# **Review of Environmental Factors (REF)**

Review of Environmental Factors under PART 5 Division 5.1 ENVIRONMENTAL PLANNING and ASSESSMENT ACT 1979 and REGULATION 2021 (Section 171)



# Project name and location of the works:

Plan No:

Project name: Taylors Bridge Replacement

Project location: Taylors Bridge is located at the following coordinates

Latitude: -30.0317806 Longitude: 153.1234613

# 1.1 Project Site Description

The proposed activity is situated in Upper Corindi within the Coffs Harbour Local Government Area (LGA) approximately 11.2km northwest of Woolgoolga NSW as shown in Figure 1. It is accessed via an unnamed road heading east of Duffus Road, approximately 930m northeast of the Sherwood Creek Road and Duffus Road intersection.

Taylors Bridge is a single span timber bridge spanning Lazyman Creek, a fourth order perennial Strahler stream, and provides access to a number of rural properties in northern Upper Corindi. The bridge and all adjacent land is zoned RU2 Rural Landscape under the *Coffs Harbours Local Environmental Plan 2013* (LEP), while a pocket of land approximately 80m south of the site is zoned C2 Environmental Conservation as shown in Figure 2.

# 1.2 Description of Project

The proposed activity is to replace Taylors Bridge over Lazyman Creek as part of the Fixing Country Bridges Program – Round 2B. The Program enables councils to replace timber bridges in poor condition to better connect regional and rural communities and will significantly reduce the maintenance and renewal burden for Coffs Harbour City Council (Council).

The existing timber bridge will be demolished and replaced with a 12.0m long by 4.2m wide single span precast bridge with concrete beams, wingwalls and scour protection. Steel UC piles with reinforced concrete collars will be driven into the soil profile, and precast abutments will be used to support the new bridge.

Construction of the new bridge will require a temporary access track with associated drainage including a temporary timber bridge crossing. The temporary bridge is 12m long x 4m wide over a narrow 4-5m section of the creek and will sit on bedlogs on natural, well-compacted ground with a minimum of 0.5m clearance over the low flow level. The temporary track will be established south of the existing bridge site and will provide uninterrupted traffic flow for the duration of the activity, while the temporary drainage will be established on Lot 61 DP752820. A raised area west of the site will be used as an ancillary site for material and machinery storage, and parking. A site shed will also be placed at this location for the duration of the activity. Upon completion, the temporary access track, temporary bridge, and ancillary site will be removed, and all disturbed areas regenerated.

The proposed activity requires the removal of a number of exotic mature trees, consisting of up to 10 Camphor Laurels (*Cinnamomum camphora*). Native species comprising one (1) small Cheese Tree (*Glochidion ferdinandi*), and several small Green Wattle (*Acacia irrorata*), Sweet Pittosporum (*Pittosporum undulatum*), and Narrow-leaved Palm Lilys (*Cordyline stricta*) will also be removed. The ancillary site will be established on pastural grasses.

Lazyman Creek at this location is a fourth order perennial Strahler stream and is mapped as Key Fish Habitat; thus, a permit to carry out dredging and/or reclamation works under Part 7 of the *Fisheries Management Act 1994* is required prior to works commencing.



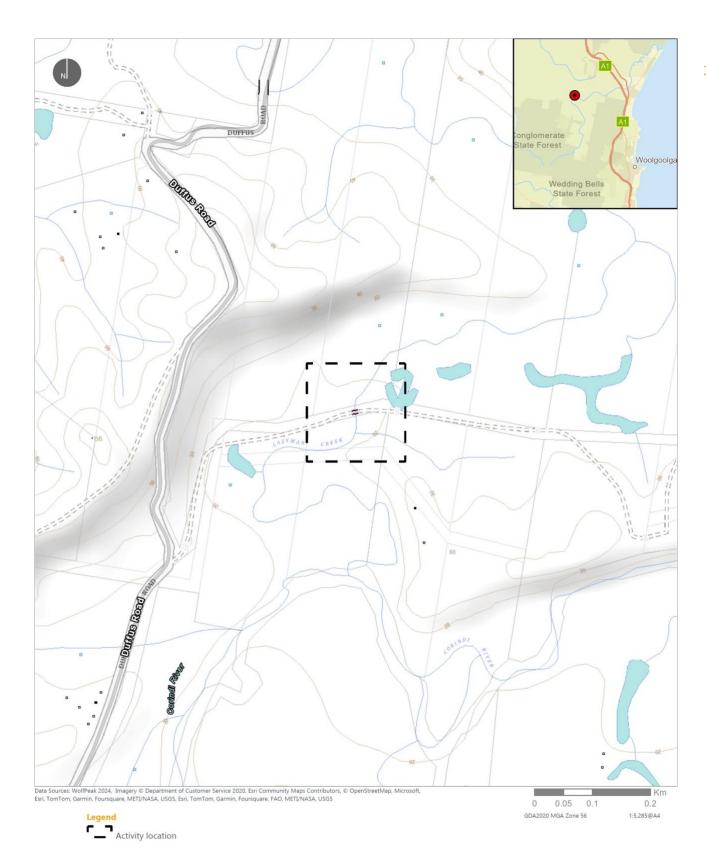




Figure 1: Location of the proposed activity

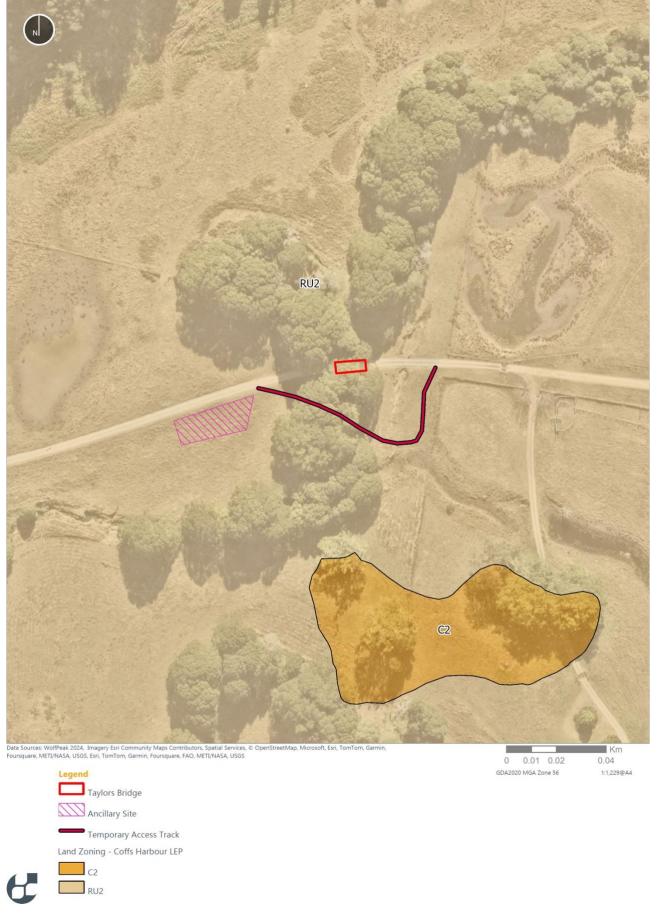


Figure 2: Land zoning applicable to the proposed activity

# 1.3 Reasons for the Activity and Consideration of Alternatives

The primary objective of the proposed activity is to replace Taylors Bridge as part of the NSW Government's Fixing Country Bridges Program which aims to better connect regional and rural communities. Upon completion, the condition and safety of the bridge and road approaches will be significantly improved for all road users on this section of the road.



#### 1.3.1 Consideration of Alternatives

#### Option 1: 'Do Nothing'

The existing bridge is in a state of poor condition and is no longer fit for purpose. The 'do nothing' option would exacerbate the continuing deterioration of the bridge and would impact on the safety of motorists using the bridge. The 'do nothing' approach is not consistent with the aims and objectives of the NSW Government's Fixing Country Bridges Program.

# **Option 2: Bridge Replacement (Preferred Option)**

It is proposed the existing timber bridge be demolished and replaced with a new bridge.

# 1.3.2 Justification for the Preferred Option

The existing bridge is timber construction which is in a state of poor condition and is continually deteriorating, leading to increasing maintenance burdens for Council and safety risks to motorists.

Carrying out the required bridge replacement will significantly improve the accessibility and safety for motorists using the bridge and reduce future maintenance costs for Council.



# 1.4 Scope of Works

A survey of the site was undertaken on 02 February 2024 which involved walking around the bridge site, an opportunistic fauna survey, searches for threatened flora and fauna species and an assessment of the terrestrial and aquatic habitat values.



#### **Pre-Construction**

- Environmental safeguards including the installation of sediment fencing and sediment traps will be
  implemented in a manner consistent with currently accepted best management practices (i.e.,
  Landcom [2004] Managing Urban Stormwater: Soils and Construction [4th Edition]) to prevent the
  entry of sediment into the adjacent waterway, or mobilisation of sediment within the waterway
  - These controls will be maintained and in good working order for the whole duration of the works and subsequently until the site has been stabilised and the risk of erosion and sediment movement from the site is minimal
- The area to be cleared/modified should be clearly marked before clearing in order to prevent inadvertent clearance beyond what is required and has been assessed. Ancillary site is to be located in the existing cleared area on the western side of the bridge
- Establish traffic controls as necessary
- A qualified ecologist shall undertake pre-clearing survey and clearing supervision during vegetation clearing works
- Hygiene protocols to avoid and minimise the spread of Myrtle Rust and Amphibian Chytrid Fungus will be required in accordance with the protocols set out in section 5.5 of the supporting Environmental Assessment and shall be followed
- Weed control in accordance with the recommendations in section 5.7 of the supporting Environmental assessment shall be followed
- Establish temporary access track and associated drainage
- Establish temporary timber bridge over creek on access track
- Establish temporary piling rig site and materials.

## Construction

- Demolish existing timber bridge
  - o Immediately prior to removal of the existing bridge a qualified ecologist shall thoroughly inspect potential roosting crevices underneath the bridge to determine if any microbats are present. If none are found, bridge removal works can proceed without any further measures; however, if microbats are identified, they are to be left undisturbed and measures must be taken to prevent bats returning to roost under the bridge
    - This may include filling cavities with expanding foam or installing geofabric under the entire underside of the bridge at night to block bats returning to roost under the bridge.
  - Bridge removal is to be undertaken by gradually dismantling the bridge and is to be supervised by an ecologist
- Both sides of the creek would be regraded accordingly to allow the placement of the rip-rap scour protection over geotextile
- Drive 2 sets of three (3) driven steel piles and place concrete for the reinforced concrete collars to be installed under each abutment
- Installation of precast abutments and wingwalls
- Installation of three (3) beams, precast carriageway and bolt on kerb units including concrete stitch pour between beams
- Bulk earthworks and road pavement works to finished levels
- Remove temporary access track, bridge and drainage and laydown areas and rehabilitate all disturbed areas





• Place final scour rock around abutment and wingwalls from the bank to eliminate the need to track machinery on the creek bed.

All construction and installation sequencing shall follow the approved engineering construction documents attached in Appendix A.



#### **Post-work Remediation**

- Immediately prior to removal of the existing bridge a qualified ecologist shall thoroughly inspect
  potential roosting crevices underneath the bridge to determine if any microbats are present. If
  none are found, bridge removal works can proceed without any further measures; however, if
  microbats are identified, they are to be left undisturbed and measures must be taken to prevent
  bats returning to roost under the bridge
  - This may include filling cavities with expanding foam or installing geofabric under the entire underside of the bridge at night to block bats returning to roost under the bridge.
- Bridge removal is to be undertaken by gradually dismantling the bridge and is to be supervised by an ecologist
- The existing bridge and all waste generated during the activity will be removed from site and recycled/disposed of as necessary
- Reposition any snags that are removed to a suitable location within the permanent aquatic environment
- Check the bank upstream and downstream is not eroding into waterway stabilise as required
- Fully remove all temporary piling rig and materials
- Rehabilitate banks and exposed surfaces to prevent future erosion at the site
- Rehabilitate area of riverbank under existing bridge abutment with suitable plantings to replicate existing riparian vegetation
- Decommission temporary access track and rehabilitate all disturbed areas
- Monitor for settling and manage as required.

# Description of the Existing Environment

Taylors Bridge spans Lazyman Creek in Upper Corindi, approximately 11.2km northwest of Woolgoolga NSW. The closest open meteorological station which maintains current climate data is the Grafton Research Station located approximately 48.5km northwest of the bridge, and is detailed as follows:

Site name: Dorrigo (Old Coramba Rd)

Site number: 059140

Latitude: 30.34 °S Longitude: 152.72 °E

Elevation: 746m

Commenced: 1996 Status: Open

Mean maximum and minimum temperatures, and mean rainfall statistics for the area are detailed below

for the years 1917-2023.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean max temp (°C)	30.2	29.9	28.1	25.8	23.0	20.6	20.4	22.1	25.2	27.2	28.6	29.9	25.9
Mean min temp (°C)	18.9	18.9	17.8	14.5	10.6	8.2	6.8	7.4	10.6	13.5	16.1	18.1	13.4
Mean rainfall (mm)	130.9	137.3	127.6	79.5	69.7	70.5	48.7	38.4	42.2	63.4	80.3	106.8	994.9

# 1.5.1 Geology, geomorphology, and topography

Taylors Bridge and all adjacent land is situated on the Coramba Beds of the New England Orogen which comprises lithofeldspathic wacke, minor siltstone, siliceous siltstone, mudstone, metabasalt, chert and jasper, rare calcareous siltstone and felsic volcanics of the Carboniferous (Mississippian) Age.

Quaternary geology associated with the subject site comprises an alluvial floodplain consisting of silt, clay, fluvial sand and gravel of the Pleistocene Age

The topography is level to gently undulating floodplain and terraces on Quaternary alluvium in the valleys of the Corindi River catchment. Slopes are typically up to 5%, with local relief up to 10m and elevations up to 45m.

#### 1.5.2 Soil types and properties (including contamination)

The activity site is situated on the Corindi soil landscape which comprises deep (>150cm), moderately welldrained Brown Podzolic Soils and structured plastic clays. Soils are typically highly erodible with low to very low wet bearing strength, high topsoil organic matter and slow subsoil permeability. Soils are limited by localised flood hazards, seasonal waterlogging, water erosion hazards and foundation hazards. Other soil landscapes proximate to the bridge site include the Tallawudjah and Bagawa variant a landscapes as shown in Figure 3.

No Acid Sulphate Soils (ASS) have been mapped or are considered a potential occurrence at the site as per the Coffs Harbour Local Environmental Plan 2013.

Searches of the NSW Environment Protection Authority (EPA) List of Notified Sites and the Contaminated Land Public Records were carried out on 30 January 2024 which did not identify any contaminated land sites occurring in proximity to the proposed works locations, and NSW State mapping does not identify any potential for Naturally Occurring Asbestos (NOA) to occur within the area.









Figure 3: Mapped soil landscapes proximate to the proposed activity

# 1.5.3 Watercourses, waterbodies and wetlands (including their catchment values)

Taylors Bridge spans Lazyman Creek which is a fourth order perennial stream under the Strahler stream order and is mapped as Key Fish Habitat (KFH) under the *Fisheries Management Act 1994* (FM Act) as shown in Figure 4. The creek is approximately 5m wide and 30cm deep at the bridge site, and opens to a 7m wide pool on the southern side before narrowing again to approximately 1-2m wide at the temporary track location. The riverbed substrate comprises gravel and rock. As per the *Policy and guidelines for fish habitat conservation and management: Update 2013*, the creek qualifies as a Class 1 waterway for fish passage (permanently flowing or flooded freshwater waterway (e.g. river or major creek).

Lazyman Creek and the project site are situated within the Corindi River freshwater catchment on the north coast of NSW. The catchment is a moderately disturbed catchment which has previously been modified for horticulture and grazing which dominate the land-use changes in the area. Medium- and low-density urban area occupy a small portion of the catchment while approximately 80% remains forested. The largest tributary to the catchment is Saltwater Creek which flows from the north west through Yuraygir National Park. Mangrove and saltmarsh communities are widespread in the estuary, while vast tidal flats at the entrance provide critical shorebird habitat and recreational values to the community.







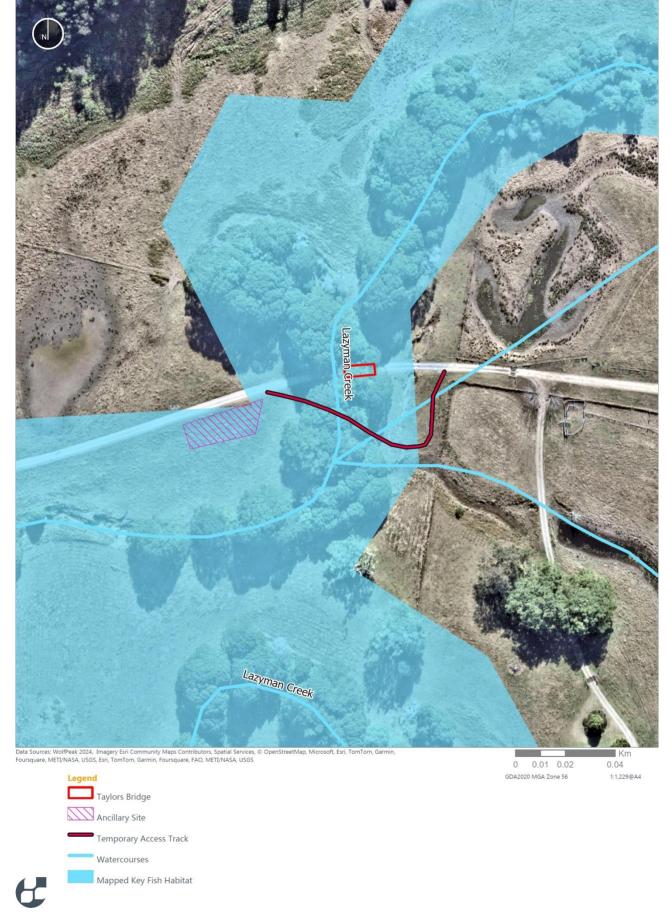


Figure 4: Mapped watercourses and Key Fish Habitat proximate to Taylors Bridge

# 1.5.4 Biodiversity

### 1.5.4.1 Vegetation Communities and Habitat

Taylors Bridge spans Lazyman Creek which primarily comprises exotic species in a highly modified environment. The mid and upper stratum is dominated by Camphor Laurels, while other species in the area include Cheese Tree, Sweet Pittosporum, and Green Wattle saplings. Other species occurring in vicinity of the bridge include Lolly Bush (Clerodendrum floribundum), Narrow-leaved Palm Lily, Small-leaved Supplejack (Ripogonum brevifolium), Coffee Bush (Breynia oblongifolia), Lawyer vine (Smilax australis), and Sweet Morinda (Gynochthodes jasminoides).

The NSW State Vegetation Type (SVTM) maps the bridge and much of the surrounding vegetation as "not classified"; however, vegetation occurring north and south of the bridge site is mapped as Plant Community Type (PCT) 3021 Northern Lowland Subtropical Rainforest as shown in Figure 5.

The bridge approaches and adjacent land has historically been cleared for grazing purposes, and vegetation present is regrowth of approximately 30-50 years old. With the exception of vegetation within the creek, the site is bordered by paddocks of assorted pastoral grasses.

The habitats adjacent to the bridge provide low potential habitat resources for fauna. There are no hollowbearing trees in the study area and therefore there is little potential for nesting/denning/roosting habitat for hollow-obligate species. Similarly, no flowering Eucalypts, Koala food trees or Allocasuarinas occur in the study area; thus, little foraging habitat is available for fauna such as the Koala (*Phascolarctos cinereus*), the South-eastern Glossy Black-Cockatoo (Calyptorhynchus lathami lathami), or nectivorous species.

The creek and associated riparian habitat provide moderate potential foraging and breeding habitat for amphibians, as well as potential foraging habitat for Southern Myotis (Myotis macropus); however, the creek is devoid of any aquatic plants at the surface and substrate.

The inspection during the site survey did not detect any bats or evidence of roosting (e.g., guano, urine stains), and there is little potential for bat roosting. Rodent footprints were observed below the bridge on the western side, and an active Welcome Swallow (Hirundo neoxena) nest is located under the mid-span of the bridge. There is evidence of previous inundation with debris present between the girders.

# 1.5.4.2 Endangered Ecological Communities

PCT 3021 Northern Lowland Subtropical Rainforest is listed as the following Endangered Ecological Communities (EECs):

- Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions (BC Act | Endangered)
- Lowland Rainforest on Floodplain in the New South Wales North Coast Bioregion (BC Act | **Endangered**)
- Lowland Rainforest of Subtropical Australia (EPBC Act | Critically Endangered)

Assessment of the vegetation on site against the relevant listings has been undertaken in the supporting Ecological Assessment. The vegetation on site does not classify as the EECs listed above due to Camphor Laurels being the only canopy species present on site, heavy disturbance history and lack of other structural and floristic indicators.







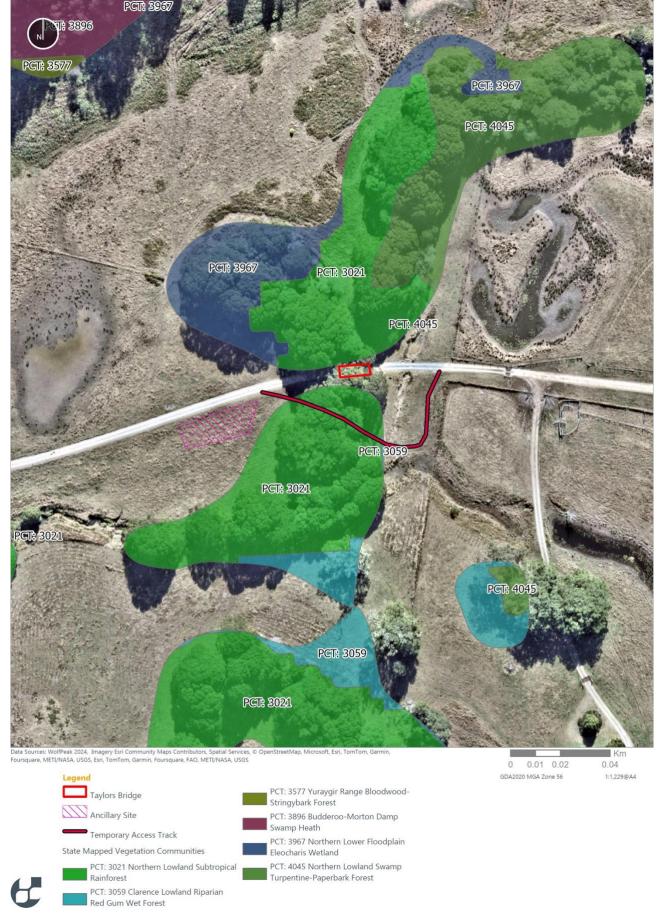


Figure 5: State mapped vegetation communities proximate to the activity site

#### 1.5.4.3 Threatened Flora and Fauna

A BioNet search was undertaken on 30 January 2021 and is included in the Ecological Assessment. The search identified 18 threatened flora species and 33 threatened fauna species within a 10x10km search around the proposal site as shown in Figure 6 and Figure 7 respectively. No threatened flora or fauna species were detected during the site survey.

Given the habitat types occurring on site and presence of local records, the threatened species listed in Table 1 are considered to potentially occur within the study area.

**Table 1:** Threatened species with the potential to occur within the study area

Species	Legal status	Habitat suitability/Occurrence type	Occurrence likelihood
Giant Barred Frog (Mixophyes iteratus)	E – BC Act E – EPBC Act	Creek and riparian habitats provide potential foraging and breeding habitat.	Moderate
Grey-headed Flying-fox ( <i>Pteropus poliocephalus</i> )	V – BC Act V – EPBC Act	Generic potential foraging habitat.	Low
Square-tailed Kite ( <i>Lophoictinia</i> isura)	V – BC Act	Generic potential foraging habitat in surrounding agricultural land.	Low
Yellow-bellied Sheathtail-bat (Saccolaimus flaviventris)	V – BC Act	Generic potential foraging habitat, low potential roosting habitat underneath bridge.	Low
Eastern Coastal Free-tailed Bat (Micronomus norfolkensis)	V – BC Act	Generic potential foraging habitat, low potential roosting habitat underneath bridge.	Low
Eastern False Pipistrelle (Falsistrellus tasmaniensis)	V – BC Act	Generic potential foraging habitat, low potential roosting habitat underneath bridge.	Low
Little Bent-winged Bat (Miniopterus australis) Large Bent-winged Bat (Miniopterus orianae oceanensis)	V – BC Act	Generic potential foraging habitat, low potential roosting habitat underneath bridge.	Moderate
Southern Myotis ( <i>Myotis</i> macropus)	V – BC Act	Potential foraging habitat along creek line, low potential roosting habitat underneath bridge.	Moderate
Key: V – Vulnerable; E – Endangere	d		

A test of significance as prescribed under section 7.3 of the BC Act was undertaken (Appendix B) for the species listed above to determine if the proposal is likely to significantly affect threatened species or ecological communities, or their habitats.

The test of significance determined that the proposed activity would not result in a significant impact on threatened species or ecological communities, or their habitats.

Project specific control measures to limit potential impacts to threatened species and/or communities are included in section 1.10.











Figure 6: Threatened flora records proximate the activity site

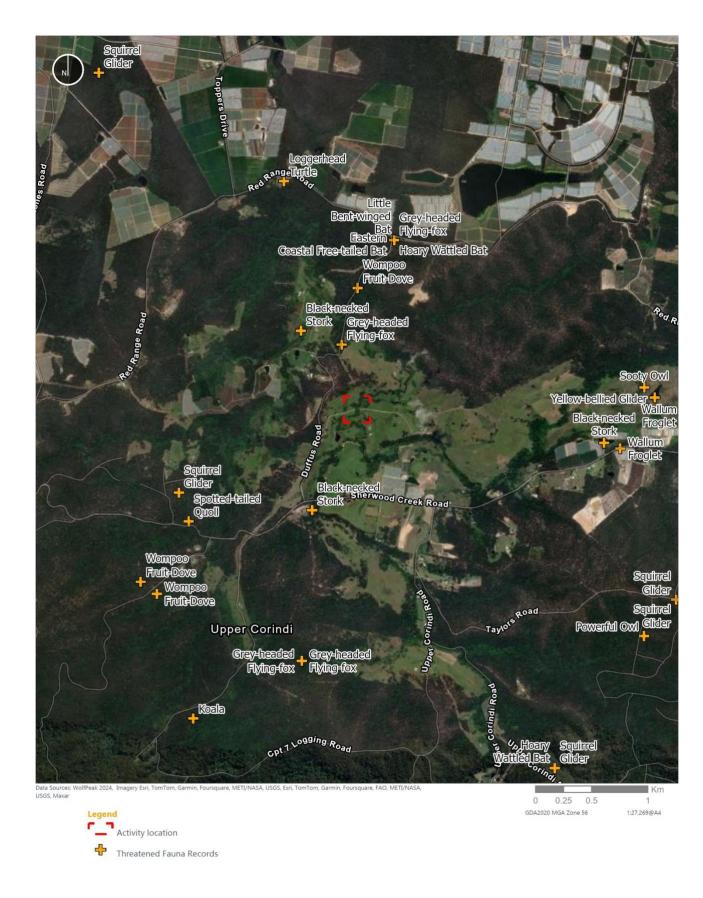
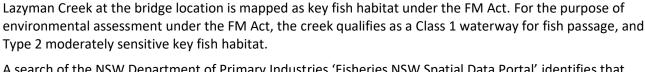




Figure 7: Threatened fauna records proximate the activity site

#### 1.5.4.4 Aquatic

environmental assessment under the FM Act, the creek qualifies as a Class 1 waterway for fish passage, and Type 2 moderately sensitive key fish habitat.





A search of the NSW Department of Primary Industries 'Fisheries NSW Spatial Data Portal' identifies that the threatened Southern Purple Spotted Gudgeon (Mogurnda adspersa) is predicted to occur within Lazyman Creek at the project location (Figure 8). A test of significance as prescribed under section 221ZV the FM Act was undertaken (Appendix B) to assess whether the proposal is likely to significantly affect the Southern Purple Spotted Gudgeon, or its habitat. The assessment determined the proposed activity is unlikely to significantly impact the species or its habitat.



