment of site compound and stockpile areas, excavations, vehicle and plant movement and vegetation removal. Exposed soils if unmanaged will be placed at risk of accelerated erosion and therefore sedimentation of receiving waters.

There is also a risk of oil spillage from broken hydraulic lines on plant and equipment. It is important to manage these risks to minimise the chances of them occurring and to be prepared in the event of a situation that may result in water pollution.

Operation impacts

The improved bridge and abutment design as well as sealing of the road wearing surfaces will reduce sedimentation impacts on receiving waters.

6.3.3 Safeguards and mitigation measures

Impact	Environmental safeguards	Responsibility	Timing
Soil and Water Management	• An Erosion and Sediment Control Plan (ESCP) will be prepared to mitigate impacts during construction including the following: ○ Erosion and sedimentation controls are to be installed prior to construction. ○ Disturbed areas are to be progressively stabilised ○ Erosion and sedimentation controls are to be checked and maintained on a regular basis (including clearing of sediment from behind barriers) and within two days of expected rain events. Records of compliance are to be kept and available for inspection. ○ Erosion and sediment control measures are not to be removed until the works	Contractor	Pre-Construction

Impact	Environmental safeguards	Responsibility	Timing
	are complete and areas are stabilised. ○ Work areas are to be stabilised progressively during the works.		
Water and soil pollution	• A spill management plan must be developed which includes measures for refuelling, maintenance of machinery and response and notification procedures. It must also include the following measures: ○ Sediment management controls such as a sediment curtain to prevent sedimentation of downstream waters ○ Machinery must be regularly checked to ensure there is no oil, fuel or other liquids leaking from the machinery, including daily checks of machinery and equipment to be used for construction. ○ A spill kit including boom must be stored on onsite at all times to manage any potential accident spills. ○ Re-fuelling of vehicles and equipment will be undertaken in an impervious bunded area at the compound site, located 50 metres from any creek or drainage line. ○ When re-fuelling remote from compound, trained staff will observe at all times and tanks will have an automatic cut off when full and vehicles will carry a temporary bund and spill kit. ○ If a spill occurs, follow the Environmental Incident Classification and Management Procedure and notify the Environmental	Contractor	Pre-construction & During construction

Impact	Environmental safeguards	Responsibility	Timing
	Officer as soon as practicable.		

6.4 Noise and vibration

6.4.1 Existing environment

The project site occurs in a rural area and is generally peaceful. The greatest source of noise and vibration currently in the vicinity is the traffic using Upper Brogo Road. Several dwellings occur from 300m to 800m of the works area, no other sensitive receivers occur nearby.

6.4.2 Potential impacts

Construction noise impacts

Given the nature of the works noise generated is not expected to impact dwellings or businesses. Noise generated by the works is not likely to impact businesses or economic activities.

Construction vibration impacts

Vibration emitted by construction is unlikely to impact the comfort of nearby landholders or cause damage to architectural structures.

Operational noise & vibration impacts

Works will result in noise and vibration impacts to sensitive receivers being reduced due to improved quality of the road travel surface.

6.4.3 Safeguards and mitigation measures

Impact	Environmental safeguards	Responsibility	Timing
Work hours	• Works to be carried out during normal work hours (i.e. 7am to 6pm Monday to Friday; 8am to 1pm Saturdays).	Contractor	Construction

6.5 Air quality

6.5.1 Existing environment

The existing air quality is high being a rural environment with minimal development. Traffic using Upper Brogo Road produce exhaust gases and generate dust intermittently interrupting air quality for relatively short periods of time.

6.5.2 Potential impacts

Construction

Earthworks, construction activities and vehicle movements will generate dust. This impact is very minor and insignificant if managed through current best practice.

Operation

The improvement of this part of Upper Brogo Road is likely to result in improved air quality as the bridge and road travel surface will be in better condition.

6.5.3 Safeguards and mitigation measures

Impact	Environmental safeguards	Responsibility	Timing
Air pollution	• Dust suppression measures (including watering and covering exposed areas) are to be used to minimise or prevent air pollution and dust. • Vehicles will be maintained to manufacturer's requirements and regular checks are to be made to ensure they are operating efficiently. • Vehicles transporting waste or other materials that may produce odours or dust are to be covered during transportation.	Contractor	Construction

6.6 Heritage

6.6.1 Existing environment

An AHIMS search was undertaken which identifies three Aboriginal sites in the vicinity of the project area, included at Appendix 3.

These sites are located over 300m from the project area. This distance is too great for the works to impact these sites.

The *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales 2010* has been followed and summarised below, the generic due diligence process is shown in the flow diagram at Appendix 3.

> *Step 1; Will the activity disturb the ground surface or any culturally modified trees?*

Yes, road works will require minor disturbance of the ground surface for excavation, sealing and drainage maintenance.

> *Step 2; Are there any:*
>
> *a) relevant confirmed site records or other associated landscape feature information on AHIMS? and/or*
>
> *b) any other sources of information of which a person is already aware? and/or*
>
> *c) landscape features that are likely to indicate presence of Aboriginal objects?*

Yes, AHIMS search identifies records of Aboriginal Sites.

> *Step 3; Can harm to Aboriginal objects listed on AHIMS or identified by other sources of information and/or can the carrying out of the activity at the relevant landscape features be avoided?*

Yes, works will be restricted to existing road surfaces, bridge and drainage

structures.