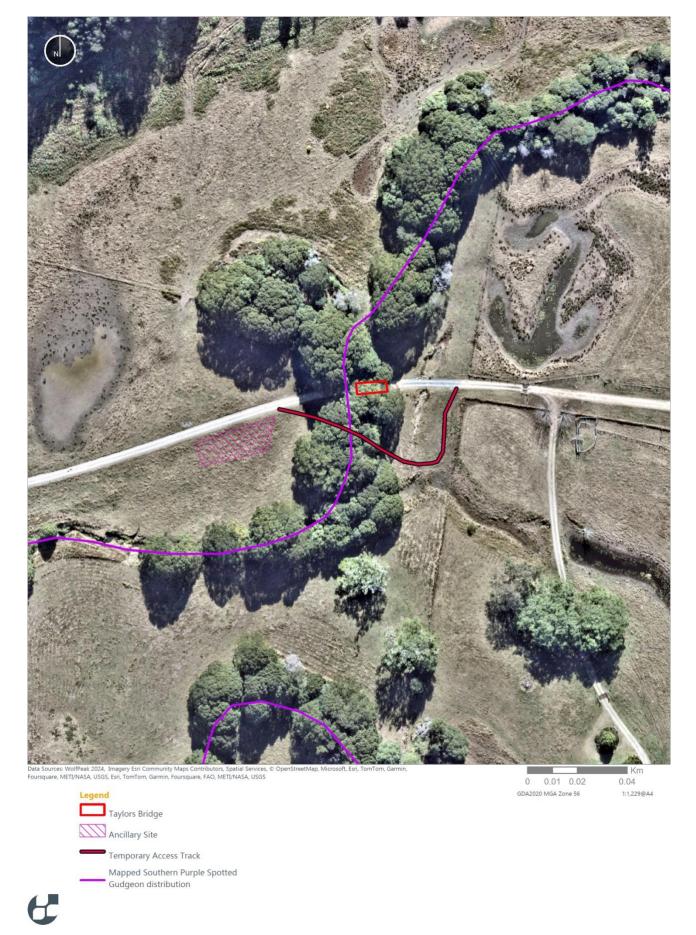


Figure 8: Mapped distribution of the Southern Purple Spotted Gudgeon (Fisheries NSW Spatial Data Portal)

# 1.5.5 Areas of outstanding biodiversity value or critical habitat

The proposed activity would not directly or indirectly affect an area of outstanding biodiversity value or critical habitat as none are mapped as occurring within or proximate to the proposed works area.



# 1.5.6 Aboriginal Cultural Heritage Values

The proposed activity involves undertaking on-ground riverbank works targeted at demolishing the existing Taylors Bridge and replacing it with a new precast concrete structure. Works on the riverbank include reshaping the bank and securing with rip-rap scour protection. Bored piles for the new bridge will also impact the on-ground riverbank area.

The existing environment has been extensively disturbed through historic vegetation clearing and the original construction of Taylors Bridge and road approaches. A search of the Aboriginal Heritage Information Management System (AHIMS) (Appendix C) was undertaken on 30 January 2024 which did not identify any Aboriginal sites or places within or near the proposed works.

The proposed works will be undertaken within 200m of waters, which is considered a landscape feature indicative of the presence of Aboriginal objects; however, given the proposed activity will occur on land which is previously disturbed by human activity with changes that remain clear and observable, it is considered unlikely that potential Aboriginal objects would be impacted. Notwithstanding, the potential for Aboriginal objects does exist, and the project specific control measures identified in section 1.10. of this REF should ensure that any potential impacts to Aboriginal objects are negated.

# 1.5.7 Historic Heritage Values

Searches have been undertaken of Australia's National Heritage List, the NSW State Heritage Register, and Schedule 5 Environmental heritage of the *Coffs Harbour Local Environmental Plan 2013* which did not identify any historic heritage items within or near the proposed activity area.



# 1.6 Statutory and Planning Framework

# 1.6.1 Commonwealth Legislation

# 1.6.1.1 Environment Protection and Biodiversity Conservation Act 1999

The Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) provides an assessment and approvals system for actions that impact on Matters of National Environmental Significance (MNES) and actions that have a significant impact on Commonwealth land. The approval of the Minister for the Commonwealth Department of the Climate Change, Energy, the Environment and Water (DCCEEW) is required if an action is likely to have a significant impact on or involve:

- world heritage properties
- national heritage places
- wetlands of international importance
- nationally threatened species and ecological communities
- migratory species
- Commonwealth marine areas
- the Great Barrier Reef Marine Park
- a nuclear action
- or a water resource, in relation to coal seam gas development and large coal mining development.

Under the Act, any action which has a significant impact on a MNES value triggers a referral under that Act. Evaluations of species and communities listed under the EPBC Act have been assessed in the Ecological Assessment (Appendix B). The Ecological Assessment has determined there are no significant impacts detected on MNES values on or near the activity area and therefore referral under the Act is not triggered by this proposal.

An EPBC Act Protected Matters Report was generated using a 10km radius of the site on 30 January 2024. A summary of that report and the Ecological Assessment is provided in Table 2.

Table 2: Summary of EPBC Act matters of national environmental significance assessment

Matters of National Environmental Significance	Results	Comment
Any significant impact on a World Heritage property?	None	The proposed activity would not impact on a World Heritage property as none are occurring within or in close proximity to the reserve.
Any significant impact on a National Heritage Place?	None	The proposed activity would not impact on a National Heritage place as none are occurring within or in close proximity to the reserve.
Any significant impact on a wetland of international importance (Ramsar)?	None	The proposed activity would not impact on a wetland of international importance as none are occurring within or in close proximity to the reserve.
Any significant impact on a listed threatened species or ecological community?	109 threatened species and eight (8) threatened ecological communities	A number of threatened species and/or ecological communities occur within the study area; however, the Ecological Assessment has determined that no listed threatened species or ecological communities are likely to be significantly impacted by the proposed activity.





Any significant impact on listed migratory species?	60	Several migratory species are considered potential occurrences in the study area; however, the Ecological Assessment has determined that no migratory species are likely to be significantly impacted by the proposed activity.
Any significant impact on Commonwealth marine areas?	None	The proposed activity would not impact on a Commonwealth marine area.
Any significant impact on the Great Barrier Reef Marine Park?	None	The proposed activity would not impact on the Great Barrier Reef Marine Park.
Does the proposed activity involve a nuclear action (including uranium mining)?	N/A	The proposed activity does not involve a nuclear action (including uranium mines).
Is there any impact on a water resource, in relation to coal seam gas development and large coal mining development?	N/A	The proposed activity is not related to coal seam gas development and large coal mining development, thus, will not impact (directly, indirectly or cumulatively) on a water resource.



#### 1.6.1.2 Native Title Act 1993

The objects of the Commonwealth Native Title Act 1993 (NT Act (Cwlth)) provides for "the recognition and protection of native title" and "establishes ways in which future dealings affecting native title may proceed and to set standards for those dealings".

An online search of the National Native Title Tribunal (NNTT) was undertaken on 30 January 2024 which included searches within the Coffs Harbour City Council Local Government Area (LGA). The search did not identify any approved determinations of native title within the LGA.

Section 24KA of the NT Act (Cwlth) applies to a future act if it:

- (a) relates, to any extent, to an onshore place; and
- (b) it either:
  - (i) permits or requires the construction, operation, use, maintenance or repair, by or on behalf of any person, of any of the things listed in subsection (2) that is to be operated, or is operated, for the general public; or
  - (ii) consists of the construction, operation, use, maintenance or repair, by or on behalf of the Crown, or a local government body or other statutory authority of the Crown, in any of its capacities, of any of the things listed in subsection (2) that is to be operated, or is operated, for the general public; and
- (c) it does not prevent native title holders in relation to land or waters on which the thing is located or to be located from having reasonable access to such land or waters in the vicinity of the thing, except:
  - (i) while the thing is being constructed; or
  - (ii) for reasons of health and safety

Table 3 assesses the proposed activity for compliance under section Subdivision K of the NT Act (Cwlth).

Table 3: Requirements for validity of the future act under Subdivision K – Facilities for services to the public

Requirement for facilities for services to the public	Section	Compliance
	24KA	

The future act relates (to any extent) to an onshore place	(1)(a)	Yes
The facility is any of the following:	(2)	Yes
<ul><li>(a) a road, railway, bridge, or other transport facility (other than an airport of port);</li></ul>		The future act relates to a bridge which is a thing listed in
(b) a jetty or wharf;		subsection (2)
(c) a navigation marker or other navigational facility;		
(d) an electricity transmission or distribution facility;		
(e) lighting of streets or other public places;		
(f) a gas transmission or distribution facility;		
(g) a well, or a bore, for obtaining water;		
<ul><li>(h) a pipeline or other water supply or reticulation facility;</li></ul>		
<ul> <li>a drainage facility, or a levee or other device for management of water flows;</li> </ul>		
(j) an irrigation channel or other irrigation facility;		
<ul><li>(k) a sewerage facility, other than a treatment facility;</li></ul>		
<ul><li>(I) a cable, antenna, tower or other communication facility;</li></ul>		
(la) an automatic weather station;		
(m) any other thing that is similar to any one or more		
of the things mentioned in the paragraphs above.		
The future act either:	(1)(b)	Yes
(i) permits or requires the construction, operation,		The future act requires the construction of a thing listed in
use, maintenance or repair, by or on behalf of any person, of any of the things listed in subsection (2)		subsection (2) which will be
that is to be operated, or is operated, for the		operated for the general public
general public; or		
(ii) consists of the construction, operation, use,		
maintenance or repair, by or on behalf of the		
Crown, or a local government body or other		
statutory authority of the Crown, in any of its		
capacities, of any of the things listed in subsection (2) that is to be operated, or is		
operated, for the general public; and		
The future act it does not prevent native title holders in	(1)(c)	Yes
relation to land or waters on which the thing is located or	\-/\*\*/	The future act will not prevent
to be located from having reasonable access to such land		native title holders from having
or waters in the vicinity of the thing, except:		reasonable access to such land or
(i) while the thing is being constructed; or		waters in the vicinity of the bridge, except during
(ii) for reasons of health and safety; and		construction
If there are any areas or sites in the future act area of	(1)(d)	Yes
particular significance to Aboriginal peoples or Torres		The NPW Act is responsible for
Strait Islanders in accordance with their traditions, a law of the State is made in relation to the area or sites		the conservation of places, objects and features of
preservation or protection.		significance to Aboriginal people;

		thus, compliance with the NPW Act is required (refer section 1.6.2.9)
The future act does not relate to the compulsory acquisition of the whole or part of any native title rights	(1A)	Yes No compulsory acquisition is
and interests.		required for the future act

The proposed bridge replacement is a future act that meets the requirements of validation under the NT Act (Cwlth) Subdivision K, Section 24KA, Section (1) (a-d) and Section (1A).

#### 1.6.2 State Legislation

#### 1.6.2.1 Environmental Planning and Assessment Act 1979

The *Environmental Planning and Assessment Act 1979* (EP&A Act) regulates development carried out in NSW. Part 5 of the Act permits activities to be assessed by a determining authority.

Pursuant to section 5.1(1) of the Act:

- the proposal is an "activity" which includes (d) the carrying out of work; and
- "determining authority" includes a "public authority by or on whose behalf the activity is or is to be carried out

Pursuant to section 1.4 of the Act, a "public authority" includes "a public or local authority constituted by or under an Act".

Coffs Harbour City Council is a council constituted by the *Local Government Act 1993* (section 219) and is therefore a public authority as defined in section 1.4 of the EP&A Act. For the purposes of the proposal, Coffs Harbour City Council is the proponent and determining authority.

The relevant sections of the EP&A Act include:

- section 5.5(1) which requires the determining authority to "examine and take into account to the
  fullest extent possible all matters affecting or likely to affect the environment by reason of that
  activity";
- section 5.5(3) which requires the determining authority to "consider the effect of an activity on any wilderness area (within the meaning of the *Wilderness Act 1987*) in the locality in which the activity is intended to be carried on";
- section 5.6 which requires the determining authority to address the regulations for environmental impact assessments (currently the *Environmental Planning and Assessment Regulation 2021*); and
- section 5.7 which require an Environmental Impact Statement (EIS) to be prepared if the proposed activity is "a prescribed activity, an activity of a prescribed kind or an activity that is likely to significantly affect the environment".

## 1.6.2.2 Environmental Planning and Assessment Regulation 2021

In conducting its assessment under Part 5 of the EP&A Act, Coffs Harbour City Council is required to consider the environmental factors listed in the Department of Planning and Environment's *Guidelines for Division 5.1 assessments* (June 2022) published under section 170 of the *Environmental Planning and Assessment Regulation* 2021 (EP&A Regulation).

The relevant factors outlined in Table 1 in section 3 of the Division 5.1 Guidelines are considered in section 1.8 of this REF.

In accordance with Section 171(4) of the EP&A Regulation, a REF must be published on the determining authority's website or the NSW Planning Portal only if:

(a) the activity has a capital investment value of more than \$5 million, or





- (b) the activity requires an approval or permit as referred to in any of the following provisions before it may be carried out—
  - (i) Fisheries Management Act 1994, sections 144, 200, 205 or 219,
  - (ii) Heritage Act 1977, section 57
  - (iii) National Parks and Wildlife Act 1974, section 90,
  - (iv) Protection of the Environment Operations Act 1997, sections 47-49 or 122, or
- (c) the determining authority considers that it is in the public interest to publish the review.

These matters are addressed in section 1.9 of this REF.

This REF is required to be published on Coffs Harbour City Council's website or the NSW Planning Portal as the proposal requires a permit under section 200 of the *Fisheries Management Act 1994*.

#### 1.6.2.3 Biodiversity Conservation Act 2016

Pursuant to section 7.8(2) of the *Biodiversity Conservation Act 2016* (BC Act), an activity under Part 5 of the EP&A Act that is "likely to significantly affect threatened species" is regarded "as an activity likely to significantly affect the environment".

In this circumstance, an EIS is required and must include or be accompanied by a species impact statement or a biodiversity development assessment report.

However, an EIS is not required if the likely significant effect on threatened species is the only likely significant effect on the environment. In this situation, a species impact statement or a biodiversity development assessment report is still required.

In accordance with section 7.2 of the BC Act, an activity is likely to significantly affect threatened species if:

- (a) it is likely to significantly affect threatened species or ecological communities, or their habitats, according to the test in section 7.3, or
- (c) it is carried out in a declared area of outstanding biodiversity value.

Reliance on the Biodiversity Value Map is not relevant to this assessment as the biodiversity offsets scheme does not apply to development under Part 5 of the EP&A Act (section 7.2(2) of the BC Act).

A test of significance as prescribed under section 7.3 of the BC Act has been prepared to determine whether the proposed activity is likely to significantly affect threatened species or ecological communities, or their habitats and is included within the Ecological Assessment. The test of significance has determined that the proposed activity would not result in a significant impact on threatened species or ecological communities, or their habitats. A Biodiversity Development Assessment Report or Species Impact Statement is not required for the proposal.

# 1.6.2.4 Wilderness Act 1987

Pursuant with section 5.5 of the EP&A Act:

(3) a determining authority shall consider the effect of an activity on any wilderness area (within the meaning of the *Wilderness Act 1987*) in the locality in which the activity is intended to be carried on.

No land within or near the proposed activity is declared wilderness; thus, the Act does not apply to the proposal.

# 1.6.2.5 Heritage Act 1977

No part of the site or land in the vicinity of the site is listed on the State Heritage Register or subject to an interim heritage order, and no local heritage items under the *Coffs Harbour Local Environmental Plan 2013* will be impacted by the proposal.

#### 1.6.2.6 Fisheries Management Act 1994

Division 12 Application of Planning Act





Division 12 applies to environmental assessments under Part 5 of the EP&A Act.

Pursuant to section 221ZX of the *Fisheries Management Act 1994* (FM Act), an activity under Part 5 of the EP&A Act that is "likely to significantly affect threatened species, populations or ecological communities" is regarded as "an activity likely to significantly affect the environment".

Assessment of the requirements in section 221ZV of the FM Act are considered in the Ecological Assessment. The assessment was undertaken for the Southern Purple Spotted Gudgeon which is mapped as potentially occurring within Lazyman Creek at the activity site. The assessment determined the proposed activity was unlikely to significantly impact the species, or its habitat.

Lazyman Creek is mapped as Key Fish Habitat (KFH) under the FM Act and the proposal requires dredging and/or reclamation works on the riverbank as defined in section 198A. Pursuant to section 200(1) of the FM Act, Coffs Harbour City Council must not carry out dredging work or reclamation work except under the authority of a permit issued by the Minister (for Agriculture).

# 1.6.2.7 Water Management Act 1993

The Water Management Act 1993 (WM Act) outlines approval requirements for activities at a specified location in, on or under waterfront land. The WM Act also outlines water access rights and surface water runoff.

Section 91E of the WM Act establishes an approval regime for controlled activities in, on or under "waterfront land", which is the bed of any river, lake or estuary, and the land within 40m of the highest bank of the river, the shore of the lake or the mean high-water mark of the estuary.

A "controlled activity" approval is required for certain types of activities on waterfront land (unless an exemption applies). A "controlled activity" is defined in the WM Act to include the erection of a building or the carrying out of work within the meaning of the EP&A Act and the carrying out of any other activity that affects the quantity or flow of water in a water source.

However, section 41 of the *Water Management (General) Regulation 2018* (WM Regulation) provides an exemption for public authorities in relation to all controlled activities carried out in or under waterfront land.

An approval under the WM Act is therefore not required as Coffs Harbour City Council is a public authority under section 41 of the WM Regulation.

## 1.6.2.8 Roads Act 1993

The proposed activity involves carrying out works within the road reserve of an unsealed, one lane road west of Duffus Road. The road does not have a Road ID; however, it is identified as a public local road under the Transport for NSW 'Schedule of Classified Roads and Unclassified Regional Roads'. A public road is defined in the *Roads Act 1993* (Roads Act) as:

- (a) any road that is opened or dedicated as a public road, whether under this or any other Act or law, and
- (b) any road that is declared to be a public road for the purposes of the Act.

Pursuant to Section 138 of the Roads Act:

- (1) A person must not—
  - (a) erect a structure or carry out work in, on or over a public road, or
  - (b) dig up or disturb the surface of a public road, or
  - (c) remove or interfere with a structure, work or tree on a public road, or
  - (d) pump water into a public road from any land adjoining the road, or
  - (e) connect a road (whether public or private) to a classified road.

However, pursuant to Part 2, Division 1, section 5 of the Roads Act, section 138 does not require a public authority to obtain a roads authority's consent to the exercise of the public authority's functions in, on or over an unclassified road other than a Crown Road. Accordingly, consent is not required under section 138 of the Roads Act.





#### 1.6.2.9 National Parks and Wildlife Act 1974

The proposal is not located on or adjacent to land reserved under the *National Parks and Wildlife Act 1974* (NPW Act).

One of the primary objectives of the NPW Act is the "conservation of places, objects and features of significance to Aboriginal people". Section 86 of the NPW Act states that:

- (2) a person must not harm an Aboriginal object
- (4) a person must not harm or desecrate an Aboriginal place

Pursuant to section 87 of the NPW Act:

- (2) it is a defence to a prosecution for an offence under section 86(2) if the defendant shows that the defendant exercised due diligence to determine whether the act or omission constituting the alleged offence would harm an Aboriginal object and reasonably determined that no Aboriginal object would be harmed
- (3) The regulations may provide that compliance with requirements specified in the regulations, or in a code of practice adopted or prescribed by the regulations, is taken for the purposes of subsection (2) to constitute due diligence in determining whether the act or omission constituting the alleged offence would harm an Aboriginal object

Pursuant to section 57 of the *National Parks and Wildlife Regulation 2021* (NPW Regulation), compliance with the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* published by the Department of Environment, Climate Change and Water and dated 13 September 2010 is taken for the purposes of section 87(2) of the NPW Act to constitute due diligence in determining whether the act or omission constituting the alleged offence would harm an Aboriginal Object.

The proposal does not comprise exempt development or is the subject of a complying development certificate; thus, the proposed activity is not a low impact activity pursuant to section 58 of the NPW Regulation. Therefore, the generic due diligence process as determined by the Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales has been applied to the proposal.

## 1.6.2.10 Rural Fires Act 1997

The objects of the Rural Fires Act 1997 (RF Act) are to provide—

- (a) For the prevention, mitigation and suppression of bush and other fires in local government areas (or parts of areas) and other parts of the State constituted as rural fire districts, and
- (b) for the co-ordination of bush fire fighting and bush fire prevention throughout the State, and
- (c) for the protection of persons from injury or death, and property from damage, arising from fires, and
- (c1) for the protection of infrastructure and environmental, economic, cultural, agricultural and community assets from damage arising from fires, and
- (d) for the protection of the environment by requiring certain activities referred to in paragraphs (a)— (c1) to be carried out having regard to the principles of ecologically sustainable development described in section 6 (2) of the *Protection of the Environment Administration Act 1991*.

The condition of the existing bridge constrains fire fighting vehicle movements which are required to achieve the objectives of the Act. The proposed works will have a positive impact on the ability of the fire agencies to fully utilise the road network within the area to undertake operations to protect life, property or the environment, making it consistent with the objects of the RF Act.

# 1.6.2.11 Local Land Services Act 2013

The objects of the Local Land Services Act 2013 (LLS Act) include "to ensure the proper management of natural resources in the social, economic and environmental interests of the State, consistently with the principles of ecologically sustainable development". The Act regulates the clearing of native vegetation;





however, for the purposes of section 60(O), the clearing of native vegetation in a regulated rural area is authorised under other legislation if:

- (a) The clearing was
  - (ii) an activity carried out by a determining authority within the meaning of Part 5 of that Act after compliance with that Part.

As the activity is being assessed under Part 5 of the EP&A Act, the proposal is authorised under section 60(O)(b)(ii) of the LLS Act.

#### 1.6.2.12 Protection of the Environment Operations Act 1997

The *Protection of the Environment Operations Act 1997* (POEO Act) is the key environmental protection and pollution statute. The POEO Act is administered by the Environment Protection Authority and establishes a licensing regime for waste, air, water and pollution. Relevant sections of the Act are listed below:

- Part 5.3 Water Pollution
- Part 5.4 Air Pollution
- Part 5.5 Noise Pollution
- Part 5.6 Land Pollution and Waste

Any work potentially resulting in pollution must comply with the POEO Act. Relevant licences must be obtained if required; however, no licences have been identified as being required, including an Environmental Protection Licence (EPL). Further, the proposed activity is not a scheduled activity or scheduled development work identified in Schedule 1 of the POEO Act.

## 1.6.2.13 NSW Reconstruction Authority Act 2022

Pursuant to Part 4, Division 3, section 38(3) of the *Reconstruction Authority Act 2022* (RA Act), a local council must have regard to the State disaster mitigation plan and any relevant disaster adaptation plan in exercising the local council's functions under—

- (a) the Environmental Planning and Assessment Act 1979, and
- (b) the Local Government Act 1993.

The RA Act commenced on 17 December 2022 which did not include the commencement of Part 4 (as per section 2(a)). Pursuant to section 2(b), Part 4 of the Act will commence on a day or days to be appointed by proclamation; thus, the Act does not apply to this REF

#### 1.6.2.14 Contaminated Land Management Act 1997

The general object of the *Contaminated Land Management Act 1997* is to establish a process for investigating and (where appropriate) remediating land that the EPA considers to be contaminated significantly enough to require regulation under Division 2 of Part 3 of that Act.

Searches of the NSW Environment Protection Authority (EPA) List of Notified Sites and the Contaminated Land Public Record were undertaken on 30 January 2024 which did not identify any contaminated land sites occurring in proximity to the proposed works locations. Given the proposed activity will not impact contaminated land, the provisions of the Act do not apply to the proposed activity.

# 1.6.2.15 Environmentally Hazardous Chemicals Act 1985

The Environmentally Hazardous Chemicals Act 1985 requires that a person who proposes to carry on any prescribed activity with respect to an environmentally hazardous chemical or a declared chemical waste, being an activity which, by reason of a chemical control order, may lawfully be carried on only under the authority of a licence, may apply to the Environment Protection Authority for a licence authorising the carrying out of that activity.

The proposed activity does not involve handling or disposal of chemicals subject to a Chemical Control Order (CCO) prescribed under section 22 or 23 of the Act, thus, the Act does not apply to the proposed activity.





# 1.7 Description of Relevant Environmental Planning Instruments

# 1.7.1.1 State Environmental Planning Policy (Transport and Infrastructure) 2021

The aim of *State Environmental Planning Policy (Transport and Infrastructure) 2021* (SEPP Transport and Infrastructure) is to facilitate the effective delivery of infrastructure across the State. The proposed activity is considered development permitted without consent pursuant with the following section of SEPP Transport and Infrastructure:

#### Division 17 Roads and traffic

Section 2.109

(1) Development for the purpose of a road or road infrastructure facilities may be carried out by or on behalf of a public authority without consent on any land.

Pursuant to section 2.108, *road infrastructure facilities* includes (a) ...vehicle or pedestrian bridges...

# **Division 1 Consultation**

SEPP Transport and Infrastructure requires consultation with relevant authorities prior to an activity commencing. The requirements of consultation under Division 1 are identified in Table 4.

Table 4: Consultation triggers under Division 1 of SEPP Transport and Infrastructure

Authority (TISEPP section)	Trigger	Applicable to proposal?
Consultation with local council (s 2.10)	Development with impacts on council infrastructure or services (such as stormwater, sewer, water, roads and footpaths)	Yes
Consultation with local council (s 2.11)	Development with impacts on heritage items listed under the local environmental plan (LEP)	No
Consultation with local council (s 2.12)	Development that will change flood patterns on flood-liable land	No
Consultation with State Emergency Service (s 2.13)	Development on flood-liable land	No
Consultation with local council (s 2.14)	Development that is inconsistent with a certified coastal management program affecting land within the mapped coastal vulnerability area.	No
Consultation with NPWS (s 2.15(2)(a))	Development adjacent to land reserved or acquired under the NPW Act	No
Consultation with NPWS (s 2.15(2)(b))	Development on land in Zone C1 that is yet to be reserved under the NPW Act	No
Consultation with Transport for NSW (s 2.15(2)(c))	Development comprising a fixed or floating structure in or over navigable waters	No
Consultation with the Director of the Siding Spring Observatory (s 2.15(2)(d))	Development that may increase the amount of artificial light in the night sky and that is on land within the mapped dark sky region	No
Consultation with the Cth Department of Defence (s 2.15(2)(e))	Development located within the buffer around the defence communications facility near Morundah as mapped under the Lockhart, Narrandera or Urana LEPs	No

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Authority (TISEPP section)	Trigger	Applicable to proposal?
Consultation with the Subsidence Advisory NSW (s 2.15(2)(f))	Development on land in a mine subsidence district.	No
Consultation with the Willandra Lakes Region World Heritage Advisory Committee and Heritage NSW (s 2.15(2)(g))	Development on, or reasonably likely to have an impact on, a part of the Willandra Lakes Region World Heritage Property	No
Consultation with the Western Parkland City Authority (s 2.15(2)(h))	Development within a Western City operational area (Western Parkland City Authority Act 2018, Schedule 2) with a capital investment value of \$30 million or more	No
Consultation with Transport for NSW (s 2.221)	Traffic-generating development listed in Schedule 3	No

#### **Details of required consultation**

The activity will impact a local road for which Council are responsible for the management of. As the proponent, Council supports the proposed activity.

#### 1.7.1.2 State Environmental Planning Policy (Resilience and Hazards) 2021

Chapter 4 of *State Environmental Planning Policy (Resilience and Hazards) 2021* (SEPP Resilience and Hazards) provides a state-wide planning approach for the remediation of contaminated land and aims to promote the remediation of contaminated land to reduce the risk of harm to human health or the environment. Section 4.6(1) requires the consent authority to consider whether land is contaminated prior to consent of an application; however, Chapter 4 only applies to development applications under Part 4 of the EP&A Act and therefore does not apply to the proposal.

Notwithstanding, potential impacts from contaminated land have been considered in the preparation of this REF. Searches of the NSW Environment Protection Authority (EPA) List of Notified Sites and the Contaminated Land Public Record were undertaken on 30 January 2024 which did not

#### 1.7.1.3 State Environmental Planning Policy (Biodiversity and Conservation) 2021

Pursuant to section 3.3(1) of *State Environmental Planning Policy (Biodiversity and Conservation) 2021* (SEPP Biodiversity and Conservation), Chapter 3 applies to land use zones listed in section 3.3(1) and within a local government area specified in Schedule 1 of *State Environmental Planning Policy (Koala Habitat Protection) 2021* (SEPP Koala Habitat Protection). Zone RU2 Rural Landscape is listed as a land use zone under section 3.3(1), and the City of Coffs Harbour local government area is specified in Schedule 1 of SEPP Koala Habitat Protection; thus, the provisions of Chapter 3 apply to the proposed activity.

Chapter 3 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—

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

Chapter 3 only applies to development applications under Part 4 of the EP&A Act and therefore does not apply to the proposed activity. Notwithstanding, the aims of Chapter 3 have been considered in the proposal. The proposed activity is not mapped as occurring within core Koala habitat, nor is it situated in an area where a Koala Plan of Management has been prepared.







# 1.8 Local Environmental Plans

# 1.8.1 Coffs Harbour Local Environmental Plan 2013

The proposed activity is permissible as development without consent under SEPP Transport and Infrastructure which prevails over the provisions of the Coffs Harbour LEP. Notwithstanding, the proposed activity is consistent with the objects of the applicable zones on which the proposed activity is situated.