> *AHIP application not necessary. Proceed with caution. If any Aboriginal objects are found stop work and notify DECCW. If human remains are found, stop work, secure the site and notify the NSW Police and DECCW.*

The result of this due diligence process is that an Aboriginal Heritage Impact Permit is not required. Around areas where AHIMS records occur, works must be restricted to existing road and drainage structures.

No listed heritage items occur close to the project area.

There is potential for other items or artefacts of cultural significance to be present in the study area reflecting the long occupation of the land by European and Aboriginal communities.

6.6.2 Potential impacts

No impacts to Aboriginal or non-Aboriginal heritage are expected however safeguards below will address nearby AHIMS records and unexpected finds.

6.6.3 Safeguards and mitigation measures

Impact	Environmental safeguards	Responsibility	Timing
Unexpected Aboriginal heritage	• Any work crews employed in ground disturbing works within the study area must be made aware of the legislative protection of Aboriginal sites and objects at the induction and toolbox talks and will be recorded. • All site staff are to be advised that it is an offence under the NPW Act to harm an Aboriginal object without appropriate approval. • If objects are encountered which are suspected to be of Aboriginal heritage value work is to stop and Council will seek advice from a representative of the Local Aboriginal Land Council and an archaeologist with expertise in Aboriginal heritage. The recommendations provided by any subsequent archaeological assessment should be implemented as part of the project.	Council & Contractor	Continuous
Unexpected heritage	• If historical artefacts that become evident during excavation, work in the immediate vicinity should cease until an investigation is undertaken with guidance from Council's heritage advisor.	Council & Contractor	Continuous

6.7 Land use and socio-economic

6.7.1 Existing environment

The economic environment of this area is largely driven by primary production and home business, a sparse population lives in the district that imports most of its products and services from the nearby rural centres of Cobargo, Quamma and Bega.

Road transport is critical to the maintenance of the economic environment of the local community.

6.7.2 Potential impacts

The potential to disrupt traffic using Upper Brogo Road is the only potential negative impact on the local economy. This is likely to be minor, short term and will not significantly impact any industry or business.

No access to a business or residence will be impeded during construction.

6.7.3 Safeguards and mitigation measures

Impact	Environmental safeguards	Responsibility	Timing
Changes in local access and traffic movement	• Road closures will be minimised as far as practical • Detours will be adequately sign posted during road closure.	Council	Construction and operation
Complaints	• Complaints received are to be recorded and attended to promptly in accordance with Council's complaints handling procedures.	Council	Construction

6.8 Waste and resource management

Waste management would be undertaken in accordance with the *Waste Avoidance and Resource Recovery Act 2001*. The objectives of this Act that are applicable to the proposal are:

(a) to encourage the most efficient use of resources and to reduce environmental harm in accordance with the principles of ecologically sustainable development,

(b) to ensure that resource management options are considered against a hierarchy of the following order:

(i) avoidance of unnecessary resource consumption,

(ii) resource recovery (including reuse, reprocessing, recycling and energy recovery),

(iii) disposal,

(c) to provide for the continual reduction in waste generation,

(d) to minimise the consumption of natural resources and the final disposal of waste by encouraging the avoidance of waste and the reuse and recycling of waste,

(e) to assist in the achievement of the objectives of the Protection of the Environment Operations Act 1997.

6.8.1 Waste sources

The proposed works would generate general rubbish waste from works crews and waste building materials from demolition of the timber bridge.

General waste would be temporarily stored on site prior to disposal at an appropriately licensed waste facility.

Waste building materials should be recycled in other Council or community projects.

6.8.2 Safeguards and mitigation measures

Impact	Environmental safeguards	Responsibility	Timing
Production of packaging materials and other construction waste	• The resource management hierarchy must be followed at all times throughout the proposal: *avoid resource consumption → recover recyclable materials for reuse → dispose material unable to be recycled*	Contractor	Construction
Waste on site	• Waste material, other than vegetation and tree mulch, must not be left on site once the works have been completed • Working areas must be maintained, kept free of rubbish and cleaned up at the end of each working day	Contractor	Construction
Production of solid putrescibles waste	• Proper bins (with lids) must be available for the temporary storage of putrescible waste within the site compound and then disposed of by a licensed contractor	Contractor	Construction

6.9 Cumulative impacts

It is a requirement under Part 8 Infrastructure and Environmental Impact Assessment of the Environmental Planning and Assessment Regulation 2021 to take into account any cumulative environmental impacts with other existing or likely future activities. Cumulative impacts relate to the combined potential effects of different impact areas of the proposal as well as the potential interaction with other proposals in the local area.

6.9.1 Potential impacts

As this is a minor and beneficial proposal it is considered unlikely to be contributing in any significant way to any cumulative impacts.

6.10 Summary of beneficial effects

The proposal is expected to improve reliability of Upper Brogo Road during bushfire and high rainfall events, improve traffic safety and reduce maintenance costs of the road and bridge. This will provide benefits to the local community and value for money for ratepayers.

6.11 Summary of adverse effects

Construction works will require temporary traffic disruptions and amenity impacts to the site. These impacts are minor and considered acceptable given the benefits the proposal will generate.

7 Environmental management

7.1 Environmental management plans

Numerous safeguards and mitigation measures have been provided by this REF that manage potential adverse impacts of the proposal. Whilst these measures are implemented and incorporated into the detailed design and applied during the construction and operation of the proposal any impacts are considered acceptable given the benefit of the proposal.

A Construction Environmental Management Plan (CEMP) including an Erosion and Sediment Control Plan (ESCP) will be prepared that specifies safeguards and mitigation measures provided by this REF. This CEMP, and any activity/ contractor specific appendices will provide a framework that clearly identifies the implementation of these measures including responsible officers and monitoring and review processes.

The CEMP and any appendices will be prepared and certified by the Council Environment Officer prior to construction commencement. Plans will be working documents, subject to ongoing change and updated as necessary to respond to changing conditions.

7.2 Summary of safeguards and management measures

Environmental safeguards outlined in this document will be implemented during the project. These safeguards will minimise any potential adverse impacts arising from the proposed works on the surrounding environment. The safeguards and management measures are summarised in Table 7-1 of this report and must be kept on the site during works, this may be via incorporation into the CEMP.

Table 7-1 Summary of safeguards and mitigation measures.

No.	Impact	Environmental safeguards	Responsibility	Timing
1	General	• All environmental safeguards must be incorporated within the following: ○ Construction Environmental Management Plan ○ Detailed design stage ○ Contract specifications for the proposal ○ Contractor's Environmental Management Plan	Council	Pre-construction
2	General	• All businesses and residences likely to be affected by the proposed works must be notified at least five working days prior to the commencement of the proposed activities.	Council	Pre-construction
3	Traffic and access	• A TMP must be prepared (in accordance with Transport for NSW *Traffic Control at Work Sites* 2022 Standard).	Contractor	Pre-construction
4	Traffic delays	• Road users must be advised of the proposed work signage in the vicinity of the works. • Detours will be adequately sign posted during road closure.	Council	Pre-construction & Construction
5	Access impacts	• The local community are to be notified of the proposed works at least two prior to commencement of works.	Council	Pre-construction

No.	Impact	Environmental safeguards	Responsibility	Timing
6	Microbats roosting in existing bridge structure	Due to the possibility of the existing bridge structure becoming roosting habitat for the following threatened species of microbats a pre-demolition inspection for microbats is to be undertaken within three days before proposed demolition by a suitably experienced ecologist. If evidence of microbat presence is found an Assessment of Significance is to be undertaken. • Southern Myotis (*Myotis macropus*) • Little Bent-winged Bat (*Miniopterus australis*) • Large Bent-winged Bat (*Miniopterus orianae oceanensis*). In order to manage the risk of microbats roosting in the bridge structure the Construction Environmental Management Plan is to include an unexpected finds procedure for microbats including the following; • A daily inspection for microbats roosting in the bridge structure is to be undertaken and documented including investigating for bats, guano and sounds of bats • If bats or their signs are present a suitably qualified and experienced ecologist is to be engaged to investigate further • Any bats found are not to be touched	Council & Contractor	Pre-construction & construction
7	Weed invasion	In order to manage the risk of indirect impacts of invasive species establishing in the project area, a weed management plan will be prepared and implemented to ensure the project does not increase the occurrence of weed species on the site or adjoining land the plan will incorporate the following practices; • Plant and equipment will be cleaned prior to entering any part of the site ensuring no mud/ soil or vegetation material is imported into the area The site manager will ensure that procedures are in place to ensure plant and equipment entering the site are clean and free of mud, soil and vegetation material.	Council & Contractor	Pre-construction

No.	Impact	Environmental safeguards	Responsibility	Timing

8	Soil and Water Management	• An Erosion and Sediment Control Plan (ESCP) will be prepared to mitigate impacts during construction including the following:
		  • Erosion and sedimentation controls are to be installed prior to construction.
		  • Disturbed areas are to be progressively stabilised
		  • Erosion and sedimentation controls are to be checked and maintained on a regular basis (including clearing of sediment from behind barriers) and within two days of expected rain events. Records of compliance are to be kept and available for inspection.
		  • Erosion and sedimentation controls are to be checked and maintained on a regular basis (including clearing of sediment from behind barriers) and records kept and provided on request.
		  • Erosion and sediment control measures are not to be removed until the works are complete and areas are stabilised.
		  • Work areas are to be stabilised progressively during the works.
			Contractor	Pre-construction, Construction & Post-construction

No.	Impact	Environmental safeguards	Responsibility	Timing

9	Water and soil pollution	• A spill management plan must be developed which includes measures for refuelling, maintenance of machinery and response and notification procedures. It must also include the following measures:
		  • Sediment management controls such as a sediment curtain to prevent sedimentation of downstream waters
		  • Machinery must be regularly checked to ensure there is no oil, fuel or other liquids leaking from the machinery, including daily checks of machinery and equipment to be used for construction.
		  • A spill kit including boom must be stored on onsite at all times to manage any potential accident spills.
		  • Re-fuelling of vehicles and equipment will be undertaken in an impervious bunded area at the compound site, located 50 metres from any creek or drainage line.
		  • When re-fuelling remote from compound, trained staff will observe at all times and tanks will have an automatic cut off when full and vehicles will carry a temporary bund and spill kit.
		  • If a spill occurs, follow the Environmental Incident Classification and Management Procedure and notify the Environmental Officer as soon as practicable.
			Contractor	Pre-construction, Construction & Post-construction