# 1.9 Division 5.1 (EP&A Act) and Section 171 (EP&A Regulation) Assessment

This Review of Environmental Factors considers the requi and the environmental factors specified in the environmental Sections 170 and 171 of the <i>Environmental Planning and</i>	ental guidelines in accordance with	Yes	No
Is the proposed work permissible under the LEP or SEPP Transport and Infrastructure?  The proposed activity is permissible under SEPP Transport and Infrastructure pursuant to section 2.109(1) as detailed in section 1.7.1.1.	If No reject proposal	×	
2. Is development consent required?  As identified in section 1.7.1.1, the proposed activity is permissible as development without consent under Part 5 of the EP&A Act; thus, development consent is not required under Part 4 of the EP&A Act.	If Yes lodge D/A	٠	X
<ol> <li>Does the development comply with exempt requirements under SEPP (Transport and Infrastructure) 2021?</li> <li>The proposed activity does not comply with Division 4 Exempt Development, or section 2.113 Exempt Development of SEPP Transport and Infrastructure.</li> </ol>	If Yes and a Part 5 is not required for any other reason, complete Environmental Checklist	٥	X
<ol> <li>Are any approvals, permits, licences required under other legislation?</li> <li>The proposed activity requires dredging and/or reclamation works within Lazyman Creek. Pursuant to section 200(1) of the FM Act, a permit to carry out dredging and/or reclamation works from DPI Fisheries is required prior to works commencing.</li> </ol>	If yes obtain before commencing works and attach to part 5.	×	
<ul> <li>5. Do the works constitute an "activity" under Part 5 of the EP&amp;A Act 1979?</li> <li>Refer to section 1.6.2.1. Pursuant to section 5.1(1) of the Act:</li> <li>the proposal is an "activity" which includes (d) the carrying out of work</li> </ul>	If Yes complete REF/Part 5	×	
6. Are threatened species or Threatened Ecological Communities (TEC's) present?  A number of threatened fauna species have the potential to occur within and around the site.  As described in section 1.6.2.3, a test of significance as prescribed under section 7.3 of the BC Act has been prepared to determine whether the proposed activity is likely to significantly affect threatened species or ecological communities, or their habitats and is included within the Ecological Assessment.	If YES complete 5 Part Test (Biodiversity Conservation (BC) Act 2016) and SIS.	☒	

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propo impad	est of significance has determined that the osed activity would not result in a significant ct on threatened species or ecological nunities, or their habitats.			
	diversity Development Assessment Report or es Impact Statement is not required for the osal.			
Ha	es the REF require publication on the Coffs rbour City Council website or the NSW Planning rtal?			
	the project have a Capital Investment Value (CIV) eater than \$5 Million?	This REF is required to be published on		
☐ YES	S ⊠ NO	Coffs Harbour City Council's website or		
Is a fisheries permit required? ⊠ YES □ NO		the NSW Planning Portal as the proposal requires a permit under	X	
Is the	project considered in the public interest? $\square$ YES	section 200 of the Fisheries  Management Act 1994.		
Herita	ny of the following licences/permits required – age permit, Environmental Protection Licence, and Park Section 90?			
☐ YES	S ⊠ NO			
8. De:	scribe the likely impacts of the activity as follows:		Yes	No
a) Any environmental impact on a community (e.g. social, economic and cultural impacts).				
Notes	s: No significant impact			I
within	proposed works require the delivery and storage of pointhe road reserve of the unnamed road for the durage travelling on Sherwood Creek Road and Duffus Road increase local traffic.	ation of the activity. Construction vehicles	and st	aff
profili also r durat requi	truction activities involve demolishing and removing ing with an overlay of scour rip rap protection as perequired. A temporary vehicle track will be established ion of the works; thus, detours are not anticipated. Tred to manoeuvre plant and materials. There is pote the bridge and this section of the unnamed road du	r the engineering drawings attached as Ap ed to enable ongoing traffic movements fo There will; however, be short-term traffic ential for social and economic impacts to m	pendix or the delays	A is
	completion, the condition and safety of the bridge llers in this locality.	crossing would be significantly improved for	or	
Cultu	ral impacts are discussed in part e) of this section.			
b) Any transformation of a locality (e.g. viability of current AND future land uses - human and non-human environment).				
Notos				
notes	s: No significant impact			

c)	Any environmental impact on the ecosystems of the locality (e.g. Marine or terrestrial habitats, flora, fauna, ecological integrity, biological diversity, connectivity/fragmentation, air, water including hydrology and soil).		X
Note	s: No significant impact		
Camp and t	proposed activity is not anticipated to adversely impact on the ecosystems of the locality. Up to ohor Laurels and a small amount of native saplings require removal to facilitate construction of temporary access track. The construction activities associated with replacing the bridge are tem re; thus, impacts to fauna movement and habitat fragmentation are not anticipated to be signi	the bi	ridge y in
distu grave impa	tic habitat within the creek and riparian vegetation in the vicinity of the construction site will be rised due to the removal of the existing bridge footing and the placement of scour rock on subsel beds. Works will not block or divert the creek but may result in some temporary sedimentation cting water quality. If this is carried out in a period of low flow, potential water quality impacts mised.	merge on	
d)	Any reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality (e.g. Visual, recreational, scientific and other)		×
Note	s: No significant impact		
and l	proposed activity will occur on a public road used by motorists between the adjacent rural lifest Upper Corindi. There will be short-term, temporary impacts to the aesthetic values of the site values of the site values of the site with construction activities and the storage of machinery and materials on site.	-	
and a	tation clearing required to undertake the works includes the removal of up to 10 exotic Campha small amount of native sapling species. There will be a permanent reduction in aesthetic value ciated with removal of the vegetation; however, disturbed areas shall be revegetated upon cons which will contribute to restoring the site to pre-disturbance conditions as much as practicab	es npletic	
work cond	nporary vehicle track will be established which will enable ongoing traffic movements for the descriptions which will maintain any recreational and scientific values of the locality. Upon completion, the ition and safety of the road would be significantly improved which would improve access for rescientific values.	е	
	Any effect on a locality, place or building having aesthetic, anthropological, archaeological,		

Notes: No significant impact

and other).

e)

#### Aboriginal cultural heritage

An AHIMS search (Appendix C) undertaken on 30 January 2024 which did not identify any Aboriginal sites or Aboriginal places within or near the proposed activity location. Given the proposed activity will occur on land which has been previously disturbed by the installation of the original bridge, that has changed the land's surface, and those changes remain clear and observable, the proposed works are considered unlikely to impact on Aboriginal objects or Aboriginal places.

architectural, cultural, historical, scientific or social significance or other special value for present or future generations (e.g. Aboriginal heritage including intangible cultural

significance), architectural heritage, social/community values and identity, scenic values

Mitigation measures to protect Aboriginal objects and places are outlined in Section 1.10.1.11 of this REF.

#### Historic Heritage

Searches have been undertaken of Australia's National Heritage List, the NSW State Heritage Register, and Schedule 5 Environmental heritage of the Coffs Harbour LEP which did not identify any historic heritage items within or near the proposed activity area.

X

f)	Any impact on the habitat of any protected fauna (within the meaning of the <i>BC Act 2016</i> , e.g. listed species and habitat requirements/critical habitat).		X
Note	s: No significant impact as determined by the supporting Ecological Assessment		
whic faun	proposed bridge replacement has been assessed by a supporting Ecological Assessment (Apper h has determined the proposed activity is unlikely to significantly impact on the habitat of any a. The Environmental Assessment makes recommendations to minimise and mitigate against a ntial environmental impacts.	protec	
g)	Any endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air (refer to 5 part test under <i>BC Act 2016, FM Act 1994</i> and Protected Matters under the <i>EPBC Act 1999</i> , e.g. listed species, non-listed species and key threatening processes).		×
Note	s: No significant impact as determined by the supporting Ecological Assessment		
spec threa	proposed activity requires the removal of up to 10 Camphor Laurels and a small amount of nations. No threatened flora or fauna species were observed during the site inspection; however, so atened species are considered to potentially occur within the area. Lazyman Creek is also mapperaining suitable habitat for the threatened freshwater Southern Purple Spotted Gudgeon.	everal	oling
dete	proposed bridge replacement has been assessed by a supporting Ecological Assessment which rmined the proposed activity is unlikely to significantly impact or endanger any species of animer form of life on land, in water or in the air.	al, pla	nt or
h)	Any long-term effects on the environment (e.g. ecological, social and economic).		X
Note	s: No significant impact		
effec struc bridg	Ild the mitigation measure outlined in this REF be implemented correctly, long-term adverse exts are considered unlikely. Replacing the existing bridge would prevent premature failure of the sture; thus, significantly limiting potential impacts to the adjacent waterway and riparian areas go would provide a sustainable structure which would provide a positive long-term, safe solution or ists in this locality, thus, contributing to social and economic values of the area.	e . The n	
i)	Any degradation of the quality of the environment (e.g. Ecological, social and economic, aesthetics, noise, climate).		×
Note	s: No significant impact		

# Ecological

The proposed activity requires the removal of a number of exotic mature trees, consisting of up to 10 Camphor Laurels. Native species including one small Cheese Tree, and several small Green Wattle, Sweet Pittosporum, and Narrow-leaved Palm Lilys will also be removed. Works will not block or divert the creek but may result in some temporary sedimentation impacting water quality. If this is carried out in a period of low flow, potential water quality impacts would be minimised.

# Social and economic:

A temporary vehicle track will be established prior to removal of the existing bridge; thus; reducing potential impacts to local motorists requiring use of the road. There may be traffic delays to facilitate construction activities; however, impacts would be temporary and short-term in duration. Upon completion, the condition and safety of the road would be significantly improved.

Given access will remain open during construction, no adverse economic impacts are likely. There will; however, be minor positive impacts to the locality through the employment of local contractors undertaking the works, and via potential sales to local businesses (e.g., cafes).

Upon completion, the crossing will be greatly improved which will contribute to road safety and associated flow on effects of reducing accidents and vehicle damage, which represents an important social benefit and reduced maintenance costs represent an economic benefit to Council, which in turn benefits the ratepayers of the LGA.



#### Aesthetics:

During construction, there would be short-term, temporary impacts to the aesthetic values of the site which are associated with construction activities and the storage of machinery and materials on site. Up to 10 mature Camphor Laurels require removal to facilitate installation of the new bridge structure and a small extent of native saplings, groundcover and weeds would be removed to facilitate the construction stage. Upon completion, the site will be rehabilitated as required; however, the new bridge and removal of mature trees will permanently alter the aesthetics of the site.

#### Noise:

Vehicles and plant would be used to demolish the existing bridge and construct the new bridge. Noise would be generated throughout the construction stages. The nearest sensitive receiver is a single rural property located approximately 200m south east of the works site. A quantitative noise assessment (Appendix D) was undertaken using the Transport for NSW Construction and Maintenance Noise Estimator Tool (CMNET). The CMNET was undertaken using the Distance Based (Noisiest Plant) assessment with the following modelling inputs:

Noise area category: R0 - Rural Undeveloped Areas

Noisiest plant: Bored Piling Rig

Line of site: Yes

LAeq(15 minute) Noise Management Level (NML)(dB(A)): detailed as follows:

Time of Day	Noise management level (NML)	
Day (standard hours)	50	
Out of hours day	45	
Out of hours evening	40	
Out of hours night	35	

The CMNET identifies that developed settlements (urban and suburban) up to 525m from the noise source have the potential to be impacted by noise generating activities (e.g., excavator dumping rubbles) during daytime standard working hours. An overview of potentially impacted receivers is shown in Figure 9 while a summary of the impacts and measures required is detailed below.

Rural Undeveloped Areas						
Impact level	Distance (m)	Measures required				
Noticeable	525	N/A				
Moderately intrusive	250	N				
Highly intrusive	120	N				
Highly affected	25	N, PC, RO				

Key: N = Notification; PC = Phone calls; RO = Respite offer

Given the nearest property is situated within 200m of the bridge, the CMNET has determined that noise during daytime hours would be moderately intrusive and provides that notification of the proposed works be provided to that property.

The magnitude of construction noise impacts is dependent on a number of factors including the intensity and location of activities, the type of equipment used, background noise levels during construction periods and the prevailing weather conditions. Based on these parameters, the expected construction noise levels are generally conservative and do not represent a constant noise emission that would be experienced by noise sensitive receivers throughout the construction period.

# Climate:

Vehicles and machinery would be used during all stages of the proposal which have the potential to spill oil and/or fuel. The primary sources of airborne particulate matter generated by the activity include

- The delivery and transport of construction vehicles, staff, and materials to the works site
- Vehicle and machinery (exhaust) emissions
- Dust emissions from vegetation removal (chainsaws etc) and soil disturbance.

Emissions generated by the proposed activity would not be significant to contribute to long-term degradation of the environment.





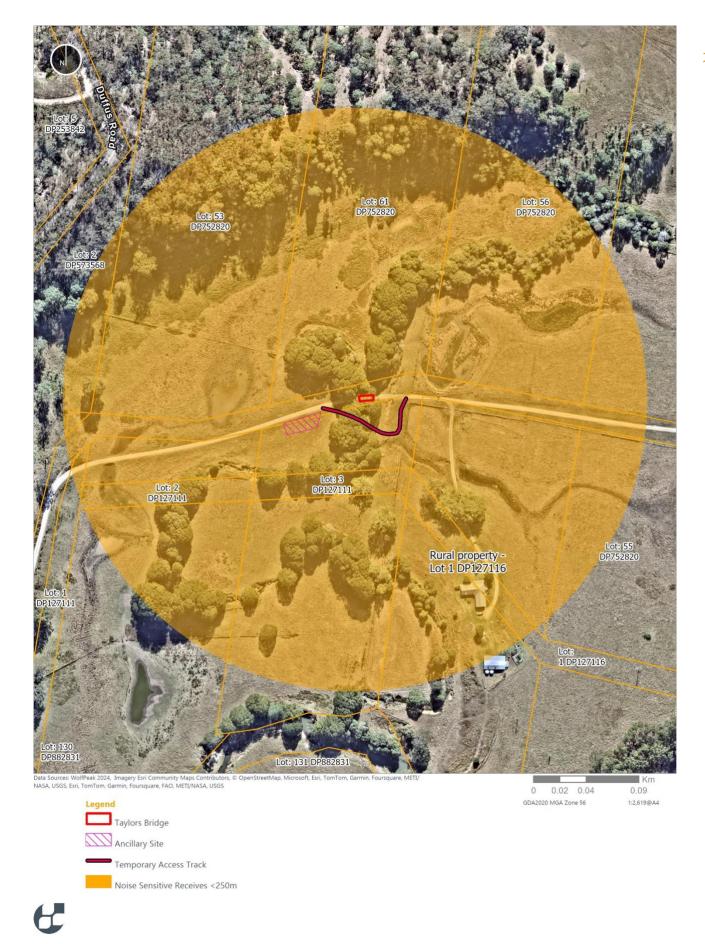


Figure 9: Noise sensitive receivers proximate to the proposed activity

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j)	Any risk to the safety of the environment (e.g. Public health, contamination, bushfire, sea level rise, flood, storm surge, wind speeds, extreme heat, urban heat and climate change adaptation).		X
Note	s: No significant impact		
mitig	proposed activity is unlikely to generate any adverse risk to the safety of the environment, provention measures provided in this REF are implemented. The construction site will be closed off to during the duration of the activity.		he
NSW lowe coml	proposed activity is situated within vegetation classified as Vegetation Category 2 as determined Rural Fire Service Guide for Bush Fire Prone Land Mapping. Vegetation Category 2 is considered to bush fire risk than Category 1 and Category 3 but higher than the excluded areas. It has lower bustibility and/or limited potential fire size due to the vegetation area shape and size, land geographent practices, and typically consists of rainforests and rower risk vegetation parcels.	ed to b	e a
road facili	truction works would include limited ignition risks and would mostly occur within the existing of reserve and the moist riparian areas of Lazyman Creek. Sections requiring vegetation removal tate the bridge construction would not occur within heavily vegetated areas. Machinery use would during periods of Extreme fire danger rating or higher.	to	
k)	Any reduction of the range of beneficial uses of the environment (e.g. Natural resources, community resources and existing uses)		X
mitig cons thus, the p	proposed activity is unlikely to reduce the range of beneficial uses of the environment. Provided activity is unlikely to reduce the range of beneficial uses of the environment. Provided action measures provided in this REF are implemented correctly, impacts to natural resources a idered negligible. A temporary access track will be established prior to demolition of the existing reducing the requirement for detours. There is likely to be traffic delays during construction we be trained to impact beneficial uses of the environment; however, potential impacts will be tempt term in nature.	ire ng brid i/hich h	ave
1)	Any pollution of the environment (e.g. Air, (including odours and greenhouse gases); water (including runoff patterns, flooding/tidal regimes, water quality health); soil (including contamination, erosion, instability risks); noise and vibration (including consideration of sensitive receptors) or light pollution)		X
Note	s: No significant impact		
from	ng demolition of the old bridge there is a risk of materials entering the waterway beneath such chainsaws, oils/fuels from equipment and machinery, pieces of demolished materials. Noise dolition phase would also be likely.		
	e is a risk of contamination to soils from machinery and equipment oils and fuels, which will be te management procedures.	subje	ct to
macl	e would be produced during the construction stages, primarily associated with the use of vehic ninery as required to carry out construction works. The process of drilling and installing the bric potential to generate significant noise over a short period.		
	ided the mitigation measures specified in this REF are implemented correctly, impact from wat crosion and sedimentation, and noise and vibration risks are considered negligible.	er rund	off,
m)	Any environmental problems associated with the disposal of waste (e.g. Solid or liquid wastes, effluent, ASS/PASS) including transportation, disposal and contamination).		X

Notes: No significant impact

wast woul	aste generated by the proposed activity will be removed from the site and disposed of at a lice e facility. No hazardous waste is anticipated to be generation. Minor consumable and putrescil d be generated from workers undertaking the activity, and all waste (including excavated natuerial) will be categorised and managed in accordance with the NSW EPA Waste Classification Gu	ole wa: ral	•
	cid Sulphate Soils (ASS) have been mapped or are considered a potential occurrence at the site Harbour LEP.	e as pe	r the
Publi occu	ches of the NSW Environment Protection Authority (EPA) List of Notified Sites and the Contamic Records were carried out on 30 January 2024 which did not identify any contaminated land string in proximity to the proposed works locations, and NSW State mapping does not identify a trial for Naturally Occurring Asbestos (NOA) to occur within the area.	ites	Land
n)	Any increased demands on resources (natural or otherwise) that are, or are likely to become, in short supply (e.g. Land, soil, air, minerals and energy)		X
Note	s: No significant impact		
plant	work involving the use of plant and equipment will involve consumption of fuel, oil, water, veh t depreciation, etc.; however, as a small individual project, it is not anticipated that the works we ncreased demands on natural resources that are, or are likely to become, in short supply.		
o)	Any cumulative environmental effect with other existing or likely future activities (e.g. existing and future activities)		X
Note	s: No significant impact		
of th Duffi	e time this REF was prepared, no other activities were identified as occurring within or near the proposed activity. There will be a slight increase in vehicle movements along Sherwood Cree us Road during construction; however, the proposed activity is not considered likely to have a sulative impact.	k Road	and
thus,	existing vegetation provides suitable habitat for a range of fauna species, including threatened vegetation removal required for the works has the potential to cumulatively impact on biodives including available habitat for threatened species.	-	s;
p)	Any impact on coastal processes and coastal hazards, including those under climate change conditions (e.g. Coastal processes and hazards (impacts arising from the proposed activity on coastal processes and hazards and impacts on the proposed activity from coastal processes and hazards), climate scenarios. Coastal Management Act 2016 mapping and proximity to project area.		X
Note	s: No significant impact		
	proposed activity is not located within or near coastal areas and is unlikely to impact on coasta coastal hazards, including those under climate change conditions.	l proce	esses
q)	Any applicable local strategic planning statement, regional strategic plan or district strategic plan made under Division 3.1 of the Act (e.g. Issues, objectives, policies and actions identified in local, district and regional plans).		×
Note	s: No significant impact		
	proposal would not adversely impact on the objectives identified in the Coffs Harbour Local Stroning Statement 2020 or the Coffs Harbour Regional City Action Plan 2036.	ategic	
r)	Any other relevant environmental factors (e.g. Any other factors relevant in assessing impacts on the environment to the fullest extent, include any consultation details).		X
		_	_

#### Notes:

The temporary access track and ancillary site will occur on the private property of Lot 61 DP752820. Consultation with, and approval from, the landholder shall occur prior to works commencing.

8.	Determination	Yes	No
	That the proposed activity is unlikely to have a significant effect on the environment and that the proposed activity proceed without modifications	X	
	That the proposed activity is unlikely to have a significant effect on the environment and that the activity proceed with the following conditions	X	
	Is further assessment needed to determine the activity		X
	Is an Environmental Impact Statement (EIS) required		×
	Is a Species Impact Statement (SIS) required		×
	Is a Biodiversity Assessment Report (BDAR) required		×
	Is referral to Commonwealth Environment Minister required?		×
	That an environmental impact statement be required		×
	That the activity not to proceed		×
9.	Conditions of this determination – Permit / Approval / Licence attached  Pursuant to section 171(4) of the <i>Environmental Planning and Assessment Regulation 2021</i> , this REF is required to be published on Coffs Harbour City Council's website or the NSW Planning Portal as the proposal requires a permit under section 200 of the <i>Fisheries Management Act 1994</i> .	X	



#### 1.10 Mitigation Measures

#### 1.10.1 REQUIREMENTS

#### 1.10.1.1 General

- The mitigation measures identified within this REF are to be incorporated into a Construction Environmental Management Plan (CEMP) for the proposed works. The CEMP shall outline how the mitigation measures will be implemented as works are undertaken and who is responsible for their implementation.
- All personnel working on site shall be made aware of the environmental protection requirements to be implemented prior to and during construction.
- The Project Manager is to conduct a pre-start construction meeting and/or induction PRIOR to the commencement of works on site. All staff and contractors are to be made aware of the conditions in this Part 5 during the induction. If the Project Manager is unavailable, then a suitably trained person is to be delegated and authorised to conduct the induction and the induction documented.
  - o Records of site inductions are to be kept as part of the CEMP.
- Establish "No Go" zones with signage and pedestrian barriers to temporarily prevent public access to works zones.
- All visitors to the site during works are to be inducted by a suitably trained person and made aware of the conditions of this Part 5.
- A copy of the conditions of this Part 5 assessment is to remain on site at all times.
- Generate a Before You Dig Australia (BYDA) document to locate underground services within the vicinity of the works e.g., power, telecommunications, and existing water mains.
- Notification is to be issued to the relevant rural properties which may be affected by the works.
- In the event any animal is injured during the project the Environmental Project Officer or WIRES are to be contacted (1300 094 737).
- Tracking dirt onto the road pavement is to be appropriately managed.
- Noise generating works will be limited to the recommended standard hours for construction work outlined in the Interim Construction Noise Guideline which are:
  - o Monday to Friday 7:00am to 6:00pm
  - o Saturday 8:00am to 1:00pm
  - No works on Sundays or Public Holidays
  - Work outside standard hours will only comprise:
    - The delivery of materials outside standard hours requested by police or other authorities for safety reasons.
    - Emergency work to avoid the loss of lives and/or property.
- Where practicable, plant and machinery which are used intermittently are to have throttle setting reduced or shut down when not in use. Any plant or equipment that is not in use for extended periods of time are to be switched off.
- Minimise the use of machinery where practicable; machinery shall be in good, serviced condition to reduce emissions.
- Use electric machinery instead of diesel/petrol machinery where practicable.



- Store oils and fuels in a suitably bunded, covered and secure area with sufficient capacity to contain at least 110 percent of the volume of the largest container.
  - Spare fuels are to be stored in containers within pre-existing cleared areas and a minimum of 40m from drainage lines or waterways.
- Spills and leaks are to be contained within the worksite and site clean-up to occur.
- Spill kits to be available on site.

#### 1.10.1.2 Hygiene

- Hygiene protocols as per the NSW Hygiene Guidelines: Protocols to protect biodiversity areas in NSW from *Phytophthora cinnamomic*, myrtle rust, amphibian chytrid fungus and invasive plants shall be implemented to reduce the risk of spreading weeds, diseases, and pathogens.
- Hygiene protocols as per the Commonwealth's Department of Sustainability, Environment, Water, Population and Communities (now DCCEEW) Hygiene protocols for the control of diseases in Australian frogs shall be implemented for works likely to impact frog species.
- Recommended measures required prior to entering the work site or moving to new areas include:
  - Check personnel, clothing, footwear, backpacks and equipment for soil, plant material/propagules and other debris.
  - Shoes/boots to be scrubbed free of dirt and decontaminated. Clothing to be checked for any plant propagules before work commences and cleaned accordingly.
  - Remove all soil, plant material and other debris using a hard brush and (if required) clean water.
  - Ensure plant and machinery is thoroughly cleaned inside and out before entering the site or moving between different areas. Use 70% alcohol wipes or a spray bottle to apply disinfectant to the interior of vehicle. Spray the exterior with disinfectant or hand pressure sprayer. Allow the disinfectant to remain in contact with the surface for at least 30 seconds before rinsing with clean water.
  - All tools/machinery to be cleaned and sterilised prior to transport to site.

#### 1.10.1.3 Safety

- Appropriate alternative routes and detours for both road users (where required) and pedestrians shall be established as necessary.
- Barricades/fencing to exclude traffic and pedestrians from the worksite are to be installed.
- Install appropriate safety and road signage to inform road users and pedestrians of the proposed works, and to safely manage traffic.
- The exhausts of all construction machinery are to be inspected for smoke emissions prior to works, and service machinery if the machinery is producing excessive smoke/emissions.

#### 1.10.1.4 Vegetation

- Immediately prior to removal of the existing bridge and removal of identified vegetation the clearing footprint will be clearly marked out, as well as protection zones established around retained trees and vegetation.
- The area to be cleared/modified shall be clearly marked before clearing to prevent inadvertent clearance beyond what is required and has been assessed.
- "No Go" areas to be implemented and marked prior to construction commencing to protect adjacent vegetation.





- If threatened flora species are identified during construction, they are to be flagged, and a buffer zone created to protect them.
- Site inductions are to occur to specify that no clearing is to occur beyond the marked area, and vehicles are only to be parked in pre-existing cleared areas.
- A qualified ecologist will undertake pre-clearing survey and clearing supervision.
  - The clearing extent is to be inspected for fauna by a qualified ecologist immediately prior to commencement of any vegetation removal involving machinery and/or tree-felling. This is to occur each morning if clearing spans over multiple days/weeks. The ecologist is to flag habitat features which may contain fauna and trees which contain hollows, nests or dreys.
  - o If a Koala is present in an area subject to vegetation removal/modification, works must be suspended until the Koala moves along on its own volition. If the Koala is located in a position that a 50m buffer may be established, works may proceed outside this buffer. In this event, the ecologist is to remain on site to monitor the Koala for signs of distress. If the ecologist determines that the Koala is in distress, works must be suspended within this area until a larger buffer is created, or the Koala moves along on its own volition.
  - The ecologist is to remain on site for the duration of the vegetation clearing to mitigate fauna injury during clearing operations. Other than Koalas, any fauna detected is to be relocated off-site. Any bird nest considered active is to be removed in a manner that allows retrieval of eggs/young, and these are to be taken into care by FAWNA.
- In the event any additional vegetation requires modification OR removal the Environmental Project Officer is to be contacted to undertake a site inspection.
- Any removal and/or pruning works are to be conducted by certified arborists in accordance with The Australian Standards Tree Pruning Guidelines.
- Site compound, stockpiles and machinery are NOT permitted under the drip line of any native vegetation.
- A watercart shall be kept on site to address bush fire risk during periods of Extreme fire danger rating or higher.
- Disturbance of vegetation and soils on the site should be limited to the areas of the proposed work and should not extend into adjacent vegetation.
- All vehicles and machinery are to be inspected for the presence of weeds prior to entering the site.
- Invasive weeds within the clearing footprint are to be appropriately treated and collected prior to clearing and disposed of within a landfill facility.
- The area shall be monitored for weeds post construction to ensure weed establishment does not occur. Weeds established shall be treated as necessary.

#### 1.10.1.5 Microchiropteran bats (Microbats)

- Prior to removal of the existing bridge, a qualified ecologist or environmental officer is to thoroughly inspect potential roosting crevices underneath the bridge to determine if any microbats are present.
  - o If none are found, bridge removal works can proceed without any further measures.
  - o If microbats are found, they are to be left undisturbed and for small colonies or individuals, measures must be taken to prevent bats returning to roost under the bridge.
    - This may include filling cavities with expanding foam or installing geofabric under the entire underside of the bridge at night to block bats returning to roost under the bridge.
    - Bridge removal is to be undertaken by gradually dismantling the bridge and is to be supervised by an ecologist.



 If larger colonies of >15 bats are identified, further survey and impact assessment would be required to assess the impact of the bridge removal and formulate additional recommendations.



#### 1.10.1.6 Aquatic Habitat

- Minimise the area of scour rock placed over submerged gravel. Place scour rock from the bank to eliminate the need to track machinery on the riverbed.
- Reposition any snags that are removed to a suitable location within the permanent aquatic environment. Cut the existing snag so that only the required length is removed.
- Rehabilitate area of riverbank under existing bridge abutment with suitable plantings to replicate existing riparian vegetation.
- Reduce sediment input into the creek by following appropriate sedimentation and erosion controls in Section 1.10.1.9.

#### 1.10.1.7 Southern Purple Spotted Gudgeon

- Avoid work during the Southern Purple Spotted Gudgeon breeding season in the warmer months of November to March where practicable.
- Reduce sediment entering the water in accordance with the controls outlined in section 1.10.1.9.
- Limit vehicles entering the water
  - o If vehicles are required to work within the waterway, limit the time machinery is in the water as much as practicable. Any vehicles entering the waterway shall do so in accordance with an approved DPI Fisheries permit.

#### 1.10.1.8 Trenching and Excavation

- When trenching or excavation is to be undertaken within the root zone of any tree, roots are to be exposed first and then cut cleanly with a sharp saw or loppers.
  - o Roots are not to be torn with a backhoe or other excavation equipment.
  - Exposed roots are to be kept moist and covered with hessian for the duration of the exposure.
  - Where roots with a diameter larger than 50mm are encountered excavation should be undertaken by hand or small implements to minimise impacts to the roots.
  - Roots >40mm are considered to be structural cutting of these roots may affect the stability of the tree.
  - Roots <40mm are considered to be feeder roots cutting of these roots may affect the future health of the tree.
- The Environmental Project Officer and/or CHCC arborist are to be consulted if roots of this size require cutting.
- No trenching or excavation shall occur outside the footprint identified in this REF.