No.	Impact	Environmental safeguards	Responsibility	Timing
10	Construction noise and vibration	• Works to be carried out during normal work hours (i.e. 7am to 6pm Monday to Friday; 8am to 1pm Saturdays). • A complaints register is to be established. All complaints received during the works will be recorded into the register. Complaints will be responded to promptly. • Noise monitoring would be undertaken at any sensitive receivers which lodge a noise complaint, and methods of reducing noise levels to an acceptable level will be investigated. • Construction works must be carried out in accordance with Roads and Maritime Environmental Noise Management Manual (G36 Specification). • Noise impacts are to be minimised in accordance with Practice Note 7 in the RTA's Environmental Noise Management Manual and RTA's Environmental fact sheet No. 2- Noise management and Night Works.	Contractor	Pre-construction
11	Air pollution	• Dust suppression measures (including watering and covering exposed areas) are to be used to minimise or prevent air pollution and dust. • Vehicles will be maintained to manufacturer's requirements and regular checks are to be made to ensure they are operating efficiently. • Vehicles transporting waste or other materials that may produce odours or dust are to be covered during transportation.	Council & Contractor	Construction

No.	Impact	Environmental safeguards	Responsibility	Timing
12	Aboriginal heritage	• Any work crews employed in ground disturbing works within the study area must be made aware of the legislative protection of Aboriginal sites and objects at the induction and toolbox talks and will be recorded. • All site staff are to be advised that it is an offence under the NPW Act to harm an Aboriginal object without appropriate approval. • If objects are encountered which are suspected to be of Aboriginal heritage value work is to stop and Council will seek advice from a representative of the Local Aboriginal Land Council and an archaeologist with expertise in Aboriginal heritage. The recommendations provided by any subsequent archaeological assessment should be implemented as part of the project.	Council & Contractor	Continuous
13	Unexpected heritage	• If historical artefacts that become evident during excavation, work in the immediate vicinity should cease until an investigation is undertaken with guidance from Council's heritage advisor.	Council & Contractor	Continuous
14	Changes in local access and traffic movement	• Road closures will be minimised as far as practical.	Council	Construction and operation
15	Complaints	• Complaints received are to be recorded and attended to promptly in accordance with Council's complaints handling procedures.	Council	Construction
16	Production of packaging materials and other construction waste	• The resource management hierarchy must be followed at all times throughout the proposal: *avoid resource consumption → recover recyclable materials for reuse → dispose material unable to be recycled.*	Contractor	Construction

No.	Impact	Environmental safeguards	Responsibility	Timing
17	Waste on site	• Waste material, other than vegetation and tree mulch, must not be left on site once the works have been completed. • Working areas must be maintained, kept free of rubbish and cleaned up at the end of each working day	Contractor	Construction
18	Production of solid putrescibles waste	• Proper bins (with lids) must be available for the temporary storage of putrescible waste within the site compound and then disposed of by a licensed contractor.	Contractor	Construction

7.3 Licensing and approvals

A Part 7 permit under the Fisheries Management Act 1994 is required as in-stream works and fish passage obstruction are necessary and the site is defined as key fish habitat.

This will require application to Department of Primary Industries (Fisheries).

No other licences or approvals have been identified as being necessary for this proposal. If the scope of works were to change, this requirement may change.

8 Cl171 Review of environmental factors

In addition to the requirements of the *Is an EIS required?* guideline as detailed earlier in this document, the following factors, provided in clause 171 of the Environmental Planning and Assessment Regulation 2021, have also been considered to assess the likely impacts of the proposal on the environment.

Factor	Impact
a. The environmental impact on a community? The proposal would improve infrastructure and services/ economic activity for the community.	Long term positive
b. The transformation of a locality? The proposal is maintenance to existing assets and will not cause significant transformation.	Nil
c. The environmental impact on the ecosystems of the locality? The proposal will not significantly impact terrestrial ecosystems.	Minor
d. Reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality? The proposal would have a short-term impact of visual amenity during construction however no long term impacts are likely.	Minor short term
e. Any effects on a locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present or future generations? The proposal is unlikely to impact these anthropological factors.	Nil
f. The impact on the habitat of protected fauna (within the meaning of the *National Parks and Wildlife Act 1974*)? No impact.	Nil
g. The endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air? The proposal would not endanger any species of animal, plant or other form of life.	Nil
h. Long-term effects on the environment? The proposal would not significantly change the environment, long term effects will be positive, due to improved road integrity.	Positive
i. Degradation of the quality of the environment? Short term amenity will be affected, no long-term degradation.	Minor short term

Factor	Impact
j. Risk to the safety of the environment? The proposal would pose minimal risk to the safety of the environment. Recommendations in this report ameliorate residual risk.	Manageable
k. Reduction in the range of beneficial uses of the environment? There would be no reduction in the range of beneficial uses of the environment.	Nil
l. Pollution of the environment? The proposal would be likely to result in short term air quality and noise impacts. These would be managed accordingly and are considered short term and minor.	Minor short-term negative
m. Environmental problems associated with the disposal of waste? Waste generated is minor and managed within Council's existing services.	Nil
n. Increased demands on resources (natural or otherwise) that are, or are likely to become, in short supply? The proposal is unlikely to result in materials becoming in short supply, fuel use will be consistent with existing requirements of Council.	Nil
o. Cumulative environmental effect with other existing or likely future activities? The proposal will have insignificant cumulative effects.	Nil
p. Impact on coastal processes and coastal hazards, including those under projected climate change conditions? As the site is not in a coastal area there would be no impact on coastal processes and coastal hazards, including those under projected climate change conditions.	Nil
(q) applicable local strategic planning statements, regional strategic plans or district strategic plans made under the Act, Division 3.1	Nil
(r) other relevant environmental factors.	Nil

9 Conclusion

This proposal has been assessed under Part 5 of the EP&A Act REF process. It has examined and taken into account to the fullest extent practical all matters affecting or likely to affect the environment by reason of the proposed activity. This has included consideration of impacts on threatened species, populations and ecological communities and their habitats, critical habitat, other protected fauna and native vegetation. The REF has also considered soil and water impacts, Aboriginal and non-Aboriginal heritage impacts and a range of socio economic and amenity impacts.

From the assessment of the biophysical, socio-economic and legislative environment above it is concluded that there is likely to be no significant impact on the environment if this proposal proceeds incorporating recommendations provided by this REF.

- No significant impacts on terrestrial biodiversity are likely, recommendations in this report manage residual risk.
- No significant impacts on heritage values are likely, recommendations in this report manage residual risk.
- Potential pollution impacts on air, soils and water are manageable through current best practices
- The proposal has the potential to cause minor short term visual and noise impacts during construction. These are considered acceptable and manageable impacts

Environmental impacts of the proposal are not likely to be significant and therefore it is not necessary for an environmental impact statement to be prepared and approval to be sought for the proposal from the Minister for Planning under Part 5.1 of the EP&A Act. The proposal is unlikely to affect threatened species, populations or ecological communities or their habitats, within the meaning of the BC Act or FM Act, therefore a Species Impact Statement is not required.

The proposal is also unlikely to affect Commonwealth land or have an impact on any matters of national environmental significance and therefore referral to the Commonwealth Environment Minster for approval is not required.

10 Certification

This review of environmental factors provides a true and fair review of the proposal in relation to its potential effects on the environment. It addresses to the fullest extent possible all matters affecting or likely to affect the environment as a result of the proposal.

Pat Guinane

Environmental Consultant

Macrozamia Environmental

Date: 7 September 2023

I have examined this review of environmental factors and accept the review of environmental factors on behalf of Bega Valley Shire Council.