#### 1.10.1.9 Sediment and erosion controls

- Sediment fencing and sediment traps would be implemented in a manner consistent with currently accepted best management practice (i.e. Landcom [2004] Managing Urban Stormwater: Soils and Construction [4<sup>th</sup> Edition]) prior to any earthworks being undertaken. Sediment controls are to:
  - Prevent sediment moving off-site and sediment laden water entering the creek, drainage lines or drain inlets.
  - o Protect bridge embankments from drain discharge.
  - o Reduce water velocity and capture sediment on site.
  - Divert upslope and clean waters around the bridge during construction to ensure the entire system is stable.



• Sediment controls would be maintained and in good working order for the whole duration of the works and subsequently until the site has been stabilised and the risk of erosion and sediment movement from the site is minimal.



#### 1.10.1.10 Hydrology and Water Quality

- Sedimental and erosion controls as prescribed above shall be implemented to prevent the entry of sediment into the adjacent waterway, or mobilisation of sediment within the waterway, prior to any works being undertaken.
  - These controls would be maintained and in good working order for the whole duration of the works and subsequently until the site has been stabilised and the risk of erosion and sediment movement from the site is minimal.
- Rip-rap material shall comprise only 'clean rock' to facilitate filtration and drainage, and to prevent 'fines' (small particles) entering the waterway.
- Only natural material shall be used for rip-rap. Contaminated materials (tyres, building and demolition rubble, acid sulphate soils etc.) shall not be used as fill.
- Visual monitoring of local water quality during periods of flow, (i.e., turbidity, hydrocarbon spills/slicks) to be periodically undertaken to identify any water quality issues.
- All equipment is to be maintained in good working condition and operated according to manufacturer's specification.
- No vehicles or machinery shall enter or work within the creek. If vehicles are required to enter the creek, it shall be done so in accordance with an approved DPI Fisheries permit.
- Refuelling of equipment is to occur a minimum of 40m from drainage lines.
- Stockpile sites are not to be located within 10m of drainage lines, and stockpiles are to be located on previously disturbed/cleared areas away from areas that receive concentrated runoff.
- Stockpiles are to be suitably bunded to prevent material moving off-site.
- As much earth and material as possible is to be excavated from the bridge surface prior to removal of the existing bridge to minimise silt and debris entering the waterway.
- Works are to be undertaken during periods of low flow, and shall not be undertaken during, or immediately following, periods of high rainfall.
- Prepare an ERSED plan for the earthworks and revegetation phase. All ERSED materials and methods to be consistent with the 'Blue Book' (Landcom 2004). Sediment fencing must be used around all excavations and disturbed ground.
- All materials specifications to exclude fines.
- Ensure there is a suitable wet weather protocol to protect downstream waters in the event of rainfall.
- Install spray screens, hydrocarbon booms and drop silt curtains around drilling activities.
- All site water to be removed by sucker truck.
- Maintain suitable spill kits on site during works.

#### 1.10.1.11 Aboriginal Cultural Heritage

- Works to proceed with caution, and if any Aboriginal objects or human remains are identified during the activity, the Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW shall be implemented.
- If Aboriginal objects are detected, the Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW apply, and consultation with Heritage NSW is required. As the authority for the protection of Aboriginal objects and Aboriginal Places in NSW, the NSW National Parks and



Wildlife Service (NPWS) shall also be notified. Council's Environmental Project Officer shall also be notified.

- If suspected human remains are discovered and/or harmed in, on or under the land within the activity footprint, the following actions must be undertaken:
  - The remains must not be harmed/further harmed.
  - o Immediately cease all works at that location.
  - Secure the area to avoid further harm to the remains.
  - o Notify the NSW Police and the Environment Line (Heritage NSW) on 131 555 as soon as practicable and provide any details of the remains and their location.
  - Do not recommence any work at that location unless authorised in writing by Heritage NSW.

#### 1.10.1.12 Waste Management

- If surplus excavated material will be generated from the works; however, if material is required to be removed from the site then appropriate documentation for transport and testing of the material for Excavated Natural Material (ENM) and Virgin Excavated Natural Material (VENM) (in accordance with the NSW Environment Protection Authority and the Protection of the Environment Operations Act 1997) will be the responsibility of the Project Manager. Otherwise, the material may be disposed of at a licenced waste facility.
- If the material is to be taken from one road reserve to another road reserve the receiving environment must be previously identified, and a Fill Plan is to be prepared for the site.
  - Stockpiling of material is not acceptable and must be spread out in its final location as per the fill plan.
- Waste material generated by the project will be managed following the principles of waste avoidance by re-use, recycling and removal.
- The site is to be kept clear of rubbish through daily housekeeping and consistent with Councils' waste management system.
  - All waste is to be collected daily and disposed of appropriately.
- Contractors/workers shall be conversant with, and adhere to, the measures and controls outlined in the NSW Government's Code of Practice: Managing risks of hazardous chemicals in the workplace, to ensure gaseous, liquid, or solid wasters or emissions are managed appropriately.







#### 1.11 Certification

This Part 5 Assessment is valid for six (6) months from the approval date below – if works have not commenced by this date this assessment is invalid. Contact the Environmental Project Officer for reassessment.



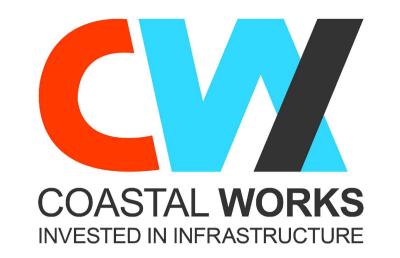
I certify that I have reviewed and endorsed the contents of this REF document, and, to the best of my knowledge, it is in accordance with the EP&A Act, the EP&A regulation, and the Guidelines approved under section 170 of the EP&A Regulation and the information it contains is neither false nor misleading.											
Prepared by:	Grant Bennett	Gend	Date:	06/03/2024							
Name Signature (prepared this assessment under Part 5 of the EP&A Act 1979)											
Reviewed by:	DANIEL STEWART	Disterract	Date:	17/06/2024							
	Name	Signature	•								
Director:	Andrew Beswick	alesmek.	Date:	17/06/2024							
	Name	Signature	•								

You must notify the Environmental Engineer who prepared this Part 5 Assessment of any changes in the proposed activity, during works or planned as this may alter the assessment, rendering it invalid.

# **COFFS HARBOU**

Appendix A – Taylor's Bridge over Lazyman Creek (Construction plans)

Refer to separate document.



# ACCESS TO DUFFUS RD

# COASTAL WORKS

# TAYLOR'S BRIDGE OVER LAZYMAN CREEK 42.6 km NORTH OF COFFS HARBOUR NEW BRIDGE REPLACEMENT FOR EXISTING TIMBER BRIDGE

### DRAWING SCHEDULE

- 1. COVER SHEET
- 2. ROAD DESIGN LONG SECTION AND PLAN
- 3. ROAD DESIGN CROSS SECTIONS
- 4. GENERAL ARRANGEMENT
- 5. PILE DETAILS
- 6. ABUTMENT CONCRETE DETAILS
- 7. ABUTMENT REINFORCEMENT DETAILS
- 8. WING WALL DETAILS
- 9. MISCELLANEOUS DETAILS
- 10. TYPICAL EARTHWORKS AND SCOUR PROTECTION
- 11. BAR SHAPES DIAGRAM

# **DESIGN REPORT**

BKP427-R01-[01]

#### GEOTECHNICAL INVESTIGATION REPORT

GI 6970 - A TAYLORS BRIDGE, GEOTECH INVESTIGATIONS, 08 AUGUST 2023

### **SURVEY**

PLAN SHOWING DETAIL SURVEY AROUND TAYLORS BRIDGE - LAZYMAN CREEK, UPPER CORINDI, NEWNHAM KARL WEIR, SURVEY REF: 16117, 12/07/2023

# DESIGN STANDARDS

AS 5100:2017 AS 2159:2009

# **DESIGN TRAFFIC LOADING:**

SM1600 No OF DESIGN LANES: 1 DESIGN TRAFFIC SPEED: 60 km/hr

#### TRAFFIC BARRIER

NO BARRIER - KERBS ONLY

# DESIGN LIFE

100 YEARS

# **EXPOSURE CLASSIFICATION**

CONCRETE ELEMENTS - B1

# FLOOD LOADING:

ARI	FLOW (m³/s)	VELOCITY (m/s)	WATER SURFACE LEVEL (RLm)
1:2	24.9	1.3	25.6
1:5	56.3	1.3	25.9
1:10	87.1	1.4	26.2
1:20 (SLS)	126.0	1.4	26.4
1:50	191.0	1.4	26.7
1:100	253.0	1.4	26.9
1:200	315.0	1.4	27.0
1:500	397.0	1.4	27.2
1:1000	459.0	1.4	27.3
1:2000	521.0	1.4	27.4

NOTE THAT A MINIMUM VELOCITY OF 2m/s WAS USED FOR DESIGN

# SITE OF WORK



# LOCALITY PLAN

THIS BRIDGE IS APPROXIMATELY
42.6 km NORTH BY ROAD FROM COFFS HARBOUR
(NOT TO SCALE)

# FOR CONSTRUCTION

						PREPAR	RED	CHECKED			ACCESS TO DUFFUS RD	
											TAYLORS BRIDGE REPLA	
В	15/11/2023	MINOR AMENDMENTS	JR	DM	CR	DESIGN YH.TANG		D. MERRIKIN	bridge knowledge.			
Α	27/09/2023	ISSUE FOR CONSTRUCTION	JR	DM	CR	1			ENGINEERING CONSULTING SERVICES	COASTAL WORKS	OVER LAZYMAN CRI	
ISSUE	DATE	AMENDMENT DESCRIPTION	PREP	CHEC	K AUTH			D MEDDIKA		INVESTED II		
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ACCESS TO DUFFUS RD

TAYLORS BRIDGE REPLACEMENT

OVER LAZYMAN CREEK

COASTAL WORKS

DRAWING No

DRAWING No

DRAWING No

ISSUE STATUS

ISSUE FOR CONSTRUCTION

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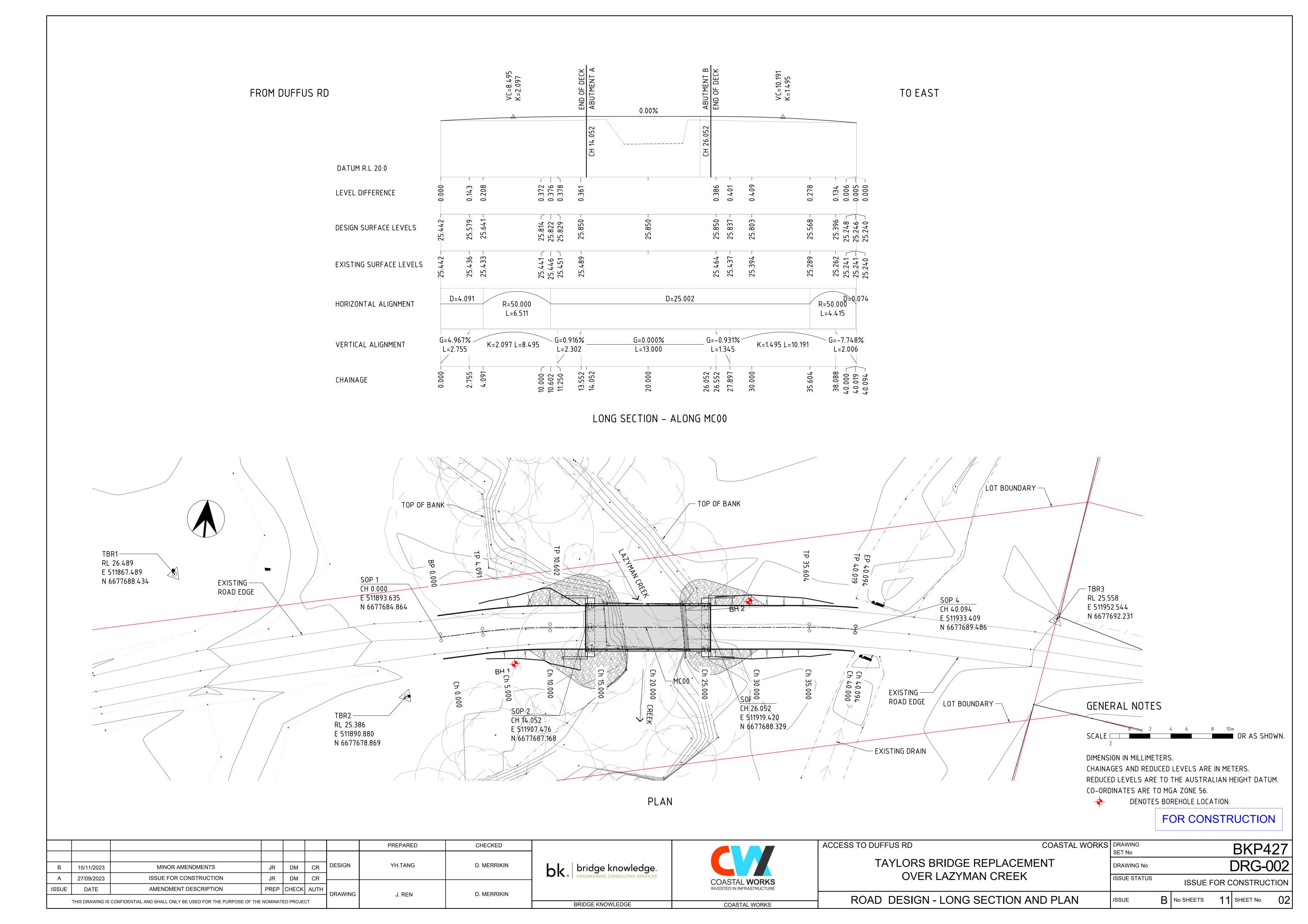
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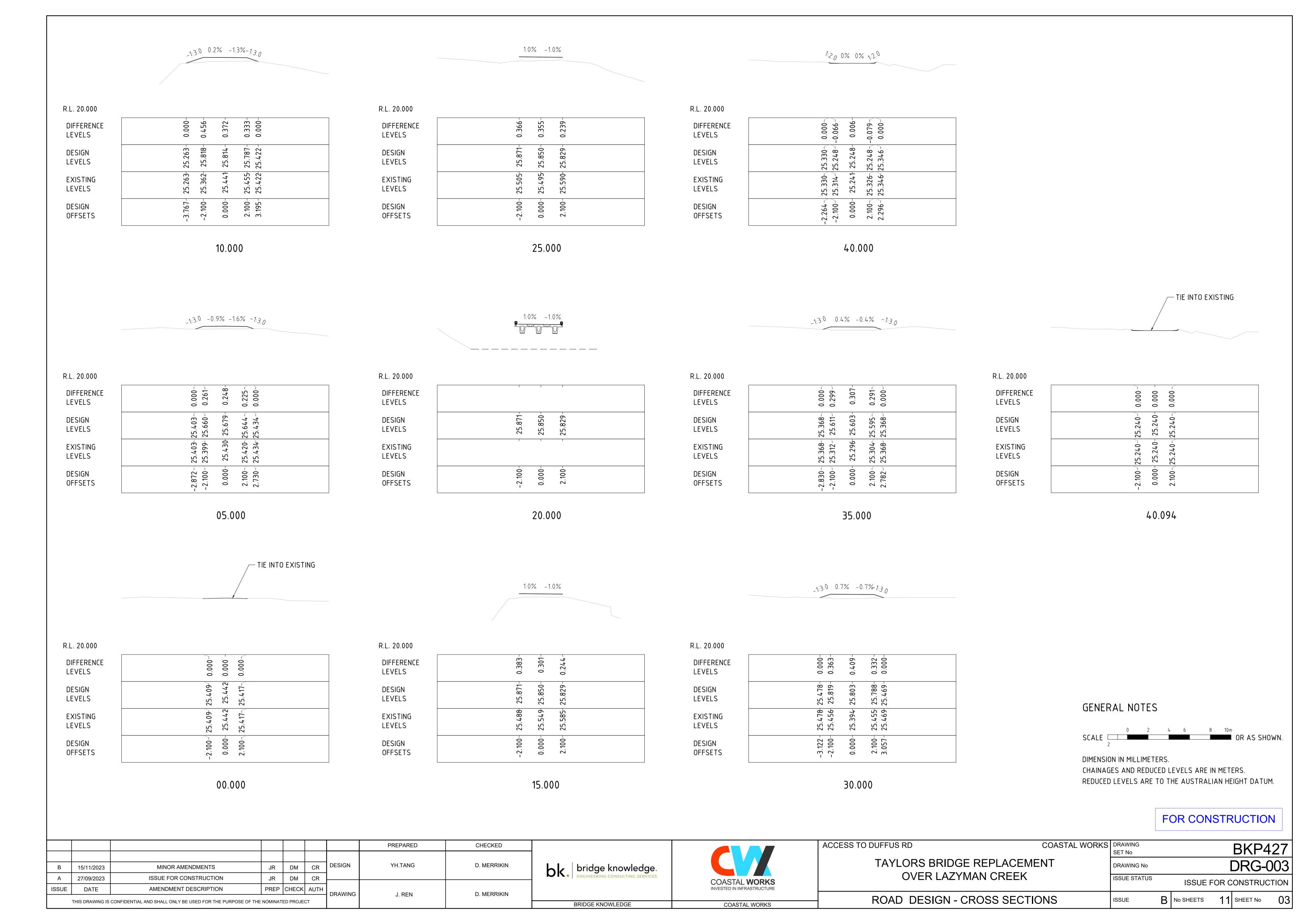
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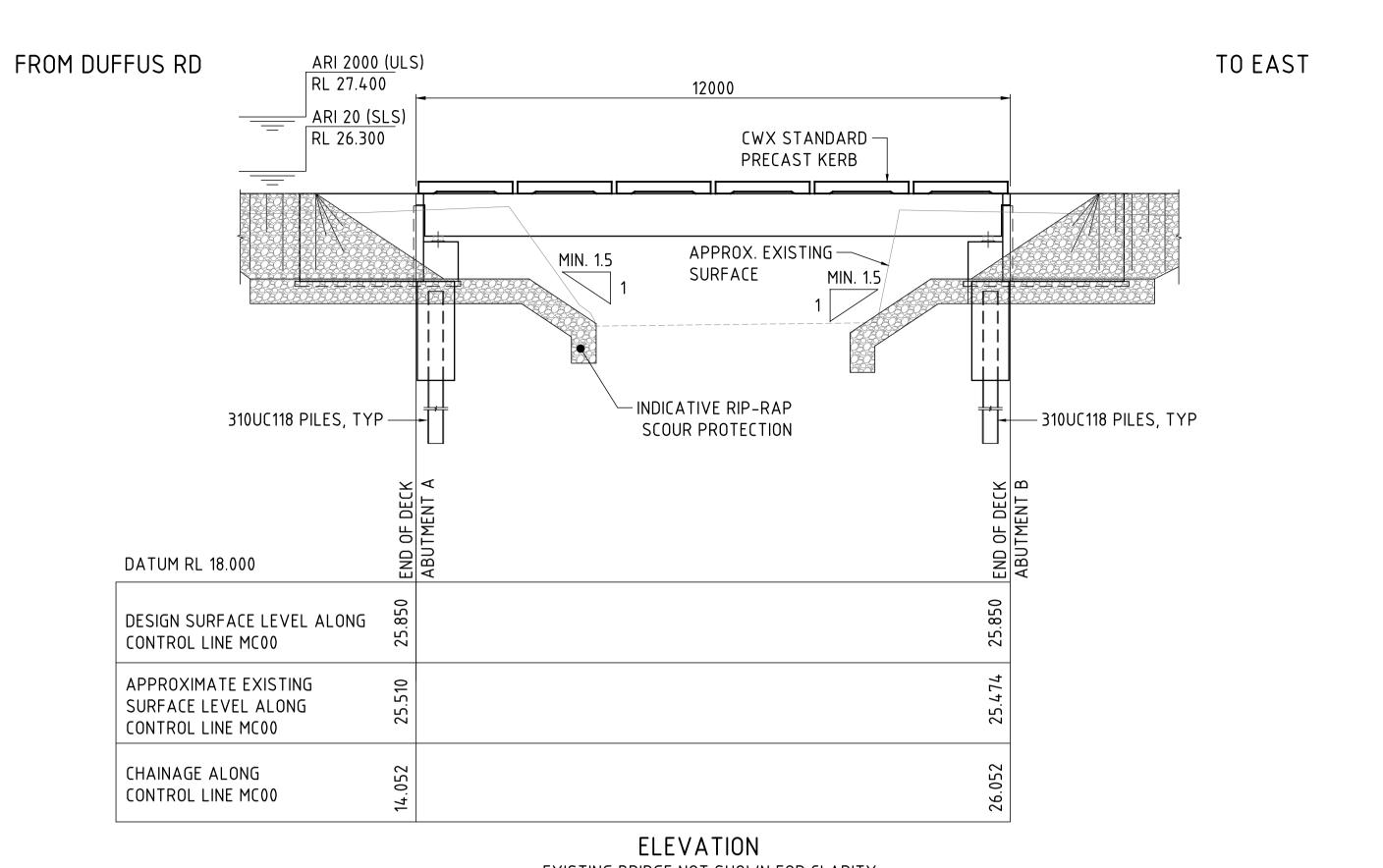
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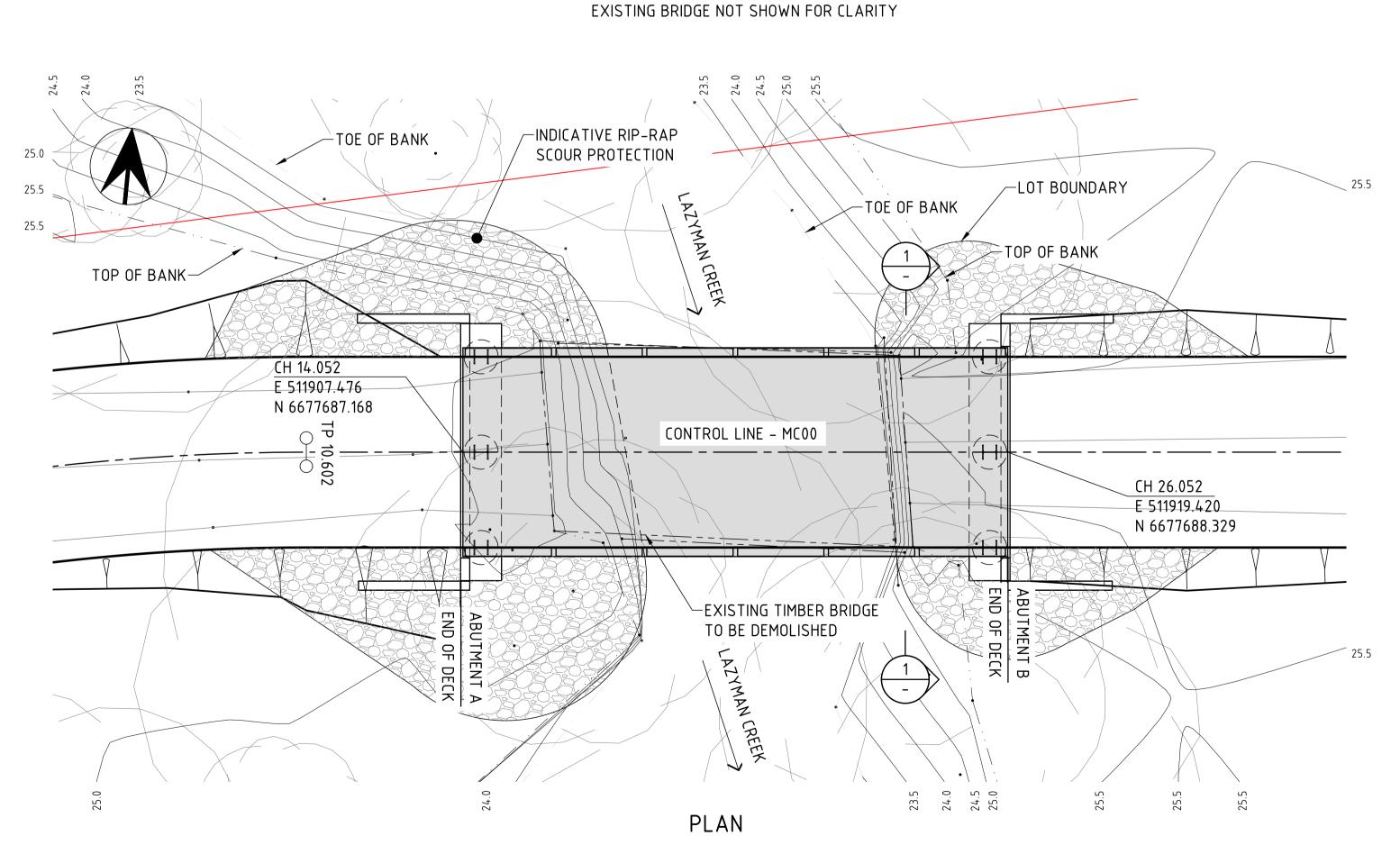
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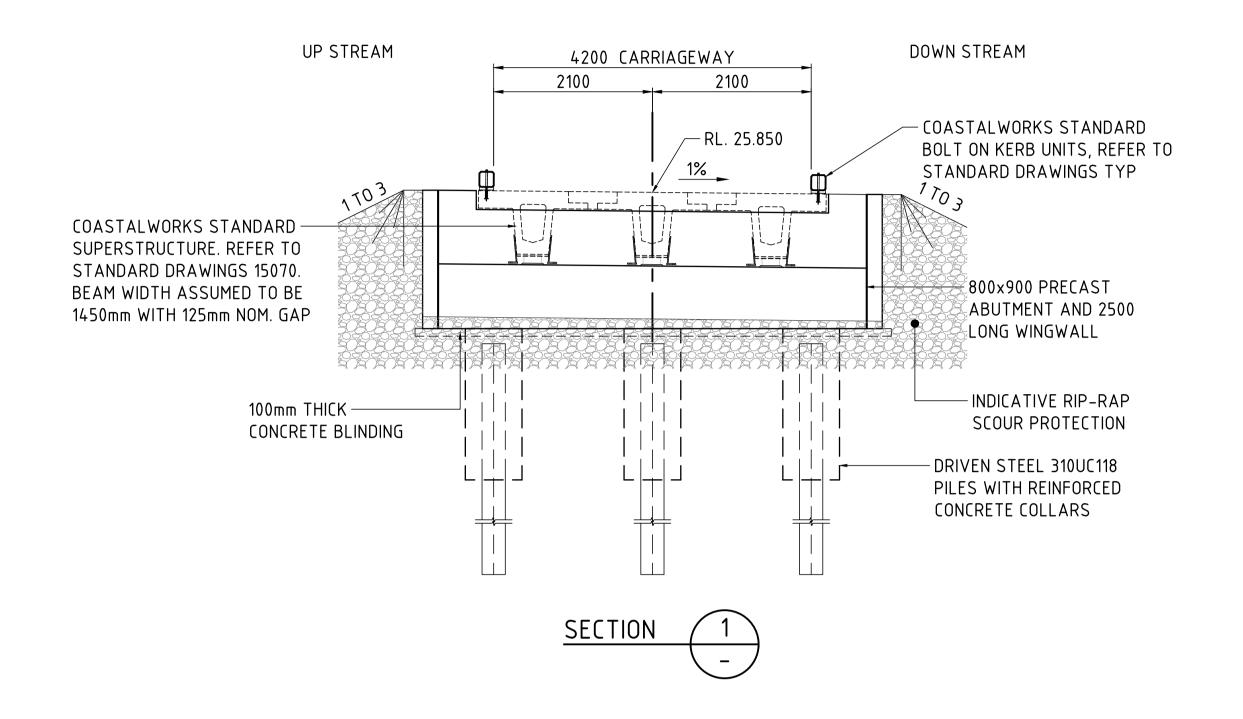
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# BOREHOLE LOCATIONS

DOTTETTOLL LOCATION			
BOREHOLE	EASTING	NORTHING	APPROX RL
BH1	511901	6677683	25.5
BH2	511923	6677691	25.7

# GENERAL NOTES



DIMENSION IN MILLIMETERS.

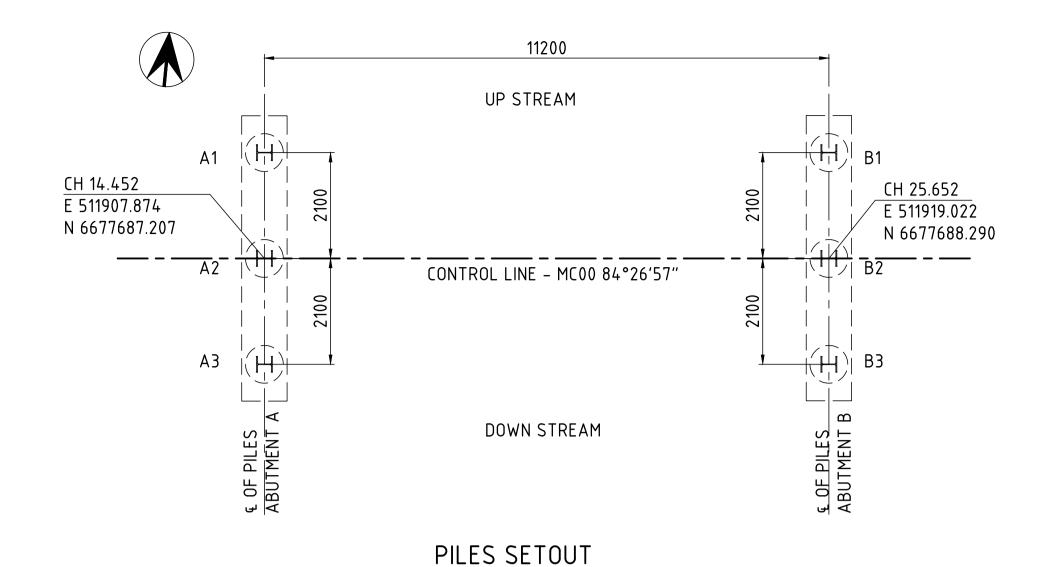
CHAINAGES AND REDUCED LEVELS ARE IN METERS.