Name Derek van Bracht 

Title Environment Coordinator

Bega Valley Shire Council

Date: 9th October 2024

Appendix 1 – Works Concept Plans

Bega Valley Shire Council

Appendix 2 – AHIMS Search Results & Due Diligence Chart

AHIMS Web Services (AWS)
Search Result

Your Ref/PO Number : Katchencarry Creek

Client Service ID : 817872

Macrozamia Environmental

473 Tathra Road
Kalaru New South Wales 2550

Attention: Pat Guinane

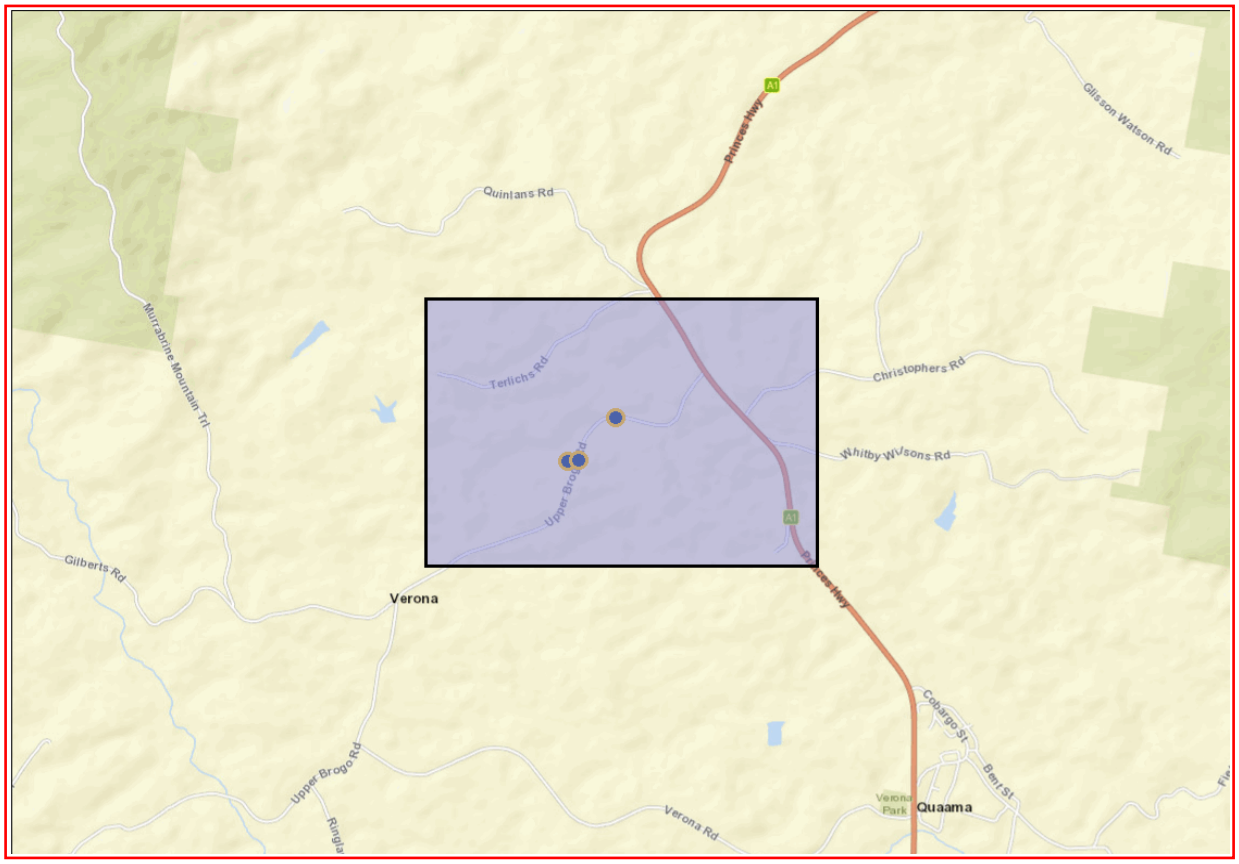
Email: pat@macrozamia.com.au

Date: 07 September 2023

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lat, Long From : -36.4519, 149.8275 - Lat, Long To : -36.4346, 149.8584, conducted by Pat Guinane on 07 September 2023.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.



A search of Heritage NSW AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

3	**Aboriginal sites are recorded in or near the above location.**
0	**Aboriginal places have been declared in or near the above location. ***

If your search shows Aboriginal sites or places what should you do?

- You must do an extensive search if AHIMS has shown that there are Aboriginal sites or places recorded in the search area.
- If you are checking AHIMS as a part of your due diligence, refer to the next steps of the Due Diligence Code of practice.
- You can get further information about Aboriginal places by looking at the gazettal notice that declared it. Aboriginal places gazetted after 2001 are available on the NSW Government Gazette (https://www.legislation.nsw.gov.au/gazette) website. Gazettal notices published prior to 2001 can be obtained from Heritage NSW upon request

Important information about your AHIMS search

- The information derived from the AHIMS search is only to be used for the purpose for which it was requested. It is not be made available to the public.
- AHIMS records information about Aboriginal sites that have been provided to Heritage NSW and Aboriginal places that have been declared by the Minister;
- Information recorded on AHIMS may vary in its accuracy and may not be up to date. Location details are recorded as grid references and it is important to note that there may be errors or omissions in these recordings,
- Some parts of New South Wales have not been investigated in detail and there may be fewer records of Aboriginal sites in those areas. These areas may contain Aboriginal sites which are not recorded on AHIMS.
- Aboriginal objects are protected under the National Parks and Wildlife Act 1974 even if they are not recorded as a site on AHIMS.
- This search can form part of your due diligence and remains valid for 12 months.

Level 6, 10 Valentine Ave, Parramatta 2150
Locked Bag 5020 Parramatta NSW 2124
Tel: (02) 9585 6345

ABN 34 945 244 274
Email: ahims@environment.nsw.gov.au
Web: www.heritage.nsw.gov.au

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : Katchencarry Creek

Client Service ID : 817873

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
62-3-0544	Upper Verona Rd 1 (UVR1)	AGD	55	754670	5963050	Open site	Valid	Artefact : -	Open Camp Site	98354
	Contact	**Recorders**	Unknown Author					**Permits**		
62-3-0542	Upper Verona Rd 3 (UVR3)	AGD	55	754320	5962750	Open site	Valid	Artefact : -	Open Camp Site	98354
	Contact	**Recorders**	Mr.Matthew Barber					**Permits**		
62-3-0543	Upper Verona Rd 2 (UVR2)	AGD	55	754400	5962750	Open site	Valid	Artefact : -	Open Camp Site	98354
	Contact	**Recorders**	Unknown Author					**Permits**		

**** Site Status**

Valid - The site has been recorded and accepted onto the system as valid

Destroyed - The site has been completely impacted or harmed usually as consequence of permit activity but sometimes also after natural events. There is nothing left of the site on the ground but proponents should proceed with caution.

Partially Destroyed - The site has been only partially impacted or harmed usually as consequence of permit activity but sometimes also after natural events. There might be parts or sections of the original site still present on the ground

Not a site - The site has been originally entered and accepted onto AHIMS as a valid site but after further investigations it was decided it is NOT an aboriginal site. Impact of this type of site does not require permit but Heritage NSW should be notified

Report generated by AHIMS Web Service on 07/09/2023 for Pat Guinane for the following area at Lat, Long From : -36.4519, 149.8275 - Lat, Long To : -36.4346, 149.8584. Number of Aboriginal sites and Aboriginal objects found is 3

Appendix 3 – Site Photos

Photo 1, Katchencarry Creek Bridge from northeast side.

Photo 2, Riparian vegetation upstream of Katchencarry Creek Bridge, exotic species dominate.

Photo 3, Riparian vegetation downstream of Katchencarry Creek Bridge, exotic species dominate.

Photo 4, Underside of Katchencarry Creek Bridge, instream pier to be removed.

Appendix 4 – Aquatic Biodiversity Assessment

consulting.macrozamia.com.au
info@macrozamia.com.au

Aquatic Biodiversity Assessment

Proposed Bridge Replacement Works

Katchencarry Creek Bridge

Upper Brogo Road, Brogo, NSW

Djiringanj Country

Bega Valley Shire Council

September 2024

Version	Final
Date	8 October 2024
Project Number	140247_2

Contents

1. Introduction

1.1. Background

Bega Valley Shire Council (Council) are responsible for the provision and maintenance of local road infrastructure in this Local Government Area as part of their responsibilities to their ratepayers and road users more broadly.

Council has identified that the existing single lane timber bridge crossing Katchencarry Creek on Upper Brogo Road is becoming aged and is due for replacement with a modern structure.

Upper Brogo Road is one of two main throughfares into the Brogo – Verona district to the west of the Princes Highway providing access to rural residential and agricultural properties.

Council proposes to demolish the existing timber bridge and replace it with a single-span, two lane cast in place concrete bridge on same alignment and grade as the existing. Works are to be complete under road closure with traffic detoured traffic via Verona Road.

Part of the proposed works will impact the aquatic and riparian environment of Katchencarry Creek in the project footprint including worksite dewatering, demolition of existing abutments and pier and excavation for and construction of new abutments.

1.2. Site Description

The subject site is the site of a bridge crossing Katchencarry Creek, a second order stream draining rural lands to the north and flowing into Dry River 6km to the south. The landscape has transitioned from traditionally dairy grazing uses to rural residential, 'rural lifestyle' blocks. Surrounding lands are generally cleared of woody vegetation and vegetated by pasture grasses with infrequent native vegetation remnants.

The riparian areas of Katchencarry Creek in the vicinity of the project area are well vegetated with both native and exotic species.

1.3. Purpose of this Assessment

This Aquatic Biodiversity Assessment has been prepared to support a Review of Environmental Factors for the proposal as well as an application for a Part 7 permit under the Fisheries Management Act 1994 required for in-stream works.

This assessment identifies

- The proposal including methodology and environment it occurs including photographs of the waterway in each direction, bank and important habitat features
- The likely impact on the aquatic and riparian environment that the proposal would result in
- A description of the physical and hydrological features of the development area
- Fish occurring in the locality, including threatened and protected species, populations, ecological communities, pest species or presence of 'critical habitat' under the FM Act and EPBC Act
- An aquatic and riparian vegetation survey map of the area which shows the location and/or coverage of macrophytes, riparian vegetation and snags
- A description of aquatic habitat TYPE
- A description of waterway CLASS

- A details of the nature, timing, magnitude and duration of the proposed disturbance to the aquatic environment.

1.4. Description of Proposal

Council proposes to remove the existing two span timber bridge and replace it with a single span concrete cast in place structure on the same alignment and grade as the existing bridge. Approaches to the bridge will also be upgraded as required. During works Upper Brogo Road will be closed at the works site and traffic diverted via Verona Road. It is intended that works will be completed in one stage.

The riparian and aquatic parts of the project area will be subject to impacts from the following methodology

- Dewatering to allow instream works to occur
- Demolition of existing bridge structure including instream pier and abutment walls
- Excavation for abutments & construction of footings
- Pour cast in place abutments & headwalls

Specific details of the proposal are provided in the REF and attached concept plans.

2. Methods

2.1. Literature and Database Review

The study area and its landscape context were considered through a literature and database review in preparation for field survey and to inform survey aims and threatened biodiversity assessments. Aerial photography, NSW Government GIS data and NSW & Commonwealth databases as well as Macrozamia Environmental's records from previous surveys all informed this review, the following sources being key to this assessment;

- Current versions of legislation referred to in this report
- Commonwealth Government Species Profiles and Threats (SPRAT) database http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl
- Commonwealth Department of Climate Change, Energy, the Environment and Water Protected Matters Search Tool https://pmst.awe.gov.au/#/map?lng=131.50634765625003&lat=-28.671310915880834&zoom=5&baseLayers=Imagery,ImageryLabels
- NSW Threatened Biodivertsity Database Collection (TBDC) https://www.environment.nsw.gov.au/topics/animals-and-plants/biodiversity/nsw-bionet
- Australia's IBRA Bioregions and sub-bioregions http://environment.gov.au/land/nrs/science/ibra/australias-bioregions-maps
- NSW Government SEED Mapping & SEED Layer Intersection Tool
- NSW Fisheries Spatial Data Portal
- ePlanning spatial viewer https://www.planningportal.nsw.gov.au/spatialviewer
- NSW Biodiversity Values Map
- State Vegetation Type Map (SVTM) Dec 2023
- NSW Spatial Services SixMaps https://maps.six.nsw.gov.au

Wherever applicable, NSW and Commonwealth government policies and guidelines have been adopted in the undertaking of this assessment, the following have been key to preparation of this assessment;

- NSW DPI Policy and guidelines for fish habitat conservation and management Update 2013
- Threatened Species Test of Significance Guidelines NSW Office of Environment and Heritage 2018
- The EPBC Act Matters of National Environmental Significance: Significant Impact Guidelines, Department of Environment, Water, Heritage and the Arts 2013.

The plans for the proposal including those in the REF and earlier versions were considered in the context of the environment and the intent of the project to understand the scope and likely impacts of the proposal. Discussions were also held with the project manger to ensure the complete scope of the proposal and its potential impacts were considered.

2.2. Field Survey

The study area was surveyed by an ecologist on 29 September 2024 in the late afternoon, conditions were overcast and mild. Rainfall has been more than typical over the past three years which could impact the range of flora recorded and presentation of the waterway.

Conditions were adequate for opportunistic fauna survey, an assessment of habitats present was made that also sufficiently considers the potential for fauna to occur on the site.

During site inspections the study area was defined, vegetation communities mapped and notes made on the flora and fauna species identified within and adjacent to the impact area of the proposal. Aquatic fauna were searched for in suitable habitat where present throughout the project area, a net and bucket were used where appropriate to sample or view fauna. A photo/ videographic record including using RPA photography was made aiding in documenting the site characteristics and confirming species identification.