REDUCED LEVELS ARE TO THE AUSTRALIAN HEIGHT DATUM.

CO-ORDINATES ARE TO MGA ZONE 56.

DENOTES BOREHOLE LOCATION.

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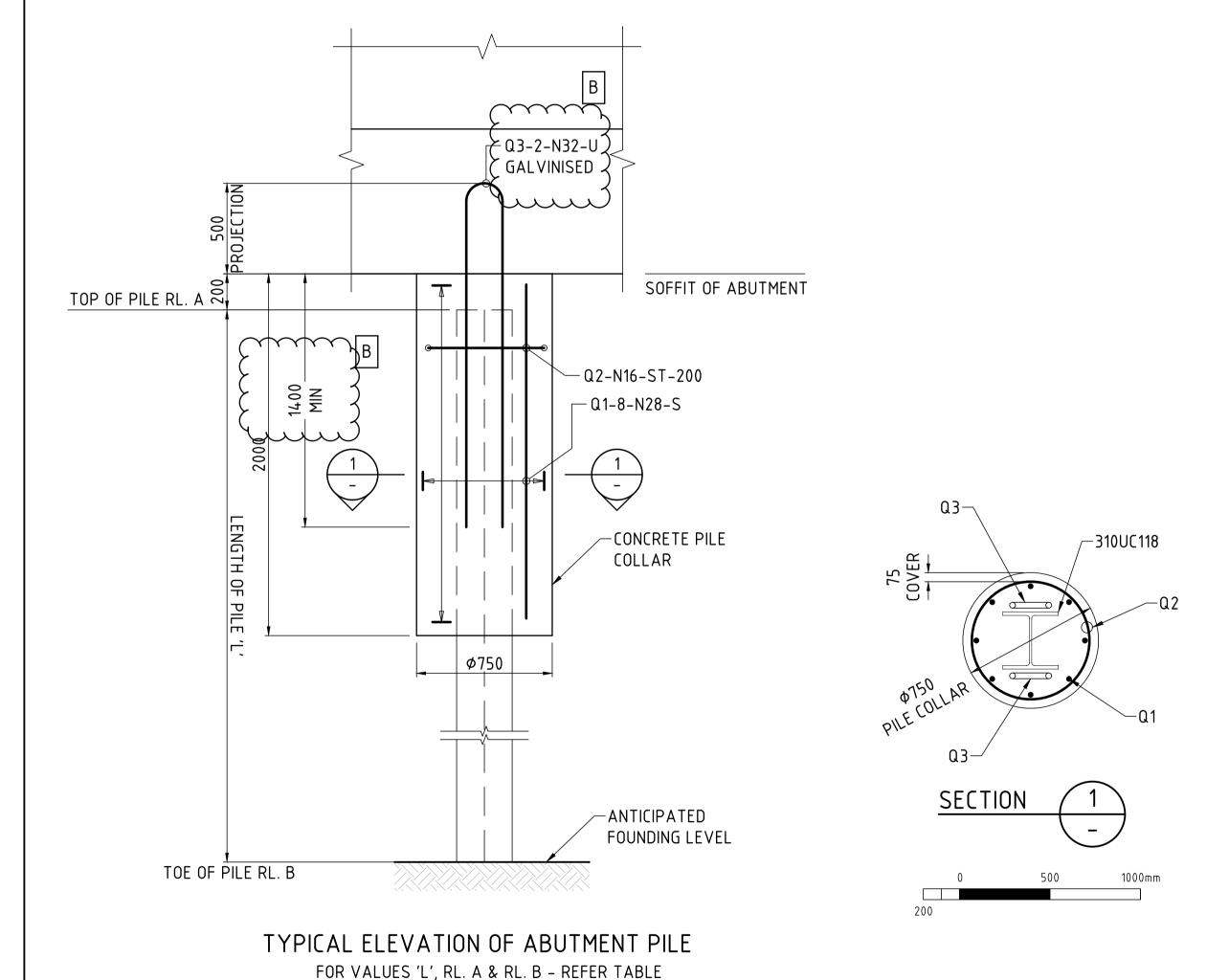


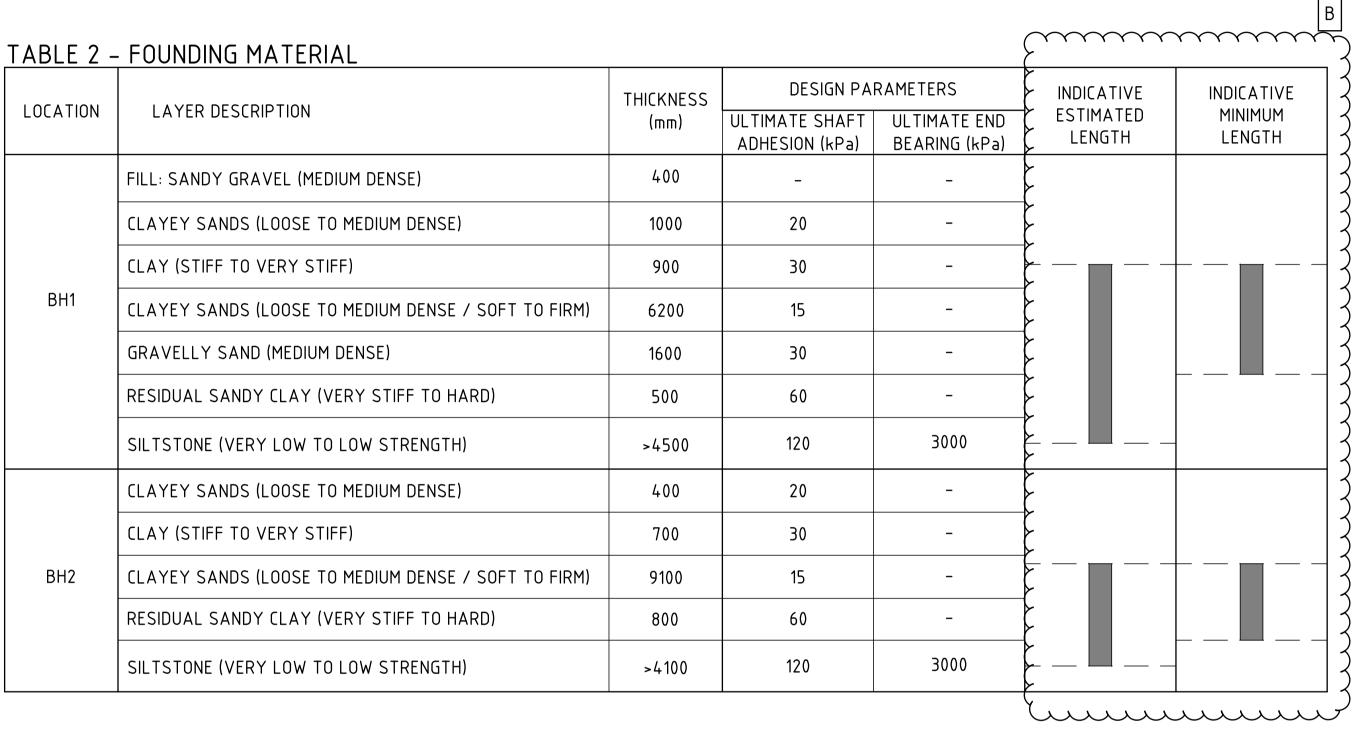
TABLE 1 - PILE DETAILS (TABLE 1 - PILE DETAILS)

	<u> </u>	<u> </u>												
			APPROXIMATI	PILE LEVELS	ESTIMATED	MINIMUM PILE	) MAXIMUM DESIGN AXI	AL LOAD PER PILE(kN)	MAXIMUM DESIGN	MAXIMUM DESIGN				
BC	REHOLE	PILE No	TOP OF PILE	PILE TOE LEVEL	LENGTH (m) #	LENGTH L (m)		SLS	BENDING MOMENT	SHEAR FORCE	PILE SIZE			
			LEVEL RL. A(m)	≻ RL.B(m)	LLINGTH (III) #	Ø	) ULS <sup>~^</sup>	SLS	PER PILE (kNm)	PER PILE (kN)				
		A1	23.848	12.4	11.5	8.4	)				240116440 1 (1711			
	BH1	A2	23.848	12.4	11.5	8.4	718 / -24	718 / -24	718 / -24	718 / -24	458	145	56	310UC118 WITH
		A3	23.848	12.4	11.5	8.4					REINFORCED COLLAR			
		B1	23.848	12.2	11.7	9.1	)				240116440 1 (1711			
	BH2	B2	23.848	12.2	11.7	9.1	718 / -24	458	145	56	310UC118 WITH REINFORCED COLLAR			
		В3	23.848	12.2	11.7	9.1					KEINFUKLED LULLAK			
					·				·					

#### NOTE:

- ^ DENOTES A GEOTECHNICAL REDUCTION FACTOR HAS NOT BEEN APPLIED. PILE RESISTANCE MUST ACHIEVE THE TOTAL ULS LOAD DIVIDED BY THE GEOTECHNICAL REDUCTION FACTOR
- Φ DENOTES MINIMUM LENGTH OF PILE IS DETERMINED FROM UPLIFT AND LATERAL RESISTANCE
- # DENOTES PILE LENGTH TO BE DETERMINED BY CONTRACTOR TO ACCOUNT FOR VARIABILITY IN DRIVEN LENGTHS

munimi



# PILE NOTES

DIMENSION IN MILLIMETERS
CHAINAGES & REDUCED LEVELS ARE IN METERS AND BASED ON PROVIDED SURVEY.

ALL PILES ARE TO CONFORM TO AS2159 REQUIREMENTS.

ALL PILES SHALL BE DRIVEN TO RESISTANCE AND ALSO TO ACHIEVE THE MINIMUM EMBEDMENT LENGTHS INDICATED IN TABLE 1.

PILE DETAILS AND FOUNDING MATERIAL PROPERTIES HAVE UTILIZED INFORMATION PROVIDED IN GEOTECHNICAL INVESTIGATION REPORT.

A BASIC GEOTECHNICAL REDUCTION FACTOR OF 0.56 HAS BEEN ADOPTED. THE PILE TOE LEVEL SHALL BE AS INDICATED ON THE DRAWING OR AS DETERMINED FROM THE REPRESENTATIVE PILE, WHICHEVER IS LOWER. IF THE REPRESENTATIVE PILE INDICATES THAT THE TOE OF THE PILE COULD BE LIFTED, THE DESIGNER SHALL BE CONSULTED WITH PRIOR TO LIFTING TOE

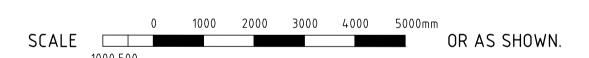
LEVEL.
PILES SHALL BE CONSTRUCTED WITHIN +/- 75MM IN PLAN FROM THE DESIGN POSITION.

CONTRACTOR SHALL UNDERTAKE THEIR OWN DRIVEABILITY ANALYSIS PRIOR TO PILE DRIVING.
BUTT WELDS SHALL BE FULL PENETRATION, SP CATEGORY, AND CONFORM TO

AS/NZS 1554.1.
DRIVING STRESSES SHALL NOT EXCEED 0.9 FSY (OR 0.8 FSY DURING SUSTAINED HARD DRIVING)

STEEL UC PILES SHALL BE GRADE 300 TO AS/NZS 3679.1.

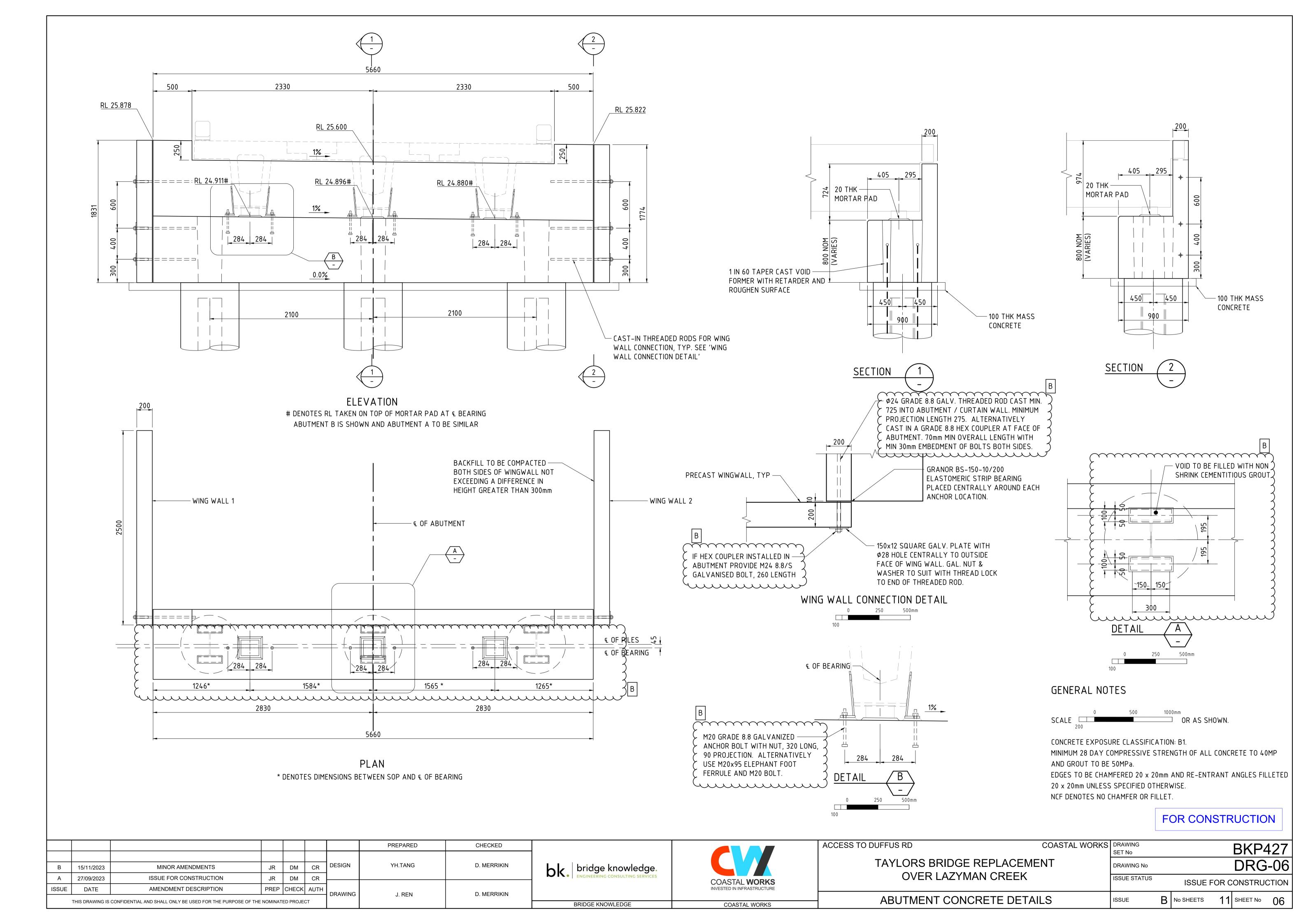
# GENERAL NOTES

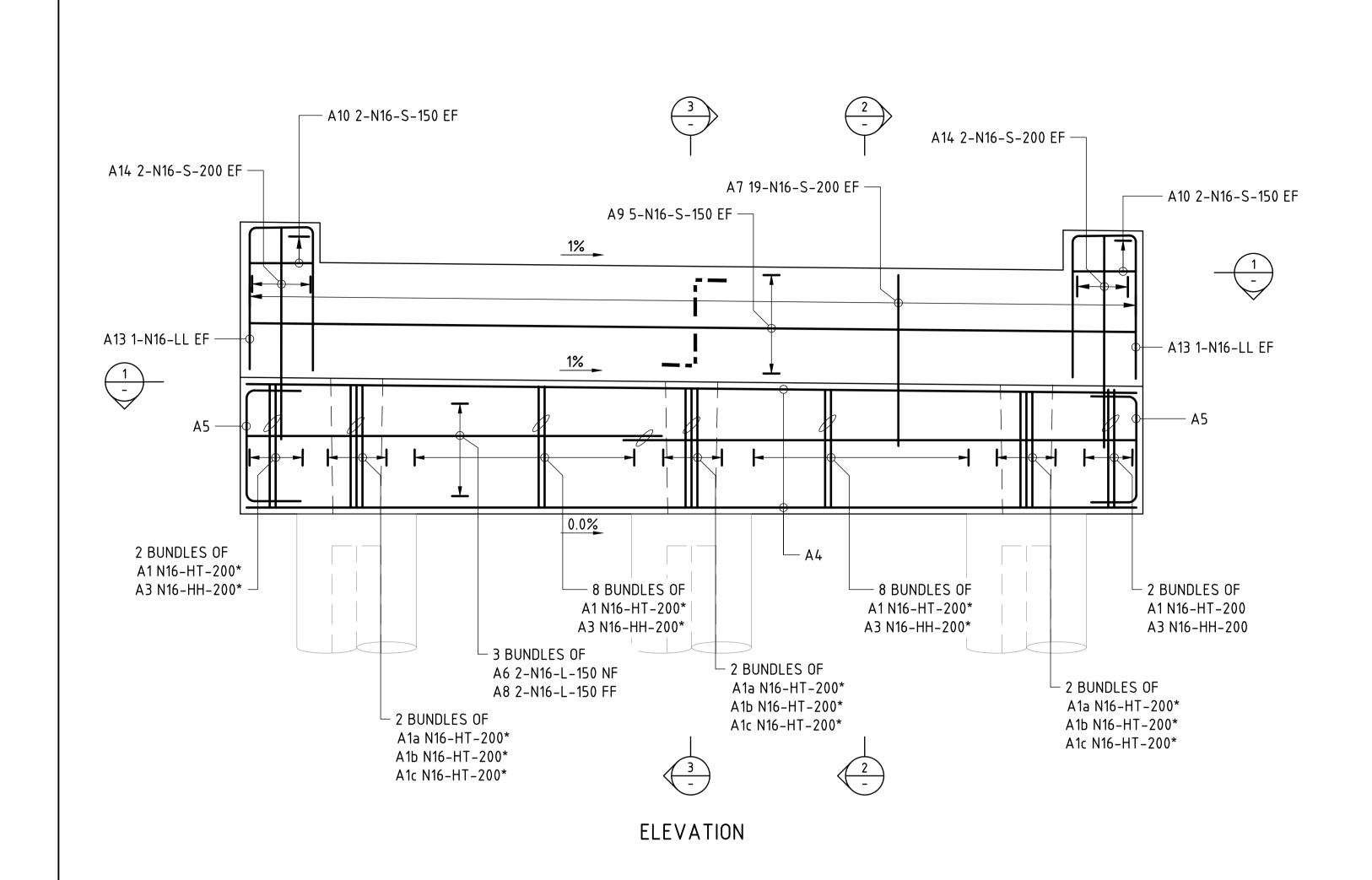


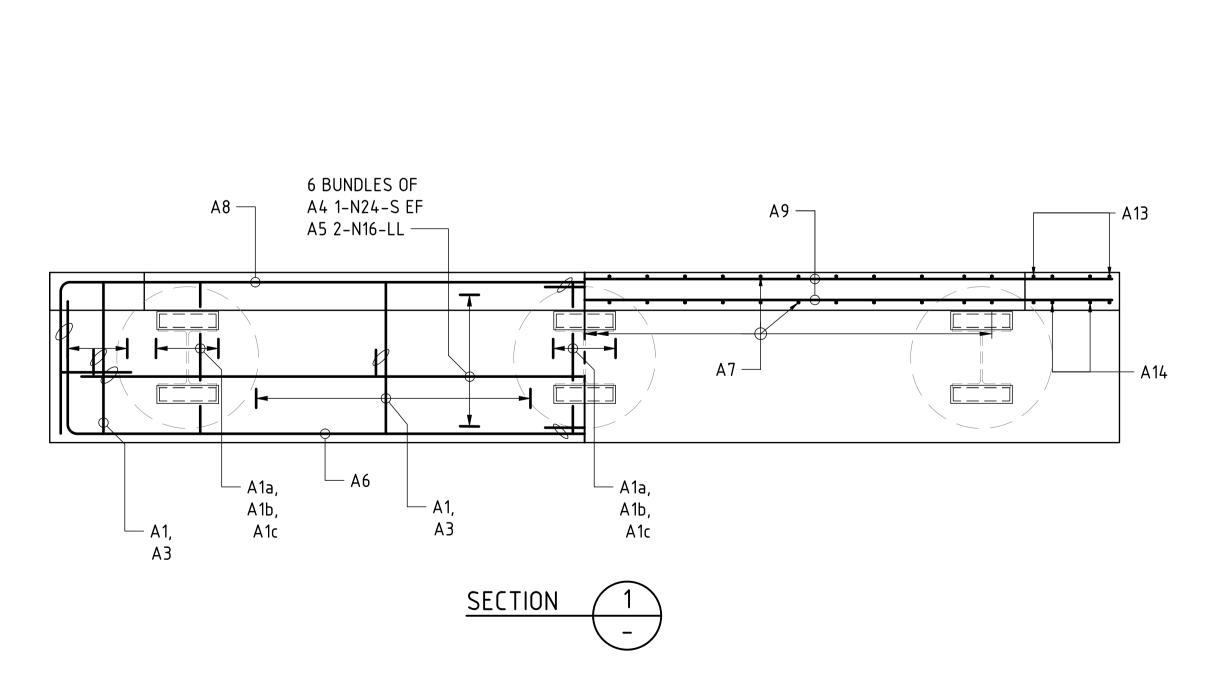
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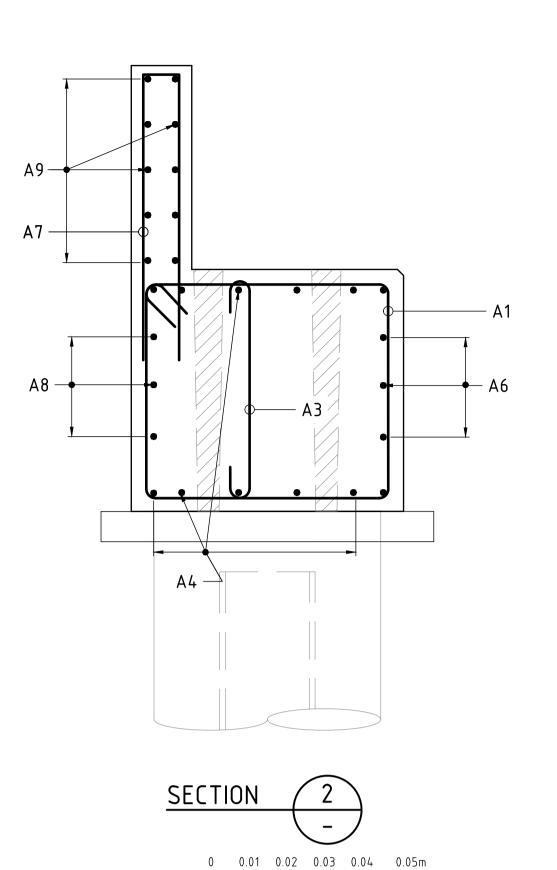
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REDUCED LEVELS ARE TO THE AUSTRALIAN HEIGHT DATUM.
CO-ORDINATES ARE TO MGA ZONE 56.

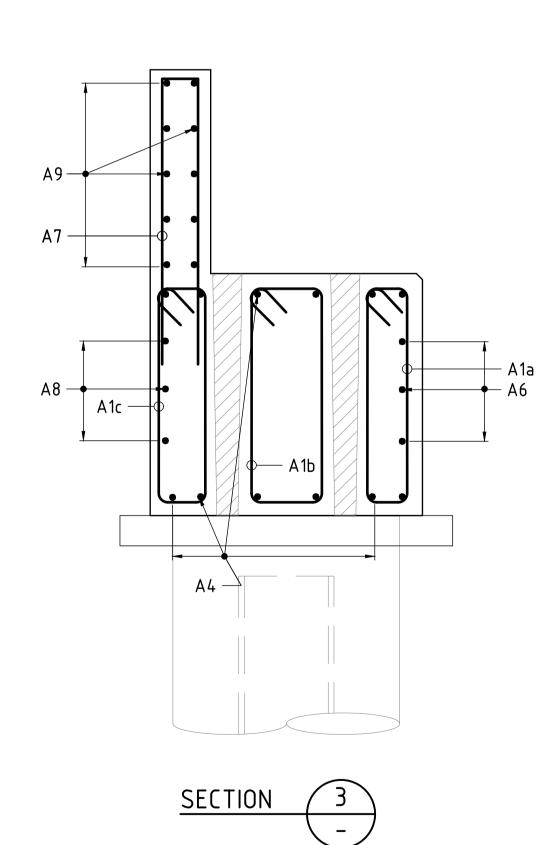
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0 0.01 0.02 0.03 0.04 0.05m

0.01

### GENERAL NOTES



REQUIRED COVER TO REINFORCEMENT NEAREST TO THE CONCRETE SURFACE SHALL BE 45mm FOR EXTERNAL SURFACES, OR 30mm FOR INTERNAL VOIDS, UNLESS SPECIFIED OTHERWISE.

WET CURING IS ASSUMED. IF A CURING COMPOUND IS USED NOMINAL COVER SHALL BE 50mm.

UNLESS OTHERWISE SPECIFIED, THE LENGTHS TO BE AS FOLLOWS:

BAR SIZE:	N12	N16	N20	N24	N28	N32
a) HORIZONTAL BARS WITH >300mm OF CONCRETE CAST BELOW THE BAR	570	760	950	1140	1320	1530
b) OTHER BARS	440	580	730	870	1020	1180

DEVELOPMENT LENGTH MAY BE 80% OF VALUES ABOVE.

CLEAR DISTANCE BETWEEN LAPPED BARS SHALL NOT EXCEED

3 x BAR DIAMETER.

DENOTES VARIABLE LENGTH BAR.

EF DENOTES EACH FACE

NF DENOTES NEAR FACE

FF DENOTES FAR FACE

REINFORCEMENT MAY BE DISPLACED SLIGHTLY WHERE NECESSARY TO CLEAR DOWELS, ANCHOR BOLTS, DRAINAGE PIPES, FORMED HOLES AND RECESSES. 30mm COVER REQUIRED BETWEEN REINFORCEMENT AND CAST-IN VOID FORMERS.