2.3. Survey Limitations

The survey aimed to thoroughly describe the aquatic and hydrological environment in order to satisfy the needs of DPI Fisheries in assessing the required Fisheries Permit Application as well as to document the potential fish habitat at the site and aquatic fauna present. While surveys for fauna were limited they area adequate to determine the potential fish habitat present and predict the species that may make use of habitats present.

3. Results

3.1. Literature and Database Review

Desktop assessment has identified the following characteristics of the site;

3.1.1. NSW Fisheries Management Act 1994

The FM Act aims to conserve, develop and share the fishery resources of NSW for the benefit of present and future generations. In particular, the objects of this Act are to:

- Conserve fish stocks and key fish habitats
- Conserve threatened species, populations and ecological communities of fish and marine vegetation
- Promote ecologically sustainable development, including the conservation of biological diversity.

The FM Act identifies threatened aquatic species, populations and ecological communities and requires an Assessment of significance for potential significant impacts to any of these entities. Any potential significant impact triggers the need for a test of significance. This legislation also provides a framework for protecting and enhancing fish habitats through zoning, development controls and habitat restoration. The proposed works occur in a waterway defined as key fish habitat and a Part 7 permit under the Fisheries Management Act 1994 is required as in-stream works and fish passage obstruction are may be required.

3.1.2. Key Fish Habitat Mapping

The project area is mapped as key fish habitat by the NSW Fisheries Spatial Data Portal;

3.1.3. BC Act

No BC Act listed species, populations or communities were recorded in the vicinity of the works area or considered likely to occur and rely on resources in this area.

3.1.4. EPBC Act

No EPBC Act listed species, populations or communities were recorded in the vicinity of the works area or considered likely to occur and rely on resources in this area.

3.2. Aquatic Environment

The aquatic environment in the vicinity of the project area is characterised by permanent/ semi-permanent pools linked by shallow ephemeral drainage depressions. The substrate is muddy with rocky areas and the site is accessed by stock. Vegetation structure is generally diverse including macrophytes, groundcovers, mid-layer and canopy species. The composition includes both native and exotic species. The exotic grass *Phalaris aquatica* is common as is the native *Phragmites australis*. The exotic *Salix spp*. dominate the canopy and native wattles and exotic blackberry dominate the mid-layer. No snags or other significant habitat features were recorded. The following photos illustrate the nature of aquatic habitat;

Photo 1, Deep pool under existing bridge.

Photo 2, deep pool (photo 1) extending upstream of existing bridge

Photo 3, Downstream of existing bridge, a variety of vegetation is present

Photo 4, Facing west across downstream of existing bridge, most riparian vegetation is exotic grass.

3.3. Aquatic Fauna Records and Observations

No fish were recorded at the site however it is expected given the size of the pool that fish would be present and likely include Short and Long-finned Eels, Plague minnow *Gambusia holbrooki*, Spiny Crayfish *Euastacus spp*. and Yabby *Cherax destructor*, possibly European Carp, Galaxids & Smelts.

No threatened or protected species, populations, ecological communities are expected to occur due to lack of continuity with known threatened species habitat. No 'critical habitat' listed under the FM Act or EPBC Act occurs nearby and the site is not mapped as a threatened fish species stream by the NSW Fisheries Spatial Data Portal.

3.4. Aquatic Habitat Type and Waterway Class

NSW DPI *Policy and guidelines for fish habitat conservation and management Update 2013* provides guidance to assess sensitivity and apply Parts 2 and 7 of the FM Act. Fish habitat sensitivity is the importance of the habitat to the survival of fish including all aquatic invertebrates. Table 1 of these guidelines provides a key fish habitat and associated sensitivity classification scheme.

Using this table the waterway is categorised as:

- **Type 2 Moderately sensitive key fish habitat** being;

  Freshwater habitats and brackish wetlands, lakes and lagoons other than those defined in Type 1.

Table 2 of these guidelines classifies waterways for fish passage it factors in the functionality of the waterway as fish habitat. This assessment relates primarily to watercourses and classifies these streams using indicators such as hydraulic geometry (stream shape and size), frequency of stream flows (perennial, intermittent or ephemeral), presence of aquatic habitat units (pools, riffles, vegetation, snags), presence of threatened or protected fish species and other native fish, and connection to adjacent habitats (e.g. floodplain wetlands).

In this table, the waterway at the project area is defined as:

- **Class 2 Moderate key fish habitat** being;

  Non-permanently flowing (intermittent) stream, creek or waterway (generally named) with clearly defined bed and banks with semi-permanent to permanent waters in pools or in connected wetland areas. Freshwater aquatic vegetation is present. TYPE 1 and 2 habitats present.

4. Proposal Impacts on Aquatic Environment

Works will result in the following impacts on the aquatic environment;

- Worksite dewatering progressively within parts of the stream related to work
- Demolition of existing bridge structure and removal of components including instream pier
- Excavation for abutments & construction of footings

Impacts and associated mitigation measures are discussed in detail in the REF.

The proposal is expected to improve reliability of Upper Brogo Road particularly during bushfire and high rainfall events, improve traffic safety and reduce maintenance costs of the road and bridge. This will provide benefits to receiving waters including reduced sedimentation risks and reduced impacts of ongoing maintenance.