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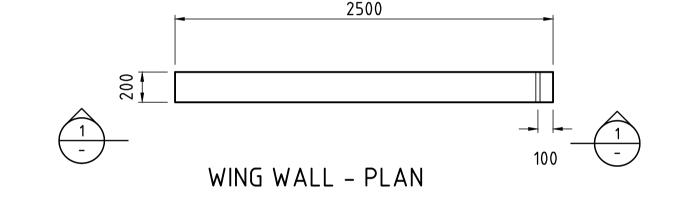
ISSUE STATUS

TAYLORS BRIDGE REPLACEMENT

OVER LAZYMAN CREEK

WINGWALL DETAILS

# FOR CONSTRUCTION



VIEW

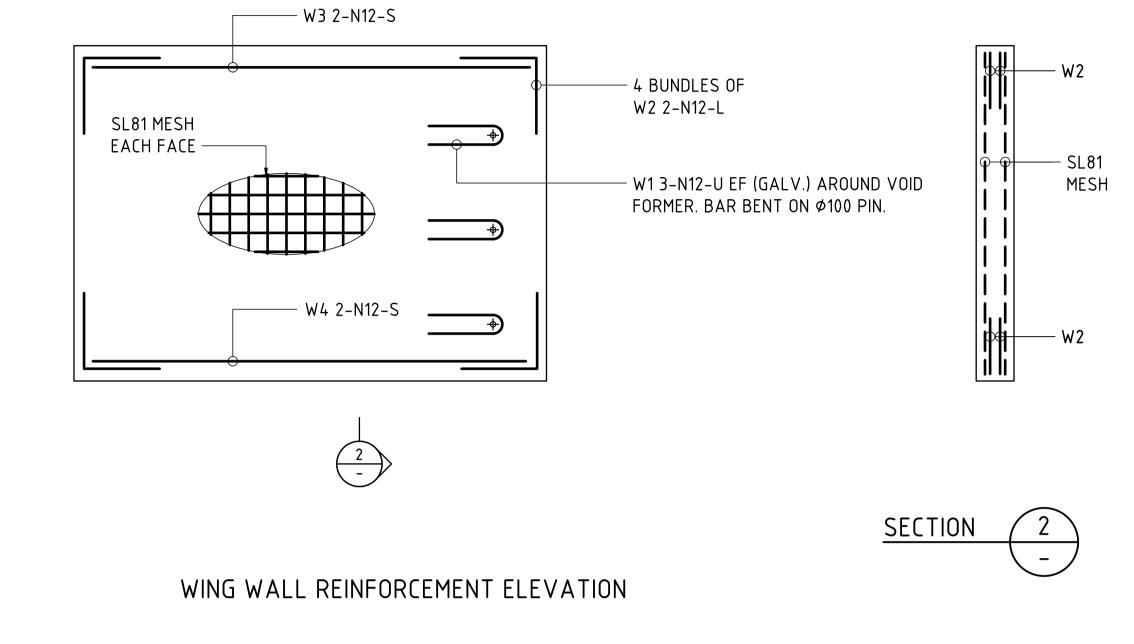
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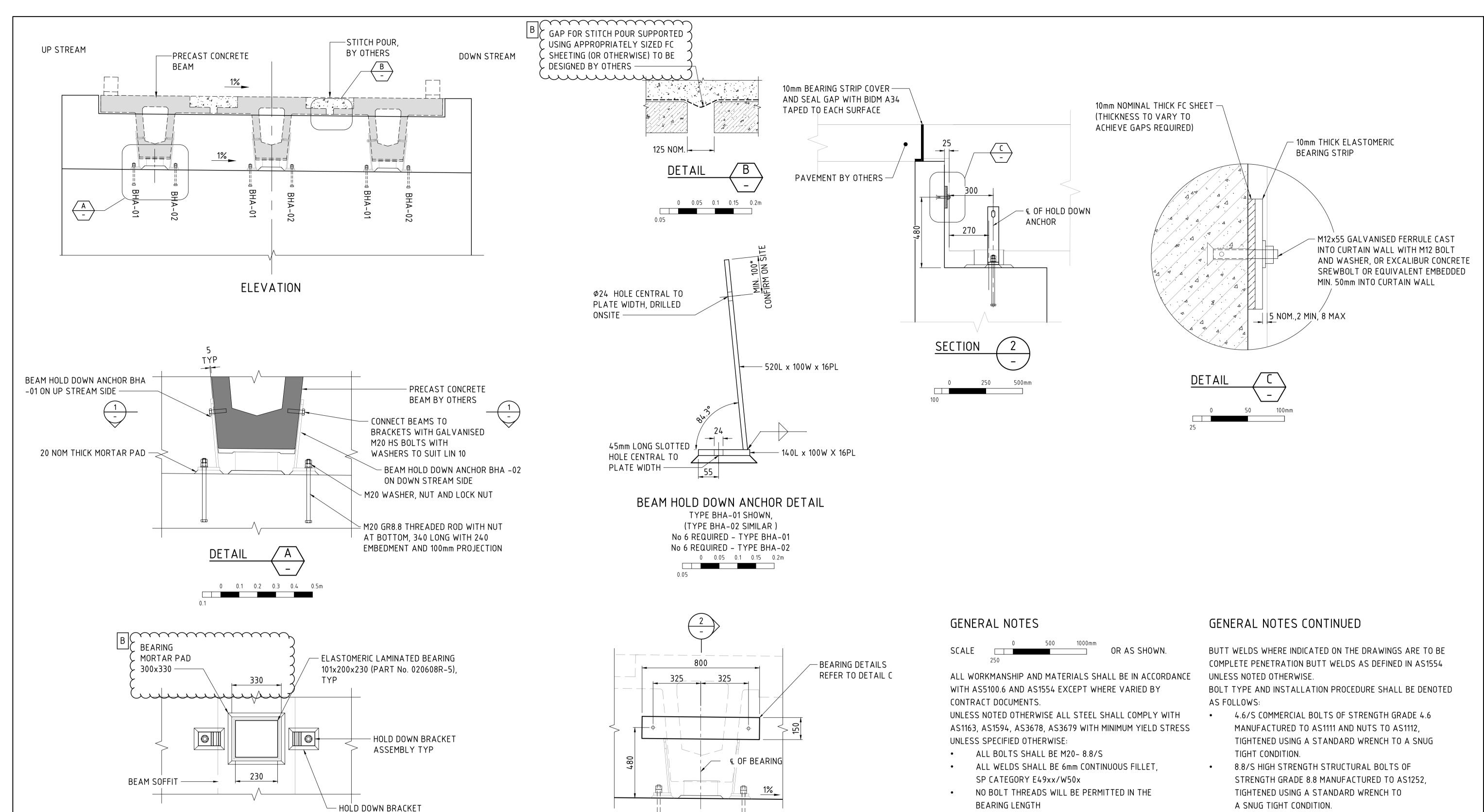
- MINIMUM BURIED DEPTH OF WINGWALLS ON OUTSIDE

DIMENSION OF WINGWALL 1 SHOWN IN BRACKET

1774 (1831)

3xø32 HOLES — FOR Ø24 BOLTS







MORTAR PAD TYP

A SNUG TIGHT CONDITION.

ALL GUSSET PLATES, BASE PLATES, FIN PLATES,

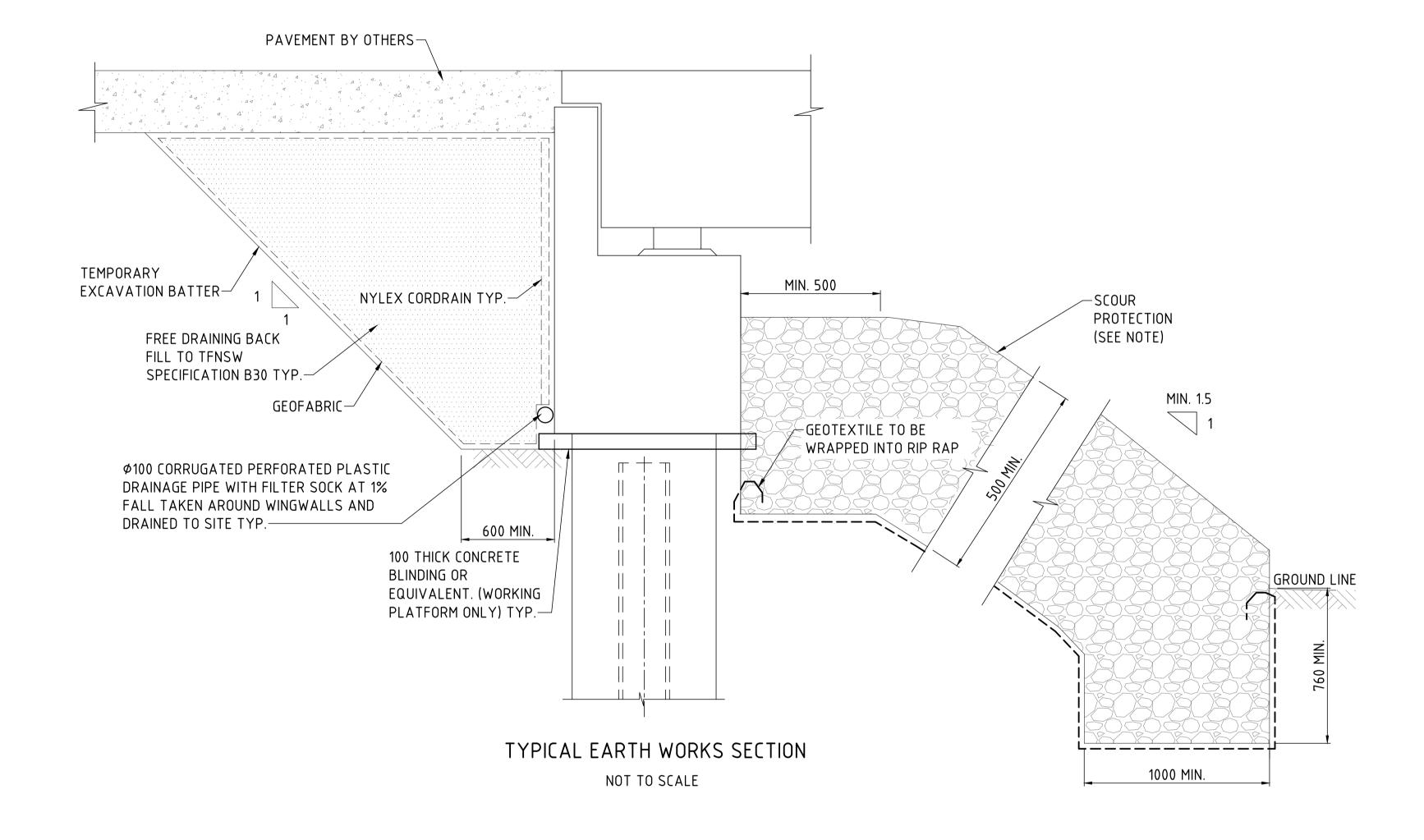
STIFFENERS ETC. SHALL BE 10mm THICK

THE DISTANCE BETWEEN CENTERS OF FASTENER HOLES AND THE MINIMUM DISTANCE FROM THE CENTER OF A FASTENER TO THE EDGE OF A PLATE OR FLANGE OF A ROLLED SECTION SHALL COMPLY WITH AS4100 (U.N.O) WELD TESTING FOR SHOP AND SITE WELDS ARE TO COMPLY

WITH AS4100 AND AS1554.

ALL STEEL ELEMENTS TO BE HOT DIP GALVANISED COMPLYING WITH AS4680.

				PREPARED	CHECKED			ACCESS TO DUFFUS RD	COASTAL WORKS	DRAWING		BKP427
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# GENERAL NOTES



DIMENSION IN MILLIMETERS.

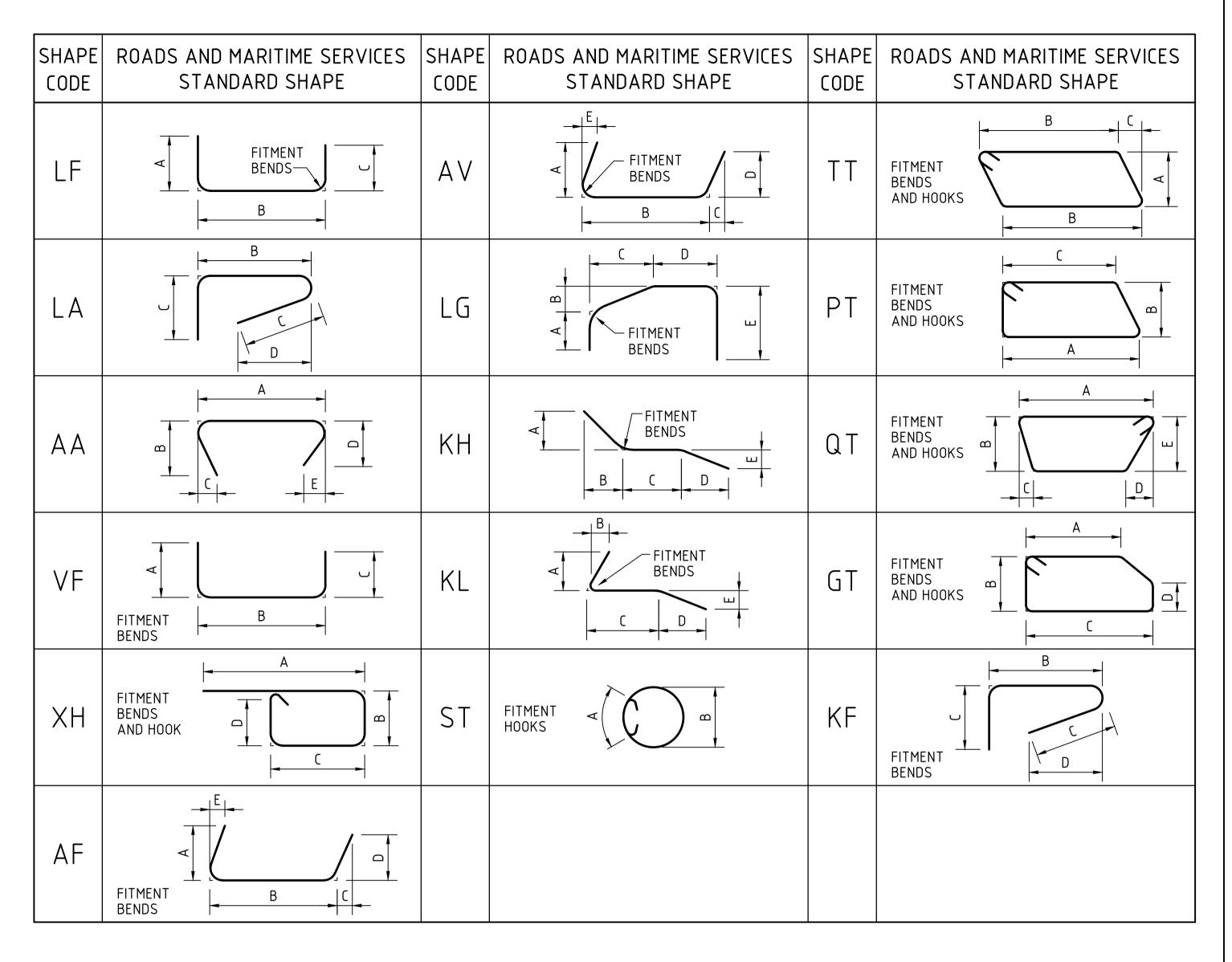
# SCOUR PROTECTION NOTES

SCOUR PROTECTION TO BE RIP RAP ROCK FACING AT ABUTMENT EMBANKMENTS AND TO MEET THE FOLLOWING REQUIREMENTS AS A MINIMUM:

- BE HARD, DENSE, DURABLE, ANGULAR, AND RESISTANT TO WEATHERING
- EXTEND IN WIDTH TO BE AT LEAST 2m FROM ABUTMENT EDGES AND TO BOTTOM OF EMBANKMENT
- BE PLACED IN A LAYER OF MINIMUM 500mm THICKNESS
- ROCK TO HAVE A MIN. D50 OF 300mm
- ROCK TO BE WELL GRADED THROUGHOUT THE RIP RAP LAYER. STONE SIZES ARE DEPENDENT ON THE D50 SIZE WITH D90 EQUAL TO 1.4xD50, AND D10 EQUAL TO 0.5xD50. D10 ROCK NOT TO EXCEED 20% OF WEIGHT OF EACH LOAD.
- GEOTEXTILE FABRIC SHALL BE PLACED UNDER ROCK IN ACCORDANCE WITH MANUFACTURERS SPECIFICATION AND BE BIDIM A39 OR APPROVED EQUIVALENT.
- DURING CONSTRUCTION OF THE SCOUR PROTECTION, GEOTEXTILE SHALL BE FOLDED OVER EDGE OF ROCK TO MAXIMISE THE CONTACT AREA BETWEEN ROCK AND THE GEOTEXTILE.

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SHAPE CODE	AUSTRALIAN STANDARD SHAPE	SHAPE CODE	AUSTRALIAN STANDARD SHAPE	SHAPE CODE	AUSTRALIAN STANDARD SHAPE
S	A	LL	B B	VL	B E FITMENT BENDS
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V	FITMENT BENDS  C B	J	E A C	НТ	FITMENT BENDS
L	B B	JJ		R	A Q R=EXT RADIUS
LH	A A	SP	$\bigcap_{Q} \bigcup_{A} \bigcap_{A}$	RC	A B C
U	D=BEND DIA.	F	'A' IS IN THE DIRECTION OF THE MAIN BARS	Т	C FITMENT BENDS— B



# BAR MARKING LEGEND

THE METHOD USED TO DESCRIBE REINFORCEMENT ON THE DRAWINGS IS AS FOLLOWS:

A1-10-N16-S-300EF INFORMATION FOR PLACING SPACE ALONG LIMIT LINE BAR SHAPE CODE BAR SIZE IN MILLIMETRES BAR STRUCTURAL PROPERTIES NUMBER OF BARS IN THE SET BAR NUMBER IN SEQUENCE — STRUCTURE ELEMENT DENOTATION WHERE THE BAR SPACING IS APPROXIMATE ONLY,

THE FOLLOWING FORMAT TO BE USED: A1 10-N16-S-300EF APPROX

# GENERAL NOTES

STRUCTURE ELEMENT DENOTATION: A - FOR CAST IN-PLACE ABUTMENT

**Q** - FOR PRECAST CONCRETE PILE

**F** - FOR PRECAST CONCRETE FORMWORK **P** - FOR CAST IN-PLACE PIER

INFORMATION FOR PLACING: **NF** – NEAR FACE

**FF** – FAR FACE

**EF** – EACH FACE

# REINFORCEMENT NOTES

- 1 AUSTRALIAN STANDARD BAR SHAPES ARE IN ACCORDANCE WITH AS 1100.501.
- 2 BAR SIZE IS THE NOMINAL DIAMETER IN
- MILLIMETRES, OR THE AS/NZS 4671 FABRIC NUMBER.
- 3 THE GRADE OF REINFORCEMENT, IF NOT STATED ON
- THE DRAWINGS, MUST BE D500N TO AS/NZS 4671. 4 WHERE SHOWN ON THE DRAWINGS, "W" TO
- DENOTE PLAIN ROUND REINFORCING BARS EQUIVALENT TO GRADE R500L TO AS/NZS 4671.
- 5 WHERE SHOWN ON THE DRAWINGS, RL AND SL TO DENOTE WELDED REINFORCING FABRIC
- (RECTANGULAR AND SQUARE), RESPECTIVELY. 6 DIMENSIONS SHOWN ON BAR SHAPES DIAGRAMS ARE MEASURED FROM THE OUTSIDE FACES OF THE BARS
- AND ARE IN MILLIMETRES. 7 THE INCLUDED ANGLE OF ANY BEND TO BE A RIGHT ANGLE IF NO DIMENSION SHOWN.
- 8 BARS OF DIAMETER GREATER THAN 24mm MUST NOT BE REBENT.
- 9 BAR BENDING AND HOOK DETAILS MUST BE IN ACCORDANCE WITH SECTION 5.13 OF AS 5100-BRIDGE DESIGN.

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# **COFFS HARBOU**

Appendix B – Ecological Assessment for Taylors Bridge Replacement

Refer to separate document.



Mark Hankinson
Project Engineer
Coastal Works
mark.hankinson@coastalworks.com.au

7/03/2024

#### RE: Ecological Assessment for Taylors Bridge Replacement

As requested, WolfPeak has prepared an ecological assessment to accompany the REF for the proposed bridge replacement of Taylors Bridge, Upper Corindi NSW.

#### 1. BACKGROUND INFORMATION

The subject site comprises Taylors Bridge, Upper Corindi, approximately 7.5km north of Arrawarra. (Figure 1). The bridge spans the Lazyman creek, a 4<sup>th</sup> order perennial stream within the Corindi River catchment. The bridge and adjacent land are zoned RU2 Rural Landscape, and a small pocket of land approximately 80m south if the site is zoned C2 Environmental Conservation.

The proposed activity is the replacement of the existing timber bridge with a single lane, single span bridge with precast concrete abutments. The new bridge will be 4m wider at the southern edge, therefore requiring the removal of a small extent of native and non-native vegetation within the construction footprint.

The proposed Taylors bridge replacement is part of the Fixing Country Bridges Program. Local road access across the creek will be facilitated by the construction of a temporary access track south of the current bridge, including the installation of a pipeline under the eastern edge of the temporary access track to aid drainage of an ephemeral drainage line. A site shed and vehicle parking lot will also be temporary established on the western side of the study area.

The scope of works is shown in Figure 2.

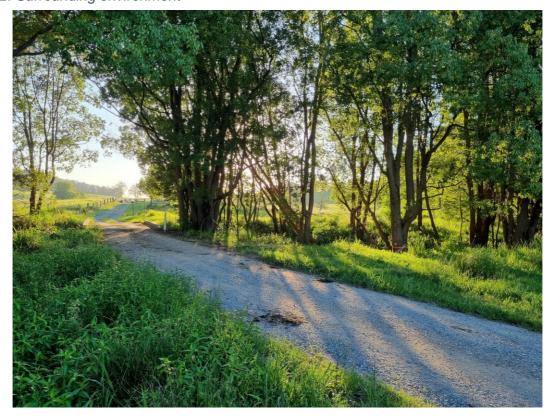
This report has been prepared to document the site's ecological values, assess the potential ecological impacts, and address relevant statutory considerations. A site inspection by WolfPeak's Ecologist was undertaken on the 2<sup>nd</sup> of February 2024. The site inspection involved walking around the bridge site, an opportunistic fauna survey, searches for threatened flora and fauna and an assessment of the aquatic habitat values.



Photo 1: Existing bridge to be replaced



Photo 2: Surrounding environment





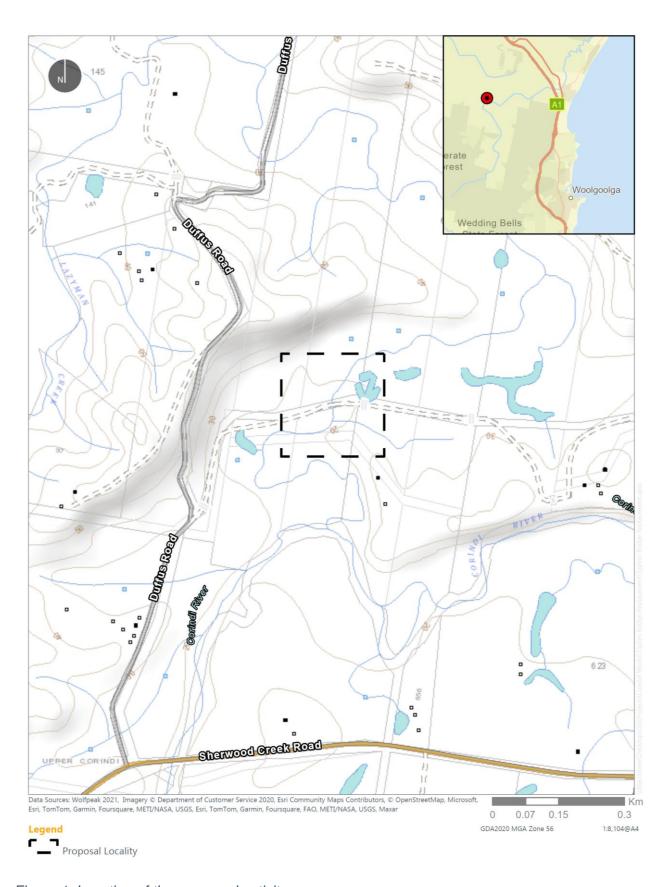


Figure 1: Location of the proposed activity





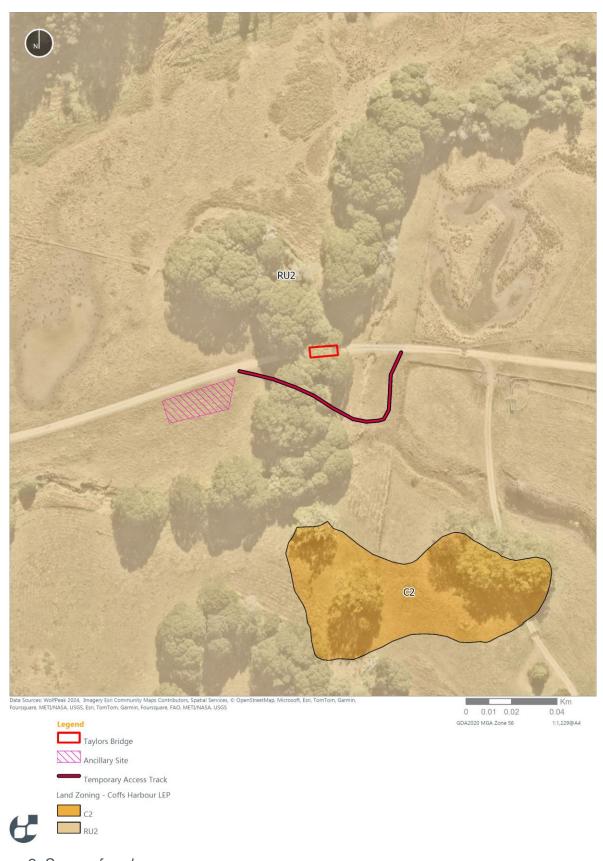


Figure 2: Scope of works





#### 2. EXISTING ENVIRONMENT

#### 2.1 Vegetation Communities

State Vegetation Type Mapping (SVTM) maps the bridge site as "not classified" and the band of riparian vegetation running along Lazyman Creek to the north and south as Northern Lowland Subtropical Rainforest (PCT 3021) (Figure 3).

Site ground-truthing confirmed vegetation within the impact footprint is highly modified and largely non-native. The mid and upper stratum is dominated by Camphor Laurel (*Cinnamomum camphora*). Occasional Cheese Tree (*Glochidion ferdinandi*), Sweet Pittosporum (*Pittosporum undulatum*) and Green Wattle (*Acacia irrorata*) saplings occur throughout. Other species detected include *Clerodendrum floribundum*, Narrow-leaved Palm Lily (*Cordyline stricta*), Small-leaved Supplejack (*Ripogonum brevifolium*), Coffee Bush (*Breynia oblongifolia*), Lawyer vine (*Smilax australis*), and Sweet Morinda (*Gynochthodes jasminoides*). The groundcover layer is largely dominated by Spiny-headed Mat-rush (*Lomandra longifolia*), Common Paspalum (*Paspalum dilatatum*) and Knotweed (*Persicaria sp.*), with Blady Grass (*Imperata cylindrica*), Billygoat Weed (*Ageratum conyzoides*), Common Maidenhair (*Adiantum aethiopicum*) and rushes (*Juncus sp.*) also present.

The site has been historically cleared for grazing purposes, and vegetation present is regrowth approximately 30 - 50 years old. The site is directly bordered by paddocks of assorted pastoral grasses.

No threatened flora species were recorded in the impact area or immediate adjoining land.

#### 2.1.1 Threatened Ecological Communities

Identification of possible TECs was based on the data collected during the survey and review of the relevant listings by the NSW Scientific Committee Final Determinations and the DCCEEW Species Profile and Threats Database (DCCEEW 2024).

The vegetation community on site does not classify as a Threatened Ecological Community (TEC) under the BC Act or EPBC Act. This is due to Camphor Laurel being the only canopy tree present, disturbance history and lack of other structural and floristic indicators.



Photo 3: Camphor Laurel dominated plant community



Photo 4: Riparian vegetation along Lazyman Creek





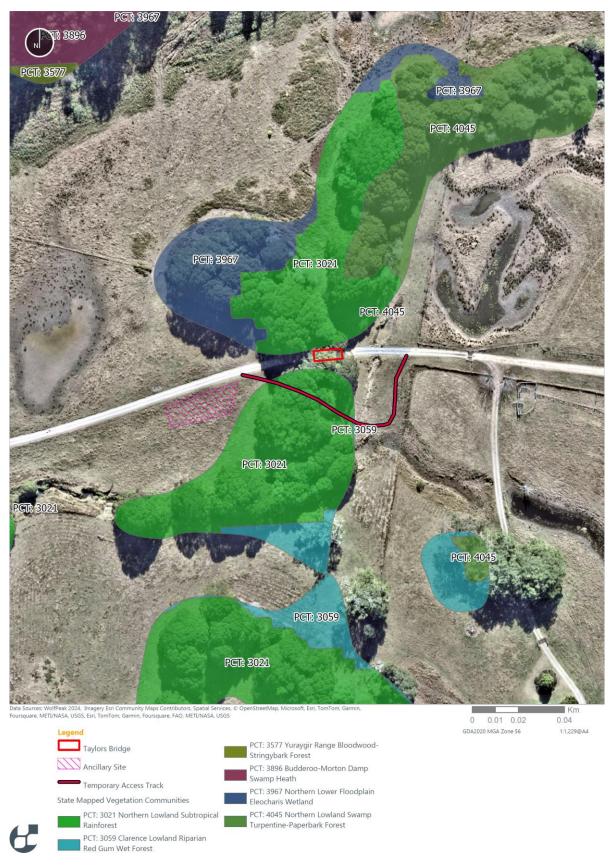


Figure 3: State Vegetation Type Mapping



#### 2.2 Fauna Habitat

The habitats adjacent to the bridge provide low potential habitat resources for fauna. There are no hollow-bearing trees in the study area, thus little potential nesting/denning/roosting habitat for hollow-obligate species. Similarly, no flowering Eucalypts, Koala food trees or Allocasuarinas occur in the study area, thus little foraging habitat is available for fauna such as the Koala, South-eastern Glossy Black-Cockatoo and nectivorous species.

The creek and associated riparian habitat provide moderate potential foraging and breeding habitat for amphibians, as well as potential foraging habitat for Southern Myotis. The creek is devoid of any aquatic plants at the surface and substrate (Photo 5).

The bridge has low bat roosting potential; there is a single large hollow on the eastern end of the second girder from the north (Photos 6-7). The inspection during the site survey did not detect any bats or evidence of roosting (e.g., guano, urine stains). Rodent footprints were observed below the bridge on the western side, and an active Welcome Swallow nest is located under the mid-span of the bridge (Photo 8). There is evidence of previous inundation with debris present between the girders.

Photo 5: Aquatic habitat of Lazyman Creek





Photo 6: Underside of the bridge



Photo 7: Single large hollow in girder providing potential microbat roosting habitat





Photo 8: Active Welcome Swallow nest site



#### 2.3 Observed Fauna

Fauna observed during the site survey comprised common bird species, including Kookaburra, Little Wattlebird, Spotted Dove, Pheasant Coucal, Bar-shouldered Dove, Welcome Swallow, Golden-headed Cisticola, Brown Thornbill and Spangled Drongo. Rocket Frogs (*Litoria nasuta*) were heard calling nearby.

#### 2.4 Threatened Species Potential

Searches of the BioNet database within a 10x10km search area around the site identified 18 threatened flora species and 33 threatened fauna species (Figure 4; Figure 5). The BioNet search results are provided in Appendix A. The Protected Matters Search Tool was also searched within a 10km radius of the site. The search result is provided in Appendix B.

No threatened fauna or flora species were detected during the survey. The limited timeframe of the survey is however acknowledged as a limitation on the detection of threatened species.

Given the habitat types on site and presence of local records, the following threatened species are considered to potentially occur in the study area (Table 1).

An indicative scale has been used to indicate the likelihood of the species occurring. This scale is as follows:



- Low (1-25%) few minor areas of potential habitat; highly modified site/habitat; or few habitats parameters present, but others absent or relatively insignificant (sub-optimum habitat). Usually very few records in locality.
- Fair (25-50%) some significant areas of potential habitat, but some habitat parameters limited. Potential for occasional foraging e.g. from nearby more optimal areas or known habitat. Records at least within 10-15 km radius of site.
- Moderate (50-75%) quite good potentially suitable habitat on and adjacent to the site, and/or good quality and abundance of some vital habitat parameters. Records within <10km, or adjacent to site, or adjacent to high quality habitat where species likely to occur.
- High (>75%) very good to optimum habitat occurring on or adjacent to the site (support breeding pair or population). Recorded within 5-10 km of site in same or similar habitat.

Table 1: Potentially occurring threatened species

Species	<b>Legal Statu</b> s	Habitat suitability/Occurrence type	Occurrence likelihood	
Giant Barred Frog	E – BC Act E – EPBC Act	Creek and riparian habitats provide potential foraging and breeding habitat.	Moderate	
Grey-headed Flying- fox	V - BC Act V – EPBC Act	Generic potential foraging habitat.	Low	
Square-tailed Kite	V – BC Act	Generic potential foraging habitat in surrounding agricultural land.	Low	
Yellow-bellied Sheathtail-bat	V- BC Act	Generic potential foraging habitat.	Low	
Eastern Coastal Free- tailed Bat	V- BC Act	Generic potential foraging habitat.	Low	
Eastern False Pipistrelle	V- BC Act	Generic potential foraging habitat.	Low	
Little Bent-winged Bat Large Bent-winged Bat	V - BC Act	Generic potential foraging habitat, low potential roosting habitat underneath bridge.	Moderate	
Southern Myotis	V - BC Act	Potential foraging habitat along creek line, low potential roosting habitat underneath bridge.	Moderate	



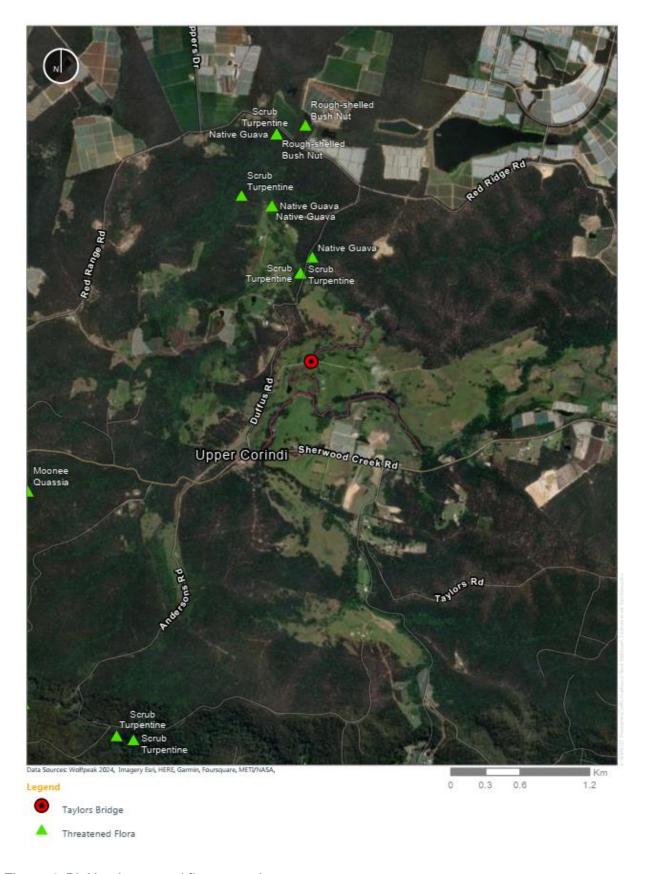


Figure 4: BioNet threatened flora records





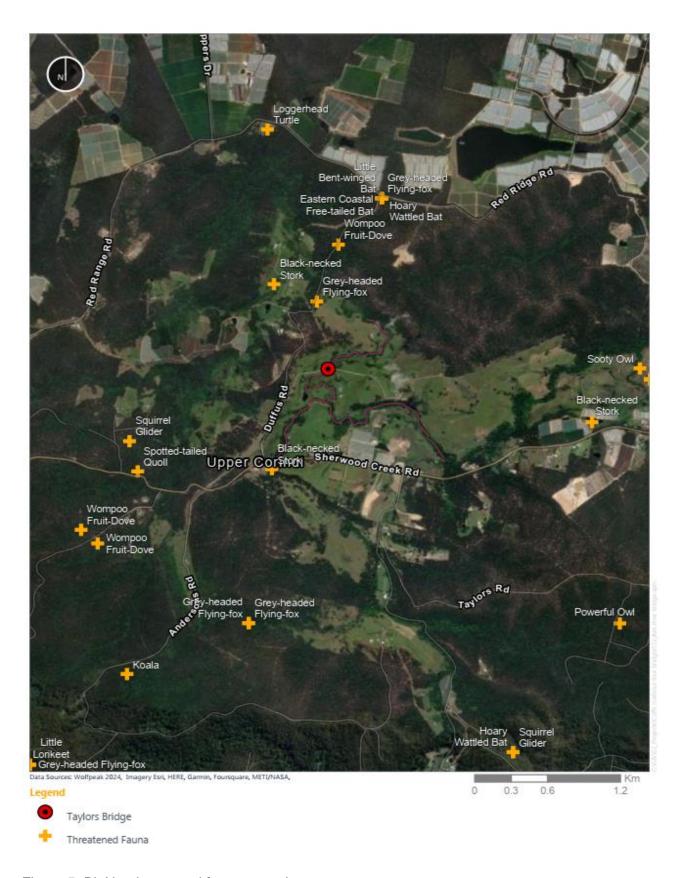


Figure 5: BioNet threatened fauna records





## 3. IMPACT ASSESSMENT

## 3.1 Direct Impacts

The proposal is for the replacement of the existing Taylors Bridge spanning Lazyman Creek in Upper Corindi. Traffic bypass of the work site will require the construction of a temporary access track, and the installation of a drainage pipeline under the eastern edge of the temporary track. A site shed and car park area is also proposed at the western edge of the bridge.

The construction of the bridge will require the removal of two clumps of the invasive Camphor Laurel and one small Cheese Tree. Several Green Wattle, Sweet Pittosporum and Cheese Tree saplings, and Narrow-leaved Palm Lilys will also require removal. While some ground cover vegetation will be affected, Council has indicated that occurring Spiny-headed Mat-rush will be relocated during construction then reused during site rehabilitation process.

The proposed access track to the south of the bridge will require six Camphor Laurel trees to be cut to stump, and installation of pipeline will require the removal of topsoil and containing groundcover vegetation. The shed and carpark will be located on pasture grass with no native vegetation requiring removal. Table 2 provides a summary of all affected trees within the construction footprint.

Table 2: Details of impacted trees

Tree No.	Common Name	Height (m)*	DBH¹ (cm)*	НВТ	KFT	Status	
Bridge Rep	Bridge Replacement						
1	Camphor Laurel x 10	16-18	100	No	No	Remove	
2	Cheese Tree	7	10	No	No	Remove	
Temporary	Temporary Access Track						
3	Camphor Laurel	16	10	No	No	Cut to stump	
4	Camphor Laurel	16	30	No	No	Cut to stump	
5	Camphor Laurel	8	20	No	No	Cut to stump	
6	Camphor Laurel	8	20	No	No	Cut to stump	
7	Camphor Laurel	8	20	No	No	Cut to stump	
8	Camphor Laurel	16	60	No	No	Cut to stump	

Key: \* heights are approximate; 1 Diameter at breast height.

Aquatic habitat within the river and riparian vegetation in the vicinity of the construction site will be disturbed during construction. Works will not block or divert the creek but may result in some temporary sedimentation impacting water quality. If this is carried out in a period of low flow, potential water quality impacts would be minimised.



## 3.2 Indirect Impacts

The following potential indirect impacts may be associated with the proposal:

- a) *Injury/mortality during clearing:* Potential risk of injury or mortality to fauna as trees will require removal. No de-watering or river diversion will be required, however minor risk of injury to amphibians that could be present within the works area during construction.
- b) Inadvertent impacts on retained or adjoining vegetation: If not properly demarcated and protected, it is possible that retained trees and vegetation adjacent to the construction site could be impacted by clearing, earthworks and construction vehicle movements. Recommendations are provided to reduce this risk.
- c) Vegetation fragmentation: The proposed works will contribute to local fragmentation as vegetation will require removal. As the extent of vegetation removal proposed is limited to a small roadside patch, the extent of fragmentation is considered marginal. The proposed works will not lead to any isolation of habitat and the majority of vegetation within the road reserve will remain to continue to provide connectivity for fauna.
- d) **Erosion and sedimentation:** Standard mechanisms and controls should ensure the prevention of erosion and sedimentation during construction and such impacts do not extend beyond the construction footprint.
- e) **Weed invasion:** The proposal is unlikely to introduce any new weed species, however, may increase the potential for spread of weeds within the site through vegetation modification.
- f) **Noise and vibration:** Currently, noise is derived from traffic and nearby rural areas, hence fauna is likely to have a small tolerance to anthropogenic noise. The proposed works will create some noise and vibrations during the clearing and construction phases; however, this will be limited to daytime and be temporary. Some fauna species may be discouraged from foraging on or adjacent to the study area during this time. Post-establishment, the noise and vibration levels will return to levels which occurred prior to construction.



## 4. STATUTORY CONSIDERATIONS AND COMPLIANCE

## 4.1 Biodiversity Conservation Act 2016

## 4.1.1 Assessment Pathway

Under the NSW *Biodiversity Conservation Act 2016* and *Biodiversity Conservation Regulation 2017*, Part 5 developments under the *Environmental Planning & Assessment Act 1979* are not required to enter into the Biodiversity Offset Scheme (BOS) as this is an optional assessment pathway.

Given that assessment under the BOS is not required for Part 5 proposals, a test of significance has been carried out to assess the potential impacts of the proposal on threatened species and ecological communities.

#### 4.1.2 Test of Significance

The Test of Significance is prescribed in Part 7, Division 1, Section 7.3 of the *Biodiversity Conservation Act 2016*. The purpose of the Test of Significance is to determine whether a proposed development or activity is likely to significantly affect threatened species or ecological communities, or their habitats.

The Test of Significance has been prepared in consideration of the *Threatened Species Test of Significance Guidelines* (OEH 2018).

#### 4.1.2.1 Entities to be Assessed

The following species are potentially occurring in the site and are subject to the Test of Significance:

- Giant Barred Frog
- Square-tailed Kite
- Grey-headed Flying-fox
- Eastern Coastal Free-tailed Bat
- Little Bent-winged Bat

- Large Bent-winged Bat
- Southern Myotis
- Eastern False Pipistrelle

#### 4.1.2.2 Responses

a) In the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,

The proposal is for the replacement of the existing Taylors Bridge spanning Lazyman Creek. The works will require the removal of several mature Camphor Laurel, one Cheese Tree, several small



saplings and a small extent of groundcover. Aquatic habitat surrounding the bridge will also be disturbed during works. There is some potential for minor indirect impacts such as noise, sedimentation and further weed invasion.

For the highly mobile species, such as the Grey-headed Flying-fox and Square-tailed Kite, the vegetation to be impacted represents a minute area of generic potential foraging habitat of no specific significance given the amount of similar or higher quality habitat in nearby forested areas further inland. Any potentially occurring local population of these species would clearly extend well beyond the site to meet their daily and seasonal lifecycle requirements, and none would be dependent on habitat in the site for foraging or breeding.

The Giant Barred Frog has potential to forage and breed within the creek and surrounding riparian habitat at the bridge site. No adult frogs or tadpoles were identified during the field surveys. This riparian habitat extends further upstream and downstream from the bridge which offers alternate habitat, as well as many other waterways nearby. The local population of the frog species would be expected to extend well beyond the subject site. Given that no significant area of riparian habitat is impacted, no long-term change to hydrology is required and Chytrid hygiene protocols will be followed; the proposal is unlikely to place a local population of the subject frogs at risk of extinction.

The bridge offers low potential roosting habitat for threatened bat species; however, no signs of roosting were found during the survey. Removal of the bridge will therefore reduce potential roosting opportunities for microbats in the area, however alternative roosting habitat would be available in the surrounding area. Thus, the loss of the bridge would not be expected to significantly impact their breeding success such that a local population would be placed at risk of extinction.

In summary, removal of this habitat for the bridge replacement would be highly unlikely to place a viable population of the subject species at risk of extinction.

- b) In the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity:
  - (i) Is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or
  - (ii) Is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction.

No TECs occur at the subject site.

- c) In relation to the habitat of a threatened species or ecological community:
  - (i) The extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and
  - (ii) Whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and
  - (iii) The importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality.





Habitat to be removed comprises two patches of Camphor laurel, several saplings and a small extent of groundcover surrounding the existing bridge. No hollow-bearing trees will be removed, though the bridge to be replaced does have some potential microbat roosting habitat. Aquatic and riparian habitat within the river will be disturbed via machinery during construction works.

There would be no impact on fauna connectivity as the works will occur within the existing bridge footprint, and no new barrier to movement will be created nor any habitat fragmented.

The vegetation affected by the works would not be of importance to the potentially occurring threatened species. Some potential roosting habitat in the bridge will be removed, however this is a very small extent given potential roosting habitat provided in surrounding areas.

d) Whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),

The proposed activity will not directly or indirectly affect an area of outstanding biodiversity value.

e) Whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.

A Key Threatening Process (KTP) is defined as a process that threatens, or may have the capability to threaten, the survival or evolutionary development of species, populations or ecological communities.

The following table lists the relevant KTPs listed under the BC Act and whether the proposed activity is recognised a threatening process.

Table 3: Key threatening processes

КТР	Extent/manner which proposal affects KTP	Mitigable?
Clearing of native vegetation	Removal of one native tree and a few native saplings.	No, but will be limited minimum extent required.
Human induced climate change	Use of fossil fuels during construction.	Use electric equipment instead of diesel/petrol powered equipment where practicable.  Minimise the use of machinery and plant where practicable.  Turn off machinery when not in use and reduce throttle speed of machines.  Machinery shall be in good, serviced condition to reduce emissions.
Invasion of native plant communities by exotic perennial grasses	Potential to introduce weeds to site or increase spread of exotic grasses.	Weed control recommended to reduce potential for spread.
Invasion, establishment and spread	Potential for spread through	Weed hygiene controls





КТР	Extent/manner which proposal affects KTP	Mitigable?
of Lantana (Lantana camara)	vegetation modification.	recommended to reduce potential for introduction.
Infection of frogs by amphibian chytrid causing the disease chytridiomycosis	Potential spread and introduction of amphibian chytrid fungus to local frog populations.	Chytrid hygiene protocols to be implemented.

#### 4.1.3 Conclusion

The Test of Significance has determined that the proposed activity would not result in a significant impact on threatened species or ecological communities. A Species Impact Statement (SIS) or Biodiversity Development Assessment Report (BDAR) is not required.

## 4.2 EPBC Act – Matters of National Environmental Significance

### 4.2.1 Assessment Summary

The provisions of the EPBC Act require determination of whether the proposal has, will or is likely to have a significant impact on a Matter of National Environmental Significance (MNES). These matters are listed and addressed in summary as follows:

Table 4: MNES Assessment summary

Category	Relevance	Significant Impact Likely?
World Heritage Properties	The site is not listed as a World Heritage area	N/A
National Heritage Places	The site is not listed as a National Heritage Place	N/A
Wetlands of International Importance	The site does not contain important wetlands	N/A
Great Barrier Reef Marine Park	The proposal does not affect the Great Barrier Reef Marine Park.	N/A
Commonwealth Marine Environment (CME)	The site is not within the CME.	N/A
Listed Threatened Ecological Communities	No TECs occur on site.	N/A
Listed Threatened Species	The Giant Barred Frog and Greyheaded Flying-fox are considered potential occurrences in the study area.	No threatened species are likely to be significantly affected by the proposal due to the minor extent of habitat affected, as assessed below.



Category	Relevance	Significant Impact Likely?	
Listed Migratory Species	Several migratory birds are considered potential occurrences in the study area.	No migratory species are likely to be significantly affected by the proposal.	
Nuclear Actions	The proposal is not a nuclear action	N/A	
A water resource, in relation to coal seam gas development and large coal mining development	The proposal is not a mining development.	N/A	

## 4.2.2 Protected Species Assessments

The following EPBC Listed threatened species are considered to potentially occur on the site

- Giant Barred Frog Endangered
- Grey-headed Flying-fox Vulnerable

These species are assessed below.

#### 4.2.2.1 Giant Barred Frog

#### **Significant Impact Criteria**

Table 5: Significant impact assessment

Significant Impact Criteria	Details
a) Lead to a long- term decrease in the size of a population of a species	The Giant Barred Frog could potentially breed in the creek at the site of the bridge. However, the proposal has minimal potential to impact this species as only a very small area of the creek will be temporarily disturbed during construction. The works are also recommended to be scheduled outside the breeding season, further minimising potential for tadpoles to be present. Standard erosion and sedimentation measures would also be implemented to minimise impacts on downstream aquatic impacts. Given this, the proposal is highly unlikely to result in a long-term decrease in the size of a local population.
b) Reduce the area of occupancy of a population	The works will only affect the bridge and at most the directly adjacent sections of the riparian zone. Relative to the extent of habitat in the creek and adjacent forest, this is considered inconsequential to the area of occupancy of any local population.
c) Fragment an existing population into two or more populations	The proposal is to replace the existing bridge with no long-term change to the current hydrology of the watercourse; hence, tadpole movement will not be permanently affected. No fence or new road is to be constructed which would impact adult frogs; thus, no population is likely to be fragmented by the proposal.
d) Adversely affect habitat critical to the	Habitat critical to the survival of a species may include areas that are necessary for/to:  • activities such as foraging, breeding, roosting or dispersal,



Significant Impact Criteria	Details
survival of a species	<ul> <li>maintain genetic diversity and long-term evolutionary development,</li> <li>reintroduction of populations or recovery of the species/community</li> <li>If the Giant Barred Frog is breeding in the creek, this would make it critical habitat. The proposal acknowledges this potential and mitigates the potential impacts by minimising the works footprint and scheduling the work outside the breeding season. Additionally, any tadpoles potentially within the works area will be relocated to the nearest suitable habitat, and measures implemented to minimise erosion and sedimentation impacts downstream. Collectively, these measures will ensure the potential impact on critical habitat is minimised, and these values are preserved.</li> </ul>
e) Disrupt the breeding cycle of a population	<ul> <li>The proposal is unlikely to disrupt the breeding cycle of a population given that:</li> <li>the works only affect habitat under and adjacent to the existing bridge – the majority of the creek will be retained as is,</li> <li>the works are scheduled outside the breeding season,</li> <li>no permanent barrier to movement or risk of injury (e.g., entanglement) or strike threat will be created or increased,</li> <li>the potential for these species to occur within the study area will be retained post-works, and</li> <li>alternative potential habitat in the locality is extensive</li> </ul>
f) Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The site and the degree of vegetation/habitat loss is not significant enough to affect a population of the Giant Barred Frog to the point it could cause a decline of the species due to their ecological requirements and relatively miniscule extent of vegetation modification, and no significant change to the aquatic habitat's extent or character.
g) Result in invasive species, that are harmful (by competition, modification of habitat, or predation) to a Vulnerable species, becoming established in the Vulnerable species' habitat	No new invasive species are likely to be introduced as a direct result of the proposal. There is potential for further spread of weeds in disturbance areas which may lead to modification of habitat; hence, weed control measures are recommended to reduce this risk.
h) Introduce a disease that may cause a species to decline	Chytrid is an existing threat to amphibians in the area. The risk will be mitigated by hygiene protocols for the construction phase to minimise risk of the diseases being introduced via contaminated plant, tools, and footwear e.g., imported from use in areas where such diseases are present.





Significant Impact Criteria	Details
i) Interferes substantially with the recovery of the species	The proposal will result in the removal of a relatively minute area of habitat for the Giant Barred Frog which is not significant enough to interfere with their recovery, and disturbance associated with construction will only be short term.
Resulting Impact	No significant impact

#### 4.2.2.2 Grey-headed Flying-fox

#### **Important Population Assessment**

The Grey-headed Flying-fox population potentially utilising the subject site is not considered to represent an important population of this species. No breeding colonies are located in the study area, with the closest camp occurring in Glenreagh approximate 14km to the west. The site is also not located within the limit of this species' range.

#### **Significant Impact Criteria**

Table 6: Significant impact assessment

Significant Impact Criteria	Details
a) Lead to a long-term decrease in the size of an important population of a species	The proposal will require the modification of a minute extent of native vegetation from an area of potential foraging habitat. This loss will have a very minor impact on the local Grey-headed Flying-fox populations as the site in total would only form a very minute fraction of this species wider opportunistic/ seasonally variable foraging range. The study area is also not a known roost for the Grey-headed Flying-fox and alternative foraging habitat in the locality is extensive. The proposal will thus not lead to a long-term decrease in the size of an important population.
b) Reduce the area of occupancy of an important population	The minor loss of foraging habitat in the works footprint is insignificant relative to the area of occupancy which is measured in terms of hundreds of thousands of hectares. Consequently, the proposal would not reduce the area of occupancy of the important population.
<ul> <li>c) Fragment an existing important population into two or more populations</li> </ul>	The Grey-headed Flying-fox is highly mobile and known to be capable of crossing human-modified habitat. The proposal will offer no barrier to movement. Thus, it will not fragment an existing important population.
d) Adversely affect habitat critical to the survival of a species	The vegetation on site is not considered critical habitat for the Greyheaded Flying-fox. Post-works, the remainder of the site and other habitats in the locality will retain the potential to support this species, hence helping support the viability of the local population.
e) Disrupt the breeding cycle of an important population	The habitat in the site to be removed does not contain an important population of this species and does not represent potential breeding habitat. The removal of this habitat would hence not be capable of disrupting the breeding cycle of the Grey-headed Flying-fox.



Significant Impact Criteria	Details
f) Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The degree of possible vegetation loss imposed by the proposed activity is not significant enough to affect a local population of the Grey-headed Flying-fox to the point that it could cause a decline of the species.
g) Result in invasive species, that are harmful (by competition, modification of habitat, or predation) to a Vulnerable species, becoming established in the Vulnerable species' habitat	No new species that affects the Grey-headed Flying-fox is likely to be introduced as a direct result of the proposal.
h) Introduce a disease that may cause a species to decline	No disease that poses a potential risk to this species is likely to be introduced to the site.
<ul> <li>i) Interferes substantially with the recovery of the species</li> </ul>	The proposal will result in the removal of a relatively minute area of foraging habitat for the Grey-headed Flying-fox that is not significant enough to interfere with their recovery.
Resulting Impact	No significant impact

#### 4.2.3 Conclusion

The significance assessments have determined that the proposal is unlikely to have a significant impact on the subject species. Referral to the Department of Environment, Energy, Climate Change and Water (DEECCW) is not required.



## 4.3 Fisheries Management Act

This section specifically focuses on habitat and organisms associated with the *Fisheries Management Act 1994* (FM Act) and *Fisheries Management (Amendments) Act 1997*. The study area for this assessment is the aquatic habitats of Lazyman Creek.

#### 4.3.1 Aquatic Habitat Evaluation

#### 4.3.1.1 Waterway Definition and Description

Lazyman creek is a 4<sup>Th</sup> order stream flowing south into Corindi River. The creek is approximately 5m wide and 30cm deep at the bridge site, and opens to a pool on the southern side of the bridge that is 7m wide before narrowing to 1 -2m at the proposed temporary crossing location. The riverbed substrate consists of gravel and rock.

As per the *Policy and Guidelines and Fish Habitat Conservation and Management* (NSW DPI 2013), the creek qualifies as a Class 1 waterway for fish passage (permanently flowing or flooded freshwater waterway (e.g. river or major creek).

#### 4.3.1.2 Aquatic Vegetation

Lazyman creek is freshwater, and no seagrasses or mangroves occur. No aquatic plants occur in the creek at the bridge site.

To date, no freshwater aquatic vegetation has been listed as Vulnerable or Endangered under the *Fisheries Management Act 1994* (FM Act).

#### 4.3.1.3 Key Fish Habitat

Lazyman Creek is mapped as Key Fish Habitat under the *Fisheries Management Act 1994* (Figure 6). Based on the definitions provided in *Policy and Guidelines and Fish Habitat Conservation and Management* (NSW DPI 2013), the creek would be defined as Type 2 Moderately sensitive key fish habitat.

The proposal will be subject to recommendations in this report and associated REF to minimise any potential aquatic impacts downstream.

#### 4.3.1.4 Potential Occurrence Assessment

One threatened species listed under the FM Act, the Southern Purple Spotted Gudgeon (*Mogurnda adspersa*), is considered a potential occurrence in Lazyman creek, as the site is within its predicted distribution (Figure 7). This species has been assessed in the following section.

#### 4.3.1.5 Permit Requirement

The proposal involves works in the Lazyman Creek which is mapped Key Fish Habitat under the *Fisheries Management Act 1994*. Pursuant to Part 7, section 200 of the Act, a permit to carry out dredging and/or reclamation works is required prior to works commencing.



Photo 9: Lazyman Creek beneath the bridge



Photo 10: Lazyman Creek at temporary access crossing



# **Wolfpeak**

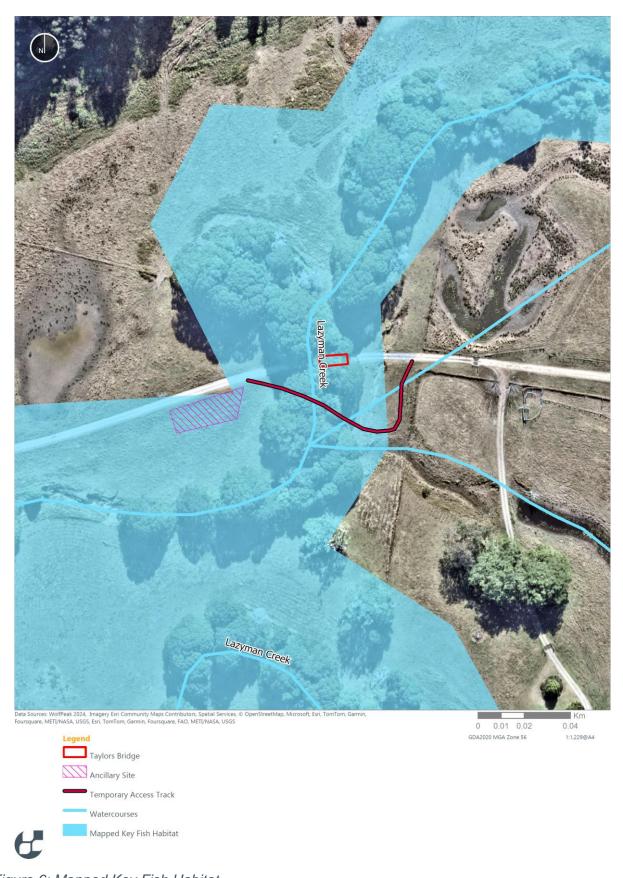


Figure 6: Mapped Key Fish Habitat





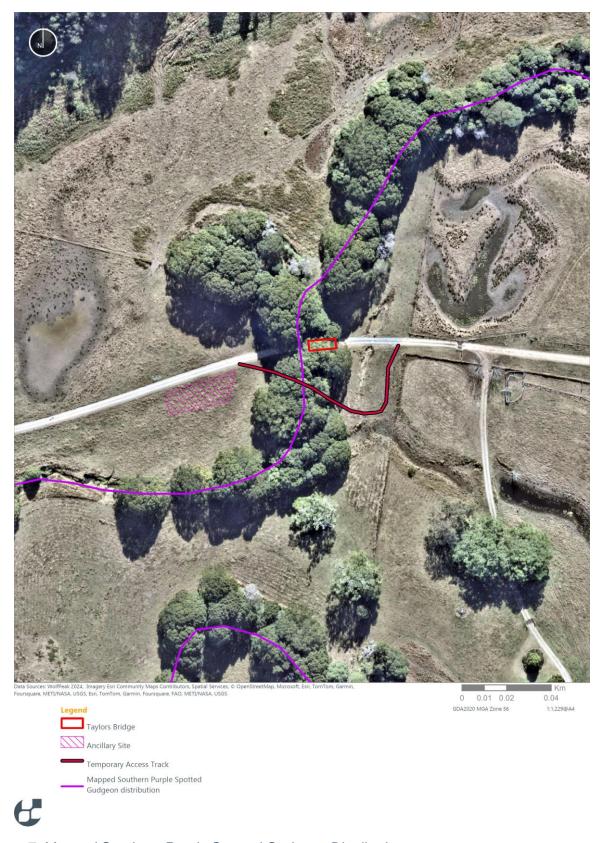


Figure 7: Mapped Southern Purple Spotted Gudgeon Distribution



#### 4.3.2 Fisheries Management Act Assessment

#### 4.3.2.1 Test of Significance

The *Fisheries Management Act 1994* requires developments and activities to determine if they likely to affect threatened species, populations or ecological communities, or their habitats. Division 12 S. 221ZV of the FM Act sets out the process for determining whether a significant affect is likely to occur.

#### 4.3.2.2 Entities to be Assessed

The Southern Purple Spotted Gudgeon, which is listed as Endangered under the FM Act, is considered a potential occurrence on site and requires assessment.

#### 4.3.2.3 Responses

The following is to be taken into account for the purposes of determining whether a proposed development or activity is likely to significantly affect threatened species, populations or ecological communities:

(a) in the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,

The activity will involve some bank works for the bridge removal and replacement. The creek has some potential to support the Southern Purple Spotted Gudgeon, however the habitat is considered degraded due to recent floods and lack of snags or aquatic vegetation. The bridge works may result in the temporary disturbance of the river during construction; however, it will not block the river. A temporary creek crossing will be required to maintain vehicular access which will result in disturbance to the creek bed and banks. Provided the recommendations of this report are followed, the works would be unlikely to have an adverse effect on the life cycle of the Southern Purple Spotted Gudgeon.

(b) in the case of an endangered population, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction,

There are no endangered populations in the study area.

- (c) in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity—
  - (i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or
  - (ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,

There are no endangered aquatic communities in the study area.





- (d) in relation to the habitat of a threatened species, population or ecological community—
  - (i) the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and
  - (ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and
  - (iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the threatened species, population or ecological community in the locality,

The works may result in the temporary disturbance of Lazyman creek at the construction site. This will not block or alter stream flow or remove aquatic habitat, and no isolation of habitat will result. The habitat affected only comprises a fraction of the habitat available to this species in the local river system, and the works are unlikely to lead to any adverse impacts on the system overall.

(e) whether the proposed development or activity is likely to have an adverse effect on any critical habitat (either directly or indirectly),

The study area does not contain critical habitat.

(f) whether the proposed development or activity is consistent with a Priorities Action Statement,

There is a Priority Action Statement for the Southern Purple Spotted Gudgeon, which is for consent authorise to provide information on this species and ensure appropriate consideration during development assessment processes. This action has been considered.

The remaining actions largely relate to the activities of government authorities and research bodies and are not relevant to the proposal.

(g) whether the proposed development constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.

The following KTP may be relevant to the works:

Degradation of native riparian vegetation along NSW waterways

It is noted that the works will not removal any large woody debris in the river and will not block or alter stream flow. The construction works may increase sedimentation, potentially impacting downstream habitat, however this will be temporary and appropriate controls will be in place to reduce this impact.

#### 4.3.2.4 Conclusion

The works are unlikely to result in a significant impact on the Southern Purple Spotted Gudgeon.



## 5. **RECOMMENDATIONS**

## 5.1 Timing of Works

If possible, the bridge replacement works are recommended to be undertaken outside late spring to summer when the potentially occurring threatened frog and/or bat species may breed. This will reduce the potential to impact the breeding cycle of these species.

## 5.2 Vegetation Removal Procedures

#### 5.2.1 General

The clearing footprint is to be clearly marked (e.g. with stakes and bunting) before clearing in order to prevent inadvertent clearance beyond what is required and has been assessed. Trees to be removed should be clearly marked with flagging tape or spray paint. No clearing is to occur beyond the marked area, and vehicles are only to be parked in designated areas.

Protection zones are to be established around retained trees and vegetation. Clearing and earthworks is to avoid damage or compaction to root zones of the retained trees.

Trees are not to be felled into adjoining retained vegetation. Vegetation clearing should be undertaken in a sequential manner that does not isolate patches of habitat and gives fauna an opportunity to escape into adjacent habitat.

### 5.2.2 Pre-Start Briefing

The project ecologist is to conduct a pre-start briefing to clearing and civil contractors prior to the commencement of clearing works. All in attendance are to be informed of the required clearing measures to ensure compliance.

## 5.2.3 Pre-clearing Survey and Clearing Supervision

The following ameliorative measures should be carried out prior to and during clearing works on the site.

- The clearing extent is to be inspected for fauna by a qualified ecologist immediately prior to commencement of any vegetation removal involving machinery and/or tree-felling. This is to occur each morning if clearing spans over multiple days/weeks. The ecologist is to flag any habitat features which may contain fauna and trees which contain hollows, nests or dreys.
- 2. If a Koala is present in an area subject to vegetation removal/modification, works must be suspended until the Koala moves along on its own volition. If the Koala is located in a position that a 50-metre buffer may be established, works may proceed outside this buffer. In this event, the ecologist is to remain on site to monitor the Koala for signs of distress. If the ecologist determines that the Koala is in distress, works must be suspended within this area until a larger buffer is created or the Koala moves along on its own volition.
- 3. The ecologist is to remain on site to supervise removal of any habitat features. Other than Koalas, any detected fauna is to be relocated off-site. Any bird nest considered active is to



be removed in a manner that allows retrieval of eggs/young, and these are to be taken into care by FAWNA.

## 5.3 Southern Purple Spotted Gudgeon Procedures

The following recommendations are provided to minimise potential impacts:

- Avoid work during the Southern Purple Spotted Gudgeon breeding season in the warmer months (November-March) if possible.
- · Aim to reduce sediment input into the river.
- Reduce time machinery is in the water.

## 5.4 Pre-demolition Bridge Inspection

The existing bridge has low potential for microbat roosting. Prior to removal of the existing bridge, a qualified ecologist or environmental officer is to thoroughly inspect potential roosting crevices underneath the bridge to determine if any microbats are present. If none are found, bridge removal works can proceed without any further measures.

If microbats are found, they are to be left undisturbed and for small colonies or individuals, measures must be taken to prevent bats returning to roost under the bridge. This may include filling cavities with expanding foam or installing geofabric under the entire underside of the bridge at night to block bats returning to roost under the bridge. Bridge removal is to be undertaken by gradually dismantling the bridge and is to be supervised by an ecologist.

If larger colonies of >15 bats are identified, further survey and impact assessment would be required to assess the impact of the bridge removal and formulate additional recommendations.

## 5.5 Hygiene Protocols

Management measures to avoid and minimise the spread of Myrtle Rust and amphibian chytrid fungus will be required. The DPIE document *Hygiene Guidelines: Protocols to protect priority biodiversity areas in NSW form Phytopthora cinnamomi, myrtle rust, amphibian chytrid fungus and invasive plants* (DPIE 2020) provides measures that should be followed on site to reduce the risk of spreading myrtle rust or introducing amphibian chytrid fungus.

The following hygiene protocols are recommended to be adopted:

Measures required prior to entering work site or moving to new areas:

- Check personnel, clothing, footwear, backpacks and equipment for soil, plant material/propagules and other debris.
- Remove all soil, plant material and other debris using a hard brush and (if required) clean water.
- Ensure hands, clothing, footwear, and equipment are dry before proceeding.
- Ensure plant and machinery is thoroughly cleaned inside and out before entering the site or moving between different areas (refer to page 12 and 17 of the guide). Use 70% alcohol





wipes or a spray bottle to apply disinfectant to the interior of vehicle. Spray the exterior with disinfectant or hand pressure sprayer. Allow the disinfectant to remain in contact with the surface for at least 30 seconds before rinsing with clean water.

#### 5.6 Erosion and Sedimentation

Standard erosion and sedimentation controls will be required to minimise offsite impacts and sedimentation of the riverbank.

- Sediment fencing and sediment traps would be implemented in a manner consistent with currently accepted best management practice prior to any earthworks being undertaken. Sediment controls are to:
  - prevent sediment moving off-site and sediment laden water entering the river, drainage lines or drain inlets.
  - protect bridge embankments from drain discharge.
  - reduce water velocity and capture sediment on site.
  - divert upslope and clean waters around the bridge during construction to ensure the entire system is stable.
- Sediment controls would be maintained and in good working order for the whole duration of the works and subsequently until the site has been stabilised and the risk of erosion and sediment movement from the site is minimal.

No work will be undertaken during rainfall events and following any heavy rainfall events occurring during on-ground works close monitoring of all erosion and sedimentation mitigation structures will occur to ensure such structures are performing adequately.

#### 5.7 Weed Control

Disturbance of the site's soils during vegetation removal and construction has potential to encourage weed invasion. Hence, it is recommended that:

- Disturbance of vegetation and soils on the site should be limited to the areas of the proposed work and should not extend into adjacent vegetation.
- To assist in reducing the spread of exotic species, all vehicles and machinery are to be inspected for the presence of weeds prior to entering the site.
- Invasive weeds within the clearing footprint are appropriately treated and collected prior to clearing and are disposed of within a landfill facility; and
- Any new weed infestations that arise within the works area during construction are to be treated and removed.





## 6. CONCLUSION

This report has assessed the impact of the proposed replacement of Taylor Bridge in Upper Corindi. A small extent of Camphor Laurel will be removed, as well several small native saplings and groundcover. Some riparian habitat will be temporarily disturbed. The site vegetation does not qualify as a Threatened Ecological Community under either the NSW BC Act or Federal EPBC Act.

No threatened fauna or flora species were detected during site inspection however several threatened species are considered to potentially occur in the area. The minor level of vegetation removal required and low potential for indirect impacts is unlikely to lead to a significant impact on threatened species. The bridge to be replaced provides some potential roosting habitat for threatened microbat species, and mitigation measures are recommended to manage any potential impacts. Other mitigation measures developed to reduce potential impacts on other flora, fauna and aquatic habitats include sedimentation and erosion measures, hygiene procedures and weed control.

Should you have any queries or require further information please do not hesitate to contact the undersigned.

Yours sincerely,

Lucy Ascanio

Lucy Ascanio Ecologist

Email: lascanio@wolfpeak.com.au



## **APPENDIX A - BIONET SEARCH RESULTS**

Common Name	Scientific Name	BC Act	EPBC Act	Number of Records		
Flora						
Slender Marsdenia	Marsdenia longiloba	Е	V	1		
Stinky Lily	Typhonium sp. aff. brownii	Е	-	1		
Dwarf Heath Casuarina	Allocasuarina defungens	Е	Е	4		
Water Nutgrass	Cyperus aquatilis	Е	-	2		
Square-stemmed Spike-rush	Eleocharis tetraquetra	E	-	39		
Hairy Melichrus	Melichrus hirsutus	E	Е	1		
	Maundia triglochinoides	V	-	14		
Noah's False Chickweed	Lindernia alsinoides	E	-	63		
Slender Screw Fern	Lindsaea incisa	Е	-	10		
Sandstone Rough-barked Apple	Angophora robur	V	V	1		
Square-fruited Ironbark	Eucalyptus tetrapleura	V	V	12		
Scrub Turpentine	Rhodamnia rubescens	CE	CE	9		
Native Guava	Rhodomyrtus psidioides	CE	CE	5		
Hairy Jointgrass	Arthraxon hispidus	V	V	1		
Rough-shelled Bush Nut	Macadamia tetraphylla	V	V	2		
Orara Boronia	Boronia umbellata	V	V	13		
Rusty Plum, Plum Boxwood	Niemeyera whitei	V	-	7		
Moonee Quassia	Quassia sp. Moonee Creek	Е	E	1057		
	Amphibians					
Wallum Froglet	Crinia tinnula	V	-	5		
Giant Barred Frog	Mixophyes iteratus	Е	E	18		
	Reptiles					
Loggerhead Turtle	Caretta caretta	Е	E	1		
Green Turtle	Chelonia mydas	V	V	1		
Hawksbill Turtle	Eretmochelys imbricata	Р	V	1		
Stephens' Banded Snake	Hoplocephalus stephensii	V	-	2		
Birds						
Wompoo Fruit-Dove	Ptilinopus magnificus	V	-	8		
White-throated Needletail	Hirundapus caudacutus	-	V,C,J,K	4		
Black-necked Stork	Ephippiorhynchus asiaticus	E	-	7		
White-bellied Sea-Eagle	Haliaeetus leucogaster	V	-	1		
Square-tailed Kite	Lophoictinia isura	V	-	2		





Common Name	Scientific Name	BC Act	EPBC Act	Number of Records
Brolga	Grus rubicunda	V	-	1
South-eastern Glossy Black- Cockatoo	Calyptorhynchus lathami lathami	V	V	40
Little Lorikeet	Glossopsitta pusilla	V	-	3
Powerful Owl	Ninox strenua	V	-	8
Masked Owl	Tyto novaehollandiae	V	-	4
Sooty Owl	Tyto tenebricosa	V	-	5
Regent Honeyeater	Anthochaera phrygia	CE	CE	1
Varied Sittella	Daphoenositta chrysoptera	V	-	1
	Mammals		<b>'</b>	1
Spotted-tailed Quoll	Dasyurus maculatus	V	Е	4
Brush-tailed Phascogale	Phascogale tapoatafa	V	-	1
Koala	Phascolarctos cinereus	Е	Е	7
Yellow-bellied Glider	Petaurus australis	V	V	20
Squirrel Glider	Petaurus norfolcensis	V	-	13
Southern Greater Glider	Petauroides volans	Е	Е	9
Grey-headed Flying-fox	Pteropus poliocephalus	V	V	48
Eastern Coastal Free-tailed Bat	Micronomus norfolkensis	V	-	1
Hoary Wattled Bat	Chalinolobus nigrogriseus	V	-	5
Eastern False Pipistrelle	Falsistrellus tasmaniensis	V	-	1
Southern Myotis	Myotis macropus	V	-	4
Little Bent-winged Bat	Miniopterus australis	V	-	15
Large Bent-winged Bat	Miniopterus orianae oceanensis	V	-	1
Key: Critically Endangered (CE	;), Endangered (E), Vulnerable (\	/), Migratory (N	<u></u> 1).	



# APPENDIX B – PROTECTED MATTERS SEARCH TOOL RESULTS



## **Appendix C – Aboriginal Heritage Information Management System Search Results**





Your Ref/PO Number : Taylors Bridge Client Service ID : 859074

Date: 30 January 2024

Wolf Peak Pty Ltd - Sydney

Level 10 189 Kent Street Sydney New South Wales 2000 Attention: David Stubbs

Email: dstubbs@wolfpeak.com.au

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lat, Long From: -30.0342, 153.1197 - Lat, Long To: -30.0296, 153.1274, conducted by David Stubbs on 30 January 2024.

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:

0 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

## **Appendix D – Construction and Maintenance Noise Estimator Tool Results**



## Corrs Harbou

## Transport for NSW

#### **Distanced Based Assessment (Noisiest Plant)**

Please pick from drop-down list in orange cells

Noise area	a category	R0
RBL or LA90	Day	30
Background level	Evening	30
(dB(A))	Night	30
	Day	40
LAeq(15minute) Noise	Day (OOHW)	35
Mangement Level (dB(A))	Evening	35
	Night	35
Noisie	st plant	Bored Piling Rig
Is there line of s	ight to receiver?	Vac

#### Steps for Assessment

1. Schedule noisy works to occur in standard hours where possible or before 11pm and implement Standard Meas

- 2. Select the representative noise area category. The worksheet titled 'Representative Noise Environ.' provides a nu
- 3. Select the noisiest plant. If not found in drop-down list, refer to 'Source List' and select a representative plant wit
- 4. Is there line of sight to receiver? Select the appropriate scenario from the drop down list .

Identify and implement standard mitigation measures where feasible and reasonable. Include any shielding implem receiver drop-down list. Solid barriers can be in the form of road cutting, timber lapped and capped fence, shipping of houses or a sound barrier specifically designed to mitigate construction noise. Please note that vegetation and tr solid barrier.

- 5. Determine if there are any receivers (both residential and non-residential receivers) within the affected distance
- (a) there are many affected receivers and the impact duration at any one receiver is more than 3 weeks; or (b) there are a few affected receivers and the impact duration at any one receiver is more than 6 weeks.

Note that consideration need to be given to the construction staging plan when determining impact duration.

- 7. Identify if there are any receivers within the additional mitigation measures distances and identify feasible and  $\boldsymbol{\kappa}$
- 8. Where night works are involved, identify sleep disturbance affected distance.
- 9. Document the outcomes of these steps.

(Note that suitable noise management levels for other noise-sensitive businesses not identified in the Construction and Maritime noise speciliast for more information)

#### Residential receiver

								LAec
				5 to 10 dB	3(A)		10 to 20 dB(A)	
				Noticeab	le		Clearly audible	
		Affected distance (m)	Measures	Within distance (m)	Mitigation level (dB(A))	Measures	Within distance (m)	Mitigation level (dB(A))
Undeveloped green	Day	525						
fields, rural areas	Day (OOHW)	760				N, R1, DR	525	40
with isolated	Evening	760				N, R1, DR	525	40
dwellings	Night	760	N 760 35		N, R2, DR	525	40	
uweiings	Highly Affected	25						
	Day	690						
Developed	Day (OOHW)	1010				N, R1, DR	690	40
settlements (urban	Evening	1010		_		N, R1, DR	690	40
and suburban)	Night	1010	N	1010	35	N, R2, DR	690	40
	Highly Affected	30			•			
	Day	960				·		<u> </u>
Propagation across	Day (OOHW)	1420				N, R1, DR	960	40
a valley / over	Evening	1420	1			N, R1, DR	960	40
water	Night	1420	N	1420	35	N, R2, DR	960	40
	Highly Affected	35						

Non-residential receiver			,			
Undeveloped green fields, rural areas with isolated dwellings						LAeq(15minu
	Standard hours				<10 dB(A)	
	Period	NML	Affected distance (m)	Measure	Within distance (m)	Mitigation level (dB(A))
Classroom at schools and other educational institutions	Day	55	175			
Hospital wards and operating theatres	Day	65	75			
Place of worship	Day	55	175			
Active recreation	Day	65	75			
Passive recreation	Day	60	120			
Industrial premise	Day	75	25			
Offices, retail outlets	Day	70	45			

		OOHW	1	< 5 dB(A)		
	Period	NML	Affected distance (m)	Measure	Within distance (m)	Mitigation level (dB(A))
Hospital wards and operating theatres	Evening	65	75			
riospital wards and operating theatres	Night	65	75	N	75	65
Place of worship	Evening	55	175			
Flace of worship	Night	55	175	N	175	55
Active recreation	Evening	65	75			
Passive recreation	Evening	60	120			
Industrial premise	Evening	75	25			
ilidustilai pietilise	Night	75	25	N	25	75
Offices, retail outlets	Evening	70	45			
Offices, retail outlets	Night	70	45	N	45	70

Non-residential receiver			_			
Developed settlements (urban and suburban)						LAeq(15minu
		Standard hours			<10 dB(A)	
	Period	NML	Affected distance (m)	Measure	Within distance (m)	Mitigation level (dB(A))
Classroom at schools and other educational institutions	Day	5.5			(111)	(ub(A))
	Day	55	200			
Hospital wards and operating theatres	Day	65	85			
Place of worship	Day	55	200			
Active recreation	Day	65	85			
Passive recreation	Day	60	135			
Industrial premise	Day	75	30			
Offices, retail outlets	Day	70	50			

			İ			
		оонw			< 5 dB(A)	
	Period	NML	Affected distance (m)	Measure	Within distance (m)	Mitigation level (dB(A))
He switch wards and an evaluation the stress	Evening	65	85		()	((,))
Hospital wards and operating theatres	Night	65	85	N	85	65
Place of worship	Evening	55	200		•	
Place of worship	Night	55	200	N	200	55

Active recreation	Evening	65	85			
Passive recreation	Evening	60	135			
Industrial premise	Evening	75	30			
industrial premise	Night	75	30	N	30	75
Offices, retail outlets	Evening	70	50			<u> </u>
Offices, retail outlets	Night	70	50	N	50	70

Non-residential receiver						
Propagation across a valley / over water						LAeq(15minu
	Standard hours				<10 dB(A)	
	Period	NML	Affected distance	Measure	Within distance	Mitigation level
			(m)		(m)	(dB(A))
Classroom at schools and other educational institutions	Day	55	255			
Hospital wards and operating theatres	Day	65	95			
Place of worship	Day	55	255			
Active recreation	Day	65	95			
Passive recreation	Day	60	160			
Industrial premise	Day	75	35			
Offices, retail outlets	Day	70	60			

		оонw	1		< 5 dB(A)	
	Period	NML	Affected distance (m)	Measure	Within distance (m)	Mitigation level (dB(A))
Hospital wards and operating theatres	Evening	65	95			
riospital wards and operating theatres	Night	65	95	N	95	65
Place of worship		55	255			
Place of worship	Night	55	255	N	255	55
Active recreation	Evening	65	95			
Passive recreation		60	160			
Industrial premise	Evening	75	35			
ilidustriai premise	Night	75	35	N	35	75
Offices retail outlets	Evening	70	60			
Offices, retail outlets		70	60	N	60	70

ures.

umber of examples to help select the noise area category.

th equivalent sound power level.

nented as part of the standard mitigation measures by changing the selection in the 'Is there line of sightoiaw to g container, site office, etc. Substantial solid barriers are barriers greater than 5 metres in height or multiple rows rees are not considered to be a form of solid barrier and any gaps would compromise the acoustic integrity of the

for each relevant time period . Consider background LA90 noise measurements to check assumption in Step #2 if:

easonable measures at each receiver.

and Maintenance Noise Estimator should be investigated on a project-by-project basis. Please contact a Roads

Abbreviation	Measure
N	Notification
SN	Specific notifications
PC	Phone calls
IB	Individual briefings
RO	Respite offer
R1	Respite period 1
R2	Respite period 2
DR	Duration respite
AA	Alternative accommodation
V	Verification

Note that spot check verification of noise levels and individual briefings are not required for projects with less than 3 weeks impact duration

15minute) noise level above bac									
	to 30 dB(A)			· 30 dB(A)		LAeq(15minute) 75 dB(A) or greater (Highly affected)			
Mode	rately intrusive		Hig	nly intrusive					
Measures	Within distance (m)	Mitigation level (dB(A))	Measures	Within distance (m)	Mitigation level (dB(A))	Measures	Within distance (m)	Mitigation level (dB(A))	
N	250	50	N	120	60	N, PC, RO	25	75	
N, R1, DR	250	50	N, R1, DR, PC, SN	120	60	N, PC, RO	25	75	
N, R1, DR	250	50	N, R1, DR, PC, SN	120	60	N, PC, RO	25	75	
N, PC, SN, R2, DR	250	50	AA, N, PC, SN, R2, DR	120	60	N, PC, RO	25	75	
						N, PC, RO	25	75	
N	305	50	N	135	60	N, PC, RO	30	75	
N, R1, DR	305	50	N, R1, DR, PC, SN	135	60	N, PC, RO	30	75	
N, R1, DR	305	50	N, R1, DR, PC, SN	135	60	N, PC, RO	30	75	
N, PC, SN, R2, DR	305	50	AA, N, PC, SN, R2, DR	135	60	N, PC, RO	30	75	
						N, PC, RO	30	75	
N	405	50	N	160	60	N, PC, RO	35	75	
N, R1, DR	405	50	N, R1, DR, PC, SN	160	60	N, PC, RO	35	75	
N, R1, DR	405	50	N, R1, DR, PC, SN	160	60	N, PC, RO	35	75	
N, PC, SN, R2, DR	405	50	AA, N, PC, SN, R2, DR	160	60	N, PC, RO	35	75	
	•	•		•	•	N, PC, RO	35	75	

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ne) noise level above NML			LAeq(15minute) 75 dB(A) or greater (Highly affected)					
10 1	10 to 20 dB(A)			LACTION TO COLAT OF Greater (ringing affected)				
Measure	leasure Within distance Mitigation le		sure   M		Measure	Within distance (m)	Mitigation level (dB(A))	
N	75	65	N, PC, RO	25	75			
			N, PC, RO	25	75			
N	75	65	N, PC, RO	25	75			
			N, PC, RO	25	75			
N	45	70	N, PC, RO	25	75			
	·		N, PC, RO	25	75			
			N, PC, RO	25	75			

	LAeq(15minute) noise level above NML										
5 to	15 dB(A)		15 1	to 25 dB(A)		> 25 dB(A)					
Measure	Within distance	Mitigation level (dB(A))	Measure	Within distance (m)	Mitigation level (dB(A))	Measure	Within distance (m)	Mitigation level (dB(A))			
N, R1, DR	45	70	N, R1, DR	14	80	N, R1, DR, PC, SN	4	90			
N, R2, NR	45	70	N, PC, SN, R2, DR	14	80	AA, N, PC, SN, R2, DR	4	90			
N, R1, DR	120	60	N, R1, DR	45	70	N, R1, DR, PC, SN	14	80			
N, R2, NR	120	60	N, PC, SN, R2, DR	45	70	AA, N, PC, SN, R2, DR	14	80			
N, R1, DR	45	70	N, R1, DR	14	80	N, R1, DR, PC, SN	4	90			
N, R1, DR	75	65	N, R1, DR	25	75	N, R1, DR, PC, SN	8	85			
N, R1, DR	14	80	N, R1, DR	4	90	N, R1, DR, PC, SN	1	100			
N, R2, NR	14	80	N, PC, SN, R2, DR	4	90	AA, N, PC, SN, R2, DR	1	100			
N, R1, DR	25	75	N, R1, DR	8	85	N, R1, DR, PC, SN	3	95			
N, R2, NR	25	75	N, PC, SN, R2, DR	8	85	AA, N, PC, SN, R2, DR	3	95			

ne) noise level above NML			LAeq(15minute) 75 dB(A) or greater (Highly affected)				
10	to 20 dB(A)		LAeq(15IIIIIIute) 75 dB	(A) or greater (Highly	anecieuj		
Measure	Within distance Mitigation level (m) (dB(A))		Measure	Within distance (m)	Mitigation level (dB(A))		
N	85	65	N, PC, RO	30	75		
			N, PC, RO	30	75		
N	85	65	N, PC, RO	30	75		
			N, PC, RO	30	75		
N	50	70	N, PC, RO	30	75		
_			N, PC, RO	30	75		
			N, PC, RO	30	75		

LAeq(15minute) noise level above NML										
5 to 15 dB(A)			15 1	o 25 dB(A)		> 25 dB(A)				
Measure	Within distance	Mitigation level	Measure	Within distance	Mitigation level	Measure	Within distance	Mitigation level		
Measure	(m)	(dB(A))	Weasure	(m)	(dB(A))	Wedsure	(m)	(dB(A))		
N, R1, DR	50	70	N, R1, DR	17	80	N, R1, DR, PC, SN	5	90		
N, R2, NR	50	70	N, PC, SN, R2, DR	17	80	AA, N, PC, SN, R2, DR	5	90		
N, R1, DR	135	60	N, R1, DR	50	70	N, R1, DR, PC, SN	17	80		
N, R2, NR	135	60	N, PC, SN, R2, DR	50	70	AA, N, PC, SN, R2, DR	17	80		

N, R1, DR	50	70	N, R1, DR	17	80	N, R1, DR, PC, SN	5	90
N, R1, DR	85	65	N, R1, DR	30	75	N, R1, DR, PC, SN	9	85
N, R1, DR	17	80	N, R1, DR	5	90	N, R1, DR, PC, SN	2	100
N, R2, NR	17	80	N, PC, SN, R2, DR	5	90	AA, N, PC, SN, R2, DR	2	100
N, R1, DR	30	75	N, R1, DR	9	85	N, R1, DR, PC, SN	3	95
N, R2, NR	30	75	N, PC, SN, R2, DR	9	85	AA, N, PC, SN, R2, DR	3	95

noise level above NML			LAeq(15minute) 75 dB(A) or greater (Highly affected)					
	10 to 20 dB(A)		LAeq(15iiiiiide) 75 db(A) or greater (nighty affected)					
Measure	Measure Within distance Mitigation le (m) (dB(A))		Measure	Within distance (m)	Mitigation level (dB(A))			
N	95	65	N, PC, RO	35	75			
			N, PC, RO	35	75			
N	95	65	N, PC, RO	35	75			
			N, PC, RO	35	75			
N	60	70	N, PC, RO	35	75			
			N, PC, RO	35	75			
			N, PC, RO	35	75			

	LAeq(15minute) noise level above NML										
5 to	5 to 15 dB(A)			to 25 dB(A)		>	25 dB(A)				
Measure	Within distance (m)	Mitigation level (dB(A))	Measure	Within distance (m)	Mitigation level (dB(A))	Measure	Within distance (m)	Mitigation level (dB(A))			
N, R1, DR	60	70	N, R1, DR	20	80	N, R1, DR, PC, SN	5	90			
N, R2, NR	60	70	N, PC, SN, R2, DR	20	80	AA, N, PC, SN, R2, DR	5	90			
N, R1, DR	160	60	N, R1, DR	60	70	N, R1, DR, PC, SN	20	80			
N, R2, NR	160	60	N, PC, SN, R2, DR	60	70	AA, N, PC, SN, R2, DR	20	80			
N, R1, DR	60	70	N, R1, DR	20	80	N, R1, DR, PC, SN	5	90			
N, R1, DR	95	65	N, R1, DR	35	75	N, R1, DR, PC, SN	15	85			
N, R1, DR	20	80	N, R1, DR	5	90	N, R1, DR, PC, SN	2	100			
N, R2, NR	20	80	N, PC, SN, R2, DR	5	90	AA, N, PC, SN, R2, DR	2	100			
N, R1, DR	35	75	N, R1, DR	15	85	N, R1, DR, PC, SN	3	95			
N, R2, NR	35	75	N, PC, SN, R2, DR	15	85	AA, N, PC, SN, R2, DR	3	95			